



Tesoro Viejo Specific Plan

Revised Environmental Impact Report

Volume I:
Draft Revised EIR

SCH No. 2006111123

Prepared for:
Madera County Planning Department
2037 West Cleveland Avenue
Madera, California 93637

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12301 Wilshire Boulevard, Suite 430
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June 29, 2012



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Revised EIR Overview and Summary of Revisions [New]

The Madera County Planning Department is circulating this Revised Environmental Impact Report (Revised EIR) to respond to two writs of mandate issued by the Madera County Superior Court in 2011 with respect to the 2008 Tesoro Viejo Specific Plan Final EIR. This overview describes the required changes and analysis, including a summary of changes to the 2008 Final EIR contained in this Revised EIR; the format of the Revised EIR; and the environmental process for review of the Revised EIR. The County has independently reviewed and analyzed all documents within this Revised EIR in accordance with Public Resources Code Section 21082.1(c)(1).

This Revised EIR is being circulated to respond to writs of mandate issued by the Madera County Superior Court requiring revisions to the previously certified Final EIR with respect to the Project, including requirements by decisions of the Court of Appeal for the Fifth Appellate District as part of two California Environmental Quality Act (CEQA) challenges: one filed by the Chawanakee Unified School District (CUSD) and the other filed jointly by the Madera Oversight Coalition (MOC), Revive the San Joaquin, and the Dumna Tribal Council.

On June 21, 2011, in the CUSD case, the Court of Appeal for the Fifth Appellate District ordered the Madera County Superior Court to grant the petition for Writ of Mandate, in part, to require the County to (1) set aside the certification of the 2008 Final EIR, (2) set aside the approvals of the Project, and (3) take the action necessary to bring the EIR into compliance with CEQA regarding its analysis of traffic from private and school bus trips to existing schools outside the Project Area pending the construction of schools within the Project Area and the potential environmental effects from the construction of additions, either temporary or permanent, to existing schools on the environment outside the school grounds prior to the construction of schools in the Project Area. Accordingly, the Madera County Superior Court issued a writ to such effect.

On September 13, 2011, in the MOC, Revive the San Joaquin, and the Dumna Tribal Council case, the Court of Appeal for the Fifth Appellate District ordered the Madera County Superior Court to grant the petition for Writ of Mandate in part to require the County to (1) set aside the certification of the 2008 Final EIR, (2) set aside the Approvals of the Project, and (3) take the action necessary to bring the EIR into compliance with CEQA regarding (a) mitigation measures relating to archaeological sites, particularly regarding the potential feasibility of preservation in place; (b) clarifying impacts to that part of the environment consisting of any traditional cultural properties or places determined to be on the Project site; (c) clarifying and modifying the EIR's analysis of traffic impacts, including a clear identification of the baseline used in analyzing the Project's impacts and requiring an update in the baseline year from 2007; (d) addressing legal uncertainties involved in the likely availability of the water supply stated to be relied upon to serve the Project and discussing alternatives to that source in the event it were not to be available and the impacts of such alternatives; and (e) clarifying the basis for forecasts of cumulative

growth underlying the cumulative impact analysis. Accordingly, the Madera County Superior Court issued a writ to such effect.

In summary, the areas of further technical analysis ordered by the Court directly involve (in the order presented in this Revised EIR) only the sections or subsections on cultural resources, public services and recreation (schools), transportation/traffic, and utilities and service systems (water supply). However, to address all indirectly associated impacts, the following sections (in the order presented in this Revised EIR) also contain some substantive revisions: agricultural resources, air quality, biological resources, hydrology and water quality, noise, and energy and climate change. No substantive revisions are included for the following environmental topics: aesthetics; geology, soils, and mineral resources; hazards and hazardous materials; land use and planning; and population and housing.

The information and analyses provided in the 2008 Final EIR for the environmental topics that the court did not address have been reviewed to evaluate whether there is new information (i.e., changes to the Project or changes to the circumstances under which the Project is being undertaken) that would give rise to new significant or substantially more significant environmental impacts or whether there are new Project alternatives or mitigation measures considerably different from those previously analyzed that would clearly lessen any significant impacts of the Project. This analysis is provided in Appendix M (Assessment of the Need for any Change in the Environmental Analysis for Resources Other than Court-Ordered Areas of Further Analysis) of this Revised EIR. With respect to the environmental topics that the court did not address, the analysis concludes that there have been no significant changes to the Project and no new information causing or disclosing an increase in the severity of a significant impact or a new significant impact; there have been no changes in the regulatory environment or baseline conditions that would require the analysis contained in the 2008 Final EIR to be revised; and there are no new mitigation measures or alternatives that would clearly lessen the significant environmental impacts of the Project. Nevertheless, minor revisions are made throughout to reflect non-significant changes in the Project and the environmental setting.

SUMMARY OF REVISIONS TO THE 2008 FINAL EIR

To comply with the writs, the EIR has been revised to provide analysis regarding alternative sources of water supplies; existing plus project traffic and interim year traffic, including an updated 2011 traffic baseline; the potential presence or absence of traditional cultural properties; archaeological mitigation measures; and the interim accommodation of students at off-site schools and associated impacts until on-site schools are available. The following summary describes the impacts and mitigation measures that have been revised in this EIR in direct or indirect response to the court orders, including cross-references to specific impact discussions in the Revised EIR where a more detailed analysis is provided.

1. Discussion of Legal Uncertainty with Respect to Reliance on Water from Holding Contract No. 7 and Potential Alternative Water Supplies and Environmental Impacts of their Use

This Revised EIR discusses the unresolved legal issues that create uncertainty regarding reliance on Holding Contract No. 7 as a reliable source of water. It also identifies three alternative sources of supply, which, in various combinations, would provide a reliable supply for the Project. These sources include (a) on-site groundwater; (b) off-site groundwater at Cottonwood Creek Ranch

(CWCR) under the control of the Project Applicant, which would require the construction of an 8-mile pipeline within the Avenue 15 right of way from the ranch to the Project site; and (c) water sold by the Madera Irrigation District (MID) to the Project Applicant from its pre-1914 appropriative rights backed up by storage in its planned water bank pursuant to a nonbinding term sheet already executed by MID and the Project Applicant. These alternative sources of water are determined to be firm and reliable sources. This Revised EIR concludes that alternative supplies have been identified without new significant and unavoidable environmental effects; no additional mitigation measures are required. The purchase of MID water, which depends on final MID approval, would eliminate the need for water from CWRC and would have no potentially significant environmental impacts. Alternative water supplies are addressed and analyzed in Impact 4.14-1 (utilities and service systems, water supply).

The use of on-site and off-site groundwater has the potential for significant adverse environmental effects on groundwater depletion, but the Project proposes a combination of intentional recharge (both on-site and off-site) and fallowing of cropland at CWCR to the extent that intentional recharge cannot offset withdrawals. Impacts related to groundwater depletion would thereby be mitigated to a less-than-significant level, as further discussed in Impact 4.8-4 (hydrology and water quality).

Construction of the pipeline between CWCR and the Project Site and construction of on-site recharge basins to ensure that groundwater resources are not depleted, has the potential for significant construction-related impacts on biological resources, noise affecting nearby residences, air quality resulting from excavation and use of equipment, and temporary disruption of traffic during construction. Required mitigation measures would reduce all such impacts to a less-than-significant level. Impacts associated with construction of the pipeline and the recharge basins are addressed in Impact 4.3-2 (air quality); Impacts 4.4-1 4.4-4, 4.4-4(a), 4.4-5, 4.4-7, 4.4-8(a), and 4.4-11 (biological resources); Analytic Method (cultural resources); and Impact 4.13-9 (transportation/traffic).

2. Revised Analysis of Mitigation Measures Related to Archaeological Sites and Revised Discussion of Impacts on Traditional Cultural Properties or Places

The court ordered reconsideration of mitigation measures to address potentially significant adverse impacts on cultural resources, particularly the feasibility of preservation in place of identified resources. This order resulted in a more extensive reevaluation of the presence of historical resources, including traditional cultural places or properties of concern to Native Americans. The revised analysis, supported by communications from the Dumna Wo-Wah Tribal Government, concludes that no traditional cultural places or properties exist on the Project Site, thereby eliminating the possibility of any adverse environmental impact with respect to them. This is addressed in a footnote to deleted Impact 4.5-1 (cultural resources).

The revised analysis, which was conducted by an independent peer review panel, also concludes that two of the four previously identified archaeological sites do not qualify as historical resources based on further analysis of the sites and data previously collected but not analyzed. In addition, two of the other sites were determined to be much smaller than previously stated. The two, smaller sites are addressed in Impact 4.5-2 (site CA-MAD-2394, Locus B, cultural resources) and Impact 4.5-3 (site CA-MAD 295/827, Locus A, cultural resources).

By reason of the slight modifications to the Project to retain the two sites identified as historical resources in permanent open space, in whole or in part, preservation in place is identified as the sole strategy appropriate for one (the reduced CAD 2394, Locus B) and a component of a

mitigation strategy for the other, which would also require data recovery (reduced CAD 295/827, Locus A). The infeasibility of preservation in place alone for this second site results from the fact that existing conditions involving roadways and both underground and above-ground utilities (i.e., water lines, pumping stations, and power and telephone lines) and associated easements not under the control of the Project Applicant and subject to continuing activity unrelated to the Project could disturb the resource as it has in the past. This Revised EIR concludes that the use of preservation in place, in combination with data recovery for CA-MAD-295/827, and associated mitigation measures for protection, would mitigate impacts of the Project to a less-than-significant level.

3. Revised Traffic Analysis to Update and Clarify Baseline Conditions; Address Existing Plus Project and Interim Year Traffic Scenarios; and Identify Increases in Traffic Near and On the Way to Existing Schools

A new traffic analysis establishes 2011 existing conditions as ordered by the court and analyzes the impact of the Project alone (without cumulative development) for interim years of 2015 and 2020 and at buildout in 2025 (i.e., existing plus project analysis). The results indicate that, apart from cumulative development, the Project alone could necessitate certain required traffic improvements to be accelerated in interim years. With one exception, all such improvements were previously shown to be required at Project buildout with cumulative development involving SR-41 segments and intersections with County roads. These improvements would mitigate impacts to a less-than-significant level for all intersections with the exception of the impact shown at SR-41/Road 204 in the Existing 2011 Plus Project in 2025 scenario. Less-than-significant intersection impacts associated with the existing plus project traffic scenarios are addressed in Impact 4.13-4 (transportation/traffic).

One significant and unavoidable project-related impact is identified at the intersection of SR-41/Road 204, which would operate at an unacceptable LOS (below LOS D) during the Existing 2011 Plus Project in 2025 scenario in the absence of cumulative development. Implementation of mitigation measures would reduce this impact, but not to a less-than-significant level. For this intersection, there is no additional, feasible mitigation measure(s) available to reduce potentially significant impacts during the Existing 2011 Plus Project in 2025 scenario. The unmitigable impact at the SR-41/Road 204 intersection is caused by the large amount of Proposed Project traffic distributed to this location as a result of the currently non-existent connections at Avenue 13, Avenue 12, and Rio Mesa Boulevard to the east of SR-41. Therefore, once these connections are constructed with the development of cumulative projects, there would be a decrease in traffic volumes along several sections of SR-41 and its intersections because traffic generated by and attracted to the cumulative development is provided with more direct routes (Avenue 12, Avenue 13, and Rio Mesa Boulevard) and is not diverted to Road 204. Therefore, under cumulative buildout conditions (in 2025), the impact at the SR-41/Road 204 intersection would be considered less than significant. This is addressed in Impact 4.13-5 (transportation/traffic).

During the Interim Years 2015 and 2020 Cumulative Plus Project scenarios, nine intersections would require lane improvements (e.g., additional turn lanes) so that each intersection could operate at an acceptable LOS with the addition of Project traffic. However, only eight of these intersections can be mitigated to a less-than-significant level during both interim scenario years (2015 and 2020). The ninth intersection—SR-41/Avenue 12 for the Interim Year 2020 Cumulative Plus Project scenario—can be mitigated, but impacts would remain significant and unavoidable.

With respect to the intersection of SR-41/Avenue 12, there is no additional, feasible mitigation measure(s) available to reduce potentially significant impacts during the Existing Interim Year 2020 Cumulative Plus Project scenario. Achieving an acceptable level of service at the SR-41/Avenue 12 intersection would require construction of a full interchange at Avenue 12 or other mitigation measures that are determined to be infeasible at this time due to cost. Construction of the interchange at Avenue 12 would require funding by several sources, with a large portion of the funding coming from cumulative developments planned in the Rio Mesa area. Such commitments have yet to be made. The unmitigable impact at the SR-41/Avenue 12 intersection is a cumulative impact that is not specifically triggered by traffic generated by the Proposed Project. This is addressed in Impact 4.13-7 (transportation/traffic).

Operation of the Proposed Project would result in all roadway segments operating at an acceptable LOS (i.e., LOS D or better) under the Existing 2011 Plus Project (2015, 2020, and 2025) scenarios and Interim Year (2015 and 2020) Cumulative Plus Project scenarios. However, four roadway segments would require lane improvements (e.g., lane widening) and a greater amount of right-of-way to accommodate the lane improvements so that the roadway segment could operate at an acceptable LOS with the addition of Project traffic. This is addressed in Impact 4.13-8 (transportation/traffic).

Noise and air quality impacts associated with the existing plus project and interim year traffic scenarios are addressed in Impact 4.10-5 (noise) and Impact 4.10-5(a) (noise) and Impact 4.3-8 (air quality).

Interim school-related traffic generated by the Proposed Project (associated with trips between the Project Site and Minarets High School) would impact area intersections and roadways during the Interim Year 2015 and 2020 Cumulative Plus Project scenarios. However, feasible mitigation has been identified to reduce this impact to a less-than-significant level. The operational impacts associated with interim school-related trips is addressed in Impact 4.3-3 (air quality) and Impact 4.3-8 (air quality); Impact 4.10-5(b) (noise); Impact 4.13-10 (transportation/traffic); and in Analytic Method (energy and climate change).

As part of the analysis of interim school-related trips, this Revised EIR includes an enrollment and capacity analysis to determine whether adequate capacity exists at Minarets High School to accommodate Tesoro Viejo students and other students within the CUSD enrollment area before 2021 (when the on-site Tesoro Viejo high school is assumed to be open). The analysis concludes that Minarets High School would not have adequate capacity to accommodate students from the Proposed Project (in years 2018, 2019, and 2020), and, therefore, temporary classrooms would have to be added. It is anticipated that five to six temporary classrooms would be developed per year to accommodate the high-school aged students from both within and outside of the Rio Mesa for a total of about 15 portable classrooms by 2020. The capacity and enrollment analysis is included in Impact 4.12-3(a) (public services), and the analysis of construction-related impacts of the classrooms is included in Impact 4.3-2 (air quality); Impact 4.10-1 (noise); and in Analytic Method (energy and climate change).

The impacts of the Project and cumulative development in 2025, under buildout conditions, including any required mitigation measures, remain the same as shown in the 2008 Final EIR.

4. Clarification of Basis for Cumulative Growth Forecasts

In response to the court order requiring clarifying information supporting the basis for the cumulative growth forecasts contained in the 2008 Final EIR, the Madera County Transportation

Commission (MCTC) prepared a memorandum describing the basis of cumulative growth forecasts used for traffic and other analyses contained in the 2008 Final EIR. A detailed discussion of the basis for the forecasted 30 percent buildout in the Rio Mesa area by 2025 is included in Appendix H2 of this document and is also summarized in Section 3 (Project Description, Cumulative Development Scenario) and Section 4.13 (Transportation/Traffic). The cumulative population and employment forecasts used in the MCTC Traffic Model are based on Department of Finance (DOF) population projections for Madera County and neighboring counties, supplemented by historical growth patterns and local agency plans and judgments to forecast future housing and employment for subareas within the counties.

FORMAT OF REVISED EIR

When a court sets aside an agency's certification of an EIR and orders further environmental analysis, it allows the agency to determine the appropriate means for revising the EIR and circulating it for comment. In this case, Madera County has elected to circulate the entire Revised EIR in draft, consisting of the 2008 Final EIR (Volume I: Draft EIR with text changes), as updated to include the additional information requested by the court. The Revised EIR¹ also includes appendices from the 2008 Final EIR and the additional appendices prepared pursuant to the court orders as Volumes II through IV. Although the court decisions only require revisions to specific chapters, the County determined that it would be clearer for the public and public agencies to be able to see such revisions in the context of the entire document. The remaining volume of the 2008 Final EIR (Volume IV)² includes Comments and Responses to Comments on the 2008 Draft EIR. It is not being circulated as part of this Revised EIR, because it is no longer relevant; however, it will be included as part of the 2012 Final Revised EIR that will be reviewed and considered by the Board of Supervisors, as will new comments and responses related to the revisions in this Revised EIR. New and revised text in the Revised EIR is provided in double underline/~~strikeout~~ format, with double underline indicating new text and ~~strikeout~~ indicating deleted text. Comments are solicited on the revisions.

The following new or revised appendices have been provided:³

- Appendix A (Amended Tesoro Viejo Specific Plan [May 2012])
- Appendix A1 (Tesoro Viejo Pipeline Plans for an Alternative Water Supply from CWCR)
- Appendix B1 (2012 Notice of Preparation (NOP); Affirmation of Receipt of the 2012 NOP by the State Clearinghouse; 2012 NOP Comment Letters; 2012 NOP Scoping Meeting Sign-In Sheet; 2012 Scoping Meeting Presentation by Madera County Staff; and List of Public Agencies, Organizations, and Individuals Consulted in Preparing the Draft Revised EIR)
- Appendix C (Air Quality Model Output): additional air quality modeling output for the Existing Plus Project, Interim Years, and school-related traffic scenarios has been added
- Appendix D3 (Biological Evaluation Avenue 15 Pipeline Project Madera County)

¹ While the term "Draft Revised EIR" is used here to refer the environmental process relative to the draft document, the remainder of the document uses Revised EIR as a more general term.

² With the addition of new text and appendices, Volume IV would now be Volume V.

³ Because this Revised EIR does not necessitate an update to every appendix, the following list of new appendices does not go from "A" through "M," inclusively. A complete list of appendices can be found in the Table of Contents.

- Appendix G (Noise Model Output): additional noise modeling output for the Existing Plus Project, Interim Years, and school-related traffic scenarios has been added
- Appendix H1 (Tesoro Viejo Revised Traffic Impact Analysis Report, including Basis for Cumulative Impact Forecasts)
- Appendix H2 (MCTC Traffic Memorandum Re Basis for Cumulative 2025 Forecast in the MCTC Rio Mesa Travel Forecasting Model)
- Appendix H3 (Madera County 2009 Road Impact Fee Program Update)
- Appendix I1 (Supplemental Infrastructure Master Plan)
- Appendix I2 (Supplement to Supplemental Infrastructure Master Plan)
- Appendix J1 (Certified Tesoro Viejo Supplemental Water Supply Assessment and Supplement to Supplemental Water Supply Assessment)
- Appendix J2 (Executed Resolutions 12-01 and 12-02 Approving the SWSA and SSWSA, and MID Term Sheet)
- Appendix J3 (Legal Memorandum on Issues Involved in Uncertainty of Reliance on Holding Contract Water)
- Appendix L1 (Dumna Tribal Council Letter to County)
- Appendix L2 (Comprehensive Settlement Agreement between the Dumna Tribal Council, the County of Madera, and Tesoro Viejo, Inc.)
- Appendix M (Assessment of the Need for any Change in the Environmental Analysis Other than as Required by the Court Orders)

Throughout this document, the term “this EIR,” when used, is intended to mean the Revised EIR.

ENVIRONMENTAL PROCESS

Based on the environmental information provided as part of the Project application, which was submitted to Madera County in 2006, the County determined that an EIR should be prepared to analyze the potential impacts associated with implementation of the Proposed Project. The County prepared and circulated a Notice of Preparation (NOP) for public review from November 27, 2006, to December 26, 2006, to solicit comments from responsible agencies and the general public on issues that should be addressed in the EIR. The County also held a scoping meeting on December 14, 2006, for the purpose of further soliciting public and agency input regarding the scope and content of the EIR.

The Draft EIR was circulated for review and comment by the public and other interested parties, agencies, and organizations for a 45-day public comment period that began on February 14, 2008, and ended on March 31, 2008. The 2008 Final EIR was completed in September 2008, providing detailed responses to comment letters submitted to the County during the public review period (and beyond), as well as the comment letters themselves, along with changes to the text of the Draft EIR reflecting responses to comments and other corrections.

After Planning Commission and Board of Supervisor hearings, the County’s Board approved the Project and certified the EIR in December 2008. Subsequent to certification of the 2008 Final EIR in 2011, decisions by Madera County Superior Court and the Court of Appeal for the Fifth Appellate District required additional analysis to be conducted with respect to traffic, cultural resources, utilities (water

supply and impacts of supply alternatives), and public services (potential impacts on existing school expansion). The new analysis is contained in this Revised EIR.

To indicate that a Revised EIR would be prepared, the County prepared and circulated an NOP for public review from March 12, 2012, to April 10, 2012, to solicit comments from responsible agencies and the general public on issues that should be addressed in the Revised EIR. The County also held a scoping meeting on March 29, 2012, for the purpose of further soliciting public and agency input regarding the scope and content of the Revised EIR.

This Draft Revised EIR is being circulated for review and comment by the public and other interested parties, agencies, and organizations for a 45-day public comment period, which begins on June 29, 2012, and ends on August 13, 2012. During the Draft Revised EIR public review period, copies of the Draft Revised EIR and technical appendices will be available for review at the Madera County Planning Department on Monday through Thursday and every other Friday during normal business hours (8:00 AM to 5:00 PM). The Madera County Planning Department is located at 2037 West Cleveland Avenue, Madera, California 93637, and the phone number is 559.675.7821. The Draft Revised EIR and technical appendices are also available for review at the Madera Ranchos Branch Library, which is located at 37167 Avenue 12, Suite 4C, Madera, California 93636. The hours for the library can be found by calling the library at 559.645.1214 or accessing the library's website at <http://www.madera-county.com/library/>. In addition, the EIR can also be viewed or downloaded from the Madera County website, which can be found at http://www.madera-county.com/rma/planningdept/planning_dept_docs.html.

Reviewers must limit the scope of their comments to the revised information contained in this document as indicated in double underline/~~strikeout~~ format. The County is not obligated to respond to comments to which responses have already been made as part of the 2008 Final EIR or to comments on unrevised portions of the Revised EIR. Comments that are on the 2008 Final EIR itself, and not on revisions to the 2008 Final EIR, will not be provided with a response pursuant to CEQA Guidelines Section 15088.5. The entire document is simply being provided for clarity and convenience.

Written comments on the revisions contained in the Revised EIR should be addressed to the following:

Mr. Matthew Treber
Madera County, Resources Management Agency, Planning Department
2037 West Cleveland Avenue
Madera, CA 93637
Phone: 559.675.7821
e-mail: matthew.treber@madera-county.com

After the close of the Revised EIR public comment period, responses to written and recorded oral comments on the environmental effects of the Proposed Project will be prepared and published. A Final Revised EIR (comprising this Revised EIR comments on the Revised EIR, and written responses to those comments) and the Mitigation Monitoring Program (MMP), which describes the timing and process to ensure implementation of mitigation measures or Project requirements, will be considered for certification by the County in a public hearing anticipated to occur in the fall of 2012.

CHAPTER 1 Introduction [Revised in Part]

The Tesoro Viejo Project Site (Project Site) is located in southeastern Madera County, approximately 9 miles north of the city of Fresno and 13 miles east of the city of Madera. The Project Site is bordered by the San Joaquin River to the east, State Route (SR) 41 to the west, Little Table Mountain to the north, and the Coombs Ranch to the south in an area known as Rio Mesa. The Project Site is located on two U.S. Geological Survey (USGS) topographic maps, which are the Lanes Bridge and Friant California quadrangle maps.

The Proposed Project would involve development of a property known locally as the Peck Ranch. The project proposes a mix of residential, commercial retail, office, highway commercial, visitor commercial, light industrial, and business park uses, in addition to open space and recreational uses, schools, and other institutional and public uses. Specifically, the project proposes a mixed-use development consisting of up to 5,190 dwelling units (du), about 3 million square feet of commercial, retail, office, public institutional, and light industrial uses, and approximately ~~217~~218 acres of mapped open space, not including approximately ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in the developed areas (also referred to as open space buffers). Another ~~383~~7 acres would be set aside for utilities and stormwater facilities (including detention basins), at least up to 306 acres for schools, and ~~222~~8 acres for the potential right-of-way for the realignment of SR-41 as a freeway as indicated on Caltrans plans.

The population at project buildout is projected to be up to 15,650 residents, assuming development of a maximum of 5,190 ~~dwelling units~~du. Full project buildout is assumed to be completed by 2025 for purposes of this analysis (see Section 3.8 [Construction Schedule and Activities] of Chapter 3 [Project Description] of this EIR). The project is more fully described and depicted in Chapter 3 of this EIR, as well as in the Tesoro Viejo Specific Plan, which is included as Appendix A to this EIR.

A Specific Plan is a planning tool that combines traditional zoning with general design and development standards tailored to the unique conditions of a particular site. The purpose of the Tesoro Viejo Specific Plan (Specific Plan) is to guide development and design within the ~~4,579~~1,585-acre Specific Plan Area, which is the Project Site for purposes of this environmental analysis. The Specific Plan identifies guidelines and design standards that build upon the goals, objectives, and policies of the Madera County General Plan and the Rio Mesa Area Plan (RMAP), all of which recognize the size of the Project Site and its strategic location within the southeastern portion of the County of Madera and its centrality in the implementation of the RMAP.

Land use designations for the Tesoro Viejo project have been generally defined by the Rio Mesa Area Plan (RMAP), adopted by the County in 1995, and certain modifications and refinements have been proposed by the Applicant, as elaborated in the project's proposed Specific Plan (October 2007). These refinements consist of some shifts in the geographical location of certain land use descriptions and a reduction in the expected employment intensity of nonresidential uses relative to the corresponding land use and zoning districts in the RMAP.

The RMAP is an adopted element of the Madera County General Plan intended to provide guidance for this southeastern subarea of the County along the western edge of the San Joaquin River. It is also intended to provide a planning framework for the development of more detailed implementation plans and measures of which this Proposed Project is one. The RMAP area covers approximately 15,000 acres, and plans for about 35,000 du, commercial and light industrial uses, and open space. The Proposed Project would encompass virtually all of the area designated in the RMAP as the Rio Mesa Village (also referred to as the Rio Mesa Community Village), which is one of the three designated villages in the RMAP, with the North Fork Village to the north and the Avenue 12 Village to the south. The Tesoro Viejo project also incorporates an area that is designated in the RMAP as the Rio Mesa Community Core. The Community Core is intended to serve as the commercial and social hub of Rio Mesa (Madera County 1994, 25).

In addition to the proposed development on the Project Site, a variety of off-site intersection and roadway improvements would be implemented to support the proposed development. These improvements are fully described in Section 4.13 (Transportation/Traffic) of this EIR and are also summarized in Section 3.7 (Proposed Project Characteristics) of Chapter 3 of this EIR. The possible realignment and upgrade to freeway status of SR-41 as shown in the RMAP to the east of the existing alignment is not a foreseeable improvement within the next two decades or within the buildout of the Proposed Project and, therefore, is not assumed in the traffic analysis. A 350-foot-wide realignment right-of-way east of the existing SR-41 is proposed to be reserved for an unspecified time (as shown in Figure 3-4 [Conceptual Land Use Plan for Tesoro Viejo]) for future purchase by Caltrans should the need be present and funding available for construction of a freeway or similar facility.

1.1 BACKGROUND

In 1990, Madera County recognized the potential for large-scale development in the southeastern portion of the County. This assessment was based on a number of factors, including an increase in development interests from private land owners, the proposed relocation of the Valley Children's Hospital to the area, and the potential for a future University of California campus in the County (which did not occur since the campus went to Merced County). The combination of these factors led the County to concentrate on this portion of Madera County for future urbanization, and thus to drafting and implementing a master plan for the Rio Mesa Area. The County prepared the RMAP as a new Area Plan within the General Plan to provide a planning framework to guide more detailed plans for subareas and specific landholdings, such as Tesoro Viejo. The RMAP area is bounded by SR-41 to the west, the San Joaquin River and Fresno County to the east, Road 145 and the Millerton Lake State Recreation Area to the north and northeast, and the San Joaquin River to the south.

The RMAP is organized around the establishment of three villages that offer focal points for activity and land use intensification. The RMAP identifies the North Fork Village, the Rio Mesa Village, and the Avenue 12 Village, from north to south. As illustrated in Figure 3-2 (Village Planning Areas of the RMAP) of Chapter 3 of this EIR, the Rio Mesa Village includes the Proposed Project as well as two other undeveloped parcels, which are referred to as the Morgan and Jamison Parcels. The partially developed 49-lot Sumner Hills subdivision is also within the Rio Mesa Village.

Madera County has approved development of a portion of the North Fork Village, known as Central Green (also referred to as the Freels Property), and is processing an application for development of the remainder of the North Fork Village, otherwise known as the Kesterson property, in addition to Tesoro Viejo. Furthermore, the County has recently approved an application for the large master-planned Village of Gateway (also referred to as Castle & Cooke, or Gateway Village) immediately outside of Rio Mesa to the west and anticipates further applications for development of the Gunner West area south of the Village of Gateway area, as well as other possible development in Rio Mesa. The County has also received preliminary applications for proposed projects within the State Center Community College Area Plan and along SR-99 north of the City of Madera.

1.2 PURPOSE OF THE EIR

In accordance with California's *Public Resources Code* (PRC) Section 21002.1, the County has prepared this EIR for the following purposes:

- To inform the general public, the local community, responsible and interested public agencies, the decision-making (e.g., the Board of Supervisors) and other organizations, entities, and interested persons of the scope of the Proposed Project, its potential environmental effects, possible measures to reduce potentially significant environmental impacts, and alternatives that could reduce or avoid the significant effects of the Proposed Project
- To enable the County to consider environmental consequences when deciding whether to approve the Proposed Project
- To satisfy the substantive and procedural requirements of the *California Environmental Quality Act* (CEQA)

This EIR has been prepared in accordance with CEQA (PRC Section 21000 et seq.) and the CEQA Guidelines (*California Code of Regulations*, Title 14, Section 15000 et seq.). The determination that Madera County is the "lead agency" is made in accordance with Section 15367 of the CEQA Guidelines, which defines the lead agency as the public agency with the principal responsibility for carrying out or approving a project and conducting the environmental review.

As provided in both CEQA and the CEQA Guidelines, public agencies are charged with the duty to substantially lessen or avoid significant environmental effects where feasible for projects subject to CEQA (refer to PRC Section 21004, CEQA Guidelines Sections 15002(a)(3) and 15021(a)(2)). In discharging this duty, the public agency has an obligation to balance a variety of public objectives, taking into account economic, environmental, and social issues. The EIR is an informational document that informs public agency decision-makers and the general public of the significant environmental effects and the ways in which those impacts can be reduced to less-than-significant levels, either through the imposition of mitigation measures or through the implementation of specific alternatives to the project as proposed. In a practical sense, EIRs function as a technique for fact-finding, allowing an applicant, the public, and agency staff an opportunity to collectively review and evaluate baseline conditions and project impacts through a process of full disclosure. Additionally, the EIR provides the primary source of environmental information for the lead agency to consider when exercising any permitting authority or approval power directly related to implementation of the Proposed Project.

1.3 SCOPE OF THE EIR

Based on the environmental information provided as part of the project application, the County determined that an EIR should be prepared to analyze the potential impacts associated with implementation of the Proposed Project. The County prepared and circulated a Notice of Preparation (NOP) for public review from November 27, 2006, to December 26, 2006, to solicit comments from responsible agencies and the general public on issue areas that should be addressed in the EIR.

The County distributed the 2006 NOP to responsible or trustee agencies in accordance with Section 15082 of the CEQA Guidelines. In addition, the 2006 NOP was also sent to organizations, companies, and/or individuals that the County believed might have an interest in the Proposed Project. A copy of the 2006 NOP is included in Appendix B (2006 Notice of Preparation [NOP], Affirmation of Receipt of the 2006 NOP by the State Clearinghouse, 2006 NOP Comment Letters, and 2006 NOP Scoping Meeting Notes) to this EIR. The County also held a scoping meeting on December 14, 2006, for the purpose of further soliciting public and agency input regarding the scope and content of this EIR. Seventeen comment letters were received during the 2006 NOP public review period, including nine from public agencies and seven from organizations and individuals.⁴ At the scoping meeting, three persons provided oral comments. Agencies or interested persons that did not respond during the 2006 NOP public review period or the Scoping Meeting ~~will have had~~ an opportunity to comment on the Draft EIR during the EIR's public review period. A copy of ~~all the~~ 2006 NOP comment letters and the 2006 Scoping Meeting notes are also provided in Appendix B to this EIR.

Subsequently, as described in the "Revised EIR Overview" section of this Revised EIR, the County prepared and circulated a second NOP for public review from March 12, 2012, to April 10, 2012, to solicit comments from responsible agencies and the general public on issues that should be addressed in the Draft Revised EIR. The County also held a scoping meeting on March 29, 2012, for the purpose of further soliciting public and agency input regarding the scope and content of the Draft Revised EIR. Twenty-three comment letters were received during the 2012 NOP public review period, including fourteen from public agencies and eight from organizations (or commenters representing organizations), and one from an individual. At the scoping meeting, ten people were in attendance and one person provided oral comments. A copy of the 2012 NOP, the 2012 NOP comment letters, the 2012 scoping meeting sign-in sheet, and the 2012 scoping meeting presentation (conducted by Matthew Treber on behalf of the County of Madera) are provided in Appendix B1 to this EIR. Appendix B1 also provides the NOP distribution list, which indicates that 234 federal, state, and local agencies, as well as organizations and individuals, were consulted in preparing the Draft Revised EIR through receipt of the 2012 NOP inviting comments.

The scope of the EIR includes environmental issues determined to be potentially significant ~~as determined~~ through preparation of the 2006 and 2012 NOPs, comments ~~raised~~ received in response to the 2006 and 2012 NOPs or during the 2006 or 2012 scoping meetings, and discussions among the public, consulting staff, and the County of Madera. Based on the potential impacts of the Proposed

⁴ The Native American Heritage Commission sent two separate letters, which accounts for the additional comment letter.

Project, including cumulative impacts, the ~~Draft~~ Revised EIR evaluates the following environmental issues identified in Appendix G to the CEQA Guidelines:

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Mineral Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation/Traffic
- Utilities and Service Systems
- Mandatory Findings of Significance

These environmental issues are addressed in Chapter 4 (Environmental Analysis) of this EIR.

This EIR evaluates the direct, indirect, and cumulative impacts resulting from planning, construction, and operation of the Proposed Project using the most current information available and in accordance with the provisions set forth in the CEQA Guidelines. Also, in preparing the EIR, pertinent County policies and guidelines, existing EIRs, and background documents prepared by the County or the Applicant were evaluated for applicability to the Proposed Project. Full reference lists for each of the EIR's technical sections are found at the conclusion of each section.

1.4 EIR PROCESS

Information regarding the EIR process since 2006 is contained in the new "Revised EIR Overview" section of this Revised EIR, which is provided immediately following the table of contents.

~~The EIR process provides an opportunity for the public and public agencies to review and comment upon the Proposed Project's potential environmental effects and to further inform the environmental analysis. As a first step in complying with the procedural requirements of CEQA, the NOP process was used to determine whether any aspect of the Proposed Project, either individually or cumulatively, may cause a significant adverse effect on the environment and, if so, to narrow the focus (or scope) of the environmental analysis. For the Proposed Project, the NOP process indicated that the EIR should focus on the environmental issues listed above in Section 1.3 (Scope of the EIR).~~

~~The County filed the NOP with the California Office of Planning and Research, State Clearinghouse as an indication that an EIR would be prepared. In turn, the State Clearinghouse distributed the NOP to public agencies and interested parties for a public review period that began on November 27, 2006, and ended on December 26, 2006. The purpose of the public review period was to solicit comments on the scope and content of the environmental analysis in the Draft EIR. As previously mentioned, the County received 17 comment letters on the NOP.~~

~~In addition, in order to solicit further comments on the scope and content of the environmental analysis to be included in the EIR, the County held a public scoping meeting on December 14, 2006, in the Madera County Resource Management Building, at which approximately seven members of the public attended and three commented.~~

~~As previously mentioned, the NOP, the comment letters received in response to the NOP, and the Scoping Meeting notes are provided in Appendix B to this EIR~~

~~This EIR is being circulated for review and comment by the public and other interested parties, agencies, and organizations for a 45-day public comment period, which begins on February 14, 2008, and ends on March 31, 2008. During the EIR public review period, copies of the Draft EIR and technical appendices will be available for review at the Madera County Planning Department on Monday through Friday during normal business hours. The Madera County Planning Department is located at 2037 West Cleveland Avenue, Madera, California 93637, and the phone number is 559.675.7821. The Draft EIR and technical appendices are also available for review at the Madera Ranchos Branch Library, which is located at 37167 Avenue 12, Suite 4C, Madera, California 93636. The hours for the library can be found by calling the library at 559.645.1214 or accessing the library's website at <http://www.sjvls.org/madera/>. In addition, the EIR can also be viewed or downloaded from the Madera County website, which can be found at http://www.madera-county.com/rma/planningdept/planning_dept_docs.html.~~

~~Written comments on the EIR should be addressed to the following:~~

~~Mr. Matthew Treber
Madera County, Resources Management Agency, Planning Department
2037 West Cleveland Avenue
Madera, CA 93637
Phone: 559.675.7821
e-mail: matthew.treber@madera-county.com~~

~~After the close of the EIR public comment period, responses to written and recorded oral comments on the environmental effects of the Proposed Project will be prepared and published. A Final EIR (FEIR) (comprising this Draft EIR, comments on the Draft EIR, and written responses to those comments) and the Mitigation Monitoring Program (MMP), which describes the timing and process to ensure implementation of mitigation measures or project requirements, will be considered for certification by the County in a public hearing.~~

According to PRC Section 21081, the Lead Agency must make specific Findings of Fact (Findings) before approving the Final EIR when the Final EIR identifies significant environmental impacts that may result from a project. The purpose of the Findings is to establish the connection between the contents of the Final EIR and the action of the Lead Agency with regard to approval or rejection of the Proposed Project. Prior to approval of a project, one of three findings must be made, as required by Section 15091 of the CEQA Guidelines:

- Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effects as identified in the EIR

- Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding; such changes have been adopted by such other agency or can and should be adopted by such other agency
- Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Final EIR

Additionally, according to PRC Section 21081.6, for projects in which significant impacts will be avoided or lessened by mitigation measures, the Lead Agency must include a Mitigation Monitoring Program (MMP). The purpose of the MMP is to ensure compliance with required mitigation during implementation of the Proposed Project.

Environmental impacts may not always be mitigated to a less-than-significant level. When this occurs, impacts are considered significant and unavoidable. If a public agency approves a project that has significant and unavoidable impacts, the agency shall state in writing the specific reasons for approving the project based on the Final EIR and any other information in the public record. This is termed a “Statement of Overriding Considerations” and is used to explain the specific reasons why the benefits of a Proposed Project make its unavoidable environmental effects acceptable.

1.5 DOCUMENT ORGANIZATION

This EIR has been organized for easy use and reference. To help the reader locate information of particular interest, a brief summary of the contents of each chapter of the EIR is provided. The following chapters are contained within the EIR:

- **Chapter 1: Introduction**—This chapter describes the background of the Proposed Project, purpose and scope of the EIR, a summary of the environmental and public review process, and a brief outline of this document’s organization.
- **Chapter 2: Executive Summary**—This chapter includes a brief synopsis of the Proposed Project and Project Objectives, necessary actions by Madera County in order to approve the Proposed Project, areas of controversy/issues to be resolved, a description of the intent of the MMP, and an overview of Project alternatives. This chapter also summarizes (in table format) environmental impacts that would result from implementation of the Proposed Project, including the level of significance of impacts prior to the incorporation of mitigation measures, if applicable; proposed mitigation measures that would avoid or reduce project-related impacts; and the level of significance of impacts after the incorporation of mitigation measures.
- **Chapter 3: Project Description**—This chapter provides a detailed description of the Proposed Project, including its location, site history and project background, purpose and intent of the Specific Plan, existing site and land use characteristics, project objectives, anticipated construction schedule and activities, intended uses of the EIR, project approval requirements, and a discussion of the cumulative development scenario.
- **Chapter 4: Environmental Analysis**—This chapter is introduced by summarizing comments received on the NOP and during the Project’s Scoping Meeting, and describes the scope and format of the environmental analysis. Each environmental issue area contains a description of the environmental setting (or existing conditions), regulatory framework, project-related and cumulative impacts (including a discussion of the analytic methods, thresholds of significance used

to determine the nature or magnitude of environmental impacts, Effects Not Found to Be Significant, and feasible mitigation measures that would avoid or minimize significant environmental impacts). The introductory paragraph at the beginning of each section provides an overview of the scope of the impact analysis. In addition, this chapter addresses mandatory findings of significance, as required by Section 15065 of the CEQA Guidelines.

- **Chapter 5: Other CEQA Considerations**—As required by Section 15126.2 of the CEQA Guidelines, this chapter summarizes impacts that would result from the Proposed Project, including significant environmental impacts, significant and unavoidable environmental impacts, irreversible changes to the environment, and growth-inducing impacts. This section also summarizes mitigation measures that are proposed to avoid or minimize significant effects of the project and alternatives to the Proposed Project.
- **Chapter 6: Alternatives**—This chapter provides a description and analysis of alternatives to the Proposed Project that could reduce or avoid potentially significant impacts, as required by Section 15126.6 of the CEQA Guidelines. A comparison of the impacts of the alternatives to the Proposed Project and the identification of the environmentally superior alternative is also presented.
- **Chapter 7: Report Preparers**—This chapter identifies the individuals responsible for the preparation of this EIR.
- **Appendices**—The technical appendices to the EIR, which include reference documents and studies completed in support of the EIR, are provided in PDF format on a CD-ROM inside the back cover.

CHAPTER 2 Summary [Revised in Part]

2.1 PURPOSE OF THE SUMMARY

This summary is intended to highlight the major areas of importance in the environmental analysis for the Proposed Project as required by Section 15123 of the *California Environmental Quality Act* (CEQA) Guidelines. The summary includes a brief description of the project, the project objectives, necessary actions, areas of controversy/issues to be resolved, the purpose of the Mitigation Monitoring Program (MMP), and a summary of alternatives to the Proposed Project. In addition, this chapter provides a table summarizing (1) potential environmental impacts that would occur as a result of the Proposed Project, (2) the level of significance of the environmental impacts prior to implementation of any applicable mitigation measures, (3) the recommended mitigation measures and/or project requirements that avoid or reduce significant environmental impacts, and (4) the level of significance after mitigation measures are implemented (refer to Table 2-2 [Summary of Environmental Effects and Project Requirements/Mitigation Measures] at the end of this chapter).⁵

2.2 PROJECT DESCRIPTION

The Tesoro Viejo Project Site (Project Site) is located in southeastern Madera County, approximately 9 miles north of the City of Fresno and 13 miles east of the City of Madera. The Project Site is bordered by the San Joaquin River to the east, State Route (SR) 41 to the west, Little Table Mountain to the north, and the Coombs Ranch to the south in an area known as Rio Mesa. The Project Site is located on two U.S. Geological Survey (USGS) topographic maps, which are the Lanes Bridge and Friant California quadrangle maps.

The Proposed Project would involve development of a property known locally as the Peck Ranch. The project proposes a mix of residential, commercial retail, office, highway commercial, visitor commercial, light industrial, and business park uses, in addition to open space and recreational uses, schools, and other institutional and public uses. Specifically, the project proposes a mixed-use development consisting of up to 5,190 dwelling units (du), about 3 million square feet of commercial, retail, office, public institutional, and light industrial uses, and approximately ~~217~~218 acres of mapped open space, not including approximately ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in the developed areas (also referred to as open space buffers). Another ~~383~~37 acres would be set aside for utilities and stormwater facilities (including detention basins), ~~at least up to 306~~0 acres for schools, and ~~222~~28 acres for the potential right-of-way for the realignment of SR-41 as a freeway as indicated on Caltrans plans.

The population at project buildout is projected to be up to 15,650 residents, assuming development of a maximum of 5,190 dwelling units. Full project buildout is assumed to be completed by 2025 for purposes

⁵ While Table 2-2 shows new impact statements and/or mitigation measures, new impact analysis text is also provided under existing (or unchanged) impact statements. Refer to the Overview section of this Revised EIR, as well as the Contents, to determine where new text is provided.

of this analysis (see Section 3.8 [Construction Schedule and Activities] of Chapter 3 [Project Description] of this EIR). The project is more fully described and depicted in Chapter 3 of this EIR, as well as in the Tesoro Viejo Specific Plan, which is included as Appendix A to this EIR.

A specific plan is a planning tool that combines traditional zoning with general design and development standards tailored to the unique conditions of a particular site. The purpose of the Tesoro Viejo Specific Plan (Specific Plan) is to guide development and design within the ~~4,579~~1,585-acre Specific Plan Area, which is the Project Site for purposes of this environmental analysis. The Specific Plan identifies guidelines and design standards that build upon the goals, objectives, and policies of the Madera County General Plan and the Rio Mesa Area Plan (RMAP), all of which recognize the size of the Project Site and its strategic location within the southeastern portion of Madera County and its centrality in the implementation of the RMAP.

Land use designations for the Tesoro Viejo project have been generally defined by the Rio Mesa Area Plan (RMAP), adopted by the County in 1995, and certain modifications and refinements have been proposed by the Applicant, as elaborated in the project's proposed Specific Plan (October 2007). These refinements consist of some shifts in the geographical location of certain land use descriptions and a reduction in the expected employment intensity of nonresidential uses relative to the corresponding land use and zoning districts in the RMAP.

The RMAP is an adopted element of the Madera County General Plan intended to provide guidance for this southeastern subarea of the County along the western edge of the San Joaquin River. It is also intended to provide a planning framework for the development of more detailed implementation plans and measures of which this Proposed Project is one. The RMAP area covers approximately 15,000 acres, and plans for about 35,000 du, commercial and light industrial uses, and open space. The Proposed Project would encompass virtually all the area designated in the RMAP as the Rio Mesa Village (also referred to as the Rio Mesa Community Village), which is one of the three designated villages in the RMAP, with the North Fork Village to the north and the Avenue 12 Village to the south. The Tesoro Viejo project also incorporates an area that is designated in the RMAP as the Rio Mesa Community Core. The Community Core is intended to serve as the commercial and social hub of Rio Mesa (Madera County 1994, 25).

In addition to the proposed development on the Project Site, a variety of off-site intersection and roadway improvements would be implemented to support the proposed development. These improvements are fully described in Section 4.13 (Transportation/Traffic) of this EIR and are also summarized in Section 3.7 (Proposed Project Characteristics) of Chapter 3 of this EIR. The possible realignment and upgrade to freeway status of SR-41 as shown in the RMAP to the east of the existing alignment is not a foreseeable improvement within the next two decades or within the buildout of the Proposed Project and, therefore, is not assumed in the traffic analysis. A 350-foot-wide realignment right-of-way east of the existing SR-41 is proposed to be reserved for an unspecified time (as shown in Figure 3-4 [Conceptual Land Use Plan for Tesoro Viejo]) for future purchase by Caltrans should the need be present and funding available for construction of a freeway or similar facility.

Table 2-1 Proposed Land Uses for the Tesoro Viejo Project [Revised]

Land Use	Acres	Moderate Buildout (du/sf)	Maximum Buildout (du/sf)	Measurement Units
Mixed Use Community Core				
MDR/HDR	17.5	306	350,324	dwelling units (du)
Community Commercial	35.6	762,300	775,368	square feet (sf)
Professional Office	11.9	259,182	259,182	sf
Public Institutional	3.5	76,230	76,230	sf
Open Space	2.1	—	—	
<i>Residential Subtotal</i>	17.5	306	350,324	du
<i>Non-Residential Subtotal</i>	53.1	1,097,712	1,110,780	sf
Residential				
High Density Residential	27.0 27.6	473	540,511	du
Medium Density Residential	203.0 203.1	1,624	1,827,182	du
Low Density Residential	375.4 390.2	1,614	1,877,175	du
Very Low Density Residential	451.0 429.9	451	451,631	du
Rural Residential	N/A	N/A	N/A	
<i>Residential Subtotal</i>	1,056.4 1,050.8	4,162	4,695,472	du
Special Purpose Uses				
Special Use "A"				
Visitor Commercial	1.1	23,958	23,958	sf
Low Density Residential	11.0	47	555 0	du
Special Use "B"				
Visitor-Serving Recreational Commercial	0.5	5,445	5,445	sf
<i>Residential Subtotal</i>	11.0	47	555 0	du
<i>Non-Residential Subtotal</i>	1.6	29,403	29,403	sf
Mixed Use Neighborhood Commercial				
Medium Density Residential	10.0	80	90	du
Neighborhood Commercial	6.0	91,476	91,476	sf
<i>Residential Subtotal</i>	10.0	80	90	du
<i>Non-Residential Subtotal</i>	6.0	91,476	91,476	sf
Commercial/Industrial				
Light Industrial	42.0 41.0	640,332	640,332 432,420	sf
Highway Service Commercial	104.0 111.0	1,132,560	1,132,560 1,129,700	sf
<i>Non-Residential Subtotal</i>	146.0 152.0	1,772,892	1,772,892 1,773,120	sf
Other Uses				
Agriculture (any included in residential or open space)	0.0			
Open Space (mapped)	217.4 217.9			
<u>Open Space Buffers (non-additive)</u>	128.2 ^b			
<u>Schools (non-additive)</u>	30.0 ^a			
Freeway ROW Reserve (estimate)	22.0 27.6			
STP, WTP, and Other Utilities	23.0 21.7			
Stormwater Basins	15.0			
Canals	69.5			
<i>Non-Residential Subtotal</i>	346.9 354.4			
Total Acreage	1,648.5 ^b 1,656.4 ^c			
Total Residential	1,094.9 1,089.3	4,595	5,190	du
Total Nonresidential	553.6 567.1	2,991,483	3,004,551 3,004,719	sf

SOURCE: Community Design + Architecture 2007, October, amended May 2012.

^a Schools are an overlay and, therefore, are not part of the overall acreage. If a school is placed in an area zoned other than LDR or MDR, it is anticipated that a transfer of the zoning and dwelling units would occur to maintain consistent total dwelling units at buildout. For clarification, see "Schools" on page 3-8 of the Specific Plan. Other school sites could be accommodated in the Town Center area.

^b Open Space buffers are guaranteed to remain in open space, although they are identified in parcels for which density is allocated.

^c Excluding the 69.571.6-acre Madera Canal, which is owned by the Bureau of Recreation, but crosses the Project Site, the total developable acreage is about 1,579.1585 acres. This is the figure used in this EIR to represent the size of the Project Site.

In addition, the Project Description has been revised to consider features of the Project that were not previously considered or have been added, whether involved in responding to the court orders or not. These features include potential construction of two recharge basins and an 8-mile pipeline west along Avenue 15 from the Project Site to Cottonwood Creek Ranch site, which is the location of an off-site source of alternative water supply, in the event that the planned water supply proves unavailable.

Portions of the Project Site previously identified for residential use, involving two archaeological sites known as Locus A and Locus B of site CA-MAD-2394 (refer to Section 4.4 [Cultural Resources]) have been shifted from designations for residential development to open space in order to preserve these features. Lastly, the Project Applicant has made some minor changes to the Project Description that relate to more refined estimates of acreages based on a complete survey of the Project Site and planned land uses, the maximum allowable density in the very-low-density residential land use area, and clarification of permanent open space and planned on-site schools, especially as to the timing and location of schools. There are also minor typographical changes or corrections in this Revised EIR. The Project Site is now estimated to be 1,585 acres, which is 6 acres more than reflected in the 2008 Final EIR, representing an increase of less than 0.5 percent. The amount of permanent open space increased slightly and changes to the timing of one planned on-site school resulted from the court order.

2.3 PROJECT OBJECTIVES

Tesoro Viejo is intended to be a vibrant community that prioritizes social, economic, and environmental health and quality of life through high-quality community design at a human scale. Tesoro Viejo is envisioned as a place where an integrated system of mixed use centers, civic uses, open spaces, commercial and industrial areas, and residential neighborhoods will fit with and take full advantage of the community's site, topography, and location within Rio Mesa in order to support a unique community identity for those who will live, work, recreate and shop there.

The community will provide a healthy mix of housing, employment, retail and recreational destinations in order to create a place that is both home and destination. Tesoro Viejo will include a wide array of housing opportunities for people of many income levels to ensure that both those who help the local economy run and those who drive it can find comfortable housing in which to lead their lives and raise their families. Similarly, businesses of all types and sizes, from small producers and repair facilities to providers of services, necessities, and luxuries, to cutting edge research and development will be accommodated in a way that fosters healthy exchange of products and ideas and invites employees and shoppers from both the surrounding community and region.

Tesoro Viejo will include a wide array of open spaces, large and small that will serve as important centers for the town and gateways and local amenities for its neighborhoods. Parks and other open spaces will be linked by a network of trails and greenways that both connect these amenities and other community focal points to each other and to the larger regional network of trails and open spaces. The Project Applicant hopes that such trails will connect to those being planned, especially along the San Joaquin River to which it has committed in the form of a potential easement parallel to the river for the desired trail. However, a recent court decision supporting the Sumner Hill subdivision as a gated community to which the public may be denied access, if upheld, casts doubt upon the ability to provide access to the river on the lands of the Project. Therefore, access to the river may depend upon actions by the County or state

agencies or other landowners in the area. Pedestrian and bicycle trails will link these parks and neighborhoods to schools, the Town Center and other focal points of community life in and around Tesoro Viejo.

General Project objectives have been identified by both the County and the Applicant. These include the following:

- Create a master planned balanced community to include a mix of residences, employment, recreational opportunities, and commercial uses for residents.
- Create a strong sense of community based on intra-community linkages, respect for natural features of the land, and inclusion of balanced uses.
- Ensure adequate utilities, services, and infrastructures for residents.
- Provide an array of recreational and open space uses for residents of the Project and surrounding communities. These would include parks and playgrounds that would be linked by pedestrian and bicycle trails along greenways that would serve to create an open space network.
- Accommodate projected regional growth in a location that is consistent with the approved Madera County General Plan and the approved RMAP.
- Provide development and transitional land use patterns that do not conflict with adjoining properties and existing and proposed land uses.

The Tesoro Viejo Specific Plan contains thirty-six specific goals and objectives (in Chapter 2.2), which are provided below, grouped by topic:

Land Use

- | | |
|---------------|---|
| Goal 1 | Provide a viable and balanced mix of regional and local-serving commercial and employment uses. |
| Goal 2 | Encourage properly designed mixed-use and residential neighborhoods to insure compatibility with and transportation choices for access to residential and non-residential uses by creating a pedestrian-supportive environment that activate Tesoro Viejo's streets. |
| Goal 3 | Create a vibrant mixed use community core that provides for the needs of the all residents and visitors to the Rio Mesa area, serving as the major Community Center for Rio Mesa, containing all major public and community services. |
| Goal 4 | Create an attractive and easily accessible neighborhood-serving Village Center within the eastern center of the community that meets the convenience needs of nearby residents of Tesoro Viejo neighborhoods and adjacent villages. |
| Goal 5 | Reflect anticipated marketing needs and public demand by providing a diversity of housing types and locations that will be marketable within the region. |
| Goal 6 | Promote a diverse community and create opportunities for housing near workplaces. |
| Goal 7 | Provide development guidelines and standards to lead builders, designers, and developers to create residential neighborhood and individual homes that encourage diverse and creative housing types and ensure the highest possible quality of community and architectural design. |

- Goal 8** Encourage the creation of fine-grained detail in architectural and urban form that provides visual interest and complexity.
- Goal 9** Provide detached and attached housing to serve a spectrum of buyers and household types, and to provide “move-up” and “move-down” opportunities for present residents in the vicinity and the surrounding region.
- Goal 10** Provide an opportunity for high density, multi-family housing near and within the mixed use employment center of Tesoro Viejo.

Transportation and Circulation

- Goal 11** Design multimodal streets that effectively facilitate vehicular traffic and future transit connections, but also provide for a safe, attractive and continuous pedestrian and bicycle circulation system throughout Tesoro Viejo.
- Goal 12** Design roadways to be aesthetically and environmentally sensitive features of Tesoro Viejo.
- Goal 13** Minimize or eliminate the need for wide arterial streets by creating an interconnected circulation network that distributes traffic across many streets while providing the capacity necessary to accommodate the levels and types of traffic anticipated in the land use plan and those of the surrounding area.
- Goal 14** Plan pedestrian-oriented mixed use areas that maintain an adequate level of parking and access for automobiles, but that encourage a park-once approach that minimizes the total demand for parking.
- Goal 15** Create a circulation network that is interconnected with the regional transportation system.
- Goal 16** Design all streets with the intention that land uses will front directly on them by using landscape medians, setbacks, and local access lanes on streets with higher levels of through traffic volume.
- Goal 17** Create a network of multi-use and hiking trails along Tesoro Viejo’s open space corridors that complements the walkways and paths along the community’s streets in order to encourage walking and bicycling for transportation and recreation.

Community Facilities and Services

- Goal 18** Create high-quality schools, parks, libraries, police and fire stations, public utility centers, post-offices and similar community facilities that are integrated into the mixed use centers of Tesoro Viejo; these uses will be key assets of the community and their design and quality must reflect their importance.
- Goal 19** Provide a high level of community facilities and services and utility services and infrastructure that will be phased in accordance with development.
- Goal 20** Provide the appropriate level of county and district services within Tesoro Viejo to meet the needs of its residents, businesses, and workers; and that also reflects the importance of Tesoro Viejo Town Center within Southeastern Madera County.

Natural, Cultural, and Recreational Resources

- Goal 21** Preserve features and resources of environmental and cultural value to enhance the future identity and value of Tesoro Viejo as a community.
- Goal 22** Identify, preserve and incorporate significant natural features such as channels, bluffs, rock outcroppings, and steep slopes into a functional open space system that is integrated into the community plan.
- Goal 23** Preserve significant biological, archaeological, and paleontological resources in a manner to reflect their importance.
- Goal 24** Establish conservation areas along drainage ways to provide an effective buffer between new development and sensitive biological and wildlife resources while allowing these areas to be a visual and recreational amenity.
- Goal 25** Create and maintain access to the San Joaquin River for both residents and visitors to the extent possible within the control of the Project Applicant and the County.
- Goal 26** Meet and, as appropriate, exceed the parks and recreation standards of Madera County.
- Goal 27** Adopt “Green Building” practices for site and building design that focus on resource and energy efficiency, and where feasible, treatment of irrigation and stormwater runoff through natural, landscape-based processes.
- Goal 28** Use of reclaimed water for landscape irrigation and other non-potable water uses for parkways, open space areas, and agricultural uses is strongly encouraged.
- Goal 29** To the extent feasible, provide for the future use of reclaimed water for landscape irrigation within the developed areas of Tesoro Viejo.
- Goal 30** Emphasize planting of native trees, shrubs and groundcovers suitable to climatic conditions while still providing visual interest and variety.

Agricultural Resources

- Goal 31** Encourage some continued vineyard, orchard and farming operations where feasible by clustering of dwellings and infrastructure to allow open space preservation and functional agricultural use for local community sustenance and interest.
- Goal 32** Encourage sustainable methods of local food production to sustain both local business and the health of the land and seek to incorporate farmer’s markets into local commercial activities and edible gardens into schools and open squares.
- Goal 33** Promote opportunities for youth education and employment in agriculture.

Economic Vitality

- Goal 34** Develop a set of permitted commercial and employment uses within Tesoro Viejo that provide a wide range of employment and shopping opportunities for existing and future residents of Madera County.
- Goal 35** Enhance the vitality of the Town Center by encouraging uses that allow for safe around-the-clock activity that makes it an attractive environment for shopping, entertainment, recreation, living, and working.

- Goal 36** Encourage job creation and self-employment opportunities to ensure a vital and self-sustaining town.

2.4 NECESSARY ACTIONS BY MADERA COUNTY

Madera County will be required to undertake a number of actions in order to approve the Proposed Project. These actions include, but are not necessarily limited to, the following and are analyzed in the environmental analysis provided in this document:

- Certification of an Environmental Impact Report and adoption of Findings of Fact, Statement of Overriding Considerations, and Mitigation Monitoring Program
- Approval of the proposed development
- Adoption of the Specific Plan (and associated zoning designation changes), which will also serve as a General Plan Amendment for the minor changes in land use designations and circulation that are proposed in the Specific Plan
- Approval of the Water Supply Assessment for the Proposed Project
- Approval of an Infrastructure Master Plan for the Proposed Project
- Approval of a Development Agreement for the Proposed Project
- Approval of a possible master tentative subdivision or parcel map, and possible first-phase tentative subdivision maps for portions of the Project Site
- Potential formation of a County Service Area, annexation to one, or formation of a different public district
- Potential approval of Mello-Roos or similar financing

A comprehensive description of the Proposed Project, as well as an identification of the federal, regional, and state responsible agencies that have discretionary authority over specific aspects of the Proposed Project, are provided in Chapter 3 of this EIR.

2.5 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

This EIR addresses environmental issues that are known or were raised by agencies or interested parties during both the 2006 and 2012 Notice of Preparation (NOP) public review periods or during the 2006 and 2012 Scoping Meetings for the Proposed Project. All of the NOP comment letters, as the Scoping Meeting notes, are provided in Appendix B and Appendix B1 of this Revised EIR.

2.6 MITIGATION MONITORING AND REPORTING PROGRAM

This Revised EIR discusses feasible mitigation measures (MMs) that may be implemented to avoid or reduce significant environmental impacts. For purposes of this Revised EIR, all applicable local, state, and federal laws and regulations are considered part of the project description and are assumed to be implemented. In addition, the project's Specific Plan, Infrastructure Master Plan, and Water Supply Assessment must all be formally adopted by Madera County as part of the project approval process, and, therefore, are also considered to be part of the project description.

The MMP for the Proposed Project, which will be prepared in conjunction with the Final Revised EIR, will identify all mitigation measures, the timing of implementation of each of the mitigation measures,

and the party responsible for implementation. The County would be required to monitor implementation of all of the mitigation measures.

The MMP would be reviewed by the County in conjunction with their consideration of the Proposed Project and certification of the Final Revised EIR. The MMP will also be included as part of the Final Revised EIR for the Proposed Project and will be designed to ensure compliance with adopted mitigation measures during project implementation, as required by *Public Resources Code* Section 21081.6.

2.7 ALTERNATIVES

A number of alternatives were analyzed that would avoid or substantially lessen some of the significant effects of the project. These alternatives, which are fully addressed in Chapter 6 (Alternatives) of this document, include the following:

- Alternative Location
 - > Other Locations within Madera County
 - > Other Locations outside of Madera County
- Higher Jobs-to-housing Ratio in the RMAP Area
- Significantly Reduced Intensity Alternatives
 - > Avoidance of Agricultural Resources Impacts
 - > Avoidance of Air Quality Impacts
 - > Avoidance of Cultural Resources Impacts
 - > Avoidance of Noise Impacts
 - > Avoidance of Traffic/Transportation Impacts
- No Project/No Development
- Incorporation by Reference of the Alternatives Analysis in the RMAP EIR

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
AESTHETICS			
Impact 4.1-1 Implementation of the Proposed Project and associated infrastructure improvements would modify the existing site characteristics from a rural landscape to an urban/suburban landscape, but would not substantially and adversely impact a scenic vista.	Less than significant	No mitigation is required.	Less than significant
Impact 4.1-2 Construction of the Proposed Project and associated infrastructure improvements would not substantially degrade the visual character or quality of the Specific Plan Area or its surroundings.	Less than significant	No mitigation is required.	Less than significant
Impact 4.1-3 Implementation of the Proposed Project and associated infrastructure improvements would modify the existing site characteristics from a rural landscape to an urban/suburban landscape, but would not result in a substantial degradation of the existing visual character or quality of the site and surroundings.	Less than significant	No mitigation is required.	Less than significant
Impact 4.1-4 Implementation of the Proposed Project could result in substantial sources of daytime glare.	Potentially significant	MM4.1-4 Design of the proposed structures shall primarily include the use of textured or other nonreflective exterior surfaces and nonreflective glass.	Less than significant
Impact 4.1-5 Implementation of the Proposed Project would not result in substantial new sources of nighttime light with implementation of the numerous Design Standards provided in the Tesoro Viejo Specific Plan.	Less than significant	No mitigation is required.	Less than significant
AGRICULTURE			
Impact 4.2-1 Implementation of the Proposed Project would directly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the FMMP, to nonagricultural uses.	Potentially significant	No feasible mitigation is available.	Significant and unavoidable
Impact 4.2-2 Implementation of the Proposed Project would not create conflicts between existing agricultural and new nonagricultural uses.	Less than significant	No mitigation is required.	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
Impact 4.2-3 Implementation of the Proposed Project would not conflict with existing zoning for agricultural uses, or a <i>Williamson Act</i> contract.	Less than significant	No mitigation is required.	Less than significant
<u>Impact 4.2-3(a) Use of groundwater from Cottonwood Creek Ranch would not permanently convert Williamson Contract lands, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses.</u>	<u>Less than significant</u>	<u>No mitigation is required.</u>	<u>Less than significant</u>
AIR QUALITY			
Impact 4.3-1 Operation of the Proposed Project would provide new sources of regional air emissions, but would not conflict with or obstruct implementation of the Air Quality Management Plans.	Less than significant	No mitigation is required.	Less than significant
Impact 4.3-2 Construction of the Proposed Project would include excavation, grading, and other construction activities that could generate criteria air pollutants, including PM ₁₀ .	Potentially significant	<p>MM4.3-2(a) Prior to issuance of grading permits, the Project Applicant shall enter into an Air Quality Mitigation Agreement with the SJVAPCD to reduce net ROG, NO_x and PM₁₀ emissions impacts from construction of the Proposed Project. The construction related reduction measures shall include, but not be limited to the following:</p> <ul style="list-style-type: none"> ■ Exhaust emissions for construction equipment greater than fifty (50) horsepower used or associated with the development project shall be reduced by the following amounts from the statewide average as estimated by the ARB: <ul style="list-style-type: none"> > 20 percent of the total NO_x emissions > 45 percent of the total PM₁₀ exhaust emissions ■ Construction emissions on-site may be reduced by using less polluting construction equipment, which can be achieved by utilizing add-on controls, cleaner fuels, or newer lower emitting equipment. ■ These requirements can be met through any combination of on-site emission reduction measures or off-site fees (see MM4.3-2(b) below), including, but not limited to, the replacement of old diesel engines within the Valley. <p>MM4.3-2(b) The Project Applicant shall pay to the SJVAPCD a monetary sum necessary to offset the required construction NO_x and PM₁₀ emissions not reduced on-site and subject to the fee schedule specified in Section 7.2 of Rule 9510.</p>	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
Impact 4.3-3 Operation of the Proposed Project would exceed SJVAPCD standards for ROG and NO _x and would result in a projected air quality violation.	Potentially significant	MM4.3-3 Prior to issuance of grading permits, the Project Applicant shall enter into an Air Quality Mitigation Agreement with the SJVAPCD to reduce net ROG, NO _x and PM ₁₀ emissions impacts from operation of the Proposed Project. The Project Applicant shall propose reduction measures that would achieve the following emission reduction rates: <ul style="list-style-type: none"> ■ NO_x Emissions: The project must provide a reduction of 33.3 percent of the project's operational baseline NO_x emissions over a period of ten years ■ PM₁₀ Emissions: The project must provide reduction of 50 percent of the project's operational baseline PM₁₀ emissions over a period of ten years ■ These requirements can be met through any combination of on-site emission reduction measures or off-site fees (see MM4.3-2(b)), including, but not limited to, the replacement of old diesel engines within the Valley. 	Significant and unavoidable
Impact 4.3-4 Construction of the Proposed Project would not result in a cumulatively considerable net increase of criteria pollutants (PM ₁₀ , and precursors of ozone—ROG and NO _x) for which the Proposed Project region is in nonattainment under an applicable federal or State ambient air quality standard.	Less than significant	Refer to MM4.3-2(a) and MM4.3-2(b)	Less than significant
Impact 4.3-5 Operation of the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants (PM ₁₀ , and precursors of ozone—ROG and NO _x) for which the Proposed Project region is in nonattainment under an applicable federal or State ambient air quality standard.	Potentially significant	Refer to MM4.3-2(a) , MM4.3-2(b) , and MM4.3-3	Significant and unavoidable
Impact 4.3-6 Operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations due to project-generated toxic air emissions.	Less than significant	No mitigation is required.	Less than significant
Impact 4.3-7 Construction activities associated with site development could cause emissions of dust or contaminants from equipment exhaust that could expose sensitive receptors to pollutant concentrations.	Potentially significant	Refer to MM4.3-2(a) and MM4.3-2(b)	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p>Impact 4.3-8 Operation of the Proposed Project would generate increased local traffic volumes, but would not expose sensitive receptors to substantial localized CO concentrations.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.3-9 Construction and operation of the Proposed Project would not create objectionable odors affecting a substantial number of people.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
BIOLOGICAL RESOURCES			
<p>Impact 4.4-1 Implementation of the Proposed Project and <u>Off-Site Avenue 15 Pipeline alternative</u> could result in the loss of potential nesting and foraging habitat for Swainson’s hawk, burrowing owl, bald eagle, and/or other sensitive and/or legally protected avian species.</p>	<p>Potentially significant</p>	<p>MM4.4-1(a) Loss of Nesting Habitat for the Swainson’s Hawk</p> <p>(1) If construction occurs during the breeding season (February 1–August 31), the Project Applicant shall conduct CDFG-recommended protocol-level surveys prior to construction, as required by the <i>Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley</i> (Swainson’s Hawk Technical Advisory Committee 2000), unless the CDFG indicates that no surveys or a less intensive survey methodology would be appropriate.</p> <p>(2) If active nests are found in the construction area, mitigation measures consistent with the CDFG’s <i>Staff Report Regarding Mitigation for Impacts to Swainson’s Hawks (Buteo swainsoni) in the Central Valley of California</i> (CDFG 1994) shall be incorporated in the following manner, unless the CDFG indicates that no mitigation or a less intensive mitigation program would be appropriate:</p> <p>(i) If an active nest is found, no intensive new disturbances (e.g., heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project-related activities that may cause nest abandonment or forced fledging, can be initiated within 200 yards (buffer zone) of an active nest between March 1 and September 15. The size of the buffer area may be adjusted if a qualified biologist and CDFG determine if it would not be likely to have adverse effects on the hawks. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active.</p> <p>(ii) Nest trees shall not be removed unless there is no feasible way of avoiding removal of the tree. If a nest tree must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from CDFG with the tree removal period specified in the Management Authorization, generally between October 1 and February 1.</p> <p>(iii) If construction or other project-related activities that may cause nest abandonment or</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p>forced fledging are necessary within the buffer zone, monitoring of the nest site (funded by the Project Applicant) by a qualified biologist, as determined by the Lead Agency, will be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, the Project Applicant shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).</p> <p>MM4.4-1(b) Loss of Foraging Habitat for the Swainson's Hawk</p> <p>If it is not possible to avoid impacts to foraging or nesting habitat of Swainson's hawk, on or off site mitigation may be required. Mitigation for the loss of Swainson's hawk foraging habitat (and by default other raptor foraging habitat) shall occur at the applicable ratio(s) set forth in the CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (<i>Buteo swainsoni</i>) in the Central Valley of California (CDFG 1994).</p> <p>MM4.4-1(c) Burrowing Owl Nesting Habitat</p> <ol style="list-style-type: none"> (1) Prior to construction activities associated with each phase of the project, as determined by the County, focused pre-construction surveys shall be conducted for burrowing owls where suitable habitat is present within the construction areas. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities and surveys shall be conducted in accordance with current CDFG burrowing owl survey protocol. (2) If unoccupied burrows are found during the nonbreeding season, the Project Applicant may collapse the unoccupied burrows, or otherwise obstruct their entrances to prevent owls from entering and nesting in the burrows. This measure would prevent inadvertent impacts during construction activities. (3) If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and CDFG for approval, and no further mitigation is necessary. (4) If occupied burrows are found, impacts on the burrows shall be avoided by providing a buffer of 165 feet during the nonbreeding season (September 1 through January 31) or 250 feet during the breeding season (February 1 through August 31). The size of the buffer area may be adjusted if a qualified biologist approved by the County and the CDFG determine it would not be likely to have adverse effects on the owls. No project activity shall commence within the buffer area until the qualified biologist confirms that the burrow is no longer occupied. If the burrow is occupied by a nesting pair, a minimum of 7.5 acres of foraging habitat contiguous to the burrow shall be maintained until the breeding season is over. (5) If impacts on occupied burrows are unavoidable, onsite passive relocation techniques currently approved by CDFG shall be used to encourage owls to move to alternative 	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p>burrows outside of the impact area. No occupied burrows shall be disturbed during the nesting season unless the qualified biologist verifies through non-invasive methods that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Mitigation for foraging habitat for relocated individuals or pairs shall follow guidelines provided in the CDFG’s Staff Report on Burrowing Owl Mitigation (1995) and/or Burrowing Owl Consortium’s <i>Burrowing Owl Survey Protocol and Mitigation Guidelines</i> (April 1993). This includes mitigation for loss of foraging habitat through the preservation of, a minimum of 6.5 acres of foraging habitat (calculated on a 100 m {approximately: 300 feet-}) foraging radius around the burrow) per pair or unpaired resident bird.</p> <p>MM4.4-1(d) Nesting habitat for other <i>Migratory Bird Treaty Act</i> (MBTA) or otherwise protected or sensitive avian species:</p> <ol style="list-style-type: none"> (1) When feasible, all tree removal shall occur between August 31 and February 1 to avoid the breeding season of any raptor species that could be using the area, and to discourage hawks from nesting in the vicinity of an upcoming construction area. This period may be modified with the authorization of the CDFG; or. (2) Prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 1 and August 31, all <u>areas supporting trees, shrubs, or structures capable of supporting bird nests</u> within 350 feet of any grading or earthmoving activity shall be surveyed for active raptor nests or owl burrows by a qualified biologist no more than 21 days prior to disturbance. If active raptor nests are found within 350 feet of potential construction activity, a fence shall be erected around the tree at a distance of up to 350 feet, depending on the species, from the nest location to prevent construction disturbance and intrusions on the nest area. The appropriate buffer shall be determined by the County in consultation with qualified biologists and/or the CDFG. (3) Completion of the nesting cycle shall be determined by a qualified ornithologist or biologist, as determined by the County. 	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p>Impact 4.4-2 Implementation of the Proposed Project could result in the loss of the valley elderberry longhorn beetle (VELB).</p>	Potentially significant	<p>MM4.4-2 To mitigate for effects to the VELB, the Applicant shall provide compensatory mitigation in accordance with the mitigation guidelines set forth in the <i>Conservation Guidelines for the Valley Elderberry Longhorn Beetle</i> (USFWS 1999). The following measures shall be implemented to provide compensatory mitigation for effects to the VELB:</p> <p>Elderberry shrubs that would be removed as a result of the Proposed Project shall be removed and transplanted to a conservation area or USFWS-approved mitigation bank. Shrub removal and transplantation techniques shall be in accordance with the guidelines provided by the USFWS. A qualified biologist as determined by the County, shall be present on site for the duration of the transplanting activities. Elderberry plants shall only be transplanted when they are dormant and have lost their leaves, which is approximately November through the first two weeks of February.</p> <p>Each elderberry stem measuring 1 inch or greater in diameter at ground level that is transplanted or destroyed shall be compensated at the ratios shown in mitigation guidelines set forth in the <i>Conservation Guidelines for the Valley Elderberry Longhorn Beetle</i> (USFWS 1999).</p>	Less than significant
<p>Impact 4.4-3 Implementation of the Proposed Project could result <u>in</u> the loss of the western pond turtle.</p>	Potentially significant	<p>MM4.4-3 Loss of Western Pond Turtle</p> <ol style="list-style-type: none"> (1) Before any ground-disturbing construction activities begin within 150 feet of potential habitat, the Project Applicant shall retain a qualified biologist to conduct focused surveys for western pond turtle to determine the presence or absence of this species on the Project Site. Surveys shall meet the requirements of current CDFG protocols as appropriate and must be conducted every year in which construction activities would occur within potential habitat for this species and must comply with the following conditions. Surveys shall occur before April 1 to allow evaluation of the population before the turtle nesting season. (2) If western pond turtles are not found on the Project Site, a letter report documenting survey methods and findings shall be submitted to CDFG at least 5 days before construction. (3) If juvenile or adult turtles are found on the Project Site, the individuals shall be moved to suitable habitat out of the construction site with technical assistance from CDFG, as needed. All relocation shall occur prior to April 1 unless otherwise allowed by CDFG. If a nest is found in the construction area, CDFG shall be notified immediately to determine appropriate measures to protect or relocate the nest. 	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.4-4 Implementation of the Proposed Project and Off-Site Avenue 15 Pipeline alternative could result in the loss of the California tiger salamander and/or its designated critical habitat.</p>	<p>Potentially significant</p>	<p>MM4.4-4(a) Prior to the issuance of a grading permit, the Project Applicant shall perform protocol level habitat assessment for the California Tiger Salamander (CTS) within the Project Site. The results shall be submitted to the USFWS and if needed, the Project Applicant shall initiate an informal consultation with the USFWS to discuss measures to avoid potential take of CTS. Although details of these measures would be developed in consultation with the USFWS, they are likely to include:</p> <ul style="list-style-type: none"> ■ Retaining a qualified biologist to conduct a preconstruction survey of the Project Site area to ensure that no potential upland retreat habitat has been created (i.e., through ground squirrel activity) since the 2005 habitat assessment ■ Seasonal restrictions on grading and construction to avoid the wet season dispersal period ■ Installation of drift fences around the perimeter of the construction area to prevent any CTS from moving into the area ■ Retaining qualified biologists to monitor the Project Site area during construction to ensure that no CTS are harmed <p>MM4.4-4(b) If CTS are found within an area that would be directly or indirectly impacted by the Proposed Project, the Project Applicant and/or their representatives shall initiate consultation with the USFWS pursuant to Section 7 or 10 of the FESA to obtain an incidental take permit for loss of individual CTS. Detail of the requirements of the Incidental Take Permit would be developed during consultation with the USFWS, but are likely to include (but not be limited to) the following:</p> <ul style="list-style-type: none"> ■ Preparation of a Biological Assessment pursuant to Section 7 of the FESA for submission to the USFWS for their review ■ Conservation of designated critical habitat that meets the species habitat requirements, or payment of mitigation fees, and/or purchase of mitigation land to compensate for the loss of CTS habitat ■ Retaining a CTS permitted biologists to monitor for, and potentially move CTS outside of the Project Site area <p>MM4.4-4(c) <u>If construction activities for the Off-Site Avenue 15 Pipeline would occur before July 1, including mobilization, staging, or ground disturbance activities (e.g., ripping, excavation, and grading), the Project Applicant shall retain a qualified biologist to perform a pre-construction survey of the alignment and immediate vicinity (approximately 100 feet beyond the alignment in all directions) to confirm that all vernal pools and other seasonally wet habitats capable of supporting active CTS have completely dried. The survey shall verify the onset of the dry season in the region and that CTS potentially occurring in the alignment vicinity are positively aestivating in underground refugia and are not dispersing or migrating aboveground. The results of the pre-construction survey shall be documented in a report prepared by the qualified biologist and the</u></p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p><u>report shall be submitted to the County.</u></p> <p><u>Construction of the Off-Site Avenue 15 Pipeline shall not commence until it has been verified by the County, in writing, that the activities would be restricted to the dry season and would not directly or indirectly impact CTS or its habitat, or other special-status vernal pool species and their habitat, as determined by the qualified biologist.</u></p> <p><u>In the unlikely event that CTS are found within an area that would be directly or indirectly impacted by the Off-Site Avenue 15 Pipeline, the Project Applicant shall implement mitigation measure MM4.4-4(b).</u></p> <p><u>MM4.4-4(d) Prior to construction activities for the Off-Site Avenue 15 Pipeline, including mobilization, staging, or ground disturbance activities (e.g., ripping, excavation, and grading), the Project Applicant shall retain a qualified biologist to monitor the installation of temporary silt fencing along the south side of Avenue 15 and the proposed alignment, which occur within 25 feet of sensitive areas, including vernal pools, potential jurisdictional resources, and suitable aquatic habitat for CTS and western spadefoot toad. Upon completing the installation of the silt fencing, the qualified biologist shall inspect all fencing to verify it has been installed in the appropriate locations and it will be effective in serving as a protective barrier to construction-related activities. The temporary silt fencing shall be monitored and repaired by the Construction Contractor, as appropriate, throughout the duration of construction activities. The fencing shall be removed and properly disposed of by the Construction Contractor upon completion of construction activities.</u></p>	
<p><u>Impact 4.4-4(a) Implementation of the Off-Site Avenue 15 Pipeline alternative could result in the loss or degradation of habitat for the vernal pool fairy shrimp, including its designated Critical Habitat.</u></p>	<p><u>Potentially significant</u></p>	<p><u>Refer to MM4.4-4(c) and MM4.4-4(d).</u></p>	<p><u>Less than significant</u></p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.4-5 Implementation of the Proposed Project and Off-Site Avenue 15 Pipeline alternative could result in the loss or degradation of habitat for the western spadefoot.</p>	<p>Potentially significant</p>	<p>Refer to MM4.4-4(a) and <u>MM4.4-4(b), MM4.4-4(c), and MM4.4-4(d)</u>. MM4.4-5 The aquatic habitat that could potentially be occupied by western spadefoot shall be determined through surveys conducted during the appropriate season (generally February, but dependant on rainfall), by a qualified biologist, as determined by the County. Those areas that are found to support western spadefoot shall be avoided, if feasible. If avoidance is not feasible, the CDFG shall be consulted to approve a western spadefoot’s adult, larval, or egg mass capture and relocation plan. While there are no set protocols for the capture and relocation of reptile and amphibian species (from areas that will be destroyed to areas of unoccupied suitable habitat), it is a standard measure employed by both the USFWS and CDFG for mitigating the loss of population. When done in combination with habitat restoration and preservation that is required through State and Federal no net loss of wetlands policy, the procedure is known to be successful in preserving displaced populations. This measure would mandate that, to the extent feasible, western spadefoots that are displaced from occupied aquatic habitat destroyed during construction, would be relocated to protected areas of suitable habitat, thereby reducing impacts on western spadefoots to less-than-significant levels.</p>	<p>Less than significant</p>
<p>Impact 4.4-6 Implementation of the Proposed Project would not have a significant adverse effect on special-status fish species.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.4-7 Implementation of the Proposed Project and Off-Site Avenue 15 Pipeline alternative would not have a significant adverse effects on the San Joaquin kit fox, the American badger, or special-status bat species.</p>	<p>Less than <u>Potentially significant</u></p>	<p>No mitigation is required. <u>Refer to MM4.4-4(d)</u>.</p>	<p>Less than significant</p>
<p>Impact 4.4-8 Implementation of the Proposed Project would not result in the loss of special-status plant species.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.4-8(a) Implementation of the Off-Site Avenue 15 Pipeline alternative could result in the loss or degradation of habitat for <u>fleshy owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass, including designated Critical Habitat.</u></p>	<p><u>Potentially significant</u></p>	<p><u>Refer to MM4.4-4(c) and MM4.4-4(d)</u>.</p>	<p><u>Less than significant</u></p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.4-9 The Proposed Project could have a substantial adverse effect on Great Valley Mixed Riparian Forest or other riparian habitat.</p>	<p>Potentially significant</p>	<p>Refer to <u>MM4.4-4(d)</u> and <u>MM4.4-11(a)</u>.</p> <p>MM4.4-9(a) Permanently impacted sensitive habitat that cannot be avoided shall be replaced or restored on site at a minimum 1:1 ratio for temporary and 2:1 for permanent impacts under a mitigation plan approved by the CDFG under Section 1600 of the California Fish and Game Code, (and/or other appropriate agency such as the U.S. Army Corps of Engineers for 404 wetlands). A vegetation and mitigation monitoring plan shall be prepared and approved by the CDFG and/or U.S. Army Corps of Engineers prior habitat modification.</p> <p>The revegetation plan shall include the following:</p> <ol style="list-style-type: none"> a. The details and procedures required to prepare the restoration site for planting (i.e., grading, soil preparations, soil stocking, etc.) b. The methods and procedures for the installation of the <u>native</u> plant materials c. Guidelines for the maintenance of the mitigation site during the establishment phase of the <u>native</u> plantings; the maintenance program shall contain guidelines for the control of nonnative <u>and invasive</u> plant species and the replacement of plant species that have failed to recolonize d. The revegetation plan shall provide for monitoring to evaluate the growth of the developing habitat and/or vegetation; specific goals for the restored habitat shall be defined by quantitative and qualitative characteristics of similar habitats and plants (e.g., density, cover, species composition, structural development) e. Contingency plans and appropriate remedial measures shall also be outlined in the revegetation plan should the plantings fail to meet designated success criteria and planting goals <p>This measure may be implemented through a Streambed Alteration Agreement or other regulatory mechanism to the satisfaction of the County.</p> <p>MM4.4-9(b) The Project Applicant shall include adequate signage and appropriate fencing adjacent to any sensitive habitats that remain or are created through mitigation. A signage and fencing plan shall be developed with the CDFG, but at a minimum "Sensitive habitat" signs shall be installed along the sensitive habitat boundaries every 100 feet. The signs would inform the public of the sensitive habitat and species in the area and that unauthorized disturbance could be subject to penalties imposed by the CDFG and USFWS. Fencing shall be designed to allow free movement of wildlife, but restrict human movement.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p>Impact 4.4-10 The Proposed Project could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the <i>Clean Water Act</i>.</p>	<p>Potentially significant</p>	<p>Refer to <u>MM4.4-4(d)</u>, MM4.4-9(a), MM4.4-9(b), and MM4.4-11(a).</p>	<p>Less than significant</p>
<p>Impact 4.4-11 Development of the Proposed Project and Off-Site Avenue 15 Pipeline alignment could result in the isolation or interruption of contiguous habitat, which could interfere substantially with the movement of resident or migratory wildlife species and migratory wildlife corridors.</p>	<p>Potentially significant</p>	<p><u>Refer to MM4.4-4(c)</u></p> <p>MM4.4-11(a) As identified in Madera County General Plan Policy 5.E.1, a minimum 200-foot wildlife corridor buffer will be established and maintained in perpetuity along the undeveloped portions of the San Joaquin River’s riparian corridor. Policy 3.6.1 from the Tesoro Viejo Specific Plan states that all existing drainage channels shall be public open space from top-of-bank to top-of-bank. In addition, as required by Madera County General Plan Policy 5.D.4, on either side of the primary (main) drainage channel wildlife corridor buffer zones of 100 feet, as measured from the top of bank of un-vegetated portion of the channel, or 50 feet as measured from the outer edge of any riparian canopy shall be established. No lighting shall occur within the buffer area. If passive recreational trails limited to daytime use are proposed in the buffer area, the specific types of uses and/or the terms under which these uses could be developed in the buffer areas would be subject to review and approval by the County, with the input of a qualified biologist.</p> <p>MM4.4-11(b) To avoid degradation of habitat values for wildlife along the river and the primary drainage portion of the site, areas where automobile headlights could be directed at a 90 degree angle onto the vegetation shall be screened through the placement of a 3–4 foot tall vegetated hedge of native California species or other structural methods that would not additionally hinder wildlife movement through the aforementioned corridor.</p> <p>MM4.4-11(c) Any road crossings through the wildlife movement corridors on site shall incorporate measures to safely facilitate the movement of wildlife under the roadway. These measures shall include, but not be limited to, the use of either bridges or culverts that are large enough that wildlife have enough space to pass through these road crossings without having to travel over the road surface, the implementation of bank stabilization measures, and/or restoration and revegetation of stream corridor habitat that has been damaged by the project’s construction. Furthermore, any recreational trails adjacent to the open space corridor shall be lined by post and rail fence and signage would be used to direct trail users and their pets to stay within the designated trail corridor.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
CULTURAL RESOURCES			
<p>Impact 4.5-1 Implementation of the Proposed Project could result in an adverse affect to a Traditional Cultural Property, which is an area held sacred to the Native American community.</p>	Potentially significant	Feasible mitigation may be identified as part of the SB 18 process, but it cannot be definitely identified at this stage in the planning process.	Significant and unavoidable
<p>Impact 4.5-2 Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as CA-MAD-2394, <u>Locus B</u>.</p>	Potentially significant	<p>MM4.5-2(a) Prior to the commencement of construction activities that could directly or indirectly impact CA MAD 2394, the Project Applicant shall hire a qualified archaeologist to analyze the artifacts previously recovered in test excavations to verify the data potential and integrity of the site. If it is verified that the site is a historical resource for the purposes of CEQA the qualified archaeologist shall review all existing documentation and make recommendations as to the appropriate course of action. Appropriate actions could include a Data Recovery Plan or preservation in place. The County shall review and approve any course of action recommended by the archaeologist.</p> <p>MM4.5-2(b) If recommended, the Data Recovery Plan shall be completed and implemented prior to the commencement of construction activities that could directly or indirectly impact CA MAD-2394. The Project Applicant shall be responsible for hiring a qualified archaeologist to prepare the Data Recovery Plan. The Data Recovery Plan shall compensate for the impacts of the project by collecting a representative sample of the cultural remains and other data that would otherwise be destroyed. The data recovery effort would include all necessary professional tasks including artifact analysis, special technical studies, and preparation of a final report. The recovered materials from the site shall be prepared for curation in perpetuity, and placed in a curation facility.</p> <p>MM4.5-2(c) If preservation in place is the course of action approved by the County a qualified archaeologist shall, hired by the Project Applicant, shall be retained to complete a preservation plan. Preservation Plan for the eligible resource, (CA-MAD-2394, Locus B), which shall be reviewed and approved by the County prior to implementation. The Project Applicant Preservation Plan shall be responsible identify protective measures, including incorporation into open or undeveloped space (as proposed by the Project), as well as guidance on setbacks from any proposed trails in the vicinity to deter unwanted pedestrian traffic, methods to minimize the potential for hiring looting or vandalism of exposed surface or subsurface resources, and provisions for semi-annual or annual monitoring by a qualified archaeologist to prepare a plan for preservation in place. Protective measures might and/or by the local Native American community with reports filed with the County and other agencies, such as the SSJVIC. Consistent with the Comprehensive Settlement Agreement, the Plan shall also identify signage to be placed along public trails to provide indicators of the previous activities of the ancestors of the Dumna Tribe as part of their migration, settlement, and life in the San Joaquin Valley. The</p>	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p>Plan could additionally include building setbacks, open space or historic zoning, annual monitoring programs, on-site monitoring during construction, use of temporary or all of the following: permanent fencing during construction; planting of vegetation, and capping; intervening earthworks; cautionary signage; funding for permanent maintenance of the fencing; and/or acquisition of the site by a group, such as the Archaeological Conservancy.</p> <p>MM4.5-2(db) During construction, the site <u>(CA-MAD-2394, Locus B)</u> shall be protected from vandalism, illicit excavation or artifact collection, and inadvertent direct impact. Orange protective fencing shall be installed prior to the initiation of any construction activities within 100 feet of the site boundary. A qualified archeological monitor shall be retained by the Project Applicant to conduct construction monitoring. If appropriate and deemed necessary by the archaeological monitor, the County, and the local Native American community (as determined by establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), a Native American monitor shall be retained by the Project Applicant to conduct construction monitoring to ensure that Native American resources are appropriately handled.</p> <p>MM4.5-2(ec) The site <u>(CA-MAD-2394, Locus B)</u> must further be protected after development from vandalism, illicit excavation or artifact collection, after the completion of construction. The County shall discuss measures for long-term protection with the local Native American Community (as determined by establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), and an appropriate plan shall be developed. The final plan could include any or all of the following: permanent fencing; funding for permanent maintenance of the fencing; annual or semi-annual monitoring by archeologists and/or by the local Native American community with reports filed with the County and other agencies; acquisition of the site by a group such as the Archaeological Conservancy. In certain situations, "capping" or covering the site with a layer of soil is acceptable, if the area is to be used as a park, parking lot, or similar facility. Capping of a site is acceptable only if the soils to be covered will not suffer extensive compaction; the covering materials are not chemically active; and if the process of natural deterioration has been effectively arrested; and the site has been recorded, and included in the Preservation Plan described in mitigation measure MM4.5-2(a).</p>	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p>Impact 4.5-3 Implementation of the Proposed Project may cause a substantial adverse change in the significance of a historical or archaeological resource identified as CA-MAD-295/827, <u>Locus A</u>.</p>	<p>Potentially significant</p>	<p>Refer to <u>MM4.5-2(a)</u> through <u>MM4.5-2(e)</u></p> <p><u>MM4.5-3(a)</u> Upon the final determination of the location for all Project-related components, a qualified archaeologist, hired by the Project Applicant, shall be retained to complete a Data Recovery Plan for the those portions of eligible resource CA-MAD-295/827, Locus A that cannot be preserved in open or undeveloped space. The Plan shall be reviewed and approved by the County prior to implementation and shall address the disposition of the materials recovered, depending on the significance of what is found, and could include curation, preservation in another place, or possession by the Dumna. A Native American monitor shall be retained by the Project Applicant to conduct monitoring during the approved Data Recovery Plan to ensure that Native American resources are appropriately handled.</p> <p><u>MM4.5-3(b)</u> Any excavation or grading activities associated with Project-related facilities shall be subject to monitoring by representatives of the Dumna Tribe consistent with the requirements of the Comprehensive Settlement Agreement, which would allow oversight during the recovery of artifacts, if discovered. Full analysis shall be completed for the artifacts and other cultural materials recovered. The results of the analysis shall be incorporated into a report meeting accepted professional standards and be submitted to the SSJVIC.</p> <p><u>MM4.5-3(c)</u> Upon the final determination of location for all Project-related components, a qualified archaeologist, hired by the Project Applicant, shall be retained to complete a Preservation Plan for the those portions of eligible resource CA-MAD-295/827, Locus A that can be preserved, which shall be reviewed and approved by the County prior to implementation. The Preservation Plan shall identify protective measures, including incorporation into open or undeveloped space (as proposed by the Project), avoidance, as well as guidance on setbacks from any proposed trails in the vicinity to deter unwanted pedestrian traffic, methods to minimize the potential for looting or vandalism of exposed or subsurface resources, and provisions for semi-annual or annual monitoring by a qualified archaeologist and/or by the local Native American community with reports filed with the County and other agencies, such as the SSJVIC. Consistent with the Comprehensive Settlement Agreement, the Plan shall also identify signage to be placed along public trails to provide indicators of the previous activities of the ancestors of the Dumna Tribe as part of their migration, settlement, and life in the San Joaquin Valley. The Plan could additionally include any or all of the following: permanent fencing; planting; intervening earthworks; cautionary signage; funding for permanent maintenance of the fencing; and/or acquisition of the site by a group, such as the Archaeological Conservancy.</p> <p><u>MM4.5-3(d)</u> During construction, the site (CA-MAD-295/827, Locus A) shall be protected from vandalism, illicit excavation or artifact collection, and inadvertent direct impacts. Orange protective fencing shall be installed prior to the initiation of any construction activities within 100 feet of areas proposed to be avoided or incorporated into open space. A qualified</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p><u>archeological monitor shall be retained by the Project Applicant to conduct construction monitoring. If appropriate and deemed necessary by the archeological monitor, the County, and the local Native American community (as determined by establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), a Native American monitor shall be retained by the Project Applicant to conduct construction monitoring to ensure that Native American resources are appropriately handled.</u></p> <p><u>MM4.5-3(e) The site (CA-MAD-295/827, Locus A) must further be protected after development from vandalism, illicit excavation or artifact collection, after the completion of construction. The County shall discuss measures for long-term protection with the local Native American Community (as determined by establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), and an appropriate plan shall be developed and included in the Preservation Plan described in mitigation measure MM4.5-3(c).</u></p>	
<p>Impact 4.5-4 Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as CA MAD 2392.</p>	<p>Potentially significant</p>	<p>Refer to MM4.5-2(a) through MM4.5-2(e)</p>	<p>Less than significant</p>
<p>Impact 4.5-5 Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as CA MAD 826.</p>	<p>Potentially significant</p>	<p>Refer to MM4.5-2(a)</p>	<p>Less than significant</p>
<p>Impact 4.5-6 Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as Madera Canal (P-20-002308).</p>	<p>Potentially significant</p>	<p>MM4.5-6 The Project Applicant shall initiate contact with the Bureau of Reclamation and shall complete all requested tasks with qualified cultural resource professionals as required by that agency for the Section 106 review process. As part of the review process, a professional historian may be required to prepare a Determination of Effect document. If the effect is found to be adverse, a Historic Properties Treatment Plan shall be prepared. Once the mitigation measures suggested in the Historic Properties Treatment Plan are approved by the Office of Historic Preservation, a Memorandum of Agreement shall be prepared and signed by the Project Applicant, agency, and the Office of Historic Preservation. All tasks required by the Bureau of Reclamation shall be completed by the Project Applicant prior to the commencement of any construction activities that could impact the Madera Canal.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.5-7 Implementation of the Proposed Project may result in a substantial adverse change to previously undiscovered buried prehistoric or historic period resources.</p>	<p>Potentially significant</p>	<p>MM4.5-7 If unknown cultural resources are discovered during project construction, all work within 100 feet of the discovery shall cease, and a qualified archaeologist shall be retained by the Project Applicant, and approved by the County. A qualified archaeologist shall be retained by the Project Applicant to assess the significance of the find, make recommendations on its disposition, and prepare appropriate field documentation, including verification of the completion of required mitigation. If archaeological resources are discovered during earth moving activities, all construction activities within 100 feet of the find shall cease until the archaeologist evaluates the significance of the resource. If the resource is determined to be significant, the archaeologist shall prepare Data Recovery Plan that satisfies the requirements of <i>Public Resources Code</i> Section 21083.2. The archaeologist shall complete a report of the excavations and findings. Upon approval of the report, the Project Applicant shall submit the report to the regional office of the California Historic Resources Information System (CHRIS) and Madera County.</p>	<p>Less than significant</p>
<p>Impact 4.5-8 Implementation of the Proposed Project has the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.</p>	<p>Potentially significant</p>	<p>MM4.5-8 Should paleontological resources be identified in a particular location within the Project Site, the Project Applicant shall cease operations within 100 feet of the potential resource until a qualified professional can complete the following actions:</p> <ol style="list-style-type: none"> 1. Identify and evaluate paleontological resources by intense field survey where impacts are considered high 2. Assess effects on identified sites 3. Consult with the institutional/academic paleontologists conducting research investigations within the geological formations that are slated to be impacted 4. Obtain comments from the researchers 5. Comply with researchers' recommendations to address any significant adverse effects where determined by the County to be feasible 	<p>Less than significant</p>
<p>Impact 4.5-9 Implementation of the Proposed Project could result in the disturbance of human remains, including those interred outside of formal cemeteries.</p>	<p>Potentially significant</p>	<p>MM4.5-9 If human remains are discovered during earth-moving activities, all ground-disturbing activity within 100 feet of the resources shall be halted and the County Coroner shall be notified immediately, according to Section 5097.98 of the California Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the County Coroner to be Native American, the NAHC shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Madera County shall also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. As necessary, the archaeologist may provide professional assistance to the Most Likely Descendant, including the excavation and removal of the human remains before resuming ground-disturbing activities within 100 feet of where the remains were discovered.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
GEOLOGY, SOILS, AND MINERAL RESOURCES			
<p>Impact 4.6-1 The proposed Tesoro Viejo Specific Plan project would not expose people and structures to potential adverse effects beyond those for which structures are required to be designed by the 2007<u>2010</u> CBC, including the risk of loss, injury, or death involving strong seismic groundshaking (<u>Modified Mercalli Intensity</u> equal to, or greater than, MMI VII) because the Project Site is in a seismic groundshaking area that would experience groundshaking equal or less than, MMI I to MMI II.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.6-2 The proposed Tesoro Viejo Specific Plan project would not expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007<u>2010</u> CBC, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, because the soils on the Project Site are not prone to liquefaction.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.6-3 The proposed Tesoro Viejo Specific Plan project would not expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007<u>2010</u> CBC, including the risk of loss, injury, or death involving landslides because the Project Site primarily consist of gently sloping land with a few areas of landslide risks.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p>Impact 4.6-4 The proposed Tesoro Viejo Specific Plan project would not result in soil erosion or the loss of topsoil exceeding the standards established by the National Pollutant Discharge Elimination System permitting process for projects in the <u>Central Valley area and/or the 2007/2010</u> CBC because an Erosion and Sediment Transport Control Plan is required to be prepared for the project prior to the commencement of grading.</p>	Less than significant	No mitigation is required.	Less than significant
<p>Impact 4.6-5 The proposed Tesoro Viejo Specific Plan project could cause on- or off-site <u>impacts related to unstable soils, such as</u> lateral spreading, subsidence, settlement, or collapse because the Project Site contains potentially unstable geologic and soil units.</p>	Less than significant	No mitigation is required.	Less than significant
<p>Impact 4.6-6 The proposed Tesoro Viejo Specific Plan project could be located on expansive soil, as defined in Table 18-1-AB of the <u>California Uniform Building Code (2001/1994)</u>, as adopted by the Madera County, creating life or property hazards.</p>	Less than significant	No mitigation is required.	Less than significant
<p>Impact 4.6-7 The proposed Tesoro Viejo Specific Plan project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.</p>	Less than significant	No mitigation is required.	Less than significant
<p>Impact 4.6-8 The proposed Tesoro Viejo Specific Plan would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.</p>	Less than significant	No mitigation is required.	Less than significant
HAZARDS AND HAZARDOUS MATERIALS			
<p>Impact 4.7-1 Construction and operation of the Proposed Project could involve the routine use, transport, and disposal of hazardous materials, but no significant hazard to the public or the environment would occur.</p>	Less than significant	No mitigation is required.	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.7-2 Operation of the Proposed Project would not expose construction workers or the public to significant health and safety hazards through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.7-3 Construction and operation of the Proposed Project could result in hazardous emissions within ¼ mile of a proposed school.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.7-4 Construction of the Proposed Project would not affect known sites that are included on a list of hazardous materials pursuant to Government Code Section 65962.5; however, there is the potential to discover contaminated soil and/or groundwater that could be present on the Project Site as a result of historic agricultural operations.</p>	<p>Potentially significant</p>	<p>MM4.7-4(a) In order to determine if contaminants may be present in the soil, a sampling program shall be conducted in areas proposed for sensitive land uses, such as residences and schools. Sampling protocol shall include, but not be limited to, sampling in random grid locations, sampling at various soil depths, and sampling in areas where known mixing of pesticides has occurred. Soil samples shall be analyzed for elevated levels of agricultural chemicals.</p> <p>Remediation activities shall be required if testing reveals levels of contaminants that exceed regulatory requirements and/or pose a threat to the public health and the environment. Remediation may be required for both soils and groundwater, if regulatory requirements are exceeded. The remediation plan shall require approvals from the appropriate agencies. Remediation activities could include excavation and disposal, excavation and on-site treatment, or capping the soil with an impenetrable surface such as asphalt or concrete.</p> <p>MM4.7-4(b) In the event that previously unknown or unidentified soil or groundwater contamination that could present a threat to human health or the environment is encountered during construction on the Project Site or off-site infrastructure construction, construction activities in the immediate vicinity of the contamination shall cease immediately. If contamination is encountered, a Risk Management Plan shall be prepared by the developer(s) and implemented that (1) identifies the contaminants of concern and the potential risk each contaminant would pose to human health and the environment during construction and post-development; and (2) describes measures to be taken to protect workers, and the public from exposure to potential site hazards. Such measures could include a range of options, including, but not limited to, physical site controls during construction, remediation, long-term monitoring, post-development maintenance or access limitations, or some combination thereof. Depending on the nature of contamination, if any, appropriate agencies shall be notified (e.g., Madera County Fire Department). If needed, a Site Health and Safety Plan that meets Occupational Safety and Health Administration requirements shall be prepared and in place prior to commencement of work in any contaminated area.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.7-5 Construction and operation of the Proposed Project could expose people or structures to a significant risk of loss, injury, or death involving wildland fires.</p>	<p>Potentially significant</p>	<p>MM4.7-5 During construction of the Proposed Project, all staging areas, welding areas, or areas slated for development that use spark-producing equipment shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be monitored to ensure the spark arrestor is in good working order. All vehicles and crews working on the Project Site shall have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.</p>	<p>Less than significant</p>
<p>Impact 4.7-6 Operation of the Proposed Project could expose people to vectors, which may include disease bearing mosquitoes.</p>	<p>Potentially significant</p>	<p>MM4.7-6 The developer(s) shall prepare a Vector and Vegetation Management Program to be submitted for approval to Madera County and the Madera County Mosquito and Vector Control District. The program would be ongoing and may require that no vegetation conducive to mosquito breeding is allowed to exist within or around the detention basins, with or without the presence of water. The Vector and Vegetation Management Program may also require that no undue obstructions to wind circulation are allowed to occur around the detention basins. The program shall also require adequate access be maintained to the entire perimeter of each detention basin.</p> <p>The Vector and Vegetation Management Program may also establish provisions for stocking mosquitofish or other species that will reduce conditions conducive to mosquito and other vector production when water is present. An ongoing contract for mosquito control services shall be maintained by the developer(s) if the water detention basin is determined by a mosquito and vector control specialist as requiring extensive monitoring and vector control services.</p>	<p>Less than significant</p>
HYDROLOGY AND WATER QUALITY			
<p>Impact 4.8-1 Construction of the Proposed Project could increase stormwater pollutant loads or concentrations, but would not result in a violation of water quality standards or violation of waste discharge requirements.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p>Impact 4.8-2 Operation of the Proposed Project would increase pollutant loads that could result in a potentially significant impact on violation of water quality standards or a substantial degradation of water quality.</p>	<p>Potentially significant</p>	<p>MM4.8-2(a)</p> <ul style="list-style-type: none"> ■ Wet Pond. The stormwater detention basins could operate as stormwater wet ponds if a permanent pool of water is maintained (i.e., the bottom of the basin intersect the local shallow groundwater table). Wet ponds treat incoming stormwater runoff by settling and algal uptake. The primary removal mechanism is settling while stormwater runoff resides in the pool. Nutrient uptake also occurs through biological activity in the pond. While there are several different versions of the wet pond design, the most common modification is the extended detention wet pond, where storage is provided above the permanent pool in order to detain stormwater runoff in order to provide greater settling ■ Dry Extended Detention Pond. If all stormwater infiltrates or is discharged through control structures such that the pond completely drains within a certain time frame (e.g., 24 to 72 hours), the basins would function as dry extended detention ponds. Dry extended detention ponds (e.g., dry ponds, extended detention basins, detention ponds, and extended detention ponds) are basins whose outlets are designed to detain the stormwater runoff from a water quality “storm” for some minimum duration, which allow sediment particles and associated pollutants to settle out. Unlike wet ponds, dry extended detention ponds do not have a permanent pool. However, dry extended detention ponds are often designed with small pools at the inlet and outlet of the pond, and can also be used to provide flood control by including additional detention storage above the extended detention level. ■ Stormwater Wetland. If basins are designed to have some standing water in a shallow pool for an extended period of time, they may act as stormwater wetlands. Stormwater wetlands are structural practices similar to wet ponds that incorporate wetland plants in a shallow pool. As stormwater runoff flows through the wetland, pollutant removal is achieved by settling and biological uptake within the practice. Stormwater wetlands are designed specifically for the purpose of treating stormwater runoff, and typically have less biodiversity than natural wetlands both in terms of plant and animal life. <p>MM4.8-2(b) Stormwater Quality Management Plan. The Project Applicant shall prepare and implement an approved Stormwater Management Plan (SQMP) and obtain coverage under the Small MS4 General Permit. The following standard stormwater quality BMPs, or similar practices, shall be required in the SQMP.</p> <p>Education</p> <ul style="list-style-type: none"> ■ Educational materials concerning stormwater quality protection shall be provided to the owner of the development and BMPs and shall be distributed to all employees. Educational materials shall also be provided to residents and commercial building occupants. ■ A spill contingency plan shall be provided to employees in the commercial and light industrial portions of the Proposed Project in accordance with Section 6.95 of the California 	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p>Health and Safety Code.</p> <ul style="list-style-type: none"> ■ The maintenance program shall include signage that informs the public that there is “no dumping allowed” in storm drains. <p>Operations and Maintenance</p> <ul style="list-style-type: none"> ■ A BMP Operations and Maintenance Program (OMP) shall be developed and implemented to ensure continued functioning and effectiveness of BMPs and shall be incorporated as part of the SQMP. The BMP OMP shall include, at a minimum, inspection and maintenance of all structural BMPs on the property; a report of non-structural BMP operating protocols, inspection, and compliance; and reporting requirements. The BMP OMP must be approved by the County of Madera Director of Public Works or their designee prior to the beginning of occupancy. The owner shall be responsible for the BMP OMP. The BMP OMP can be administered through lease agreements assigning responsibility to the occupants or creation of a separate entity with responsibility. If property titles are transferred, the new owner shall be responsible for their respective portion of the BMP OMP. ■ Stabilization of all disturbed areas through revegetation or other erosion control practices. Mulch, plastic sheeting, erosion control blankets, or sandbags shall be used to control erosion caused by rainfall until surfaces have been stabilized ■ The storm drain system shall incorporate common area catch basins that shall be inspected and cleaned monthly. They shall also be inspected before, during and after storms. ■ Storm drain inlet trash racks shall be inspected, and maintained before, during and after storms. ■ For both the residential and commercial portions of the Proposed Project, open areas shall be maintained neat, clean, and free from trash or debris at all times, to prevent contamination of stormwater and to ensure proper drainage. The site shall be inspected weekly, and trash would be cleaned up. For the commercial area, trash storage areas would be constructed. ■ Streets and parking lots shall be swept weekly during the wet weather season beginning October 15 through April 30. During the dry season, streets and parking lots shall be swept every two weeks. A dry vacuum-assisted street sweeper shall be used. ■ Operation and maintenance BMPs for public and commercial area irrigation and landscaping shall include weekly inspection, clean up and maintenance, and quarterly adjustment of irrigation systems. <p>Landscaping Requirements</p> <ul style="list-style-type: none"> ■ Landscaped areas shall be designed to maximize natural water storage and infiltration opportunities. ■ Pesticides in common areas must be applied by an applicator certified by the State of 	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
		<p>California.</p> <ul style="list-style-type: none"> ■ All irrigation systems for public and commercial area shall be designed to incorporate water efficient irrigation technologies and shall be adjusted quarterly for maximum efficiency. ■ All irrigation operations shall not cause or contribute to nuisance runoff conditions. <p>Nutrient and Pesticide Management Plan (NPMP)</p> <ul style="list-style-type: none"> ■ The NPMP shall include requirements and recommendations for nutrient and pesticide handling, use, and disposal to minimize transport of landscape and lawn chemicals in stormwater runoff or infiltration to groundwater. ■ The NPMP shall detail individual, private property requirements and recommendations, as well as public area requirements and maintenance practices. ■ Quick-release fertilizers shall not be allowed for any application; organic fertilizers and use of reclaimed water shall be encouraged. ■ All contractors maintaining public landscaped areas shall be trained in accordance with the NPMP practices and shall comply with provisions set forth. ■ Each resident shall be provided with a copy of the NPMP and an accompanying fact sheet identifying individual responsibilities. <p>Other BMPs</p> <ul style="list-style-type: none"> ■ Erosion control and drainage BMPs shall be implemented where required; appropriate paving of exposed ground surfaces, landscaping, providing terraces on slopes, placing berms at the tops of slopes, velocity dissipation devices at all outlets, and installing adequate storm drain systems shall be used where necessary. Porous paving is suggested in the IMP. Porous paving shall be used to the maximum extent practicable and shall consist of either vegetated, graveled, pervious concrete, or pervious asphalt materials; porous pavement blocks shall not be used unless the SQMP-associated OMP details maintenance protocols to ensure continued functioning and effectiveness. ■ Graded slopes shall be protected until healthy plant growth or other soil stabilization is established. ■ Proposed new slopes shall be protected with planting of shrubs and ground cover to assist in rainwater absorption and erosion control. ■ Landscape buffers shall be placed between residential and commercial areas, except in mixed-use areas ■ Roof top runoff shall be directed to landscaped areas, swales, rain gardens, biofiltration devices, filter strips, or other filtration and treatment BMP, to the maximum extent practicable. ■ The Proposed Project commercial, institutional, and light industrial areas shall have 	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p>extensive foundation planting with shrubs and other ground cover to the maximum extent practicable. Roof runoff shall drain into these landscaped areas and runoff that does not infiltrate therein, would drain to catch basins.</p> <ul style="list-style-type: none"> ■ Parking lots shall be designed to drain to landscaped areas, biofiltration areas, swales, or other filtration/treatment BMPs prior to entering the storm drain system. ■ Parking lots, streets, and sidewalks shall be designed to minimum feasible widths ■ Implement water conservation practices similar to those specified in <i>Madera County Code</i> Section 13.55.020, except in such situations where excess reclaimed water is available for the use. <p>Performance Standards</p> <ul style="list-style-type: none"> ■ The selected stormwater quality BMPs incorporated in the SQMP shall be targeted to reduce stormwater pollutant loads to existing conditions levels. In combination, the BMPs shall have expected pollutant removal rates targeted to reduce Project Site stormwater pollutant loads by at least as much as listed in the "Required Removal" column of Table 4.8-4 (Estimated Pollutant Loads Without BMPs). ■ Stormwater detention basins shall be designed for effectiveness in reducing pollutant loads, as well as detaining stormwater runoff flows. The potential pollutant removal of these stormwater detention basins shall be included in the overall SQMP design to meet targeted reduction rates. ■ The design, construction, and maintenance of structural BMPs shall be in accordance with the California Stormwater Quality Association New Development and Redevelopment Handbook (CASQA 2004) or other established guidelines and handbooks (such as the FMFCD standards and guidelines or Caltrans BMPs), and applicable regulations for stormwater quality BMPs. <p>Preferred BMPs</p> <ul style="list-style-type: none"> ■ If deemed acceptable by Madera County, underground or above-ground cisterns should be considered for stormwater detention and subsequent landscape irrigation where implementation would not result in additional substantial environmental impacts. ■ Maximize the use of dry swales, or grassed/vegetated channels, where soil infiltration conditions are sufficient, to treat stormwater runoff prior to discharge to the Proposed Project storm drain system. ■ Porous concrete/asphalt is preferred for parking lots and other areas where heavy traffic and vehicles would not be a design constraint. Porous concrete/asphalt would effectively reduce the amount of directly connected impervious area and contributions to stormwater runoff when properly designed and implemented. 	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<ul style="list-style-type: none"> ■ Bioretention should be used to the maximum extent practicable: <ul style="list-style-type: none"> > Landscape areas shall be implemented as bioretention BMPs to the maximum extent practicable, especially in parking lot areas, along medians, and in the buffer area between commercial and residential land uses. They are intended to receive and filter storm runoff from both impervious areas and lawns. > Parking lots and streets draining into bioretention areas should drain as sheet flow or should have curbs with curb inlets regularly spaced to accept drainage into the swale <p>Limitations on BMPs</p> <ul style="list-style-type: none"> ■ Underground sand filters shall not be used unless provisions are made to remove ammonia and other nitrogen sources prior to discharge to the sand filters. This is because underground sand filters may increase nitrate concentrations as ammonia in the stormwater undergoes nitrification in the filter environment. ■ Flow velocity through grassed swales and channels shall not exceed 5.2 feet per second through the swale ■ Bioretention system must not be placed into operation until the contributing drainage area is completely stabilized. Therefore, system construction must either be delayed or upstream runoff diverted around the system until such stabilization is achieved. Such diversions must continue until stabilization is achieved. <p>Limitations on Infiltration BMPs</p> <ul style="list-style-type: none"> ■ Infiltration rate tests of the top 5-feet of soil below the bottom of the infiltration BMP shall be conducted for all areas selected for Infiltration BMPs. Infiltration BMPs shall not be located in soils where the infiltration rate exceeds 10 inches per hour or is less than 0.1 inch per hour, unless suitable augmentation is incorporated into the design to effectively remove pollutants from the infiltrating stormwater. ■ Infiltration BMPs shall not be installed until the drainage area has been stabilized. ■ All infiltration BMPs shall incorporate pretreatment, preferably in the form of swales, vegetated buffers, or bioretention areas. ■ Infiltration facilities are subject to clogging and, therefore, are not recommended for areas where sediment, grease, or oil loadings may be high. Such areas include roadways, parking lots, car service facilities, and others. To increase the life expectancy of an infiltration facility, a pretreatment facility, such as a settling basin or "cell," or additional BMPs in a series should be used to remove sediments or other substances from the stormwater runoff before it enters the infiltration facility. ■ Any pretreatment facility design should be included in the design of the infiltration basing/trench, complete with maintenance and inspection requirements. 	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<ul style="list-style-type: none"> ■ For infiltration trenches, a grass strip or other type of vegetated buffer at least 20 feet wide shall be maintained around the trench, to the maximum extent practicable, and accept surface runoff as sheet flow. ■ Stormwater runoff that has the potential to reach the groundwater table through infiltration or other means should be treated sufficiently prior to release such that additional filtration, through soil percolation, would reduce potential pollutants to levels that would not result in exceedance of existing groundwater quality. ■ Concrete swales and v-ditches shall not be installed and used to convey stormwater or nuisance runoff unless used to direct runoff to an appropriate stormwater pre-treatment BMP and incorporates appropriate energy dissipation. Concrete swales and v-ditches would bypass any potential treatment through soils or buffer areas prior to discharge and increase the potential for concentrated flows and associated erosion at the outlet. Furthermore, concrete ditches would reduce the potential for groundwater recharge and water conservation. <p>MM4.8-2(c) Identify an entity to manage the operation and maintenance of the on-site stormwater and water quality management systems, such as the stormwater detention basins. The entity shall be responsible for on-site management system maintenance and performance goals, and shall establish a Stormwater and Water Quality management program, which shall include the following:</p> <ul style="list-style-type: none"> ■ Public outreach ■ Technical guidelines for site evaluation, design, construction, and operation of BMPs ■ Regular system inspections ■ Technical training of staff ■ Funding mechanisms 	
<p>Impact 4.8-3 The Proposed Project would include on-site sewage systems in an area near the San Joaquin River. On-site sewage systems can contribute to ground and surface water quality degradation that could contribute to a violation of water quality standards.</p>	<p>Potentially significant</p>	<p>MM4.8-3(a) Identify an entity to manage the operation and maintenance of the on-site systems. The entity shall be responsible for establishing an on-site wastewater management program that shall include:</p> <ul style="list-style-type: none"> ■ Public outreach ■ Technical guidelines for site evaluation, design, construction, and operation including a provision to prohibit installation on lot sizes less than one-acre in size ■ Regular system inspections ■ Technical training of staff ■ Funding mechanisms ■ Periodic program evaluations and revisions (U.S. EPA 2002, 2-1) 	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p><u>OR</u></p> <p>MM4.8-3(b) Implement a Septic Tank Effluent Pumping (STEP) System. Where on-site sewage treatment is used within the Project Site, the sewage treatment facility shall use a STEP system. The STEP system includes an enclosed septic tank to hold wastewater and waste products with liquid effluent pumped to the local WWTP. Solid material is held in the septic tank, but liquid effluent is pumped to the WWTP for treatment using a STEP system instead of being dispersed through a leach field or septic tank field that is typical of on-site sewage treatment systems. When the septic tank is full of solid waste material, it must be pumped out for disposal at an approved facility, as is typical of all on-site sewage treatment systems. Use of a STEP system eliminates the need and use of septic absorption fields or leach fields. Use of a contained septic tank isolates potential pollutants in wastewater from surrounding soils and groundwater.</p> <p>The STEP systems shall be maintained to ensure adequate capacity and solids removal from the wastewater effluent.</p>	
<p>Impact 4.8-4 Implementation of the Proposed Project would increase water demand within Madera County and would create additional impervious surfaces. These activities would not substantially deplete or interfere with groundwater recharge or groundwater supplies, such that there would be a net deficit in aquifer volume, or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted), or a degradation of groundwater quality.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.8-5 Construction and operation of the Proposed Project would alter the existing drainage patterns of the site, which could result in substantial erosion or siltation on or off site.</p>	<p>Potentially significant</p>	<p>Refer to MM4.8-2(a), MM4.8-2(b), and MM4.8-2(c)</p>	<p>Less than significant</p>
<p>Impact 4.8-6 Implementation of the Proposed Project would alter the existing drainage patterns of the site, and could substantially increase the rate or amount of surface runoff such that flooding would occur on site.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>

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<p>Impact 4.8-7 Implementation of the Proposed Project would not create or contribute runoff water that could exceed the capacity of existing or planned stormwater drainage systems, but could provide substantial additional sources of polluted runoff.</p>	<p>Potentially significant</p>	<p>Refer to MM4.8-2(a), MM4.8-2(b), MM4.8-2(c), and MM4.8-3(a) or MM4.8-3(b)</p>	<p>Less than significant</p>																		
<p>Impact 4.8-8 Implementation of the Proposed Project would create a new stormwater drainage system, including detention basins.</p>	<p>Potentially significant</p>	<p>Refer to MM4.8-2(a), MM4.8-2(b), and MM4.8-2(c)</p>	<p>Less than significant</p>																		
<p>Impact 4.8-9 Implementation of the Proposed Project could substantially degrade surface and groundwater quality by reducing flows to riparian and wetland habitat in the existing and retained natural drainage features.</p>	<p>Potentially significant</p>	<p>MM4.8-9(a) Design Detention Basin and Outlets to Re-establish Existing Conditions Flows. The Project Applicant shall conduct a hydrology study to determine the existing flow to the retained water resources and shall design the up-gradient detention basins' configurations and outlet structures to pass through the existing conditions flows to down-gradient receiving water resources.</p> <ul style="list-style-type: none"> ■ A low-flow channel or by-pass shall be included in the basin design to allow existing low flow runoff of stormwater to pass through to down-gradient receiving waters. ■ The outlet structure shall be designed to allow discharge of larger storm flows (10-year to 100-year storm events) at the existing rate, volume, and duration. <p>MM4.8-9(b) Stormwater Quality Treatment BMPs. The WQMP shall be modified to incorporate sufficient stormwater quality BMPs prior to discharge into the detention basins to sufficiently treat stormwater runoff such that pollutant concentrations in flows that must bypass treatment conditions of the detention basins, pursuant to mitigation measure MM4.8-9(a), shall be targeted to achieve discharge concentrations that do not exceed existing conditions levels.</p> <p>Source control and treatment BMPs shall be implemented prior to stormwater discharge into the storm drain system and they shall be designed to target for reductions in pollutant concentrations by the amount listed in the table below:</p> <table border="1"> <thead> <tr> <th colspan="3" style="background-color: #333; color: white; text-align: center;">Pollutant Reduction Targets for Passed-Through Stormwater Runoff</th> </tr> <tr> <th style="background-color: #eee;"><i>Pollutant^a</i></th> <th style="background-color: #eee;"><i>Commercial Areas (percent)</i></th> <th style="background-color: #eee;"><i>Residential Areas (percent)</i></th> </tr> </thead> <tbody> <tr> <td>Filtered phosphorous</td> <td style="text-align: center;">0</td> <td style="text-align: center;">24</td> </tr> <tr> <td>Total Nitrogen</td> <td style="text-align: center;">54</td> <td style="text-align: center;">47</td> </tr> <tr> <td>Inorganic-Nitrogen</td> <td style="text-align: center;">64</td> <td style="text-align: center;">44</td> </tr> <tr> <td>Total Copper</td> <td style="text-align: center;">41</td> <td style="text-align: center;">17</td> </tr> </tbody> </table>	Pollutant Reduction Targets for Passed-Through Stormwater Runoff			<i>Pollutant^a</i>	<i>Commercial Areas (percent)</i>	<i>Residential Areas (percent)</i>	Filtered phosphorous	0	24	Total Nitrogen	54	47	Inorganic-Nitrogen	64	44	Total Copper	41	17	<p>Less than significant</p>
Pollutant Reduction Targets for Passed-Through Stormwater Runoff																					
<i>Pollutant^a</i>	<i>Commercial Areas (percent)</i>	<i>Residential Areas (percent)</i>																			
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Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation												
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total Lead</td> <td style="width: 25%; text-align: center;">44</td> <td style="width: 25%; text-align: center;">17</td> </tr> <tr> <td>Total Zinc</td> <td style="text-align: center;">73</td> <td style="text-align: center;">45</td> </tr> <tr> <td>Oil and Grease</td> <td style="text-align: center;">72</td> <td style="text-align: center;">67</td> </tr> <tr> <td>Fecal Coliforms</td> <td style="text-align: center;">0</td> <td style="text-align: center;">13</td> </tr> </table> <p>SOURCE: PBS&J 2007 ^a Total Suspended Solids and Total Phosphorous concentrations would not increase</p> <ul style="list-style-type: none"> ■ BMPs implemented before discharge to the storm drain systems shall be designed to treat only the amount of stormwater runoff equivalent to existing conditions runoff. ■ This mitigation measure is intended to constrain design of the project, and is not intended to impose post-construction or on-going water quality testing requirements. 	Total Lead	44	17	Total Zinc	73	45	Oil and Grease	72	67	Fecal Coliforms	0	13	
Total Lead	44	17													
Total Zinc	73	45													
Oil and Grease	72	67													
Fecal Coliforms	0	13													
<p>Impact 4.8-10 A portion of the Proposed Project would lie within a 100-year flood zone and dam inundation zone.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>												
<p>Impact 4.8-11 A portion of the Proposed Project would fall within a 100-year flood zone and dam inundation zone, but would not have a substantial effect on flood flows.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>												
<p>Impact 4.8-12 The Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiches.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>												
LAND USE AND PLANNING															
<p>Impact 4.9-1 The Proposed Project would not conflict with the Madera County General Plan or the Rio Mesa Area Plan, both of which were prepared and adopted by the agency having jurisdiction over the project (Madera County) and contain a number of policies relevant to development at the Project Site.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>												
<p>Impact 4.9-2 The Proposed Project would be substantially consistent with the zoning established in the Rio Mesa Area Plan.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>												

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.9-3The Proposed Project would be substantially consistent with policies established in the San Joaquin River Parkway Master Plan, which were adopted for the purpose of avoiding or mitigating potential environmental effects.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
NOISE			
<p>Impact 4.10-1 Construction activities associated with the Proposed Project would generate noise levels that exceed the noise standards established by the Madera County General Plan.</p>	<p>Potentially significant</p>	<p>MM4.10-1(a) The Project Applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by contractors to reduce construction noise levels:</p> <ul style="list-style-type: none"> ■ As individual parcels within the Project Site are proposed to be developed, notification shall be mailed to owners and occupants of all developed land uses immediately bordering the parcels to be developed including the Sumner Hill Subdivision, and all occupied lands within the Project Site bordering the parcel to be developed. The notification shall provide a schedule for major construction activities that will occur through the duration of the construction period within each parcel to be developed. In addition, the notification will include the identification and contact number for a designated construction manager for the proposed development that would be available on site to monitor construction activities. The construction manager will be located at the on-site construction office during construction hours for the duration of all construction activities. ■ Hours of construction shall be limited to between 7:00 A.M. and 6:00 P.M. on weekdays and from 8:00 A.M. to 5:00 P.M. on Saturdays. ■ Ensure that construction equipment is properly muffled according to industry standards. ■ Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible. ■ Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, noise barriers or noise blankets. <p>MM4.10-1(b) The Project Applicant shall require by contract specifications that construction staging areas, along with the operation of earthmoving equipment within the Project Site, would be located as far away from vibration- and noise-sensitive sites as possible, such as the Sumner Hill Subdivision, and occupied land within the Project Site. Contract specifications shall be included in the Proposed Project construction documents, which shall be reviewed and approved by the County.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
Impact 4.10-2 Operation of the Proposed Project could expose noise-sensitive land uses to noise levels that exceed the standards established by Madera County.	Potentially significant	MM4.10-2 The commercial and retail uses within the mixed use areas of the Proposed Project shall not engage in loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, refuse containers or similar objects between the hours of 10:00 P.M. and 6:00 A.M. if such activities would cause noise levels to exceed Madera County's nighttime exterior noise levels of 45 dBA L_{eq} and 65 dBA L_{max} .	Less than significant
Impact 4.10-3 Operation of the Proposed Project would generate traffic that would contribute to the exposure of the proposed residential uses to noise levels in excess of established standards of the Madera County General Plan.	Less than significant	No mitigation is required.	Less than significant
Impact 4.10-4 Construction activities associated with the Proposed Project would not generate or expose persons or structures off site to excessive groundborne vibration.	Less than significant	Refer to MM4.10-1(b)	Less than significant
Impact 4.10-5 Operation of the Proposed Project <u>under three traffic scenarios, including Year 2025 Cumulative Plus Project, Existing Plus Project in Year 2020, and Existing Plus Project in Year 2025,</u> would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity.	Potentially significant	No feasible mitigation is available.	Significant and unavoidable
Impact 4.10-5(a) <u>Operation of the Proposed Project in the Existing 2011 Plus Project in Year 2015 scenario and the Interim Year 2015 and 2020 Cumulative Plus Project scenarios would generate increased local traffic volumes, but would not cause a substantial permanent increase in ambient noise levels in the Project vicinity.</u>	<u>Less than significant</u>	<u>No mitigation is required.</u>	<u>Less than significant</u>
Impact 4.10-5(b) <u>Operation of the temporary classrooms at Minarets High School during the Interim Year 2015 and 2020 Cumulative Plus Project and Student-Related Traffic scenarios would not generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the Project vicinity.</u>	<u>Less than significant</u>	<u>No mitigation is required.</u>	<u>Less than significant</u>

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<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
Impact 4.10-6 Construction activities associated with development proposed under the Proposed Project would result in a substantial temporary or periodic increase in ambient noise levels.	Potentially significant	Refer to MM4.10-1(a) and MM4.10-1(b)	Less than significant
Impact 4.10-7 Operation of the Proposed Project would not expose people residing or working in the area to temporary increases in ambient noise levels due to the proposed schools that would be located within the Project Site.	Less than significant	No mitigation is required.	Less than significant
POPULATION AND HOUSING			
Impact 4.11-1 Implementation of the Proposed Project would accommodate projected population and housing growth in the area.	Less than significant	No mitigation is required.	Less than significant
Impact 4.11-2 Implementation of the Proposed Project would not displace substantial numbers of businesses and jobs, necessitating the construction of replacement facilities elsewhere.	Less than significant	No mitigation is required.	Less than significant
Impact 4.11-3 Implementation of the Proposed Project would not have a significant effect on the demand for housing and the relationship between jobs and housing that could have direct implications for residence and community patterns and related environmental impacts.	Less than significant	No mitigation is required.	Less than significant
PUBLIC SERVICES AND RECREATION			
Impact 4.12-1 The Proposed Project would necessitate the construction of new fire protection and emergency medical response facilities to achieve acceptable ISO standards and maintain response times. Construction of such facilities would result in potentially adverse physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR.	Potentially significant	Refer to construction-related mitigation measures listed in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this EIR.	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.12-2 The Proposed Project would require new facilities to maintain acceptable service ratios and response times. Construction of such facilities would result in potentially significant physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR.</p>	<p>Potentially significant</p>	<p>Refer to construction-related mitigation measures listed in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this EIR.</p>	<p>Less than significant</p>
<p>Impact 4.12-3 The Proposed Project would increase the demand for <u>on-site</u> schools, requiring the construction of new facilities. Construction of such facilities would result in potentially significant physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures listed in this EIR.</p>	<p>Potentially significant</p>	<p>Refer to construction-related mitigation measures listed in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this EIR.</p>	<p>Less than significant</p>
<p>Impact 4.12-3(a) <u>The Proposed Project would increase the demand for off-site classroom space in grades 9–12 until an on-site high school were constructed, requiring the addition of temporary classrooms at Minarets High School to accommodate students for a 3-year period beginning in 2018 and ending in 2020. Construction of such facilities would result in potentially significant physical impacts. However, these facilities would comply with construction-related mitigation measures listed in this EIR. This would ensure that the Proposed Project's impact with respect to construction of off-site schools would be less than significant.</u></p>	<p><u>Potentially significant</u></p>	<p><u>Refer to construction-related mitigation measures listed in Section 4.3 (Air Quality), Section 4.10 (Noise), Section 4.13 (Transportation/Traffic), and Section 4.15 (Energy and Climate Change) of this EIR.</u></p>	<p><u>Less than significant</u></p>
<p>Impact 4.12-4 The Proposed Project would not significantly increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>

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<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.12-5 The Proposed Project would require the construction of recreational facilities to meet new demand. Construction of such facilities would result in potentially adverse physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures listed in this EIR.</p>	<p>Potentially significant</p>	<p>Refer to construction-related mitigation measures listed in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this EIR.</p>	<p>Less than significant</p>
TRANSPORTATION/TRAFFIC			
<p>Impact 4.13-1 Operation of the Proposed Project would result in all study area intersections operating at an acceptable LOS range (i.e., LOS D or better) during Cumulative (2025) conditions with or without the project. However, six intersections would require lane improvements (e.g. additional turn lanes) and a greater amount of right-of-way to accommodate the lane improvements, so that each intersection could operate at an acceptable LOS with the addition of project traffic.</p>	<p>Potentially significant</p>	<p>MM4.13-1(a) Prior to the approval of a project phase that significantly affects the intersection of SR-41/SR-145, the County, Caltrans shall re-stripe the shared through-right lane into a through lane and add a right turn only lane for the northbound approach, add a second left-turn lane to the southbound approach, and re-stripe a shared through-right lane into a through lane and add a right-turn only lane for the eastbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41/SR-145 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>MM4.13-1(b) Prior to the approval of a project phase that affects the intersection of Road 36/Avenue 15, the County, shall re-stripe the shared through-right lane into a through lane and add a right-turn only lane for the southbound, eastbound, and westbound approaches. Madera County shall make the final determination as to when a project phase significantly affects the intersection of Road 36/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>MM4.13-1(c) Prior to the approval of a project phase that affects the intersection of SR-41/Avenue 15, the County, shall provide an east leg connection, with a through lane, right-turn lane, and two left-turn lanes for the westbound approach; and two receiving lanes for the eastbound approach. In addition, the Project Applicant shall add a right-turn lane and a second left-turn lane for the northbound approach, and add two left-turn lanes for the southbound approach. Finally, the Project Applicant shall add one through lane, and convert the right-turn lane into a shared through-right lane for the eastbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to</p>	<p>Significant and unavoidable</p>

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<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
		<p>accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>MM4.13-1(d) Prior to the approval of a project phase that affects the intersection of SR-41/Road 204, the County, Caltrans shall re-stripe the shared through-right lane into a through lane and a free-flow right-turn only lane for the northbound approach, and add two left-turn lanes and re-stripe the shared through-left-right turn lane to a shared through-right lane for the westbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>MM4.13-1(e) Prior to the approval of a project phase that affects the intersection of SR-41/Road 204, the County, Caltrans shall re-stripe the shared through-right lane into a through lane and a free-flow right-turn only lane for the northbound approach, and add two left-turn lanes and re-stripe the shared through-left-right turn lane to a shared through-right lane for the westbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>MM4.13-1(f) Prior to the approval of a project phase that affects the intersection of SR-41 northbound ramps/Children’s Boulevard intersection, the County, Caltrans shall add a through lane for the southbound approach and remove one free-flow right-turn lane for the eastbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41 northbound ramps/Children’s Boulevard and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p>	

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<p>Impact 4.13-2 Operation of the Proposed Project would result in all major internal project roadways operating at an acceptable LOS (i.e., LOS D or better) under Cumulative (2025) conditions with the Proposed Project. However, when two intersections planned as two-lane roundabout were evaluated as two-lane roundabouts, they were found to operate at unacceptable LOS during the peak hour.</p>	<p>Potentially significant</p>	<p>MM4.13-2(a) The Project Applicant shall construct the roundabout at the intersection of Road 204/Rio Mesa Boulevard/East-West Connector with approaches that flare from two lanes to three lanes. Prior to constructing the roundabout, the Project Applicant (in consultation with Madera County) shall study the road grid around the intersection to determine if it is dense enough to provide a sufficient number of alternative routes that would allow the intersection to operate as a roundabout with a LOS D or better with two-lane approaches. Madera County shall make the final determination as to the number of lanes needed on the roundabout approaches.</p> <p>MM4.13-2(b) Prior to constructing the roundabout at the intersection of Road 204/North-South Connector, the Project Applicant, in consultation with Madera County, shall study the road grid around the intersection to determine if the road grid is dense enough to provide a sufficient number of alternative routes that would allow the intersection to operate as a roundabout with a LOS of LOS D or better. If the road grid is unable to provide a sufficient number of alternative routes, the intersection shall be constructed as a conventional signalized intersection, with three lane approaches on Road 204 and two lanes on the North-South Connector, with single turning lanes on all approaches. Madera County shall make the final determination as to whether the road grid is dense enough to provide a sufficient number of alternative routes that would allow the intersection to operate as a roundabout with a LOS D or better. Madera County shall make the final determination as to the number of lanes needed on the roundabout approaches, if the roundabout is determined to be feasible.</p>	<p>Less than significant</p>
<p>Impact 4.13-3 Construction activities associated with the Proposed Project would temporarily impact the LOS on nearby roadway <u>segments</u>.</p>	<p>Potentially significant</p>	<p>MM4.13-3(a) Trucks delivering materials to and from the construction site shall stay on designated truck routes determined by Madera County. It is expected that most of the truck trips would occur to and from SR-41, thus, primary truck routes during construction would be along Road 204. A construction haul route map shall be prepared.</p> <p>MM4.13-3(b) Should a temporary road and/or lane closure be necessary during construction, the Project Applicant shall provide traffic control activities and personnel, as necessary, to minimize traffic impacts. This may include detour signage, cones, construction area signage, flagmen and other measures as required for safe traffic handling in the construction zone.</p>	<p>Less than significant</p>
<p>Impact 4.13-4 Operation of the Proposed Project would result in three study area intersections (SR-41/Avenue 15, SR-41/Road 204, and SR-41/Avenue 12) operating at an unacceptable LOS (below LOS D) during the Existing 2011 Plus Project in 2015, 2020, and 2025 scenarios. Operation of the Proposed Project would result in one additional study intersection (Road 36/Avenue 15) operating at an unacceptable LOS (below LOS D) during the Existing</p>	<p>Potentially significant</p>	<p>Existing 2011 Plus Project in 2015</p> <p>MM4.13-4(a) Prior to the approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 15, Caltrans shall provide an east leg connection, with one left-turn lane and one through/right-turn lane (only one shared left/through/right-turn lane is needed for Tesoro Viejo phased development with a dedicated left-turn lane needed for Jamison and Morgan phased development) for the westbound approach. Caltrans shall widen the southbound approach to one left-turn lane and one through/right-turn lane (add left-turn lane for Tesoro Viejo Project). In addition, Caltrans shall restripe the northbound approach to one left-turn lane and one through/right-turn lane (include shared right-turn lane for Tesoro Viejo Project). Finally, Caltrans</p>	<p>Less than significant</p>

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<p>2011 Plus Project in 2025 scenario. Each of these intersections would require lane improvements (e.g., additional turn lanes and widening) and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS with the addition of Project traffic.</p>		<p>shall restripe the eastbound approach to one left/through/right-turn lane (include a shared through lane for the Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>MM4.13-4(b) Prior to the approval of a Project phase by 2015 that affects the intersection of SR-41/Road 204, Caltrans shall install a traffic signal (Tesoro Viejo Project) at this intersection. Additionally, Caltrans shall widen the westbound approach to two left-turn lanes and one through/right-turn lane (add dual left-turn lanes for the Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>MM4.13-4(c) Prior to the approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the eastbound approach to one left-turn/through lane and two right-turn lanes (add second right-turn lane for Jamison and Morgan phased development). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>Existing 2011 Plus Project in 2020 (in Addition to Mitigation Listed Above)</p> <p>MM4.13-4(d) Prior to the approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 15, Caltrans shall widen the westbound approach to two left-turn lanes, one through lane, and one right-turn lane (add second left-turn lane and dedicated right-turn lane for Tesoro Viejo Project). Additionally, Caltrans shall widen the eastbound approach to one left-turn/through lane and one right-turn lane (add dedicated right-turn lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project</p>	

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Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p><u>Applicant.</u></p> <p><u>MM4.13-4(e)</u> Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Road 204, Caltrans shall widen the northbound approach to one left-turn lane, one through lane, and one right-turn lane for a free right turn (add dedicated right-turn lane with free movement for the Tesoro Viejo Project). Additionally, shall widen the southbound approach to one left-turn lane, one through lane, and one through/right-turn lane (add second through lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-4(f)</u> Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the northbound approach to one left-turn lane, two through lanes, and one right-turn lane (add second through lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p>Existing 2011 Plus Project in 2025 (in Addition to Mitigation Listed Above)</p> <p><u>MM4.13-4(g)</u> Prior to approval of a Project phase by 2025 that affects the intersection of Road 36/Avenue 15, the County shall install a traffic signal at the intersection. The County shall widen the westbound, southbound, and eastbound approaches to one left-turn lane and one through/right-turn lane (add dedicated left-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 36/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-4(h)</u> Prior to approval of a Project phase by 2025 that affects the intersection of SR-41/Avenue 15, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one right-turn lane (add second left-turn lane, second through lane, and dedicated right-turn lane for Tesoro Viejo Project). Additionally, Caltrans shall widen the southbound approach to two left-turn lanes, one through lane, and one through-right-turn lane</p>	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p><u>(add second left-turn lane for Tesoro Viejo Project and second through lane for Jamison and Morgan development). Caltrans shall widen the eastbound approach to one left-turn lane, one through lane, and one through/right-turn lane (add dedicated left-turn lane and shared through/right-turn lane for Tesoro Viejo Project). Finally, Caltrans shall widen the segment along SR-41 between Avenue 15 and Road 204 to two lanes in each direction (add one lane in each direction for Jamison and Morgan development) to coincide with adjacent intersection improvements. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>MM4.13-4(i) Prior to approval of a Project phase by 2025 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one right-turn lane (add second left-turn lane for Jamison and Morgan development). Caltrans shall restripe the westbound approach to one left-turn lane and one through/right-turn lane (for Tesoro Viejo Project). Additionally, Caltrans shall widen the southbound approach to one left-turn lane, two through lanes, and one right-turn lane (add dedicated right-turn lane for Tesoro Viejo Project). Finally, Caltrans shall widen the eastbound approach to one left-turn lane, one left-turn/through lane, and two right-turn lanes (add dedicated left-turn lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p>	
<p><u>Impact 4.13-5 Operation of the Proposed Project would result in the intersection of SR-41/Road 204 operating at an unacceptable LOS (below LOS D) during the Existing 2011 Plus Project in 2025 scenario.</u></p>	<p><u>Potentially significant</u></p>	<p><u>Refer to MM4.13-4(b) and MM4.13-4(e).</u></p> <p><u>MM4.13-5 Prior to approval of a Project phase by 2025 that affects the intersection of SR-41/Road 204, Caltrans shall widen the northbound approach to one left-turn lane, two through lanes, and one right-turn lane with free right (add second through lane for Tesoro Viejo development). In addition, Caltrans shall widen the segment along SR-41 between Avenue 15 and Road 204 to two lanes in each direction (add one lane in each direction for Jamison and Morgan development) to coincide with adjacent intersection improvements. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be</u></p>	<p><u>Significant and unavoidable</u></p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p><u>Impact 4.13-6 Operation of the Proposed Project would result in nine study area intersections (Road 206/Friant Road, SR-41/Avenue 15, SR-41/Road 204, SR-41/Avenue 13, SR-41/Avenue 12, Road 40½/Avenue 9, Children's Boulevard/Peck Boulevard, SR-41 Northbound Ramps/Friant Road and SR-41 Northbound Ramps/Herndon Avenue) operating at an unacceptable LOS (below LOS D) during one or both of the Interim Year (2015 and 2020) Cumulative Plus Project scenarios. Each of these intersections would require lane improvements (e.g., additional turn lanes and widening) and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS with the addition of Project traffic. The intersection (SR-41/Avenue 12) during the Interim Year 2020 Cumulative Plus Project Scenario would remain significant and unavoidable, and it is separately evaluated in Impact 4.13-7.</u></p>	<p><u>Potentially significant</u></p>	<p>determined by Madera County in consultation with the Project Applicant.</p> <p><u>Refer to MM4.13-4(a) through MM4.13-4(f) and MM4.13-5.</u></p> <p>Interim Year 2015 Cumulative Plus Project Conditions</p> <p><u>MM4.13-6(a) Prior to approval of a Project phase by 2015 that affects the intersection of Road 206/Friant Road, the County shall install a traffic signal. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 206/Friant Road and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>MM4.13-6(b) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 15 (with Proposed Project connection to Avenue 15), Caltrans shall provide an east leg connection, with one left-turn/through/right-turn lane (due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the dedicated left-turn lane required for the Existing 2011 Plus Project in 2015 is no longer needed) for the westbound approach. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>MM4.13-6(c) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Road 204 (with Proposed Project connection to Avenue 15), Caltrans shall provide an east leg connection, with one left-turn/through/right-turn lane (due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the dedicated left-turn lane required for the Existing 2011 Plus Project in 2015 is no longer needed) for the westbound approach. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>MM4.13-6(d) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one right-turn lane (add second left-turn lane and second through lane). Additionally, Caltrans shall widen the westbound approach to two left-turn lanes, one through</u></p>	<p><u>Less than significant</u></p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p>lane, and one right-turn lane (add dual left-turn lanes and convert shared through/right-turn lane into a through lane only). Caltrans shall widen the southbound approach to one left-turn lane, two through lanes, and one right-turn lane (add dedicated right-turn lane and convert shared through/right-turn lane into a through lane only). Finally, Caltrans shall widen the eastbound approach to one left-turn lane, one through lane, and two right-turn lanes (add dedicated left-turn lane and convert the shared left-turn/through lane into a through lane only). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(e)</u> Prior to approval of a Project phase by 2015 that affects the intersection of Children’s Boulevard/Peck Boulevard, the County shall install a traffic signal. Development planned under the Gunner Ranch West Area Plan (GRWAP) assumes a southbound leg is installed with one left-turn lane and one through/right-turn lane (install southbound leg with one left-turn lane and one through/right-turn lane), the eastbound approach is widened to one left-turn lane, one through lane, and one through/right-turn lane (add dedicated left-turn lane), the westbound approach is re-striped to one left-turn lane, one through lane, and one through/right-turn lane (re-stripe to include shared right-turn lane), and the northbound approach is restriped to include one left-turn lane and one through/right-turn lane (add shared through lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Children’s Boulevard/Peck Boulevard and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(f)</u> Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Friant Road Northbound Ramps, Caltrans shall reconstruct the interchange. Caltrans shall convert all westbound movements into free flow (add free flow movement signal phasing) and convert the eastbound approach into two through lanes and one right-turn lane with a free right (convert shared through/right-turn lane into dedicated right-turn lane with free flow movement). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Friant Road Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p>	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p><u>MM4.13-6(g)</u> Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Herndon Avenue Northbound Ramps, Caltrans shall widen the northbound approach to two left-turn lanes, one left/right-turn lane, and two right-turn lanes (add shared left/right-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Herndon Avenue Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>Interim Year 2020 Cumulative Plus Project Conditions</u></p> <p><u>MM4.13-6(h)</u> Prior to approval of a Project phase by 2020 that affects the intersection of Road 206/Friant Road, the County shall install a traffic signal. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 206/Friant Road and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(i)</u> Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 15 (with Proposed Project connection to Avenue 15), Caltrans shall widen the eastbound approach to one left-turn lane, one through lane, and one through-right-turn lane (add dedicated left-turn lane and re-stripe right-turn lane to include a shared through lane). Additionally, Caltrans shall widen the northbound approach to one left-turn lane, one through lane, and one right-turn lane (add dedicated right-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(j)</u> Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Road 204 (with Proposed Project connection to Avenue 15), Caltrans shall provide one left-turn lane and one through/right-turn lane to the westbound approach. Additionally, Caltrans shall provide one left-turn lane, one through lane, and one right-turn lane to the northbound approach. Finally, Caltrans shall retain the existing one left-turn lane and one through/right-turn lane to the southbound approach. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The</p>	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p>Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(k)</u> Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Road 204 (without Proposed Project connection to Avenue 15), Caltrans shall provide one left-turn lane, one through lane, and one right-turn lane to the northbound approach. Additionally, Caltrans shall retain the existing one left-turn lane and one through/right-turn lane to the southbound approach. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(l)</u> Prior to approval of a Project phase by 2020 that affects the intersection of Road 40½/Avenue 9, the County shall install a traffic signal. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 40½/Avenue 9 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(m)</u> Prior to approval of a Project phase by 2020 that affects the intersection of Children's Boulevard/Peck Boulevard, the County shall install a traffic signal. Development planned under the Gunner Ranch West Area Plan (GRWAP) assumes a southbound leg is installed with one left-turn lane and one through/right-turn lane (install southbound leg with one left-turn lane and one through/right-turn lane), the eastbound approach is widened to one left-turn lane, one through lane, and one through/right-turn lane (add dedicated left-turn lane), the westbound approach is restriped to include one left-turn lane, one through lane, and one through/right-turn lane (add shared right-turn lane) and the northbound approach is restriped to include one left-turn lane and one through/right-turn lane (add shared through lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Children's Boulevard/Peck Boulevard and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</p> <p><u>MM4.13-6(n)</u> Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Friant Road Northbound Ramps, Caltrans shall reconstruct the interchange. Caltrans</p>	

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		<p><u>shall convert all westbound movements into free flow (add free flow movement signal phasing) and convert the eastbound approach into two through lanes and one right-turn lane with a free right (convert shared through/right-turn lane into dedicated right-turn lane with free flow movement). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Friant Road Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>MM4.13-6(o) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Herndon Avenue Northbound Ramps, Caltrans shall widen the northbound approach to two left-turn lanes, one left/right-turn lane, and two right-turn lanes (add shared left/right-turn lane). Additionally, Caltrans shall widen the westbound approach to three through lanes, one through/right-turn lane, and one right-turn lane with free flow movement for through/right-turn lane and dedicated right-turn lane (add fourth through lane and dedicated right-turn lane with free flow movements). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Herndon Avenue Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p>	
<p><u>Impact 4.13-7 Operation of the Proposed Project would result in the intersection of SR-41/Avenue 12 operating at an unacceptable LOS (below LOS D) during the Interim Year 2020 Cumulative Plus Project scenario.</u></p>	<p><u>Potentially significant</u></p>	<p><u>Refer to MM4.13-6(d), MM4.13-4(f), and MM4.13-4(c).</u></p> <p><u>MM4.13-7 Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the eastbound approach to two left-turn lanes, one through lane, and two right-turn lanes (add dual left-turn lanes). Caltrans shall widen the westbound approach to two left-turn lanes, one through lane, and one right-turn lane (add dual left-turn lanes and convert the shared left-turn/through lane into a through lane only). Additionally, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one right-turn lane (add second left-turn lane). Finally, Caltrans shall widen the southbound approach to one left-turn lane, two through lanes, and one right-turn lane (add dedicated right-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p>	<p><u>Significant and unavoidable</u></p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p><u>Impact 4.13-8 Operation of the Proposed Project would result in all roadway segments operating at an acceptable LOS (i.e., LOS D or better) under the Existing 2011 Plus Project (2015, 2020, and 2025) scenarios and Interim Year (2015 and 2020) Cumulative Plus Project scenarios. However, four roadway segments would require lane improvements (e.g., lane widening) and a greater amount of right-of-way to accommodate the lane improvements so that the roadway segment could operate at an acceptable LOS with the addition of Project traffic.</u></p>	<p><u>Potentially significant</u></p>	<p><u>Existing 2011 Plus Project in 2020</u> <u>MM4.13-8(a) Prior to approval of a Project phase by 2020 that affects the roadway segment of SR-41 between Avenue 12 and Road 204, Caltrans shall widen SR-41 to four lanes (add one lane in each direction for the Jamison and Morgan development) along this segment of the roadway. Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>Interim Year 2015 Cumulative Plus Project Conditions</u> <u>MM4.13-8(b) Prior to approval of a Project phase by 2015 that affects the roadway segment of SR-41 south of Herndon Avenue, Caltrans shall widen SR-41 to four lanes in each direction along this segment of the roadway. Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>Interim Year 2020 Cumulative Plus Project Conditions (in Addition to the Mitigation Listed Above)</u> <u>MM4.13-8(c) Prior to approval of a Project phase by 2020 that affects the roadway segment of SR-41 between Avenue 12 and Avenue 13, Caltrans shall widen SR-41 to four lanes (add one additional lane in each direction). Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.</u></p> <p><u>MM4.13-8(d) Prior to approval of a Project phase by 2020 that affects the roadway segment of SR-41 between Friant Road and Children’s Boulevard, Caltrans shall widen SR-41 to three lanes in each direction (add one additional lane in each direction). Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by</u></p>	<p><u>Less than significant</u></p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
		Madera County in consultation with the Project Applicant.	
<u>Impact 4.13-9</u> Temporary construction activities on Avenue 15 related to the construction of an 8-mile water pipeline would not significantly impact area intersections or roadways.	Less than significant	No mitigation is required.	Less than significant
<u>Impact 4.13-10</u> Interim school-related traffic generated by the Proposed Project associated with trips between the Project Site and Minarets High School would impact area intersections and roadways.	Potentially significant	Refer to <u>MM4.13-6(a) through MM4.13-6(o), MM4.13-4(a) through MM4.13-4(f), and MM4.13-5.</u> <u>MM4.13-10(a)</u> Prior to the approval of a Project phase that affects the intersection of SR-41/Avenue 15 (with Proposed Project connection to Avenue 15) by the year 2015, Caltrans shall widen the eastbound approach to one left-turn lane and one through/right-turn lane (add a dedicated left-turn lane for Tesoro Viejo development). In addition, Caltrans shall widen the westbound approach to one left-turn lane and one through/right-turn lane (add a dedicated left-turn lane for Tesoro Viejo development). The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant. <u>MM4.13-10(b)</u> Prior to the approval of a Project phase that affects the intersection of Road 200/Outback Industrial Way by the year 2020, the County shall install a traffic signal at this intersection. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.	Less than significant
<u>Impact 4.13-411</u> Operation of the Proposed Project would result in additional vehicular traffic volumes along study area freeway segments that would exceed established service levels on freeway segments under the jurisdiction of Caltrans.	Potentially significant	<u>MM4.13-411</u> Prior to full project buildout, the County Caltrans shall ensure that SR-41 is widened from four lanes (two in each direction) to six lanes (three in each direction) from Avenue 12 to Friant Road. The Project Applicant shall pay a fair share contribution towards the widening of these segments and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.	Significant and unavoidable
<u>Impact 4.13-512</u> Operation of the Proposed Project would not substantially increase hazards due to design features or incompatible uses.	Less than significant	No mitigation is required.	Less than significant
<u>Impact 4.13-613</u> Operation of the Proposed Project would not result in inadequate emergency access.	Less than significant	No mitigation is required.	Less than significant
<u>Impact 4.13-714</u> Operation of the Proposed Project would not result in inadequate parking capacity.	Less than significant	No mitigation is required.	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
<p>Impact 4.13-815 Implementation of the Proposed Project would not conflict with adopted policies, plans, or programs supporting alternative transportation regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
UTILITIES AND SERVICE SYSTEMS			
<p>Impact 4.14-1 The Proposed Project would not exceed water supplies available to serve the Project from existing entitlements, and no new or expanded entitlements are needed.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.14-2 The Proposed Project would require the construction of new water treatment facilities. Construction of such facilities would result in potentially adverse physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR.</p>	<p>Potentially significant</p>	<p>Refer to construction-related mitigation measures listed in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this EIR.</p>	<p>Less than significant</p>
<p>Impact 4.14-3 The Proposed Project would not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to biosolid disposal.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>
<p>Impact 4.14-4 The Proposed Project would not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to effluent disposal.</p>	<p>Less than significant</p>	<p>No mitigation is required.</p>	<p>Less than significant</p>

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

Impact(s)	Level of Significance Prior to Mitigation	Mitigation Measure(s) and/or Project Requirements	Level of Significance After Mitigation
<p>Impact 4.14-5 The Proposed Project could exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to recycled water irrigation.</p>	Potentially significant	<p>MM4.14-5(a) The Developer shall determine and implement (with the approval of the County) best practicable treatment or control methods of the discharge prior to operation of the wastewater treatment plant to avoid pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.</p> <p>MM4.14-5(b) A design application rate for recycled water irrigation shall be established to reduce impacts for salts. The design application rate may limit total salt load or require blending with surface water. This shall be implemented by the Developer's Project Engineer, with approval by the County, prior to operation of the wastewater treatment plant.</p> <p>MM4.14-5(c) The effluent limitation for salinity (as electrical conductivity, or EC) shall not exceed 500 $\mu\text{mhos/cm}$ over source water EC or a greater limit established and enforced by the Central Valley Regional Water Quality Control Board.</p> <p>MM4.14-5(d) Water softeners shall be prohibited for use within the Project Site.</p>	Less than significant
<p>Impact 4.14-6 The Proposed Project could exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to groundwater recharge.</p>	Potentially significant	Refer to MM4.14-5(c) and MM4.14-5(d)	Less than significant
<p>Impact 4.14-7 There is no existing wastewater treatment plant to serve the Proposed Project; therefore, there is no existing capacity to serve the Proposed Project's projected wastewater demand. Implementation of the Proposed Project would require new wastewater treatment facilities, the construction of which could cause significant environmental effect. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR.</p>	Potentially significant	Refer to construction-related mitigation measures listed in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this EIR.	Less than significant
<p>Impact 4.14-8 Implementation of the Proposed Project would not generate solid waste that would exceed the permitted capacity of the Fairmead Landfill, the landfill currently serving the Project Site.</p>	Less than significant	No mitigation is required.	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
Impact 4.14-9 Implementation of the Proposed Project would comply with all applicable federal, state, and local statutes and regulations related to solid waste.	Less than significant	No mitigation is required.	Less than significant
<u>UTILITIES AND SERVICE SYSTEMS ENERGY AND CLIMATE CHANGE</u>			
Impact 4.15-1 The Proposed Project would not encourage the wasteful or inefficient use of energy.	Less than significant	No mitigation is required.	Less than significant
Impact 4.15-2 The Proposed Project would not require new energy production or transmission facilities, the construction of which would cause significant environmental effects.	Less than significant	No mitigation is required.	Less than significant
Impacts associated with Climate Change	Potentially significant	<p>MM4.15-3(a) Trees and other shade structures shall be incorporated into residential and nonresidential development to maximize summer shade and to minimize winter shade.</p> <p>MM4.15-3(b) The Project Applicant shall require the installation and use of electrical support for TRUs at loading docks, to the extent feasible and practicable.</p> <p>MM4.15-3(c) The Project Applicant shall require the use of "green" cement (which contains recycled materials and is produced using emission-reducing technologies), if available, structurally appropriate for the intended use, and where feasible and practicable.</p> <p>MM4.15-3(d) The Proposed Project shall require the installation of facilities to support the use of alternative fuel vehicles, if feasible and available based on market conditions.</p> <p>MM4.15-3(e) The Proposed Project shall require the use of LED traffic lights, where feasible.</p> <p>MM4.15-3(f) The Project Applicant shall require future building owners and tenants to use energy efficient lighting, to the extent feasible and appropriate.</p> <p>MM4.15-3(g) Project buildings shall have passive solar design features that include roof overhangs or canopies that block summer shade, but that allow winter sun, from penetrating south facing windows. Trees and other shade structures shall be incorporated into residential development to maximize summer shade and to minimize winter shade. The Proposed Project shall meet the nonroof surfaces requirement through a combination of shade coverage, open grid pavement, and paving materials that meet the solar reflectance index requirements, if feasible and practicable.</p> <p>MM4.15-3(h) All roofing materials used in commercial/retail buildings shall be Energy Star certified. All roof products shall also be certified to meet ATSM high emissivity requirements.</p> <p>MM4.15-3(i) Where feasible, recycled components shall be used in the construction of Proposed Project buildings.</p>	Less than significant

Table 2-2 Summary of Environmental Effects and Project Requirements/Mitigation Measures [Revised]

<i>Impact(s)</i>	<i>Level of Significance Prior to Mitigation</i>	<i>Mitigation Measure(s) and/or Project Requirements</i>	<i>Level of Significance After Mitigation</i>
		<p>MM4.15-3(j) The Project Applicant shall require the reuse or recycling of construction waste materials in all construction contracts, as appropriate and feasible.</p> <p>MM4.15-3(k) The Project Applicant shall require the installation of water saving devices that reduce the flow of wastewater to the sewer system, to the extent feasible.</p> <p>MM4.15-3(l) The Proposed Project shall include recycling containers and facilities for all waste products removed from the waste stream by the Madera Disposal Service. Such containers shall be clearly labeled, regularly maintained, and widely distributed throughout high traffic areas of the Project Site. Recycling services shall be provided for residential and nonresidential uses.</p> <p>MM4.15-3(m) The Proposed Project shall include one bicycle parking space for every 20 off-street vehicle parking spaces for commercial uses.</p> <p>MM4.15-3(n) The Proposed Project may support a ride sharing program by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and/or designating adequate passenger loading and unloading and waiting areas.</p> <p>MM4.15-3(o) The Proposed Project may support a car-sharing program. Accommodations for such programs include providing parking spaces for the car-share vehicles at convenient locations accessible by public transportation.</p>	

CHAPTER 3 Project Description [Revised in Part]

3.1 PROJECT SUMMARY

This Environmental Impact Report (EIR) has been prepared in compliance with the procedural and substantive requirements of the *California Environmental Quality Act* (CEQA) and the CEQA Guidelines, as amended in 2007, to address the potential construction-related and operational environmental impacts resulting from implementation of the proposed Tesoro Viejo Specific Plan as amended in 2012 (Proposed Project or Specific Plan), located in Madera County, California. The Lead Agency for the Proposed Project is Madera County (County), and the Project Applicant is Tesoro Viejo, Inc. (Applicant).

The Project Site consists of about ~~4,579~~1,585 acres,⁶ not including ~~69.571.6~~ acres of canals owned by the United States Bureau of Reclamation, in southeastern Madera County. Madera County is in the center of California in the heart of the San Joaquin Valley (the Central Valley). The County is north of Fresno County on Freeway 99, about 166 miles from the Bay Area, 240 miles from Los Angeles, 88 miles from Yosemite, and 160 miles from the Pacific beaches.

The Project Area lies on the eastern side of the San Joaquin Valley. The San Joaquin Valley is bordered on the east by the Sierra Nevada Mountains, on the west by the South Coast Ranges, and on the far south by the Tehachapi Range. Southeastern Madera County abuts Fresno County to the south, Mariposa and Merced counties on the north, and Mono County on the east. Figure 3-1 (Regional and Local Vicinity Map) shows the regional location of the Tesoro Viejo Project Site.

The Tesoro Viejo Project Site (Project Site) is located in southeastern Madera County, approximately 9 miles north of the City of Fresno and 13 miles east of the City of Madera. The Project Site is bordered by the San Joaquin River to the east, State Route (SR) 41 to the west, Little Table Mountain to the north, and the Coombs Ranch to the south in an area known as Rio Mesa. The Project Site is located on two U.S. Geological Survey (USGS) topographic maps, which are the Lanes Bridge and Friant California quadrangle maps.

The Proposed Project would involve development of a property known locally as the Peck Ranch. The project proposes a mix of residential, commercial retail, office, highway commercial, visitor commercial, light industrial, and business park uses, in addition to open space and recreational uses, schools, and other institutional and public uses. Specifically, the project proposes a mixed-use development consisting of up to 5,190 dwelling units (du), about 3 million square feet (sf) of commercial, retail, office, public institutional, and light industrial uses, and about ~~247~~218 acres of mapped open space, not including approximately ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in the developed areas (also referred to as open space buffers). Another ~~3837~~ acres would be set aside for utilities and stormwater facilities (including

⁶ A recent survey indicated that the Project Site is 6 acres (or about 0.4 percent) greater than originally estimated.

stormwater basins), ~~at least up to 3060~~ acres for schools, and ~~2228~~ acres for the potential right-of-way for the realignment of SR-41 as a freeway as indicated on Caltrans plans.

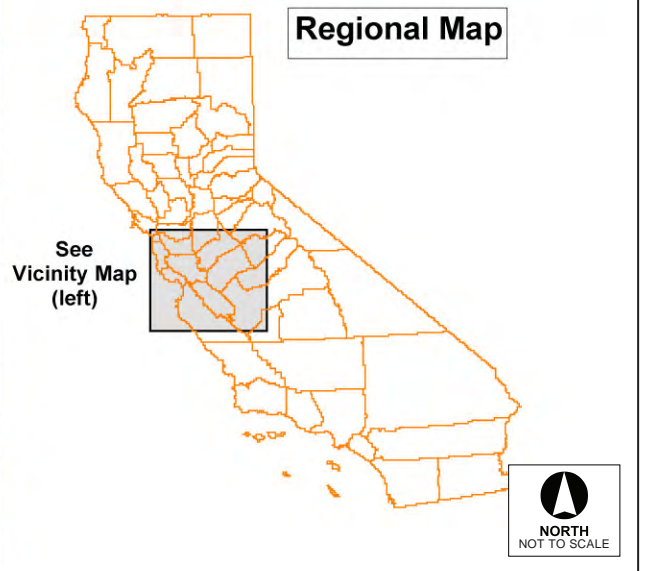
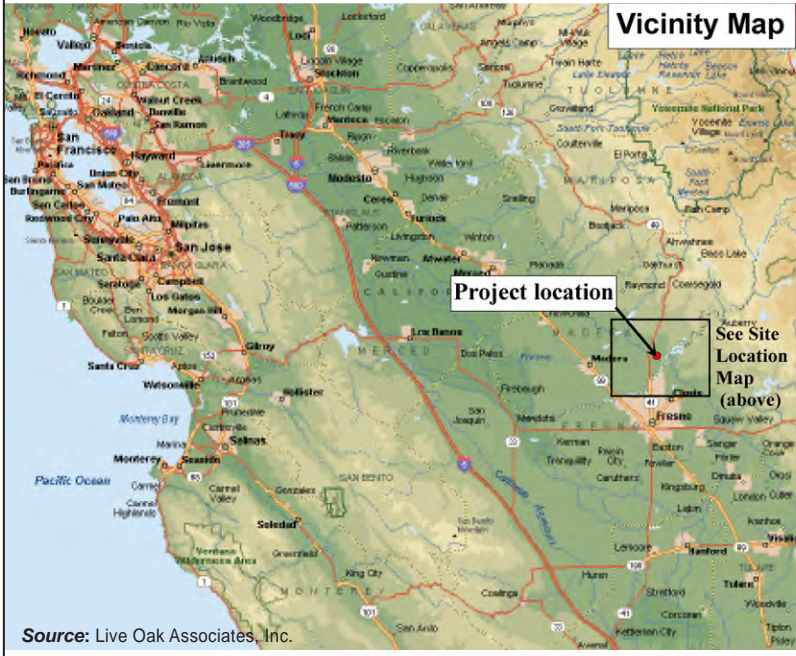
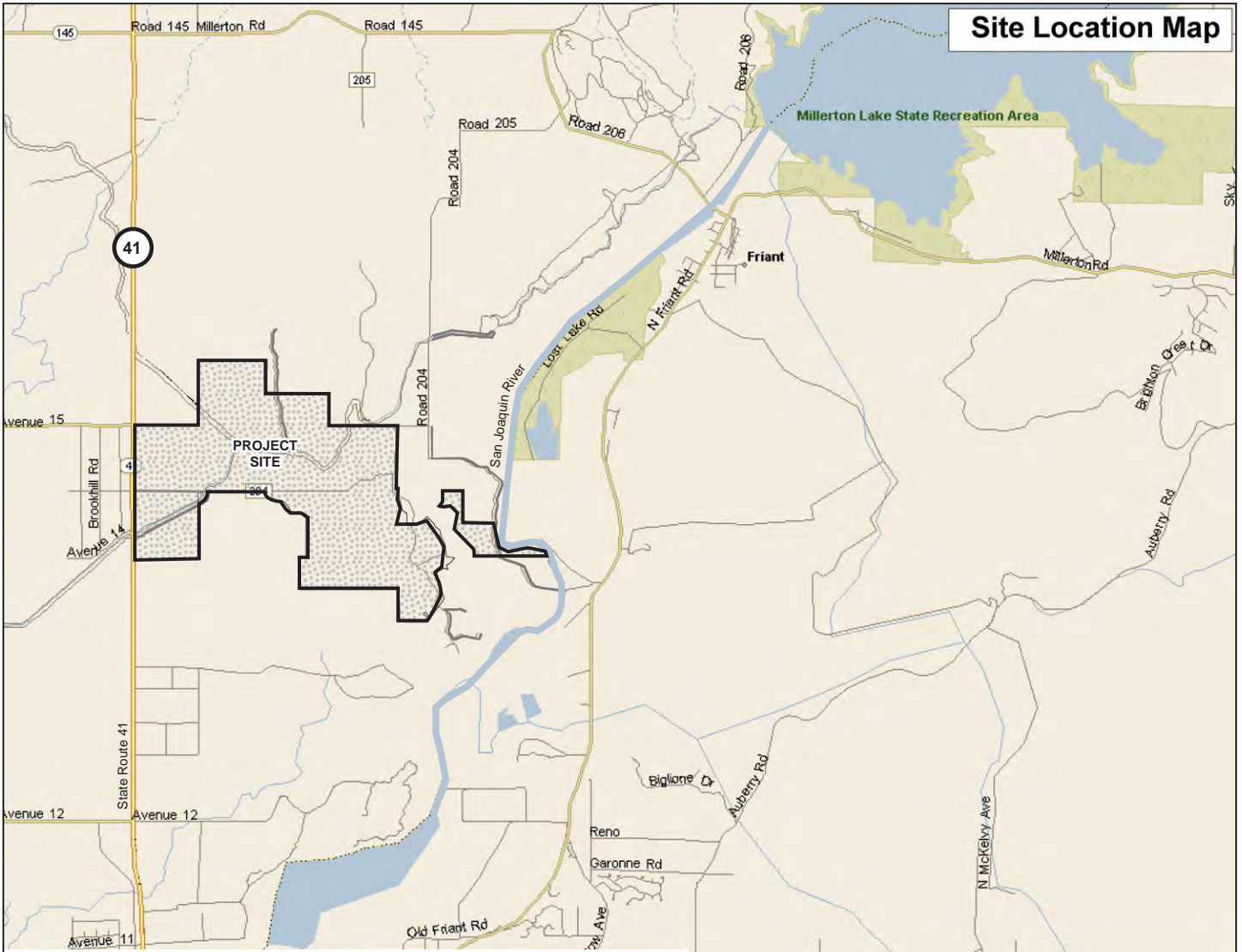
The population at project buildout is projected to be up to 15,650 residents, assuming development of the maximum number of dwelling units, and approximately 13,840 residents if a midrange residential development potential of 4,595 residences is assumed. Full project buildout is assumed to be completed by 2025 for purposes of this analysis (see Section 3.8 [Construction Schedule and Activities] of this chapter). The project's characteristics are presented in greater detail in Section 3.6 (Project Objectives and Goals) of this chapter and are also more fully described and depicted in the Tesoro Viejo Specific Plan, which is included as Appendix A to this EIR.

A specific plan is a planning tool that combines traditional zoning with general design and development standards tailored to the unique conditions of a particular site. The purpose of the Tesoro Viejo Specific Plan as amended in 2012 (referred to for simplicity as the Specific Plan) is to guide development and design within the ~~4,579~~1,585-acre Specific Plan Area, which is the Project Site for purposes of this environmental analysis. The Specific Plan identifies guidelines and design standards that build upon the goals, objectives, and policies of the Madera County General Plan and the Rio Mesa Area Plan (RMAP), all of which recognize the size of the Project Site and its strategic location within the southeastern portion of Madera County and its centrality in the implementation of the RMAP.

Land use designations for the Tesoro Viejo project have been generally defined by the Rio Mesa Area Plan (RMAP), adopted by the County in 1995, and certain modifications and refinements have been proposed by the Applicant, as elaborated in the project's proposed Specific Plan (October 2007). These refinements consist of some shifts in the geographical location of certain land use descriptions and a reduction in the expected employment intensity of nonresidential uses relative to the corresponding land use and zoning districts in the RMAP.

The RMAP is an adopted element of the Madera County General Plan intended to provide guidance for this southeastern subarea of the County along the western edge of the San Joaquin River. It is also intended to provide a planning framework for the development of more detailed implementation plans and measures of which this Proposed Project is one. The RMAP area covers approximately 15,000 acres, and plans for about 35,000 du, commercial and light industrial uses, and open space. The Proposed Project would encompass virtually all the area designated in the RMAP as the Rio Mesa Village (also referred to as the Rio Mesa Community Village), which is one of the three designated villages in the RMAP, with the North Fork Village to the north and the Avenue 12 Village to the south. The Tesoro Viejo project also incorporates an area that is designated in the RMAP as the Rio Mesa Community Core. The Community Core is intended to serve as the commercial and social hub of Rio Mesa (Madera County 1994, 25).

In addition to the proposed development on the Project Site, a variety of off-site intersection and roadway improvements would be implemented to support the proposed development. These improvements are fully described in Section 4.14 (Transportation/Traffic) of this EIR and are summarized in Section 3.7 (Proposed Project Characteristics). The possible realignment and upgrade to freeway status of SR-41 as shown in the RMAP to the east of the existing alignment is not a foreseeable



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Source: Live Oak Associates, Inc.

Figure 3-1
Regional and Local Vicinity Map

improvement within the next two decades or within the buildout of the Proposed Project and, therefore, is not assumed in the traffic analysis. A 350-foot-wide realignment right-of-way east of the existing SR-41 is proposed to be reserved for an unspecified time (as shown in Figure 3-4 [Conceptual Land Use Plan for Tesoro Viejo]) for future purchase by Caltrans should the need be present and funding available for construction of a freeway or similar facility.

The Project Applicant has made some minor changes to the Project Description that relate to more refined estimates of acreages based on a complete survey of the Project Site and planned land uses, the maximum allowable density in the very-low-density residential land use area, and clarification of permanent open space and planned on-site schools, especially as to the timing and location of schools. There are also minor typographical changes or corrections in this Revised EIR. The Project Site is now estimated to be 1,585 acres, which is 6 acres more than reflected in the 2008 Final EIR, representing an increase of less than 0.5 percent. The amount of permanent open space increased slightly and changes to the timing of one planned on-site school resulted from the court order.

A detailed description of the Proposed Project is provided in Section 3.7 (Proposed Project Characteristics) of this chapter.

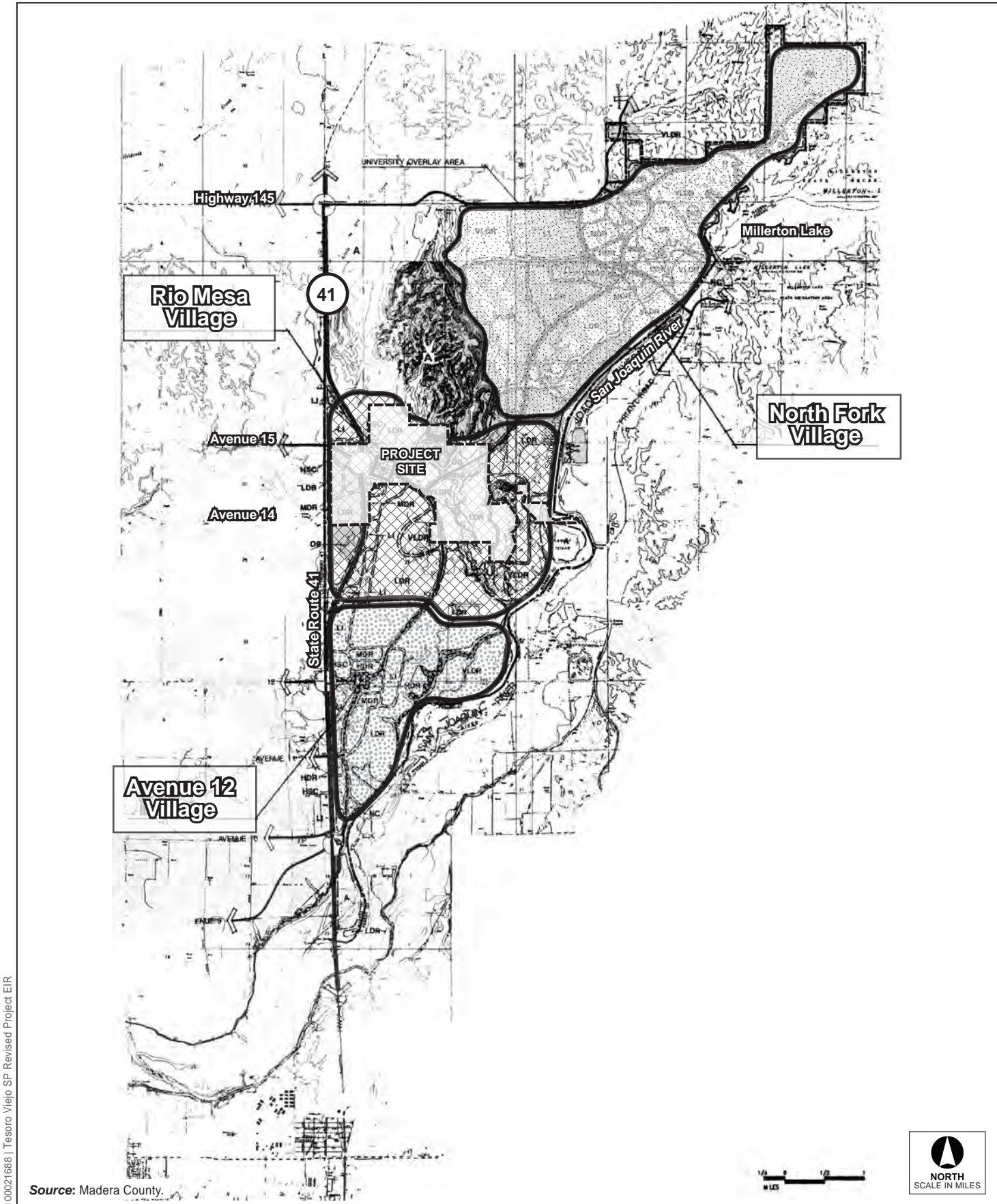
3.2 BACKGROUND

3.2.1 Site History

Federal land patents indicate that the earliest claim to the land in the Project Site occurred in 1873. Over the following 25 years, much of the area was used for sheep and cattle herding, and to a lesser extent, grain farming. The Bowling family purchased the property sometime between 1914 and 1918, and used the property for farming, dairying, and ranching. Archival research yielded little new material about the Project Area between 1923 and 1980. The Peck Family purchased the property in 1980 and used the property to plant a variety of crops, including grape vineyards, tomatoes, and berries. Section 4.6 (Cultural Resources) of this EIR elaborates on the historic uses of the site and the surrounding area.

3.2.2 Rio Mesa Area Plan

In 1990, Madera County recognized the potential for large-scale development in the southeastern portion of the County. This assessment was based on a number of factors, including an increase in development interests from private land owners, the proposed relocation of the Valley Children's Hospital to the area, and the potential for a future University of California campus in the County (which did not occur since the campus went to Merced County). The combination of these factors led the County to concentrate on this portion of Madera County for future urbanization, and thus to drafting and implementing a master plan for the Rio Mesa Area. The County prepared the RMAP as a new Area Plan within the General Plan to provide a planning framework to guide more detailed plans for subareas and specific landholdings, such as Tesoro Viejo. The RMAP area is bounded by SR-41 to the west, the San Joaquin River and Fresno County to the east, Road 145 and the Millerton Lake State Recreation Area to the north and northeast, and the San Joaquin River to the south.



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Figure 3-2 Village Planning Areas of the RMAP

The RMAP is organized around the establishment of three villages that offer focal points for activity and land use intensification. The RMAP identifies the North Fork Village, the Rio Mesa Village, and the Avenue 12 Village, from north to south. As illustrated in Figure 3-2 (Village Planning Areas of the RMAP), the Rio Mesa Village includes the Proposed Project as well as two other undeveloped parcels, which are referred to as the Morgan and Jamison Parcels.

Madera County ~~has originally~~ approved development of a portion of the North Fork Village, known as Central Green (also referred to as the Freels Property), ~~and is processing an application for development of but subsequently vacated the approvals.~~ ~~†~~The remainder of the North Fork Village, otherwise known as the Kesterson property or North Shore at Millerton Lake, in addition to Tesoro Viejo was approved by the Board of Supervisors in December 2008. Furthermore, the County has ~~recently~~ approved an application for the large master-planned Village of Gateway (also referred to as Castle & Cooke) immediately outside of Rio Mesa to the west and anticipates further applications for development of the Gunner West area south of the Village of Gateway area, as well as other possible development in Rio Mesa. The County has also received preliminary applications for proposed projects within the State Center Community College Area Plan ~~and, along SR-99 north of the City of Madera, and in other portions of southeastern Madera County, west of Highway 41 and east of the BNSF Railway.~~

3.3 PURPOSE AND INTENT OF THE SPECIFIC PLAN

The purpose of the Tesoro Viejo Specific Plan is to provide orderly and efficient development of the Project Site in accordance with the provisions of the Madera County General Plan and the RMAP. When adopted by County legislative action, the Specific Plan would serve both planning and regulatory functions, including land use regulations, circulation, and development and design standards. Additional design guidelines for the development of Tesoro Viejo are to be furnished in a separate design guidelines document and, as determined suitable, used to guide development through privately enforced restrictions. The design guidelines may address themes, building forms, architectural styles, color, materials, and landscape design, for example. The design guidelines would be used by the Applicant to supplement the development standards included in the Specific Plan to ensure that neighborhoods embody the goals and principles established within the Plan and achieve their assigned characteristics.

The Specific Plan is intended to be a regulatory document and is subject to the county Planning Commission review and Board of Supervisors adoption by ordinance. All future development plans, tentative parcel and/or tract map(s), or similar entitlements for properties located within the boundaries of the Specific Plan area shall be consistent with the regulations set forth in the Specific Plan and with all other applicable County regulations, to the extent not modified or superseded by the Specific Plan.

3.4 EXISTING AND SURROUNDING USES

The Project Site consists of a combination of gently rolling hills and relatively flat plains used primarily for agricultural purposes, such as vineyards, blueberry production, and tree nurseries. A well-defined drainage network meanders through the Project Site. There is also a ranch office building on the Tesoro Viejo site, as well as some former farmworker housing, and undeveloped scrub, riparian, and grassland habitats. Figure 3-3 (Existing Project Area) portrays the existing conditions of the Project Site.

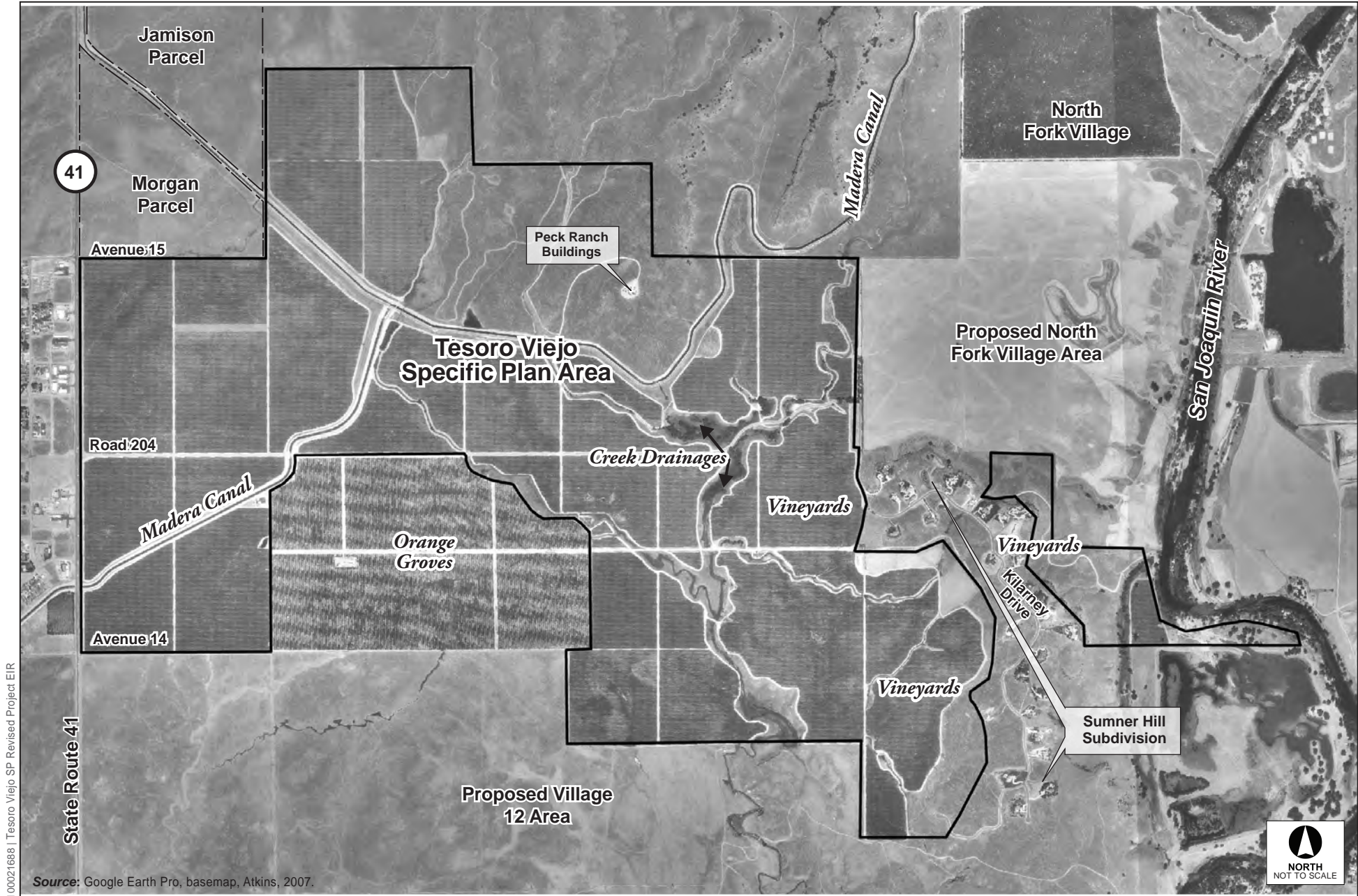


Figure 3-3
Existing Project Area

The properties surrounding the Project Site are mainly used for agriculture and grazing purposes or are undeveloped, with some areas planned for future development projects, as previously described. One area consists of a partially developed large-lot subdivision called Sumner Hill, which bisects the Project Site (other than with regard to connecting access ways) near its eastern edge. The following provides a summary of surrounding land uses:

- **North:** The area directly north of most of the Project Site, consisting of Little Table Mountain, includes and is designated for agricultural and open space land uses. The North Fork Village is proposed to be located immediately northeast of Tesoro Viejo.
- **South:** The land south of the Project Site to the County line is currently mostly undeveloped or in agricultural uses, but is projected in the RMAP for development of the Avenue 12 Village. The Avenue 12 Village would include very low-density residential, low-density residential, neighborhood, and other commercial uses and open space and parks. Existing uses include two golf courses with a clubhouse and a few mobile homes.
- **East:** The San Joaquin River is on the east of the Project Site. The existing Sumner Hill Subdivision lies between a large portion of the Project Site to the west and a relatively small portion (about 60 acres) of the Project Site to the east. Sumner Hill is designated for very low-density residential land uses and has been subdivided into 49 single-family lots, along with a number of outlots, which are part of the Project Site. Roadways through the subdivision connect the eastern and western portion of the Project Site. To the east and northeast of the Project Site is the area designated by the RMAP for the proposed North Fork Village, which is now in agricultural uses and is designated for very low-density residential, neighborhood commercial uses, light industrial uses and open space and parks. A portion of this Village has been approved for development.
- **West:** SR-41 is located west of the Project Site. Additionally, the proposed Village of Gateway (also known as Castle & Cooke) development is west of the Project Site, directly west of SR-41, and the 1,135-acre Gunner Ranch West property is further southwest, also directly west of SR-41. The 50-acre Valley Children's Hospital campus is also west of SR-41 to the south, along with medical offices, residential dwelling units, and other office, commercial, retail, hotel, village core, and open space land uses. Existing older residential and commercial uses are all west of the Project Site.

3.5 EXISTING GENERAL PLAN AND ZONING DESIGNATIONS

3.5.1 Existing General Plan Designations

Existing land use designations for the Tesoro Viejo Project Site are defined by the RMAP, which also establishes policies for land use, circulation, community design, and infrastructure. The existing land use designations for the Project Site are graphically depicted in Figure 3-4 (Conceptual Land Use Plan for Tesoro Viejo).

Proposed land use designations are further described in Section 3.7 below.

3.5.2 Zoning Designations

The existing zoning designation for the Tesoro Viejo Project Site is agricultural, which is consistent with the RMAP unless and until the zoning is changed to accommodate the Proposed Project.

3.6 PROJECT OBJECTIVES AND GOALS

The Proposed Project is intended to create a mix of residential, commercial retail and office, highway commercial, visitor commercial, and light industrial uses, plus open space and recreational uses, schools and other institutional and public uses. General objectives for the Proposed Project have been identified by both the County and the Applicant. These include the following:

- Create a master planned balanced community to include a mix of residences, employment, recreational opportunities, and commercial uses for residents.
- Create a strong sense of community based on intra-community linkages, respect for natural features of the land, and inclusion of balanced uses.
- Ensure adequate utilities, services, and infrastructures for residents.
- Provide an array of recreational and open space uses for residents of the Proposed Project and surrounding communities. These would include parks and playgrounds that would be linked by pedestrian and bicycle trails along greenways that would serve to create an open space network.
- Accommodate projected regional growth in a location that is consistent with the approved Madera County General Plan and the approved RMAP.
- Provide development and transitional land use patterns that do not conflict with adjoining properties and existing and proposed land uses.

Chapter 2.2 of the Tesoro Viejo Specific Plan contains thirty-six specific goals and objectives, which are provided below, grouped by topic:

Land Use

- | | |
|---------------|---|
| Goal 1 | Provide a viable and balanced mix of regional and local-serving commercial and employment uses. |
| Goal 2 | Encourage properly designed mixed-use and residential neighborhoods to insure compatibility with and transportation choices for access to residential and nonresidential uses by creating a pedestrian-supportive environment that activate Tesoro Viejo's streets. |
| Goal 3 | Create a vibrant mixed-use community core that provides for the needs of the residents and visitors to the Rio Mesa area, serving as the major Community Center for Rio Mesa, containing all major public and community services. |
| Goal 4 | Create an attractive and easily accessible neighborhood-serving Village Center within the eastern center of the community that meets the convenience needs of nearby residents of Tesoro Viejo neighborhoods and adjacent villages. |
| Goal 5 | Reflect anticipated marketing needs and public demand by providing a diversity of housing types and locations that will be marketable within the region. |

Tesoro Viejo

Madera County, CA

REVISED: May 23, 2012

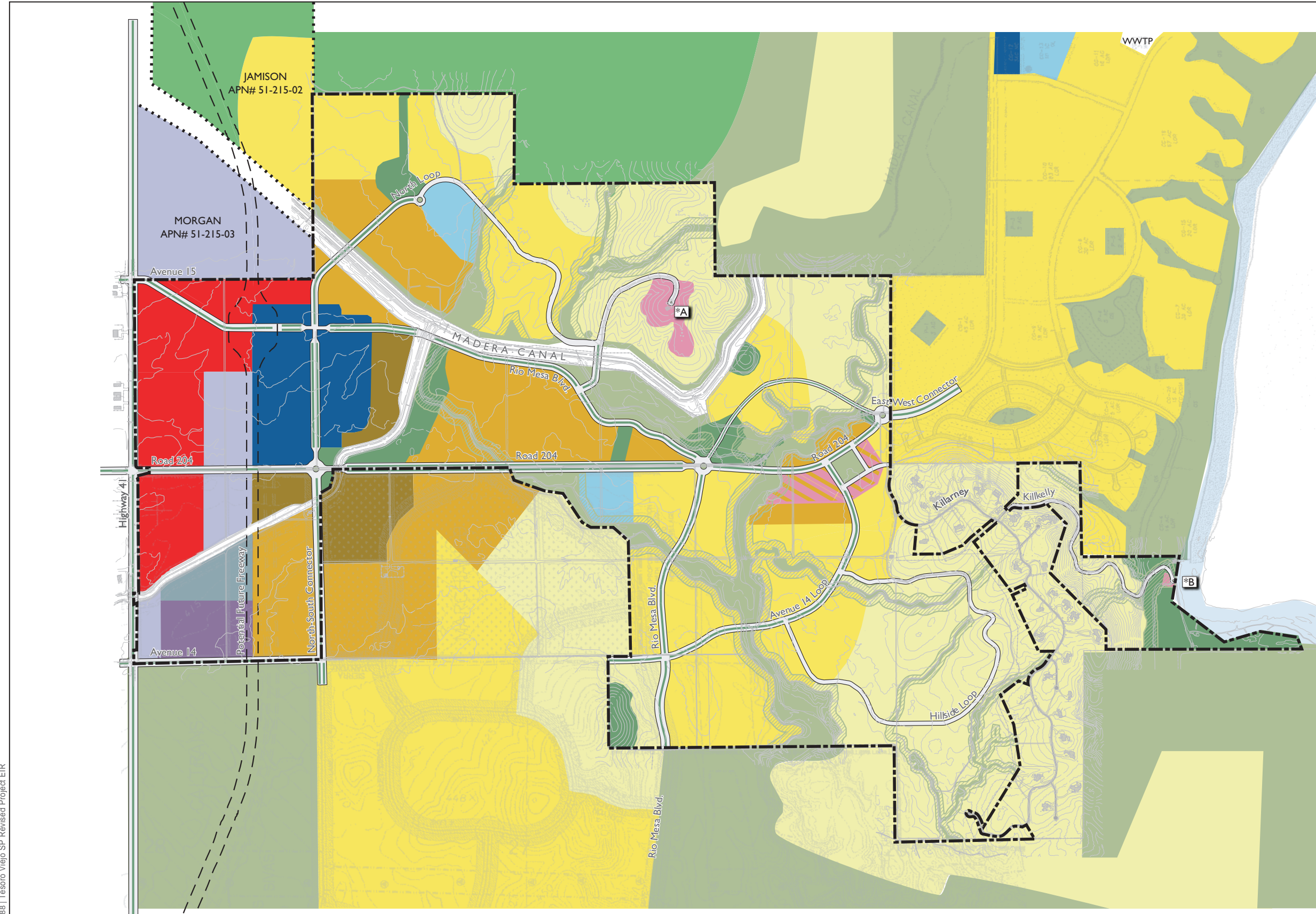
-  Tesoro Viejo Specific Plan Area
-  Mixed Use Community Core
12.0 - 30.0 DU/AC
-  High Density Residential
12.0 - 25.0 DU/AC
-  Medium Density Residential
5.0 - 15.0 DU/AC
-  Low Density Residential
1.0 - 10 DU/AC
-  Very Low Density Residential
0.3 - 2.0-3.0 DU/AC
-  Mixed Use Neighborhood
Commercial
0.25 - 0.40 FAR/
8.0 - 12.0 DU/AC
-  Light Industrial/Business Park
0.25 - 0.50 FAR
-  Highway Service Commercial
0.25 - 0.40 FAR
-  Agriculture
-  Open Space/Parks
-  Open Space Buffer
-  Schools (With underlying Low Density Residential designation)
-  Sewage Treatment Plant and Water Treatment Facility (With underlying LI/BP designation)
-  Detention Basin (With underlying LI/BP designation)
-  Special Purpose
*A - Visitor Mixed Use
*B - Recreation Commercial

Note: Rio Mesa Community Village consists of Tesoro Viejo and the Morgan and Jamison Parcels



Tesoro Viejo, Inc.

COMMUNITY DESIGN + ARCHITECTURE
REGION • CITY • NEIGHBORHOOD • BUILDING



100021688 | Tesoro Viejo SP Revised Project EIR

Source: Tesoro Viejo Specific Plan, May 2012.

Figure 3-4
Conceptual Land Use Plan for Tesoro Viejo [Revised]

- Goal 6** Promote a diverse community and create opportunities for housing near workplaces.
- Goal 7** Provide development guidelines and standards to lead builders, designers, and developers to create residential neighborhood and individual homes that encourage diverse and creative housing types and ensure the highest possible quality of community and architectural design.
- Goal 8** Encourage the creation of fine-grained detail in architectural and urban form that provides visual interest and complexity.
- Goal 9** Provide detached and attached housing to serve a spectrum of buyers and household types, and to provide “move-up” and “move-down” opportunities for present residents in the vicinity and the surrounding region.
- Goal 10** Provide an opportunity for high-density, multi-family housing near and within the mixed-use employment center of Tesoro Viejo.

Transportation and Circulation

- Goal 11** Design multimodal streets that effectively facilitate vehicular traffic and future transit connections but also provide for a safe, attractive and continuous pedestrian and bicycle circulation system throughout Tesoro Viejo.
- Goal 12** Design roadways to be aesthetically and environmentally sensitive features of Tesoro Viejo.
- Goal 13** Minimize or eliminate the need for wide arterial streets by creating an interconnected circulation network that distributes traffic across many streets while providing the capacity necessary to accommodate the levels and types of traffic anticipated in the land use plan and those of the surrounding area.
- Goal 14** Plan pedestrian-oriented mixed-use areas that maintain an adequate level of parking and access for automobiles, but that encourage a park-once approach that minimizes the total demand for parking.
- Goal 15** Create a circulation network that is interconnected with the regional transportation system.
- Goal 16** Design all streets with the intention that land uses will front directly on them by using landscape medians, setbacks, and local access lanes on streets with higher levels of through traffic volume.
- Goal 17** Create a network of multi-use and hiking trails along Tesoro Viejo’s open space corridors that complements the walkways and paths along the community’s streets in order to encourage walking and bicycling for transportation and recreation.

Community Facilities and Services

- Goal 18** Create high-quality schools, parks, libraries, police and fire stations, public utility centers, post-offices and similar community facilities that are integrated into the mixed-use centers of Tesoro Viejo; these uses will be key assets of the community and their design and quality must reflect their importance.
- Goal 19** Provide a high level of community facilities and services and utility services and infrastructure that will be phased in accordance with development.

- Goal 20** Provide the appropriate level of county and district services within Tesoro Viejo to meet the needs of its residents, businesses, and workers; and that also reflects the importance of Tesoro Viejo Town Center within Southeastern Madera County.

Natural, Cultural, and Recreational Resources

- Goal 21** Preserve features and resources of environmental and cultural value to enhance the future identity and value of Tesoro Viejo as a community.
- Goal 22** Identify, preserve and incorporate significant natural features such as channels, bluffs, rock outcroppings, and steep slopes into a functional open space system that is integrated into the community plan.
- Goal 23** Preserve significant biological, archaeological, and paleontological resources in a manner to reflect their importance.
- Goal 24** Establish conservation areas along drainage ways to provide an effective buffer between new development and sensitive biological and wildlife resources while allowing these areas to be a visual and recreational amenity.
- Goal 25** Create and maintain access to the San Joaquin River for both residents and visitors to the extent possible within the control of the Project Applicant and the County.
- Goal 26** Meet and, as appropriate, exceed the parks and recreation standards of Madera County.
- Goal 27** Adopt “Green Building” practices for site and building design that focus on resource and energy efficiency, and where feasible, treatment of irrigation and stormwater runoff through natural, landscape-based processes.
- Goal 28** Use of reclaimed water for landscape irrigation and other nonpotable water uses for parkways, open space areas, and agricultural uses is strongly encouraged.
- Goal 29** To the extent feasible, provide for the future use of reclaimed water for landscape irrigation within the developed areas of Tesoro Viejo.
- Goal 30** Emphasize planting of native trees, shrubs and groundcovers suitable to climatic conditions while still providing visual interest and variety.

Agricultural Resources

- Goal 31** Encourage some continued vineyard, orchard and farming operations where feasible by clustering of dwellings and infrastructure to allow open space preservation and functional agricultural use for local community sustenance and interest.
- Goal 32** Encourage sustainable methods of local food production to sustain both local business and the health of the land and seek to incorporate farmer’s markets into local commercial activities and edible gardens into schools and open squares.
- Goal 33** Promote opportunities for youth education and employment in agriculture.

Economic Vitality

- Goal 34** Develop a set of permitted commercial and employment uses within Tesoro Viejo that provide a wide range of employment and shopping opportunities for existing and future residents of Madera County.

- Goal 35** Enhance the vitality of the Town Center by encouraging uses that allow for safe around-the-clock activity that makes it an attractive environment for shopping, entertainment, recreation, living, and working.
- Goal 36** Encourage job creation and self-employment opportunities to ensure a vital and self-sustaining town.

3.7 PROPOSED PROJECT CHARACTERISTICS

3.7.1 Proposed Land Use and Zoning Designations

Figure 3-4 displays the proposed land use plan for the Tesoro Viejo project. As illustrated in this figure, the Proposed Project is predominantly allocated for residential, core residential, office and retail, highway-oriented commercial and industrial, and open space. The western portion of the Tesoro Viejo site borders SR-41, and is designated for highway service commercial, light industrial/business park, mixed-use community core, high- and medium-density residential uses, and public facilities. The central portion of the Project Site, north and south of Road 204, is planned for a variety of uses, including residential, neighborhood commercial, open space and parks, a school, and Special Purpose Use A. Special Purpose Use A is proposed for a clustered low-density hilltop residential area with a possible visitor serving commercial use such as a winery, restaurant, and/or inn. The eastern portion of the Project Site is planned for very low-density residential uses and Special Purpose Use B. Special Purpose Use B would provide very limited river-oriented visitor commercial and recreational uses, possibly involving canoe and kayak rentals, a pull-in, pull-out facility, and some form of food or beverage vending, along with parking facilities and a possible clubhouse.

The land uses allowed within the Tesoro Viejo Specific Plan are based on RMAP land use designations.

Table 3-1 (Proposed Land Uses for the Tesoro Viejo Project) provides land use details pertaining to the land use plan, including the approximate acreage and/or dwelling units for each land use type, expressing mid-range (or moderate) and maximum buildout scenarios. While the mid-range scenario buildout may be likely, this EIR assumes the maximum buildout for impact analysis purposes, as it affords a more conservative basis for evaluating the Proposed Project's environmental effects. The following subsections describe the specific land uses presented in the table and corresponding land use plan.

Tesoro Viejo's zoning designations are drawn from the County's zoning types (specifically, RUS, CUG, IL, and CRH), as well as its amended zoning ordinance types (specifically RX, RT, and MCM). Within each Zoning District designation, a range of land use types are defined and development standards are established. In order to meet the goals and objectives of the Tesoro Viejo Specific Plan, there are a range of differences between the County's existing zoning and the Tesoro Viejo zoning designations reflected in the Specific Plan. In many cases, a single County zoning designation has been used as the basis for multiple zoning designations for Tesoro Viejo housing types to allow for a broader range of housing types.

Table 3-1 Proposed Land Uses for the Tesoro Viejo Project [Revised]

Land Use	Acres	Moderate Buildout (du/sf)	Maximum Buildout (du/sf)	Measurement Units
Mixed Use Community Core				
MDR/HDR	17.5	306	350,324	dwelling units (du)
Community Commercial	35.6	762,300	775,368	square feet (sf)
Professional Office	11.9	259,182	259,182	sf
Public Institutional	3.5	76,230	76,230	sf
Open Space	2.1	—	—	
<i>Residential Subtotal</i>	17.5	306	350,324	du
<i>Non-Residential Subtotal</i>	53.1	1,097,712	1,110,780	sf
Residential				
High Density Residential	27,027.6	473	540,511	du
Medium Density Residential	203,020.1	1,624	1,827,828	du
Low Density Residential	375,439.2	1,614	1,877,756	du
Very Low Density Residential	451,042.9	451	451,631	du
Rural Residential	N/A	N/A	N/A	
<i>Residential Subtotal</i>	1,056,410.8	4,162	4,695,726	du
Special Purpose Uses				
Special Use "A"				
Visitor Commercial	1.1	23,958	23,958	sf
Low Density Residential	11.0	47	550	du
Special Use "B"				
Visitor-Serving Recreational Commercial	0.5	5,445	5,445	sf
<i>Residential Subtotal</i>	11.0	47	550	du
<i>Non-Residential Subtotal</i>	1.6	29,403	29,403	sf
Mixed Use Neighborhood Commercial				
Medium Density Residential	10.0	80	90	du
Neighborhood Commercial	6.0	91,476	91,476	sf
<i>Residential Subtotal</i>	10.0	80	90	du
<i>Non-Residential Subtotal</i>	6.0	91,476	91,476	sf
Commercial/Industrial				
Light Industrial	42,041.0	640,332	640,332	sf
Highway Service Commercial	104,011.0	1,132,560	1,132,560	sf
<i>Non-Residential Subtotal</i>	146,052.0	1,772,892	1,772,892	sf
Other Uses				
Agriculture (any included in residential or open space)	0.0			
Open Space (mapped)	217,421.9			
Open Space Buffers (non-additive)	128.2 ^b			
Schools (non-additive)	30.060 ^a			
Freeway ROW Reserve (estimate)	22,027.6			
STP, WTP, and Other Utilities	23,021.7			
Stormwater Basins	15,015.6			
Canals	69,571.6			
<i>Non-Residential Subtotal</i>	346,935.4			
Total Acreage	1,648.5^b 1,656.4^c			
Total Residential	1,094.91,089.3	4,595	5,190	du
Total Nonresidential	553.6567.1	2,991,483	3,004,5513,004,779	sf

SOURCE: Community Design + Architecture 2007, October, amended May 2012.

^a Schools are an overlay and, therefore, are not part of the overall acreage. If a school is placed in an area zoned other than LDR or MDR, it is anticipated that a transfer of the zoning and dwelling units would occur to maintain consistent total dwelling units at buildout. For clarification, see "Schools" on page 3-8 of the Specific Plan. Other school sites could be accommodated in the Town Center area.

^b Open Space buffers are guaranteed to remain in open space, although they are identified in parcels for which density is allocated.

^c Excluding the 69,571.6-acre Madera Canal, which is owned by the Bureau of Recreation, but crosses the Project Site, the total developable acreage is about 1,5791,585 acres. This is the figure used in this EIR to represent the size of the Project Site.

Similarly, the County's Zoning Ordinance defines some retail land uses, specifically Retail Sales Establishment and Restricted Retail Sales Establishment, in a manner that would be too broad for the planned commercial and mixed-use areas and it could also result in uses that are incompatible with the objectives of the Specific Plan. Therefore, both the Restricted and the Retail Sales Establishment designations have been redefined in the Tesoro Viejo Specific Plan (see Table 3.4.3 of the Specific Plan).

The RMAP Environmental Impact Report provides an equivalence of RMAP land use designations, and also indicates that those land use designations will not take place until property owners or developers come forward with applications for specific projects.

Chapter 3.4.1 of the Specific Plan (Appendix A) describes Tesoro Viejo's Zoning District designations. Development standards, such as, density, lot size, required setbacks, and building heights, for each zoning designation are detailed in Table 3.4.1 of Specific Plan. Table 3.4.2 lists the range of more specific land uses that are allowed within the general land use types.

■ Residential

The Tesoro Viejo Land Use Plan proposes a maximum buildout potential of up to 5,190 du. The residential development would involve a range of densities based on designations allowed by the RMAP, from very low to high densities. There are four densities of development identified within this designation:

- **High Density Residential:** This designation would provide for attached single-family homes, multiple family residential units, live/work units, group quarters, bed-and-breakfast establishments, public and quasi-public uses, and similar and compatible uses.
- **Medium Density Residential:** This designation would provide for single-family detached and attached homes, secondary residential units, duplexes, triplexes, fourplexes, live/work units, garden and courtyard multi-family units, group quarters, bed-and-breakfast establishments, public and quasi-public uses, and similar and compatible uses, including home occupations.
- **Low Density Residential:** This designation would provide for single-family detached and attached homes, secondary residential units, and similar and compatible uses, including home occupations. There are three sizes of lots: small-, medium-, and large-lot land use types allow for detached and attached single-family homes at varying lot sizes and residential configurations. These types of homes can be intermixed to enhance streetscape variety with varying home and lot widths on a block and provide for a mix of different households within one neighborhood.
- **Very Low Density Residential:** This designation would provide for single-family detached and attached homes, secondary residential units, limited agricultural uses, and similar and compatible uses, including home occupations.

According to the RMAP, the Jamison Parcel could accommodate an additional 243 low-density units.

■ Mixed Use Community Core

The Project Site includes the area identified in the RMAP as the Community Core. The Community Core is one of two mixed-use land use designations proposed in the RMAP. The Community Core would facilitate a combination of residential, commercial, office, schools, public uses, quasi-public uses, and similar and compatible uses.

■ Mixed Use Neighborhood Commercial

The Mixed Use Neighborhood Commercial area is the second mixed-use area proposed for Tesoro Viejo. It would provide for neighborhood and locally serving retail and service uses, attached multi-family and single-family homes, live/work units, restaurants, bed-and-breakfast establishments, offices, public and nonprofit organization uses, and similar and compatible uses.

■ Special Purpose Uses

There are two areas identified in the Tesoro Viejo Specific Plan for “Special Purpose Uses” due to their unique geographic locations well suited for visitor-serving, recreational, and commercial activities:

- **Special Purpose Use “A”** is located on the highest hill within the Project Site and provides scenic vistas of the surrounding San Joaquin River Valley. Accordingly, this special purpose area is proposed in a hilltop village configuration, with residential uses focused around a winery, restaurant, health club, spa, and/or an inn.
- **Special Purpose Use “B”** is on the western bank of the San Joaquin River, which is envisioned for beneficial river-oriented visitor-serving recreational and limited commercial uses, possibly involving canoe and kayak rentals, a pull-in, pull-out facility, and some form of food or beverage vending along with parking facilities and/or a possible clubhouse. A portion of this area will be available for public access along a trail anticipated to be part of the regional trail system planned to the north and south. But, at the present time, the Project Applicant is unable to ensure public access to this area by reason of lack of control of points of access to the north and south and court decisions limiting public access from property to the west owned by the Project Applicant through the Sumner Hill subdivision.

■ Highway Service Commercial and Light Industrial/Business Park

The Tesoro Viejo project would also include about 3 million sf of commercial and light industrial space, consisting of retail and office uses in the core and light industrial/business park and highway service commercial services uses between SR-41 and its proposed realignment. Light industrial and business park areas, located adjacent to the Community Core, allow for a wide range of employment generating land uses and are intended to serve the county as major employment areas, including: research and development (R&D), warehouses, light manufacturing, related general commercial uses, limited local-serving retail uses, public and quasi-public uses, and similar and compatible uses.

■ Open Space and Recreation

The Tesoro Viejo project incorporates approximately ~~247~~218 acres of mapped open space, and about ~~200~~128 acres of open space that would be integrated into developed areas. These open spaces comprise a combination of formal parks and existing natural drainages and biological and cultural resource areas that would be intended to serve preservation, recreational, habitat, and storm drainage functions of the Project Site, including a “Central Park.” The designated open space would connect the Proposed Project’s residential areas and its Community Core and would provide an armature for its trails and parks yet to be planned. Future parks in the developed portions of the Proposed Project would include a couple of town squares and smaller neighborhood parks and greens and plazas.

Additionally, the project's proposed Circulation Plan includes an extensive trail network along a series of greenways associated with drainages ~~and a road connecting to the San Joaquin River~~ that would provide access among all of the residential areas, as well as to the Community Core. When other areas develop to the north and south the trails would connect to trails in those developments and thereby to the San Joaquin River. ~~Such trails are intended to connect to trail systems on adjacent properties where they are proposed or~~ as provided by the RMAP.

3.7.2 Neighborhoods of Tesoro Viejo

Tesoro Viejo is proposed to be a complete and coherent community with identifiable neighborhoods, each with its own character, along with unifying elements brought by the connecting elements of major streets and the open space network. The drainage channels, together with the canal and hills, would provide distinguishing features for most of the neighborhoods. Their mostly residential land uses fit within a larger community structure that constellates around the proposed mixed-use Town Center to the west and the Village Center to the east, which would serve respectively as the primary and secondary cores of community life in Tesoro Viejo.

The neighborhoods of Tesoro Viejo are divided into mixed-use districts and residential neighborhoods. The mixed-use districts, including the Town Center, Neighborhood Center, and Special Use Area A, would house both residents and businesses within the same area. They provide destinations for residents in Tesoro Viejo and in the case of the Town Center, those living throughout southeastern Madera County. They offer centers of activity, and locales for procuring goods and services within the community.

The residential neighborhoods within Tesoro Viejo are proposed to provide for a range of housing types and densities, as well as for differing household means and ages. Homes in a variety of sizes, neighborhood types, and price levels would allow residents to find residences suited to most life stages, such as renters or first-time homeowners near the more active Town Center, later graduating to a larger family home in a quieter neighborhood, and retiring to a smaller unit, still close to the jobs, friends, and community.

The different neighborhoods are described below and are illustrated in Figure 3-5 (Tesoro Viejo Neighborhood Map).

■ Mixed-Use Neighborhoods

Tesoro Viejo Town Center. The Town Center neighborhood would be physically defined by the potential future SR-41 freeway right-of-way to the west and the Madera Canal to the north and east. The proposed North/South Connector would be the Town Center's major through street, while cross streets would provide more fine-grained and intimate opportunities for shopping and other activities. The Town Center may also include a park or public green surrounded by or incorporating retail and institutional activities. The Town Center is intended to serve not only Tesoro Viejo, but also all of Southeastern Madera County and, therefore, would be the most active and urban neighborhood in terms of building and streetscape design character. Commercial and residential uses would cater to a wide range of

residents, employees and shoppers, while civic facilities within the Center would accommodate a variety of services, activities and programmed events, from outdoor concerts to farmers' markets.

Town Center Concept. The Town Center's accessible location would provide the potential to locate educational institutions that can help define the core of the Tesoro Viejo community and all of Rio Mesa. Providing school sites within the Town Center also provides the opportunity for the Town Center to begin development at an earlier phase in the implementation of the Specific Plan; otherwise initiation of the Town Center's construction would rely on higher intensity retail, commercial, and residential development that may not be as marketable in early years.

In one proposed Town Center concept, the central town green would be a square in the southwest area of the Town Center, which is lined with civic and retail destinations. Alternatively, the town green may be a linear park within an east/west boulevard. The west side of the green would intersect with the major retail corridor along the North/South Connector, and the east side would be adjacent to the Town Center school(s). Both of the Town Center concepts are illustrated by Figures 2.3.2 and 2.3.3 of the Tesoro Viejo Specific Plan, which is provided in Appendix A1 to this Revised EIR.

Both an elementary and high school ~~could be expected to~~ would be expected to be accommodated within the eastern portion of the Town Center, and ~~would~~ would be connected to athletic playing fields to the southeast of the canal. ~~The Applicant's current plan is that t~~ These schools would be charter schools. The fields would serve both the school and community uses at nights, on weekends, and during the summer.

Depending on ultimate requirements, locating the central green and schools in the Town Center may result in the reorganization of land uses around the Town Center to maintain the proposed amount of Town Center Mixed Use and High Density Residential land uses. This reorganization may result in the loss of some area of Medium Density Residential land use, but housing can be recovered through shifting land uses or increasing densities in other residential areas. Alternately, schools may be relocated within the core area.

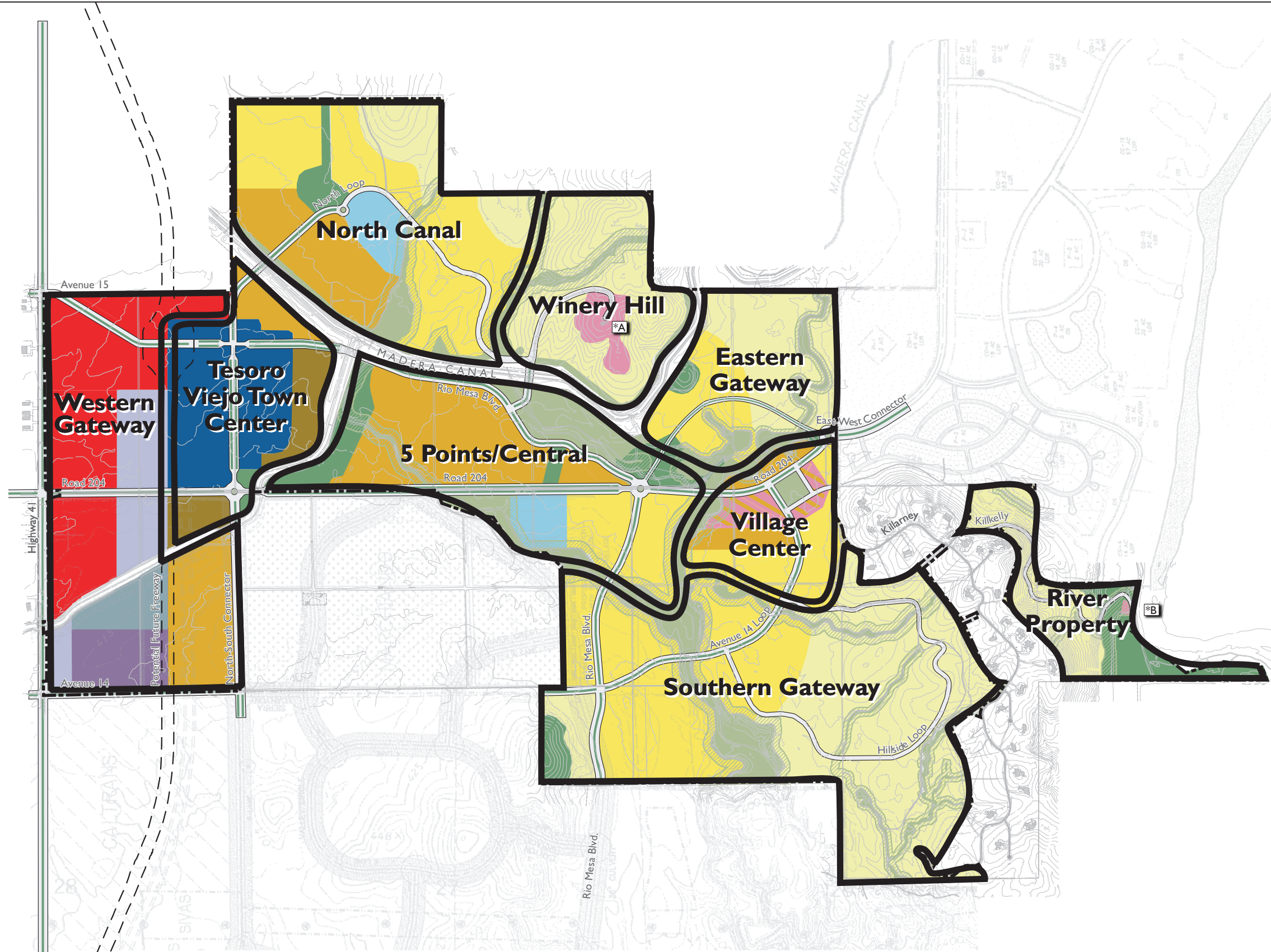
Village Center. This district is located at the eastern end of Road 204 and would be structured around a village green. This neighborhood would include a pedestrian-oriented mixed-use area serving the daily needs of those residents of Tesoro Viejo farther from the Town Center, the southern areas of North Fork Village, the residents of Sumner Hill, and northern portions of Avenue Twelve Village. Commercial services could include a grocery store or food coop, a café, convenience retail and some professional office space. Medium density housing could take the form of flats above commercial uses or live-work spaces, town houses, and duplexes that would sensitively transition to the adjacent lower density residential neighborhoods.

Winery Hill. This neighborhood district includes all property located on the hill north of Madera Canal and toward the center of the Project Site. It is proposed for the highest point in Tesoro Viejo, offering panoramic vistas. The hillside neighborhood is envisioned largely as a hillside residential area connected by narrow roadways and a series of pedestrian stairways reminiscent of Italian hill towns. The summit of the hill has been designated as a "special purpose district" and would be suitable for a visitor attraction such as an inn, a winery, and/or a restaurant, including potential indoor/outdoor recreational club facilities.

Tesoro Viejo

Madera County, CA

REVISED: May 23, 2012



- Districts
- Mixed Use Community Core
12.0 - 30.0 DU/AC
- High Density Residential
12.0 - 25.0 DU/AC
- Medium Density Residential
5.0 - 15.0 DU/AC
- Low Density Residential
1.0 - 10 DU/AC
- Very Low Density Residential
0.3 - 2.0-3.0 DU/AC
- Mixed Use Neighborhood
Commercial
0.25 - 0.40 FAR/
8.0 - 12.0 DU/AC
- Light Industrial/Business Park
0.25 - 0.50 FAR
- Highway Service Commercial
0.25 - 0.40 FAR
- Agriculture
- Open Space/Parks
- Open Space Buffer
- Schools (With underlying Low
Density Residential designation)
- Sewage Treatment Plant and
Water Treatment Facility (With
underlying LI/BP designation)
- Detention Basin (With underlying
LI/BP designation)
- Special Purpose
- *A - Visitor Mixed Use
- *B - Recreation Commercial

Note: Rio Mesa Community Village consists of Tesoro Viejo and the Morgan and Jamison Parcels



Tesoro Viejo, Inc.

COMMUNITY DESIGN + ARCHITECTURE
REGION • CITY • NEIGHBORHOOD • BUILDING



100021688 | Tesoro Viejo SP Revised Project EIR

Source: Tesoro Viejo Specific Plan, May 2012.

Figure 3-5
Tesoro Viejo Neighborhood Map [Revised]

River Property. This neighborhood district includes all of the Project Site on the eastern face of Sumner Hill along the river. Homes in this neighborhood would be clustered on the hillside to integrate with the natural topography and avoid disturbing archeological sites and biological resource areas in the flood plain. A second “special purpose district” could consist of a recreation clubhouse and/or café or self service vending area is proposed along the river so as to take advantage of the unique site character and the corresponding recreational opportunities. Very limited river-oriented commercial recreation such as boat rentals and/or storage may occur. An archaeological park area could be created for organized school groups featuring the grinding stones. Depending on the ultimate outcome of court decisions regarding the gated character of the Sumner Hill subdivision, which divides this portion of the Project Site from the western portion of the Project Site, this neighborhood may be part of the gated community until and unless there is another form of access to it from adjoining properties. At the present time, under a decision by the Court of Appeal for the Fifth Appellate District, the Project Applicant may not be able to offer public access to this property from the west within properties under its control. Linkages to the north and south and east would depend on other landowners.

■ Residential Neighborhoods

North Canal. This neighborhood district includes all of Project Area north of the Madera Canal and west of Winery Hill. Medium density housing along the southern edge would serve to reinforce the Town Center with transitions to lower density further north toward the adjacent Little Table Mountain open space. A possible elementary school and park site is proposed at its center that would be directly connected with the Town Center by both the North Loop Road and trail that parallels the drainage defining the eastern edge of this neighborhood. If an elementary school is incorporated into the Town Center, then there may be no need for one in this area, contingent on the ultimate demands.

Eastern Gateway. The Eastern Gateway neighborhood is north of Road 204 between the Madera Canal and Winery Hill to the west, and the boundary with North Fork Village to the east. This would be an enclave-type neighborhood, characterized by low and very low residential densities and differentiated by hills and drainages.

“Five Points”/Central. This neighborhood includes all the Project Site south of the Madera Canal, between the Town Center and the major north/south drainage channel. “Five Points” refers to it serving as a point of convergence for the primary streets in Tesoro Viejo. It is proposed largely as a medium-density residential neighborhood, with a smaller, lower density area south of Road 204. One elementary school is planned for this area to serve the eastern portion of Tesoro Viejo.

Southern Gateway. This neighborhood district includes the southern portion of Tesoro Viejo as well as the western hillside of Sumner Hill. Residential densities vary in this district from low-density in its flatter section to very low on the hillside. Homes on the hillside may be clustered in order to preserve some vineyard uses, if possible, and allowing the hillside to serve as an attractive backdrop to Tesoro Viejo.

Western Gateway District. This neighborhood includes all property west of the Town Center and the North South Connector. Western Gateway is primarily comprised of light industrial and highway service commercial uses as well as critical utilities. These uses tend either to be more auto-oriented and are more appropriately located near the highway for truck access and automobile access, or to be less suitable

neighborhoods for residences. Medium density residential is located in the southeast corner adjacent to the Town Center and anticipated residential development to the east in Avenue Twelve Village. In the event that demand for industrial uses is less than anticipated, additional land area could be converted to medium- or high-density residential housing.

3.7.3 Site Access, Circulation, and Parking Improvements

■ Vehicular Access

The RMAP sets the general standards for an adequate circulation system of streets, highways, trails, and pathways for the Rio Mesa area. SR-41 provides the primary source of regional north/south access to the Rio Mesa area. Primary east/west entry points, or gateways, to the vicinity of the Proposed Project are located at Avenue 12, Avenue 15, and Road 145. An internal “loop” road would connect Avenue 12 to Avenue 15, facilitating freeway access from the central portions of the plan area and facilitating east/west movements towards Freeway 99. An east/west connector road extends from the loop road to the most northerly village core at North Fork Road, providing the primary connection between the easterly and westerly portions of the community

Figure 3-6 (Conceptual Circulation and Trail Plan) illustrates the circulation plan for Tesoro Viejo. Additionally, the RMAP provides a Circulation Concept Plan (Madera County 1994, 48) for the Project Site and its immediate area that serves as a template for the major road network proposed for Tesoro Viejo. Additionally, the Rio Mesa Community Village Infrastructure Plan details a Street Systems Master Plan for the Proposed Project. While the Rio Mesa Master Plan was designed based on Caltrans’s proposed realignment of SR-41, the Circulation Concept Plan does not assume its completion within the 2025 buildout horizon of Tesoro Viejo (or ever), and retains it only in a right-of-way reserve status.

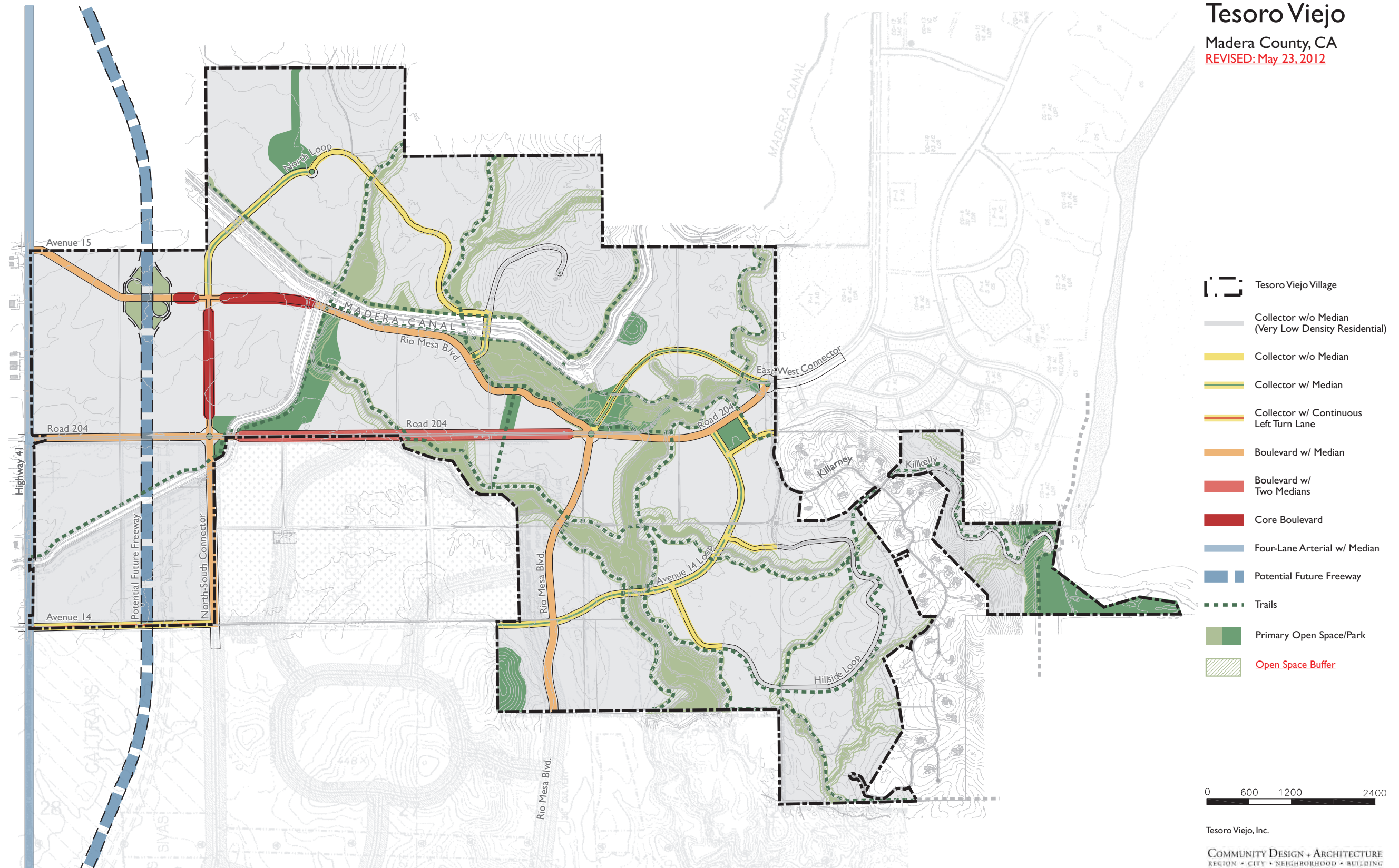
There are six major street types as part of the Circulation Concept Plan, all of which are intended to accommodate traffic needs, as well as provide a heavily landscaped street framework for the Community Core (Village Center). This hierarchy consists of Core Streets, Community Boulevards, Collector Streets, Residential Streets, Industrial/Highway/Commercial Streets and Alleys in which specific standards for Tesoro Viejo are defined in the Circulation Element, Chapter 4 of the Specific Plan. Based on the Tesoro Viejo Circulation Plan, the following street types are proposed for the Proposed Project:

- *Core Streets* serve as low-volume connectors between local streets and arterials. They provide access to parcels within the “highest-intensity” areas of Tesoro Viejo. With higher pedestrian volumes, these streets are dedicated to the pedestrian realm, accommodating outdoor displays, seating, landscape features and other pedestrian amenities. Types of Core Streets include Core Boulevard Street, Four-Lane Boulevard with Median, Two-Lane with Median, and Two-Lane.
- *Community Boulevards* serve mid to lower density residential neighborhoods and the Highway Commercial and Industrial areas in the Western Gateway area. They serve as important routes for traffic moving through Tesoro Viejo as well as to/from destinations that are further apart within the community. Community Boulevards balance multi-modal functions, on-street parking, and relatively high level of local access and street connectivity. Types of Community Boulevards include “with Two Side Medians” and “with Median.”

Tesoro Viejo

Madera County, CA

REVISED: May 23, 2012



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Source: Tesoro Viejo Specific Plan, May 2012.

Figure 3-6
Conceptual Circulation and Trail Plan [Revised]

- *Collector Streets* serve as major connectors among residential neighborhoods, particularly between Tesoro Viejo’s residential neighborhoods and the Town Center and The Village Center. They are typically two-lanes with on-street parking, wide curb to curb dimensions and left-turn pockets to allow for free flowing traffic while maintaining traffic speeds. Collector Streets also allow for higher level of local access than Community Boulevards. Types of Collector Streets include with Medians and without a Medians for very low–density residential areas.
- *Residential Streets* primarily serve the residential neighborhoods as traffic is slower with emphasis on walking, bicycling, neighborhood livability and access to homes over automobile through traffic. They typically have street trees, landscaped planting strips and integrated green infrastructure facilities to establish a sense of community identity. Types of Residential Streets include Standard, “Yield” Street, Hillside Option, and Green Option.
- *Industrial/Highway Service/Commercial Streets* serve the employment districts in Tesoro Viejo. They are within industrial areas that have high volumes of truck traffic with minimal street trees and lower lying landscaping. These streets typically have two lanes with and without on-street parking.
- *Alleys* serve as accesses to rear-loaded garages and rear parking lots in many of Tesoro Viejo’s neighborhoods, particularly for homes fronting onto major streets, parks and open spaces. In the Town Center and Village Center alleys provide service access to the streets facing commercial uses. These streets can also be used for trash collection and utility services.

All of these street types would be constructed in phases as required by development entitlements to provide a minimum of a level of service (LOS) “D” based on the Madera County Capacity Table and adequate emergency vehicle access. Design guidelines would be incorporated in a Specific Plan to address local streets.

■ Pedestrian Access and Circulation

The RMAP provides for pedestrian, bicycle and transit facilities throughout the Rio Mesa Area to support site access and internal circulation. Pedestrian Facilities include sidewalks, bulb-outs (curb extension), crosswalks and pedestrian signals, which will be consistent with adopted pedestrian systems plans, guidelines, policies, or standards.⁷ Although bicycle facilities are not currently provided within the Project Area, future facilities are planned, as outlined in the Madera County 2004 Regional Bicycle Transportation Plan, and in the RMAP. This includes provision of a Class II bicycle lane on Avenue 12 from Road 38 to SR-41 and a Class III bicycle route on Avenue 12 from SR-41 to the San Joaquin River. Note that the RMAP has conceptual circulation plans for Class II bike lanes on all arterial, collector and local access roads except local rural roads where Class III bicycle routes may be designated.

Transit service would be provided by the Madera County Connection within eastern Madera County. Current service is provided along SR-41 with stops at Children’s Hospital, Park-and-Ride Lot at Road 145, downtown Madera and a connection to Fresno Area Express. There are currently no stops at or near the Project Site.

The RMAP provides for several types of nonvehicular circulation in its “Conceptual Trails Plan” (page 56), including pedestrian paths, a Class II/III and I, (i.e., on and off street) bicycle path and trail system, and pedestrian linkages to and through all major land use categories, to the River Parkway, and to

⁷ Based on the Madera County General Plan.

other open space and parks. The Proposed Project builds on the RMAP by providing an extensive network of trails as part of its proposed circulation diagram (Figure 3-5). In addition to sidewalks provided within street rights-of-way, proposed hiking and biking trails along the Proposed Project's greenways would link the Community Core and residential neighborhoods ~~to the San Joaquin River~~. Proposed trail connections would also provide access to the San Joaquin River and Little Table Mountain area and adjoining communities as other properties nearby provided trails.

■ Parking

Parking standards would apply to all land uses, buildings, structures, and to all additions, enhancements, and modifications to existing land uses or structures, which cause a need for additional parking. The standards that are detailed Section 3.7.1 of the Tesoro Viejo Specific Plan would replace Section 28.102 of the Madera County Zoning Ordinance. Parking requirements should comply with Section 28.102.40 of the County's zoning code with the exception of those requirements for residential and mixed-use land uses as identified in Table 3.7.1 (Minimum Required Parking) of the Specific Plan. In general, two parking spaces would be required for each single-family, live-work, and townhouse dwelling unit, with fractional distinctions above and below this per unit parking space standard for multi-family and mixed-use residential units.

3.7.4 Off-Site Improvements

Under future Cumulative Year 2025 conditions, the Madera County Transportation Commission (MCTC) Rio Mesa Traffic Model V2.0 incorporates funded as well as nonfunded transportation improvements in the Project Area. These major roadway improvements are projected to occur by 2025 to support projected land use developments and to address existing deficiencies in the roadway network. The roadway and intersection improvements without those of the Proposed Project would improve the level of service and satisfy the LOS D (or better) criteria set by the Rio Mesa Area Plan. Off-site improvements would include widening of SR-41, signalization of intersections and adding turn pockets as necessary, providing new lane configurations, optimizing signal timing, adding an additional leg connection to an intersection, adding new signage, adding medians, constructing a new intersection at SR-41/Avenue 13 and new on-/off-ramps at SR-41 and Avenue 12. Funding sources are actively being sought for these improvements. ~~Therefore~~ Because funding is not ensured, the traffic analysis does not assume that funding mechanisms will be in place to enable implementation of the identified improvements by 2025 and describes all improvements required to mitigate impacts so that they can be taken into account.

3.7.5 Utility Infrastructure Improvements

The Applicant prepared a Rio Mesa Community Village Infrastructure Master Plan (IMP) to provide planning and design standards for water, wastewater, storm drainage, and streets within the Rio Mesa Community Village. The IMP sets forth the master plan for infrastructure improvements to support the Tesoro Viejo community, while also ensuring that future development of the Jamison and Morgan parcels would not be prohibited by the IMP. The Infrastructure Master Plan describes each major infrastructure system, the design parameters required, and presents a schematic layout of all

infrastructure facilities. However, the IMP does not contain complete design details for all necessary infrastructure.

The Applicant has also prepared a Supplemental Infrastructure Master Plan (SIMP) to address the infrastructure improvements that would be required in the event that the Tesoro Viejo Project would not be able to utilize surface water from the San Joaquin River under the terms of Holding Contract No. 7. In that case, and as required by the court orders, alternative water supplies were identified and are analyzed in this Revised EIR. A Supplemental Water Supply Assessment (SWSA) was prepared to evaluate three additional alternative water supply scenarios, which primarily consist of a combination of on-site and off-site groundwater.⁸ Following preparation of the SWSA and SIMP, a fifth potential water supply alternative was identified by a Term Sheet executed by the Applicant and the Madera Irrigation District (MID). This alternative would consist of surface water backed up by storage in a planned MID groundwater bank. Although the Term Sheet does not represent a binding agreement by its own terms, MID and the Project sponsor are in the process of preparing a binding agreement pursuant to the Term Sheet and the Project Applicant anticipates that a binding agreement will be reached. A Supplement to the Supplemental Infrastructure Master Plan (SSIMP) and a Supplement to the Supplemental Water Supply Assessment (SSWSA) were prepared to describe the fifth potential alternative source of water.

The IMP, SIMP, and SSIMP ~~is~~ are being processed concurrently with the Specific Plan, and ~~it~~ they will be considered and approved by the County concurrently with the Specific Plan. The IMP, SIMP, and SSIMP ~~which was amended in response to comments provided on the Draft EIR (refer to Section 2.6 of Volume IV of the Final EIR for a brief discussion of how the IMP was revised, is~~ are provided as Appendix I, Appendix I1, and Appendix I2, respectively, of this Revised EIR. Wherever ~~the Final EIR~~ this Revised EIR refers to the IMP, ~~the reference is to the 2008 amended IMP~~ it is deemed to refer to all together as the Project's infrastructure plan.

~~In addition, the~~ The Applicant prepared a Water Supply Assessment (WSA) (amended 2008) to evaluate the ability of the Tesoro Viejo Master Mutual Water Company to meet the water supply demands associated with the Proposed Project in accordance with the requirements of Sections 10910 et seq. of the *California Water Code*. ~~That WSA is now supplemented and amended by the SWSA and the SSWSA prepared in response to the court orders. As with the IMP, SIMP, and SSIMP, the WSA ~~is~~, SWSA, and SSWSA are being processed concurrently with the Specific Plan, and ~~it~~ will be considered and approved by the County concurrently with the Specific Plan. The WSA, which was amended in response to comments provided on the Draft EIR (refer to Section 2.6 of Volume IV of the Final EIR for a brief discussion of how the WSA was revised, is provided as Appendix J of this EIR. Wherever the Final EIR~~ this Revised EIR refers to the WSA, ~~the reference is~~ it is deemed to refer to all together as the Project's plans for providing water to the 2008 amended WSA site.

The 2008 WSA (called the Amended WSA) is provided in Appendix J of this EIR. The SWSA and the SSWSA are both provided in Appendix J1 of this EIR for the sake of continuity; the SWSA evaluates four water supply alternatives and the SSWSA evaluates the fifth water supply alternative.

⁸ The SWSA identifies Holding Contract No. 7 water, which was evaluated in the 2008 WSA, as Alternative 1. While it was not evaluated in the SWSA, it was assigned a number by the SWSA preparers for ease of understanding and to avoid the need to refer back to the 2008 WSA. In total, the SWSA presents three new alternative water supply scenarios, with a total of four alternatives identified.

Collectively, the Specific Plan, ~~the~~ IMP, SIMP, SSIMP, WSA, SWSA, and the WSA-SSWSA provide much of the basis for the project description provided in this Revised EIR.

■ Water Supply

The RMAP (page 64) indicates that the water supply for the RMAP area should include wells, surface water, and reclaimed water, which would be adequate for meeting the projected demands of the Proposed Project as well as other projects in the area. The water supply for the Proposed Project is anticipated to come from existing sources by way of existing surface water rights to the San Joaquin River and reclamation and reuse of wastewater generated by the Proposed Project. The Tesoro Viejo Specific Plan area and some other properties, including Lots 1 through 49 of the Sumner Hill Subdivision and a property known as the Marchiando Property, are within the United States Bureau of Reclamation Holding Contract Number 7. These properties are currently supplied water from the San Joaquin River pursuant to the Holding Contract and would continue to use the river water as their source of water, including shallow water wells near the river drawing from the river's subsurface flow, unless a final unappealable court decision ultimately concludes that such water is not available from this source. ~~Based on current plans and the Amended Water Supply Assessment, up to 35 percent of the Proposed Project's water supply would come from reclaimed wastewater. Although treated to a high level of purity in accordance with Title 22 standards for tertiary treatment of wastewater, the reclaimed water will not be treated to meet drinking water standards. Instead, this water would be used for irrigation purposes on a variety of open space land uses within the project, reducing the demand for potable water use in the project.~~

The Jamison and Morgan properties are not included in the Holding Contract; therefore, they are not eligible to receive the river water and would have to find their own source of water and develop their own water supply systems. Separate water supply assessments would be required prior to development of these parcels.

A water treatment plant would be constructed to serve the Tesoro Viejo Specific Plan area. It would be located in the southwest area of the Project Site. The water treatment plant would process river water pumped through pipelines running from the river intake pumps to the plant through an easement through the Sumner Hill subdivision and across the Project Site. Storage tanks would be placed next to the treatment plant, and north of the Madera Canal.

Reclaimed wastewater would be generated from the wastewater treatment plant, also to be located in the southwestern portion of the Project Site. Reclaimed water pipelines would be placed in all major streets, as well as in other streets as necessary to deliver reclaimed wastewater to intended irrigation areas, including public open spaces and open space in the very-low-density-residential (VLDR)-zoned areas and possibly other areas as well. The construction of this system would be phased with development of the Proposed Project (PPEG 2007b, amended 2008b; SDE 2012a, 2012b). Although the combination of river water, subject to the limits agreed upon with other water users, and reclaimed wastewater are projected to be adequate to meet all water supply needs, the Project Sponsor may obtain other sources of fresh water supply to increase its flexibility in responding to water demands ~~(PPEG 2007a, amended 2008a)~~ and has identified alternative water supplies as indicated below to satisfy Project water demands in the event that water from Holding Contact No. 7 were unavailable. On-site groundwater will be used,

even if holding contract water remains available, as described below and in more detail in Section 4.14 (Utilities and Service Systems) of this Revised EIR and in the SWSA.

Alternative Water Supply Scenario

As summarized in the “Revised EIR Overview” of this Revised EIR, the writ issued by the Madera County Superior Court requires the Revised EIR “to disclose, discuss and analyze uncertainties surrounding the proposed use of Holding Contract No. 7 as the Project’s source of water” and identify “alternative water sources that might supply water to the Project if Holding Contract water were not available, as well as the environmental impacts of using such alternative sources.”

Supplemental Water Supply Assessment (Groundwater Alternatives)

The SWSA supplements and amends the WSA by providing for revised water consumption and alternative water supplies. One additional source of water involves previously unknown on-site water. It would be used whether or not Holding Contract No. 7 water remains available. In addition, certain existing entitlements to water from the Madera Irrigation District and pursuant to an agreement with that district and the Friant Water Users Association are likely to be used as well. An additional supply of water from property under the control of the Project Applicant known as Cottonwood Creek Ranch could be utilized if holding contract water were to become unavailable, as described in the SWSA. Together with reclaimed wastewater these alternative sources are shown to be capable of meeting all water demands of the Project. The TVMMWC approved and adopted the SWSA by Resolution 12-01 in February 2012. Together, the WSA and the SWSA comprise the water supply assessment for the Project, and a summary of the results of that assessment are provided in this revised section.

The SWSA identifies three additional sources of water to be used in combination as replacement sources in the event that Holding Contract No. 7 becomes unavailable as a matter of law. These additional sources of water include (1) on-site groundwater; (2) groundwater from off-site, but nearby, lands, known as Cottonwood Creek Ranch, in the same water basin as the Project and under the control of the Project Applicant; and (3) supplies currently available from MID and USBR for agricultural irrigation and groundwater recharge within the Project and within the Madera Sub-basin.

The alternative water supplies would together provide a firm supply during normal, critical dry, and multiple dry years adequate to meet Project requirements. Any use of groundwater by the Project under these alternatives would be water-balanced,⁹ which means that the net demand of the Project would be offset by groundwater recharge and/or fallowing of existing agricultural lands overlying the Madera Sub-basin (RPC 2012).

The use of on-site groundwater would require the use of three of the planned stormwater detention basins as recharge basins to recharge groundwater, as well. It is anticipated that each of the recharge

⁹ In this context, water balanced does not necessarily refer to the recharge of all of the groundwater that is pumped, because not all of the groundwater that is pumped is actually consumed. Instead, the goal in a water balanced system is not to increase groundwater depletion and avoid drawdowns in other wells (e.g., well interference). Maximum projected drawdowns would occur at the end of six months, with full recovery expected after 180 days, before the next pumping cycle would start. The proposed intentional recharge program would replace loss of recharge due to Project development and minimize drawdowns in off-site wells.

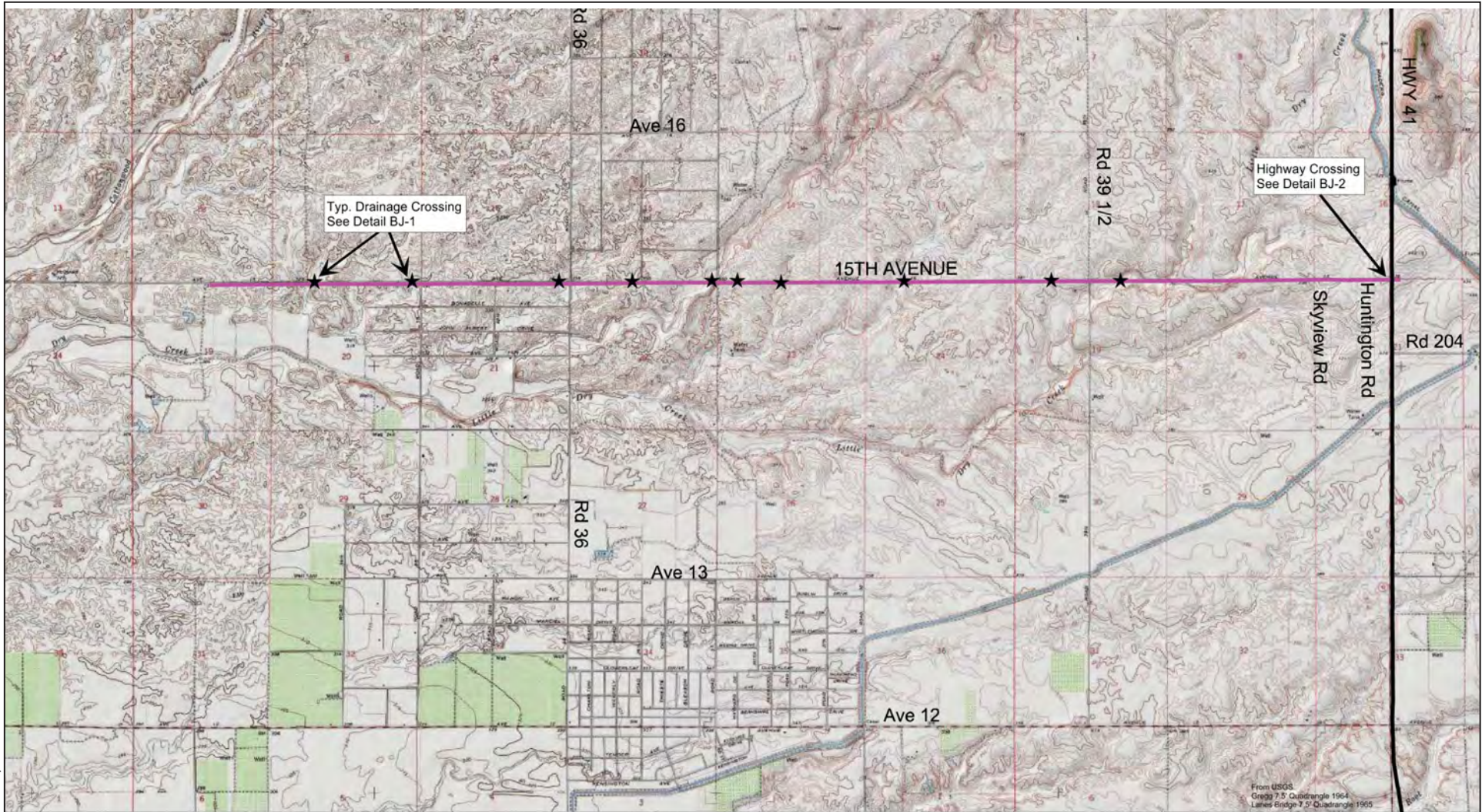
basins would be 2 acres in size and 20 feet deep, totaling about 6 acres out of the 45 acres of planned detention basins. The area required could be less since the estimate assumes use only for half of each year for recharge purposes and less than half the estimated potential rate of recharge demonstrated by a pilot test. Because one of the basins is already in place, having been constructed as part of the recharge test performed for the SWSA, excavation would require the export of approximately 129,000 cubic yards of soil to construct the remaining two basins. Not all of that amount is net new export since the detention basins were already part of the plan and the only change involves deeper excavation. Construction of the basins is assumed in 2014 since on-site groundwater is to be utilized even while holding contract water remains available. While this Revised EIR evaluates the two recharge basins as new project features, as previously noted, they would be co-located within three of the planned stormwater detention basins that were previously analyzed in the 2008 Final EIR. Because groundwater recharge requires a deeper basin than one used for stormwater detention, this EIR evaluates the basins as entirely new uses, which overstates impacts.

Construction of the two recharge basins is anticipated to occur over a 12-month period beginning in 2014 and all of the soil would be balanced on site, meaning that soil removed from the excavation would be used as fill elsewhere on site and would be considered incidental to construction.

The use of groundwater from Cottonwood Creek Ranch would require the installation of an 8-mile-long water pipeline facility consisting of two buried 30-inch-diameter pipes that would be laid side-by-side in a single trench approximately 10 feet wide under the eastbound lane (i.e., southern side) of Avenue 15. Figure 3-7 (Avenue 15 Pipeline Location) depicts the location of this 8-mile-long pipeline, and Figure 3-8 (Avenue 15 Pipeline Construction Details) provides typical cross-section details. The schematic design for the water main alignment is included as Appendix A1 (Tesoro Viejo Pipeline Plans for an Alternative Water Supply from CWCR). Throughout this Revised EIR, the pipeline is referred to as the “8-mile pipeline” or the “Avenue 15 pipeline.”

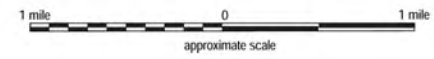
The pipeline would be bored and jacked under all drainages and culverts, including two separate crossings of Little Dry Creek. Additionally, the pipeline would be bored and jacked under SR-41. Construction of the pipeline would occur in areas designated primarily as agricultural; however, residential uses are located along Avenue 15, just to the east and west of Road 36, and again, just to the west of SR-41, adjacent to the construction footprint. Construction equipment would include heavy equipment, similar to those evaluated in the 2008 Final EIR. Depending on the stage of construction, equipment would include excavators, backhoes, bulldozers, compactors, graders, loaders and heavy trucks. Additional construction details are provided in Appendix D3 (Avenue 15 Pipeline Project Biological Evaluation).

All trenching, the sidecast deposition of spoils, equipment use, and staging of materials would be confined to the paved portions of Avenue 15 or within the maintained shoulder of Avenue 15 (approximately 5 feet from the edge of pavement). A portion of the Project, associated with the bore and jack crossing of SR-41, would occur within the maintained shoulder of the east side of SR-41 and adjacent farm road.



LEGEND

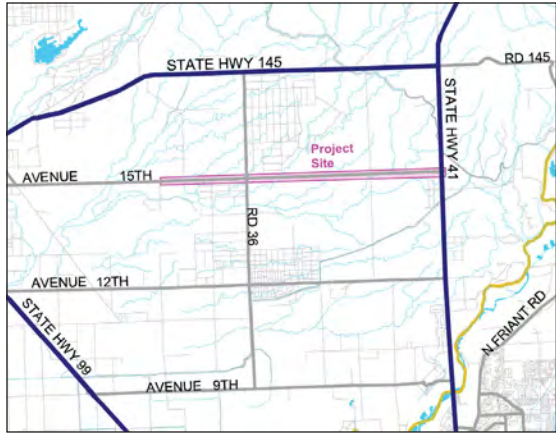
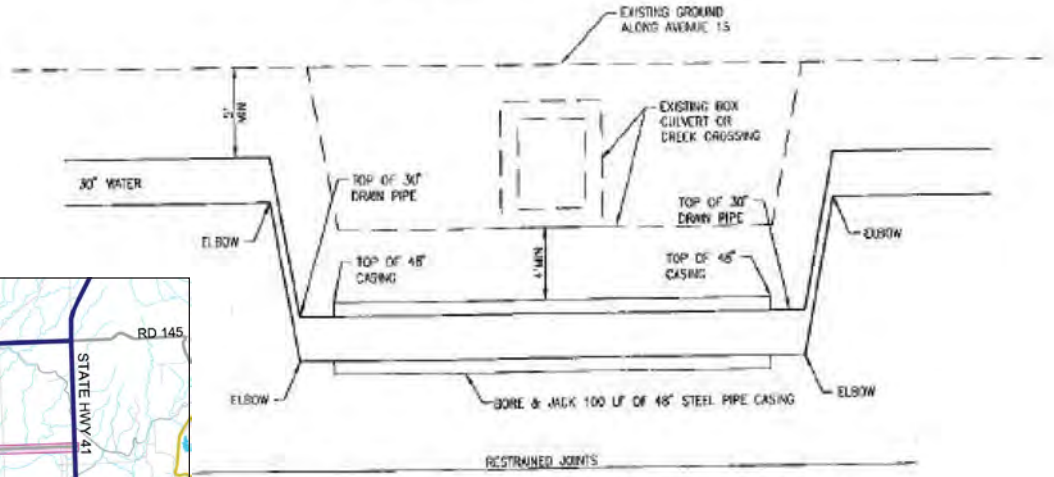
- Project Location
- ★ Culvert Locations



Source: USGS Gregg 7.5' Quadrangle 1964, Lanes Bridge 7.5' Quadrangle 1965; Live Oak Associates, Inc., 2012.

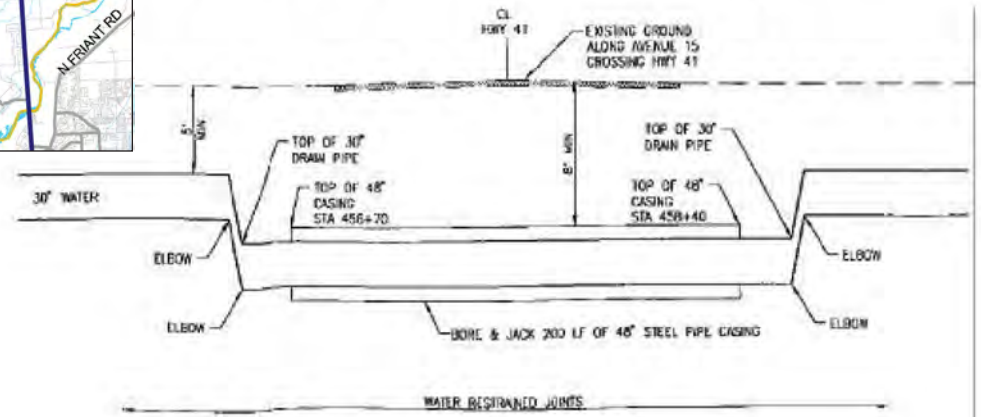
Figure 3-7
Avenue 15 Pipeline Location [New]

BORE & JACK DETAIL



DETAIL BJ-1 - WATER COURSE CROSSINGS

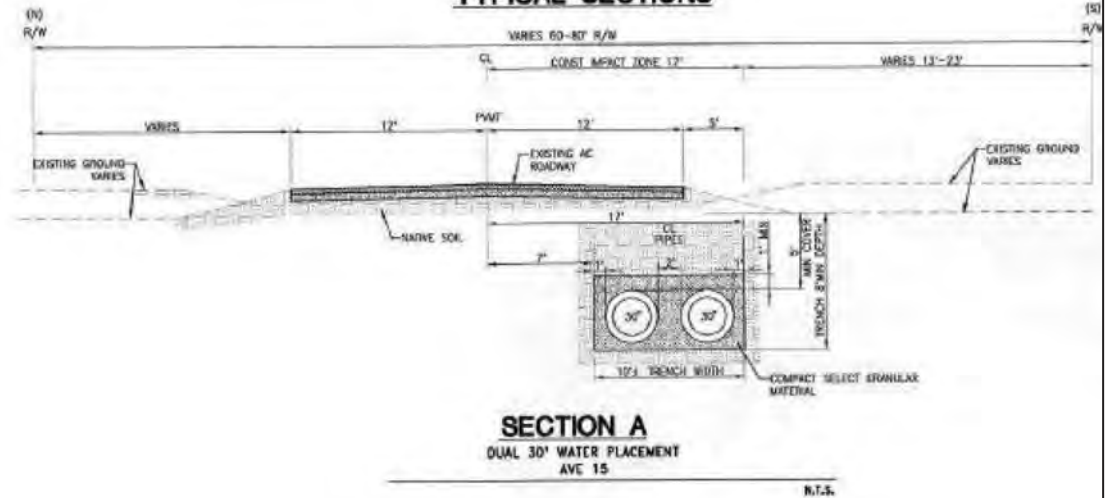
N.T.S.



DETAIL BJ-2 - HIGHWAY 41

N.T.S.

TYPICAL SECTIONS



SECTION A

DUAL 30" WATER PLACEMENT
AVE 15

N.T.S.

100021688 | Tesoro Viejo SP Revised Project EIR

Source: Madera County.

Figure 3-8

Avenue 15 Pipeline Construction Details [New]

All construction activities associated with the pipeline would be implemented during the dry season and are assumed for analytical purposes to begin and be concluded in 2013. The dry season is defined as the last rain event in the spring to the first significant autumn rain event (0.25 inch or more of rain within a 24-hour period). All sensitive habitats and potentially jurisdictional waters (i.e., vernal pools) on the south side of Avenue 15 that occur within 25 feet of the Project footprint would be protected through the installation of silt fencing between the wetland areas and the footprint of Project construction. Additionally, potentially jurisdictional seasonal drainages that cross the Project Site or run within 25 feet of the south side of the Project Site would be protected through the erection of silt fencing. All material would be removed from the Project side of the silt fencing and the pre-Project grade would be restored.

Supplement to Supplemental Water Supply Assessment (MID Water Supply Alternative)

As previously mentioned, the SSWSA evaluated a fifth water supply alternative that would consist of surface water from MID backed up by storage in a planned MID groundwater bank. Because the ultimate source of this water would be water arising from MID's pre-1914 appropriative rights on the Fresno River and not water obtained through MID's Central Valley Project Contract (unless the terms of use set forth in the Central Valley Project can be renegotiated with the U.S. Bureau of Reclamation), prohibitions described in the SIMP regarding the municipal and industrial (M&I) use of MID water on the Project Site would not apply. Such water represents a firm supply. If a binding agreement is reached, this alternative will substitute for potential water from Cottonwood Creek Ranch.

■ Sewer

Sewer (or wastewater) service to the majority of the Project Site would include a pipeline system, trunk collection lines, force-mains, pumping stations, and a tertiary-level treatment/reclamation facility, as well as a reclaimed wastewater distribution system, including pumps and purple pipelines. A permanent wastewater treatment plant would be constructed in increments as development occurs. An interim treatment plant may be constructed at the location of the lift station on the south side of Road 204, east of Rio Mesa Boulevard, until development warrants the construction of a permanent treatment plant. The easternmost area planned for very low-density residential and recreational purposes (just west of the San Joaquin River) would have its own septic system. The remainder of the Tesoro Viejo project's wastewater would be conveyed to the proposed permanent treatment plant to be located north of Avenue 14, and east of the SR-41.

In light of the RWQCB's Wastewater Reuse Policy, the primary method of effluent disposal would be as reclaimed water for irrigation. Treated effluent would be applied for irrigation of major street medians, major street frontage landscaping, parks, and other irrigated recreational open space (PPEG 2007b, amended 2008b; SDE 2012a, 2012b). There are approximately ~~247~~218 acres of open space and parks proposed in the land use plan for Tesoro Viejo, in addition to another ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated into the Proposed Project. Reclaimed wastewater would also be used to irrigate open space in the VLDR-zoned areas and possibly in other areas depending on determinations regarding the most cost effective means of satisfying non-potable water demands. Treated effluent may also be used for agricultural irrigation or for industrial uses where allowed, to the extent available (PPEG 2007b, amended 2008b; SDE 2012a, 2012b). The amount of anticipated wastewater generated by the Project is less than the total

nonpotable water demands of the Project so all reclaimed wastewater will be used on site (PPEG 2007b, amended 2008b; SDE 2012a, 2012b).

~~The Project Applicant is considering several options for disposal of any excess effluent produced over the years, all effluent is expected to be used for on-site irrigation at the present time. There options include, but are not limited to the following: discharge to the San Joaquin River; transport to an offsite storage pond via an underground pipe for application to crop land not adjacent to the Rio Mesa Community Village; or the allowance of percolation of the excess treated effluent into the groundwater basin through unlined storage basins. One or a combination of these options could be used if there were to be excess effluent.~~

■ Stormwater Drainage

A storm drainage system would be developed throughout the Tesoro Viejo site. Improvements would include a combination of “green” and landscaped infrastructure, as well as a more standard curb, gutter, and pipe approach to managing stormwater volumes and water quality within the Project Site where possible. Green and landscaped stormwater management facilities, such as swales that could also provide bio-filtration of stormwater sediments and pollutants, could also be used for attenuation and treatment of runoff from some of the development within the Tesoro Viejo Project Site.

Detention basins that are sized to reduce post-development peak flows to pre-development runoff rates resulting from the critical design storm will be distributed throughout the Project Site. At least one detention basin will be provided in each of the five identified drainage zones. The detention basins will also serve a water quality purpose of removing sedimentation, which will ensure that the discharge from the detention basins will convey “desedimented” storm water into the San Joaquin River. Preliminary locations of the detention basins are provided in Figure 4.8-28 (Proposed Backbone Storm Drainage System) of Section 4.8 ~~{(Hydrology and Water Quality)}~~ of this EIR. Some of these detention basins will be used as recharge basins as described above.

Additional discussion and analysis of stormwater issues and impacts are addressed Section 4.8 (Hydrology and Water Quality) and Section 4.16 (Utilities and Service Systems) of this EIR.

■ Electrical Service/Transmission Lines

Electrical service for the Proposed Project site would be supplied by Pacific Gas and Electric Company from the existing substation on Avenue 12, 1 mile west of existing SR-41. The substation is approximately 3 miles from the site. Facilities would be extended in existing and proposed street right-of-ways. Utility transmission lines would be installed below ground to minimize dangers and aesthetic impacts.

■ Gas Service

Pacific Gas and Electric Company would provide natural gas service from an existing pipeline at Avenue 10 and SR-41, approximately 4 miles south of the Project Site. A pipeline would be placed in existing and proposed street right-of-ways.

■ Telephone Service

Ponderosa Telephone Company currently provides telephone services to properties within the site and would continue to provide service. The Applicant may install its own fiber optic network.

3.7.6 Public Services

■ Fire Protection

Fire protection in the areas immediately surrounding Tesoro Viejo will continue to be provided by the Madera County Fire Department and through a contract with CAL FIRE. The proposed level of development would necessitate the construction of one new fire station¹⁰ to provide adequate public safety for the Proposed Project's residents, employees, and visitors, as well as to serve a portion of North Fork Village unless built there first. While a specific site for this new fire station has not yet been identified, the Tesoro Viejo Specific Plan indicates that a fire station is a conditionally allowed use in the Town Center, which is consistent with the RMAP's guidance to place fire stations in or adjacent to the Community Core so that they are centrally located within the initial response area and adjacent to major arterials to increase access and reduce response times.

■ Police Protection

The Madera County Sheriff's Department will continue to serve Tesoro Viejo's law enforcement needs. A Sheriff's substation may ultimately be located in the Town Center.

■ Schools

When completely occupied, the Tesoro Viejo Project will accommodate an estimated 15,650 people, with a school age population of approximately ~~3,600~~2,600 to 3,400 students based on projections by the Chawanakee Unifies School District. The Project Applicant anticipates school enrollment at the lower number at full buildout. The Tesoro Viejo Project area itself is expected to include ~~two~~up to three ~~public elementary~~K-8 schools in the "5 Points"/Central neighborhood and either or both the Town Center and North Canal neighborhood. A ~~potential~~ high school campus site is ~~tentatively~~also reserved in the Town Center area, ~~as well as an additional elementary school should student enrollment justify the need.~~ However, if an elementary school is included in the Town Center, there may be no elementary school in the North Canal neighborhood. Essentially, the third elementary school ~~and the high school~~ will be provided should student enrollment justify the need. The first elementary school is to be constructed prior to occupancy of the first dwelling units and the high school as early as possible depending on enrollment to justify the need, which is assumed to be by the fall of 2021.

The school or schools in the Town Center neighborhood would be connected to athletic playing fields to the southeast of the Madera Canal. The fields would serve both the high school and community uses at nights, on weekends, and during the summer. The Town Center's highly accessible location provides the

¹⁰ This EIR assumes that one new fire station would be constructed within the Project Site. However, the fire station required by the nearby Central Green project could be provided as a substitute at the discretion of the MCFD.

potential to site educational institutions that can become a core element for the Tesoro Viejo community and the larger community of Rio Mesa.

Depending on ultimate requirements, locating schools in the Town Center may result in a reorganization of land uses around the Town Center to maintain the proposed amount of Town Center Mixed Use and High Density Residential land uses. This reorganization may result in the loss of some area of Medium Density Residential land use, but housing can be recovered through shifting land uses or increasing densities in other residential areas. Alternately, schools may be relocated within the core area.

In total, ~~at least up to 60 acres of the Project Site have been identified for school uses, not including some portion of the Town Center.~~ It is anticipated that the Applicant will finance and construct these schools, and it is possible that they will be operated as charter schools pursuant to the California Charter Schools Act, as well as those sections of the Education Code that apply to charter schools. The California Charter Schools Act is contained in Part 26.8 of the Education Code (EC), Sections 47600 through 47664.

With respect to the timing of the construction of schools, the Applicant is committing to the availability of one K–8 school on site prior to occupancy of the first dwelling unit, rather than after up to 250 units are occupied, as previously committed. The on-site high school will be constructed and operational as soon thereafter as is reasonable. The Applicant desires that the on-site high school be available within 3 to 5 years of operation of the first K–8 school to serve students generated by half of potential buildout. For purposes of this Revised EIR, the high school is assumed to be available by fall 2021 in accordance with building assumptions used in the revised traffic impact analysis. Until that time, high-school students from the Project are assumed to attend Minarets High School, which is operated by the Chawanakee Unified School District about 15 miles to the north (not including potential transfers to other districts or attendance at private or parochial schools or home-schooled students).

3.8 CONSTRUCTION SCHEDULE AND ACTIVITIES

It is anticipated that the Proposed Project would be constructed in numerous phases, depending on market conditions, beginning in ~~2009~~2013, ~~with full~~. While the 2008 Final EIR and this Revised EIR assume buildout of the Proposed Project by 2025, which represents an approximately sixteen-year construction period for cumulative forecasting purposes, it is likely that actual development would occur over a longer period of time. Nonetheless, for purposes of this EIR, buildout is assumed to occur in 2025, and construction activities are assumed to occur over 12 years, recognizing that they will likely occur over a longer period of time and impacts are, accordingly, likely overstated. Development of the project's infrastructure, which would include streets, storm drains, distribution systems for water, sewer, gas, electricity, and telephones, the sewage treatment plant, and the detention basins, is anticipated to begin in ~~2009~~2013, and the residential, industrial, and commercial uses would be developed starting in 2014~~5~~, and occur ~~over a fourteen-year period~~ in response to market conditions.

Construction of the residential and mixed use components of the Proposed Project will generally begin in and around the Town Center area and continue eastward ~~to the San Joaquin River~~, including development both north and south of the Town Center area. Schools will be developed in phases as demand dictates. It is anticipated that the Western Gateway highway commercial and light industrial

components of the Proposed Project would occur gradually, with more during the latter phases of development than in the early phases.

3.9 ORGANIZATIONAL IMPLEMENTATION

This section sets forth the regulations governing Planning Area boundary and acreage adjustments, transfers of dwelling units and nonresidential square footage, and conversions from one land use designation to another that are permitted by the Tesoro Viejo Specific Plan.

The adjustment, transfer, and conversion regulations described in Chapter 3.4.5 of the Tesoro Viejo Specific Plan are intended to provide flexibility in its implementation. Flexibility is needed because of the size of the Specific Plan planning area boundaries and acreages are necessarily generalized. Furthermore, over the anticipated buildout of the Specific Plan there may be economic and social changes to which the Specific Plan should properly respond. This could result in the need for changes in size and location of commercial uses and amount and/or type of residential units, without amendment. To facilitate the ongoing documentation of boundary and acreage adjustments, dwelling unit and nonresidential building square footage transfers, and land use designation conversions, the Tesoro Viejo Land Use Plan (Figure 3-4) and the Tesoro Viejo Program Summary (Table 3-1) will serve as the record-keeping devices for the Specific Plan Monitoring Program. The Monitoring Program will ensure that the adjustments, transfers, and conversions made in the Specific Plan Area do not exceed either the maximum number of units (5,190) or the maximum nonresidential building square footage (3,004,551 sf) without amendment of the Specific Plan.

Any combination of the adjustments, transfers, or conversions may be implemented with respect to a given Planning Area; however, an updated, revised Land Use Plan (Figure 3-4) and Land Use Program Summary (Table 3-1) must be submitted to Madera County with each subdivision map to be processed.

3.10 INTENDED USES OF THIS EIR

The entire Proposed Project is expected to be implemented in phases stretching out for more than a decade, but the purpose of the Environmental Impact Report is to assess the impacts of the entire Proposed Project. To the extent possible and based upon the information available, all environmental effects have been evaluated as thoroughly as possible. To the extent that currently available information limits the scope and content of the impact analysis, subsequent environmental review may be needed.

This EIR has been prepared to analyze environmental impacts associated with the construction and operation of the Proposed Project and also to address appropriate and feasible mitigation measures or Proposed Project alternatives that would minimize or eliminate these impacts. This document is intended to serve as an informational document for decision-makers and the public at large. Additionally, this EIR will provide the primary source of environmental information for the Lead Agency to consider when exercising its permitting authority and/or approval power related to the Proposed Project's implementation.

This EIR is intended to provide officials and the public with information that enables them to intelligently consider the environmental consequences of the Proposed Project. This EIR identifies

significant or potentially significant environmental effects, as well as ways in which those impacts can be reduced to less-than-significant levels, whether through the imposition of mitigation measures or through the implementation of specific alternatives to the Proposed Project. In a practical sense, EIRs function as a technique for fact-finding, allowing an Applicant, concerned citizens, and agency staff an opportunity to collectively review and evaluate baseline conditions and Proposed Project impacts through a process of full disclosure.

3.11 PROJECT APPROVAL REQUIREMENTS

Madera County will be required to undertake a number of actions in order to approve the Proposed Project. These actions include, but are not necessarily limited to, the following and are analyzed in the environmental analysis provided in this document:

- Certification of an Environmental Impact Report and adoption of Findings of Fact, Statement of Overriding Considerations, and Mitigation Monitoring Program
- Approval of the proposed development
- Adoption of the Specific Plan (and associated zoning designation changes)-, which will also serve as a General Plan Amendment for the minor changes in land use designations and circulation that are proposed in the Specific Plan
- Approval of the Water Supply Assessment for the Proposed Project
- Approval of an Infrastructure Master Plan for the Proposed Project
- Approval of a Development Agreement for the Proposed Project (~~a draft version of the Development Agreement is provided in Appendix K of this EIR~~the Development Agreement previously approved is included in Appendix K1 of this Revised EIR and is subject to change)
- Approval of a possible master tentative subdivision or parcel map, and possible first-phase tentative subdivision maps for portions of the Project Site
- Potential formation of a County Service Area, connection to one, or formation of a different public district
- Potential approval of Mello-Roos or similar financing

In addition to the County, there are also federal, regional, and State responsible agencies that have discretionary authority over specific aspects of the Proposed Project. These may include, but are not necessarily limited to, the following:

- Federal Agencies:
 - > United States Fish and Wildlife Service (Potential consultation pursuant to Section 7 of the *Federal Endangered Species Act*)
 - > United States Bureau of Reclamation and/or Madera Irrigation District (Encroachment on or over canals due to bridges or any use of canal rights-of-way)
 - > US Army Corps of Engineers (Potential consultation pursuant to Section 404 of the *Clean Water Act*)
- State Agencies:
 - > California Department of Transportation (Caltrans) (Encroachment Permit)
 - > California State Department of Fish and Game (California Endangered Species Act Consultation and Section 2600 Streambed Alteration Agreement)

- > State Regional Water Quality Control Board (Section 401 Water Quality Certification and compliance with existing NPDES Permit, Municipal Permit and Construction General Permits)
- > California State Department of Health Services, Office of Drinking Water
- > CAL FIRE
- > California Department of Conservation
- > State of California Native American Heritage Commission

3.12 CUMULATIVE DEVELOPMENT SCENARIO

To determine cumulative (2025) development conditions, both with and without the Proposed Project, the MCTC Rio Mesa Traffic Model V2.0 makes assumptions regarding near- and far-term land use development, as well as funded and nonfunded transportation improvements. This model incorporates land use projections throughout Madera County and Fresno County.¹¹

On a cumulative “without Project”¹² basis, the MCTC Rio Mesa Traffic Model accounts for approximately 68,144 du of total development and 65,258 employed persons within Madera County. The model includes 9,025 du of total development and 8,798 employed persons within the generally defined southeastern Madera County Rio Mesa area. The Rio Mesa area includes the RMAP area, which consists of the Rio Mesa Village (Tesoro Viejo, and the Morgan and Jamison properties), North Fork Village, and Avenue 12 Village; however, the model also includes the developments of Gunner Ranch West Area Plan, the Village of Gateway, and a few other smaller developments that are outside of the RMAP area.¹³ Collectively, this is called the MCTC Rio Mesa Traffic Modeling area. The MCTC Rio Mesa Traffic Model V2.0 assumed that 30 percent of the RMAP area would be developed by the year 2025.

The court requested that the County revise its discussion of cumulative impacts to disclose and explain the basis for its assumption of 30 percent buildout by 2025. A detailed discussion of the basis for the forecasted 30 percent buildout in the Rio Mesa area by 2025 is included in Appendix H2 of this document. However, in summary, the Rio Mesa model forecasts that there would be 10,470 dwelling units in the Rio Mesa area by 2025 as compared to a cumulative buildout condition of 33,956 dwelling units; therefore, 33,956 dwelling units divided by 10,470 dwelling units is about 30 percent. Similarly, there would be 10,670 jobs in the Rio Mesa area by 2025 as compared to a cumulative buildout condition of 35,692 jobs; again, 35,692 jobs divided by 10,670 jobs is about 30 percent. The cumulative population and employment forecasts used in the MCTC Traffic Model are based on Department of Finance (DOF) population projections for Madera County and neighboring counties, supplemented by historical growth patterns and local agency plans and judgments to forecast future housing and employment for subareas within the counties.

¹¹ The MCTC Traffic Model also accounts for growth in Fresno County through 2025, which assumes a total employment of 557,354 and a population of 1,290,264. From a cumulative development perspective, growth in Fresno County is relevant only to the analysis of traffic impacts, as well as air quality and noise impacts since the air quality and noise modeling relies, in part, on cumulative traffic volumes.

¹² Cumulative “without Project” and cumulative “with Project” are terms used in the traffic analysis to reflect conditions in the year 2025, both with and without the Proposed Project.

¹³ The Rio Mesa Area also includes the Proposed Project, but for purposes of the traffic model, the Proposed Project was removed to determine cumulative (without Project) background conditions.

The Proposed Project would include 5,190 du and 7,358 employed persons. Therefore, on a cumulative “with Project” basis, the MCTC Rio Mesa Traffic Model accounts for approximately 14,478 du (9,025 du assumed in the MCTC Rio Mesa Traffic Model and 5,190 du included as part of the Proposed Project, plus 263 dwelling units on the Jamison parcel). The model also assumes 18,924 employed persons (8,798 employed persons assumed in the MCTC Rio Mesa Traffic Model and 7,358 employed persons included as part of the Proposed Project, rounded up, plus 2,767 jobs developed on the Morgan parcel). The cumulative “with Project” conditions reflects development within the Rio Mesa Area by the year 2025. For most of the cumulative analyses provided in this EIR, the MCTC Rio Mesa Traffic Model V2.0 provides the cumulative context.

It should be noted that the model assumptions for the EIR assumed full buildout of Rio Mesa Village (i.e., the Project and the Jamison and Morgan parcels) and 30 percent buildout in the remainder of Southeast Madera County, as previously mentioned. Because the Rio Mesa Area Plan designated Rio Mesa Village as the employment center for the Plan Area, the assumption of full buildout for Rio Mesa Village and only 30 percent elsewhere results in a jobs-to-housing ratio of 1.3. However, at buildout, the overall Rio Mesa Area Plan is consistent with the 2006 jobs-to-housing ratio within Madera County.

Buildout of the entire Rio Mesa Area Plan area, excluding those Projects outside of the RMAP area, would occur at some point after the year 2025 and would result in approximately 29,456 du and 31,068 jobs, including the Proposed Project. For the cumulative analyses related to land use and planning and population and housing, both of which are guided by the planning principles articulated in the RMAP, the cumulative context is buildout of the RMAP area.

In some cases, where a cumulative impact is site specific, such as an analysis of certain geologic impacts, the cumulative context is limited to the Project Site. In other cases, such as the conversion of agricultural land to developed land, it is appropriate to evaluate the conditions in Madera County. For the hydrology and water quality cumulative impact analysis, the cumulative context is the San Joaquin Valley Floor Hydrologic Unit for water quality impacts, and the Madera Groundwater Subbasin for groundwater quality and recharge impacts. In each of the cumulative impact analyses, the cumulative context is explicitly defined.

3.13 REFERENCES

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CHAPTER 4 Environmental Analysis

4.0 INTRODUCTION TO THE ANALYSIS

This chapter of the Draft EIR presents an analysis of environmental factors that may be directly or indirectly affected by the Proposed Project. This chapter describes comments received during the scoping period and how they have been incorporated into the Draft EIR, defines the scope of the Draft EIR pursuant to CEQA guidelines, and outlines the organizational content of the document.

4.0.1 Comments Received on the Notice of Preparation

The Notice of Preparation (NOP) for this Draft EIR was published on November 27, 2006, for a 30-day public review period that concluded on December 26, 2006. Seventeen comments on the NOP were provided by sixteen commenters, including public agencies, organizations, and private citizens. In addition, three individuals provided comments at the December 16, 2006, Scoping Meeting. The comments received in response to the NOP or at Scoping Meeting are provided in Appendix B of this EIR and have been incorporated into this EIR, where appropriate.

4.0.2 Scope of the EIR

■ CEQA Methodological Requirements

Section 15151 of the CEQA Guidelines describes standards for the preparation of an adequate EIR. Specifically, the standards under Section 15151 are listed below.

- An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes into account environmental consequences
- An evaluation of the environmental impacts of a project need not be exhaustive; rather, the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible
- Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts

In practice, the above points indicate that EIR preparers should adopt a reasonable methodology upon which to estimate impacts. This approach means making reasonable assumptions using the best information available. In some cases, typically when information is limited or where there are possible variations in project characteristics, EIR preparers will employ a reasonable “worst-expected-case analysis” in order to capture the largest expected potential change from existing baseline conditions that may result from implementation of a project.

■ Economic and Social Impacts

Under CEQA, economic and social effects of a proposed project are not required to be evaluated. However, if the social or economic effects would lead to physical environmental effects, only then would such effects need to be analyzed and addressed in the EIR. Section 15131 of the CEQA Guidelines states the following specific ways that economic or fiscal effects may be considered as part of the EIR:

- Economic or social effects of a proposed project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a proposed project through anticipated economic or social changes resulting from the proposed project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.
- Economic or social effects of a proposed project may be used to determine the significance of physical changes caused by the proposed project.
- Economic, social, and particularly housing factors shall be considered by public agencies together with technological and environmental factors in deciding whether changes in a proposed project are feasible to reduce or avoid the significant effects on the environment identified in the EIR.

4.0.3 Format of the Environmental Analysis

Each environmental resource section in Chapter 4 contains the following headings and related discussions.

■ Environmental Setting

An EIR must include a description of the existing physical environmental conditions in the vicinity of the project to provide the “baseline condition” against which project-related impacts are compared (CEQA Guidelines Section 15125). The baseline condition is generally the physical condition that exists when the NOP is published. For purposes of this EIR analysis, the baseline condition is generally November 2006, which is the date of issuance of the NOP.

An EIR must describe the physical conditions and environmental resources within the Project Site and in the Project Vicinity, and evaluate all potential effects on those physical conditions and resources (see CEQA Guidelines Section 15125):

An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.

Furthermore, CEQA Guidelines Section 15126.2(a) explains that:

In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.

The Project Site has never been developed, except for a small ranch building and a few other small structures associated with farming activities. The site has been used for the last century for agricultural uses. Therefore, the environmental setting used for purposes of this EIR considers the current state of the property as a baseline for comparison of new conditions that would result from implementation of the Proposed Project, including, but not necessarily limited to: increased vehicle trip generation (and related noise and air quality impacts), demand for services and utilities, removal of agricultural operations, a change in the visual quality or character of the area, and other potential environmental effects. As measured against the existing environmental setting, impacts from the Proposed Project include the net new effects of development, as well as the temporary impacts associated with construction activities.

The only exception to the use of existing conditions as the environmental baseline is the traffic analysis. The traffic analysis considers cumulative (year 2025) without project conditions and compares it to cumulative (year 2025) with project conditions. As discussed in Chapter 3 (Project Description), the year 2025 represents the buildout year. In addition, the traffic study includes approximately 263 residential units associated with the Jamison property and 1,500,000 square feet of industrial uses associated with the Morgan property based on the RMAP. With respect to the environmental analysis for the Proposed Project, only the traffic analysis included the Morgan and Jamison properties as part of the Proposed Project's impact analysis. Initially, the Morgan and Jamison properties were included in the traffic analysis because collectively, those properties and the Proposed Project comprise the Rio Mesa Village, which is one of the three villages in the Rio Mesa Area Plan. While there are no development applications on file with the County for the Morgan and Jamison properties, and there are none anticipated in the near term, the County felt that it would be appropriate to determine the Rio Mesa Village transportation infrastructure considering all potential development in the village. At the conclusion of the traffic study, it was determined that the vast majority of the impacts were attributed to the Tesoro Viejo project. A detailed assessment of the percent contribution attributable to each of the projects is provided in Tables 16A, 16B, 16C, and 17 of the Traffic Impact Analysis Report, which itself is provided as Appendix H of this EIR. In summary, the Tesoro Viejo project accounts for approximately 90 percent of the traffic impacts in the Rio Mesa Village.

■ Regulatory Framework

The Regulatory Framework provides a summary of regulations, plans, policies, and laws that are relevant to each environmental issue area.

■ Project Impacts and Mitigation

This section is further divided into the following subsections, as described below.

Analytic Method

This subsection identifies the methodology used to analyze potential environmental impacts.

Thresholds of Significance

Thresholds of significance are criteria used to determine whether potential environmental effects are significant. The thresholds of significance used in this EIR are primarily based upon Appendix G of the 2007 CEQA Guidelines. This subsection defines the type, amount, and/or extent of impact that would be considered a significant adverse change in the environment. Some thresholds (such as air quality, traffic, and noise) are quantitative, while others, such as visual quality, are qualitative. The thresholds are intended to assist the reader in understanding how and why the EIR reaches a conclusion that an impact is significant or less than significant.

Thresholds of significance are provided both in the “Thresholds of Significance” section and immediately before the relevant impact analysis for ease of correlation.

Effects Not Found to Be Significant

Certain impacts are determined to be “Effects Not Found to Be Significant” under Section 15128 of the CEQA Guidelines. This section of the CEQA Guidelines requires that an EIR contain a brief statement indicating the reasons that various possible significant effects of a project were determined not to be significant and, therefore, were not discussed in detail in the EIR. For purposes of this EIR, Effects Not Found to Be Significant are those that result in no impacts. Impacts that are either less than significant or significant and unavoidable are addressed in “Impacts and Mitigation Measures,” which follows this section.

Impacts and Mitigation Measures

This subsection describes the potential environmental impacts of the proposed project and, based on the thresholds of significance, determines whether the environmental impacts would be considered significant and unavoidable or less than significant. Each impact is summarized in an “impact statement” that is separately numbered, followed by a more detailed discussion of the potential impacts and the significance of each impact before mitigation. This format is designed to assist the reader in quickly identifying the subject of the impact analyses, as well as for use in Table 2-42 (Summary of Environmental Effects and Mitigation Measures), which forms the basis of the Mitigation Monitoring Program (MMP). Impact numbers and statements are not provided for Effects Not Found to Be Significant. This subsection also discusses feasible mitigation measures (MMs) that may be implemented to reduce significant environmental impacts.

The MMP for the Proposed Project, which includes the MMs, would obligate the City to monitor implementation of the MMs. The MMP would be reviewed by the County in conjunction with their consideration of the proposed project and certification of the Final EIR. Following the description of MMs, the subsection concludes with a statement regarding whether the impact, after implementation of the MMs and/or compliance with existing local, state, and federal laws and regulations would remain significant or be reduced to a less-than-significant level.

The ~~Draft~~ EIR uses the following terms to describe the level of significance of impacts identified during the course of the environmental analysis:

- **Significant and Unavoidable Impact (SU)**—Impact that exceeds the defined threshold(s) of significance and cannot be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations and/or implementation of feasible mitigation measures.
- **Potentially Significant Impact (PS)**—Impact that exceeds the defined threshold(s) of significance, but either can be eliminated to a less-than-significant level through implementation of feasible mitigation measures or, where no feasible mitigation measures exist, the impact would be significant and unavoidable.
- **Less-Than-Significant Impact (LTS)**—Impact that does not exceed the defined threshold(s) of significance or can be eliminated or reduced to a less-than-significant level through compliance with existing local, state, and federal laws and regulations and/or implementation of feasible mitigation measures.

A “significant effect” is defined by Section 15382 of the CEQA Guidelines as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment ... [but] may be considered in determining whether the physical change is significant.”

The analysis of environmental impacts considers both the construction and operational phases associated with implementation of the proposed project. As required by Section 15126.2(a) of the CEQA Guidelines, direct, indirect, short-term, long-term, on-site and/or off-site impacts are addressed, as appropriate, for each environmental issue analyzed.

■ Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

CEQA requires that an EIR discuss cumulative impacts to determine whether they are significant. If the cumulative impact is significant, or if the project impact is significant, the project’s incremental effect must be analyzed to determine if the effects are cumulatively considerable. According to Section 15065(a)(3) of the CEQA Guidelines, this determination is based on an assessment of the project’s incremental effects viewed in combination with the effects of past, current, and probable future projects. The discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. Further, the discussion is guided by the standards of practicality and reasonableness.

A significant cumulative impact does not necessarily mean that the project-related contribution to that impact is also significant. Instead, under CEQA, a project-related contribution to a significant cumulative impact is only significant if the contribution is cumulatively considerable.

The geographic scope of the cumulative impact analysis can vary depending upon the specific environmental issue area analyzed. For each issue area addressed in this EIR, the geographic scope of the cumulative impact analysis is explicitly identified.

■ References

This section includes, but is not limited to, those sources relied upon for each environmental topic area analyzed in this document (Sections 4.1 through 4.15), as well as other sections of the EIR. Reference materials also include the appendices to this EIR.

4.1 AESTHETICS

This section describes existing aesthetic and visual resources of the Project Area. In particular, descriptions of existing visual characteristics, both on and in the vicinity of the Tesoro Viejo Specific Plan Area are presented, and potential project-related impacts to aesthetic and visual resources, such as increased light and glare and impacts to scenic views, are evaluated, based on analyses of photographs, site reconnaissance, and project data.

An area's visual quality is based on the physical appearance and characteristics of the environment, such as the proximity and balance of man-made structures with open space or landscaping, and views of public open space or of more distant landscape features, such as hills and water bodies, or built landmarks, such as bridges or buildings. These elements help define a sense of place and a physical orientation in a visual setting.

Information used for this section was obtained from various sources, including site photographs taken by PBS&J staff, the Madera County General Plan (1995) and associated EIR, previous environmental documentation, the Specific Plan prepared for Tesoro Viejo (2007), and other data sources. Bibliographic entries for reference materials are provided in Section 4.1.5 (References).

4.1.1 Environmental Setting

■ Regional Setting

The Project Site is located on the broad and gently rolling plain of the southern San Joaquin Valley near the Sierra foothills. Near and midrange views are primarily rural in nature, with broad expanses of planted fields, vineyards, and orchards interrupted by clusters of farming or commercial buildings and some residential uses, including older subdivisions to the west. The more distant views in the region consist of the eastern edge of the South Coast Range to the west, the Tehachapi Mountains to the south, and the western edge of the Sierra Nevada Mountains to the east. The primary local scenic views include Little Table Mountain, which is located offsite and due north of the central portion of the Project Site, the San Joaquin River and its tributaries, and its surrounding bluffs, which are located in the eastern portion of the Project Site, just west of the River.

There are no State-designated scenic highways in Madera County (Caltrans 2007). While there are segments of SR-49 and SR-41 in far northern Madera County, between the Oakhurst junctions to the Madera/Mariposa County lines that are deemed eligible for scenic highway status by Caltrans, these are more than 30 miles north of the Project Site and are not visible from it.

■ Local Setting

The area surrounding the Project Site consists primarily of orchards, vineyards, and grazing lands. The Project Site is bordered by State Route (SR) 41 to the west, an orange orchard to the southwest, and to the east by a ridgeline dotted with estate housing (the Sumner Hill Subdivision) with the riparian corridor along the San Joaquin River further to the east. The Project Site is rimmed by a plateau to the north.

There are no overhead utility lines within the Project Site, enabling an uncluttered view of the horizon and the sky. Vertical elements, such as buildings, are absent, aside from a two-story ranch house that sits atop a prominent hill in the north central portion of the Project Site. The Peck Ranch buildings are visible from the majority of the Project Site. There are several prominent hills within the northern, southern, and eastern portion of the Project Site, which defines the Site's gently undulating terrain. A slight basin effect is created toward the central portion of the site by hills ringing it on three sides.

The Project Site offers a range of scenic resources including a mesa, rock outcroppings, cliffs, knolls, meandering streams/drainages and ravines, along with two aisles of tall trees (eucalyptus) that offer a wind break in the eastern portion of the Project Site. Together, these resources present a variety of elements that define the site's visual character, and which is further described below.

■ Project Site Characteristics

Topography and Vegetation

The Project Site is a visually dramatic and varied site that is characterized by agricultural uses throughout most of the site and a gently rolling terrain, bounded to the west by the relatively level terrain surrounding SR-41, to the north by a prominent hill and a mesa, to the south by two hills and to the east by a ridgeline and bluffs overlooking a reach of the San Joaquin River. The Sumner Hill Subdivision interrupts the Project Site, with a discontinuous portion of the Project Site fronting the River. The higher topographic features afford vistas into the site from three sides. Wide expanses of the site are also available to the west from SR-41.

The northern portion of the Project Site is bisected to the east/west by a section of the Madera Canal and to the north/south by a number of streams and drainages, some of which ultimately feed into the San Joaquin River. Together, these streams and drainages provide a varied profile of water features, from ponded areas and seasonal marshes in the more level portions of the drainage that parallel Road 204, to the miniature canyon interspersed with rock outcrops along the southernmost reach of the unnamed tributary downstream of the confluence of the three branches, to the willow-dotted rivulets running off of Sumner Hill, to the concrete trapezoidal channel of the Madera Canal.

The vegetation of the Project Site is largely comprised of agricultural uses, including vineyards, row crops, and dry-farmed fields occupying the western, southern, and eastern portions of the site. Clumps of willows and oak trees also dot the landscape adjacent the stream channels; and a gallery riparian forest of Valley oaks and willows line the San Joaquin River. Two long lines of mature eucalyptus grow along a road that parallels the northeastern edge of the site. Nonnative grasslands occupy the remainder of the site with rock outcroppings along the faces of bluffs.

Together, these scenic features compose a rural and agricultural landscape with visual interest.

Glare/Lighting

There is no glare associated with the Project Site at present, as it is entirely undeveloped except for the Peck Ranch buildings, which are constructed of nonreflective material. The existing sources of nighttime

lighting are from vehicles traveling along SR-41, used car and RV lots located at the intersection of SR-41 and Road 204, and by the Sumner Hill Subdivision.

Existing Viewsheds

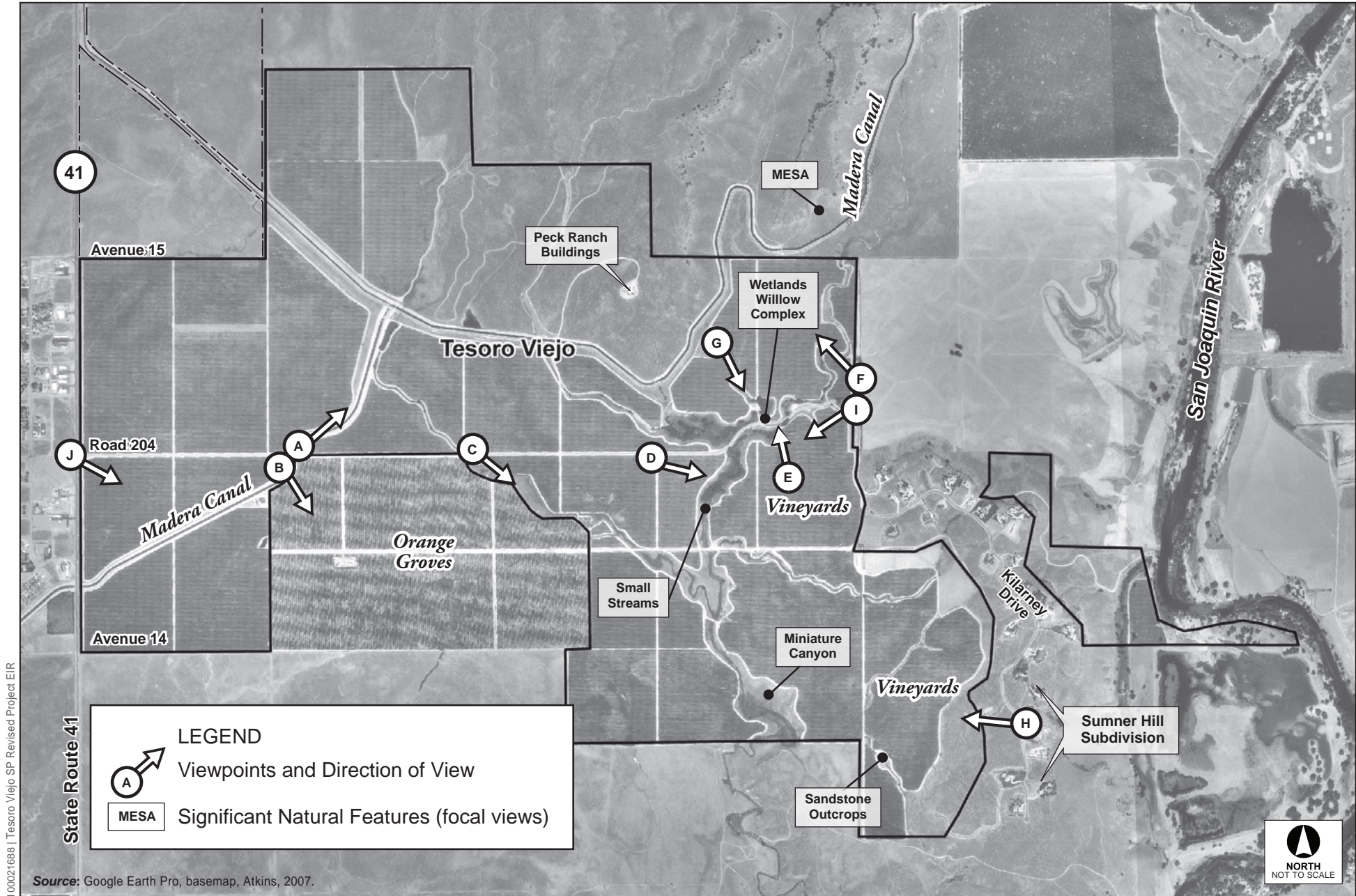
A viewshed is a geographic area that may be seen from one or more viewpoints that are generally publicly accessible; in addition, it has inherent scenic qualities or aesthetic values that are readily perceived and generally recognized. The viewsheds associated with the Project Site are mostly characterized by agricultural uses and natural features. The locations of key photographic viewpoints of the Project Area that provide the basis for this analysis are illustrated by Figure 4.1-1 (View Corridors Key). Existing views from and of the Project Site are described below.

Views of the Project Site

The rolling landforms that make up most of the Project Site, together with its varied features, create outlooks of a rural landscape that vary from viewpoint to viewpoint. Only one public road, Road 204, passes through the Project Site, bisecting it from east to west. Views from the western side of the Project Site to the north of Road 204 are alternately of plains largely composed of vineyards, interspersed with barren (or fallow) fields (Figure 4.1-2 [Views from Road 204—Western Side of Tesoro Viejo], View A), while to the south are vineyards separated from an off-site orange orchard by the Madera Canal, which is located onsite (Figure 4.1-2, View B). The landscape begins to undulate more just east of a stream drainage that crosses Road 204 (Figure 4.1-3 [Views from Road 204—Middle of Project Area], View C).

While most of the views on the site are fairly expansive, with a mesa and hills to the north and a ridgeline with the estate housing of the Sumner Hill Subdivision (Figure 4.1-3, View D), Road 204 passes through a riparian corridor where views are more confined (Figure 4.1-4 [Views from Road 204—Toward Eastern Side], View E). Along the eastern edge of the Project Site, vistas become more dramatic—particularly to the north of Road 204 as the landforms become more varied and incised by small drainages (Figure 4.1-4, View F).

A few promontories provide views of the Project Site, among them the hill atop which the Peck Ranch buildings sit, and a smaller hill to the east of it that adjoins the northern boundary of the Site. Views from these locations depict the broad, undulating plain of the Project Site, textured by vineyards in the middle ground and rimmed with a ridgeline to the southeast that is capped by the Sumner Hill Subdivision (Figure 4.1-5 [Vistas into the Project Area from Private Vantage Points], View G). A second vista point is from a hill in the south-central corner of the Project Site, but there are no roads from which to access this hill. A third set of views into the Project Site are from its eastern edge, along a few portions of Killarney Drive, in the Sumner Hill Subdivision. While views from this location are suggestive of the topography composed of low hills and plains, focal views of the site's drainages are generally not visible (Figure 4.1-5, View H).



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Figure 4.1-1
View Corridors Key



View A: Looking to northeast from Road 204 – plain of vineyards and fallow field



View B: Looking to southeast – vineyards divided from an orchard by the Madera Canal

Source: Live Oak Associates, Inc.

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Figure 4.1-2
Views from Road 204 – Western side of Tesoro Viejo



View C: Looking to southeast toward small stream drainage that crosses Road 204



View D: Looking to east, showing drainage and ridgeline with the Summer Hill subdivision

Source: Live Oak Associates, Inc.

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Figure 4.1-3
Views from Road 204 – Middle of Project Area



View E: Looking east toward willow wetland



View F: Looking north along the eastern edge of Project Site toward mesa and small stream

Source: Live Oak Associates, Inc.

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Figure 4.1-4
Views from Road 204 – Toward Eastern Side



View G: Looking southeast near Peak Hill across vineyards, houses of Sumner Hill are in distance.



View H: Looking west from Kilarney Drive in the Sumner Hill Subdivision.

Source: Live Oak Associates, Inc.

Figure 4.1-5
Vistas into the Project Area from Private Vantage Points

The obviously public views into the Tesoro Viejo Project Area are from SR-41 and Road 204. While there is an existing subdivision to the west of SR-41, views from the subdivision to the Project Site are partially, if not fully, obscured by commercial development that directly fronts the west side of SR-41. Thus, the majority of views into the Project Site are by motorists. The views from the vantage point of SR-41 are across fairly flat terrain and, thus, afford near and middle ground views of vineyards and barren ground and long-range views of the Sierra Nevada Mountains (Figure 4.1-6 [Views of the Project Area from Public Vantage Points], View I), with the mesa in the distance (Figure 4.1-6, View J).

4.1.2 Regulatory Framework

■ Federal

There are no federal statutes related to aesthetics that would apply to the Proposed Project.

■ State

State Scenic Highway Program

The State Scenic Highway Program was established in 1963 by the State legislature to preserve and protect scenic highway corridors from change that would diminish the corridor's aesthetic values. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, then applies to the Caltrans for scenic highway approval and receives notification from Caltrans that the highway has been designated as a Scenic Highway. There are no State-designated Scenic Highways that are visible to or from the Project Site. Madera County does not currently have State-designated scenic highways (Caltrans 2007). The only state road eligible for scenic highway status in proximity to the Project Site is SR-49, but it is not visible from the Project Site.

■ Regional

There are no regional statutes related to aesthetics that would apply to the Proposed Project.

■ Local

Madera County General Plan

The Madera County General Plan, as amended by the Rio Mesa Area Plan (RMAP), includes policies that would serve to regulate visual resources in the proposed Project Area (Madera County 1995a). The following General Plan goals, objectives, and policies pertain to visual resources and aesthetics and are relevant to the Proposed Project.

General Land Use Goals

- Goal 1.A** To promote the wise, efficient, and environmentally-sensitive use of Madera County land to meet the present and future needs of Madera County residents and businesses.

- Policy 1.A.8** The County shall require that new rural and suburban development be designed to preserve and maintain the rural character and quality of the county.

Residential Land Use

- Policy 1.C.5** The County shall encourage the planning and design of new residential subdivisions to emulate the best characteristics (e.g., form, scale, general character) of existing, nearby neighborhoods.
- Policy 1.C.7** The County shall require residential project design to reflect and consider natural features, noise exposure of residents, circulation, access and the relationship of the project to surrounding uses. Residential densities and lot patterns will be determined by these and other factors. As a result maximum density specified by General Plan designations or zoning for a given parcel of land may not be realized.

Visual and Scenic Resource

- Goal 1.H** To protect the visual and scenic resources of Madera County as important quality-of-life amenities for county residents and a principal asset in the promotion of recreation and tourism.
- Policy 1.H.1** The County shall require that new development in scenic rural areas is planned and designed to avoid locating structures along ridgelines, on steep slopes, or in other highly visible locations, except under the following conditions:
- a. such a location is necessary to avoid hazards; or
 - b. the proposed construction will incorporate design and screening measures to minimize the visibility of structures and graded areas.
- Policy 1.H.2** The County shall require that new development incorporates sound soil conservation practices and minimizes land alterations. Land alterations should comply with the following guidelines:
- a. limit cuts and fills;
 - b. limit grading to the smallest practical area of land;
 - c. limit land exposure to the shortest practical amount of time;
 - d. replant graded areas to ensure establishment of plant cover before the next rainy season;
 - e. create grading contours that blend with the natural contours on site or look like contours that would naturally occur; and
 - f. prohibit overgrazing.
- Policy 1.H.3** The County shall require that new development on hillsides employ design, construction and maintenance techniques that:
- a. Preserve and enhance the hillsides;
 - e. Maintain the character and visual quality of the hillside.



View I: Looking southwest from Road 204 near eastern edge of Project Area



View J: Looking east from intersection of Road 204 and State Route 41 - vineyards and barren ground

Source: Live Oak Associates, Inc.

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Figure 4.1-6

Views of the Project Area from Public Vantage Points

Vegetation Goals

- Goal 5.F** To preserve and protect the valuable vegetation resources of Madera County
- Policy 5.F.1** The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually-sensitive areas such as hillsides, ridges, and along important transportation corridors.
- Policy 5.F.2** The County shall require developers to use native and compatible nonnative species, especially drought-resistant species, to the extent possible in fulfilling landscaping requirements imposed as conditions of discretionary permit approval or for project mitigation.
- Policy 5.C.6** The County shall require that natural watercourses are integrated into new development in such a way that they are accessible to the public and provide a positive visual element.

Policy Consistency

The Proposed Project is consistent with the County’s General Plan policies pertaining to visual and scenic resources. The Proposed Project structures would not be located along any ridgelines or other highly visible areas that would potentially have an adverse affect on scenic rural resources (Policy 1.H.1). In addition, the Proposed Project would incorporate the unnamed tributary streams feeding into the San Joaquin River as part of a comprehensive open space and park network (Policy 5.C.6).

The Project Site generally consists of gentle slopes, which have been incorporated into the Project’s design. There would not be any substantial landform alterations required for project development (Policy 1.H.2).

Rio Mesa Area Plan (RMAP)

3.2.3 Community Design

- Goal 2** Recognize the significant natural features of the site as key components of community character.
- Policy 2.1** Development planning in hillside areas should conform to the unique natural setting of each area and site, retaining or restoring the character of existing landforms and preserving significant native vegetation.
- Policy 2.3** The river bluffs should be preserved to the greatest extent possible, as significant visual features and “edges” to the river corridor.
- Goal 5** Create a plan which recognizes the river as a major design element in terms of preservation, biological and visual character.
- Policy 5.1** Establish community design elements or themes that draw on the unique natural character of the river and that support the conservation of the corridor’s unique natural resources.

3.2.5 Open Space

- Goal 1** Development near areas of significant natural features or environmentally sensitive areas, should include provisions for preservation of open space.
 - Policy 1.2** Special design attention and sensitivity should be given to development in areas with highly visible hillsides, ridges, knolls, bluffs, natural vegetation areas (i.e., concentrations of naturally occurring oak and riparian trees, and other natural features.
- Goal 3** Recognize the San Joaquin River as a significant open space and recreational amenity, and promote the preservation, enhancement, and public enjoyment of the river’s flood zone corridor resources.
 - Policy 3.4** Preserve and incorporate natural features along with supporting artificial and recreational features into development site design such that those features can serve as a buffer for the river corridor.
- Goal 4** Recognize the river bluffs as a significant visual amenity.
 - Policy 4.1** Provide visual access to the river corridor from a series of vantage points throughout the area plan.

3.2.6 Conservation and Safety

- Goal 1** Minimize alteration to topographic landforms.
 - Policy 1.4** Require all development to meet grading standards designed to minimize topographic change and help it blend into the natural surroundings.
- Goal 2** Visually significant features should be preserved to the greatest extent possible as community amenities.
 - Policy 2.2** Direct special attention to development proposed within or near important visual features to insure compatibility with the natural environment.

Policy Consistency

The Proposed Project will implement measures to preserve the distinct visual character and quality of the surrounding land. Because of the site’s close proximity to the San Joaquin River and the river bluffs special considerations have been made, which address Policy 2.1, of the Community Design Section, and Policy 2.2 of the Conservation and Safety Section of RMAP. As included in the in the Tesoro Viejo Specific Plan (Specific Plan) the planned development on the Project Site is a mix of high-density to low-density development. Within the low- and very-low density residential districts the homes will incorporate shared preserved green areas, which can include woodlands, active agricultural uses and other rural open spaces this will incorporate the natural features of the site into the planned development. Special Use areas, also referred to as Winery Hill (Special Use A) and Special Use B, have also been incorporated into the Specific Plan. These Special Use areas will have special requirements to accommodate the unique settings and natural amenities of the areas, such as setbacks and lot sizes that are more flexible to allow buildings to work with the areas’ surroundings.

Goal 7 of the Land Use section within the Specific Plan provides for development guidelines and standards, Goal 7 also addresses relevant policies outlined in RMAP with consideration of significant natural features, environmentally sensitive areas, significant open space and recreational amenities, as well as minimizing alteration to topographic landforms.

Neighborhood Development Standards and Design Standards have also been identified within the Specific Plan, these include, but are not limited to minimizing change to existing topography, a maximum height to walls and fences, well maintained landscape elements, and shielded lighting, all of which are strategies to preserve the existing character of the Project Site. Additional standards in the Circulation Element of the Specific Plan are street design, and include various residential street options, each with their own standards for landscape, lighting and circulation.

The Specific Plan has addressed and accounted for the policies laid out by the Rio Mesa Area Plan and has designed each land use designation to standards that will minimize impacts and preserve the existing character within the Project Site.

Madera County Zoning Ordinance

The Madera County Zoning Ordinance establishes zoning policies for aesthetic and visual resources (Madera County 1995c). The Tesoro Viejo Specific Plan contains a “New Urbanist” approach, which incorporates pedestrian-friendly elements, mixed uses, and increased flexibility to applying zoning districts. The development standards and zoning regulations have been defined in the Specific Plan so as to facilitate the opportunities for innovative, high-quality community design and the integration of Project features into the existing landscape (Community Design + Architecture 2007, amended May 2012). The Tesoro Viejo Specific Plan’s Zoning Regulations would modify the existing zoning regulations for the area, and would serve to establish specific regulations related to height, mass, scale, and allowable uses (see Table 3.4-3, Tesoro Viejo Zoning Regulation, in the Specific Plan, Appendix A).

4.1.3 Project Impacts and Mitigation

■ Analytic Method

The analysis of visual impacts focuses on the nature and magnitude of changes to the visual character of the Project Site as a result of the implementation of the Tesoro Viejo Specific Plan, such as scenic vistas where the Project Site would be evident, notably from the Sumner Hill Subdivision, and the introduction of new sources of light and glare. Site visits by PBS&J personnel in 2006 and 2007 documented the existing visual character and context of the Project Site and surrounding area.

The basic unit of analysis of aesthetics impacts in this EIR is a specific viewshed—particularly views observed from vantage points along public routes. The analysis focuses on comparing existing visual characteristics of a particular viewshed with the modified visual characteristics of this viewshed following buildout of Proposed Project, which will introduce a significant pattern of new housing and commercial and industrial development. Significant aesthetic impact(s) would occur where the Proposed Project would substantially degrade the visual character and quality of the site or its surroundings, or create substantial sources of light or glare, or result in substantial adverse effects to scenic resources or vistas.

Vantage points and associated view corridors were chosen for analysis based on locations of views that could be affected by the proposed development.

Light and glare are considered for the Project as a whole. The primary sources would be exterior lighting associated with the development, such as street lights, exterior building lights, lights for pedestrian wayfinding, security lighting in parking areas and recreational lighting for athletic playing fields associated with schools and/or parks. The primary new sources of glare would be the surfaces of proposed structures. A significant impact would occur where the project would create a new, substantial source of light or glare.

Construction-related effects consider the general appearance and persistence of construction activities on the Project Site and at off-site locations where project-related infrastructure improvements would be implemented, particularly roadway intersections that would be improved as part of the traffic mitigation program proposed in Section 4.14 (Transportation/Traffic) of this EIR.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on visual quality if it would do any of the following:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

■ Effects Not Found to Be Significant

Threshold	Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
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The Specific Plan Area is not located within the viewshed or corridor of a State-designated scenic highway. As described above under the Regulatory Framework, the nearest State-designated scenic highway is located more than 30 miles from the Specific Plan Area. Because the Specific Plan Area is neither located proximate to a state-designated highway, nor within a designated view corridor associated with a scenic highway, development of the Proposed Project would have ***no impact*** on scenic resources, such as trees, rock outcroppings, or historic buildings, within a state scenic highway view corridor, and no further analysis of this issue is required in this EIR.

■ Impacts and Mitigation Measures

Threshold	Would the project have a substantial adverse effect on a scenic vista?
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Impact 4.1-1 **Implementation of the Proposed Project and associated infrastructure improvements would modify the existing site characteristics from a rural landscape to an urban/suburban landscape, but would not substantially and adversely impact a scenic vista. This is considered a *less-than-significant* impact.**

Scenic vistas may be described as panoramic views (views of large geographic areas) and focal views (visual access to a particular object, scene, or feature of interest).

Panoramic Views

Panoramic views include sweeping views of significant or unique natural resources, such as valleys, mountain ranges, or large bodies of water. By way of example, one of the nearby iconic panoramic views is the view from SR-41 traveling north, just as the entire Yosemite Valley comes into view after a bend in the road.

The Project Site is visible from SR-41 and Road 204, which, due to their position and the flat terrain, afford sweeping views across the site and eventually to the western edge of the Sierra Nevada Mountains, which includes steep slopes and highly visible ridgelines, in the distance. Views of the mountains are considered to be panoramic views, as they provide a backdrop to most views originating from the Project Site looking east.

While development of the Proposed Project would retain much of the site's existing topography, and, therefore, existing viewsheds to the eastern portion of the site would remain largely unchanged, residential and commercial uses would predominate in the near and middle-ground views and the Sierra Nevada Mountains could be partially obstructed from certain vantage points. However, from within the site, many residents and visitors would be afforded access to views that currently do not exist for the public. Further, no development is proposed or reasonably anticipated on the western flank of the Sierra Nevada Mountains, and views of this natural resource would remain unchanged over the life of the project. Therefore, impacts to panoramic views of the Sierra Nevada Mountains would be considered less than significant.

While other sweeping views are available, such as those looking through the Project Site from north or south across undeveloped rural plains, these views are not of significant or unique natural resources and, therefore, are not considered scenic vistas pursuant to CEQA.

Focal Views

Focal views are typically associated with views of unique natural landforms, public art/signs, or visually important structures that offer discrete elements of visual interest. Focal views within the Project Site include riparian corridors (as illustrated by Figure 4.1-3, Views C and D), bluffs and rock outcroppings, a mesa just beyond the northeastern boundary of the Project Area (as shown in Figure 4.1-4, View F), and the Peck Ranch office building (as shown in the distance in Figure 4.1-2, View A).

Primary focal views of the riparian corridors would be protected through the establishment of a network of open space greenways that incorporate and preserve the riparian corridors located on site (refer to Figure 3-4 of Section 3.0 [Project Description]). Existing bluffs (or steep slopes) and rock outcroppings would also be preserved as part of the open space system to preserve natural landforms and reduce the volume of grading that would be required.

The mesa is located offsite, and while views of this feature are considered focal views from the site, it is outside of the control of this Applicant to preserve this natural feature. Lastly, the Peck Ranch office building will either be preserved, or, if the building is ultimately not preserved (given that it is not considered historic), the site is envisioned for a special purpose district, which would be suitable for a visitor attraction, such as an inn, a winery, and/or a restaurant occupying the highest point in Tesoro Viejo. This special purpose district would be designed with a hilltop village configuration, allowing unique focal views from throughout the Project Site. In addition, due to its location on the highest point within the Project Site, panoramic views of the site would be provided from this location. In summary, impacts to focal views would be considered less than significant.

Since neither panoramic views nor focal views would be substantially and adversely affected by development of the Proposed Project, this impact is considered *less than significant*. No mitigation is required.

Threshold	Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
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Impact 4.1-2 Construction of the Proposed Project and associated infrastructure improvements would not substantially degrade the visual character or quality of the Specific Plan Area or its surroundings. This is considered a *less-than-significant* impact.

Project implementation is expected to occur over the course of approximately ~~sixteen~~12 years, and it would begin with construction of the required infrastructure over the first ~~two~~2 years, from approximately ~~2009~~2013 to ~~2011~~2015, and continue over the next ~~fourteen~~10 years with the residential, commercial, and industrial development (including schools). Generally, construction would proceed from west to east, recognizing that construction phasing would be gradual and incremental, moving eastward over a ~~fourteen~~10-year period. As a result, different view corridors would be impacted from construction activities at different times, and impacts would be temporary (i.e., the equipment would be removed from the site when construction has ceased).

Visual impacts associated with construction activities would include exposed pads and staging areas for grading, excavation, and construction equipment. In addition, exposed trenches, roadway bedding (soil and gravel), spoils/debris piles, and possibly steel plates would be visible for the proposed utilities infrastructure improvements, as well as for roadway improvements over the ongoing implementation phases of the Project.

Although these activities would take place within the Project Site, and in some limited cases, off site for the construction of off-site roadway improvements, the visual impacts would affect surrounding land uses, whether located off site or on site (once some of the residential uses are inhabited). Automobiles

traveling along Road 204 and SR-41 would have short-term views of the Project Site during construction activities. However, these visual conditions would be temporary and would create visual distractions that are typically associated with construction activities. This impact is considered *less than significant*. No mitigation is required.

Impact 4.1-3 Implementation of the Proposed Project and associated infrastructure improvements would modify the existing site characteristics from a rural landscape to an urban/suburban landscape, but would not result in a substantial degradation of the existing visual character or quality of the site and surroundings. This is considered a *less-than-significant* impact.

Buildout within the Project Area would result in the conversion of vineyards and agricultural fields to urban development. The Project Site is only publicly visible from SR-41 and Road 204, as previously described and illustrated. Accordingly, while the visual character of the Tesoro Viejo Project is observable from a limited number of vantage points, the views are panoramic and extend well to the north, south, east, and west from most locations. From these locations, long-term views of the area would be permanently changed. The open visual character of the Project Site east of SR-41 would be particularly changed.

Implementation of the Proposed Project would result in the loss of the existing agricultural features and replacement with an urban/suburban building development that would result in an increased variety of colors, forms, lines, and building intensities, including a mixture of residential densities, with low (1 to 10 dwelling unit [du] per acre) and very low densities (0.3 to 2 du/acre) throughout the Project Site, but primarily focused in the northern and eastern portions of the site, and very low densities adjacent to the Sumner Hill subdivision, consistent with its existing density. Residential densities would generally increase to medium (5 to 15 du/acre) in the western side of the Project Area, with pockets of high density (12 to 25 condominium or apartment-type du/acre) clustered around a Town Center or community core. Building heights would be predominately one to two stories for low-density development, up to three stories for medium density, and up to five stories for high-density and mixed-use development.

Visual interest would be provided with clustered and varied development, pedestrian-scale urban design and the widespread inclusion of greenways and associated paths, along with the provision of substantial landscaping site enhancement and erosion control. The network of approximately ~~247~~218 acres of open spaces and stream-associated greenways that are proposed would preserve some existing view corridors and many natural features of the site that serve as key indicators of its visual character. Further, the Tesoro Viejo Specific Plan seeks to minimize grading and retain as much of the site's existing topography as possible.

The Madera County General Plan, as amended by the Rio Mesa Area Plan (RMAP), recites a number of goals and policies regarding the conservation and protection of visual quality and resources. These were previously identified in the "Regulatory Setting" of this section. The Specific Plan, inclusive of building layout and landscape development, would conform to the goals and policies of the General Plan. That is, it elaborates, refines and formalizes the policies of the General Plan into standards and illustrates them. Additionally, depending on the quality of construction materials and an architectural design yet to be

specified, the visual character could potentially be enhanced relative to the open visual character of existing fields and vineyards from the standpoint of creating greater visual interest and variety.

While the Proposed Project would change the character of the site from an agricultural landscape to an urban landscape, the initial development of agricultural uses, which happened many years ago, represented the first alteration of the historic character of the Project Site. Further, from an aesthetic perspective, it is subjective as to whether the conversion of an agricultural landscape to an urban landscape would result in a substantial degradation of the visual quality or character of the site or its surroundings. For some, it would represent a visual improvement. Changes in land use that could substantially degrade visual character or quality would be regulated by the County, which would ensure that acceptable design standards and site layout patterns are achieved, even if the overall visual characteristics of the area is substantially altered. Therefore, because the Specific Plan conforms to the goals and policies of the General Plan and RMAP, and it also strives to preserve visual character and interest, this impact is considered *less than significant*. No mitigation is required.

Threshold	Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?
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Impact 4.1-4 Implementation of the Proposed Project could result in substantial sources of daytime glare. This is considered a potentially significant impact. However, implementation of mitigation measure MM4.1-4 would reduce this impact to a *less-than-significant* level.

Implementation of the Proposed Project, which entails development of a large area that is predominantly agricultural, could create substantial new sources of daytime glare from reflective building surfaces. These new sources of glare could affect daytime views from on-site vehicles traveling along SR-41 or any of the roads within the Project Site, as well as from or adjacent land uses west of SR-41 and in the Sumner Hill Subdivision.

The Tesoro Viejo Specific Plan does not specifically address the building materials that would be used. While daytime glare is currently nonexistent in the Project Area, glare could be generated by the proposed development, particularly if reflective building materials were used, such as glass, polished steel, aluminum, or any other material that reflects or concentrates sunlight. However, implementation of design features required by MM4.1-4, including the use of nonreflective textured surfaces on building exteriors (including the parking structures), as well as avoidance of the use of reflective glass, would reduce impacts to resulting from daytime glare from the new development:

MM4.1-4 Design of the proposed structures shall primarily include the use of textured or other nonreflective exterior surfaces and nonreflective glass.

Implementation of mitigation measure MM4.1-4 would reduce impacts from daytime glare to a *less-than-significant* level by eliminating or minimizing increased glare caused by the use of reflective glass and/or reflective surfaces in the proposed development.

Impact 4.1-5 Implementation of the Proposed Project would not result in substantial new sources of nighttime light with implementation of the numerous Design Standards provided in the Tesoro Viejo Specific Plan. This is considered a *less-than-significant* impact.

Implementation of the Proposed Project, which entails development on a site that is currently undeveloped, would result in substantial new sources of light from exterior building illumination and lighted vehicle and pedestrian circulation, including the headlights of vehicular traffic. These new sources of light could affect nighttime views from adjacent land uses west of SR-41 and in the Sumner Hill Subdivision. In addition, nighttime lighting impacts can be significant when they intrude into sensitive land use areas, such as residences and certain public access uses. The only source of nighttime light on the Project Site is from the Peck Ranch buildings. Nighttime lighting in the immediate area is produced by housing on Sumner Hill and highway commercial uses (particularly car lots) along SR-41, both of which are extremely limited.

The Specific Plan's Design Standards and the Circulation Element provides specific standards that ensure adequate nighttime lighting for the commercial and residential uses within the Project Site, while also reducing impacts associated with the introduction of new lighting sources and/or lighting sources that could result in light "spillover". The following Design Standards shall apply to the various new lighting sources as required by the Tesoro Viejo Specific Plan.

- All lighting or electrical devices shall be screened, shielded and buffered from surrounding properties and streets. (Section 3.5.7, #6)
- All parking lots, parking structures, and loading areas shall be provided with adequate lighting to enhance security and safety. All lighting shall be shielded and directed away from adjacent properties. (Section 3.7.2.3, #1)

Additionally, the General Street Design Standards of the Circulation Element of the Tesoro Viejo Specific Plan provides the following standards regarding street lighting for the various neighborhoods of the Proposed Project that would serve to reduce potential impacts associated with nighttime glare:

- Adequate and aesthetically pleasing lighting shall be provided for safety, security, and of comfort for pedestrians of all abilities, allowing pedestrians to quickly and accurately recognize cues to enable safe navigation while at the same time maximizing opportunities to reduce light levels at less active times of day and in areas with lower residential densities and in open spaces.
- Lighting fixtures should be designed and lamped for both pedestrian and vehicles; when appropriate, separate fixtures for lighting the roadway and the sidewalk should be provided when needed to achieve desired lighting levels for these two purposes. Light standards for vehicular and pedestrian purposes may be combined on one post. Low, pedestrian-oriented lights can be affixed to a post and direct light onto sidewalks, while the same post may also accommodate auto-oriented street lighting directed at roadways.
- Light equipment selection and lighting design should be made with a goal of eliminating glare, light trespass, and light pollution. Fixtures should use a reflector and/or a refractor system for efficient distribution of light and reduction of glare, and should be fully shielded (full cut-off). Lights should be directed down and away from eye level of both standing and sitting people and preserve the ability to view the night sky.

- “Curfew controllers” should be used to turn off non-essential lighting after 10:00 p.m. or immediately after business closing, whichever is later, to further reduce the effects of light pollution. Lighting should be designed to light only areas required for safety and comfort after 10:00 p.m. or business closing.
- The fixtures should utilize metal halide bulbs on core streets, boulevards, and community streets; as well as on local streets within High Density Residential neighborhoods, the Community Core, and other mixed-use areas that will have higher levels of pedestrian activity as they provide the best color rendition and general light quality. High-pressure sodium could be used for street lighting within residential neighborhoods and employment districts. The use of low-pressure sodium lighting is strongly discouraged as it creates an unnatural yellow cast that reduces safety and the quality of the environment.
- The spacing of lighting fixtures shall be coordinated to that of the street trees to maintain both the needed distribution of light and the desired rhythm of the trees along the street. This will maximize the aesthetic coherence of the streetscape.
- Light sources for pedestrian areas should generally occur under tree canopies.
- Commercial buildings and landscaping can be illuminated indirectly by concealing light features to highlight attractive features and avoid intrusion into neighboring properties.

The Circulation Element also requires that street lighting along roadways and alleys be spaced at a minimum distance of 90 to 110 feet apart, while sidewalk lighting in high pedestrian areas be spaced 40 to 50 feet apart. This spacing would ensure that adequate and safe lighting is provided while reducing the potential for glare impacts on adjacent properties within the Project Site.

Implementation of the identified Specific Plan Standards would serve to reduce impacts to residential or other light-sensitive uses by ensuring that the minimum amount of lighting is used to illuminate only intended objects or areas, but would not reduce the overall nighttime lighting impacts caused by the Proposed Project to a less-than-significant level. The Design Standards provided in the Specific Plan represent all currently available measures that could reduce lighting impacts resulting from the Proposed Project. This impact is considered *less than significant*. No mitigation is required.

4.1.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of cumulative aesthetic impacts varies by threshold. Thus, the geographic context for the cumulative analysis is presented for each threshold.

Threshold	Would the project have a substantial adverse effect on a scenic vista?
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The geographic context for the analysis of scenic vistas is the MCTC Rio Mesa Traffic Modeling area. For purposes of this analysis, the major natural landform that creates the opportunity for scenic panoramic views within this portion of southeastern Madera County are the Sierra Nevada Mountains, east of Tesoro Viejo, and neither this Project nor others proposed as part of the RMAP would obscure such views. Therefore, there is a less than significant cumulative impact. The Proposed Project would not

considerably contribute to the cumulative impact, if at all, and a *less-than-significant* impact would result.

With respect to focal views, the cumulative context is limited to areas with views of focal resources from within or immediately adjacent to the Project Site. These focal views have been defined as riparian corridors, bluff and rock outcroppings, the mesa, and the Peck Ranch Building. As with the project impacts, primary focal views of the riparian corridors would be protected through the establishment of a network of open space greenways that incorporate and preserve the riparian corridors located on site (refer to Figure 3-4 [Conceptual Land Use Plan for Tesoro Viejo] of Chapter 3 [Project Description]). Existing bluffs (or steep slopes) and rock outcroppings would also be preserved as part of the open space system to preserve natural landforms and reduce the volume of grading that would be required. The mesa is located off site, and while views of this feature are considered focal views from the Project Site, and perhaps from other locations off site, it is outside of the control of the Tesoro Viejo Applicant to preserve this natural feature. Lastly, the Peck Ranch office building will either be preserved, or, if the building is not preserved (given that it is not considered historic), the site is envisioned for a special purpose district, which would be suitable for a visitor attraction, such as an inn, a winery, and/or a restaurant occupying the highest point in Tesoro Viejo. This special purpose district would be designed with a hilltop village configuration, allowing unique focal views from throughout the Project Site and beyond. In addition, due to its location on the highest point within the project Site, panoramic views of the site would be provided from this location.

As with the Proposed Project, focal views would either be retained or are outside of the control of the Applicant. A less than significant cumulative impact would result, and the Proposed Project would not considerably contribute to the cumulative impact, if at all, resulting in a *less-than-significant* impact.

Threshold	Would the project substantially degrade the existing visual character or quality of the site and its surroundings?
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The geographic context for the analysis of scenic vistas is the MCTC Rio Mesa Traffic Modeling area. Of the development included in the MCTC Rio Mesa Traffic Modeling area, the projects that are located adjacent to the Proposed Project, and are mentioned in this analysis because they are visible to and from the Project Site, include North Fork Village (to the north), Avenue 12 Village (to the south), and the Village of Gateway (to the southwest), all of which would result in the development of residential, commercial/office, and industrial uses, along with the associated infrastructure improvements. As envisioned in the RMAP for each of these villages, and as demonstrated by the concept plan for the Village of Gateway, this portion of southeastern Madera County would include multiple villages that would establish focal points for activity and land use intensification. Village cores or centers would provide the focus for higher density residential, commercial, employment, and public land uses. Lower density residential uses would be generally situated along the San Joaquin River and in other areas of each village, depending on topography and the type of interface with adjacent uses, particularly where these lower density residential uses abut natural resource or open space areas.

All of the anticipated development within the MCTC Rio Mesa Traffic Model Study Area, and specifically development of the North Fork Village, Avenue 12 Village, and the Village of Gateway, would result in a conversion of primarily agricultural uses to developed uses. However, the initial

development of agricultural uses, which happened many years ago, represented the first alteration of the historic character of the Project Site. Further, from an aesthetic perspective, it is subjective as to whether the conversion of an agricultural landscape to an urban landscape would result in a substantial degradation of the visual character or quality of the site or its surroundings. For some, it would represent a visual improvement. Therefore, because development in the area would be required to conform to the goals and policies of the General Plan and/or RMAP, unless a General Plan Amendment were approved, it is assumed that the cumulative impact associated with the substantial degradation of the existing visual character or quality of the site and its surroundings would be less than significant. Further, changes in land use and visual quality that could substantially degrade visual character or quality would be regulated by the County, which would also ensure that acceptable design standards and site layout patterns are achieved, even if the overall visual characteristics of the area is substantially altered.

As previously mentioned, because the Specific Plan conforms to the goals and policies of the General Plan and RMAP, and it also strives to preserve visual character and interest, the Proposed Project would not result in a cumulatively considerable contribution to this impact, and the impact would be considered ***less than significant***. Consequently, changes in land use and visual quality that could substantially degrade visual character or quality would be regulated by the County, which would ensure that acceptable design standards and site layout patterns are achieved, even if the overall visual characteristics of the area is substantially altered.

Threshold	Would the project create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?
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Impacts resulting from glare are inherently site-specific, and can only be combined if sources of glare are adjacent to one another and visible from a single vantage point. Even with a relatively limited cumulative context, which is the Tesoro Viejo Specific Plan Site, it is possible that cumulative impacts related to glare could occur, particularly since specific building materials and configurations are uncertain. However, implementation of the design features required by mitigation measure MM4.1-1, including the use of nonreflective textured surfaces on building exteriors (including the parking structures), as well as avoidance of the use of reflective glass, would reduce cumulative impacts resulting from daytime glare to a less-than-significant level: Because the cumulative context is limited to the Project Site, the project’s contribution to the cumulative impact is also ***less than significant***.

The geographic context for the analysis of cumulative impacts associated with the creation of a new sources of substantial light that would adversely affect nighttime views is the MCTC Rio Mesa Traffic Modeling area, which includes the area from just south of Avenue 9 to Highway 145, from west of SR-41 (to include Gunner Ranch West and Village of Gateway) to the San Joaquin River. Essentially, this area is a valley within which increased nighttime lighting caused by development would be noticeable. Because negligible nighttime lighting currently exists throughout most of this area, and even though focused illumination of project structures, features, and walkways would be required by the Specific Plan to prevent spillover light on surrounding areas, ambient nighttime lighting levels in the area would substantially increase due to substantial increased future development associated with the development assumed in the MCTC Rio Mesa Traffic Modeling area through the year 2025. The cumulative impact would be significant. Because implementation of the proposed development would result in a substantial new source of nighttime lighting within this area, the Proposed Project would represent a cumulatively

considerable contribution to the significant cumulative impact, and the localized cumulative nighttime lighting impact would be *significant and unavoidable*. As further discussed in Section 6 (Alternatives to the Proposed Project), the only feasible way to avoid this impact is to retain the existing agricultural operations onsite, which would be inconsistent with the goals, objectives, and vision of the County's General Plan, as specifically articulated in the RMAP.

4.1.5 References

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Madera County. 1995a. *Final Rio Mesa Area Plan*. Prepared by The Keith Companies, March 21.

———. 1995b. *Madera County General Plan*, October.

———. 1995c. Madera County Zoning Ordinance.

4.2 AGRICULTURAL RESOURCES [REVISED IN PART]

This section addresses the potential environmental effects of the Proposed Project on agricultural lands and production. Information from the Farmland Mapping and Monitoring Program (FMMP) was used to describe existing agricultural uses, while the Madera County General Plan and the Rio Mesa Area Plan (RMAP) were used to describe expected conditions at planned buildout. Information and conclusions in the RMAP Draft EIR are referred to where relevant.

Information used for this section was obtained from various sources, including site photographs taken by PBS&J staff, the Madera County General Plan (1995) and associated EIR, previous environmental documentation, the Specific Plan prepared for Tesoro Viejo (2007), and other data sources, such as the Farmland Mapping and Monitoring Program, the Madera County Agricultural Commission, and the U.S. Census Bureau. Bibliographic entries for reference materials are provided in Section 4.9.5 (References).

4.2.1 Environmental Setting

■ Regional Agricultural Land Uses

Agriculture is an important industry in Madera County. Approximately 26.3 percent of the employed Madera County workforce (CEDD 2007) is employed in agriculture or a related field, and the industry contributes over a billion dollars in annual Madera County revenue (MCAC 2007). Approximately 765,159 acres in Madera County were devoted to agriculture and grazing in 2006 (California Department of Conservation 2006). Major local crops include almonds, grapes, dairy products, and pistachios. The majority of the County's active agricultural lands are concentrated in the Central Valley in the southwestern portion of the county.

■ Farmland Classification

Farmland is classified according to its ability to support crops or livestock. The most commonly used system for classifying agriculture in California is the Farmland Mapping and Monitoring Program (FMMP) standards. These standards rely upon information from Natural Resources Conservation Service (NRCS) soil surveys, NRCS land inventory and monitoring criteria, and land use and water availability information mapped by the California Department of Water Resources (DWR). Soil quality, topography, climate, and availability of irrigation water all factor into farmland classifications.

The FMMP categorizes farmland into five types. These are described in order of productivity, from the most productive to the least productive farmland.

- *Prime Farmlands* are lands with an ability to produce agricultural crops over a long period of time. Not only must the site have a dependable water supply of adequate quality during the growing season, it must have fertile, well-drained soils. Furthermore, the site must have been used for the production of irrigated crops within four years of FMMP mapping.
- *Farmlands of Statewide Importance* are similar to Prime Farmlands, but with minor deficiencies (i.e., steeper slopes, slightly poorer soils, etc.).

- *Unique Farmlands* are lands that are used to produce California cash crops, but which have poorer soils than both Prime Farmlands and Farmlands of Statewide Importance. These lands may include non-irrigated orchards or vineyards.
- *Farmlands of Local Importance* have importance to local agricultural economies, but generally have poorer soils and a less reliable water supply.
- *Grazing Land* is land with natural vegetation that is well-suited for grazing.

■ Project Site Agricultural Land Uses

Federal land patents indicate that the earliest claims to the Tesoro Viejo Project Site were established in 1873. Following several years of grazing and grain cultivation, the property was sold to the Bowling family, who used it for farming, dairying, and ranching. The Peck family purchased the property in 1980. The Project Site, known locally as the Peck Ranch, is currently used for vineyards, blueberries, and tomato cultivation, and recently, the landowner established a tree nursery to provide mature trees for landscaping the Proposed Project, if approved, or for other uses.

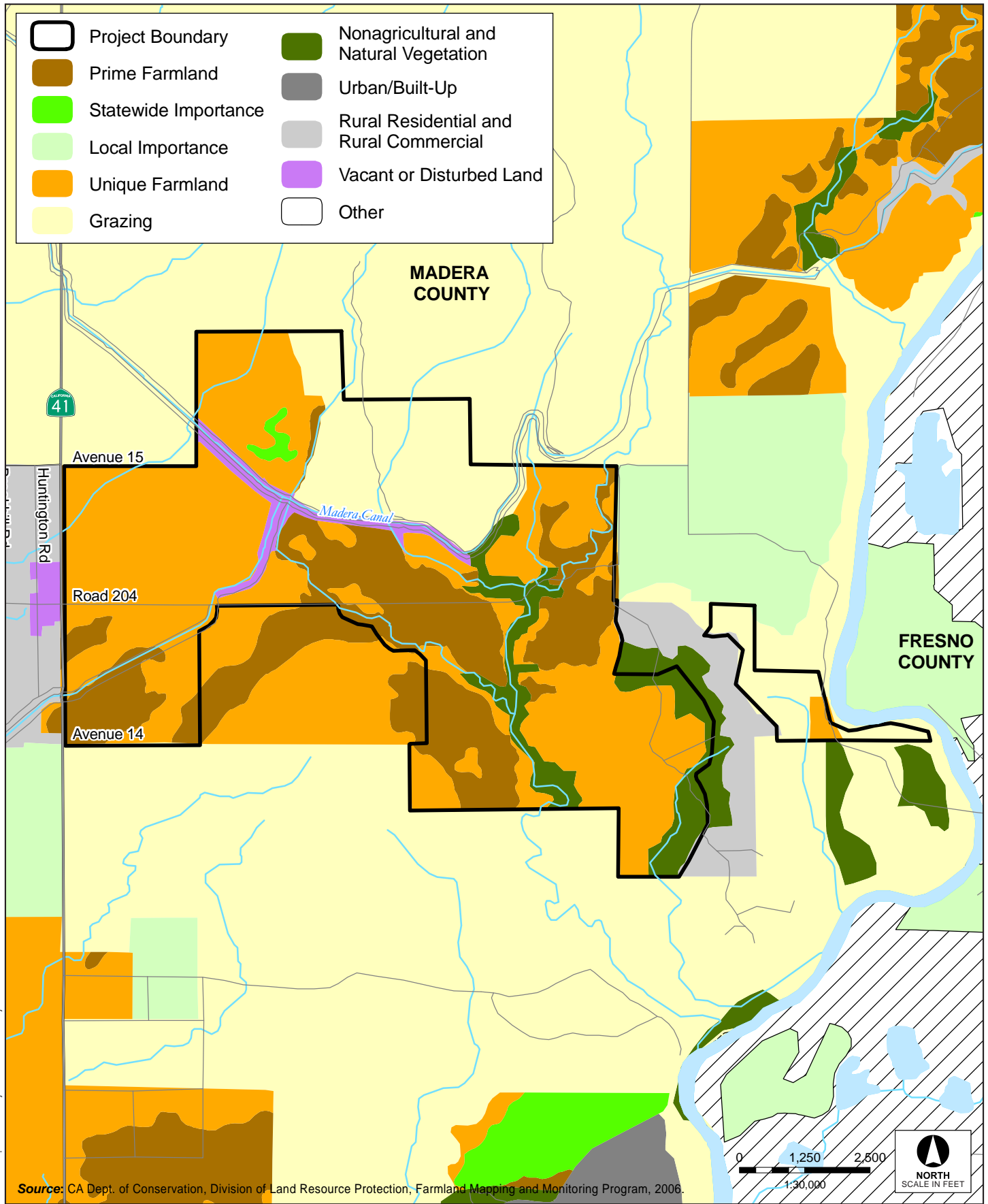
Table 4.2-1¹⁴ shows the acreage of farmland in each of the FMMP categories, while Figure 4.2-1 (Tesoro Viejo Important Farmlands) shows how this land is distributed throughout the Project Site and its vicinity. Farmland on the Project Site represents less than 0.2 percent of the total farmland in Madera County.

<i>FMMP Classification</i>	<i>Acres at Project Site</i>	<i>Total Acres in Madera County</i>	<i>Project Site as a Percent of County Total</i>
Prime Farmland	364.27 <u>364.54</u>	98,681	0.37%
Farmland of Statewide Importance	8.58 <u>7.93</u>	85,362	0.01
Unique Farmland	798.42 <u>800.43</u>	163,977	0.49
Farmland of Local Importance	0	17,415	0.00
Grazing Land	281.38 <u>285.3</u>	399,724	0.07
Non-agricultural/urbanized, natural vegetation, and open water	426.35 <u>126.8</u>	95,880	0.13
Total	1,579 <u>1,585</u>	861,041	0.19%

SOURCE: California Department of Conservation 2006, with GIS data analysis by PBS&J

The last category in Table 4.2-1, above, consists of urbanized areas, surface water bodies and other lands (such as vacant lands or open space). The Madera Canal, which is owned by the United States Bureau of Reclamation, accounts for an additional ~~69.57~~1.6 acres within the Project Site boundaries. For the Project Site, vacant lands and open space consist of undeveloped scrub, riparian, and grassland habitat. The only structures on the Project Site are a small ranch building and some former farmworker housing.

¹⁴ While the total acreage is now 1,585 acres, 6 acres more than evaluated in the 2008 Final EIR, the Project Site as a percent of County total of agricultural resources does not change, nor do the significance conclusions (or analysis) of potential impacts to agricultural resources.



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Figure 4.2-1

Tesoro Viejo Important Farmlands

■ Agricultural Conversion

In spite of the value that agricultural products contribute to California's economy and of the many other societal and environmental benefits of agricultural cultivation (open space, habitat, food security, preservation of the rural lifestyle, etc.), several economic pressures may induce agricultural land owners to convert their properties to nonagricultural land uses or to sell their properties to developers. Examples of factors contributing to agricultural conversion include the following:

- Land values in California are higher than in many parts of the county. Relative to nonagricultural developed parcels, agricultural lands are less expensive because agricultural lands have fewer capital improvements (buildings and infrastructure) (Hite et al. n.d.).
- A competitive housing market has increased the demand for new housing throughout California, resulting in new residential developments in formerly rural regions. Madera County is currently undergoing major population growth (see Population and Housing, Section 4.11). Local municipalities, recognizing that they must meet state housing needs allocations and provide local economic opportunities, may rezone or redesignate agricultural lands to allow future nonagricultural uses.
- Difficulties in identifying a reliable water supply may make it difficult to grow certain crops, reducing the viability of an existing agricultural operation.
- Extreme weather events, such as flooding and drought, may harm crops and cause economic losses.
- Farmers often have high debt-to-income ratios due to large investments in land and equipment, reducing their ability to withstand economic hardship. Fluctuations in the price of agricultural crops and in operational costs (such as increased energy or equipment expenditures) increase the risk of return on farmers' investments, making their lands vulnerable to foreclosure or liens (Hite et al. n.d.).
- Agricultural lands are often set in scenic locations or in locations with access to outdoor recreational opportunities. Properties with amenities, such as waterfront access, varied topography, and scenic open space, are seen as valuable locations for development (Hite et al. n.d.).
- When new residences are built in an agricultural area, the occupants may be exposed to dust, odors, and other nuisances. Complaints or lawsuits from new residents may make it more difficult for farmers to sustain standard farming practices.

Given these conditions, agricultural lands are becoming vulnerable to land use conversion pressures in high-growth regions. In Madera County, 18,218 acres of land were converted from agriculture to other uses between 1996 and 2006 (California Department of Conversion 2006). Table 4.2-2 (Conversion of Agricultural Lands in Madera County, 1996–2006) shows the percentage of lands in each FMMP category that were converted to other uses during this period.

Table 4.2-2 Conversion of Agricultural Lands in Madera County, 1996–2006

Land Use Category	Total Acreage			
	1996	2006	Percent change 1996–2006	Net change (acres)
Prime Farmland	102,531	98,681	-4%	-3,850
Farmland of Statewide Importance	85,709	85,362	0	-347
Unique Farmland	156,434	163,977	5	7,543
Farmland of Local Importance	37,002	17,415	-53	-19,587
Grazing Land	401,701	399,724	0	-1,977
<i>Subtotal, Agricultural Lands</i>	<i>783,377</i>	<i>765,159</i>	<i>-2</i>	<i>-18,218</i>
Urban and Built-Up Land	22,595	26,014	15	3,419
Other Land*	49,155	63,811	30	14,656
Water Area	5,912	6,055	2	131
Total Area Inventoried	861,039	861,039	100%	0

SOURCE: California Department of Conservation 2007

* Vacant land that is not suitable for cultivation. Land in this category often falls within urban limit lines.

The acreage for all categories of farmland either remained fairly constant or declined dramatically from 1996 to 2006, except for Unique Farmland, which increased by 7,543 acres, an increase of only five percent. The greatest loss of farmland in Madera County during this ten year period was in the Farmland of Local Importance category, while the land use category showing the greatest increase was the Other Land category. According to the FMMP, conversion to the Other Land category is primarily the result of improved digital imagery technology, which gives FMMP researchers the ability to determine more distinct boundaries between urbanized and non-urbanized land. Much of the land in the Other Land category falls within urban limit lines, but is not built-up (ex. parks or vacant land).¹⁵ Combining the increased acreage in the Other Land category with increased acreage in the Urban and Built-Up Land category (which consists of buildings and impermeable surfaces) the FMMP data demonstrates that urbanization in Madera County has increased substantially over the last ten years. The Urban and Built Up Land category (which does not include vacant land within the urban limit line) increased by 15 percent from 1996 to 2006.

■ Surrounding Land Uses

Many of the land uses surrounding the Project Site are agricultural; however, many of these areas were recently replanned in the RMAP or other area plans for future nonagricultural development. The area directly north of the Project Site, known as Little Table Mountain, currently consists of agricultural and open space land uses, and the existing zoning for this area preserves these uses. To the northeast, an agricultural area was remapped in the RMAP as the North Fork Village, a mixed-use residential and commercial growth area. The land immediately south of the Project Site, while currently agricultural, was also remapped as the Avenue 12 Village, which is also a mixed-use growth area in the RMAP. The San Joaquin River forms the eastern border of the Project Site, dividing Madera and Fresno Counties.

¹⁵ The Other Land category also includes habitat and open space. However, the FMMP states that the growth evidenced in the Other Land category in the Farmland Conversion Reports accounts for undeveloped land within urban areas.

Sumner Hill, an existing subdivision, is located near the river and separates the two properties that make up the Project Site. Ledger Island, owned by the San Joaquin River Parkway Conservancy, is adjacent to the Project Site's southeastern corner and is devoted to wildlife-friendly open space.

Agriculture is not compatible with all types of land uses. There are several ambient environmental conditions associated with agricultural land uses that may disturb sensitive receptors, such as individuals with heightened sensitivities¹⁶ to air quality and noise issues. Tractors and heavy machinery could produce exhaust, dust, or noise during operation. Pesticides, herbicides and fertilizers could be carried into adjacent properties by the wind, particularly when applied by small aircraft or other spray applications. Livestock could produce offensive odors. These ambient conditions are not concerns when an agricultural use is not located near sensitive receptors, but when agricultural and certain nonagricultural uses are juxtaposed, conflicts can result. As a land use issue, the placement of agricultural and nonagricultural uses in close proximity can lead to some of the agricultural conversion pressures discussed above.

4.2.2 Regulatory Framework

■ Federal

There are no federal statutes related to agricultural resources that would apply to the proposed project.

■ State

California Farmland Mapping and Monitoring Program

The FMMP is a State-sponsored research program that provides data to decision makers to help them track land use trends related to agricultural uses. The FMMP prepares a biennial California Farmland Conversion Report, which provides county-level statistics regarding the conversion of agricultural lands to and from other land uses. It also prepares an Important Farmland Map showing the distribution of FMMP classified agricultural lands.

Policy Consistency

The FMMP is an informational program designed to help local governments make decisions about agricultural planning. As such, the FMMP does not impose any policy conditions on the Proposed Project.

California Land Conservation Act of 1965 (Williamson Act)

The *California Land Conservation Act of 1965* (California Government Code 51200–51295), commonly known as the *Williamson Act*, provides incentives to property owners (property tax reductions) to keep their lands in active agricultural production. Property owners sign contracts, agreeing not to develop their properties for a period of at least ten years. The contract renews automatically unless the property owners file notices of nonrenewal or a petition for cancellation. Prime farmland may be placed under *Williamson Act* contracts under any conditions, while other farmlands and open space may be placed

¹⁶ Generally refers to sensitivities that are health-related and not simply the result of aesthetic preferences.

under *Williamson Act* contracts if they fall within a locally designated agricultural preserve. Figure 4.2-2 (Rio Mesa Area Plan Important Farmlands and Williamson Act Lands) and Figure 4.2-3 (Cottonwood Creek Ranch, Williamson Act Lands, and Important Farmland) shows the parcels near the Project Site, which are currently covered by *Williamson Act* contracts.

Policy Consistency

No *Williamson Act* contracts currently pertain to the Project Site, thus, no policy conflicts would arise with respect to the Proposed Project.

The California Right to Farm Act

The purpose of the *California Right to Farm Act* (*California Civil Code* Section 3482.5) is to protect farming as an existing land use, even if non-farming uses are established on nearby or adjacent properties. In general, a body of legal statutes called “nuisance law” allow a property owner to sue a neighboring land owner when activities on the latter’s property cause odors, noises, dust, smoke, or other disruptive or unpleasant environmental conditions that might lessen the value of the former’s property or the enjoyment thereof. Because agriculture may create undesirable ambient conditions, but is considered to be a beneficial land use, California has granted farms legal protection against challenges under nuisance law. The *California Right to Farm Act* was put into place to ensure that traditional agricultural uses were not displaced by new housing and commercial developments due to operational conflicts between these uses. Section 3482.5 states that:

No agricultural activity, operation or facility, or appurtenances thereof, conducted or maintained for commercial purposes, and in a manner consistent with proper and accepted customs and standards, as established and followed by similar agricultural operations in the same locality, shall be or become a nuisance, private or public, due to any changed condition in or about the locality, after the same has been in operation for more than one year if it was not a nuisance at the time it began.

Policy Consistency

The *California Right to Farm Act* is a policy that voices state support for agricultural practices and that may help to prevent nuisance lawsuits against farms as development occurs in formerly agricultural areas. The *California Right to Farm Act* would not impose direct constraints on the Proposed Project, but it would ensure that any potential conflicts that might occur between agricultural, residential, commercial and other users following Proposed Project development would not impose unfair burdens on existing agricultural uses. The Proposed Project is located in a new growth area that would be surrounded by developed uses at full RMAP buildout. Thus, the *California Right to Farm Act* provides temporary protection of existing agricultural uses during the transition period.

■ Regional

There are no regional statutes related to agricultural resources that would apply to the proposed project.

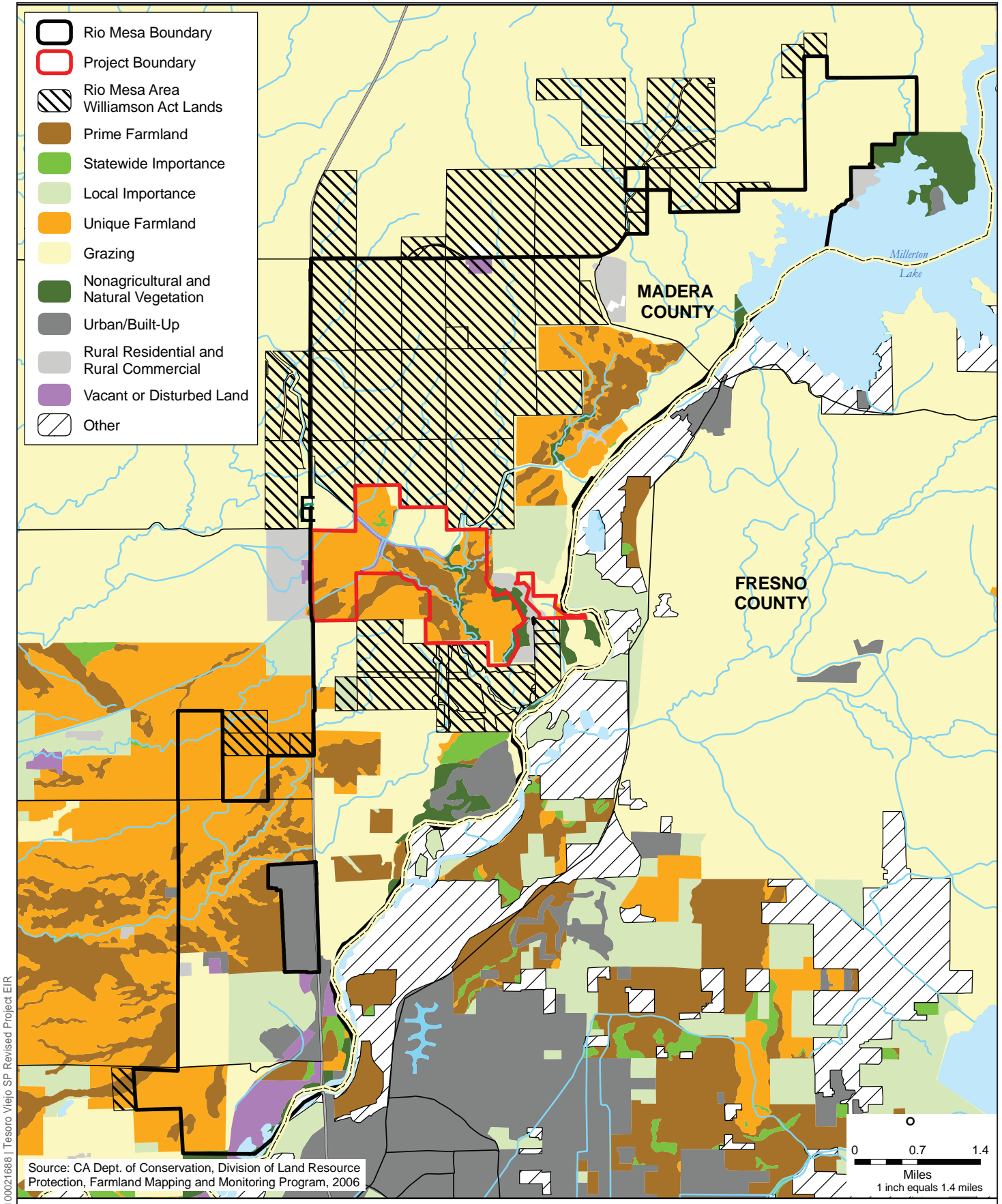


Figure 4.2-2
Rio Mesa Area Plan Important Farmlands and Williamson Act Lands

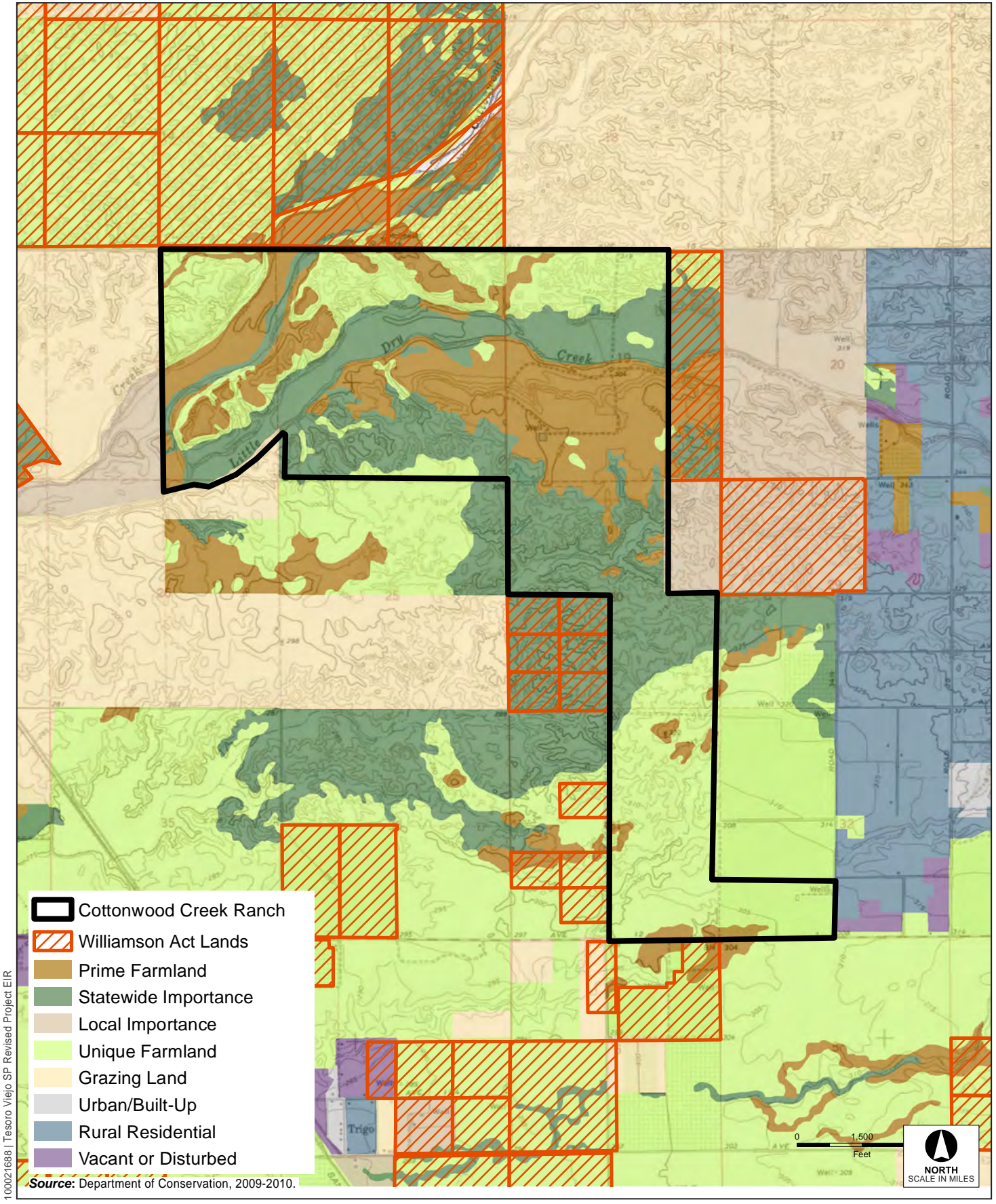


Figure 4.2-3
Cottonwood Creek Ranch Williamson Act Lands and Important Farmland [New]

■ Local

Madera County General Plan

The following goals in the Madera County General Plan protect and promote agricultural land uses:

- Goal 5.A** To designate adequate agricultural land and promote development of agricultural uses to support the continued viability of Madera County’s agricultural economy.
- Policy 5.A.1** The County shall maintain agriculturally-designated areas for agricultural uses and direct urban uses to designate new growth areas, existing communities, and/or cities.
- Policy 5.A.5** The County shall allow the conversion of existing agricultural land to urban uses only within designated urban and rural residential areas, new growth areas, and within city spheres of influence where designated for urban development on the General Plan Land Use Diagram.
- Policy 5.A.13** The County shall require development within or adjacent to designated agricultural areas to incorporate design, construction, and maintenance techniques that protect agriculture and minimize conflicts with adjacent agricultural uses.
- Policy 5.A.14** The County shall continue to enforce the provisions of the Right-to-Farm Ordinance and of the existing state nuisance law.

Policy Consistency

Although the Project Site is currently used for agriculture, the Proposed Project would be constructed in an area that is designated for new growth in the RMAP. For this reason, the Proposed Project would be consistent with both Policies 5.A.1 and 5.A.5, which direct new development to designated new growth areas. Policy 5.A.13 directs the County to require development adjacent to designated agricultural areas to “incorporate design, construction, and maintenance techniques that protect agriculture and minimize conflicts with adjacent agricultural uses.” While the majority of the lands adjacent to the Project Site are designated for developed rather than agricultural uses, most land in the vicinity is currently used for active farming. Thus, the Proposed Project would be required to enact temporary measures to ensure that adjacent agricultural operations would not be disrupted until a transition to developed uses occurred. Mitigation measures MM4.2-2(a) and MM4.2-2(b), discussed below, would help to ensure that the Proposed Project would be consistent with this policy. As discussed under the policy consistency analysis for the *California Right to Farm Act*, the act would also provide temporary protection of existing agricultural uses during the buildout transition period, consistent with Policy 5.A.14.

Rio Mesa Area Plan (RMAP)

The following policies in the RMAP provide some protection of agricultural land uses:

- Goal 3** Protect the economic viability of agricultural uses until transition to urban uses occurs.

Policy 3.1 Retain agricultural uses until development to urban uses becomes viable and can be readily serviced. The transition should be made incrementally in conjunction with the ability to provide services and infrastructure.

Policy Consistency

The Proposed Project would be required to phase the development of habitable structures so that new structures would not be in place prior to infrastructure necessary to serve such structures. The County would require concurrent development of habitable structures and utilities in any development permits issued for the Proposed Project. This would allow the retention of viable agricultural uses for as long as possible, given a reasonable construction schedule.

Madera County Right to Farm Ordinance

Chapter 6.28 of the *Madera County Municipal Code* is known as the Right to Farm Ordinance. This ordinance has essentially the same goal as the California Right to Farm Ordinance, although the implementation strategy is somewhat different. Chapter 6.28 uses language identical to that quoted for the *California Right to Farm Act*, Section 3482.5 (see above), as a statement of intent.

The ordinance serves as legal protection against nuisance lawsuits directed against farms by neighboring landowners. The ordinance recommends that a notice be mailed to all County taxpayers with the annual tax bill, stating that the County intends to protect and encourage farming, requesting that property owners be patient with agricultural operations, and releasing farming operations from liability as nuisances under the Madera County Code.

Policy Consistency

With regard to the Proposed Project, consistency with the Madera County Right to Farm Ordinance would be essentially the same as for the *California Right to Farm Act*. Please refer to the policy consistency analysis for the *California Right to Farm Act*.

4.2.3 Project Impacts and Mitigation

■ Analytic Method

This analysis discusses impacts that would be expected to occur with buildout of the proposed Specific Plan. Potential impacts on agriculture are based on the Proposed Project’s potential to affect agricultural uses described in the Environmental Setting during both construction and operational phases.

The impacts of converting farmland to a mixed-use development were analyzed previously in the 1994 RMAP EIR. In spite of the fact that the RMAP EIR found that significant and unavoidable impacts to agriculture would result from plan implementation, Madera County felt that the conversion of some agricultural lands was warranted in exchange for other social and economic benefits, such as the provision of new housing, tax revenue, and economic development. The Board of Supervisors issued a Statement of Overriding Conditions associated with the RMAP EIR and adopted the RMAP in 1995.

The conclusions from the RMAP EIR and data from the FMMP (Important Farmland Maps and California Farmland Conversion Reports) provide a reference for this analysis.

■ **Thresholds of Significance**

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For the purposes of this EIR, implementation of the proposed project may result in a potentially significant impact on agricultural resources if it would do any of the following:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the FMMP, to nonagricultural uses
- Conflict with existing zoning for agricultural use, or a *Williamson Act* contract
- Involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of farmland to nonagricultural use

■ **Effects Not Found to Be Significant**

There are no Effects Not Found to Be Significant with respect to agricultural resources.

■ **Impacts and Mitigation Measures**

Threshold	Would the project directly or indirectly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the FMMP, to nonagricultural uses?
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Impact 4.2-1 **Implementation of the Proposed Project would directly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the FMMP, to nonagricultural uses. This is considered a *significant and unavoidable* impact. No feasible mitigation is available.**

Direct Impacts. The majority of the Project Site (92 percent) currently consists of farmland. With implementation of the Proposed Project, most of the existing farmland would be fragmented, converted to other uses, or otherwise physically impacted as a result of Specific Plan buildout. Most remaining agricultural plots would become private resources for the enjoyment of Tesoro Viejo residents or would be used for on-site restaurant and winery supplies.

Goal 31 in the Tesoro Viejo Specific Plan relates to continued agricultural use of the Project Site. Because adoption of the Specific Plan would be necessary prior to construction of any proposed uses, this policy would apply to all subsequent development under the Proposed Project:

Goal 31 Encourage some continued vineyard, orchard and farming operations where feasible by clustering of dwellings and infrastructure to allow open space preservation and functional agricultural use for local community sustenance and interest.

According to this policy, certain low density residential areas would retain existing vineyards or orchards; however, the agricultural features that would be retained would not produce a large volume of saleable

products in comparison to a full-scale agricultural operation. The limited nature of the agricultural conversion that would be provided pursuant to Goal 31 of the Specific Plan would not substantially reduce the significance of the loss of agricultural lands.

The loss of farmland at the Project Site would be approximately 1,453 acres, of which 1,172 acres consist of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Although current site zoning allows the uses proposed in the Tesoro Viejo Specific Plan, this is not considered a mitigating factor under CEQA for agricultural conversion impacts. In addition, no feasible mitigation is available to offset the loss. Therefore, consistent with the findings of the RMAP EIR, the conversion of farmland would be considered *significant and unavoidable*.

Impact 4.2-2 Implementation of the Proposed Project would not create conflicts between existing agricultural and new nonagricultural uses. This is considered a *less-than-significant* impact.

Specific Plan land uses could be developed adjacent to existing agricultural land uses, which could result in land use conflicts. However, there are several factors that would reduce the significance of potential land use conflicts. First, as discussed above and in the Project Description (Chapter 3), many of the properties in the vicinity of the Project Site are zoned for nonagricultural uses and are expected to be developed in the near future. Moreover, there are policies in State and local municipal codes, and in the Madera County General Plan/RMAP, which would help to minimize potential land use conflicts. The *California Right to Farm Act* and the Madera County Right to Farm Ordinance recognize that while agriculture may occasionally create unpleasant ambient conditions, farms have the right to continue operation following the introduction of new land uses. Both Right to Farm policies grant agricultural operations a certain degree of protection from nuisance lawsuits that might result from the introduction of new residential and commercial uses under the Proposed Project.

In addition, the Proposed Project shall demonstrate consistency with Policy 5.A.13 of the Madera County General Plan, as determined by the County of Madera, which states that “development within or adjacent to designated agricultural areas [shall] incorporate design, construction, and maintenance techniques that protect agriculture and minimize conflicts with adjacent agricultural uses.” Therefore, the Proposed project would result in a *less-than-significant* impact with regard to land use conflicts between agricultural and other land uses. No mitigation is required.

Threshold	Would the Proposed Project conflict with existing zoning for agricultural use, or a <i>Williamson Act</i> contract?
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Impact 4.2-3 Implementation of the Proposed Project would not conflict with existing zoning for agricultural uses, or a *Williamson Act* contract. This is considered a *less-than-significant* impact.

The Madera County General Plan’s primary agricultural goal is to allow sufficient land and sufficient resources to support a viable agricultural industry (Goal 5.A). The policies under this goal discourage conversion of agricultural lands, but suggest possible exceptions to this general rule. Some conversion of agricultural land is allowed in new growth areas pursuant to Policy 5.A.5. The Proposed Project would fall into an area designated in the RMAP for new growth.

When the RMAP was adopted in 1995, the land use designations pertaining to the Project Site (formerly codified in the Madera County General Plan) were revised. With the adoption of the RMAP, the site was redesignated for residential, commercial, industrial, and open space uses, with provisions for subsequent rezoning. The existing zoning no longer protects agriculture as a primary land use on the Project Site. For this reason, the Proposed Project would not pose a conflict with a zoning policy designed to protect agricultural uses, and a *less-than-significant* impact would result. Further, no *Williamson Act* contracts pertain to the Project Site; thus, the Proposed Project would have a *less-than-significant* impact to the cancellation of *Williamson Act* contracts. No mitigation is required.

Threshold	Involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of farmland to nonagricultural use.
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Impact 4.2-3(a) Use of groundwater from Cottonwood Creek Ranch would not convert farmland to nonagricultural uses. This is considered a less than significant impact.

Under any of the water supply alternatives that involve the use of off-site groundwater at Cottonwood Creek Ranch (CWCR), irrigated cropland (i.e., almond orchards) could be retired (or fallowed) to allow the use of groundwater to serve the Proposed Project Site. However, as further described in Section 4.14 (Utilities and Service Systems), intentional recharge could be proposed in lieu of land retirement (e.g., fallowing of the almond orchards) for mitigating groundwater pumping at CWCR. Recharge could occur at any geologically favorable location overlying the Madera Sub-Basin on the Madera County valley floor such as the Madera Water Bank or Cottonwood Creek east of Highway 99 or the Project site or at CWCR or all in some combination. Recharge water could be purchased CVP Class 1 and/or Class 2 water and/or unused flood flows accounted for on a rolling 5-year average basis. This water could be delivered to recharge site(s) either from Lateral 6.2, the Friant-Madera Canal, or any other conveyance facility in the MID system. Intentional recharge of Class 1 and/or Class 2 water and/or unused flood flows could potentially offset for all or part of the potential land retirement at CWCR. The CWCR site would not be converted to urban uses, and agricultural production could continue. Further, the use of CWCR groundwater does not preclude agricultural uses at this site in the future. This would be considered a less-than-significant impact.

No additional changes that might affect the conversion of farmland would be anticipated with development of the Tesoro Viejo Specific Plan.

4.2.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of cumulative agriculture resources impacts varies by threshold. Thus, the geographic context for the cumulative analysis is presented for each threshold.

Threshold	Would the Proposed Project conflict with existing zoning for agricultural use, or a <i>Williamson Act</i> contract?
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Because zoning is inherently site-specific, as are *Williamson Act* contracts, the cumulative context for the analysis of potential conflicts with existing zoning for agricultural uses or *Williamson Act* contracts is the Project Site. The Proposed Project would be consistent with RMAP land use designations for the Project Site, which specify that the site be used for residential, commercial, industrial, and open space uses. Under the RMAP land use designations, agricultural is no longer a protected use, and no *Williamson Act* contracts currently pertain to the Project Site. For these reasons, the project’s contribution to the cumulative impact is ***less than significant***.

Threshold	Would the Proposed Project make a significant contribution to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the FMMP, to nonagricultural uses?
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The cumulative context for the analysis of the conversion of agricultural uses to other uses is Madera County. As noted in Table 4.2-2, the County’s agricultural land area remained relatively constant over the past decade, declining by only approximately 2 percent. However, urbanization pressures are increasing with the increase in population growth (see Section 4.11 [Population and Housing]), resulting in the conversion of additional agricultural lands throughout the County, and in particular, in southeastern Madera County. This is a significant cumulative impact. The Proposed Project would also considerably contribute to the conversion of agricultural land in Madera County and the loss of associated crop production. This is considered a ***significant and unavoidable*** impact. As further discussed in Chapter 6 (Alternatives to the Proposed Project), the only feasible way to avoid this impact is to retain the existing agricultural operations on site, which would be inconsistent with the goals, objectives, and vision of the County’s General Plan, as specifically articulated in the RMAP.

Threshold	Involve other changes in the existing environment, which, due to their location or nature, could result in the conversion of farmland to nonagricultural use.
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The cumulative context for the analysis of changes in the existing environment that could result in the conversion of farmland to nonagricultural uses is the Project Site, given that only the Project Site is being analyzed pursuant to CEQA with respect to changes in the existing environment. The Proposed Project would involve other changes in addition to or different from those already described in Chapter 3 (Project Description) of this EIR that could result in the conversion of farmland to nonagricultural uses. For this reason, the project’s contribution to the cumulative impact is ***less than significant***.

4.2.5 References

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4.3 AIR QUALITY [REVISED IN PART]

This section evaluates the potential impacts on air quality resulting from implementation of the Proposed Project. This includes the potential for the Proposed Project to conflict with or obstruct implementation of the applicable air quality plan, violate an air quality standard or contribute substantially to an existing or projected air quality violation, result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is in nonattainment, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people.

Data used to prepare this section were taken from various sources, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) website, the SJVAPCD's Air Quality Management Plans, the California Air Resources Board (ARB) website, the SJVAPCD *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI), the University of California's Institute for Transportation Studies' *Transportation Project-Level Carbon Monoxide Protocol*, the *Madera County General Plan Policy Document*, the *Transportation Impact Analysis Report for Tesoro Viejo* prepared for the project by Fehr & Peers (Appendix H of this document) dated August 2007, and the *Tesoro Viejo Specific Plan* (Specific Plan), dated November 2007. Bibliographic entries for reference materials are provided in Section 4.3.5 (References) of this section. Calculation data used in this air quality analysis are included in Appendix C.

4.3.1 Environmental Setting

Madera County is located in the San Joaquin Valley and the Central Sierra Nevada. The County is north of Fresno County on Freeway 99, about 166 miles from the Bay Area and 240 miles from Los Angeles. This area is made up of eight counties: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings Tulare and the Valley portion of Kern.

The County is within the San Joaquin Valley Air Basin (Valley), which is approximately 250 miles long and averages 35 miles wide, and is the second largest air basin in the state. Air pollution is directly related to a region's topographic features. The Valley is defined by the Sierra Nevada Mountains to the east (8,000 to 14,000 feet in elevation), the South Coast Ranges to the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains to the south (6,000 to 8,000 feet in elevation). The Valley is flat with a slight downward gradient to the northwest. The valley opens to the sea at the Carquinez Straits where the San Joaquin–Sacramento Delta empties into San Francisco Bay. The Valley, thus, could be considered a “bowl” open only to the north.

Although marine air generally flows into the Valley from the San Joaquin River Delta, the region's topographic features restrict air movement through and out of the Valley. The South Coast Range hinders wind access into the valley from the west; the Tehachapi Mountains prevent southerly passage of airflow, and the high Sierra Nevada Mountains form a significant barrier to the east. These topographic features result in weak airflow, which becomes blocked vertically by high barometric pressure over the Valley. As a result, the Valley is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500 to 3,000 feet).

Weather conditions include frequent temperature inversions, long, hot summers, and stagnant, foggy winters, all of which are conducive to the formation and retention of air pollutants. The air quality within the Valley is influenced by a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry, and meteorology (SJVAPCD 2002).

■ Climate

The climatic regime of the San Joaquin Valley is characterized as semi-arid to arid with hot, dry summers and mild winters. The average maximum temperature in July is 99 degrees Fahrenheit (°F) with a low of 62°F. Summer temperatures often exceed 100°F for extended periods and highs of 115°F are not uncommon. Winter temperatures on the valley floor fall below freezing only occasionally when the average maximum temperature in January is 48°F with a low of 33°F, and frost is possible December through February. Significant precipitation can be expected anytime from about mid-October to approximately mid-May with the greatest proportions accumulating between January and April. The region averages only 12 inches of annual rainfall. The relative humidity at 4:00 P.M. varies from 17 percent to 22 percent in the summer and 50 percent to 70 percent in winter with the foggy season ranging from January to February. In the mountain communities winter temperatures average 24°F to 30°F minimum and rise to a maximum of 85°F to 95°F in summer. Snowfall around 3,000 feet averages 7 inches. Above 5,000 feet winters can be severe with year round snow on the highest ranges (Madera County 2007).

The Valley experiences a persistent temperature inversion, which is characterized by increasing temperature with increasing altitude. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer.

The vertical dispersion of air contaminants in the Valley is also affected by wind conditions. The combination of stagnant wind conditions and low level-inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low level-inversions and low wind speeds, air pollutants generated in developed areas in the Valley are transported predominantly onshore. The Santa Ana winds, which are strong and dry north or northeasterly winds that occur during the fall and winter months, also disperse air contaminants in the Valley. The Santa Ana conditions tend to last for several days at a time.

Winds in the vicinity of the Project Site blow predominantly from the west-southwest, with relatively low velocities. Wind speeds in the Project Site average about 6.4 miles per hour (mph). Summer wind speeds are, on average, slightly higher (average high of 8.6 mph in July) than winter wind speeds with an average low of 4.7 mph in November.¹⁷

■ Air Quality Background

Air pollutant emissions within the Valley are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources are usually

¹⁷ Western Regional Climate Center, <http://www.wrcc.dri.edu/CLIMATEDATA.html> (accessed November 2007).

subject to a permit to operate from the SJVAPCD, occur at specific identified locations, and are usually associated with manufacturing and industry. Examples of point sources are boilers or combustion equipment that produce electricity or generate heat, such as heating, ventilation, and air conditioning (HVAC) units. In contrast, area sources are widely distributed, produce many small emissions, and they do not require permits to operate from the SJVAPCD. Examples of area sources include residential and commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hairspray, the area-wide use of which contributes to regional air pollution. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources are those that are legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, racecars, and construction vehicles.

Mobile sources account for the majority of the air pollutant emissions within the Valley. However, air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and suspended in the air during high wind events.

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants, referred to as “criteria pollutants,” in order to protect public health. The federal and State ambient air quality standards have been set at concentration levels to protect the most sensitive persons from illness or discomfort with a margin of safety. It is the responsibility of the SJVAPCD to bring air quality within the Valley into attainment with the federal and State ambient air quality standards, which are identified later in this EIR section.

The criteria pollutants for which federal and State standards have been promulgated, and that are most relevant to air quality planning and regulation in the Valley, are ozone, carbon monoxide, fine suspended particulate matter, nitrogen dioxide, sulfur dioxide, and lead. Toxic Air Contaminants (TACs) are also of concern in the Valley. Each of these pollutants is briefly described below.

- *Ozone (O_3)* is a highly reactive and unstable gas that is formed when reactive organic gases (ROGs) and nitrogen oxides (NO_x), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- *Carbon Monoxide (CO)* is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Valley. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- *Respirable Particulate Matter (PM_{10})* and *Fine Particulate Matter ($PM_{2.5}$)* consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.

- *Nitrogen dioxide (NO₂)* is a nitrogen oxide compound that is produced by the combustion of fossil fuels, such as in internal combustion engines (both gasoline and diesel powered), as well as point sources, especially power plants. Of the seven types of nitrogen oxide compounds, NO₂ is the most abundant in the atmosphere. As ambient concentrations of NO₂ are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO₂ than those indicated by regional monitors.
- *Sulfur dioxide (SO₂)* is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO₂ oxidizes in the atmosphere, it forms sulfates (SO₄). Collectively, these pollutants are referred to as sulfur oxides (SO_x).
- *Lead (Pb)* occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne Pb in the Valley. The use of leaded gasoline is no longer permitted for on-road motor vehicles, so the majority of such combustion emissions are associated with off-road vehicles such as race cars. However, because it was emitted in large amounts from vehicles when leaded gasoline was used for on-road motor vehicles, Pb is present in many soils and can get re-suspended in the air. Other sources of Pb include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and the use of secondary Pb smelters.
- *Toxic Air Contaminants (TAC)* refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe, but of short duration) adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than “criteria” pollutants in that ambient air quality standards have not been established for them, largely because there are hundreds of air toxics and their effects on health tend to be felt on a local scale rather than on a regional basis.

State standards have been promulgated for other criteria air pollutants, including SO₄, hydrogen sulfide, Pb, and visibility-reducing particles. The State also recognizes vinyl chloride as a TAC, but with an undetermined threshold level of exposure for adverse health effects. Vinyl chloride and hydrogen sulfide emissions are typically generated from mining, milling, refining, smelting, landfills, sewer plants, cement manufacturing, or the manufacturing or decomposition of organic matter. The State standards for sulfate and visibility reducing particles are not exceeded anywhere in the Valley. Lead is typically only emitted during demolition of structures expected to include lead-based paint and materials.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An

increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities.

Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of worsening oxygen supply to the heart.

Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM₁₀ and PM_{2.5}) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in PM_{2.5} concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM₁₀ and PM_{2.5}.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO₂ at levels

found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO₂ in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO₂ considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO₂.

Sulfur Dioxide

A few minutes of exposure to low levels of SO₂ can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO₂. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO₂.

Animal studies suggest that despite SO₂ being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO₂ levels. In these studies, efforts to separate the effects of SO₂ from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of ROG_s that cause odors poses a big challenge. Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second,

the ROGs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

Toxic Air Contaminant Emissions

TACs are airborne substances that are capable of causing chronic and acute adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different from the “criteria” pollutants previously discussed in that ambient air quality standards have not been established for them.

■ Existing Regional Air Quality

Measurements of ambient concentrations of the criteria pollutants are used by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) to assess and classify the air quality of each air basin, county, or, in some cases, a specific developed area. The classification is determined by comparing actual monitoring data with federal and State standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in “attainment.” If the pollutant exceeds the standard, the area is classified as a “nonattainment” area. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated “unclassified.”

The entire Valley is designated as a federal-level serious nonattainment area for the 8-hour ozone standard, a serious nonattainment area for PM_{10} , and in nonattainment for the $PM_{2.5}$ standard. The area is unclassified or in attainment for both the federal and State ambient air quality standards for CO, SO_2 , Pb, and NO_2 , hydrogen sulfide, sulfates, visibility reducing particles, and vinyl chloride.¹⁸

The SJVAPCD and the ARB operate numerous monitoring stations within the Valley to monitor the various concentrations of air pollutants in the region. The ARB also collects ambient air quality data through a network of air monitoring stations throughout the state. These data are summarized annually and are published in the ARB’s California Air Quality Data Summaries. One station operates in Madera County, while other stations in the project vicinity are located in Fresno. These stations currently monitor emission levels of ozone, PM_{10} , $PM_{2.5}$, CO, NO_2 , and toxic air contaminants.

Table 4.3-1 (Summary of Ambient Air Quality in the Proposed Project Vicinity) identifies the federal and State ambient air quality standards for the relevant air pollutants, along with the ambient pollutant concentrations that were measured at the two relevant air quality monitoring stations closest to the Project Site between 2004 to 2006 and between 2009 and 2011. The ozone and NO_2 levels were taken from the Madera Pump Yard monitor, while the CO, PM_{10} , and $PM_{2.5}$ levels were taken from the Clovis/North Villa Avenue station in Fresno. None of the monitoring stations within the Valley measure SO_2 emissions at this time.

¹⁸ San Joaquin Valley Unified Air Pollution Control District, <http://www.valleyair.org> (accessed November 2007).

According to the air quality data shown in Table 4.3-1, the State 1-hour ozone standard was exceeded a total of eight days over the last 3 years. The federal 8-hour ozone standard was exceeded a total of one days over the last 3 years. The federal 24-hour PM₁₀ standard was exceeded on one day over the last 3 years, and the State 24-hour standard for PM₁₀ was exceeded a total of 28 days over the last 3 years at the Clovis/North Villa Avenue station in Fresno. The federal 24-hour PM_{2.5} standard was exceeded on 3 days over the last 3 years. No federal or State standards for CO or NO₂ have been exceeded over the last 3 years in the project vicinity.

According to the air quality data shown in Table 4.3-1, air pollutant concentrations in the area have generally decreased or stayed relatively constant when comparing the 2004–2006 period, which was disclosed in the 2008 Final EIR, to the conditions that exist in 2011 (or 2010, if data for 2011 is not available). That said, the PM_{2.5} concentrations in 2011 are approaching the levels seen in 2005, and the number of days of exceedances has increased.

Table 4.3-1 Summary of Ambient Air Quality in the Proposed Project Vicinity [Revised]

Air Pollutants Monitored Within San Joaquin Valley Area	Year					
	2004	2005	2006	2009	2010	2011
Ozone (O₃)						
Maximum 1-hour concentration measured (ppm)	0.097 ppm	0.095 ppm	0.113 ppm	0.111	0.110	0.098
Number of days exceeding the federal 0.12 ppm 1-hour standard	0	0	0	0	0	0
Number of days exceeding State 0.09 ppm 1-hour standard	3	1	4	6	3	2
Maximum 8-hour concentration measured	0.084 ppm	0.081 ppm	0.095	0.096	0.096	0.085
Number of days exceeding federal 0.08075 ^a ppm 8-hour standard	0	0	1	13	8	8
Number of days exceeding state 0.07 ppm 8-hour standard	25	19	35	27	12	19
Nitrogen Dioxide (NO₂)						
Maximum 1-hour concentration measured (ppm)	0.053 ppm	0.057 ppm	0.051 ppm	0.0460	0.0480	0.0430
Number of days exceeding State 0.25 ppm 1-hour standard	0	0	0	0	0	0
Annual average (ppm)	0.010 ppm	0.010 ppm	0.011 ppm	0.011	0.010	— ^b
Does measured annual average exceed federal 0.053 ppm annual average standard?	No	No	No	No	No	— ^b
Carbon Monoxide (CO)						
Maximum 8-hour concentration measured (ppm)	1.70 ppm	2.30 ppm	2.23 ppm	1.66	1.43	— ^b
Number of days exceeding federal 9.0 ppm 8-hour standard	0	0	0	0	0	— ^b
Number of days exceeding State 9.0 ppm 8-hour standard	0	0	0	0	0	— ^b
Respirable Particulate Matter (PM₁₀)						
Maximum 24-hour concentration measured (State) (µg/m ³)	61 µg/m ³	90 µg/m ³	106 µg/m ³	65.2	62.2	64.4
Maximum 24-hour concentration measured (federal) (µg/m ³)	63 µg/m ³	87 µg/m ³	104 µg/m ³			
Number of days exceeding federal 150 µg/m ³ 24-hour standard	0	1	0	0	0	0
Number of days exceeding State 50 µg/m ³ 24-hour standard	5	11	12	1+ ^c	1+ ^c	1+ ^c

Table 4.3-1 Summary of Ambient Air Quality in the Proposed Project Vicinity [Revised]

Air Pollutants Monitored Within San Joaquin Valley Area	Year					
	2004	2005	2006	2009	2010	2011
Fine Particulate Matter (PM_{2.5})						
Maximum 24-hour concentration measured (state) ($\mu\text{g}/\text{m}^3$)	62.5 $\mu\text{g}/\text{m}^3$	77.0 $\mu\text{g}/\text{m}^3$	65.8 $\mu\text{g}/\text{m}^3$	<u>71.0</u>	<u>75.3</u>	<u>76.5</u>
Maximum 24-hour concentration measured (federal) ($\mu\text{g}/\text{m}^3$)	62.5 $\mu\text{g}/\text{m}^3$	77.0 $\mu\text{g}/\text{m}^3$	65.8 $\mu\text{g}/\text{m}^3$			
Number of days exceeding federal 65.0 $\mu\text{g}/\text{m}^3$ 24-hour standard	0	2	1	<u>26</u>	<u>19</u>	<u>26</u>
Sulfur Dioxide (SO₂)						
Maximum 24-hour concentration measured	— ^d	— ^d	— ^d	^d	^d	^d
Number of days exceeding federal 0.14 ppm 24-hour standard	— ^d	— ^d	— ^d	^d	^d	^d
Number of days exceeding State 0.04 ppm 24-hour standard	— ^d	— ^d	— ^d	^d	^d	^d
SOURCE: California ARB 2007a California Air Resources Board, Top 4 Summary Search, http://www.arb.ca.gov/adam/topfour/topfour1.php (accessed November 2007 and March 2012); California Air Resources Board, Air Quality Data Query Tool, http://www.arb.ca.gov/aqm2/aqselect.php , (accessed November 2007 and March 2012).						
ppm = parts per million by volume of air						
$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter						
— = Data not available						
a. Federal standard was changed to 0.075 in 2008.						
b. "—" means data was not reported by either source.						
c. Number of violations was not provided.						
d. "X" means that no monitoring stations near the Project Site report this pollutant.						

Existing Local Air Quality and Site Emissions

The Tesoro Viejo Specific Plan Area is located within Madera County and will be developed for a variety of uses as described in the Project Summary. Specifically, the project proposes a mixed-use development consisting of up to 5,190 dwelling units (du), about 3 million square feet of commercial, retail, office, public institutional, and light industrial uses, and about ~~217218~~ acres of mapped open space, not including approximately ~~200128~~ acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in the developed areas. Another ~~3837~~ acres would be set aside for utilities and stormwater facilities (including stormwater basins), ~~at least up to~~ 3060 acres for schools, and ~~2228~~ acres for the potential right-of-way for the realignment of SR-41 as a freeway as indicated on Caltrans plans.

Motor vehicles will be the primary source of pollutants in the Project Site vicinity. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or State standards for CO are termed "CO hotspots." Chapter 5 of the SJVAPCD's GAMAQI, identifies CO as a localized problem requiring additional analysis when a project is likely to subject sensitive receptors to CO hotspots. Typical sensitive receptors are defined as schools, playgrounds, childcare centers, athletic facilities, hospitals, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. These are all uses that could be occupied by individuals with a low tolerance for air quality pollutants such that negative health impacts could occur. These individuals include, but are not necessarily limited to, children, seniors, the

physically ill, and/or those engaging in active physical activity. Currently, the nearest sensitive receptor for construction-related emissions ~~are~~ residential located to the west of the Proposed Project, across from SR-41 between Avenue 15 and Avenue 14, approximately 400 feet to the west of the Project Site.

The SJVAPCD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak hour volumes to ambient CO air concentrations. This analysis assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations.

Maximum 1-hour and 8-hour CO concentrations were calculated under existing conditions for 4 intersections evaluated in the traffic analysis that currently operate under existing peak hours at Level of Service (LOS) E or F in 2007, as shown in Table 5 (Existing Peak Hour Intersection Levels of Service) of the Transportation Impact Analysis. For existing conditions in Year 2007, the results of the CO predicted concentrations are presented in Table 4.3-2 (Existing Localized Carbon Monoxide Concentrations) for representative receptors located in close proximity to each intersection. The federal 1-hour standard is 35.0 parts per million (ppm), and the State 1-hour standard is 20.0 ppm. The 8-hour federal and State standards are 9.0 ppm. As shown in Table 4.3-2, the intersection of SR-41 and Road 204 and the intersection of SR-41 and Avenue 12 represent the highest existing 1-hour CO concentration at 6.3 ppm and the highest existing 8-hour CO concentration at ~~7.92~~.65 ppm.

Table 4.3-2 Existing Localized Carbon Monoxide Concentrations [Revised]

<i>Intersection</i>	<i>Maximum 1-Hour CO Concentrations in Parts per Million^a</i>	<i>Maximum 8-Hour CO Concentrations in Parts per Million^b</i>
SR-41/Avenue 15	6.2	7.82 . <u>58</u>
SR-41/Road 204	6.3	7.92 . <u>65</u>
SR-41/Avenue 12	6.3	7.92 . <u>65</u>
Children's Boulevard/Lanes Bridge Drive	6.2	7.82 . <u>58</u>

SOURCE: Fehr & Peers 2007 (calculation sheets are provided in Appendix C)

^a National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

^b Federal 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

4.3.2 Regulatory Framework

Air quality within the Valley is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the Valley are discussed below.

■ Federal

United States Environmental Protection Agency (U.S. EPA)

The U.S. EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

■ State

California Air Resources Board

The ARB, a part of the California EPA, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the ARB conducts research, sets State ambient air quality standards, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The ARB establishes emissions standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

■ Regional

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency principally responsible for comprehensive air pollution control in the Valley. To that end, the SJVAPCD, a regional agency, works directly with the California Partnership for the San Joaquin Valley, county transportation commissions, and local governments and cooperates actively with all federal and state government agencies. The SJVAPCD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary. The SJVAPCD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of air quality management plans (AQMPs).

2007 Ozone Plan

The most recent AQMP was adopted by the Governing Board of the SJVAPCD on April 30, 2007, to update and revise the previous ozone plan.¹⁹ The *2007 Ozone Plan* contains a comprehensive and exhaustive list of regulatory and incentive based measures to reduce emissions of ozone and particulate matter precursors throughout the Valley. Additionally, this plan calls for major advancements in

¹⁹ San Joaquin Valley Unified Air Pollution Control District, <http://www.valleyair.org> (accessed November 2007).

pollution control technologies for mobile and stationary sources of air pollution, and a significant increase in state and federal funding for incentive-based measures to create adequate reductions in emissions to bring the entire Valley into attainment with the federal ozone standard.

The proposed plan calls for a 75 percent reduction in ozone-forming oxides of nitrogen (NO_x) emissions. These reductions come on the heels of past successful efforts in the Valley that have already reduced ozone precursor emission by nearly 50 percent. Regulatory measures for mobile and stationary sources will reduce NO_x emissions by 382 tons per day (61 percent) by 2023. The remaining 14 percent would come from incentives and the deployment of advanced technologies. The incentive-based measures contained in this plan generate NO_x reductions of 50 tons per day in 2012, 56 tons per day in 2015, 41 tons per day in 2020, and 26 tons per day in 2023.

In addition to the above-mentioned reductions in NO_x emissions, full implementation of this plan will reduce ROG emissions by 111 tons per day through regulatory measures, which equates to a 25 percent reduction. Under this plan, all proposed local measures will be adopted by the SJVAPCD before 2012. Additional measures requiring technology advancement or new incentive funding will also be adopted and implemented as expeditiously as they become available. As this plan is implemented, the ambient ozone concentrations will decrease dramatically over time in all areas of the Valley. It is anticipated that by 2015 over 50 percent of the Valley's population will reside in areas meeting the federal ozone standard. The segment of Valley population residing in areas meeting the federal ozone standard will increase to 90 percent by 2020.

Although ozone concentrations will drop measurably throughout the entire Valley, areas east of Arvin and in Northwest Fresno will require additional reductions in emissions to meet the federal ozone standard. These additional reductions in emissions require further advancements in technology and are expected to occur after 2020, but no later than 2023.

Extreme Ozone Attainment Demonstration Plan

For purposes of reaching attainment of the State and national air quality standards, the Extreme Ozone Attainment Demonstration Plan (Extreme OADP) was published by the SJVAPCD and approved by ARB and the EPA. The Extreme OADP was prepared to fulfill the requirements of the *Clean Air Act* (CAA) to attain the federal 1-hour ozone ambient air quality standards in the SJVAB by November 15, 2010. It identified control measures needed to reduce emissions and projects future air quality with implementation of those controls. Even though the 1-hour federal ozone standard was officially revoked June 15, 2005, applicable requirements in effect as of June 15, 2004 continue to apply under the anti-backsliding provisions of the Phase I rule implementing the federal 8-hour ozone standard. The SJVAPCD and ARB continue to implement the control measures needed to achieve emission reductions. The SJVAPCD has implemented some of the control measures as listed in the Extreme OADP as rules. The emissions associated with vehicular traffic (mobile sources) are not subject to the SJVAPCD's permit requirements because mobile source emissions are regulated by the State; however, the SJVAPCD is responsible for overseeing efforts to improve air quality within the SJVAB.

2003 PM₁₀ Plan

The goal of the 2003 PM₁₀ Plan is for the SJVAB to achieve the NAAQS for PM₁₀. The plan is designed to meet the requirements of the federal CAA and contains measures needed to attain the NAAQS at the earliest possible date. The document proposes many different types of control strategies for PM₁₀. According to the *2003 PM₁₀ Plan*, the control strategies are a collective effort between EPA, ARB, the SJVAPCD, and local government agencies. EPA is responsible for federal motor vehicles, certain off-road engines, trains, planes, ships, and fuel regulations. The ARB regulates California vehicles, fuels, and consumer products. The SJVAPCD regulates stationary sources and has limited authority to implement transportation control measures and indirect source control programs. The local agencies have the authority to regulate land use, to implement transportation control measures, and to use their budget authority to implement measures that reduce emissions directly.

2007 PM₁₀ Maintenance Plan and Request for Redesignation

On October 30, 2006, the EPA issued a Final Rule determining that the Valley had attained the NAAQS for PM₁₀.²⁰ This approval came after the SJVAPCD submitted a letter to the ARB requesting that the air basin be reclassified as being in attainment for the federal health-based standard for PM₁₀. The EPA noted in its Final Rule that “This action does not constitute a redesignation to attainment” under Section 107(d)(3) of the federal CAA because other federal CAA requirements for redesignation have not yet been met.

The federal CAA states that a nonattainment area can be redesignated to attainment if it meets the following criteria:

1. EPA has determined that the NAAQS have been attained.
2. EPA has fully approved the applicable implementation plan under the federal CAA.
3. EPA has determined that the improvement in air quality is due to permanent and enforceable emission reductions.
4. The State has met all applicable permitting requirements for the area under the CAA.
5. EPA has fully approved a maintenance plan, including a contingency plan, for the area under the federal CAA.

The Valley has met Criteria 1, 2, and 4 above. The SJVAPCD, ARB, and the Valley’s local Metropolitan Planning Organizations have developed the *2007 PM₁₀ Maintenance Plan and Request for Redesignation* to fulfill Criteria 3 and 5 above so that EPA can proceed with completing the redesignation process for PM₁₀ for the Valley (SJVAPCD 2007b).

Indirect Source Review Rule

The Indirect Source Review (ISR) rule (Rule 9510), which went into effect March 1, 2006, requires developers of larger residential, commercial and industrial projects to reduce smog-forming and particulate emissions generated by their projects. The rule is expected to reduce nitrogen oxides and

²⁰ Federal Register, 40 CFR Parts 52 and 81 *Approval and Promulgation of Implementation Plans; Designation of Areas for Air Quality Planning Purposes; State of California; PM-10; Determination of Attainment for the San Joaquin Valley Nonattainment Area; Determination Regarding Applicability of Certain Clean Air Act Requirements; Final Rule*, October 30, 2006.

particulates throughout the San Joaquin Valley by more than 10 tons per day by 2010. The purpose of the SJVAPCD's Indirect Source Review (ISR) Program is to reduce emissions of NO_x and PM₁₀ from new development projects. In general, new development contributes to the air-pollution problem in the Valley by increasing the number of vehicles and vehicle miles traveled. In 2005, on-road vehicles generated approximately 200 tons per day of NO_x and direct PM₁₀ pollution in the Valley. Although newer, cleaner technology is reducing the per-vehicle pollution, the emissions increase from new development putting more vehicles on Valley roads partially offsets the emission reductions gained from technology advances.

Indirect Source Review applies to development projects that have not yet gained discretionary approval. A discretionary permit is a permit from a public agency, such as a city or county, which requires some amount of deliberation by that agency, including the potential to require modifications or conditions on the project.

The ISR Rule is the result of State requirements outlined in the California Health and Safety Code, Section 40604 and the State Implementation Plan (SIP). The SJVAPCD's SIP commitments are contained in the SJVAPCD's 2003 PM₁₀ Plan and Extreme Ozone Attainment Demonstration Plan, which identify the need to reduce PM₁₀ and NO_x in order to reach the ambient air-pollution standards on schedule. These plans identify growth and reductions in multiple source categories. The plans quantify the reduction from current SJVAPCD rules and proposed rules, as well as State and federal regulations, and then model future emissions to determine if the SJVAPCD may reach attainment for applicable pollutants.

Section 6.0 of the rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20 percent of the total construction NO_x emissions, and 45 percent of the total construction PM₁₀ exhaust emissions. Section 6.0 of the rule also requires the project to reduce operational NO_x emissions by 33.3 percent and operational PM₁₀ emissions by 50 percent. Section 7.0 of the rule includes fee schedules for excess emissions of construction or operational NO_x or PM₁₀, which are considered those emissions above the goals identified in Section 6.0 of the rule. Section 7.2 of the rule identifies fees for excess emissions: \$9,350/ton for NO_x emissions, and \$9,011/ton for PM₁₀ emissions after 2008. In accordance with the PM₁₀ and Ozone plans, the SJVAPCD has determined that the ISR Rule, in addition to existing and future rules and conditions, will help clean the Valley's air and reach attainment (SJVAPCD 2006).

New and Modified Stationary Source Review Rule

The New and Modified Stationary Source Review (NSR) rule (Rule 2201), which went into effect September 19, 1991, applies to any building, structure, facility, or installation that emits or may emit any regulated pollutant directly or as a fugitive emission. New and Modified Stationary Source Review applies primarily to industrial and manufacturing facilities. The NSR rule requires stationary sources to implement the Best Available Control Technology (BACT) to reduce emissions. Stationary sources may also be required to implement emissions offsets, reductions recognized by the Air Pollution Control Officer (APCO) in the form of Emission Reduction Credits (issued in accordance with the provisions of SJVAPCD Rule 2301, Emission Reduction Credit Banking), or other mitigation measures. Reduction thresholds vary by type of pollutant and source.

Wood Burning Fireplaces and Wood Burning Heaters

Rule 4901, which was adopted on July 15, 1993 and modified on July 17, 2003, limits the installation of wood burning fireplaces and heaters in new residential developments. Wood burning fireplaces and heaters are not allowed in residential developments with a density of greater than two dwelling units per acre. Where residential density is less than two dwelling units per acre, two EPA Phase II Certified wood burning heaters are allowed per acre (no more than one heater per dwelling unit).Local

Madera County General Plan Policy Document

Local jurisdictions, such as Madera County, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the County will cooperate with other agencies to develop a consistent and effective approach to air quality planning and management (Madera County 1995d). To this end, the County will coordinate with other jurisdictions in the San Joaquin Valley to establish parallel air quality programs and implementation measures. The County will also support the SJVAPCD in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of new development. The County is also responsible for the assessment and mitigation, as necessary, of air emissions resulting from its land use decisions. The County will also require developers to pave all access roads, driveways, and parking areas serving new commercial and industrial development. In accordance with CEQA requirements and the CEQA review process, the County assesses the air quality impacts of new development projects, and will require mitigation measures consistent with the SJVAPCD's AQMPs.

Consistency Analysis

Implementation of the Proposed Project would be consistent with the SJVAPCD's AQMPs as described below under Impact 4.3-1. The Proposed Project would implement the required rules and mitigation measures of the SJVAPCD Indirect Source Review Rule, the 2007 Ozone Plan and the 2007 PM₁₀ Maintenance Plan and Request for Redesignation in order to reduce construction and operational emissions. In addition, this section of the EIR includes measures to reduce the amount of emissions and fugitive dust generated by construction equipment and to reduce energy demand of the proposed land uses. Thus implementation of the Proposed Project would not conflict with the Madera County General Plan or the SJVAPCD's AQMPs.

Under Rule 4901, discussed above, only residences in portions of the development with a density of less than two dwelling units per acre would be allowed to have wood burning stoves. Of the 5,190 dwelling units proposed, only 375 units (8.7%) fall into this category. The Proposed Project would comply with this requirement. The Proposed Project would not introduce or modify a stationary source governed under Rule 2201; thus, NSR requirements do not pertain to the Proposed Project.

4.3.3 Project Impacts and Mitigation

■ Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the Proposed Project. Air pollutant emissions associated with the Proposed Project would result from operation of the proposed development and from project-related traffic volumes. Construction activities would also generate emissions at the Project Site and on roadways resulting from construction-related traffic. The net increase in Project Site emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to thresholds of significance established by the SJVAPCD.

Construction Emissions

Construction emissions are calculated using the URBEMIS 2007 computer model developed for the ARB by estimating the types and number of pieces of equipment that would be used to grade and excavate the Project Site, construct the proposed development, and plant new landscaping within the Project Site. Construction emissions are analyzed according to the thresholds established by the SJVAPCD and published in the SJVAPCD GAMAQI. The construction activities associated with the Proposed Project would create diesel emissions and would generate emissions of dust.

It is anticipated that the Proposed Project would be constructed in numerous phases, depending on market conditions, beginning in ~~2009~~2013, with full buildout of the Proposed Project by 2025, which represents an approximately ~~sixteen~~12-year construction period. Development of the project's infrastructure, which would include streets, storm drains, distribution systems for water, sewer, gas, electricity, and telephones, the sewage treatment plant, and the detention basin, is anticipated to begin in ~~2009~~2013. The residential, industrial, and commercial uses would be developed starting in ~~2011~~2015, and would occur over a ~~14~~10-year period in response to market conditions. Construction of the residential and mixed use components of the Proposed Project will generally begin in and around the Town Center area and continue eastward to the San Joaquin River, including development both north and south of the Town Center area. Schools will be developed in phases as demand dictates. It is anticipated that the Western Gateway highway commercial and light industrial components of the Proposed Project would occur gradually, with more during the latter phases of development than in the early phases.

Under the Proposed Project, the primary source of emissions would be generated during construction of the infrastructure improvements and the new residential, commercial, and industrial buildings. Because the Proposed Project's construction would occur over a relatively long period of time and is dependent upon market conditions, it is unlikely that development would occur at the same rate and with the same development components during each of the years between ~~2009~~2013 and 2025. Instead, it is likely that more intensive development would occur during some years and less intensive development would occur during other years. Therefore, for purposes of CEQA, the air quality analysis assumes a worst-case single-year of development as a "maximum year."

The worst-case maximum year scenario assumes the following development components:

- Up to eight percent of the residential uses, or up to 400 units, would be developed. In all likelihood, development would occur within the same general geographic area and would be phased generally from the west to the east.
- The maximum development potential in a single year for commercial, industrial, and institutional uses is also assumed to be eight percent of the final Project area, up to 240,000 square feet in any one year.
- Several types of activities would generate emissions during construction activities associated with the Proposed Project: grading, building construction, landscaping, and painting.
 - > There are no buildings on the Project Site that would be demolished during the maximum year scenario.
 - > While grading will occur, there will be no net import or export of soil, and the site's existing topography would be largely maintained. Where development will occur, existing vegetation, such as the vineyards, would be cleared.
 - > Development sites would be prepared (graded and/or excavated) to accommodate the new building foundations and surface features. The buildings and surface features would then be constructed and readied for use.
 - > Finally, new landscaping would be planted around the new buildings and the buildings would be painted.
- The amount of emissions generated on a daily basis would vary, depending on the number of buildings that are being constructed at the same time and the type of construction activities occurring at the same time.
- It is assumed that trails associated with the designated open space areas would be developed gradually over the entire period of development with a very small portion during a maximum year scenario.

Construction equipment within the Project Site that would generate criteria air pollutants could include equipment such as excavators, export trucks, and loaders. Some of this equipment would be used during grading activities as well as when structures are constructed on the Project Site. In addition, emissions during construction and grading activities would include construction truck trips. It is assumed that grading would be substantially balanced, meaning that no significant quantity of soil would be transported off site for disposal nor would soil be transported on site for use in construction activities. It is further assumed that most of the construction equipment used would be diesel-powered.

While the assumptions regarding the amount of construction activities (i.e., mass grading, fine grading, trenching, paving, building, and architectural coating) are the same on a year-to-year basis, and, therefore, are about the same in the worst-case year as in other years, the differentiating factor is the emissions rate of the construction equipment. It is assumed that the air quality emissions from the construction equipment in the earlier years, starting in 2013, is higher than in later years; it is assumed that as years progress, the equipment will be "cleaner" and result in fewer emissions. Therefore, the worst-case year, in terms of a single year, would be 2013.

This air quality analysis has also been augmented to consider construction and/or operation of those features of the Project that were not previously considered, which include (1) construction of two recharge basins and an 8-mile pipeline traveling from the Project Site to Cottonwood Creek Ranch, which is the location of an off-site source of alternative water supply, and (2) construction of portable

classrooms at Minarets High School that are needed to accommodate students from Tesoro Viejo until such time as an on-site Tesoro Viejo high school is constructed and operational to meet their needs or Phase II of Minarets High School is constructed and operational. Construction-related air quality impacts associated with these new Project elements are evaluated in Impact 4.3-2.

Operational Emissions

Operational emissions associated with the Proposed Project are estimated using the URBEMIS 2007 computer model developed for the ARB and recommended by the SJVAPCD; the information provided in Chapter 3 (Project Description); and trip generation rates from the project transportation impact analysis report–, included in its entirety as Appendix H of this EIR. Operational emissions would be comprised of mobile source emissions and area source emissions. Mobile source emissions are generated by the increase in motor vehicle trips to and from the Project Site associated with operation of the Proposed Project. Area source emissions are generated by natural gas consumption for space and water heating, wood burning stoves and heaters, consumer products, architectural coatings (i.e. paint and stucco), and landscape maintenance equipment. To determine if an air quality impact would occur, the increase in emissions was compared with the SJVAPCD’s recommended thresholds.

Subsequently, and in response to court decisions, a Revised Transportation Impact Study (TIS) was prepared to evaluate additional traffic scenarios, including the following, the results of which are included in this Revised EIR:

- Existing 2011 Plus Project in Year 2015
- Existing 2011 Plus Project in Year 2020
- Existing 2011 Plus Project in Year 2025
- Interim Year 2015 Cumulative Plus Project Conditions
- Interim Year 2020 Cumulative Plus Project Conditions
- Interim Year 2015 Cumulative Plus Project Plus Student-Related Traffic
- Interim Year 2020 Cumulative Plus Project Plus Student-Related Traffic

As previously mentioned, the Cumulative Buildout Year (2025), both with and without the Project, was analyzed in the 2008 Final EIR, and that analysis has not required revision by the court except for the addition of the Existing 2011 Plus Project Analysis in 2025.

Impact 4.3-3 and Impact 4.3-6 address operational air quality impacts associated with Interim Year 2015 and 2020 Cumulative Plus Project and Student-Related Traffic conditions, which considers the impacts of vehicle trips associated with students traveling between the Project Site and Minarets High School (along with cumulative development in the area) until such time as an on-site high school is constructed and operational. Specifically, Impact 4.3-3 addresses the potential for exceedance of SJVAPCD standards for ROG and NO_x and Impact 4.3-6 addresses the potential for the exposure of sensitive receptors to TACs. Impact 4.3-8 addresses the operational air quality impacts (in terms of CO concentrations) associated with each of the seven new traffic scenarios, including Existing 2011 Plus Project (in Years 2015, 2020, and 2025), Interim Year (2015 and 2020) Cumulative Plus Project, and Interim Year (2015 and 2020) Cumulative Plus Project Plus Student-Related Traffic.

Localized CO Concentrations for Operation

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model and traffic volumes provided in the project transportation impact analysis report, which is included in its entirety as Appendix H of this EIR. CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments. As previously discussed, maximum 1-hour and 8-hour CO concentrations were calculated under existing conditions for 4 intersections evaluated in the traffic analysis that operate under existing peak hours at Level of Service (LOS) E or F in 2007. The result of this analysis is shown in Table 4.3-2 of this EIR. All other roadway intersections operate at LOS D or better and, therefore, generate lower CO concentrations.

For consistency with the Rio Mesa Area Plan LOS D policy, it was assumed that major roadway network improvements are projected to occur by 2025 to support envisioned land use development as well as to address existing deficiencies. Therefore, for the Cumulative (2025) Without Project Scenario, cumulative without project roadway and intersection lane configurations that satisfy LOS D (or better) was assumed. Similarly, all study intersections were projected to operate within an acceptable level of service range (i.e., LOS D or better) during the Cumulative (2025) With Project Scenario. As all the study intersections (2025) are expected to operate at a LOS D or better, those intersections would produce lower CO concentrations than under the existing conditions.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on air quality if it would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Proposed Project region is in nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors, including ROGs and NO_x)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

As the agency principally responsible for comprehensive air pollution control in the Valley, the SJVAPCD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SJVAPCD and published in its GAMAQI. These thresholds were developed by the SJVAPCD to provide quantifiable levels so that projects can be compared with the same standard. The County utilizes the SJVAPCD's thresholds that are recommended at the time that development projects are proposed to assess the significance of quantifiable impacts. The following quantifiable thresholds are

currently recommended by the SJVAPCD and are used to determine the significance of air quality impacts associated with the Proposed Project.

Construction Emissions Thresholds

The SJVAPCD has adopted a set of PM₁₀ Fugitive Dust Rules collectively called Regulation VIII. Several components of Regulation VIII specifically address fugitive dust generated by construction related activities. The SJVAPCD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SJVAPCD and that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures required by the SJVAPCD under Regulation VIII will constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less-than-significant (SJVAPCD 2002).

Operational Emissions Thresholds

The SJVAPCD recommends that projects with operational emissions that exceed any of the following emissions thresholds should be considered significant; these thresholds apply to individual development projects only; they do not apply to cumulative development:

- 10 tons per year of ROG
- 10 tons per year of NO_x
- Estimated CO concentrations, as determined by an appropriate model, exceeding the California Ambient Air Quality Standard of 9 ppm averaged over 8 hours and 20 ppm for 1 hour
- Toxic Air Contaminant exposures potential in excess of the following thresholds:
 - > Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million
 - > Ground-level concentrations of noncarcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI

In order to assess cumulative impacts, the SJVAPCD recommends that projects be evaluated to determine whether they would be consistent with AQMP performance standards and project-specific emissions thresholds.

Localized CO Concentration Thresholds

The SJVAPCD recommends that projects that cause localized CO concentrations to exceed the federal and State 9.0 ppm 8-hour standard, or projects that contribute substantially to localized CO concentrations that exceed these standards without the project, should be considered significant.

Cumulative Impact Thresholds

The SJVAPCD recommends that projects with significant operational air quality impacts (i.e., that exceed the 10 tons per year of ROG and NO_x thresholds) also be considered to have a significant cumulative impact.

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to air quality.

■ Impacts and Mitigation

Threshold	Would the project conflict with or obstruct implementation of the applicable air quality plan?
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Impact 4.3-1 **Operation of the Proposed Project would provide new sources of regional air emissions, but would not conflict with or obstruct implementation of the Air Quality Management Plans. This is considered a *less-than-significant* impact.**

The AQMPs, discussed previously, were prepared with consideration of growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SJVAPCD, and to return clean air to the region. Projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMPs would not jeopardize attainment of the air quality levels identified in the AQMPs.

The Proposed Project would increase population and housing for the area, and would result in air pollutant emissions associated with the construction and operation of the Project Site. However, the Proposed Project would not conflict with or obstruct the implementation of any applicable air quality plan as provided for in the GAMAQI. The Proposed Project is part of the larger RMAP, which was adopted by Madera County in 1995. Because the Proposed Project land use and population projections are included as part of the RMAP, the SJVAPCD has accounted for the population and land use designations of the Proposed Project in their AQMPs.

The operation of the Proposed Project would generate emissions that exceed the thresholds of significance recommended by the SJVAPCD for ROG and NO_x. The exceedance of the SJVAPCD thresholds for these two criteria pollutants is primarily due to the increase in motor vehicles traveling to and from the Project Site. However, the Proposed Project includes retail and office uses near existing and planned residential uses, which would promote a reduction in vehicle trips by providing a linkage between jobs and housing. The Proposed Project will provide a diverse range of uses (employment centers, residential, recreation, and institutional) within a high-quality, pedestrian-oriented community, which would serve to reduce vehicle miles traveled and total vehicle trips for future residences.

Additionally, the requirements of the SJVAPCD's Indirect Source Review rule (Rule 9510), would require the reduction of NO_x and PM₁₀ emissions. The SJVAPCD will provide an On-Site Checklist that includes quantifiable on-site measures that reduce operational NO_x and/or PM₁₀ emissions. The Project Applicant shall identify measures voluntarily selected and how those measures will be enforced. On-Site measures must be fully enforceable through permit conditions, development agreements, or other legally binding instrument entered into by the applicant and the public agency; or, if the measure is not a requirement by another public agency, by a contract with the SJVAPCD.

The ISR Rule is the result of State requirements outlined in the California Health and Safety Code, Section 40604 and the State Implementation Plan (SIP). The SJVAPCD's SIP commitments are

contained in the SJVAPCD's 2003 PM₁₀ Plan and Extreme Ozone Attainment Demonstration Plan, which identify the need to reduce PM₁₀ and NO_x in order to reach the ambient air-pollution standards on schedule. These plans identify growth and reductions in multiple source categories. The plans quantify the reduction from current SJVAPCD rules and proposed rules, as well as State and federal regulations, and then model future emissions to determine if the SJVAPCD may reach attainment for applicable pollutants. In accordance with the PM₁₀ and Ozone plans, the SJVAPCD has determined that the ISR Rule, in addition to existing and future rules and conditions, will help clean the Valley's air and reach attainment.

Based on the Proposed Project's consistency with the land use designated in the RMAP and the Madera County's existing General Plan, and the subsequent consistency with the existing SJVAPCD's Air Quality Plans' forecasts, as discussed above, the Proposed Project would not impair implementation of the relevant Air Quality Plans, and this impact would be *less than significant*. No mitigation is required.

Threshold	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?
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Impact 4.3-2 Construction of the Proposed Project would include excavation, grading, and other construction activities that could generate criteria air pollutants, including PM₁₀. This would be a temporary, but potentially significant impact. However, implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b) would reduce this impact to a *less-than-significant* level.

Construction activities include implementation of the land use plan at the Project Site, as well as the construction of the portable classrooms at Minarets High School (off site) and, if needed, construction of an 8-mile pipeline off site and two recharge basins in the event Holding Contract No. 7 water proves to be unavailable and an alternative source of water is required. Because construction of the portable classrooms, 8-mile pipeline, and recharge basins would occur over a maximum of a one-year period, each are individually evaluated in addition to the construction emissions anticipated from that year's Tesoro Viejo development construction activities. For example, the 8-mile pipeline is assumed for worst-case purposes to be constructed in 2013; therefore, the construction emissions from that activity are added to the construction emissions anticipated from the Tesoro Viejo development during that same year. The same methodology is applied to construction of the recharge basins, which is anticipated to occur in 2014, and construction of the portable classrooms, which is anticipated to begin in 2018. As previously mentioned, construction equipment is anticipated to result in higher emissions in earlier years, becoming cleaner as the years progress and technology advances. Therefore, for construction of the portable classrooms, which will occur in years 2018, 2019, and 2020, it is anticipated that the earliest year, 2018, would result in the highest construction-related emissions.

Tesoro Viejo Project Site Construction Activities

Emissions resulting from Project construction activities were analyzed using methodology recommended by the SJVAPCD. Because of the phased construction scenario of the Proposed Project, development is not expected to occur at the same rate and with the same development components during each of the years between ~~2009~~2013 and 2025. Instead, it is likely that more intensive development activities would occur during some years and less development activities would occur during other years. Therefore, for

purposes of CEQA, the air quality analysis assumes a worst-case single-year of development as a “maximum year”. Data for interim years is available in Appendix C.

As described previously, the worst-case maximum year scenario assumes that 8 percent of the residential uses would be developed (approximately 400 units), and approximately 8 percent or 240,000 square feet of the retail, institutional, industrial, and commercial uses would be developed during this maximum year scenario.

Three basic types of construction activities that would generate emissions from both construction equipment and fugitive dust include grading, site construction and landscaping activities. There are no buildings on the Project Site that would be demolished as part of the Proposed Project. While grading will occur, there will be no net import or export of soil, and the site’s existing topography would be largely maintained. Where development will occur, existing vegetation, such as the vineyards, would be cleared and development sites would be prepared (graded and/or excavated) to accommodate the new building foundations and surface features. The buildings and surface features would then be constructed and readied for use. Finally, new landscaping would be planted around the new buildings and the buildings would be painted. The amount of emissions generated on a daily basis would vary, depending on the number of buildings that are being constructed at the same time and the type of construction activities occurring at the same time.

Additionally, it is assumed that construction of the infrastructure (i.e., streets, storm drains, distribution systems for water, sewer, gas, electricity, and telephones, the sewage treatment plant, and the detention basin) would begin in ~~2009~~2013, ~~two~~2 years prior to construction of habitable structures, and would be completed in 2021, four years prior to completion of buildings and landscaping. Finally, it is assumed trails associated with the designated open space areas would be developed gradually over the entire period of development with a very small portion during a maximum year scenario.

Construction equipment within the Project Site that would generate criteria air pollutants could include equipment such as excavators, graders, compactors, scrapers, water trucks, cranes, forklifts, paving equipment, generators, export trucks, and loaders. Some of this equipment would be used during grading activities as well as when structures are constructed on the Project Site. In addition, emissions during construction and grading activities would be generated by construction truck trips. It is assumed that grading would be substantially balanced, meaning that no significant quantity of soil would be transported off site for disposal nor would soil be transported on site for use in construction activities. It is further assumed that most of the construction equipment used would be diesel-powered.

Table 4.3-3 (Estimated Maximum Year Construction Emissions) identifies maximum yearly emissions that are estimated to occur for the maximum year of construction of the Proposed Project. Based on current construction phasing assumptions (which are subject to change based on market conditions) the maximum year scenario would be expected to occur in 2013. During this year, utilities trenching, building construction, coating/painting, and landscaping activities would be expected to overlap, resulting in a peak level of construction activity and emissions. The underlying premise for these calculations is that construction activities in all of the other years would be less than envisioned in the maximum year.

Table 4.3-3 Estimated Maximum Year Construction Emissions

Construction Phase	Maximum Year Emissions in Tons Per Year				
	ROG	NO _x	CO	SO _x	PM ₁₀
Fine Grading					
Fugitive Dust	—	—	—	—	1,123.40
Off-Road Diesel	2.19	18.81	8.75	—	0.76
On-Road Diesel	—	—	—	—	—
Worker Trips	0.01	0.01	0.15	—	—
Subtotal	2.20	18.82	8.90	0.00	1,124.16
Level Following Mitigation/Reduction	2.20	13.60	8.90	0.00	78.33
Mitigation/Reduction (%)	0	28%	0	0	93%
Mass Grading					
Fugitive Dust	—	—	—	—	1,123.40
Off-Road Diesel	2.19	18.81	8.75	—	0.76
On-Road Diesel	—	—	—	—	—
Worker Trips	0.01	0.01	0.15	—	—
Subtotal	2.20	18.82	8.90	0.00	1,124.16
Level Following Mitigation/Reduction	2.20	13.60	8.90	0.00	78.33
Mitigation/Reduction (%)	0	28%	0	0	93%
Building Construction					
Off-Road Diesel	0.42	2.48	1.74	—	0.17
Building Vendor Trips	0.35	2.78	3.55	0.01	0.14
Worker Trips	2.33	1.71	39.23	0.02	0.16
Subtotal	3.09	6.98	44.53	0.02	0.46
Level Following Mitigation/Reduction	3.09	6.29	44.53	0.02	0.31
Mitigation/Reduction	0	10%	0	0	33%
Architectural Coating					
Architectural Coating Emissions	11.70	—	—	—	—
Worker Trips	—	—	0.04	—	—
Subtotal	11.70	0.00	0.04	0.00	0.00
Level Following Mitigation/Reduction	0.77	0.00	0.04	0.00	0.00
Mitigation/Reduction (%)	93%	0	0	0	0
Trenching					
Off-Road Diesel	0.45	3.68	2.08	—	0.18
Worker Trips	—	0.01	0.09	—	—
Subtotal	0.45	3.69	2.17	0.00	0.18
Level Following Mitigation/Reduction	0.45	2.67	2.17	0.00	0.01
Mitigation/Reduction (%)	0	28%	0	0	94%

Table 4.3-3 Estimated Maximum Year Construction Emissions

Construction Phase	Maximum Year Emissions in Tons Per Year				
	ROG	NO _x	CO	SO _x	PM ₁₀
Asphalt Paving					
Off-Gas	0.04	—	—	—	—
Off-Road Diesel	0.35	2.15	1.32	—	0.19
On-Road Diesel	—	0.01	0.01	—	—
Worker Trips	—	—	0.05	—	—
Subtotal	0.39	2.16	1.38	0.00	0.19
Level Following Mitigation/Reduction	0.39	1.57	1.38	0.00	0.01
Mitigation/Reduction (%)	0	27%	0	0	95%
Total Before Mitigation/Reduction	20.03	50.47	65.92	0.02	2,249.14
Total Following Mitigation/Reduction	9.11	37.72	65.92	0.02	156.99
Mitigation/Reduction (%)	54%	25%	0	0	93%
SJVAPCD Reduction Thresholds (%)	—	20%	—	—	45%
Significant Impact?	No	No	No	No	No

SOURCE: PBS&J 2007 (URBEMIS calculation sheets are provided in Appendix C)

— Thresholds for emissions are not provided as they have not been established by the SJVAPCD for construction activities.

The total emissions in the rows titled “Level Following Mitigation/Reduction” include dust control measures that would be implemented during each phase of development, as required by SJVAPCD Regulation VIII, Fugitive PM₁₀ Prohibitions. All construction activities that are capable of generating fugitive dust are required to implement dust control measures during each phase of project development to reduce the ambient concentration of amount of particulate matter by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. These measures include, but are not limited to, the following:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least 6 inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)

- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.
- Any site with 150 or more vehicle trips per day shall prevent carryout and track out.
- Limit on traffic speeds on unpaved roads to 15 mph.

The estimated construction emissions for site grading assume implementation of the applicable dust control measures as described in the SJVAPCD, “Regulation VIII Control Measures for Construction Emissions of PM₁₀,” (SJVAPCD 2002) including a limit on traffic speeds on unpaved roads to 15 mph. The control measures that could be input into the URBEMIS 2007 model would reduce PM₁₀ emissions resulting from fugitive dust by approximately 89 percent. The SJVAPCD has determined that any determination of significance with respect to construction emissions should consider the control measures that would be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures required by the SJVAPCD under Regulation VIII would constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less-than-significant.

The SJVAPCD recognizes that construction equipment also emits carbon monoxide and ozone precursor emissions. However, the SJVAPCD has determined that these emissions may cause a significant air quality impact only in the cases of very large or very intense construction projects (SJVAPCD 2002, p. 24, footnote 33). Emissions of ozone precursors (ROG and NO_x) from exhaust and other construction activities are included by the SJVAPCD in the emission inventory that is the basis for regional air quality planning. Implementation of mitigation options required by the Indirect Source Rule would help reduce construction emissions. The Indirect Source Review rule requires projects to achieve a 20 percent construction emissions reduction for NO_x and a 45 percent constructions reduction for PM₁₀; for all exceedances, the developer may be required to pay in lieu fees. In accordance with the Indirect Source Rule and to further reduce construction-related emissions, the mitigation measures MM4.3-2(a) and MM4.3-2(b) will be implemented during the Proposed Project’s construction.

MM4.3-2(a) *Prior to issuance of grading permits, the Project Applicant shall enter into an Air Quality Mitigation Agreement with the SJVAPCD to reduce net ~~ROG,~~NO_x and PM₁₀ emissions impacts from construction of the Proposed Project. The construction related reduction measures shall include, but not be limited to the following:*

- *Exhaust emissions for construction equipment greater than fifty (50) horsepower used or associated with the development project shall be reduced by the following amounts from the statewide average as estimated by the ARB:*
 - > *20 percent of the total NO_x emissions*
 - > *45 percent of the total PM₁₀ exhaust emissions*
- *Construction emissions on-site may be reduced by using less polluting construction equipment, which can be achieved by utilizing add-on controls, cleaner fuels, or newer lower emitting equipment.*

- *These requirements can be met through any combination of on-site emission reduction measures or off-site fees (see MM4.3-2(b) below), including, but not limited to, the replacement of old diesel engines within the Valley.*

The mitigated/reduced emissions total shown in Table 4.3-3 was calculated using the URBEMIS 2007 model. This total assumes that the Proposed Project would employ the following reduction measures: diesel particulate filters, diesel oxidation catalysts, aqueous diesel fuels, and low VOC paints for interior and exterior applications. While the URBEMIS model shows that the Proposed Project would meet the thresholds specified in MM4.3-2(a), the SJVAPCD retains the right to determine whether the mitigation measures proposed by the Project Applicant are feasible and would, in fact, result in the appropriate reductions. If the SJVAPCD determines that the mitigation would fall short of the reduction thresholds, the following mitigation would apply:

MM4.3-2(b) The Project Applicant shall pay to the SJVAPCD a monetary sum necessary to offset the required construction NO_x and PM₁₀ emissions not reduced on-site and subject to the fee schedule specified in Section 7.2 of Rule 9510.

The implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b) in addition to conformance with existing regulations would reduce this impact to a ***less-than-significant*** level.

Other Construction Activities

The significance of air quality construction-related impacts is determined based on the conformance of maximum daily emission rates with state and federal air quality standards, including the exposure of sensitive receptors to substantial pollutant concentrations and the cumulative contribution of pollutant contributions.

Construction of Portable (or Temporary) Classrooms

In order to accommodate high-school aged students during those years prior to operation of an on-site high school (in 2021) when the existing Minarets High School would not have adequate capacity to accommodate students from the Proposed Project (in years 2018, 2019, and 2020), temporary classrooms would have to be added at Minarets High School. It is anticipated that five to six temporary classrooms would be developed per year to accommodate the high-school aged students from both within and outside of the Rio Mesa for a total of about fifteen portable classrooms by 2020. Additional information about the need for portable classrooms can be found in Impact 4.12-3(a) in Section 4.12 (Public Services and Recreation). The construction-related air quality analysis assumes that a maximum of six classrooms would be added during the summer to approximate the worst-case yearly emissions.

Construction of the temporary classrooms would increase construction emissions between 2018 and 2020; however, it is anticipated that the temporary classrooms would have to be added during the summer months to avoid disruption to existing students, which would be the only proximate sensitive receptors. These construction activities would be bound to the same mitigation measures as listed above (e.g., mitigation measures MM4.3-2(a) and MM4.3-2(b)). Table 4.3-3(a) (Estimated 2018 Portable Classroom Construction Emissions) shows the emissions anticipated from construction of the temporary classrooms in 2018 (the year of construction) in addition to the emissions from construction of the Tesoro Viejo Project Site in 2018. While construction of the portable classrooms would continue in the

summers of 2019 and 2020, as previously mentioned, 2018 would represent the worst-case single year for this activity, because the construction equipment is assumed to be least clean in earlier years.

As shown in Table 4.3-3(a), with the reductions achieved through the implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b), the SJVAPCD reduction thresholds would be met. Therefore, implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b), in addition to conformance with existing regulations, would reduce this impact to a *less-than-significant* level.

Table 4.3-3(a) Estimated 2018 Portable Classroom Construction Emissions [New]

Construction Phase	Maximum Year Emissions in Tons Per Year				
	ROG	NO _x	CO	SO _x	PM ₁₀
Fine Grading (2018)					
<u>Fugitive Dust</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.006</u>
<u>Off-Road Diesel</u>	<u>0.008</u>	<u>0.054</u>	<u>0.038</u>	<u>0.000</u>	<u>0.002</u>
<u>On-Road Diesel</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
<u>Worker Trips</u>	<u>0.000</u>	<u>0.000</u>	<u>0.002</u>	<u>0.000</u>	<u>0.000</u>
<u>Subtotal</u>	<u>0.008</u>	<u>0.054</u>	<u>0.041</u>	<u>0.000</u>	<u>0.008</u>
<u>Level Following Mitigation/Reduction</u>	<u>0.008</u>	<u>0.054</u>	<u>0.041</u>	<u>0.000</u>	<u>0.005</u>
<u>Mitigation/Reduction (%)</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>36.73%</u>
Building Construction (2018)					
<u>Off-Road Diesel</u>	<u>0.005</u>	<u>0.034</u>	<u>0.031</u>	<u>0.000</u>	<u>0.002</u>
<u>Building Vendor Trips</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
<u>Worker Trips</u>	<u>0.000</u>	<u>0.000</u>	<u>0.002</u>	<u>0.000</u>	<u>0.000</u>
<u>Subtotal</u>	<u>0.005</u>	<u>0.034</u>	<u>0.033</u>	<u>0.000</u>	<u>0.002</u>
<u>Level Following Mitigation/Reduction</u>	<u>0.005</u>	<u>0.034</u>	<u>0.033</u>	<u>0.000</u>	<u>0.002</u>
<u>Mitigation/Reduction</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
Architectural Coating (2018)					
<u>Architectural Coating Emissions</u>	<u>0.064</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
<u>Worker Trips</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
<u>Subtotal</u>	<u>0.06</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
<u>Level Following Mitigation/Reduction</u>	<u>0.058</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
<u>Mitigation/Reduction (%)</u>	<u>10.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
Trenching (2018)					
<u>Off-Road Diesel</u>	<u>0.004</u>	<u>0.031</u>	<u>0.013</u>	<u>0.000</u>	<u>0.001</u>
<u>Worker Trips</u>	<u>0.000</u>	<u>0.000</u>	<u>0.001</u>	<u>0.000</u>	<u>0.000</u>
<u>Subtotal</u>	<u>0.004</u>	<u>0.031</u>	<u>0.015</u>	<u>0.000</u>	<u>0.001</u>
<u>Level Following Mitigation/Reduction</u>	<u>0.004</u>	<u>0.031</u>	<u>0.015</u>	<u>0.000</u>	<u>0.001</u>
<u>Mitigation/Reduction (%)</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>

Table 4.3-3(a) Estimated 2018 Portable Classroom Construction Emissions [New]

Construction Phase	Maximum Year Emissions in Tons Per Year				
	ROG	NO _x	CO	SO _x	PM ₁₀
Asphalt Paving (2018)					
Off-Road Gas	0.000	0.000	0.000	0.000	0.000
Off-Road Diesel	0.003	0.022	0.020	0.000	0.002
On-Road Diesel	0.000	0.000	0.000	0.000	0.000
Worker Trips	0.000	0.000	0.003	0.000	0.000
Subtotal	0.004	0.022	0.023	0.000	0.002
Level Following Mitigation/Reduction	0.004	0.022	0.023	0.000	0.002
Mitigation/Reduction (%)	0.00%	0.00%	0.00%	0.00%	0.00%
Portable Classroom Construction Before Mitigation	0.084	0.140	0.112	0.000	0.012
Portable Classroom Construction After Mitigation	0.078	0.140	0.112	0.000	0.009
Summary					
Portable Classroom Construction Before Mitigation	0.084	0.140	0.112	0.000	0.012
Portable Classroom Construction After Mitigation	0.078	0.140	0.112	0.000	0.009
2018 Project Construction Before Mitigation ^a	17.450	32.790	45.110	0.020	2248.340
2018 Project Construction After Mitigation ^a	6.530	24.370	42.110	0.020	156.870
Total Construction Before Mitigation	17.534	32.930	45.222	0.020	2248.352
Total Construction After Mitigation	6.608	24.510	42.222	0.020	156.879
Mitigation/Reduction (%)	62%	26%	7%	0%	93%
SJVAPCD Reduction Thresholds (%)	≡	20%	≡	≡	45%
Significant Impact?	No	No	No	No	No

SOURCE: Atkins 2012.

a. SOURCE: PBS&J 2007 (URBEMIS calculation sheets are provided in Appendix C)

Construction of Recharge Basins

The Proposed Project also includes the construction of three recharge basins to recharge groundwater. It is anticipated that each of the recharge basins would each be 2 acres in size and 20 feet deep. Because one of the basins is already in place, having been constructed as part of the recharge test performed by KDSA, excavation would require the export of approximately 129,000 cubic yards of soil to construct the remaining two basins. Construction of the basins is anticipated for 2014.

Construction of the two recharge basins would result in additional construction-related emissions. It is assumed that construction of the recharge basins would occur over a 12-month period beginning in 2014 and planned that all the soil would be balanced on site, meaning that soil removed from the excavation would be used as fill elsewhere on site, and would be considered incidental to construction. The construction-related air quality analysis assumed that a total of 4 acres would be disturbed daily for 10 hours per day during 2014. Table 4.3-3(b) (Estimated 2014 Recharge Basin Construction Emissions) shows the anticipated total emissions in 2014 (the year of construction) for construction of the recharge basins in addition to the emissions of construction of the Tesoro Viejo Project Site in 2014.

As shown in Table 4.3-3(b), with the reductions achieved through the implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b), the SJVAPCD reduction thresholds would be met. Therefore, implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b), in addition to conformance with existing regulations, would reduce this impact to a *less-than-significant* level.

Table 4.3-3(b) Estimated 2014 Recharge Basin Construction Emissions [New]

Construction Phase	Maximum Year Emissions in Tons Per Year				
	ROG	NO _x	CO	SO _x	PM ₁₀
Mass Grading (2014)					
Mass Grading Dust	0.000	0.000	0.000	0.000	64.550
Mass Grading Off Road Diesel	0.315	2.490	1.401	0.000	0.000
Mass Grading On Road Diesel	0.000	0.000	0.000	0.000	0.000
Mass Grading Worker Trips	0.003	0.005	0.101	0.000	0.001
Subtotal	0.318	2.495	1.502	0.000	64.551
Level Following Mitigation/Reduction	0.318	1.804	1.502	0.000	30.539
Mitigation/Reduction (%)	0.00%	27.69%	0.00%	0.00%	52.69%
Summary					
Recharge Basin Construction Before Mitigation	0.318	2.495	1.502	0.000	64.551
Recharge Basin Construction After Mitigation	0.318	1.804	1.502	0.000	30.539
2014 Project Construction Before Mitigation ^a	19.460	46.640	61.040	0.020	2248.950
2014 Project Construction After Mitigation ^a	9.110	37.720	61.040	0.020	156.990
Total Construction Before Mitigation	19.778	49.135	62.542	0.020	2313.501
Total Construction After Mitigation	9.428	39.524	62.542	0.020	187.529
Mitigation/Reduction (%)	52%	20%	0%	0%	92%
SJVAPCD Reduction Thresholds (%)	≡	20%	≡	≡	45%
Significant Impact?	No	No	No	No	No

SOURCE: Atkins 2012.

a. SOURCE: PBS&J 2007 (URBEMIS calculation sheets are provided in Appendix C)

Construction of 8-Mile Pipeline

If the use of Holding Contract No. 7 water proves unavailable and the use of alternative water supply sources becomes necessary, two 30-inch water pipelines would be constructed along Avenue 15, from the western portion of the Project Site (at SR-41) to a point 8 miles westward; to deliver water from an off-site location. Construction activities are described in detail in Section 3.7.4 (Utility Infrastructure Improvements) of this Revised EIR.

Table 4.3-3(c) (Estimated 2013 8-Mile Pipeline Construction Emissions) shows the anticipated total emissions in 2013 (the year of construction) for construction of 8-mile pipeline in addition to the emissions of construction of the Tesoro Viejo Project Site in 2013.

Table 4.3-3(c) Estimated 2013 8-Mile Pipeline Construction Emissions [New]

Construction Phase	Emissions in tons/year				
	ROG	NO _x	CO	SO ₂	PM ₁₀
<u>Fine Grading (2013)</u>					
<u>Fugitive Dust</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>1.250</u>
<u>Off-Road Diesel</u>	<u>0.040</u>	<u>0.310</u>	<u>0.140</u>	<u>0.000</u>	<u>0.010</u>
<u>On-Road Diesel</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>	<u>0.000</u>
<u>Worker Trips</u>	<u>0.000</u>	<u>0.000</u>	<u>0.020</u>	<u>0.000</u>	<u>0.000</u>
<u>Subtotal</u>	<u>0.040</u>	<u>0.320</u>	<u>0.160</u>	<u>0.000</u>	<u>1.260</u>
<u>Level Following Mitigation/Reduction</u>	<u>0.040</u>	<u>0.320</u>	<u>0.150</u>	<u>0.000</u>	<u>0.610</u>
<u>Mitigation/Reduction (%)</u>	<u>0.00%</u>	<u>0.00%</u>	<u>6.25%</u>	<u>0.00%</u>	<u>51.59%</u>
<u>Trenching (2013)</u>					
<u>Off-Road Diesel</u>	<u>0.210</u>	<u>1.880</u>	<u>0.690</u>	<u>0.000</u>	<u>0.070</u>
<u>Worker Trips</u>	<u>0.000</u>	<u>0.000</u>	<u>0.120</u>	<u>0.000</u>	<u>0.000</u>
<u>Subtotal</u>	<u>0.210</u>	<u>1.880</u>	<u>0.810</u>	<u>0.000</u>	<u>0.070</u>
<u>Level Following Mitigation/Reduction</u>	<u>0.200</u>	<u>1.880</u>	<u>0.810</u>	<u>0.000</u>	<u>0.070</u>
<u>Mitigation/Reduction (%)</u>	<u>4.76%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
<u>Pipeline Construction Before Mitigation</u>	<u>0.250</u>	<u>2.200</u>	<u>0.970</u>	<u>0.000</u>	<u>1.330</u>
<u>Pipeline Construction After Mitigation</u>	<u>0.240</u>	<u>2.200</u>	<u>0.960</u>	<u>0.000</u>	<u>0.680</u>
<u>Summary</u>					
<u>Pipeline Construction Before Mitigation</u>	<u>0.250</u>	<u>2.200</u>	<u>0.970</u>	<u>0.000</u>	<u>1.330</u>
<u>Pipeline Construction After Mitigation</u>	<u>0.240</u>	<u>2.200</u>	<u>0.960</u>	<u>0.000</u>	<u>0.680</u>
<u>TOTAL 2013 Project Before Mitigation/Reduction^a</u>	<u>20.030</u>	<u>50.470</u>	<u>65.920</u>	<u>0.020</u>	<u>2249.140</u>
<u>TOTAL 2013 Project Following Mitigation/Reduction^a</u>	<u>9.110</u>	<u>37.720</u>	<u>65.920</u>	<u>0.020</u>	<u>156.990</u>
<u>Total Construction Before Mitigation</u>	<u>20.280</u>	<u>52.670</u>	<u>66.890</u>	<u>0.020</u>	<u>2250.470</u>
<u>Total Construction After Mitigation</u>	<u>9.350</u>	<u>39.920</u>	<u>66.880</u>	<u>0.020</u>	<u>157.670</u>
<u>Mitigation/Reduction (%)</u>	<u>54%</u>	<u>24%</u>	<u>0%</u>	<u>0%</u>	<u>93%</u>
<u>SJVAPCD Reduction Thresholds (%)</u>	<u>≡</u>	<u>20%</u>	<u>≡</u>	<u>≡</u>	<u>45%</u>
<u>Significant Impact?</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>

SOURCE: Atkins 2012.

a. SOURCE: PBS&J 2007 (URBFMIS calculation sheets are provided in Appendix C).

As shown in Table 4.3-3(c), with the reductions achieved through the implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b), the SJVAPCD reduction thresholds would be met. Therefore, implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b), in addition to conformance with existing regulations, would reduce this impact to a *less-than-significant* level.

Impact 4.3-3 **Operation of the Proposed Project would exceed SJVAPCD standards for ROG and NO_x and would result in a projected air quality violation. This is considered a potentially significant impact. Implementation of mitigation measure MM4.3-3 would reduce this impact, but not to a less-than-significant level. Therefore, this impact would be considered *significant and unavoidable*.**

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities on the Project Site after occupation. Stationary, area source emissions would be generated by the consumption of natural gas for space and water heating devices, and the operation of landscape maintenance equipment. Mobile emissions would be generated by the motor vehicles traveling to and from the Project Site. Delivery trucks would make periodic trips to and from the Project Site. These delivery trips are anticipated to occur 24 hours per day.

■ In terms of operational emissions, the Tesoro Viejo Specific Plan contains goals and objectives for its design that would help reduce the operational emissions that would otherwise be generated by the Proposed Project. These design features include the following:²¹

- Provide a viable and balanced mix of regional and local-serving commercial and employment uses.
- Encourage properly designed mixed-use and residential neighborhoods to insure compatibility with and transportation choices for access to residential and nonresidential uses by creating a pedestrian-supportive environment that activate Tesoro Viejo's streets.
- Promote a diverse community and create opportunities for housing near workplaces.
- Provide an opportunity for high-density, multi-family housing near and within the mixed-use employment center of Tesoro Viejo.
- Design multimodal streets that effectively facilitate vehicular traffic and future transit connections, but also provide for a safe, attractive and continuous pedestrian and bicycle circulation system throughout Tesoro Viejo.
- Minimize or eliminate the need for wide arterial streets by creating an interconnected circulation network that distributes traffic across many streets while providing the capacity necessary to accommodate the levels and types of traffic anticipated in the land use plan and those of the surrounding area.
- Plan pedestrian-oriented mixed-use areas that maintain an adequate level of parking and access for automobiles, but that encourage a park-once approach that minimizes the total demand for parking.
- Create a circulation network that is interconnected with the regional transportation system.
- Create a network of multi-use and hiking trails along Tesoro Viejo's open space corridors that complements the walkways and paths along the community's streets in order to encourage walking and bicycling for transportation and recreation.

²¹ Based on the land uses specified for the Proposed Project, the URBEMIS 2007 model applies a 16.78 percent trip reduction for mixed-use development and a 13.68 percent trip reduction for pedestrian/bicycle friendly design measures. The reduction in trips is responsible for a 46 percent decrease in ROG, a 51 percent reduction in NO_x, a 50 percent reduction in CO, a 50 percent reduction in SO₂, and a 52 percent reduction in PM₁₀.

The Proposed Project's design features would encourage pedestrian activity and safety, which would reduce the emissions from the operation of motor vehicles by employees and/or visitors to the Project Site. Trip generation rates in the project transportation impact analysis report, included in its entirety as Appendix H of this EIR, were used to determine operational emissions and account for the existing environmental characteristics of the Project Site and vicinity that may help to further encourage non-motor-vehicle transportation by employees of the Proposed Project.

The results of the URBEMIS 2007 calculations for the yearly operational emissions of the Proposed Project are presented in Table 4.3-4 (Proposed Project Yearly Operational Emissions), which takes into consideration the project design features listed above for project trip reductions, as well as the final trip generation rates for the Proposed Project in the Transportation Impact Analysis Report. Data in Table 4.3-4 reflect output data from the URBEMIS 2007 calculations. Calculation data sheets are provided in Appendix C of this EIR.

<i>Emissions Source</i>	<i>Emissions in Tons per Year</i>				
	<i>ROG</i>	<i>NO_x</i>	<i>CO</i>	<i>SO_x</i>	<i>PM₁₀</i>
Water and Space Heating	1.18	15.55	8.35	0.00	0.03
Landscape Maintenance	3.57	0.19	20.14	0.00	0.05
Consumer Products	46.34	—	—	—	—
Architectural Coatings	15.94	—	—	—	—
Motor Vehicles	53.52	47.06	436.70	0.56	93.55
Subtotal	143.90	64.00	535.16	0.76	104.53
SJVAPCD Thresholds (tons per year)	10	10	—	—	—
Significant Impact?	Yes	Yes	No	No	No
Level Following Mitigation/Reduction (tons per year)	117.86	39.87	315.69	0.48	56.07
Mitigation/Reduction (%)	18%	38%	41%	37%	46%
ISR Reduction Threshold (%)	N/A	33%	N/A	N/A	50%
Meets ISR Thresholds?	N/A	Yes	N/A	N/A	No

SOURCE: Community Design + Architecture 2007, amended May 2012 (Specific Plan Project Description) (calculation sheets are provided in Appendix C)

— = Thresholds for emissions are not provided as they have not been established by the SJVAPCD.

As shown, operation of the Proposed Project would generate emissions that exceed the thresholds of significance recommended by the SJVAPCD for ROG and NO_x. The exceedance of the SJVAPCD thresholds for these two criteria pollutants is primarily due to the increase in motor vehicles traveling to and from the Project Site. The introduction of off-gassing consumer products is also a significant source of emissions. In order to reduce the impacts from ROG and NO_x, mitigation measure MM4.3-3 would be implemented, in accordance with the requirements of the SJVAPCD's Indirect Source Review rule. The Indirect Source Review rule requires projects to achieve a 33.3 percent operational emissions reduction for NO_x and a 50 percent operational reduction for PM₁₀; for all exceedances, the developer may be required to pay in lieu fees.

MM4.3-3

Prior to issuance of grading permits, the Project Applicant shall enter into an Air Quality Mitigation Agreement with the SJVAPCD to reduce net-ROG, NO_x and PM₁₀ emissions impacts from operation of the Proposed Project. The Project Applicant shall propose reduction measures that would achieve the following emission reduction rates:

- *NO_x Emissions: The project must provide a reduction of 33.3 percent of the project's operational baseline NO_x emissions over a period of ten years*
- *PM₁₀ Emissions: The project must provide reduction of 50 percent of the project's operational baseline PM₁₀ emissions over a period of ten years*
- *These requirements can be met through any combination of on-site emission reduction measures or off-site fees (see MM4.3-2(b)), including, but not limited to, the replacement of old diesel engines within the Valley.*

Implementation of mitigation measure MM4.3-3 would help reduce operational emissions, but not below the SJVAPCD thresholds for PM₁₀. While mitigation measures and project design features are proposed by the Project Applicant and modeled in URBEMIS 2007 would result in emissions reductions—low VOC coating/paint for interior and exterior applications, mixed-use development, pedestrian amenities, and local-serving retail—they would not be sufficient to reduce PM₁₀ emissions according to the specified ISR reduction percentages. The types of mitigation considered in the URBEMIS model are limited; therefore, the SJVAPCD may be able to propose additional measures to achieve the required reductions. If no additional measures are available, the Project Applicant would be required to pay an in lieu fee according to MM4.3-3. Implementation of the mitigation options required by the Indirect Source Rule would help reduce operational emissions and would be consistent with the AQMPs and therefore, these emissions would not impede attainment or maintenance of ambient air quality standards.

Operational Impacts Associated with Interim Use of Minarets High School

It is anticipated that there would be vehicle trips associated with students traveling between the Project Site and Minarets High School until such time as an on-site high school is constructed and operational. Such potential trips are estimated in the Revised Traffic Impact Study on the assumption that all trips are by private vehicle, resulting in the worst-case impacts. Resulting emissions were calculated for the Interim Year 2020 scenario, which includes background traffic in 2020 (e.g., cumulative projects) with student-generated trips associated with the Proposed Project (generated by a total of 2,595 residential units, or 50 percent, which correlates to 472 high-school students) as compared to the same traffic levels without the Proposed Project in the Year 2020. By 2021, it is assumed that an on-site high school (at Tesoro Viejo) would be constructed and operational. Table 4.3-4(a) (Interim 2020 Operational Emissions) shows the proposed emissions for the Interim Year 2020 Cumulative Plus Project Plus Student-Related Traffic scenario. The year 2020 was evaluated because cumulative traffic volumes would be greater in this year as compared to the Interim Year 2015 Cumulative Plus Project Plus Student-Related Traffic scenario.

Table 4.3-4(a) Interim 2020 Operational Emissions [New]

<u>Emissions Source</u>	<u>Emissions in Tons per Year</u>				
	<u>ROG</u>	<u>NO_x</u>	<u>CO</u>	<u>SO_x</u>	<u>PM₁₀</u>
<u>2025 Residential Mobile Sources</u>	<u>10.6</u>	<u>6.2</u>	<u>68.62</u>	<u>0.07</u>	<u>10.75</u>
<u>2025 Nonresidential Mobile Sources</u>	<u>42.92</u>	<u>40.86</u>	<u>368.08</u>	<u>0.49</u>	<u>82.8</u>
<u>Total 2025 Mobile Source Emissions</u>	<u>53.52</u>	<u>47.06</u>	<u>436.7</u>	<u>0.56</u>	<u>93.55</u>
<u>Total Area Source</u>	<u>90.38</u>	<u>16.94</u>	<u>98.46</u>	<u>0.2</u>	<u>10.98</u>
<u>2020 Residential Mobile Sources</u>	<u>5.30</u>	<u>3.10</u>	<u>34.31</u>	<u>0.04</u>	<u>5.38</u>
<u>2020 Nonresidential Mobile Sources</u>	<u>10.73</u>	<u>10.22</u>	<u>92.02</u>	<u>0.12</u>	<u>20.70</u>
<u>2020 Off-Site High School Mobile Sources</u>	<u>1.45</u>	<u>2.08</u>	<u>13.47</u>	<u>0.01</u>	<u>1.07</u>
<u>Total 2020 Mobile Source Emissions</u>	<u>17.48</u>	<u>15.40</u>	<u>139.80</u>	<u>0.17</u>	<u>27.15</u>
<u>Total Area Source</u>	<u>45.19</u>	<u>8.47</u>	<u>49.23</u>	<u>0.10</u>	<u>5.49</u>
<u>Total Operational</u>	<u>62.67</u>	<u>23.87</u>	<u>189.03</u>	<u>0.27</u>	<u>32.64</u>
<u>SJVAPCD Thresholds (tons per year)</u>	<u>10</u>	<u>10</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>Significant Impact?</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>No</u>
<u>Level Following Mitigation/Reduction (tons per year)</u>	<u>55.48</u>	<u>17.60</u>	<u>131.53</u>	<u>0.20</u>	<u>20.11</u>
<u>Mitigation/Reduction Percentage</u>	<u>11%</u>	<u>26%</u>	<u>30%</u>	<u>27%</u>	<u>38%</u>
<u>ISR Reduction Threshold (%)</u>	<u>N/A</u>	<u>33%</u>	<u>N/A</u>	<u>N/A</u>	<u>50%</u>
<u>Meets ISR Thresholds?</u>	<u>N/A</u>	<u>No</u>	<u>N/A</u>	<u>N/A</u>	<u>No</u>
<u>SOURCE: Atkins 2012</u>					
<u>= = Thresholds for emissions are not provided as they have not been established by the SJVAPCD.</u>					

During the interim year (2020), while students would travel to Minarets High School, emissions of NO_x would increase to the point where mitigation would not meet the ISR reduction threshold. However, once the on-site high school is established, NO_x emissions from mobile sources would be reduced and the ISR reduction threshold would be achieved

Although implementation of mitigation measure MM4.3-3 would achieve reductions in emissions governed under the Indirect Source Rule, because emissions of ROG and NO_x would exceed the thresholds established by the SJVAPCD, this impact would be considered **significant and unavoidable**, and this significant and unavoidable impact was also documented in the Rio Mesa Area Plan EIR.

Threshold	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?
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Impact 4.3-4 **Construction of the Proposed Project would not result in a cumulatively considerable net increase of criteria pollutants (PM₁₀, and precursors of ozone—ROG and NO_x) for which the Proposed Project region is in nonattainment under an applicable federal or State ambient air quality standard. This is considered a *less-than-significant* impact. However, implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b) would further reduce this less-than-significant impact.**

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or State nonattainment pollutant. Because the Valley is currently in nonattainment for ozone (for which ROG and NO_x are precursors) and PM₁₀ under national and State standards, projects could cumulatively exceed an air quality standard or contribute to an existing or projected air quality exceedance. With regard to determining the significance of the Proposed Project contribution, the SJVAPCD neither recommends quantified analyses of cumulative construction or operational emissions, nor provides separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Instead, the SJVAPCD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project specific impacts; that is, individual development projects that generate construction or operational emissions that exceed the SJVAPCD-recommended annual thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Valley is in nonattainment.

As discussed previously in Impact 4.3-2 and shown in Table 4.3-3 through Table 4.3-3(c), construction-related emissions associated with project development would not exceed SJVAPCD significance thresholds. The SJVAPCD has adopted a set of PM₁₀ Fugitive Dust Rules collectively called Regulation VIII. Several components of Regulation VIII specifically address fugitive dust generated by construction related activities. The SJVAPCD has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures required by the SJVAPCD under Regulation VIII will constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered *less than significant*. Additionally, mitigation measures MM4.3-2(a) and MM4.3-2(b) serve to further reduce the less than significant construction related impact.

Impact 4.3-5 **Operation of the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants (PM₁₀, and precursors of ozone—ROG and NO_x) for which the Proposed Project region is in nonattainment under an applicable federal or State ambient air quality standard. This is considered a potentially significant impact. Implementation of mitigation measures MM4.3-2(a), MM4.3-2(b), and MM4.3-3 would reduce the impact of operations, but not to a less-than-significant level. Therefore, this impact would be considered *significant and unavoidable*.**

The SJVAPCD recognizes that construction equipment also emits carbon monoxide and ozone precursor emissions. However, the SJVAPCD has determined that these emissions may cause a significant air quality impact only in the cases of very large or very intense construction projects (SJVAPCD 2002, p. 24, footnote 33). Emissions of ozone precursors (ROG and NO_x) from exhaust and other construction activities are included by the SJVAPCD in the emission inventory that is the basis for regional air quality planning. Implementation of mitigation options required by the Indirect Source Rule would help reduce construction emissions and would be consistent with the AQMPs, and therefore, these emissions would not impede attainment or maintenance of ambient air quality standards.

As discussed in Impact 4.3-3 and as shown on Table 4.3-4 and Table 4.3-4(a), operation of the Proposed Project would generate emissions that exceed the thresholds of significance recommended by the SJVAPCD for ROG and NO_x. Because the Valley is in nonattainment for ozone, and both ROG and NO_x are precursors of ozone, the Proposed Project would make a cumulatively considerable contribution to ozone emissions.

Implementation of mitigation measures MM4.3-2(a), MM4.3-2(b), and MM4.3-3 would help reduce operational emissions, but not to a less-than-significant level. Because no feasible mitigation beyond what is proposed for Impact 4.3-3 is available to further reduce these contributions to levels below SJVAPCD thresholds, this impact is considered to be *significant and unavoidable* and this significant and unavoidable impact was also documented in the Rio Mesa Area Plan EIR.

For clarification, and as evident by the above analysis, this threshold essentially repeats the analysis provided in Impact 4.3-2 and Impact 4.3-3 and applies it to the cumulative condition, whereby any project that would individually that would exceed the SJVAPCD recommended thresholds for project-specific impacts is considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Valley is in nonattainment.

Threshold	Would the project expose sensitive receptors to substantial pollutant concentrations?
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Impact 4.3-6 **Operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations due to project-generated toxic air emissions. This is considered a *less-than-significant* impact.**

There are several potential sources of TACs from the uses allowed in the Specific Plan, including gasoline-dispensing facilities, drycleaners, light industry uses, restaurants and Diesel Particulate Matter (DPM) from diesel-fueled vehicles operating along SR-41. The ARB recently categorized diesel

particulate matter as a toxic air contaminant. Diesel particulate differs from other toxic air contaminants in that it is generated primarily by mobile sources. The risk to sensitive receptors associated with exposure to this toxic air contaminant depends upon a number of factors, including the wind direction, wind speed, concentration of the diesel particulate matter, the length of exposure, the existing concentration of diesel particulate matter in the air, and the distance from the source. Potential health risks from vehicle diesel exhaust are potentially significant when sensitive uses are located in very close proximity to sites with substantial truck or bus traffic, such as distribution centers.

The schools and residential uses of the Proposed Project would be considered sensitive receptors with regards to TACs, including DPM. Tesoro Viejo's two to three public elementary schools will be located in the "Five Points"/Central neighborhood and either or both the Town Center and North Canal neighborhood. A ~~potential high school campus site is tentatively reserved in the Town Center area, as well as an additional elementary school should student enrollment justify the need. The high school is currently proposed for the Town Center neighborhood.~~ As shown in Figure 3-5 (Tesoro Viejo Neighborhood Map), the closest school to SR-41 would be located in the Town Center neighborhood, which would be at least 2,400 feet east of SR-41. According to the SJVAPCD, providing an adequate distance, or buffer zone, between the source of emissions and the receptor(s) will mitigate potential problems in many cases (SJVAPCD 2002). Additionally, Section 39003 of the Education Code, generally will not allow the approval of new schools located within ¼ mile of potential sources of hazardous emissions. Because the proposed schools would be located at 2,400 feet from SR-41, impacts from TACs generated by traffic along SR-41 would be less than significant.

Land uses such as drycleaner, as well as the service stations, light industrial uses, and restaurants would also emit TACs. These facilities would require permits from the SJVAPCD and controls would be installed in accordance with SJVAPCD requirements. As stated in the GAMAQI, facilities and equipment that require permits from the SJVAPCD are screened for risks from toxic emissions. Most new stationary sources, if they emit over two pounds of pollutants per day, will be subject to Best Available Control Technology (BACT) in accordance with SJVAPCD New Source Review Rule and to the New Source Performance Standards (NSPS). If a significant impact remains after BACT is implemented, the permit may not be issued unless it meets the discretionary approval criteria of the SJVAPCD Risk Management Policy for Permitting New and Modified Sources (SJVAPCD 2002).

Construction and operation of the temporary classrooms at Minarets High School would temporarily increase the capacity of the existing school, which is in Phase 1 of a two-phase development program; however, it would not create new or different receptor types at the site.

Because the proposed schools associated with Tesoro Viejo would be located at least 2,400 feet from SR-41, and the light industrial and commercial uses that would potentially emit TACs would be regulated, subject to NSPS and be required to implement BACT if the facility emits over two pounds of pollutants per day impacts, impacts related to the exposure of sensitive receptors to TACs would be considered *less than significant*. No mitigation is required.

Impact 4.3-7 Construction activities associated with site development could cause emissions of dust or contaminants from equipment exhaust that could expose sensitive receptors to pollutant concentrations. This would be a temporary, but potentially significant impact. However, implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b) would reduce this impact to a *less-than-significant* level.

As discussed previously in Impact 4.3-2 and shown in Table 4.3-3 through Table 4.3-3(c), construction-related emissions associated with project development would not exceed SJVAPCD significance thresholds. The SJVAPCD has adopted a set of PM₁₀ Fugitive Dust Rules collectively called Regulation VIII. Several components of Regulation VIII specifically address fugitive dust generated by construction related activities. The SJVAPCD has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures required by the SJVAPCD under Regulation VIII will constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less than significant.

The SJVAPCD recognizes that construction equipment also emits carbon monoxide and ozone precursor emissions. However, the SJVAPCD has determined that these emissions may cause a significant air quality impact only in the cases of very large or very intense construction projects (SJVAPCD 2002, p. 24, footnote 33). Emissions of ozone precursors (ROG and NO_x) from exhaust and other construction activities are included by the SJVAPCD in the emission inventory that is the basis for regional air quality planning. Implementation of the SJVAPCD's control measures and mitigation measures MM4.3-2(a) and MM4.3-2(b) would ensure that this impact remains *less than significant*.

Impact 4.3-8 Operation of the Proposed Project would generate increased local traffic volumes, but would not expose sensitive receptors to substantial localized CO concentrations. This is considered a *less than significant* impact.

Year 2025 (Buildout) Traffic Scenario

The CALINE4 model was used to predict future CO concentrations at 4 study area intersections evaluated in the Year 2025 (Buildout) traffic impact analysis that operate under existing peak hours at Level of Service (LOS) E or F in 2007, as shown in Table 5 (Existing Peak Hour Intersection Levels of Service) of the 2008 Transportation Impact Analysis. For existing conditions in Year 2007, the results of the CO predicted concentrations are presented in Table 4.3-2 for representative receptors located in close proximity to each intersection.

For consistency with the Rio Mesa Area Plan LOS D policy, it was assumed that major roadway network improvements are projected to occur by 2025 to support envisioned land use development as well as to address existing deficiencies. Therefore, for the Cumulative (2025) Without Project Scenario, roadway and intersection lane configurations that satisfy LOS D (or better) were assumed. Similarly, all study intersections were projected to operate within an acceptable level of service range (i.e., LOS D or better) during the Cumulative (2025) With Project Scenario. As all the study intersections (2025) are expected to operate at a LOS D or better, those intersections would produce lower CO concentrations than under the existing conditions.

Based on the analysis of existing conditions in Year 2007, the expected project CO concentrations are presented in Table 4.3-5 (Future [2025] With Proposed Project Localized Carbon Monoxide Concentrations).

Table 4.3-5 Future (2025) With Proposed Project Localized Carbon Monoxide Concentrations [Revised]

Intersection	Maximum 1-Hour CO Concentrations in Parts per Million ^a	Maximum 8-Hour CO Concentrations in Parts per Million ^b	Significant Impact?
SR-41/Avenue 15	Less than 6.2	Less than 7.82 <u>6.58</u>	No
SR-41/Road 204	Less than 6.3	Less than 7.92 <u>6.65</u>	No
SR-41/Avenue 12	Less than 6.3	Less than 7.92 <u>6.65</u>	No
Children's Boulevard/Lanes Bridge Drive	Less than 6.2	Less than 7.82 <u>6.58</u>	No

SOURCE: Fehr & Peers 2007 (calculation sheets are provided in Appendix C)

^a National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

^b Federal 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

As shown, future 1-hour and 8-hour CO concentrations near these intersections would not exceed federal or State ambient air quality standards. Decreases in CO concentrations from existing conditions may be attributable to reduced vehicle emissions factors for CO resulting from anticipated improvements in emissions technologies projected for the future by the ARB. The intersection of SR-41 and Avenue 15 and the intersection of SR-41 and Road 204 both represent the highest 1-hour CO concentrations at less than 6.3 ppm and the 8-hour CO concentration at less than ~~7.92~~6.65 ppm. As all other intersections are expected to operate at LOS D or better, CO concentrations at these intersections would be less than those shown in Table 4.3-5 (Future [2025] With Proposed Project Localized Carbon Monoxide Concentrations). Therefore, CO hotspots would not occur near these intersections in the future, and the contribution of project traffic-related CO at these intersections would be *less than significant*. No mitigation is required.

Existing 2011 Plus Project (Years 2015, 2020, and 2025) and Interim Year (Years 2015 and 2020) Traffic Scenarios

The exposure of sensitive receptors to substantial pollutant concentrations is determined by localized emission concentrations. Because of the localized nature of the impacts, changes to the roadway network can result in different impacts. Therefore, roadway configurations and distribution of traffic for the Existing (2011) and Interim Year (Cumulative, 2015 and 2020) Plus Project scenarios that differ from the future (2025) scenario have the potential to result in the exposure of sensitive receptors to substantial pollutant concentrations of carbon monoxide (also called CO hotspots) that were not identified in the 2008 Final EIR. The 2008 Final EIR did not identify any CO hotspots (e.g., there were no impacts that resulted in the exposure of sensitive receptors to substantial pollutant concentrations of CO).

While the threshold is defined as the exposure of sensitive receptors to substantial pollutant concentration, it is more specifically defined as projects that cause localized CO concentrations to exceed the federal and state standards (refer to Table 4.3-6) or projects that contribute substantially to localized CO concentrations that exceed these standards without the Project. Typical sensitive receptors are

defined as schools, playgrounds, childcare centers, athletic facilities, hospitals, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. These are all uses that could be occupied by individuals with a low tolerance for air quality pollutants such that negative health impacts could occur. These individuals include, but are not necessarily limited to, children, seniors, the physically ill, and/or those engaging in active physical activity. Currently, the nearest sensitive receptors are residential uses located to the west of the Project, across SR-41, between Avenue 15 and Avenue 14, approximately 400 feet to the west of the Project Site.

The level of service (LOS) for roadways is used to describe the traffic flow. As the LOS worsens, delays lengthen and cars idle at intersections for longer periods of time and emit greater concentrations of pollutants, specifically carbon monoxide. Therefore, as the LOS of roadways worsen the potential for receptors to be exposed to greater concentrations of CO increases. According to the SJVAPCD GAMAQI,²² intersections operating at LOS E or F are considered to have the potential to create a CO hotspot. Therefore, for the purposes of this analysis, only intersections shown to operate at LOS E or F are analyzed.

LOS and intersection traffic information was taken from the revised traffic study.²³ The CALINE4 model was used to predict CO concentrations at the only three mitigated intersections shown to operate at LOS E or F during the AM and/or PM peak hours of the Existing (2011) Plus Project and/or the Interim (Cumulative, 2015 or 2020) Plus Project scenarios. Because the CO analysis is only conducted for those intersections that operate at LOS E or F (after mitigation), not every traffic scenario nor both the AM and PM peak hours are included in Table 4.3-6 (Existing [2011] Plus Project and Interim [Cumulative, 2015 or 2020] Plus Project Localized Carbon Monoxide Concentrations) for each of the three intersections. Based on the analysis of these three intersections, the expected Project CO concentrations are presented in Table 4.3-6.

Table 4.3-6 Existing (2011) Plus Project and Interim (Cumulative, 2015 or 2020) Plus Project Localized Carbon Monoxide Concentrations [New]

<i>Intersection</i>	<i>AM/PM</i>	<i>1-Hr Conc. (ppm)</i>	<i>8-Hr Conc. (ppm)</i>	<i>Significant?</i>
State Standards		20^a	9^b	
<u>Interim 2015 Plus Project—Road 36/Avenue 15</u>	<u>PM</u>	<u>2.7</u>	<u>2.5</u>	<u>No</u>
<u>Interim 2020 Plus Project—Road 36/Avenue 15</u>	<u>AM</u>	<u>2.7</u>	<u>2.5</u>	<u>No</u>
<u>Interim 2020 Plus Project—Road 36/Avenue 15</u>	<u>PM</u>	<u>2.7</u>	<u>2.5</u>	<u>No</u>
<u>Existing (2011) Plus 2025—SR-41 / Road 204</u>	<u>AM</u>	<u>4.9</u>	<u>4.1</u>	<u>No</u>
<u>Existing (2011) Plus 2025—SR-41 / Road 204</u>	<u>PM</u>	<u>5.9</u>	<u>4.8</u>	<u>No</u>
<u>Interim 2020 Plus Project—SR-41/ Avenue 12</u>	<u>AM</u>	<u>3.6</u>	<u>3.1</u>	<u>No</u>
<u>Interim 2020 Plus Project—SR-41/ Avenue 12</u>	<u>PM</u>	<u>3.8</u>	<u>3.3</u>	<u>No</u>

SOURCE: VRPA Technologies (2012); Atkins (2012) (calculation sheets are provided in Attachment B).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. Federal 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

²² San Joaquin Valley Unified Air Pollution Control District, *Guide for Assessing and Mitigating Air Quality Impacts* (revised January 10, 2002).

²³ VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (February 24, 2012).

As shown, 1-hour and 8-hour CO concentrations near these intersections would not exceed federal or state ambient air quality standards under the identified Existing (2011) Plus Project or Interim (Cumulative, 2015 or 2020) Plus Project scenarios. All other intersections were shown to operate at LOS D or better; therefore, CO concentrations at these intersections would be less than those shown in Table 4.3-6, and also would not exceed federal or state ambient air quality standards. The contribution of traffic-related CO at all intersections would be *less than significant*, and no mitigation is required.

Interim Year 2015 and 2020 Cumulative Plus Project and Student-Related Traffic Scenario

Because there would be vehicle trips associated with students traveling between the Project Site and Minarets High School until such time as an on-site high school is constructed and operational, there would be a corresponding change in traffic distribution patterns associated with those new trips as compared to the trip distribution patterns that were assumed with an on-site high school in place. During the 2015 and 2020 interim year scenarios that included school-generated traffic, two intersections were demonstrated to operate at LOS E. Table 4.3-7 (Interim Year Localized Carbon Monoxide Concentrations) shows the anticipated CO concentrations that would result from the cumulative plus Project and school-related traffic scenarios for those intersections in the year 2015 and 2020. As shown, both the 1-hour and 8-hour CO concentrations near these intersections would not exceed the federal and state ambient air quality standards.

Table 4.3-7 Interim Year Localized Carbon Monoxide Concentrations [New]

<u>Intersection</u>	<u>AM/PM</u>	<u>1-Hr Conc. (ppm)</u>	<u>8-Hr Conc. (ppm)</u>	<u>Significant?</u>
<u>State Standards</u>		<u>20^a</u>	<u>9^b</u>	
<u>Interim 2015 + School SR-41/Avenue 15</u>	<u>AM</u>	<u>3.2</u>	<u>2.9</u>	<u>No</u>
<u>Interim 2020 + School Road 200/Outback Industrial Way</u>	<u>AM</u>	<u>2.8</u>	<u>2.6</u>	<u>No</u>

SOURCE: VRPA Technologies (2012); Atkins (2012) (calculation sheets are provided in Attachment B).

a. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

b. Federal 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

Therefore, CO hotspots would not occur near the intersections of SR-41/Avenue 15 or Road 200/Outback Industrial Way in the future, and the contribution of Project traffic-related CO at these intersections would be *less than significant*. No mitigation is required.

Threshold	Would the project create objectionable odors affecting a substantial number of people?
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Impact 4.3-9 Construction and operation of the Proposed Project would not create objectionable odors affecting a substantial number of people. This is considered a *less-than-significant* impact.

Objectionable odors are a localized phenomenon and are confined to the vicinity of the emitter of the odor. Construction activities do not usually emit offensive odors. Although construction activities occurring in association with the Proposed Project could generate airborne odors associated with the operation of construction vehicles (i.e., diesel exhaust) and the application of interior and exterior

architectural coatings, these emissions would only occur during daytime hours, would generally be restricted to the immediate vicinity of the construction site and activity, and would not affect a substantial number of people.

Offensive odors are usually associated with land uses that include agriculture, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Potential operational airborne odors could result from cooking activities associated with new restaurants. However, these odors would be similar to residential and other future restaurant uses in the vicinity and would be confined to the immediate vicinity of the new buildings.

The other potential source of odors would be new trash receptacles within the retail and office development. Trash receptacles within the project area will be required to be enclosed and have lids that enable convenient collection and loading and will be emptied on a regular basis, thus, minimizing potential odors from the used of trash receptacles.

Sewer (or wastewater) service to the majority of the Project Site would include a pipeline system, trunk collection lines, force-mains, pumping stations, and a tertiary-level treatment/reclamation facility, as well as a reclaimed wastewater distribution system, including pumps and purple pipelines. The permanent wastewater treatment plant would be constructed in increments as development occurs. An interim treatment plant may be constructed at the location of the lift station on the south side of Road 204, east of Rio Mesa Boulevard, until development warrants the construction of a permanent treatment plant. The easternmost area planned for very low-density residential and recreational purposes (just west of the San Joaquin River) would have its own septic system. The remainder of the Tesoro Viejo project's wastewater would be conveyed to the proposed permanent treatment plant to be located north of Avenue 14, and east of the SR-41.

Neither construction and operation of portable classrooms on the Minarets High School site nor construction of the recharge basins at the Project Site would result in any odor emissions that are different or more substantial than those associated with full Project buildout or existing high school operations.

Because the trash receptacles associated with the Proposed Project commercial and retail operations would be covered and regularly collected and the wastewater treatment facility would be sufficiently buffered from residential land uses, impacts relating to objectionable odors would be considered *less than significant*. No mitigation is required.

4.3.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for cumulative air quality impacts is the San Joaquin Valley Air Basin (Valley), which is approximately 250 miles long and averages 35 miles wide. As discussed in Impact 4.3-4, the significance of cumulative air quality impacts is determined according to the project-specific impact methodology recommended by the SJVAPCD.

With regard to impacts related to the exposure of sensitive receptors to substantial toxic pollutant concentrations and odors, because these impacts are site-specific and localized, the geographic context for this analysis is the Project Site.

Threshold	Would the project conflict with or obstruct implementation of the applicable air quality plan?
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Cumulative development could result in a significant impact in terms of conflicting with, or obstructing implementation of the AQMPs. As discussed in Impact 4.3-1, growth that is considered to be inconsistent with the AQMPs could interfere with attainment of federal or State ambient air quality standards because this growth, and programs and standards developed to address the Valley-wide effects of this growth, are not included in the projections used in the formulation of the AQMP. Implementation of the mitigation options required by the Indirect Source Rule would help reduce operational emissions and would be consistent with the AQMPs and therefore, these emissions would not impede attainment or maintenance of ambient air quality standards. Therefore, the cumulative impact of the Proposed Project would be considered *less than significant*.

Threshold	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?
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As described in Impact 4.3-2, with implementation of mitigation measures MM4.3-2(a) and MM4.3-2(b), the Proposed Project’s construction emissions would be reduced to levels considered less than significant. The SJVAPCD has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures required by the SJVAPCD under Regulation VIII will constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less-than-significant. Therefore, the Proposed Project construction emissions would not be cumulatively considerable, and this impact would be *less than significant*.

As previously described, the SJVAPCD recommends that individual projects that exceed the SJVAPCD recommended thresholds for project-specific impacts be considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Valley is in nonattainment. As described under Impact 4.3-3, operation of the Proposed Project would result in emissions of ROG and NO_x that would exceed the thresholds established by the SJVAPCD. As discussed above, the cumulative impact is significant, the project’s contribution is cumulative considerable, and the cumulative impact would be *significant and unavoidable*.

Threshold	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?
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With regard to determining the significance of the Proposed Project’s contribution to a cumulatively considerable net increase of criteria pollutants, SJVAPCD recommends that individual projects that exceed the SJVAPCD recommended thresholds for project-specific impacts are considered to cause a

cumulatively considerable increase in emissions for those pollutants for which the Valley is in nonattainment. As discussed previously under Impact 4.3-2 (and repeated in Impact 4.3-4), construction of the Proposed Project would cause a net increase in annual construction-related emissions. The SJVAPCD has adopted a set of PM₁₀ Fugitive Dust Rules collectively called Regulation VIII. Several components of Regulation VIII specifically address fugitive dust generated by construction related activities. The SJVAPCD has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures required by the SJVAPCD under Regulation VIII will constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less-than-significant.

The Valley is currently in nonattainment for ozone (for which ROG and NO_x are precursors) and PM₁₀ under national and State standards under national standards. Construction-related emissions of ROG and NO_x under the Proposed Project would constitute a cumulatively considerable contribution to this significant cumulative impact. Implementation of the mitigation options required by the Indirect Source Rule would help reduce operational emissions and would be consistent with the AQMPs and therefore, these emissions would not impede attainment or maintenance of ambient air quality standards. Thus, the cumulative impact of the Proposed Project would be considered *less than significant*.

As discussed in Impact 4.3-3 (and repeated in Impact 4.3-4), operation of the Proposed Project would generate emissions that exceed the thresholds of significance recommended by the SJVAPCD for ROG and NO_x. This would be a significant cumulative impact. Because the Valley is in national and State nonattainment for ozone (for which ROG and NO_x are precursors), operation of the Proposed Project would make a cumulatively considerable contribution to ozone emissions. Implementation of mitigation measure MM4.3-3 would help reduce this cumulative impact, but not to a less-than-significant level. Implementation of the mitigation options required by the Indirect Source Rule would help reduce operational emissions and would be consistent with the AQMPs and therefore, these emissions would not impede attainment or maintenance of ambient air quality standards. The cumulative impact of the Proposed Project for operational emissions of criteria pollutants or ozone precursors would be *significant and unavoidable*.

As previously mentioned, this threshold essentially repeats the analysis provided in Impact 4.3-2 and Impact 4.3-3, and applies it to the cumulative condition, whereby any individual projects that exceed the SJVAPCD recommended thresholds for project-specific impacts is considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Valley is in nonattainment.

Threshold	Would the project expose sensitive receptors to substantial pollutant concentrations?
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Development projects within the San Joaquin Air Basin have the potential to expose new sources of TACs to existing sensitive receptors, or place sensitive receptors near emitters of TACs, (e.g., new residential uses adjacent to freeways). Projects that include the development of new schools would be required to comply with Section 39003 of the Education Code, and generally all new schools would be located at least ¼ mile from potential sources of hazardous emissions. Additionally, projects that could potentially expose sensitive receptors to substantial pollutant concentrations would also undergo

SJVAPCD review, and would be required to mitigate so that sensitive receptors would not be exposed to substantial pollution levels. Any new source of TACs would be required to undergo the proper review, permitting and control process that has been established by the SJVAPCD, including the New Source Review Rule, which would require new sources (drycleaners, restaurants, manufacturing uses, etc.) implement BACT to reduce the emissions of harmful pollutants prior to receiving permits to operate from the SJVAPCD. Compliance with the rules and requirements governing the emissions of TACs and location of new receptors would ensure that the cumulative impact from new development would remain less than significant. Because the Proposed Project's schools would be located at least 2,400 feet from SR-41, and the land uses associated with TAC emissions would be required to apply for operating permits from the SJVAPCD and would be subject to the implementing BACT in accordance with SJVAPCD New Source Review Rule, the Proposed Project would not result in cumulatively considerable contribution, and this impact would be considered *less than significant*.

With regard to construction, the Proposed Project would not expose sensitive receptors to substantial concentrations of ROG or NO_x, but could expose sensitive receptors to concentrations PM₁₀ which would result in a significant, localized cumulative impact. The SJVAPCD has adopted a set of PM₁₀ Fugitive Dust Rules collectively called Regulation VIII. Several components of Regulation VIII specifically address fugitive dust generated by construction related activities. The SJVAPCD has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures required by the SJVAPCD under Regulation VIII will constitute sufficient mitigation to reduce PM₁₀ impacts to a level considered less-than-significant.

Future projects could result in long-term future exposure of sensitive receptors to substantial pollutant concentrations. CO levels are projected to be lower in 2025 than in 2007 due to improvements in vehicle emission rates predicted by the ARB. As discussed in Impact 4.3-8, the Proposed Project would not contribute to existing violations of the federal and State 1-hour or 8-hour ambient air quality standard for CO. The future CO concentrations at the study intersections in 2025 are based on the projected future traffic volumes from the study intersections contained in the project transportation impact analysis, and take into account emissions from the Proposed Project, future ambient growth, and cumulative as discussed in the Transportation Impact Analysis Report. As shown in Table 4.3-56 and Table 4.3-7, future 1-hour CO concentrations and future 8-hour CO concentrations would not exceed federal and State air quality standards for CO concentrations. There would be a less-than-significant cumulative impact. Further, because CO concentrations would not exceed federal and State air quality standards for CO concentrations, CO hotspots would not occur near these intersections in the future, and the Proposed Project would not result in a cumulatively considerable contribution to this cumulative impact. Therefore, the cumulative impact of the Proposed Project would be *less than significant*.

Threshold	Would the project create objectionable odors affecting a substantial number of people?
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Odors resulting from the construction of projects within the air basin would result from airborne odors associated with the operation of construction vehicles (e.g., diesel exhaust) and the application of interior and exterior architectural coatings. However, these emissions would only occur during daytime hours,

would generally be restricted to the immediate vicinity of the construction site, and would be temporary. The cumulative construction impact with respect to odors would be less than significant. As discussed in Impact 4.3-9, although construction activities occurring in association with the Proposed Project (including the construction and operation of the portable classrooms at Minarets High School, construction of the recharge basins on the Project Site, and construction of the 8-mile pipeline) could generate odors, they too would only occur during daytime hours, would generally be restricted to the immediate vicinity of the construction site, and would be temporary. In addition, during the earlier phases of the project, any potential odor impacts would not affect a substantial number of people. The Proposed Project would not considerably contribute to a construction-related odor impact, and the cumulative impact of the Proposed Project would be *less than significant*.

The odor impacts resulting from cumulative commercial, retail, office, and institutional projects within the air basin are not expected to affect a substantial amount of people, as activities typically associated with these uses do not emit offensive odors and solid waste from these projects would be stored in special areas and in containers. In addition, restaurants are required to have ventilation systems that prevent substantial adverse odor impacts. The cumulative construction impact with respect to odors would be less than significant. For the same reasons as outlined for the cumulative commercial, retail, office, and institutional projects, operational odor impacts are not anticipated. In addition, the wastewater treatment plant would be located as described in Impact 4.3-9 to ensure the establishment of a buffer zone to reduce potential odor impacts. Thus, ~~the~~ Proposed Project would not considerably contribute to an operational odor impact, and the cumulative impact of the Proposed Project would be *less than significant*.

4.3.5 References

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4.4 BIOLOGICAL RESOURCES [REVISED IN PART]

This section of the EIR discusses existing biological resources surrounding and within the Tesoro Viejo Project Site, and evaluates potential impacts on these resources in accordance with impact significance criteria provided in Appendix G of the 2007-CEQA Guidelines. This section has been supplemented for this Revised EIR to evaluate the impacts of an 8-mile-long off-site water pipeline being considered as an alternative water supply source for the Proposed Project, as discussed in detail in Section 3.7.4 of this EIR. The off-site pipeline alternative is planned within the Avenue 15 right-of-way located to the immediate west of the Tesoro Viejo Project Site, and is herein referred to as the “Off-Site Avenue 15 Pipeline” or “Off-Site Pipeline.” While there are other new Project components or impacts, including two new recharge basins and up to fifteen potential portable classrooms at Minarets High School, the biological impacts to these features have previously been analyzed as further described in Impact 4.12-3(a) in Section 4.12 (Public Services and Recreation) and Impact 4.14-1 in Section 4.14 (Utilities and Service Systems). Information on biological resources is based on the *Biological Evaluation Tesoro Viejo Project Site Rio Mesa Planning Area* (Live Oak Associates, Inc. 2005), which is included as Appendix D1 to this EIR; *Waters of the United States Report for the Tesoro Viejo Project Site Rio Mesa Planning Area* (Live Oak Associates, Inc. 2005), which is included as Appendix D2 to this EIR; a field survey conducted by PBS&J in December 2006; the *Biological Evaluation Avenue 15 Pipeline Project* (Live Oak Associates, Inc. 2012), which is included as Appendix D3 to this EIR; and a review of other available data sources as detailed below. Bibliographic entries for reference materials are provided in Section 4.4.5 (References) of this section.

4.4.1 Environmental Setting

The Tesoro Viejo Project Site and Off-Site Avenue 15 Pipeline are located along the boundary between the Great Central Valley and the central Sierra Nevada Foothills Floristic Provinces (Hickman 1993). These broad boundaries (known as ecotones) are often biologically diverse. This portion of extreme eastern Madera County contains a number of unique biotic community types including extensive vernal pool complexes, which are essentially small seasonal wetlands embedded in grassland communities. Many of the plant and animal species associated with vernal pools are endemic (i.e., restricted) to this habitat type and are found nowhere else in the world. The San Joaquin River contributes to the overall ecodiversity of the region and supports Great Valley mixed riparian (i.e., streamside) forest, which is classified by the California Department of Fish and Game (CDFG) as a “sensitive natural community” type.

■ Tesoro Viejo Project Site

The 4,5791,585-acre Project Site is characterized by gently sloping to moderately rolling topography covered by extensive vineyard plantings within the western portion; the landscape along the eastern boundary is characterized by steep slopes and eroded rock bluffs above the San Joaquin River Valley. The Madera Canal and laterals flow through a significant portion of the western part of the Project Site. A series of low-gradient drainages convey agricultural and precipitation runoff, contributing to the hydrology of the San Joaquin watershed.

Locally referred to as Peck Ranch, the Project Site consists of two noncontiguous units. The smaller unit includes the eastern slope of the bluffs occupied by the Sumner Hill Subdivision, located within and adjacent to the bottomlands of the San Joaquin River and the bottomlands themselves. The larger unit is located roughly between State Highway 41 and the Sumner Hill Subdivision. The landscape of land surrounding the Project Site has been highly modified by agriculture, commercial, and residential development. Large areas of rangeland are still present to the north and south of the Project Site. These grasslands contain vernal pools, but vernal pools are absent from the Project Site itself. Any vernal pools historically present, have been eliminated when the land underwent agricultural conversion over the past few decades.

■ Off-Site Avenue 15 Pipeline

The area containing the alignment for the Off-Site Avenue 15 Pipeline consists of the existing paved roadway and maintained earthen road shoulder associated with the southern (eastbound) side of Avenue 15. The topography of the 8-mile-long alignment is flat, with elevations ranging from approximately 430 feet National Geodetic Vertical Datum (NGVD) at the eastern terminus of the alignment to approximately 315 feet NGVD at the western terminus. The alignment would cross two branches of Little Dry Creek, for which intermittent surface flows are uninterrupted and conveyed beneath Avenue 15 through existing bridge culverts. Natural biotic habitats are absent from the area containing the Off-Site Pipeline. Previous grading, import gravel and fill, and asphalt paving have all contributed to substantial modifications of the native landscape of the alignment. Regular vehicular traffic and road maintenance activities present an ongoing disturbance to the existing biological resources.

The alignment for the Off-Site Pipeline is primarily bordered by undisturbed rangeland. Limited sections run adjacent to existing residential and commercial development, as well as agricultural lands. The topography of the surrounding land is slightly undulating, with numerous wetland swales and vernal pools occurring in low lying areas, in addition to the aforementioned branches of Little Dry Creek. Some of the surrounding swales, vernal pools, and sections of Little Dry Creek occur immediately adjacent to Avenue 15 and the disturbed areas proposed for the Off-Site Pipeline alignment.

■ **Vegetation and Plant Communities**

Tesoro Viejo Project Site

Existing biological and wetland resources identified on the Project Site in ~~a~~the technical report prepared by Live Oak Associates, Inc. (LOA) were reviewed prior to ~~a~~the December 2006 field survey. A reconnaissance-level survey of the Project Site was conducted on December 20, 2006, by Christopher Bronny, a PBS&J botanist/biologist. The Project Site was surveyed to document existing biotic resources. Surveys consisted of a combination of driving and periodically stopping to document existing plant communities by walking meandering transects through representative examples of the various vegetative community types present. Particular attention was given to areas containing relatively undisturbed features (e.g., rock outcroppings, unplowed grassland, wetland features).

As detailed in Table 4.4-1 (Vascular Plants of the Tesoro Viejo Project Site), a total of 124 vascular plant species were identified within the Project Site (Hickman 1993). As depicted in Figure 4.4-1 (Biotic Habitat), total of five plant communities were identified on the Project Site: agricultural lands (and associated ruderal habitat) (Mayer and Laudenslayer 1988), nonnative grassland, Great Valley mixed riparian forest, and emergent marsh/Great Valley willow scrub (Holland 1986).

Agricultural lands consisting of vineyards, orchards, row crops, and dry-farmed fields are found primarily in the western portion of the Project Site. The herbaceous understory in these monotypic plantings often contains a high percentage of ruderal (weedy) species. Ruderal habitats typically are dominated by nonnative annual and biennial species (historically, these species were often introduced from European or Asian countries either intentionally or by accident) that thrive on continued disturbance regimes (e.g., mowing, spraying, disking). Plant species observed within these areas included annual bluegrass (*Poa annua*), Johnson grass (*Sorghum halapense*), common purslane (*Portulaca oleraceae*), and red-stemmed filaree (*Erodium cicutarium*).

Nonnative grassland communities are typically dominated by introduced annual grasses, but often contain a high percentage of deep-rooted native perennial forbs (i.e., wildflowers). Plant species observed included ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), oldfield three-awn (*Aristida oligantha*), nit grass (*Gastridium ventricosum*), wild oats (*Avena fatua*), Heermann's tarweed (*Holocarpha heermannii*), prickly lettuce (*Lactuca serriola*), smooth cat's-ear (*Hypochaeris glabra*), crown brodiaea (*Brodiaea coronaria*), and winecup fairyfan (*Clarkia purpurea* spp. *quadrivulnera*). Rock outcroppings in the northern portion of the Project Site contained colonies of Hansen's spike-moss (*Selaginella hansenii*).

Great Valley mixed riparian forest occurs along the floodplain terraces and backwater sloughs adjacent to the San Joaquin River in the far eastern portion of the Project Site. Plant species observed included Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), Goodding's black willow (*Salix gooddingii*), valley oak (*Quercus lobata*), and Oregon ash (*Fraxinus latifolia*). White alder (*Alnus rhombifolia*) line the bank of the river. Understory vegetation observed along the San Joaquin River included buttonbush (*Cephalanthus occidentalis*), arroyo willow (*Salix lasiolepis*), mule fat (*Baccharis salicifolia*), and mugwort (*Artemisia douglasiana*).

Emergent marsh/Great Valley willow scrub communities occur along incised drainage features, low gradient irrigation ditches, or in areas where irrigation tailwater collects in depressional features. Plant species observed included sandbar willow (*Salix exigua*), tule (*Schoenoplectus acutus* var. *occidentalis*), broad-leaved cattail (*Typha latifolia*) common smartweed (*Polygonum hydropiperoides*), western goldenrod (*Euthamia occidentalis*), and Baltic rush (*Juncus balticus*). Seasonally wet areas associated with these drainages also support Mexican rush (*Juncus mexicanus*), tall flatsedge (*Cyperus eragrostis*), tansy mustard (*Descurainia sophia*), and pennyroyal (*Mentha pulegium*); plant species observed along the bottom of the Madera Canal and laterals included tapertip rush (*Juncus acuminatus*) and pointed rush (*Juncus oxymeris*).

Table 4.4-1 Vascular Plants of the Tesoro Viejo Project Site		
<i>Scientific Name</i>	<i>Common Name</i>	<i>Wetland Indicator Status^a</i>
ANACARDIACEAE—Sumac/Cashew Family		
<i>Schinus molle</i>	Peruvian peppertree	UPL
<i>Schinus terebinthifolius</i>	Brazilian peppertree	UPL
APIACEAE—Carrot Family		
<i>Anthriscus caucalis</i>	Bur-chervil	UPL
<i>Conium maculatum</i>	Poison hemlock	FACW
<i>Eryngium</i> sp.	Coyote-thistle	Varies
ASCLEPIADACEAE—Milkweed Family		
<i>Asclepias fascicularis</i>	Narrow-leaved milkweed	FAC
ASTERACEAE—Sunflower Family		
<i>Artemisia douglasiana</i>	California mugwort	FACW
<i>Aster chiloensis</i>	California aster	FAC
<i>Baccharis salicifolia</i>	Mule fat	FACW
<i>Carduus pycnocephalus</i>	Italian thistle	UPL
<i>Centaurea solstitialis</i>	Yellow star thistle	UPL
<i>Cirsium vulgare</i>	Bull thistle	FACU
<i>Conyza canadensis</i>	Horseweed	FAC
<i>Conyza bonariensis</i>	Asthmaweed	UPL
<i>Euthamia occidentalis</i>	Western goldenrod	OBL
<i>Filago gallica</i>	Narrow-leaf cottonrose	UPL
<i>Gnaphalium californicum</i>	California gnaphalium	UPL
<i>Gnaphalium luteo-album</i>	Clammy cudweed	FACW-
<i>Grindelia camporum</i> var. <i>camporum</i>	Great Valley gumplant	FACU
<i>Helianthus annuus</i>	Annual sunflower	FAC-
<i>Heterotheca grandiflora</i>	Telegraph weed	UPL
<i>Holocarpha heermannii</i>	Heermann's tarweed	NI
<i>Lactuca serriola</i>	Prickly lettuce	UPL
<i>Silybum marianum</i>	Milk thistle	UPL
<i>Sonchus oleraceus</i>	Common sow thistle	NI
<i>Xanthium strumarium</i>	Cocklebur	FAC+
AZOLLACEAE—Mosquito Fern Family		
<i>Azolla</i> sp.	Mosquito fern	OBL
BETULACEAE—Birch Family		
<i>Alnus rhombifolia</i>	White alder	FACW
<i>Populus fremontii</i>	Fremont's cottonwood	FACW

Table 4.4-1 Vascular Plants of the Tesoro Viejo Project Site

Scientific Name	Common Name	Wetland Indicator Status ^a
BORAGINACEAE—Borage Family		
<i>Amsinckia eastwoodiae</i>	Eastwood's fiddleneck	UPL
<i>Plagiobothrys nothofulvus</i>	Rusty popcornflower	UPL
BRASSICACEAE—Mustard Family		
<i>Brassica nigra</i>	Black mustard	UPL
<i>Brassica</i> sp.	Mustard	UPL
<i>Descurainia Sophia</i>	Tansy mustard	UPL
<i>Raphanus sativus</i>	Wild radish	UPL
CALLITRICHACEAE—Water-Starwort Family		
<i>Callitriche marginata</i>	Winged water-starwort	OBL
CHENOPODIACEAE—Goosefoot Family		
<i>Chenopodium multifidum</i>	Cut-leaf goosefoot	UPL
<i>Salsola tragus</i>	Russian thistle	FACU+
CUCURBITACEAE—Gourd Family		
<i>Cucurbita palmata</i>	Coyote gourd	UPL
CYPERACEAE—Sedge Family		
<i>Carex</i> sp.	Sedge	—
<i>Cyperus eragrostis</i>	Tall flatsedge	FACW
<i>Schoenoplectus acutus</i> var. <i>occidentalis</i>	Tule	OBL
<i>Scirpus</i> sp.	Bulrush	—
EUPHORBIACEAE—Spurge Family		
<i>Eremocarpus setigerus</i>	Turkey mullein	UPL
FABACEAE—Legume Family		
<i>Lupinus albifrons</i>	Silver lupine	UPL
<i>Trifolium hirtum</i>	Rose clover	UPL
<i>Trifolium repens</i>	White clover	FACU+
<i>Vicia</i> sp.	Vetch	—
FAGACEAE—Oak Family		
<i>Quercus lobata</i>	Valley oak	FAC
<i>Quercus wislizenii</i>	Interior live oak	UPL
GENTIANACEAE—Gentian Family		
<i>Centaurium muehlenbergii</i>	Muhlenberg's centaury	FAC
GERANIACEAE—Geranium Family		
<i>Erodium botrys</i>	Filaree	UPL
<i>Erodium cicutarium</i>	Red-stemmed filaree	UPL
<i>Geranium dissectum</i>	Cutleaf geranium	UPL

Table 4.4-1 Vascular Plants of the Tesoro Viejo Project Site		
<i>Scientific Name</i>	<i>Common Name</i>	<i>Wetland Indicator Status^a</i>
HYDROPHYLLACEAE—Waterleaf Family		
<i>Phacelia</i> sp.	Phacelia	Varies
JUGLANDACEAE—Walnut Family		
<i>Juglans californica</i>	California black walnut	FAC
JUNCACEAE—Rush Family		
<i>Eleocharis macrostachya</i>	Creeping spikerush	OBL
<i>Juncus acuminatus</i>	Tapertip rush	OBL
<i>Juncus balticus</i>	Baltic rush	OBL
<i>Juncus effusus</i> var. <i>pacificus</i>	Pacific rush	OBL
<i>Juncus mexicanus</i>	Mexican rush	FACW
<i>Juncus oxymeris</i>	Pointed rush	FACW
LAMIACEAE—Mint Family		
<i>Marrubium vulgare</i>	Common horehound	FAC
<i>Mentha pulegium</i>	Pennyroyal	OBL
<i>Trichostema lanceolatum</i>	Vinegar weed	UPL
LILIACEAE—Lily Family		
<i>Brodiaea coronaria</i>	Crown brodiaea	UPL
<i>Triteleia laxa</i>	Ithuriel's spear	UPL
MORACEAE—Mulberry Family		
<i>Ficus carica</i>	Fig	UPL
MYRTACEAE—Myrtle Family		
<i>Eucalyptus globulus</i>	Blue gum eucalyptus	UPL
OLEACEAE—Olive Family		
<i>Fraxinus latifolia</i>	Oregon ash	FACW
ONAGRACEAE—Evening Primrose Family		
<i>Clarkia purpurea</i> ssp. <i>Quadrivulnera</i>	Winecup fairyfan	UPL
<i>Clarkia</i> sp.	Farewell to spring	UPL
<i>Epilobium brachycarpum</i>	Willow-herb	UPL
<i>Epilobium ciliatum</i>	Hairy willow-herb	FACW
<i>Epilobium densiflorum</i>	Dense boisduvalia	UPL
PLANTAGINACEAE—Plantain Family		
<i>Plantago lanceolata</i>	English plantain	FAC-
PLATANACEAE—Sycamore Family		
<i>Platanus racemosa</i>	California sycamore	FACW
POACEAE—Grass Family		
<i>Aristida oligantha</i>	Oldfield three-awn	UPL

Table 4.4-1 Vascular Plants of the Tesoro Viejo Project Site

Scientific Name	Common Name	Wetland Indicator Status ^a
<i>Avena fatua</i>	Wild oat	UPL
<i>Bromus diandrus</i>	Ripgut brome	UPL
<i>Bromus hordeaceus</i>	Soft chess	FACU-
<i>Bromus madritensis</i> ssp. <i>rubens</i>	Red brome	UPL
<i>Cynodon dactylon</i>	Bermuda grass	FAC
<i>Distichlis spicata</i>	Salt grass	FACW
<i>Gastridium ventricosum</i>	Nit grass	FACU
<i>Glyceria</i> sp.	Mannagrass	Varies
<i>Hordeum marinum</i> ssp. <i>gussonianum</i>	Mediterranean barley	FAC
<i>Leptochloa uninervia</i>	Sprangletop	FACW
<i>Muhlenbergia rigens</i>	Deer grass	FACW
<i>Paspalum dilatatum</i>	Dallis grass	FAC
<i>Polypogon monspeliensis</i>	Annual rabbitfoot grass	FACW+
<i>Setaria viridis</i>	Green foxtail	FAC
<i>Setaria</i> sp.	Bristlegrass	—
<i>Sorghum halepense</i>	Johnsongrass	FACU
<i>Vulpia myuros</i>	Foxtail fescue	FACU
POLYGONACEAE—Buckwheat Family		
<i>Eriogonum roseum</i>	Wand buckwheat	UPL
<i>Polygonum hydropiperoides</i>	Common smartweed	OBL
<i>Polygonum lapathifolium</i>	Willow-weed	OBL
<i>Polygonum</i> sp.	Knotweed	—
<i>Rumex conglomeratus</i>	Clustered dock	FACW
<i>Rumex crispus</i>	Curley dock	FACW-
RHAMNACEAE—Buckthorn Family		
<i>Rhamnus californica</i>	California coffeeberry	UPL
ROSACEAE—Rose Family		
<i>Pyracantha angustifolia</i>	Firethorn	UPL
<i>Rubus discolor</i>	Himalayan blackberry	FACW
<i>Rubus ursinus</i>	California blackberry	FACW
RUBIACEAE—Rose Family		
<i>Cephalanthus occidentalis</i>	Buttonbush	OBL
SALICACEAE—Willow Family		
<i>Salix exigua</i>	Sandbar willow	OBL
<i>Salix gooddingii</i>	Goodding's black willow	FACW
<i>Salix laevigata</i>	Red willow	UPL

Table 4.4-1 Vascular Plants of the Tesoro Viejo Project Site		
<i>Scientific Name</i>	<i>Common Name</i>	<i>Wetland Indicator Status^a</i>
<i>Salix lasiolepis</i>	Arroyo willow	FACW
<i>Salix</i> sp.	Willow	—
SELAGINELLACEAE—Spike-Moss		
<i>Selaginella hansenii</i>	Hansen's spike-moss	UPL
SCROPHULARIACEAE—Figwort Family		
<i>Mimulus guttatus</i>	Common monkeyflower	OBL
<i>Mimulus</i> sp.	Monkeyflower	Varies
<i>Scrophularia californica</i>	Bee-plant	FAC
<i>Veronica anagallis-aquatica</i>	Water speedwell	OBL
SOLANACEAE—Nightshade Family		
<i>Datura wrightii</i>	Jimsonweed	UPL
<i>Solanum americanum</i>	Black nightshade	FAC
TYPHACEAE—Cattail Family		
<i>Typha angustifolia</i>	Narrowleaf cattail	OBL
<i>Typha latifolia</i>	Broad-leaved cattail	OBL
URTICACEAE—Nettle Family		
<i>Urtica dioica</i> ssp. <i>Holosericea</i>	Stinging nettle	FACW
VISCACEAE—Mistletoe Family		
<i>Phoradendron macrophyllum</i>	Big leaf mistletoe	UPL
<i>Viscum album</i>	Common mistletoe	UPL
VITACEAE—Grape Family		
<i>Vitis californica</i>	California wild grape	FACW
<i>Vitis vinifera</i>	Cultivated grape	UPL
ZYGOPHYLLACEAE—Caltrop Family		
<i>Tribulus terrestris</i>	Puncturevine	UPL

The plant species listed were observed within the Tesoro Viejo Project Site during a field survey and wetland delineation conducted by Live Oak Associates, Inc. (November 2004) and by a reconnaissance-level field survey conducted by PBS&J (December 2006). The U.S. Fish and Wildlife Service wetland indicator status (1988) for each plant is shown in the third column.

^a Wetland Indicated Status Definitions (abstracted from *National List of Vascular Plant Species that Occur in Wetlands*, USFWS Biological Report 88)

- OBL (Obligate Wetland): Occurs almost always (estimated probability 99 percent) under natural conditions in wetlands.
- FACW (Facultative Wetland): Usually occurs in wetlands (estimated probability 67 percent to 99 percent), but occasionally found in nonwetlands.
- FAC (Facultative): Equally likely to occur in wetlands or non-wetlands (estimated probability 34 percent to 66 percent).
- FACU (Facultative Upland): Usually occurs in nonwetlands (estimated probability 67 percent to 99 percent), but occasionally found in wetlands (estimated probability 1 percent to 33 percent).
- UPL (Obligate Upland): Occurs in wetlands in another region, but occurs almost always (estimated probability 99 percent) under natural conditions in nonwetlands in the regions specified.

Source: Live Oak Associates, Inc. 2004.

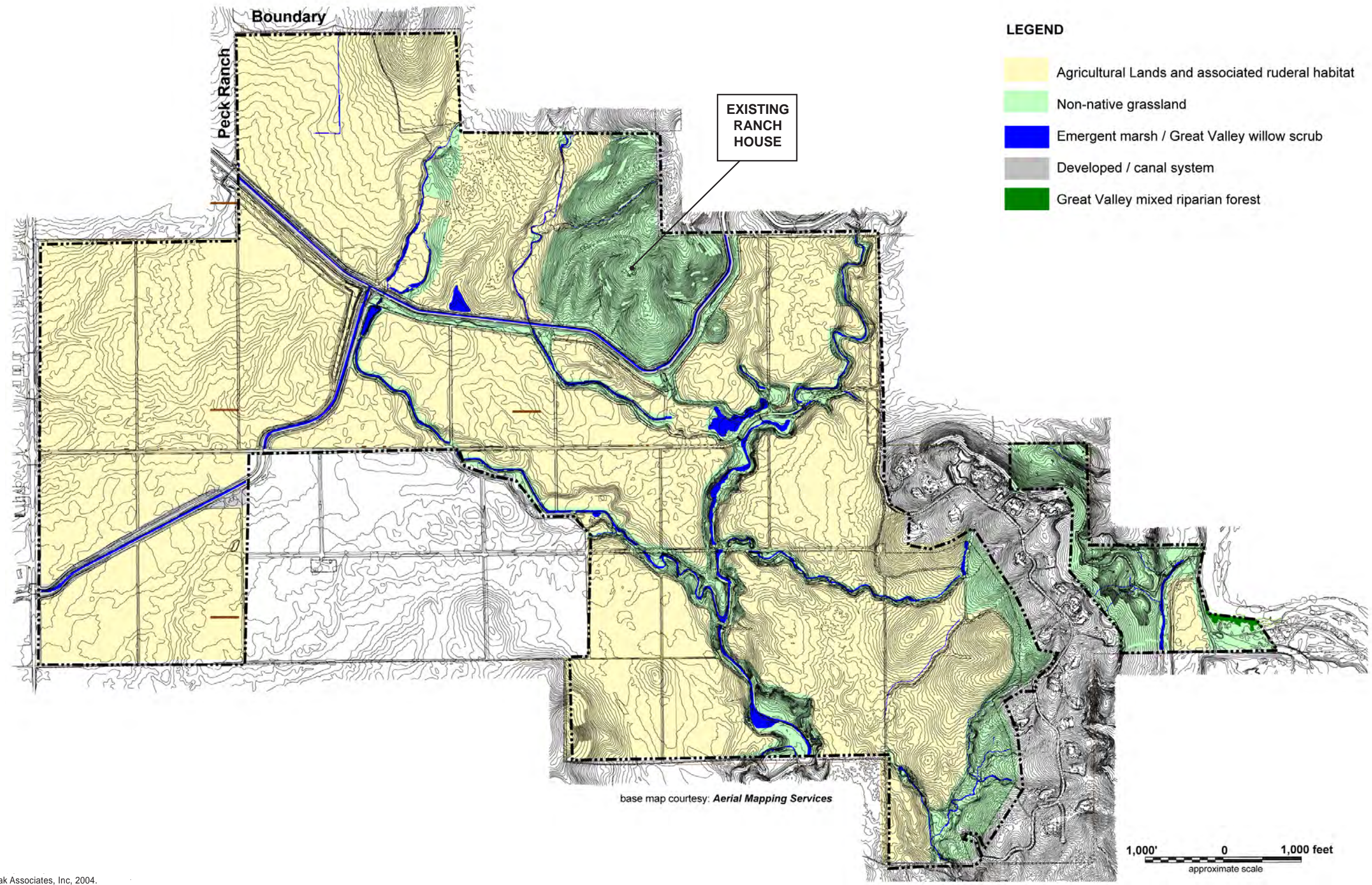


Figure 4.4-1
Biotic Habitat

Off-Site Avenue 15 Pipeline

As described in Appendix D3 (Biological Evaluation Avenue 15 Pipeline Project Madera County) (Live Oak Associates, Inc. 2012), the Off-Site Pipeline alignment would be restricted to pavement and disturbed earthen shoulder associated with Avenue 15 except where it crosses under SR-41 or traverses the Project Site. Where not currently paved, these disturbed and developed areas are classified as ruderal habitat. Specifically, ruderal habitat within the proposed alignment consists of paved road surfaces, maintained road shoulders, an earthen farm road, and the existing bridge culverts for Little Dry Creek. Paved areas within the proposed alignment support little to no vegetation. Disturbed road shoulders and unimproved farm roads supported common weedy species adapted to ongoing disturbance. Grasses and forbs observed within the ruderal habitat included Bermuda grass (*Cynodon dactylon*), ripgut (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), barnyard barley (*Hordeum murinum* ssp. *leporinum*), sow thistle (*Sonchus oleraceus*), and prostrate knotweed (*Polygonum aviculare*), among others. Although no trees were located within the alignment itself, some nonnative ornamental landscape trees associated with adjacent residential areas were located adjacent to and/or overhanging the alignment footprint. Appendix D3 of this EIR includes an aerial map of the Off-Site Pipeline alignment as Figure 4 (Aerial Photograph) and a complete list of plant species identified within the Off-Site Pipeline study area as Appendix A (Vascular Plants of the Study Area).

■ Wildlife and Wildlife Habitats

Tesoro Viejo Project Site

The majority of the Project Site is covered by extensive vineyards. These agricultural lands, the roads accessing them, and the margins of vineyards, orchards, and fields are highly disturbed habitats that support little or no native plant diversity. Overall habitat values and functions for local wildlife populations are generally low within these community types because of continued disturbance and traditional pest control practices (i.e., application of various herbicides and rodenticides). However, local wildlife species that have adapted to these changes are able to exploit the available resources within the habitats present at the Project Site to establish a fairly stable trophic structure (i.e., specific plant-herbivore and predator-prey interactions). A complete list of wildlife species observed or are likely to occur within the Project Site is contained within Table 4.4-2 (Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site).

Agricultural Lands (and Associated Ruderal Habitats)

Wildlife use of agricultural lands would generally be limited to avian species foraging on fruit or scattered grain, and/or nesting in the cover provided by vineyards and orchard trees. Such species include western scrub jay (*Aphelocoma coerulescens*), house finch (*Carpodacus mexicana*), European starling (*Sturnus vulgaris*), Brewer's blackbird (*Euphagus cyanocephalus*), American crow (*Corvus brachyrhynchos*), and western meadowlark (*Sturnella neglecta*).

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
CLASS: AMPHIBIA	
ORDER: CAUDATA (SALAMANDERS)	
FAMILY: SALAMANDRIDAE (Newts)	
California newt	<i>Taricha torosa</i>
FAMILY: PLETHODONTIDAE (Lungless Salamanders)	
Ensatina	<i>Ensatina eschscholtzii</i>
Black-bellied salamander	<i>Batrachoseps nigriventris</i>
Pacific slender salamander	<i>Batrachoseps pacificus</i>
Arboreal salamander	<i>Aneides lugubris</i>
ORDER: ANURA (FROGS AND TOADS)	
FAMILY: BUFONIDAE (True Toads)	
Western toad	<i>Bufo boreas</i>
FAMILY: HYLIDAE (Treefrogs and Relatives)	
Pacific chorus frog	<i>Pseudacris regilla</i>
FAMILY: RANIDAE (True Frogs)	
Bullfrog	<i>Rana catesbeiana</i>
CLASS: REPTILIA	
ORDER: TESTUDINES	
FAMILY: EMYDIDAE	
Western pond turtle	<i>Actinemys marmorata</i>
ORDER: SQUAMATA (LIZARDS AND SNAKES)	
SUBORDER: SAURIA (LIZARDS)	
FAMILY: PHRYNOSOMATIDAE	
*Western fence lizard	<i>Sceloporus occidentalis</i>
Sagebrush lizard	<i>Sceloporus graciosus</i>
FAMILY: SCINCIDAE (Skinks)	
Gilbert skink	<i>Eumeces gilberti</i>
FAMILY: ANGUIDAE (Alligator Lizards and Relatives)	
Southern alligator lizard	<i>Elgaria multicarinata</i>
SUBORDER: SERPENTES (SNAKES)	
FAMILY: BOIDAE (Boas)	
Rubber boa	<i>Charina bottae</i>
FAMILY: COLUBRIDAE (Colubrids)	
Ring-necked snake	<i>Diadophis punctatus</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
Racer	<i>Coluber constrictor</i>
California whipsnake	<i>Masticophis lateralis</i>
Gopher snake	<i>Pituophis melanoleucus</i>
Common kingsnake	<i>Lampropeltis getulus</i>
Common garter snake	<i>Thamnophis sirtalis</i>
Night snake	<i>Hypsiglena torquata</i>
FAMILY: VIPERIDAE	
Western rattlesnake	<i>Crotalus viridis</i>
CLASS: AVES	
ORDER: GAVIIFORMES (LOONS)	
FAMILY: PODICIPEDIDAE (Grebes)	
Pied-billed grebe	<i>Podilymbus podiceps</i>
ORDER: CICONIIFORMES (HERONS, STORKS, IBISES, AND RELATIVES)	
FAMILY: ARDEIDAE (Herons and Bitterns)	
*Great blue heron	<i>Ardea herodias</i>
Great egret	<i>Casmerodias albus</i>
Snowy egret	<i>Egretta thule</i>
Green heron	<i>Butorides virescens</i>
FAMILY: CATHARTIDAE (American Vultures)	
*Turkey vulture	<i>Cathartes aura</i>
ORDER: ANSERIFORMES (SCREAMERS, DUCKS, AND RELATIVES)	
FAMILY: ANATIDAE (Swans, Geese and Ducks)	
Tundra swan	<i>Cygnus columbinaus</i>
Snow goose	<i>Chen caerulescens</i>
Canada goose	<i>Branta canadensis</i>
Wood duck	<i>Aix sponsa</i>
Green-winged teal	<i>Anas crecca</i>
*Mallard	<i>Anas platyrhynchos</i>
Northern pintail	<i>Anas acuta</i>
Cinnamon teal	<i>Anas cyanoptera</i>
Northern shoveler	<i>Anas clypeata</i>
Gadwall	<i>Anas strepera</i>
American wigeon	<i>Anas americana</i>
Canvasback	<i>Aythya valisineria</i>
Redhead	<i>Aythya americana</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
Ring-necked duck	<i>Aythya collaris</i>
Lesser scaup	<i>Aythya affinis</i>
Common goldeneye	<i>Bucephala clangula</i>
Bufflehead	<i>Bucephala albeola</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Common merganser	<i>Mergus merganser</i>
Ruddy duck	<i>Oxyura jamaicensis</i>
ORDER: FALCONIFORMES (VULTURES, HAWKS, AND FALCONS)	
FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)	
White-tailed kite	<i>Elanus caeruleus</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
*Northern harrier	<i>Circus cyaneus</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
*Cooper's hawk	<i>Accipiter cooperi</i>
Northern goshawk	<i>Accipiter gentilis</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
*Red-tailed hawk	<i>Buteo jamaicensis</i>
Ferruginous hawk	<i>Buteo regalis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
*Golden eagle	<i>Aquila chrysaetos</i>
FAMILY: FALCONIDAE (Caracaras and Falcons)	
*American kestrel	<i>Falco sparverius</i>
Merlin	<i>Falco columbarius</i>
Peregrine falcon	<i>Falco peregrinus</i>
Prairie falcon	<i>Falco mexicanus</i>
ORDER: GALLIFORMES (MEGAPODES, CURRASSOWS, PHEASANTS, AND RELATIVES)	
FAMILY: ODONTOPHORIDAE (New World Quail)	
*California quail	<i>Callipepla californica</i>
ORDER: GRUIFORMES (CRANES, RAILS, AND RELATIVES)	
FAMILY: RALLIDAE (Rails, Gallinules and Coots)	
*American coot	<i>Fulica americana</i>
ORDER: CHARADRIIFORMES (SHOREBIRDS, GULLS, AND RELATIVES)	
FAMILY: CHARADRIIDAE (Plovers and relatives)	
*Killdeer	<i>Charadrius vociferus</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
FAMILY: SCOLOPACIDAE (Sandpipers and relatives)	
Greater yellowlegs	<i>Tringa melanoleuca</i>
Spotted sandpiper	<i>Actitis macularia</i>
Western sandpiper	<i>Calidris mauri</i>
Least sandpiper	<i>Calidris minutilla</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
Wilson's snipe	<i>Gallinago delicata</i>
FAMILY: LARIDAE (Gulls and Terns)	
Ring-billed gull	<i>Larus delawarensis</i>
California gull	<i>Larus californicus</i>
Forster's tern	<i>Sterna forsteri</i>
ORDER: COLUMBIFORMES (PIGEONS AND DOVES)	
FAMILY: COLUMBIDAE (Pigeons and Doves)	
Rock pigeon	<i>Columba livia</i>
Band-tailed pigeon	<i>Columba fasciata</i>
*Mourning dove	<i>Zenaida macroura</i>
ORDER: CUCULIFORMES (CUCKOOS AND RELATIVES)	
FAMILY: Cuculidae (Typical Cuckoos)	
Greater roadrunner	<i>Geococcyx californianus</i>
ORDER: STRIGIFORMES (OWLS)	
FAMILY: TYTONIDAE (Barn Owls)	
Common barn owl	<i>Tyto alba</i>
FAMILY: STRIGIDAE (Typical Owls)	
Western screech owl	<i>Otus kennicottii</i>
*Great horned owl	<i>Bubo virginianus</i>
Northern pygmy-owl	<i>Glaucidium gnoma</i>
*Burrowing owl	<i>Athene cunicularia</i>
Long-eared owl	<i>Asio otus</i>
ORDER: CAPRIMULGIFORMES (GOATSUCKERS AND RELATIVES)	
FAMILY: CAPRIMULGIDAE (Goatsuckers)	
Common nighthawk	<i>Chordeiles minor</i>
Common poorwill	<i>Phalaenoptilus nuttalli</i>
ORDER: APODIFORMES (SWIFTS AND HUMMINGBIRDS)	
FAMILY: APODIDAE (Swifts)	
Black swift	<i>Cypseloides niger</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
Vaux's swift	<i>Chaetura vauxi</i>
White-throated swift	<i>Aeronautes saxatalis</i>
FAMILY: TROCHILIDAE (Hummingbirds)	
Black-chinned hummingbird	<i>Archilochus alexandri</i>
Anna's hummingbird	<i>Calypte anna</i>
Calliope hummingbird	<i>Stellula calliope</i>
Rufous hummingbird	<i>Selasphorus rufus</i>
ORDER: PICIFORMES (WOODPECKERS AND RELATIVES)	
FAMILY: PICIDAE (Woodpeckers and Wrynecks)	
Lewis' woodpecker	<i>Melanerpes lewis</i>
Acorn woodpecker	<i>Melanerpes formicivorus</i>
Red-breasted sapsucker	<i>Sphyrapicus ruber</i>
Nuttall's woodpecker	<i>Picoides nuttallii</i>
Downy woodpecker	<i>Picoides pubescens</i>
*Northern flicker	<i>Colaptes auratus</i>
ORDER: PASSERIFORMES (PERCHING BIRDS)	
FAMILY: TYRANNIDAE (Tyrant Flycatchers)	
Olive-sided flycatcher	<i>Contopus borealis</i>
Western wood-pewee	<i>Contopus sordidulus</i>
Willow flycatcher	<i>Empidonax traillii</i>
Hammond's flycatcher	<i>Empidonax hammondii</i>
Dusky flycatcher	<i>Empidonax oberholseri</i>
Pacific slope flycatcher	<i>Empidonax difficilis</i>
*Black phoebe	<i>Sayornis nigricans</i>
*Say's phoebe	<i>Sayornis saya</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
*Western kingbird	<i>Tyrannus verticalis</i>
FAMILY: LANIIDAE (Shrikes)	
*Loggerhead shrike	<i>Lanius ludovicianus</i>
FAMILY: VIREONIDAE (Typical Vireos)	
Cassin's vireo	<i>Vireo cassinii</i>
Hutton's vireo	<i>Vireo huttoni</i>
Warbling vireo	<i>Vireo gilvus</i>
FAMILY: CORVIDAE (Jays, Magpies, and Crows)	
*Western scrub jay	<i>Aphelocoma coerulescens</i>
*American crow	<i>Corvus brachyrhynchos</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
*Common raven	<i>Corvus corax</i>
FAMILY: ALAUDIDAE (Larks)	
Horned lark	<i>Eremophila alpestris</i>
FAMILY: HIRUNDINIDAE (Swallows)	
Tree swallow	<i>Tachycineta bicolor</i>
Violet-green swallow	<i>Tachycineta thalassina</i>
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>
Cliff swallow	<i>Hirundo pyrrhonota</i>
*Barn swallow	<i>Hirundo rustica</i>
FAMILY: PARIDAE (Titmice)	
Oak titmouse	<i>Parus inornatus</i>
FAMILY: AEGITHALIDAE (Bushtit)	
Bushtit	<i>Psaltriparus minimus</i>
FAMILY: SITTIDAE (Nuthatches)	
Red-breasted nuthatch	<i>Sitta canadensis</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
FAMILY: CERTHIIDAE (Creepers)	
Brown creeper	<i>Certhia americana</i>
FAMILY: TROGLODYTIDAE (Wrens)	
Rock wren	<i>Salpinctes obsoletus</i>
Canyon wren	<i>Catherpes mexicanus</i>
Bewick's wren	<i>Thryomanes bewickii</i>
House wren	<i>Troglodytes aedon</i>
Winter wren	<i>Troglodytes troglodytes</i>
FAMILY: REGULIDAE (Kinglets)	
Ruby-crowned kinglet	<i>Regulus calendula</i>
FAMILY: SYLVIIDAE (Old World Warblers and Gnatcatchers)	
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
FAMILY: TURDIDAE (Thrushes)	
Western bluebird	<i>Sialia mexicana</i>
Mountain bluebird	<i>Sialia currucoides</i>
Swainson's thrush	<i>Catharus ustulatus</i>
Hermit thrush	<i>Catharus guttatus</i>
*American robin	<i>Turdus migratorius</i>
Varied thrush	<i>Ixoreus naevius</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
FAMILY: TIMALIIDAE (Babblers)	
Wrentit	<i>Chamaea fasciata</i>
FAMILY: MIMIDAE (Mockingbirds and Thrashers)	
*Northern mockingbird	<i>Mimus polyglottos</i>
FAMILY: STURNIDAE (Starlings)	
*European starling	<i>Sturnus vulgaris</i>
FAMILY: MOTACILLIDAE (Wagtails and Pipits)	
American pipit	<i>Anthus rubescens</i>
FAMILY: BOMBYCILLIDAE (Waxwings)	
Cedar waxwing	<i>Bombycilla cedrorum</i>
FAMILY: PTILOGONATIDAE (Silky Flycatchers)	
Phainopepla	<i>Phainopepla nitens</i>
FAMILY: PARULIDAE (Wood Warblers and Relatives)	
Orange-crowned warbler	<i>Vermivora celata</i>
Nashville warbler	<i>Vermivora ruficapilla</i>
California yellow warbler	<i>Dendroica petechia brewsteri</i>
Yellow-rumped warbler	<i>Dendroica coronata</i>
Black-throated gray warbler	<i>Dendroica nigrescens</i>
Townsend's warbler	<i>Dendroica townsendi</i>
Hermit warbler	<i>Dendroica occidentalis</i>
MacGillivray's warbler	<i>Oporornis tolmiei</i>
Wilson's warbler	<i>Wilsonia pusilla</i>
FAMILY: THRAUPIDAE (Tanagers)	
Western tanager	<i>Piranga ludoviciana</i>
FAMILY: EMBERIZIDAE (Emberizines)	
Green-tailed towhee	<i>Pipilo chlorurus</i>
California towhee	<i>Pipilo crissalis</i>
Rufous-crowned sparrow	<i>Aimophila ruficeps</i>
Chipping sparrow	<i>Spizella passerina</i>
Black-chinned sparrow	<i>Spizella atrogularis</i>
Vesper sparrow	<i>Pooecetes gramineus</i>
Lark sparrow	<i>Chondestes grammacus</i>
*Savannah sparrow	<i>Passerculus sandwichensis</i>
Fox sparrow	<i>Passerella iliaca</i>
Song sparrow	<i>Melospiza melodia</i>
Lincoln's sparrow	<i>Melospiza lincolnii</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
*Dark-eyed junco	<i>Junco hyemalis</i>
FAMILY: CARDINALIDAE (Cardinals, Grosbeaks and Allies)	
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>
Lazuli bunting	<i>Passerina amoena</i>
FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)	
Red-winged blackbird	<i>Agelaius phoeniceus</i>
*Brewer's blackbird	<i>Euphagus cyanocephalus</i>
Brown-headed cowbird	<i>Molothrus ater</i>
Baltimore oriole	<i>Icterus galbula</i>
*Western meadowlark	<i>Sturnella neglecta</i>
FAMILY: FRINGILLIDAE (Finches)	
Purple finch	<i>Carpodacus purpureus</i>
House finch	<i>Carpodacus mexicanus</i>
Pine siskin	<i>Carduelis pinus</i>
Evening grosbeak	<i>Coccothraustes vespertinus</i>
CLASS: MAMMALIA	
ORDER: DIDELPHIMORPHIA (MARSUPIALS)	
FAMILY: DIDELPHIDAE (Opossums)	
Virginia opossum	<i>Didelphis virginiana</i>
ORDER: INSECTIVORA (SHREWS AND MOLES)	
FAMILY: SORICIDAE (Shrews)	
Ornate shrew	<i>Sorex ornatus</i>
Trowbridge's shrew	<i>Sorex trowbridgii</i>
FAMILY: TALPIDAE (Moles)	
Broad-footed mole	<i>Scapanus latimanus</i>
ORDER: CHIROPTERA (BATS)	
FAMILY: VESPERTILIONIDAE (Vespertilionid Bats)	
Little brown myotis	<i>Myotis lucifugus</i>
Yuma myotis	<i>Myotis yumanensis</i>
Long-eared myotis,	<i>Myotis evotis</i>
Fringed myotis	<i>Myotis thysanodes</i>
Long-legged myotis	<i>Myotis volans</i>
California myotis	<i>Myotis californicus</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
Small-footed myotis	<i>Myotis leibii</i>
Western pipistrelle	<i>Pipistrellus hesperus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Red bat	<i>Lasiurus borealis</i>
Hoary bat	<i>Lasiurus cinereus</i>
Spotted bat	<i>Euderma maculatum</i>
Townsend's big-eared bat	<i>Plecotus townsendii</i>
Pallid bat	<i>Antrozous pallidus</i>
FAMILY: MOLOSSIDAE (Free-tailed Bat)	
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>
Western mastiff bat	<i>Eumops perotis</i>
ORDER: LAGOMORPHA (RABBITS, HARES, AND PIKAS)	
FAMILY: LEPORIDAE (Rabbits and Hares)	
Brush rabbit	<i>Sylvilagus bachmani</i>
Desert cottontail	<i>Sylvilagus audubonii</i>
Black-tailed hare	<i>Lepus californicus</i>
ORDER: RODENTIA (SQUIRRELS, RATS, MICE, AND RELATIVES)	
FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)	
*California ground squirrel	<i>Spermophilus beecheyi</i>
Western gray squirrel	<i>Sciurus griseus</i>
FAMILY: GEOMYIDAE (Pocket Gophers)	
*Botta's pocket gopher	<i>Thomomys bottae</i>
FAMILY: HETEROMYIDAE (Pocket mice and Kangaroo Rats)	
California pocket mouse	<i>Perognathus californicus</i>
FAMILY: CASTORIDAE (Beavers)	
*American beaver	<i>Castor canadensis</i>
FAMILY: MURIDAE (Mice, Rats and Voles)	
Western harvest mouse	<i>Reithrodontomys megalotis</i>
California mouse	<i>Peromyscus californicus</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Brush mouse	<i>Peromyscus boylii</i>
Dusky-footed wood rat	<i>Neotoma fuscipes</i>
California vole	<i>Microtus californicus</i>

Table 4.4-2 Terrestrial Vertebrate Species Observed or are Likely to Occur on the Tesoro Viejo Project Site

Common Name	Scientific Name
ORDER: CARNIVORA (CARNIVORES)	
FAMILY: CANIDAE (Foxes, Wolves, and Relatives)	
*Coyote	<i>Canis latrans</i>
Red fox	<i>Vulpes vulpes</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Feral dog	<i>Canis familiaris</i>
FAMILY: PROCYONIDAE (Raccoons and Relatives)	
Ringtail	<i>Bassariscus astutus</i>
Raccoon	<i>Procyon lotor</i>
FAMILY: MUSTELIDAE (Weasels, Badgers, and Relatives)	
Long-tailed weasel	<i>Mustela frenata</i>
American badger	<i>Taxidea taxus</i>
FAMILY: MEPHITIDAE (Kunks)	
Western spotted skunk	<i>Spilogale gracilis</i>
Striped skunk	<i>Mephitis mephitis</i>
FAMILY: FELIDAE (Cats)	
Feral cat	<i>Felis catus</i>
Mountain lion	<i>Puma concolor</i>
Bobcat	<i>Lynx rufus</i>
ORDER: ARTIODACTYLA	
FAMILY: CERVIDAE (Deer, Elk, and Relatives)	
*Mule deer	<i>Odocoileus hemionus</i>
The species listed are those that may reasonably be expected to use the habitats of the study area during some or all of the year.	
* Species observed on the Project Site during the Live Oak Associates, Inc. and PBS&J biological resources surveys conducted in 2004 and 2006.	

Small mammals observed throughout the Project Site included Botta's pocket gopher (*Thomomys bottae*) and California ground squirrel (*Spermophilus beecheyi*). Population densities did not appear to be high based on cursory observations, especially north of the Madera Canal. Other small mammals using agricultural lands of the site could include California vole (*Microtus californicus*), deer mouse (*Peromyscus maniculatus*), and house mouse (*Mus musculus*). Agricultural lands of the site provide little habitat value to larger mammals known to occur regionally. Species such as grey fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), and mule deer (*Odocoileus hemionus*) could move through agricultural lands from time to time, although the Madera Canal running through the northern portion of the ranch serves as an impediment to north-south movements.

Nonnative Grassland

Grasslands of the site, like grasslands throughout the region, are productive biotic habitats supporting a diversity of native terrestrial vertebrates. Grasslands of the region provide significant foraging habitat for a variety of resident and wintering raptors, as well as large numbers of seed-eating birds. Furthermore, the dense cover of native and nonnative grasses and forbs provide cover for large populations of small mammals that in turn attract a diversity of predatory species such as raptors (i.e., birds of prey).

This habitat is limited to the steep south-facing slope of the southernmost portion of Little Table Mountain, the bluffs overlooking the San Joaquin River, and the margins of a number of the seasonal drainages passing through the site. Because they lack moisture and burrows that could be used as refugia, grasslands of the site provide limited habitat for amphibians. Common reptile species likely to use the site include western fence lizard (*Sceloporus occidentalis*), western whiptail (*Aspidoscelis tigris*), southern alligator lizard (*Gerrhonotus multicarinatus*), gopher snake (*Pituophis melanoleucus*), common kingsnake (*Lampropeltis getulus*), and western rattlesnake (*Crotalus viridis*).

Several species of birds were observed in nonnative grassland habitat during the site survey. Birds foraging along the ground included Brewer's blackbird, western meadow lark, and mourning dove (*Zenaida macroura*). Summer migrants that could frequent the study area include barn swallow (*Hirundo rustica*), cliff swallow (*Hirundo pyrrhonota*), and western kingbird (*Tyrannus verticalis*). Common winter migrants attracted to grasslands of the region are savannah sparrow (*Passerculus sandwichensis*), American pipit (*Anthus rebeszensis*), and mountain bluebird (*Sialia currucoides*).

A number of raptors were seen during the surveys conducted by Live Oak Associates, Inc. and PBS&J in 2004 and 2006. These species prey on the small mammals and reptiles found within the general area. Species observed during site surveys included resident species such as the red-tail hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), Cooper's hawk (*Accipiter cooperii*), northern harrier (*Circus cyaneus*), great horned owl (*Bubo virginianus*), burrowing owl (*Athene cunicularia*), and American kestrel (*Falco sparverius*). A wintering population of bald eagles roosts in scattered blue oaks adjacent to Millerton Lake.

Great Valley Mixed Riparian Forest

Riparian trees are relatively patchy in distribution along the seasonal drainage channels, but are well-developed along the San Joaquin River. This habitat provides food, water, and cover for a greater diversity of terrestrial vertebrate species than other habitats of the study area. In general, valley and foothill riparian habitats of central California can be used by as many as 25 species of reptiles and amphibians, 140 species of birds, and 50 species of mammals (Mayer and Laudenslayer 1988). These habitats are often especially important as movement corridors along which animals of all kinds may migrate, disperse, or conduct their daily home range movements.

Amphibians and reptiles are well represented in riparian habitats. Fallen branches and leaves provide suitable cover for amphibians such as California newt (*Taricha torosa*), western toad (*Bufo boreas*), and Pacific chorus frog (*Pseudacris regilla*). These amphibians would use the seasonal aquatic habitat of the San Joaquin River and its tributaries as a breeding habitat. Lizards such as Gilbert's skink (*Eumeces gilberti*) and southern alligator lizard (*Gerrhonotus multicarinatus*) are likely to be found within the leaf litter below willows and cottonwoods.

Large numbers of avian species are attracted to the abundant vegetation that riparian habitats provide. Birds of prey including red-shouldered hawk (*Buteo lineatus*) and great horned owl hunt and roost here. Abandoned nest holes excavated by woodpeckers would be used by western bluebird (*Sialia mexicana*), western screech owl (*Otus kennicottii*), and ash-throated flycatcher (*Myiarchus cinerascens*). Mammals occupying this habitat would include many of those species occurring within the nonnative grassland and blue oak woodland habitat. Other mammals often associated with riparian habitats could also occur in the Project Site including ornate shrew (*Sorex inornatus*) and raccoon (*Procyon lotor*).

Emergent Marsh/Great Valley Willow Scrub

Areas of permanent inundation support nonnative fishes that probably include mosquito fish (*Gambusia affinis*), green sunfish (*Lepomis cyanellus*), and possibly largemouth bass (*Micropterus salmoides*). This habitat also supports a sizable nonnative bullfrog (*Rana catesbeiana*) population. Common garter snakes (*Thamnophis sirtalis*) probably forage in this habitat for fish, tadpoles, and possibly small mammals occurring on the banks of the marsh. The marsh provides habitat for a number of waterbirds and waders including American coot (*Fulica americana*) and great blue heron (*Ardea herodias*); other likely species include great egret (*Ardea alba*), green heron (*Butorides striatus*), and black-crowned night heron (*Nycticorax nycticorax*). Mallard (*Anas platyrhynchos*) are probably resident in the open water areas of the marsh. Other waterfowl that are likely present include pied-billed grebes (*Podilymbus podiceps*), ruddy duck (*Oxyura jamaicensis*), gadwall (*Anas strepera*), and northern shoveler (*Anas chrypeata*).

The mixed canopy of cottonwood and willow along the incised drainage features throughout the Project Site provides nesting habitat, cover, and migratory routes for number of wildlife species; large stick nests (likely raptor, crow, or raven) were observed in a few willow trees during the December 2006 survey conducted by PBS&J.

Off-Site Avenue 15 Pipeline

Ruderal Habitat

Ruderal habitat, which was observed within the proposed off-site Avenue 15 pipeline alignment, generally does not provide important resources for wildlife species; therefore, wildlife species would not be expected to permanently reside within the habitat or rely on the habitat for their life history requirements. However, there may be some wildlife species that occur within lands adjacent to the alignment that could temporarily pass over the ruderal areas while traveling to and from adjacent habitat. Amphibian species with the potential to pass through the alignment include Pacific tree frog, western toad, western spadefoot toad (*Spea hammondi*), and California tiger salamander (*Ambystoma californiense*). Reptile species that may pass through the alignment include side-blotched lizard (*Uta stansburiana*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus viridis*), as well as others. The alignment offers very limited foraging opportunities for avian species due to vehicle traffic and lack of vegetation. Species that may forage on road kill within Avenue 15 include common raven (*Corvus corax*) and turkey vulture (*Cathartes aura*). Species that may forage along the road shoulder include the mourning dove (*Zenaida macroura*) and Brewer's blackbird (*Euphagus cyanocephalus*). Nesting habitat within the alignment would be confined to the undersides of bridges and culverts and trees overhanging the alignment. Species that could utilize the bridges and culverts for nesting include the cliff swallow (*Petrochelidon pyrrhonota*) and black phoebe (*Sayornis nigricans*). Mammal species that could pass through the alignment

include rodents such as California vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Otospermophilus beecheyi*); predators such as coyote (*Canis latrans*) and gray fox (*Urocyon cinereoargenteus*); and various bat species, which have the potential to forage over the alignment.

Grading and paving activities associated with the construction of Avenue 15 have disturbed the profile of once native soils such that biological resources dependent on native soils are no longer expected to be present. Further, the alignment provides no permanent habitat for wildlife species due to ongoing disturbance from maintenance activities. A complete list of terrestrial vertebrate species determined to potentially occur within the Off-Site Pipeline alignment is provided as Appendix B (Terrestrial Vertebrate Species that Potentially Occur on the Site) to the *Biological Evaluation Avenue 15 Pipeline Project* (Live Oak Associates, Inc. 2012), which can be found within Appendix D3 to this EIR.

As provided in Appendix D3 (Biological Evaluation Avenue 15 Pipeline Project Madera County) (Live Oak Associates, Inc. 2012), the Off-Site Pipeline alignment would be restricted to disturbed and developed areas classified as ruderal habitat.

■ Special-Status Plant and Wildlife Species

The following section addresses sensitive and special-status biological resources observed, reported, or having the potential to occur on the site Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline. These resources include plant and wildlife species that have been afforded special status and/or recognition by federal and state resource agencies, as well as private conservation organizations and special interest groups such as the California Native Plant Society (CNPS) or the Madera County General Plan. In general, the principal reason an individual taxon (species, subspecies, or variety) is given such recognition is the documented or expected decline or limitation of its population size or geographical extent and/or distribution that results in most cases, from habitat loss. Table 4.4-3 (Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline) lists special-status plants and animals known to occur within the region of the project Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline, along with their listing status and potential for occurrence on within the site Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline. Figure 4 (Special-Status Animals) and Figure 5 (Special-Status Plants) contained within Appendix D1 of this EIR includes a map depicting the known occurrences of special-status species reported by the California Natural Diversity Database (CNDDDB) within approximately 3 miles of the Tesoro Viejo Project Site. Figure 5 (Special-Status Species) contained within Appendix D3 of this EIR includes a map depicting the known occurrences of special-status species reported by the CNDDDB within approximately 3 miles of the Off-Site Pipeline alignment. Special-status biological resources also include vegetation types and habitats that are unique, of relatively limited distribution in the region, or of particularly high wildlife value. These resources have been defined as sensitive by federal, state, and local government conservation programs.

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
PLANTS			
Tree-anemone (<i>Carpenteria californica</i>)	-/CT/CNPS List 1B.2	Chaparral and cismontane woodland, usually in granitic soil substrates. Blooms May to July Elevations 450–1,000 meters	Absent. Potentially suitable habitat absent from Project Site and Off-Site Pipeline. Evergreen shrub with persistent leathery leaves and distinctive peeling bark would have been conspicuous during surveys. Known from only seven occurrences; no known CNDDB occurrences within 5 miles of the Project Site and Off-Site Pipeline.
Succulent (Fleshy) Owl's- Clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)	FT/CE/CNPS List 1B.2	Vernal pools, valley foothills and grasslands. Moist places, often in acidic soils. Blooms April to May. Elevations <2,300 meters	Unlikely. Vernal pools are absent from the study area. It is unlikely that this species would have become naturalized in any of the wetland habitats of the study area. Nearest CNDDB occurrence approximately one mile southeast of the town of Friant. <u>The proposed Off-Site Pipeline alignment is mapped within USFWS-designated Critical Habitat for this species as illustrated by Figure 6 of Appendix D3; however, the alignment does not contain suitable habitat and lacks the primary constituent elements defined for this species' Critical Habitat.</u>
California Jewel-Flower (<i>Caulanthus californicus</i>)	FE/CE/CNPS 1B.1	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland often with sandy soil substrates. Blooms February to May. Elevations 70–1,000 meters	Unlikely. Potentially suitable habitat with sandy soil substrates likely absent from Project Site and Off-Site Pipeline. No known CNDDB occurrences have been recorded for this species in Madera County.
Spiny-Sepaled Button-Celery (<i>Eryngium spinosepalum</i>)	-/CNPS List 1B.2	Found in vernal pools of Fresno and Tulare counties. Blooms April thru May. Elevations 100–200 meters	Unlikely. Vernal pools absent from the study area. It is unlikely that this species would have become naturalized in any of the wetland habitats of the study area. However, dried remains of an <i>Eryngium</i> sp. were observed on the Project Site in an ephemeral drainage north of Madera Canal. Plant should be collected during the appropriate bloom period and identified to <i>species</i> level. Nearest CNDDB occurrences occur southwest of Millerton Lake along the San Joaquin River Valley.
Bogg's Lake Hedge Hyssop (<i>Gratiola heterosepala</i>)	-/CE/CNPS List 1B.2	Occurs in vernal pools and freshwater emergent marshes of northern and central California. Often found in basalt volcanic soils. Blooms April to August. Elevations <1,200 meters	Unlikely. Vernal pools are absent from the study area. It is unlikely that this species would have become naturalized in any of the wetland habitats of the study area. The nearest recorded occurrence is on Big Table Mountain 5 miles to the northeast.

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Madera Linanthus (<i>Leptosiphon serrulatus</i>)	-/CNPS List 1B.2	Cismontane woodland, lower montane coniferous forests, and annual grasslands. Dry slopes, often on decomposed granite in woodland. Blooms April to May. Elevations 300–1,300 meters	Possible. Nonnative grasslands of the southern end of Little Table Mountain and the grass bluffs above the San Joaquin River <u>on the Project Site</u> provide potentially suitable habitat for this species. Nearest CNDDDB occurrence near Millerton Lake. <u>No suitable habitat occurs within the Off-Site Pipeline alignment.</u>
Orange Lupine (<i>Lupinus citrinus</i> var. <i>citrinus</i>)	-/CNPS List 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, often with granitic soil substrates. Blooms April to July. Elevations 400–1,700 meters	Unlikely. Marginally suitable habitat present for this species along the bluffs above the San Joaquin River Valley in the extreme eastern portion of the Project Site. <u>No suitable habitat occurs within the Off-Site Pipeline alignment.</u> There are no CNDDDB occurrences for this species within 5 miles of the Project Site <u>or Off-Site Pipeline.</u> <u>Therefore, this species is not likely to occur on the Project Site or Off-Site Pipeline.</u>
San Joaquin Valley Orcutt Grass (<i>Orcuttia inaequalis</i>)	FT/CE/CNPS List 1B.1	Occurs in deep vernal pools of California's Central Valley. Elevations <200 meters	Unlikely. Vernal pools are absent from the study area. It is unlikely that this species would have become naturalized in any of the wetland habitats of the study area. This species presumably once occurred on the ranch adjacent to Hwy 41. Suitable habitat has been replaced by vineyard conversion and is presumed extirpated (i.e., locally extinct). <u>The proposed Off-Site Pipeline alignment occurs within areas mapped as USFWS-designated Critical Habitat for this species as illustrated by Figure 6 of Appendix D3; however, the alignment does not contain suitable habitat and lacks the primary constituent elements defined for this species' Critical Habitat.</u>
Hairy Orcutt Grass (<i>Orcuttia pilosa</i>)	FE/CE/CNPS List 1B.1	Vernal pools California's Central Valley. Requires deep pools with prolonged periods of inundation. Elevations <200 meters	Unlikely. Vernal pools are absent from the study area. It is unlikely that this species would have become naturalized in any of the wetland habitats of the study area. Nearest CNDDDB occurrence is approximately 1 mile south of the Project Site <u>and Off-Site Pipeline</u> along Hwy 41. <u>The proposed Off-Site Pipeline alignment occurs within areas mapped as USFWS-designated Critical Habitat for this species as illustrated by Figure 6 of Appendix D3; however, the alignment does not contain suitable habitat and lacks the primary constituent elements defined for this species' Critical Habitat.</u>

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Hartweg's Golden Sunburst (<i>Pseudobahia bahiifolia</i>)	FE/CE/CNPS List 1B.1	Occurs in grasslands of the western foothills of the Sierra Nevada Mountains in volcanic pumice soils. Often found in soils of the Rocklin series. Elevations ±150 meters	Absent. Lack of suitable soil substrates (i.e., Rocklin soils, pumiceous variant) likely precludes the presence of this species at the Project Site <u>and Off-Site Pipeline</u> .
San Joaquin Adobe Sunburst (<i>Pseudobahia peirsonii</i>)	FT/CE/CNPS List 1B.1	Occurs in Centerville and Porterville heavy clay soils in valley and foothill grassland habitat. Elevations 100–800 meters	Absent. Lack of suitable soil substrates (i.e., Centerville soils) likely precludes the presence of this species at the Project Site <u>and Off-Site Pipeline</u> . A small area of Porterville clay soils on the site is currently being farmed.
Sanford's Arrowhead (<i>Sagittaria sanfordii</i>)	-/-/CNPS List 1B.2	Occurs in freshwater emergent marsh habitat in drainage ditches and canals of California's central valley. Blooms May to October. Elevations <300 meters	Possible. Although this species was not observed during the 2004 and 2006 site surveys, suitable habitat is present in the emergent marsh of the principal drainages of the <u>Project sSite</u> . However, No suitable habitat occurs within the Off-Site Pipeline alignment. †There are no CNDDB occurrences of this species within 5 miles of the Project Site <u>or Off-Site Pipeline</u> ; <u>however, it is possible that this species could occur on the Project Site</u> .
Caper-Fruited Tropicocarpum (<i>Tropicocarpum capparideum</i>)	-/-/CNPS List 1B.1	Valley and foothill grassland, often on convex slopes with alkaline soil substrates. Blooms March to April. Elevations <200 meters	Unlikely. Lack of suitable alkaline soil substrates likely precludes the presence of this species from the Project Site <u>and Off-Site Pipeline</u> . There are no known CNDDB occurrences for this species within 5 miles of the Project Site <u>or Off-Site Pipeline</u> .
Greene's Tuctoria (<i>Tuctoria greenei</i>)	FE/CR/CNPS List 1B.1	Vernal pools. Blooms May to July. Elevations <200 meters	Unlikely. Vernal pools are absent from the study area. It is unlikely that this species would have become naturalized in any of the wetland habitats present within the Project Site <u>or Off-Site Pipeline</u> . There are no CNDDB occurrences of this species within 5 miles of the Project Site <u>or Off-Site Pipeline</u> .

ANIMALS

Invertebrates

Conservancy Fairy Shrimp (<i>Brachhinecta conservation</i>)	FE/-/-	Primarily found in vernal pools of California's Central Valley.	Absent. Vernal pools in which this species typically occurs were absent from the <u>Project sSite and Off-Site Pipeline</u> .
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Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	FT/-/-	Primarily found in vernal pools of California's Central Valley.	Absent. Vernal pools in which this species typically occurs were absent from the <u>Project Site and Off-Site Pipeline</u> . <u>The proposed Off-Site Pipeline alignment occurs within areas mapped as USEWS-designated Critical Habitat for this species as illustrated by Figure 6 of Appendix D3; however, the alignment does not contain suitable habitat and lacks the primary constituent elements defined for this species' Critical Habitat.</u>
Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	FT/-/-	Lives in mature elderberry shrubs of California's Central Valley and Sierra foothills.	Possible. Elderberry bushes that provide habitat for this species are common in the bottomlands of the San Joaquin River. Although the beetle was not observed during the site surveys, two elderberry bushes were observed along the San Joaquin River <u>on the Project Site</u> . <u>No suitable habitat occurs within the Off-Site Pipeline alignment.</u>
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardii</i>)	FE/-/-	Primarily found in vernal pools of California's Central Valley.	Absent. Vernal pools in which this species typically occurs were absent from the <u>Project Site and Off-Site Pipeline</u> .
Fish			
California Roach (<i>Hesperoleucus symmetricus</i>)	-/CSC/-	California roach are generally found in small, warm intermittent streams, and dense populations are frequently found in isolated pools. They are most abundant in mid-elevation streams in the Sierra foothills and in the lower reaches of some coastal streams.	Possible. This species may be present in the <u>reach of the San Joaquin River that occurs on the Project Site or within tributary streams that occur on the Project Site</u> . <u>No suitable habitat occurs within the Off-Site Pipeline alignment.</u>
Delta Smelt (<i>Hypomesus transpacificus</i>)	FT/-/-	Restricted to the delta of the San Joaquin and Sacramento rivers. They are generally not found upstream of Mossdale on the San Joaquin River.	Absent. This species is confined to the lower reaches of the San Joaquin and Sacramento rivers, <u>and, therefore, would not be expected to occur on the Project Site or Off-Site Pipeline.</u>
Hardhead (<i>Mylopharodon conocephalus</i>)	-/CSC/-	Prefers well-oxygenated streams and surface waters of reservoirs. Found in clear pools with sand-gravel-boulder substrates and slow river velocities. Distribution greatly restricted and fragmented by water project development, diversion, and competition with nonnative species.	Possible. This species may be present in the <u>reach of the San Joaquin River that occurs on the Project Site</u> . <u>No suitable habitat occurs within the Off-Site Pipeline alignment.</u>

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Central Valley Steelhead (<i>Oncorhynchus mykiss</i>)	FT/-/-	This species is known from the San Joaquin River and its tributaries downstream of Modesto, CA. Historically occurred in the upper San Joaquin watershed.	Unlikely. This species may have historically occurred in the San Joaquin River, but would be unlikely to occur there now because of insufficient flows. <u>Therefore, this species is unlikely to occur on the Project Site or Off-Site Pipeline.</u>
Amphibians			
California Tiger Salamander (<i>Ambystoma californiense</i>)	FT/CSC/-	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for refuge.	Possible. This species reportedly was observed near the ranch <u>on the Project Site</u> in 1993 in a seasonal pool adjacent to the Madera Canal (CDFG 2004). Other breeding habitat is absent from the <u>Project Site and Off-Site Pipeline</u> . Suitable aestivation habitat is generally absent from the ranch <u>on the Project Site</u> , since it mostly consists of vineyards, orchards, and agricultural fields, or grasslands on rocky slopes. <u>Suitable aestivation habitat is also absent from the areas proposed for the Off-Site Pipeline.</u> However, due to potential (occupied) habitat in the immediate vicinity, it is <u>possible that this species could disperse over the Project Site and/or Off-Site Pipeline during certain times of year.</u>
California Red-legged Frog (<i>Rana aurora draytonii</i>)	FT/CSC/-	Occurs in aquatic habitats such as creeks and ponds with emergent vegetation.	Absent. With the introduction of bullfrogs to the region, the California red-legged frog declined and is now thought to be extirpated from eastern Madera and Fresno counties. <u>Therefore, this species is presumed to be absent from the Project Site and Off-Site Pipeline.</u>
Western Spadefoot (<i>Scaphiopus hammondi</i>)	-/CSC/-	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	Possible. Suitable breeding habitat appears to be absent <u>from the Project Site and Off-Site Pipeline</u> . Because most of the <u>Project Site</u> is in agricultural production, aestivation habitat is generally absent <u>from the Project Site as well</u> . However, the species has been observed in areas adjacent to the Project Site and <u>the Off-Site Pipeline that support suitable aquatic habitat.</u> <u>Therefore, it is possible that this species could disperse over the Project Site and Off-Site Pipeline during certain times of year.</u>
Reptiles			
Western Pond Turtle (<i>Actinemys marmorata</i>)	-/CSC/-	Adapted to a variety of habitats, but found primarily in ponds and slow moving creeks.	Possible. Suitable habitat for this species occurs on <u>the Project Site</u> .

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Blunt-Nosed Leopard Lizard (<i>Gambelia sila</i>)	FE/SAL/CE-	Primarily occurs in alkali desert scrub and annual grassland habitat.	<u>Unlikely.</u> Suitable habitat for this species occurs on <u>site</u> , yet the <u>Project sSite</u> ; <u>however</u> , the <u>Project Site</u> is outside of the species known range. <u>Therefore, this species is not likely to occur on the Project Site.</u> This species is also not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.
Giant Garter Snake (<i>Thamnophis gigas</i>)	FT/CSC/-	Freshwater marshes with emergent vegetation in California's Central Valley from Sacramento south through Fresno County.	<u>Absent.</u> Although small areas of habitat suitable for this species occur on the <u>Project sSite</u> , <u>it this species</u> has never been documented in the project vicinity. <u>Therefore, this species is presumed to be absent from the Project Site.</u> This species is also presumed to be absent from the Off-Site Pipeline alignment due to lack of suitable habitat.
Birds			
Cooper's Hawk (<i>Accipiter cooperii</i>)	-/CSC/-	Breeds in oak woodlands, riparian forests, and mixed conifer forest of the Sierra Nevada Mountains, but winters in a variety of lowland habitats.	<u>Present.</u> Suitable riparian woodland nesting and foraging habitat is present at the Project Site; species observed in oak woodlands along the San Joaquin River during December 2006 field survey. <u>This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>
Tricolored Blackbird (<i>Agelaius tricolor</i>)	-/CSC/-	Occurs near fresh water with dense cattails, or thickets of willows or shrubs.	<u>Unlikely Possible.</u> Annual grasslands of the <u>Project sSite</u> offer possible foraging habitat, but fallow fields of Central Valley farms are preferred. Breeding habitat is absent <u>from the Project Site and Off-Site Pipeline.</u> Potential foraging habitat is <u>present within the Off-Site Pipeline alignment.</u>
Golden Eagle (<i>Aquila chrysaetos</i>)	-/CSCGCFP/-	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	<u>Present.</u> This species has been observed on nearby lands. Suitable foraging habitat is present on the <u>Project sSite</u> . Nesting habitat is absent <u>from the Project Site.</u> <u>This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>
<u>Short-Eared Owl</u> (<i>Asio flammeus</i>)	-/CSC/-	<u>Frequents marshes, grasslands, irrigated lands, dunes and other treeless habitats of the Central Valley and western Sierra Nevada foothills.</u>	<u>Absent.</u> This species may fly over the Off-Site Pipeline alignment while foraging on surrounding lands. <u>However, foraging and breeding habitats are absent from the Project Site and Off-Site Pipeline alignment.</u>

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Burrowing Owl (<i>Athene cunicularia</i>)	-/CSC/-	Found in open, dry grasslands, deserts and ruderal areas. Requires suitable burrows.	Present. Two individuals observed <u>on the Project Site</u> during December 2006 survey; one individual observed above seasonal drainage in southeastern portion near Sumner Hill Subdivision; other individual observed along ephemeral drainage north of Madera Canal. <u>This species may also fly over and occasionally forage within the Off-Site Pipeline alignment.</u>
Swainson's Hawk (<i>Buteo swainsoni</i>)	-/CT/-	Uncommon resident and migrant in the Central Valley. Forages in grasslands and fields close to riparian areas.	Unlikely. Habitats of the study area are generally unsuitable for breeding and marginal for foraging. This species is rarely encountered on the east side of the San Joaquin Valley. The nearest documented sighting is approximately 3 miles northwest of the study area in 1979 (CDFG 2003). <u>This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>
Northern Harrier (<i>Circus cyaneus</i>)	-/CSC/-	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	Present. Although vineyards and orchards do not typically constitute suitable foraging habitat for this species, individuals observed foraging throughout various portions of the Project Site during December 2006 field survey. <u>This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>
Western Yellow-billed Cuckoo (<i>Coccyzus americanus occidentalis</i>)	-/CE/-	Nests in dense riparian forests. Inhabits broad, lower flood bottoms of larger river systems.	Absent. The last known occurrence in the region was on Fancher Creek in 1907. The riparian habitat <u>associated with the reach of the San Joaquin River that occurs on the Project Site</u> is too sparse to support this species. <u>Therefore, this species is presumed to be absent from the Project Site. This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>
California Horned Lark (<i>Eremophila alpestris actia</i>)	-/CSC/-	Found in a variety of open habitats where trees and shrubs are absent; breeds in grasslands and fallow fields.	Possible. Annual grasslands and dry-farmed fields of the <u>Project Site</u> provide limited foraging and breeding habitat for this species. <u>This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Prairie Falcon (<i>Falco mexicanus</i>)	-/CSC/-	Distributed from annual grasslands to alpine meadows; requires cliffs or rock outcroppings for nesting.	Likely. The study area <u>Project Site</u> and surrounding lands provide suitable foraging habitat. Nesting habitat is present on <u>the Project Site on Little Table Mountain. This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	FT/CFP/(recently delisted, but still protected by the Golden and Bald Eagle Protection Act)	Winters near reservoirs of California's Central Valley. Mostly feeds on fish in large bodies of water or rivers.	Present. Wintering bald eagles are known to forage along the San Joaquin River. Other habitats of the <u>Project Site</u> provide marginal to unsuitable foraging habitat for this species. <u>This species is not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat.</u>
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	-/CSC/-	Grasslands and agricultural areas of California's Central Valley.	Likely. This species has been observed on adjoining parcels. The Tesoro Viejo <u>Project Site</u> provides suitable foraging and possible nesting habitat for this species. <u>In addition, the Off-Site Pipeline alignment provides suitable foraging habitat (only) for this species.</u>
White-tailed Kite (<i>Elanus leucurus</i>)	-/CPCFP/-	Species hunts in open grasslands and scrub habitats. Nests are located in trees and large shrubs near foraging areas in savannahs and at edges between open habitat and woodland or forest areas. Its diet is mostly small mammals such as voles and mice.	Absent. Although <u>suitable marginal foraging habitat is present on the Project Site</u> , this species is not reported from the area <u>and not likely to occur. This species is also not likely to occur within the Off-Site Pipeline alignment due to lack of suitable habitat. Therefore, this species is presumed to be absent from the Project Site and Off-Site Pipeline.</u>
Least Bell's Vireo (Vireo <i>Vireo bellii pusillus</i>)	FE/FE/-	Summer resident of southern California where it inhabits low riparian growth in the vicinity of water or in dry river bottoms below 610 m. Selects dense vegetation in riparian zones for nesting.	Absent. This species is not known to nest in Madera County. <u>Therefore, this species is presumed to be absent from the Project Site and Off-Site Pipeline.</u>
Mammals			
Pallid Bat (<i>Antrozous pallidus</i>)	+/CSC/-	Grasslands, chaparral, woodlands, and forests of California; most common in dry rocky open areas providing roosting opportunities.	Possible. The <u>Project Site</u> provides suitable foraging habitat. The several rock outcrops scattered over the <u>Project Site</u> provides suitable roosting habitat as well. <u>The Off-Site Pipeline alignment provides potential foraging habitat and potential roosting habitat for this species beneath one of the Avenue 15 bridges that cross Little Dry Creek along.</u>

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
<u>Townsend's Western Big-Eared bat</u> (<u>Corynorhinus townsendii townsendii</u>)	-/CSC/-	<u>Frequents all but subalpine habitats; requires buildings, mines, caves or tunnels for roosting and nesting.</u>	<u>Possible. This species is not likely to occur within the Project Site. The Off-Site Pipeline alignment provides potential foraging habitat for this species and potential roosting habitat beneath one of the Avenue 15 bridges that cross over Little Dry Creek.</u>
Fresno Kangaroo Rat (<i>Dipodomys nitratoides exilis</i>)	FE/CE/-	Historically occurred in alkali sink scrub and alkali grassland habitats of Fresno, Madera and potentially Tulare counties.	Absent. Habitat suitable for this species is absent from the <u>Project sSite and Off-Site Pipeline. Therefore, this species is presumed to be absent from the Project Site and Off-Site Pipeline.</u>
Spotted Bat (<i>Euderma maculatum</i>)	+/CSC/-	Found in a variety of habitats from arid desert and grassland to mixed conifer forest.	Possible. The <u>Project sSite</u> could be used for foraging. Rock outcrops <u>on the Project Site</u> provide potential roosting habitat. <u>No suitable roosting habitat occurs within the Off-Site Pipeline alignment for this bat species, although suitable foraging habitat occurs.</u>
Western Mastiff Bat (<i>Eumops perotis californicus</i>)	+/CSC/-	Occurs in a variety of habitats from woodlands to grasslands along central and southern coast and the Central Valley.	Possible. Known from eastern edge of Table Mountain. This species may forage on the <u>Project sSite</u> . Rock outcrops <u>on the Project Site</u> provide potential roosting habitat. <u>Potential foraging habitat also occurs within the Off-Site Pipeline alignment.</u>
American Badger (<i>Taxidea taxus</i>)	+/CSC/-	Found primarily in open grasslands and deserts.	Possible. Suitable habitat for this species occurs on <u>the Project sSite</u> . <u>This species could also pass through the Off-Site Pipeline alignment.</u>
San Joaquin Kit Fox (<i>Vulpes macrotis mutica</i>)	FE/-/-	Desert alkali scrub, annual grasslands; may forage in adjacent agricultural habitats.	Unlikely. Several focused surveys for the kit fox have been conducted recently on properties to the east of the study area (LOA 2002 and 2003, Stebbins 1997). Kit foxes and evidence of kit foxes were not observed. One possible sighting was made in the early 1990s along Friant Road. At this time, evidence that a kit fox population is present in the region is meager, but the USFWS claims that the area should be considered within the kit fox's range.
SENSITIVE NATURAL COMMUNITIES			
Great Valley Mixed Riparian Forest	CDFG Sensitive Natural Community		Present. This community type occurs along the San Joaquin River in the extreme eastern portion of the Project Site.

Table 4.4-3 Special-Status Species and Habitat Potentially Occurring within the Tesoro Viejo Project Site and/or Off-Site Avenue 15 Pipeline [Revised]

Species	Status (Federal/State/CNPS)	Habitat	Occurrence in the Study Area
Northern Basalt Flow Vernal Pool	CDFG Sensitive Natural Community		Absent. This community type is absent from the Project Site <u>and Off-Site Pipeline</u> .
Northern Claypan Vernal Pool	CDFG Sensitive Natural Community		Absent. This community type is absent from the Project Site <u>and Off-Site Pipeline</u> .
Northern Hardpan Vernal Pool	CDFG Sensitive Natural Community		Absent. This community type is absent from the Project Site <u>and Off-Site Pipeline</u> .
Sycamore Alluvial Woodland	CDFG Sensitive Natural Community		Absent. This community type is absent from the Project Site <u>and Off-Site Pipeline</u> .

STATUS CODES

Federal

FE = Federally Endangered
 FT = Federally Threatened
 FPT = Federally Proposed Threatened
 FC = Federal Candidate
 FPD = Federally (Proposed) Delisted

State

CE = California Endangered
 CT = California Threatened
 CSC = California Species of Special Concern
 CP = California Fully Protected

Other

CNPS 1A = Presumed extinct in California
 CNPS 1B = California Native Plant Society (CNPS) Ranking. Defined as plants that are rare, threatened, or endangered in California and elsewhere
 CNPS 2 = California Native Plant Society (CNPS) Ranking. Defined as plants that are rare, threatened, or endangered in California, but more common elsewhere

CNPS Threat Code Extension

1 = Species seriously endangered in California
 2 = Species fairly endangered in California
 3 = Species not very endangered in California

Explanation of Occurrence Designations and Status Codes

Present = Species observed on the site at time of field surveys or during recent past
 Likely = Species not observed on the site, but it may reasonably be expected to occur there on a regular basis
 Possible = Species not observed on the site, but it could occur there from time to time
 Unlikely = Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient
 Absent = Species not observed on the site, and precluded from occurring there because habitat requirements not met.

In addition to the other sources listed in this section, the following sources were used to determine the status of biological resources:

■ **Plants:**

- > Electronic Inventory of Rare and Endangered Vascular Plants of California. CNPS, Sacramento, California (CNPS Lists 1A, 1B, and 2), June 2007 and updated January 2012
- > California Natural Diversity Data Base (CNDDDB), November 2007 and updated January 2012 data search for Knowles, O’Neal’s, North Fork, Little Table Mountain, Millerton Lake West, Millerton Lake East, Lanes Bridge, Friant, Academy, Fresno North, Clovis and Round Mountain U.S.G.S. 7.5 minute quadrangles
- > Various Federal Register notices from the United States fish and Wildlife Service (USFWS) regarding listing status of plant species

- Wildlife:
 - > CNDDDB, June 2007 and updated January 2012
 - > Federal Register notices from the USFWS regarding listing status of wildlife species
- Habitats:
 - > CNDDDB, June 2007 and updated January 2012

For plants or wildlife, the “potential for occurrence” ranking listed in Table 4.4-3 and as detailed in the Live Oak Associates’ technical reports is based on the following criteria:

- *Present*—Species observed on the site at time of field surveys or during recent past
- *Likely*—Species not observed on the site, but it may reasonably be expected to occur there on a regular basis
- *Possible*—Species not observed on the site, but it could occur there from time to time
- *Unlikely*—Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient
- *Absent*—Species not observed on the site, and precluded from occurring there because habitat requirements not met

■ Definitions of Special-Status Biological Resources

Federal

A federally endangered species is one listed under the *Federal Endangered Species Act* (FESA) that is facing extinction throughout all or a significant portion of its geographic range. A federally threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The presence of any federally threatened or endangered species on a site generally imposes severe constraints on development; particularly if development would result in “take” of the species or its habitat. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct (50 CFR Section 3(17)). Harm in this sense can include any disturbance to habitats used by the species during any portion of its life history.

Proposed (or candidate) species are those officially proposed by the USFWS for addition to the federal threatened and endangered species list. Because proposed species may soon be listed as threatened or endangered, these species could become listed prior to or during implementation of a proposed development project.

State

The State of California considers an endangered species under the *California Endangered Species Act* (CESA) as one whose prospects of survival and reproduction are in immediate jeopardy; a threatened species as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management; and a rare species as one present in such small numbers throughout its range that it may become endangered if its present environment worsens. Rare species applies to California native plants.

California Species of Special Concern is an informal designation used by the CDFG, and applies to some declining wildlife species that are not state candidates for listing as threatened or endangered. This

designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFG and thus under CEQA Guidelines (Section 15380) potential impacts to these species need to be assessed.

Species that are California fully protected include those protected by special legislation for various reasons, such as the white-tailed kite and golden eagle.

Special-status habitats are vegetation communities, associations, or sub-associations designated by the CDFG and/or CNPS that support concentrations of special-status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife (CDFG ~~2007~~2012). Although special-status habitats are not afforded legal protection unless they support protected species, potential impacts on them may increase concerns and mitigation suggestions by resources agencies.

Local

The CNPS is a local resource conservation organization that has developed an inventory of California's special-status plant species (CNPS ~~2007~~2012). This inventory provides the summary of information on the distribution, rarity, and endangerment of California's vascular plants. This rare plant inventory is comprised of four lists. CNPS presumes that List 1A plant species are extinct in California because they have not been seen in the wild for many years. CNPS considers List 1B plant species as rare, threatened, or endangered throughout their range. List 2 plant species are considered rare, threatened, or endangered in California, but more common in other states. Plant species for which CNPS needs additional information are included on List 3. List 4 plant species are those of limited distribution in California whose susceptibility to threat appears low at this time. For the purpose of this EIR, only species with CNPS ratings of 1A, 1B, or 2 are assessed, because these species meet the definition of rare under the 2007 CEQA Guidelines (Section 15380).

Special-Status Plant Species

Based on the results of the CDFG, USFWS, and CNPS queries, a total of ~~47~~14 plant species occur in the region around the Tesoro Viejo Project Site and Off-Site Avenue 15 Pipeline. Of these 14 plants, 9 are listed as threatened or endangered by the State and/or federal government and the remaining 5 species are designated as List 1B plants on the CNPS Inventory. All 5 remaining species are List 1B species.²⁴ List 1B is for those species that CNPS considers threatened or endangered in California and elsewhere. All plants constituting List 1B meet the definitions of Sections 1901, 2062, and 2067 of the *California Fish and Game Code*, and are eligible for state listing. The site provides potentially suitable habitat for two special-status plant species: Madera linanthus and Sanford's arrowhead. Neither species has State or federal listing status, but they have been acknowledged by the CNPS on its List 1B ranking system. Brief accounts for these two species are presented below.

Critical Habitat designated by the USFWS has been mapped for 3 special-status species within areas proposed for the Off-Site Pipeline alignment, although these 3 species were determined unlikely to occur

²⁴ Recent modifications to the CNPS Ranking System include the addition of a new Threat Code extension to listed species (e.g., List 1B.1, List 2.2 etc.). A Threat Code extension of 1 signifies that a species is seriously ~~endangered~~ threatened in California; 2 is fairly ~~endangered~~ threatened in California; and 3 is not very ~~endangered~~ threatened in California.

due to lack of suitable habitat. The special-status plant species determined to have a potential to occur or for which Critical Habitat has been mapped by the USFWS are discussed further below. Those species not likely to occur and for which Critical Habitat has not been mapped are not discussed below, but are addressed within Table 4.4-3, as well as Appendix D1 and Appendix D3.

As noted elsewhere in this report, seasonal wetlands known as vernal pools are widely distributed in grasslands found within 1 to 5 miles of the Tesoro Viejo ~~development~~ Project site, including the undeveloped rangelands located immediately adjacent to the Off-Site Pipeline. A number of plant species endemic to vernal pools have been listed as threatened or endangered according to provisions of the state or federal endangered species acts. These listed species have a patchy distribution in vernal pools occurring in the Rio Mesa Planning Area, as well as surrounding lands. Because the Tesoro Viejo Project Site ~~does not support any vernal pool habitat, none of these listed vernal pool plant species would be expected to occur~~ and Off-Site Pipeline do not support any vernal pool habitat, none of the special-status plant species associated with vernal pools would be expected to occur. However, the Off-Site Avenue 15 Pipeline would occur within areas that have been roughly mapped as Critical Habitat by the USFWS for 3 of the listed plant species associated with vernal pools: succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass. A map depicting the USFWS-designated Critical Habitat for these three species in relation to the Off-Site Pipeline is included as Figure 6 (Critical Habitats) of Appendix D3. Although these 3 listed plant species are unlikely to occur within either the Tesoro Viejo Project Site and Off-Site Pipeline due to lack of suitable habitat, a brief discussion is presented below that addresses their specific habitat requirements and the Primary Constituent Elements (PCEs) defined by the USFWS for their Critical Habitat.

~~The site provides potentially suitable habitat for two special status plant species: Madera linanthus and Sanford's arrowhead. Neither species has State or federal listing status, but they have been acknowledged by the CNPS on its List 1B ranking system. Brief accounts for these two species are presented below.~~

Madera Linanthus (*Leptosiphon serrulatus*)

Madera linanthus is a CNPS List 1B.2 species occurring in cismontane woodland, grasslands, and lower montane coniferous forest habitats, often in decomposed granite substrates. This annual herb is a member of the Polemoniaceae (Phlox) Family that blooms April through May. The CNPS Inventory lists the elevation for this species ranging from approximately 984 to 4,265 feet above mean sea level (amsl). The scattered oak and grassland habitat on the bluffs above the San Joaquin River in the far eastern portion of the Project Site could provide potentially suitable habitat for this species. The presence of decomposed granite in the soil profile of these areas provides potentially suitable soil substrates for this species. Most documented occurrences are at elevations greater than 1,000 feet. Thus, the Tesoro Viejo Project site is 400 to 600 feet lower than most known occurrences. Two recorded occurrences, however, were in oak woodland habitat adjacent to Millerton Lake 4 to 5 miles to the northeast. These populations occurred at an elevation of approximately 600 feet amsl. One historic population was observed in the 1890s in what is now the city of Madera at an elevation of approximately 250 feet amsl. These low elevation populations that occur or once occurred relatively near the Project Site are evidence that Madera linanthus could be present within the oak and grassland communities on the bluffs above the San Joaquin River in the far eastern portion of the Project Site. The Off-Site Avenue 15 Pipeline alignment is

restricted to disturbed and developed land that lacks suitable habitat for *Madera linanthus*; therefore, this species is not likely to occur within the Off-Site Pipeline alignment.

Sanford's Arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is a CNPS List 1B.2 species that occurs in a variety of shallow freshwater habitats (i.e., marshes and swamps) primarily throughout California's Great Central Valley. This perennial herb is a member of the Alismataceae (Water-plantain) Family that blooms May through October at elevations ranging from 0 to approximately 2,000 feet amsl. This species has become established in the irrigation canals of the Fresno Irrigation District in Fresno County, where it is relatively common. Marshes created by the collection of irrigation tailwater in the main drainage passing through the site provide potentially suitable habitat for this species, as does the shoreline of the San Joaquin River. However, it was not observed during any of the field surveys conducted on the site. This species could be present in suitable wetland habitats of the site, because the timing of the field surveys conducted by Live Oak Associates, Inc. (fall and winter of 2004/05) and PBS&J (winter 2006) was not optimal for observing identifiable plants. The Off-Site Avenue 15 Pipeline alignment is restricted to disturbed and developed land that lacks suitable habitat for Sanford's arrowhead; therefore, this species is not likely to occur within the Off-Site Pipeline alignment.

Succulent Owl's-Clover (*Castilleja campestris* ssp. *succulenta*), Hairy Orcutt Grass (*Orcuttia pilosa*), and San Joaquin Orcutt Grass (*Orcuttia inaequalis*)

The Off-Site Pipeline alignment is within USFWS-designated Critical Habitat for the succulent owl's-clover, hairy orcutt grass, and San Joaquin orcutt grass.

Succulent owl's clover, also referred to as fleshy owl's-clover, is a federally threatened and California state-endangered plant species. It is also designated as a List 1B.2 plant by the CNPS. Succulent owl's clover is a member of the Orobanchaceae (Broom rape) Family that blooms April through May at elevations ranging from 164 to 2,460 feet amsl.

Hairy Orcutt grass is federally and California state-endangered and is designated as a List 1B.1 plant by the CNPS. Hairy Orcutt grass is an annual herb in the Poaceae (Grass) Family that blooms from May to September at elevations ranging from 151 to 656 feet amsl.

San Joaquin Orcutt grass is a federally threatened and California state-endangered species that is designated as a List 1B.1 plant by the CNPS. This Orcutt grass is an annual herb in the Poaceae Family that blooms in April to September at elevations ranging from 33 to 2,477 feet amsl.

The preferred habitat for succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass is vernal pools. The PCEs defined by the USFWS for these three listed plant species' Critical Habitat generally include (1) vernal pools associated with mound and intermound complex supporting flowing surface water in depressional features providing for dispersal and promoting hydroperiods of adequate length in the pools and (2) depressional features, including isolated vernal pools with underlying restrictive soil layers that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species in all but the driest years, and that do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands (USFWS 2006).

The Off-Site Pipeline alignment would be restricted to existing disturbed and developed land contained within the Avenue 15 right-of-way, which lacks suitable vernal pool habitat and the PCEs defined by the USFWS for Critical Habitat of the succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass. Projects contained within existing manmade features and structures (e.g., buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas) that are mapped within Critical Habitat and do not contain one or more of the PCEs would not trigger a consultation with the USFWS under Section 7 of the ESA unless they could affect the species and/or PCEs in adjacent Critical Habitat (USFWS 2006). The Off-Site Pipeline would not be expected to affect individuals or PCEs located within adjacent Critical Habitat. Therefore, although the Off-Site Pipeline is mapped as being contained within Critical Habitat, it does not contain the PCEs defined by the USFWS and does not provide suitable conditions to support the three species.

No Critical Habitat for succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass is mapped within the Tesoro Viejo Project Site. Further, no suitable habitat for these three species occurs on or in the immediate vicinity of the Project Site; therefore, these three species are not likely to occur within the Tesoro Viejo Project Site.

Special-Status Wildlife Species

Several special-status wildlife species occur or potentially occur in the area of the Tesoro Viejo Project Site and Off-Site Pipeline. Information regarding potentially occurring special-status wildlife species in the vicinity of the Project Site and Off-Site Pipeline alignment was gathered from the CNDDDB and USFWS electronic queries, environmental documents, and field surveys conducted for this project. These sources combined, include the identification of ~~34~~35 species: 4 invertebrates, 4 fish, 3 amphibians, 3 reptiles, ~~41~~14 birds, and ~~6~~species of 7 mammals. Five sensitive natural community types were also listed. Of these ~~34~~35 species and 5 sensitive natural community types, ~~48~~21 species (1 invertebrate, 2 fish, 2 amphibians, 1 reptile, 810 birds, and 45 mammals) and ~~4~~a single natural community type) are known to occur, or have a likelihood of occurrence, at the Project Site and/or Off-Site Pipeline (see Table 4.4-3 and Appendix D1 and Appendix D3).

Habitat requirements for many of the sensitive species reported from the surrounding area are not available within the existing habitats of the Tesoro Viejo Project Site and Off-Site Pipeline. For example, vernal pool habitats are not present on the Project Site or within the Off-Site Pipeline alignment, precluding the presence for most of the listed plant and all listed vernal pool crustacean species generated by the CNDDDB, CNPS, and USFWS electronic queries. Suitable habitat for vernal pool crustaceans was not observed at the Tesoro Viejo Project Site during the 2004 and 2006 field surveys or at the Off-Site Avenue 15 Pipeline during the 2011 field surveys. Therefore, these species are presumed to be absent from the Project site and Off-Site Pipeline. The Off-Site Avenue 15 Pipeline would occur within areas that have been roughly mapped as Critical Habitat by the USFWS for the vernal pool fairy shrimp. A map depicting the USFWS-designated Critical Habitat mapped in the vicinity of the Off-Site Pipeline is included as Figure 6 (Critical Habitats) to Appendix D3. Although the vernal pool fairy shrimp was determined unlikely to occur within both the Tesoro Viejo Project Site and Off-Site Pipeline due to lack of suitable habitat, a brief discussion is presented below that addresses its specific habitat requirements and the PCEs defined by the USFWS for its Critical Habitat.

With the exception of the detailed discussions of the San Joaquin Kit Fox (*Vulpes macrotis mutica*), those species for which habitats are not available and are not likely to occur within the Project Site are not discussed below, but are addressed within Table 4.4-3 and Appendix D1. A brief species account for those species that are likely to occur within the Tesoro Viejo Project Site follows.

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

The valley elderberry longhorn beetle (VELB), a federally threatened species, only occurs in association with its host plant, blue elderberry (*Sambucus mexicanus*), a shrub of riparian and foothill woodland habitats. ~~Valley elderberry longhorn beetle~~VELB has been documented in a variety of habitats of the Sierra foothills, as well as in the riparian corridor along the San Joaquin River below Friant Dam. Two elderberry shrubs were observed on the Tesoro Viejo Project Site in the bottomlands of the San Joaquin River. Additional shrubs could occur along the ~~R~~River should a more thorough survey be conducted.

No suitable habitat for VELB occurs on or in the immediate vicinity of the Off-Site Pipeline alignment; therefore, this species is not likely to occur within the Off-Site Pipeline alignment.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

Vernal pool fairy shrimp is a federally threatened species that is generally restricted to vernal pools and other nonvegetated ephemeral basins. This species is endemic to the grasslands of California's Central Valley, Central Coast Mountains, and South Coast Mountains within astatic, rain-filled pools. Vernal pool fairy shrimp inhabit small, clear-water, sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.

The PCEs defined by the USFWS for this species' Critical Habitat generally include (1) vernal pools associated with mound and intermound complex supporting flowing surface water in depressional features providing for dispersal and promoting hydroperiods of adequate length in the pools and (2) depressional features, including isolated vernal pools with underlying restrictive soil layers and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species in all but the driest years, and that do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands; (3) sources of food, expected to be detritus occurring in the pools, contributed by overland flow from the pools' watershed, or the results of biological processes within the pools themselves, such as single-celled bacteria, algae, and dead organic matter, to provide for feeding; and (4) structure within the pools consisting of organic and inorganic materials, such as living and dead plants from plant species adapted to seasonally inundated environments, rocks, and other inorganic debris that may be washed, blown, or otherwise transported into the pools, that provide shelter (USFWS 2006).

The Off-Site Pipeline alignment would be restricted to existing disturbed and developed land contained within the Avenue 15 right-of-way, which lacks suitable vernal pool habitat and the PCEs defined by the USFWS for Critical Habitat of the vernal pool fairy shrimp. Projects contained within existing manmade features and structures (e.g., buildings, roads, railroads, airports, runways, other paved areas, lawns, and other urban landscaped areas) that are mapped within Critical Habitat and do not contain one or more of the PCEs would not trigger a consultation with the USFWS under Section 7 of the ESA unless they

could affect the species and/or PCEs in adjacent Critical Habitat (USFWS 2006). The Off-Site Pipeline would not be expected to affect individuals or PCEs located within adjacent Critical Habitat. Therefore, although the Off-Site Pipeline is mapped as being contained within Critical Habitat, it does not contain the PCEs defined by the USFWS and does not provide suitable conditions to support vernal pool fairy shrimp.

No Critical Habitat for vernal pool fairy shrimp is mapped within the Tesoro Viejo Project Site. Further, no suitable habitat for this species occurs on or in the immediate vicinity of the Project Site; therefore, this species is not likely to occur within the Tesoro Viejo Project Site.

California Tiger Salamander (*Ambystoma californiense*)

California tiger salamander (CTS) has been documented on some lands within the Rio Mesa Planning Area. Within this planning area the largest number of known CTS locations occurred east of Little Table Mountain and west of the San Joaquin River in Sections 11, 14, and 23 of Township 10 South, Range 19 East (CNDDDB 2007). Other portions of the planning area presumably supporting CTS populations include rangeland bisected by the Madera Canal (just south of Little Table Mountain) and Root Creek and its tributaries. One juvenile CTS was apparently observed in 1993 along the Madera Canal 0.3 mile north of Road 204, which lies within the Proposed Project boundary. This individual represents the only recorded CTS occurrence within the Tesoro Viejo Project Site. Vernal pools also occur in several areas of the Root Creek watershed to the south of the site and CTS has been documented in a number of locations of this watershed.

The existing landscape within the Proposed Project consists almost entirely of vineyards surrounded by agricultural lands and disturbed annual grasslands. Scattered through the grasslands located south of the Project Site, and to the immediate north and south of the majority of the Off-Site Pipeline alignment, are a number of vernal pools. Although CTS occurrences have not been documented within these grasslands (i.e., there are no CNDDDB records of CTS on these lands), they do provide aquatic habitat suitable for breeding, and they certainly provide grassland habitat suitable for aestivation (i.e., dry season dormancy). These grasslands are located to the north of the Root Creek drainage, within which are vernal pools known to support CTS populations. Therefore, lands directly adjacent to the Tesoro Viejo Project site and Off-Site Pipeline may support CTS populations, and there are several documented occurrences of CTS on land within 3 miles of the Project site and Off-Site Pipeline.

Although surrounding lands provide habitat suitable for CTS, none of the land use types identified on the Project site itself or Off-Site Pipeline are likely to provide aquatic breeding habitat for CTS. Aquatic habitat was absent from the agricultural lands and the nonnative grassland found on the southernmost portion of Little Table Mountain, a steeply sloping hill on the Project Site. Two isolated depressions and at least some of the drainages now store irrigation tailwater during the warmer months when CTS is not active. The resulting marsh habitat in the drainages is known to support fish and is likely to support a substantial bullfrog population. Bullfrogs are also expected to be common in the isolated wetlands. Dr. Mark R. Jennings, an authority on the CTS and a herpetologist with Live Oak Associates, Inc., does not consider this marsh habitat on the Tesoro Viejo Project Site suitable breeding habitat for CTS. Aquatic habitat on the Project Site within the Madera Canal is only present during the spring and summer, long after the CTS emerges from underground refugia to lay eggs (which occurs in December, January, and

February). Even if water were present in the canal at the time of year when CTS breeds, flowing water would not constitute suitable breeding habitat.

Dr. Jennings also noted that suitable aestivation habitat in the form of undisturbed grassland habitat is absent from the Tesoro Viejo site. Agricultural lands of the site, including the extensive vineyards, orchards, and areas of row crop have been probably deep-ripped, and are now regularly disced for planting and/or weed abatement. Regular soil disturbance associated with on-going agricultural operations render agricultural areas of the site unsuitable as aestivation habitat. Limited grassland habitat was noted on the bluffs overlooking the San Joaquin River and the steep south-facing slope of the southernmost extension of Little Table Mountain. Dr. Jennings examined these areas and was of the opinion that the thin soils and the rocky substrate provided limited habitat for ground squirrels and pocket gophers. Therefore, underground refugia suitable for the CTS are probably not present in these areas. Furthermore, the steep slopes of this hilly terrain would not be traversed by CTS unless suitable aestivation habitat was present. The natural drainages of the site are also flanked by grassland habitat, but in general, the narrow grassland corridors along these drainages are in relatively steep terrain that would not be readily traversed by CTS.

The Project Site does not provide suitable dispersal habitat even though CTS can presumably move through agricultural lands. Breeding habitat located immediately east of Little Table Mountain and west of the Lands of Central Green is located more than 0.7 mile from known breeding habitat in other parts of the Rio Mesa Planning area (i.e., the Root Creek watershed located in the southern part of Rio Mesa). The agricultural lands of the Tesoro Viejo site and adjoining lands to the south are at least a mile in width, likely precluding CTS movement between potential breeding habitat. This distance between potential breeding habitats would exceed the designated dispersal distance established by the USFWS by nearly 0.5 mile. Furthermore, the Madera Canal, which passes through the northern portion of the Project Site, provides a nearly continuous barrier to CTS dispersal movements from the northern to the southern part of the Planning Area. This canal, which is operated by the Bureau of Reclamation, is approximately 40 feet in width as measured from the upper banks and has steep concrete-lined sides. In summary, no portion of the Project Site facilitates dispersal movements of the CTS between known CTS habitat in the northern and the southern portion of the Project Site.

Because most of the Tesoro Viejo Project Site is a working farm it provides little or no suitable breeding and aestivation habitat for CTS. Additionally, because the ranch represents a substantial barrier to dispersal movements from one side of the ranch to the other, it is unlikely that CTS occurs in habitats of the ranch. Accordingly, after examining agricultural land use patterns on the ranch and reviewing information related to on-site biotic habitats, the USFWS excluded the agricultural lands of the ranch from critical habitat in its final rule published in the Federal Register on August 23, 2005 (70 FR 49380). Still, approximately 163 acres of designated critical habitat for the CTS are located within the Project Site (Figure 4.4-2 [Critical Habitat for California Tiger Salamander (CTS)]). As a result of this, and the nearby occurrences that surround the Project Site, this species is considered possible to occur within suitable habitat of the site.

Source: Atkins, 2007.

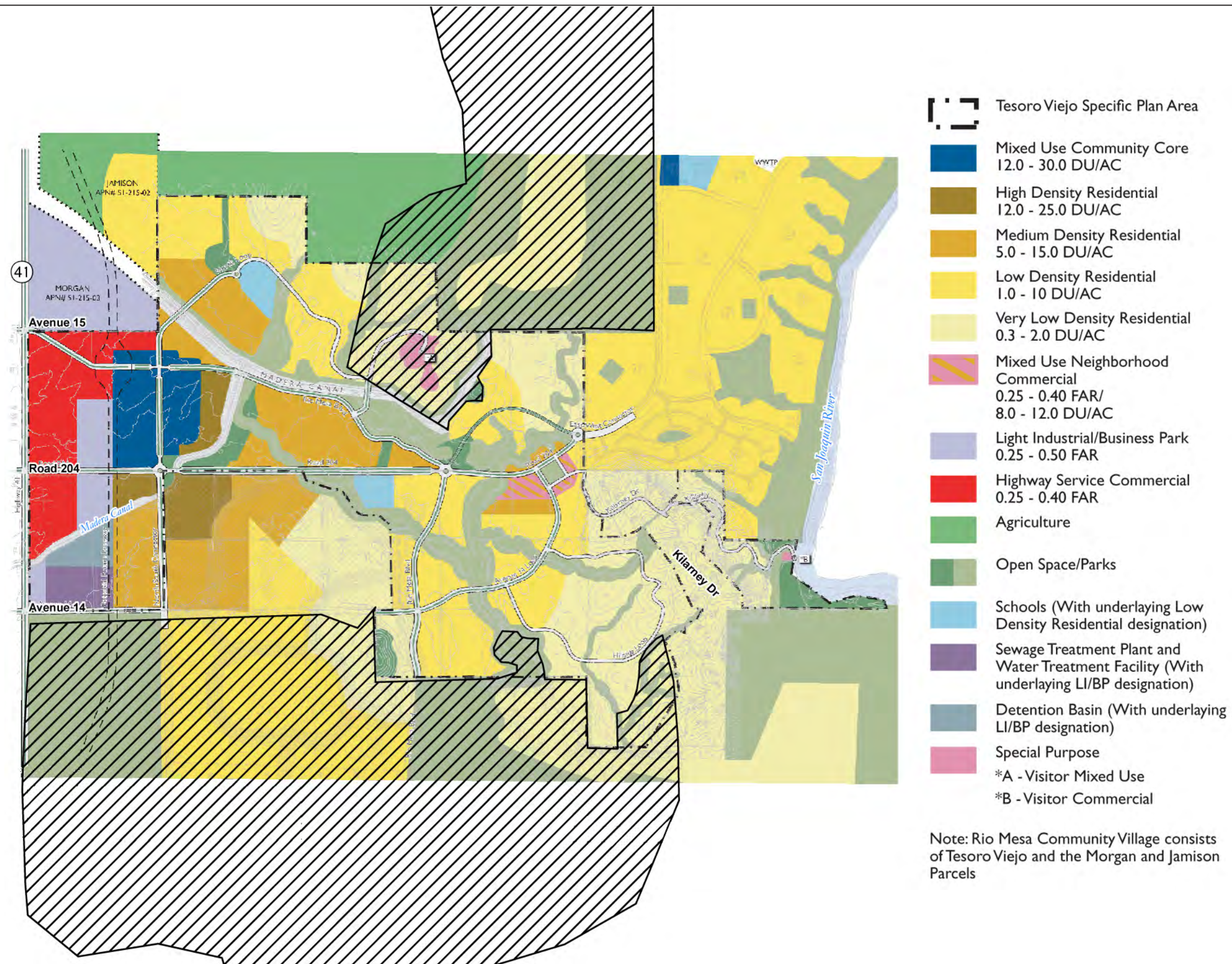


Figure 4.4-2
Critical Habitat for California Tiger Salamander (CTS) [Revised]

Potential breeding and aestivation habitat suitable for the CTS are absent from the Off-Site Avenue 15 Pipeline. Further, Critical Habitat is absent from the Off-Site Pipeline and immediate vicinity, as depicted within Figure 6 (Critical Habitats) of Appendix D3. Paved surfaces and imported road bed materials constitute the ground cover and underlying soils of the proposed alignment. These soils provide unsuitable habitat for burrowing mammals, and, therefore, provide no potential aestivation habitat for CTS. However, vernal pools and extensive grassland habitat occur within the undeveloped rangelands adjacent to portions of the Off-Site Pipeline. These adjacent areas contain suitable breeding habitat and aestivation habitat for CTS. As discussed above, several documented occurrences of CTS are located within lands in the vicinity, including a reported collection of one adult salamander crossing Avenue 15 in 1983. CTS individuals have the potential to pass through some of the areas proposed for the Off-Site Pipeline alignment when moving to breeding habitat in the fall and winter, or when dispersing from seasonal pools to aestivation habitat in the spring. Therefore, depending upon the time of year, CTS could temporarily pass through the Off-Site Pipeline alignment area.

Western Spadefoot (*Spea hammondi*)

The CDFG has ~~listed~~ designated the western spadefoot toad as a California species of special concern. The western spadefoot's historic range was from Redding to northwestern Baja California. The spadefoot was found in California throughout the Central Valley, in the South Coast Ranges and coastal lowlands from San Francisco Bay to Mexico, generally up to 3,000 feet amsl, but have been observed up to 4,500 feet amsl (Jennings and Hayes 1994). Because of habitat loss (vernal pools associated with chaparral, short grass plains, and coastal sage scrub) this species has been extirpated from many historic locations. Over the last 10 to 15 years, the spadefoot has been known to occur in Alameda, Butte, Calaveras, Fresno, Kern, Kings, Los Angeles, Madera, Merced, Monterey, Orange, Placer, Riverside, Sacramento, San Benito, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Stanislaus, Tulare, Ventura, and Yolo counties.

The western spadefoot typically breeds between January and May in seasonal ponds occurring in chaparral, short grass plains, or coastal sage scrub. For the larvae to survive, development must be complete before the ponds dry. Mostly active at night, the spadefoot has adapted by digging in sandy soils and finding refugia in small rodent burrows, creating aestivation habitat that protects it from hot, arid daytime conditions. This species may be inactive for periods of eight to nine months, and may not reach maturity for two years.

Habitats of the Tesoro Viejo Project Site were observed to be generally unsuitable as breeding and aestivation habitat for the western spadefoot. Still, nearby occurrences surround the Project Site and individuals may utilize the limited habitat that does occur on site.

Similarly, potential breeding and aestivation habitat for the western spadefoot toad are absent from the Off-Site Avenue 15 Pipeline. However, suitable breeding and aestivation habitat occurs within the vernal pools and grasslands in the immediate vicinity of the alignment. A single, juvenile spadefoot toad was observed at the edge of an existing pool located in the undeveloped rangelands adjacent to the alignment during the May 2011 surveys (Live Oak Associates, Inc. 2012). Western spadefoot toads have the potential to pass through some of the areas proposed for the Off-Site Pipeline alignment when dispersing and migrating between breeding pools and upland aestivation habitat. Therefore, depending

upon the time of year, western spadefoot toads could temporarily pass through the Off-Site Pipeline alignment area.

Western Pond Turtle (*Actinemys marmorata*)

The western pond turtle, a state species of special concern, is an aquatic turtle that ranges throughout much of the state from the foothills of the Sierra Nevada Mountains to the coast and in coastal drainages from the Oregon border to Baja California. It occurs in suitable habitat throughout the region in ponds, slow moving streams and rivers, irrigation ditches, and reservoirs that have abundant emergent and/or riparian vegetation. The turtle requires adjacent (i.e., within 200 to 400 meters of water) uplands for nesting and egg-laying—typically in soils with high clay or silt component on unshaded, south-facing slopes. The southwestern pond turtle is a State Species of Special Concern and has the potential to occupy the channels, permanently ponded areas, and San Joaquin River of the Project Site.

No suitable habitat for western pond turtle occurs on or in the immediate vicinity of the Off-Site Pipeline alignment; therefore, this species is not likely to occur within the Off-Site Pipeline alignment.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle was recently delisted from federal endangerment status; however, it is a California state endangered species. Bald eagles occurs locally in the Project Site vicinity as a winter residents. A wintering population has been established at Millerton Lake since shortly after dam construction was completed in 1941 (Rhodehamel 1991). This wintering population arrives in late October or early November and then departs for its nesting grounds in the northern United States or in Canada by late March or early April. Although bald eagles have been documented nesting at Bass Lake and Hensley Lake in the Sierra foothills, they have never been documented nesting at Millerton Lake. This wintering population frequently forages along the San Joaquin River below Friant Dam. Individual eagles may also forage in grasslands along either side of the San Joaquin River including grasslands of the Rio Mesa Planning Area.

Bald Eagles are likely to forage over that portion of the Tesoro Viejo Project Site immediately adjacent to the San Joaquin River, but they would be less likely to forage over the orchards and vineyards. Very little of the Project Site west of the bluffs overlooking the San Joaquin River provides suitable foraging habitat for the bald eagle.

No suitable habitat for bald eagle occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. Although bald eagle and other raptors could range over the general area, this species is not likely to use any portions of the Off-Site Pipeline alignment for foraging or breeding.

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk, a state threatened species, is a migrant species that spends much of the spring, summer, and early fall in California's Central Valley. The Swainson's hawk is medium sized raptors restricted to the portions of the Central Valley and the Great Basin, often near riparian systems with adequate foraging sites. These hawks are typically found near large open grasslands with abundant prey base and suitable nesting sites. Foraging habitat may include annual grasslands, lightly grazed pastures, alfalfa, and other row crops. Among suitable nesting habitats are: mature trees within riparian forests, oak

groves, along roadsides, and agricultural fields. Riparian areas along the river and adjacent nonnative grass areas within the Project Site provide potential nesting and foraging habitat for the Swainson's hawk. In a recent mapping of Swainson's hawk populations in the Central Valley, the western portion of Madera County is considered capable of supporting a sparse population of Swainson's hawk (Anderson et al 2007).

No suitable habitat for Swainson's hawk occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. Although Swainson's hawk and other raptors could range over the general area, this species is not likely to use any portions of the Off-Site Pipeline alignment for foraging or breeding.

Northern Harrier (*Circus cyaneus*)

Northern harriers, a state species of special concern, were observed foraging over grassland portions of the Tesoro Viejo Project Site during the December 2006 field survey. While it is unlikely that existing marsh habitats on the Project Site provide suitable nesting habitat for this species, the open grasslands currently provide foraging habitat for this species.

No suitable habitat for northern harrier occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. This species could range over the general area; however, is not likely to use any portions of the Off-Site Pipeline alignment for foraging or breeding.

Cooper's Hawk (*Accipiter cooperii*)

A Cooper's hawk, a species recently demoted from California state species of special concern designation, was observed in oak woodland along the San Joaquin River bottomlands in the far eastern portion of the Project Site during the December 2006 field survey. Breeding pairs may nest in the on-site riparian corridors during the spring.

No suitable habitat for Cooper's hawk occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. This species could range over the general area; however, is not likely to use any portions of the Off-Site Pipeline alignment for foraging or breeding.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike is a state species of special concern. It is a common resident and winter visitor in lowlands and foothills throughout California and prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. It occurs only rarely in heavily urbanized areas, but is often found in open cropland.

Although potential nesting habitat is absent, the Off-Site Pipeline alignment and immediate vicinity provide potential foraging habitat for the loggerhead shrike; therefore, it is possible that this species could use the Off-Site Pipeline alignment during foraging activities.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl, a state species of special concern, is a small owl occurring in grassland habitats of the Central Valley that support California ground squirrels. This owl seeks shelter in ground squirrel burrows

throughout the year and breeds in these burrows from February through July. Owl populations have declined sharply in some portions of California during the past two decades (e.g., the San Francisco Bay Area, Sacramento County, San Joaquin County, etc.), but they have increased greatly in some agricultural counties (particularly Imperial). In Fresno and Madera counties, these owls most commonly occur on the valley floor. They are not as common in foothill habitats, and are entirely absent from areas of oak woodlands and chaparral.

The Tesoro Viejo Project Site provides limited nesting and foraging habitat for this species. Vineyards, orchards, and other croplands typically do not constitute suitable habitat for this species. However, burrowing owls were observed at the Project Site during the December 2006 field survey conducted by PBS&J. One individual was observed in the southeastern portion of the Project Site near the Sumner Hill Subdivision along a drainage feature; the other individual was observed along an ephemeral drainage feature north of the Madera Canal.

Although potential nesting habitat is absent, the Off-Site Pipeline alignment and immediate vicinity provide potential foraging habitat for burrowing owl; therefore, it is possible that this species could use the Off-Site Pipeline alignment during foraging activities.

California Horned Lark (*Eremophila alpestris actia*)

The California horned lark is a California state species of concern. It is a common to abundant resident in a variety of open habitats, usually where trees and large shrubs are absent. Within California, the California horned larks breed primarily in open fields, (short) grasslands, and rangelands. Grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities provide cover. The Tesoro Viejo Project site contains suitable nesting habitat and foraging habitat for this species.

No suitable habitat for the California horned lark occurs on or in the immediate vicinity of the Off-Site Pipeline alignment; therefore, this species is not likely to occur within the Off-Site Pipeline alignment.

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

The San Joaquin kit fox, listed as a federally endangered and state threatened ~~and species, had~~ once occurred throughout much of the San Joaquin Valley, but this species favored areas of alkali sink scrub and alkali grassland in the trough of the San Joaquin Valley and Tulare Basin, as well as areas further west. The low foothills of the Sierra Nevada Mountains found at the eastern edge of the San Joaquin Valley are considered the margin of their natural range. In fact, there is one record of a sighting in the early 1990s along the border of Madera and Fresno counties east of Highway 41. The nearest confirmed record of a small kit fox population to the Project Site is western Madera County approximately 40 miles away.

A number of kit fox surveys conducted in recent years have failed to turn up any evidence of this species in the Millerton and Friant area (the general area of the Project Site-). Curt Uptain of the San Joaquin Valley Endangered Species Recovery team conducted a three-day survey of the Millerton Specific Plan Area in 1997. He concluded at that time that the Specific Plan Area did not constitute good habitat for kit foxes, due to lack of suitable denning habitat and the abundance of predators (i.e., coyotes, bobcats, raptors, etc.). He reiterated his opinions to Live Oak Associates, Inc. during a reconnaissance field survey

of the area in March of 2002 (Live Oak Associates, Inc. 2005). Live Oak Associates, Inc. conducted den surveys on portions of the Millerton Specific Plan Area in the spring of 2002, as well as on lands just north of the San Joaquin River in Madera County. These surveys included the use of camera stations and track plates wherever burrows were arguably of a size suitable for kit foxes. No evidence of kit foxes was detected during these surveys. Live Oak Associates, Inc. also conducted den surveys on River Ranch in Madera County without detecting any sign of kit foxes.

In October 2003, Live Oak Associates, Inc. conducted an extensive survey for the San Joaquin kit fox on lands fronting Friant Road in Fresno County, which is less than 3 miles east of the Tesoro Viejo Project Site. This study involved den surveys, photo stations, track plates, and night spotlighting. The results of these surveys persuaded the Federal Highway Administration that a kit fox population was absent from the area.

The Tesoro Viejo development site provides little habitat for the San Joaquin kit fox, and there is no evidence that a kit fox population occurs in this part of Madera County. As previously noted, the Site is primarily made up of agricultural lands that provide no denning and marginal foraging habitat. Grasslands associated with the river bluffs and the southern slopes of Little Table Mountain provide possible foraging habitat, but denning habitat was not observed. The Madera Canal represents at least a partial barrier to north-south movements of any kit fox.

Although the nearest documented occurrence of San Joaquin kit fox is in western Madera County, approximately 40 miles away from the Project Site, the USFWS maintain that kit fox has the potential to occur in the Friant/Millerton area of Fresno and Madera counties. Therefore, there is a low probability of occurrence within the Project Site.

No suitable foraging or denning habitat for the San Joaquin kit fox occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. As stated above, this species is reported to have a potential to occur in the Friant/Millerton area of Fresno and Madera counties, although there are no documented occurrences in the general area. Based on the lack of suitable foraging or denning habitat, this species is not likely to occur within the Off-Site Pipeline alignment.

American Badger (*Taxidea taxus*)

The American badger, a CDFG state species of special concern, is distributed throughout the western and Midwestern U.S. from Canada to Mexico. They occupy a number of diverse habitats, including grasslands, savannas, mountain meadows, coastal sage scrub, and riparian scrub, providing that the soils are friable and there is a high density of burrowing rodents. Badger populations have declined dramatically in California since the early 1900s, mostly due to intentional removal (poisoning, trapping, shooting) on agricultural lands and urbanization. Suitable habitat exists within the nonnative grassland and riparian corridors of the Project Site. The rodent prey-base for this species is relatively sparse on the Project Site, which reduces the likelihood of badger being found here on the Site.

No suitable foraging or denning habitat for the American badger occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. This species could range over the general area and temporarily pass through the Off-Site Pipeline alignment during dispersal and migration activities.

Pallid Bat (*Antrozous pallidus*)

The pallid bat is a CDFG state species of special concern that ranges from western Canada to central Mexico and occurs in open, dry habitats with rocky outcrops, cliffs, caverns, and crevices for roosting. It is most commonly found in deserts, grasslands, and shrublands, in addition to woodlands and forest. Pallid bats feed on insects, such as crickets and scorpions, and are capable of consuming up to half their weight in insects every night. Although they normally catch their prey on the ground, they usually transport their prey to their night roost for consumption.

One of the two bridged culverts for Avenue 15 that occur within the Off-Site Pipeline alignment provides suitable roosting habitat for the pallid bat. Suitable foraging habitat occurs throughout the alignment.

Western Mastiff Bat (*Eumops perotis californicus*)

The Western mastiff bat is a CDFG state species of special concern. It is the largest North American bat. This species ranges across the southwestern United States and into central Mexico. The distribution of the western mastiff bat is likely geomorphically determined, with the species being present only where there are significant rock features offering suitable roosting opportunities. It is found roosting in a variety of habitats, from desert scrub to chaparral to oak woodland, and into the ponderosa pine and mid-elevation conifer (e.g., giant sequoia) belts. It forages seasonally at higher elevations on moths, crickets, grasshoppers, and other insects.

One of the two bridged culverts for Avenue 15 that occur within the Off-Site Pipeline alignment provides suitable roosting and foraging habitat for western mastiff bat.

Spotted Bat (*Euderma maculatum*)

The spotted bat, a state species of special concern, was known from only 37 locations in California in 1997; most of which were foothill, mountain, or desert areas of Southern California (Harris 2005). It has been found in extreme, low desert habitats to high elevation forests. Spotted ~~B~~ats prefer solitary roosts on cliffs and in rocky crevices, but they may be found in caves and on buildings (Harris 2005). Spotted bats are thought to forage primarily on moths in habitats ranging from low elevation deserts to mixed coniferous forests (Harris 2005). Foraging habitat for this species exists within the Project Site. There are rock outcrops that could provide suitable roosting habitat, but use of these rocks is unknown.

No suitable roosting habitat for the spotted bat occurs within the Off-Site Pipeline alignment. However, the Off-Site Pipeline alignment does provide suitable foraging habitat for this species.

Townsend's Western Big-Eared Bat (*Corynorhinus townsendii townsendii*)

Townsend's western big-eared bat is a California state species of special concern that occurs throughout California in a wide variety of habitats. This bat species is most common at mesic sites and roosts in the open, hanging from walls and ceilings. Roosting sites are reported to be throughout its range, and the species is extremely sensitive to human disturbance. No suitable roosting or foraging habitat occurs within the Tesoro Viejo Project Site. Therefore, the species is not likely to occur.

One of the two bridged culverts for Avenue 15 that occur within the Off-Site Pipeline alignment provides suitable roosting habitat for Townsend's western big-eared bat. Suitable foraging habitat occurs throughout the alignment.

■ Fisheries Resources

San Joaquin River

The ~~Proposed~~ Project borders the San Joaquin River about 4 miles downstream of Friant Dam and Millerton Reservoir. Friant Dam is 153 miles upstream of the confluence with the Merced River (USBR 2006) putting the Project Site about 149 miles upstream of the confluence with the Merced River. The San Joaquin River in the Project Site is generally very low gradient. This assessment focuses on the species present within the immediate reach downstream of the ~~Proposed~~ Project. The fish assemblage present within this area of the valley floor has been characterized as the Deep Bodied Fish Assemblage (McBain and Trush 2002; Moyle 2002). Historically this assemblage occupied the very low gradient, warm, rivers of the San Joaquin Valley floor. The native species historically present year-round in this fish assemblage included thicktail chub (*Gila crassicauda*), tule perch (*Hysterocarpus traskii*), Sacramento perch (*Archoplites interruptus*), hitch (*Lavinia exilicauda*), Sacramento blackfish (*Orthodon microlepidotus*), and splittail (*Pogonichthys macrolepidotus*). Other species migrated through this area as adults and juveniles including Chinook (*Oncorhynchus tshawytscha*), sturgeon (*Acipenser* spp.), and steelhead (*Oncorhynchus mykiss*). Over the years, aquatic habitats were channelized, drained, isolated from floodplains, and otherwise altered in ways that allowed nonnative fish to flourish and also resulted in the reduced abundance of native fish. Today, the thicktail chub is extinct, the tule perch extirpated from the region, and other native fishes reduced geographically to remnant habitats. Nonnative fish species that currently dominate the fish community include largemouth bass (*Micropterus salmoides*), catfish (*Ictalurus* spp.), crappie (*Pomoxis* spp.), carp (*Cyprinus carpio*), striped bass (*Morone saxatilis*), bluegill (*Lepomis macrochirus*), threadfin shad (*Dorosoma petenense*), red shiner (*Cyprinella lutrensis*), and inland silversides (*Menidia beryllina*). It is this nonnative fish community that is found throughout most of the San Joaquin River (McBain and Trush 2002), including the river near the Project Site. It is likely that some native fish species such as Sacramento sucker (*Catostomus occidentalis*) and Sacramento pikeminnow (*Ptychocheilus grandis*) persist within this community. None of these are considered sensitive species.

The Off-Site Avenue 15 Pipeline alignment is proposed entirely within disturbed and developed upland areas that lack aquatic habitat for fish species. Several swales and drainage features occur in the immediate vicinity of the alignment, including two branches of Little Dry Creek that intersect and run beneath Avenue 15 through existing bridged culverts. These swales and drainage features are subject to temporary inundation and/or support ephemeral surface flows that are short-lived in the winter and spring months. Consequently, they would not be expected to provide suitable conditions to support a sustaining fish assemblage, especially that which is comprised of native and special-status fishes. Therefore, native or special-status fish species are not expected to occur within the Off-Site Pipeline alignment.

Sensitive Species Present

Salmonids

Two runs of Chinook salmon were historically present in the San Joaquin River. Spring Chinook have been extirpated from the San Joaquin basin (McBain and Trush 2002) and the only salmon remaining are fall-run Chinook. This species is not protected under the federal ESA, but naturally-reproducing populations are considered candidates for listing (69 FR 19975). Therefore, this species would be considered a sensitive species and project-related effects on this species would need to be evaluated under CEQA. However, the existing population of fall-run Chinook in the San Joaquin River spawns primarily in three major tributaries to the San Joaquin: Tuolumne, Merced, and Stanislaus rivers (McBain and Trush 2002). The mapped range of this evolutionarily significant unit (ESU) does not extend upstream past the Merced River (NMFS 1999a). Chinook are absent from the Project Site.

Central Valley populations of steelhead are listed as a threatened species and critical habitat has been designated (71 FR 834; 70 FR 52488). This listing applies only to naturally spawned anadromous fish below natural or man-made barriers. As with fall-run Chinook, the southern limit of the ESU is the Merced River (NMFS 1999b). Steelhead are absent from the Project Site.

California Roach (*Hesperoleucus symmetricus*)

The San Joaquin subspecies of California roach (*Hesperoleucus symmetricus*), the San Joaquin roach, is considered a ~~CDFG~~ state species of special concern. Because of this, project-related effects to this species need to be evaluated under CEQA. While the distribution of this species within the Project Site is uncertain, the habitat would be considered suitable for it to occur. Because of this, it is presumed to be present.

Hardhead (*Mylopharodon conocephalus*)

Hardhead, a state species of special concern, are widely distributed in low- to mid-elevation streams in the Sacramento-San Joaquin drainage. The hardhead range extends from the Kern River to the Pit River, and they are also present in the Russian River (Moyle 2002). In the San Joaquin drainage, hardhead is scattered in tributary streams and absent from valley reaches. In the Sacramento drainage, hardhead are present mostly in the Sacramento River and larger tributary streams (Moyle 2002). Hardhead tend to be absent in streams where introduced centrarchids (sunfishes) predominate, and streams that have been severely altered by human activity. Although it is unknown if they occur within the river adjacent to the Project Site, the San Joaquin River within the vicinity of the Project Site is considered suitable habitat for this species.

■ Natural Communities of Special Concern

Natural communities of special concern include those that are of limited distribution, distinguished by significant biological diversity, home to special-status plant and animal species, or of importance in maintaining water quality or sustaining flows.

Great Valley Mixed Riparian Forest found along the San Joaquin River falls in the category of a “natural community of special concern.” This community type is characterized as a tall, dense, winter-deciduous,

broad-leaved forest. The tree canopy is fairly well closed; associate species often include California box-elder (*Acer negundo* var. *californica*), California black walnut (*Juglans hindsii*), western sycamore (*Platanus racemosa*), Fremont's cottonwood, Goodding's willow, red willow, and shining willow (*Salix lucida*). Shade-tolerant sub-canopy associates include buttonbush and Oregon ash. This habitat type has been eliminated throughout much of its former range and is now relatively uncommon in the Central Valley and the low foothills of the Sierra Nevada Mountains. ~~Other natural communities of special concern are absent from the site.~~

The Off-Site Avenue 15 Pipeline alignment is restricted to disturbed and developed uplands associated with Avenue 15 that do not support natural communities of special concern.

■ Wildlife Movement Corridors

The Project Site could facilitate the regional movements of some wildlife species. Certainly, the San Joaquin River, its associated riparian woodlands, and other lands of the San Joaquin River bottom are important to local wildlife movements. Resident mule deer are known to move up and down the river. Mountain lions have occasionally been reported moving along the river in search of resident mule deer. Many mammal species including raccoons, skunks, grey foxes, bobcats, etc make routine home range movements along the river. The river corridor and its tributaries facilitate the dispersal of these species throughout the Sierra foothills. Many migratory avian species typically follow riparian corridors because they offer cover, as well as the foraging opportunities.

The principal drainage channel passing through the study area from north to south is thought to facilitate wildlife movement from the bottomlands of the San Joaquin River to the lands of Little Table Mountain and the Sierra foothills beyond. While wildlife movement along this drainage occurs, many wildlife species would not be able to readily pass beyond the Madera Canal, a concrete-lined channel. Many amphibians and small mammals, for example, would not be able to negotiate the steep banks of the concrete-lined channel. Flows in the drainage can pass under the canal via a siphon, but few animal species could pass under the canal via this route. Three road crossings of the canal provide at most limited opportunity for most terrestrial vertebrate species to pass from one side of the canal to the other.

The most likely location for wildlife movement over the canal is approximately three-quarters of a mile to the northeast of the Project Site's northern boundary where canal water enters an underground siphon for several hundred feet. This siphon allows surface flow from north to south over the canal via a tributary of the main drainage that runs through the Project Site. This tributary provides terrestrial vertebrates the only significant avenue for movement from one side of the canal to the other.

That being said, the main drainage running through the Project Site is potentially significant to regional wildlife movement because adjacent agricultural lands of the site are generally considered to be of low value for native wildlife species. Such lands would in fact be likely to impede the movement of many species through the site. For example, it is highly unlikely that amphibians such as California tiger salamanders and western spadefoot toads move through these agricultural lands. Small mammals probably do not move much through these lands either, given that the vegetative cover they require for protection from predators is largely absent. Therefore, the principal drainage passing through the site

represents one of the most likely avenues for wildlife movement from the San Joaquin River to the Sierra foothills in Madera County.

The Off-Site Avenue 15 Pipeline alignment is proposed within disturbed and developed land associated with the Avenue 15 right-of-way. Although dispersing and migrating wildlife may occasionally cross over or under that portion of Avenue 15 that is proposed for the Off-Site Pipeline, the alignment area itself does not support the resources of a temporary or live-in habitat, and, therefore, does not function to facilitate movement through a specific wildlife corridor, travel route, or other linear assemblage of habitat. Avenue 15 already presents a physical barrier to the overland movement of wildlife species that range over the general area. The proposed Off-Site Pipeline alignment would be buried beneath the ground surface through the entirety of its length, including the areas supporting existing bridges and culverts, and, therefore, would not change the existing condition or otherwise alter the ongoing effects of Avenue 15 on wildlife movement.

■ Potential Wetlands and Waters of the United States

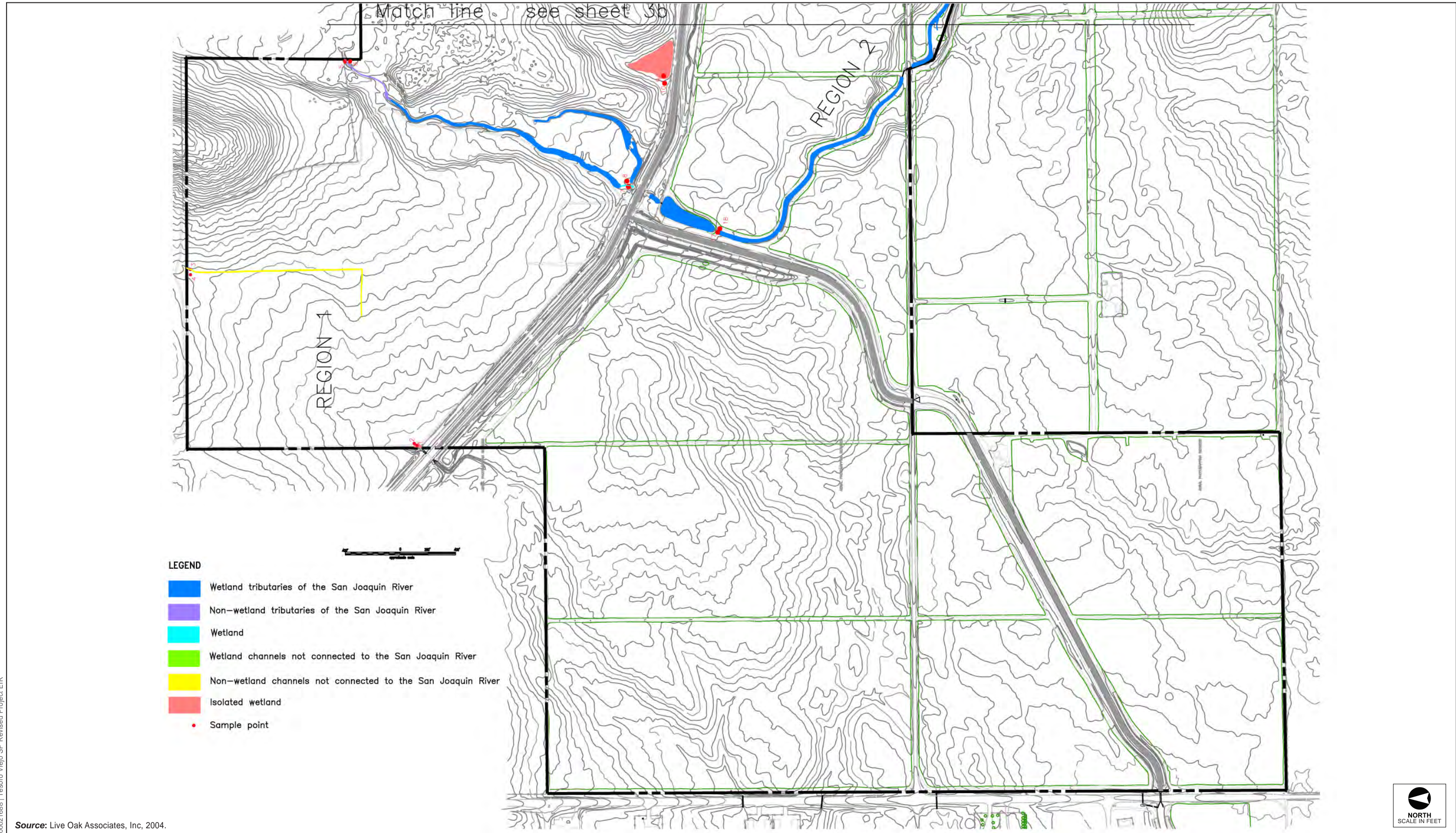
A jurisdictional wetland delineation for the Project Site was conducted by Live Oak Associates, Inc. in 2005 (Appendix D2). Field data was collected from 34 representative sample locations. The wetland delineation was conducted in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), and a draft report was prepared in accordance with the November 2001 *Minimum Standards for Acceptance of Preliminary Wetlands Delineations* notice issued by the Regulatory Branch of the Sacramento District, U.S. Army Corps of Engineers (USACE). *The National List of Plant Species That Occur in Wetlands: California (Region 0)* was used to determine the wetland indicator status of plants observed in the Study Area. The *Soil Survey, Madera Area* (Natural Resource Conservation Service 1962) was used to identify soil types within the Study Area.

A total of 23.9 acres of potentially jurisdictional waters of the United States were identified within the Tesoro Viejo Project Site (refer to Figure 4.4-3A [Waters of the United States, Western Portion of the Project Site], Figure 4.4-3B [Waters of the United States, Central Portion of the Project Site], Figure 4.4-3C [Waters of the United States, Eastern Portion of the Project Site], and Table 4.4-4 [Drainage Features and Wetlands of the Tesoro Viejo Development Site]). USACE has not yet verified the delineation and has requested changes that would involve somewhat greater claims of jurisdiction.

Table 4.4-4 Drainage Features and Wetlands of the Tesoro Viejo Development Site

<i>Drainage Category</i>	<i>Acres</i>
Wetland Tributaries of the San Joaquin River	13.20 acres
Nonwetland Tributaries of the San Joaquin River	4.5 acres
Wetlands Adjacent to Tributaries of the San Joaquin River	2.5 acres
Wetland Channels not Connected to the San Joaquin River	2.0 acres
Nonwetland Channels not Connected to the San Joaquin River	0.6 acres
Isolated Wetlands	1.1 acres
Total	23.9 Acres

SOURCE: Live Oak Associates, Inc. 2005

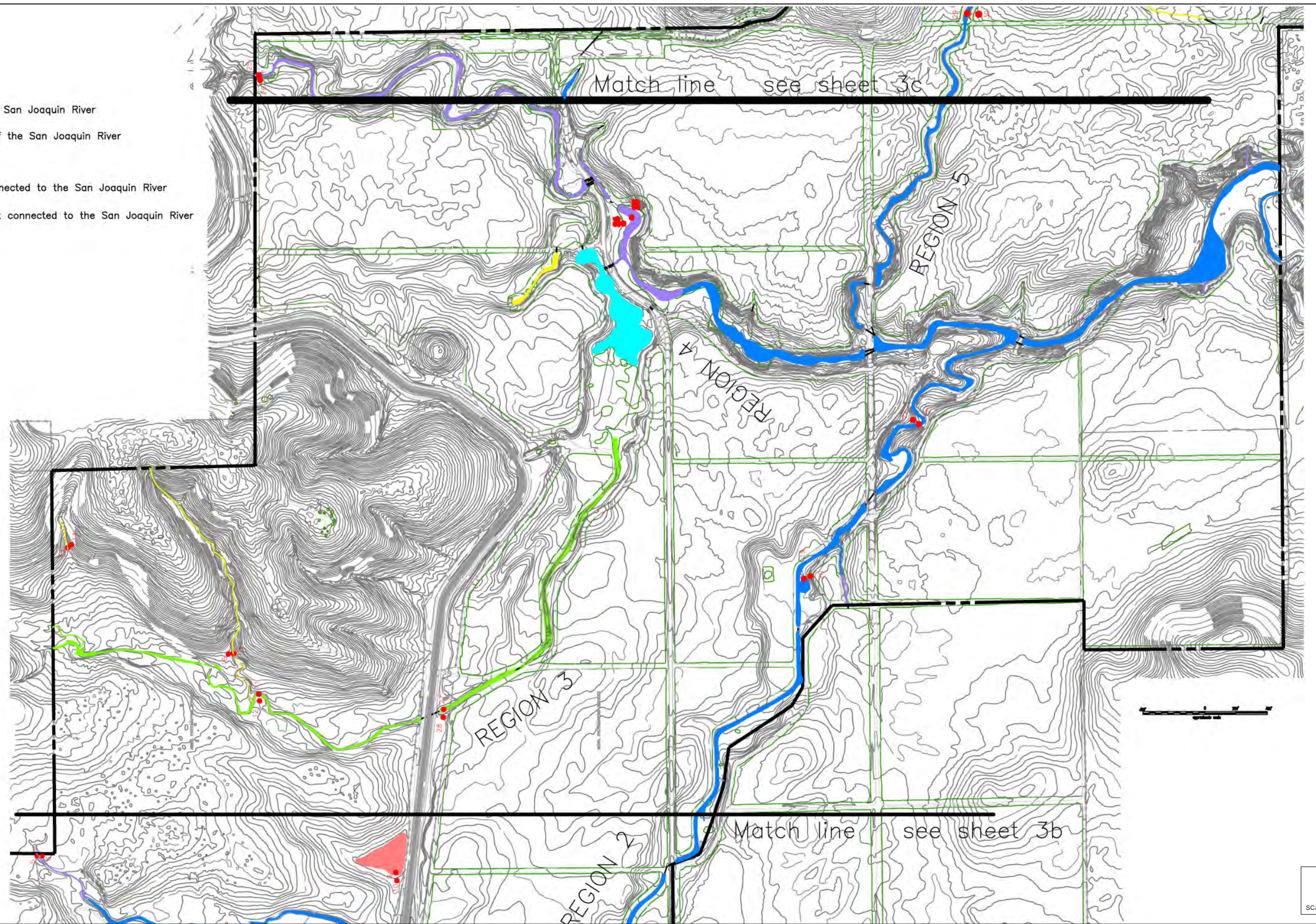


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Source: Live Oak Associates, Inc. 2004.

Figure 4.4-3A
Waters of the United States, Western Portion of the Project Site

- LEGEND**
- Wetland tributaries of the San Joaquin River
 - Non-wetland tributaries of the San Joaquin River
 - Wetland
 - Wetland channels not connected to the San Joaquin River
 - Non-wetland channels not connected to the San Joaquin River
 - Isolated wetland
 - Sample point



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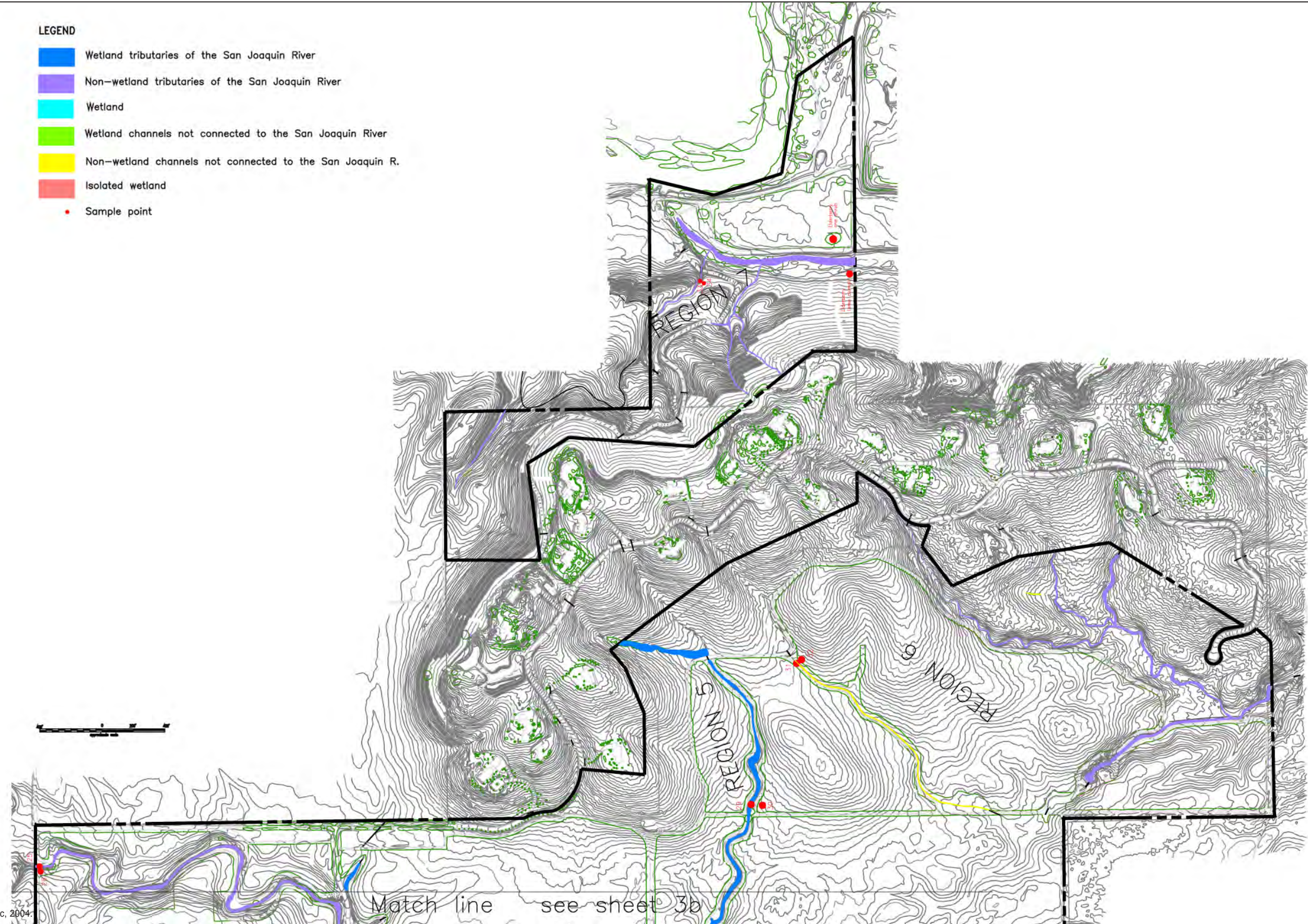
Source: Live Oak Associates, Inc. 2004.



Figure 4.4-3B
Waters of the United States, Central Portion of the Project Site

LEGEND

- Wetland tributaries of the San Joaquin River
- Non-wetland tributaries of the San Joaquin River
- Wetland
- Wetland channels not connected to the San Joaquin River
- Non-wetland channels not connected to the San Joaquin R.
- Isolated wetland
- Sample point



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Source: Live Oak Associates, Inc. 2004.

Match line see sheet 3b



Figure 4.4-3C
Waters of the United States, Eastern Portion of the Project Site

No jurisdictional wetland delineation has been conducted for the Off-Site Avenue 15 Pipeline, although the USACE has reportedly asserted jurisdiction over the branches of Little Dry Creek that intersect portions of Avenue 15 and the proposed alignment. Further, the vernal pools and swales adjacent to Avenue 15, in addition to the swales and drainages passing beneath culverts for Avenue 15, are all likely to fall under the regulatory jurisdiction of the USACE, RWQCB, and/or CDFG.

4.4.2 Regulatory Framework

Several federal, State, and regional agencies have jurisdictional responsibilities regarding permit approvals and other regulatory actions for public improvements and private development projects that could affect biological resources found within Madera County and the Rio Mesa Planning Area. Some of the permits and regulatory actions discussed below could require mitigation measures to be implemented to offset potential adverse impacts resulting from development activities.

■ Federal Policies

Endangered Species Act of 1973 (ESA)

The FESA and implementing regulations (Title 16 *United States Code* (USC) §§1531 et seq. (16 USC 1531 et seq.) and Title 50 *Code of Federal Regulations* (CFR) §§17.1 et seq. (50 CFR §§17.1 et seq.)) include provisions for the protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats. Section 7 of the FESA requires a permit to take threatened or endangered species during lawful project activities. The administering agency for the above authority is the USFWS for terrestrial, avian, and most aquatic species.

Fish and Wildlife Coordination Act

Section 7 of *Fish and Wildlife Coordination Act* (16 USC 742 et seq., 16 USC 1531 et seq., and 50 CFR 17) requires consultation if any project facilities could jeopardize the continued existence of an endangered species. Applicability depends on federal jurisdiction over some aspect of the project. The administering agency for these authorities is the USACE in coordination with the USFWS.

Migratory Bird Treaty Act

The *Migratory Bird Treaty Act* (MBTA) (16 USC §§703–711) includes provisions for the protection of migratory birds, including the nonpermitted take of migratory birds, under the authority of the USFWS and CDFG. The MBTA protects over 800 species, including geese, ducks, shorebirds, raptors, songbirds, and many common species.

Clean Water Act of 1977

Section 404

This section of the *Clean Water Act* (33 USC 1251 et seq., 33 CFR §§320 and 323) gives the USACE authority to regulate discharges of dredge or fill material into waters of the U.S., including wetlands.

Section 401

This section of the *Clean Water Act* requires a state-issued Water Quality Certification for all projects regulated under Section 404. In California, the Regional Water Quality Control Board (RWQCB) issues Water Quality Certifications with jurisdiction over the Project Site.

■ State

California Endangered Species Act

The CESA declares that deserving plant or animal species will be given protection by the state because they are of ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the state. CESA established that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. Listed species are generally given greater attention during the land use planning process by local governments, public agencies, and landowners than are species that have not been listed.

CESA authorizes that take of plant or wildlife species listed as endangered or threatened under the federal ESA and CESA may occur, pursuant to a federal incidental take permit issued in accordance with Section 10 of the federal ESA, if the CDFG certifies that the incidental take statement or incidental take permit is consistent with CESA (*California Fish & Game Code* §2080.1(a)).

California Fish and Game Code

The *California Fish and Game Code* provides specific protection and listing for several types of biological resources.

Section 1580 of the *California Fish and Game Code* presents the process and definition for Designated Ecological Reserves. Designated Ecological Reserves are significant wildlife habitats to be preserved in natural condition for the general public to observe and study.

Section 2081(b) and (c) of the CESA allows CDFG to issue an incidental take permit for a state listed threatened and endangered species only if specific criteria are met. These criteria can be found in *California Code of Regulations* Title 14—CCR, Sections 783.4(a) and (b). No Section 2081(b) permit may authorize the take of “fully protected” species and “specified birds.” If a project is planned in an area where a fully protected species or specified bird occurs, an applicant must design the project to avoid all take. The CDFG cannot provide take authorization under CESA for fully protected species.

The CDFG has direct jurisdiction under *California Fish and Game Code* Sections 1600 et seq. in regard to any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream. For activities that could affect a lake or stream bed, it is necessary to enter into a Streambed Alteration Agreement with CDFG.

Section 3503 of the *California Fish and Game Code* makes it illegal to destroy any birds’ nest or any birds’ eggs that are protected under the MBTA. Section 3503.5 further protects all birds in the orders Falconiformes and Strigiformes (birds of prey, such as hawks and owls) and their eggs and nests from

any form of take. Section 3505 makes it illegal to take, sell, or purchase any “specified birds” under the Section, including any egret or egret, osprey, bird of paradise, gaura, numidi, or any part of such bird.

Native Plant Protection Act of 1977

The *Native Plant Protection Act of 1977* and its implementing regulations set forth in Sections 1900 et seq. of the *California Fish and Game Code* designates rare and endangered plants and provides specific protection measures for identified populations. It is administered by the CDFG.

■ Regional and Local Policies

Restoration Plans

In fall 2006, the Natural Resources Defense Council, U.S. Bureau of Reclamation (USBR), and the Friant Water Users Authority reached a settlement agreement that concluded 18 years of litigation around the operation of Friant Dam (USBR 2006). This settlement agreement committed the parties to restoring flows between Friant Dam and the confluence of the San Joaquin and the Merced rivers. It also created a water management program to minimize the effect on water users of releasing more water for fish. Congressional legislation was introduced in January 2007 to allow federal agencies to implement this settlement agreement.

Tesoro Viejo Specific Plan

The Tesoro Viejo Specific Plan contains specific goals and objectives to retain, foster, and enhance the natural resources within the Tesoro Viejo Project Site. These include the following:

- Goal 21** Preserve features and resources of environmental and cultural value to enhance the future identity and value of Tesoro Viejo as a community.
- Goal 22** Identify, preserve and incorporate significant natural features such as channels, bluffs, rock outcroppings, and steep slopes into a functional open space system that is integrated into the community plan.
- Goal 23** Preserve significant biological, archaeological, and paleontological resources in a manner to reflect their importance.
- Goal 24** Establish conservation areas along drainage ways to provide an effective buffer between new development and sensitive biological and wildlife resources while allowing these areas to be a visual and recreational amenity.
- Goal 25** Create and maintain access to the San Joaquin River for both residents and visitors.
- Goal 26** Meet and, as appropriate, exceed the parks and recreation standards of Madera County.
- Goal 27** Adopt “Green Building” practices for site and building design that focus on resource and energy efficiency, and where feasible, treatment of irrigation and stormwater runoff through natural, landscape-based processes.
- Goal 28** Use of reclaimed water for landscape irrigation and other nonpotable water uses for parkways, open space areas, and agricultural uses is strongly encouraged.

- Goal 29** To the extent feasible, provide for the future use of reclaimed water for landscape irrigation within the developed areas of Tesoro Viejo.
- Goal 30** Emphasize planting of native trees, shrubs and groundcovers suitable to climatic conditions while still providing visual interest and variety

To meet these goals, the Tesoro Viejo project incorporates approximately ~~217~~218 acres of mapped open space (not including approximately ~~200~~128 acres of open space that would be integrated into developed areas). These open spaces comprise a combination of formal parks and existing natural drainages and significant biological resource areas that would be intended to serve recreational, habitat, and drainage functions of the Project Site.

Madera County General Plan

The following goals and policies included in Section 5 (Agricultural and Natural Resources) of the Madera County General Plan are relevant to the Proposed Project.

Agriculture and Natural Resource

- Goal 5.D** To protect wetland communities and related riparian areas throughout Madera County as valuable resources.
 - Policy 5.D.1** The County shall comply with the wetlands policies of the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. Coordination with these agencies at all levels of project review shall continue to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed.
 - Policy 5.D.2** The County shall require new development to mitigate wetland loss in both regulated and non-regulated wetlands through any combination of avoidance, minimization, or compensation. The County shall support mitigation banking programs that can provide the opportunity to mitigate impacts to rare, threatened, and endangered species and/or the habitat which supports these species in wetland and riparian areas
 - Policy 5.D.3** Development should be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.
 - Policy 5.D.4** The County shall require riparian protection zones around natural watercourses. Riparian protection zones shall include the bed and bank of both low and high flow channels and associated riparian vegetation, the band of riparian vegetation outside the high flow channel, and buffers of 100 feet in width as measured from the top of bank of unvegetated channels and 50 feet in width as measured from the outer edge for the canopy of riparian vegetation. Exceptions may be made in existing developed areas where existing development and lots are located within the setback areas.

Policy 5.D.5 The County shall strive to identify and conserve remaining upland habitat areas adjacent to wetlands and riparian areas that are critical to the feeding or nesting of wildlife species associated with these wetland and riparian areas.

Policy 5.D.6 The County shall require new private or public developments to preserve and enhance existing native riparian habitat unless public safety concerns require removal of habitat for flood control or other public purposes. In cases where new private or public development results in modifications or destruction of riparian habitat for purposes of flood control, the developers shall be responsible for creating new riparian habitats within or near the Project Site at a ratio of three acres of new habitat for every acre destroyed.

Policy 5.D.7 The County shall support the management of wetland and riparian plant communities for passive recreation, groundwater recharge, nutrient catchment, and wildlife habitats. Such communities shall be restored, where possible.

Goal 5.E To protect, restore and enhance habitats that support fish and wildlife species so as to maintain populations at viable levels.

Policy 5.E.1 The County shall identify and protect critical nesting and foraging areas, important spawning grounds, migratory routes, water fowl, resting areas, oak woodlands, wildlife movement corridors, and other unique wildlife habitats critical to protecting and sustaining wildlife populations.

Policy 5.E.2 The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the reasonable value of the habitat for wildlife is maintained.

Policy 5.E.3 The County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the California Department of Fish and Game officials and the U.S. Fish and Wildlife Service.

Policy 5.E.4 The County shall support preservation of the habitats of rare, threatened, endangered, and/or other special status species. The County shall consider developing a formal habitat conservation plan in consultation with federal and state agencies, as well as other resource conservation organizations. Such a plan would provide a mechanism for the acquisition and management of lands supported by threatened and endangered species.

Policy 5.E.5 The County shall support the maintenance of suitable habitats for all indigenous species of wildlife through maintenance of habitat diversity.

Policy 5.E.6 The County shall ensure the conservation of sufficiently large, continuous expanses of native vegetation to provide suitable

habitat for maintaining abundant and diverse wildlife, if this preservation does not threaten the economic well-being of the County.

- Policy 5.E.7** The County shall support the preservation of reestablishment of fisheries in the rivers and streams within the County, whenever possible.
- Policy 5.E.8** The County shall ensure close monitoring of pesticide use in areas adjacent to habitats of special status plants and animals.
- Policy 5.E.9** The County shall promote effective methods of ground squirrel control on croplands bordering sensitive habitat that do not place kit foxes and other special-status species at risk.
- Policy 5.E.10** Prior to approval of discretionary development permits involving parcels within a significant ecological resource area, the County shall require, as part of the environmental review process, a biotic resources evaluation of the sites by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of rare, threatened, or endangered species of plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible measures to mitigate such impacts or indicate why mitigation is not feasible.
- Policy 5.E.11** The County shall provide for a minimum 200-foot wildlife corridor along the San Joaquin River between Friant Dam and the Highway 145 crossing, consistent with the San Joaquin River Parkway Plan. The County shall require a buffer with a minimum width of 150 feet between existing or planned urban or suburban uses. Exceptions may be necessary where the minimum width is infeasible due to topography or other physical constraints. In these instances, an offsetting expansion on the opposite side of the river should be provided.

Policy Consistency

The Proposed Project, through incorporation of the above-detailed Tesoro Viejo Specific Plan Goals to protect natural resources and the proposed mitigation detailed below, is consistent with Madera County General Plan. As required by Policies 5.D.1 through 5.D.7, the Proposed Project will result in “no-net-loss” of wetlands and will not adversely affect wetland values through pollution or siltation. The Proposed Project will protect riparian areas through the establishment of development buffers and conservation easements within wetland, riparian, and aquatic habitats. It will also avoid, to the extent feasible, all riparian vegetation and if removal is required, replace the habitat at a minimum of 1:1 ratio. Consequently, it is consistent with Policy 5.D.6, which directs “new public and private developments” that alter riparian habitat for flood control purposes to create three acres of new riparian habitat for every acre destroyed. Consistency with this policy is discussed in greater detail in the following section. The Proposed Project, as mitigated, will also limit development within areas of high biological

significance, incorporate natural features in development designs, and protect the wildlife corridors along the San Joaquin River drainage and the connection to Little Table Mountain via the primary drainage and Madera Canal. Thus, the Proposed Project is consistent with Madera County General Plan Policies 5.E.1 through 5.E.11, which protect fish and wildlife resources.

The Off-Site Avenue 15 Pipeline, which would deliver an alternative water source to the Proposed Project, would also be consistent with Madera County General Plan Policies 5.E.1 through 5.E.11. The proposed alignment would be buried beneath the ground and contained within the disturbed and developed right-of-way for Avenue 15. As such, the Off-Site Pipeline incorporates setbacks and avoidance of sensitive biological resources that occur in the immediate vicinity of the proposed alignment, and, therefore, would be consistent with the Madera County General Plan Policies.

Rio Mesa Area Plan

The following Rio Mesa Plan policies are relevant to the Proposed Project.

3.2.5 Open Space

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|-------------------|---|
| Goal 1 | Development near areas of significant natural features or environmentally sensitive areas, should include provisions for preservation of open space |
| Policy 1.1 | Clustering of dwelling units shall be encouraged to allow for additional open space preservation, to minimize infrastructure in hillside areas and intrusion into sensitive habitat areas. |
| Policy 1.2 | Special design attention and sensitivity should be given to development in areas with highly visible hillsides, ridges, knolls, bluffs, natural vegetation areas (i.e., concentrations of naturally occurring oak and riparian trees and other natural features). |
| Policy 1.5 | Low-density or clustered development is required for commercial uses in areas protecting sensitive biological, archaeological or visual resources. |
| Goal 3 | Recognize the San Joaquin River as a significant open space and recreational amenity, and promote the preservation, enhancement, and public enjoyment of the river's flood zone corridor resources. |
| Policy 3.1 | Development along the river shall provide for special planning features to protect and preserve this unique habitat; these may include development setbacks, controlled access points and height restrictions. |
| Policy 3.2 | Encourage revegetation with native species where past activities have degraded the natural vegetation, and to enhance the effectiveness of the buffer zones |
| Policy 3.4 | Preserve and incorporate natural features along with supporting artificial and recreation features into development site design such that those features can serve as a buffer for the river corridor. |

3.2.6 Conservation and Safety

- Goal 3** Protect wildlife habitats and important vegetation such as oak woodlands and riparian woodlands.
- Policy 3.1** Limit development in areas of high biological significance through restrictive land use regulations.
- Policy 3.2** Encourage clustering of development and transfer of densities away from environmental sensitive areas.
- Policy 3.3** Encourage enhancement of natural drainage courses and riparian habitats for incorporation into active open space areas.

Policy Consistency

The Proposed Project includes policies, project features, and mitigation to protect the natural resources within the Project Site and minimize impacts to biological resources. These policies and project features limit development within areas of high biological significance and encourage clustering of development and transfer of densities away from sensitive areas, therefore, the Proposed Project is consistent with Policies 1.1, 1.2, and 1.3 of the Open Space Element of the Rio Mesa Plan. The Project also limits development in areas of high biological significance, preserves natural drainage courses, uses special planning features in areas adjacent the San Joaquin River and drainage channels, encourages revegetation with native species and the incorporation of natural features in development designs, and protects the wildlife corridors along the San Joaquin River drainage and the connection to Little Table Mountain via the primary drainage. Consequently, the Proposed Project is consistent with Policies 3.1, 3.2, and 3.4 of the Open Space element, and Policies 3.1, 3.2, and 3.3 of the Open Space Conservation and Safety Elements. As a result the Proposed Project is consistent with the Rio Mesa Plan.

Also, the Off-Site Avenue 15 Pipeline incorporates setbacks and avoidance of natural features and biological resources, and, therefore, would not conflict with the relevant policies of the Rio Mesa Plan.

San Joaquin River Conservancy Parkway Master Plan

Provisions of the San Joaquin River Parkway Master Plan (PMP) provide guidance for development along the San Joaquin River. The Madera County General Plan commits the County to supporting the goals and polices of the PMP. The following PMP policies are relevant to the Proposed Project

- Policy NP1** Provide a minimum width for the wildlife corridor of 200 feet on both sides of the river. Acquire a wider corridor whenever possible to provide greater habitat diversity and protect additional areas of native vegetation. Provide a buffer wider than 150 feet whenever more intensive uses on adjacent lands exist or are planned. Exceptions may be necessary where the minimum-width corridor or buffer or both is infeasible due to topography or other physical constraints. In those instances, provide an offsetting expansion on the opposite side of the river. Where steep bluffs drop directly into, or close to, the river, acquire the bluff face for incorporation in the corridor.
- Policy NP8.5** Confine or exclude pets that could harass or prey on wildlife in nearby areas of the Parkway.

- Policy NRD1.1** New facilities shall be sited in restored or previously developed areas. Visitor overlooks and viewing areas shall be located so as to avoid intrusion into sensitive habitat areas and to avoid habitat fragmentation.
- Policy NRD10** The Conservancy shall implement a policy requiring a continuous strip of riparian vegetation with an average width of 200 feet throughout be developed and maintained throughout the parkway. “Continuous” shall include for these purposes, gaps of no greater than 200 feet or the minimum necessary to allow infrastructure (such as roads or bridges) to cross the Parkway.
- Policy RFP6** Implement a landscape maintenance program to integrate BMPs that eliminate, reduce, or minimize the use of pesticides and herbicides.

Policy Consistency

The Proposed Project includes policies, project features, and mitigation measures designed to protect the natural resources within the Project Site and minimize impacts to biological resources, including the provision of adequate buffers between the Proposed Project and the San Joaquin River and the Proposed Project and the on-site riparian corridors. These policies, project features, and mitigation measures include (1) limiting development to areas outside of high biological significance; (2) encouraging clustering of development and transfer of densities away from sensitive areas; (3) preservation of natural drainage courses and use of special planning features in areas adjacent the San Joaquin River and drainage channels; (4) encouraging revegetation with native species; (5) incorporating natural features in development designs; (6) protecting the wildlife corridors along the San Joaquin River drainage and the connection to Little Table Mountain via the primary drainage; and (7) provisions for both active and passive parklands to meet recreational and habitat preservation objectives. As a result the Proposed Project is consistent with PMP policies designed to protect natural resources.

4.4.3 Project Impacts and Mitigation

■ Analytic Method

The analysis provided below considers the potential direct, indirect, and cumulative effects of construction and implementation of the Proposed Project, including the Off-Site Avenue 15 Pipeline described in Chapter 3 (Project Description). Potential impacts are analyzed using information identified in the project description, the environmental setting for biological resources, results of literature and field surveys, and the adequacy of on-site habitat for potentially occurring sensitive species, and then comparing this information to the Standards of Significance identified below. When a project-related change in biological resources exceeds a threshold, a potentially significant impact is considered to occur as a result of the Proposed Project. Evaluation of the Proposed Project was conducted through an examination of potential impacts that could reasonably be assumed or inferred to occur with respect to construction and/or operation of the Proposed Project. For significant impacts, mitigation measures were designed to reduce the impacts to less-than-significant levels wherever possible. For impacts that could not be reduced to less-than-significant levels, mitigation measures were designed to offset the impacts to the maximum extent possible.

Impacts to sensitive or rare species would be significant if they are expected to affect any of the following: (1) a species listed as threatened or endangered by the state of California or federal government at the time the Notice of Intent and Notice of Preparation for this EIR were published; (2) a major population or subpopulation of a species that would result in the regional decline of this species; (3) a relatively large number of individuals within a population that is considered rare or declining; (4) the species' metapopulation (e.g., if one of only a few known populations occurs in the impact zone, or if the species has extremely narrow habitat requirements); or (5) a habitat type or vegetation community in regional decline or that is regionally endemic.

Impacts to rare species would be less than significant if they do not meet the criteria above and because (1) a relatively small number of nonlisted individuals would be impacted; (2) populations with a larger number of individuals are abundant in the region; (3) recovery and conservation efforts are documented to adequately conserve the species or habitat, and impacts would not affect the recovery or conservation of this species or habitat; or (4) the species or habitat is locally common and fairly abundant in the region.

The discussion below assumes that the final plan prepared for the Tesoro Viejo Project will be consistent with the provisions of the Rio Mesa Area Plan and the Tesoro Viejo Specific Plan. The Tesoro Viejo Specific Plan indicates that, at buildout, much of the site will have been developed, but that open space corridors along the principal creek draining the site and the San Joaquin River will be maintained.

Atkins independently peer-reviewed the *Biological Evaluation Avenue 15 Pipeline Project* (Live Oak Associates, Inc. 2012), which is included as Appendix D3 to this EIR, with respect to data, methodologies, and conclusions to confirm the adequacy of the information to support the impact analysis provided herein.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on biological resources if it would do any of the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service, and meets the definition of Section 15380 (b), (c), or (d) of the CEQA guidelines
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan.

■ Effects Not Found to Be Significant

Threshold	Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
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Tesoro Viejo Project Site

As noted elsewhere in this document, vernal pools were not observed anywhere on the site. Therefore, special-status vernal pool animal species, including vernal pool fairy shrimp, Conservancy fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, and western spadefoot toad, are unlikely to occur on the site. The emergent marsh habitat and the pools that form in natural drainages of the site would not constitute suitable habitat for vernal pool species, which require seasonal pools for breeding. Emergent marsh communities observed on the site are permanent aquatic habitats supporting populations of predatory fish and bullfrogs. Vernal pool species would not become established in this type of habitat. Pools may form in the channels of natural drainages of the site, but vernal pool species attempting to use these pools would be washed into the San Joaquin River when these channels carry sustained flows of surface runoff during winter storms. Given the absence of vernal pools on the Tesoro Viejo Project Site, future site development would result in **no impact** to special-status vernal pool species.

Off-Site Avenue 15 Pipeline

The proposed alignment for the Off-Site Avenue 15 Pipeline is contained within existing disturbed and developed uplands associated with the Avenue 15 right-of-way that are characterized by paved asphalt, bare earth, and ruderal vegetation.

No suitable habitat for VELB, including potential host plants (*Sambucus* spp.), occurs on or in the immediate vicinity of the proposed alignment; therefore, VELB is not likely to occur and the Off-Site Pipeline would result in **no impact** to VELB or its habitat. No suitable habitat for western pond turtle, including permanent aquatic habitats, was determined to occur on or in the immediate vicinity of the proposed alignment; therefore, western pond turtle is not likely to occur, and construction of the Off-Site Pipeline would result in **no impact** to western pond turtle or its habitat.

In addition, no suitable foraging or breeding habitat for the California horned lark occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. Although potential foraging habitat for horned lark occurs within portions of the undeveloped rangelands adjacent to the alignment, construction of the proposed alignment would not result in any direct impacts or loss of the adjacent habitat. Therefore, construction of the Off-Site Pipeline would result in **no impact** to California horned lark or its habitat.

Further, the proposed alignment and immediate vicinity does not contain suitable nesting or foraging habitat for the following six special-status raptor species: Cooper's hawk, golden eagle, Swainson's hawk, northern harrier, prairie falcon, and bald eagle. Although these species may range and migrate over the

general area, they are not likely to use habitat located on or in the immediate vicinity of the proposed alignment for foraging or breeding. Therefore, Cooper's hawk, golden eagle, Swainson's hawk, northern harrier, prairie falcon, and bald eagle are not likely to occur, and construction of the Off-Site Pipeline would result in **no impact** to these six special-status raptor species or their habitat.

No suitable foraging or denning habitat for the San Joaquin kit fox occurs on or in the immediate vicinity of the Off-Site Pipeline alignment. This species may range throughout the Friant/Millerton area of Fresno and Madera counties, although there are no documented occurrences in the general area. Based on the lack of suitable foraging or denning habitat, San Joaquin kit fox is not likely to occur, and construction of the Off-Site Pipeline would result in **no impact** to this species or its habitat.

The Off-Site Avenue 15 Pipeline alignment is proposed entirely within disturbed and developed upland areas that lack aquatic habitat for fish species. Several swales and drainage features occur in the immediate vicinity of the alignment, which are subject to temporary inundation and/or support ephemeral surface flows that are short-lived. The existing swales and drainage features would not be expected to provide suitable conditions to support special-status fishes. Further, these resources would be avoided, with setbacks incorporated, through the implementation of trenchless pipeline installation methods (i.e., bore and jack). Therefore, **no impact** to special-status fish species or their habitat would occur as a result of construction of the Off-Site Pipeline.

If construction activities would result in discharge and runoff into adjacent drainage features and/or if the alternative water supply provided by the Off-Site Pipeline would drawdown groundwater resources in the Madera Sub-basin, such that the drawdown results in an adverse affect on surface water resources that support special-status fish species, then indirect impacts could occur to special-status fish species potentially inhabiting areas further downstream of the Off-Site Pipeline. However, construction of the Off-Site Pipeline would implement trenchless methods and incorporate setbacks from adjacent drainage features, thereby avoiding construction-related impacts pertaining to discharge and runoff from the construction site. As discussed in detail within Section 4.8 (Hydrology and Water Quality) of this EIR, protective measures would be in place to ensure that all potential discharge and runoff at the construction site is controlled and prevented from entering existing water resources. As further discussed in detail within Section 4.8 of this EIR, the alternative use of groundwater and operation of the Off-Site Pipeline would be water balanced, in that the net demand would be directly offset by either groundwater recharge activities or abandonment of irrigation and fallowing of existing agricultural lands. Further, there would be no net change in the overall annual volume of water being pumped from the ground and the underlying Madera Sub-basin compared to the baseline condition. With no net change in annual withdrawals, and the implementation of recharge and irrigation abandonment actions, the alternative use of groundwater and operation of the Off-Site Pipeline would not be expected to result in an adverse, indirect affect on surface water resources in the Madera Sub-basin that could support special-status fish species. Therefore, there would be **no impact** to special-status fish species or their habitat as a result of the construction and operation of the Off-Site Pipeline or the use of on-site or off-site groundwater supplies.

The proposed alignment for the Off-Site Avenue 15 Pipeline is contained within existing disturbed and developed uplands associated with the southern (eastbound) side of Avenue 15 and its eastern terminus. The areas proposed for the alignment have been previously graded and disturbed and are characterized

by paved asphalt, bare earth, and ruderal (weedy) vegetation. No vernal pools or suitable habitat for special-status vernal pool species was determined to occur within the proposed alignment during the May 2011 field surveys. The proposed alignment occurs within areas mapped as Critical Habitat designated by the USFWS for the vernal pool fairy shrimp. The proposed alignment does not support suitable habitat or the PCEs defined by the USFWS for the vernal pool fairy shrimp's Critical Habitat. Therefore, **no impact** to vernal pool fairy shrimp or its USFWS-designated Critical Habitat would occur as a result of habitat modification.

Threshold	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
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Tesoro Viejo Project Site

As discussed in Section 4.4.2 above, the Proposed Project includes policies and project features to protect the natural resources within the Project Site and minimize impacts to biological resources. These policies and project features include (1) limiting development within areas of high biological significance, (2) encouraging clustering of development and transfer of densities away from sensitive areas, (3) preservation of natural drainage courses and use of special planning features in areas adjacent the San Joaquin River and drainage channels, (4) encouraging revegetation with native species, (5) incorporating natural features in development designs, (6) protecting the wildlife corridors along the San Joaquin River drainage and the connection to Little Table Mountain via the primary, and (7) provisions for both active and passive parklands to meet recreational and habitat preservation objectives. As a result, the Proposed Project is consistent with the provisions of the County General Plan, the Rio Mesa Area Plan EIR, and the San Joaquin River Conservancy Parkway Master Plan. There would be **no impact**.

Off-Site Avenue 15 Pipeline

As discussed in Section 4.4.2, the Off-Site Avenue 15 Pipeline would occur within the County of Madera, and, as such, would be subject to the local policies for the protection of biological resources outlined in the County's General Plan. The Off-Site Pipeline incorporates setbacks and avoidance of natural features and biological resources, and, therefore, would not conflict with the goals, objectives, and policies of the County General Plan. Therefore, the Off-Site Avenue 15 Pipeline would result in **no impact** to local policies identified in the County General Plan.

Threshold	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan (HCPs).
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No habitat conservation plans have been prepared or considered in Madera County. Therefore, the ~~project~~ Proposed Project and Off-Site Avenue 15 Pipeline alternative would not be in conflict with any such plan. There would be **no impact**.

■ Impacts and Mitigation Measures

Threshold	Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
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Impact 4.4-1 **Implementation of the Proposed Project and Off-Site Avenue 15 Pipeline alternative could result in the loss of potential nesting and foraging habitat for Swainson’s hawk, burrowing owl, bald eagle, and/or other sensitive and/or legally protected avian species. This is a potentially significant impact. However, implementation of mitigation measures MM4.4-1(a) through MM4.4-1(d) would reduce this impact to a *less-than-significant* level.**

Tesoro Viejo Project Site

Most of the Tesoro Viejo Project Site does not provide suitable habitat for special-status avian species. However, the woodland, grassland, and riparian habitats within the Project Site provide suitable nesting sites for legally protected avian species, including among other species, Swainson’s hawk, burrowing owl, and bald eagle.

Swainson’s Hawk. Swainson’s hawks require large, open grasslands with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Suitable nest sites may be found in mature riparian forest, lone trees or groves of oaks, other trees in agricultural fields, and mature roadside trees.

The nearest historic nest site (the site has not been used in years) was near the intersection of Highways 41 and 145, 2 to 3 miles to the northwest of the Project Site. Although this species has not been observed nesting or foraging within the Project Site during field surveys in the 2005, 2006, or 2007, the riparian areas along the principal drainage and the river provide suitable nesting habitat for Swainson’s hawk. The adjacent nonnative grassland areas provide suitable foraging habitat. Loss of foraging habitat and/or impacts to nesting Swainson’s hawks is considered a potentially significant impact. Implementation of mitigation measures MM4.4-1(a) and MM4.4-1(b) would reduce potential impacts on Swainson’s hawk to a *less-than-significant* level.

Burrowing Owl. As noted earlier in this document, burrowing owls were observed at two locations within the Project Site during the December 2006 field survey. Breeding pairs could establish nest burrows on the site during the spring. Should project construction occur at a time that burrowing owls are nesting on the site, individual nests would potentially be destroyed along with any adults and nestlings that could be present. Most of the site is considered relatively poor-quality foraging habitat and the loss of this is not considered a substantial effect. The loss of nonnative grasslands would remove potentially suitable burrowing owl foraging habitat. Project-related mortality of burrowing owls and loss of substantial areas of occupied foraging habitat would be considered a significant impact. Implementation of mitigation measure MM4.4-1(c) would reduce potential impacts on burrowing owl to a *less-than-significant* level.

Bald Eagle. Foraging habitat for this species is generally confined to the bottomlands of the San Joaquin River where open space and recreational uses have been proposed. Therefore, the Proposed Project would result in a less-than-significant adverse environmental effect on foraging habitat for the bald eagle.

Other avian species that on-site habitat would be suitable for include the, Cooper's hawk, white-tailed kite, northern harrier, prairie falcon, loggerhead shrike, California horned lark, golden eagle, and other MBTA-protected or otherwise sensitive or special-status avian species listed in Table 4.4-3. Loss of substantial foraging habitat for state or federally protected species or disturbance resulting in active nest abandonment or otherwise injuring, pursuing, or killing a raptor or sensitive and/or legally protected avian species would be considered a significant impact.

MM4.4-1(a) Loss of Nesting Habitat for the Swainson's Hawk

- (1) *If construction occurs during the breeding season (February 1–August 31), the Project Applicant shall conduct CDFG-recommended protocol-level surveys prior to construction, as required by the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000), unless the CDFG indicates that no surveys or a less intensive survey methodology would be appropriate.*
- (2) *If active nests are found in the construction area, mitigation measures consistent with the CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California (CDFG 1994) shall be incorporated in the following manner, unless the CDFG indicates that no mitigation or a less intensive mitigation program would be appropriate:*
 - (i) *If an active nest is found, no intensive new disturbances (e.g., heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project-related activities that may cause nest abandonment or forced fledging, can be initiated within 200 yards (buffer zone) of an active nest between March 1 and September 15. The size of the buffer area may be adjusted if a qualified biologist and CDFG determine if it would not be likely to have adverse effects on the hawks. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active.*
 - (ii) *Nest trees shall not be removed unless there is no feasible way of avoiding removal of the tree. If a nest tree must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from CDFG with the tree removal period specified in the Management Authorization, generally between October 1 and February 1.*
 - (iii) *If construction or other project-related activities that may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site (funded by the Project Applicant) by a qualified biologist, as determined by the Lead Agency, will be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, the Project Applicant shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).*

MM4.4-1(b) Loss of Foraging Habitat for the Swainson's Hawk

If it is not possible to avoid impacts to foraging or nesting habitat of Swainson's hawk, on or off site mitigation may be required. Mitigation for the loss of Swainson's hawk foraging habitat (and by default other raptor foraging habitat) shall occur at the applicable ratio(s) set forth in the CDFG's

Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California (CDFG 1994).

MM4.4-1(c)

Burrowing Owl Nesting Habitat

- (1) *Prior to construction activities associated with each phase of the project, as determined by the County, focused pre-construction surveys shall be conducted for burrowing owls where suitable habitat is present within the construction areas. Surveys shall be conducted no less than 14 days and no more than 30 days prior to commencement of construction activities and surveys shall be conducted in accordance with current CDFG burrowing owl survey protocol.*
- (2) *If unoccupied burrows are found during the nonbreeding season, the Project Applicant may collapse the unoccupied burrows, or otherwise obstruct their entrances to prevent owls from entering and nesting in the burrows. This measure would prevent inadvertent impacts during construction activities.*
- (3) *If no occupied burrows are found in the survey area, a letter report documenting survey methods and findings shall be submitted to the County and CDFG for approval, and no further mitigation is necessary.*
- (4) *If occupied burrows are found, impacts on the burrows shall be avoided by providing a buffer of 165 feet during the nonbreeding season (September 1 through January 31) or 250 feet during the breeding season (February 1 through August 31). The size of the buffer area may be adjusted if a qualified biologist approved by the County and the CDFG determine it would not be likely to have adverse effects on the owls. No project activity shall commence within the buffer area until the qualified biologist confirms that the burrow is no longer occupied. If the burrow is occupied by a nesting pair, a minimum of 7.5 acres of foraging habitat contiguous to the burrow shall be maintained until the breeding season is over.*
- (5) *If impacts on occupied burrows are unavoidable, onsite passive relocation techniques currently approved by CDFG shall be used to encourage owls to move to alternative burrows outside of the impact area. No occupied burrows shall be disturbed during the nesting season unless the qualified biologist verifies through non-invasive methods that juveniles from the occupied burrows are foraging independently and are capable of independent survival. Mitigation for foraging habitat for relocated individuals or pairs shall follow guidelines provided in the CDFG's Staff Report on Burrowing Owl Mitigation (1995) and/or Burrowing Owl Consortium's Burrowing Owl Survey Protocol and Mitigation Guidelines (April 1993). This includes mitigation for loss of foraging habitat through the preservation of, a minimum of 6.5 acres of foraging habitat (calculated on a 100 m ~~±~~[±]~~approximately~~ 300 feet[±]) foraging radius around the burrow) per pair or unpaired resident bird.*

MM4.4-1(d)

Nesting habitat for other Migratory Bird Treaty Act (MBTA) or otherwise protected or sensitive avian species:

- (1) *When feasible, all tree removal shall occur between August 31 and February 1 to avoid the breeding season of any raptor species that could be using the area, and to discourage hawks from nesting in the vicinity of an upcoming construction area. This period may be modified with the authorization of the CDFG; or:*
- (2) *Prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 1 and August 31, all areas supporting trees, shrubs, or structures capable of supporting bird nests within 350 feet of any grading or earthmoving activity shall be surveyed for active raptor nests or owl burrows by a qualified biologist no more than 21 days prior to disturbance. If active raptor nests are found within 350 feet of potential*

construction activity, a fence shall be erected around the tree at a distance of up to 350 feet, depending on the species, from the nest location to prevent construction disturbance and intrusions on the nest area. The appropriate buffer shall be determined by the County in consultation with qualified biologists and/or the CDFG.

- (3) *Completion of the nesting cycle shall be determined by a qualified ornithologist or biologist, as determined by the County.*

Implementation of mitigation measures MM4.4-1(a) through MM4.4-1(d) would require surveys for nesting avian species and impact-avoidance measures to ensure that the loss or take of these species will not occur. In addition, loss of raptor foraging habitat would be mitigated through the conservation of lands as detailed in *CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFG 1994), the California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guideline* (April 1993), and project-related open space preservation. These measures, in combination with the MBTA and State ESA, would reduce this impact to a ***less-than-significant*** level.

Off-Site Avenue 15 Pipeline

Burrowing Owl. Although no suitable nesting or burrow habitat occurs, potential foraging habitat was determined to occur within the proposed Off-Site Pipeline alignment for the burrowing owl. This species could have breeding territories in the adjacent undeveloped rangelands, and, therefore, could forage over the proposed alignment and vicinity. If individuals are foraging over the proposed alignment during construction of the Off-Site Pipeline, construction activities could result in the temporary loss of foraging habitat and displacement of individuals. Further, construction activities associated with the Off-Site Pipeline could result in temporary increases in noise levels and vibration, which could adversely affect burrowing owls potentially nesting in adjacent habitats. These impacts would be considered significant. Implementation of mitigation measure MM4.4-1(c) would reduce potential impacts on burrowing owl to a ***less-than-significant*** level.

In addition to the burrowing owl, the Off-Site Pipeline alignment provides suitable foraging habitat (only) for two other California state species of special concern: tricolored blackbird and loggerhead shrike. Potential foraging resources that exist for these two bird species are limited and the habitat quality is relatively low. Construction of the Off-Site Pipeline would result in the temporary loss of potential foraging habitat for these two species; however, once construction is completed and the pipeline is buried beneath the ground, the alignment area will be restored to its pre-Project, disturbed and developed condition. Tricolored blackbird, loggerhead shrike, and other wildlife species would be able to continue to use the alignment areas as potential foraging habitat over the long-term. Therefore, any impacts to potential foraging habitat for tricolored blackbird and loggerhead shrike would be considered ***less-than-significant***.

Potential nesting habitat for several species of birds protected under the MBTA and *California Fish and Game Code* occurs in the immediate vicinity of the proposed alignment. The two bridged culverts for Avenue 15 that occur within the Off-Site Pipeline alignment provide suitable nesting habitat for common bird species, such as cliff swallow and black phoebe. In addition, a duck nest was observed immediately adjacent to the proposed alignment during the May 2011 surveys (Live Oak Associates, Inc. 2012). As discussed, construction activities would be restricted to disturbed and developed areas within the

Avenue 15 right-of-way, and two bridged culverts would be entirely avoided through the implementation of trenchless pipeline installation methods. Although no nesting habitat would be directly impacted, construction activities could result in adverse noise and vibration in the immediate vicinity of an active bird nest, such that the disturbance results in a nest failure, which would be a violation of the MBTA and California Fish and Game Code. These impacts would be considered significant. Implementation of mitigation measure MM4.4-1(d) would reduce potential impacts on nesting birds, including special-status species and raptors, to a *less-than-significant* level.

Impact 4.4-2 **Implementation of the Proposed Project could result in the loss of the valley elderberry longhorn beetle (VELB). This is a potentially significant impact. However, implementation of mitigation measure MM4.4-2 would reduce this impact to a *less-than-significant* level.**

Development within the Project Site could remove elderberry bushes. The USFWS assumes that impacts would occur wherever there is disturbance within 100 feet of an elderberry shrub. Elderberry shrubs are the host plant for the VELB, a species federally listed as threatened. The USFWS considers all elderberry shrubs in the Central Valley potential habitat for the beetle; therefore, adverse effects on the shrubs would be considered a “take” under the FESA. Although it is not currently known exactly how many elderberry bushes are on site, two are known to occur and others may be found within the on-site riparian vegetation. The loss of these shrubs is considered to be a significant impact. To reduce this impact, the following mitigation measures shall be implemented.

MM4.4-2 To mitigate for effects to the VELB, the Applicant shall provide compensatory mitigation in accordance with the mitigation guidelines set forth in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999). The following measures shall be implemented to provide compensatory mitigation for effects to the VELB:

Elderberry shrubs that would be removed as a result of the Proposed Project shall be removed and transplanted to a conservation area or USFWS-approved mitigation bank. Shrub removal and transplantation techniques shall be in accordance with the guidelines provided by the USFWS. A qualified biologist as determined by the County, shall be present on site for the duration of the transplanting activities. Elderberry plants shall only be transplanted when they are dormant and have lost their leaves, which is approximately November through the first two weeks of February.

Each elderberry stem measuring 1 inch or greater in diameter at ground level that is transplanted or destroyed shall be compensated at the ratios shown in mitigation guidelines set forth in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999).

Implementation of mitigation measure MM4.4-2 will provide mechanisms to identify active VELB sites and provide for a mechanism for transplantation and replacement as specified by the USFWS’s VELB Mitigation Guidelines. This mitigation measure, in combination with compliance with federal ESA requirements, would reduce impacts to VELB to *less-than-significant* levels.

Impact 4.4-3 Implementation of the Proposed Project could result in the loss of the western pond turtle. This is a potentially significant impact. However, implementation of mitigation measure MM4.4-3 would reduce this impact to a *less-than-significant* level.

The western pond turtle is an aquatic turtle that usually leaves the aquatic site to nest, aestivate, and to overwinter. It prefers ponds and marshes with some vegetative cover (including permanent and seasonal sites), but also uses slow moving streams. Although the CNDDDB did not list any occurrences of pond turtle in the Little Table Mountain quadrangle and no turtles were observed on the Project Site, focused surveys were not performed and turtles have the potential to be located in or utilize the river, onsite permanently ponded areas, and other drainage ditches within the Project Site. Because of their rarity in the area, the loss of individual western pond turtles would be considered a significant impact. To reduce this impact the following mitigation measures shall be implemented.

MM4.4-3 Loss of Western Pond Turtle

- (1) *Before any ground-disturbing construction activities begin within 150 feet of potential habitat, the Project Applicant shall retain a qualified biologist to conduct focused surveys for western pond turtle to determine the presence or absence of this species on the Project Site. Surveys shall meet the requirements of current CDFG protocols as appropriate and must be conducted every year in which construction activities would occur within potential habitat for this species and must comply with the following conditions. Surveys shall occur before April 1 to allow evaluation of the population before the turtle nesting season.*
- (2) *If western pond turtles are not found on the Project Site, a letter report documenting survey methods and findings shall be submitted to CDFG at least 5 days before construction.*
- (3) *If juvenile or adult turtles are found on the Project Site, the individuals shall be moved to suitable habitat out of the construction site with technical assistance from CDFG, as needed. All relocation shall occur prior to April 1 unless otherwise allowed by CDFG. If a nest is found in the construction area, CDFG shall be notified immediately to determine appropriate measures to protect or relocate the nest.*

Implementation of the mitigation measure MM4.4-3 will provide mechanisms to identify the presence or absence of the western pond turtle and require impact avoidance or relocation of any individuals that are found to occupy areas that would be subject to project-related modification. This mitigation measure, would reduce impacts to western pond turtle to *less-than-significant* levels.

Impact 4.4-4 Implementation of the Proposed Project and Off-Site Avenue 15 Pipeline alternative could result in the loss of the California tiger salamander and/or its designated critical habitat. This is a potentially significant impact. However, implementation of mitigation measures MM4.4-4(a) and, MM4.4-4(b), MM4.4-4(c), and MM4.4-4(d) would reduce this impact to a *less-than-significant* level.

Tesoro Viejo Project Site

The Project Site area occurs within the range of the federally threatened California tiger salamander, and contains approximately 163 acres of designated critical habitat. Although no protocol-level habitat assessments have been done on the site, the CNDDDB provided one occurrence record for this species

within the Project Site, and other occurrence records were located within 1 mile of the Project Site. Although seasonal wetlands are present, no potential breeding sites for CTS were observed by Live Oak biologists, as the existing wetlands appear to be too small, shallow, and short lived to support breeding of this species. However, because of the close proximity of a known CTS breeding site, it is still possible that CTS could occur within the Project Site, especially during dispersal migrations after larvae in the nearby pool metamorphose. If any CTS were present in the Project Site area during dispersal, implementation of the project could result in the loss of individual CTS through grading or other ground disturbance related to construction of the project. Loss of individual CTS or designated critical habitat would be considered a “take” under the FESA and would be a significant impact.

Implementation of mitigation measures MM4.4-4(a) and MM4.4-4(b) would reduce this impact to a less-than-significant level through avoidance of loss of individual CTS, or to compensate for the loss of individuals or their habitat, should they move into the area prior to construction.

MM4.4-4(a) Prior to the issuance of a grading permit, the Project Applicant shall perform protocol level habitat assessment for the California Tiger Salamander (CTS) within the Project Site. The results shall be submitted to the USFWS and if needed, the Project Applicant shall initiate an informal consultation with the USFWS to discuss measures to avoid potential take of CTS. Although details of these measures would be developed in consultation with the USFWS, they are likely to include:

- *Retaining a qualified biologist to conduct a preconstruction survey of the Project Site area to ensure that no potential upland retreat habitat has been created (i.e., through ground squirrel activity) since the 2005 habitat assessment*
- *Seasonal restrictions on grading and construction to avoid the wet season dispersal period*
- *Installation of drift fences around the perimeter of the construction area to prevent any CTS from moving into the area*
- *Retaining qualified biologists to monitor the Project Site area during construction to ensure that no CTS are harmed*

Assuming complete avoidance can be achieved, no incidental take permit would be required. However, if CTS are discovered to be present in the Project Site, and take of the species or removal of designated critical habitat cannot be avoided, the following mitigation measure shall be required.

MM4.4-4(b) If CTS are found within an area that would be directly or indirectly impacted by the Proposed Project, the Project Applicant and/or their representatives shall initiate consultation with the USFWS pursuant to Section 7 or 10 of the FESA to obtain an incidental take permit for loss of individual CTS. Detail of the requirements of the Incidental Take Permit would be developed during consultation with the USFWS, but are likely to include (but not be limited to) the following:

- *Preparation of a Biological Assessment pursuant to Section 7 of the FESA for submission to the USFWS for their review*
- *Conservation of designated critical habitat that meets the species habitat requirements, or payment of mitigation fees, and/or purchase of mitigation land to compensate for the loss of CTS habitat*
- *Retaining a CTS permitted biologist to monitor for, and potentially move CTS outside of the Project Site area*

Implementation of mitigation measures MM4.4-4(a) and MM4.4-4(b) will provide mechanisms to identify the presence or absence of the CTS and its habitat; require impact avoidance or relocation of any

individuals that are found to occupy areas that would be subject to project-related modifications; and ensure compliance with the FESA. These mitigation measures, in combination with compliance with the FESA, would reduce potential impacts to CTS and designated critical habitat to *less-than-significant* levels.

Off-Site Avenue 15 Pipeline

The proposed alignment for the Off-Site Avenue 15 Pipeline is contained within existing disturbed and developed uplands that are characterized by paved asphalt, bare earth, and ruderal vegetation. No suitable breeding or aestivation habitat for CTS was determined to occur within the areas proposed for the Off-Site Pipeline alignment. The proposed alignment lacks the appropriate topography, soils, hydrology, and vegetative constituents to support vernal pools or other potential breeding habitat for CTS. Paved surfaces and compacted road bed materials constitute the ground cover and soils of the proposed alignment. These conditions are unsuitable for the creation of burrows by burrowing mammals, and, therefore, prevent the establishment of underground refugia and potential aestivation habitat for CTS. Therefore, CTS would not be expected to breed or aestivate within the areas proposed for the Off-Site Pipeline alignment.

However, suitable breeding and aestivation habitat for CTS was determined to occur in the immediate vicinity of the proposed alignment, and this species, therefore, has the potential to range over the area. Vernal pools and expansive grassland habitat occur within the undeveloped rangelands adjacent to the alignment, which were determined to have a high potential to support CTS. Several documented occurrences of CTS are located within these adjacent lands, including a collection of one adult salamander crossing Avenue 15 in 1983. CTS individuals spend much of the dry season and summer months in underground refugia to aestivate, and the reported adult was likely crossing Avenue 15 during an overland migration in the fall, winter, or spring. In the fall and winter months, adults migrate from aestivation sites located underground to breeding sites located at seasonal pools. Adults and metamorphosed juveniles also disperse from breeding sites to aestivation sites in the spring once the seasonal pool habitat dries out.

Based on the life history requirements of CTS, individuals would not be expected to occur or move through the proposed alignment in the dry season and summer months because they would be underground at aestivation sites, which are absent from the proposed alignment. Therefore, if construction of the Off-Site Pipeline would occur during the dry season and summer months, the construction activities would likely have no effect on CTS that are aestivating in off-site refugia. However, if construction of the Off-Site Pipeline would occur during the fall, winter, or spring months during times of CTS overland excursions, the construction activities could result in impacts to CTS individuals potentially crossing Avenue 15 and moving through the proposed alignment from adjacent habitat. Individuals could be inadvertently killed, trapped, trampled, or otherwise harmed by construction activities. Direct impacts to CTS moving through the proposed alignment would be considered significant.

As discussed in detail in Section 3.7.4 of this EIR, construction of the Off-Site Avenue 15 Pipeline would be restricted to the dry season and summer months when all nearby vernal pools have dried and CTS will be aestivating underground in off-site habitats. The dry season has been defined as beginning on July 1

and ending before the first significant rain event in the fall measuring 0.25 inch or more of rain within a 24-hour period (LOA 2012). Construction of the Off-Site Pipeline would not commence until July 1, or until it has been determined by a qualified biologist that all nearby vernal pools have dried, whichever event comes first, and as proposed within mitigation measure MM4.4-4(c). Construction would also be completed before the first significant rain event in the fall measuring 0.25 inch or more of rain within a 24-hour period, thereby ensuring that construction activities end before adult CTS emerge from aestivation sites and migrate overland to breeding sites.

All trenching and ground disturbance activities associated within the Off-Site Pipeline, including the sidecast deposition of spoils, equipment use, and staging of materials, will be confined to existing paved portions of Avenue 15 or within the maintained shoulder of Avenue 15, approximately 5 feet from the edge of the existing paved areas. In addition, construction of the Off-Site Pipeline will incorporate protective measures, codified in mitigation measure MM4.4-4(d), as standard construction practices to avoid potential indirect impacts to all sensitive areas that occur outside of the Avenue 15 right-of-way and adjacent to the proposed work limits. The protective measures will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas. The silt fencing will be installed prior to the commencement of construction activities and will be removed upon completion of construction activities. As proposed within mitigation measure MM4.4-4(d), the installation and inspection of silt fencing will be conducted at the direction and under the supervision of a qualified biologist. The fencing will provide a protective barrier between the approved work limits and all adjacent sensitive areas and will restrict all construction activities, including equipment, personnel, staging, storage, and material stockpiling, to the disturbed and developed areas located within the Avenue 15 right-of-way and approved work limits. This protection measure will ensure that side-cast material will not enter these habitats in the unlikely event that a summer rain event causes erosion of sidecast soils or from inadvertent casting of material into these habitats during trenching. All material will be removed from the construction side of the silt fencing, and the pre-Project grade will be restored upon completion of pipeline installation.

Therefore, with the incorporation of the restrictions on the construction schedule and the implementation of mitigation measures MM4.4-4(c) and MM4.4-4(d), construction activities associated with the Off-Site Pipeline would not be expected to adversely affect CTS and potential impacts would be reduced to less-than-significant levels.

MM4.4-4(c) If construction activities for the Off-Site Avenue 15 Pipeline would occur before July 1, including mobilization, staging, or ground disturbance activities (e.g., ripping, excavation, and grading), the Project Applicant shall retain a qualified biologist to perform a pre-construction survey of the alignment and immediate vicinity (approximately 100 feet beyond the alignment in all directions) to confirm that all vernal pools and other seasonally wet habitats capable of supporting active CTS have completely dried. The survey shall verify the onset of the dry season in the region and that CTS potentially occurring in the alignment vicinity are positively aestivating in underground refugia and are not dispersing or migrating aboveground. The results of the pre-construction survey shall be documented in a report prepared by the qualified biologist and the report shall be submitted to the County.

Construction of the Off-Site Avenue 15 Pipeline shall not commence until it has been verified by the County, in writing, that the activities would be restricted to the dry season and would not directly or

indirectly impact CTS or its habitat, or other special-status vernal pool species and their habitat, as determined by the qualified biologist.

In the unlikely event that CTS are found within an area that would be directly or indirectly impacted by the Off-Site Avenue 15 Pipeline, the Project Applicant shall implement mitigation measure MM4.4-4(b).

MM4.4-4(d) Prior to construction activities for the Off-Site Avenue 15 Pipeline, including mobilization, staging, or ground disturbance activities (e.g., ripping, excavation, and grading), the Project Applicant shall retain a qualified biologist to monitor the installation of temporary silt fencing along the south side of Avenue 15 and the proposed alignment, which occur within 25 feet of sensitive areas, including vernal pools, potential jurisdictional resources, and suitable aquatic habitat for CTS and western spadefoot toad. Upon completing the installation of the silt fencing, the qualified biologist shall inspect all fencing to verify it has been installed in the appropriate locations and it will be effective in serving as a protective barrier to construction-related activities. The temporary silt fencing shall be monitored and repaired by the Construction Contractor, as appropriate, throughout the duration of construction activities. The fencing shall be removed and properly disposed of by the Construction Contractor upon completion of construction activities.

Implementation of mitigation measure MM4.4-4(c) would ensure that construction of the Off-Site Avenue 15 Pipeline would not occur during times when CTS have a potential to disperse or migrate onto the construction site and approved limits of work, thereby preventing any impacts to CTS individuals. Mitigation measure MM4.4-4(c) would also require compliance with the FESA and implementation of avoidance, minimization, and conservation measures developed in consultation with the USFWS. Implementation of mitigation measure MM4.4-4(d) would further ensure that sensitive areas and suitable habitat for CTS are avoided and protected from construction activities through the installation of silt fencing. These mitigation measures, in combination with the restrictions on the construction schedule and compliance with the FESA, would reduce potential impacts to CTS to *less-than-significant* levels.

Impact 4.4-4(a) Implementation of the Off-Site Avenue 15 Pipeline alternative could result in the loss or degradation of habitat for the vernal pool fairy shrimp, including its designated Critical Habitat. This is a potentially significant impact. However, implementation of mitigation measures MM4.4-4(c) and MM4.4-4(d) would reduce this impact to a *less-than-significant* level.

While no impacts to vernal pool fairy shrimp or its USFWS-designated Critical Habitat were determined to occur as a result of habitat modification of the Avenue 15 pipeline, vernal pools and other suitable habitat for vernal pool fairy shrimp, including USFWS-designated Critical Habitat, occur within the undeveloped rangelands adjacent to portions of the proposed alignment. As proposed within mitigation measure MM4.4-4(c), construction of the Off-Site Pipeline would not commence until July 1, or until it has been determined by a qualified biologist that all nearby vernal pools have dried, whichever event comes first. Construction would also be completed before the first significant rain event in the fall measuring 0.25 inch or more of rain within a 24-hour period, thereby ensuring that construction activities are restricted to the dry season and during periods when rainfall events that could cause runoff from the construction site into adjacent habitats are highly unlikely.

Construction of the Off-Site Avenue 15 Pipeline will incorporate protective measures, codified in mitigation measure MM4.4-4(d), as standard construction practices to avoid potential indirect impacts to

all sensitive areas that occur outside of the Avenue 15 right-of-way and adjacent to the proposed work limits. The protective measures will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas. As proposed within mitigation measure MM4.4-4(d), the installation and inspection of silt fencing will be conducted at the direction and under the supervision of a qualified biologist, thereby ensuring that the silt fencing is installed and functioning properly to prevent potential indirect impacts to adjacent sensitive areas designated as Critical Habitat and potentially occupied by vernal pool fairy shrimp. The silt fencing will be installed prior to the commencement of construction activities and will be removed upon completion of construction activities. The fencing will provide a protective barrier between the approved work limits and all adjacent sensitive areas and will restrict all construction activities, including equipment, personnel, staging, storage, and material stockpiling, to the disturbed and developed areas located within the Avenue 15 right-of-way and approved work limits. This protection measure will ensure that side-cast material will not enter these habitats in the unlikely event that a summer rain event causes erosion of sidecast soils or from inadvertent casting of material into these habitats during trenching. All material will be removed from the construction side of the silt fencing, and the pre-Project grade will be restored upon completion of pipeline installation.

Therefore, with the incorporation of protective measures and standard construction practices, and the implementation of mitigation measures MM4.4-4(c) and MM4.4-4(d), the Off-Site Pipeline would result in a *less-than-significant* impact on vernal pool fairy shrimp and its USFWS-designated Critical Habitat.

Impact 4.4-5 **Implementation of the Proposed Project and Off-Site Avenue 15 Pipeline alternative could result in the loss or degradation of habitat for the western spadefoot. This is a potentially significant impact. However, implementation of mitigation measures MM4.4-4(a), MM4.4-4(b), MM4.4-4(c), MM4.4-4(d), and MM4.4-5 would reduce this impact to a *less-than-significant* level.**

Tesoro Viejo Project Site

Within the Project Site potential habitat for the western spadefoot includes seasonal wetlands and adjacent grassland habitat. Because the western spadefoot has been sighted within 0.5 miles of the Project Site in the recent past, and marginally suitable habitat occurs within the Project Site, it must be assumed that it could be present. If present on site, the development of seasonal wetlands and the adjacent habitat could result in the destruction of individual western spadefoot and/or its habitat. This would be considered a significant impact.

Although marginally suitable habitat exists for western spadefoot within the Project Site, there is no standardized survey protocol for this species. The adults are very cryptic and difficult to find. However, the CTS surveys required by MM4.4-4(a) are likely to identify western spadefoot larvae if they have spawned in the given year that the surveys were conducted. If western spadefoot is not detected during surveys, there would be no impacts and no further mitigation is required. If the western spadefoot are detected the following mitigation measure will be implemented.

MM4.4-5 *The aquatic habitat that could potentially be occupied by western spadefoot shall be determined through surveys conducted during the appropriate season (generally February, but dependant on rainfall), by a qualified biologist, as determined by the County. Those areas that are found to support western spadefoot shall be avoided, if feasible. If avoidance is not feasible, the CDFG shall be consulted to approve a western spadefoot's adult, larval, or egg mass capture and relocation plan. While there are no set protocols for the capture and relocation of reptile and amphibian species (from areas that will be destroyed to areas of unoccupied suitable habitat), it is a standard measure employed by both the USFWS and CDFG for mitigating the loss of population. When done in combination with habitat restoration and preservation that is required through State and Federal no net loss of wetlands policy, the procedure is known to be successful in preserving displaced populations. This measure would mandate that, to the extent feasible, western spadefoots that are displaced from occupied aquatic habitat destroyed during construction, would be relocated to protected areas of suitable habitat, thereby reducing impacts on western spadefoots to less-than-significant levels.*

Implementation of the mitigation measures MM4.4-4(a), MM4.4-4(b), MM4.4-4(c), MM4.4-4(d), and MM4.4-5 will provide mechanisms to identify the presence or absence of the western spadefoot and its habitat, and require impact avoidance or relocation of any individuals that are found to occupy areas that would be subject to project-related modification. This mitigation measure, combined with the Proposed Project's compliance with the federal and state "no net loss of wetlands" policy and the County's wetlands protection policies would reduce impacts to the western spadefoot and its habitat to ***less-than-significant*** levels.

Off-Site Avenue 15 Pipeline

As with the CTS, the western spadefoot toad also has the potential to pass through the areas proposed for the Off-Site Pipeline alignment during breeding and dispersal movements. Although potential breeding and aestivation habitat for this species is absent from the proposed alignment itself, potential breeding pools are located adjacent to portions of the proposed alignment. A single juvenile spadefoot toad was observed at the edge of an adjacent pool during LOA's 2011 field investigation.

If construction of the Off-Site Pipeline would occur during the fall, winter, or spring months during times of western spadefoot toad overland excursions, the construction activities could result in impacts to spadefoot individuals potentially crossing Avenue 15 and moving through the proposed alignment from adjacent habitat. Individuals could be inadvertently killed, trapped, trampled, or otherwise harmed by construction activities. Direct impacts to western spadefoot toad individuals moving through the proposed alignment could be considered significant.

As discussed above for CTS and in detail in Section 3.7.4 of this Revised EIR, construction of the Off-Site Avenue 15 Pipeline would be restricted to the dry season and summer months when all nearby vernal pools have dried. Similar to CTS, western spadefoot toads would also be aestivating underground refugia located off site during this time. Therefore, with the incorporation of the restrictions on the construction schedule and the implementation of mitigation measure MM4.4-4(c) proposed for CTS, construction activities associated with the Off-Site Pipeline would not be expected to directly impact western spadefoot toads, and potential impacts would be reduced to a ***less-than-significant*** level.

Construction activities adjacent to suitable habitat for western spadefoot toad could result in potentially significant indirect impacts to the species. As discussed above for CTS, all trenching and ground

disturbance activities associated within the Off-Site Pipeline will be confined to existing paved portions of Avenue 15 or within the maintained shoulder of Avenue 15, approximately 5 feet from the edge of the existing paved areas. Construction of the Off-Site Pipeline will incorporate protective measures as standard construction practices that will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas. As proposed above for CTS and within mitigation measure MM4.4-4(d), the installation and inspection of silt fencing will be conducted at the direction and under the supervision of a qualified biologist. Therefore, with the implementation of mitigation measure MM4.4-4(d), construction activities associated with the Off-Site Pipeline would not be expected to adversely affect western spadefoot toads or their habitat, and the potential indirect impacts would be reduced to a *less-than-significant* level.

Impact 4.4-6 Implementation of the Proposed Project would not have a significant adverse effect on special-status fish species. This is considered a *less-than-significant* impact.

The Proposed Project would change the land use of the Project Site from the existing agricultural use to urban uses (residential, commercial, industrial, etc.). This change could alter the pattern in which water is extracted from the San Joaquin River. If that change in pattern creates an increase in diversion that is substantially different than the agricultural pattern, then the Proposed Project could reduce available habitat for aquatic resources in the San Joaquin River. The Proposed Project does not require any modifications of existing intake structures that could directly impact the hardhead, San Joaquin roach, or other undocumented sensitive fish species, residing in the immediate Project Site. Therefore, for the Proposed Project to have an impact on fisheries resources in the San Joaquin River it would have to result in an alteration of flows that would substantially interfere with the movement of native resident or migratory fish or impede their use of spawning areas. This could apply to the hardhead, roach, sucker, or pikeminnow present in the immediate vicinity of the Proposed Project. The Infrastructure Master Plan (IMP) (PPEG 2007, amended 2008) does not contain detailed information about the extraction rates, but presents a graph of historical agricultural pumping with projected project-generated demand for the same historical time period (Figure 4.4-4 [Agricultural Diversion Compared to Predicted Urban Diversion of the Proposed Project]) (PPEG 2007, amended 2008). Any time the Proposed Project has pumping that is greater than the existing agricultural use, there is the potential for the project to impact aquatic resources. In the January 2004 to October 2006 data presented in the IMP, there are two general periods in which the project use would have been greater than the agricultural use: winter and spring months, typically November through March, and October.

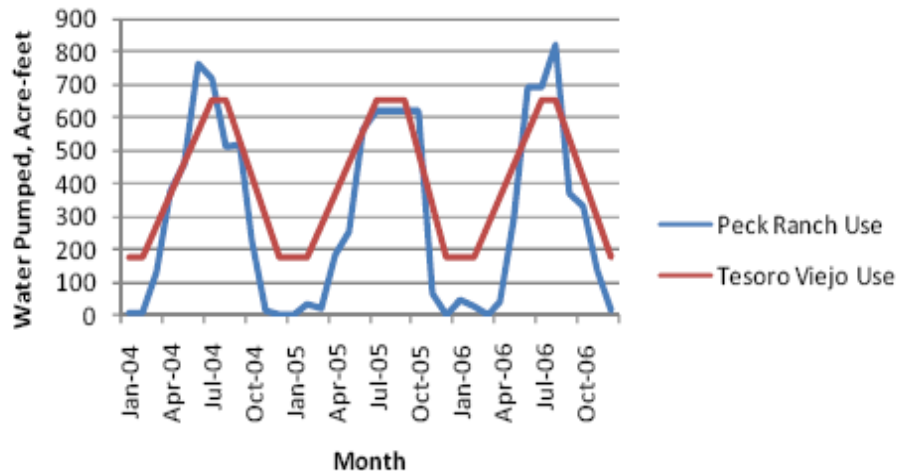


Figure 4.4-4 Agricultural Diversion Compared to Predicted Urban Diversion of the Proposed Project

SOURCE: PPEG 2007, amended 2008

In the winter through spring months, approximately November through March, agricultural diversions are essentially zero and they gradually increase in the spring as the weather warms and the rains stop. Demand for water in an urban setting remains regardless of the weather. This results in higher diversions by almost 200 acre-feet (AF) per month in the dead of winter. These rates gradually increase in the spring, slowly converging on the agricultural rates for the most part (Figure 4.4-4). However, there is typically an abundance of water in the winter and spring months that results from winter runoff and spring snowmelt. Two hundred AF over a one month period (30 days) equates to a mean daily flow of 3.4 cfs. The mean lowest flow on record between 1941 and 2006 below Friant (USGS Gage # 11251000) for the November through March period is about 26 cfs; however, under current operating rules, the Bureau of Reclamation is required to maintain a flow of five (5) cfs²⁵ at all times at the last point of riparian diversion, which is Gravelly Ford, approximately seven miles downstream from the project. The demands of the various Holding Contract and riparian users in the reach between Friant and Gravelly Ford must be accounted for in the release from the dam at any given time. The variations in demand between the historic Peck Ranch usage curve and that proposed for the Proposed Project at build-out would be accommodated by slight decreases or increases in the dam release, and would not affect downstream flows.

October is another period where urban-generated uses are predicted to be different from agricultural uses. The graph in October indicates an increase in diversion for the Proposed Project as compared to the existing agricultural uses. This difference reaches a maximum of about 200 AF per month, or about 3.4 cfs. The average absolute minimum flow in October is about 44 cfs. Therefore, the project could reduce flows in the San Joaquin River by about 7.7 percent under a worst case scenario.

In the summer, which is generally from April through September, agricultural diversions historically peak. The Proposed Project would also generate its highest demand during these months, but typically

²⁵ This flow rate is set to increase to approximately 40 cfs, still measured at Gravelly Ford, upon full implementation of the San Joaquin River Litigation Settlement Agreement.

not more than the historic agricultural uses (although the summer of 2005 did show the agricultural uses would have been slightly less than the Proposed Project's uses). Based on the information provided in the IMP, there are relatively minor differences in summer diversion amounts between the existing agricultural use and the projected urban use associated with the Proposed Project. In two out of the three years presented, the agricultural uses are actually higher than projected urban uses. Flows are relatively higher in the late spring and summer periods because of water from snowmelt in the Sierra Nevada Mountains. Based on the IMP, the increase in project-related urban use would have been greater than the agricultural use during the summer of 2005 by about 33 AF per month. This equates to a difference in flow of about 0.6 cfs. Compared to the average of the lowest flows on record from July through September of about 75 cfs, this increase in water use is not substantial.

As previously mentioned, the Proposed Project is anticipated to result in a 13 percent increase in diversion during the extremely dry winter months or a 7.7 percent increase in October, but it will not affect actual downstream river flows because of the rules requiring minimum flows measured at Gravelly Ford. Therefore, the Proposed project will not result in a substantial alteration of available aquatic habitat or impair fish movement, particularly during the sensitive life cycle stages for native fish, which spawn in the Spring (Moyle 2002).

The relatively minor increases and decreases discussed above will not substantially change habitat for native fish, impede the use of nursery habitat, or block migration corridors. Therefore, because the habitat available for native fish will be reduced, but not substantially, and the on-site channels would not be altered, this impact is considered *less than significant*. No mitigation is required.

In addition, the Proposed Project should not directly conflict with proposed restoration plans for the San Joaquin River. The reduction in summer diversions and a corresponding increase in winter diversions should allow more water to remain in the stream for summer use. The magnitudes of changes that are attributable to the Proposed Project are not likely to substantially alter habitat under any restoration plans that may be created.

Lastly, and as described in Section 4.8 (Hydrology and Water Quality) and Section 4.14 (Utilities and Service Systems) of this EIR, the Project Applicant has identified one primary off-site groundwater alternative and one potential MID surface water alternative in the event that Holding Contract No. 7 water were not available. In addition, on-site groundwater recently discovered to be available is now anticipated to be used under all water supply scenarios. The use of the groundwater alternatives would be water balanced, in that the net demand of the Proposed Project would be directly offset by either groundwater recharge or abandonment of irrigation practices and fallowing of existing agricultural lands overlying the Madera Sub-basin. As a result, pumping withdrawals under the groundwater alternatives would not change the hydrology of surface water features contributing to special-status fish habitat within or adjacent to the Project Site. This impact is considered *less than significant*, and no mitigation is required. Impacts to fisheries habitat using MID surface water from the San Joaquin River would be the same as if Holding Contract No. 7 water from the San Joaquin River were used. As previously concluded, habitat available for native fish would be reduced, but not substantially, and the on-site channels would not be altered. This impact is considered *less than significant*, and no mitigation is required.

Impact 4.4-7 Implementation of the Proposed Project and Off-Site Avenue 15 Pipeline alternative would not have a significant adverse effects on the San Joaquin kit fox, the American badger, or special-status bat species. This is considered a potentially significant impact. However, implementation of mitigation measure MM4.4-4(d) would reduce this impact to a less-than-significant impact level.

Tesoro Viejo Project Site

San Joaquin Kit Fox. The site provides limited, marginal quality foraging habitat and no denning habitat for the San Joaquin kit fox. As noted earlier, this species is not known to occur in this portion of Madera County. Therefore, although the Project Site may provide limited foraging habitat for kit foxes, there is no evidence that a kit fox population exists in this portion of Madera County and impacts would be less than significant.

American Badger. The site provides limited foraging and denning habitat for the badger. As noted earlier, this species is not known to occur on the site and the amount of agricultural production within the Project Site would limit the badger's primary areas of foraging to the riparian corridors and the open space along Table Mountain and San Joaquin River. Because these areas would not be developed, they would be open for continued foraging and denning opportunities during and after project implementation and impacts would be less than significant.

Special-Status Bat Species. Mammal species that would potentially forage on the site include pallid bats, spotted bat, and western mastiff bats. The site provides little to no roosting habitat for these species. Even after the Project Site has been built out, these bat species would be likely to forage in the air space over the site even with residential development and infrastructure in place. In addition, suitable roosting areas such as woodlands, riparian vegetation, bluffs, and rock outcroppings would be retained under the Proposed Project. Impacts would be less than significant.

As discussed above implementation of the Proposed Project would have *less-than-significant* impact on the San Joaquin kit fox, the American badger, and special-status bat species. No mitigation is required.

Off-Site Avenue 15 Pipeline

San Joaquin Kit Fox. As discussed above, this species is not known to occur in the portion of Madera County that encompasses the Tesoro Viejo Project Site and Off-Site Pipeline. No suitable habitat for the San Joaquin kit fox occurs within the Off-Site Pipeline alignment, and this species is not likely to use any portions of the Off-Site Pipeline alignment for denning, foraging, dispersal, migration or other life history requirements. Therefore, the proposed Off-Site Pipeline would not be expected to adversely affect the San Joaquin kit fox or its habitat and potential impacts would be considered less-than-significant.

American Badger. No suitable habitat for the American badger occurs within the Off-Site Pipeline alignment. Although the American badger could range over the general area and occasional pass through the proposed alignment during dispersal and migration, this species is not likely to use any portions of the Off-Site Pipeline alignment for nesting, denning, or foraging activities. The proposed Off-Site

Pipeline would not be expected to adversely affect the American badger or its habitat, and potential impacts would be considered *less-than-significant*.

Special-Status Bat Species. Several California state species of special concern bats were determined to have the potential to both roost and forage within the Off-Site Pipeline alignment, including Pallid bat, Townsend's western big-eared bat, and western mastiff bat. One additional California state species of special concern, spotted bat, was determined to have the potential to forage (only). Potential roosting habitat occurs beneath one of the two bridge culverts for Avenue 15 that occurs along the proposed alignment. The culvert and associated roosting habitat would be entirely avoided and setbacks would be provided during construction activities. As a standard construction practice, codified in mitigation measure MM4.4-4(d), construction of the Off-Site Pipeline would incorporate the use of bore and jack methodologies for the placement of pipeline underground and beneath all drainage features, including those associated with bridge culverts. Therefore, potential roosting habitat would be avoided, with setbacks provided. Construction of the Off-Site Pipeline would not result in the permanent loss of foraging habitat and construction activities would not be expected to disrupt foraging activities of bat species potentially ranging over the area. Therefore, the proposed Off-Site Pipeline would not be expected to adversely affect special-status bat species or their foraging and roosting habitat, and potential impacts would be considered *less-than-significant*.

Impact 4.4-8 Implementation of the Proposed Project would not result in the loss of special-status plant species. This is considered a *less-than-significant* impact.

The site provides no habitat for any federally or State threatened or endangered plant species (see Appendix D1 and Tale 4.4-3). Consequently the Proposed Project would have no effect on federally or State-listed plant species.

The site provides potentially suitable habitat for two nonlisted, special-status plant species, ~~the~~ Madera linanthus and Sanford's arrowhead. Both of these species are CNPS List 1B.2 species. Possible habitat for Madera linanthus is limited to nonnative grassland occurring on the south slopes of Little Table Mountain, the bluffs above the San Joaquin River, and on narrow strips of unfarmed land along the drainages of the site. The slopes of Little Table Mountain are quite rocky and steep. Development has not been proposed for this location. Project impacts to this species are nonetheless unlikely as relatively little of the grassland habitat identified above would be affected by the Proposed Project. Therefore, the project is not expected to result in significant impacts to this species.

Sanford's arrowhead occurs in emergent marsh habitat of the San Joaquin Valley. Although this species is relatively common locally, having been distributed throughout the irrigation canals of the Fresno Irrigation District in the cities of Fresno and Clovis, it has not been documented in the Rio Mesa Planning Area or on surrounding lands. It may, however, occur in emergent marsh of the Project Site and shallow water of the San Joaquin River. These are areas that have been designated as open space. Therefore, the Proposed Project would avoid potential habitat on site for Sanford's arrowhead and is not expected to result in significant adverse impact ~~to this~~ on the species.

As discussed above, during the reconnaissance-level field survey conducted in December 2006 by PBS&J, an *Eryngium* species was observed in an ephemeral drainage feature north of the Madera Canal.

Because of the timing of the field survey, this species was not identified to the species level due to late season senescence and decay of aerial stems. It is unlikely that this species is the spiny-sepaed button-celery (CNPS List 1B.2 species) because the site lacks suitable vernal pool habitat. Given the lack of habitat and unlikely probability that this species occurs on site impacts, if any, would be less than significant.

As discussed above, implementation of the Proposed Project would have a *less-than-significant* impact on special-status plant species. No mitigation is required.

Impact 4.4-8(a) Implementation of the Off-Site Avenue 15 Pipeline alternative could result in the loss or degradation of habitat for fleshy owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass, including designated Critical Habitat. This is a potentially significant impact. However, implementation of mitigation measures MM4.4-4(c) and MM4.4-4(d) would reduce this impact to a less-than-significant level.

Off-Site Avenue 15 Pipeline

The proposed alignment for the Off-Site Avenue 15 Pipeline is contained within existing disturbed and developed uplands that are characterized by paved asphalt, bare earth, and ruderal vegetation. No suitable habitat for special-status plant species was determined to within the proposed alignment. Therefore, no direct impacts to special-status plant species would occur.

Several special-status plant species could occur within sensitive areas immediately adjacent to the proposed alignment, including succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass. Vernal pools and other suitable habitat for these special-status plant species, including USFWS-designated Critical Habitat, occur within the undeveloped rangelands adjacent to portions of the proposed alignment. If avoidance measures are not in place, Project construction could result in adverse indirect impacts to the adjacent habitat and special-status plants potentially occupying the habitat. These impacts would be considered significant.

Construction of the Off-Site Avenue 15 Pipeline will incorporate protective measures, codified in mitigation measure MM4.4-4(d), as standard construction practices to avoid potential indirect impacts to all sensitive areas that occur outside of the Avenue 15 right-of-way and adjacent to the proposed work limits. All trenching and ground disturbance activities associated within the Off-Site Pipeline will be confined to existing paved portions of Avenue 15 or within the maintained shoulder of Avenue 15, approximately 5 feet from the edge of the existing paved areas. Protective measures to be implemented will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas. The silt fencing will be installed prior to the commencement of construction activities and will be removed upon completion of construction activities. The fencing will provide a protective barrier between the approved work limits and all adjacent sensitive areas, and will restrict all construction activities, including equipment, personnel, staging, storage, and material stockpiling, to the disturbed and developed areas located within the Avenue 15 right-of-way and approved work limits. This protection measure will ensure that side-cast material will not enter adjacent habitats in the unlikely event that a summer rain event causes erosion of sidecast soils or from inadvertent casting of material into these habitats during trenching. All material will be removed

from the construction side of the silt fencing, and the pre-Project grade will be restored upon completion of pipeline installation.

As proposed within mitigation measure MM4.4-4(c), construction of the Off-Site Pipeline would not commence until July 1, or until it has been determined by a qualified biologist that all nearby vernal pools have dried, whichever event comes first. Construction would also be completed before the first significant rain event in the fall measuring 0.25 inch or more of rain within a 24-hour period, thereby ensuring that construction activities are restricted to the dry season and during periods when rain, which could cause runoff from the construction site into adjacent habitats, is unlikely. Further, as proposed within mitigation measure MM4.4-4(d), the installation and inspection of silt fencing will be conducted at the direction and under the supervision of a qualified biologist, thereby ensuring that the silt fencing is installed and functioning properly to prevent potential indirect impacts to adjacent sensitive areas designated as Critical Habitat and potentially occupied by special-status plant species.

Therefore, with the incorporation of protective measures and standard construction practices, and the implementation of mitigation measures MM4.4-4(c) and MM4.4-4(d), the Off-Site Pipeline would result in a *less-than-significant* impact on special-status plant species potentially located within adjacent lands, including succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass and their USFWS-designated Critical Habitat.

Threshold	Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
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Impact 4.4-9 **The Proposed Project could have a substantial adverse effect on Great Valley Mixed Riparian Forest or other riparian habitat. This is a potentially significant impact. Compliance with local and state wetland and riparian protection policies and implementation of mitigation measures MM4.4-4(d), MM4.4-9(a), MM4.4-9(b), and MM4.4-11(a) would reduce this impact to a *less-than-significant* level.**

Tesoro Viejo Project Site

The Great Valley Mixed Riparian Forest and associated riparian corridor along the San Joaquin River and the creeks passing through the Project Site provide important riparian habitat for a number of native animal species. Great Valley Mixed Riparian Forest and in general, riparian vegetation, is identified as sensitive habitat by the CDFG (and can also be regulated by the USACE). Although the Proposed Project would not affect the bottomlands of the San Joaquin River, it would not avoid all natural drainage channels and associated riparian habitat of the site, which include one primary drainage, as well as a number of other smaller drainages.

It is possible that the smaller drainage channels tributary to the main drainage may not be avoided by the proposed development due to the construction of roads and other infrastructure (i.e. underground pipelines, utility lines, cables, etc.). Therefore, some drainage channels will be partially or entirely filled as a result of project construction, and these channels could include areas subject to the jurisdiction of the

CDFG and/or the USACE (with respect to jurisdictional wetlands or waters of the United States). Impacts to areas subject to the jurisdiction of the USACE are addressed in Impact 4.4-10.

The Rio Mesa Area Plan (RMAP) identifies the San Joaquin River Corridor (the area within the 100-year flood zone) as a “biological resource area.” Such areas “have the most significant biological resources, including both flora and fauna.” The RMAP “recognizes them as worthy of preservation as nondevelopment areas or as limited use areas...” The main drainage channel through the site, the emergent marsh associated with it, and a buffer of unspecified width on either side of the channel has also been identified as a “biological resource area.” This linear biological resource contains substantial areas of riparian vegetation and provides a continuous open space corridor from the San Joaquin River to proposed open space on Little Table Mountain.

The existing Madera County General Plan identified riparian vegetation as an important biological resource. The General Plan includes policies that require riparian protection zones around natural watercourses (Madera County 1995).

Consequently, because Great Valley Mixed Riparian Forest and other riparian vegetation is identified as sensitive habitat by the CDFG, Madera County, and the RMAP, permanent removal or other indirect or direct impacts to riparian habitat within the Project Site would be a significant impact.

To reduce potential impacts to Great Valley Mixed Riparian Forest and other riparian habitat, the Proposed Project would implement riparian protection zones around natural watercourses as required in the Madera County General Plan (refer to Policy 5.D.4). Specifically, these protection zones will include the bed and bank of both low and high flow channels and associated riparian vegetation. They also include adjacent buffers of 100 feet as measured from the top of bank for un-vegetated channels, or 50 feet as measured from the outer edge of the riparian canopy. It is envisioned that passive recreational trails limited to daytime use (to eliminate the need for nighttime lighting) may be developed in the buffer area; however, the specific types of uses and/or the terms under which these uses could be developed in the buffer areas would be subject to review and approval by the County, with the input of a qualified biologist (which may include the USACE and/or the CDFG), as required by mitigation measure MM4.4-11(a).²⁶ In addition, the Proposed Project would implement mitigation measures MM4.4-9(a) and MM4.4-9(b).

MM4.4-9(a) Permanently impacted sensitive habitat that cannot be avoided shall be replaced or restored on site at a minimum 1:1 ratio for temporary and 2:1 for permanent impacts under a mitigation plan approved by the CDFG under Section 1600 of the California Fish and Game Code, (and/or other appropriate agency such as the U.S. Army Corps of Engineers for 404 wetlands). A vegetation and mitigation monitoring plan shall be prepared and approved by the CDFG and/or U.S. Army Corps of Engineers prior habitat modification.

²⁶ This mitigation measure is provided under the threshold that addresses wildlife movement because the primary—but not exclusive—intent of the buffers is to provide wildlife movement corridors. The mitigation for riparian resources and/or waters of the U.S. (including jurisdictional wetlands) can be achieved to some extent through preservation and/or enhancement, whereas wildlife movement (within this site) can only be provided through preservation efforts.

The revegetation plan shall include the following:

- a. The details and procedures required to prepare the restoration site for planting (i.e., grading, soil preparations, soil stocking, etc.)*
- b. The methods and procedures for the installation of the native plant materials*
- c. Guidelines for the maintenance of the mitigation site during the establishment phase of the native plantings; the maintenance program shall contain guidelines for the control of nonnative and invasive plant species and the replacement of plant species that have failed to recolonize*
- d. The revegetation plan shall provide for monitoring to evaluate the growth of the developing habitat and/or vegetation; specific goals for the restored habitat shall be defined by quantitative and qualitative characteristics of similar habitats and plants (e.g., density, cover, species composition, structural development)*
- e. Contingency plans and appropriate remedial measures shall also be outlined in the revegetation plan should the plantings fail to meet designated success criteria and planting goals*

This measure may be implemented through a Streambed Alteration Agreement or other regulatory mechanism to the satisfaction of the County.

MM4.4-9(b)

The Project Applicant shall include adequate signage and appropriate fencing adjacent to any sensitive habitats that remain or are created through mitigation. A signage and fencing plan shall be developed with the CDFG, but at a minimum “Sensitive habitat” signs shall be installed along the sensitive habitat boundaries every 100 feet. The signs would inform the public of the sensitive habitat and species in the area and that unauthorized disturbance could be subject to penalties imposed by the CDFG and USFWS. Fencing shall be designed to allow free movement of wildlife, but restrict human movement.

Adherence to the County’s General Plan, the RMAP, and the *California Fish and Game Code* will provide mechanisms to avoid and preserve sensitive riparian vegetation. For riparian vegetation that cannot be avoided, implementation of mitigation measures MM4.4-9(a), MM4.4-9(b), and MM4.4-11(a) would replace impacted habitat and protect the integrity of the remaining and/or restored riparian habitat through signage or other restrictive measures, as well as the placement of uses in the buffer areas only after the review and approval by the County and a qualified biologist. This would reduce impacts to sensitive riparian habitat to ***less-than-significant*** levels.

Off-Site Avenue 15 Pipeline

The proposed alignment for the Off-Site Avenue 15 Pipeline is contained within existing disturbed and developed uplands that lack riparian habitat and sensitive natural communities. As a standard construction practice, the Off-Site Pipeline will incorporate the use of bore and jack construction methods for the placement of pipeline beneath all swales and drainage features that cross the proposed alignment. Any sensitive natural communities associated with these swales and drainage features would be entirely avoided and setbacks would be provided from construction areas. Therefore, no direct impacts to riparian habitat or sensitive natural communities are expected to occur.

Sensitive natural communities in the form of vernal pools, swales, and drainage features occur immediately adjacent to the proposed alignment. No riparian habitat occurs. If protective measures are

not in place, construction activities could result in potential indirect impacts to adjacent sensitive natural communities. As discussed above, all trenching and ground disturbance activities associated with the Off-Site Pipeline will be confined to existing paved portions of Avenue 15 or within the maintained shoulder of Avenue 15, approximately 5 feet from the edge of the existing paved areas. Construction of the Off-Site Pipeline will incorporate protective measures, codified in mitigation measure MM4.4-4(d), as standard construction practices that will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas, including areas potentially supporting sensitive natural communities. As required above for CTS within mitigation measure MM4.4-4(d), the installation and inspection of silt fencing will be conducted at the direction and under the supervision of a qualified biologist, thereby ensuring that the silt fencing is installed and functioning properly to prevent potential indirect impacts to adjacent sensitive areas.

Therefore, with the incorporation of protective measures and standard construction practices, as well as mitigation measure MM4.4-4(d), the Off-Site Pipeline would result in a *less-than-significant* impact to sensitive natural communities.

Threshold	Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the <i>Clean Water Act</i> (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
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Impact 4.4-10 **The Proposed Project could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the *Clean Water Act*. This is a potentially significant impact. However, compliance with state and federal wetlands regulations and implementation of mitigation measures MM4.4-4(d), MM4.4-9(a), MM4.4-9(b), and MM4.4-11(a) would reduce this impact to a *less-than-significant* level.**

Tesoro Viejo Project Site

A total of 23.9 acres of potentially jurisdictional waters in the form of wetlands, tributary waters and “other” waters of the United States were identified on the Project Site (Live Oak Associates, Inc. 2005). As noted in Impact 4.4-9 above, the project avoids most channels and wetlands of the site. Furthermore, buffers zones in the adjacent upland of 100 feet as measured from the top of bank of un-vegetated channels, or 50 feet as measured from the outer edge of the riparian canopy have been provided on either side of the main drainage channel by regional planning documents (refer also to mitigation measure MM4.4-11(a)). Still, a number of small drainage channels and associated wetlands tributary to the main (e.g., primary) drainage passing through the site may not be avoided by proposed site development. Furthermore, roads and other infrastructure (i.e., underground pipelines, utility lines, cables, etc.) must cross some channels. Therefore, some drainage channels and on-site wetlands will be partially or entirely filled during project construction. Impacts to jurisdictional waters, including wetlands covered by the *Clean Water Act* that would result in a net loss of these areas would be considered significant.

As discussed above for special-status fish species, the use of groundwater under the water supply alternatives would be water balanced, in that the net demand of the Proposed Project would be directly

offset by either groundwater recharge or abandonment of irrigation practices and fallowing of existing agricultural lands overlying the Madera Sub-basin. The pumping withdrawals under these alternatives would not change the hydrology of surface water features within or adjacent to the Project Site, some of which could be federally protected wetlands or other jurisdictional resources. Therefore, if Holding Contract No. 7 water were not available and an alternative source of water were used, no additional direct or indirect impacts associated with fill and discharge into drainage channels and wetlands would be anticipated beyond those previously identified and discussed in this section.

Any alterations of, or discharges into, waters of the United States, including Section 404 wetlands must be in conformance with the *Clean Water Act* via Sections 404 and 401 certification and permitting prior to any grading or construction that may impact jurisdictional area(s), as applicable. Additionally, a Streambed Alteration Agreement (SAA) per Section 1600 of the *California Fish and Game Code* would be required for removal of State jurisdictional waters and related habitat; and runoff produced during and after construction is subject to National Pollution Discharge Elimination System Regulations (NPDES) and local water quality and runoff standards. The Proposed Project would also be in compliance with the County's General Plan policies to protect wetlands. Specifically, the Proposed Project would comply with Policies 5.D.1, 5.D.2, 5.D.3, 5.D.4, and 5.D.5 that are specifically designed to protect and avoid wetlands to the maximum extent feasible, and to ensure compliance with state and federal wetlands regulations and mitigation requirements if impacts cannot be avoided.

Therefore, securing an SAA from the CDFG and 404 and 401 permits under the *Clean Water Act*, and compliance with the federal and state "no net loss of wetlands" policy and the County's wetlands protection policies would protect the hydrology and ecology of the San Joaquin River, its jurisdictional tributaries within the Project Site, and their adjacent wetlands. In addition, the Proposed Project would implement mitigation measure MM4.4-9(a) and MM4.4-9(b), which would reduce impacts to a *less-than-significant* level.

Off-Site Avenue 15 Pipeline

The proposed alignment for the Off-Site Avenue 15 Pipeline is contained within existing disturbed and developed uplands within the Avenue 15 right-of-way. Several swales and drainage features pass beneath the proposed alignment through culverts for Avenue 15, including two branches of Little Dry Creek, which likely fall under the regulatory jurisdiction of the USACE, RWQCB, and/or CDFG. Additional drainages, swales, and vernal pools occur within the undeveloped lands adjacent to the proposed alignment. These features also likely fall under the regulatory jurisdiction of the USACE, RWQCB, and/or CDFG. No jurisdictional wetland delineation has been conducted for the Off-Site Pipeline, although the USACE has reportedly asserted jurisdiction over the branches of Little Dry Creek that intersect portions of Avenue 15 and the proposed alignment.

The Off-Site Pipeline will incorporate the use of bore and jack construction methods for the placement of the pipeline beneath all swales and drainage features that cross the proposed alignment. All potential jurisdictional resources associated with these features, including federally protected wetlands, would be entirely avoided and setback from construction areas. Therefore, no direct impacts to potential jurisdictional resources are expected to occur.

Potential jurisdictional resources occur immediately adjacent to the proposed alignment. If protective measures are not in place, construction activities could result in potential indirect impacts to potential jurisdictional resources. As discussed above, all trenching and ground disturbance activities associated within the Off-Site Pipeline will be confined to existing paved portions of Avenue 15 or within the maintained shoulder of Avenue 15, approximately 5 feet from the edge of the existing paved areas. Construction of the Off-Site Pipeline will incorporate protective measures, codified in mitigation measure MM4.4-4(d), as standard construction practices that will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas, including areas potentially supporting sensitive natural communities.

Also, and as required above for CTS within mitigation measure MM4.4-4(d), the installation and inspection of silt fencing will be conducted at the direction and under the supervision of a qualified biologist, thereby ensuring that the silt fencing is installed and functioning properly to prevent potential indirect impacts to adjacent sensitive areas.

Last, the use of groundwater associated with the Off-Site Avenue 15 Pipeline alternative would be water balanced, in that withdrawals would be directly offset by either groundwater recharge or abandonment of irrigation practices and fallowing of existing agricultural lands overlying the Madera Sub-basin. As a result, the pumping withdrawals under the groundwater alternatives would not change the hydrology or adversely affect jurisdictional resources adjacent to the Off-Site Pipeline.

Therefore, with the incorporation of protective measures and standard construction practices, as well as mitigation measure MM4.4-4(d), the Off-Site Pipeline would result in a *less-than-significant* impact to potential jurisdictional resources, including federally protected wetlands.

Threshold	Will the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
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Impact 4.4-11 **Development of the Proposed Project and Off-Site Avenue 15 Pipeline alignment could result in the isolation or interruption of contiguous habitat, which could interfere substantially with the movement of resident or migratory wildlife species and migratory wildlife corridors. This is a potentially significant impact. Compliance with local requirements that protect significant wildlife movement corridors and implementation of mitigation measures MM4.4-4(c), MM4.4-11(a), MM4.4-11(b), and MM4.4-11(c) would reduce this impact to a *less-than-significant* level.**

Tesoro Viejo Project Site

The Tesoro Viejo development site consists primarily of agricultural habitats that are of low to modest ecological value to most wildlife species. Most of the site does not constitute a movement corridor predictably and regularly used by wildlife species, and there are no known wildlife nursery sites. Consequently, conversion of agricultural lands consisting primarily of vineyards and orchards, to residential development would result in a less than significant environmental impact on the regional movements of native wildlife species.

The San Joaquin River and its riparian corridor provides habitat of significant value to many native animal species. This corridor facilitates home range, dispersal, and migratory movements of numerous species. As shown on the RMAP and as discussed in the Rio Mesa Area Plan EIR, development would not occur along the San Joaquin River or within its riparian corridor. In addition, the San Joaquin River Conservancy Parkway Master Plan provides for wildlife corridors along the San Joaquin River with a minimum width of 200 feet and an additional buffer of 150 feet where intensive development is proposed. The Proposed Project would be consistent with these requirements and would therefore, not be expected to have any significant effect on wildlife movements along the San Joaquin River.

The main “primary” drainage channel passing through the site represents a significant movement corridor for many wildlife species. This drainage, its riparian vegetation, and the narrow band of grasslands along it currently provide an open space connection between the San Joaquin River and Little Table Mountain through lands converted to agriculture. The RMAP identifies the main drainage channel through the site, the emergent marsh associated with it, and a buffer of unspecified width on either side of the channel as a “biological resource area.” This linear biological resource area provides a continuous open space corridor from the San Joaquin River to proposed open space on Little Table Mountain. The development of lands adjacent to this drainage with homes, light industrial facilities, urban infrastructure, or other types of development could substantially affect the numbers and kinds of species that would move along this drainage. Specifically, home lighting, proposed road crossings, the proximity of people and noise, the possible presence of unleashed pets, and so forth, could all compromise the value of this drainage to the movement of native terrestrial species.

The conversion of natural lands to agriculture, urban and suburban development, and roads in the San Joaquin Valley has not only resulted in considerable habitat loss, but has resulted in habitat fragmentation such that native wildlife species occurring in intact patches of native habitat cannot readily access other intact habitat patches. In recent years, the lack of connectivity between native habitat patches of the San Joaquin Valley has rendered many terrestrial species once common to those habitat patches susceptible to local extinction. Development of the Project Site in a manner that restricts wildlife movement along the site’s main drainage could have a similar effect on local wildlife populations and would, therefore, constitute a significant impact.

To reduce potential impacts to wildlife movement corridors the Proposed Project will comply with the policies within the County’s General Plan, the RMAP, and the San Joaquin River Parkway Master Plan that are designed to protect wildlife corridors, increase connectivity, and limit habitat fragmentation. To further reduce impacts to wildlife corridors the Proposed Project will implement the following mitigation measures:

MM4.4-11(a) As identified in Madera County General Plan Policy 5.E.1, a minimum 200-foot wildlife corridor buffer will be established and maintained in perpetuity along the undeveloped portions of the San Joaquin River’s riparian corridor. Policy 3.6.1 from the Tesoro Viejo Specific Plan states that all existing drainage channels shall be public open space from top-of-bank to top-of-bank. In addition, as required by Madera County General Plan Policy 5.D.4, on either side of the primary (main) drainage channel wildlife corridor buffer zones of 100 feet, as measured from the top of bank of unvegetated portion of the channel, or 50 feet as measured from the outer edge of any riparian canopy shall be established. No lighting shall occur within the buffer area. If passive recreational trails limited to daytime use are proposed in the buffer area, the specific types of uses and/or the terms under which

these uses could be developed in the buffer areas would be subject to review and approval by the County, with the input of a qualified biologist.

MM4.4-11(b) *To avoid degradation of habitat values for wildlife along the river and the primary drainage portion of the site, areas where automobile headlights could be directed at a 90 degree angle onto the vegetation shall be screened through the placement of a 3–4 foot tall vegetated hedge of native California species or other structural methods that would not additionally hinder wildlife movement through the aforementioned corridor.*

MM4.4-11(c) *Any road crossings through the wildlife movement corridors on site shall incorporate measures to safely facilitate the movement of wildlife under the roadway. These measures shall include, but not be limited to, the use of either bridges or culverts that are large enough that wildlife have enough space to pass through these road crossings without having to travel over the road surface, the implementation of bank stabilization measures, and/or restoration and revegetation of stream corridor habitat that has been damaged by the project's construction. Furthermore, any recreational trails adjacent to the open space corridor shall be lined by post and rail fence and signage would be used to direct trail users and their pets to stay within the designated trail corridor.*

Implementation of mitigation measures MM4.4-11(a), MM4.4-11(b), and MM4.4-11(c) and compliance with the wildlife corridor protection policies within the County's General Plan, the RMAP, and the San Joaquin River Parkway Master Plan would preserve the integrity of the primary wildlife movement corridors through the site and would reduce impacts to a to a ***less-than-significant*** level.

Off-Site Avenue 15 Pipeline

The proposed alignment for the Off-Site Avenue 15 Pipeline is contained within existing disturbed and developed uplands within the Avenue 15 right-of-way that are characterized by paved asphalt, bare earth, and sparse ruderal vegetation. The proposed alignment is not located within any known wildlife corridors and would not interfere substantially with the movement to and from any known wildlife nursery sites. Further, the proposed alignment does not support adequate resources to facilitate wildlife movement or contribute to the function of existing wildlife corridors, habitat linkages, or travel routes. However, as discussed above for CTS and western spadefoot toad, these special-status species have the potential pass through the proposed alignment during dispersal and migration activities to and from breeding sites. Therefore, if construction of the Off-Site Pipeline would occur during times when these species are moving overland (i.e., during the fall, winter, and spring), construction activities could substantially interfere with dispersal and migration movements and/or impede the use of breeding sites located in the undeveloped lands adjacent to the alignment. These impacts would be considered significant.

As discussed above and in detail in Section 3.7.5 of this EIR, construction of the Off-Site Avenue 15 Pipeline will be restricted to the dry season and summer months when all nearby vernal pools have dried. CTS and western spadefoot toads would be aestivating in underground refugia located off site during this time. Therefore, with the incorporation of the restrictions on the construction schedule and the implementation of mitigation measure MM4.4-4(c) proposed above for CTS, construction activities associated with the Off-Site Pipeline would not be expected to substantially interfere with dispersal and migration movements or impede the use of breeding sites for CTS and western spadefoot toad. Potential impacts would be reduced to less-than-significant levels.

In addition, several swales and drainage features pass beneath the proposed alignment via bridged culverts for Avenue 15, including two branches of Little Dry Creek, which may serve as wildlife crossings and facilitate wildlife movement on a local scale. If avoidance and setbacks are not implemented in these areas, construction activities could prevent wildlife from moving through the existing culverts during construction of the Off-Site Pipeline. As a standard construction practice, the Off-Site Pipeline will incorporate the use of bore and jack construction methods for the placement of pipeline beneath all swales and drainage features that cross the proposed alignment. Potential wildlife crossings would be entirely avoided and setback from construction areas. Therefore, no impacts to wildlife movement at these crossings would occur.

Therefore, with the incorporation of protective measures and standard construction practices, and the implementation of mitigation measure MM4.4-4(c), potential impacts to wildlife movement and nursery sites resulting from the Off-Site Pipeline would be reduced to *less-than-significant* levels.

4.4.4 Cumulative Impacts

Cumulative impacts are only addressed for those thresholds that have a project-related impact associated with the Proposed Tesoro Viejo Project or Off-Site Avenue 15 Pipeline alternative, whether it is a less-than-significant, potentially significant, or significant and unavoidable impact. If “no impact” occurs, no cumulative analysis is provided for that threshold.

Unless otherwise identified below, the geographic context for the analysis of cumulative biological impacts is the MCTC Rio Mesa Traffic Modeling area. This model incorporates land use projections throughout Madera County and Fresno County as further described in Section 3.12 (Cumulative Development Scenario) of this EIR.

Threshold	Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
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■ Wildlife

As development in the Region continues, sensitive wildlife species native to the Region and their habitat, including those species listed under State and Federal ESAs and those individuals identified by state and federal resources agencies as Species of Concern, Fully Protected, or sensitive, will be lost through conversion of existing open space to urban development. Although more mobile species might be able to survive these changes in their environment by moving to new areas, less mobile species could be locally extirpated. With continued conversion of natural habitat to human use, the availability and accessibility of remaining foraging and natural habitats in this ecosystem would dwindle and those remaining natural areas may not be able to support additional plant or animal populations above their current carrying capacities. Thus, the conversion of plant and wildlife habitat on a regional level as a result of development would, therefore, result in a *significant* regional cumulative impact on special-status species and their habitats.

Although the ~~habitat value within~~ total area encompassing the Tesoro Viejo Project Site and Off-Site Avenue 15 Pipeline alignment is dominated by low-quality habitats consisting ~~of~~ primarily of ruderal vegetation, vineyards, and orchards, some of the areas are on the Tesoro Viejo Project Site support moderate to high-quality habitat such as riparian woodlands and nonnative grasslands, which could support special-status species. Construction of the Off-Site Pipeline would avoid natural habitats and sensitive areas; however, construction of the Proposed Project would contribute to a loss of regional biological resources through the incremental conversion of habitat for special-status species to human use, and thus limit the availability and accessibility of remaining natural habitats to regional wildlife. The Proposed Project would also affect designated critical habitat and thus directly impact threatened and/or endangered species through habitat conversion or take. The Proposed Off-Site Pipeline could also directly impact special-status species potentially dispersing and migrating through the alignment. The Project Applicant would be required to implement measures to participate in mitigation plans programs approved by state and federal resource agencies (i.e., Swainson's Hawk, burrowing owl, California tiger salamander) if need be, which would replace lost habitat and preserve contiguous areas of habitat. In addition, the Proposed Project Applicant would implement mitigation measures specifically designed to avoid, reduce, or mitigate impacts to special-status/sensitive species and their habitat. These are discussed in detail below.

As stated under Impact 4.4-1, with respect to nesting birds, including Swainson's hawks and burrowing owls, the MBTA fully protects migratory avian species, including the Swainson's hawk and burrowing owls, during the breeding season by the establishment of a Federal prohibition on the disturbance of nesting birds covered by this ~~a~~ Act. Therefore, assuming that other development complies with the law established by the MBTA, cumulative impacts to nesting migratory birds, including the special-status species identified in Table 4.4-3, would be considered less than significant. Implementation of mitigation measures MM4.4-1(a) through MM4.4-1(d) would require surveys for nesting avian species and impact-avoidance measures to ensure that the loss or take of these species will not occur. The Proposed Project and Off-Site Avenue 15 Pipeline alternative would not considerably contribute to this impact, and would be considered *less than significant*.

As discussed above, the cumulative loss of native and nonnative habitat in the Central Valley and in California in general, and particularly as would occur with development of that portion of the County within the MCTC Rio Mesa Traffic Modeling area, has substantially reduced opportunities for foraging raptors. Even with the proposed mitigation, the Proposed project will result in the permanent loss of over a hundred acres of suitable raptor foraging habitat, including foraging habitat for special-status raptor species, such as the burrowing owl. Potential impacts on raptor foraging habitat associated with the Off-Site Pipeline would be temporary, and, therefore, would not substantially contribute to the cumulative loss. The net loss of this foraging habitat would create a net decrease in raptor foraging habitat, which would be considered significant on a cumulative basis. However, with respect to the Proposed Project, the loss of raptor foraging habitat and potential impacts to Swainson's hawks and burrowing owls would be mitigated through the conservation of lands as detailed in the *CDFG's Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFG 1994), the California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (April 1993) and project-related open space preservation. These measures would reduce this impact to a less-than-significant level. As with any development project that results in the permanent loss

of raptor foraging habitat, given that cumulative loss of raptor foraging habitat is significant on a regional basis, the Proposed Project would considerably contribute to this significant cumulative impact, and would be considered *significant*.

Implementation of mitigation measures MM4.4-2, MM4.4-3, MM4.4-4(a), ~~through~~ MM4.4-4(b), and MM4.4-5 will reduce impacts to other terrestrial species potentially occurring within the Tesoro Viejo Project Site and Off-Site Pipeline alignment, and avoid potential significant cumulative impacts. Specifically, mitigation measure MM4.4-2 will provide mechanisms to identify active VELB sites and provide for a mechanism for transplantation and replacement as specified by the USFWS's (1999) VELB Mitigation Guidelines. This would replace impacted shrubs and ensure that there would be, at least, no net loss of VELB habitat within the region. Mitigation measure MM4.4-3 will provide mechanisms to identify the presence or absence of the western pond turtle and require impact avoidance or relocation of any individuals that are found to occupy areas that would be subject to project-related modification. Mitigation measures MM4.4-4(a), ~~through~~ MM4.4-4(b), and MM4.4-5 will provide mechanisms to identify the presence or absence of the western spadefoot and its habitat and require impact avoidance or relocation of any individuals that are found to occupy areas that would be subject to project-related modification. These mitigation measures, combined with the Proposed Project's compliance with the federal and state "no net loss of wetlands" policy and the County's wetlands protection policies ensure that (1) impacts to individuals would be reduced through relocation and avoidance measures and (2) there would be no net loss of aquatic or wetland habitat for these individuals within the Region. Consequently, residual cumulative impacts to the VELB, western spadefoot, and the western pond turtle would not result in a cumulatively considerable contribution to the regionally significant cumulative impact. Impacts would be *less than significant*.

The Proposed Project and Off-Site Pipeline alternative would have a less-than-significant impact on the San Joaquin kit fox, the American badger, and special-status bats, because these species are either unlikely to occupy the Project Site and Off-Site Pipeline alignment, primarily restricted to areas that would be preserved as open space, or would be able to relocate to or otherwise utilize off-site areas and/or the projects' protected habitat buffers. Consequently, development of the Proposed Project and Off-Site Pipeline would not result in impacts to these species that would make a cumulatively considerable contribution to the regionally significant cumulative impact. Impacts would be *less than significant*.

The Project Site ~~area occurs~~ and Off-Site Pipeline areas occur within the range of the federally threatened California tiger salamander, and contains approximately 163 acres of designated critical habitat. Implementation of mitigation measures MM4.4-4(a) ~~and~~ through MM4.4-4(b) will provide mechanisms to identify the presence or absence of the CTS and its habitat, require impact avoidance or relocation of any individuals that are found to occupy areas that would be subject to project-related modification, and ensure compliance with FESA. These mitigation measures, combined with the Proposed Project's compliance with the federal and state "no net loss of wetlands" policy, the County's wetlands protection policies, and the FESA, would reduce cumulative impacts to individual CTS to *less-than-significant* levels. However, net loss of CTS critical habitat, which is essential for the species continued existence, could still result from project implementation of the Proposed Project.

■ Fish Species

The cumulative context for impacts to fish species is the San Joaquin River from Friant Dam downstream to its confluence with the Merced River. There is a stream gage in the San Joaquin River just downstream from its confluence with the Merced River near the town of Newman (USGS #1274000). The Merced River is the upstream limit of the Chinook ESU. Fall-run Chinook, a candidate species, migrate upstream to spawn from mid-September through mid-December (McBain and Trush 2002). If the Proposed Project were to result in a substantial depletion of the streamflow of the San Joaquin River at its confluence with the Merced River, then the Proposed Project would likely have a cumulative impact on aquatic resources.

As previously mentioned, in the winter through spring months, which are approximately November through March, agricultural diversions are essentially zero and they gradually increase in the spring as the weather warms and the rains stop. Demand for water in an urban setting remains regardless of the weather. This results in higher diversions by almost 200 acre-feet (AF) per month in the dead of winter. These rates gradually increase in the spring, slowly converging on the agricultural rates for the most part, as reflected by Figure 4.4-4. However, there is typically an abundance of water in the winter and spring months that results from winter runoff and spring snowmelt. Two hundred AF over a one month period (30 days) equates to a mean daily flow of 3.4 cfs. The mean lowest flow on record between 1941 and 2006 below Friant (USGS Gage # 11251000) for the November through March period is about 26 cfs; however, under current operating rules, the Bureau of Reclamation is required to maintain a flow of five (5) cfs²⁷ at all times at the last point of riparian diversion, which is Gravelly Ford, approximately seven miles downstream from the project. The demands of the various Holding Contract and riparian users in the reach between Friant and Gravelly Ford must be accounted for in the release from the dam at any given time. The variations in demand between the historic Peck Ranch usage curve and that proposed for the Proposed Project at build-out would be accommodated by slight decreases or increases in the dam release, and would not affect downstream flows.

October is another period where urban-generated uses are predicted to be different from agricultural uses. The graph in October indicates an increase in diversion for the Proposed Project as compared to the existing agricultural uses. This difference reaches a maximum of about 200 AF per month, or about 3.4 cfs. The average absolute minimum flow in October is about 44 cfs. Therefore, the project could reduce flows in the San Joaquin River by about 7.7 percent under a worst case scenario.

In the summer, which is generally from April through September, agricultural diversions historically peak. The Proposed Project would also generate its highest demand during these months, but typically not more than the historic agricultural uses (although the summer of 2005 did show the agricultural uses would have been slightly less than the Proposed Project's uses). Based on the information provided in the IMP, there are relatively minor differences in summer diversion amounts between the existing agricultural use and the projected urban use associated with the Proposed Project. In two out of the three years presented, the agricultural uses are actually higher than projected urban uses. Flows are relatively higher in the late spring and summer periods because of water from snowmelt in the Sierra Nevada

²⁷ This flow rate is set to increase to approximately 40 cfs, still measured at Gravelly Ford, upon full implementation of the San Joaquin River Litigation Settlement Agreement.

Mountains. Based on the IMP, the increase in project-related urban use would have been greater than the agricultural use during the summer of 2005 by about 33 AF per month. This equates to a difference in flow of about 0.6 cfs. Compared to the average of the lowest flows on record from July through September of about 75 cfs, this increase in water use is not substantial.

As previously mentioned, the Proposed Project is anticipated to result in a 13 percent increase in diversion during the extremely dry winter months or a 7.7 percent increase in October, but it will not affect actual downstream river flows because of the rules requiring minimum flows measured at Gravelly Ford. Therefore, the Proposed project will not result in a substantial alteration of available aquatic habitat or impair fish movement, particularly during the sensitive life cycle stages for native fish, which spawn in the Spring (Moyle 2002).

The relatively minor increases and decreases discussed above will not result in a substantial contribution to reductions in habitat for sensitive fish using the San Joaquin River (as demonstrated under Impact 4.4-6) or species migrating into the Merced River downstream of its confluence with the San Joaquin. Therefore, because the Proposed Project will not have a substantial contribution to any changes in streamflows within the San Joaquin River, which is upstream of the confluence with the Merced River, the project will also not have a significant cumulative impact on sensitive fish species within the Merced River. Because the project will not significantly reduce flow available for sensitive fish species, particularly during sensitive periods of their life cycles (in the Spring), this is considered a less-than-significant cumulative impact. The Proposed Project would not make a cumulatively considerable contribution to the cumulative impact and would be considered *less than significant*.

The use of any of the groundwater alternatives would not impact fish species or habitats occurring in the San Joaquin River as discussed in Impact 4.4-6. Further, the groundwater alternatives would be water balanced, and the pumping withdrawals would not change the hydrology of surface water features contributing to special-status fish habitat within or adjacent to the Project Site, as further discussed in Impact 4.8-4 in Section 4.8 (Hydrology and Water Quality) of this EIR. Use of an alternative source of water to satisfy demand associated with the Proposed Project would not make a cumulatively considerable contribution to the significant cumulative impact to fisheries resources. The Project's contribution would be considered *less than significant*.

■ Plant Species

The site-Tesoro Viejo Project Site and Off-Site Avenue 15 Pipeline alignment provides no habitat for any federally or State-threatened or endangered plant species (see Appendix D1 and Table 4.4-3)-and. All areas of the Project Site and Off-Site Pipeline that could contain CNPS-listed species are outside of the proposed development envelope or within planned open space. Consequently Suitable habitat, including USFWS-designated Critical Habitat, for succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass occurs in the undeveloped rangelands immediately adjacent to portions of the Off-Site Pipeline. If avoidance and protective measures are not in place, construction activities could result in adverse indirect impacts to the adjacent Critical Habitat and habitat potentially occupied by these special-status plant species. Construction of the Off-Site Pipeline would incorporate protective measures, including temporary silt fencing and trenchless methodologies, which would ensure avoidance of sensitive areas immediately adjacent to the alignment which may support special-status plant species. As

proposed within mitigation measure MM4.4-4(c), construction of the Off-Site Pipeline would not commence until July 1, or until it has been determined by a qualified biologist that all nearby vernal pools have dried, whichever event comes first. Construction would also be completed before the first significant rain event in the fall measuring 0.25 inch or more of rain within a 24-hour period, thereby ensuring that construction activities are restricted to the dry season and during periods when rain-induced runoff from the construction site into adjacent habitats is unlikely. Further, as proposed within mitigation measure MM4.4-4(d), the installation and inspection of silt fencing will be conducted at the direction and under the supervision of a qualified biologist, thereby ensuring that the silt fencing is installed and functioning properly to prevent potential indirect impacts to adjacent habitat potentially occupied by succulent owl's-clover, hairy Orcutt grass, and San Joaquin Orcutt grass.

Therefore, although the Proposed Project would have ~~no impact~~ on federally or State-listed plant species and would not make and Off-Site Pipeline could result in a cumulatively considerable contribution to the regionally significant cumulative impact: on special-status plant species, the impact would be considered **less than significant** with the incorporation of protective measures and standard construction practices, and the implementation of mitigation measures MM4.4-4(c) and MM4.4-4(d).

Threshold	Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?
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Since the 1850s, the riparian forests within the Central Valley have been reduced from approximately 922,000 acres of riparian habitat that once covered the Central Valley floor to approximately 103,000 acres, or 11 percent of what was historically there (Trust for Public Land 2007). Continued development within the region would continue to remove this habitat, which would be considered to have a cumulatively *significant* loss of riparian vegetation within the Central Valley.

Although the currently available plan for the Proposed Project does not provide sufficient detail to identify exact numerical amounts, the Proposed Project would remove riparian vegetation from the Tesoro Viejo Project Site. The loss of riparian vegetation would be fully mitigated at a minimum of a one-to-one replacement ratio that would be subject to approval by the CDFG through Section 1600 of the *California Fish and Game Code*. Compliance with this regulation would include preparation of a mitigation plan that provide for no net loss of riparian vegetation identified in the Project Site through the restoration or creation of riparian habitat to mitigate the permanent loss of the habitat or its functions. Additionally, NPDES regulations, local water quality requirements, and state and county runoff standards would protect the hydrology and ecology of the San Joaquin River and its associated wetland and riparian complexes. The Proposed Project would also implement riparian protection zones per the Madera County General Plan, which require riparian protection zones around natural watercourses (Madera County 1995). Specifically, these protection zones will include the bed and bank of both low and high flow channels and associated riparian vegetation. They also include adjacent buffers of 100 feet as measured from the top of bank of un-vegetated channels, and 50 feet as measured from the outer edge of the riparian canopy. In addition, the Proposed Project would implement mitigation measures MM4.4-9(a), MM4.4-9(b), and MM4.4-11(a) to avoid, reduce, or mitigate impacts to riparian vegetation that cannot be avoided and would reduce impacts to sensitive riparian habitat to less-than-

significant levels. As a result of State and federal regulations protecting riparian habitat and the mitigation and the resulting restoration and or creation that will be required by it, the Proposed Project would not result in a net loss of riparian vegetation within the Region and residual impacts of the Proposed Project would not make a cumulatively considerable contribution to the regionally significant cumulative impact. ~~Because the contribution of the Proposed Project is not considerable, there is a *less-than-significant* cumulative impact to the regional loss of sensitive riparian habitat.~~

The Off-Site Avenue 15 Pipeline water supply alternative would not occur on or in the immediate vicinity of riparian habitat, and, therefore, would result in no impacts to riparian habitat and no contribution to the cumulative loss. However, other sensitive natural communities in the form of vernal pools, swales, and drainage features occur immediately adjacent to the proposed alignment for the Off-Site Pipeline. As a standard construction practice, as codified in mitigation measure MM4.4-4(d), the Off-Site Pipeline will incorporate the use of bore and jack construction methods for the placement of pipeline beneath all swales and drainage features that cross Avenue 15 and the proposed alignment. Any sensitive natural communities associated with these swales and drainage features would be entirely avoided and setback from construction areas. In addition, all trenching and ground disturbance activities associated within the Off-Site Pipeline will be confined to existing paved portions of Avenue 15 or within the maintained shoulder of Avenue 15, approximately 5 feet from the edge of the existing paved areas. Construction of the Off-Site Pipeline will incorporate protective measures that will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas, including areas potentially supporting sensitive natural communities. Mitigation measure MM4.4-4(d) would require that the installation and inspection of silt fencing be conducted at the direction and under the supervision of a qualified biologist, thereby ensuring that the silt fencing is installed and functioning properly to prevent potential indirect impacts to adjacent sensitive areas. Therefore, with the incorporation of protective measures and trenchless methodologies during construction, combined with the implementation of mitigation measure MM4.4-4(d), the Off-Site Avenue 15 Pipeline would avoid sensitive natural communities and would not substantially contribute to the cumulative impact.

The contributions of the Proposed Project and Off-Site Pipeline are not considerable with respect to the cumulative impact on riparian habitat and sensitive natural communities; therefore, there would be a *less-than-significant* cumulative impact on the regional loss of riparian habitat and sensitive natural communities.

Threshold	Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the <i>Clean Water Act</i> (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
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The Central Valley represents the cumulative context for the evaluation of cumulative impacts to wetlands, which includes the watersheds of both the Sacramento and the San Joaquin Rivers. Estimates of wetlands that historically existed in California range from 3 to 5 million acres, with the current estimate of wetland acreage in California at approximately 450,000 acres, which represents an 85 to 90 percent reduction in total amount of wetlands within the State. Within the Central Valley, which provides the cumulative context for this analysis, wetlands have diminished to approximately

300,000 acres (Trust for Public Land 2007). Because wetland habitats within the Central Valley have been substantially reduced from their historic extent, and probable future development within the region would continue to remove or otherwise modify this habitat, such developments would result in a *significant* cumulative effect.

Although the currently available plan for the Proposed Project does not provide sufficient detail to identify exact numerical amounts, it is likely that implementation of the Proposed Project would, in the short-term, remove areas of wetland vegetation. Any alterations of, or discharges into, waters of the United States, including Section 404 wetlands must be in conformance with the *Clean Water Act* via Sections 404 and 401 certification and permitting prior to any grading or construction that may impact jurisdictional area(s), as applicable. Additionally, an SAA per Section 1600 of the *California Fish and Game Code* would be required for removal of State jurisdictional waters and related habitat; and runoff produced during and after construction is subject to NPDES and local water quality and runoff standards. The Proposed Project would also be in compliance with the County's General Plan policies to protect wetlands. Specifically, the Proposed Project would comply with Policies 5.D.1, 5.D.2, 5.D.3, 5.D.4, and 5.D.5 that are specifically designed to protect and avoid wetlands to the maximum extent feasible, and to ensure compliance with state and federal wetlands regulations and mitigation requirements if impacts cannot be avoided. Therefore, securing an SAA from the CDFG and 404 and 401 permits under the *Clean Water Act*, and compliance with the federal and state "no net loss of wetlands" policy and the County's wetlands protection policies would protect the hydrology and ecology of the San Joaquin River, its jurisdictional tributaries within the Project Site, and their adjacent wetlands, and ensure that impacts from the Proposed Project to these areas would be less than significant. Therefore, because no long-term net loss of wetland resources would be attributable to the project, development of the Proposed Project would not make a cumulatively considerable contribution to the regionally significant cumulative impact. ~~Because the contribution of the Proposed Project is not considerable, there is a *less-than-significant* cumulative impact to the regional loss of wetlands and waters covered defined by Section 404 of the *Clean Water Act*.~~

Potential jurisdictional resources in the form of vernal pools, swales, and drainage features occur immediately adjacent to the proposed alignment for the Off-Site Pipeline. Several swales and drainage features also pass beneath the proposed alignment via culverts for Avenue 15, including two branches of Little Dry Creek. Although no formal jurisdictional delineation has been conducted for these resources, they would likely fall under the regulatory jurisdiction of the USACE, RWQCB, and/or CDFG. As discussed, the Off-Site Pipeline will incorporate the use of bore and jack construction methods for the placement of pipeline beneath all swales and drainage features that cross Avenue 15 and the proposed alignment. Therefore, potential jurisdictional resources associated with these swales and drainages would be entirely avoided and setback from construction areas. Further, all trenching and ground disturbance activities associated within the Off-Site Pipeline will be confined to existing uplands, which consist of paved portions of Avenue 15 and the maintained shoulder of Avenue 15, approximately 5 feet from the edge of the existing paved areas. The Off-Site Pipeline will incorporate protective measures during construction that will include the installation of temporary silt fencing on the south side of Avenue 15 at all areas along the proposed alignment that occur within 25 feet of sensitive areas, including potential jurisdictional resources. Further, mitigation measure MM4.4-4(d) would require that the installation and inspection of silt fencing be conducted at the direction and under the supervision of a qualified biologist,

thereby ensuring that the silt fencing is installed and functioning properly to prevent potential indirect impacts to adjacent sensitive areas. With the incorporation of protective measures and trenchless methodologies during construction, combined with the implementation of mitigation measure MM4.4-4(d), the Off-Site Avenue 15 Pipeline would avoid potential jurisdictional resources, including federally protected wetlands, and, therefore, would not substantially contribute to the cumulative impact.

The contributions of the Proposed Project, including the Off-Site Avenue 15 Pipeline, are not considerable with respect to the cumulative impact on wetlands and waters of the United States; therefore, there would be a *less-than-significant* cumulative impact to the regional loss of federally protected wetlands and waters defined by Section 404 of the *Clean Water Act* and under the regulatory jurisdiction of the USACE, RWQCB, and/or CDFG.

Threshold	Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
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The San Joaquin Valley, which is the southern half of the Central Valley, represents the cumulative context for the evaluation of cumulative impacts to wildlife movement. Development over the past 150 years has encroached upon and displaced biological resources throughout the San Joaquin Valley of California. The conversion of grassland, oak woodland, riparian woodland, vernal pools, riverine, and other native habitats that support special-status species to agriculture, urban and suburban development, and roads has not only resulted in considerable habitat loss, but has resulted in habitat fragmentation such that native wildlife species occurring in intact patches of native habitat cannot readily access other intact habitat patches. In recent years, the lack of connectivity between native habitat patches of the San Joaquin Valley has rendered many terrestrial species once common to those habitat patches susceptible to local extinction. Consequently, the conversion of open areas on a regional level as a result of cumulative development would result in a regionally *significant* cumulative impact on wildlife corridors such that it could interfere substantially with the movement of native resident or migratory fish or wildlife species.

As is discussed under Impact 4.4-11, the majority of the Tesoro Viejo Project site is characterized by vineyards and other agricultural crops, and, therefore, does not function as a regionally-significant wildlife corridor. ~~In contrary to this h~~ However, the riparian vegetation and drainages within the Project Site and the San Joaquin River and its riparian corridor provide wildlife movement corridors of significant value to many native animal species. These corridors facilitate home range, dispersal, and migratory movements of numerous species. As shown on the RMAP and as discussed in the Rio Mesa Area Plan EIR, development of the Proposed Project would not occur along the San Joaquin River corridor. In addition, the San Joaquin River Conservancy Parkway Master Plan provides for wildlife corridors along the San Joaquin River with a minimum width of 200 feet and an additional buffer of 150 feet where intensive development is proposed. Implementation of mitigation measures MM4.4-11(a), MM4.4-11(b), and MM4.4-11(c) and compliance with the wildlife corridor protection policies within the County's General Plan, the RMAP, and the San Joaquin River Parkway Master Plan would preserve the integrity of the primary wildlife movement corridors through the Project site and would reduce Project-level impacts to a to a less-than-significant level. Therefore, residual impacts of the Proposed Project would not make a cumulatively considerable contribution to the regionally significant cumulative impact-

Because the contribution of the Proposed Project is not considerable, there is a *less-than-significant* cumulative impact to on wildlife movement.

The proposed alignment for the Off-Site Avenue 15 Pipeline is not located within any known wildlife corridors and would not interfere substantially with the movement to and from any known wildlife nursery sites. However, several swales and drainage features pass beneath the proposed alignment via bridged culverts for Avenue 15, including two branches of Little Dry Creek, which may serve as wildlife crossings and facilitate wildlife movement on a local scale. Construction activities could prevent wildlife from moving through the existing culverts if avoidance and setbacks are not implemented in these areas. As discussed, the Off-Site Pipeline will incorporate the use of bore and jack construction methods for the placement of pipeline beneath all swales and drainage features that cross the proposed alignment via culverts. Any potential wildlife crossing areas would be entirely avoided and setback from construction areas, and no impacts to wildlife movement at these crossings would occur. Therefore, the Off-Site Pipeline would not substantially contribute to the cumulative impact.

Wildlife species with home ranges that may encompass the proposed alignment, such as CTS and western spadefoot toad, have the potential to pass through the Off-Site Pipeline alignment during dispersal and migration activities to and from breeding sites in the spring, fall, and winter months. As discussed, construction of the Off-Site Avenue 15 Pipeline would be restricted to the dry season and summer months when all nearby vernal pools have dried and CTS and western spadefoot toads would be aestivating in underground refugia located off site. With the incorporation of the restrictions on the construction schedule and the implementation of mitigation measure MM4.4-4(c), construction activities would not be expected to substantially interfere with dispersal and migration movements or impede the use of breeding sites for species such as CTS and western spadefoot toad. Therefore, the Off-Site Pipeline would not substantially contribute to the cumulative impact.

The contributions of the Proposed Project, including the Off-Site Avenue 15 Pipeline, are not considerable with respect to wildlife movement; therefore, there would be a *less-than-significant* cumulative impact on the regional loss of wildlife movement opportunities.

4.4.5 References

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4.5 CULTURAL RESOURCES [REVISED IN PART]

This section of the EIR assesses potential effects to cultural resources that could result from implementation of the proposed Tesoro Viejo project. Cultural resources are defined as historic-period buildings and structures, prehistoric or historic-period archaeological resources, and paleontological resources. This section briefly describes the cultural setting of the project area and discusses known cultural resources on the Project Site and within the Project Area. Applicable federal, State, and local regulations are identified, followed by an impact analysis and the identification of mitigation measures, where available, to reduce adverse impacts on cultural resources.

This section of the EIR is based primarily on ~~the report titled~~ three reports: *Cultural Resources Survey and Evaluation on the Sumner Peck Ranch for the Tesoro Viejo Project, Madera County, California*,²⁸ prepared by Applied Earthworks (Baloian et al. 2006); *Re-assessment of Archaeological Investigations Performed in Support of the Sumner Peck Ranch Development*, prepared by California State University, Sacramento with contributions by AECOM Technical Services (Delacorte et al. 2012),²⁹ and *Phase I Cultural Resources Assessment for the Off-Site Avenue 15 Pipeline Project*, prepared by Atkins (Holland 2012). Other sources consulted for the preparation of this section include the cultural resources records search results for the Proposed Project prepared by the Southern San Joaquin Valley Information Center ~~and (SSJVIC)~~, the Madera County General Plan, the Rio Mesa Area Plan, and the San Joaquin River Parkway Master Plan.

~~Archaeological studies conducted by Applied Earthworks, Inc. resulted in the recordation of four prehistoric period resources and three historic period resources. These resources have been evaluated under the criteria of the California Register of Historical Resources (CRHR). Significant historical resources on the Project Site include the four prehistoric period resources and one of the historic period sites, the Madera Canal.~~

~~Extensive Native American consultation was also conducted by Applied Earthworks for the project, with a check of the Sacred Lands files through the Native American Heritage Commission (NAHC), followed by communication with a number of interested groups and individuals. In addition, the NAHC responded to the Tesoro Viejo NOP on November 30, 2006. This was followed by a second check of the Sacred Lands file with negative results, and a list of potential contacts for Native American consultation.~~

Bibliographic entries for reference materials are provided in Section 4.5.5 (References) of this section.

4.5.1 Environmental Setting

All setting sections are derived from the *Cultural Resources Survey and Evaluation on the Sumner Peck Ranch for the Tesoro Viejo Project, Madera County, California*, prepared by Baloian, Baloian, Moratto, and Price of

²⁸ As is standard industry practice, the cultural resources reports ~~is~~ are not available for public review because ~~it~~ they contains sensitive information regarding the location and extent of cultural resources located onsite and in adjacent areas.

²⁹ The reassessment study was primarily authored by the California State University, Sacramento peer review team, with AECOM Technical Services providing recommendations related to mitigation measures. Professionals from both entities performed the artifact analysis for the reassessment study.

Applied Earthworks, 2006. More extensive discussions are included in this volume. The Project Site is located along the eastern margin of the San Joaquin Valley, generally bordered by the Sierra Nevada Mountains to the east, the South Coast Ranges to the west, and the Tehachapi Range to the south.

■ Prehistoric Context

Archeological excavations south of the San Joaquin Valley suggest the region was occupied as early as 11,000 to 12,000 years ago; however, similar evidence of early human occupation is lacking for the San Joaquin Valley itself. In large measure, this reflects the fact that few archaeological studies have been conducted in the central San Joaquin Valley or the project area. Hidden Reservoir, located 13 miles from the Project Site, was subjected to archaeological investigations, while other archaeological studies were undertaken at Buchanan Reservoir, Millerton Lake, and along Highway 168, approximately 20 miles from the Project Site. These studies resulted in a cultural chronology that documents regional culture change during the last 2,000 to 3,000 years. Since evidence of more ancient Native American culture is currently lacking for the San Joaquin Valley, archaeologists must rely on a generic chronology of central California.

The general cultural chronology for central California dates back at least 10,000 years. During this time, early Native American (called Paleo-Indian) sites commonly contained large dart points with a distinct base, large stone scrapers, and crescent-shaped tools. Later, tools used for grinding seeds, nuts, and other resources became part of the toolkit, and dart points decreased in size. By 3,000 years ago, technological and social changes are evinced in the archaeological record. Innovations, such as the bow and arrow and acorn processing, occurred throughout California. An increase in the Native American population led to a more complex society. In some instances, economic and social stresses in the Sierra foothills led to violence. As a result, some groups relocated. By circa A.D. 1600–1700, most groups settled into the areas described in ethnographic reports. (Ethnography can be described as a descriptive account of social life and culture in a particular social system based on detailed observations.)

Several sites have been recorded along the San Joaquin River in the vicinity of the Project Site, and many small processing stations and temporary campsites have been found along seasonal drainages near the lower foothills. The location and assemblages from these localities suggest a pattern of widespread, but ephemeral use of the area during the late Holocene (1000 B.C. to A.D. 1850) period.

■ Ethnographic Setting

Most of the San Joaquin Valley and western foothills were inhabited by Yokutsan language speakers (Yokuts) prior to Euro-American contact (Kroeber 1925). The Yokuts include as many as sixty politically autonomous triblets, based on dialect and territory. Following a yearly gathering cycle, they lived in permanent villages during the winter and smaller, temporary foothill camps during the summer (Morrato 1984).

The Yokuts, as a whole, are usually classified into the Southern Valley Yokuts, Northern Valley Yokuts, and Foothill Yokuts. The proposed development lies along the margin of the Northern Valley and Foothill Yokuts, but determining which occupied the Project Site is problematic. Kroeber and Heizer (Heizer 1978) attempted to map the territories of California Indians, but without definitive and widely accepted conclusions. The information was gathered long after Euro-American contact had disrupted

their life-ways, and it is unlikely that Native Americans maintained static boundaries. Rather, the foraging range of groups often overlapped with each other, and tribal boundaries would have been subject to long-term change, both migrations displacing earlier peoples. Keeping these limitations in mind, the ethnographic record does suggest that the Project Site lies within the territory of both the Dumna, a subgroup of the Foothill Yokuts (Gayton 1948), and the Hoyima, a subgroup of the Northern Valley Yokuts (Kroeber 1925).

The Project Site was likely visited by both tribes during prehistoric and ethnographic times. The San Joaquin River provided abundant supplies of salmon during the fall and spring (Baumhoff 1963). Plant resources were also plentiful along the river and seasonal drainages, providing both food and medicine, as well as material for baskets, bows, shafts, and hafts for knives. Outcrops made of granite, found near the River and drainages, provided suitable grinding surfaces for the processing of paints, medicines, and most importantly acorns, a staple of the California Indian diet.

The arrival of the Spanish early in the 1800s to the San Joaquin Valley was devastating for the local indigenous population. A number of military expeditions raided native villages, and most of the population was sent to missions, dispersed, or killed. Introduced diseases also took a heavy toll on Native American lives (Cook 1955).

■ Historic Setting

The San Joaquin Valley was a well traveled corridor for the first half of the nineteenth century, but few non-native settlements had been established. During the 1830s and 1840s, the Mexican government granted large tracts of land to soldiers and other individuals to settle the largely uninhabited San Joaquin Valley, but few settlements were established.

The 1848 discovery of gold in the California foothills spurred Euro-American settlement of the area. Most settlements were located along the transportation routes and in mining centers. California became a state soon after the Mexican-American War in 1850. At that time, Mariposa County encompassed what would later become Fresno and Madera counties in 1893. The importance of the Gold Rush in Euro-American settlement is highlighted by the fact that few individuals were registered as farmers for the 1850 Mariposa County Census (Clough 1968).

As production of the gold mines declined, however, many turned from mining-associated businesses, to ranching, farming, and other pursuits. In the 1850s, Joseph P. Lane took the profits earned from his Stockton liquor business and invested them in cattle and sheep herds. His family settled in Madera County in 1870, buying 7,000 acres of San Joaquin River terrace, just south of the Project Site. The livestock industry in California greatly increased from 1857 to 1871. Wool production and cattle products greatly increased during this time.

The agricultural industry also grew after the Gold Rush. Before the 1870s and the construction of a large-scale water conveyance system, the agricultural and livestock industries did not interfere with one another; farms were generally restricted to locations with perennial water sources with no reason to expand into pasture lands used by ranchers. The construction of extensive irrigation systems, however, changed the valley's dry soils into fertile farmlands. The agricultural industry rapidly overtook the ranching businesses. In 1874, the "no fence" policy took effect. Ranchers were required to build fences

for their herds, which meant that their livestock could no longer freely roam the entirety of the San Joaquin Valley. Ranchers became financially responsible for any damage their herds caused, even though farmers were not obliged to build fences. Despite this, and for a while, the ranching industry continued to grow.

Although wheat was the dominant crop into the 1870s, farmers had been experimenting with other crops since the 1850s. This practice was rewarded in the 1880s when a nationwide glut in the grain market caused wheat prices to plummet. Many farmers turned to alternative crops, and soon vineyards and orchards had replaced wheat fields in most of the State. This diversification in crops continues into the present. Currently, parts of the Project Site boast vineyards, tomatoes, and berries, with a recently planted tree nursery.

■ Identification and Evaluation of Historical/Cultural Resources in the Project Site

The research and field survey. Several studies were completed to determine the presence or absence of cultural resources within the Project Site resulted in the . The identification of seven cultural resources. These include three large prehistoric sites containing bedrock mortar features (BRM), midden, a rock shelter, and a chert quarry (CA-MAD-295/827, CA-MAD-826, and CA-MAD-2394), a smaller prehistoric site consisting of a sparse lithic scatter (CA-MAD-2392), and three historic resources (CA-MAD-2393H, P-20-002308, and P-20-002525). cultural resources within the Project Site was initially conducted in 2005/06 by AE. The record search also identification process included a records search through the SSJVIC of the California Historical Resources Information System (CHRIS) for the purpose of identifying previous surveys and known prehistoric or historic sites and resources in or near the Project Site. The AE SSJVIC record search identified sixteen previously recorded sites within 1 mile of the Project Site; these include, including fourteen prehistoric sites and two historic-period sites. Consultation with In addition, archival research related to the regional history of land use was also conducted. Local Native Americans were also contacted as part of the identification process, and a pedestrian survey was performed for the Project Site. The AE archaeological study resulted in the recordation of four prehistoric period resources (CA-MAD-295/827, CA-MAD-826, CA-MAD-2392, and CA-MAD-2394) and three historic period resources (CA-MAD-2393H, Madera Canal/P-20-002308, and P-20-002525).

The resources identified by AE were evaluated under the criteria of the California Register of Historical Resources (CRHR). According to this study, significant historical resources on the Project Site included the four prehistoric period resources and one of the historic period sites, the Madera Canal (P-20-002308). The Madera Canal (P-20-002308) is an element of the Central Valley Project, which is a major water conveyance program currently under evaluation by the Bureau of Reclamation for the National Register of Historic Places (NRHP). AE assumed that the system would be found to be eligible under NRHP Criteria A and C, and as a part of a NRHP-eligible resource, the Madera Canal would ultimately be considered eligible for listing on the CRHR. Each of these designations is further discussed in Section 4.5.2 (Regulatory Framework).

AE initiated the CRHR eligibility evaluation process for the prehistoric sites through test excavations. Thereafter, a site's eligibility was determined based on discussions about the probability for the site to

produce data useful in answering archaeological research questions; however, cultural materials recovered from the site excavations were not analyzed by AE. The lack of post-field technological analyses, as well as the subsequent interpretations and regional comparisons commonly used by archaeologists to support a determination that an archaeological site meets the *California Environmental Quality Act* (CEQA) criteria for a historical resource rendered it difficult to make a conclusive determination of significance in the 2008 Final EIR. For this reason, and to eliminate any potential uncertainties regarding significance conclusions, additional analysis, interpretation, and regional comparisons were undertaken to refine the AE evaluations.

The integrity and significance of the four prehistoric sites were reassessed through a detailed review and analysis of the cultural artifacts and other remains collected by AE for the four sites, a site visit, and a consideration of site-specific geomorphological conditions. This reassessment was initiated by a review of the AE report by AECOM Technical Services staff members, who, in turn, assembled an independent peer review group comprised of professionals from California State University, Sacramento to further review and evaluate the data. Thereafter, the combined California State University, Sacramento and AECOM team visited the sites and completed formal analysis of the AE artifact assemblages. Finally, the results of the artifact analysis were considered in the context of existing geomorphological conditions. The results of these efforts furnish different assessments of the structure, integrity, and significance of the prehistoric sites. As a result of the reassessment, two of the sites were found to be ineligible for the CRHR and are not considered significant historical resources pursuant to CEQA (CA-MAD-826 and CA-MAD-2392). The remaining two sites were found to be smaller than previously suggested by AE, but are still considered eligible for the CRHR and considered significant historical resources using the redefined and decreased site boundaries (CA-MAD-295/827 and CA-MAD-2394).

The three historic period resources (Madera Canal/P-20-002308, P-20-002525, and CA-MAD-2393H) were not reassessed for CRHR eligibility by California State University, Sacramento/AECOM Technical Services; instead, eligibility for the CRHR is based on the recommendations of the AE study.

An additional study was completed by Atkins to address the Off-Site Avenue 15 Pipeline associated with an alternative water source in April 2012. The Off-Site Avenue 15 Pipeline is discussed in detail in Section 3.7.4 (Utility Infrastructure Improvements) of this EIR. This additional study included a SSJVIC and Native American Heritage Commission (NAHC) Sacred Lands file search, as well as an archaeological pedestrian survey. The results of the SSJVIC records search indicated that approximately 7.75 linear miles of the pipeline had not been previously subjected to a professional archaeological survey, and that no resources had been previously recorded in the pipeline corridor (SSJVIC 2012). The NAHC records search returned negative results; however, the NAHC did note that the Off-Site Pipeline was located within a culturally sensitive area. As a result of these identification efforts, no cultural resources were documented within the Off-Site Pipeline area (Holland 2012).

Extensive Native American information-scoping efforts were also completed by AE for the Project, with a check of the Sacred Lands files through the NAHC, followed by communication with a number of interested groups and individuals. In addition, the NAHC responded to the Tesoro Viejo NOP on November 30, 2006. This was followed by a second check of the Sacred Lands file with negative results, and a list of potential contacts for Native American resulted in the identification of resources of concern to coordination and information-scoping. AE reported that the results of these efforts indicated that

members of the local Native American community Dumna Tribe considered portions of the Project Site to be a place of special religious or social significance. The 2008 Final EIR included these findings and indicated that there could be traditional cultural places or Traditional Cultural Properties (TCP)³⁰ within the Project Site; however, no formally designated TCPs were identified. Since the 2008 Final EIR and the court decisions addressing cultural resources occurred, additional information on the presence/absence of Native American traditional cultural properties, TCPs, and other resources was received by the County from the Dumna Wo-Wah Tribal Government. In a letter to the County, the Dumna Wo-Wah Tribal Government stated that there are no formally designated TCPs or properties in the Project Area (Ledger 2012). Based upon this communication, this Revised EIR has modified its impact assessment with respect to such potential cultural resources. The tribe's communication to the County also conveyed its own views regarding archaeological resources on the Project Site, but this Revised EIR primarily relies on the subsequent professional assessment by archaeologists on the California State University, Sacramento/AECOM Technical Services team; in any event, there appear to be no conflicts in opinion.

Historical Resources in the Project Site

As outlined above, several studies were completed to determine the presence or absence of cultural resources within the Project Site. These studies additionally provided recommendations about whether the cultural resources known within the Project Site should be considered historical resources or unique archaeological resources pursuant to CEQA.³¹ Historical resource is a term with a defined statutory meaning (refer to *Public Resources Code* [PRC] Section 21084.1 and CEQA Guidelines Sections 15064.5(a) and (b)), and applies to any cultural resource considered significant in the context of California history that is listed in or determined to be eligible for listing in the CRHR. A unique archaeological resource is an archaeological artifact, object, or site which has a high probability to contain information needed to answer important scientific research questions of public interest, retain a special quality, such as the oldest or best example of its type, or be directly associated with a scientifically important event or person. The results of the studies completed within the Project Site are discussed below by cultural resource site, and are summarized in Table 4.5-1 (Summary of Project Site Resources and CRHR Recommendations).

CA-MAD-295/827 and CA-MAD-826³² (Historical Resource)

CA-MAD-295/827 is a large village site near the San Joaquin River. The site contains bedrock milling stations (BRM) features, flaked and ground stone artifacts, animal bone, freshwater mussel shell, and human remains, which, at the request of the Dumna Tribal Government, were left in place. Excavations were conducted at the site to help evaluate the resource and to determine resource boundaries. The

³⁰ Traditional Cultural Properties are places of cultural or religious importance to California Native American Indians. Examples include traditional gathering areas, prayer sites, or sacred/ceremonial locations. These sites may or may not contain features, artifacts, or physical evidence, but are usually identified through consultation with local Native American groups.

³¹ These terms are further defined and discussed in Section 4.5.2 (Regulatory Framework) in of this section.

³² CA-MAD-295/827 and CA-MAD-826 are discussed together because they are geographically and functionally related due to their location directly adjacent to the San Joaquin River, and within the Project Site.

Table 4.5-1 Summary of Project Site Resources and CRHR Recommendations [New]

<i>Site Trinomial</i>	<i>Previous site constituents (Baloian et al. 2006)</i>	<i>Revised site constituents (Delacorte et al. 2012)</i>	<i>Recommendation for the CRHR (Baloian et al. 2006)</i>	<i>Revised Recommendation for the CRHR (Delacorte et al. 2012)</i>
<u>CA-MAD-295/827 (Locus A)</u>	<u>332 artifacts: 161 faunal remains</u>	<u>265 artifacts: 161 faunal remains</u>	<u>Eligible as a historical resource</u>	<u>Eligible as a historical resource with revised site boundaries</u>
<u>CA-MAD-826</u>	<u>43 artifacts: 13 bedrock milling features</u>	<u>14 artifacts: 13 bedrock milling features</u>	<u>Eligible as a historical resource</u>	<u>Ineligible as a historical resource or unique archaeological resource</u>
<u>CA-MAD-2392</u>	<u>34 artifacts: 1 faunal bone</u>	<u>27 artifacts, 1 faunal bone</u>	<u>Eligible as a historical resource</u>	<u>Ineligible as a historical resource or unique archaeological resource</u>
<u>CA-MAD-2393H</u>	<u>Historic refuse scatter containing historic age artifacts</u>	<u>Resource not addressed by Delacorte et al. 2012</u>	<u>Ineligible as a historical resource or unique archaeological resource</u>	<u>Recommendation for the CRHR not addressed by Delacorte et al. 2012</u>
<u>CA-MAD-2394 (Locus A)</u>	<u>11 artifacts: 4 bedrock milling features</u>	<u>3 artifacts: 2 bedrock milling features</u>	<u>Eligible as a historical resource</u>	<u>Ineligible as a historical resource or unique archaeological resource</u>
<u>CA-MAD-2394 (Locus B)</u>	<u>160 artifacts: 1 rock shelter with midden: 1 alcove with midden: 1 chert quarry: 3 bedrock milling features: 1 historic artifact scatter</u>	<u>109 artifacts: 1 historic artifact scatter</u>	<u>Eligible as a historical resource</u>	<u>Eligible as a historical resource</u>
<u>CA-MAD-2394, Non-locus</u>	<u>1 bedrock milling feature</u>	<u>none observed</u>	<u>Eligible as a historical resource</u>	<u>Ineligible as a historical resource or unique archaeological resource</u>
<u>P-20-002308</u>	<u>Madera Canal</u>	<u>Resource not addressed by Delacorte et al. 2012</u>	<u>Eligible as a historical resource</u>	<u>Recommendation for the CRHR not addressed by Delacorte et al. 2012</u>
<u>P-20-002525</u>	<u>Windmill and associated well</u>	<u>Resource not addressed by Delacorte et al. 2012</u>	<u>Ineligible as a historical resource or unique archaeological resource</u>	<u>Recommendation for the CRHR not addressed by Delacorte et al. 2012</u>

SOURCE: Atkins 2012 (adapted from Table 16 in Delacorte et al. 2012).

artifact assemblage collected during excavation contains temporally diagnostic items, including obsidian flakes and projectile points. The site also appears to retain integrity as suggested by its intact surroundings, including the natural vegetation, contours, and landscape features in the immediate area. ~~The AE found that the~~ site has the potential to yield important information relevant to the prehistory of the area (CRHR criterion ~~D~~4),³³ and ~~is recommended the site as eligible for the CRHR in 2006.~~

The site was independently reassessed by California State University, Sacramento/AECOM Technical Services in 2011/12 based upon a field review, geomorphological circumstances, and a comprehensive analysis of the artifacts recovered by the AE field survey and test excavations. Results of this work indicated that the site CA-MAD-295/827 contains substantially fewer artifacts than originally reported,

³³ The CRHR criterion is further described in Section 4.5.2 of this EIR, along with a discussion of eligibility for the CRHR.

and that the majority of these artifacts were recovered from the northern portion of the site as recorded by AE. The materials to the south of the main artifact concentration were found to be of such limited abundance and scattered distribution that they could not be reasonably linked to the CA-MAD-295/827 accumulation. With these revised findings in mind, the southern portion of the site as recorded by AE was found to be unrelated to the qualities that render the site eligible for the CRHR under Criterion 4, as described in the Regulatory Framework (refer to Section 4.5.2 of this EIR). Thus, while the site boundaries were revised to be smaller than previously suggested, the northern portion of the site, named Locus A by the California State University, Sacramento/AECOM Technical Services study, was still found to be a significant historical resource for the reasons cited by AE in 2006.

CA-MAD-826 (Ineligible for the CRHR)

CA-MAD-826 is a large bedrock milling location near the San Joaquin River. Ethnographic literature suggests that the site may be associated with a Dumna village, I-ah'-pin. In addition to the recordation of twenty-two milling stations, forty-three artifacts were collected by AE. The site was test excavated to help determine the horizontal and vertical extent of the resource. While only one potentially temporally diagnostic artifact was collected from this site (an obsidian flake), the site is adjacent to CA-MAD-295/827 and contains a similar artifact assemblage, which suggests that the site may be a resource processing location for CA-MAD-295/827. Site CA-MAD-295/827 contains numerous temporally diagnostic artifacts, thus placing these BRM features in temporal context. As a resource processing station, CA-MAD-826 could provide data relevant to the prehistoric dietary practices. Disturbances to the site include modern trash, two modern hearth features, and the vineyard. None of these disturbances, however, seem to have affected subsurface integrity. Thus, AE found the site ~~is to be considered to be~~ a historical resource because it retains integrity and yields important information relevant to the prehistory of the area (CRHR Criterion 4). The aspects of the site that provided information important to prehistory are as follows: the site (1) possesses numerous BRM features, (2) has abundant portable ground stone artifacts, and (3) could be dated by association to a neighboring site (CA-MAD-295/827).

The site was independently reassessed by California State University, Sacramento/AECOM Technical Services in 2011/12 based upon a field review, geomorphological circumstances, and a comprehensive analysis of the artifacts recovered by the AE field survey and test excavations. The results of this work was found to have a significant bearing on the structure, integrity, information potential, and ultimately the significance of this resource and its appropriate management under Section 4.5.2 (Regulatory Framework) of this EIR.

The California State University, Sacramento/AECOM Technical Services study detected the BRM features described by AE, but noted that BRM features are a common prehistoric feature throughout much of California. Further, such features provide little new information of importance to prehistory, and all recoverable data was learned during the AE evaluation fieldwork when the features were mapped, drawn, and measured. Similarly, the recovered artifacts, including the portable ground stone tools described by AE, appear to lack the ability to yield information important to prehistory. This finding is due to the results of the artifact analysis, where significantly fewer artifacts were found to be present in the collected assemblage than previously reported, and the remaining artifacts are of little interpretive value. The resultant updated number and distribution of the artifacts renders the site significantly smaller than previously described, and places the entirety of the redefined site within the long active San Joaquin

River or overflow channel. This location leaves no potential for intact, buried cultural remains, and the known surface and near-surface artifacts recovered from less than intact contexts. In addition, the reassessment found that dating this site based upon an association with CA-MAD-295/827 lacked any supporting evidence.

Collectively, these findings indicate that the site lacks integrity, cannot be reasonably dated, and has no potential to contribute additional information important in prehistory. As such, CA-MAD-826 fails to meet Criterion 4 of the CRHR guidelines, lacks other attributes that might enhance its significance, and, therefore, the site cannot be considered a historical resource. Likewise, CA-MAD-826 does not contain information needed to answer important scientific research questions; is not the oldest of its type or the best available example of its type; nor is it directly associated with a scientifically recognized important prehistoric or historic event or person. Therefore, CA-MAD-826 is not a unique archaeological resource. Thus, CA-MA-826 is not found to be a historical resource or unique archaeological resource pursuant to CEQA.

CA-MAD-2392 (Historical Resource Ineligible for the CRHR)

This is a large site with a sparse scatter of flaked and ground stone artifacts. Testing of the site determined that the deposit was shallow. Despite this, the presence of an obsidian flake may be used to date the site. Given the paucity of investigated sites in the area, CA-MAD-2392 provides an opportunity to investigate landscape use. There seems to have been little impact to the natural environment in the immediate area, aside from agricultural use, which may have impacted a portion of the site. ~~The AE found the site is considered to be a historical resource because it retains~~ based on reported integrity and yields the potential to yield important information relevant to the prehistory of the area (CRHR Criterion ~~4~~). Specifically, AE found the aspect of the site that provided information important to prehistory to be the presence of a datable deposit in an area where little is known about the prehistoric culture history.

The site was reassessed by California State University, Sacramento/AECOM Technical Services in 2011/12 based upon a field review, geomorphological circumstances, and a comprehensive analysis of the artifacts recovered by the AE field survey and test excavations. The results of this work was found to have a significant bearing on the structure, integrity, information potential, and ultimately the significance of this resource and its appropriate management under Section 4.5.2 (Regulatory Framework) of this EIR.

The California State University, Sacramento/AECOM Technical Services study found that the site is a sparse accumulation containing twelve artifacts, fifteen waste flakes, and a single piece of animal bone, which was probably naturally deposited. These artifacts are spread over a very large area and are mainly confined to the surface and within soils that have been adversely impacted. Of these artifacts, four pieces of obsidian were recovered that could be used to potentially date the site; however, these artifacts were distributed throughout the site and were recovered from disturbed contexts. As a result, these artifacts would provide little information to accurately date the site and would leave most of the artifacts either broadly dated or of undetermined age. These findings indicate that the site lacks integrity, cannot be reasonably dated, and has no potential to contribute information important in prehistory. As such, CA-MAD-2392 fails to meet Criterion 4 of the CRHR guidelines, and the site cannot be considered a

historical resource. In addition, CA-MAD-2392 does not contain information needed to answer important scientific research questions; is not the oldest of its type or the best available example of its type; nor is directly associated with a scientifically recognized important prehistoric or historic event or person. Therefore, CA-MAD-2392 is neither a historical resource nor a unique archaeological resource.

CA-MAD-2393H (Ineligible for the CRHR)

This historic-period resource is a sparse scatter of trash in an agricultural field. Originally discovered during survey efforts, no artifacts could be relocated upon revisit to the site after a harvest and subsequent turning of soil. As a result, the site is considered ineligible for the CRHR.

CA-MAD-2394 (Historical Resource)

This site is a large prehistoric period resource with two loci located near a seasonal drainage. The AE found that the site contains a number of milling stations, a scatter of flaked and ground stone artifacts, midden,³⁴ a chert quarry,³⁵ and a rock shelter. The site was tested to verify site boundaries and to establish site integrity. The chert quarry ~~qualifies~~ reported by AE was found to qualify as a unique archaeological resource because it exhibited a specific type of prehistoric stone reduction technique, referred to as thermal spalling. While According to AE, while there are other chert quarries in California that also exhibit thermal spalling, none are located along the San Joaquin River. The site also yielded a number of obsidian flakes and other temporally diagnostic artifacts, as well as a rock shelter with an intact midden deposit. The AE found the site is considered to be a historical resource because it retained integrity and yielded important information relevant to the prehistory of the area (CRHR Criterion D4).

The site was reassessed by California State University, Sacramento/AECOM Technical Services in 2011/12 based upon a field review, geomorphological circumstances, and a comprehensive analysis of the artifacts recovered by the AE field survey and test excavations. Results of this work indicated that there were fewer artifacts than originally reported, and that the site is comprised of two separate cultural accumulations, rather than one. Therefore, the site should be considered as two separate sites, and a new primary number and trinomial was requested for a portion of the site (Locus A). For the purposes of discussion within the reassessment, the original site was divided into two separate loci (Locus A and Locus B), with Locus A considered as a separate site from Locus B, and the two phenomena connected by an intervening non-locus, originally reported as a BRM feature by AE. The intervening BRM feature could not be found in the location recorded by AE during the 2011/12 study.

Locus A was found to contain an undatable collection of surface milling facilities that provide negligible information of significance to our understanding of regional prehistory. For this reason, Locus A was not found to be a historical resource or unique archaeological resource. A new primary number and trinomial were requested for this area.

³⁴ Midden features are characterized by darkened soil and generally contain an accumulation of artifacts and ecofacts associated with past human occupation. These features could include a variety of material remains, including worked stone and fired clay, as well as the remains of food processing and procurement, such as faunal bone and shell.

³⁵ Quarries are exposures of raw materials from which pieces or portions of the exposure may be removed for the purpose of future lithic (stone) tool manufacture. Chert is a silica that contains microcrystalline quartz.

Locus B includes the previously reported chert quarry and the rock shelter with soils described as resembling midden. During the reassessment, the quarry was determined to be a natural sinter deposit³⁶ with no evidence that it was exploited by humans. The rock enclosure (shelter) was found to be naturally formed with organic-rich sediment characteristic of spring/seep locations, rather than midden. Based upon these findings and a review of the artifact content, Locus B was found to be a much smaller site than previously described. With these revised findings in mind, but in consideration of the presence of obsidian that could be used to date a portion of the site, Locus B was found to be eligible for the CRHR under Criterion 4 with revised and smaller site boundaries.

Madera Canal (P-20-002308) (Historical Resource and Eligible for the CRHR)

The Madera Canal carries water north from Friant Dam through Madera County. The canal is an element of the Central Valley Project, a major water conveyance program that has been in existence for the past seventy years. A nearby lateral of the Canal (Lateral 6.2) branches off from the main Canal in the central portion of the Project Site. An evaluation of the Central Valley Project for the National Register of Historic Places is currently being undertaken by the Bureau of Reclamation, and it is believed that the system will be found to be a historical resource under Criteria A and C. The Madera Canal, as a part of a NRHP-eligible resource, would also be eligible for the ~~California Register~~ CRHR.

Windmill (P-20-002525) (Ineligible for the CRHR)

The site is an abandoned galvanized steel windmill and associated well. There was no evidence linking the site with important people or events in history. This model of windmill is common across the United States. It is neither unique nor distinct, and, therefore, it is not eligible for the CRHR.

■ Native American Coordination

~~Applied Earthworks AE~~ conducted ~~the~~ Native American ~~consultation~~ information-scoping as a part of their efforts to (1) identify, document, and evaluate cultural resources, including properties important to Native Americans; (2) assess the project's potential impacts on such cultural resources; and (3) implement procedures to avoid or mitigate significant impacts on important cultural resources.

In March 2005, ~~Applied Earthworks AE~~ cultural resources staff requested that the NAHC search its sacred lands database for any Native American cultural resources located on or near the Project Site. The NAHC response letter stated that the search of the sacred lands database failed to indicate the presence of Native American resources in the immediate project area. The NAHC letter included a list of local Native American organizations and individuals who may have knowledge of cultural resources in the project area. Letters that included a brief description of the Proposed Project and a project map were sent to each organization/individual identified on the NAHC list. Copies of Native American correspondence ~~and are included in Appendix B of this EIR~~ are included in Appendix B of this EIR. Thereafter, meetings were held in March and April 2005 with various Native American contacts at the AE offices and at the Project Site. During these meetings, the contacts reviewed Project location maps and outlined the sensitivity of the Project Site for Native American resources.

³⁶ A sinter deposit is characterized as a porous, low-density, light-colored siliceous rock deposited by waters of hot springs and geysers.

In July 2005, ~~Applied Earthworks~~ AE contacted additional Native American individuals, Native American organizations, and a professional anthropologist regarding cultural resources in the region. These individuals and organizations provided ~~additional~~ information regarding late nineteenth century to early twentieth century Yokuts settlements, tribal leadership, and familial relationships pertinent to the Project Site. Another individual with possible concerns was also contacted in late July 2005. Finally, ~~Applied Earthworks~~ AE scheduled a second meeting in the field with four interested Native Americans with knowledge regarding the Project Site and surrounding area. The Native Americans emphasized the importance of site preservation and access to the area for traditional uses. ~~While~~ Hence, the ~~eligibility results~~ of the ~~area was not evaluated as a Traditional Cultural Property (TCP)~~,³⁷ AE information-scoping efforts indicated that members of the local Native American community Dumna Tribe consider portions of the project site to be a place of special religious or social significance to their tribe.

During the 2005 information-scoping efforts and the completion of the AE study (Baloian et al. 2006), the potential sensitivity of the Project Site for Native American cultural resources was supported by information provided by various Native American contacts. A supporting study on the Ethnography, Ethnohistory, and Native American Consultation generated in 2006 suggested that the sensitive areas within the Project Site may constitute a TCP; however, the eligibility of the area was not formally evaluated as to whether or not it contained a formally defined TCP (Baloian et al. 2006, Appendix B).³⁸ Since the publication of the 2008 Final EIR, correspondence has been received by the County of Madera from the Dumna Wo-Wah Tribal Government regarding the presence of TCPs within the Project Site. In a letter dated March 1, 2012, Robert G. Ledger, Chairperson of the Dumna Tribal Council, stated that there are no TCPs in the Project Site (Ledger 2012). Further, Mr. Ledger noted that there were no ceremonial, sacred places, or formal burial grounds believed to be within the Project Site. The tribe also stated that it was satisfied with the agreement reached with the Project Applicant to preserve and protect CA-MAD-826, CA-MA-295/827, and CA-MAD-2394 in designated open space, as outlined in the Comprehensive Settlement Agreement between the Dumna Tribal Council, the County of Madera, and Tesoro Viejo, Inc. (Comprehensive Settlement Agreement) (Madera County 2012), which is provided as Appendix L2 to this EIR.

The potential sensitivity of the Project Site for Native American resources has been expressed in several comment letters received in response to the Draft Revised EIR NOP from other Native Americans. These letters expressed interest in the Project, included requests for technical documents, notifications for Project-related activities, and indicated that tribal monitors may be needed. One letter was received from Silvia Burley, Chairperson for the California Valley Miwok Tribe and dated March 26, 2012. In this letter, the tribe indicated that they did not oppose the Proposed Project; however, the Project Site exhibited a heightened sensitivity for containing historic Miwok artifacts. This sensitivity was based upon the location of the Project Site within an area where the Miwok Indians regularly lived and traveled. For this reason, the tribe requested notification in the event that any Miwok artifacts were uncovered (Burley 2012). An additional letter was received from Judy E. Fink, Tribal Chairperson for the North Fork

³⁷ ~~Traditional Cultural Properties are places of cultural or religious importance to California Native American Indians. Examples include traditional gathering areas, prayer sites, or sacred/ceremonial locations. These sites may or may not contain features, artifacts, or physical evidence, but are usually identified through consultation with local Native American groups.~~

³⁸ The Project Site was suggested to contain Traditional Cultural Properties as defined by National Register Bulletin 38.

Rancheria of Mono Indians of California on April 20, 2012 (Fink 2012). Based upon their review of the 2008 Final EIR, the tribe requested copies of the archaeological survey documentation to determine if a tribal monitor would be required in sensitive areas. Further, they requested to be provided notice of Project implementation when related activities are proposed to occur near the archaeological sites described in the 2008 Final EIR (Fink 2012).

Thus, the results of the Native American information-scoping process have indicated that the Project Site exhibits sensitivity for Native American cultural resources, such as those associated with the identified cultural resources, but no TCPs are present.

■ Paleontological Resources

Paleontological resources include fossil remains, fossil localities, and formations that have produced fossil material. Paleontological resources are classified as non-renewable scientific resources that are protected by federal and State statutes, most notably by the *1906 Federal Antiquities Act*. Professional standards for assessment and mitigation of adverse impacts on paleontological resources have been established by the Society of Vertebrate Paleontology (SVP) (1995, 1996). These standards include documenting the presence and evolutionary history of particular groups of now extinct organisms, reconstructing the environments in which these organisms lived, and determining the relative ages of the stratigraphic layers in which the fossils occurred and of the geologic events that resulted in the deposition of the sediments that formed these geologic layers and their subsequent deformation.

AThe surface soils of the Project Site have been impacted by a variety of agricultural activities and associated development over time. However, a preliminary literature review of the Project Site indicated a potentially fossiliferous geological formation underlying underlies the surface soils in the northern and eastern portion of the Project Site (see Figure 4.5-1 [Potential Paleontologically Sensitive Areas within the Project Site]). These findings indicate that Ffuture development of the Project Site has the potential to unearth undiscovered paleontological resources presently located within the subsurface.

4.5.2 Regulatory Framework

Federal, State, and local governments have developed laws and regulations designed to protect significant cultural resources that could be affected by actions that they undertake or regulate. The *National Environmental Policy Act* (NEPA), the *National History Preservation Act of 1966* (NHPA), the *Antiquities Act*, and the *California Environmental Quality Act* (CEQA) are the principal federal and State laws governing preservation of historic and archaeological resources of national, regional, State, and local significance.

Given the presence of wetlands on the Project Site, some of which would likely be impacted by the Proposed Project (refer to Section 4.4 [Biological Resources] of this EIR), it appears that a Section 404 Clean Water Act Permit will be required prior to construction of the Proposed Project, and, as such,

there may be a federal nexus³⁹. Accordingly, the mitigation measures proposed in this section are intended to satisfy both State and (potential future) federal requirements.

■ Federal Regulations

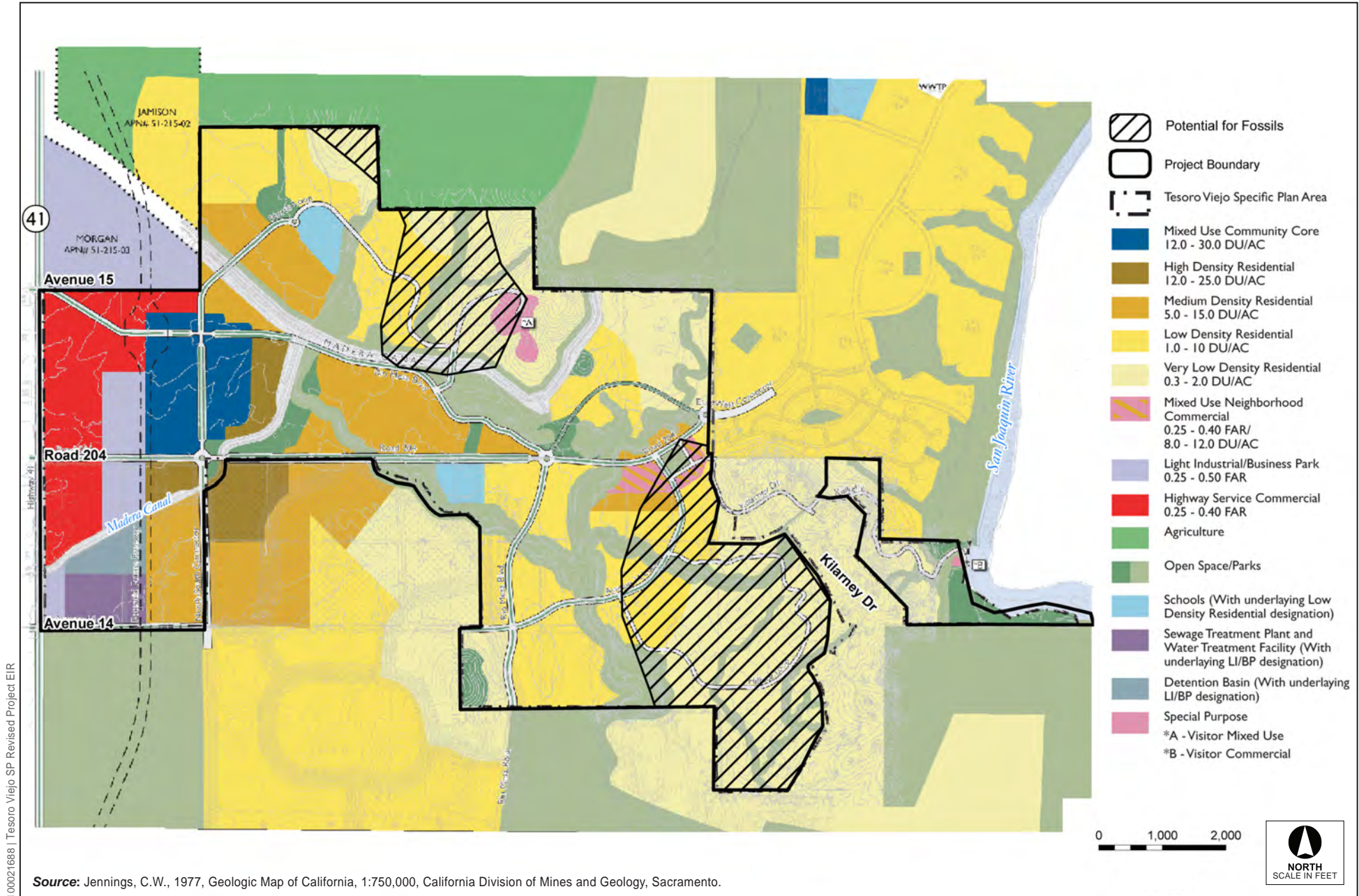
Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The Council's implementation regulations, "Protection of Historic Properties," are found in 36 *Code of Federal Regulations* (CFR) Part 800. The goal of the Section 106 review process is to offer a measure of protection to sites that are determined eligible for listing on the National Register of Historic Places. The criteria for determining National Register eligibility are found in 36 CFR Part 60. Amendments to the Act (1986 and 1992) and subsequent revisions to the implementing regulations have, among other things, strengthened the provision for Native American consultation and participation in the Section 106 review process. Although federal agencies must follow federal regulations, most projects of private developers and landowners do not require this level of compliance. Federal regulations only apply in the private sector if a project requires a federal permit or if it uses federal money.

Under NHPA, the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, material, handiwork, feeling, and association. Additionally, the National Register of Historic Places requires consideration of significance of any structure over ~~forty-five~~50 years old.

■ State Regulations

State historic preservation regulations affecting this project include the statutes and guidelines contained in the ~~California Environmental Quality Act~~ (CEQA; (PRC Sections 21083.2 and 21084.1 and Sections 15064.5 and 15126.4(b) of the CEQA Guidelines). ~~Under CEQA requires lead, public agencies to carefully~~must consider the ~~potential effects impacts of a project their actions on both~~ historical resources. An "and unique archaeological resources. Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of a historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record or manuscript that is historically or archaeologically a project that may have a significant (PRC Section 5020.1) effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

³⁹ At this time, the Madera Canal is also under review to the federal standards; however, while the Madera Canal is located within the Project's geographic boundaries, it is not considered to be part of the Project Site because it is not a developable area (refer to Table 3-1 [Proposed Land Uses for the Tesoro Viejo Project] in Section Chapter 3; [Project Description] of this EIR).



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Figure 4.5-1
Potential Paleontologically Sensitive Areas within the Project Site

Historical resource is a term with a defined statutory meaning (refer to PRC Section 21084.1 and CEQA Guidelines Sections 15064.5(a) and (b)). The term applies to any resource listed in or determined to be eligible for listing in the CRHR. The CRHR includes California resources listed in or formally determined eligible for listing in the NRHP, as well as certain California Historic Landmarks (CHLs) and California Points of Historical Interest (PHIs).

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be historical resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC Section 5024.1 and CFR Title 14, Section 4850). Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR.

Advice on procedures to identify such resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR), CEQA and Archaeological Resources, 1994. The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associations and societies be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains (*California Health and Safety Code* Section 7050.5, California PRC Sections 5097.94 et al).

California Register of Historical Resources (PRC Sections 5020 et seq.)

~~The Office of Historic Preservation (OHP) maintains the California Register of Historical Resources (CRHR). Properties listed, or formally designated as eligible for listing, on the National Register of Historic Places are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or . In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified through local historical resource surveys.~~

~~For the purposes of CEQA, an historical resource is a resource listed in, or determined eligible for listing in the CRHR. When a project will impact survey process, lead agencies have a site, it must be determined whether the site is an historical resource. The responsibility to evaluate them against the CRHR criteria are set forth in prior to making a finding as to a proposed project's impacts to historical resources (PRC Section 21084.1 and Section 15064.5(a)(3) of the CEQA Guidelines and are-). In general, a historical resource, under this approach, is defined as any resource object, building, structure, site, area, place, record, or manuscript that does any of the following:~~

- ~~(a) Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and~~
- ~~(b) Meets any of the following criteria:~~
 - ~~A-1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;~~

- ~~B-2)~~ Is associated with the lives of persons important in our past;
- ~~C-3)~~ Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- ~~D-4)~~ Has yielded, or may be likely to yield, information important in prehistory or history.

(CEQA Guidelines, Section 15064.5(a)(3))

In addition, the CEQA Guidelines, Section 15064.5(a)(4) states:

The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

As noted above, CEQA also requires lead agencies to consider whether projects will impact unique archaeological resources. PRC Section 21083.2(g) states that unique archaeological resource means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

(Public Resources Code §21083.2(g))

Treatment options under Section 21083.2 include activities that preserve such resources in place and in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation, or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a unique archaeological resource).

California Health and Safety Code Sections 7050.5, 7051, and 7054

These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials found in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction, and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures.

California PRC Section 15064.5(e)

As with *California Health and Safety Code* Sections 7050.5, 7051, and 7054, this law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. The section establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project and establishes the NAHC as the entity responsible to resolve disputes regarding the disposition of such remains.

Senate Bill (SB) 18/922

~~As of March 1, 2005, Senate Bill 18, signed into law by Governor Schwarzenegger in September 2004, (Government Code Sections 65352.3 and 65352.4) requires cities and counties that, prior to notify and the adoption or amendment of a General Plan proposed on or after March 1, 2005, a City or County must consult with California Native American Tribes about proposed adoption of, or changes to, general plan tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects located within that jurisdiction. The consultation intends to establish a meaningful dialogue regarding potential means to preserve Native American places of importance. It allows for tribes to hold conservation easements and specific plans for the purpose of protecting Traditional Tribal Cultural Places (“for tribal cultural places”). Interim tribal consultation guidelines were published by OPR on March 1, 2005. The Proposed Project falls under the SB 18 requirements as defined by OPR, and Madera County will be required to directly contact the NAHC and request consultation (NAHC 2006b).~~

~~While the Project Applicant’s consultant—Applied Earthworks—has undergone extensive consultation with Native American representatives that are either known or believed to have information regarding the Project Site, and the results of these consultation efforts have been disclosed in this EIR, the County will be required to undergo separate consultation pursuant to SB 18 before construction of the Project Site can commence to be included in open space planning. SB 922 provides additional guidance to agencies with respect to Native American consultation.~~

~~The OPR has suggested that SB 18 consultations are also required in connection with the adoption of specific plans and in situations where designated open space will incorporate a Native American cultural place (OPR 2005). However, in the case of the Proposed Project, the Superior Court of the State of California, County of Madera, determined that SB 18 consultation was not applicable as a matter of law, finding that the OPR interpretation of Government Code, Section 65352.3 was not correct based on the express language indicating that SB 18 consultations only apply to General Plans and General Plan Amendments. As a consequence, this Revised EIR deletes reference to any required SB 18 consultations with respect to the Project.~~

■ Paleontological Resources

Paleontological resources on federal lands are protected under various laws related to the protection of public properties. These laws are enforced through the issuance of permits by appropriate agencies, depending on the nature and location of the potential disturbance. Paleontological resources on private property within California are generally unprotected under State law. The Madera County General Plan addresses paleontological resources.

Local Policies

Madera County General Plan

- Goal 4.D** To identify, protect, and enhance Madera County’s important historical, archaeological, paleontological, and cultural sites and their contributing environment.

The following General Plan policies are applicable to the historical, archaeological, cultural and paleontological resources of the Proposed Project:

- Policy 4.D.1** The County shall solicit the views of the local Native American community in cases where development may result in disturbance to sites containing evidence of Native American activity and/or to sites of cultural importance.
- Policy 4.D.3** The County shall require that discretionary development projects identify and protect from damage, destruction, and abuse, important historical, archaeological, paleontological, and cultural sites and their contributing environment.
- Policy 4.D.4** The County shall, within its power, maintain confidentially regarding the locations of archaeological sites in order to preserve and protect these resources from vandalism and the unauthorized removal of artifacts. If significant archaeological and cultural resources are open to the public, the County shall control public access to prevent damage or vandalism.

Rio Mesa Area Plan (RMAP)

There are no policies with respect to cultural resources in the RMAP.

San Joaquin River Parkway Master Plan

The following policies are applicable to the portion of the Project Site within the San Joaquin Parkway:

- Policy FG4** Protect irreplaceable natural and cultural resources in a way that will also meet recreational and educational needs.
- Policy RA1** Preserve and manage the natural and cultural resources in the Parkway, including archaeological and Native American sites, to meet current and future recreational and educational needs.
- Policy RFP10** Incorporate requirements of State or federal law or any local prohibiting or restricting modification of cultural sites.
- Policy RDP11** Prior to approval of any construction in the Plan area, a records search shall be conducted to determine whether cultural resources have been recorded in or near the project development area, or are likely to occur. The study area should include areas to be directly affected as well as any areas of increased ingress in which cultural resources could be located. An on-the-ground field survey shall also be conducted by a qualified archeologist of all potentially affected areas, with all resources inventoried and evaluations made to determine the significance of any resources present. Mitigation measures shall be developed and implemented to reduce any impact to any cultural resources to a less than significant level before construction begins.
- Policy RDP12** In the event of the discovery of any subsurface archeological artifact, feature or deposit during construction activities, work

within 100 feet of the find shall be halted, and an archeologist will be contacted for an in-field evaluation.

- If the resource is determined to be significant, an appropriate plan for resource preservation or site excavation must be developed and implemented.
- If bone is found that appears to be human, work within 100 feet of the find shall be halted, and the County Coroner must be contacted. If the remains are determined to be of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC). The NAHC shall determine the "most likely descendant", who will work to develop a plan for the area of the find. Construction work shall remain halted in the vicinity of the discovery until the plan can be implemented.

Policy RDP13 Prior to approval of any construction in the Plan area, contact should be made with the Native American Heritage Commission to obtain the names of individuals who may have knowledge regarding areas of concern in or near the Parkway Plan area such as familial villages, gathering areas, power places, or other sites with heritage values for Native Americans. These individuals should be contacted, and information solicited on traditional cultural properties that may be present within the study area. Mitigation measures shall be developed and implemented to reduce any impact to any traditional cultural properties to a less than significant level before construction begins.

Local Policy Consistency

The Proposed Project is consistent with the Madera County General Plan and the San Joaquin River Parkway Master Plan in that cultural resources have been identified in the planning stage of the Project, and identified sites will be preserved, protected, or adequate mitigation measures will be implemented. Both plans also require the involvement of the Native American Community, which has been accomplished by ~~Applied Earthworks AE and the County~~ as part of their extensive Native American ~~consultation/information-scoping~~ efforts ~~and will be further investigated by the County pursuant to the requirements of SB 18.~~

Cultural resources, including known historical, archaeological, and paleontological resources were identified on the Project Site through research conducted by ~~Applied Earthworks AE~~, including through discussion with the members of the local Native American ~~e~~Community. The mitigation measures recommended below under Project Impacts and Mitigation identify the proper treatment of ~~these~~ special/significant resources, consistent with federal, State, and local regulations, and Policies RDP 12-13 above. Mitigation of these resources could include open space zoning, vegetative screens, tribal monitoring, or similar treatments agreed upon by all interested parties and the Project Applicants. If the resource cannot feasibly be preserved, data recovery through excavation shall be performed by qualified professionals. All of these strategies aid in the preservation of the existing resources.

The Tesoro Viejo Specific Plan contains goals to protect the natural, cultural, and recreational resources located within the Project Site, listed below.

- Goal 21** Preserve features and resources of environmental and cultural value to enhance the future identity and value of Tesoro Viejo as a community.
- Goal 23** Preserve significant biological, archaeological, and paleontological resources in a manner to reflect their importance.

The Proposed Project goals and associated land use plan demonstrate the intent of the Proposed Project to protect the cultural resources within the Project Site. Additional mitigation measures recommended in this section further serve to protect cultural resources and assure their documentation and long term preservation to the extent feasible. Therefore, the Proposed Project is consistent with the Madera County General Plan and the San Joaquin River Parkway Master Plan.

4.5.3 Project Impacts and Mitigation

■ Analytic Method

The identification and evaluation of cultural resources within the Project Site was initially conducted in 2005/06 by AE. The identification process included a records search through the Southern San Joaquin Valley Information Center SSJVIC of the California Historical Resources Information System CHRIS for the purpose of identifying previous surveys and known prehistoric or historic sites and resources in or near the Project Site. In addition, archival research related to the regional history of land use was also conducted. Local Native Americans were also consulted as part of the identification process as described in Section 4.5.1 above. The Native American community provided information on resources and voiced concerns regarding the Project Site and the proposed development. An updated SSJVIC and NAHC records search were completed by Atkins for the Off-Site Avenue 15 Pipeline in 2012 (refer to Section 3.7.4 of this EIR for a detailed description of the pipeline).

An archaeological pedestrian survey of the Project Site was conducted by Applied Earthworks. Surface visibility varied greatly throughout AE in 2005, and an additional survey was completed for the Project Off-Site, Avenue 15 Pipeline by Atkins in April 2012. During the 2012 survey, the Off-Site Pipeline area was covered with dense nonnative vegetation—a problem in some portions, resulting in varied surface visibility. Based upon visual inspection of the Project area. As a result ground surface, it was evident that the area had been heavily disturbed and that gravel and soils had been imported in association with the construction and maintenance of the survey, seven Avenue 15. No cultural resources more than 45 years old were identified within the Project boundaries. Four are prehistoric resources and three are historic-period resources encountered during the Atkins survey of the Off-Site Pipeline (Holland 2012).

Three prehistoric sites and one historic site were recommended as eligible to the CRHR. The prehistoric sites were evaluated for their eligibility for listing on For the AE study, surface visibility varied greatly throughout the CRHR by Project Site, with dense vegetation a problem in some portions of the Project Site (Baloian et al. 2006). As a result of the survey, seven cultural resources more than 45 years old were identified within the Project boundaries. Four of the resources were associated with the prehistoric

period (CA-MAD-295/827, CA-MAD-826, CA-MAD-2392, and CA-MAD-2394) and three were associated with the historic period (CA-MAD-2393H, Madera Canal/P-20-002308, and P-20-002525).

AE initiated the CRHR eligibility evaluation process for the prehistoric sites through hand-excavation of small surface transect units and shovel test pits, as well as larger excavation units. Thereafter, A site's eligibility was determined based on discussions about the potential probability for the site to produce data on important useful in answering archaeological research questions; however, cultural materials recovered from the site excavations were not analyzed. Site integrity was evaluated based on the appearance of the sites' surfaces, which did not appear to have been heavily impacted, aside from agricultural use of the area. The number of recovered time sensitive artifacts ranged from one to more than 24 pieces by AE. The lack of obsidian for each site. Together, these may be post-field technological analyses, as well as the subsequent interpretations and regional comparisons commonly used to place the sites within a temporal and cultural framework. One historic period by archaeologists to support a determination that an archaeological site meets the CEQA criteria for a unique archaeological resource (the Madera Canal) is under review to determine if it is a contributing element to a CRHR eligible or a historical resource, the Central Valley Project. Applied Earthworks assumed rendered it difficult to make a conclusive determination of significance in the prior 2008 Final EIR. For this reason, and to eliminate any potential uncertainties regarding significance conclusions, additional analysis, interpretation, and regional comparisons were undertaken to refine the AE evaluations.

As previously discussed, the AE findings on prehistoric resource would be ultimately eligibility were reassessed by a study completed by California State University, Sacramento/AECOM Technical Services. The results of this work furnished different assessments of the structure, integrity, and significance of the prehistoric sites. The results of the AE study, augmented by the updated conclusions rendered by the California State University, Sacramento/AECOM Technical Services reassessment study, indicate that two prehistoric period resources (CA-MAD-826 and CA-MAD-2392) and two historic period resources (CA-MAD-2393H and P-20-002525) are considered ineligible for the CRHR and are, therefore, not considered historical resources pursuant to CEQA. In addition, two prehistoric period resources (CA-MAD-295/827 and CA-MAD-2394) are considered eligible for listing on the CRHR and are considered significant historical resources pursuant to CEQA. The eligibility of the three historic period resources (Madera Canal/P-20-002308, P-20-002525, and CA-MAD-2393H) for the CRHR was not reassessed by California State University, Sacramento/AECOM Technical Services; instead, eligibility for the CRHR is based on the recommendations of the AE study. A determination was not made on the eligibility of the area identified by the local Native Americans as a Traditional Cultural Property.

Collectively, the results of the studies indicate that the Project could result in impacts to these significant cultural resources. The potential impacts are analyzed in compliance with State and local laws and policies.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G to the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on cultural resources if it would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature
- Disturb any human remains, including those interred outside of formal cemeteries

■ **Effects Not Found to Be Significant**

There are no Effects Not Found to Be Significant with respect to cultural resources.

■ **Impacts and Mitigations**

Threshold	Would the project cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5 of the 2007 CEQA Guidelines?
Threshold	Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5 of the 2007 CEQA Guidelines?

CEQA requires consideration of project impacts on either archaeological sites or historical sites deemed to be historical resources. If the project will cause a substantial adverse change to the characteristics of an historical resource that conveys its significance or justifies its eligibility for inclusion in the ~~California Register~~ CRIIR, the project is judged to have a significant effect upon the environment, according to Section 15064.5 of the CEQA guidelines. ~~Five~~ Three of the seven resources in the Project Area are considered historical resources pursuant to CEQA, two of which are considered prehistoric period resources and one of which is considered a historic period resource: CA-MAD-295/827, 826, 2392, 2394, (prehistoric), CA-MAD-2394 (prehistoric), and Madera Canal/P-20-002308. ~~In addition, there are areas that are of special religious or social significance to the Native Americans (e.g., Traditional Cultural Properties⁴⁰) in the Project Area (historic).~~

Based on the current project design, ~~all the~~ historical resources ~~and the sites of special religious or social significance~~ within the Project Site may be impacted by the proposed development, either directly or indirectly.

⁴⁰ ~~Traditional Cultural Properties are defined in PRS 5097.9 et al, recognizing that PRC 5097.9 applies only to public projects, as well as in SB 18.~~

~~Impact 4.5-1 Implementation of the Proposed Project could result in an adverse affect to a Traditional Cultural Property, which is an area held sacred to the Native American community. This is considered a potentially significant impact. Because, the SB-18 process would not ensure that potential project impacts on Native American cultural places would be reduced to a less-than-significant level, this impact is considered *significant and unavoidable*.⁴¹~~

During the Native American consultation conducted for the Proposed Project by the Project Applicant, local Native American representatives indicated that Traditional Cultural Properties, including cemeteries, ceremonial caves, and other sacred sites, are located on the Project Site and could be adversely affected by implementation of the Proposed Project (either directly or indirectly). Adverse effects identified by the tribes included restrictions on access and traditional use of the cultural properties that would result from implementation of the Proposed Project. Senate Bill 18, signed into law in September 2004, requires cities to contact and consult with California Native American tribes prior to amending or adopting a general plan or specific plan, or designating land as open space. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage for the purpose of protecting or mitigating impacts to cultural places. Implementation of the Proposed Project would require the County to adopt a specific plan and designate land as open space, and would, therefore, require Madera County to comply with SB 18 and consult with California Native American Tribes identified on the NAHC's California Tribal Consultation List separately from the consultation that the Project Applicant has already undertaken. The legally required SB 18 consultation between Madera County and the local Native American representatives could result in the protection or mitigation of potential impacts to cultural places that could be adversely affected by implementation of the Proposed Project. However, SB 18 only requires consultation between the County and tribes, but does not require mutually agreeable resolution for the purpose of preserving or mitigating impacts to cultural places. While it is entirely possible, and even likely, that a mutually agreeable resolution could be achieved that would protect and/or mitigate impacts to cultural places, which is the goal of the consultation process, because the outcome cannot be guaranteed absent the consultation process, potential project impacts on Native American cultural places are conservatively assumed to be *significant and unavoidable*.

⁴¹ During the prior Native American coordination conducted for the Proposed Project by the Project Applicant in 2005/06, some local Native American representatives (but not the Chairperson, who is the only individual authorized by the Dumna Tribal Council to act on its behalf) indicated that TCPs, including cemeteries, ceremonial caves, and other sacred sites, are located on the Project Site. However, correspondence recently received by the County of Madera from the Chairperson of the Dumna Wo-Wah Tribal Government, which is included as Appendix L1 of this EIR, affirmatively states that there are no TCPs within the Project Site, including no ceremonial, sacred places, or formal burial grounds believed to be within the Project Site. The correspondence continues to state that any TCPs in the area are more likely under Lake Millerton or Lost Lake, or on Ledger Island (Ledger 2012). The tribe also stated that it was satisfied with the agreement reached with the Project Applicant to preserve and protect CA-MAD-826, CA-MA-295/827, and CA-MAD-2394 in designated open space, as outlined in the Comprehensive Settlement Agreement (Madera County 2012).

Impact 4.5-2 **Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as CA-MAD-2394, Locus B. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.5-2(a) through MM4.5-2(e) would reduce this impact to a *less-than-significant* level.**

~~Development of the Proposed Project could impact CA-MAD-2394. Destruction or re-location of the site's prehistoric features (bedrock milling stations, rock shelter, and chert quarry), disturbance or removal of the site's midden deposits or artifacts, or alterations to its setting would constitute a substantial adverse change in the significance of the resource. In addition, the presence of a nearby public feature (e.g., Special Purpose A) could encourage vandalism through increased ingress to the site vicinity. The Native American community is concerned with protecting the integrity of this resource. However, mitigation measures MM4.5-2(a) through MM4.5-2(e) would be implemented to identify, recover, and document these resources, if necessary.~~

Site CA-MAD-2394 was recommended as a historical resource during the study completed by AE in 2006, and was described as a single deposit occupying 7.2 acres with two activity areas or loci linked by a diffuse artifact scatter (Baloian et al. 2006). The site was reassessed by California State University, Sacramento/AECOM Technical Services through a site visit, analysis of the cultural and other remains collected by AE during test excavations, and a review of the geomorphological conditions. As a result of the reassessment, it was determined that site CA-MAD-2394 should be recorded and evaluated as two separate sites, not a single deposit with two loci, and that many of the previously identified cultural features are, in actuality, natural phenomena of no significance under the CEQA Guidelines governing the evaluation and treatment of cultural resources. The two separate sites consist of Locus A, at the northern end of the site CA-MAD-2394, with Locus B to the south of Locus A.

The California State University, Sacramento/AECOM Technical Services reassessment determined that Locus A has substantially fewer surface features than originally reported and no subsurface remains, such that little can be learned or expected from it. Locus A was not deemed eligible for listing in the CRHR and, therefore, is not discussed in this impact evaluation. However, the portion of site CA-MAD-2394 identified as Locus B was deemed eligible for listing in the CRHR and is discussed in this impact evaluation.

Locus B is situated at the southern end of the originally identified site and occupies approximately 0.19 acre. As outlined in the Comprehensive Settlement Agreement, the Project has been revised to allow the entirety of CA-MAD-2394, including the significant portion of the site (Locus B), to be located in an area proposed for open space (Madera County 2012).

The open space and open space buffer in this part of the Project Site is comprised of a combination of existing natural drainages and biological resource areas that would serve recreational, habitat, and storm drainage functions of the Project. Under this designation, the Project proposes to preserve the site in place and provide protection. In addition, information will be provided about the area's prior use by Native Americans as an educational guide along nearby trails. This portion of designated open space would be located near land designated as Very Low Density residential development. Very Low Density residential development provides for single-family detached and attached homes, secondary residential

units, limited agricultural uses, and similar and compatible uses, including home occupations. With these development plans in mind, while direct impacts are not proposed to occur to any portion of CA-MAD-2394, including the significant portion of the site (Locus B), various indirect impacts could potentially occur as a result of increased human activity, such as site vandalism and looting as a result of increased pedestrian traffic through the use of trails and open spaces by residents and visitors. Such impacts could produce a potentially adverse change to the historical resource, and the impact would be considered a significant impact under CEQA. For this reason, mitigation is recommended to reduce impacts to a less-than-significant level.

With respect to mitigation for archaeological resources, CEQA Guidelines Section 15126.4(b)(3) states:

Public agencies should, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered and discussed in an EIR for a project involving such an archaeological site:

(A) Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

(B) Preservation in place may be accomplished by, but is not limited to, the following:

1. Planning construction to avoid archaeological sites;
2. Incorporation of sites within parks, greenspace, or other open space;
3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site.
4. Deeding the site into a permanent conservation easement.

(C) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. ...

(D) Data recovery shall not be required for an historical resource if the Lead Agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center.

Several feasible, preservation in place mitigation strategies are available to address potential impacts of the Proposed Project, and these are outlined below along with a discussion of the preferred mitigation strategy for this historical resource.

Preservation in place of CA-MAD-2394, Locus B (exhibiting redefined and decreased site boundaries established in 2012 [Delacorte et al. 2012]) requires avoidance during construction and additional mitigation to ensure the site is protected once development is completed. After the surrounding area is developed, preservation in place could include one or more of the following four options, some of which could be used in combination: avoidance, covering or capping the site, incorporation into open space, and/or deeding the site into a conservation easement. Yet another mitigation strategy is preservation in another place or completion of data recovery without excavation. While site CA-MAD-2394 would be incorporated into the Project's open space, the other mitigation options are also evaluated as required by the court order.

Avoidance of CA-MAD-2394, Locus B, during construction activities used in combination with leaving the resource in open or undeveloped space, which is what the open space designation for this area of the Project would provide, would require installation of a temporary fence placed around the site boundary during construction. The fence should be placed a minimum of 100 feet from the revised site boundary, as further described in mitigation measure MM4.5-2(b). Avoidance of the site ensures that the site is protected during construction, but does not ensure that the site will be protected after development of the Proposed Project is complete. This option leaves the subsurface soils intact, thereby retaining information important to prehistory. There would be no ground disturbance activities and no impact to the prehistoric deposit and information potential that make it a historical resource, obviating the need to implement a data recovery plan.

Another preservation in place option is covering or capping of the site. Covering or capping would protect the site from future looting and vandalism. If this option were selected, the Applicant would be required to monitor the area on a semi-annual basis to ensure that the capping material has not been displaced. This option leaves the subsurface soils intact and retains information important to prehistory. In addition, this option negates the potential for future indirect impacts resulting from pedestrian traffic or other activities.

If CA-MAD-2394, Locus B is preserved in place through deeding the space into a conservation easement managed by a conservancy, the conservancy would be responsible for ensuring the site is protected from future adverse effects. The conservancy would be required to hire an archaeologist (if one is not on staff), who would visit the site on an annual basis to ensure that the site condition has not degraded. This mitigation has the benefit of protecting the site by a conservancy group with experience in such matters, while also leaving CA-MAD-2394, Locus B undeveloped in perpetuity. Native Americans would also have access to the resource. However, as the significance of the archaeological site lies primarily in the data potential that it may have and not in the physical location of the site, it is likely that the area would not be of great interest to the general public, and of less interest to local Native Americans than other nearby resources, such as CA-MAD-295/827 (see discussion below).

There are instances where preservation in another place or the completion of data recovery without excavation is also considered suitable mitigation. However, the studies completed by AE and California State University, Sacramento/AECOM Technical Services have collected all data currently obtainable without formal excavation. Additional data is contained within the currently undisturbed soils of the site and to move or disrupt the soils for the purpose of preservation in another place could adversely impact the spatial distribution of currently buried artifacts or features. Retaining the current distribution of the sites constituents is necessary for providing contextualized data to provide information important to prehistory in the future. Further, data recovery is not required, because the Project proposes to keep this site in dedicated open space.

In consideration of the above strategies, the preferred mitigation for CA-MAD-2394, Locus B is preservation in place through avoidance and incorporation into open or undeveloped space, as proposed by the Project. As previously mentioned, the significance of the archaeological site lies primarily in the data potential that it may have and not in the physical location of the site. This fact renders this strategy as an option which protects the information potential of Locus B and also allows for access to the site. This mitigation strategy will require complete avoidance during development, including the installation of

any nearby trail features, and that a Preservation Plan is developed to ensure that indirect impacts, such as looting or vandalism, are minimized after development, to the extent reasonably possible and consistent with making them available for public observation. Consistent with the Dumna's desire for public education and respect for its history, the Comprehensive Settlement Agreement requires the use of signage along public trails to provide indicators of the previous activities of the ancestors of the Dumna Tribe as part of their migration, settlement, and life in the San Joaquin Valley; these features will also be incorporated into the Preservation Plan. In addition, the Preservation Plan will include annual or semi-annual monitoring by an archaeologist to ensure the integrity of the site.

Mitigation would ensure that a significant archaeological and Native American resource is protected and also accessible in the event that local Native Americans wish to visit the area. Therefore, mitigation measures MM4.5-2(a) through MM4.5-2(c) would be required to protect this resource from significant impacts:

- ~~MM4.5-2(a) — Prior to the commencement of construction activities that could directly or indirectly impact CA-MAD-2394, the Project Applicant shall hire a qualified archaeologist to analyze the artifacts previously recovered in test excavations to verify the data potential and integrity of the site. If it is verified that the site is a historical resource for the purposes of CEQA the qualified archaeologist shall review all existing documentation and make recommendations as to the appropriate course of action. Appropriate actions could include a Data Recovery Plan or preservation in place. The County shall review and approve any course of action recommended by the archaeologist.~~
- ~~MM4.5-2(b) — If recommended, the Data Recovery Plan shall be completed and implemented prior to the commencement of construction activities that could directly or indirectly impact CA-MAD-2394. The Project Applicant shall be responsible for hiring a qualified archaeologist to prepare the Data Recovery Plan. The Data Recovery Plan shall compensate for the impacts of the project by collecting a representative sample of the cultural remains and other data that would otherwise be destroyed. The data recovery effort would include all necessary professional tasks including artifact analysis, special technical studies, and preparation of a final report. The recovered materials from the site shall be prepared for curation in perpetuity, and placed in a curation facility.~~
- MM4.5-2(e~~d~~) If preservation in place is the course of action approved by the County a qualified archaeologist shall be hired by the Project Applicant, shall be retained to complete a Preservation Plan for the eligible resource, (CA-MAD-2394, Locus B), which shall be reviewed and approved by the County prior to implementation. The Preservation Plan shall be responsible to identify protective measures, including incorporation into open or undeveloped space (as proposed by the Project), as well as guidance on setbacks from any proposed trails in the vicinity to deter unwanted pedestrian traffic, methods to minimize the potential for looting or vandalism of exposed surface or subsurface resources, and provisions for semi-annual or annual monitoring by a qualified archaeologist to prepare a plan for preservation in place. Protective measures might and/or by the local Native American community with reports filed with the County and other agencies, such as the SSJVIC. Consistent with the Comprehensive Settlement Agreement, the Plan shall also identify signage to be placed along public trails to provide indicators of the previous activities of the ancestors of the Dumna Tribe as part of their migration, settlement, and life in the San Joaquin Valley. The Plan could additionally include building setbacks, open space or historic zoning, annual monitoring programs, on-site monitoring during construction, use of temporary or all of the following: permanent fencing during construction; planting of vegetation, and capping; intervening earthworks;

cautionary signage; funding for permanent maintenance of the fencing; and/or acquisition of the site by a group, such as the Archaeological Conservancy.

MM4.5-2(d)

During construction, the site (CA-MAD-2394, Locus B) shall be protected from vandalism, illicit excavation or artifact collection, and inadvertent direct impact. Orange protective fencing shall be installed prior to the initiation of any construction activities within 100 feet of the site boundary. A qualified archeological monitor shall be retained by the Project Applicant to conduct construction monitoring. If appropriate and deemed necessary by the archaeological monitor, the County, and the local Native American community (as determined by establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), a Native American monitor shall be retained by the Project Applicant to conduct construction monitoring to ensure that Native American resources are appropriately handled.

MM4.5-2(e)

The site (CA-MAD-2394, Locus B) must further be protected after development from vandalism, illicit excavation or artifact collection, after the completion of construction. The County shall discuss measures for long-term protection with the local Native American Community (as determined by establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), and an appropriate plan shall be developed. ~~The final plan could include any or all of the following: permanent fencing; funding for permanent maintenance of the fencing; annual or semi-annual monitoring by archeologists and/or by the local Native American community with reports filed with the County and other agencies; acquisition of the site by a group such as the Archaeological Conservancy. In certain situations, "capping" or covering the site with a layer of soil is acceptable, if the area is to be used as a park, parking lot, or similar facility. Capping of a site is acceptable only if the soils to be covered will not suffer extensive compaction; the covering materials are not chemically active; and if the process of natural deterioration has been effectively arrested; and the site has been recorded.~~ and included in the Preservation Plan described in mitigation measure MM4.5-2(a).

Implementation of mitigation measures MM4.5-2(a) through MM4.5-2(c) would reduce impacts to CA-MAD-2394, Locus B to a **less-than-significant** level by preserving the identification, recovery, analysis, and interpretation of a representative sample of site in place through avoidance and incorporation into open space. This mitigation strategy retains the cultural remains from site's eligibility for the archaeological site CRHR by preserving its information potential and renders the site accessible to local Native Americans, should they wish to visit the area.

Impact 4.5-3

Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as CA-MAD-295/827, Locus A. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.5-23(a) through MM4.5-23(e) would reduce this impact to a less-than-significant level.

Site CA-MAD-295/827 was recommended as a historical resource during the study completed by AE in 2006, and was described as occupying 9 acres (Baloian et al. 2006). The site was reassessed by California State University, Sacramento/AECOM Technical Services in 2011/12 through a site visit, analysis of the cultural and other remains collected by AE during test excavations, and a review of the geomorphological conditions. As a result of the reassessment, a portion of site CA-MAD-295/827, identified as Locus A during the 2011/12 study and occupying the northern portion of site CA-MAD-295/827, was deemed eligible for listing in the CRHR. Locus B, which consists of a handful of artifacts and surface features

scattered across the larger, noncontiguous area to the south was deemed not to be reasonably associated with the CA-MAD-295/827 deposit and also has little information of value. More to the point, Locus B fails to meet the CEQA requirements for historical resources or unique archaeological resources, comprising either an insignificant site/isolates or a non-contributing element of the site as currently recorded. Therefore, Locus B is not discussed in this impact evaluation.

Locus A occupies at least 5.34 acres, with additional portions of the site extending onto a nearby property located beyond the boundaries of the Project Site. Those portions of the site found beyond the current Project Site were not assessed during the studies completed in support of the Proposed Project.

~~Local Native American representatives associate the site CA-MAD-295/827 with I ah' pin, the first Dumna village and central to the Dumna's creation myth. The cultural deposit~~The cultural deposits located within Locus A appears to be intact. Evaluation of site CA-MAD-295/827 indicated that artifacts appear concentrated on the lower River terrace; no cultural material was observed on the upper River terrace. ~~In addition, mapping data imply most cultural materials are concentrated in the northern portion of the archaeological site.~~ Cultural constituents associated with the site include bedrock milling stations, flaked and ground stone artifacts, human remains, animal bone, freshwater mussel shell, and temporally diagnostic items. ~~The site also~~Locus A appears to retain archaeological integrity as suggested by its intact surroundings, including ~~to~~ natural vegetation, contours, and landscape features in the immediate area. ~~The site, and~~ Locus A is partially located in an area designated for open space and partially located in the area proposed for Special Purpose Use "B" recreational activities. In addition, and as further described below, various utilities, roadways, and related easements for them cross through or near Locus A of site CA-MAD-295/827.

~~CA-MAD-295/827 could be impacted by the proposed uses in Special Purpose Area B, as shown on Figure 3-4 (Conceptual Land Use Plan for Tesoro Viejo). Specifically the proposed uses in this area would be limited river-oriented visitor commercial and recreational uses, possibly involving canoe and kayak rentals, a pull-in, pull-out facility, and some form of food or beverage vending, along with parking facilities and a possible clubhouse. Destruction or re-location of the site's prehistoric features, disturbance or removal of the site's midden deposits or artifacts, or alterations to its setting during construction would constitute a substantial adverse change in the significance of this resource. In addition, the placement of a nearby public feature could encourage vandalism through increased ingress to the site or its vicinity. The Native American community is concerned with protecting the integrity of this resource. The Project Applicant has indicated that it may be possible to protect this site, while using it for educational purposes under the strict control of an appropriate supervising entity; however, if this is not possible, mitigation measures MM4.5-2(a) through MM4.5-2(e) would be implemented to identify, recover, and document this significant resource, thereby reducing impacts to a less-than-significant level.~~

Special Purpose Use "B" is located on the western bank of the San Joaquin River, which is envisioned for river-oriented, visitor-serving recreational and limited commercial uses, as well as open space. Potential recreational uses include canoe and kayak rentals; a pull-in, pull-out facility; some form of food or beverage vending; parking facilities; and a possible clubhouse. It is possible that the clubhouse and parking facilities may be proposed along the southeastern edge of Locus A; however, the exact site for these components has not yet been determined. In the vicinity of CA-MAD-295/827, open space will

include a riverside trail network intended to connect to trail systems on adjacent properties where they are proposed or as provided by the RMAP and by the San Joaquin River Conservancy. A secondary (or redundant) underground pipeline is also proposed in association with the Project along the northern edge of the Project Site (and in the northern area of Locus A within the Project Site), which would be parallel to an existing underground pipeline. Additionally, there are roadways, water supply facilities, and powerlines, as well as various easements traversing Locus A, including those held by the County for water facilities, by PG&E for power lines, and by adjacent land owners along existing access roads. Finally, residents of the Sumner Hill subdivision to the west have been determined by the court to have easement rights of access and use of the entire area independent of any control by the current property owner and irrespective of future development.

With these existing utilities and easements, as well as additional development, various impacts could potentially occur to CA-MAD-295/827, Locus A, whether or not the Project goes forward. These impacts could include development-related ground disturbance arising from planned construction of various Project features (e.g., the pipeline and Special Use B uses). Moreover, plans by the San Joaquin State River Conservancy and the San Joaquin River Park Conservancy and Trust, as well as the County and the State Lands Commission, call for public access on trails along the river from north to south, which would traverse this area. Therefore, site vandalism and looting could also occur as a result of increased pedestrian activity and vehicular traffic in the area arising from either the proposed development or increased use of the area by the existing Sumner Hill residents or other visitors. Additionally, the operation of existing utilities and use of existing easements for repairs, replacements, and/or maintenance within and adjacent to Locus A could result in future ground-disturbing activities or indirect impacts to the site, also unrelated to the Project. Any of these impacts would produce a potentially adverse change to the historical resource, and the impact would be considered a significant impact under CEQA Guidelines. For this reason, mitigation is recommended to reduce impacts to a less-than-significant level.

With respect to mitigation for archaeological resources, CEQA Guidelines Section 15126.4(b)(3) states:

Public agencies should, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered and discussed in an EIR for a project involving such an archaeological site:

- (A) Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.
- (B) Preservation in place may be accomplished by, but is not limited to, the following:
 1. Planning construction to avoid archaeological sites;
 2. Incorporation of sites within parks, greenspace, or other open space;
 3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site.
 4. Deeding the site into a permanent conservation easement.
- (C) When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. ...

(D) Data recovery shall not be required for an historical resource if the Lead Agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center.

Several preservation in place mitigation strategies are available to at least partially address the potential impacts of the Proposed Project, and these are outlined below along with a discussion of the preferred mitigation strategy for this historical resource. However, the presence of existing roads, utilities, and easements that are under the control of others, as well certain features of the Project (e.g., the uses provided by Special Use B and the proposed secondary pipeline) render preservation in place as the sole mitigation strategy infeasible. Therefore, a combination of mitigation strategies have been identified to address potential project-related impacts and impacts within the context of the existing conditions: (1) preservation in place as undeveloped open space as proposed by the Project; (2) avoidance to the extent feasible where construction or ground disturbance is not essential to facilities already in place or planned to serve the Project; and (3) data recovery where the deposit is likely to be disturbed by reason of repair, replacement, and/or maintenance of existing roadways and utilities under the control of agencies and interests unrelated to the Project, as well as the Project's planned facilities.

Preservation in place of CA-MAD-295/827, Locus A (exhibiting redefined and decreased site boundaries established in 2012 [Delacorte et al. 2012]) requires avoidance during construction and additional mitigation to ensure the site is protected once development is completed. After the surrounding area is developed, preservation in place could include one or more of the following four options, some of which could be used in combination: avoidance, covering or capping the site, incorporation into open space, and/or deeding the site into a conservation easement. However, preservation in place cannot be guaranteed with respect to impacts that may occur as a result of development or disturbance related to operation or maintenance of the numerous roads, utilities, and easements that are located within CA-MAD-295/827, Locus A, as well as the San Joaquin River Conservancy's plans for public access along a north-south trending trail near the river.

Avoidance of CA-MAD-295/827, Locus A during construction activities that are near, but need not be within, Locus A would require installation of a temporary fence placed around the site boundary during construction. The fence should be placed a minimum of 100 feet from the revised site boundary, as further described in mitigation measure MM4.5-3(d). Avoidance of the site ensures that the site is protected during construction, but does not ensure that the site will be protected after development is complete or where construction must be within Locus A. This option leaves the subsurface soils intact, thereby retaining information important to prehistory. In consideration of future activities within Locus A, including the construction and use of the Special Use B area and installation of the proposed secondary (or redundant) pipeline that would be installed immediately south of the existing PG&E easement, both as part of the Project, as well as maintenance and/or improvements associated with the various existing easements, including the roadway traversing Locus A, repairs/replacement to the existing pumping station, power facilities, and waterlines, and, perhaps, the San Joaquin River Conservancy's plans for public access along the river, complete avoidance of Locus A would not be feasible. However, depending on the nature and location of future activities, avoidance of some areas may be possible, particularly those areas of Locus A that are designated by the Project's land use plan to be in open space.

For portions of the site that would be placed in open or undeveloped space and are not occupied by roads or utilities, there would be no ground disturbance activities and no impact to the prehistoric deposit and information potential that make it a historical resource. While this option is feasible for a portion of Locus A, and, in fact, the Project's land use plan designates open space in this area, placing the entirety of the Locus A into undeveloped space is infeasible due to the numerous existing roads, utilities, and easements that are located in this area.

Another preservation in place option is covering or capping of the site. Covering or capping would protect the site from future looting and vandalism. If this option were selected, the Project Applicant would be required to monitor the area on a semi-annual basis to ensure that the capping material has not been displaced. This option leaves the subsurface soils intact and retains information important to prehistory except where existing or future underground facilities exist. In addition, this option negates the potential for future indirect impacts resulting from pedestrian traffic or other activities. If a small parking lot or recreational trails are placed in the vicinity of Special Use B, it could serve to cover or cap a portion of the site.

If CA-MAD-295/827, Locus A is preserved in place through deeding land into a conservation easement managed by a conservancy, the conservancy would be responsible for ensuring the site is protected from future adverse effects arising from the Project, but not necessarily from the actions of easement holders or other activities not associated with the Project. While the Project Applicant has proposed granting land or easements to the San Joaquin State River Conservancy, subject to existing easements and easements necessary for continued access to the property and water facilities, this agency's responsibilities include a mix of recreational and other functions and objectives that do not provide special experience in archaeological conservation. Also, it is not possible to preserve Locus A in place in perpetuity without disturbance associated with repairs, replacements, or maintenance of the numerous existing easements that are located in this area.

Future ground-disturbing activities would occur within Locus A, both related to the Project and in association with the various existing roads, utilities, and easements. Any earth-moving or subsurface disturbance occurring within these deposits, whether associated with the Project or unrelated, would be considered a change to the historical resource and a correspondingly significant impact under CEQA guidelines. Impacts of this type could be mitigated by data recovery excavations in affected areas prior to construction and subsequent monitoring by a professional archaeologists and Native Americans in accordance with the Comprehensive Settlement Agreement (Madera County 2012). The extent of such excavations would be determined by the size of the area ultimately impacted and results obtained during the data recovery fieldwork, but would require, in all likelihood, no more than a dozen 1.0 x 1.0 m units or their equivalent if substantial parts of Locus A required data recovery efforts. Four to six additional units would be held in reserve should human burials or other features be encountered during subsequent construction/monitoring activities, but used only in the event of such unanticipated discoveries. Full analysis of the artifacts and other cultural material recovered and preparation of a report meeting accepted professional standards would complete the mitigation and reduce the impacts to less than significant by CEQA standards. This report will also address the disposition of the materials recovered, depending on the significance of what is found, which could include curation, preservation in another place, or possession by a local Native American tribe, such as the Dumna.

As previously noted and as outlined above, the preferred mitigation for CA-MAD-295/827, Locus A is a combination of several mitigation strategies: (1) preservation in place as undeveloped open space as proposed by the Project; (2) avoidance to the extent feasible where construction or ground disturbance is not essential to facilities already in place or planned to serve the Project; and (3) data recovery where the deposit is likely to be disturbed by reason of nonproject activities the Project's planned facilities, including the secondary water line and facilities constructed as part of Special Use B. Therefore, mitigation measures MM4.5-3(a) through MM4.5-3(e) would be required to protect this resource from significant impacts:

MM4.5-3(a) Upon the final determination of the location for all Project-related components, a qualified archaeologist, hired by the Project Applicant, shall be retained to complete a Data Recovery Plan for the those portions of eligible resource CA-MAD-295/827, Locus A that cannot be preserved in open or undeveloped space. The Plan shall be reviewed and approved by the County prior to implementation and shall address the disposition of the materials recovered, depending on the significance of what is found, and could include curation, preservation in another place, or possession by the Dumna. A Native American monitor shall be retained by the Project Applicant to conduct monitoring during the approved Data Recovery Plan to ensure that Native American resources are appropriately handled.

MM4.5-3(b) Any excavation or grading activities associated with Project-related facilities shall be subject to monitoring by representatives of the Dumna Tribe consistent with the requirements of the Comprehensive Settlement Agreement, which would allow oversight during the recovery of artifacts, if discovered. Full analysis shall be completed for the artifacts and other cultural materials recovered. The results of the analysis shall be incorporated into a report meeting accepted professional standards and be submitted to the SSJVIC.

MM4.5-3(c) Upon the final determination of location for all Project-related components, a qualified archaeologist, hired by the Project Applicant, shall be retained to complete a Preservation Plan for the those portions of eligible resource CA-MAD-295/827, Locus A that can be preserved, which shall be reviewed and approved by the County prior to implementation. The Preservation Plan shall identify protective measures, including incorporation into open or undeveloped space (as proposed by the Project), avoidance, as well as guidance on setbacks from any proposed trails in the vicinity to deter unwanted pedestrian traffic, methods to minimize the potential for looting or vandalism of exposed or subsurface resources, and provisions for semi-annual or annual monitoring by a qualified archaeologist and/or by the local Native American community with reports filed with the County and other agencies, such as the SSJVIC. Consistent with the Comprehensive Settlement Agreement, the Plan shall also identify signage to be placed along public trails to provide indicators of the previous activities of the ancestors of the Dumna Tribe as part of their migration, settlement, and life in the San Joaquin Valley. The Plan could additionally include any or all of the following: permanent fencing; planting; intervening earthworks; cautionary signage; funding for permanent maintenance of the fencing; and/or acquisition of the site by a group, such as the Archaeological Conservancy.

MM4.5-3(d) During construction, the site (CA-MAD-295/827, Locus A) shall be protected from vandalism, illicit excavation or artifact collection, and inadvertent direct impacts. Orange protective fencing shall be installed prior to the initiation of any construction activities within 100 feet of areas proposed to be avoided or incorporated into open space. A qualified archeological monitor shall be retained by the Project Applicant to conduct construction monitoring. If appropriate and deemed necessary by the archaeological monitor, the County, and the local Native American community (as determined by

establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), a Native American monitor shall be retained by the Project Applicant to conduct construction monitoring to ensure that Native American resources are appropriately handled.

MM4.5-3(e) The site (CA-MAD-295/827, Locus A) must further be protected after development from vandalism, illicit excavation or artifact collection, after the completion of construction. The County shall discuss measures for long-term protection with the local Native American Community (as determined by establishing the Most Likely Descendent in consultation with the Native American Heritage Commission), and an appropriate plan shall be developed and included in the Preservation Plan described in mitigation measure MM4.5-3(c).

Implementation of mitigation measures MM4.5-23(a) through MM4.5-23(e) would reduce impacts to CA-MAD-295/827, to a **less-than-significant** level by the identification, through a combination of preservation and data recovery, analysis, and interpretation of a representative sample of. This combination would allow for either preserving the site's eligibility (or a portion thereof) for the cultural remains and other data from the archaeological site CRHR by preserving its information potential or by obtaining information through data recovery, as necessary, with a potential loss of some continuing eligibility.

Impact 4.5-4 ~~Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as CA-MAD-2392. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.5-2(a) through MM4.5-2(c) would reduce this impact to a less-than-significant level.~~

~~The cultural materials found in site CA-MAD-2392 (a sparse scatter of flaked and ground stone artifacts) are widely scattered across adjacent knolls near the confluence of two seasonal drainages just north of Road 204. CA-MAD-2392 is one of several prehistoric sites along the San Joaquin River. It lies approximately 800 meters southeast of CA-MAD-2394 and 1,800 meters northwest of the river and sites CA-MAD-826 and 295/827. The knoll has been cultivated in grapes, nonnative grasses and other weedy species occur between the planted rows; however, the artifact assemblage remains relatively intact evident by the undisturbed natural contours of the land and native plant communities along the riparian corridor that intersects the site. Thus, the site maintains integrity in its natural setting and feeling, and has the potential to yield important information relevant to the prehistory of the area.~~

~~The majority of artifacts were collected from the surface or upper 10 centimeters of the site, suggesting the cultural deposit has very little depth. Based on the types of artifacts present at the site, the location appears to have served as a resource extraction point for the procurement and processing of plant materials and primary reduction of basalt cobbles. Based on the CA-MAD-2392's proximity to the other sites (CA-MAD-826 and 295/827), it appears that the site was an important component within a larger settlement system. Although CA-MAD-2392 did not yield a large or diverse cultural assemblage, it does contain data that can provide information on site age, providing important information on the chronology of settlement along the San Joaquin.~~

~~Based on the above evaluation, CA-MAD-2392 is judged to be a historical resource because it retains integrity and yields important information relevant to the prehistory of the area (CRIHR Criterion D).~~

~~CA-MAD-2392 could be impacted by the proposed low density residential land uses proposed for development on the site of CA-MAD-2392, as shown on Figure 3-4. Specifically the proposed uses in this area would be a combination of open space/parks and low-density residential land uses between 1.0 and 7.5 dwelling units per acre. While much of the existing open space in this area would be preserved, the development of residential land uses would impact the integrity of CA-MAD-2392. Destruction or re-location of the site's prehistoric features, disturbance or removal of the site's deposits or artifacts, or alterations to its setting during construction would constitute a substantial adverse change in the significance of this resource. Mitigation measures MM4.5-2(a) through MM4.5-2(e) would be implemented to identify, recover, and document significant resources, thereby reducing impacts to a less-than-significant level.~~

~~Implementation of mitigation measures MM4.5-2(a) through MM4.5-2(e) would reduce impacts to CA-MAD-2392 to a *less-than-significant* level by the identification, recovery, analysis, and interpretation of a representative sample of the cultural remains and other data from the archaeological site.~~

~~**Impact 4.5-5** Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as CA-MAD-826. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.5-2(a) would reduce this impact to a *less-than-significant* level.~~

~~Site CA-MAD-826 is a large bedrock milling station adjacent to the San Joaquin River and CA-MAD-295/827. Associated cultural materials include thirteen milling features and a sparse artifact assemblage; however, no midden was observed. Applied Earthworks hypothesizes that the site was an important resource extraction and procurement satellite location to the site of I-ah'pin; however, it was determined during the testing phase that the site had been exhausted of its research potential, and no further excavation was required. While the artifacts have been recovered from the site, they have not been examined, and data collection as a means of mitigation is not complete. The Developer has indicated that it may be possible to protect this site, while using it for educational purposes under the strict control of an appropriate supervising entity; however, if this is not possible, mitigation measure MM4.5-2(a) would reduce impacts to CA-MAD-826 to a *less-than-significant* level by requiring the analysis and interpretation of the cultural remains from the archaeological site.~~

Impact 4.5-6 Implementation of the Proposed Project may cause a substantial adverse change in the significance of an historical or archaeological resource identified as Madera Canal (P-20-002308). This is considered a potentially significant impact. However, implementation of mitigation measure MM4.5-6 would reduce this impact to a *less-than-significant* level.

The Bureau of Reclamation is currently evaluating the Madera Canal to determine if it is a contributing factor to the Central Valley Project, which is likely to be determined to be a historical resource. As part of the Federal environmental review process, the proposed roadway crossings will require coordination with the Bureau of Reclamation for Section 106 compliance. If the Madera Canal is determined to be a historical resource, the Proposed Project's impacts would be considered potentially significant. However, mitigation measure MM4.5-6 would assure that all tasks requested by the Bureau of Reclamation are completed, which may include preparation of a Historic Properties Treatment Plan and implementation

of additional mitigation measures prior to the commencement of any construction activities that could impact the Canal, thereby reducing impacts to a less-than-significant level.

MM4.5-6 *The Project Applicant shall initiate contact with the Bureau of Reclamation and shall complete all requested tasks with qualified cultural resource professionals as required by that agency for the Section 106 review process. As part of the review process, a professional historian may be required to prepare a Determination of Effect document. If the effect is found to be adverse, a Historic Properties Treatment Plan shall be prepared. Once the mitigation measures suggested in the Historic Properties Treatment Plan are approved by the Office of Historic Preservation, a Memorandum of Agreement shall be prepared and signed by the Project Applicant, agency, and the Office of Historic Preservation. All tasks required by the Bureau of Reclamation shall be completed by the Project Applicant prior to the commencement of any construction activities that could impact the Madera Canal.*

Implementation of mitigation measure MM4.5-6 would reduce impacts to Madera Canal (P-20-002308) to a **less-than-significant** level by requiring documentation of the canal and dissemination of the resource documentation.

Impact 4.5-7 **Implementation of the Proposed Project may result in a substantial adverse change to previously undiscovered buried prehistoric or historic period resources. This is considered a potentially significant impact. However, implementation of mitigation measure MM4.5-7 would reduce this impact to a less-than-significant level.**

It is possible that buried or concealed archaeological resources could be found during construction that may be eligible for the ~~California Register~~ CRHR. Resources could include midden deposits, artifact scatters, fire hearths, and historical dumps or trash pits. Disturbance of such features could be a potentially significant impact. Implementation of mitigation measure MM4.5-4~~7~~ would reduce impacts to unknown cultural resources to a less-than-significant level by requiring that a professional archaeologist employ data recovery or other methods that meet the Secretary of the Interior's Standards for Archaeological Documentation to reduce impacts on unique archaeological resources.

MM4.5-7 *If unknown cultural resources are discovered during project construction, all work within 100 feet of the discovery shall cease, and a qualified archaeologist shall be retained by the Project Applicant, and approved by the County. A qualified archaeologist shall be retained by the Project Applicant to assess the significance of the find, make recommendations on its disposition, and prepare appropriate field documentation, including verification of the completion of required mitigation. If archaeological resources are discovered during earth moving activities, all construction activities within 100 feet of the find shall cease until the archaeologist evaluates the significance of the resource. If the resource is determined to be significant, the archaeologist shall prepare Data Recovery Plan that satisfies the requirements of Public Resources Code Section 21083.2. The archaeologist shall complete a report of the excavations and findings. Upon approval of the report, the Project Applicant shall submit the report to the regional office of the California Historic Resources Information System (CHRIS) and Madera County.*

Additionally, construction personnel shall be informed of the potential for encountering significant archaeological resources and instructed in the identification of artifacts, bone, and other potential resources. All construction personnel shall be informed of the need to stop work on the Project Site until a qualified archaeologist has been provided the opportunity to assess the significance of the find and

implement the appropriate measures to protect or mitigate the find. Construction personnel will also be informed of the requirement that unauthorized collection of cultural resources is prohibited.

Implementation of mitigation measure MM4.5-7 would reduce impacts to unknown cultural resources to a *less-than-significant* level by requiring that a professional archaeologist employ data recovery or other methods that meet the Secretary of the Interior's Standards for Archaeological Documentation to reduce impacts on unique archaeological resources.

Threshold	Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
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Impact 4.5-8 **Implementation of the Proposed Project has the potential to directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. This is considered a potentially significant impact. However, implementation of mitigation measure MM4.5-8 would reduce this impact to a *less-than-significant* level.**

While there are no known paleontological resources on the Project Site, if such resources were discovered during construction of the Proposed Project it could result in a potentially significant impact. Implementation of mitigation measure MM4.5-8 shall protect these paleontological resources through avoidance or data recovery efforts.

MM4.5-8 Should paleontological resources be identified in a particular location within the Project Site, the Project Applicant shall cease operations within 100 feet of the potential resource until a qualified professional can complete the following actions:

- 1. Identify and evaluate paleontological resources by intense field survey where impacts are considered high*
- 2. Assess effects on identified sites*
- 3. Consult with the institutional/academic paleontologists conducting research investigations within the geological formations that are slated to be impacted*
- 4. Obtain comments from the researchers*
- 5. Comply with researchers' recommendations to address any significant adverse effects where determined by the County to be feasible*

In considering any suggested mitigation proposed by the consulting paleontologist, County Planning Department Staff shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs policies and land use assumptions, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the Project Site while mitigation for paleontological resources is completed.

Implementation of mitigation measure MM4.5-8 would reduce impacts to unknown paleontological resources to a *less-than-significant* level by requiring that a qualified professional identify, evaluate, document, and address impacts on unique paleontological resources.

Threshold	Would the project disturb any human remains, including those interred outside of formal cemeteries?
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Impact 4.5-9 **Implementation of the Proposed Project could result in the disturbance of human remains, including those interred outside of formal cemeteries. This is considered a potentially significant impact. However, implementation of mitigation measure MM4.5-9 would reduce this impact to a *less-than-significant* level.**

Several of the historical resources could contain human remains, and it is possible that historic period or prehistoric period interments are present elsewhere in the Project Site. Human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the California PRC and Sections 7050.5, 7051, and 7054 of the *California Health and Safety Code*. Disturbing human remains could violate these provisions, as well as destroy the resource resulting in a potentially significant impact. Mitigation measure MM4.5-9 includes provisions for the treatment of human burials, if they are encountered. To further ensure that this impact remains less than significant, and as required by law, mitigation measure MM4.5-9 requires compliance with applicable provisions of the PRC and the *California Health and Safety Code*. Implementation of mitigation measure MM4.5-9 would ensure appropriate examination, treatment, and protection of human remains, if any are discovered.

MM4.5-9 If human remains are discovered during earth-moving activities, all ground-disturbing activity within 100 feet of the resources shall be halted and the County Coroner shall be notified immediately, according to Section 5097.98 of the California Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined by the County Coroner to be Native American, the NAHC shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Madera County shall also retain a professional archaeologist with Native American burial experience to conduct a field investigation of the specific site and consult with the Most Likely Descendant, if any, identified by the NAHC. As necessary, the archaeologist may provide professional assistance to the Most Likely Descendant, including the excavation and removal of the human remains before resuming ground-disturbing activities within 100 feet of where the remains were discovered.

Implementation of mitigation measure MM4.5-9 would reduce impacts to human remains to a ***less-than-significant*** level by requiring that the Madera County consult with the County Coroner, the Most Likely Descendant, and a professional archaeologist to determine the appropriate treatment and disposition of the remains.

4.5.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for cumulative impacts related to cultural resources is the RMAP area and, in some cases, reference is also made to the San Joaquin Valley. While the buildout year of the RMAP area will likely be well beyond 2025, which is the buildout year assumed in the MCTC Rio Mesa Traffic

Model, it provides a conservative basis for the evaluation of impacts to cultural resources because it covers a broader area.

Threshold	Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
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It is assumed that future development in the RMAP area that could potentially affect ~~historical~~paleontological resources would be subject to CEQA and other applicable Federal, State, and local legal requirements, and that the impacts of the cumulative development on ~~historical~~paleontological resources would be mitigated to the extent feasible, as required by these laws and regulations. Proper planning and appropriate mitigation can capture and preserve knowledge of ~~historical~~paleontological resources and can provide opportunities for increasing our understanding of past environmental conditions ~~and cultures~~ by recording data about discovered sites and ~~preserving artifacts~~localities.

Based upon previous fossil finds and paleontological research, Madera County has fossil-bearing sediments that date back hundreds of thousands of years. The Proposed Project, in combination with other development in the County, could contribute to the loss of significant paleontological resources. Because all significant paleontological resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base. The loss of any one paleontological site affects all others in a region because these resources are best understood in the context of the entirety of the ancient ecologic system of which they formed a part. The boundaries of paleontologically important sites are not limited by property boundaries. Consequently, a meaningful approach to preserving and managing paleontological resources must focus on the likely distribution of those resources, rather than on project or parcel boundaries. The ancient ecologic system is represented paleontologically by the total inventory of all sites and other fossil remains. In this case, development in Madera County potentially could disturb known or unknown paleontological resources. While proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing our understanding of the past environmental conditions by recording data about sites discovered and preserving fossils found, the cumulative impact is considered significant. Federal, State, and local laws are in place, as discussed above, that protect these resources. While the project's incremental contribution to these significant cumulative impacts may not be cumulatively considerable, the extent of the impact is still undetermined; therefore, even assuming compliance with mitigation measure MM4.5-8, and all other prevailing laws, the project's cumulative contribution to the impact would be considerable and the impact would remain ***significant and unavoidable***.

Threshold	Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the 2007 -CEQA Guidelines?
Threshold	Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the 2007 -CEQA Guidelines?

Based upon previous cultural resource surveys and research, the San Joaquin Valley, which includes the RMAP area, has been inhabited by prehistoric and historic peoples for thousands of years, and, as a result, contains historical and archaeological resources. The Proposed Project, in combination with other

development in the region, could contribute to the loss of significant cultural resources. Because all significant cultural resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base. The loss of any historical resource affects all others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The boundaries of a historical resource extend beyond its physical presence. As a result, a meaningful approach to preserving and managing historical resources must focus on the likely distribution of historical resources, rather than project or parcel boundaries. In this case, development in Madera County could potentially disturb known or unknown historical resources. ~~In addition, TCPs associated with the traditional beliefs, customs, and ceremonies of Native Americans that may exist in the region may not be easily recognized without the input of the local Native American community. While proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing our understanding of the past environmental conditions by recording data about sites discovered and preserving resources found, the cumulative impact is considered significant. Federal, State, and local laws are in place, as discussed above, that protect these resources. While the project's incremental contribution to these significant cumulative impacts may not be cumulatively considerable, the extent of the impact is, as yet, undetermined. Therefore, even assuming compliance with mitigation measures MM4.5-1 through MM4.5-7, and all other prevailing laws, the Proposed Project's cumulative contribution to the impact would be considerable, and the impact would remain *significant and unavoidable*.~~

Threshold	Would the project disturb any human remains, including those interred outside of formal cemeteries?
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Based upon previous cultural resource surveys and research, the San Joaquin Valley, which includes the RMAP area, has been inhabited by prehistoric and historic peoples for thousands of years, and, as a result, contains archaeological resources. The Proposed Project, in combination with other development in the region, could contribute to the loss of significant cultural resources. Because all significant cultural resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base. The loss of any historical resource affects all others in a region because these resources are best understood in the context of the entirety of the cultural system of which they are a part. The boundaries of a historical resource extend beyond its physical presence. As a result, a meaningful approach to preserving and managing historical resources must focus on the likely distribution of historical resources, rather than project or parcel boundaries. In this case, development in Madera County potentially could disturb known or unknown historical resources. While proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing our understanding of the past environmental conditions by recording data about sites discovered and preserving resources found, the cumulative impact is considered significant. Federal, State, and local laws are in place, as discussed above, that protect these resources. ~~While~~ The project's incremental contribution to these significant cumulative impacts ~~may is~~ not be cumulatively considerable, the extent of the impact is, as yet, undetermined. Therefore, even assuming given the nature and extent of the resources as reassessed by the California State University, Sacramento/AECOM team: the commitment by the Project Applicant to entirely avoid CA-MAD-2394; and compliance with mitigation measures MM4.5-2(a) through MM4.5-2(c), MM4.5-3(a) through MM4.5-3(e), MM4.5-6, and MM4.5-9 and all other prevailing laws, ~~the~~ The Proposed Project's cumulative

contribution to the impact would not be considerable, and the impact would ~~remain~~ be less than significant and unavoidable.

Threshold	Would the Project disturb any human remains, including those interred outside of formal cemeteries?
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Based upon previous cultural resource surveys and research, the San Joaquin Valley, which includes the RMAP area, has been inhabited by prehistoric and historic peoples for thousands of years. The Proposed Project, in combination with other development in the region could contribute to the loss of significant cultural resources, which include Native American ancestral remains. This is considered a significant cumulative impact. Because all significant cultural resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base, and the project's contribution to these significant cumulative impacts could be cumulatively considerable. However, compliance with mitigation measure MM4.5-9, which requires that all human remains, if encountered, would receive the proper respect in terms of disposal, ensures that the Proposed Project's cumulative contribution would not be considerable and impacts would be *less than significant*.

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4.6 GEOLOGY, SOILS, AND MINERAL RESOURCES

Geology, soils, and seismicity conditions are important aspects of all development projects in California. Although most projects have little or no effect on geology, any project involving construction will have some effect on soils and topography and all may be affected by certain geologic events, such as earthquakes, from which they are protected through building codes or other construction standards and regulations.

This section of the EIR describes the regional geologic, soils, seismic, and mineral resource characteristics influencing the area of the proposed Tesoro Viejo Specific Plan and addresses the effects of geologic hazards, soil constraints, and the existence of mineral resources on development in the Project Site. Regulatory and physical settings are described, followed by an analysis of the potential for soil, geologic, seismic, and mineral resources impacts based on specified impact significance criteria. Geologic hazards evaluated include seismic conditions, such as fault movement, groundshaking, and liquefaction. Soil constraints evaluated include erosion, shrink-swell potential, landsliding, and permeability.

The section explains the regional geologic and seismic characteristics influencing the Project Site; the local faulting, soils, and mineral resource conditions at the Project Site; the potential effects of seismicity on the projects; and the potential effects of the projects on mineral resources. Erosion and sedimentation issues are addressed briefly here and more fully in Section 4.8 (Hydrology and Water Quality). The primary sources of information on which the analysis in this section is based include site observations; regional studies published by federal, state, and local agencies dealing with geotechnical conditions in the area (including, but not necessarily limited to, the United States Geological Survey [USGS] and California Geological Survey [CGS—formerly known as the California Division of Mines and Geology]); maps and tables in the Preliminary Geotechnical Report for Tesoro Viejo; and the Soil Survey of Madera County, all of which are cited in Section 4.6.6 (References) at the end of this section.

4.6.1 Environmental Setting

■ Existing Conditions

Regional Geology

The Project Site is on the eastern edge of the Great Valley geomorphic province, a relatively flat alluvial plain composed of a deep sequence of sediments in a bedrock trough. The Great Valley is bounded on the west by the South Coast Ranges and on the east by the Sierra Nevada Mountains. Erosion of the South Coast Ranges and the Sierras has produced the sediments deposited in the Great Valley. Deposition in the Valley mainly was marine until the beginning of the Pliocene epoch (approximately 5.3 million years ago) when the Valley's seas were drained through the Carquinez Strait and were replaced by freshwater rivers and lakes. Today, the Valley is drained by the Sacramento River from the north and the San Joaquin River from the south. Geographically and topographically, the Valley has been shaped by the Sacramento and San Joaquin Rivers and their tributaries. The rivers meet approximately 35 miles

south of Sacramento and discharge through the Sacramento–San Joaquin Delta into San Francisco Bay and the Pacific Ocean.

Seismicity

The Project Site is in the vicinity of numerous faults. The CGS has evaluated and classified recognized faults in the State on the basis of their potential seismic activity. Under this program, faults are classified as active, potentially active, and inactive. An active fault is defined as one along which displacement is demonstrated to have occurred within the past 11,000 years. A fault is considered to be potentially active if fault movement within the past two million years has been verified and continued activity is suspected. An inactive fault is a recognized fault for which there is no evidence of activity in the past two million years, and renewed activity is not likely. The major active and potentially active faults that are close, but do not run through, the Project Site include the San Andreas, San Joaquin (potentially active), Ortigalita, Owens Valley, and Melones (potentially active) faults. The active faults have historically been the source of earthquakes felt in the surrounding region. There is one inactive fault, the Clovis fault, which runs eight miles southeast of the Project Site. The major faults in the area that have been active during the Holocene era (the last 10,000 years) are the San Andreas, Ortigalita, and Owens Valley faults, with the Owens Valley and San Andreas being active in the last 200 years (Jennings 1994). Figure 4.6-1 (Fault Location Map) shows the approximate position of the major fault zones, and the location of the Project Site in relation to these. Table 4.6-1 (Estimated Maximum Parameters for Some Major Known Faults Affecting the Project Site) contains the estimated maximum parameters for earthquakes on several known faults affecting the vicinity. Terms that may be unfamiliar to the general public are defined in Subsection 4.6.5 Glossary, near the end of this section.

Table 4.6-1 Estimated Maximum Parameters for Some Major Known Faults Affecting the Project Site

<i>Fault</i>	<i>Melones</i>	<i>San Joaquin^a</i>	<i>Ortigalita^b</i>	<i>Owens Valley</i>	<i>San Andreas</i>
Moment Magnitude ^c	6.8	6.6	6.8	7.6	7.8
Maximum Intensity (MMI) ^d	I–II	Unknown	I–II	I–II	I–II
Peak Horizontal Accelerations in Rock and Stiff Soil (Gravity) ^e	0.1–0.2	Unknown	0.1–0.2	0.1–0.2	0.1–0.2
Approximate Distance and Direction from Project Site to Fault (Miles)	35 N	55 W	65 W	85 E	85 W

SOURCE: PBS&J, Inc.

^a San Joaquin County General Plan EIR, 1990, page 4.13-24.

^b Madera County General Plan Background Report, October 24, 1995, page 7-5.

^c For the purposes of describing the size of the design (or scenario) earthquake of a particular fault segment, moment magnitude (Mw) of the characteristic earthquake for that segment has replaced the concept of a maximum credible earthquake of a particular Richter magnitude. This has become necessary because the Richter Scale “saturates” at the higher magnitudes; that is, the Richter scale has difficulty differentiating the size of earthquakes above magnitude 7.5. The Mw scale is proportional to the area of the fault surface that has slipped, and thus, is directly related to the length of the fault segment. Although the numbers appear lower than the traditional Richter magnitudes, they convey more precise (and more useable) information to geologic and structural engineers.

^d Estimated Modified Mercalli Intensity damage level based on relationships developed by Perkins and Boatwright, ABAG, 1995.

^e Estimates based on relationships developed by the University of Washington Pacific Northwest Seismic Network, http://www.ess.washington.edu/SEIS/PNSN/EDHOME/ACCEL/intensity_desc.html, last modified January 14, 2003, accessed October 2, 2007.

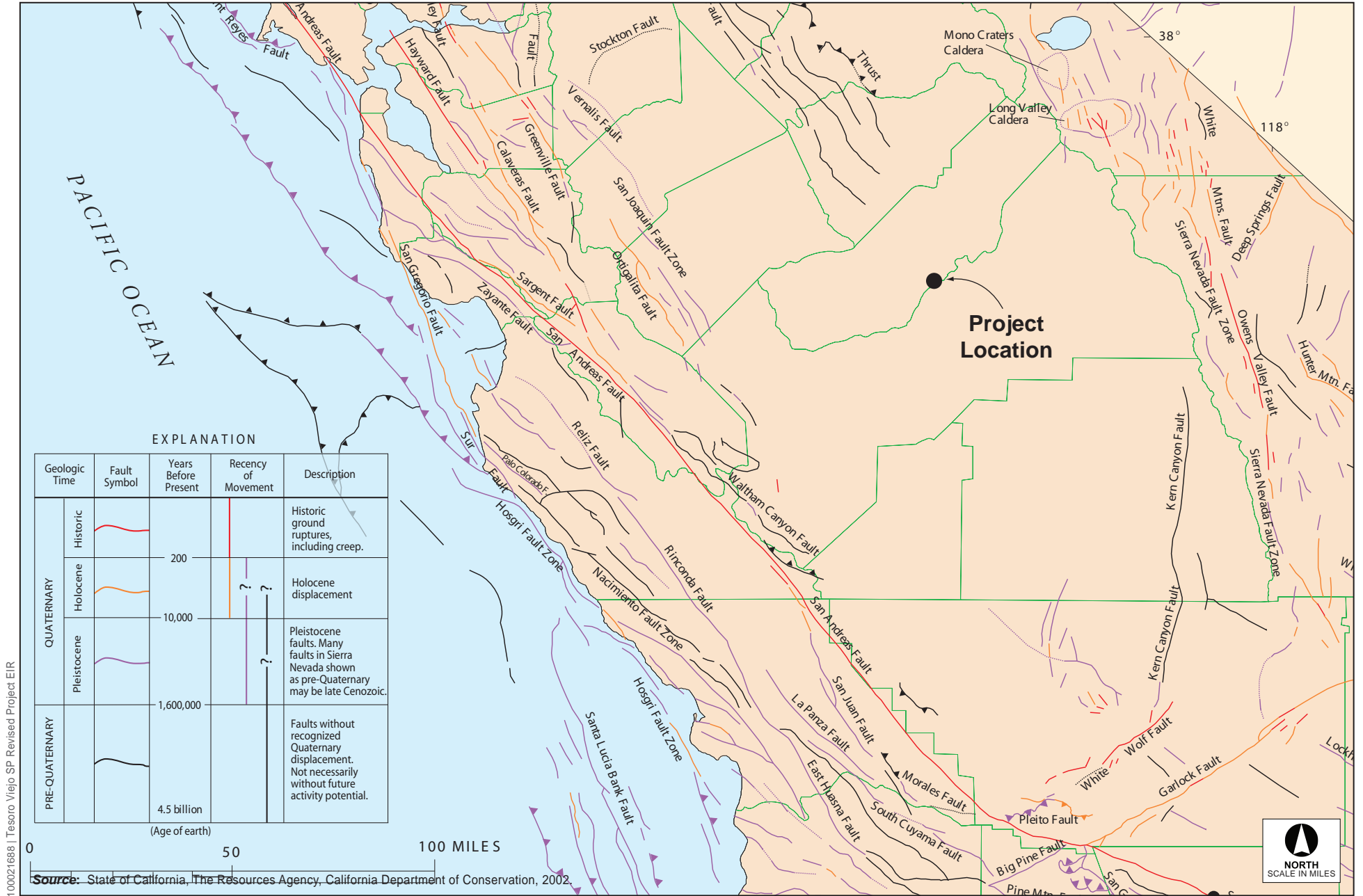


Figure 4.6-1
Fault Location Map

The Project Site is near one of the most active seismic regions in the United States: the San Francisco Bay Area. Each year, low and moderate magnitude earthquakes occurring in or near the Bay Area are felt by residents of Fresno and Madera Counties. The 18 April 1906 earthquake on the San Andreas fault, estimated at about Richter Magnitude (M) 8.3, probably is the largest earthquake felt in the area since its initial settlement by Euro-Americans in 1878. The M7.1 Loma Prieta earthquake of 17 October 1989 on the San Andreas fault is the most recent moderate to strong earthquake to affect the Bay Area and nearby portions of the Great Valley, and to be felt in Madera County. The epicenter was approximately 116 miles west of the Project Site and the event caused only limited damage in the San Joaquin Valley and Merced County.

The major faults of the San Andreas Fault System and the Owens Valley Fault Group are expected to be the sources of future earthquakes (Jennings 1994, Madera County 1995c). Even though no known active fault traces pass through the Project Site, it is necessary to design structures and facilities to withstand the anticipated effects of seismic vibration from distant, as well as nearby, sources (SEAC 1998, 1).

Following the Loma Prieta earthquake, the United States Geological Survey estimated the probability of at least one large earthquake (magnitude 7 or greater) in the San Francisco Bay region, approximately 85 miles northwest of the Project Site, within the 30-year period between 2002 and 2031 at about 62 percent (SEAC 1998, 1). On the three closest active or potentially active faults, the Melones, San Joaquin, and Ortigalita, the recurrence intervals, the average time between major earthquakes on the fault, are estimated at about >10,000, 1,080, and 10,000 years, respectively (City of Ripon 2006, 4-87). These recurrence intervals are large and, therefore, earthquakes along these faults would occur extremely infrequently. The probability that a large earthquake would occur in the next 30 years on the San Andreas fault is 21 percent (WGCEP 2003). Earthquakes of this magnitude are sufficient to create ground accelerations in bedrock and in stiff unconsolidated sediments severe enough to cause damage to structures and foundations not designed specifically to resist the lateral forces generated by earthquakes, and to underground utility lines not designed with sufficient flexibility to accommodate expected seismic ground motion (Borderdt et al. 1975; Steinbrugge et al. 1987).

The Melones fault, which lies approximately 35 miles to the north, is the closest known potentially active fault to the Project Site. Other nearby traces occurs in the faults listed in Table 4.6-1. A characteristic earthquake (Mw 7.8) on the San Andreas fault probably is the largest that would affect the Project Site.

■ Project Site Geology

The Project Site is between 362 and 550 feet above mean sea level, with rolling terrain of varying grades with occasional exposures of nonmarine rock formations. The geologic deposits consist of alluvial fan sediments including claystone, sandstone, and conglomerate of the Ione Formation of Eocene epoch. A geotechnical investigation of the Project Site indicated that the alluvial sediments characteristics are layers of silty sand, clayey sand, and sandy silt, underlain by poorly graded sand, decomposed granite and sandy silt. According to the seven monitoring wells located on the Project Site, the water table ranged from six to 40 feet below the ground surface (Technicon Engineering Services, Inc. 2007).

■ Project Site Characteristics

Topography

Elevations in the Project Site range from about 362 feet above mean sea level, in the southern part of the Project Site, to about 550 feet above mean sea level near the eastern portion of the Project Site. According to the geotechnical report, the surface of the Project Site consists of rolling terrain of varying grades. According to the soil series listed in the Project Site, by the Madera County Soil Survey, sections in the north and east of the Project Site contain slopes that can be as steep as 30 percent (USGS 1954; USDA 1990).

Soils

The soil underlying the Project Site is mapped as Alluvial Fan Deposits: sediments that were deposited there by the action of rivers eroding sedimentary rocks. Soil groups are related to the substrate on which they are developed. The Alluvial Fan Deposits soil group is subdivided into soil associations based on a variety of distinguishing characteristics, such as texture, slope, and agricultural capability. The Project Site consists of four different soil associations: San Joaquin-Madera, Hanford-Tujunga, Daulton-Whiterock, and Cometa-Whitney. The San Joaquin-Madera soil association, which makes up the majority of the Project Site, has the characteristics of slow permeable claypan and hardpan subsoil, low fertility, low water holding capacity, and gentle slopes. The Hanford-Tujunga soil association, on the east side of the Project Site, has the characteristics of good drainage, moderate coarse texture, non-calcareous, low fertility, low water holding capacity, and low organic matter. The Cometa-Whitney soil association, in the center and south of the Project Site, has the characteristics of claypan subsoil at a moderate depth, slight clay content in the soil, and strong irregular slopes. The Daulton-Whiterock soil association, in the north section of the Project Site, has the characteristics of medium to strong acidity, low fertility, low water holding capacity, low shallow bedrock, and gentle to steep slopes (USDA 1990).

Other soil conditions include the potential for the presence of hazardous materials related to prior site uses for agricultural purposes. This subject is discussed in Section 3.8, Hazardous Materials, of this EIR.

Geologic Units

The unconsolidated sedimentary deposits in the Project Site are alluvial deposits that generally are fine- to medium-grained sand, but contain minor amounts of gravel. The alluvium represents material eroded from the hills to the east and deposited in ancient river channels or on shallow slopes as alluvial fans. They can be excavated relatively easily, but will not stand long in steep unsupported slopes. The coarser-grained sediments (sand and gravel) drain readily and there is a low possibility that some pockets of liquefiable sand exist within these deposits (Matthews and Burnett 1965).

According to the geotechnical report, bedrock is exposed at the site in a number of rock outcroppings (Technicon Engineering Services, Inc. 2007).

■ Distribution of Geologic Features

Faults and Groundshaking

The major active faults in the region of, but not running through, the Project Site include the San Andreas fault, about 85 miles to the west, the San Joaquin fault, about 55 miles west, the Ortigalita fault, about 65 miles west, the Owens fault, about 85 miles east, and the Melones fault, about 35 miles north. No other Earthquake Fault Zones or known active faults traces cross or trend toward the Project Site (Jennings 1994). The traces of the Ortigalita fault are not historically active, but show evidence of activity during the last 10,000 years (Matthews and Burnett 1965). The Owens and San Andreas faults have been historically active and have produced earthquakes in the last 200 years (California Geologic Data Map Series 1994). The Owens and San Andreas faults are capable of generating a characteristic earthquake of Mw 7.6 and Mw 7.8 respectively and peak horizontal ground accelerations of 0.1g – 0.4g in the Project Site.

Groundshaking intensity associated with these events is expected to be I to II on the Modified Mercalli Intensity (MMI) Scale (California Geological Survey 2006). MMI I to II generally will not damage modern structures, and can usually only be felt by a few people who are at rest. Seismic ground response in the vicinity of the Project Site could cause minor damage to older commercial or residential buildings that were not constructed to resist earthquakes and secured to their foundations. For buildings constructed to ~~2007~~2010 California Building Code (CBC) seismic resistance standards, using site specific design to address the proximity of the fault, the damage potential would be low. The Seismology Committee of the Structural Engineers Association of California collaborated with others to delineate Seismic Zones to be used in earlier versions of the CBC for selecting safety factors to be applied in the design of seismic-resistant structures in California. In the ~~2007~~2010 CBC, the concept of Seismic Zones as the basis for seismic-resistant construction has been replaced by the use of Ground Motion maps depicting the acceleration anticipated from the most severe earthquake effects considered in the Building Code, expressed as a percentage of the acceleration of gravity (percent g), for short-period (0.2 seconds) and 1.0 second responses. The mapped information is used in a series of formulae to establish the earthquake-resistant design for a particular structure, based on the Site Class (type of underlying geologic materials, i.e., hard rock, stiff soil, etc.), the Site Coefficient (acceleration values), and Occupancy Class (multiple-family residence, hospital, etc.). The Project Site is in an area where short-period response is expected to be no higher than 40 percent g.

Geo-Seismic Hazards and Constraints

The Project Site contains moderate risk geo-seismic hazard areas. The distance of the Project Site from major earthquake faults indicates it would not be expected to experience intense groundshaking in response to large earthquakes on the San Andreas, San Joaquin, Ortigalita, Owens Valley, and Melones faults. Groundshaking hazards in the Project Site are classified by the California Geological Survey as “low” because of the substantial distance to active faults and the low peak horizontal ground acceleration potential in the area. Peak horizontal ground acceleration in the alluvial soils in the Project Site is expected to be between 0.1g to 0.4g (10 percent to 40 percent of the force of gravity) (~~2007~~2010 California Building Code). These acceleration levels set the standards for the appropriate requirements

for site design and would be applied on a site-specific basis to ensure adequate seismic-resistant construction.

Liquefaction potential is very low in the Project Site. Soil types throughout Madera County are not prone to liquefaction either because they are too coarse in texture or are too high in clay content (H.T. Harvey & Associates 1995, 7-7). Nonetheless, the potential for liquefaction needs to be addressed at each construction site because conditions, such as depth to water table, uniformity of grain size, and mix of grain size, can vary dramatically over short distances in alluvial deposits.

Because no known active faults traces are within the Project Site, fault rupture is not anticipated within the Project Site.

4.6.2 Regulatory Framework

■ Federal

Natural Gas Pipeline Safety Act

The *Natural Gas Pipeline Safety Act of 1968* as amended through March 2006 (Title 49 Section VIII USC Chapter 601) specifies, among others items, the minimum safety standards for designing, installing, constructing, initially inspecting, and initially testing new natural gas pipelines. The standards include the characteristics of the material used in constructing the facility, design factors for specific locations, and the public safety factors, particularly its ability to prevent and contain a natural gas spill. The design standards for specific locations reflect site-specific geological, topographical, seismic, and soils conditions.

The U.S. Department of Transportation Office of Pipeline Safety (OPS) regulates the operational safety of gas transmission pipelines. All such pipelines delivering gas through a distribution system must be designed and constructed to meet or exceed the federal safety standards established in 49 Code of Federal Regulations (CFR) Part 192. These regulations include specific standards for material selection and qualification, design requirements, protection from internal, external, and atmospheric corrosion, and worker training, safety, and qualifications specific to the location of the pipeline relative to population densities. Following passage of the *Pipeline Safety Improvement Act* (49 United States Code 60109) on December 17, 2002, the OPS, on December 15, 2003, issued final pipeline integrity management regulations for gas transmission lines in areas with high population numbers. The OPS final rule includes prescriptive requirements, including repairing or replacement of potentially unsafe transmission infrastructure. The new law and rules mandate safety inspections and re-inspections of pipelines over the next ten years.

■ State

Alquist-Priolo Earthquake Fault Zoning Act

The State legislation protecting the population of California from the effects of fault-line ground-surface rupture is the *Alquist-Priolo Earthquake Fault Zoning Act*. In 1972, the State of California began delineating Earthquake Fault Zones (called Special Studies Zones prior to 1994) around active and potentially active

faults to reduce fault rupture risks to structures for human occupancy.⁴² This Act has resulted in the preparation of maps delineating Earthquake Fault Zones. The Act provides for special seismic design considerations if developments are planned in areas adjacent to active or potentially active faults (Hart 1994). The Project Site is not crossed by Alquist-Priolo Earthquake Fault Zones.

Seismic Hazards Mapping Act

The *Seismic Hazards Mapping Act* (California Public Resources Code, Division 2, Chapter 7.8) became effective in 1991 to identify and map seismically hazardous areas for the purpose of assisting cities and counties in preparing the safety elements of their general plans and to encourage land use management policies and regulations that reduce seismic hazards.⁴³ These regulations apply to public buildings and a large percentage of private buildings in the State. The recognized hazards include strong groundshaking, liquefaction, landslides, or other ground failure. These effects account for approximately 95 percent of economic losses caused by earthquakes. The Act has resulted in the preparation of maps delineating Liquefaction Zones and Earthquake-Induced Landslide Zones of Required Investigation, but has not yet been extended to the Madera County, which encompasses the Project Site. The Project Site contains steep slopes that potentially could be unstable (USGS 1973; H.T. Harvey & Associates 1995, p. 7-7 and Figure 7-1). The Project Site is not subject to groundshaking-induced liquefaction (Technicon Engineering Services, Inc. 2007).

California Building Code

The state regulations protecting human-occupied structures from geo-seismic hazards are contained in California Code of Regulations, Title 24, Part 2 (the California Building Code [CBC]). These regulations apply to public buildings and a large percentage of private buildings in the State. Until January 1, 2008, the CBC was based on the then-current Uniform Building Code and contained Additions, Amendments and Repeals specific to building conditions and structural requirements in the State of California (ICBO 1994). The ~~2007~~2010 CBC, effective January 1, 2008, is based on the current (2006) International Building Code and contains prominent enhancement of the sections dealing with fire safety, equal access for disabled persons, and environmentally friendly construction. Seismic-resistant construction design is required to meet more stringent technical standards than those set by previous versions of the CBC. For example, in Seismic Zone 3 (which includes Madera County), §2308.3.3 specifies the required maximum spacing of 1/2-inch-diameter bolts anchoring structures over two stories in height to their foundations as four feet on centers. The previous (2001) CBC did not require a minimum bolt diameter or maximum spacing, but specified that each such building be individually constructed to remain anchored during the design earthquake for its building site.

Chapters 16 and 16A of the ~~2007~~2010 CBC deal with Structural Design requirements governing seismically resistant construction, including (but not limited to) factors and coefficients used to establish seismic site class and seismic occupancy category for the soil/rock at the building location and the

⁴² *Alquist-Priolo Earthquake Fault Zoning Act*, California Public Resources Code Division 2, “Geology, Mines, and Mining,” Chapter 7.5 “Earthquake Fault Zones,” Sections 2621 through 2630; signed into law 22 December 1972, amended 1974, 1975, 1976, 1979, 1991, and 1993.

⁴³ *Seismic Hazards Mapping Act*, California Public Resources Code Division 2, Geology, Mines and Mining, Seismic Hazards Mapping, Chapter 7.8, 1991.

proposed building design. Chapters 18 and 18A of the ~~2007~~2010 CBC include (but are not limited to) the requirements for foundation and soil investigations (§§1802 & 1802A); excavation, grading, and fill (§§1803 & 1803A); allowable load-bearing values of soils (§§1804 & 1804A); and the design of footings, foundations, and slope clearances (§§1805 & 1805A), retaining walls (§§1806 & 1806A), and pier, pile, driven, and cast-in-place foundation support systems (§§1808, 1808A, 1809, 1809A, 1810 & 1810A). Chapter 33 of the ~~2007~~2010 CBC includes (but is not limited to) requirements for safeguards at work sites to ensure stable excavations and cut or fill slopes (§3304).

Cities and counties are required to enforce the regulations of the ~~2007~~2010 CBC beginning January 1, 2008. Subsequently, each jurisdiction may adopt its own building code based on the ~~2007~~2010 CBC. City and county codes are permitted to be more stringent than the ~~2007~~2010 CBC, but are required to be no less stringent.

Construction Standards for Roadways

The State of California has established construction standards and design criteria for roadways to safeguard life and property. Construction standards and seismic design criteria are contained in such regulatory codes as Caltrans' *Seismic Design Criteria Version 1.2* (December 2001), *Highway Design Manual, Section 110.6, Earthquake Consideration* (November 2001) and *Section 113, Geotechnical Design Report* (November 2001), or similar codes adopted by a city for roadway corridor protection. These criteria deal with pavement and subsurface utility design (flexible joints and couplings, overpass construction, etc.), slope stability (especially slumping, settling, and liquefaction in fills), alignment modification to reduce exposure to fault rupture or intense groundshaking, and ground failures such as liquefaction. Prior to construction, geotechnical studies are required to be undertaken: recommended seismic-protection measures are required to be accommodated in the project design. The recommendations provide the required protection from the anticipated effects of seismic groundshaking. Adherence to these standards of protection is mandatory and would reduce the risk of injury or death from earthquakes to the maximum extent technically practicable.

Construction Standards for Bridges

The State guidelines protecting bridges and overpasses from geo-seismic hazards are contained in Caltrans' *Bridge Design Specifications, Bridge Memos to Designers, Bridge Design Practices Manual, and Bridge Design Aids Manual*. These manuals are updated regularly and provide state-of-the art information to address geo-seismic issues that affect the design of transportation infrastructure. Bridge design is required to be based on the "Load Factor Design methodology with HS20 44 live loading (a procedure to incorporate the estimated weight of the vehicles and/or pedestrians on the bridge with the weight of the bridge for loading calculations)." Seismic resistant design is required to conform to the *Bridge Design Specifications*, and *Section 20 of Bridge Memos to Designers*, as well as the *Caltrans Seismic Design Criteria*.

Gas Utilities

The California Public Utilities Commission (CPUC) *General Order 112 E* establishes the following to safeguard life or limb, health, property, and public welfare and to provide that adequate service will be maintained by gas utilities operating under the jurisdiction of the CPUC:

- Minimum requirements for the design, construction, quality of materials, locations, testing, operations and maintenance of facilities used in the gathering, transmission, and distribution of gas
- Minimum requirements for similar equipment and procedures used in liquefied natural gas facilities

These requirements are in addition to federal pipeline safety regulations (above). They are concerned with the safety of the general public and employees' safety to the extent they are affected by basic design, quality of the materials and workmanship, and requirements for testing and maintenance of gas gathering, transmission, and distribution facilities, as well as liquefied natural gas facilities. They are intended to be adequate for safety under conditions normally encountered in the gas industry and all work performed within their scope must meet or exceed the safety standards by them.

Surface Mining and Reclamation Act

The State legislation regulating mineral resource zones is the *Surface Mining and Reclamation Act of 1975*.⁴⁴ Part of the purpose of the act is to classify mineral resources in the State and to transmit the information to local governments, which regulate land use in each region of the State. Local governments are responsible for designating lands that contain regionally significant mineral resources in the local General Plans to assure resource conservation in areas of intensive competing land uses. The law has resulted in the preparation of Mineral Land Classification Maps delineating Mineral Resource Zones (MRZ) 1 through 4 for aggregate resources (sand, gravel, and stone). The large majority of the Tesoro Viejo Project Site is mapped as MRZ-3 by the Department of Conservation, which is an area containing mineral deposits, but the significance of which cannot be evaluated from available data. A small portion of the Project Site, on the eastern side, lies in an area designated as MRZ-2 by the Department of Conservation, which consists of aggregate material that is used for the production of cement, asphalt, plaster sand, and fill. Approximately 28 acres, with a thickness of ten feet, of the Project Site lie in the MRZ-2 (CDMG 1988). However, the Project Site is not mined.

■ **Regional**

There are no regional statutes related to geology, soils, and mineral resources that would apply to the Proposed Project.

■ **Local**

Madera County Building Code

The current Madera County Building Code (Title 14, Chapter 14.08 of the Madera County Code) is based on the Uniform Building Code, 1994 Edition (1994 UBC), as adopted by the International Conference of Building Officials (Title 14, Chapter 14.04.030 Uniform Codes). Chapter 16 of the Madera Building Code deals with General Design Requirements, including (but not limited to) regulations governing seismically resistant construction (Chapter 16, Division IV). Chapters 18 and A33 deal with excavations, foundations, retaining walls, and grading, including (but not limited to) requirements for seismically resistant design, foundation investigations, stable cut and fill slopes, and drainage and erosion control.

⁴⁴ *Surface Mining and Reclamation Act of 1975, California Public Resources Code* Division 2, Chapter 9, Section 2710 et seq., 1975.

Chapter 14.08 §14.08.141, Seismic Zone Map, of the Madera Building Code revises the map shown in Figure No. 1 of Chapter 23 of 1994 UBC as applied to the County to place all of Madera County in Seismic Zone 2 (Ord. 365-E §5, 1977). As such, the seismic-restraint construction standards of the Madera Building Code are not the same as those required to be applied by the 20072010 CBC. The 20072010 CBC standards would be at least as robust as the 1994 UBC standards as applied through the Madera Building Code. The County has resolved any potential discrepancies between the codes by requiring all plan applications submitted after December 31, 2007, to comply with the new 20072010 CBC.

Madera County General Plan

Issues of seismic safety are addressed in Section 6 of the County’s General Plan. The County’s policies include the following:

- Policy 1.H.3** The County shall require that new development on hillsides employ design, construction, and maintenance techniques that:
- a. Preserve and enhance the hillsides;
 - b. Ensure that development near or on portions of hillsides do not cause or worsen natural hazards such as erosion, sedimentation, fire or water quality concerns;
 - c. Include erosion and sediment control measures including temporary vegetation sufficient to stabilize disturbed areas;
 - d. Minimize risk to life and property from slop failure, landslides, and flooding; and
 - e. Maintain the character and visual quality of the hillside.

Policy Consistency

Individual development projects will be subject to the design and construction standards identified in the 20072010 *California Building Code* (CBC), as specified above, which will ensure that new construction on hillsides do not cause or worsen natural hazards such as erosion, sedimentation, fire or water quality concerns, and minimize risk to life and property from stop failure, landslides, and flooding. The 20072010 CBC regulations govern seismically resistant construction, excavations, foundations, retaining walls, and grading, including (but not limited to) requirements for seismically resistant design, foundation investigations, stable cut and fill slopes, and drainage control.

The development standards of the Proposed Project as listed in the Specific Plan also call for individual development projects to work within the area’s topography to minimize grading. Where possible, development on slopes is to utilize stepped foundations to avoid significant grading and retaining walls. The Proposed Project structures would not be located along any ridgelines or other highly visible areas that would potentially have an adverse affect on hillsides. There would not be any substantial landform alterations required for project development. Therefore, the Proposed Project is consistent with this policy.

- Policy 5.C.2** The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of

off-road vehicles. The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

Policy Consistency

All improvements and construction activities within the Project Site would be subject to the National Pollutant Discharge Elimination System (NPDES) construction requirements for clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least one acre of total land area. In addition, an adequate Stormwater Pollution Prevention Plan (SWPPP) must be prepared prior to construction activity to ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as nonstormwater discharges. Dischargers are required to inspect their construction sites before and after storms to identify stormwater discharge associated with construction activity and to identify and implement controls where necessary. Therefore, the Proposed Project is consistent with this policy.

Policy 6.A.1

The County shall require the preparation of soils engineering and geologic-seismic analysis prior to permitting development in areas prone to geological or seismic hazards (i.e., groundshaking, landslides, liquefaction, critically expansive soils).

Policy Consistency

In the Project Site, commercial, institutional, and large residential buildings and all associated infrastructure are required to reduce the exposure to potentially damaging seismic vibrations through seismic resistant design, in conformance with the ~~2007~~2010 CBC as adopted by the County and described above. This would include the preparation of a soils engineering and geologic-seismic analysis prior to permitting new development in areas prone to geologic or seismic hazards.

Adherence to the ~~2007~~2010 CBC would ensure maximum practicable protection available for users of buildings and associated infrastructure. Specifically, adherence would include the following:

- The use of the ~~2007~~2010 CBC seismic standards as the minimum seismic-resistant design for all proposed facilities (§1603 ff)
- Seismic-resistant earthwork and construction design criteria, based on the site-specific recommendations of a California-registered civil engineer in cooperation with the project's California-registered geotechnical and structural engineers (§1802 ff and 1802A ff)
- An engineering analyses that demonstrates satisfactory performance of alluvium or fill where either forms part or all of the support, especially where the possible occurrence of liquefiable soils exists (§1802.2.1 ff and 1802A.2.1 ff)
- An analysis of soil expansion potential and appropriate remediation (compaction, removal/replacement, etc.) prior to using any expansive soils for foundation support (§1802.2.1 ff and 1802A.2.1 ff).

Therefore, the Proposed Project is consistent with this policy.

Policy 6.A.2 In landslide hazard areas, the county shall prohibit avoidable alteration of land in a manner that could increase the hazard, including concentration of water through drainage, irrigation, or septic systems; removal of vegetative cover; and steepening of slopes and undercutting the bases of slopes. Areas of known landslides should be designated for open space uses.

Policy Consistency

The Project Site consists of gently sloping land with a few areas of landslide risks. New development in the Project Site would be designed pursuant to the ~~2007~~2010 CBC, which requires a site-specific soils report that identifies any potentially unsuitable slope conditions and contains appropriate recommendations for retaining wall and/or foundation type and design criteria. The Proposed Project also designates areas for Open Space that are typically unsuitable for human occupation due to public health and safety hazards such as earthquake faults, floodways, unstable soils, or areas containing wildlife habitat and other environmentally-sensitive features.

The consistency of the Proposed Project with this policy is addressed in more detail under Impact 4.6-3 below. The Proposed Project is consistent with this policy.

Policy 6.A.3 The County shall limit development in areas of steep or unstable slopes to minimize hazards from landslides. Development will be prohibited in areas with slopes of 30 percent or more unless it can be demonstrated by a registered engineer or registered engineering geologist that such development will not present a public safety hazard.

Policy Consistency

See consistency analysis for Policy 6.A.2 above. The Proposed Project is consistent with this policy.

Policy 6.A.4 The County shall continue to support scientific geologic investigations that refine, enlarge, and improve the body of knowledge on active fault zones, unstable areas, severe groundshaking, and other hazardous conditions in Madera County.

Policy Consistency

Site-specific geotechnical studies would be required for individual development projects within the Project Site, as required by Policy 6.A.1 above. The Proposed Project is consistent with this policy.

Rio Mesa Area Plan

The Open Space Component of the Rio Mesa Area Plan address issues regarding landslides and slope instability. The Area Plan’s goals and policies include the following:

Goal 1 Minimize alteration to topographic landforms.

Policy 1.4 Require all development to meet grading standards designed to minimize topographic change and help it blend into the natural surroundings.

Policy Consistency

See consistency analysis for Policies 1.H.3 and 6.A.1 above. The Proposed Project is consistent with this policy.

Goal 7 Minimize the threat to life and property from landslides and slope instability.

Policy 7.1 Require careful site specific evaluations based on detailed surface and subsurface geotechnical investigations in areas of potential landslide susceptibility.

Policy Consistency

See consistency analysis for Policies 6.A.2 and 6.A.3 above. The Proposed Project is consistent with this policy.

4.6.3 Project Impacts and Mitigation

■ Analytic Method

The geotechnical characteristics of a Project Site determine its potential for structural and safety hazards that could occur during construction and/or operation of a proposed project. Site assessment studies for specific structures are required by the County to be undertaken in the Project Site to characterize the extent and nature of geotechnical conditions at each proposed building site prior to issuing building permits. For the purposes of this EIR, available USGS and CGS topographical and seismic maps, NRCS soils reports, and other studies that included relevant geologic data, were reviewed and used to determine whether geological impacts would occur from the proposed development in the Project Site.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on geology, soils, or mineral resources if it would do any of the following:

- Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007/2010 CBC, including the risk of loss, injury, or death involving any of the following:
 - > Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zones Map issued by the State Geologist for the Madera area or based on documented evidence of a known fault provided by the geologic/geotechnical investigations required by the 2007/2010 CBC
 - > Strong seismic groundshaking (Modified Mercalli Intensity equal to, or greater than, MMI VII)
 - > Seismic-related ground failure, including liquefaction
 - > Landslides
- Result in soil erosion or the loss of topsoil exceeding the standards established by the National Pollutant Discharge Elimination System permitting process for projects in the Sacramento area and/or the 2007/2010 CBC
- Be underlain by a geologic or soil unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site lateral spreading, subsidence, settlement, or

collapse, as documented in the geotechnical investigations required by the ~~2007~~2010 CBC, or similarly applicable design guidelines

- Be underlain by expansive soil, as defined in the ~~2007~~2010 CBC, as adopted by Madera County, creating life or property hazards
- Result in the loss of availability of a known mineral resource that would be of value to the region and/or the residents of the state, as defined by the California Geological Survey’s non-fuel mineral land classification programs, or the Division of Oil, Gas and Geothermal Resources fuel resource mapping programs
- Result in the loss of availability of a locally-important mineral resource recovery site delineated by the General Plan, a specific plan, or other land use plan

Importantly, the following analysis illustrates that the design-controllable aspects of building foundation support, protection from seismic ground motion, and soil or slope instability are governed by existing regulations of the State of California and Madera County. These regulations require that project designs reduce potential adverse soils, geology, and seismicity effects to less-than-significant levels. Compliance with these regulations is required, not optional. Compliance must be demonstrated by the Project Applicant to have been incorporated in the project’s design before permits for project construction would be issued.

■ Effects Not Found to Be Significant

Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007 <u>2010</u> CBC, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zones Map issued by the State Geologist for the Madera area or based on documented evidence of a known fault provided by the geologic/geotechnical investigations required by the 2007 <u>2010</u> CBC.
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A comparison of the location of the Project Site with the fault-location information outlined in the Setting portion of this section of the EIR shows the Melones fault, about 35 miles north, as the closest known active fault to the Project Site. The San Joaquin fault, about 55 miles west, is the next closest known active fault. There are no faults in an Alquist-Priolo Earthquake Fault Zone in the vicinity of the Project Site. Because none of these faults cross or trend toward the Project Site, fault-line surface rupture is not considered a hazard. Consequently, the Proposed Project would have *no impact* regarding exposing people or structures to rupture of a known earthquake fault.

■ Impacts and Mitigation Measures

Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007 <u>2010</u> CBC, including the risk of loss, injury, or death involving Strong seismic groundshaking (Modified Mercalli Intensity equal to, or greater than, MMI VII).
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Impact 4.6-1 The proposed Tesoro Viejo Specific Plan project would not expose people and structures to potential adverse effects beyond those for which

structures are required to be designed by the ~~2007~~2010 CBC, including the risk of loss, injury, or death involving strong seismic groundshaking (Modified Mercalli Intensity equal to, or greater than, MMI VII) because the Project Site is in a seismic groundshaking area that would experience groundshaking equal or less than, MMI I to MMI II. This is considered a *less-than-significant* impact because site-specific seismic-resistant design of structures proposed for human occupancy and underground utilities is required by the Madera County General Plan and the ~~2007~~2010 CBC and is regulated by federal, State, and County requirements.

From a review of regional and local geo-seismic conditions, it is apparent that the Project Site would be subjected to at least one major earthquake during the life of the Proposed Project (WGCEP 2003).⁴⁵ The highest intensity of groundshaking experienced in the Project Site (MMI I to II) would be caused by any of the following: a Mw 6.6 earthquake on the San Joaquin fault, a Mw 7.8 on the San Andreas fault, a Mw 7.6 earthquake on the Owens Valley fault, a Mw 6.9 on the Ortigalita fault, or a Mw 6.5 on the Melones fault, which is the closest fault to the Project Site. The resulting vibration could cause damage to buildings, roads, and infrastructure (primary effects), and could cause ground failures such as liquefaction or settlement in loose alluvium and/or poorly compacted fill (secondary effects).

The proposed buildings and structures in the Project Site would be underlain by alluvial deposits that, in their present states, could respond poorly to loading during seismic ground motion. To reduce the primary and secondary risks associated with seismically induced groundshaking, it is necessary to take the location and type of subsurface materials into consideration when designing foundations and structures in the Project Site. In the Project Site, commercial, institutional, and large residential buildings and all associated infrastructure are required to reduce the exposure to potentially damaging seismic vibrations through seismic resistant design, in conformance with Chapters 16 and 16A, Structural Design, §1613, Earthquake Loads, of the ~~2007~~2010 CBC as adopted by the County.

Adherence to the Building Code, as required by state and County law, would ensure maximum practicable protection available for users of buildings and associated infrastructure. Adherence would include the following:

- The use of ~~2007~~2010 CBC seismic standards as the minimum seismic-resistant design for all proposed facilities (§1603 ff)
- Seismic-resistant earthwork and construction design criteria, based on the site-specific recommendations of a California-registered civil engineer in cooperation with the project's California-registered geotechnical and structural engineers (§1802 ff and 1802A ff)
- An engineering analyses that demonstrates satisfactory performance of alluvium or fill where either forms part or all of the support, especially where the possible occurrence of liquefiable soils exists (§1802.2.1 ff and 1802A.2.1 ff)an analysis of soil expansion potential and appropriate remediation (compaction, removal/replacement, etc.) prior to using any expansive soils for foundation support (§1802.2.1 ff and 1802A.2.1 ff).

Similarly, the design of the roads, bridges (vehicular and pedestrian overcrossings), and underground utilities (especially gas and water pipelines) would be required to comply with County, State, and/or

⁴⁵ The United States Geological Survey projected a 21 percent chance on the San Andreas fault between 2003 and 2032.

Federal design criteria, as indicated in the regulatory setting of this section of the EIR, or with other accepted non-building structure standards to reduce the primary and secondary risks associated with seismically induced groundshaking.

Based on an existing regulatory framework that addresses earthquake safety issues and requires adherence to the requirements of the Building Code and road and utility design standards, seismically induced groundshaking would not be a substantial hazard in the Project Site. In view of the above, the Proposed Project would have a *less-than-significant* impact regarding exposing people or structures to damage resulting from strong seismic groundshaking. No mitigation is required.

Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the <u>20072010</u> CBC, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction
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Impact 4.6-2 **The proposed Tesoro Viejo Specific Plan project would not expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 20072010 CBC, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, because the soils on the Project Site are not prone to liquefaction. This is considered a *less-than-significant* impact because site-specific seismic-resistant design of structures proposed for human occupancy and underground utilities is required by the Madera County General Plan and the 20072010 CBC and is regulated by the federal, State, and County requirements.**

The Project Site contains soils that are not prone to liquefaction, as previously described. Potentially unstable soils revealed during excavation are required by provisions of the Building Code to be removed and replaced, or otherwise treated to provide appropriate foundation support and to protect foundations from failure through liquefaction (see also information below under Impact 4.6-6). Adherence to the soil, foundation support, and grading parameters in Chapters 16, 16A, 18, and 18A of the 20072010 CBC, as required by County and State law, ensures the maximum practicable protection available from soil failures under static or dynamic conditions for structures and their associated infrastructure, trenches, temporary slopes, and foundations. Similarly, transportation and underground utility infrastructure would be required to comply with County, State, and/or Federal design criteria indicated in the regulatory setting of this section of the EIR, and/or other accepted non-building structure standards to reduce the risks associated with seismically induced ground failures. In view of the above, the Proposed Project would have a *less-than-significant* impact regarding exposing people or structures to damage resulting from seismic-related ground failure. No mitigation is required.

Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the <i>Madera County Building Code</i> , including the risk of loss, injury, or death involving landslides.
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Impact 4.6-3 **The proposed Tesoro Viejo Specific Plan project would not expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 20072010 CBC, including the risk of loss, injury, or death involving landslides because the Project Site primarily consist of gently sloping land with a few areas of landslide risks. There is considered a *less-than-significant* impact because development in the Project Site would be required to abide by the 20072010 CBC standards for slope stability.**

The Project Site primarily consists of gently sloping land, and, according to the General Plan background Report Map, contains or is adjacent to some areas of landslide risk. As such, before construction on the Project Site can begin (as development proceeds in a phased manner), the 20072010 CBC requires a site-specific soils report that identifies any potentially unsuitable slope conditions and contains appropriate recommendations for retaining wall and/or foundation type and design criteria. The slope evaluations must be conducted by registered soil professionals, and the measures to eliminate inappropriate slope conditions must be applied (CGS 1997). The design for soil support of foundations must conform to the analysis and implementation criteria described in the 20072010 CBC, Chapters 16, 16A, 18, and 18A. Compliance with the Building Code would reduce the hazard of landslides on the Specific Plan to less than significant.

Compliance with the 20072010 CBC would result in a *less-than-significant* impact regarding exposing people or structures to hazardous landslide conditions. No mitigation is required.

Threshold	Result in soil erosion or the loss of topsoil exceeding the standards established by the National Pollutant Discharge Elimination System permitting process for projects in the <u>Central Valley area and/or the <u>20072010</u> CBC</u> .
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Impact 4.9-4 **The proposed Tesoro Viejo Specific Plan project would not result in soil erosion or the loss of topsoil exceeding the standards established by the National Pollutant Discharge Elimination System permitting process for projects in the Central Valley area and/or the 20072010 CBC because an Erosion and Sediment Transport Control Plan is required to be prepared for the project prior to the commencement of grading. This is considered a *less-than-significant* impact because site-specific erosion control measures are required by the 20072010 CBC and the Regional Water Quality Control Board regulations.**

The regulations governing erosion and sedimentation issues are addressed more fully in Section 4.8 (Hydrology and Water Quality) of this EIR.

Because one of the major effects of erosion is sedimentation in receiving waters, erosion control standards are set by the Regional Water Quality Control Board (RWQCB) through administration of the National Pollutant Discharge Elimination System (NPDES) permit process for storm drainage discharge.

The NPDES permit requires implementation of nonpoint source control of stormwater runoff through the application of a number of Best Management Practices (BMPs). These BMPs are intended to reduce the amount of constituents, including eroded sediment, that enter streams and other water bodies. A Storm Water Pollution Prevention Plan (SWPPP), as required by the RWQCB, must describe the stormwater BMPs (structural and operational measures) that would control the quality, rate, and volume of stormwater runoff.

As part of the SWPPP, an Erosion and Sediment Transport Control Plan is required to be prepared for the project prior to the commencement of grading. An erosion control professional, or landscape architect or civil engineer specializing in erosion control, must design the Erosion and Sediment Transport Control Plan and be on the Project Sites in the Project Site during the installation of erosion and sediment transport control structures, and to supervise the implementation of the designs and maintenance of such facilities throughout the site clearing, grading and construction periods. Thus, erosion during the construction and operational periods would be controlled.

Other than the sedimentation effects, the loss of topsoil through erosion from project sites increases the amount of soil needed to be imported for landscaping purposes. In the case of the Project Site, such topsoil as exists would be subject to inspection and possibly clean-up activities (see Section 4.7, Hazardous Materials, of this EIR) prior to reuse. Because a majority of the Project Site is undeveloped, it is reasonable to expect that there could be a large amount of topsoil available onsite, and that its loss would be prevented by erosion control measures required by the Madera County General Plan Policy 5.C.2, mentioned above, and the RWQCB. These measure may included, but are not limited to, the NPDES recommendations of preservation of existing vegetation, hydroseeding, soil binders, straw mulch, erosion control blankets, outlet/inlet protection, silt fences, and sediment traps. Consequently, the Proposed Project would have a *less-than-significant* impact regarding soil erosion and loss of topsoil. No mitigation is required.

Threshold	Be underlain by a geological or soil unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site lateral spreading, subsidence, settlement, or collapse, as documented in the geo technical investigation required by <u>20072010</u> CBC, or similarly applicable design guidelines.
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Impact 4.6-5 **The proposed Tesoro Viejo Specific Plan project could cause on- or off-site impacts related to unstable soils, such as lateral spreading, subsidence, settlement, or collapse because the Project Site contains potentially unstable geologic and soil units. This is considered a *less-than-significant* impact because support-soil stability design of structures proposed for human occupancy and underground utilities is required by the Madera County General Plan and the 20072010 CBC and is regulated by federal, State, and County requirements.**

Using unsuitable materials would have the potential to create heaving, subsidence, or collapse problems leading to excavation wall failure, building or bridge settlement, and/or utility line and pavement disruption. The risk of soils collapse and settlement would be highest in areas containing fill. Lateral

spreading and collapse could occur in unsupported walls of pits excavated in the existing fill or loose alluvium.

To eliminate any adverse effects of weak materials in the alluvium on buildings or non-building structures for human occupancy, the buildings and structures would need foundations that do not depend on weak soils for support. This can be accomplished by such methods as removing any existing unstable alluvium and replacing it with select fill (non-expansive, non-organic, appropriately sized mix of materials); covering any existing unstable alluvium with select fill; extending the foundations below any existing fill using cast-in-place piers, piles, or similar deep-foundation design.

It is relatively common to re-engineer weak soils specifically for stability prior to use. This can be done for the support of surface parking areas and light structures. An acceptable degree of soil stability can be achieved for expansive material by the required incorporation of soil treatment programs (replacement, grouting, compaction, drainage control, etc.) in the grading and construction plans to address site-specific soil conditions. A site-specific evaluation of soil conditions is required by the Madera County General Plan policies 6.A.1 through 6.A.4, mentioned above, and must contain recommendations for ground preparation and earthwork specific to the site, and incorporated into the construction design.

Because the water table is 6 to over 40 feet below the ground surface, dewatering could be necessary for some construction in the Project Site. In the case of deep excavations, should any be proposed, groundwater may provide partial support for the near-surface soil materials and, when withdrawn, could allow the soils to slough into the excavation. If the dewatering system draws down the water table adjacent to the excavation, there is the possibility of undermining foundations on the adjacent site, causing cracking or collapse. To avoid these conditions, dewatering system design and excavation-wall support need to be appropriate to the soil conditions. The required site-specific evaluation of soil conditions must contain recommendations for these systems specific to the site, and be incorporated into the construction design.

As part of the construction permitting process, the Madera County General Plan policies 6.A.1 through 6.A.4, mentioned above, require completed reports of soil conditions at the specific construction sites to identify potentially unsuitable soil conditions including liquefaction, settlement, subsidence, lateral spreading, and collapse. The evaluations must be conducted by registered soil professionals, and measures to eliminate inappropriate soil conditions must be applied, depending on the soil conditions. The design of foundation and excavation-wall support must conform to the analysis and implementation criteria described in the ~~2007~~2010 CBC. Adherence to the ~~2007~~2010 CBC and policies would ensure the maximum practicable protection available for users of buildings and infrastructure and their associated trenches, slopes, and foundations. Thus, the Proposed Project would have a *less-than-significant* impact regarding exposing people or property to the hazards of unstable geologic units or soils. No mitigation is required.

Threshold	Be underlain by expansive soil, as defined in Table 18-1-AB of the California <u>California Uniform Building Code (2001-1994)</u> , as adopted by Madera County, creating life or property hazards.
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Impact 4.6-6 **The proposed Tesoro Viejo Specific Plan project could be located on expansive soil, as defined in Table 18-1-AB of the ~~California~~ California Uniform Building Code (2001-1994), as adopted by the Madera County, creating life or property hazards. This is considered a *less-than-significant* impact because support-soil stability design of structures proposed for human occupancy and underground utilities is required by the Madera County General Plan and the ~~2007~~2010 CBC and is regulated by federal, State, and County requirements.**

The existence of variably textures alluvial deposits in the Project Site, as explained for Impact 4.6-5, increases the possibility of expansive soils occurring randomly and causing foundation-stability issues for dwellings, roads, bridges, and utilities. The preceding explanations of soil and seismic issues indicate that the Building Code requires a site-specific foundation investigation and report for each construction site that (a) identifies potentially unsuitable soil conditions and (b) contains appropriate recommendations for foundation type and design criteria that conform to the analysis and implementation criteria described in the 2007~~2010~~ CBC, Chapters 16, 16A, 18, and 18A. As indicated, a regulatory framework exists to address weak soils issues, including the risk of soil expansion. In view of these requirements, the Proposed Project would have a *less-than-significant* impact regarding exposing people or property to the hazards of expansive soils. No mitigation is required.

Threshold	Result in the loss of availability of a known mineral resource that would be of value to the region and/or the residents of the state, as defined by the California Geological Survey's nonfuel mineral land classification programs, or the Division of Oil, Gas and Geothermal Resources fuel resource mapping programs.
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Impact 4.6-7 **The proposed Tesoro Viejo Specific Plan project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. This is considered a *less-than-significant* impact because of the abundance of known resources in the region, the classification of most of the Project Site as MRZ-3, and the small portion classified as MRZ-2 remaining as open space according to the Specific Plan.**

The large majority (1,551 acres) of the Specific Plan Area is classified as MRZ-3 according to the California Geological Survey. Areas zoned as MRZ-3 contain known or inferred aggregate mineral occurrences of undetermined mineral resource significance: further exploration within these areas might result in the reclassification of specific localities as MRZ-2. Approximately 28 acres of Project Site are classified as MRZ-2 and are encompassed in Aggregate Resource Sector S-18a. Areas zoned as MRZ-2 contain aggregate mineral resources of known significance and/or areas where there is a high probability that such mineral resources exist. Aggregate Resource Sectors are MRZ-2 areas deemed by the State Mining and Geology Board (SMGB) to be available for mining.

Of the four Mineral Resources Zone classifications established by the *California Surface Mining and Reclamation Act* (MRZ-1 through MRZ-4), the MRZ-2 classification is recognized in land use planning because the likelihood for occurrence of significant mineral resources in these zones is high. The 28 acres of the Project Site that are zoned MRZ-2 and are designated by SMGB as available for mining contain about a ten-foot depth of aggregate material. While the Project Site is not mined, it may still contain about 0.5 million tons of viable resources. Because the land would remain as Open Space under the proposed Specific Plan, access to potentially underlying aggregate mineral resources would not be decreased and there would be no impact to potential mineral resources in Aggregate Resource Sector S-18a. Further, the Rio Mesa Area Plan indicates that while aggregates do underlie portions of the Plan area, these resources may not be able to be economically mined due to clay deposits and/or an unbalanced sand-to-gravel ratio (Madera County 1995a, 78).

In addition to Sector S-18a, there are more than 100 million tons of known aggregate mineral resources in approximately 31 square miles comprising 25 other Sectors in the vicinity of the Project Site that would remain accessible for the foreseeable future. These resources would provide the needed supply of resources for the area.

The 2.4 square miles of MRZ-3 land contained in the remainder of the Project Site represent about 0.1 percent of the nearly 1,950 square miles of MRZ-3 lands in the Fresno Production-Consumption Region. Implementation of the project would remove most of the 2.4 square miles from possible aggregate mineral extraction uses; however, given that there is no certainty of finding such resources beneath the Project Site, along with the fact that there exists approximately 100 million tons of known resources in the immediate vicinity of the Project Site and that there are nearly 1,950 other square miles of MRZ-3 lands in the region, the potential impact to MRZ-3 lands is considered negligible. Also, because the MRZ-2 land on the Project Site would remain accessible, which provides the higher probability of viable resources as compare to MRZ-3 lands, and there is an abundance of Aggregate Resources Sectors in the vicinity, there would be a *less-than-significant* impact to mineral resources of value to the region and/or residents of the State of California caused by implementation of the Specific Plan (CDMG 1988). No mitigation is required.

Threshold	Result in the loss of availability of a locally-important mineral resource recovery site delineated by the General Plan, a specific plan, or other land use plan.
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Impact 4.6-8 **The proposed Tesoro Viejo Specific Plan would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. This is considered a *less-than-significant* impact because the land on the Project Site has not been declared by the Madera County delineated on a local General Plan, a specific plan, or other land use plan to be an area with locally important mineral resources.**

No locally significant mineral resources have been identified within the Project Site by the Madera County General Plan or other land use plans. Although, it is possible that undiscovered mineral resources exist on the Project Site, it is improbable that access to any valuable mineral would be restricted, as further described under Impact 4.6-6. Therefore, a *less-than-significant* impact to locally important mineral resources would be caused by implementation of the Specific Plan. No mitigation is required.

4.6.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of cumulative geology, soils, and mineral resource impacts varies by threshold. Thus, the geographic context for the cumulative analysis is presented for each threshold.

Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007 <u>2010</u> CBC, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zones Map issued by the State Geologist for the Madera area or based on documented evidence of a known fault provided by the geologic/geotechnical investigations required by the 2007 <u>2010</u> CBC.
Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007 <u>2010</u> CBC, including the risk of loss, injury, or death involving Strong seismic groundshaking (Modified Mercalli Intensity equal to, or greater than, MMI VII).
Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the 2007 <u>2010</u> CBC, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction
Threshold	Expose people or structures to potential adverse effects beyond those for which structures are required to be designed by the <i>Madera County Building Code</i> , including the risk of loss, injury, or death involving landslides.
Threshold	Be underlain by a geological or soil unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site lateral spreading, subsidence, settlement, or collapse, as documented in the geotechnical investigation required by 2007 <u>2010</u> CBC, or similarly applicable design guidelines.
Threshold	Be underlain by expansive soil, as defined in Table 18-1- AB of the California Uniform Building Code (2001-1994) , as adopted by Madera County, creating life or property hazards.

The geographic context for the analysis of impacts resulting from geologic hazards, such as fault rupture, groundshaking, ground failure (including liquefaction and landslides), unstable soils, or expansive soils, generally are site-specific, rather than cumulative in nature, because each development site has unique geologic and soils characteristics that would be subject to uniform site development and construction standards imposed by Madera County. Restrictions on development would be applied in the event that geologic or soil conditions posed a risk to safety exceeding the standards required by the Building Code or similarly applicable guidelines. Consequently, project-related cumulative impacts regarding rupture of a known earthquake faults would be *less than significant*.

Threshold	Result in soil erosion or the loss of topsoil exceeding the standards established by the National Pollutant Discharge Elimination System permitting process for projects in the Project Site Central Valley area and/or the Madera County Building Code 2010 CBC .
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Potential impacts from erosion and the loss of topsoil caused by site development and operation can be cumulative in effect within a watershed. The San Joaquin River Hydrologic Unit (also referred to as the San Joaquin Basin) forms the geographic context of cumulative erosion impacts. The analysis accounts for all anticipated cumulative growth in this geographic area, as represented by full build-out of the Madera County General Plan, including the Rio Mesa Area Plan, and the general plans of upstream communities. Such development is subject to federal, state, and/or local runoff and erosion prevention requirements, including the applicable provisions of the general construction permit, Best Management Practices (BMPs), and Phases I and II of the NPDES permitting process as administered by the Regional Water Quality Control Board, as well as implementation of fugitive dust control measures of Air Quality Management District Rule 403. Applicable BMPs and water quality management plans are required by the Regional Water Quality Control Water Board and the San Joaquin Valley Air Control District to be implemented as conditions of approval of all project development and are subject to continuing enforcement.

Implementation of the proposed Specific Plan would cause the modification of site conditions to accommodate development. During construction, this modification could expose soil to erosion by wind or water. Development of other cumulative projects in the vicinity of the Project Site could expose soil surfaces, and further alter soil conditions, subjecting soils to erosion processes during construction periods. To reduce the potential for cumulative erosion impacts, all projects in the watershed are required to be developed in conformance with the provisions of applicable federal, State, county, and/or city laws and ordinances noted previously. Project sites more than one acre in size would be required to comply with the provisions of the NPDES permitting process and local implementation strategies, which would reduce the potential for erosion during construction and operation of the facilities to the extent feasible. Compliance with this permit process, in addition to the legal requirements related to erosion-control practices, would reduce the potential cumulative effects of erosion to a less-than-significant level. As a result, it is anticipated that the individual contribution of the Proposed Project to cumulative erosion impacts in the watershed would not be considerable and the effect from cumulative development activity would be less than significant. Consequently, project-related cumulative impacts regarding erosion and loss of topsoil would be *less than significant*.

Threshold	Result in the loss of availability of a known mineral resource that would be of value to the region and/or the residents of the state, as defined by the California Geological Survey's nonfuel mineral land classification programs, or the Division of Oil, Gas and Geothermal Resources fuel resource mapping programs.
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Potential impacts from loss of availability of a known mineral resource that would be a value to the region or California caused by the implementation of a project can be cumulative in effect. The Fresno Production-Consumption Region, which includes urban and urbanizing portions of Fresno and Madera Counties, provides the geographic context for the analysis of cumulative impacts.

According to a report entitled *Aggregate Availability in California* (Department of Conservation 2006), one of four aggregate areas in the State of California that are in “very short supply of permitted aggregate resources” (page 19) is the Fresno Production-Consumption region. In fact, the report states that each of the four aggregate areas is “projected to have less than 10 years of permitted aggregate resources remaining” (page 7). Therefore, cumulative impacts to the loss of availability of a known mineral resource that would be of value to the region and/or the residents of the state would be considered significant.

As previously discussed in Impact 4.6-6, approximately 1,551 acres of the ~~4,579~~1,585-acre Project Site that would be removed from possible aggregate mineral extraction uses are zoned as MRZ-3, which is a zoning designation that offers no certainty of finding resources. The remaining 28 acres of the Project Site are classified as MRZ-2. Areas zoned as MRZ-2 contain aggregate mineral resources of known significance and/or includes areas where there is a high probability that such mineral resources exist. While the MRZ-2 land within the Project Site is not mined, it still may contain about 0.5 million tons of viable resources. Because the land would remain as Open Space under the proposed Specific Plan, access to potentially underlying aggregate mineral resources would not be decreased and there would be no impact to potential mineral resources. Further, the 2.4 square miles of MRZ-3 land contained in the remainder of the Project Site represents only about 0.1 percent of the nearly 1,950 square miles of MRZ-3 lands in the Fresno Production-Consumption Region. While implementation of the project would remove most of the 2.4 square miles from possible aggregate mineral extraction uses, given that there is no certainty of finding such resources beneath the Project Site, and that there exists approximately 100 million tons of known resources in the immediate vicinity of the Project Site along with nearly 1,950 other square miles of MRZ-3 lands in the region, impacts to potential mineral resources is not considered cumulatively considerable. Project-related cumulative impacts regarding the potential loss of mineral resources of value to the region and/or residents of the State of California would be ***less than significant***.

Threshold	Result in the loss of availability of a locally-important mineral resource recovery site delineated by the General Plan, a specific plan, or other land use plan.
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The geographic context for the analysis of locally important mineral resources is Madera County, which is the area evaluated in the County’s General Plan. As mentioned above under Impact 4.6-6, no locally significant mineral resources have been identified within the Project Site by the *Madera County General Plan* or any other countywide land use plans. While it is possible that undiscovered mineral resources exist on the Project Site, it is improbable that any valuable mineral found would be restricted to the Project Site, but, instead, would be available in other parts of the County. Therefore, there would be a less-than-significant cumulative impact to locally important mineral resources as delineated on an applicable land use plan. Development of the Proposed Project would not represent a considerable contribution to this cumulative impact, and project-related cumulative impacts regarding the potential loss of locally important mineral resources would be ***less than significant***.

4.6.5 Glossary

- **Alquist-Priolo Earthquake Fault Zone**—In 1972 the state of California began delineating special studies zones (called Earthquake Fault Zones since January 1994) around active and

potentially active faults in the state. The zones are revised periodically, and extend 200 to 500 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. Proposed construction within the Earthquake Fault Zone is permitted only following the completion of a fault location report prepared by a California Registered Geologist.

- **Characteristic Earthquake**—Characteristic earthquakes are repeat earthquakes that have the same faulting mechanism, magnitude, rupture length, location, and, in some cases, the same epicenter and direction of rupture propagation as earlier shocks. As used in this report, the moment magnitude (MW) of the “characteristic earthquake” indicates the scale of the seismic event considered representative of a particular fault segment, based on seismologic observations and statistical analysis of the probability that a larger earthquake would not be generated during a given time frame (often 50 or 100 years). In the Los Angeles Basin Area, a characteristic earthquake for the Newport-Inglewood fault would have a moment magnitude (MW) between 6.0 and 7.4. MW for the San Jacinto fault characteristic earthquake would be between 6.5 and 7.5. MW for the San Andreas Fault would be between 6.8 and 8.0. The term “characteristic earthquake” replaces the term “maximum credible earthquake” as a more reliable descriptor of future fault activity.
- **Horizontal Ground Acceleration**—The speed at which soil or rock materials are displaced by seismic waves. It is measured as a percentage of the acceleration of gravity ($0.5\text{ g} = 50$ percent of 32 feet per second squared, expressed as a horizontal force). Peak horizontal ground acceleration is the maximum acceleration expected from the characteristic earthquake predicted to affect a given area. Repeatable acceleration refers to the acceleration resulting from multiple seismic shocks. Sustained acceleration refers to the acceleration produced by continuous seismic shaking from a single, long duration event.
- **Maximum Credible Earthquake (MCE)**—The largest Richter magnitude (M) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework. This term has been replaced by “characteristic earthquake,” which is considered a better indicator of probable seismic activity on a given fault segment within a specific time frame.
- **Modified Mercalli Intensity (MMI) Scale**—A 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Each succeeding step on the scale describes a progressively greater amount of damage at a given point of observation. Effects range from those that are detectable only by seismicity recording instruments (I) to total destruction (XII). Most people will feel Intensity IV ground motion indoors and Intensity V outside. Intensity VII frightens most people, and Intensity IX causes alarm approaching panic. The scale was developed in 1902 by Giuseppe Mercalli for European conditions, adapted in 1931 by American seismologists Harry Wood and Frank Neumann for conditions in North America, and modified in 1958 by Dr. Charles F. Richter to accommodate modern structural design features.
- **Moment Magnitude (MW)**—A logarithmic scale introduced by Hiroo Kanamori in 1977 that is used by modern seismologists to measure the total amount of energy released by an earthquake. For the purposes of describing this energy release (i.e., the “size” of an earthquake on a particular fault segment for which seismic-resistant construction must be designed) the moment magnitude (MW) of the characteristic earthquake for that segment has replaced the concept of a maximum credible earthquake of a particular Richter magnitude. This has become necessary because the Richter scale “saturates” at the higher magnitudes; that is, the Richter scale has difficulty

differentiating among the sizes of earthquakes above M 7.5. To correct for this effect, the formula used for the MW scale incorporates parameters associated with the rock types at the seismic source and the area of the fault surface involved in the earthquake. Thus, the moment magnitude is related to the length and width of the fault rupture. It reflects the amount of “work” (in the sense of classical physics) done by the earthquake. The relationship between Richter and moment magnitudes is not linear (i.e., moment magnitude is not a set percentage of Richter magnitude): the two values are derived using different formulae. The four well-known earthquakes listed below exemplify this relationship.

Location	Date	Richter Magnitude	Moment Magnitude
New Madrid MO	1812	8.7	8.1
San Francisco CA	1906	8.3	7.7
Anchorage AK	1964	8.4	9.2
Northridge CA	1994	6.4	6.7

Although some of the values shown on the MW scale appear lower than those of the traditional Richter magnitudes, they convey more precise (and more useable) information to geologic and structural engineers.

- **Richter Magnitude Scale**—A logarithmic scale developed in 1935 and 1936 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude (M) by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials (for which, see Modified Mercalli Intensity Scale, above). Each whole number on the Richter scale represents a 10 fold increase in amplitude of the waves recorded on a seismogram and about a 32 fold increase in the amount of energy released by the earthquake. Because the Richter scale tends to saturate above about M 7.5, it is being replaced in modern seismologic investigations by the moment magnitude (MW) scale (see above).

4.6.6 References

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4.7 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential adverse impacts on human health and the environment due to exposure to hazardous materials or conditions that could be encountered as a result of implementation of the Specific Plan. Where appropriate, this section also identifies mitigation measures with respect to potential risks from hazardous materials. Hazardous materials include, but are not necessarily limited to, solvents, lead, asbestos, fuels, oils, paints, cleansers, and pesticides that are used in activities such as construction activities or building or grounds maintenance. Potential effects include those associated with exposure to hazardous materials used, stored, transported, or disposed of during construction activities or Proposed Project operations. In addition, issues of disease-bearing insects are analyzed with respect to the Madera Canal and the proposed water-holding detention basins. Potential water quality effects from runoff that could contain hazardous or polluted materials during construction or operational activities are discussed in Section 4.8 (Hydrology and Water Quality).

Data used to prepare this section were taken from various sources, including an Environmental Data Resources Radius Map with GeoCheck (EDR 2007), which is included as Appendix E, and the *Madera County General Plan* (General Plan) (1995). Bibliographic entries for selected reference materials are provided in Section 4.7.5 (References) of this section.

4.7.1 Environmental Setting

■ Definitions

Chapter 6.5 of the *California Health and Safety Code* (Sections 25110–25124) sets forth definitions and regulations related to hazardous materials management and disposal. This EIR uses the definitions set forth in this chapter, as follows:

- *Hazardous Material*—Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. “Hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.
- *Hazardous Waste*—A “hazardous waste” is any hazardous material that is abandoned, discarded, or recycled (*California Health and Safety Code* Section 25124). Hazardous wastes occasionally may be generated by actions that change the composition of previously non-hazardous materials. The same criteria that characterize a material as hazardous make waste hazardous: ignitability, toxicity, corrosivity, reactivity, radioactivity, or bioactivity.
- *Pesticides*—A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests. Under United States law, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant (U.S. EPA 2007).

- *Vector*—A vector is defined as “any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates” (*California Health and Safety Code* Section 2002-k). For the purposes of this section, vector may be used interchangeably with “disease-bearing insect.”

Hazard versus Risk

Inherent in the setting and analyses presented in this section are the concepts of the “hazard” of these materials and the “risk” they pose to human health and the ecological environment.

Exposure to some chemical substances may harm internal organs or systems in the human body, ranging from temporary effects to permanent disability, or death. Hazardous materials that result in adverse effects are generally considered “toxic.” For purposes of the information and analyses presented in this section, the terms hazardous substances or hazardous materials are used interchangeably and include materials that are considered toxic.

The risk to human health and the ecological environment is determined by the probability of exposure to a hazardous material and the severity of harm such exposure would pose. That is to say, the likelihood and means of exposure, in addition to the inherent toxicity of a material, are used to determine the degree of risk to human health or the ecosystem.

■ **Physical Setting**

The Project Site consists of a combination of gently rolling hills and relatively flat plains used primarily for agricultural purposes, such as vineyards, with some vacant land. A well-defined drainage network meanders through the Project Site. The Proposed Project consists of a Specific Plan for a 4,579¹,585-acre site. The Specific Plan includes development of a mixed-use community core, residential, mixed-use neighborhood commercial, commercial/industrial, and other uses. The mixed-use community core, which would include commercial, office, public institution, and open space is planned to cover 70 acres. The residential component, which includes high density, medium density, low density, and very low density, would cover 1,056.4 acres. The mixed-use neighborhood commercial areas would include medium density residential and neighborhood commercial covering approximately 16 acres. The commercial and industrial land designations, which would include light industrial and highway service commercial, would cover 146 acres. Figure 3-3 (Existing Project Site) in Chapter 3 (Project Description) shows the current uses on the Project Site.

Federal land patents indicate that the earliest claims to the Tesoro Viejo Project Site were established in 1873. Following several years of grazing and grain cultivation, the property was sold to the Bowling family, who used it for farming, dairying, and ranching. The Peck family purchased the property in 1980. The Project Site, known locally as the Peck Ranch, is currently used for vineyards, blueberries, and tomato cultivation, and recently, the landowner established a tree nursery to provide mature trees for landscaping of the Proposed Project, if approved. There is currently one ranch office building on-site.

Surrounding Land Uses

Many of the land uses surrounding the Project Site are agricultural; however, many of these areas were redesignated in the RMAP or other area plans for future nonagricultural development. The area directly north of the Project Site, known as Little Table Mountain, currently consists of agricultural and open space land uses, and the existing zoning for this area preserves these uses. To the northeast, an agricultural area was redesignated in the RMAP as the North Fork Village, a mixed-use residential and commercial growth area. The land immediately south of the Project Site, while currently agricultural, was also redesignated as the Avenue 12 Village, which is also a mixed-use growth area in the RMAP. The San Joaquin River forms the eastern border of the Project Site, dividing Madera and Fresno Counties. Sumner Hill, an existing subdivision, is located near the river and separates the two areas that make up the Project Site. Ledger Island, owned by the San Joaquin River Parkway Conservancy, is adjacent to the Project Site's southeastern corner and is devoted to wildlife-friendly open space.

Regional Development Trends

While much of the region is continuing to use land for agricultural purposes, there has been a shift towards mixed-use developments, which convert vacant and agricultural land to urban uses. The Gateway Village Specific Plan, located southwest of the Proposed Project would develop 2,062 acres into a mixed-use urban development. Similar projects are planned throughout Madera County as available urban land continues to become scarce.

Records Review

On October 19, 2007, a search of available environmental records was performed for the Project Site to evaluate activities that may have resulted in a release of hazardous substances to soil and/or groundwater on or in the general vicinity of the Project Site. The database search was conducted by EDR of Milford, Connecticut, utilizing a geographic information system to plot the locations of reported spills, leaks, or incidents within a 2.25-mile radius. The database includes the presence or likely presence of any hazardous substance or petroleum product on the Project Site under conditions that indicate an existing release, a past release, or a material threat of release into a structure on the property or into the ground, groundwater, or surface water on the property.

Potential Hazardous Materials Located on Site or off Site

The EDR record search found thirteen sites within 2.25 miles of the Project Site that were listed on one or more of the databases searched.

Of the 13 sites, two were found to be associated within the former extent of the Sumner Peck Ranch; however, both of these sites are located outside of the Project Site, within the orange grove that is located just south of Road 204 and east of SR 41 (personal communication, Ken Lazarus, Sumner Peck Ranch, December 21, 2007). The first, located at 41600 Road 204, was listed on the RCRA, FINDS, and HIST UST lists (A definition of the acronyms used in this section and the EDR report is provided in the footnotes to Table 4.7-1, which is provided on the following page). However, no violations were ever reported for this site. The underground storage tanks contained regular, unleaded, and diesel fuel that are typical of ranch or agricultural operations. The second site listed under Sumner Peck Ranch, Inc. was

located at 14354 Road 204. This site was found in the HAZNET data list. Pesticides and inorganic wastes were listed for this site, which is typical for ranches and agricultural operations, and no violations were found.

Table 4.7-1 EDR Sites		
Name	Address	Federal Record
Sumner Peck Ranch, Inc.	41600 Road 204	RCRA-SQG FINDS HIST UST
H.W. Ball Ranch	13899 N. Friant Road	HIST UST
T-Mobile Cell Site SC08748A	14439 N. Friant	Fresno Co CUPA
Ball Ranch	13899 Friant	Fresno Co. CUPA
BK Lighting, Inc.	40429 Brickyard Dr.	HAZNET
Bruce Massenge	14974 Highway 41	HAZNET
Sumner Peck Ranch, Inc.	14354 Road 204	HAZNET
Star Finishes, Inc.	40455 Brickyard Dr.	HAZNET
Warning Brien Dunn	14718 Highway 41	HAZNET
William Humphers	14244 Brookhill Rd.	HAZNET
Semper Speed & Marine	10816 Highway 41	HAZNET
Cellco Partnership, DBA Verizo	40385 Brickyard	Emissions Inventory Data
R.W. Naden	40473 Brickyard Dr.	Emissions Inventory Data

SOURCE: EDR 2007

RCRA-SQG = Resource Conservation and Recovery Act—Small-Quantity Generator. Database includes selective information on sites that generate, transport, store, treat, and/or dispose of hazardous waste.

Fresno Co. CUPA = Certified Unified Program Agency, responsible for implementing a unified hazardous waste management regulatory program.

FINDS = Facility Index System. Contains both facility information and “pointers” to other sources of information that contain more detail.

HIST UST = Historical UST registered database

HAZNET = This data is extracted from the copies of hazardous waste manifests received each year by the DTSC

EMI = Emissions Data Inventory. Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies

Three other sites listed were/are located directly adjacent to the Project Site. Warning Brien Dunn, located at 14718 Highway 41, was listed on the HAZNET list. The site produced oxygenated solvent wastes and unspecified solvents waste, and no violations were reported. Bruce Massenge, located at 14974 Highway 41, was also listed on the HAZNET list. This site created unspecified aqueous solution waste, and no violations were reported. Additionally, the Semper Speed and Marine Shop, although not located on the map contained in the EDR, is located at 10816 Highway 41. Found on the HAZNET list, no violations were reported for this site.

Table 4.7-1 lists all the potentially hazardous sites located within the searched radius of the Proposed Project. The complete EDR report can be found in Appendix E of this EIR. In addition, an overview map of all of these sites, excluding the Semper Seed and Marine Shop, can be found on page 2 (Overview Map – 2056622.1s) of Appendix E.

Based on the EDR data, hazardous materials may have been handled and/or used on or near the Project Site, which may have resulted in the release of these materials into the soil or local waterways. In addition to the thirteen sites previously described, the report also listed thirty-nine other sites that contained poor or inadequate address information. Those sites were not mapped. Further research found that many of these sites were located more than 2.25 miles from the Proposed Project Site. However, the presence of businesses that have (in the past) or continue to use, transport, or store hazardous materials (as reflected by the EDR database search) does not indicate that there are, in fact, hazardous materials located onsite or offsite. These sites are further described on pages 6 and 23 of Appendix E.

4.7.2 Regulatory Framework

A number of federal, state, and local laws have been enacted to regulate the management of hazardous materials. Implementation of these laws and the management of hazardous materials are regulated independently of the CEQA process through programs administered by various agencies at the federal, state, and local levels. The policies listed below also include those found in the Madera County General Plan (1995), the Madera County Hazardous Waste Management Plan, and the Rio Mesa Area Plan (1995). An overview of the key hazardous materials laws and regulations that apply to the proposed Specific Plan are described below.

■ Federal and State

Environmental Protection Agency

The Environmental Protection Agency (EPA) is the primary federal agency responsible for the implementation and enforcement of hazardous materials regulations. In most cases, enforcement of environmental laws and regulations established at the federal level is delegated to state and local environmental regulatory agencies.

California Environmental Protection Agency

The California EPA (Cal/EPA) has broad jurisdiction over hazardous materials management in the state. Within Cal/EPA, the Department of Toxic Substance Control (DTSC) has primary regulatory responsibility for hazardous waste management and cleanup. Enforcement of regulations has been delegated to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the Hazardous Waste Control Law.

Department of Toxic Substances Control

The *Resource Conservation and Recovery Act of 1976* (RCRA) is the principal federal law that regulates the generation, management, and transportation of hazardous materials and other wastes. On a state level, the DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA, as well as the *California Health and Safety Code*.

Under RCRA, DTSC has the authority to implement permitting, inspection, compliance, and corrective action programs to ensure that people who manage hazardous waste follow state and federal

requirements. As such, the management of hazardous waste in Madera County would be regulated by the DTSC to ensure compliance with state and federal requirements pertaining to hazardous waste.

California law also provides a framework for the regulation of hazardous wastes through the Hazardous Waste Control Law (HWCL), which was passed in 1972. DTSC is the state's lead agency in implementing the HWCL. The HWCL provides for state regulation of existing hazardous waste facilities, which include "any structure, other appurtenances, and improvements on the land, used for treatment, transfer, storage, resource recovery, disposal, or recycling of hazardous wastes," and requires permits for, and inspections of, facilities involved in generation and/or treatment, storage and disposal of hazardous wastes.

Hazardous Materials Management Regulatory Program

In January 1996, California EPA adopted regulations implementing a "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program" (Unified Program). The six program elements of the Unified Program are hazardous waste generators and hazardous waste on-site treatment, underground storage tanks, above-ground storage tanks, hazardous material release response plans and inventories, risk management and prevention programs, and *Uniform Fire Code* hazardous materials management plans and inventories. The program is implemented at the local level by a local agency—the Certified Unified Program Agency (CUPA). The CUPA is responsible for consolidating the administration of the six program elements within its jurisdiction. The CUPA that has jurisdiction in the Specific Plan Area is the Madera County CUPA.

California's Hazardous Materials Release Response Plans and Inventory Law, which was enacted pursuant to the Unified Program and is sometimes called the "Business Plan Act," aims to minimize the potential for accidents involving hazardous materials and to facilitate an appropriate response to possible hazardous materials emergencies. The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, to illustrate on a diagram where the materials are stored onsite, to prepare an emergency response plan, and to train employees to use the materials safely.

Worker Safety

The California Occupational Safety and Health Administration (Cal/OSHA) and the federal Occupational Safety and Health Administration are the agencies responsible for ensuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices.

Hazardous Waste Handling

Cal-EPA and DTSC regulate the generation, transportation, treatment, storage, and disposal of hazardous waste under *Resource Conservation and Recovery Act* (RCRA) and the *California Hazardous Waste Control Law*. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

Hazardous Materials Transportation

The U.S. Department of Transportation (USDOT) prescribes strict regulations for the safe transportation of hazardous materials, including requirements for hazardous waste containers and license haulers who transport hazardous waste on public roads.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government and private entities. Response to hazardous materials incidents is one component of this plan. The state Office of Emergency Services administers the plan, which coordinates the responses of other agencies, including the California Environmental Protection Agency EPA (Cal-EPA), the California Highway Patrol, California Department of Fish and Game, and the Regional Water Quality Control Board (RWQCB).

Tanner Act

Although there are numerous state policies dealing with hazardous waste materials, the most comprehensive is the *Tanner Act* (AB 2948) that was adopted in 1986. The *Tanner Act* governs the preparation of hazardous waste management plans and the storing of hazardous waste facilities in the State of California. The Act also mandates that each county adopt a Hazardous Waste Management Plan. To be in compliance with the *Tanner Act*, local or regional hazardous waste management plans need to include provisions that define: (1) the planning process for waste management; (2) the permit process for new and expanded facilities; and (3) the appeal process to the state available for certain local decision.

California Accidental Release Prevention Program (CalARP)

The CalARP program (CCR Title 19, Division 2, Chapter 4.5) covers certain businesses that store or handle more than a certain volume of specific regulated substances at their facilities. The CalARP program regulations became effective on January 1, 1997, and include the provisions of the Federal Accidental Release Prevention Program (Title 40, CFR Part 68) with certain additions specific to the State pursuant to Article 2, Chapter 6.95, of the *California Health and Safety Code*.

The list of regulated substances is found in Article 8, Section 2770.5 of the CalARP program regulations. The businesses that use a regulated substance above the noted threshold quantity must implement an accidental release prevention program, and some may be required to complete a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The purpose of an RMP is to decrease the risk of a release of a regulated substance that might harm the surrounding environment and community. An RMP includes the following components: safety information, hazard review, operating procedures, training, maintenance, compliance audits, and incident investigation. The RMP must consider the proximity to sensitive populations, such as schools, residential areas, general acute care hospitals, long-term health care facilities, and child day-care facilities, and must also consider external events, such as seismic activity.

■ Local

Madera County Hazardous Waste Management Plan

In accordance with the *California Health and Safety Code* Section 24135 et seq., Madera County has prepared a Hazardous Waste Management Plan for the management of hazardous waste generated in the County. The County's Hazardous Waste Management Plan identifies hazardous generators within Madera County, amounts and types of waste produced, and projected waste generation. In addition, the plan identifies the need for and potential future locations of treatment, storage, and disposal (TSD) facilities, and includes policies and potential impacts for the management of hazardous waste within the County. The major goal of the Hazardous Waste Management Plan is to reduce the need for new hazardous waste facilities by reducing waste at its source through recycling, reduced use of hazardous materials, and public education.

Madera County Office of Emergency Services

The Madera County Office of Emergency Services (OES), which operates as a function of the Madera County Sheriff Department, coordinates emergency evacuation routes and programs for residents and businesses in the County. The OES coordinates evacuation during major disasters, which may result from hazardous materials release.

Madera County Certified Unified Program Agency

The Madera County Certified Unified Program Agency (CUPA) works to ensure that all businesses in Madera County handle store and dispose of hazardous materials and hazardous wastes in compliance with applicable laws and regulations in order to protect the health and environment of the citizens of Madera County. CUPA works specifically with underground storage tanks, hazardous materials business plans, hazardous waste generators, on-site hazardous waste treatment, California Accidental Release Program, investigation of complaints regarding hazardous materials or waste, and emergency response.

Madera County General Plan

The *Madera County General Plan* identifies specific goals related to hazardous materials and emergency evacuation procedures. To minimize illegal disposal, the County established the Household Hazardous Waste Program. The program is geared to ensure proper storage and disposal of paint, used oil, batteries, and other household hazardous waste through the use of permanent/temporary collection facilities or satellite collection facilities. In addition, the General Plan identifies the following goals and policies to minimize impacts from hazardous materials and improve emergency management:

- Goal 6.G** To minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous materials wastes.
- Policy 6.G.1** The County shall ensure that the use and disposal of hazardous materials in the county complies with local, state and federal safety standards.

- Policy 6.G.2** The County shall encourage source reduction, recycling, and on-site treatment of hazardous wastes to reduce hazardous waste generation and disposal.
- Policy 6.G.3** The County shall discourage the development of residences and schools near known hazardous waste disposal or handling facilities.
- Policy 6.G.4** The County shall review all proposed development projects that manufacture, use, or transport hazardous materials for compliance with the County’s *Hazardous Waste Management Plan*.
- Policy 6.G.5** The County shall strictly regulate the storage of hazardous materials and wastes.
- Policy 6.G.6** The County shall ensure that industrial facilities are constructed and operated with current safety and environmental protection standards.
- Policy 6.G.7** The County shall require that applications for discretionary development projects that will generate hazardous wastes or utilize hazardous materials include detailed information on hazardous waste reduction, recycling, and storage.
- Policy 6.G.8** The County shall require that any business that handles a hazardous material prepare a plan for emergency response to a release or threatened release of a hazardous material.
- Policy 6.G.9** The County shall encourage the State Department of Health Services and the California Highway Patrol to review permits for radioactive materials on a regular basis and to promulgate and enforce public safety standards for the use of these materials, including the placarding of transport vehicles.
- Policy 6.G.10** The County shall identify sites as specified in the *County Hazardous Waste Management Plan* that are appropriate for hazardous materials storage, maintenance, use, and disposal facilities due to potential impacts on adjacent land uses and the surrounding natural environment.
- Policy 6.G.11** The County shall work with local fire protection and other agencies to ensure an adequate countywide response capability to hazardous materials emergencies.
- Goal 6.E** To ensure the maintenance of an emergency management program to effectively prepare for, respond to, recover from, and mitigate the effects of natural or technological disasters.
- Policy 6.E.1** The County shall continue to maintain, periodically update, and test the effectiveness of its *Emergency Response Plan*.
- Policy 6.E.2** The County shall coordinate emergency preparedness, response, recovery, and mitigation activities with special districts, service

agencies, voluntary organizations, cities within the county, surrounding cities and counties, and state and federal agencies.

- Policy 6.E.3** The County shall ensure that the siting of critical emergency response facilities such as hospitals, fire stations, sheriff's offices and substations, dispatch centers, emergency operations centers, and other emergency service facilities and utilities have minimal exposure to flooding, seismic and geological effects, fire, and explosions.

Rio Mesa Area Plan

The Rio Mesa Area Plan identifies specific policies related to wildfire prevention within the planning area:

- Policy 5.1** Require all future developments in fire hazard areas to meet mandatory fire protection standards.
- Policy 5.3** Encourage fuel modification zones to be established around all structures in high fire hazard areas.

Madera County Mosquito Abatement and Vector Control District

The Madera County Mosquito Abatement and Vector Control District is a special district charged with protecting public health in Madera County. The *California Health and Safety Code* defines a vector as “any animal capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including, but not limited to, mosquitoes, flies, mites, ticks, other arthropods, and rodents and other vertebrates” (Section 2002-k). Due to the relatively little development within and surrounding the Project Site, vector control has not been an issue. However, as development in the area increases and new sources of standing water are introduced (such as detention basins), vector issues, specifically those dealing with mosquitoes, could increase.

■ Policy Consistency Analysis

CEQA requires that an EIR discuss any inconsistencies between a proposed project and applicable general plans (CEQA Guidelines Section 15125(d)). The proposed commercial and residential development on the Project Site would adhere to all of the federal, state, and county policies regarding the use, transport, and treatment of hazardous materials and hazardous materials waste as discussed below. Therefore, the proposed Specific Plan would be consistent with the plans and policies outlined above.

4.7.3 Project Impacts and Mitigation

■ Analytic Method

The analysis in this section focuses on the use, disposal, transport, or management of hazardous or potentially hazardous materials resulting from construction or operation of the Proposed Project. Disposal options, the probability for risk of upset, and the severity of consequences to people or

property associated with the increased use, handling, transport, and/or disposal of hazardous materials associated with implementation of the Proposed Project are also analyzed. Wildfire hazards associated with the Proposed Project are also considered.

Construction impacts would generally result from the disturbance of potentially contaminated soils. No structures are anticipated to be demolished. Operational impacts would generally be associated with the types of uses proposed and the materials that operation of these uses entails.

In determining the level of significance, the analysis assumes that construction and operation of the Proposed Project would comply with relevant federal, state, and local laws and regulations, as well as the *Madera County Municipal Code*.

■ Thresholds of Significance

The following thresholds of significance are generally based on Appendix G to the 2007 CEQA Guidelines; however, one additional threshold has been developed to assess potential impacts resulting from the proposed detention basins that could result in vector production. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on hazards and hazardous materials if it would result in any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands
- Create a significant health risk to the public or the environment through development of detention basins suitable for disease-carrying vectors and resulting risk of infection, human discomfort, or injury

■ Effects Not Found to Be Significant

Threshold	Would the project emit hazardous emissions or result in the handling of acutely hazardous materials, substances, or waste within ¼ mile of an existing school?
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There are no existing schools within ¼ of a mile from the Project Site. Therefore, the Proposed Project will have *no impact* with regard to releasing acutely hazardous materials within ¼ mile of an existing school. An analysis of the potential impacts on the schools proposed as part of the project provided in Impact 4.7-3.

Threshold	Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the project area?
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The Project Site is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The two airports nearest the Project Site include the Madera Municipal Airport, located approximately 15 miles west of the Project Site, and the Fresno Yosemite International Airport, located approximately 15 miles south of the Project Site. Consequently, *no impact* would occur, and no further analysis is required in this EIR.

Threshold	Would the project be located within the vicinity of a private airstrip, resulting in a safety hazard for people residing or working in the project area?
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The Project Site is not located in the vicinity of a private airstrip (Treber 2007). As a result, no related safety hazard for people residing or working at the project would occur. Consequently, *no impact* would occur, and no further analysis is required in this EIR.

Threshold	Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
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The major evacuation routes for the Project Site include State Route 41 (SR-41), Avenue 12 (which connects to SR-99), and SR-145 (Stanovich 2007). As proposed, the project would be located adjacent to and east of SR-41, with three access points at Avenue 14, Road 204, and Avenue 15. While the project would include the development of approximately 5,000 dwelling units, Section 4.13 (Transportation/Traffic) of this EIR identified the transportation improvements that would be required, and would be implemented by the Applicant, in order to ensure the acceptable operation of street segments and intersections and to provide adequate emergency access. Consequently, *no impact* would occur, and no further analysis is required in this EIR.

■ Impacts and Mitigation Measures

Threshold	Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
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Impact 4.7-1 Construction and operation of the Proposed Project could involve the routine use, transport, and disposal of hazardous materials, but no significant hazard to the public or the environment would occur. This is considered a *less-than-significant* impact.

The Proposed Project would result in the development of about ~~4,579~~1,585 acres (not including ~~69,571.6~~ acres of canals owned by the United States Bureau of Reclamation) of agricultural and vacant land. The project would develop approximately 70 acres of mixed-use community commercial, office, and public institutional space; approximately 1,056 acres of residential uses; 16 acres of mixed-use neighborhood commercial uses; and 146 acres of commercial and industrial land uses. The Proposed Project would include approximately ~~217~~218 acres of open space. In total, approximately 3.0 million square feet of non-residential development would occur.

While the retail, commercial, and residential uses of the Proposed Project are not expected to introduce any unusual hazardous materials to the area, some hazardous materials would be used in varying amounts during construction and operation of the Proposed Project and would consist mostly of typical household-type cleaning products, as well as maintenance products (e.g., paints, solvents, cleaning products), and potentially, propane.

Uses allowed within the light industrial/business park (TV-LI) zoning designation and the highway service commercial (TV-HSC) zoning designation could involve consistent use, transportation, and storage of hazardous materials. For example, gas stations and auto repair facilities may be located within these zoning designations.

Additionally, grounds and landscape maintenance within the development area could also use a wide variety of commercial products formulated with hazardous materials, including fuels, cleaners and degreasers, solvents, paints, lubricants, adhesives, sealers, and pesticides/herbicides.

Implementation of existing hazardous materials regulations were established at the state level to ensure compliance with federal regulations to reduce the risk to human health and the environment from the routine use of hazardous substances. For example, all developer(s) must comply with existing hazardous materials regulations, which are codified in Titles 8, 22, and 26 of the *California Code of Regulations* (CCR), and their enabling legislation set forth in Chapter 6.95 of the *California Health and Safety Code*. In addition, any developer must also comply with applicable federal, state, and local laws and regulations pertaining to the transport, use, and disposal of hazardous waste, including, but not limited to, Title 49 of the *Code of Federal Regulations* (CFR) and as implemented by Title 13 of the CCR.

Exposure of construction workers or Specific Plan Area occupants to hazardous materials could also occur by the improper handling or use of hazardous materials or hazardous wastes during construction or operation of the Proposed Project, particularly by untrained personnel, transportation accidents, environmentally unsound disposal methods, or fire, explosion, or other emergencies, all of which could

result in adverse health effects. The types and amounts of hazardous materials would vary according to the nature of the activity. In some cases, it is the type of hazardous material that is potentially hazardous; in others, it is the amount or use of hazardous material that could present a hazard.

Transportation of Hazardous Materials

The U.S. Department of Transportation (USDOT) Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the CFR, and implemented by Title 13 of the CCR.

The transportation of hazardous materials could result in accidental spills, leaks, toxic releases, fire, or explosion. The precise increase in the amount of regulated hazardous materials transported to or from the Specific Plan Area as a result of implementation of the Proposed Project cannot be definitively predicted due to the pending selection of tenants for the future retail-commercial stores. It is possible that licensed vendors could bring some hazardous materials to and from the Specific Plan Area; however, appropriate documentation and proper identification of all vehicles transporting hazardous waste in connection with project-related activities would be provided for compliance with the existing hazardous materials regulations. As required by Title 49 of the CFR, placards must be placed on vehicles during loading and transportation of hazardous materials. These placards must be put on each side and each end of the transporting vehicle. Additionally, every driver who transports hazardous materials would be required to obtain a hazardous materials transportation license. Compliance with all applicable federal and state laws related to the transportation of hazardous materials, would reduce the likelihood and severity of accidents during transit, thereby reducing impacts to a *less-than-significant* level.

Hazardous Materials Use and Storage

The *Hazardous Materials Management Act* requires that businesses handling or storing certain amounts of hazardous materials prepare a Hazardous Materials Business Plan, which includes an inventory of hazardous materials stored on site (above specified quantities), an emergency response plan, and an employee training program. Businesses that use, store, or handle 55 gallons of liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas at standard temperature and pressure require a Business Plan. Further, the Proposed Project would be required to comply with federal and state laws to eliminate or reduce the consequence of hazardous materials accidents. For example, employees who would work around hazardous materials (specifically within zoning designation TV-LI and TV-HSC) would be required to wear appropriate protective equipment, and safety equipment shall be routinely available in all areas where hazardous materials are used. Therefore, the risk of upset from hazardous materials handling would be *less than significant*.

Hazardous materials are required to be stored in areas designed to prevent accidental release to the environment. *California Building Code* (CBC) requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards. Compliance with all applicable federal and state laws related to the storage of hazardous materials would be implemented to maximize containment (through safe handling and storage practices), thereby ensuring that a *less-than-significant* impact would occur.

Disposal of Hazardous Waste

It would be anticipated that, upon regular activity within the Project Site, all hazardous materials, including wastewater and household/commercial based hazardous materials would be disposed of in accordance with applicable federal, state, and local regulations. The Proposed Project would develop a wastewater treatment facility on-site to treat all wastewater produced by the residents and businesses within the Project Site and would operate in accordance with all regulations established by the Central Valley Regional Water Quality Control Board and the National Pollutant Discharge Elimination System as they relate to disposal of wastewater. Refer to Impact 4.8-2 of Section 4.8 (Hydrology and Water Quality) of this EIR for a discussion of the potential methods of disposal of wastewater effluent. In summary, regardless of the final chosen treated effluent disposal option(s), the Proposed Project would be subject to existing regulatory requirements and permit conditions developed by the RWQCB for the intended discharge. Therefore, reclaimed treated effluent use or effluent disposal would not substantially degrade water quality and would not violate water quality standards. Monitoring and reporting requirements inherent in either WDR would reduce the potential for violation of WDRs. Enforcement provisions within the WDR would require mitigation and possible judicial liability if a violation occurred. Therefore, the potential for Proposed Project violation of water quality standards or waste discharge requirements from WWTP effluent management would be *less than significant*.

Compliance with all applicable laws and regulations would also reduce the risk of hazardous materials disposal of household/commercial cleaners through the implementation of established safety practices, procedures, and reporting requirements. The regulations listed in this analysis must be implemented by employers/businesses, as appropriate, and are monitored by the state (e.g., OSHA in the workplace or DTSC for hazardous waste) and local jurisdictions (e.g., the Madera County Fire Department). Adherence to the previously mentioned, such as Title 8, 22, and 26 of the CCR would ensure compliance with existing safety standards related to the use and storage of hazardous materials, and the safety procedures mandated by applicable federal, state, and local laws and regulations (RCRA, California *Hazardous Waste Control Law*, and principles prescribed by the California Department of Health Services, Centers for Disease Control and Prevention, and National Institutes of Health), which would ensure that risks resulting from the routine transportation, use, storage, or disposal of hazardous materials or hazardous wastes associated with construction and implementation of the Proposed Project would be *less than significant*. No mitigation is required.

Threshold	Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
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Impact 4.7-2 **Operation of the Proposed Project would not expose construction workers or the public to significant health and safety hazards through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. This is considered a *less-than-significant* impact.**

Potential hazards from the routine use, transport, or disposal of hazardous materials were previously addressed in Impact 4.7-1. Impacts to construction workers or the public resulting from the potential release of hazardous materials during construction activities are addressed in Impact 4.7-4. Therefore, the

following discussion focuses on risks to the public from exposure to accidental releases of hazardous materials during operation of the Proposed Project.

Exposure of project residents, visitors, and employees to hazardous materials could occur by improper handling or use of hazardous materials or hazardous wastes during operation of the Proposed Project, particularly by untrained personnel, environmentally unsound disposal methods, or fire, explosion, or other emergencies, all of which could result in adverse health effects. The types and amounts of hazardous materials would vary according to the nature of the activity. In some cases, it is the type of hazardous material that is potentially hazardous; in others, it is the amount of hazardous material that could present a hazard.

The Proposed Project would be anticipated to use routine chemicals, such as cleansers, bleaches, and detergents, and landscape maintenance chemicals, such as herbicides and pesticides. Propane could be used for heating. Within the TV-LI and TV-HSC zoning areas, potential uses, such as light manufacturing, research and development, and service stations could involve the everyday use of high volumes of potentially hazardous materials. In the event of a hazardous material accident, the Madera County Fire Department would be dispatched. Madera County Fire Station #3, located at 25950 Avenue 18½, in the city of Madera is equipped to handle hazardous material spills within the County. This station is manned 24 hours a day by a full-time fire captain or apparatus engineer, and supported by on-call firefighters. The station is approximately 15 miles from the Proposed Project. If required, the hazardous materials team would respond to and ensure that the public is safe from further hazardous materials contamination. Cleanup would be supervised by the Madera County Fire Department hazardous waste team, as well as select County officials from the Department of Environmental Health. Therefore, impacts related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials during operation of the Proposed Project would be less than significant. Compliance with all applicable federal, state, and local requirements pertaining to proper handling, use, storage, and disposal of hazardous materials as analyzed above under Impact 4.7-1 would further ensure that impacts related to accidental upset of hazardous materials during construction and operation would be reduced to a *less-than-significant* level.

Threshold	Would the project emit hazardous emissions or result in the handling of acutely hazardous materials, substances, or waste within ¼ mile of a proposed school?
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Impact 4.7-3 Construction and operation of the Proposed Project could result in hazardous emissions within ¼ mile of a proposed school. However, this impact would be considered *less than significant*. No mitigation is required.

The Specific Plan would potentially include the development of three or four public schools. Figure 3-4 (Conceptual Land Use Plan) illustrates the locations of the proposed schools in the Specific Plan Area.

Hazardous emissions could consist of toxic air contaminants, which refer to a diverse group of air pollutants that are capable of chronic and acute adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including motor vehicles. While vehicle travel would occur adjacent to the proposed school sites, vehicle based emissions would not be considered acutely hazardous material emission. For the Proposed Project,

construction would involve utilization of diesel-powered trucks and equipment, which would emit toxic air contaminants in the form of diesel particulate matter. However, operation of the proposed schools would not be anticipated to begin until after construction of the surrounding areas. Therefore, there would be a *less-than-significant* impact on the release of hazardous materials within ¼ mile of a proposed school, as a result of construction activities. No mitigation is required.

Acutely hazardous materials, which can be defined as hazardous materials that present a potential for catastrophic event above specified quantities, include chemicals such as bromine, chlorine, hydrogen chloride, nitrogen oxides, and sulfur dioxide (CDIR 2007). Stationary sources of such emissions, which would include gas stations and dry cleaners, would be located within areas zoned TV-LI and TV-HSC. These designated areas would not be located within ¼ mile of a proposed school. In 1986, to prevent accidental releases of hazardous materials and to reduce their potential impact on the public and environment, California established laws requiring a business that used materials defined as acutely hazardous materials in certain quantities to develop a Risk Management and Prevention Program. As such, any future businesses within the Tesoro Viejo Specific Plan that uses acutely hazardous materials would be required to establish a Risk Management and Prevention Program. Therefore, impacts related to hazardous emission or the handling of acutely hazardous materials would be *less than significant* during operation of the Proposed Project. No mitigation is required.

Threshold	Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?
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Impact 4.7-4 Construction of the Proposed Project would not affect known sites that are included on a list of hazardous materials pursuant to Government Code Section 65962.5; however, there is the potential to discover contaminated soil and/or groundwater that could be present on the Project Site as a result of historic agricultural operations. This is considered a potentially significant impact. Implementation of mitigation measures MM4.7-4(a) and MM4.7-4(b) would reduce this impact to a *less than significant* level.

As indicated by Table 4.7-1, there are thirteen sites located within 2.25 miles of the Project Site that are listed on one or more federal, state, or local hazardous lists; however, there are no sites listed on the Project Site.

Of the 13 sites, the two most proximate are associated with the former extent of the Sumner Peck Ranch and are located within the orange grove that is located just south of Road 204 and east of SR 41 (personal communication, Ken Lazarus, Sumner Peck Ranch, December 21, 2007). The first site, located at 41600 Road 204 was listed under RCRA as a small-quantity hazardous waste generator, under FINDS and HIST UST. FINDS is the list for the Facility Index System, which contains both facility information and “pointers” to other sources of information that contains more detail. HIST UST is the list for the Historical Underground Storage Tank registry. No violations were reported for this site. The underground storage tanks contained regular, unleaded, and diesel fuel.

The second site listed under Sumner Peck Ranch, Inc. was located at 14354 Road 204. This site was found in the HAZNET data list, which is extracted from the copies of hazardous waste manifests

received each year by the DTSC. Pesticides and inorganic wastes were listed as used at this site, but no violations were found.

Eleven other sites adjacent to the Project Site were listed on one of the hazardous materials list. The Warning Brien Dunn site, located at 14718 SR-41, was listed on the HAZNET list. The site produced oxygenated solvent wastes and unspecified solvents waste, but no violations were reported. Bruce Massenge, located at 14974 SR-41, was also listed on the HAZNET list. This site created unspecified aqueous solution waste, but no violations were reported. Additionally, the Semper Speed and Marine Shop is located at 10816 SR-41. Found on the Haznet list, no violations were reported for this site.

Although groundwater is located between 6 and 40 feet below the surface, groundwater flows towards potential pollutants, and, therefore, no groundwater contamination is known to occur below the Project Site (Todd Engineers 2002). Therefore, impacts related to the Proposed Project would be *less than significant*.

Groundwater

According to seven monitoring wells located in or near the Project Site, the local surface water table ranged from six to 40 feet below the ground surface (Ngo et al. 2007). Local water quality impairments for the Madera Subbasin include areas of high hardness, radiation, iron, nitrates, chloride, and ethylene dibromide/dibromochloropropane (EDB/DBCP) (a pesticide) (Todd Engineers 2002). While the Madera Ranchos site, approximately 6 miles west of the Project Site, is an area of concern for nitrates (because of dairy-related contamination), and there are two known leaking underground storage tanks within 5 miles of the Project Site, the Project Site is not known to be affected by any listed impairments (Todd Engineers 2002). In addition, groundwater flows from the Project Site towards the contaminated sites, and thus does not carry pollutants towards the Project Site. Therefore, no groundwater contamination is anticipated to exist below the Project Site and construction is not anticipated to expose workers or the public to contaminated groundwater. This would be a *less-than-significant* impact.

Soil

There is the possibility for contaminated soil to be encountered during grading, excavation, and/or ground disturbance associated with the Proposed Project. Such contamination may have resulted from past ranching or agricultural activities on the Project Site over the last 100 years, or from any of the previously listed sites in the vicinity. Contamination could include, but is not necessarily limited to, pesticides, herbicides, or hydrocarbons. Since 1980, Sumner Peck Ranch has operated at the Project Site. Based on these operations, there is a high likelihood for pesticides and fungicides related to wine grape production that could be contained within the soil. To determine if soil within the Project Site is contaminated, the following mitigation measure would be required. This measure requires that a sampling program is conducted for the Project Site prior to construction in areas where sensitive land uses, such as residential and schools, are proposed. The sampling program would determine if soil contamination is present and whether remediation is necessary.

MM4.7-4(a) In order to determine if contaminants may be present in the soil, a sampling program shall be conducted in areas proposed for sensitive land uses, such as residences and schools. Sampling protocol shall include, but not be limited to, sampling in random grid locations, sampling at various soil

depths, and sampling in areas where known mixing of pesticides has occurred. Soil samples shall be analyzed for elevated levels of agricultural chemicals.

Remediation activities shall be required if testing reveals levels of contaminants that exceed regulatory requirements and/or pose a threat to the public health and the environment. Remediation may be required for both soils and groundwater, if regulatory requirements are exceeded. The remediation plan shall require approvals from the appropriate agencies. Remediation activities could include excavation and disposal, excavation and on-site treatment, or capping the soil with an impenetrable surface such as asphalt or concrete.

In the event that the sampling program confirms soil contamination, soil remediation shall be required as identified in the mitigation measure. Through implementation of the sampling program described above, this impact would be ***less than significant***.

Unidentified Groundwater or Soil Contamination

In order to address the potential for encountering unknown contamination not identified prior to construction, mitigation measure MM4.7-4(b) shall be implemented.

MM4.7-4(b) In the event that previously unknown or unidentified soil or groundwater contamination that could present a threat to human health or the environment is encountered during construction on the Project Site or off-site infrastructure construction, construction activities in the immediate vicinity of the contamination shall cease immediately. If contamination is encountered, a Risk Management Plan shall be prepared by the developer(s) and implemented that (1) identifies the contaminants of concern and the potential risk each contaminant would pose to human health and the environment during construction and post-development; and (2) describes measures to be taken to protect workers, and the public from exposure to potential site hazards. Such measures could include a range of options, including, but not limited to, physical site controls during construction, remediation, long-term monitoring, post-development maintenance or access limitations, or some combination thereof. Depending on the nature of contamination, if any, appropriate agencies shall be notified (e.g., Madera County Fire Department). If needed, a Site Health and Safety Plan that meets Occupational Safety and Health Administration requirements shall be prepared and in place prior to commencement of work in any contaminated area.

Therefore, impacts related to unknown groundwater or soil contamination would be reduced to ***less-than-significant*** levels.

Summary

As discussed above, implementation of mitigation measures MM4.7-4(a) and MM4.7-4(b) would reduce the potentially significant effects associated with the unanticipated exposure of construction workers or the public to contaminated soil during construction activities by providing supplemental procedures for the protection of construction workers and the public, and remediation of contaminated soils in the event of unanticipated discoveries of contaminants. Therefore, this impact would be ***less than significant***.

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?
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Impact 4.7-5 **Construction and operation of the Proposed Project could expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This is considered a potentially significant impact. However, implementation of mitigation measure MM4.7-5 would reduce this impact to a *less-than-significant* level.**

The Project Site is located in an undeveloped area that primarily contains agricultural lands, grasslands, and riparian habitats that are susceptible to wildfires. For the purposes of this analysis, wildland fires are defined as “any fire occurring in vegetation areas regardless of ignition sources, damages, or benefits” (www.unisdr.org). The danger of, and damage to, land and structures from wildfire is high in California due to the generally dry climate and a preponderance of highly flammable vegetation over much of the state. On average, Madera County receives 10 inches of rain a year (WSA, 2007). In 2005, the California Department of Forestry and Fire Protection responded to 4,908 fires, with a yearly average of 5,685 fires throughout California’s wildlands (CDF, 2007). A total of 102 structures were destroyed in 2005, and 74,004 acres were burned. Fire suppression during the summer of 2005 and spring of 2006 cost an estimated 105.3 million dollars. During October of 2007, over a dozen wildfires burned over 400,000 acres during a one-week period, destroying over 2,000 homes and structures. Early estimates of damage come to nearly \$2 billion dollars, according to the San Diego Institute for Policy and Research. As the Proposed Project is located in a relatively undeveloped area where agriculture and vacant land are common, the risk of wildland fires is high both during construction and operational activities.

As required under the *Rio Mesa Area Plan*, all development within the Specific Plan Area would be required to meet mandatory fire protection standards. Further, fuel modification zones would be established around the project area to create a buffer between the developed and undeveloped landscape. The Proposed Project would follow all policies established by the Madera County General Plan and the Rio Mesa Area Plan (RMAP) pertaining to wildfire protection, specifically RMAP Policies 5.1 and 5.3.

Additionally, mitigation measure MM4.7-5 would require that specific precautions are taken during construction to reduce the potential for igniting a wildland fire.

MM4.7-5 During construction of the Proposed Project, all staging areas, welding areas, or areas slated for development that use spark-producing equipment shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be monitored to ensure the spark arrestor is in good working order. All vehicles and crews working on the Project Site shall have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.

Implementation of mitigation measure MM4.7-5 and the requirements of the RMAP would reduce impacts related to wildland fires to a *less-than-significant* level by meeting all mandatory fire protection standards and buffers around structures, as well as reducing the potential for sparks from construction activities igniting a wildland fire.

Threshold	Would the project create a significant health risk to the public or the environment through development of water detention basins suitable for disease-carrying vectors and resulting risk of infection, human discomfort, or injury?
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Impact 4.7-6 Operation of the Proposed Project could expose people to vectors, which may include disease bearing mosquitoes. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.7-6 would reduce this impact to a *less-than-significant* level.

As the Proposed Project would greatly increase the impervious land area within the Project Site (approximately 45 percent), the Specific Plan proposes to build five detention basins to detain excess runoff to prevent flooding. These detention basins, which range in size from 5 to 15 acres, would be located throughout the Specific Plan Site. Figure 4.8-2 (Hydrology Proposed Backbone Storm Drainage System) identifies the locations of the proposed detention basins within the Project Site. The detention basins would retain the difference between the pre-development and the post-development runoff and allow evaporation and/or soil infiltration to empty the water. As a result, the Proposed Project could create standing water that would last for more than 72 hours during periods of heavy rain, which primarily (if not exclusively) occurs during the winter months.

Because female mosquitoes lay their eggs in slow-moving or standing water, primarily between the spring and summer months, the detention basins could increase the possibility of vectors breeding within the Project Site, including mosquitoes that may contain the West Nile virus. According to the California West Nile Virus website, there have been two cases of West Nile virus in humans reported in Madera County, and 367 reported across the State in 2007.

The introduction of the water detention basins could result in conditions suitable for mosquito production and the resultant risk of infection in humans on site. Water rich in organic content matter (e.g., bacteria, algae) provides the nutrients necessary for the development of immature mosquitoes. The mosquito life cycle can progress from egg to biting adult in as few as 5 days if sufficient nutrient and temperature parameters are met. Certain conditions of aquatic habitats are conducive to proliferation of a mosquito population, and include aquatic vegetation (particularly cattails), algae, standing water, high bacteria levels, and shallow sides, which may be present in the proposed detention basins. The Madera Canal, which crosses the Project Site, contains fast-moving water and is not considered suitable habitat for vector production.

In order to mitigate against this potentially significant impact, mitigation measures MM4.7-6(a) would be required. Additionally, shoreline perimeters shall be constructed as steep as practicable to impede the breeding of vectors.

MM4.7-6 The developer(s) shall prepare a Vector and Vegetation Management Program to be submitted for approval to Madera County and the Madera County Mosquito and Vector Control District. The program would be ongoing and may require that no vegetation conducive to mosquito breeding is allowed to exist within or around the detention basins, with or without the presence of water. The Vector and Vegetation Management Program may also require that no undue obstructions to wind circulation are allowed to occur around the detention basins. The program shall also require adequate access be maintained to the entire perimeter of each detention basin.

The Vector and Vegetation Management Program may also establish provisions for stocking mosquitofish or other species that will reduce conditions conducive to mosquito and other vector production when water is present. An ongoing contract for mosquito control services shall be maintained by the developer(s) if the water detention basin is determined by a mosquito and vector control specialist as requiring extensive monitoring and vector control services.

Additionally, Section 4.8 (Hydrology and Water Quality) addresses landscape management activities that ensure that no standing water accrues. Mitigation measure MM4.8-2(c) requires that an entity is identified to manage the operation and maintenance of all stormwater related systems, which would include the detention basins. By ensuring that no standing water is allowed to accumulate at detention basins without proper vegetation and biological controls (as required by MM4.7-6), or other sources of open water without proper maintenance, the potential for mosquitoes or other vectors to breed would be reduced, and, therefore, impacts related to vector control would be ***less than significant***.

4.7.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts. Risks associated with hazardous materials impacts depend largely on the type and extent of hazardous material in question. Some impacts are localized and site specific, while others (such as transportation of hazardous materials) can affect a wide ranging area. Consequently, based on the geographic area which could be affected by hazardous materials use or accidental release into the environment, the geographic context for cumulative development is the MCTC Rio Mesa Traffic Modeling area, unless otherwise noted.

Threshold	Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
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The cumulative context for the analysis of risks associated with the transportation, use, or disposal of hazardous materials is the MCTC Rio Mesa Traffic Modeling area. Cumulative development in the MCTC Rio Mesa Traffic Modeling area would include some industrial and commercial uses, which could involve the use of greater quantities and varieties of hazardous products. Commercial, office, retail, and residential development in the area would also increase the use of household-type hazardous materials within the area. Subsequently, the increase in hazardous materials use would also result in an increase in transport, storage, and disposal of hazardous materials. Due to the current lack of extensive roadways in the area, it is assumed that transport of hazardous waste would be concentrated on SR-41.

All developer(s), including the Project Applicant, must comply with existing hazardous materials regulations, which are codified in Titles 8, 22, and 26 of the *California Code of Regulations* (CCR), and their enabling legislation set forth in Chapter 6.95 of the *California Health and Safety Code*. In addition, any developer must also comply with applicable federal, state, and local laws and regulations pertaining to the transport, use, and disposal of hazardous waste, including, but not limited to, Title 49 of the *Code of Federal Regulations* (CFR) and as implemented by Title 13 of the CCR. Adherence to the existing regulations would ensure that risks resulting from the routine transportation, use, storage, or disposal of

hazardous materials or hazardous wastes associated with construction and implementation of cumulative development would be *less than significant*.

Threshold	Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
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The cumulative context for the analysis of upset and accident conditions involving the release of hazardous materials is the MCTC Rio Mesa Traffic Modeling area. This discussion focuses on accidental release of hazardous materials during future operation of cumulative development.

Similar to the proposed project, cumulative development within the area could expose people to hazardous materials through improper handling or use of hazardous materials or hazardous wastes, particularly by untrained personnel, environmentally unsound disposal methods, or fire, explosion, or other emergencies, all of which could result in adverse health effects. The types and amounts of hazardous materials would vary according to the nature of the activity, and any accident condition would vary depending on the location and extent of hazardous material release. However, existing statutes strictly regulate the storage and use of hazardous materials. For example, CBC requirements prescribe safe storage accommodations. In addition, hazardous materials use regulations include requirements for employees to wear appropriate protective equipment, and safety equipment is routinely available in all areas where hazardous materials are used. It is anticipated that future development projects would adhere to the applicable federal, state, and local requirements that regulate the release of hazardous materials into the environment resulting from operational activities.

Further, in the event of a hazardous material accident, the Madera County Fire Department would be dispatched. If required, the hazardous materials team would respond to and ensure that the public is safe from further hazardous materials contamination. Cleanup would be supervised by the Madera County Fire Department hazardous waste team, as well as select County officials from the Department of Environmental Health. Therefore, because all cumulative development projects are required to comply with applicable statutes and regulations, which would ensure that the risks of accidental release of hazardous materials are minimized, and because hazardous materials teams are in place to respond to any potential accidents, this cumulative impact is considered *less than significant*.

Threshold	Would the project emit hazardous emissions or handle acutely hazardous materials, substances, or waste within ¼ mile of a proposed school?
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The potential for accidental release of hazardous materials from cumulative development is addressed in the cumulative discussion above. This discussion focuses on the potential hazardous material impact in relation specifically to schools. Thus, the cumulative context for the analysis of hazardous emissions or the handling of acutely hazardous materials is limited to ¼ mile around any of the proposed school sites within the project area. Essentially, the proposed project represents the cumulative context for this analysis because cumulative development would not result in specific hazardous emissions impacts to schools that were not already covered in the cumulative discussion above.

Due to the rural nature of the Project Site, the Proposed Project would build schools to accommodate the project increase in school-age children. Similar to all developments that would potentially create risks

from hazards or hazardous materials, the Proposed Project would be subject to applicable local, State and federal regulations associated with hazardous materials. For instance, impacts to schools are reviewed in accordance with California Department of Education regulations. The Proposed Project aims to create a complete community, which includes the development of two to three public elementary schools in the “5 Points”/Central neighborhood and either or both the Town Center and North Canal neighborhood. A ~~potential~~ high school campus site is ~~tentatively~~ reserved in the Town Center area, ~~as well as an additional elementary school should student enrollment justify the need.~~ The proposed schools would be sited appropriately, in accordance with State regulations. For example, schools would be located near residential, recreational, and open space areas rather than industrial uses. Such appropriate site suitability for schools would reduce the potential for hazardous emissions to occur within ¼ mile. In addition, the Proposed Project would be required to comply with all applicable hazardous materials and disclosure requirements; therefore, the Proposed Project’s contribution to cumulative impacts associated with handling of acutely hazardous materials within ¼ mile of a proposed school would not be cumulatively considerable. The cumulative impact of the project would be *less than significant*.

Threshold	Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?
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The cumulative context for the analysis of hazardous materials that could be present on or in the vicinity of a site that is listed pursuant to Government Code Section 65962.5 depends on the type of hazardous material that could be present in the soils or groundwater in association with the listed site and the relative proximity of listed sites. Future development within the MCTC Rio Mesa Traffic Modeling area could result in impacts from sites included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5.

In particular, it is possible that cumulative development could expose residents and construction workers to contaminated soil or groundwater. It is anticipated that current and future development projects would adhere to the applicable federal, State, and local laws and regulations that govern underground storage tanks and pesticide use, as well as requirements applicable to disposal and cleanup of contaminants. However, similar to the proposed project, cumulative projects would be required to analyze site-specific hazardous conditions, including soil and groundwater contamination at a minimum either through EDR searches, or Phase I Environmental Site Assessments, to ensure that any potential contamination is remediated prior to construction activities. As a result, the risks associated with development located on a hazardous material site would be minimized because cumulative development would be required to comply with applicable laws and regulations pertaining to hazardous materials sites and appropriate remediation actions would be required in the event that any sites are identified. Cumulative impacts would, therefore, be reduced to a *less-than-significant* level.

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?
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The cumulative context for the analysis of impacts resulting from wildland fires is the MCTC Rio Mesa Traffic Modeling area. As most of the area within the cumulative context is currently used for agricultural

purposes, there is a high possibility that wildland fires could occur. As discussed previously, the combination of rural land and low rainfall has created a dry climate within which wildfires thrive. However, any development would be required to follow all applicable federal, State, and local regulations established to reduce the potential for wildfires. Additionally, the implication of mitigation measures similar to mitigation measure MM4.7-2 would further ensure the protection against potential forest fires. The Proposed Project would act to improve the areas susceptibility to wildfires by introducing infrastructure to fight fires. As development continues to occur within the Rio Mesa Planning Area and the surrounding areas, the development of infrastructure and firebreaks would further protect the area from wildfires. Therefore, the Proposed Project's cumulative impact associated with wildfires would be *less than significant*.

Threshold	Would the project create a significant health risk to the public or the environment through development of water detention basins suitable for disease-carrying vectors and resulting risk of infection, human discomfort, or injury?
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The cumulative context for the analysis of impacts associated with vectors is the MCTC Rio Mesa Traffic Modeling area. Further development within the Rio Mesa Planning Area would expose people to an area used heavily for agriculture. As agriculture uses require excessive amounts of water, standing water can readily occur. While the Madera County Mosquito Abatement and Vector Control have received few complaints from the area, this is anticipated to increase in the future as development spreads throughout the area. Additionally, due to the lack of storm drains in the area, detention basins may be required for developments. However, all cumulative development is anticipated to require similar mitigation as the Proposed Project and should not result in mosquito breeding habitat. Therefore, the cumulative impact of the Proposed Project would not be cumulatively considerable and the impact would be *less than significant*.

4.7.5 References

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4.8 HYDROLOGY AND WATERQUALITY [REVISED IN PART]

The purpose of this section is to describe hydrological impacts associated with construction and operation of the Proposed Project, the Tesoro Viejo Specific Plan. The Proposed Project is a specific plan for a mixed use community in unincorporated Madera County. Development on the ~~4,579~~1,585-acre Project Site would include up to 5,190 new dwelling units, approximately 3.0 million gross square feet (gsf) of nonresidential floor area (primarily commercial and light industrial uses), and approximately ~~247~~218 acres of open space. Proposed uses are detailed in Table 3-1 (Proposed Land Uses for the Tesoro Viejo Project) in Chapter 3 (Project Description).

Potential impacts of the Proposed Project include effects on the quantity and quality of surface water and groundwater. Impacts to the sanitary sewer system, which is the system that collects sewage and conveys it directly to the water reclamation plant (e.g., the treatment facility), are addressed in Section 4.14 (Utilities and Service Systems) of this document. Domestic drinking water supply is also addressed in Section 4.14 using information gathered in the *Water Supply Assessment for the Tesoro Viejo Project* (WSA) (PPEG 2007b, amended 2008b), a Supplemental Water Supply Assessment (SWSA) prepared in 2012 (Ripley Pacific Company [RPC] 2012), and a Supplement to the SWSA (SSWSA).

Information on existing hydrological conditions was taken from documents prepared on behalf of Madera County, such as the *AB3030 Groundwater Management Plan, Madera County* (Todd Engineers 2002), *Madera County Integrated Regional Water Management Plan* (Boyle Engineering 2008) and plans prepared by other agencies, such as the Central Valley Regional Water Quality Control Board (RWQCB)'s *Basin Plan for the California Regional Water Quality Control Board, Central Valley Region* (Basin Plan) (~~2007~~2011) and the California Department of Water Resources (CDWR)'s *California Water Plan. Supplementing this information are three groundwater studies (contained in the SWSA) prepared by Kenneth D. Schmidt and Associates (KDSA) (RPC 2012a, 2012b, and 2012c). These three technical studies prepared by KDSA in 2012 to augment the SWSA establish baseline conditions and evaluate how groundwater use could affect local and regional groundwater conditions. Atkins independently peer-reviewed the groundwater studies to confirm the adequacy of the information to support the impact analysis provided herein.*

Information on hydrological conditions that would be expected with implementation of the Proposed Project is based on those documents prepared on behalf of the Project Applicant, such as well as the Amended Infrastructure Master Plan for Rio Mesa Community Village (IMP) (PPEG 2007a, amended 2008a) as supplemented by the Supplemental Infrastructure Master Plan prepared in 2012 to account for the SWSA (Sherwood Design Engineers [SDE] 2012).

As further explained in Section 4.14 (Utilities and Service Systems), it is anticipated that Project water demand would be met through surface water obtained under U.S. Bureau of Reclamation (USBR) Holding Contract No. 7. However, in the event (believed by the Project Applicant and its water law counsel to be unlikely) that Holding Contract No. 7 water were not available at some time in the future by reason of state orders and/or court decisions invalidating or limiting its continued use, the Project Applicant has identified on-site groundwater, an off-site groundwater alternative, and Madera Irrigation District (MID) surface water for Project water supply, which have been described in the SWSA and

SSWSA. The hydrology and water quality effects of the use of alternative water supply sources, which would include a combination of on- and/or off-site groundwater (supplemented by surface water from existing entitlements for recharge and irrigation), are evaluated in this section. In addition, another water supply alternative was identified following preparation of the SWSA through a Term Sheet executed by the Project Applicant and the MID. This alternative would consist of surface water from the MID, along with the use of on-site groundwater. Although the Term Sheet does not represent a binding agreement by its own terms, MID and the Project Applicant are in the process of preparing a binding agreement pursuant to the Term Sheet and anticipate that a binding agreement will be reached. In response to the Term Sheet, a Supplement to the Supplemental Infrastructure Master Plan (SSIMP) and an SSWSA were prepared to describe this potential alternative source of water. This alternative is also evaluated in this section. Atkins independently peer-reviewed the SWSA, SSWSA, SIMP, and SSIMP to confirm the adequacy of the information to support the impact analysis provided herein.

4.8.1 Environmental Setting

■ Location

The ~~4,579~~1,585-acre Project Site is located in the southwestern portion of Madera County in the San Joaquin Valley, east of SR-41 and west of the San Joaquin River, just north of the border with Fresno County. The Project Site falls within a portion of both the U.S. Geological Survey (USGS) Friant and Lanes Bridge 7.5-minute series topographic quadrangles. The Project Site and surrounding topography consist of gently rolling hills at elevations ranging from 362 to 550 feet above sea level. Figure 3-1 (Regional and Local Vicinity Map), in Chapter 3 (Project Description) of this EIR, depicts the Project Site and its immediate surroundings.

■ Regional Hydrology and Drainage

The Project Site is located within the San Joaquin River Basin, San Joaquin Valley Floor Hydrologic Unit. The San Joaquin River Basin is a 15,880-square-mile watershed that drains the entire San Joaquin watershed. The San Joaquin River Basin is an alluvial valley bounded by the Sierra Nevada Mountains to the east, the Tehachapi Mountains to the southeast, and the South Coast Ranges to the west. Other surface water bodies in the vicinity include the Chowchilla River, the Fresno River, irrigation canals, and small creeks. The Madera Canal, owned by the U.S. Bureau of Reclamation (USBR), transects the Project Site north of Road 204 (Figure 3-1 [Regional and Local Vicinity Map]).

The mountain ranges surrounding the San Joaquin Valley isolate it from marine influences, resulting in an arid to semi-arid climate (CDWR 2005a). Average annual precipitation⁴⁶ is approximately 11.6 inches per year at the closest rain gauge to the Project Site (WRCC 2007). About 88 percent of the annual precipitation occurs from November through April. Annual precipitation at the Fresno climate station is variable and over a 58-year period of record, annual precipitation varied from a low of 6.07 inches (1966) to a high of 21.61 inches (1983) (WRCC 2007). The 30-year average annual temperature is 64.3 degrees Fahrenheit (°F) with the lowest average monthly temperature occurring during December (46.6°F) and the highest average monthly temperature occurring during July (82.9°F) (WRCC 2007). Although the San

⁴⁶ 30-year average from 1977 through 2006.

Joaquin Valley does not receive a great deal of annual precipitation, precipitation in the Sierra Nevada Mountains averages 35 inches per year and is a major contributor to San Joaquin River flows (CDWR 2005a).

Friant Dam, a concrete gravity dam built in 1942 by the U.S. Bureau of Reclamation (USBR), is about 4 miles northeast of the Project Site. Friant Dam stores approximately 520,500 acre-feet (AF) of water in the Millerton Lake Reservoir from a 1,650 square mile drainage area (Todd Engineers 2002). Other upstream storage areas account for about 607,600 AF of holding capacity.

Mean monthly flow on the San Joaquin River from 1942 through the present ranged from a low of 234 cubic feet per second (cfs) in November to 1,804 cfs in May at the USGS San Joaquin River below Friant Dam gauge station (USGS 2007). Mean monthly flows for individual years have been as low as 30 cfs (January 1966) and as high as 9,144 cfs (January 1997). Seasonal changes in flow on the San Joaquin River correspond to precipitation variations and to variations in water supply withdrawals for municipal, agricultural, and industrial uses. Because of heightened irrigation needs, river withdrawals tend to be highest during the summer, which is also the season when flows are naturally at their lowest. However, timed releases from the Friant Dam augment low seasonal flows to maintain sufficient flow for water quality and habitat purposes (CDWR 2005a). The SWRCB sets standards for dam releases in order to maintain minimum flows. (Refer to Section 4.4 [Biological Resources] for a discussion of the relationship of San Joaquin River flows and fish habitat.)

■ Regional Groundwater

The Project Site is located above the San Joaquin Valley Groundwater Basin, in the Madera Groundwater Sub-basin (Basin Number 5-22.06). The Madera Sub-basin is hydraulically connected with the Chowchilla and Delta-Mendota sub-basins that collectively make up the greater San Joaquin Valley Groundwater Basin. The Madera Sub-basin encompasses an area of approximately 372,000 acres (Boyle Engineering 2008).

Geology

Deposits in most of the Madera Sub-basin consist of several hundred feet of coarse-grained deposits, referred to as “older alluvium,” that are underlain by fine-grained deposits termed “continental deposits.” Shallow bedrock occurs in the northeast part of the sub-basin, primarily near and northeast of the Madera Canal.

Fine-grained clay layers occur in both the east and west parts of the Madera Sub-basin. In the east, clay layers are predominant between the Fresno River and San Joaquin River, and between the Chowchilla River and Fresno River. In this location, relatively thick clay layers are often present below a depth of several hundred feet, and though not regional in nature, the clay serves to locally confine the underlying groundwater and separate it from shallow groundwater where present. In the west part of the sub-basin there are two extensive clay layers that include the Corcoran Clay and the A-clay. The eastern extent of the Corcoran Clay is more than ten miles southwest of the Cottonwood Creek Ranch (CWCR), and where present, separates what are termed the upper and lower aquifers. The A-clay is less extensive than the Corcoran Clay and is present along the trough of the valley near the San Joaquin River near and northwest of Mendota, or roughly 30 miles southwest of the CWCR.

Hydrogeology

Groundwater in the Madera Sub-basin is normally unconfined in the uppermost several hundred feet, whereas the deep groundwater is usually confined, whether or not the Corcoran Clay is present (RPC 2012a). The Madera Sub-basin has been estimated to contain approximately 24,000,000 AF of water, although the subbasin's total storage capacity is estimated by DWR to be as high as 40,900,000 AF (Williamson et al. 1989).⁴⁷

The primary sources of recharge to groundwater in the Madera Sub-basin are seepage from the San Joaquin River, Fresno River, and smaller streams between these two rivers; deep percolation from lands irrigated with surface water; groundwater inflow; and canal seepage. The amounts of the individual sources of recharge have not been precisely determined (RPC 2012a).

Prior to development, groundwater flow in much of the Madera Sub-basin was to the southwest, toward the valley trough and San Joaquin River. As groundwater pumping has increased in the sub-basin, large cones of depression have developed, and groundwater now flows to the northwest and away from the San Joaquin River. Seepage of streamflow from the San Joaquin River in the reach between Sumner Hill and Mendota is a major source of recharge to groundwater in the Madera Sub-basin.

Wells in the Madera Sub-basin yield over 500 gallons per minute (gpm) where more than 200 feet of saturated alluvial deposits are present, and 1,000 to 2,500 gpm where more than several hundred feet of permeable saturated deposits are present. Transmissivity, a measure of the ability of an aquifer to transmit water, ranges from 50,000 to 250,000 gallons per day per foot (gpd/ft) for shallow and thick coarse-grained deposits, which is consistent with fine to coarse sand (Morris and Johnson 1967). For the underlying continental deposits, the transmissivity ranges from 10,000 to 30,000 gpd/ft, consistent with sandy-silt to fine to medium sand (Morris and Johnson 1967). Shallow bedrock, where present, contains little water and well yields are too low to develop large-capacity wells.

Groundwater pumping has resulted in overdraft conditions in portions of the Madera Sub-basin. In these overdraft areas, groundwater extraction exceeds recharge and, as a result, groundwater levels have declined over time. The Madera County *Groundwater Management Plan* currently classifies the Madera Sub-basin as “critically overdrafted” (Todd Engineers 2002). An analysis of measured water levels in a large number of wells (RPC 2012a) has shown that the areas of greatest groundwater level declines are over 5 feet per year. Rates of water-level decline generally increase with increasing distance from the Chowchilla River, the Fresno River, and the San Joaquin River, which confirms the importance of recharge from seepage of streamflow from these rivers. The water level data also show that rates of decline have not changed appreciably between 2001 and 2006.

Groundwater Quality

Water quality objectives, standards, and criteria are based on the designated beneficial use and are listed in the Basin Plan (RWQCB 2007) and other documents incorporated by reference (see the Regulatory Framework of this section for more detail). Designated beneficial uses for the Madera Sub-basin include

⁴⁷ The former number is the estimated amount of actual stored groundwater to a depth of \leq 1000 feet as of 1961.

municipal and domestic supply, agriculture supply, industrial service supply, and industrial process supply.

Groundwater Storage

Groundwater in the Madera Subbasin is contained by continental deposits of Tertiary and Quaternary age, which include older alluvium, younger alluvium, lacustrine, and marsh deposits (CDWR 2004b). The Madera Subbasin has been estimated to contain approximately 24,000,000 acre-feet (AF) of water, although the subbasin's total storage capacity is estimated by the CDWR to be as high as 40,900,000 AF (Williamson et al. 1989).⁴⁸

The subbasin is replenished through infiltration of precipitation runoff; through return irrigation and land application percolation; stream flow percolation from the San Joaquin River, the Chowchilla River, the Fresno River and other creeks and sloughs; and subsurface recharge from water bodies in eastern Madera County (Todd Engineers 2002). Groundwater recharge from the San Joaquin River influences the Madera Subbasin groundwater flow gradient. In the eastern portion of the aquifer, groundwater flows towards the southwest as it is recharged by subsurface flows from the northeast and contributions from upland streams. In the south and west portions of the aquifer, groundwater flow is primarily influenced by recharge from the San Joaquin River: in the southern portion of the aquifer, groundwater flows northwest; and in the western portion of the aquifer, groundwater flows to the northeast.

The CDWR conducts annual measurements of groundwater levels to monitor changes in the subbasin over time. Groundwater levels in the Madera Subbasin have undergone substantial changes in the past several decades, with periods of steep groundwater level declines followed by periods of stabilization and rebound. The Madera County *Groundwater Management Plan* currently classifies the Madera Subbasin as “critically overdrafted” (Todd Engineers 2002). Periods of decline from 1970 to 1978 (a 30-foot drop) and from 1987 to 1996 (a 45-foot drop) were not fully accounted for by gains from 1978 to 1987 (a 25-foot increase) and from 1996 to 2000 (an 8-foot increase). On average, groundwater levels in the subbasin experienced a 42-foot decline from 1970 to 2000 (CDWR 2004b). After 1980, declines in the eastern portion of the aquifer (along the southern border of Madera County and near the Project Site) became more pronounced than in other areas of the aquifer (CDWR 2004b). To some degree, water level drops in the subbasin can be explained by variable precipitation patterns, but most of the declines are because of increases in groundwater withdrawals and pumping practices.

According to seven monitoring wells located in or near the Project Site, the local surface water table ranged from six to 40 feet below the ground surface (Ngo et al. 2007).

Groundwater Quality

Groundwater within the Madera Subbasin is classified as a calcium-sodium bicarbonate type, based on the predominant dissolved mineral content of the groundwater (CDWR 2004b). The U.S. Environmental Protection Agency (EPA)'s recommended maximum concentration for total dissolved solids (TDS), a measure of salinity commonly used as an indicator of groundwater quality, is 500 milligrams per liter (mg/L) (Todd Engineers, 2002). Department of Public Health data for 40 public supply wells in the

⁴⁸The former number is the estimated amount of actual stored groundwater to a depth of ≤ 1000 feet as of 1961.

groundwater subbasin indicate that the subbasin average TDS concentration is about 215 mg/L, with a range of 100 to 400 mg/L (DWR 2004b). Local water quality impairments for the Madera Sub-basin include areas of high salinity, elevated total dissolved solids (TDS), radiation (expressed in gross alpha radiation levels), arsenic, iron, manganese, nitrate, and the pesticide dibromochloropropane (or DBCP). Despite problems in strata at specific depths, most of the water pumped for public water systems in the Madera Sub-basin is of good quality, which has been accomplished by tapping only strata containing good quality water for potable purposes (RPC 2012a).

~~Local water quality impairments for the Madera Subbasin include areas of high hardness, radiation, iron, nitrates, chloride, and ethylene dibromide/dibromochloropropane (EDB/DBCP) (a pesticide) (Todd Engineers 2002). While the Madera Ranchos site, approximately 6 miles west of the Project Site, is an area of concern for nitrates (because of dairy related contamination), and there are two known leaking underground storage tanks within 5 miles of the Project Site, the Project Site is not known to be affected by any of the other listed impairments (Todd Engineers 2002).⁴⁹ In addition, groundwater flows from the Project Site towards the contaminated sites, and thus likely carries pollutants away from, rather than towards the Project Site.~~

~~Designated beneficial uses for the Madera Subbasin include municipal and domestic supply, agriculture supply, industrial service supply, and industrial process supply.~~

~~Groundwater monitoring wells were installed in November 2006 to measure groundwater levels and groundwater quality (Groundwater Evaluation Report) (Kenneth D. Schmidt and Associates 2006). Shallow groundwater within the Project Site was encountered at 5.7 to 39.6 feet below ground surface (bgs). The lowest depth to shallow groundwater was measured in a well located just north and east of the Madera Canal intersection with the distribution canal (near the existing isolated wetland) and the deepest depth to shallow groundwater was located near the main northwest to southeast drainage on the Project Site. The median⁵⁰ depth to shallow groundwater was about 19 feet bgs. A preliminary geotechnical evaluation at the Project Site, as reported in the Groundwater Evaluation Report, indicated that shallow bedrock was 3 to 12 feet bgs in the areas near or north of the Madera Canal and large boulders occurred at 1 to 2 feet bgs in the San Joaquin River floodplain. Additionally, a hardpan was present throughout the Project Site. Consequently, shallow groundwater within the Project Site is likely highly influenced by irrigation of the extensive amount of vineyards and orchards present on the Project Site⁵¹ and distinct from the Madera Subbasin. Measured shallow groundwater TDS below the Project Site ranged from about 170 mg/L to 600 mg/L, with a median of 470 mg/L and average of 429 mg/L. There was no correlation between the depth of groundwater and TDS. Chloride concentrations ranged from 15 to 209 mg/, with a median value of about 35 mg/L and average of 76 mg/L. The highest and lowest chloride concentrations occurred in the same wells as the highest and lowest TDS concentrations. Nitrate concentrations ranged from less than 0.4 mg/L to 176 mg/L with a median of 15 mg/L and average of 40 mg/L. The high value of 176 mg/L was measured in the well just north of the confluence of the major drainages in the Project Site. The lowest concentration occurred in the well with the shallowest~~

⁴⁹ As further discussed in Section 4.7 (Hazards and Hazardous Materials), while there are two underground storage tanks within the Project Site, neither are leaking and no violations have been reported. These tanks contain regular, unleaded, and diesel fuel that are typical of ranch or agricultural operations.

⁵⁰ The median is the where half the measurements are above this value and half are below.

⁵¹ All monitoring wells were in irrigated areas

~~depth to groundwater. Manganese concentrations ranged from less than 0.01 to 0.80 mg/L with a median of <0.01. The highest manganese concentration was measured in the well adjacent to the main northwest to southwest drainage.~~

~~The average TDS of the Madera Canal is about 30 to 40 mg/L. Therefore, the higher salt content in the monitoring wells could be from of salt concentration during plant uptake of irrigation water and evapotranspiration and/or dissolution of soil minerals as water passes through the soil profile.~~

■ On-Site Drainage

Surface Water Bodies

Approximately 2,500 feet of the eastern portion of the Project Site (east of the Sumner Hill development, Figure 3-1 [Regional and Local Vicinity Map]) borders the San Joaquin River. There are several natural drainage features on the Project Site, most of which are tributary to the San Joaquin River (see Section 4.4 [Biological Resources] Figure 4.8-0 [Surface Water Features]). Many of these are classified as wetlands, although a number of nonwetland channels on the Project Site are also tributary to the San Joaquin River. Wetlands are inundated depressions whose soils are saturated for a sufficient period of time to allow formation of plants communities adapted to such conditions. In Section 4.4 (Biological Resources) of this EIR, Figure 4.4-2A (Waters of the United States, Western Portion of the Project Site), Figure 4.4-2B (Waters of the United States, Central Portion of the Project Site), and Figure 4.4-2C (Waters of the United States, Eastern Portion of the Project Site) show the distribution of wetlands and other drainage features on the Project Site, including one isolated wetland. Vernal pools and seasonal wetlands are created when a layer of hardpan, a few feet below the soil's surface, causes water to pool. Although vernal pools are prevalent in the area, no vernal pools were found on the Project Site (see Section 4.4 of this EIR).

Wetlands adjacent to waters of the United States and navigable channels or their tributaries are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) according to provisions in the *Clean Water Act*. These features are also subject to the jurisdiction of the California Department of Fish and Game (CDFG) according to provisions of state California Fish and Game Code, and to the RWQCB according to provisions of the *Porter-Cologne Water Quality Control Act* (discussed below in the Regulatory Framework section).

As shown in Figure 4.8-0, ~~the~~ the Project Site is also transected by the Madera Canal, an elevated irrigation canal owned by the USBR that distributes irrigation water from Millerton Lake. Because this canal is elevated through the Project Site, it is not a Project Site drainage feature. A distribution canal from the Madera Canal (Lateral 6.2) passes through the western portion of the Project Site and is a Project Site drainage feature.

Infiltration and Runoff

The infiltration rate of on-site soils is a major factor in the overall drainage characteristics of a site. Soils on the Project Site are diverse, with variable hydrological characteristics. A geotechnical investigation of the Project Site found layers of silty sand, clayey sand, and sandy silt, underlain by poorly graded sand,

decomposed granite, and sandy silt (Ngo et al. 2007). Details on soil types are discussed in Section 4.6 (Geology, Soils, and Mineral Resources) of this EIR.

The Natural Resource Conservation Service (NRCS) classifies soils into four runoff potential categories, based on their infiltration and drainage characteristics (NRCS 2007):

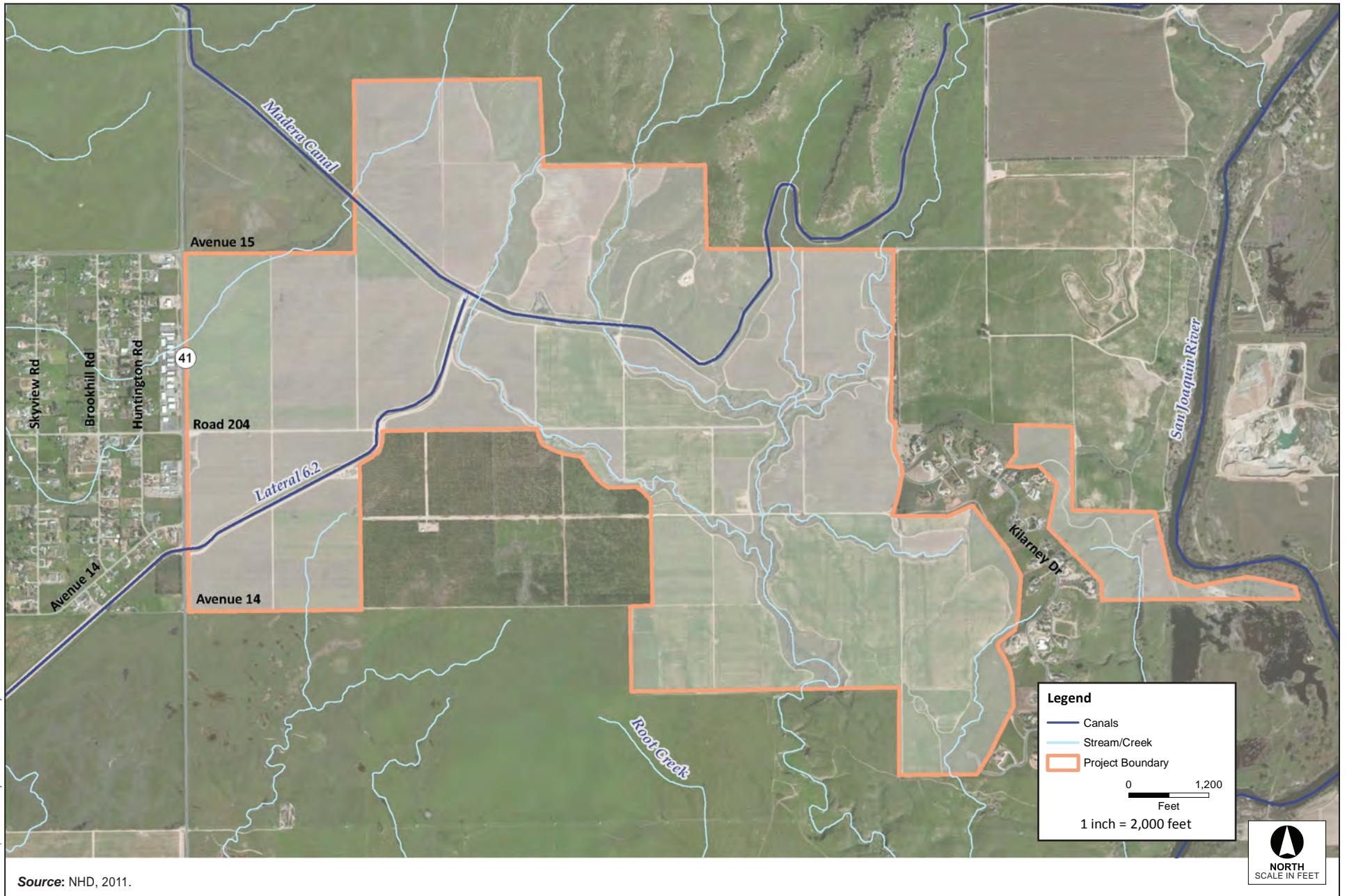
- Group A soils are generally deep, well drained sands or gravelly sands with a high infiltration rate and low runoff potential.
- Group B soils are moderately deep, moderately well drained soils with a medium texture. These soils drain well, though not as well as Group A soils.
- Group C soils have a slow infiltration rate when wet. They often have a semi-impermeable layer that impedes percolation, and tend to be fine in texture.
- Group D soils have a very slow infiltration rate. They generally consist of clays with high shrink-swell potential, soils with a high water table, soils with a claypan layer near the surface, or shallow soils over bedrock.

Approximately 3 percent of the on-site soils are Group A hydrologic soils, 21 percent are Group B, 18 percent are Group C, and 58 percent are Group D (NRCS 2007). Soils in these varying hydrologic soil types are intermixed throughout the Project Site. As a result, the overall runoff potential ~~for~~ of soils on the Project Site is high; in fact, 76 percent of the Site contains soils with Hydrologic Groups C and D.

Another major factor in on-site drainage character is the type of land use. The ratio of pervious to impervious surfaces is a principal characteristic of land use that can affect drainage. The amount of directly connected impervious area (as opposed to just the total amount of impervious area) and the drainage network density (e.g., presence of drainage channels or a storm drain system) are also important components of on-site drainage. Existing land uses on the Project Site and within most of the Project Area are agricultural. As such, the site is almost entirely composed of pervious surfaces ~~that, but because~~ of the predominance of Group D soils, drainage typically occurs as sheet flow to the drainage ditch/tributary network.

Land development and modification of natural drainages can alter infiltration and runoff rates, changing the timing, distribution, and magnitude of surface water and groundwater flow. Urbanization increases the runoff by the development of impervious surfaces, surface soil compaction, grassland conversion, dewatering of stream valleys, and the degradation of natural riparian communities. Both the peak flow rate and volume of storm flows typically increase with increased urbanization (and increased impervious surfaces), and the time between onset of rainfall and the peak delivery of runoff to streams and drainages becomes shorter, making the system “flashier” (SCBWMI 2003, 4-2).

Increased imperviousness can greatly alter runoff from small, frequent flood events by up to a ten-time increase in flow rate (SCBWMI 2003, 4-10). However, increased imperviousness often has little effect on flows during extreme events (e.g., 100-year flood flow events) because, during these events, rainfall saturates even natural soils, rendering them effectively impervious (SCBWMI 2003, 4-10; San Francisco Task Force 1997, 17).



Source: NHD, 2011.

Figure 4.8-0
Surface Water Features [New]

There are no existing stormwater drainage sewers, retention/detention ponds, or treatment facilities on the Project Site.

Surface Water Quality

Surface water quality is highly dependent on the natural and human-influenced nature of the drainage area and shallow groundwater characteristics (where groundwater contributes to stream or lake flow). As runoff water flows over the landscape, it picks up dissolved chemicals, particulate material, and gross debris from the surface it flows over, prior to discharge into a water body. The effects of this runoff water on surface water quality depend upon the amount and type of material being picked up and transported, as well as the amount of water or flow rate in the receiving water. Where shallow groundwater interacts with surface waters, the quality of groundwater will affect the surface water, and the quality of surface water will also affect groundwater. As infiltrating water moves through the soil to groundwater, it also picks up chemicals, including natural chemicals dissolved from soil and mineral materials, and other chemicals can also be filtered out. Consequently, the surface water quality will reflect the water quality of runoff, precipitation, and shallow groundwater. In developed areas, dry weather flows (e.g., lawn watering, car washing, and others) and irrigation flow can also affect surface water quality.

Constituents and concentrations within runoff water vary according to land cover, land use, topography, and the amount of impervious cover, as well as intensity and frequency of irrigation or rainfall. Runoff in developed areas may typically contain oil, grease, and metals accumulated in streets, driveways, parking lots, and rooftops, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. Runoff from agricultural areas may typically contain nutrients, pesticides, organic debris, bacteria, sediment, and others. Runoff from undeveloped areas will reflect the natural chemistry and ecology of the watershed.

Surface water quality in developed areas is affected by various point-source and nonpoint-source pollutants. Point-source pollutants are those emitted at a specific point, such as a pipe, while nonpoint-source pollutants are those typically generated by surface runoff from a diffuse area and sheet flows into surface waters. Urban runoff flows over diffuse source areas such as streets, paved areas, or landscaped areas, but because it is ultimately conveyed in storm drainage systems that discharge to surface waters at discrete locations, it is regulated as a point source under the National Pollutant Discharge Elimination System (NPDES) Program.

As a general rule, point-source pollutants are more easily monitored; thus, point-source pollutant discharge standards (also referred to as Waste Discharge Requirements) are more easily enforced, while nonpoint-source and diffuse-source pollutants, such as those found in stormwater runoff, are more difficult to monitor and enforce. Even though nonpoint-source and diffuse-source pollutants are difficult to monitor, they are important contributors to surface water quality, especially in developed areas.

In developed areas, the highest pollutant concentrations in stormwater runoff are usually generated at the beginning of the wet season, during the “first-flush.” Approximately 80 percent of total accumulated pollutants are removed within the first 0.5 inch of rainfall when the percent of impervious surfaces is 70 to 90 percent, with street surfaces as the primary source of pollutants in urban areas (Schueler 2000).

There are currently no numeric effluent discharge limitations for stormwater runoff; however, routine monitoring is required.⁵²

No current water quality data is available from the USGS National Water Inventory System for testing sites within 5 miles of the Project Site (Site numbers 11246650, 11246700, 11249500, 11250100, 11251000). However, water quality within the San Joaquin River near the Project Site would reflect the undeveloped and agricultural nature of the watershed that drains to this reach. Additionally, local governments are required to routinely monitor drinking water supplies as required by federal EPA guidelines. Because developments proximate to the Project Site use San Joaquin River water for their drinking water supply, these annual reports can be used to estimate current in-stream water quality conditions.

The Madera County Engineering Department conducted a study of Millerton Lake water quality in 2003 because Millerton Lake supplies drinking water directly to the MD-1 maintenance district, which consists of 208 lots with 48 existing homes on the northwestern shore of Millerton Lake. Millerton Lake is the reservoir behind Friant Dam, approximately 4 miles upstream of the Project Site. No contaminants exceeded primary or secondary Maximum Contaminant Levels (MCL, drinking water standards set by the state of California) in the source assessment, which indicates that water quality immediately upstream of the Project Site is high (Madera County 2007a).

Water is also provided by the County to service area CSA-16, which consists of 49 lots and 34 existing homes within the Sumner Hill development that separates the western and eastern portions of the Project Site. This development draws water from the San Joaquin River immediately adjacent to the Project Site. The water quality at this site does not currently exceed primary or secondary MCLs (MCED 2007b).

The San Joaquin River, from Friant Dam to the Mendota Pool, has designated beneficial uses including municipal and domestic supply; irrigation and stock watering agriculture supply; industry process supply; water contact and noncontact water recreation; warm and cold freshwater habitat; warm and cold migration of aquatic organisms (striped bass, sturgeon, shad, steelhead, and salmon); warm spawning, reproduction, and/or early development (striped bass, sturgeon, shad); and wildlife habitat. One potential beneficial use is also listed, which is cold spawning, reproduction, and/or early development.

The reach of the San Joaquin River, where the Project Site is located (the reach from Friant Dam to Mendota Pool), is listed by Section 303(d) of the CWA as impaired⁵³ by ~~exotic~~invasive species (SWRCB 20062011). Furthermore, downstream receiving waters—lower reaches of the San Joaquin River, the San Joaquin/Sacramento River Delta, and ultimately, the San Francisco Bay—are listed as impaired for chlorpyrifos, DDT,⁵⁴ diazinon,⁵⁵ Group A pesticides,⁵⁶ mercury, electrical conductivity, pathogens,

⁵² Although there are no numeric effluent discharge limitations for stormwater runoff, there are numeric criteria for nonstormwater discharges.

⁵³ Impaired means that the water resources does not meet one or more of its designated beneficial uses because of the impairment.

⁵⁴ DDT is dichloro-diphenyl-trichloroethane, which is a synthetic pesticide using for agricultural applications.

⁵⁵ Diazinon is a restricted use pesticide that can only be applied by professional pest control operators.

⁵⁶ Group A pesticides are those that are known by the EPA to be human carcinogens.

PCBs,⁵⁷ low dissolved oxygen, boron, selenium, toxaphene, chlordane, dieldrin, dioxin compounds, furan compounds, and nickel. Because the San Joaquin River is tributary to these impaired waterbodies, limits on discharges to those waterbodies are applicable to the San Joaquin River and its contributing watersheds.

There is no existing constructed drainage system associated with the Project Site; therefore, existing runoff could contribute agricultural nonpoint source pollutants to the San Joaquin River. ~~The~~ The Groundwater Evaluation Report prepared in 2006 (KDSA 2006) did measure surface water quality at the confluence of the two main drainages on the Project Site and at the confluence of the two minor drainages northwest of the Summer Hill development. Generally, surface water in these drainages had higher TDS (300 to ~~340~~430 mg/L) than the Madera Canal and San Joaquin River at Highway 41 (about 94 to 131 mg/L);⁵⁸ chloride concentrations similar to the shallow groundwater (24 to ~~39~~36 mg/L); lower nitrate concentrations than the shallow groundwater (2 to 3 mg/L); and higher manganese and iron concentrations than shallow groundwater (1.39 to 1.61 mg/L).

■ Flooding Hazards

Flooding

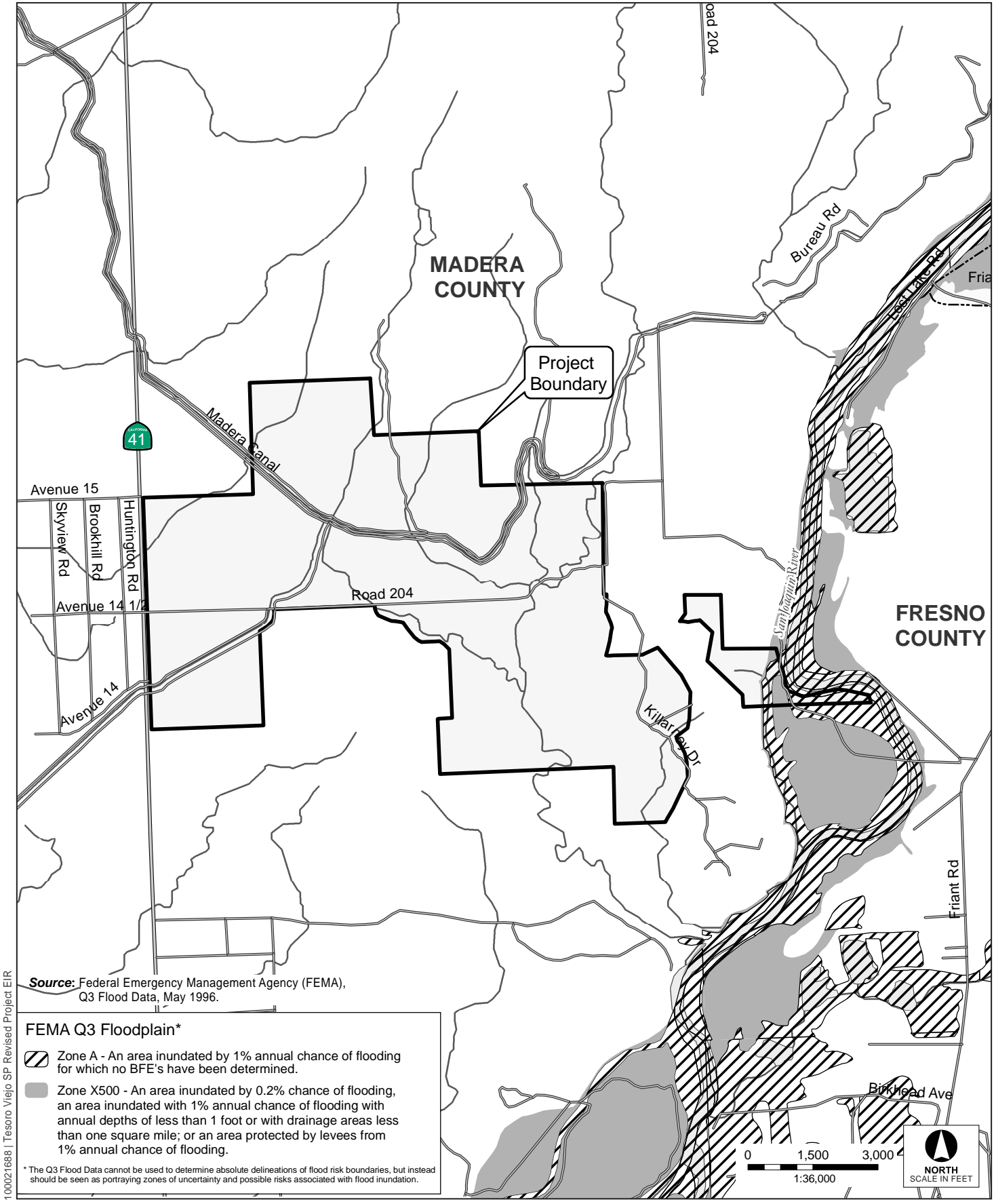
The Mitigation Division of the Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP). Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally funded flood insurance available to homeowners, renters, and business owners in these communities. In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP identifies and maps the Nation's floodplains.

Figure 4.8-1 (FEMA Q3 Floodplain in the Vicinity of Proposed Tesoro Viejo Project) shows the FEMA designated floodplains within and near the Project Site. A small portion of the Project Site (approximately 1 acre) falls within the 100-year flood zone (Zone A), which is an area with a 1 percent change of flooding annually and for which no Base Flood Elevation (BFE) has been determined.⁵⁹ The portion of the Project Site falling within the floodplain is adjacent to the San Joaquin River.

⁵⁷ PCBs are polychlorinated biphenyls, which are a group of man-made chemicals that were widely used in association with electrical equipment, industrial processes, and the manufacture and recycling of carbonless copy paper.

⁵⁸ San Joaquin River TDS concentration at Highway 41 based on specific conductivity data from August 2005 through January, 2008, and the relationship between specific conductivity and TDS in the Groundwater Evaluation Report (KDSA 2006). San Joaquin River at Highway 41 specific conductivity from the California Department of Water Resources, California Data Exchange Center, Station H41—available at http://cdec.water.ca.gov/cgi-progs/selectQuery?station_id=H41&sensor_num=&dur_code=M&start_date=01%2F01%2F1996&end_date=now (accessed February 6, 2008).

⁵⁹ The computed elevation to which floodwater is anticipated to rise during the base flood.



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Figure 4.8-1
FEMA Q3 Floodplain in the Vicinity of Proposed Tesoro Viejo Project

Dam Inundation

The Friant Dam, which is located 4 miles upstream from the Project Site, was modified by the U.S. Army Corps of Engineers (USACE) in 1949 to serve as a flood control structure. The USBR recently completed a safety investigation of the Friant Dam to determine its level of safety under several possible failure scenarios. These scenarios include (1) overtopping during the Probable Maximum Flood, (2) alkali aggregate reaction of concrete to bind spillway gates in the up position, and (3) dam instability because of structural issues (e.g., existing faults and mud seams under the dam, high uplift pressures, seepage under horizontal construction joints, or seepage into the gallery) and the Maximum Credible Earthquake. The safety classification rating of the Friant Dam, according to the findings of the USBR report, is satisfactory (Madera County 1994).

In the event of a dam overtopping event, most of the flow would be directed into the low-lying land east of the San Joaquin River. The steep bluffs and raised elevation of the Project Site would minimize inundation at the Project Site. However, the small area of the Project Site, located within FEMA flood zone, would be expected to be inundated during such an event. The Probable Maximum Flood is also considered a very low probability event, with a 0.01 percent chance of occurring in any given year.

Local Groundwater

Geology

Geologic cross-sections, developed from wells and borings by KDSA (RPC 2012b) show that the geology beneath the Tesoro Viejo Project Site consists of alluvial deposits lying on top of weathered bedrock and bedrock. The alluvial deposits consist of coarse-grained sand and fine-grained clay. Bedrock deepens to the west and southwest, with depths ranging from about 250 feet at the eastern edge to over 500 feet at the western edge and over 600 feet at the southwestern edge. In the south-central area of the Project Site, where two existing test wells are located, bedrock lies at 268 to 308 feet below the ground surface. The thickness of weathered bedrock ranges from 0 feet in the southcentral area to 80 feet in the western portion of the Tesoro Viejo Project Site.

Clay layers are generally discontinuous beneath the Project Site and are more prevalent along the eastern edge of the Site. Clay layers are not common above the regional aquifer and were only observed above the groundwater at a couple of locations on the western edge of the Site.

At CWCR, the available information from existing wells indicates a thick sequence of alluvial deposits. The alluvial deposits extend to a depth of at least 800 feet below ground surface (bgs) based on the total depth of the wells. A thick sequence of alluvial deposits such as what is present beneath the CWCR area is conducive to high production wells.

Hydrogeology

On-Site Conditions

There are seven existing and unused wells, two test wells (TW-1 and TW-2) and one observation well (Observation Well A) at the Project Site from which groundwater data and trends have been evaluated (RPC 2012a, 2012b, 2012c). The locations of the observation well and the two test wells are illustrated by

Figure 4.8-1(b) (Tesoro Viejo Deep Groundwater Elevations and Flow Direction: May 2011), and the locations of the seven existing and unused wells is illustrated by Figure 4.8-3 (Water Supply Alternative 2—Combined Effect of Pumping and Intentional Recharge on Groundwater Drawdown).

The perforated intervals (thickness) of these wells range from 72 to 311 feet. Wells TW-1 and TW-2 are located in the southcentral portion of the site, with TW-1 to the east of TW-2, and are perforated from 80 to 245 feet and 70 to 270 feet bgs, respectively. Observation Well A is located in the southwest portion of the Site near a pilot recharge basin and is open to the aquifer from 80 to 220 feet bgs. TW-1, TW-2, and Observation Well A are illustrated by Figure 4.8-1(a) (Groundwater Elevations and Flow Direction: Spring 2006). Seven shallow monitoring wells have also been installed at the Site to provide shallow groundwater water level and quality data.

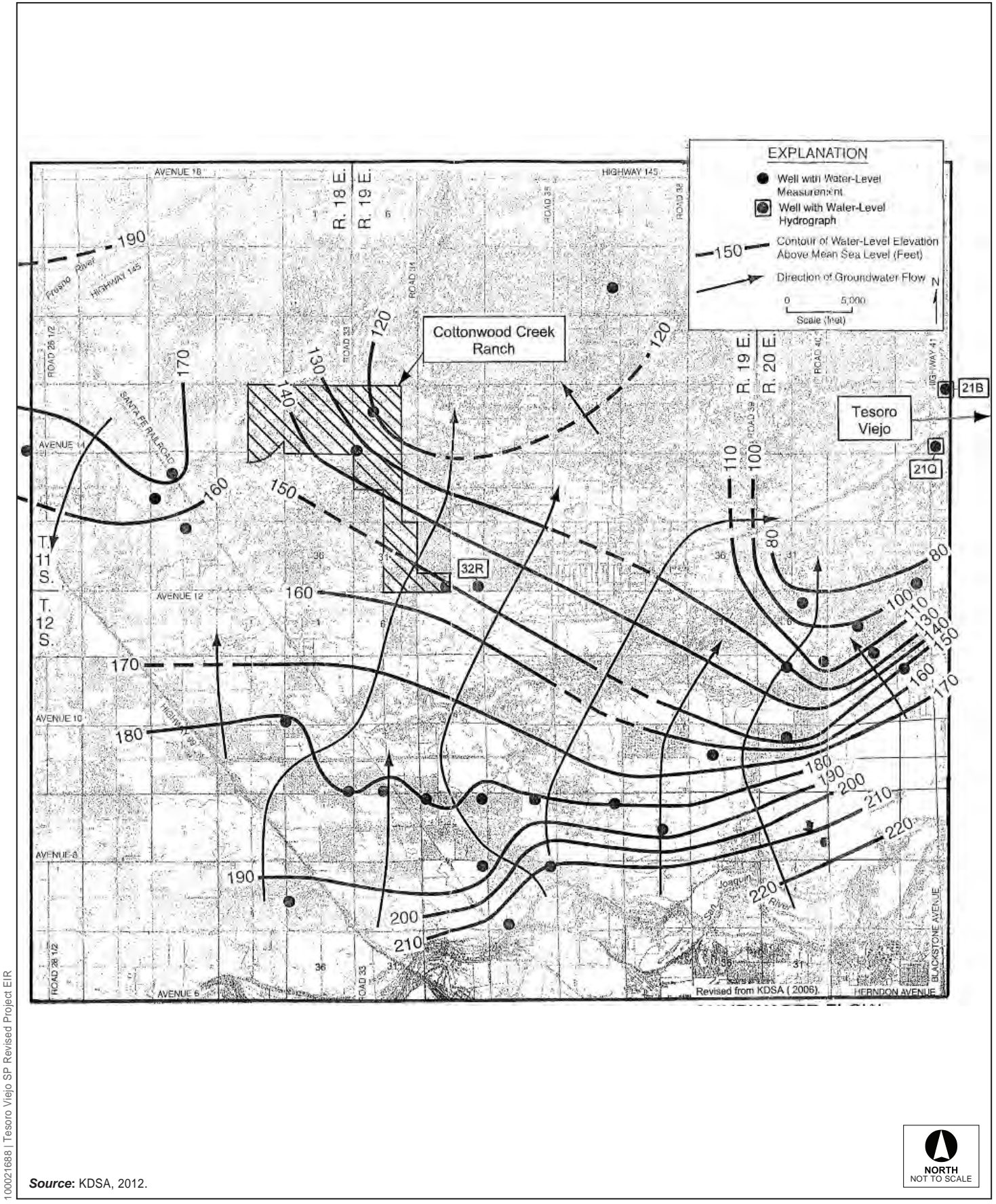
Depth to groundwater at the Tesoro Viejo Project Site ranges from 32 to 202 feet bgs for the deeper groundwater. The greater depths occur to the west, while the shallower depths occur in the central and eastern portions of the Site. Groundwater levels in the shallow deposits are generally higher and in some locations, such as along Lateral 6.2 near the large drainageway extending to the southeast from near this lateral, or near other smaller drainages. At those locations, depths to groundwater range from 2 to 20 feet bgs.

Groundwater flow in the Project vicinity is generally to the north towards Cottonwood Creek Ranch (CWRC) and Tesoro Viejo, and away from the San Joaquin River, as shown on Figure 4.8-1(a). Groundwater elevations decrease from about 220 feet above mean sea level (feet amsl) to the south, closer to the San Joaquin River, to lower than 120 feet amsl at CWRC and under 80 feet amsl at the Tesoro Viejo Project Site.

Groundwater flow direction at the Tesoro Viejo Project Site is to the southwest for both shallow and deep groundwater. However, the deep groundwater is influenced by irrigation wells to the southwest, which causes water to flow from the Project Site to the southwest. This is illustrated in Figure 4.8-1(b) (Tesoro Viejo Deep Groundwater Elevations and Flow Direction: May 2011). Shallow groundwater does not exhibit seasonal water-level fluctuations, while deeper groundwater fluctuates roughly 4 feet as influenced by the irrigation wells, with lower levels occurring in late summer and fall.

Groundwater level declines in the area to the southwest of the Tesoro Viejo Project Site are shown on Figure 4.8-1(c) (Average Water Level Declines 1975–2005). Groundwater overdraft conditions that are evident in portions of the Madera Sub-basin are absent within the Tesoro Viejo Project Site. Water-level measurements for two alluvial wells just east of the Bonadelle subdivision show no significant change in water levels since 2005 (RPC 2012a).

The most important sources of recharge to groundwater at the Tesoro Viejo Project Site include seepage from drainages that extend south from Little Table Mountain, seepage from the Madera Canal, seepage from deep percolation from irrigated lands, and seepage from Lateral 6.2 (RPC 2012b).

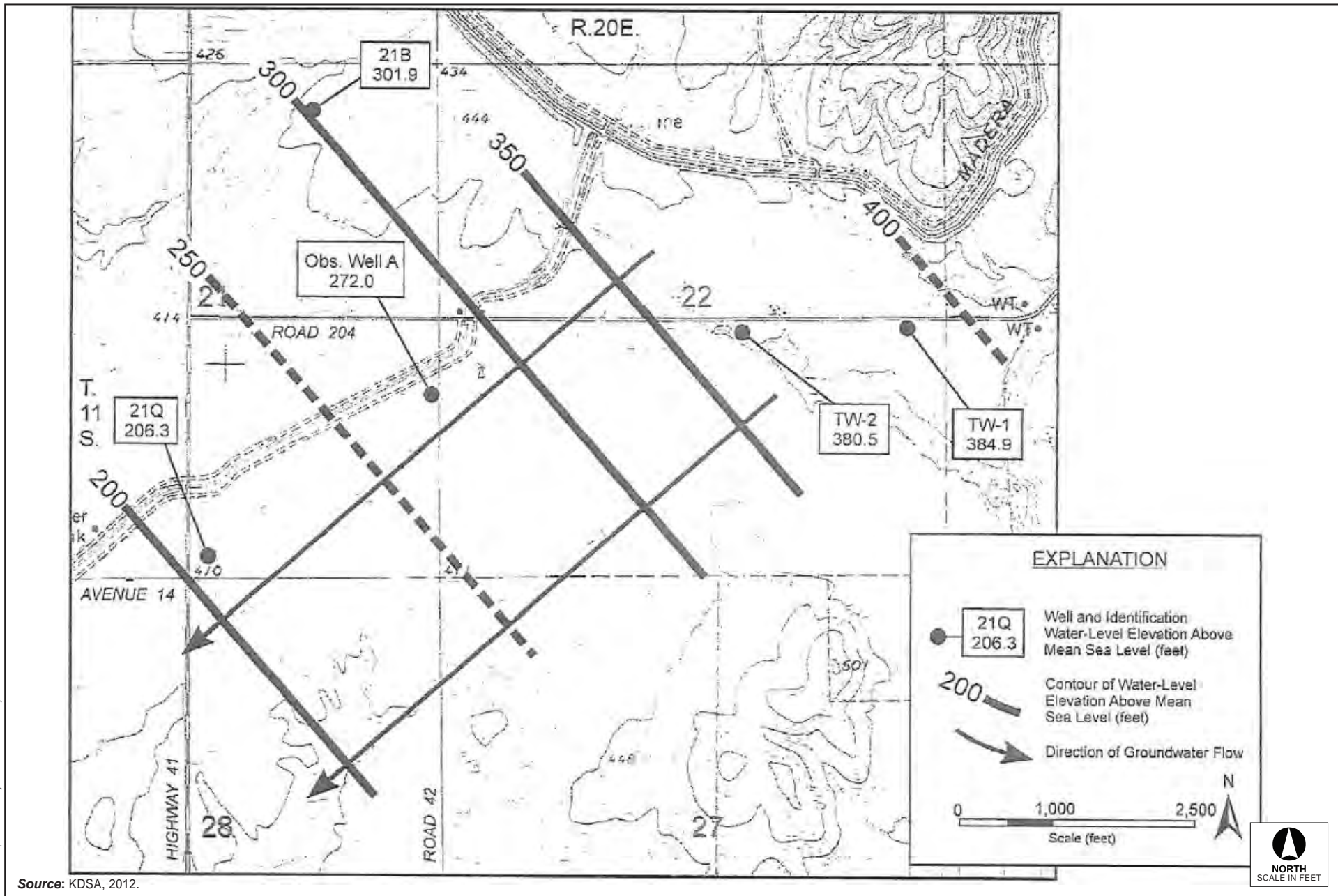


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Source: KDSA, 2012.



Figure 4.8-1(a)
Groundwater Elevations and Flow Direction: Spring 2006 [New]



Source: KDSA, 2012.

Figure 4.8-1(b)
Tesoro Viejo Deep Groundwater Elevations and Flow Direction: May 2011 [New]



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Source: KDSA, 2012.



Figure 4.8-1(c)
Average Water Level Declines 1975-2005 [New]

Off-Site Conditions

Off-site water supply wells near the Tesoro Viejo Project Site include a number of wells immediately west of the site in the Bonnadelle Ranchos subdivision. These wells include private domestic and commercial wells, most of which are 300 to 400 feet deep and are in alluvium, although a few draw water from the weathered bedrock and/or fractured rock. There is also a stock well to the north of the Site, and irrigation wells that are over three-fourths of a mile to the southwest. The Sumner Hill development to the east of the Site primarily uses treated water from the San Joaquin River; however, water from a County well that collects subsurface flows may also be used as a secondary source, if needed.

There are ten irrigation wells at CWCR. Nine of these wells are illustrated by Figure 4.8-1(d) (CWCR Groundwater Elevations and Flow Direction: January 2012).⁶⁰ The tenth well—Well 5—is located approximately 2,000 feet to the east of Well 4.

Three of these wells have depths ranging from 752 to 812 feet bgs. The perforated intervals (portion of the well open to the aquifer) for these three wells begin from 210 to 390 feet bgs and have perforated thicknesses (total aquifer thickness the well is open to) of 350 to 624 feet. Irrigation wells at CWCR are currently used for almond orchards. The nearest private rural residential wells are more than a mile and a half east of the CWCR wells

Depth to groundwater in the CWCR wells ranged from 240 to 281 feet bgs as measured in January 2012. The direction of groundwater flow in this area, as shown on Figure 4.8-1(d), is to the northeast, consistent with the regional map shown on Figure 4.8-1(a). The flow direction away from the San Joaquin River indicates that recharge from the river is the dominant source of water for the aquifer at CWCR. Groundwater level declines are calculated to be slightly over 1 foot per year.

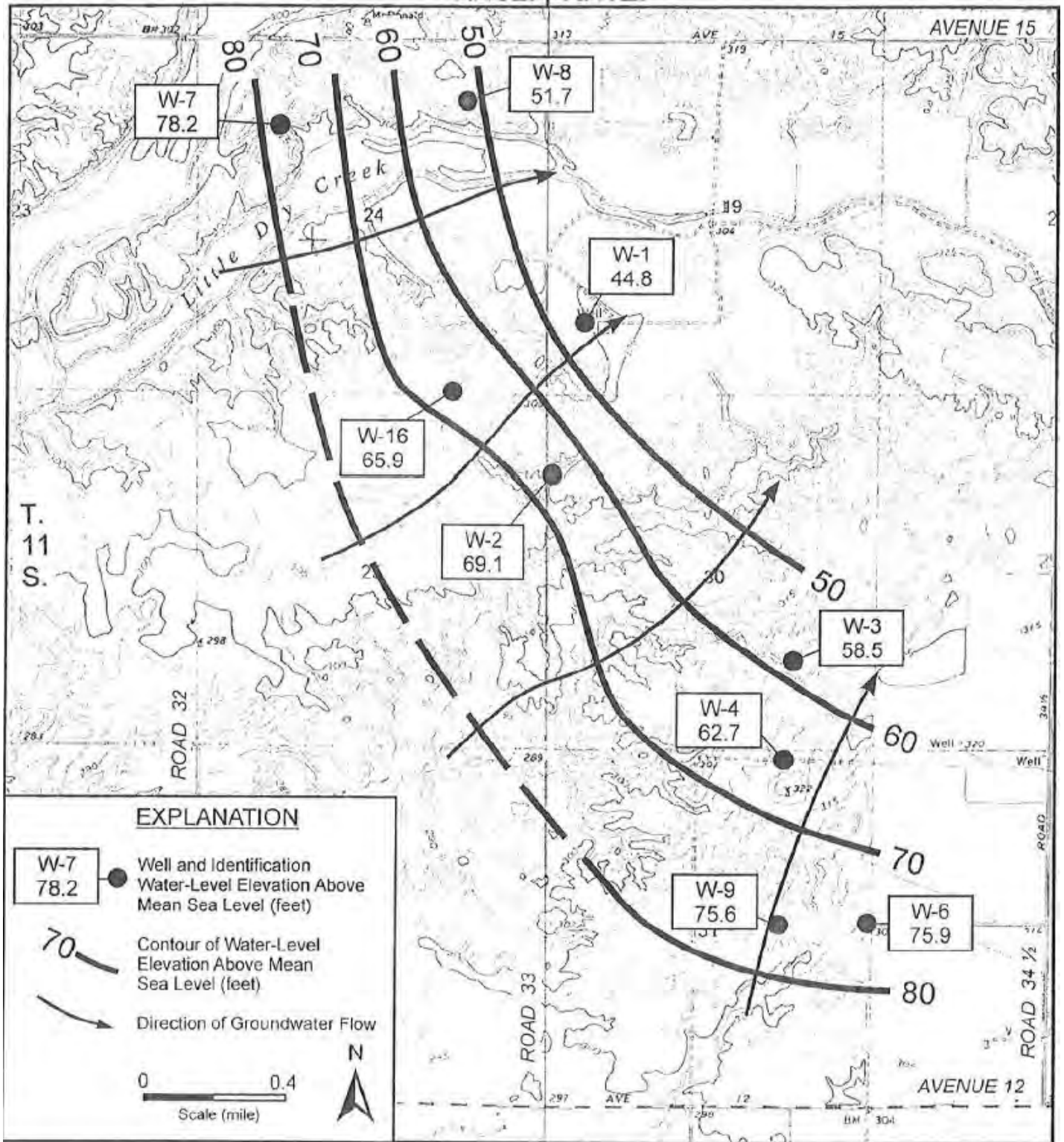
Groundwater Quality

Areas of regional and local water quality impairments (RPC 2012a) are shown in Figure 4.8-1(e) (Groundwater Quality Problem Areas in Madera Area). The Project Site lies outside of any of these areas of known groundwater problems. The CWCR area is on the border of the area noted as having elevated manganese concentrations. High salinity groundwater has been identified in the west part of the area shown on Figure 4.8-1(e), near the San Joaquin River. Due to altered directions of groundwater flow, this poor quality groundwater has been moving northeast, away from the river. Additional information about on-site and off-site groundwater quality conditions is presented below.

On-Site Groundwater Quality

Groundwater quality conditions at the Tesoro Viejo Project Site were obtained by sampling and analyses conducted by KDSA in 2006, 2010, and 2011 (RPC 2012a), the results of which are summarized below. The analyses are differentiated between shallow and deeper groundwater.

⁶⁰ The wells are not numbered consecutively. Instead, they are numbered as Wells 1 through 9 and 16.



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Source: KDSA, 2012.



Figure 4.8-1(d)
CWCR Groundwater Elevations and Flow Direction: January 2012 [New]

The seven existing shallow groundwater wells at the Tesoro Viejo Project Site were sampled and analyzed in 2006 and 2010. The sampling results show that concentrations of various inorganic parameters vary across the Site depending upon the distance from the Madera Canal and the location of irrigation. The pattern of TDS, chloride, and nitrate concentrations indicate that Madera Canal seepage and runoff from the Little Table Mountains are key recharge sources near the Madera Canal, while further south, deep percolation of irrigation return flow is more important. In general, the water quality is good, with local exceedances of the regulatory standard Maximum Contaminant Level (MCL) values in the 2010 sampling event for the following:

- Nitrate at 3 wells: Concentrations of 51-64 mg/L compared to MCL of 45 mg/L;
- Manganese at 1 well: Concentration of 0.34 mg/L compared to MCL of 0.05 mg/L; and
- Alpha activity (an indication of uranium) at 2 wells: Concentration of 21-26 picocuries per liter (pCi/L) compared to MCL of 15 pCi/L.

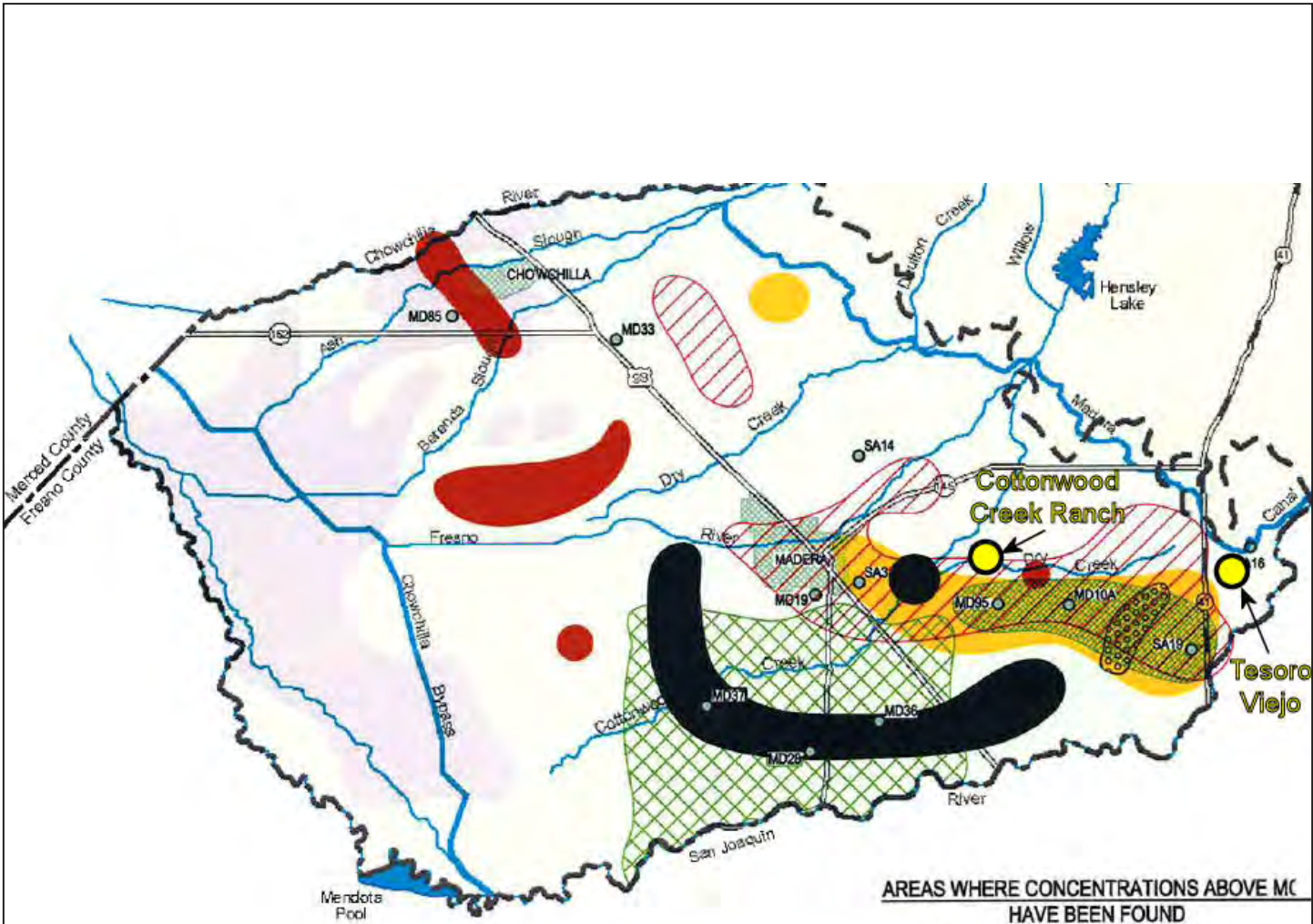
Sampling and analysis of water from deep wells TW-1 and TW-2 in 2010 and 2011 indicate that deeper groundwater is of mixed cation bicarbonate type. None of the parameters analyzed exceeded MCL values, and organic parameters DBCP, ethylene dibromide (EDB), and 1,2,3-trichloropropane were not detectable. The relatively low levels of TDS in the samples (120 to 270 mg/L) are interpreted as meaning the deeper groundwater is primarily from canal seepage and runoff from the Little Table Mountains.

The Tesoro Viejo Project Site is located to the northeast of water quality problem areas shown on Figure 4.8-1(e). Groundwater at the site flows to the southwest, or from the Site towards the problem areas, which eliminates the potential for groundwater with poor water quality to flow from the problem areas towards the Site.

Off-Site (CWCR) Groundwater Quality

For CWCR, three of the ten irrigation wells were sampled in 2011. Analyses indicated relatively low concentrations of TDS, nitrate, and chloride. Alpha activities ranged from 3.5 to 3.6 pCi/L, well below the MCL of 15 pCi/L. Concentrations of DBCP, EDB, and 1,2,3-trichloropropane were not detectable. All constituents were below MCLs except for manganese at one of the wells where the concentration of 0.11 mg/L exceeded the MCL of 0.05 mg/L. The groundwater quality data indicate water from the wells is suitable for public supply without treatment.

The elevated manganese concentration is consistent with the water quality impairment areas shown on Figure 4.8-1(e), indicating that the CWCR site is on the border of an area identified as having high manganese levels. Other problem groundwater areas near CWCR illustrated on Figure 4.8-1(e) are located to the south and southwest. Because groundwater beneath the CWCR area flows to the northeast, there is a potential for groundwater of poor quality to flow from those problem areas towards CWCR. No studies have been found that show whether the groundwater in the problem areas is stationary or moving.



AREAS WHERE CONCENTRATIONS ABOVE MCL HAVE BEEN FOUND

- LEGEND**
- Valley Floor / Foothill Boundary
 - County operated water systems
MD- Maintenance District
SA-Service Area
 - > 500 mg/l TDS
 - Area where Heterotrophic Plate Count (HPC) has exceed 100 CFU/ml

- Gross Alpha
- ▨ Manganese
- ▧ DBCP
- Nitrate
- Arsenic
- ▩ Iron

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Source: modified from Boyle Engineering, 2008.



Figure 4.8-1(e)
Groundwater Quality Problem Areas in Madera Area [New]

4.8.2 Regulatory Framework

Section 15125(d) of the CEQA Guidelines states that “The EIR shall discuss any inconsistencies between the Proposed Project and applicable general plans and regional plans. Such regional plans include, but are not limited to, the applicable air quality attainment or maintenance plan (or State Implementation Plan), area-wide waste treatment and water quality control plans, regional transportation plans, regional housing allocation plans, habitat conservation plans, natural community conservation plans and regional land use plans for the protection of the coastal zone, Lake Tahoe Basin, San Francisco Bay, and Santa Monica Mountains.” Therefore, with respect to hydrology and water quality, a policy consistency analysis is only provided for the RMAP and the Basin Plan for the California Regional Water Quality Control Board, Central Valley Region (Basin Plan), the latter of which is the Regional Water Quality Control Plan.

■ Federal

Clean Water Act (CWA)

The federal CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation’s waters. The CWA also directs states to establish water quality standards for all “waters of the United States” and to review and update such standards on a triennial basis. Section 319 mandates specific actions for the control of pollution from nonpoint sources. The EPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the NPDES Program, to the State Water Resources Control Board (SWRCB) and the RWQCB.

Section 303(c)(2)(b) of the CWA requires states to adopt water quality standards for all surface waters of the United States based on the water body’s designated beneficial use. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. Water quality standards applicable to the Proposed Project are listed in the California RWQCB’s Basin Plan.

Section 303(d) and Total Maximum Daily Loads (TMDLs)

Section 303(d) of the CWA bridges the technology-based and water quality-based approaches for managing water quality. Section 303(d) requires that states make a list of waters that are not attaining standards after the technology-based limits are put in place. For waters on this list (and where the US EPA administrator deems they are appropriate), the states are to develop Total Maximum Daily Loads (TMDLs). TMDLs are established at the level necessary to implement applicable water quality standards. A TMDL must account for all sources of pollutants that cause the water to be listed. Federal regulations require that TMDLs, at a minimum, account for contributions from point sources and nonpoint sources. Specific TMDLs applicable to the Proposed Project are listed under Regional regulations.

National Pollutant Discharge Elimination System (NPDES)

The goal of the NPDES diffuse source regulations is to improve the quality of stormwater discharged to receiving waters to the “maximum extent practicable” through the use of best management practices

(BMPs). The NPDES permit system was established in the CWA to regulate point source discharges (a municipal or industrial discharge at a specific location or pipe) and certain types of diffuse source dischargers. As defined in the federal regulations, nonpoint sources are generally exempt from federal NPDES permit program requirements. Nonpoint pollution sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Urban stormwater runoff and construction site runoff, however, are diffuse-sources regulated under the NPDES permit program because they discharge to receiving waters at discrete locations in a confined conveyance system. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that the U.S. Environmental Protection Agency (EPA) must consider in setting effluent limits for priority pollutants.

For point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. The Proposed Project wastewater treatment plant (WWTP) would be a point source discharger subject to an individual NPDES permit if it discharged directly to a surface water. However, the WWTP would not discharge to surface water and would therefore, not require an individual NPDES permit.

For diffuse-source discharges (e.g., municipal stormwater and construction runoff), the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a Comprehensive Stormwater Management Program. State implementation of the NPDES program as it relates to the Proposed Project is discussed below under State and Regional regulations.

Executive Order 11988 (Flood Plain Management)

Executive Order 11988 (Flood Plain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial flood plain values. Specifically, Federal agencies are directed to avoid conducting, allowing, or supporting actions on the base flood plain unless the agency finds that the base flood plain is the only practicable alternative location. Similarly, Department of Transportation (DOT) Order 5650.2, which implements Executive Order 11988 (Flood Plain Management) and was issued pursuant to the *National Environmental Policy Act of 1969*, the *National Flood Insurance Act of 1968*, and the *Flood Disaster Protection Act of 1973*, prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse flood plain impacts in agency actions, planning programs, and budget requests.

Floodplain Development

FEMA is responsible for determining flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies and approved agency studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMS), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas (SFHAs), including the 100-year flood zone.

FEMA allows nonresidential development in SFHAs; however, construction activities are restricted depending upon the potential for flooding within each area. Federal regulations governing development in a SFHA are set forth in Title 44, Part 60 of the *Code of Federal Regulations* (CFR), which enables FEMA to require municipalities that participate in the National Flood Insurance Program (NFIP) to adopt certain flood hazard reduction standards for construction and development in 100-year flood plains. In addition, the *Flood Disaster Protection Act of 1973* and the *National Flood Insurance Reform Act of 1994* mandate the purchase of flood insurance as a condition of Federal or Federally related financial assistance for acquisition and/or construction of buildings in SFHAs of any community.

■ State and Regional

Responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document, California Toxics Rule) or from EPA water quality criteria developed under Section 304(a) of the CWA. Numeric criteria are required by the CWA for many priority toxic pollutants. To fill in the gap between the water quality control plans and CWA requirements, on May 18, 2000, the EPA promulgated the California Toxics Rule based on the Administrator's determination that numeric criteria are necessary in the State of California to protect human health and the environment. These federal criteria are numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards legally applicable in the State of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the *Clean Water Act*.

Porter-Cologne Water Quality Control Act

The *Porter-Cologne Water Quality Control Act* establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the *Porter-Cologne Water Quality Control Act* authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwaters) and directs the RWQCBs to develop regional Basin Plans. Section 13170 of the *California Water Code* also authorizes the SWRCB to adopt water quality control plans on its own initiative.

Basin Plan for the California Regional Water Quality Control Board, Central Valley Region (Basin Plan)

The Central Valley RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. Water quality objectives for the San Joaquin River and its tributaries are specified in the Basin Plan (2011), which was prepared by the RWQCB in compliance with the federal CWA and the *State Porter-Cologne Water Quality Control Act*. The principal elements of the Basin Plan are a statement of beneficial water uses protected

under the plan; water quality objectives necessary to protect the designated beneficial water uses; and strategies and time schedules for achieving the water quality objectives. Together, narrative and numerical objectives define the level of water quality that shall be maintained within the region. In instances where water quality is better than that prescribed by the objectives, the state Antidegradation Policy applies (State Board Resolution 68-16: Statement of Policy with Respect to Maintaining High Quality of Waters in California). This policy is aimed at protecting relatively uncontaminated aquatic systems where they exist and preventing further degradation. The state's Antidegradation Policy is consistent with the federal Antidegradation Policy, as interpreted by the SWRCB in State Board Order No. 86-17.

The water quality objectives are achieved primarily through the establishment and enforcement of waste discharge requirements (WDRs). Because the Proposed Project is located within the Central Valley RWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements. According to the Basin Plan, the San Joaquin River and Madera Subbasin have a number of designated beneficial uses, listed in the Environmental Setting Section. These designated beneficial uses define the water quality objectives and standards for this San Joaquin River reach. Where multiple beneficial uses exist, water quality standards must protect the most sensitive use.

Policy Consistency

The Proposed Project could increase stormwater pollutants from the Project Site. In addition, treated effluent will be used for irrigation of all major street median islands, major street frontage landscaping, parks and other irrigated recreational open space, including VLDR open spaces. Treated effluent may also be used for agricultural irrigation and for industrial uses, where allowed. While all disposal is currently planned to occur within the Project Site, if there is excess effluent, it might be used on other land outside the project or, if permitted, discharged through drainages to the San Joaquin River in exchange for additional freshwater diversions. These activities could potentially cause or contribute to water quality degradation and exceedance of Basin Plan water quality standards, which would be in violation of the states' Antidegradation Policy and/or the Basin Plan. However, the Proposed Project would have to obtain a Master Reclamation Permit (or individual Waste Discharge Requirement or individual NPDES permit) in order to use the reclaimed water. The RWQCB would review effluent data and site characteristics prior to issuing any permit to discharge the treated effluent on land surfaces or within surface waters. WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plan. The Proposed Project would also develop five stormwater detention basins that would serve to reduce pollutants in stormwater runoff and ensure that discharge from the basins would not cause or contribute to increased pollutants loads or reduced function⁶¹ of down-gradient water resources in accordance with mitigation measures MM4.8-2(a), MM4.8-2(c), MM4.8-3(a) or MM4.8-3(b), MM4.8-9(a), and MM4.8-9(b). The Proposed Project would also develop and implement a Stormwater Management Plan (mitigation measure MM4.8-2(b)) that would require best management practices (BMPs) targeted to reduce pollutant loads to existing conditions levels. Therefore, the Proposed Project would be consistent with the Basin Plan.

⁶¹ Reduced function of water resources, such as drainages and wetlands, could alter wetland beneficial uses. This could occur if there are changes in the hydrologic regime cause by the Proposed Project such that features do not receive a sufficient supply of water or water flows are excessive and cause or contribute to erosion.

Waste Discharge Requirements (WDRs)

All dischargers of waste to waters of the State are subject to regulation under the Porter-Cologne Act and the requirement for WDRs is incorporated into the *California Water Code*. This includes both point and nonpoint source (NPS) dischargers. All current and proposed NPS discharges to land must be regulated under WDRs, waivers of WDRs, a basin plan prohibition, or some combination of these administrative tools. Discharges of waste directly to State waters would be subject to an individual or general NPDES permit, which also serves as WDRs. The Proposed Project is subject to the NPDES Municipal Stormwater Permit Phase II (Small MS4 General Permit) and the Construction General Permit, which both also serve as WDRs. The Proposed Project would also be subject to an individual WDR or NPDES permit for the WWTP and for construction dewatering, if required.

The RWQCBs have primary responsibility for issuing WDRs. The RWQCBs may issue individual WDRs to cover individual discharges or general WDRs to cover a category of discharges. WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions. Violations of WDRs may be addressed by issuing Cleanup and Abatement Orders (CAOs) or Cease and Desist Orders (CDOs), assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

Wastewater Recycling Standards—California Water Code (CWC)

The California Legislature has declared the primary interest of the people of California in the development of facilities to recycle wastewater to supplement existing water supplies and to meet future water demands (CWC Section 13510–13512). State policy (State Board Resolution No. 77-1) affirms this commitment to encourage recycled water use. However, because reclamation projects tend to add to the salt balance problem in the region, they must be carefully planned and implemented.

The mineral quality of the receiving water (surface or groundwater) can be adversely affected by high salt content of the reclaimed water. Each cycle of water use increases the salinity of the water. The amount of the increase depends on the type of use; normal domestic use generally adds 200 to 300 mg/L of TDS to the initial concentration. Agricultural use generally doubles the salinity, while industrial uses most often degrade water quality to a level where it may be unsuitable for discharge. Therefore, it is important that the type of reclaimed wastewater use and the likely effects on water quality be evaluated carefully prior to initiating such reuse.

Master Reclamation Permit

Any person who proposes to produce or use recycled water must file a report (CWC section 13522.5) and obtain water reclamation requirements (CWC section 13523) or a master reclamation permit (CWC Section 13523.1). The CWC (Sections 13500–13529.4) requires that Department of Public Health (DPH) establish criteria for each type of use of recycled water and the DPH regulations for this purpose are contained in Title 22, CCR. DPH draft regulations concerning recharge of for groundwater replenishment with recycled water are pending were made available for public review in November 2011, but no regulations have been adopted as of May 2012.

Total Maximum Daily Loads (State-Level Implementation)

States are required to assess waters for impairment every two years and develop Total Maximum Daily Loads (TMDLs) for waterbodies listed as impaired on the 303(d) list, approved by the U.S. EPA. The current approved 303(d) list is the ~~2006~~2010 list, ~~which was approved by the U.S. EPA in June 27, 2007.~~ The 303(d) list includes the pollutant(s) contributing to impairment, sources of impairment, and a completion date for development of TMDLs. In California, the SWRCB has interpreted state law to require that implementation be addressed when TMDLs are incorporated into Basin Plans.

The 2006 Section 303(d) listings show the segment of the San Joaquin River where the Project Site is located (the reach from Friant Dam to Mendota Pool) as having an ~~exotic~~invasive species impairment (SWRCB ~~2006~~2011). However, downstream receiving waters—lower reaches of the San Joaquin River, the San Joaquin/Sacramento River Delta, and ultimately, the San Francisco Bay—are listed as impaired under Section 303(d) of the CWA for chlorpyrifos, DDT, diazinon, Group A pesticides, mercury, electrical conductivity, pathogens, PCBs, low dissolved oxygen, boron, selenium, toxaphene, chlordane, dieldrin, dioxin compounds, furan compounds, and nickel. Because the San Joaquin River is tributary to these impaired waterbodies, limits on discharges to those waterbodies are applicable to the San Joaquin River and its contributing watersheds.

The following TMDLs have been adopted for water bodies downstream of the Project Site (and, therefore, apply to discharges from the Project Site):

- Central Valley Pesticide TMDL and Basin Plan Amendment
- San Joaquin River Dissolved Oxygen TMDL
- San Joaquin River Diazinon and Chlorpyrifos TMDL
- San Joaquin River Upstream of Vernalis Salt and Boron TMDL and Basin Plan Amendment
- San Joaquin River Selenium TMDL
- Sacramento-San Joaquin Delta Methylmercury TMDL
- Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL
- San Francisco Bay Mercury

The Proposed Project would be required to comply with these existing TMDLs. Additionally, TMDLs for other pollutants causing impairment are expected to be completed by 2020 and implementation of the Proposed Project would not be completed until approximately 2025; therefore, it is expected that the Proposed Project would also be required to comply with TMDLs for other pollutants listed as contributing to water quality impairment as they are established.

National Pollutant Discharge Elimination System (State-Level Implementation)

The SWRCB establishes policies and regulations that help protect and restore the water quality in California. The SWRCB also coordinates with and supports RWQCB efforts, and reviews RWQCB actions. The RWQCB monitor and enforce State and federal plans, policies, and regulations. Each RWQCB makes critical water quality decisions for its region. While the SWRCB has issued a few NPDES permits, the vast majority of NPDES permits are issued by the RWQCB. Typically, NPDES permits are issued for a five-year term. Future development on the site would be subject to conditions in the NPDES permits described below.

Municipal Stormwater General Permit Phase II (Small MS4 General Permit)

There are two phases of MS4 permitting under the municipal stormwater NPDES program. Phase I applies to cities with populations of 100,000 or greater, while Phase II applies to smaller cities and urban areas and is permitted under a general permit issued by the RWQCB. In response to Federal Phase II Storm Water Regulations, the SWRCB adopted a General Permit for the Discharge of Storm Water from Small MS4s (Order No. 2003-0005-DWQ) in April 2003. The Phase II NPDES Program requires permitted entities to implement the following program elements to protect receiving waters from stormwater pollution:

- Public Participation/Involvement
- Public Education and Outreach
- Construction Site Runoff Control
- Illicit Discharge Detection and Elimination
- Pollution Prevention/Good Housekeeping
- Post-Construction Runoff Control

To implement these elements, the Small MS4 General Permit requires that Dischargers develop and implement a Storm Water Management Program (SWMP) that describes the best management practices (BMPs), measurable goals, and time schedules of implementation as well as assigns responsibility of each task. The SWMP must be designed to reduce the discharge of pollutants through their MS4s to the Maximum Extent Practicable (MEP). Permittees that operate an MS4 that serves 50,000 people or more, or that serve an area of high growth (which is defined as more than 25 percent over 10 years), must comply with the Supplemental Provisions contained in Attachment 4 of the Small MS4 General Permit, which includes receiving water limitations.

Madera County submitted its SWMP on January 6, 2004, in compliance with the Small MS4 General Permit. The SWMP has not yet been listed as approved by the RWQCB (SWRCB ~~2007~~2012); therefore, unincorporated Madera County, including the Project Site, is not covered under the Small MS4 General Permit. The Proposed Project is not yet a regulated Small MS4; however, after development, it may be determined to be a separate regulated Small MS4 if Madera County does not obtain coverage under the Small MS4 General Permit because it will own and operate a separate storm/sewer system and may meet the definition of a regulated Small MS4.⁶²

NPDES General Construction Activity Stormwater Permit (Construction General Permit)

The SWRCB permits all regulated construction activities under NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order No. ~~98-08-DWQ (1999)~~2009-0009-DWQ, NPDES No. CAR000002, adopted September 2, 2009). This Order requires that, prior to beginning any construction activities, the permit applicant must obtain coverage under the General Construction Permit

⁶² A “regulated Small MS4” is defined as a Small MS4 that discharges to a water of the United States (U.S.) or to another MS4 regulated by an NPDES permit. It is not permitted under the municipal Phase I regulations, and which is “owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity-...” (40 CFR §122.26(b)(16)).

by preparing and submitting a Notice of Intent (NOI) and appropriate fee to the SWRCB. Additionally, coverage would not occur until an adequate Stormwater Pollution Prevention Plan (SWPPP) has been prepared. A separate NOI shall be submitted to the SWRCB for each construction site.

Construction activities subject to the NPDES Construction General Permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least one acre of total land area. Because construction of the Proposed Project would cumulatively disturb more than one acre, all improvements and construction activities would be subject to these permit requirements.

The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as nonstormwater discharges. The SWPPP must include BMPs that address source control, and, if necessary, must also include BMPs that address specific pollutant control. The SWPPP includes a description of (1) the site, (2) erosion and sediment controls, (3) means of waste disposal, (4) implementation of approved local plans, (5) control of post-construction sediment and erosion control measures and maintenance responsibilities, and (6) nonstormwater management controls. Dischargers are also required to inspect their construction sites before and after storms to identify stormwater discharge associated with construction activity and to identify and implement controls where necessary.

BMPs are intended to reduce impacts to the Maximum Extent Practicable (MEP), which is a standard created by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. Reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed.

The Construction General Permit requires specific minimum BMPs depending upon the Project sediment risk (Risk Levels 1 through 3). Risk Level 1 projects are subject to minimum BMP and visual monitoring requirements; Risk Level 2 projects are subject to numeric actions levels (NALs) and some additional monitoring requirements; and Risk Level 3 projects are subject to numeric effluent limitations (NELs) and more rigorous monitoring requirements, such as receiving water monitoring and, in some cases, bioassessment. The risk is a calculated value that is determined when the SWPPP is prepared. The SWPPP identifies the appropriate risk level and related BMPs and other requirements. The results of monitoring and corrective actions, if any, must be reported annually to the SWRCB. This permit also specifies minimum qualifications for SWPPP developers and construction site inspectors.

Low Threat Discharges General Permit

Depth to groundwater is expected to be generally ranges between from 632 to 40202 feet below ground surface (bgs) at the Project Site, although there are locations where shallow perched groundwater occurs at depths of 2 to 20 feet bgs. The perched groundwater occurs primarily along Lateral 6.2 near the large drainageway extending to the southeast from near this lateral, or near other smaller drainages. Therefore, groundwater could be encountered during construction activities in some locations, such as foundation excavations, detention/retention ponds, and utility trenching. If groundwater dewatering is required, the developer must obtain coverage under the Low Threat Discharges General Permit (Order No. 5-00-175 General Order for Dewatering and Other Low Threat Discharges to Surface Waters (General NPDES

Permit No. CAG995001)). The Low Threat Discharges General Permit is designed to achieve compliance with water quality standards from the Basin Plan. Discharges covered by this permit include, but are not limited to, treated or untreated groundwater generated from permanent or temporary dewatering operations. The permit covers short duration (four months or less), low flow (where the average dry weather discharge does not exceed 0.25 million gallons a day) activities with minimal threat to surface water, including construction dewatering.

The discharger must prepare and submit a Notice of Intent (NOI), a Stormwater Pollution Prevention Plan (SWPPP), and a Monitoring and Reporting Program. The SWPPP identifies treatment systems, spill contingency plans, operation and maintenance procedures, inspections, equipment, supplies, training, erosion control, and other strategies for assuring continuous compliance with permit requirements. The Monitoring and Reporting Program is a representative sampling and analysis program.

■ Local

Madera County General Plan

The following hydrology and water quality policies applicable to the Proposed Project are described in the Madera County General Plan:

- Policy 3.E.1** The County shall provide for expansion and development of storm drainage systems to meet the needs of existing and planned development.
- Policy 3.E.2** The County shall require new development to provide protection from the 100-year flood as a minimum.
- Policy 3.E.3** The County shall continue to implement floodplain zoning and undertake other actions required to comply with state floodplain requirements, and to maintain the County's eligibility under the Federal Flood Insurance Program.
- Policy 3.E.4** The County shall require new development to pay its fair share of the costs of Madera County storm drainage and flood control improvements.
- Policy 3.E.5** The County shall encourage project designs that minimize drainage concentrations and impervious coverage and maintain, to the extent feasible, natural drainage conditions.
- Policy 3.E.6** Future drainage system discharges shall comply with applicable state and federal pollutant discharge requirements.
- Policy 3.E.7** The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural features.
- Policy 5.C.1** The County shall protect preserve areas with prime percolation capabilities and minimize placement of potential sources of pollution in such areas.
- Policy 5.C.2** The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.

- Policy 5.C.3** The County shall require new development of facilities near rivers, creeks, reservoirs, or substantial aquifer recharge areas to mitigate any potential impacts of release of pollutants in flood waters, flowing river, stream, creek, or reservoir waters.
- Policy 5.C.4** The County shall require the use of feasible and practical Best Management Practices (BMPs) to protect streams from the adverse effects of construction activities, and shall encourage the urban storm drainage systems and agricultural activities to use BMPs.
- Policy 5.C.7** The County shall protect groundwater resources from contamination and further overdraft by encouraging water conservation efforts and supporting the use of surface water for urban and agricultural uses wherever feasible.
- Policy 5.D.3** Development should be designed in such a manner that pollutants and siltation will not significantly adversely affect the value or function of wetlands.
- Policy 6.B.1** The County shall require flood-proofing of structures in areas subject to flooding.
- Policy 6.B.2** The County shall prohibit the construction of facilities essential for emergencies and large public assembly in the 100-year floodplain, unless the structure and access to the structure are free from flood inundation.
- Policy 6.B.3** The County shall restrict uses in designated floodways to those that are tolerant of occasional flooding and do not restrict or alter flow of flood waters. Such uses may include agriculture, outdoor recreation, mineral extraction, and natural resource areas.
- Policy 6.B.4** The County shall require that all development within areas subject to 100-year floods be designed and constructed in a manner that will not cause floodwaters to be diverted onto adjacent property or increase flood hazards to other areas.
- Policy 6.B.6** The County shall require that flood management programs avoid alteration of waterways and adjacent areas, whenever possible.

Policy Consistency

The Proposed Project would include development and operation of a storm drainage system designed to meet the needs of the entire development area at full buildout. This storm drainage system would not drain to a County drainage system and no County drainage system would drain to the Proposed Project system. Therefore, the Proposed Project would be consistent Policies 3.E.1 and 3.E.4.

Only one small area of the Project Site is located within a 100-year flood hazard area. A small recreation commercial development of approximately one acre in size would be built near the San Joaquin River in an area identified as a 100-year flood hazard area. This facility would not be essential for emergencies or large public assemblies. Furthermore, the area falling within the flood zone is at the fringe of this zone and not within the path of the main currents. As such, the structures would not pose a substantial impediment to flows in the event of a flood. Also, Madera County Code Standards of Construction include requirements for construction in flood hazard areas and floodproofing requirements that would apply to the Proposed Project. Therefore, development of the Proposed Project would be consistent with Policies 3.E.2, 3.E.3, 6.B.1, 6.B.2, 6.B.3, and 6.B.4.

The Proposed Project would protect important natural drainage features as Open Space lands. Stormwater from upland areas would be collected in one of five detention basins prior to continuing downstream to the existing and preserved natural drainages. The detention basins would serve to effectively reduce discharge rates from the Proposed Project to existing conditions levels through implementation of mitigation measure MM4.8-9(a). Implementation of mitigation measures MM4.8-9(a), MM4.8-9(b), MM4.8-2(c), MM4.8-2(a), and MM4.8-2(b) would ensure that the Proposed Project detention basins do not adversely effect these natural drainages by substantially altering their hydrology or by contributing substantial stormwater pollutants. Additionally, the Proposed Project would have to comply with the requirements of the Infrastructure Management Plan (IMP), which is a plan that must be approved prior to development of the Proposed Project. The IMP and Mitigation Measure 4.8-2(a) (Stormwater Management Plan) requires that directly connected impervious surfaces (e.g., bioswales and porous pavement) are minimized, where practicable to reduce the overall amount of directly connected impervious areas and stormwater runoff. Consequently, the Proposed Project would be consistent with Policies 3.E.5, 3.E.6, 3.E.7, and 6.B.6.

Most groundwater recharge in the Madera Subbasin is achieved through streams, tributaries, and irrigation/drainage canals. The Proposed Project would not substantially alter any of these features. Additionally, the Stormwater Management Plan (mitigation measure MM4.8-2(a)) would include BMPs that allow some precipitation and stormwater to percolate, but would prevent stormwater infiltration where there is a potential for groundwater pollution. In addition, the use of reclaimed water for on- or off-site irrigation would be subject to a Master Reclamation Permit (or other WDR, as deemed appropriate by the RWQCB) that would ensure potential groundwater pollution from land application of reclaimed water is minimal. Furthermore, implementation of *Madera County Code* and mitigation measures MM4.8-9(a) and MM4.8-9(b) would ensure that the on-site sewage disposal systems would not contribute substantially to groundwater pollution potential. The Proposed Project would not use groundwater supplies; and any water supply wells built for the project would be located in the perched water table that is adjacent to the San Joaquin River (and that is actually surface water). Therefore, the Proposed Project would be consistent with Policy 5.C.1 and Policy 5.C.7.

The Proposed Project would be required to obtain coverage under the Construction General Permit, which would include development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) that would include erosion and sediment controls and construction scheduling, as well as other controls for prevention stormwater pollution during construction. The Proposed Project would also be required to develop and implement a Stormwater Management Plan under mitigation measures MM4.8-2(a) and MM4.8-2(b), which would include post-construction erosion and sediment controls, as well as controls/treatment for other pollutants that might be found in stormwater runoff. Development of five large stormwater detention ponds would ensure that stormwater runoff does not contribute to excessive post-construction flows, and mitigation measures MM4.8-9(a) and MM4.8-9(b) would ensure that down-gradient water resources are not impaired by implementation of these detention basins. These stormwater detention basins would also serve to reduce potential sediment transport. Therefore, the Proposed Project would be consistent with Policies 5.C.2, 5.C.3, 5.C.4, and 5.D.3.

Madera County Code

The County Codes applicable to the Proposed Project are described in the *Madera County Code* Title 13 (Water and Sewers) and Title 14 (Building and Construction). These County Code requirements primarily relate to wastewater and sewer regulations, and grading and erosion controls. Compliance with the *Madera County Code* is required for project implementation and additional detail on applicable provisions of the code relative to the Proposed Project are described under the pertinent impact analyses.

4.8.3 Project Impacts and Mitigation

■ Analytic Method

The discussion of potential hydrology and water quality impacts of the Proposed Project is based on an analysis of how the types and intensities of land uses proposed in the Tesoro Viejo Specific Plan would alter existing hydrologic and water quality conditions at the Project Site. The facilities proposed for stormwater detention and treatment in the Infrastructure Master Plan (IMP) are assessed to determine whether they would be sufficient for managing net increases in flow and effluent loads. Because Madera County does not have an adopted hydrology manual, sizing factors, runoff coefficients, and calculation methods are incorporated into the Proposed Project is IMP based on the Fresno Metropolitan Flood Control District design criteria. Calculation methods for the sizing of stormwater treatment and detention facilities would require review and approval by the Madera County Engineering Department as a condition of project approval.

Potential effects of the Proposed Project on water quality were evaluated qualitatively using the Simple Method,⁶³ which was developed by the Center for Watershed Protection (2004) to estimate annual pollutant loads for chemical constituents as a product of annual runoff volume and typical values for pollutant concentrations in stormwater, depending on land use. The Simple Method estimates the mean annual pollutant load based on the mean annual rainfall, the runoff coefficient, the pollutant concentration in runoff, the proportion of rainfall expected to contribute to runoff (typically 0.9), and the land area. This calculation of pollutant load provides an estimate of the total amount (e.g., pounds) of pollutant that would enter the receiving water during an average year. Stormwater pollutant concentrations are estimated using the National Stormwater Quality Database⁶⁴ (NSQD) v. 1.1 (Pitt et al. 2005) because no stormwater pollutant concentration data by land use was available for Madera County

⁶³ The Simple Method estimates stormwater runoff pollutant loads for urban areas. The technique requires a modest amount of information, including the sub watershed drainage area and impervious cover, stormwater runoff pollutant concentrations, and annual precipitation. With the Simple Method, the investigator can either break up land use into specific areas such as residential, commercial, industrial, and roadways and calculate annual pollutant loads for each type of land, or use more generalized pollutant values for land uses such as new suburban areas, older urban areas, central business districts, and highways.

⁶⁴ The NSQD is a national database with stormwater data from the National Urban Runoff Program at locations around the United States.

or nearby localities. Use of the NSQD provides for an assessment of the relative⁶⁵ impact of the Proposed Project.

Table 4.8-1 (Existing and Proposed Project Estimated Runoff Properties and Mean Annual Runoff) lists the potential change in runoff coefficient (proportion of precipitation that would contribute to runoff) for the Project Site and annual runoff. Runoff coefficients are estimated based on the Caltrans methods (2007).

Catchment	Area (acres)	Runoff Coefficients		Mean Annual Runoff		
		Existing	Proposed Project	Existing (acre-feet)	Proposed Project (acre-feet)	Difference (acre-feet)
A	488	0.4	0.88	170	374	204
B	416	0.4	0.57	145	204	59.7
C	361	0.4	0.57	126	177	51.8
D	122	0.4	0.57	42.5	60.0	17.5
E	482	0.42	0.57	176	237	60.8
F	68	0.36	0.46	21.3	27.2	5.9

SOURCE: PBS&J 2007

Mean annual pollutant load is a function of both the concentration of pollutants in stormwater runoff and the total amount of runoff from an area. Thus, even if land use changes such that the concentration of a pollutant in stormwater is lower than existing conditions, the load might be higher if the amount of runoff is higher. The converse is also true; if the concentration of pollutants is higher, but the runoff is lower, the total load may be lower.

It should also be noted that data for vacant lands could underestimate the amount of nutrients in runoff from existing and former agricultural areas of the Project Site because actively farmed land would include fertilization that truly vacant lands would not. There is no category for agricultural uses in the NSQD. Because the potential difference between vacant and agricultural uses is unknown, values used in the load analysis were not adjusted. Not adjusting nutrient concentrations provides a ‘worst case’ analysis of potential Proposed Project impacts because the calculated existing conditions nutrient load would be lower than is likely to be the case, and the change (or delta) between nutrient loads under existing conditions (vacant land) and with-project conditions would be greater. Values used for pollutant concentrations are listed in Table 4.8-2 (Typical Pollutant Concentrations in Stormwater).

According to the IMP, the storm drain system would be designed to convey the 10-year storm event within streets; therefore, the design storm event used in calculations was the 10-year storm event. In

⁶⁵ Instead of providing absolute numbers on the amount of pollutants that could be contributed to receiving waters, this method is suitable for assessing the potential percent increase in pollutant load compared to existing conditions. In other words, the annual pounds of pollutants generated are not absolute and the concentration in stormwater runoff is not absolute; but the percent increase (or decrease) in pounds, compared to existing conditions, reflects the relative effect of the Proposed Project on runoff water quality.

order to provide a reasonable estimate of potential runoff, the amount of rainfall from the Project Site, which is the entire 10-year 24-hour storm event (2.05 inches of precipitation), was used (CDWR State Climatologist 2005). As mentioned above, most pollutants are transported in the first flush of stormwater; therefore, runoff of the first 0.5 inch of rainfall was also calculated to estimate potential treatment volumes. Table 4.8-3 (Estimated Proposed Project Stormwater Runoff) lists the estimated amount of stormwater runoff from the Project Site.

Table 4.8-2 Typical Pollutant Concentrations in Stormwater

Pollutant	Units	Land Use Category		
		Vacant	Commercial	Residential
Suspended Solids	mg/L	48.5	42.0	49.0
Total Phosphorous	mg/L	0.31	0.22	0.30
Filtered phosphorous	mg/L	0.13	0.11	0.17
Total Nitrogen	mg/L	0.74	1.6	1.4
Inorganic-Nitrogen	mg/L	0.18	0.50	0.32
Total Copper	µg/L	10.0	17.0	12.0
Total Lead	µg/L	10.0	18.0	12.0
Total Zinc	µg/L	40.0	150	73.0
Oil and Grease	mg/L	1.30	4.70	3.9
Fecal Coliforms	MPN/100mL	7.2 E+03	4.3 E+03	8.3 E+03

SOURCE: Pitt et al. 2005

Table 4.8-3 Estimated Proposed Project Stormwater Runoff

IMP Catchment	First Flush; 0.5 inch (acre-feet)	10-year, 24-hour Storm Event (acre-feet)
A	17.9	73.4
B	9.8	40.2
C	8.5	34.8
D	2.9	11.8
E	11.3	46.5
F	1.3	5.3

SOURCE: PBS&J 2007

Hydrology and Water Quality Effects of Alternative Water Supplies

As explained in Section 4.14 (Utilities and Service Systems), it is anticipated that Project water demand would be met through surface water obtained under U.S. Bureau of Reclamation (USBR) Holding Contract No. 7. However, in the event that Holding Contract No. 7 water is not available at some time in the future by reason of state orders and/or court decisions invalidating or limiting its continued use, the Project Applicant has identified other alternatives for Project water supply, which have been described in the SWSA and SSWSA. Any use of groundwater by the Project under these alternatives would be water balanced, which means that the net demand of the Project would be directly offset by either groundwater

recharge or fallowing of existing agricultural lands overlying the Madera Sub-basin (RPC 2012). The hydrological and water quality effects of implementing a water supply alternative are evaluated in this section.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G to the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on hydrology and water quality if it would result in any of the following:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects⁶⁶
- Otherwise substantially degrade water quality
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- Place within a 100-year flood hazard area structures, which would impede or redirect flood flows
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunamis, or mudflow

■ Effects Not Found to Be Significant

Threshold	Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
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A small portion of the Project Site would be located in a 100-year flood hazard area according to FEMA Flood Insurance Rate Map No. 06071C8704 F (effective date March 18, 1996). A small recreational

⁶⁶ While this threshold is from the Utilities and Service Systems section of Appendix G of the 2007 CEQA Guidelines, it is most appropriately addressed in this Section 4.8 (Hydrology and Water Quality) of this EIR.

support structure would be placed within the 100-year flood hazard area in the recreational commercial uses near the San Joaquin River. However, there would be no housing or habitable structures placed within the 100-year flood hazard area and, therefore, **no impact** would result, and no further analysis is required in this EIR.

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?
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Tsunamis are large sea waves generated by submarine earthquakes or similar large-scale, short-duration phenomena, such as volcanic eruptions, that can cause considerable damage to low-lying coastal areas. Because the Project Site is located almost 100 miles inland of the Pacific Ocean, it would not be subject to tsunami inundation; therefore, **no impact** would result, and no further analysis is required in this EIR.

Mudflow hazards typically occur where unstable hill slopes are located above gradient or where site soils are unstable and subject to liquefaction, and when substantial rainfall saturates soils causing failure. The Project Site is not located near steep unstable hill slopes susceptible to mudslides. Therefore, the Project Site is not expected to be subject to a mudflow risk. **No impact** would result, and no further analysis is required in this EIR.

Potential impacts related to seiches are evaluated under Impact 4.8-12.

Threshold	Would the Proposed Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?
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The Proposed Project would increase water demands within Madera County, but would not draw directly upon the depleted Madera Sub-basin groundwater to serve the needs of Proposed Project residents, businesses, or other project-related water consumers unless the Project is required to implement alternatives to reliance on surface water from the San Joaquin River. According to the *Amended Water Supply Assessment for the Tesoro Viejo Project (WSA)* as supplemented by the SWSA and SSWSA, water for the Proposed Project would be supplied through a contract with the USBR for water from the San Joaquin River and from reclaimed wastewater until and unless that were prohibited as a matter of law, if ever. The contract, known as Holding Contract Number 7, does not set limits on total withdrawals. According to the WSA, the available supply pursuant to this contract is estimated to exceed 5,000 acre-feet per year (AFY), adequately supplying the demand generated by the development at full buildout (PPEG 2007b, amended 2008b). However, the Project Applicant has entered into an agreement with other water users to limit withdrawals from the River to 3,150 AFY, plus additional amounts that are compensated for by reduced withdrawals otherwise anticipated by others or by permitted disposal of treated wastewater to the River. Therefore, all of the wastewater to be generated is currently planned for use to meet on-site water demands, representing up to an additional 1,717 AFY. The combination of these sources will satisfy all Proposed Project demands. However, the Project Applicant intends to continue to explore other possible sources of freshwater supply to provide additional flexibility in responding to water demands.

While a small amount of subsurface river water would be obtained from shallow wells near the San Joaquin River, this water is incidental, perched (shallow) groundwater not directly connected to the Madera Subbasin (PPEG 2007b, amended 2008b), and is essentially surface water from the San Joaquin River, just as the nearby Sumner Hill water supply well is not a groundwater resource well, but a surface water diversion from the San Joaquin River (Todd Engineers 2002). Therefore, the Proposed Project would not directly affect groundwater supplies or lower the local groundwater table. **No impact** would result, and no further analysis is required in this EIR.

The impact discussion provided immediately above assumes the use of Holding Contract No. 7 and reclaimed water as the source of water for the Proposed Project, as reflected in Table 4.14-3 (Tesoro Viejo Buildout Projected Supply by Source During Average, Critical Dry, and Multiple Dry Years [AF Annually]) of Section 4.14 (Utilities and Service Systems) of this Revised EIR. However, on-site groundwater recently discovered to be available is now anticipated to be used under all water supply scenarios and, in the event Holding Contract No. 7 water is not available, off-site groundwater or MID water would also be used as a source of potable supply. The potential effects on groundwater supplies are evaluated in Impact 4.8-4 under the “On-Site Groundwater as a Source of Supply and Off-Site Groundwater as an Alternative Water Supply” subheading. Potential impacts related to the interference with groundwater recharge are also evaluated under Impact 4.8-4.

■ Impacts and Mitigation Measures

Threshold	Would the project violate any water quality standards or waste discharge requirements?
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The Proposed Project has the potential to result in significant impacts to water quality during construction and operational stages by increasing the concentration of pollutants in surface runoff. Pollutants in urban runoff can impact the beneficial uses of receiving waters and cause or threaten to cause a condition of pollution or nuisance. Potential construction and operational water quality impacts are discussed below.

Impact 4.8-1 Construction of the Proposed Project could increase stormwater pollutant loads or concentrations, but would not result in a violation of water quality standards or violation of waste discharge requirements. This is considered a *less-than-significant* impact.

During construction, the applicable waste discharge requirements (WDRs) would include the Construction General Permit and possibly the Low Threat Discharges General Permit. The applicable water quality standards are listed in the Basin Plan.

The Proposed Project would include construction activities, such as excavation and trenching for foundations and utilities, soil compaction, cut and fill activities, and grading, all of which would temporarily disturb soils. Disturbed soils are susceptible to higher rates of erosion from wind and rain, resulting in sediment transport from the site. Most (about 80 percent) of the native soils on site, as well as any fill slopes constructed with native soils, have a slight susceptibility to erosion (NRCS 2007). Some areas (about 18 percent) have a moderate susceptibility to erosion; these areas are primarily where slopes are steeper and those areas near drainage ways (NRCS 2007). Excavation and exposure of native soils

during construction would increase these materials' vulnerability to erosion, especially during heavy rain or wind.

Erosion and sedimentation affects water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Additionally, other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported downstream, which could contribute to degradation of water quality.

The delivery, handling, and storage of construction materials and wastes, as well as the use of construction equipment, could also introduce a risk for stormwater contamination that could impact water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination, and some hydrocarbon compound pollution associated with oil and grease can be toxic to aquatic organisms at low concentrations. Staging areas or building sites can also be the source of pollution due to the use of paints, solvents, cleaning agents, and metals during construction. Impacts associated with metals in stormwater include toxicity to aquatic organisms, such as bioaccumulation, and the potential contamination of drinking supplies. Pesticide use (i.e., herbicides, fungicides) associated with site preparation work (as opposed to pesticide use for landscaping) is another potential source of stormwater contamination. Pesticide impacts to water quality include toxicity to aquatic species and bioaccumulation in larger species. Larger pollutants, such as trash, debris, and organic matter, are additional pollutants that could be associated with construction activities. Impacts include health hazards and aquatic ecosystem damage associated with bacteria, viruses, and vectors. Construction activities could lead to exceedance of water quality standards or criteria.

All construction activities, including the adjacent off-site road improvements and installation and realignment of utilities, would be subject to existing regulatory requirements. In the event a water supply alternative that would pump water from the off-site CWCR wellfield is used (see Impact 4.8-4, below), a pipeline would be constructed within the County's Avenue 15 right-of-way directly from CWCR to the Project Site. The SWPPP requirements and BMPs outlined above would also be required for the pipeline, along with any necessary permits for stream crossings (see Impact 4.4-10 in Section 4.4 [Biological Resources]).

Under Municipal Code Chapter 14.50 (Grading and Erosion Control), the Proposed Project would be required to obtain a grading permit and would, therefore, have to demonstrate compliance with federal, state, and local grading and erosion control requirements, including the Construction General Permit. Typical construction BMPs for compliance with the Construction General Permit include, but are not necessarily limited to: scheduling or limiting activities to certain times of year; prohibiting certain construction practices; implementing equipment maintenance schedules and procedures; implementing a monitoring program; implementing other management practices to prevent or reduce pollution, such as using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks do not enter the storm drain system or surface waters; developing and implementing a spill prevention and cleanup plan; installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter drains or surface water.

Additionally, as phases of the project are developed, the storm drain system within each phase boundary would be constructed to its planned configurations with all inlets and master planned pipe sizes. If the Proposed Project phase has not yet incorporated the area detention basin, construction of temporary storm water detention facilities would then be constructed. These facilities would be designed to store the 100-year, 10-day storm event (runoff from 6 inches of precipitation), with enough capacity to serve the phased developed area. These post-construction stormwater detention facilities would, therefore, be active during construction and could serve as siltation basins, infiltration features, and runoff control BMPs during construction activities.

As mentioned in the Environmental Settings section, in some areas of the Project Site, the local shallow groundwater table where it is perched has been measured ~~at 6~~ as shallow as 2 to 20 feet below ground surface; generally, groundwater was measured between 6 and 40 feet below ground surface. The depth to the shallow groundwater table is often variable and depends upon precipitation and/or local recharge from or discharge to the streams, drainages, and tributaries within the area (e.g., the San Joaquin River). Consequently, construction dewatering may be required for construction of foundations and utility trenches. If construction dewatering is required, the Proposed Project would also be regulated under Low Threat Discharges General Permit, which was prepared by the RWQCB and is considered protective of water quality from construction dewatering because this type of discharge is not considered to have a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁶⁷

- **Adherence to Adopted Water Quality Policy**—The project shall comply with pertinent requirements of all applicable water quality policies, such as the *Clean Water Act*, the *Porter Cologne Water Quality Control Act*, *California Water Code*, the *Madera County General Plan*, and the *Madera County Code* (Chapter 14.50 [Grading and Erosion Control]).
- **Construction BMPs**—The project developer shall file an NOI with the State of California to comply with the requirements of the NPDES Construction General Permit. This will include the preparation of a SWPPP incorporating BMPs for construction-related control of erosion and sedimentation contained in stormwater runoff. The SWPPP may include, but would not necessarily be limited to, the following applicable measures:
 - > **Erosion and Sediment Control BMPs**, which may include the following: construction scheduling, such as phasing and season avoidance, to minimize erosion and sediment; perimeter protection, such as straw wattles or silt fences; velocity dissipation devices or check dams to prevent gully erosion and/or slow water down to allow sediment to settle out; runoff or run-on protection; soil stabilization, including stabilized construction entrances and roadways; wind erosion protection; street sweeping and storm drain inlet protection; and permanent or temporary disturbed area coverage.
 - > **Vehicle and Equipment Operation BMPs** (vehicle and equipment cleaning/maintenance, potable water/irrigation controls). Several types of vehicles and equipment would be used on site throughout the project, including graders, scrapers, excavators, loaders, paving equipment,

⁶⁷ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

rollers, trucks and trailers, backhoes, forklifts, generators, compressors, and traffic control equipment. All vehicle maintenance would be conducted at least 50 feet away from operational inlets and drainage facilities and on a level graded area. Drip plans or absorbent pads would be used for all vehicle and equipment maintenance activities that involve grease, oil, solvents, or other vehicle fluids. Vehicle and equipment fueling would take place in a contained staging area to prevent discharges of fuel and other vehicle fluids.

- > **Staging Areas.** Equipment staging areas to localize and establish BMPs for control of pollutants associated with equipment re-fueling, operation, and maintenance which may include the following: construction equipment shall be brought to the site no sooner than it is needed and shall be removed from the site as soon as practical; off-site major equipment maintenance; contained designated areas for vehicle and equipment maintenance facilities to prevent discharges of fuel and other vehicle fluids; contained designated areas for vehicle and equipment fueling to prevent discharges of fuel and other vehicle fluids.
- > **Waste Management and Materials Management BMPs.** Waste management and material pollution BMPs for control of pollutants associated with the storage of construction materials and construction activities may include the following: material delivery and storage; material use; stockpile management; spill prevention and control; solid waste management; sanitary/septic waste management; hazardous waste management; contaminated soil management; and concrete waste management.
- **Low Threat Discharges General Permit.** If construction dewatering is required, the project developer shall file prepare and submit a Notice of Intent (NOI), a Stormwater Pollution Prevention Plan (SWPPP) and a Monitoring and Reporting Program. Requirements of this General Permit include the following:
 - > Effluent limitations for biochemical oxygen demand (BOD), total suspended solids, and settleable solids. If effluent is discharged into a surface water body, additional chlorine and pH limitations are imposed.
 - > The average dry weather (May through October) discharge flow shall not exceed 0.25 MGD unless the discharge is four months or less in duration in which case there is no flow limit.
 - > Receiving water limitations based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit
- **Madera County Code Grading Permit Requirements.** Grading permit requirements are listed in the *Madera County Municipal Code* and including compliance with adopted building code, specific and general plans, and grading activity adherence to all federal, state, and local laws, regulations, and directives (Section 14.50.030, Ord. 445-B § 2(part), 2006).
 - > Section 14.50.060 lists the grading permit standards. Minimum grading permit standards require compliance with current adopted building code using standard engineering practices common to the industry and following of standard approved guidelines such as: the current California Department of Transportation (Caltrans) Highway Design Manual, the current Caltrans Storm Water Quality Handbook; the current Caltrans Construction Site Best Management Practices (BMP) Manual, and the United States Department of Transportation, Federal Highway Administration Publications such as Urban Drainage Design Manual (Ord. 445-B § 2(part), 2006).
 - > Section 14.50.080 requires that all drainage and erosion control measures shall adhere to federal, state and local laws and any additional requirements that the county engineer and/or county road commissioner may deem necessary (Ord. 445-B § 2(part), 2006).

- > Section 14.50.100 requires county engineer and his authorized representatives to conduct inspections as deemed necessary to ensure compliance with the approved plans and conditions of the grading permit.

The development of a construction SWPPP has been identified by the SWRCB as an appropriate protective mechanism for water quality during construction activities. Incorporation of required BMPs would reduce the potential discharge of stormwater pollutants from these sources. *Madera County Code* requires a grading permit prior to construction that meets all federal, state and local laws, regulations, and directives for grading activities, which would ensure preparation of a SWPPP and implementation of effective BMPs.

Adherence to applicable water quality laws, preparation of an SWPPP, compliance with the *Madera County Municipal Code*, and, potentially, compliance with the Low Threat Discharges General Permit would ensure that water quality standards are not violated during construction. Consequently, potential impacts associated with violation of waste discharge requirements or water quality standards during construction would be *less than significant*. No mitigation is required.

Impact 4.8-2 Operation of the Proposed Project would increase pollutant loads that could result in a potentially significant impact on violation of water quality standards or a substantial degradation of water quality. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.8-2(a) and MM4.8-2(b) would reduce this impact to a *less-than-significant* level.

Treated effluent will be used for irrigation of all major street median islands, major street frontage landscaping, parks, and other irrigated recreational open space, including VLDR open spaces. Treated effluent may also be used for agricultural irrigation and for industrial uses where, allowed.

For the Tesoro Viejo project, the required spray disposal acreage needed during a 100-year annual rainfall year will be 515 acres of Bermuda grass. All disposal is currently planned to occur within the Project Site. However, if there is excess effluent, it could be used on other land outside the Project Site or, if permitted, discharged through drainages to the San Joaquin River in exchange for additional freshwater diversions. The remainder of the Rio Mesa Community Village will require an additional 115 acres of disposal land, totaling 630 acres needed to dispose of all 2,128 AF of effluent produced per year in the Rio Mesa Community Village. Lesser amounts of acreage are needed in dryer years. (See Appendix D of the IMP, which is provided in Appendix I of this EIR, for further discussion and detail.) As development occurs, reclaimed water in excess of the amount needed for allowable uses within the developed areas of the Project Site will be used to irrigate agricultural land within the Community Village currently using river water, and may be used for off-site agricultural irrigation. It is anticipated that there will be more than adequate off-site potential demand if any excess effluent is available.

There are currently no WDRs applicable to the developed Proposed Project. However, the WWTP would require an individual WDR or Master Reclamation Permit for discharge of treated effluent to the land surface. As planned, the Proposed Project would not discharge wastewater or reclaimed wastewater directly to a surface water body. However, if it is decided that untreated effluent would be discharged to the San Joaquin River or other surface water, an individual NPDES Permit would be required.

Additionally, municipal stormwater discharges to surface water would require coverage under the Small MS4 General Permit. Municipal stormwater discharges to land surfaces would require an individual WDR. The applicable water quality standards are listed in the Basin Plan.

In accordance with the IMP that must be approved by Madera County prior to receiving a building permit, most wastewater produced on the Project Site would be processed at a WWTP and treated to Title 22 standards for reclaimed water usage. The Proposed Project intends to reclaim treated effluent for landscape and/or agriculture irrigation, which would be consistent with wastewater recycling standards in the *California Water Code*. However, the Project Applicant is considering several options for disposal of any excess effluent produced over the years, although all effluent is expected to be used for on-site irrigation at the present time. The options include, but are not limited to the following: discharge to the San Joaquin River; transport to an offsite storage pond via an underground pipe for application to crop land not adjacent to the Rio Mesa Community Village; or the allowance of percolation of the excess treated effluent into the groundwater basin through unlined storage basins. One or a combination of these options could be used if there were to be excess effluent.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁶⁸

- **County Code Prohibiting Certain Discharges.** Section 13.87.010 restricts the unlawful discharge of sewage, effluent, or garbage on land or to surface waters (Ord. 232 §1, 1957). This provision ensures compliance with the WDR or individual NPDES obtained by the WWTP.

Irrigation with Reclaimed Water

When treated wastewater is used for irrigation, the WWTP must comply with existing regulatory requirements and obtain a Master Reclamation Permit. The Master Reclamation Permit would ensure compliance with Title 22 human health safety criteria and applicable criteria for prevention of potential water quality impairment.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁶⁹

- **Master Reclamation Permit.** The WWTP must file a report with the RWQCB and obtain a Master Reclamation Permit (CWC section 13523.1). The reclaimed water must meet DPH criteria for each type of use of recycled water as contained in Title 22, CCR.

The RWQCBs have primary responsibility for issuing WDRs, such as the Master Reclamation Permit. WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions. Violations of WDRs may be addressed by issuing Cleanup and Abatement Orders (CAOs) or Cease and Desist Orders (CDOs), assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

⁶⁸ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

⁶⁹ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

Land Disposal of Effluent

If the WWTP does not use effluent for irrigation, but simply disposes of treated effluent on the land surface, an individual WDR would be required. The individual WDR would contain permit conditions to protect water quality from potential impairment.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁷⁰

- **Individual WDR.** The WWTP would have to apply for an individual WDR for disposal of treated effluent to the land surface. The WWTP would submit a Report of Waste Discharge to the RWQCB including information on effluent characteristics and quantities and disposal site characteristics. The RWQCB would evaluate the potential for discharge to degrade water quality and issue an individual WDR with discharge limitations or a waiver of a WDR if discharge would not cause or contribute to water quality degradation. Violations of WDRs may be addressed by issuing Cleanup and Abatement Orders (CAOs) or Cease and Desist Orders (CDOs), assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

Discharge to Surface Waters

If the WWTP discharges effluent to a water body, such as the San Joaquin River, an individual NPDES permit would be required. The NPDES permit would include effluent discharge limitations and receiving water limitations. These permit conditions would be developed by the RWQCB in order to protect water resources and ensure its continued ability to support designated beneficial uses.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁷¹

- **Individual NPDES Permit.** The WWTP would have to obtain an individual NPDES permit for disposal of treated effluent to the San Joaquin River or other water body. The WWTP would submit a Report of Waste Discharge to the RWQCB and application for an NPDES permit. The RWQCB would evaluate the potential for discharge to degrade water quality and issue an individual NPDES permit with effluent limitations, receiving water limitation, and monitoring and reporting requirements. Violations of the NPDES permit may be addressed by issuing Cleanup and Abatement Orders (CAOs) or Cease and Desist Orders (CDOs), assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

Regardless of the final chosen treated effluent disposal option(s), the Proposed Project would be subject to existing regulatory requirements and permit conditions developed by the RWQCB for the intended discharge. Therefore, reclaimed treated effluent use or effluent disposal would not substantially degrade water quality and would not violate water quality standards. Monitoring and reporting requirements inherent in either WDR would reduce the potential for violation of WDRs. Enforcement provisions within the WDR would require mitigation and possible judicial liability if a violation occurred. Therefore,

⁷⁰ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

⁷¹ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

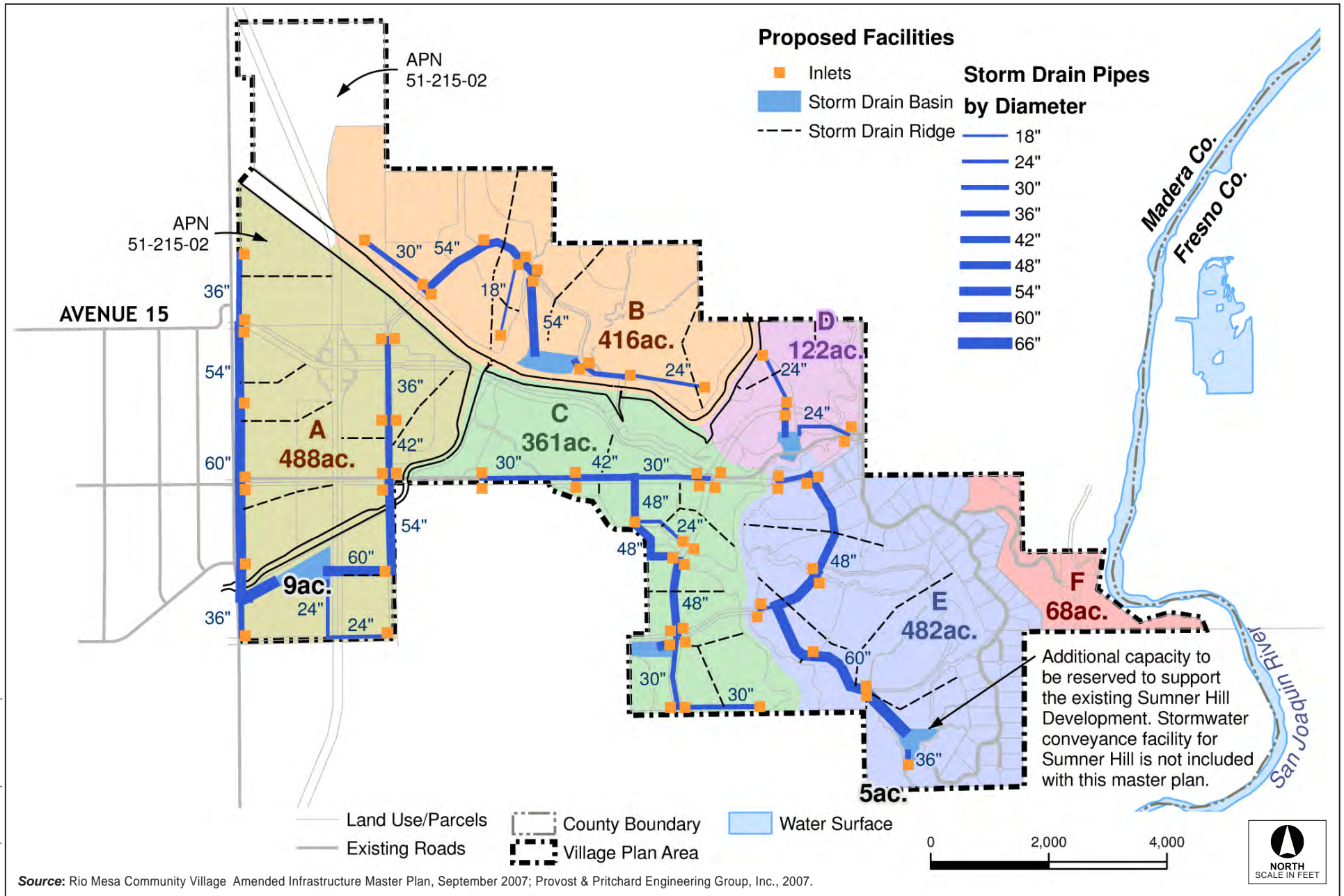
the potential for Proposed Project violation of water quality standards or waste discharge requirements from WWTP effluent management would be *less than significant*.

Stormwater

Operation of the Proposed Project would result in a significant change in land use and the potential for increased site runoff. The Project Site would change from orchards, vineyards, other agricultural uses, and vacant lands to developed urban land uses. During the operational phase of the Proposed Project, the major source of pollution in stormwater runoff would be contaminants that have accumulated on rooftops and other impervious surfaces, such as parking lots, pedestrian walkways, and off-site road improvements prior to connecting to the storm drain system. Pollutants associated with the operational phase of the Proposed Project would include nutrients, oil and grease, metals, organics, pesticides, and gross pollutants (including bacteria). Nutrients that may be present in post-construction stormwater include nitrogen and phosphorous resulting from fertilizers applied to landscaping and atmospheric deposition. Excess nutrients can impact water quality by promoting excessive and/or rapid growth of aquatic vegetation, which reduces water clarity and results in oxygen depletion. Pesticides, which are toxic to aquatic organisms and can bioaccumulate in larger species, such as birds and fish, can also enter stormwater after application on landscaping areas. Oil and grease can enter stormwater from vehicle leaks, traffic, and maintenance activities. Metals may enter stormwater as surfaces corrode, decay, or leach. Potential gross pollutants associated with operational activities include clippings associated with landscape maintenance, street litter, and pathogens (bacteria). Pathogens from sanitary sewer overflows, spills, and leaks from portable toilets, pets, and wildlife and human activities can impact water contact recreation, noncontact water recreation, and shellfish harvesting. Table 4.8-2 (Typical Pollutant Concentrations in Stormwater) lists the typical pollutant concentrations in stormwater runoff from different land uses, while Table 4.8-4 (Estimated Pollutant Loads without BMPs) shows the estimated change in mean annual pollutant loads for the entire project area without the incorporation of any post-construction stormwater quality BMPs.

Overall, without BMPs, the Proposed Project would substantially increase pollutant loads from the Project Site. However, the Proposed Project includes five large stormwater detention basins serving five drainage areas (catchments). These stormwater basins could serve to reduce potential pollutant transport from the developed Project Site. Their effectiveness would depend upon the amount of water treated, site characteristics, and the functional characteristics of the basins.

According to the IMP, these basins will be designed to retain the difference between the project and existing conditions runoff from the 100-year 10-day storm event (6 inches of precipitation) for each catchment area (see Figure 4.8-2 [Proposed Backbone Storm Drainage System]). This difference in runoff is listed in Table 4.8-5 (Estimated Detention Pond Required Volumes), and it represents the volume of stormwater the basins can hold and potentially treat.



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Figure 4.8-2
Proposed Backbone Storm Drainage System

Table 4.8-4 Estimated Pollutant Loads without BMPs

Pollutant	Pollutant Load (lbs)			Required Removal (percent)
	Existing	Proposed Project ^a	Increase	
Total Suspended Solids	77,242	121,227	43,984	36
Total Phosphorous	95	734	639	87
Filtered phosphorous	207	388	181	47
Total Nitrogen	11,79	3,301	2,123	64
Inorganic-Nitrogen	287	812	526	65
Total Copper	16	31	15	49
Total Lead	16	32	16	50
Total Zinc	64	199	135	68
Oil and Grease	2,070	8,916	6,846	77
	Billions of colonies			
Fecal Coliforms	52,261	231,700	179,440	77

SOURCE: PBS&J 2007

^a Proposed Project loads used an area-weighted average runoff coefficient and area-weighted average concentrations in stormwater. Developed areas' corresponding land uses for stormwater concentrations were either residential, vacant, or commercial for all nonresidential and nonvacant land uses.

Table 4.8-5 Estimated Detention Pond Required Volumes

IMP Catchment	Catchment Area (acres)	Detention Volume (acre-feet)
A	488	117
B	416	34.3
C	361	29.8
D	122	10.1
E	482	34.9
F	68	3.4

SOURCES: PBS&J 2007

The estimated runoff with the Proposed Project for smaller storm events (that is, a 10-year 24-hour storm event) is listed in Table 4.8-3 (Estimated Proposed Project Stormwater Runoff). A comparison of the required detention volume and the estimated Proposed Project runoff shows that detention basins would be large enough to retain runoff from both the first flush (first 0.5 inch of rainfall) and 10-year 24-hour storm event. However, stormwater runoff from larger events (that is, the 100-year 10-day storm event) could exceed the detention capacity, and stormwater in excess of the basins' capacities could overflow and continue downstream. Therefore, the detention basins must provide some stormwater quality treatment prior to stormwater discharge to the San Joaquin River system, if it occurs because the detention capacity of the basins has been exceeded. In order to provide flexibility in the design of the detention basins, yet to provide enough technical detail to satisfy the requirements of CEQA, one (or a combination) of the design options identified in mitigation measure MM4.8-2(a) shall be implemented, or another design option providing the same level of detention and treatment (detention) shall be provided. Potential operational characteristics of the detention basins are described below:

MM4.8-2(a)

- **Wet Pond.** *The stormwater detention basins could operate as stormwater wet ponds if a permanent pool of water is maintained (i.e., the bottom of the basin intersect the local shallow groundwater table). Wet ponds treat incoming stormwater runoff by settling and algal uptake. The primary removal mechanism is settling while stormwater runoff resides in the pool. Nutrient uptake also occurs through biological activity in the pond. While there are several different versions of the wet pond design, the most common modification is the extended detention wet pond, where storage is provided above the permanent pool in order to detain stormwater runoff in order to provide greater settling*
- **Dry Extended Detention Pond.** *If all stormwater infiltrates or is discharged through control structures such that the pond completely drains within a certain time frame (e.g., 24 to 72 hours), the basins would function as dry extended detention ponds. Dry extended detention ponds (e.g., dry ponds, extended detention basins, detention ponds, and extended detention ponds) are basins whose outlets are designed to detain the stormwater runoff from a water quality “storm” for some minimum duration, which allow sediment particles and associated pollutants to settle out. Unlike wet ponds, dry extended detention ponds do not have a permanent pool. However, dry extended detention ponds are often designed with small pools at the inlet and outlet of the pond, and can also be used to provide flood control by including additional detention storage above the extended detention level.*
- **Stormwater Wetland.** *If basins are designed to have some standing water in a shallow pool for an extended period of time, they may act as stormwater wetlands. Stormwater wetlands are structural practices similar to wet ponds that incorporate wetland plants in a shallow pool. As stormwater runoff flows through the wetland, pollutant removal is achieved by settling and biological uptake within the practice. Stormwater wetlands are designed specifically for the purpose of treating stormwater runoff, and typically have less biodiversity than natural wetlands both in terms of plant and animal life.*

Soils in the area indicate that there are limitations to creating ponds and reservoirs on the entire Project Site; the depth to bedrock or a hard pan is shallow and lateral seepage⁷² is considered a limitation (NRCS 2007). Consequently, the detention ponds may have to be lined to completely retain stormwater runoff or stormwater entering the basins.⁷³ For water quality treatment, if stormwater is allowed to seep out the bottom, the ponds would likely act as dry detention basins. If stormwater is kept within the ponds and not allowed to seep out or otherwise drain from the basin, the basins would likely act as wet retention pond or stormwater wetlands, at least during the wet-weather season. Table 4.8-6 (BMP Expected Pollutant Removal Rates) lists the expected pollutant removal rates for the different treatment systems identified in mitigation measure MM4.8-2(a).

The concept of the stormwater detention basins described in the IMP could, therefore, substantially reduce pollutant loads from the Proposed Project; however, they would not likely reduce pollutant loads to the levels of existing conditions, except for total suspended solids (sediment). Potential pollutant contributions to water quality degradation would remain substantial.

⁷² Lateral seepage would result from relatively high infiltration rates in the thin surface layer, followed by subsurface runoff when infiltrating water reaches the underlying bedrock or other limiting layer. See below for subsurface runoff.

⁷³ Subsurface runoff occurs when infiltration water reaches a confining layer that limits downward movement. At the confining layer, saturate conditions could occur and water would flow along the top of the confining layer, following the slope gradient, until either seeping out to the surface or reaching an unconfined area and continuing percolation to greater depths.

The IMP, which was prepared for the Proposed Project, identifies a combination of standard storm sewers, detention basins, and landscaped/structural BMPs to handle stormwater effluent. Structural BMPs would treat stormwater through processes such as filtering, adsorption, and infiltration. There are various types of structural BMPs that could be used at the Project Site and that would be more or less effective for water quality management, depending upon their characteristics, the route stormwater takes

<i>Pollutant</i>	<i>Expected Removal Rates (percent)^d</i>		
	<i>Wet Pond^a</i>	<i>Dry Extended Detention Pond^b</i>	<i>Stormwater Wetland^c</i>
Total Suspended Solids	80 (27)	61 (32)	71 (35)
Total Phosphorous	51 (21)	20 (13)	56 (35)
Total Nitrogen	33 (20)	31 (16)	19 (29)
Inorganic-Nitrogen	43 (38)	-1 (23)	40 (68)
Metals	29 to 73	29 to 54	0 to 57
Bacteria	70 (32)	78	NA

SOURCES: ^a CWP n.d.c
^b CWP n.d.a
^c CWP n.d.b; extended detention wetland or pool/wetland system
^d Values in parenthesis are the standard deviation
NA = not available

to reach the systems, and whether or not pretreatment occurs. The IMP discusses the possibility of using a combination of biofiltering swales and porous paving in addition to the five detention basins.⁷⁴

While there is no existing stormwater conveyance system at the Project Site, the Applicant would be expected to apply for coverage under the NPDES Small MS4 General Permit as a separate discharger⁷⁵ or comply with Madera County SWMP when it is approved by the RWQCB and after the on-site constructed stormwater drainage system is implemented. As part of the application for coverage under the Small MS4 General Permit, the Applicant would be required to develop an approved SWMP in order to discharge stormwater to the San Joaquin River system and tributaries, and the Proposed Project IMP requires that runoff and pollutant loads do not exceed existing conditions.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁷⁶

⁷⁴ Detention basins are generally designed as flood control rather than treatment facilities, but they may work with treatment facilities to hold and gradually release excess flows at rates that can be managed by structural BMPs. They can also be useful in settling suspended sediment, helping to minimize hydromodification effects.

⁷⁵ Pursuant to SWRCB or RWQCB identification that the Proposed Project is a small MS4 operator under the guidelines of the current NPDES Small MS4 General Permit at the time of identification. The SWRCB or the RWQCB evaluates communities with separate storm and sanitary sewer systems based on the community population and growth rates, as well as other factors, to determine when and if permit coverage is necessary. It is estimated that the Proposed Project may meet the conditions for identification as a small MS4 subject to the NPDES Small MS4 Permit conditions at 50 percent build-out. The current NPDES Small MS4 General Permit expires on April 30, 2008 and continued or new permits are typically issued every 5 years.

⁷⁶ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

- **Runoff and Pollutant Loads Not to Exceed Existing Conditions.** Pursuant to stated policies in the Proposed Project IMP (the latter of which would be officially adopted by Madera County prior to approving the project), BMPs and stormwater treatment practices shall ensure that pollutant loads do not exceed existing levels with implementation of the Proposed Project. Any other BMPs or combination of BMPs other than those identified in the IMP or in MM4.8-2(a) that achieve this performance standard could also be used, provided that the removal efficiency is demonstrated and documented to the RWQCB, that site characteristics do not limit the BMPs implementation, and that the targeted reductions are met.

Mitigation measure MM4.8-2(b) would require implementation of a SQMP to comply with the target for no-net increase in pollutant loads.

However, as mentioned previously, the Proposed Project intends to include infiltration BMPs to reduce runoff rates and to prevent polluted stormwater from entering the storm drainage system. Stormwater runoff from urban areas may contain pollutants (see Table 4.8-4) that might eventually percolate to groundwater through the infiltration methods provided by Proposed Project BMPs. Nitrate pollution is a major pollution concern for the San Joaquin River Groundwater Basin. Since 1980, over 200 municipal supply wells have been closed in the Central Valley because of nitrate levels exceeding the State's 45 mg/l drinking water standard (RWQCB 1998). Nitrates, which are by-products of agricultural and domestic fertilizers, reach the groundwater through infiltration of stormwater runoff. Fertilizers used on site could increase nitrate concentrations. Table 4.8-4 indicates the Proposed Project could result in a 65 percent increase in nitrate concentrations in stormwater runoff.

Mitigation measure MM4.8-2(b) would also reduce potential degradation of groundwater quality caused by pollutants in stormwater by ensuring a slow infiltration rate for BMPs to allow more time for filtering and cleaning pollutants from stormwater as it infiltrates through the soil profile, and by incorporating BMPs to maximize nitrogen removal through sorption and uptake processes, including plant uptake of nutrients.

To reduce potential pollutant loads from the Proposed Project, the following Mitigation Measure shall be implemented to clarify the management strategies in the existing IMP and future SWMPP:

*MM4.8-2(b) **Stormwater Quality Management Plan.** The Project Applicant shall prepare and implement an approved Stormwater Management Plan (SQMP) and obtain coverage under the Small MS4 General Permit. The following standard stormwater quality BMPs, or similar practices, shall be required in the SQMP.*

Education

- *Educational materials concerning stormwater quality protection shall be provided to the owner of the development and BMPs and shall be distributed to all employees. Educational materials shall also be provided to residents and commercial building occupants.*
- *A spill contingency plan shall be provided to employees in the commercial and light industrial portions of the Proposed Project in accordance with Section 6.95 of the California Health and Safety Code.*
- *The maintenance program shall include signage that informs the public that there is "no dumping allowed" in storm drains.*

Operations and Maintenance

- *A BMP Operations and Maintenance Program (OMP) shall be developed and implemented to ensure continued functioning and effectiveness of BMPs and shall be incorporated as part of the SQMP. The BMP OMP shall include, at a minimum, inspection and maintenance of all structural BMPs on the property; a report of non-structural BMP operating protocols, inspection, and compliance; and reporting requirements. The BMP OMP must be approved by the County of Madera Director of Public Works or their designee prior to the beginning of occupancy. The owner shall be responsible for the BMP OMP. The BMP OMP can be administered through lease agreements assigning responsibility to the occupants or creation of a separate entity with responsibility. If property titles are transferred, the new owner shall be responsible for their respective portion of the BMP OMP.*
- *Stabilization of all disturbed areas through revegetation or other erosion control practices. Mulch, plastic sheeting, erosion control blankets, or sandbags shall be used to control erosion caused by rainfall until surfaces have been stabilized*
- *The storm drain system shall incorporate common area catch basins that shall be inspected and cleaned monthly. They shall also be inspected before, during and after storms.*
- *Storm drain inlet trash racks shall be inspected, and maintained before, during and after storms.*
- *For both the residential and commercial portions of the Proposed Project, open areas shall be maintained neat, clean, and free from trash or debris at all times, to prevent contamination of stormwater and to ensure proper drainage. The site shall be inspected weekly, and trash would be cleaned up. For the commercial area, trash storage areas would be constructed.*
- *Streets and parking lots shall be swept weekly during the wet weather season beginning October 15 through April 30. During the dry season, streets and parking lots shall be swept every two weeks. A dry vacuum-assisted street sweeper shall be used.*
- *Operation and maintenance BMPs for public and commercial area irrigation and landscaping shall include weekly inspection, clean up and maintenance, and quarterly adjustment of irrigation systems.*

Landscaping Requirements⁷⁷

- *Landscaped areas shall be designed to maximize natural water storage and infiltration opportunities.*
- *Pesticides in common areas must be applied by an applicator certified by the State of California.*
- *All irrigation systems for public and commercial area shall be designed to incorporate water efficient irrigation technologies and shall be adjusted quarterly for maximum efficiency.*
- *All irrigation operations shall not cause or contribute to nuisance⁷⁸ runoff conditions*

Nutrient and Pesticide Management Plan (NPMP)

- *The NPMP shall include requirements and recommendations for nutrient and pesticide handling, use, and disposal to minimize transport of landscape and lawn chemicals in stormwater runoff or infiltration to groundwater.*

⁷⁷ There is no requirement for the use of drought tolerant trees and shrubs because of the excess effluent that will be available for irrigation purposes.

⁷⁸ Nuisance runoff conditions are defined as dry weather flow such as over irrigation, car washing, pool draining, and other potential nonstormwater runoff to the storm drain system.

- *The NPMP shall detail individual, private property requirements and recommendations, as well as public area requirements and maintenance practices.*
- *Quick-release fertilizers shall not be allowed for any application; organic fertilizers and use of reclaimed water shall be encouraged.*
- *All contractors maintaining public landscaped areas shall be trained in accordance with the NPMP practices and shall comply with provisions set forth.*
- *Each resident shall be provided with a copy of the NPMP and an accompanying fact sheet identifying individual responsibilities.*

Other BMPs

- *Erosion control and drainage BMPs shall be implemented where required; appropriate paving of exposed ground surfaces, landscaping, providing terraces on slopes, placing berms at the tops of slopes, velocity dissipation devices at all outlets, and installing adequate storm drain systems shall be used where necessary. Porous paving is suggested in the IMP. Porous paving shall be used to the maximum extent practicable and shall consist of either vegetated, graveled, pervious concrete, or pervious asphalt materials; porous pavement blocks shall not be used unless the SQMP-associated OMP details maintenance protocols to ensure continued functioning and effectiveness.*
- *Graded slopes shall be protected until healthy plant growth or other soil stabilization is established.*
- *Proposed new slopes shall be protected with planting of shrubs and ground cover to assist in rainwater absorption and erosion control.*
- *Landscaped buffers shall be placed between residential and commercial areas, except in mixed-use areas*
- *Roof top runoff shall be directed to landscaped areas, swales, rain gardens, biofiltration devices, filter strips, or other filtration and treatment BMP, to the maximum extent practicable.*
- *The Proposed Project commercial, institutional, and light industrial areas shall have extensive foundation planting with shrubs and other ground cover to the maximum extent practicable. Roof runoff shall drain into these landscaped areas and runoff that does not infiltrate therein, would drain to catch basins.*
- *Parking lots shall be designed to drain to landscaped areas, biofiltration areas, swales, or other filtration/treatment BMPs prior to entering the storm drain system.*
- *Parking lots, streets, and sidewalks shall be designed to minimum feasible widths*
- *Implement water conservation practices similar to those specified in Madera County Code Section 13.55.020, except in such situations where excess reclaimed water is available for the use.*

Performance Standards

- *The selected stormwater quality BMPs incorporated in the SQMP shall be targeted to reduce stormwater pollutant loads to existing conditions levels. In combination, the BMPs shall have expected pollutant removal rates targeted to reduce Project Site stormwater pollutant loads by at least as much as listed in the "Required Removal" column of Table 4.8-4 (Estimated Pollutant Loads Without BMPs).*
- *Stormwater detention basins shall be designed for effectiveness in reducing pollutant loads, as well as detaining stormwater runoff flows. The potential pollutant removal of these stormwater detention basins shall be included in the overall SQMP design to meet targeted reduction rates.*

- *The design, construction, and maintenance of structural BMPs shall be in accordance with the California Stormwater Quality Association New Development and Redevelopment Handbook (CASQA 2004) or other established guidelines and handbooks (such as the FMFCD standards and guidelines or Caltrans BMPs), and applicable regulations for stormwater quality BMPs.*

Preferred BMPs

- *If deemed acceptable by Madera County, underground or above-ground cisterns should be considered for stormwater detention and subsequent landscape irrigation where implementation would not result in additional substantial environmental impacts.*
- *Maximize the use of dry swales, or grassed/vegetated channels, where soil infiltration conditions are sufficient, to treat stormwater runoff prior to discharge to the Proposed Project storm drain system.*
- *Porous concrete/asphalt is preferred for parking lots and other areas where heavy traffic and vehicles would not be a design constraint. Porous concrete/asphalt would effectively reduce the amount of directly connected impervious area and contributions to stormwater runoff when properly designed and implemented.*
- *Bioretention should be used to the maximum extent practicable:*
 - > *Landscape areas shall be implemented as bioretention BMPs to the maximum extent practicable, especially in parking lot areas, along medians, and in the buffer area between commercial and residential land uses. They are intended to receive and filter storm runoff from both impervious areas and lawns.*
 - > *Parking lots and streets draining into bioretention areas should drain as sheet flow or should have curbs with curb inlets regularly spaced to accept drainage into the swale*

Limitations on BMPs

- *Underground sand filters shall not be used unless provisions are made to remove ammonia and other nitrogen sources prior to discharge to the sand filters. This is because underground sand filters may increase nitrate concentrations as ammonia in the stormwater undergoes nitrification in the filter environment.*
- *Flow velocity through grassed swales and channels shall not exceed 5.2 feet per second through the swale*
- *Bioretention system must not be placed into operation until the contributing drainage area is completely stabilized. Therefore, system construction must either be delayed or upstream runoff diverted around the system until such stabilization is achieved. Such diversions must continue until stabilization is achieved.*

Limitations on Infiltration BMPs

- *Infiltration rate tests of the top 5-feet of soil below the bottom of the infiltration BMP shall be conducted for all areas selected for Infiltration BMPs. Infiltration BMPs shall not be located in soils where the infiltration rate exceeds 10 inches per hour or is less than 0.1 inch per hour, unless suitable augmentation is incorporated into the design to effectively remove pollutants from the infiltrating stormwater.*
- *Infiltration BMPs shall not be installed until the drainage area has been stabilized.*
- *All infiltration BMPs shall incorporate pretreatment, preferably in the form of swales, vegetated buffers, or bioretention areas.*

- *Infiltration facilities are subject to clogging and, therefore, are not recommended for areas where sediment, grease, or oil loadings may be high. Such areas include roadways, parking lots, car service facilities, and others. To increase the life expectancy of an infiltration facility, a pretreatment facility, such as a settling basin or “cell,” or additional BMPs in a series should be used to remove sediments or other substances from the stormwater runoff before it enters the infiltration facility.*
- *Any pretreatment facility design should be included in the design of the infiltration basing/ trench, complete with maintenance and inspection requirements.*
- *For infiltration trenches, a grass strip or other type of vegetated buffer at least 20 feet wide shall be maintained around the trench, to the maximum extent practicable, and accept surface runoff as sheet flow.*
- *Stormwater runoff that has the potential to reach the groundwater table through infiltration or other means should be treated sufficiently prior to release such that additional filtration, through soil percolation, would reduce potential pollutants to levels that would not result in exceedance of existing groundwater quality.*
- *Concrete swales and v-ditches shall not be installed and used to convey stormwater or nuisance runoff unless used to direct runoff to an appropriate stormwater pre-treatment BMP and incorporates appropriate energy dissipation. Concrete swales and v-ditches would bypass any potential treatment through soils or buffer areas prior to discharge and increase the potential for concentrated flows and associated erosion at the outlet. Furthermore, concrete ditches would reduce the potential for groundwater recharge and water conservation.*

This mitigation measure is intended to provide for sufficient water quality protection regardless of whether the County of Madera obtains an approved SWMP or when/if the Proposed Project is required to obtain coverage under the NPDES Small MS4 General Permit. Many of the BMPs outlined in mitigation measure MM4.8-2(b) are nonstructural BMPs, such as educational, maintenance, or other practices designed to minimize water quality impacts. Selection, siting, and implementation of structural BMPs are to be incorporated during the Proposed Project site design, but would have to comply with the performance standards and limitations on BMPs. In addition, as required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁷⁹

- **Madera County Code Plans and Specifications.** Pursuant to the *Madera County Code*, the Project Applicant shall comply with the requirements for Accompanying Material (Section 17.24.250) including the following:
 - > Plans and specifications of the proposed utility improvements together with the necessary security or guarantees (includes all relevant hydrology and hydraulic calculations of storm drain capacity and post-project flow). The Project Site plans shall include a site plan showing all structural BMPs; stormwater routing to and through the BMPs; stormwater BMP inlet, outlet, and contributing area; design characteristics (e.g., infiltration rate and amount of infiltration capacity, and drainage time; swale length, depth, flow velocity, treatment volume); and schematic showing a typical form in both plan view and cross-section.
 - > A construction program consisting of a statement showing specifically the manner of installation of the utility improvements, including drainage plans, together with a detailed

⁷⁹ Because these are requirements of law, statute, or regulation, or are part of the Project’s description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

schedule of the time of the installation of each phase of the construction, signed by the county engineer with a correlation of the respective services.

- > Four complete sets of plans, specifications and calculations shall be submitted for review to the Planning Department. These plans shall show the location and design features of all proposed stormwater BMPs, as well as calculations of the estimated pollutant load reduction that each BMP would achieve based on specifications in published BMP literature

Furthermore, implementation of mitigation measure MM4.8-2(b) would ensure that BMPs are properly implemented and maintained to achieve long-term stormwater quality treatment effectiveness.

MM4.8-2(c) Identify an entity to manage the operation and maintenance of the on-site stormwater and water quality management systems, such as the stormwater detention basins. The entity shall be responsible for on-site management system maintenance and performance goals, and shall establish a Stormwater and Water Quality management program, which shall include the following:

- *Public outreach*
- *Technical guidelines for site evaluation, design, construction, and operation of BMPs*
- *Regular system inspections*
- *Technical training of staff*
- *Funding mechanisms*

All of the requirements of federal, state, or local statutes, laws, or regulations, as well as mitigation measures MM4.8-2(a), MM4.8-2(b), and MM4.8-2(c) would reduce the potential impacts of stormwater on surface water or groundwater quality such that there would be no violation of WDRs or water quality standards. Potential impacts would be *less than significant*.

Impact 4.8-3 **The Proposed Project would include on-site sewage systems in an area near the San Joaquin River. On-site sewage systems can contribute to ground and surface water quality degradation that could contribute to a violation of water quality standards. This is considered a potentially significant impact. However, implementation of mitigation measure MM4.8-3(a) or MM4.8-3(b) would reduce this impact to a *less-than-significant* level.**

On-Site Sewage Systems

As noted in the IMP, the Proposed Project includes on-site sewage treatment systems⁸⁰ located within the eastern portion of the property, along the San Joaquin River. The remainder of the wastewater will be conveyed to the proposed permanent treatment plant located north of Avenue 14 and east of the existing

⁸⁰ On-site sewage treatment systems are also known as septic systems. The complete septic system has three primary components: plumbing, which collects wastewater; the septic tank, which provides primary treatment and settles out the larger solids, provides some level of breakdown of organic matter, and provides storage capacity (usually from 3-10 days for a family of four); and soil treatment, which provides secondary and tertiary treatment and filters pathogens, contributes to final breakdown of organic matter, provides some phosphorus removal depending on soil, and disperses the effluent. Additional treatment capacity may be added between the septic tank and the final soil-dispersal. The exact type of on-site sewage system to be used on the Project Site has not yet been defined and would be subject to site conditions, regulatory requirements, and other considerations discussed.

SR-41 alignment⁸¹. The area with potential on-site septic systems has been designated as very low density residential (0.3 to 2.0 dwelling units per acre) and a special purpose land use area for river-oriented recreation commercial uses adjacent to the river.

For on-site sewage systems to effectively clean pollutants out of sewage, there must be adequate physical, chemical, and biological conditions to allow enough time for soil filtration, plant and soil uptake processes, and adequate aeration for microbial and chemical degradation processes relative to the sewage load. If soil infiltration is rapid, wastewater effluent can quickly move through soils and into the shallow groundwater without receiving adequate filtration and treatment. If infiltration is too slow, the effluent saturates the soils creating anoxic (no oxygen) conditions that inhibit microbial and chemical degradation and plant uptake of nutrients and pollutants.

Shallow groundwater tables are susceptible to contamination by wastewater effluent, as well as structures, such as water supply wells and other supply or drainage lines. Additionally, surface water quality can be affected by inadequate on-site sewage treatment because rainfall may pond and run off to areas with saturated soils; precipitation may pick up nutrients and pollutants in the surface layers and then contribute to subsurface runoff (interflow) to surface waters; shallow groundwater contamination may contaminate surface water if there is a high level of interaction between surface water and shallow groundwater (as is the case near the San Joaquin River); and confining layers can direct infiltrating effluent to seep through surface soils or water bodies under conditions of subsurface runoff.

Soils within the potential on-site sewage disposal areas are classified as having limitations for septic absorption fields (NRCS 2007). These limitations are primarily because of shallow depth to bedrock or other impeding layer, high slopes, and lateral seepage potential that may result in effluent surfacing at locations down slope.

In order to ensure adequate site characteristics for an effective on-site sewage system, County Code Section 14.20.111 describes site characteristics that would prohibit implementation of on-site sewage systems. These prohibitions include limitations on soil percolation conditions, distances from groundwater, water supply wells, pipelines, and other features. Installation of on-site sewage treatment systems would be subject to existing regulations identified.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁸²

- **Compliance with *Madera County Code Sewer System Limitations*.** *Madera County Code* requirements for wastewater disposal and sewer systems include:
 - > Regulations and limitations for individual sites for sewage treatment: a division of land, the creation of which results in any lot less than one acre, shall not permit the installation of an on-site sewer system, but shall require a community sewage system, except that an on-site sewage system may be installed with the approval of the director (Section 13.57.010, Ord. 279 §40, 1963)

⁸¹ Potential impacts associated with the permanent WWTP were previously addressed in Impact 4.8-2.

⁸² Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

- > Restrictions on the unlawful discharge of sewage, effluent, or garbage on land or to surface waters (Section 13.87.010; Ord. 232 §1, 1957)
- > Restrictions on locations for siting of sewage systems, including on-site systems (Section 13.87.020; Ord. 232 §2, 1957)
- > Sewage system (including individual systems) maintenance requirement and avoidance of health hazards to the general public (Section 13.87.030; Ord. 232 §3, 1957)
- > Regulations on aerobic wastewater treatment system operation and maintenance (Section 13.87.035; Ord. 279C/232A §3, 1987)
- **Compliance with *Madera County Code, California Plumbing Code for (wastewater) Disposal Systems.*** Section K-4 of the California Plumbing Code is amended and Sections K-13 and K-14 are added (Section 14.20.111) including:
 - > Four complete sets of plans, specifications and calculations shall be submitted for review to the Planning Department. These plans shall show the location and design features of all proposed stormwater BMPs, as well as calculations of the estimated pollutant load reduction that each BMP would achieve based on specifications in published BMP literature
 - > Percolation test requirements for Sewage Disposal Systems in Madera County (Section K-4).
 - > Restrictions on the location of Sewage Disposal Systems: unless approved by the Director of Environmental Health (Section K-13). Disposal systems are prohibited in:
 - Any area in which the percolation rate is greater than 60 minutes per inch for leach field, or greater than 30 minutes per inch for seepage pits, or less than 5 minutes per inch unless it can be shown that a sufficient depth and type of soil is available to assure proper filtration.
 - Any area in which the soil depth below the bottom of the leach field is less than 5 feet, or less than 10 feet below the bottom of the seepage pit.
 - Any area in which the depth to anticipated highest level of ground water below the bottom of the leach field is less than 5 feet, or less than 10 feet below the bottom of a seepage pit. (Greater depths are required if soils do not provide adequate filtration. Lesser depths may be allowed with alternative treatment if it is to “seasonal groundwater” and is approved by the Director of Environmental Health.)
 - Any area in which the ground slope is greater than 30%.
 - Any area where continued use of on-site systems constitutes a public health hazard, an existing or threatened condition of water pollution, or nuisance.
 - > Minimum distances for water and wastewater disposal systems from other features (Section K-14). Table K-1 (Amended) replaces Table K-1 of the California Plumbing Code. If necessary to avoid pollution of groundwater, greater distances may be required. Lesser distances may be approved upon submission of evidence that the installation will not cause pollution (Ord. 598 §7(part), 2004). Proposed Project potentially applicable requirements are listed in Table K-1 (Location of Sewage Disposal System) below:

Table K-1 Location of Sewage Disposal System

Minimum Horizontal Distance in Clear Required From:	Building Sewer	Septic Tank	Disposal Field	Seepage Pit
Domestic well not serving a water system	50 ft (15.3 m)	100 ft (30.5 m)	100 ft (30.5 m)	150 ft (45.7 m)
Public or domestic well serving a water system	100 ft (30.5 m)	150 ft (45.7 m)	150 ft (45.7 m)	150 ft (45.7 m)
Flowing stream	50 ft (15.3 m)	100 ft (30.5 m)	100 ft (30.5 m)	150 ft (45.7 m)
Drainage course of ephemeral stream	25 ft (7.62 m)	50 ft (15.3 m)	50 ft (15.3 m)	50 ft (15.3 m)
Unlined pond, lake or reservoir	50 ft (15.3 m)	100 ft (30.5 m)	200 ft (61 m)	200 ft (61 m)
Storm water flood detention basin that retains water for 48 hours or less	25 ft (7.62 m)	100 ft (30.5 m)	100 ft (30.5 m)	100 ft (30.5 m)
Seepage pit	—	5 ft (1.52 m)	4,7	20 ft (6.10 m)
Disposal field	—	—	4,7	5 ft (1.52 m) ⁷
On-site domestic water service line	1 ft (341 mm)	5 ft (1.52 m)	5 ft (1.52 m)	5 ft (1.52 m)
Downslope cut banks or major slope changes ⁵	10 ft (3.05 m)	10 ft (3.05 m)	6	6

SOURCE: Madera County Code 2007

Implementation of on-site sewage treatment systems must comply with all the previously identified requirements, which may not be feasible. Soils within the Project Site have a slow infiltration rate that might be slower than the minimum acceptable rate of 5 inches per minute for leach fields and septic pits. Additionally, sites may not be suitable for installation of on-site sewage systems because of slope limitations and shallow depths to bedrock or other impeding layers. If Project Site conditions prohibit on-site sewage treatment systems, residential and special purpose uses must implement a community sewage system or tie into the planned wastewater treatment system.

Because up to two dwelling units per acre would be allowed in this area, which is designated as very low-density residential, it may result in less than one-acre lot divisions and *Madera County Code* would preclude the implementation of on-site sewage treatment without an exception by the Public Health Director.⁸³ However, because an exception that does allow for approval of on-site treatment by the Director for smaller lot sizes, on-site systems could be used at a higher density than one-acre lot sizes, provided that on-site systems would not be prohibited by Section 14.20.111 of the *Madera County Code*. The one-acre-minimum lot size is intended to allow for sufficient area for effluent treatment and separation distances of sensitive uses from areas of effluent disposal. Allowing reduced lot sizes could impede on-site treatment system effectiveness and might create a greater pollutant potential or human health hazards (e.g., groundwater supply contamination).

Furthermore, within the area that would be served by on-site sewage treatment, water supply well(s) are also proposed. These wells would effectively be surface water diversions because the San Joaquin River and adjacent shallow groundwater table are interconnected in this area. The location of potential wells, other than the single well installed and operated by the County to serve the existing Sumner Hill development, is currently unknown, but any on-site sewage treatment systems would have to be located at least 100 feet to 150 feet away from any water supply well. If site conditions and lot sizes do not allow

⁸³ Or health officer or public health officer of Madera County.

for effective effluent treatment, this could result in contamination of the shallow groundwater in the area, and therefore, the local water supply and San Joaquin River.

On-site septic systems currently constitute the third most common source of groundwater contamination (U.S. EPA 1996b). In 1996, the Clean Water needs survey (U.S. EPA 1996a) identified 500 communities having failed septic systems that have caused public health problems. Although some on-site wastewater systems and management programs have functioned successfully in the past, the County's system focuses on permitting and installation, while most failures result from operation and maintenance. Even at the relatively low density of the individual septic systems, the Proposed Project and resulting individual septic system pose potentiality significant impacts to groundwater quality or surface water quality. Implementation of mitigation measure MM4.8-3(a) or MM4.8-3(b) would reduce the potential for water quality impacts and violation of groundwater and surface water quality standards.

MM4.8-3(a) Identify an entity to manage the operation and maintenance of the on-site systems. The entity shall be responsible for establishing an on-site wastewater management program that shall include:

- *Public outreach*
- *Technical guidelines for site evaluation, design, construction, and operation including a provision to prohibit installation on lot sizes less than one-acre in size*
- *Regular system inspections*
- *Technical training of staff*
- *Funding mechanisms*
- *Periodic program evaluations and revisions (U.S. EPA 2002, 2-1)*

OR

MM4.8-3(b) Implement a Septic Tank Effluent Pumping (STEP) System. Where on-site sewage treatment is used within the Project Site, the sewage treatment facility shall use a STEP system. The STEP system includes an enclosed septic tank to hold wastewater and waste products with liquid effluent pumped to the local WWTP. Solid material is held in the septic tank, but liquid effluent is pumped to the WWTP for treatment using a STEP system instead of being dispersed through a leach field or septic tank field that is typical of on-site sewage treatment systems. When the septic tank is full of solid waste material, it must be pumped out for disposal at an approved facility, as is typical of all on-site sewage treatment systems. Use of a STEP system eliminates the need and use of septic absorption fields or leach fields. Use of a contained septic tank isolates potential pollutants in wastewater from surrounding soils and groundwater.

The STEP systems shall be maintained to ensure adequate capacity and solids removal from the wastewater effluent.

The use of mitigation measures MM4.8-3(a) or MM4.8-3(b) intentionally allow flexibility with respect to the use of leach fields or a STEP system to treat sewage generated within the eastern portion of the property near the San Joaquin River while maintaining water quality protection. Implementation of mitigation measure MM4.8-3(a) or MM4.8-3(b), along with other legal requirements or project components that were previously described, would ensure that on-site sewage systems are correctly sited to be protective of groundwater and surface water quality and effectively maintained or treated at the WWTP. This would reduce potential groundwater and surface water pollution potential and, therefore, potential violation of water quality standards would be ***less-than-significant***. No mitigation is required.

Threshold	Would the Proposed Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?
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Impact 4.8-4 **Implementation of the Proposed Project would increase water demand within Madera County and would create additional impervious surfaces. These activities would not substantially deplete or interfere with groundwater recharge or groundwater supplies, such that there would be a net deficit in aquifer volume, or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted), or a degradation of groundwater quality. This is considered a *less-than-significant* impact.**

As explained in “Effects Found Not to Be Significant,” above, the Proposed Project would increase water demand, but it would not directly affect groundwater supplies or lower the local groundwater table, provided Holding Contract No. 7 water or MID surface water is the Project’s source of water. However, on-site groundwater recently discovered to be available will be used under all water supply scenarios and, in the event Holding Contract No. 7 or MID surface water is not available, off-site groundwater would also be used as a source of potable supply. The potential effects on groundwater supplies are evaluated in this Impact under the “Groundwater as Alternate Water Supply” subheading, below.

Use of reclaimed water by the Proposed Project could potentially increase the transport of pollutants to groundwater resources. However, as mentioned in the Environmental Setting of this section, groundwater below the Project Site is primarily shallow groundwater, likely from irrigation water seeping through soils. This groundwater already exceeds RWQCB criteria for municipal and domestic water supplies for salts (specific conductivity⁸⁴ more than 900 umho/cm measured in one shallow groundwater monitoring well), nitrates (more than 45 mg/L measured in one shallow groundwater monitoring well), and manganese (more than 0.05 mg/L measured in two shallow groundwater monitoring wells). Additionally, this shallow groundwater exceeds the RWQCB criteria for agriculture use for salts (specific conductivity more than 700 umho/cm in four shallow groundwater monitoring wells), chlorides (more than 106 mg/L in two shallow groundwater monitoring wells), and manganese (more than 0.2 mg/L in one shallow groundwater monitoring well). Therefore, it would not likely be considered a high quality source of municipal and domestic supply or agriculture supply water. Additionally, the higher salt content in the shallow groundwater, as compared to the Madera Subbasin, along with the shallow depth to bedrock and the presence of a hardpan indicates that this is perched groundwater and is not characteristic of the Madera Subbasin. Furthermore, the Proposed Project would have to obtain a Master Reclamation Permit to use reclaimed water on or off the Project Site. This permit would include effluent limitations considered by the RWQCB to be protective of water quality. Therefore, potential effects of the Proposed Project on groundwater quality, ~~and therefore, depletion as a result of groundwater supplies, reclaimed water use~~ would be less than significant.

⁸⁴ Specific conductivity is a surrogate measure for salinity.

Buildout of the Proposed Project would increase the amount of impervious surfaces on the Project Site by adding streets, roofs, sidewalks, and other impervious features to a site that is almost entirely pervious under existing conditions. The expected change in impervious surfaces would modify a site that has almost no impervious surfaces to one that has approximately 40 percent impervious surfaces.

As discussed previously, soils at the Project Site have slow to very slow infiltration rates. The impermeability of Project Site soils is evidenced by the wide distribution of linear wetland features throughout the Project Site. These factors indicate that percolation of water into the shallow, perched groundwater and through soils on the Project Site is at least partially obstructed. The conclusion that the Project Site is not a significant recharge area under natural, undisturbed conditions is substantiated by the Madera County *Groundwater Management Plan* (GMP), which identifies important recharge areas as unlined irrigation channels, streambeds, and Madera Lake, an artificial recharge basin northeast of the City of Madera. ~~The Madera Canal is elevated through the Project Site and, therefore, does not contribute to groundwater recharge at the Project Site.~~ Linear drainage features found on the Project Site would be preserved as undeveloped open space. The Project Site is not discussed as a significant recharge area in the GMP.

The impact of the Proposed Project on the groundwater supply caused by increased demand and interference with groundwater recharge would, therefore, be minimal and impacts to groundwater would be *less than significant*. No mitigation is required.

On-Site Groundwater as a Source of Supply and Off-Site Groundwater as an Alternative Water Supply

The SWSA (RPC 2012) describes the modified plan to use on-site and off-site groundwater as an alternative source if holding contract water is not available, both as supplemented by existing entitlements to surface water from MID for irrigation and recharge purposes. Impact 4.14-1 in Section 4.14 (Utilities and Service Systems) also contains a comprehensive description of how groundwater could be used. All use of groundwater by the Project is proposed to be water balanced, which means that the net demand of the Project would be directly offset by either groundwater recharge or fallowing of existing agricultural lands overlying the Madera Sub-basin (RPC 2012). In the SWSA, the use of off-site groundwater is included in those scenarios labeled Alternative 2 and Alternative 3. Alternative 4 (Purchase of MID Water and Use of Unused Flood Flows for Irrigation and/or Recharge) is supplemental to Alternatives 2 and 3 in that intentional recharge would be used in lieu of land retirement for mitigating groundwater pumping at CWCR. The SWSA also presents Alternative 5, which includes the use of on-site groundwater along with MID surface water. On-site groundwater recently discovered to be available is now anticipated to be used under all water supply scenarios. Section 4.14 (Utilities and Service Systems) describes each of these water supply alternatives in detail.

The following presents a description of potential environmental impacts on groundwater resulting from the use of groundwater as a source of water supply for the Tesoro Viejo Project. It also addresses the potential for groundwater pumping to affect surface waters.

On-Site Wells at Tesoro Viejo

There are two existing test wells at the Tesoro Viejo Project Site that have been constructed to be used as supply wells should the need arise (TW-1 and TW-2). The two existing wells would be augmented by up to five additional wells to create an on-site water supply wellfield to meet a small portion of Project potable water demand.⁸⁵ Existing wells TW-1 and TW-2 draw water from the underlying aquifer from 80 to 245 and 70 to 270 feet bgs, respectively. Additional wells would be of similar construction.

Pumping tests conducted at well TW-1 in 2010 and at TW-2 in 2011 indicate sustainable pumping rates for these wells of 150 and 80 gpm, respectively. Development information for two other wells, referred to as the North and South wells and located to the east and near TW-1, indicates well yields of 150 gpm. The pumping test at TW-1 resulted in calculated aquifer transmissivity of 3,250 gpd/ft. The test at TW-2 indicated a transmissivity of 5,700 gpd/ft. The transmissivity values are consistent with literature values for silty-sand to fine-sand deposits.

A recharge test was conducted at the Tesoro Viejo Project Site in 2010 in the southwest portion of the Site near Observation Well A. A total of 25.7 AF of water was applied to the surface over a four month period to a pit, or excavated basin, with an average depth of 20 feet. During the test, a water level rise of 98.8 feet was observed at Observation Well A, indicating recharge water was reaching deeper groundwater during the test. Pumping rates for the on-site wells would vary with peak rates occurring during the summer as water is used for both domestic consumption and also irrigation. Total well field capacity would be approximately 670 gpm, calculated as seven wells pumping at 95 gpm each. It is expected the wells would be pumped at that rate for an average of about one-half of the time on an annual basis. The seven on-site groundwater wells would be installed along Road 204 and the extension of the alignment of Road 42 to achieve a sustainable safe yield of 400 AFY, which is likely at the low end of safe yield based on hydrogeologic investigations.⁸⁶ Higher production may be possible, but is not assumed in this analysis until studies confirm higher production is possible.

Aquifer drawdown would be counteracted by intentional recharge of water at basins constructed for this purpose in the western portion of the Project Site co-located with already planned stormwater detention basins. A recharge test conducted at the site showed water-level changes in a deep observation well, verifying that adding water in the basins would reach deeper groundwater and would offset pumping. Approximately one-half of the on-site groundwater production amount (200 to 250 AFY) would be intentionally recharged on-site in two or three excavated basins in the southwest portion of the Project Site where subsurface geology is suitable for recharge.⁸⁷ The source of this recharge water would likely be a combination of natural recharge from higher topographic areas north of the Madera Canal, stormwater

⁸⁵ Nonpotable demand would be met with recycled water. Refer to Table 4.14-4 (Comparison of 2008 WSA Buildout Demand and 2012 SWSA Buildout Demand with Alternate Water Supply [Normal Rainfall Year]) in Section 4.14 (Utilities and Service Systems).

⁸⁶ There are two wells at the Project Site (TW-1 and TW-2), which were drilled in 2010 and are constructed such that they could be used as supply wells. Pumping tests conducted at well TW-1 in 2010 and at TW-2 in 2011 indicate sustainable pumping rates for these wells of 150 and 80 gpm, respectively. Development information for two other wells, referred to as the North and South wells and located to the east and near TW-1, indicates well yields of 150 gpm (KDSA 2012a, 2012b, 2012c).

⁸⁷ One basin has already been excavated and was used for a pilot testing program to evaluate recharge potential.

runoff, CVP Class 1 or Class 2 water from Lateral 6.2, direct river diversion by Holding Contract or exchange agreements, and/or imported CWCR groundwater.

The effect on groundwater levels of pumping and intentional recharge at the Tesoro Viejo Project Site is shown on Figure 4.8-3 (Water Supply Alternative 2—Combined Effect of Pumping and Intentional Recharge on Groundwater Drawdown). Alternative 2 is highlighted because it relies on the greatest amount of on-site and off-site groundwater of the three water supply alternative scenarios, totaling 2,900 AFA. Drawdown was calculated assuming seven wells pumping at 95 gpm each for 180 days (RPC 2012b). Recharge was calculated by assuming water is added to three recharge basins, with a volume of 80 AF applied at each basin over 180 days (RPC 2012b).⁸⁸ The resulting water-level change map shows that while the net decline in groundwater elevations could be as much as 10 to 15 feet in the central portion of the Project Site, where the proposed supply wells would be located, intentional recharge would fully offset pumping effects along the western side of the wellfield where the recharge basins are located, thereby limiting net drawdown to 2 feet or less. The goal of the groundwater pumping program was to (1) not increase groundwater overdraft and (2) avoid excessive drawdowns in other wells (i.e., well interference). Figure 4.8-3 shows maximum projected drawdowns at the end of 6 months of pumping; however, full recovery is expected after 180 days, before the next pumping cycle would start. The Project plans to take advantage of recharge opportunities at and near the site, some of which would be lost to the aquifer in the Madera Sub-basin, if not pumped. The intentional recharge projected would replace the loss of recharge due to Project development and minimize drawdowns in off-site wells.

The nearest off-site wells are located at least 0.5 mile west of the Project Site in the Bonnadelle Ranchos subdivision. This small amount of drawdown (2 feet or less) would not cause adverse impacts to nearby wells. There would be no net deficit in aquifer volume or a lowering of the local groundwater table level (such that the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).

The use of on-site groundwater would also not have a significant impact on on-site surface water drainageways. On-site surface water drainageways are supplied by shallow groundwater recharge. Pumping test data (RPC 2012b) shows that pumping deeper groundwater does not affect shallow groundwater where it is present. In addition, shallow groundwater is not present at the three most westerly well sites.

As illustrated in Figure 4.8-3, while the net drawdown contours extend to the Madera Canal, because the canal is elevated, a lowering of groundwater levels would not increase leakage from the canal. As also shown on Figure 4.8-3, the net drawdown contours do not extend to the San Joaquin River; therefore, river flows would not be affected when pumping is combined with intentional recharge.

The evaluation of water quality at the Tesoro Viejo Project Site has shown that groundwater beneath the Site is strongly influenced by seepage from surface drainages, including that from Little Table Mountain

⁸⁸ According to Volume 2B of the KDSA report, each of the three recharge basins would be 2 acres in size (p. 69), and it is further assumed that they would be 20 feet deep, which is the same depth as the pilot recharge basin (p. 51). One of the recharge basins has been excavation for use as a pilot recharge basin; therefore, for purposes of this Revised EIR, it is assumed that two additional recharge basins would be constructed. This assumption is also used for purposes of determining construction-related air quality, greenhouse gas, and noise impacts.

and from the Madera Canal. The use of surface water for recharge on site, therefore, would not represent a change in source water for the aquifer, and water quality of the groundwater would not be adversely affected (RPC 2012b).

A groundwater level monitoring program would be established as part of this water supply alternative, which would be used to gather data on water levels as the wells are pumped and recharge is applied. The monitoring program would be used to adjust the recharge program as necessary such that stable water levels are maintained from year to year and to avoid significant drawdown during pumping.

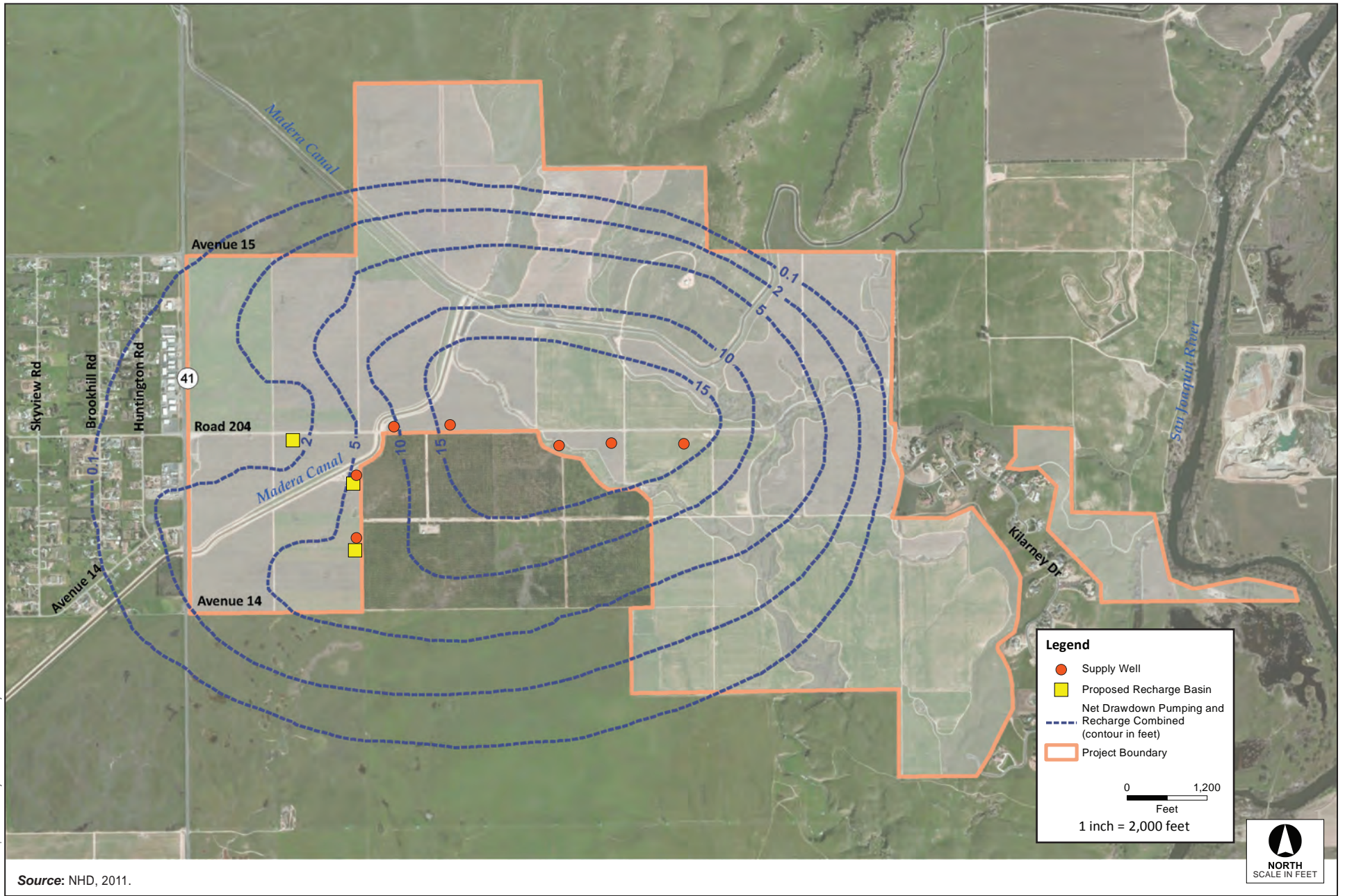
Off-Site Wells at CWCR

There are ten irrigation wells at CWCR. Three of these wells, which have depths ranging from 752 to 812 feet bgs, are currently used for irrigation of almond orchards. Pumping tests and measured pumping rates indicate the wells are what are considered “high-yield” wells and are capable of rates of at least 2,400 gpm producing at least 2,500 AF of water (RPC 2012c). This alternative water supply scenario for the Tesoro Viejo Project would use the three existing wells at the CWCR, and water would be conveyed to the Project Site through a new dual pipeline system constructed within the County’s Avenue 15 right-of-way directly from the CWCR.

Groundwater used for the Project from the CWCR would be offset in one of two ways. One approach to offsetting the use of groundwater to satisfy Project-related demands would be to reduce the amount of existing, irrigated almond production. The other offset option would be to use purchased USBR Class 2 water or unused flood flows to recharge groundwater⁸⁹ at CWCR. In either case, there would be no net change in the overall annual volume of water being pumped at CWCR.

Although the annual volume of pumped water would not change, the seasonal pattern of pumping at the wells used for Project water would change. Almond irrigation is seasonal in nature; all of the water is pumped during spring and summer months. Water pumped for the Proposed Project would be spread out over the entire year, with a greater amount pumped during the summer when lawn and garden irrigation would be at peak usage within the Project Site; however, the summer pumping of Project water would occur at a lesser rate than is currently used for irrigation, and, as a result, the drawdown effects would be less than currently experienced by the CWCR wells during the summer.

⁸⁹ Soil borings were drilled at the CWCR in 2010 to evaluate potential intentional recharge areas. The borings identified one favorable area that is about 300 acres in size, although other favorable areas are also present with deposits consisting of silty fine to coarse sand. Infiltration rates were estimated to be 0.5 to 1.0 foot per day (ft/d) (KDSA 2012c).



Source: NHD, 2011.

Figure 4.8-3

Water Supply Alternative 2—Combined Effect of Pumping and Intentional Recharge on Groundwater Drawdown [New]

Conclusion: On-Site Groundwater as a Source of Supply and Off-Site Groundwater as an Alternative Water Supply

Wells used for the Project would also be pumped during the non-irrigation season (i.e., fall and winter), whereas those wells do not currently pump at that time of the year. However, Project water use during the non-irrigation season would only be for domestic consumption, and pumping would be significantly lower than during the irrigation season. Therefore, although there would be drawdown near the wells in the non-irrigation season that does not currently occur at CWCR, the drawdown would be small and significantly less than what occurs during the irrigation season. As a result, no adverse effects on groundwater that would reduce available supplies would be expected, and impacts would be *less than significant*.

Groundwater Quality Associated with the Use of On-Site Recharge/Detention Basins at Tesoro Viejo

With respect to the three on-site recharge/detention basins, which are only required for Alternatives 2 and 3, it is anticipated that they would be designed in a manner generally consistent with Fresno Metropolitan Flood Control District design criteria. The basins would be about 20 feet deep and have two separate areas (or tiers) within each basin. The low flow area (or lower tier) would be used for recharge purposes during the dry season. Stormwater detention would primarily occur in the regular flow area (or top tier) during the rainy season, although some portions of the top tier could be used for recharge, as well, depending on the availability of surface water supplies.

With regard to the deposition of stormwater pollutants in the basins, the future maintaining agency, in order to comply with their NPDES permit, would require a maintenance and operation plan to remove sediments and replace with new soil since some of the pollutants would be deposited in the soil during the recharge/detention process (i.e., there would be a horizontal and vertical filtering process). Further, the Project Applicant would be required to comply with the mitigation measures required by this EIR with respect to stormwater quality, as well as the terms of the IMP, SIMP, and SSIMP, which also requires the preparation of a Stormwater Pollution Prevention Plan pursuant to NPDES. As a result, there would be no degradation of groundwater quality, and impacts would be *less than significant*.

Threshold	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?
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Impact 4.8-5 **Construction and operation of the Proposed Project would alter the existing drainage patterns of the site, which could result in substantial erosion or siltation on or off site. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.8-2(a), MM4.8-2(b), and MM4.8-2(c) would reduce this impact to a *less-than-significant* level.**

Construction Erosion and Siltation

During construction, Project Site drainage patterns would be substantially altered and surface soils would be exposed and susceptible to erosion. Eroded sediments could cause or contribute to siltation in the

down-gradient storm drain system and San Joaquin River system. Compliance with the NPDES program would require preparation of an SWPPP, including construction erosion and sediment control BMPs. Adherence to these requirements would also be mandatory prior to obtaining a County grading or construction permit. Additionally, all drainage and erosion control measures must adhere to all applicable federal, state, and local laws and to any additional requirements deemed necessary. Therefore, potential construction impacts on erosion and siltation would be *less than significant*.

Operational Erosion and Siltation

The Proposed Project would also alter the existing drainage pattern of the Project Site, but would not cause or contribute to substantial erosion or siltation on- or off- site during the operational phase. Development of the Proposed Project would include paving, structures, and landscaping to protect the ground surface and prevent surface erosion and sediment transport during storm events. Therefore, potentially higher flows would be discharged into a storm drainage system. Mitigation measures MM4.8-2(a) and MM4.8-2(b) would ensure that post-construction soil stabilization and sediment BMPs are implemented and maintained, which would reduce the potential for erosion and sediment transport from developed areas. Additionally, the storm drain system would route stormwater to five large detention basins designed to retain flows in excess of existing conditions for up to the 100-year 10-day storm event (runoff from 6 inches of rainfall). Therefore, erosion flows in excess of existing conditions would not be conveyed in natural drainage channels located in remaining open space areas, which could alter the course of a stream or a river in a manner that would result in substantial erosion or siltation on or off site. Furthermore, the Tesoro Viejo Specific Plan Policy includes requirements for maintenance of buffers along on-site drainage features that would reduce the potential for overland sediment transport and bank erosion by minimizing/slowing erosion-causing flow through the provision of additional infiltration area, sediment settling areas, increased channel roughness (riparian vegetation and natural debris), and soil retention (soil stabilization by riparian vegetation roots).

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁹⁰

- **Preservation of Buffers around On-Site Drainage Features.** Policy 3.6.1 from the Tesoro Viejo Specific Plan states that all existing drainage channels shall be public open space from top-of-bank to top-of-bank. In addition, on either side of the primary (main) drainage channel, wildlife corridor buffer zones of 100 feet, as measured from the top of bank of un-vegetated portion of the channel, or 50 feet as measured from the outer edge of any riparian canopy shall be established, as required by Policy 5.D.4 of the Madera County General Plan. The buffer shall be free of buildings, fences, paved surfaces, or other structures.

With incorporation of the legal requirements or project components that were previously described and implementation of mitigation measures MM4.8-2(a) and MM4.8-2(b), which include the erosion control measures and BMPs required in the SWPPP and the SWMP, the Proposed Project would result in *less-than-significant* impacts associated with erosion or siltation on or off site during operation of the Proposed Project.

⁹⁰ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

Threshold	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?
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Impact 4.8-6 **Implementation of the Proposed Project would alter the existing drainage patterns of the site, and could substantially increase the rate or amount of surface runoff such that flooding would occur on site. This is considered a *less-than-significant* impact.**

Off-Site Flooding

As discussed under Impact 4.8-1 and Impact 4.8-5, the Proposed Project would substantially alter existing drainage patterns by increasing the amount of impervious surfaces, routing on-site runoff through a storm drainage system, and increasing stormwater runoff rates and volumes. However, in accordance with the IMP, five stormwater detention basins would be implemented to reduce off-site runoff to existing conditions levels for up to the 100-year 10-day storm event. In addition, the site grading pattern would allow water from upstream portions of the watershed to flow through the site as under predevelopment conditions (PPEG 2007a, amended 2008a). Therefore, impacts to off-site flooding are conservatively considered *less than significant*. No mitigation is required.

On-Site Flooding

The Proposed Project's IMP, which would be officially adopted by Madera County prior to approving the Proposed Project, includes stormwater system design requirements for on-site drainage systems, including conveyance capacities and hydrology modeling standards. Residential storm drains would be designed to convey stormwater runoff from up to the 2-year storm event. Commercial and light industrial area storm drains would be designed for the 5-year storm event, and streets would be designed to convey the 10-year storm event. Minimal on-site flooding would occur for storm events exceeding these design frequencies. These design criteria are consistent with what is required by the nearby City of Fresno and, therefore, potential on-site flooding during small or large storm events is not considered substantial. Further, as required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁹¹

- **Proposed Project Storm Drain Design Standards.** The Proposed Project IMP incorporates design standards and modeling requirement for design and implementation of the on-site storm drainage system. These requirements include design of storm drain for conveyance of the 2-year storm event for residential areas, 5-year storm event for commercial and light industrial areas, and the 10-year storm event for streets. The main trunk lines shall be designed for the 10-year storm event. Appropriate hydrologic models, such as TR-55 or HEC-HMS shall be used in determining runoff rates for design storms. Runoff coefficients for proposed land uses are also provided and shall be used for determining runoff rates unless more specific information is available
- ***Madera County Code* County's Drainage Requirements for New Construction** (Section 14.08.142). Drainage requirements are summarized below:

⁹¹ Because these are requirements of law, statute, or regulation, or are part of the Project's description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

- > Upon the application for a building or grading permit under applicable law, the building official shall determine whether there may result from such work any alteration of established drainage gradients or patterns of diffused surface waters to adjoining property. Upon the building official's determination that alteration of established drainage gradients or patterns may result, the applicant shall submit for approval a drainage plan prepared by a qualified civil engineer as defined by the California Business and Professions Code so as to provide adequate drainage.
- > Any plan or proposal for the alteration of, or any plan or proposal for the placing of fill or obstructions in a drainage ditch, watercourse, channel or conduit that carries storm or drainage water shall be approved by the building official upon proper application. The applicant shall:
- > On ground sloping two percent or more, drainage diverters shall be placed on the uphill side of foundations to pass runoff water around the structure.

Implementation of the Proposed Project would increase stormwater runoff, which could result in on-site flooding. However, the design measures incorporated into the IMP would ensure that on-site flooding is not substantial. Implementation of the IMP design requirements with respect to adequacy of the storm drain would result in a storm drainage system design and plan that would have adequate on-site stormwater drainage. Potential impacts to on-site flooding would be *less than significant*. No mitigation is required.

Threshold	Would the project create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
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Impact 4.8-7 **Implementation of the Proposed Project would not create or contribute runoff water that could exceed the capacity of existing or planned stormwater drainage systems, but could provide substantial additional sources of polluted runoff. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.8-2(a), MM4.8-2(b), MM4.8-2(c), and MM4.8-3(a) or MM4.8-3(b) would reduce this impact to a *less-than-significant* level.**

Storm Drain System Capacity

Currently, there is no on-site storm drainage system. As discussed in Impact 4.8-67, runoff in excess of existing conditions would be retained on site. Therefore, there would be no exceedance of existing natural storm drainage capacities.

A storm drainage system would be developed through the Rio Mesa Community Village. Improvements would include a combination of “green” and landscaped infrastructure, as well as a more standard curb, gutter, and pipe approach to managing stormwater volumes and water quality within the Project Site where practical. In accordance with the IMP, green and landscaped stormwater management facilities, such as swales that provide bio-filtration of stormwater sediments and pollutants, could be used for attenuation and treatment of runoff from some of the development within the Project Site. Detention basins would also be used to detain the difference between predevelopment and post-development runoff rates. Basins would be located next to existing natural drainage courses, and would be designed to detain stormwater produced during a 10-year storm event. The storm drain design shall be in accordance

with the provisions of the IMP (PPEG 2007a, amended 2008a) or the Madera County Design Standards and Specifications, as appropriate.

The Proposed Project's storm drainage system would be operated separately from the sewer system discussed above. Storm drainage runoff would be collected and conveyed in public facilities consisting of inlets, pipes, open channels, culverts, outlet structures, sedimentation basins, and appurtenances (PPEG 2007a, amended 2008a). The master storm drainage plan delineating the storm drainage zones and major facilities for Tesoro Viejo is shown in Figure 4.8-2 (Proposed Backbone Storm Drainage System). Hydrologic and hydraulic calculations used to estimate stormwater runoff quantities and to size stormwater facilities can be found in the IMP.

Construction of temporary stormwater detention facilities would be allowed when the collection system required to reach the master planed sedimentation basin has not been constructed and is outside of proposed phase boundaries. Except for the construction of temporary stormwater detention facilities, no other interim collection facilities are anticipated for this project (PPEG 2007a, amended 2008a).

Stormwater quality throughout California is regulated through NPDES Permits, issued by the State of California. Stormwater originating from the development of the Proposed Project shall be treated utilizing BMPs as permitted by the NPDES general permitting process of the *Clean Water Act*. BMPs would be developed during the design phase and may be drawn from local area authorities, such as the Fresno Metropolitan Flood Control District and Caltrans, as well as from the California Stormwater Quality Association (CASQA) Stormwater Best Management Practices Handbook. Permanent BMPs would be maintained during the entire project lifecycle (PPEG 2007a, amended 2008a).

In accordance with the IMP, pretreated stormwater would be disposed of through sedimentation basins prior to release into open channel facilities that flow into the San Joaquin River. Sedimentation treated stormwater would then be released through weirs or other applicable outlet facilities. The outlet feature of each sedimentation basin would be designed so water released to the San Joaquin River would be at a maximum of pre-development peak runoff rates, unless a greater rate can be permitted. Overall volume of water flowing into the river may be increased due to an overall increase in land use intensities versus existing uses, but that increase would be slightly mitigated by a combination of incidental percolation and evaporation in the sedimentation basins.

As the Rio Mesa Community Village develops and the area becomes more urbanized, the State Water Resources Control Board or the Regional Water Quality Control Board may identify the Rio Mesa Community Village as a small MS4 (Municipal Separate Storm Sewer System) operator under the Phase II guidelines of the NPDES general permit. When the SWRCB or the RWQCB determines that permit coverage is necessary and notification is received, the County or District has 180 days to file a separate Notice of Intent (NOI) with the SWRCB with a Stormwater Management Plan (SWMP) and the appropriate fee. This NOI and SWMP would be the responsibility of the owner and operator of the storm drainage facilities (PPEG 2007a, amended 2008a).

As project design proceeds, it may become advantageous or in the interest of overall development to employ an alternative storm drainage design philosophy known as Low Impact Development (LID). It would be permitted to employ LID principles in any or all of the drainage areas within the project area. Employment of LID principles would be subject to soils and groundwater depths. All proposed LID

designs would be submitted with complete supporting calculations to the County for review (PPEG 2007a, amended 2008a).

The Storm Drainage System would be designed and built to ensure stormwater quality and to provide flood protection for the Proposed Project. The storm drain design for the project shall be in accordance with the Madera County Design Standards and Specifications, along with recommendations outlined in the IMP. The construction and operation of a new stormwater drainage system could result in, at a minimum, the following potentially significant environmental impacts:

- Exposure of soils to erosion and loss of topsoil during construction
- Surface water quality degradation (cumulative impact)
- Destruction or disturbance of subsurface archeological or paleontological resources
- Construction-related air emissions
- Construction and operations-related noise impacts
- Visual and/or light and glare impacts
- Loss of protected species and degradation or loss of their habitats
- Conversion of existing agricultural lands or resources
- Degradation of fisheries habitat (cumulative impact)
- Exposure to pre-existing listed and unknown hazardous materials contamination

Because the construction of new stormwater facilities is considered to be part of the Proposed Project, environmental impacts resulting from general construction are addressed in this EIR. Construction-related mitigation measures provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic would prevent substantial adverse physical impacts related to the construction of new stormwater facilities from occurring. All potential construction-related impacts have been mitigated to a less-than-significant level or lower. Because the stormwater facilities are part of the Proposed Project and not part of a regional system that needs to be addressed separately, there are no impacts related to construction of new stormwater facilities with respect to stormwater. This is considered to be a *less-than-significant* impact.

Polluted Runoff

The Proposed Project's potential to provide substantial additional sources of polluted runoff generated are fully discussed under Impact 4.8-1, Impact 4.8-2, and Impact 4.8-3. Compliance with all legal requirements, and implementation of mitigation measures MM4.8-2(a), MM4.8-2(b), MM4.8-2(c), and MM4.8-2(a) or MM4.8-2(b) would reduce potential impacts to runoff water quality to a *less-than-significant* level.

Threshold	Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? ⁹²
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Impact 4.8-8 **Implementation of the Proposed Project would create a new stormwater drainage system, including detention basins. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.8-2(a), MM4.8-2(b), and MM4.8-2(c) would reduce this impact to a *less-than-significant* level.**

Potential impacts associated with construction of the Proposed Project stormwater drainage system and detention basins are fully discussed under Impact 4.8-2, Impact 4.8-67, and Impact 4.8-78. Compliance with all legal requirements and implementation of mitigation measures MM4.8-2(a) and MM4.8-2(b) would reduce potential impacts to *less-than-significant* levels.

Threshold	Would the project otherwise substantially degrade water quality?
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Impact 4.8-9 **Implementation of the Proposed Project could substantially degrade surface and groundwater quality by reducing flows to riparian and wetland habitat in the existing and retained natural drainage features. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.8-9(a) and MM4.8-9(b) would reduce this impact to a *less-than-significant* level.**

The Proposed Project would include five stormwater detention facilities designed to detain all runoff in excess of existing conditions from the 100-year 10-day storm event, recognizing that more runoff would be generated within the developed Project Site because of the addition of a substantial amount of new impervious surfaces. Detention of excess stormwater runoff would reduce the Proposed Project's potential effects on flooding, bed and bank erosion, sediment transport and siltation in downstream water features (e.g., linear drainage features, linear wetlands, and the isolated wetland identified in Section 4.4 [Biological Resources]). While the detention basins' functional characteristics during low flow/existing flow conditions are not specified in the IMP, these basins could be implemented such that they prohibit discharge of flows from the smaller rainfall events/low flow situations, as well as the Proposed Project storm flows in excess of existing conditions. If low flows/existing flows are prohibited or reduced by implementation of the detention basins, the Proposed Project would contribute to reduced water supplies for support of downstream riparian and aquatic communities, and alterations in water feature geomorphology.⁹³

Small and moderate flows, flows ranging from near 0- to the 10-year peak flow rate, are generally considered the most important in controlling stream bed and bank erosion and sedimentation processes

⁹² While this threshold is from the Utilities and Service Systems section of Appendix G of the 2007 CEQA Guidelines, it is more appropriately addressed in the Hydrology and Water Quality section of this EIR.

⁹³ Stream geomorphology is a function of water and earth forces that form stream channels, drainage patterns, floodplains, terraces, and explains erosion, sediment transportation and deposition.

because these flows contribute the most “work” in stream channel formation and maintenance⁹⁴ (SCVURPPP 2005, 4-4). The 10-year 24-hour storm event amount of runoff can be used to approximate the flow volume contributing to the 10-year in-stream flows. If this volume of runoff would be trapped in the detention basins instead of allowed to continue downstream (worst-case condition), then the Proposed Project would have a potentially significant effect on hydromodification⁹⁵ of the Project Site drainage features. Table 4.8-7 (Worst Case Runoff Capture in Detention Basins) compares the estimated amount of existing stormwater runoff from the Project Site for the 10-year 24-hour storm event with the estimated amount of runoff that the detention basins would be designed to capture.

Table 4.8-7 Estimated Worst Case Runoff Capture in Detention Basins

<i>IMP Catchment</i>	<i>Existing (Natural) 10-year 24-hour Storm Event (acre-feet)</i>	<i>Estimated Detention Basin Design Capacity (acre-feet)</i>	<i>Worst Case Capture of the 10-year Natural Runoff (%)</i>
A	35.1	117	100
B	30.0	34.3	100
C	26.0	29.8	100
D	8.8	10.1	100
E	36.4	34.9	96
F	4.4	3.4	77

SOURCE: PBS&J 2007

In most of the catchment areas, all stormwater that would normally flow into riparian and wetland habitat from up to the 10-year 24-hour storm event could be detained in the basins under the worst case situation. Consequently, meeting the function of flood control could also result in secondary impacts to downstream riparian areas by reducing flows to these areas, especially for the smaller storm events that are important for maintaining stream habitats and functions. In Catchment A, water features (that is, riparian corridors/streams) could lose replenishing water from even larger storm events because the associated detention basin would be designed to hold about 117 acre-feet of water; about 82 acre-feet of water more than the 10-year 24-hour storm event runoff volume.

It is important that not only are large storm event flows in excess of existing peak flows detained for flood control purposes, but also that the lower/existing flows are maintained in order to retain water feature habitats and functions. Because the IMP does not detail the low flow functions and operations of the stormwater detention basins, it is assumed that almost all low/exiting flows up to the 10-year storm event could be captured. Implementation of mitigation measure MM4.8-9(a) would ensure that existing flows to downstream receiving water resources are maintained and the loss of wetland and riparian habitat from reduced water supplies is prevented.

⁹⁴ Santa Clara Valley Urban Runoff Pollution Prevention Program. Hydromodification Management Plan Final Report. April 21, 2005. p.4-4

⁹⁵ Hydromodification is defined by EPA as the “alteration of the hydrologic characteristics of surface waters, which in turn could cause degradation of water resources.” According to EPA, three general types of habitat modification must be addressed by states as they develop their nonpoint programs: (1) channelization and channel modification, (2) dams, and (3) streambank and shoreline erosion.

MM4.8-9(a)

Design Detention Basin and Outlets to Re-establish Existing Conditions Flows. *The Project Applicant shall conduct a hydrology study to determine the existing flow to the retained water resources and shall design the up-gradient detention basins' configurations and outlet structures to pass through the existing conditions flows to down-gradient receiving water resources.*

- *A low-flow channel or by-pass shall be included in the basin design to allow existing low flow runoff of stormwater to pass through to down-gradient receiving waters.*
- *The outlet structure shall be designed to allow discharge of larger storm flows (10-year to 100-year storm events) at the existing rate, volume, and duration.*

Implementation of mitigation measure MM4.8-9(a) could cause that portion of the water being directly passed to down-gradient water features not to receive adequate treatment and, therefore, to contribute to water quality impairment or contribute to a potentially significant water quality impact. To reduce the secondary impacts of mitigation measure MM4.8-9(a), mitigation measure MM4.8-9(b) would be implemented to ensure that runoff passed through the detention basins would not transport additional pollutants to down-gradient water features.

MM4.8-9(b)

Stormwater Quality Treatment BMPs. *The WQMP shall be modified to incorporate sufficient stormwater quality BMPs prior to discharge into the detention basins to sufficiently treat stormwater runoff such that pollutant concentrations in flows that must bypass treatment conditions of the detention basins, pursuant to mitigation measure MM4.8-9(a), shall be targeted to achieve discharge concentrations that do not exceed existing conditions levels.*

- *Source control and treatment BMPs shall be implemented prior to stormwater discharge into the storm drain system and they shall be designed to target for reductions in pollutant concentrations by the amount listed in the table below:*

Pollutant Reduction Targets for Passed-Through Stormwater Runoff		
Pollutant ^a	Commercial Areas (percent)	Residential Areas (percent)
Filtered phosphorous	0	24
Total Nitrogen	54	47
Inorganic-Nitrogen	64	44
Total Copper	41	17
Total Lead	44	17
Total Zinc	73	45
Oil and Grease	72	67
Fecal Coliforms	0	13

SOURCE: PBS&J 2007

^a Total Suspended Solids and Total Phosphorous concentrations would not increase

- *BMPs implemented before discharge to the storm drain systems shall be designed to treat only the amount of stormwater runoff equivalent to existing conditions runoff.*
- *This mitigation measure is intended to constrain design of the project, and is not intended to impose post-construction or on-going water quality testing requirements.*

The pollutant reduction percentages identified in mitigation measure MM4.8-9(b) would reduce pollutant levels with the Proposed Project to the existing (or vacant land) conditions reflected in Table 4.8-2. For

example, mitigation measure MM4.8-9(b) requires that BMPs are chosen to reduce filtered phosphorous in residential areas by 24 percent. Table 4.8-2 indicates that residential area stormwater runoff would have a filtered phosphorous concentration of about 0.17 mg/L, while under existing (or vacant land) conditions, filtered phosphorous concentrations would be about 0.13 mg/L. Therefore, in order to reduce filtered phosphorous concentrations from 0.17 mg/L to 0.13 mg/L (a total of 0.04 mg/L), the targeted reduction percentage would be 24 percent (calculated as 0.04/0.17, which is 0.24 or 24 percent), which is what is reflected in mitigation measure MM4.8-9(b).

Mitigation measure MM4.8-9(a) would ensure that water features retain an adequate supply of water and mitigation measure MM4.8-9(b) would ensure that the Project does not cause or contribute to violation of water quality standards or additional sources of polluted runoff. Impacts associated with reduced water flows caused by the detention basins would be *less than significant*.

As described in Impact 4.8-4, if an alternate water supply using groundwater in conjunction with intentional recharge were implemented, it would not have an adverse effect on surface flows on-site or in the San Joaquin River. Because the flow regime of on-site and off-site surface water features would not be affected, implementation of a groundwater pumping water supply alternative would not have an adverse impact on surface water quality.

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?
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Impact 4.8-10 A portion of the Proposed Project would lie within a 100-year flood zone and dam inundation zone. This is considered a *less-than-significant* impact.

A small portion of the Project Site (approximately one acre) would be located in a 100-year flood hazard area according to FEMA Flood Insurance Rate Map No. 06071C8704 F (effective date March 18, 1996). This area would also be inundated in the event of failure of the Friant Dam, approximately 4 miles upstream. However, the majority of the area falling within the flooding and dam inundation zone would be devoted to open space, with a small portion of the area is designated for recreation/commercial uses. This zoning designation applies to a small property (less than ¼ acre) near the San Joaquin River, which would be devoted to river-oriented visitor commercial and recreational uses.

Buildings placed in this zone would be required to comply with standards of construction for flood zones in the *Madera County Code*, Section 14.60.150, which would reduce flooding and inundation damages to structures in the 100-year floodplain.

As required by applicable federal, state, or local laws or regulations, or as required of the Project by the IMP, the following shall be implemented as part of the Proposed Project:⁹⁶

⁹⁶ Because these are requirements of law, statute, or regulation, or are part of the Project’s description (such as the IMP), they are not identified as mitigation measures, and compliance is presumed.

- **Construction Standards for Structures in the Floodplain.** The Project Developer shall comply with the requirements for Standards of Construction in flood hazard areas (*Madera County Code* Section 14.60.150) including:
 - > Anchoring
 - All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 - > Construction Materials and Methods
 - All new construction and substantial improvement shall be constructed with materials and utility equipment resistant to flood damage.
 - All new construction and substantial improvements shall use methods and practices that minimize flood damage.
 - All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
 - > Elevation and Flood-proofing
 - New construction and substantial improvement of any structure shall have the lowest floor, including basement, elevated to or above the base flood elevation. Nonresidential structures may meet the standards in *Madera County Code* Section 14.60.150(C)(3).
 - Developments shall be flood-proofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water.
 - A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
 - Upon completion of structure, the elevation of the lowest floor, including basement, shall be certified by a registered professional engineer or surveyor or verified by the local building inspector to be properly elevated. Such certification or verification shall be provided to the floodplain administrator.

No residential or hotel/motel uses would be allowed at this site, which would eliminate risks associated with habitation in a flood zone or dam failure inundation area. While temporary visitors to the waterfront development could be subject to a short-term, temporary risk the Friant Dam is inspected regularly and the safety classification rating of the Friant Dam is satisfactory. Additionally, advanced warning is likely in the event of a flood event, and high ground outside of the flood zone is within 400 feet of the waterfront development. Therefore, the potential risk from dam failure inundation is not substantial, and the potential exposure of people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or of dam would be *less than significant*. No mitigation is required.

Threshold	Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?
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Impact 4.8-11 **A portion of the Proposed Project would fall within a 100-year flood zone and dam inundation zone, but would not have a substantial effect on flood flows. This is considered a *less-than-significant* impact.**

At full buildout of the Proposed Project, a small recreation commercial development of approximately one acre in size would be built near the San Joaquin River in an area identified as a 100-year flood hazard area. However, the area falling within the flood zone is at the fringe of this zone and not within the path of the main currents. As such, the structures would not pose a substantial impediment to flows in the event of a flood. Further, applicable legal requirements or project components would further ensure that structures placed in the flood hazard area would be raised or otherwise constructed so as to allow floodwaters to pass unencumbered. Therefore, implementation of the Proposed Project would not place structures in a 100-year flood hazard area such that flood flows would be impeded or redirected, and a *less-than-significant* impact would result. No mitigation is required.

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?
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Impact 4.8-12 **The Proposed Project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiches. This is considered a *less-than-significant* impact.**

Seiches are waves, also caused by large-scale, short-duration oscillation of confined bodies of water (such as reservoirs and lakes) during earthquakes that also may damage low-lying adjacent areas, although not as severely as a tsunami. The closest enclosed body of water that could result in earthquake-induced seiche is Millerton Lake, above Friant Dam. However, Millerton Lake is 4 miles upstream of the Project Site, far enough away that a seiche event would not affect the Project Site. Furthermore, there have never been any documented impacts from seiches at Millerton Lake. Therefore, the risk of seiche-related impacts would be *less than significant*. No mitigation is required.

4.8.4 Cumulative Impacts

Unless otherwise described, the geographic context for the hydrology and water quality cumulative impact analysis is the San Joaquin Valley Floor Hydrologic Unit for water quality impacts, and the limits of the Madera Groundwater Subbasin with regard to groundwater quality and recharge impacts. Cumulative impacts are only addressed for those thresholds that would have a project-related impact, whether it is less than significant, potentially significant, or significant and unavoidable. If “no impact” would occur, no cumulative analysis is provided for that threshold.

Threshold	Would the project violate any water quality standards or waste discharge requirements?
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Stormwater

During construction activities, all projects within the San Joaquin Valley Floor Hydrologic Unit would be subject to the requirements of NPDES permits, the Statewide General Construction Permit, and the Small MS4 General Permit or the Fresno, Clovis, Fresno County, and California State University Fresno Phase I Municipal Stormwater NPDES Permit Order No. 5-01-048 (NPDES No. CA0083500) (Municipal NPDES Permit), including the associated Storm Water Management Plan (SWMP) that outlines the Best Management Practices (BMPs) to achieve the removal of pollutants from storm water to the maximum extent practical. Both the Small MS4 General Permit SWMP and Municipal NPDES Permit SWMP require permittees to inspect and enforce permit requirements. The General Construction Permit requires that a SWPPP be prepared for any construction project that would disturb more than one acre of land surface and for significant redevelopment projects. Small MS4 General Permit and Municipal NPDES Permit conditions are required to be codified in the local agency/municipality codes and ordinances. Potential construction dewatering would be subject to either the Low Threat Discharge General Permit or an individual Waste Discharge Requirement.

Compliance with the requirements of the NPDES permits would necessitate the use of erosion control measures and stormwater pollution prevention BMPs during both construction and operational phases of development projects. These include erosion and sediment control practices, waste management practices, spill containment and clean up, water conservation, and other BMPs to reduce potential pollutants in stormwater runoff to the maximum extent practicable. Furthermore, for any pollutant identified as causing or contributing to impairment of water bodies in the San Joaquin Valley Floor Hydrologic Unit area, TMDLs are or will be developed, further restricting the potential for discharge of pollutants in such a manner that would cause or contribute to violation of water quality standards or waste discharge requirements.

Further, permittees included as part of the Small MS4 General Permit are required to:

- Conduct inspections of construction sites, industrial facilities, and commercial establishments for compliance with the NPDES Stormwater Permit
- Conduct construction site inspections for compliance with their ordinances (grading, Water Quality Management Plans, etc.) and local permits (construction, grading, etc.); inspections shall include a review of erosion control and BMP implementation plans and an evaluation of the effectiveness and maintenance of the BMPs identified
- Enforce their ordinances and permits at all construction sites as necessary to maintain compliance with the orders, and sanctions for noncompliance may include monetary penalties, bonding requirements, and/or permit denial or revocation
- Enforce their ordinances and permits at commercial facilities

Monitoring and reporting programs explicitly required in the area-wide Small MS4 General Permit or individual Municipal NPDES Permits would ensure that the stormwater management program adequately protects water quality.

Permittees included as part of a Municipal NPDES Permit or the Small MS4 General Permit are required to do the following:

- Implement and enforce institutional controls that effectively preclude the discharge of nonstorm flows
- Implement and enforce controls on spills, dumping, and disposal of materials other than storm water into the MS4, and establish and maintain an effective spill emergency response program to respond to and contain spills that inadvertently occur
- Reduce the discharge of pollutants into the storm drainage system to the maximum extent practicable by continued implementation of the revised SWMP
- Comply with Receiving Water Limitations by implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP

Monitoring and reporting programs also explicitly required in the Municipal NPDES Permit would ensure that the stormwater management program adequately protects water quality and that cumulative impacts associated with stormwater associated with construction activities are less than significant. Compliance with the NPDES Program would similarly ensure that the Project's contribution is not cumulatively considerable, and project-related cumulative impacts regarding stormwater associated with construction activities would be *less than significant*.

Wastewater

Water conservation and re-use is consistent with *California Water Code* and RWQCB Basin Plan and future growth and development may incorporate use of re-claimed water from wastewater treatment processes. Treated water would have to comply with Title 22 standards for human health protection. If reclaimed wastewater is used, it could percolate to the groundwater basin. Expanded use of recycled water within the San Joaquin Valley Hydrologic Unit could increase nitrate-nitrogen loads to surface and groundwater. However, Title 22 treatment criteria, NPDES permitting of MS4s, implementation of TMDL strategies, and a Master Reclamation Permit of individual WDR required for recycled water use would minimize potential groundwater degradation, as well as surface water degradation, and continue to provide mechanisms to identify and target sources of water impairments and to devise implementation plans to prevent water quality degradation. Therefore, cumulative impacts of recycled water use on salt and nitrogen loads would be less than significant.

New or expanded wastewater treatment facilities required to treat wastewater caused by increased development within the San Joaquin Valley Hydrologic Unit would have to undergo the environmental review process prior to development. Each facility is regulated under individual NPDES permits that specify the effluent limitations protective of water quality. Effluent limitations are based typically based on technology-based standards. However, where constituents may cause or contribute to impairment of water quality, water quality objectives-based effluent limits are imposed. Furthermore, the water quality assessment process (305(b)) would continue to monitor and assess whether water bodies are impaired (303(d) list). Impaired water bodies, as listed on the 303(d) list, would require development of TMDLs, including waste load allocations that are protective of water quality. Consequently, new or expanded wastewater treatment facilities would not substantially degrade water quality and cumulative impacts would be less than significant. Compliance with the requirements of the Water Code and RWQCB Basin Plan would similarly ensure that the Project's contribution is not cumulatively

considerable, and project-related cumulative impacts regarding wastewater treatment and/or disposal would be *less than significant*.

On-Site Sewage Systems

Much of Madera County is rural in nature and continued growth and development could include incorporation of on-site sewage systems. These on-site systems would be subject to compliance with Madera County Codes including lot sizes, site characteristics, and distances from sensitive uses (e.g., water supply wells, water supply lines, surface water features, shallow groundwater table, and others). For on-site sewage systems to effectively clean pollutants out of sewage, there must be adequate physical, chemical, and biological conditions to allow enough time for soil filtration, plant and soil uptake processes, and adequate aeration for microbial and chemical degradation processes relative to the sewage load. On-site septic systems currently constitute the third most common source of groundwater contamination (U.S. EPA 1996b). In 1996, the Clean Water Needs Survey (U.S. EPA 1996a) identified 500 communities having failed septic systems that have caused public health problems. Although some on-site wastewater systems and management programs have functioned successfully in the past, the County's system focuses on permitting and installation, while most failures result from operation and maintenance. Even at the required relatively low density of the individual septic systems, the future development individual septic systems pose potentiality significant impact on groundwater quality or surface water quality.

In areas where full service wastewater treatment through a WWTP is not practicable, compliance with applicable laws and regulations required by Madera County and/or the RWQCB or implementation of project-related mitigation measures as part of the environmental review process (similar to MM4.8-3(a) or MM4.8-3(b) that have been identified for this Project as part of the environmental review process) would reduce potential cumulative impacts from on-site septic systems that would result in a violation of water quality standards and/or waste discharge requirements to a less-than-significant level.

The Proposed Project would be subject to a Construction General Permit, Small MS4 General Permit, and Master Reclamation Permit (and/or individual WDR or NPDES Permit for WWTP discharge), and may be subject to the Low Threat Discharge General Permit for construction and operational activities. Existing *Madera County Municipal Code* and regulatory requirements that were previously described would ensure that WDRs are not violated as a result of the Proposed Project. Furthermore, the Proposed Project would implement additional measures to protect surface and groundwater quality as required by mitigation measures MM4.8-2(a), MM4.8-2(b), MM4.8-3(a) or MM4.8-3(b), and MM4.8-9(b). All of these mechanisms would ensure that the Proposed Project's potential violation of water quality standards or waste discharge requirements are avoided or reduced to levels that would be considered acceptable to the regulatory agencies. Therefore, the Proposed Project would not contribute considerably to cumulative impacts related to a violation of water quality standards or waste discharge requirements associated with the on-site sewage systems, and impacts would be *less than significant*.

Threshold	Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
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As stated previously, the Proposed Project would not draw upon groundwater supplies to serve the Proposed Project's water supply needs if the Project's originally anticipated use of Holding Contract No. 7 is, in fact, the Project's source of water. Therefore, At full buildout, the development of the Proposed Project would not contribute to a cumulative impact on groundwater depletion because of withdrawals. Therefore, In the event Holding Contract No. 7 water is unavailable for the reasons summarized in Impact 4.8-4, above, and in greater detail in Section 4.14 (Utilities and Service Systems; Water Supply, Storage, and Distribution), on-site and off-site groundwater may be used as an alternate supply. Under the alternative supply scenarios, any groundwater pumping would be fully offset through a combination of supplies for which existing entitlements are sufficient, such that the Project would be water balanced from a groundwater perspective. Because there would be no net change in groundwater supplies or groundwater recharge as a result of the Project, there would be no cumulative analysis is provided for this portion of the significance threshold impact if an alternate water supply using groundwater is implemented.

Use of reclaimed water within the Madera Subbasin area could potentially increase the transport of pollutants to groundwater resources. However, use of reclaimed water within this subbasin would require an individual WDR or a Master Reclamation Permit. Through these mechanisms, the RWQCB would implement effluent limitations protective of groundwater resources within the area and cumulative impacts would be reduced to less than significant levels.

Shallow groundwater beneath the Project Site already exceeds some RWQCB criteria for municipal and domestic water supplies and agricultural supplies. Therefore, it would not likely be considered a high quality source of municipal and domestic or agriculture supply water. Additionally, this shallow groundwater is not characteristic of the Madera Subbasin, and the Proposed Project would also have to obtain a Master Reclamation Permit to use reclaimed water on or off the Project Site.

Future development within the Madera Subbasin could create additional impervious surfaces that could impede groundwater recharge potential. The Madera County Groundwater Management Plan (GMP) identifies important recharge areas within the subbasin as unlined irrigation channels, streambeds, and Madera Lake, an artificial recharge basin northeast of the City of Madera. Development of impervious surfaces on the land surface would, therefore, not likely contribute to a reduction in groundwater recharge. However, if development alters unlined irrigation channels or streambeds, such that they no longer contribute to groundwater recharge, potentially significant cumulative impacts could occur.

Continued development within the subbasin would be subject to the environmental review process and any alteration of existing streams and/or drainages would be subject to the state and Federal permitting process and review procedures. These existing regulatory requirements would ensure that potential impacts to groundwater recharge by alteration of irrigation channels, drainages, or streams by

development are minimized and/or mitigated and cumulative impacts would be reduced to less-than-significant levels.

The Proposed Project would increase impervious surfaces at the Project Site, hindering percolation of surface water into the groundwater table. However, the site is not a significant recharge area under natural, undisturbed conditions because of clay soils and hardpan layers that impede infiltration beyond shallow, perched groundwater. Drainages features transecting the Project Site, which may allow for percolation of precipitation to the groundwater table, would be unaltered, and an undeveloped open space buffer would surround each of these drainages.

Water quality protection requirements and mitigation measures MM4.8-2(a), MM4.8-2(b), and MM4.8-9(b) would also minimize impervious surfaces and maximize infiltration to the maximum extent practicable. Therefore, the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts on groundwater recharge and water table levels would be *less than significant*.

Threshold	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?
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During construction of cumulative development, conversion of vacant land or agricultural land or redevelopment of underutilized land would result in clearing, grading, and excavation activities that would alter surface drainage characteristics and disturb soils. These activities could cause or contribute to an associated increase in erosion and sediment transport. All construction activities on sites that disturb one or more acres of land would be required to obtain coverage under the and comply with conditions of the Construction General Permit, which requires preparation of a SWPPP with construction BMPs to reduce erosion and sediment transport. Construction activities that disturb less than one-acre of land do not have to obtain coverage under the Construction General Permit; however, these activities are not considered to have the potential for substantial water quality or erosion or siltation effects. Implementation, monitoring, and enforcement of the General Construction Permit conditions, as required by the area-wide Small MS4 General Permit, would ensure that potential cumulative construction impacts on erosion or siltation are less than significant.

All development projects within the jurisdiction of the Small MS4 General Permit would have to develop a SWMP or comply with the SWMP for an existing covered discharger (e.g., Madera County, if and when they receive approval from the RWQCB of their submitted SWMP), incorporating stormwater quality BMPs for sediment and erosion control and demonstrating compliance with local Municipal Codes, the Basin Plan, and any TMDLs. Permittees (agencies) of the Small MS4 General Permit are required to inspect and enforce permit requirements. Additionally, development within the Cities of Fresno, Clovis, Fresno County, and California State University Fresno would have to comply with Phase I Municipal Stormwater NPDES Permit Order No. 5-01-048 (NPDES No. CA0083500), including the associated Storm Water Management Plan (SWMP) that outlines BMPs to achieve the removal of pollutants from storm water to the maximum extent practical. This SWMP also requires permittees to inspect and enforce permit requirements. Therefore, potential impacts associated with development that might cause or contribute to erosion and siltation within the watershed would not be substantial and the cumulative impact would be less than significant.

For the same reasons identified above, the Proposed Project construction activities could cause or contribute to an increase in erosion and sediment transport to receiving waters. However, compliance with all applicable legal requirements would ensure that construction-related erosion and siltation is minimized pursuant to the NPDES General Construction Permit and County Code.

As discussed above, the Proposed Project would alter drainage patterns, increase surface runoff, and expose surfaces to erosion and sediment transport. However, with incorporation of all previously described legal requirements and implementation of mitigation measures MM4.8-2(a), MM4.8-2(b), and MM4.8-9(b), including the erosion control measures and BMPs required in the SWPPP and the SWMP. Therefore, the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts related to substantial erosion or siltation on or off site would be *less than significant*.

Threshold	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?
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Local Municipal Codes, including the *Madera County Code*, the *Fresno County Code*, and the *City of Fresno Municipal Code*, incorporate design and grading requirements that would serve to substantially avoid or prevent substantial on-site flooding. However, increased impervious surfaces as a result of cumulative development within the watershed could increase the amount and rate of stormwater runoff that may cause or contribute to downstream flooding. All development within the San Joaquin Valley Floor Hydrologic Unit must comply with the requirements of the applicable NPDES Permit, and other pertinent local drainage and conveyance ordinances. Pursuant to the applicable SWMP and SWPPP, projects are also required to adhere to BMPs that are aimed at increasing the retention of water on-site and minimizing runoff. The SWPPP, required for coverage under the Small MS4 General Permit for all projects and development would include BMPs, such as landscaping, and drainage systems and adequate storm drain capacity would be determined on a case-by-case review basis by the RWQCB. Additionally, all major development discharging to surface waters or a storm drain system would be subject to the environmental review process and Counties' Policy on flooding and flood control. Therefore, the cumulative impacts on flooding would be less than significant.

As discussed in Impact 4.8-6, the Proposed Project would have a less-than-significant impact on off-site flooding because all stormwater runoff in excess of existing conditions would be retained on site. Furthermore, implementation of the Proposed Project would increase stormwater runoff, which could result in on-site flooding. Minimal on-site flooding would occur for storm events exceeding the design frequencies of the storm drainage system (2-year to 10-year storm events). These design criteria are similar to the nearby City of Fresno and, therefore, potential on-site flooding during larger storm events is not considered substantial. Compliance with all applicable legal requirements that were previously described would result in a storm drainage system design and plan that would have adequate on-site stormwater drainage and potential impacts to on-site flooding would be less than significant. Therefore, the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts on on-site flooding would be *less than significant*.

Threshold	Would the project create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
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Storm Drain Systems

Cumulative growth within the San Joaquin Valley Floor Hydrologic Unit could cumulatively increase stormwater runoff as more impervious surfaces are created within the watershed. Alterations in area drainage patterns could also alter the conveyance capacity of existing drainages. This continued development and alteration of drainage systems could create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. All major development within the area would be subject to environmental review, the NPDES Program permits, as well as local Municipal and County Codes and plans. Therefore, cumulative impacts of runoff on drainage system capacity would be less than significant.

The Proposed Project would alter the local drainage and implement a storm drainage system in an area where there is no current storm drainage system. Compliance with all legal requirements that were previously described, and implementation of mitigation measures MM4.8-2(a), MM4.8-2(b), and MM4.8-9(b) would ensure that the potential impacts of the Proposed Project on stormwater drainage system capacity would be less than significant by retaining flood waters in basins (or using methods) that are specifically designed to accommodate the anticipated volumes. Therefore, the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts on drainage system capacity would be *less than significant*.

Polluted Runoff

During construction activities, all projects within the San Joaquin Valley Floor Hydrologic Unit would be subject to the requirements of NPDES permits, the Construction General Permit and the Small MS4 General Permit or Municipal NPDES Permit. The Construction General Permit requires that a SWPPP be prepared for any construction project that would disturb more than one acre of land surface. The small MS4 General Permit and Municipal NPDES Permit would apply to all significant new or redevelopment projects. Permit conditions are required to be codified in the local agency/municipality codes and ordinances and require the preparation of a SWMPP to ensure implementation and operation of stormwater quality BMPs.

As discussed above, under the first significance threshold, compliance with the requirements of the NPDES permits would necessitate the use of erosion control measures and stormwater pollution prevention BMPs during both construction and operational phases of development projects. These include erosion and sediment control practices, waste management practices, spill containment and clean up, water conservation, and other BMPs to reduce potential pollutants in stormwater runoff to the maximum extent practicable, as well as monitoring and reporting requirements. Furthermore, for any pollutant identified as causing or contributing to impairment of the San Joaquin Valley Floor Hydrologic Unit, TMDLs are or will be developed, which may further restrict the potential for discharge of additional pollutants in stormwater runoff. Therefore, existing regulations would ensure that cumulative impacts associated with polluted stormwater runoff would be less than significant.

The Proposed Project has the potential to provide substantial additional sources of polluted runoff during both construction and operational phases. However, compliance with all previously described legal requirements, and implementation of mitigation measures MM4.8-2(a), MM4.8-2(b), and MM4.8-9(b) would reduce potential project impacts on runoff quality to a less-than-significant level.

Therefore, the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts on on-site flooding would be *less than significant*.

Threshold	Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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The cumulative impact analysis for this threshold has been adequately addressed under the following thresholds already addressed in this cumulative impacts section:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff

Threshold	Would the project otherwise substantially degrade water quality?
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Growth within the area could result in increased use of detention basins, retention basins, or other water storage or treatment systems, which could secondarily reduce the amount of rate of water to riparian areas or wetlands. All other potential contributors to water quality degradation have been previously addressed in this cumulative impacts analysis.

Continued development activities within the San Joaquin Valley Hydrologic Unit could also secondarily cause or contribute to the drainage of existing water features and wetlands due to water source diversions from retention and/or detention basins. Areas of Madera County near the San Joaquin River have vernal pools and other wetlands and linear drainages cross the landscape. The U.S. Army Corps of Engineers and California Department of Fish and Game permit and oversee all activities associated with potential impairment of waters of the U.S. or waters of the State, including linear drainages, wetlands, and other water features. County codes also provide for protection of riparian corridors and compliance with State, federal, and local regulations. Additionally, activities that would substantially alter drainages would be subject to the environmental review process.

If stormwater from the detention features is “passed through” to maintain the hydrologic regime of downstream receiving water resources, potential stormwater pollutants could also be transported in the runoff water. However, as mentioned above, the Basin Plan and applicable SWMP (associated with the

applicable Municipal NPDES Permit or Small MS4 General Permit) would ensure that the stormwater management program adequately protects water quality and that cumulative impacts associated with stormwater discharges are less than significant. Therefore, overall cumulative impacts on drainage of existing water features would be less than significant.

The Proposed Project would include five stormwater detention facilities that would alter the discharge of natural flows. Consequently, the detention basins would reduce water supplies to the existing and retained natural water features and substantially degrade their function and impair their beneficial uses. Implementation of mitigation measures MM4.8-9(a) and MM4.8-9(b) would ensure that runoff that is passed through the detention basins would not transport additional pollutants to down-gradient water features. Therefore, the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts on on-site flooding would be *less than significant*

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?
Threshold	Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Continued development within the San Joaquin Valley Hydrologic Unit could encroach upon some flood hazard areas; however, most of the San Joaquin River is confined within its banks during the 100-year flood event and flooding is not extensive. Development within a special flood hazard area (SFHA) would be subject to FEMA requirements, Municipal and County Code, and any applicable encroachment permits. FEMA allows nonresidential development in SFHAs; however, construction activities are restricted depending upon the potential for flooding within each area. Executive Order 11988 (Flood Plain Management) links the need to protect lives and property with the need to restore and preserve natural and beneficial flood plain values. Specifically, Federal agencies are directed to avoid conducting, allowing, or supporting actions on the base flood plain unless the agency finds that the base flood plain is the only practicable alternative location. Executive Order 11988 prescribes policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse flood plain impacts in agency actions, planning programs, and budget requests. Existing regulations restricting development within SFHA would reduce potential cumulative impacts from flooding to less-than-significant levels.

Larger areas would be subject to dam failure inundation from failure of the Friant Dam. However, as stated in the Environmental Setting of this section, the Friant Dam is regularly inspected and the safety classification rating of the Friant Dam is satisfactory. Therefore, potential dam failure is minimal and cumulative impacts from dam failure inundation are less than significant.

A small portion of the Project Site (approximately one acre) would be located in a 100-year floodplain, and this area would also be inundated in the event of failure of the Friant Dam, approximately 4 miles upstream. A small portion of this area would have recreational use support facilities and the rest would be open space. With the project's compliance with all previously described legal requirements, the potential exposure of people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or of dam would be less than significant. Therefore,

the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts on on-site flooding would be *less than significant*

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?
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The cumulative context for impacts associated with seiches would be limited to Millerton Lake and the downstream area that could be subject to inundation. There are no other lakes, reservoirs, or enclosed bodies of reservoirs within this area that could contribute to the cumulative context. Future development within this area would be subject to the environmental review process. Furthermore, there have never been any documented impacts from seiches at Millerton Lake. Therefore, potential cumulative impacts from seiches would be less than significant.

The Proposed Project is 4 miles downstream from Millerton Lake and potential seiche effects would not be expected to affect the Project site. Therefore, the Proposed Project would not contribute considerably to cumulative impacts, and cumulative impacts of a seiche event would be *less than significant*.

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4.9 LAND USE AND PLANNING

This section of the EIR describes existing land uses in the Specific Plan Area and the surrounding area and evaluates the potential for land use impacts associated with implementation of the Proposed Project. This section (1) describes existing land use conditions in the vicinity of the Proposed Project; (2) discusses how the Proposed Project would fit into the existing land use context; and (3) analyzes the compatibility of the Proposed Project with relevant land use plans, goals, and policies. In particular, the section addresses the Specific Plan's compliance with policies and land use designations in the Madera County General Plan (1995), the Rio Mesa Area Plan (RMAP) (1995), and the San Joaquin River Parkway Plan (PMP) (2000).

The Proposed Project, the Tesoro Viejo Specific Plan, is a proposed development of a mixed use community in unincorporated Madera County. Development on the ~~4,579~~1,585-acre Project Site would include up to 5,190 new dwelling units (du), up to approximately 3.0 million square feet (sf) of nonresidential floor area (primarily commercial and light industrial uses), and approximately ~~247~~218 acres of mapped open space. Proposed uses are detailed in Table 3-1 (Proposed Land Uses for the Tesoro Viejo Project) in Chapter 3 (Project Description) of this EIR.

Information used for this section was obtained from various sources, including site photographs taken by PBS&J staff, the Madera County General Plan (1995) and associated EIR, previous environmental documentation, the Specific Plan prepared for Tesoro Viejo (2007), and other data sources. Bibliographic entries for reference materials are provided in Section 4.9.5 (References).

4.9.1 Environmental Setting

■ Project Setting

The Project Site, also known locally as Peck Ranch, is a ~~4,579~~1,585-acre area in southeastern Madera County, approximately 9 miles north of the city of Fresno and 13 miles east of the city of Madera. It is roughly bounded on the west by State Route (SR) 41, on the north by Little Table Mountain, on the south by Coombs Ranch/Avenue 14, and on the east by the San Joaquin River (see Figure 3-1 [Regional and Local Vicinity Map] in this EIR). The Project Site consists of two noncontiguous units—a large, approximately 1,520-acre area to the west and a smaller, approximately 60-acre area near the San Joaquin River. These properties are separated (except by road access) by a partially developed low-density subdivision referred to as Sumner Hill.

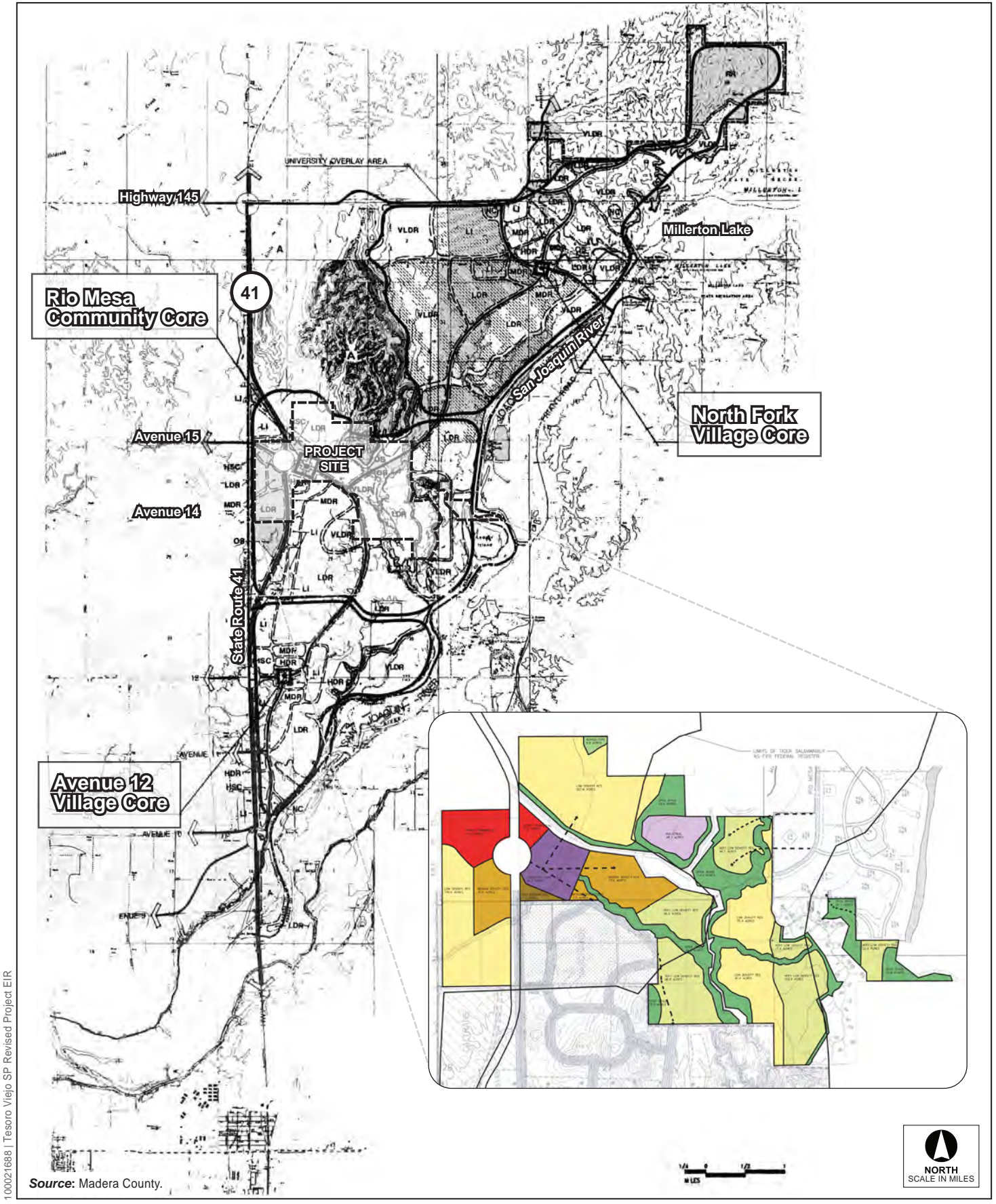
The Project Site encompasses the majority of the area designated in the RMAP as the Rio Mesa Community Village, one of three villages designated for new development. The other communities or villages proposed in the RMAP, the North Fork Village and the Avenue 12 Village, would be to the north and south of the Project Site, respectively (Figure 3-2 [Village Planning Areas of the RMAP]). New development, including residential, retail, office, highway commercial, visitor commercial, light industrial/business park, open space/recreational, schools, and institutional uses, would be clustered partially in areas within each of these proposed communities. Figure 4.9-1 (RMAP Zoning and Land Use Designations) illustrates the zoning that pertains to the Project Site. Zoning and land use designations are

defined in the RMAP, an adopted component of the Madera County General Plan. The RMAP alters the spatial land use designations in the General Plan, increasing allowable land use intensities and type of uses allowed for each zoning category. The zoning categories shown in Figure 4.9-1 are discussed in detail below. In certain locales of the Project Site, the Specific Plan proposes alterations to approved RMAP zoning. Therefore, adoption of the Specific Plan would result in modifications to the RMAP and General Plan.

Existing land uses on the Project Site are primarily agricultural. Approximately 92 percent of Tesoro Viejo is presently used for vineyards, blueberries, and tomato cultivation, and recently the landowner established a tree nursery to provide mature trees for landscaping the Proposed Project, if approved. The only existing structures on the Project Site are the Peck Ranch buildings. The Madera Canal, owned by the United States Bureau of Reclamation, accounts for an additional ~~69.5~~71.6 acres within the Project Site boundaries (Figure 3-2). Land not devoted to uses specified above consists of undeveloped scrub, riparian, wetland, and grassland habitat.

Properties surrounding the Project Site are primarily used for agriculture and grazing, or are undeveloped, although some are zoned for, or are in the process of, development. The following summarizes existing land uses and planned growth in the Project Site vicinity:

- Two adjacent properties to the northwest of the Project Site, the Morgan and Jamison properties, were included in the Rio Mesa Community Village. The RMAP designates these properties for light industrial and low-density residential and agricultural uses. These properties are currently used for grazing.
- The area directly north of the Project Site, known as Little Table Mountain, consists of agricultural and open space land uses. RMAP land use designations preserve these uses.
- Along the northeastern border of the Project Site is the northernmost RMAP village called “North Fork Village”. North Fork Village consists of North Fork Village Phase 1 and the Central Green Project. North Fork Village Phase 1 (also referred to as the “Kesterson Project,” which is the name of the Developer) is a proposed 2,238-acre development that includes 1,437 acres of residential uses (rural to high density, totaling 2,966 residential dwelling units), 172 acres of mixed-use and commercial/office uses (totaling 1,500,000 square feet), and 629 acres of major open space, including natural areas (589 acres), preserve areas (28 acres) and usable open space areas (12 acres). North Fork Village Phase 1 has not yet been approved by the Madera County Board of Supervisors, although a Draft EIR has been prepared. The Central Green Project (also referred to as the “Freels Project,” which is the name of the Developer), proposes approximately 1,600 dwelling units atop the San Joaquin River bluff, just below Friant Dam. The Central Green Project has been approved by the Madera County Board of Supervisors, although supplemental environmental documentation is currently being prepared in response to a court decision on the 2008 Final EIR.
- The San Joaquin River forms the eastern boundary of the Project Site. Near the river, an existing subdivision, Sumner Hill, divides Tesoro Viejo into two portions, with a small area (about 60 acres) fronting on the San Joaquin River. While the construction of Sumner Hill is not complete, it is expected to be built out in the near future. The Sumner Hill development contains 49 lots dedicated to very low density residential land uses.



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Source: Madera County.

Figure 4.9-1
RMAP Zoning and Land Use Designations

- Ledger Island, which was acquired by the San Joaquin River Parkway Conservancy in March 2007, is located east of the Project Site’s southeastern corner and is devoted to open space that supports wildlife.
- At present, the land extending from the southern boundary of the Project Site (Avenue 14) to the Fresno/Madera County line is largely undeveloped or in agricultural use. There are also two golf courses with a clubhouse, and several mobile homes. The RMAP designates all of this area for the future development of the Avenue 12 Village. The Avenue 12 Village would include very low and low density residential uses, commercial uses and open space/recreational land uses.
- Southwest of the Proposed Project, a new development called the Village of Gateway, which comprises a 2,062-acre area southwest of the Project Site and to the west of SR-41, has recently been approved. This development is west of the RMAP and north of the Gunner Ranch West Area Plan (discussed below).
- The Gunner Ranch West Area Plan addresses the development of the 1,135-acre area southwest of the RMAP, west of SR-41, and directly north of the city of Fresno. The 50-acre Central Valley Children’s Hospital campus, along with medical offices, residential dwelling units, and other office, commercial, retail, hotel, village core, and open space land uses, will be located in this area. The Children’s Hospital campus has already been developed.

4.9.2 Regulatory Framework

■ Madera County General Plan Policies

State law requires that every city and county in California prepare and adopt a comprehensive, long-term general plan. The general plan governs physical development, and to some degree, operational policies (such as economic development strategies), within a municipality’s management area. The General Plan contains policies that address seven topics, or “elements”: (1) land use, (2) circulation/transportation, (3) housing, (4) conservation, (5) open space, (6) noise, and (7) safety.

The Madera County General Plan (General Plan) was adopted on October 24, 1995, replacing the County’s original 1969 General Plan. The Housing Element of the General Plan was amended on December 13, 2004, and the County is processing an amendment to the Transportation Element of the General Plan.

Proposed developments in unincorporated Madera County must comply with the goals and policies of the Madera County General Plan. The General Plan includes policies that are applied on a countywide basis, but also recognizes a number of more detailed “area plans” that apply to the planning of subareas within unincorporated Madera County. The area plan pertaining to the Project Site is the RMAP, which has been incorporated into the General Plan. The land use designations in the General Plan were changed with the passage of the RMAP in 1995. RMAP designations replaced rural and agricultural designations in the General Plan with more intensive commercial, residential, and industrial uses, pending approval of specific plans under RMAP.

Countywide land use goals contained in the Madera County General Plan are listed below.

Goal 1.A To promote the wise, efficient, and environmentally-sensitive use of Madera County land use to meet the present and future needs of Madera County residents and businesses.

Policy 1.A.1 The County shall promote the efficient use of land and natural resources.

Policy 1.A.2 The County shall designate sufficient land to accommodate projected population and employment growth in Madera County.

Policy 1.A.3 New development should be centered in existing communities and designated new growth areas.

Policy 1.A.6 The County shall promote patterns of development that facilitate the efficient and timely provision of infrastructure and services.

Policy 1.A.7 The County shall address local land use and public facility issues of existing and new unincorporated communities through the preparation and adoption of Area Plans.

Policy 1.A.8 The County shall require that new rural and suburban development be designed to preserve and maintain the rural character and quality of the County.

Goal 1.B To ensure that new growth areas are comprehensively planned and developed as well balanced, independent communities.

Policy 1.B.1 The County shall require that designated new growth areas be comprehensively planned as single units rather than as individual property ownerships. Each designated new growth area shall be developed according to an adopted Area Plan. New growth areas include Gunner Ranch West area, Rio Mesa area, and State Center Community College area.

Policy 1.B.2 The County shall require that the planning and design of new growth areas carries out the following objectives:

- Concentrate higher-density residential uses and appropriate support services along segments of the transportation system with good road and possible transit connections to the remainder of the region;
- Support concentrations of medium and high-density residential uses and higher intensities of nonresidential uses near existing or future transit stops along trunk lines of major transportation systems;
- Support the development of integrated mixed-use areas by mixing residential, retail, office, open space, and public uses while making it possible to travel by transit, bicycle, or foot, as well as by automobile; and
- Provide buffers between residential and incompatible nonresidential land uses.

Goal 1.C

To provide adequate land in a range of residential densities to accommodate the housing needs of many income groups expected to reside in Madera County.

- Policy 1.C.1** The County shall maintain an adequate supply of residential land in appropriate land use designations and zoning categories to accommodate projected household growth, maintain normal vacancy rates, and minimize residential land costs.
- Policy 1.C.2** The County shall promote the development of higher-density residential development along major transportation corridors and transit routes.
- Policy 1.C.3** The County shall promote the development of affordable housing in areas served by the adequate public facilities and services.
- Policy 1.C.4** The County shall encourage the concentration of multi-family housing in and near downtowns, major commercial areas, community and village cores, and neighborhood commercial centers.
- Policy 1.C.5** The County shall encourage the planning and design of new residential subdivisions to emulate the best characteristics (for example, form, scale, and general character) of existing, nearby neighborhoods.
- Policy 1.C.6** The County shall ensure that residential land uses are separated and buffered from such major facilities as landfills, airports, and sewage treatment plants.
- Policy 1.C.7** The County shall require residential project design to reflect and consider natural features, noise exposure of residents, circulation, access, and the relationship of the project to surrounding uses. Residential densities and lot patterns will be determined by these and other factors. As a result, the maximum density specified by General Plan designations or zoning for a given parcel of land may not be realized.
- Policy 1.C.8** The County shall require residential subdivisions to be designed to provide well connected internal and external street, bikeway, and pedestrian systems.

Goal 1.D

To designate adequate commercial land for and promote development of commercial uses to meet the present and future needs of Madera County residents and visitors and maintain economic vitality.

- Policy 1.D.1** The County shall require that new community commercial centers locate adjacent to major activity nodes and major transportation corridors.
- Policy 1.D.2** The County shall encourage existing and new commercial centers to provide a variety of goods and services, both public and private.

- Policy 1.D.3** The County shall promote new commercial development that is designed to encourage and facilitate pedestrian circulation within and between commercial sites and nearby residential areas rather than being designed only to serve vehicular circulation.
- Policy 1.D.4** The County shall promote new commercial development in rural communities that provide for the immediate needs of the local residents and services to tourists and travelers. The scale and character of such commercial development should be compatible with and complement the surrounding area.
- Policy 1.D.5** The County shall encourage significant new office developments to locate near major transportation corridors and concentrations of residential uses. New office development may serve as buffers between residential uses and higher-intensity commercial uses.

Goal 1.E To designate adequate land for and promote development of industrial uses to meet the present and future needs of Madera County residents for jobs and maintain economic vitality.

- Policy 1.E.3** The County shall encourage the retention, expansion, and development of new businesses, especially those that provide primary wage-earner jobs, by designating adequate land and providing infrastructure in areas where resources and public facilities and services can accommodate employment generators.
- Policy 1.E.4** The County shall endeavor to protect the natural resources upon which the County’s basic economy (for example, agriculture, forestry, recreation, and tourism) is dependent, and shall promote economic expansion based on Madera County’s unique recreational opportunities and natural resources.
- Policy 1.E.7** The County shall support the development of primary wage-earner job opportunities in Madera County to provide residents an alternative to commuting to Fresno.
- Policy 5.C.8** The County shall support the policies of the San Joaquin River Parkway Plan to protect the San Joaquin River as an aquatic habitat and a water source.

The General Plan also formally adopts the policies in the San Joaquin River Parkway Plan (discussed below):

■ Rio Mesa Area Plan

Goals and Policies

The County’s detailed area plan, the Rio Mesa Area Plan (RMAP), was adopted by the County on March 21, 1995 (concurrent with the preparation of the 1995 General Plan). The RMAP provides the County with guiding principles to shape future land use decision-making, and a planning framework to govern

the terms of future subdivisions and implementation plans for the Rio Mesa Planning Area. Relevant policies from the RMAP are summarized below:

- Goal 1** Create a balanced community to include residential, commercial, employment, open space, and recreational opportunities for residents.
- Policy 1.1** Encourage jobs generating uses that will increase employment opportunities for Madera County residents.
- Policy 1.2** Provide for limited commercial and commercial recreation development outside mixed-use core service areas to provide greater convenience to residents.
- Policy 1.3** Employment Centers located outside of Core areas should provide services such as restaurants, child care, business support, and other facilities that reduce the need for trips out of the centers.
- Policy 1.4** Designate future employment centers in locations that are easily accessible to major roadways, restaurants and services.
- Policy 1.5** Provide for employment centers including office and industrial uses located throughout the community to provide employment opportunities to residents and to decrease the dependence on Fresno and outside areas for jobs.
- Policy 1.9** Expand the County tax base so the Rio Mesa area is self-supporting.
- Goal 2** Allow for a range of product types and densities to provide housing opportunities to a variety of income levels and family needs and to respond to changing market conditions.
- Policy 2.1** Provide designated densities for each residential land use and allow the transferring of units to promote a variety of product types.
- Policy 2.2** Allow the transferring of units between land use designations to provide flexibility.
- Policy 2.3** Concentrate residential development to create neighborhoods that have a distinctive character to include a mixture of housing types and prices supported by shops, services, employment and public services.
- Policy 2.5** Provide affordable housing opportunities with the high and medium density residential land use designations.
- Policy 2.6** Integrate and disperse affordable housing units throughout the high and medium density residential areas, thereby avoiding the concentration of affordable units in one area.
- Policy 2.7** Projects are expected to build to the designated density for that land use. However, projects may either build below designated densities, or may build to the maximum General Plan land use

density through a density transfer program, provided the financial integrity of the infrastructure master plan is assured and the dwelling units yield for that land use is not exceeded.

Goal 3 Protect the economic viability of agricultural uses until transition to urban uses occurs.

Policy 3.1 Retain agricultural uses until development to urban uses becomes viable and can be readily serviced. The transition should be made incrementally in conjunction with the ability to provide services and infrastructure.

Goal 4 Ensure adequate, timely, and cost effective public services for lands contained in the area plan.

Policy 4.1 Provide adequate school, park and recreational facilities at time of need through coordination between appropriate districts, the County and private development proponents.

Land Use and Zoning Designations

Current land use and potential zoning designations for the Project Site are contained within the RMAP and adopted into the Madera County General Plan. The RMAP Land Use Plan allocates nine land use designations within the major categories of Mixed Use Core, Residential, Commercial/Industrial, and Other Uses, and allocates equivalent zoning for each land use designation. Each land use designation, including the nature, intensity, and density of development permitted for each land use, is described in detail in Section 3.2.1 (Land Use Plan) of the RMAP. The RMAP also establishes policies for land use, circulation, community design, and infrastructure.

Proposed land use designations for the Tesoro Viejo Project Site fall within similar categories as the RMAP. The land use designations are described in detail in Section 3.7 (Proposed Project Characteristics) of the EIR and are graphically depicted in Figure 3-4 (Conceptual Land Use Plan for Tesoro Viejo). Upon approval of the Proposed Project, the Madera County Zoning Map will be amended to identify the project area as the Tesoro Viejo Specific Plan area and the land use and zoning designations as set forth in the Specific Plan. The Tesoro Viejo Development Standards shall supersede all similar provisions, standards, and requirements of the General Plan, RMAP, and Madera Zoning Ordinance. If a conflict arises, the standards contained in the Tesoro Viejo Specific Plan shall take precedence.

The land uses allowed within the Tesoro Viejo Specific Plan are organized under a set of zoning districts with names that are similar to the names of the RMAP Area designations. Proposed zoning is further described in the Tesoro Viejo Specific Plan and is also summarized in Section 3.7 of this EIR. Within each Zoning District designation, a range of land use types are defined and development standards are established.

■ San Joaquin River Parkway Master Plan

The San Joaquin River Conservancy is an agency that was created by the State legislature under the *San Joaquin River Conservancy Act* (Public Resources Code Division 22.5, Section 32500) in January 1993 to develop and manage the San Joaquin River Parkway. The Parkway, a 23-mile regional greenspace and

wildlife corridor extending from Friant Dam to Highway 99, includes a trail system, recreational opportunities and educational features. The San Joaquin River corridor constitutes a unique and important resource of regional and statewide significance with environmental, cultural, scientific, agricultural, educational, recreational, scenic, flood conveyance, and wildlife values. The Conservancy is expected to acquire up to 2,900 acres of private and public land for ecological restoration, recreation and other uses. The Conservancy has not indicated any interest in purchasing land or easements from the Project Site. The San Joaquin River Parkway Conservancy prepared and adopted the San Joaquin River Parkway Master Plan (PMP) in 2000 for management of the Parkway corridor. The PMP consists of conservation areas, recreational and educational facilities, and river trails.

The eastern edge of the Project Site runs along the San Joaquin River corridor north of Ledger Island. This area is zoned for open space and Special Purpose Use B, which is intended for river-oriented visitor commercial and recreational uses. The following PMP policies pertain to land uses in the San Joaquin River corridor:

- Policy NRD1.1** New facilities shall be sited in restored or previously developed areas. Visitor overlooks and viewing areas shall be located so as to avoid intrusion into sensitive habitat areas and to avoid habitat fragmentation.
- Policy NRD10** The Conservancy shall implement a policy requiring a continuous strip of riparian vegetation with an average width of 200 feet throughout be developed and maintained throughout the parkway. "Continuous" shall include for these purposes, gaps of no greater than 200 feet or the minimum necessary to allow infrastructure (such as roads or bridges) to cross the Parkway.
- Policy RP7** Separate recreational areas from residences by a buffer at least 150 wide and, if possible, screening vegetation as well.
- Policy BZ8** Where low density residential uses or passive recreational activities in the Parkway adjoin wildlife habitat, there should be a minimum 100-foot-wide buffer zone and an additional setback zone or area without structures that is not less than 50 feet wide. The setback zone could be used for compatible landscaping, patio, or parking uses, but not a building. Where the 100-foot buffer plus 50-setback approach is not feasible, an offsetting expansion of the corridor width on the opposite shore should be a priority.

A consistency analysis for each of the goals and policies listed above is provided below under Impact 4.9-1.

4.9.3 Project Impacts and Mitigation Measures

■ Analytic Method

The analysis in this section focuses on whether the proposed project would physically divide an established community or conflict with applicable land use plans, policies, and regulations or an adopted

habitat conservation or natural community conservation plan. Because conflict with applicable plans, policies, and regulations could occur as a result of policy changes or from physical development, this analysis includes all physical components of the proposed project including access and infrastructure improvements, as well as policy components of the project (Specific Plan, Zone Change, General Plan Amendment, Development Regulations) as described in Chapter 3 (Project Description). This EIR assumes the maximum buildout for the purposes of the environmental analysis, as it affords a more conservative estimate of environmental impacts.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on land use and planning if it would result in any of the following:

- Physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan

■ Effects Not Found to Be Significant

Threshold	Would the Proposed Project conflict with an applicable habitat conservation plan or natural community conservation plan?
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Habitat Conservation Plans (HCPs) were defined by the United States Congress in 1982 in an amendment to Section 10 of the *Endangered Species Act*. HCPs authorize “incidental take” of listed, sensitive species by integrating the applicant’s Proposed Project or activity with the needs of the species. It describes, among other things, the anticipated effect that a proposed taking will have on a listed species and how that take will be minimized and mitigated. No HCPs currently apply to the Project Site.

Natural Community Conservation Plans (NCCPs) are a habitat planning tool authorized pursuant to the *1991 California Natural Community Conservation Planning Act* and administered by the California Department of Fish and Game. An NCCP identifies and provides for the regional or areawide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. No NCCPs currently apply to the Project Site.

As no such plans apply to the Project Site, the Proposed Project would not directly or indirectly conflict with an HCP or NCCP. **No impact** would result, and no further analysis is required in this EIR.

Threshold	Would the Proposed Project divide an established community?
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The Specific Plan proposes to develop a new mixed use village at the Rio Mesa Village site designated in the RMAP. The Project Site is surrounded by lands to the west, north and east that are outside the RMAP planning area and are zoned “AG/Rural/Exclusive”, “AG/Rural/Foothill” and “Public Open Space” in the General Plan. The existing low density rural uses in the Project vicinity are not centralized

around a core business or residential area that would be physically divided by the Proposed Project. Thus, while the Proposed Project would increase residential and commercial densities at the Project Site, this use would not physically interfere with the traditional spatial organization of the surrounding rural community.

The nearest community development is the subdivision called Sumner Hill, which itself divides the western and eastern portions of the Project Site. Sumner Hill would be buffered from proposed development by a band of very low density (0.3 to 1.0 du per acre) residential development and by a portion of the open space network. There is no other community that the Proposed Project could affect.

The Proposed Project would also be consistent with similar proposed or approved development projects in the Project vicinity, such as the North Fork Village, the Village of Gateway, and the Gunner Ranch West Area Plan. While the Proposed Project would not divide these adjacent (and planned) communities, it would serve to complement their residential and commercial land uses. The Specific Plan contains policies, which, upon adoption, would promote the integration of development through land use, public space, and transportation objectives.

Therefore, *no impact* would occur with regard to the division of an established community with implementation of the Proposed Project.

■ Impacts and Mitigation Measures

Threshold	Would the Proposed Project conflict with an applicable land use plan, policy, or regulation prepared by an agency with jurisdiction over the project and adopted to avoid or mitigate an environmental effect?
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Impact 4.9-1 **The Proposed Project would not conflict with the Madera County General Plan or the Rio Mesa Area Plan, both of which were prepared and adopted by the agency having jurisdiction over the project (Madera County) and contain a number of policies relevant to development at the Project Site. This is considered a *less-than-significant* impact.**

General Plan Goals

Goal 1.A and its subpolicies promote efficient land uses that balance preservation of the County's rural character with accommodation of new economic and population growth. The Proposed Project would comply with this goal as it would follow General Plan/RMAP zoning policies designed to achieve this purpose. Moreover, the Proposed Project would preserve approximately 217,218 acres of mapped public open space throughout the Project Site (and a substantial amount of private open space) while simultaneously providing new housing and employment opportunities. The Proposed Project would include a mixture of zoning densities, which would allow visitors and residents to experience both urbanized and more rural environments within the 4,579,158-acre development. All new growth would take place in a designated new growth area. Goal 1.B requires comprehensive planning of new growth areas and requires that new developments be consistent with an adopted area plan. The RMAP provides the structure necessary to meet all subpolicies under this goal. The Proposed Project would be generally consistent with its policies.

Goal 1.C and its subpolicies promote the development of mixed-income housing through appropriate zoning practices. Several types of housing would be provided by the Proposed Project in accordance with this goal and with the specific development guidelines in the RMAP. The Proposed Project would adhere to zoning and design practices similar to those in the RMAP in order to avoid exposing residents to nuisances and to promote connectivity between residential and commercial areas.

Goal 1.D requires that planning actions consider the present and future commercial development needs of Madera County residents and visitors, thereby helping to maintain the County's economic vitality. The Proposed Project includes several specialized commercial opportunities, such as wineries, restaurants, retail and other uses that would serve the needs of visitors and residents and that would introduce economic development activity. Moreover, the Proposed Project would arrange commercial uses so as to interact effectively with other uses. For example, low-intensity offices would be placed in areas where they would serve as buffers between higher intensity commercial uses and residential uses.

Goal 1.E and its subpolicies promote the retention of existing and the development of new industrial uses. While the Proposed Project does not devote a large area to industrial uses, some light industrial uses are included in the site plan pursuant to RMAP specifications. These uses would provide local job alternatives for primary wage earners, a subpolicy identified by the General Plan. This goal also encourages planning actions which protect natural resources and strengthen the County's basic economy. Although the Proposed Project's basic objectives are not geared toward natural resource harvesting, the preservation of open space and the site's natural features, and the enhancement of recreational opportunities would meet this goal by encouraging natural resource based tourism.

The Proposed Project's impacts on compliance with General Plan policies would be *less than significant*. No mitigation is required.

RMAP Goals

Goal 1 promotes the development of employment opportunities and services for Madera County residents. The Proposed Project would include commercial and office uses, which would generate jobs for the surrounding community. This would in turn increase local tax income, allowing for the provision of new public services. The Proposed Project would be in compliance with this goal.

Goal 2 essentially restates and elaborates upon Goal 1.C from the Madera County General Plan regarding the provision of affordable and mixed-income housing. As stated previously, the Proposed Project is expected to provide such housing opportunities.

Goal 3 aims to protect the economic viability of agricultural uses until a transition to urban uses occurs. The Proposed Project would be developed gradually over an approximately ~~46~~12-year period. Construction would move from the western part of the development towards the river, allowing agricultural cultivation on the eastern portion of the site until development of this area is feasible.

Goal 4 promotes the provision of adequate public services such as schools, parks, and recreational facilities. The Proposed Project would involve the construction of at least two elementary schools and a ~~potential~~ high school, several parks and a community center, which would involve recreational uses. Therefore, the Proposed Project would be in compliance with this goal.

The Proposed Project would comply with RMAP policies, a *less-than-significant* impact. No mitigation is required.

Impact 4.9-2 The Proposed Project would be substantially consistent with the zoning established in the Rio Mesa Area Plan. This is considered a *less-than-significant* impact.

Table 3-1 summarizes the proposed development intensities in the Tesoro Viejo Specific Plan. It also shows how the proposed Specific Plan zoning would compare to currently adopted RMAP zoning.

The Proposed Project is predominantly allocated for medium and high density residential, core residential, office and retail, and open space, as illustrated by Figure 3-4 of this EIR. The western portion of the Tesoro Viejo Site borders SR-41, and is designated for highway service commercial, light industrial/business park, mixed-use community core, and high and medium density residential uses. The central portion of the Project Site, north of Road 204, is planned for a variety of uses, including low and medium density residential, open space and parks, schools, and Special Purpose Use A. The eastern portion of the Project Site is planned for low and medium density residential, agriculture, open space and parks, mixed-use neighborhood commercial, and Special Purpose Use B. The proposed land use designations are as follows:

- **Residential Uses**—The residential development would involve a range of densities from very low to high density. The Tesoro Viejo Specific Plan proposes a maximum buildout potential of up to 5,190 du.
- **Mixed Use Community Core**—The Project Site includes the area identified in the RMAP as the Community Core (MUC). The MUC is one of two mixed-use land use designations proposed in the RMAP. The Community Core would facilitate a combination of residential, commercial, office, public, and quasi-public uses. The MUC uses proposed under the Specific Plan would be permitted by RMAP zoning.
- **Mixed Use Neighborhood Commercial**—The Mixed Use Neighborhood Commercial uses under the Specific Plan would be permitted by RMAP zoning.
- **Special Purpose Uses**—There are two areas identified in the Specific Plan (see Figure 3-4, Project Description) as special purpose uses due to the unique opportunities they offer for visitor-serving, recreational, and commercial activities.
 - > Special Purpose Area A is located on the highest hill within the Project Site and provides scenic vistas of the surrounding San Joaquin River Valley. Accordingly, a hilltop village is proposed for this special purpose area with residential uses focused around a winery, restaurant, and/or an inn.
 - > Special Purpose Area B is on the western bank of the San Joaquin River and is envisioned for limited river-oriented visitor commercial and recreational uses, possibly involving canoe and kayak rentals, a pull-in, pull-out facility, and some form of food or beverage vending, along with parking facilities and a possible clubhouse.
- **Highway Service Commercial and Light Industrial/Business Park**—The Proposed Project would include a total of up to about 3 million square feet of commercial, retail, and light industrial space, consisting of light industrial and highway service commercial services uses along SR-41. Light industrial and business park areas, located adjacent to the Community Core, allow for a wide range of employment-generating land uses and are intended to serve the county as major

employment areas. The Highway Service Commercial and Light Industrial/Business Park uses under the Proposed Project would be permitted by the RMAP zoning. A portion of light industrial uses shown in the RMAP has been moved west as part of the Proposed Project.

- **Open Space and Recreation**—The Tesoro Viejo Project incorporates approximately ~~217~~218 acres of mapped open space. These open spaces comprise existing natural drainages and biological resource areas intended to serve recreational, habitat, and storm drainage functions of the Project Site. The designated open space would serve to connect the Project's residential areas and its Community Core and would provide an armature for its trails and neighborhood parks, yet to be planned. The Proposed Project would also provide an additional 200 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in developed areas.

Additionally, the Project's proposed Circulation Plan includes an extensive trail network along a series of greenways associated with drainages and the road connecting to the San Joaquin River that would provide access among all of the residential areas, as well as to the Community Core. Such trails would likely also connect to trail systems on adjacent properties if they can be readily identified.

The open space and recreation elements of the Proposed Project would be consistent with existing zoning, and permitted by General Plan/RMAP zoning.

All of the uses proposed under the Specific Plan would be permitted by the RMAP land use designations. The proposed densities would protect on-site natural resources while allowing integration with the existing rural character. The Proposed Project would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, adopted for the purpose of avoiding or mitigating an environmental effect. The Proposed Project's compliance with RMAP zoning policies would be *less than significant*. No mitigation is required.

Impact 4.9-3 **The Proposed Project would be substantially consistent with policies established in the San Joaquin River Parkway Master Plan, which were adopted for the purpose of avoiding or mitigating potential environmental effects. This is considered a *less-than-significant* impact.**

San Joaquin River Parkway Master Plan. The Madera County General Plan requires that all developments within the County comply with the policies of the San Joaquin River Parkway Master Plan (PMP). Only a small portion of the Project Site would fall within the area designated as the San Joaquin River Parkway. The majority of this area would be devoted to open space uses, extending the Ledger Island preserve. The land adjoining the river would not be built upon, except in the area designated as Special Purpose Zone B. This site would become a low-intensity visitor-servicing recreational ~~commercial~~ area devoted to small waterfront businesses and to water-dependent uses, such as a canoe rental shop. The higher bluffs are planned for a small amount of very low density residential uses.

In general, the Proposed Project would comply with Policy NRD10, which promotes the preservation of a continuous strip of riparian vegetation averaging 200 feet or wider along all stretches of the parkway. As described in greater detail in Section 4.4 (Biological Resources) and required under mitigation measure MM4.4-11(a), a minimum 200-foot wildlife corridor buffer will be established and maintained in perpetuity along the undeveloped portions of the San Joaquin River's riparian corridor. In addition, on either side of the primary (main) drainage channel wildlife corridor buffer zones of 100 feet, as measured

from the top of bank of un-vegetated portion of the channel, or 50 feet as measured from the outer edge of any riparian canopy shall be established, as required by Policy 5.D.4 of the Madera County General Plan. Although the uses in this area are expected to interrupt the buffer zone, this area would create a gap of less than 200 feet in the buffer. Minor gaps in the buffer (i.e., gaps of less than 200 feet) are allowable under Policy NRD10. Policy RP7 of the San Joaquin River Parkway Master Plan promotes the separation of recreational areas from residences by a buffer at least 150 feet wide. Policy BZ8 suggests that where low-density residential uses or passive recreational activities in the parkway are adjacent to wildlife habitat, there should be a minimum 100-foot-wide buffer zone and an additional setback zone or area without structures that is not less than 50 feet wide. The setback zone could be used for compatible landscaping, patio, or parking uses, but not a building. Residential uses would be at least 150 feet, if not more, from all recreational and habitat uses located along the San Joaquin River. The Proposed Project's impacts on compliance with PMP policies, including the policies provided in the County's General Plan that support the PMP policies, would be *less than significant*. No mitigation is required.

4.9.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The cumulative context for the land use analysis is the RMAP area. The RMAP, which was adopted in 1995, is the planning document that provides the County with guiding principles and a planning framework to shape future land use decision-making relative to the RMAP area, which includes the Rio Mesa Village (including the Proposed Project, as well as the Morgan and Jamison properties), North Fork Village, and Avenue 12 Village.

Threshold	Would the Proposed Project divide an established community?
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As stated previously, the Proposed Project would be consistent with similar proposed or approved development projects in the Project vicinity, such as the North Fork Village, the Village of Gateway, and the Gunner Ranch West Area Plan. Buildout of the Proposed Project would complement adjacent residential and commercial land uses. Therefore, there would be no cumulative impacts.

Threshold	Would the Proposed Project conflict with an applicable land use plan, policy, or regulation prepared by an agency with jurisdiction over the project and adopted to avoid or mitigate an environmental effect?
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Conflicts with applicable land use plans, policies, or regulations are project/site-specific and would not cumulate with other projects. Therefore, there would be no cumulative impacts.

4.9.5 References

Community Design + Architecture. 2007⁸, amended 2008¹². ~~Amended Proposed Tesoro Viejo Specific Plan;~~ July.

Madera County. 1995a. *Final Rio Mesa Area Plan*. Prepared by The Keith Companies, March 21.

———. 1995b. *Madera County General Plan*, October.

- . 1995c. *Madera County General Plan Background Report*, October.
- . 1995d. *Madera County General Plan Policy Document*, October.
- . 2006. *Gateway Village Specific Plan Draft Program Environmental Impact Report*. Prepared by ESA, November.
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- Michael Brandman Associates. 2006. *Administrative Draft Environmental Impact Report for the North Fork Village-1*, December.
- San Joaquin River Conservancy. 2000. *San Joaquin River Parkway Master Plan*, July 20.
- . 2007. *San Joaquin River Conservancy Projects and Bond Fund Allocations*, March. (~~Accessed November 29, 2007~~)

4.10 NOISE [REVISED IN PART]

This section evaluates the potential for the Proposed Project to result in impacts associated with a substantial temporary and/or permanent increase in ambient noise levels in the vicinity of the Project Site; exposure of people associated with the Proposed Project to excessive noise levels, groundborne vibration, or groundborne noise levels; and whether this exposure is in excess of standards established in the County's General Plan or noise ordinance. Finally, mitigation measures intended to reduce impacts to noise and vibration are proposed, where appropriate, to avoid or reduce significant impacts of the Proposed Project.

Data used to prepare this analysis were obtained from the *Madera County General Plan* (General Plan), the Federal Transit Administration's *Transit Noise and Vibration and Impact Assessment* methodology, and by measuring and modeling existing and future noise levels at the Proposed Project site and at surrounding land uses. All noise measurements taken on and off site for this project, as well all noise modeling outputs done in preparation of this project and its alternatives are provided in Appendix H of this document. This analysis uses vehicular traffic projections contained the *Transportation Impact Analysis Report for Tesoro Viejo Project* (traffic study) prepared by Fehr & Peers dated November 2007, which is included as Appendix H of this EIR, and typical construction noise levels to estimate corresponding noise levels at the nearest sensitive receptor locations. Bibliographic entries for reference materials are provided in Section 4.10.5 (References) of this section.

4.10.1 Environmental Setting

■ Fundamentals of Sound and Environmental Noise

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Because the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise, on the other hand, is typically defined as unwanted sound. A typical noise environment consists of a base of steady "background" noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Table 4.10-1 (Representative Environmental Noise Levels) lists representative noise levels for the environment.

Table 4.10-1 Representative Environmental Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock Band
Jet Fly-over at 100 feet	—105—	
	—100—	
Gas Lawnmower at 3 feet	—95—	
	—90—	
	—85—	Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime	—75—	
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area	—65—	Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
	—55—	Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
	—45—	
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime	—35—	
	—30—	Library
Quiet Rural Area during Nighttime	—25—	Bedroom at Night, Concert Hall (background)
	—20—	
	—15—	Broadcast/Recording Studio
	—10—	
	—5—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

SOURCE: Caltrans 1998

Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise upon people largely depends upon the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The rating scales of L_{eq} , L_{min} , and L_{max} are measures of ambient noise, while the L_{dn} is a measure of community noise. L_{eq} is the average A-weighted sound level measured over a given time interval. L_{eq} can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods. L_{dn} is another average A-weighted sound level measured over a 24-hour time period. However, this noise scale is adjusted to account for some individuals' increased sensitivity to noise levels during the nighttime hours. L_{eq} , the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night. L_{eq} , L_{min} , and L_{max} , as well as L_{dn} are defined as follows:

- L_{eq} , the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- L_{dn} , the Day-Night Average Level, is a 24-hour average L_{eq} with a 10 dBA “weighting” added to noise during the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
- L_{min} , the minimum instantaneous noise level experienced during a given period of time.
- L_{max} , the maximum instantaneous noise level experienced during a given period of time.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night, or over a 24-hour period, as represented by the L_{dn} . Environmental noise levels are generally considered low when the L_{dn} is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime noise levels are isolated, natural settings that can provide noise levels as low as 20 dBA and quiet, suburban, residential streets that can provide noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher noise levels associated with more noisy urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA).

When evaluating changes in 24-hour community noise levels, a difference of 3 dBA is a barely perceptible increase to most people (Caltrans 1998). A 5 dBA increase is readily noticeable, while a difference of 10 dBA would be perceived as a doubling of loudness. New development within a community could potentially lead to activities that increase the 24-hour community noise levels.

Noise Attenuation

Noise levels from a particular source decline as distance to the receptor increases. Other factors, such as the weather and other reflecting or shielding factors, also help intensify or reduce the noise level at any given location. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically “hard” locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically “soft” locations (i.e., the area between the source and receptor is unpacked earth or has vegetation, including grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed (approximately 30 years old or older) generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units and office buildings is generally 30 dBA or more (HMMH 2006).

■ Fundamentals of Environmental Groundborne Vibration

Vibration is sound radiated through the ground. The rumbling sound caused by the vibration of room surfaces is called groundborne noise. The ground motion caused by vibration is measured as particle velocity in inches per second and, in the U.S., is expressed as vibration decibels (VdB).

The background vibration velocity level in residential and educational areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. Groundborne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of a building, the motion does not provoke the same adverse human reaction. In addition, the rumble noise that usually accompanies building vibration is perceptible only inside buildings (HMMH 2006.)

The range of interest in groundborne vibration is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

The general human response to different levels of groundborne vibration velocity levels is described in Table 4.10-2 (Human Response to Different Levels of Groundborne Vibration).

Table 4.10-2 Human Response to Different Levels of Groundborne Vibration

<i>Vibration Velocity Level</i>	<i>Human Reaction</i>
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

SOURCE: HMMH 2006

The vibration velocity levels for the types of construction equipment that would operate within the Proposed Project Site during construction are shown below in Table 4.10-3 (Vibration Source Levels for Construction Equipment).

Table 4.10-3 Vibration Source Levels for Construction Equipment

<i>Construction Equipment</i>	<i>Approximate VdB at 25 feet</i>
Large Bulldozer	87
Caisson Drilling	87
Loaded Trucks	86
Jackhammer	79
Small Bulldozer	58
SOURCE: HMMH 2006	

■ Existing and Surrounding Uses

The Project Site consists of a combination of gently rolling hills and relatively flat plains used primarily for agricultural purposes, such as vineyards, blueberry production, and tree nurseries. A well-defined drainage network meanders through the Project Site. There is also a ranch office building on the Tesoro Viejo site, and undeveloped scrub, riparian, and grassland habitats. The properties surrounding the Project Site are mainly used for agriculture and grazing purposes or are undeveloped, with some areas planned for future development projects. Commercial properties are located along SR-41 west of the Project Site. Single family residential units are located along Huntington Avenue west of the commercial units. The area directly north of most of the Project Site consists of agricultural and open space land uses. To the east, the existing Sumner Hill Subdivision is located between the Project Site and the San Joaquin River. Primary noise sources at the Project Site include agricultural equipment, employee vehicle traffic, and resident vehicle traffic traveling to and from the Summer Hill Subdivision.

■ Sensitive Uses

Madera County has defined sensitive uses as land uses and/or receptors to include residences, schools, hospitals, and convalescent facilities. Sensitive uses from a noise perspective include places where there is a reasonable expectation that individuals could be sleeping, learning, worshipping, or recuperating. Existing sensitive uses within and adjacent to the Proposed Project Site would include the residential uses to the west of SR-41 and the Sumner Hill Subdivision located directly to the east of the Project Site.

■ Existing Noise Levels

Primary noise sources at the Project Site include agricultural equipment, employee vehicle traffic, and resident vehicle traffic traveling to and from the Summer Hill Subdivision. Existing noise levels were measured at sensitive uses within or surrounding the Project Site where project-related improvements would occur, and where activities associated with either construction or operation of the Proposed Project could potentially lead to adverse increases in noise levels.

In accordance with industry standards established by the *Technical Noise Supplement* (Caltrans 1998), existing noise levels were monitored at four noise-sensitive locations in and around the Project Site (Receptor [R] 1 through R4) in order to identify representative noise levels at various areas within the vicinity of the Project Site. R1 is located at the base of the Summer Hill Subdivision, east of the Project

Site and had a measured L_{eq} of 53.5 dBA. R2 had a measured L_{eq} of 31.7 dBA, and is located 40 feet south of Road 204; a school is proposed for this location within the Tesoro Viejo Project Site. Measurements R3 and R4 are located at the residences west of the Project Site and are setback approximately 500 and 400 feet from SR-41 respectively. Location R3 had a measured L_{eq} of 46.2 dBA and location R4 had a measured L_{eq} of 46.9. These noise levels are characteristic of rural areas. The monitoring locations are identified in Figure 4.10-1 (Noise Monitoring Locations). The noise levels were measured using a Larson-Davis Model 820 precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. The average noise levels and sources of noise measured at each location are identified in Table 4.10-4 (Noise Level Measurements).

Table 4.10-4 Noise Level Measurements

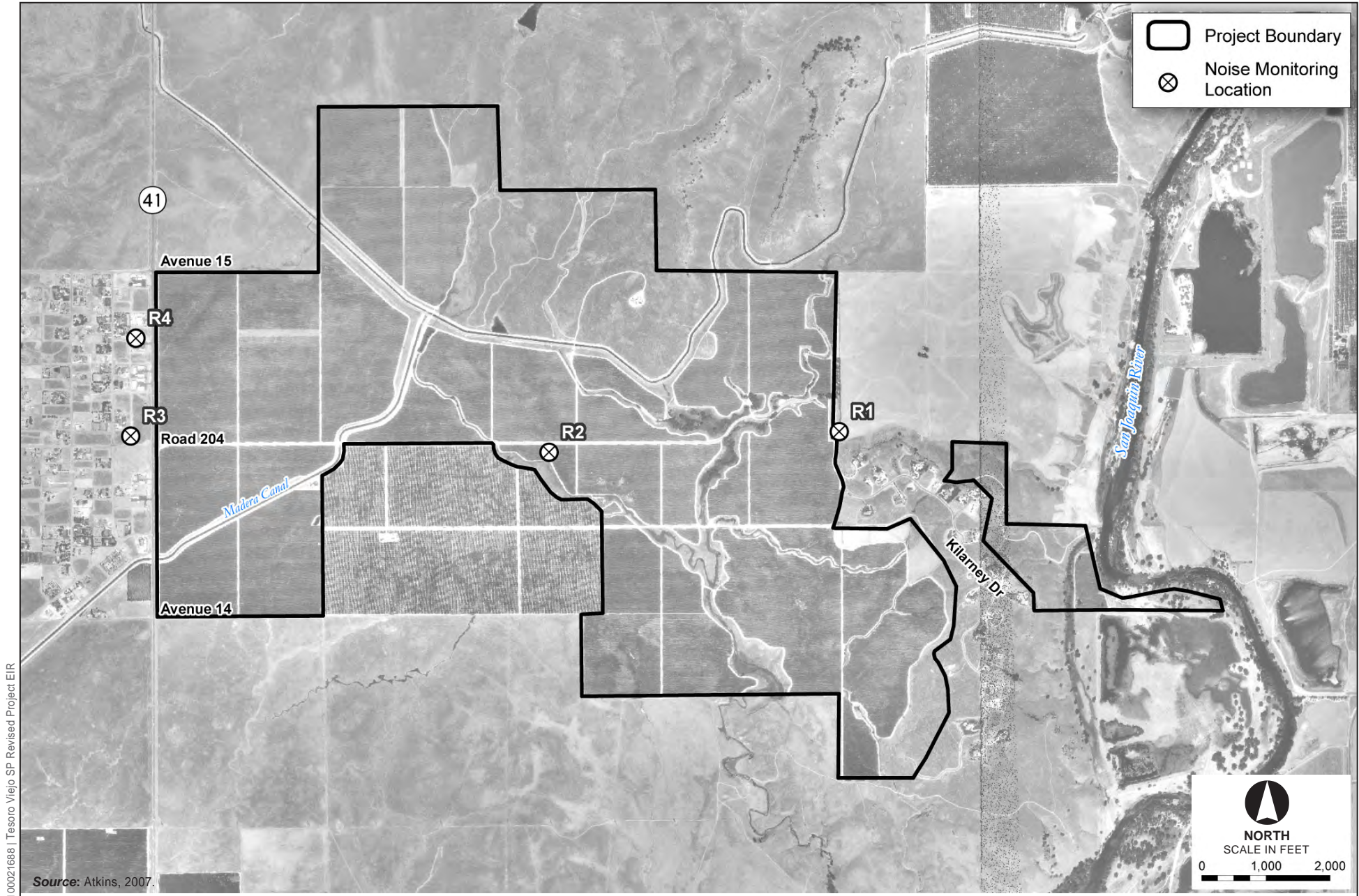
Receptor ID	Location	Length of Measurement	Observed Primary Sources of Noise	Noise Level Statistics		
				L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
R1	East side of Killarney Street (Sumner Hill Subdivision)	15 minutes	Private resident traffic	53.5	27.9	77.8
R2	40 feet south of Road 204	15 minutes	Traffic	31.7	26.3	54.6
R3	30 feet west of Huntington Drive	15 minutes	Traffic	46.2	30.5	64.5
R4	350 feet west of SR-41	15 minutes	Traffic	46.9	31.9	60.3

SOURCE: PBS&J 2007

■ Existing Roadway Noise Levels off Site

Existing traffic noise levels for the project vicinity were estimated using the Federal Highway Administration (FHWA) Highway Traffic Noise Model (TNM) 2.5. The model primarily considers the number, type, and speed of vehicles; highway alignment and grade; cuts, fills, and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise. The FHWA TNM predicts traffic noise levels using acoustical algorithms and measured emission levels for five standard vehicle types: cars, medium trucks, heavy trucks, buses, and motorcycles. For purposes of analysis, the average peak-hour traffic volumes were extrapolated from the project traffic study and input into the model to estimate existing and future traffic noise levels on roadway segments in the project vicinity where existing or reasonably foreseeable sensitive receptors are located. For the purpose of this analysis, approximately 95 percent of the traffic volumes were modeled as cars, 3 percent as medium trucks, and 2 percent as heavy trucks.

The average daily noise levels at 50 feet from twenty roadway segments are presented in Table 4.10-5 (Existing Roadway Noise Levels). As described in greater detail below under Section 4.10.2; (Regulatory Framework), Madera County has established an exterior noise limit of 60 dBA L_{dn} for the exterior of residential land uses; therefore, roadways where existing noise levels exceed the County’s 60 dBA L_{dn} noise limit for residential uses have been indicated by **bold text** for the existing dBA L_{dn} levels. Due to high volumes of traffic along roadways within the project vicinity, the existing roadway noise levels



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Source: Atkins, 2007.

Figure 4.10-1
Noise Monitoring Locations

Table 4.10-5 Existing Roadway Noise Levels		
Roadway Segment	Sound Level at 50 feet from roadway (dBA L_{eq})	
	Land Use	Existing
SR-41		
North of Road 145	Undeveloped	72.6
Road 145 to Avenue 15	Undeveloped	72.7
Avenue 15 to Road 204	Commercial/Agriculture	73.5
Road 204 to Avenue 13	Commercial/Agriculture	73.6
Avenue 13 to Avenue 12	Agriculture	73.6
Avenue 12 to Children's Blvd	Commercial/Agriculture	75.7
Children's Blvd to Friant Road	Commercial	77.9
Friant Road to Herndon Avenue	Commercial	79.1
South of Herndon Avenue	Commercial	80.5
Road 145		
Road 36 to SR-41	Residential/Agriculture	63.7
SR-41 to Road 206	Undeveloped	60.7
Road 36		
Road 145 to Avenue 15	Residential/Agriculture	60.6
Avenue 15 to Avenue 12	Residential/Agriculture	61.7
Avenue 12 to Avenue 9	Residential/Agriculture	59.6
Road 206		
Road 145 to Friant Road	Residential	58.1
Friant Road		
South of Road 206	Residential	65.2
Children's Avenue		
Road 40½ to Peck Blvd	Commercial	66.4
Avenue 9		
Road 36 to Road 40½	Agriculture	62.0
Avenue 12		
Road 36 to SR-41	Residential	67.4
Avenue 15		
Road 36 to SR-41	Residential	60.8

SOURCE: PBS&J 2007 (Model: Federal Highway Administration Traffic Noise Model 2.5 [FHWA TNM 2.5])
Bold text indicates existing noise levels exceed Madera County's 60 dBA L_{dn} exterior limit for transportation sources.

exceed the County's 60 dBA L_{dn} noise limit along eighteen of the study roadways within the project vicinity. Roadway segments were given a residential designation based on the presence of any residential uses located along the roadway, irrespective of the existing County land use designation, as any residential use would be considered a sensitive receptor. Additionally, the modeled roadway noise levels are considerably higher than the noise measurements taken for the Proposed Project, as shown in

Table 4.10-4 above. As described above, the closest noise measurements to SR-41 (measurements R3 and R4) were taken at existing residential uses that are located approximately 400 to 500 feet from SR-41. The measured noise levels at location R3 (46.2 dBA L_{eq}) and R4 (46.9 dBA L_{eq}) are lower than the modeled noise levels because the modeled levels calculated the noise levels at 50 feet from the roadway, to provide a uniform distance from all of the traffic study roadways.

■ Existing Groundborne Vibration Levels

The greatest regular source of groundborne vibration at the Specific Plan Area and in the immediate vicinity is roadway truck and bus traffic. These trucks and buses typically generate noticeable groundborne vibration velocity levels at the edge of the road as they travel along the roadway.

4.10.2 Regulatory Framework

As the Proposed Project could potentially introduce increase traffic volumes to Madera County, the noise standards of Madera County are evaluated against the increases that could potentially occur during implementation and operation of the Proposed Project, in addition to Madera County's noise standards and guidelines. The noise standards identified in the Madera County General Plan are described below.

■ Federal

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

■ State

The California Government Code requires that a noise element be included in the General Plan of each county and city.

■ Regional

Madera County General Plan

As mandated by Section 65302(f) of the California Government Code, Madera County has adopted a noise element as a component of the Madera County General Plan. Local General Plans identify general principles intended to guide and influence development plans. General Plans recognize that different types of land uses have different sensitivities toward their noise environment; residential areas are generally considered to be the most sensitive type of land use to noise and industrial/commercial areas are generally considered to be the least sensitive. Noise Ordinances set forth the specific standards and procedures for addressing particular noise sources and activities. Local noise ordinances typically set forth standards related to construction activities, nuisance-type noise sources, and industrial property line noise levels. Madera County noise regulations and standards apply to the land uses near the Project Site.

The following Madera County General Plan policies are relevant to the Proposed Project:

Policy 7.A.1 Development of new noise-sensitive land uses, including residential uses, schools, hospitals, and convalescent homes, shall not be permitted in areas exposed to existing or projected future noise levels from transportation noise sources that exceed 60 dB L_{dn} in outdoor activity areas and 45 dB L_{dn} in interior spaces with the exception that in areas adjacent to State Route 99 and the mainlines of the Southern Pacific Railroad and the Santa Fe Railway an exterior noise level standard of 65 dB L_{dn} will be applied. Transportation noise sources include vehicular traffic on public roadways, aircraft in flight, and railroad line operations.

Policy 7.A.2 Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB L_{dn} within the outdoor activity areas of existing or planned noise-sensitive land uses and 45 dB L_{dn} in interior spaces of existing or planned noise-sensitive land uses.

Nontransportation Noise Source Policies

Policy 7.A.4 Development of new noise-sensitive land uses shall not be permitted where the noise level from existing non-transportation noise sources exceeds the noise level standards of Table 7.A.4.

Table 7.A.4 Maximum Allowable Noise Exposure for Non-Transportation Noise Sources*		
	<i>Daytime</i> (7:00 A.M. to 10:00 P.M.)	<i>Nighttime</i> (10:00 P.M. to 7:00 A.M.)
Hourly L_{eq} , dB	50	45
Maximum level, dB	70	65

Each of the noise levels specified above shall be lowered by 5 dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

* As determined at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards may be applied on the receptor side of noise barriers at the property line.

Policy 7.A.5 Noise that will be created by new non-transportation noise sources, or existing non-transportation noise sources which undergo modifications that may increase noise levels, shall be mitigated so as not to exceed the noise level standards of Table 7.A.4 on lands designated for noise-sensitive uses. This policy does not apply to noise levels associated with agricultural operations.

Policy 7.A.6 The County shall enforce the State Noise Insulation Standards (California Code of Regulations, Title 24) and Chapter 35 of the *Uniform Building Code* (UBC) concerning interior noise exposure for multi-family housing, hotels and motels.

Policy 7.A.7 Where the development of a project may result in land uses being exposed to existing or projected future noise levels exceeding the levels specified by the policies of the noise section of the General Plan, the County shall require an acoustical analysis early in the review process so that noise mitigation may be included in the project design. For development not subject to environmental review, the requirements for an acoustical analysis shall be implemented prior to

the issuance of a building permit. The requirements for the content of an acoustical analysis are given in Table 7.A.7.

Table 7.A.7 Requirements for an Acoustical Analysis

An acoustical analysis prepared pursuant to Policy 7.A.7 shall:

- A. Be the financial responsibility of the applicant.
- B. Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
- C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions. Where actual field measurements cannot be conducted, all sources of information used for calculation purposes shall be fully described. When the use being studied is a commercial use, all noise sources related to the service and maintenance of the facility shall be considered, including parking lot and landscape maintenance, refuse collection and truck loading/unloading activities.
- D. Estimate existing and projected (20 years) noise levels and compare those levels to the adopted policies of the noise section of the *General Plan*. Projected future noise levels shall take into account noise from planned streets, highways and road connections.
- E. Recommend appropriate mitigation to achieve compliance with the adopted policies of the noise section of the *General Plan*, giving preference to proper site planning and design over mitigation measures, which require the construction of noise barriers or structural modifications to buildings that contain noise-sensitive land uses.
- F. Estimate noise exposure after the prescribed mitigation measures have been implemented.
- G. Describe a post-project assessment program that could be used to evaluate the effectiveness of the proposed mitigation measures.

Consistency Analysis

The Proposed Project would be developed adjacent to SR-41, and as shown in Table 4.10-5, existing roadway noise levels 50 feet from SR-41 exceeds the 60 dBA L_{dn} exterior noise levels for noise sensitive uses; however, as shown in Table 4.10-4, noise measurements, measured noise levels 400 feet to the east of SR-41 are substantially below the 60 dBA L_{dn} exterior noise limit. General Plan Policy 7.A.7 require that projects prepare an acoustical analysis if sensitive land uses would potentially be exposed to noise levels above the 60 dBA L_{dn} exterior noise limit. This EIR provides the acoustical analysis necessary to define noise levels on site, including existing noise levels as measured and modeled. The analysis includes County requirements and mitigation measures to ensure that noise levels in the exterior activity environments meet County standards.

Rio Mesa Area Plan

The RMAP did not include policies to specifically address noise issues.

4.10.3 Project Impacts and Mitigation

■ Analytic Method

Implementation of the Proposed Project could generate noise that may exceed permitted County's noise levels. The primary sources of noise associated with the Proposed Project would be construction activities within the Proposed Project and project-related traffic. Secondary sources of noise would include new stationary sources (such as heating, ventilation, and air conditioning units) and increased

human activity throughout the project area. The net increase in noise generated by these activities and other sources have been quantitatively estimated and compared to the applicable noise standards and thresholds of significance.

Aside from noise levels, groundborne vibration would also be generated during the construction phase of the Proposed Project by various types of construction equipment. Thus, the groundborne vibration levels generated by construction equipment have also been quantitatively estimated and compared to applicable thresholds of significance.

Construction Noise Levels

Construction noise levels were estimated by data published by the U.S. Environmental Protection Agency (U.S. EPA). Potential noise levels are identified for on- and off-site locations that are sensitive to noise including residences and schools.

The EPA has compiled data regarding the noise-generating characteristics of typical construction activities. The data are presented in Table 4.10-6 (Typical Outdoor Construction Noise Levels). These noise levels would diminish rapidly with distance from the construction site, at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 86 dBA measured at 50 feet from the noise source to the receptor would reduce to 80 dBA at 100 feet from the source to the receptor, and reduce by another 6 dBA, to 74 dBA, at 200 feet from the source to the receptor.

Table 4.10-6 Typical Outdoor Construction Noise Levels

Construction Phase	Noise Level at 50 feet with Mufflers (dBA Leq)	Noise Level at 60 feet with Mufflers (dBA Leq)	Noise Level at 100 feet with Mufflers (dBA Leq)	Noise Level at 200 feet with Mufflers (dBA Leq)
Ground Clearing	82	80	76	70
Excavation/Grading	86	84	80	74
Foundations	77	75	71	65
Structural	83	81	77	71
External Finishing	86	84	80	74

SOURCE: U.S. EPA 1971

This noise analysis has been augmented to consider construction and/or operation of those features of the Project that were not previously considered, which include (1) an 8-mile pipeline traveling from the Project Site to Cottonwood Creek Ranch, which is the location of an off-site source of alternative water supply, and (2) construction of portable classrooms at Minarets High School that are needed to accommodate students from Tesoro Viejo until such time as an on-site Tesoro Viejo high school is constructed and operational to meet their needs or Phase II of Minarets High School is constructed and operational. Construction-related noise impacts are evaluated in Impact 4.10-1.

Roadway Noise Levels

Roadway noise levels in Year 2025 (assuming buildout of the Proposed Project) were calculated using the FHWA TNM 2.5 and traffic volumes from the project traffic impact analysis report, available in Appendix H of this EIR. The model primarily considers the number, type, and speed of vehicles;

highway alignment and grade; cuts, fills, and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise. The FHWA TNM predicts traffic noise levels using acoustical algorithms and measured emission levels for five standard vehicle types: cars, medium trucks, heavy trucks, buses, and motorcycles. For purposes of analysis, the average peak-hour traffic volumes were extrapolated from the project traffic study and input into the model to estimate existing and future traffic noise levels on roadway segments in the project vicinity where existing or reasonably foreseeable sensitive receptors are located. For the purpose of this analysis, approximately 95 percent of the traffic volumes were modeled as cars, 3 percent as medium trucks and 2 percent as heavy trucks.

Subsequently, and in response to a court order issued by Court of Appeal for the Fifth Appellate District, a Revised Transportation Impact Study (TIS) was prepared to evaluate additional traffic scenarios, including:

- Existing 2011 Plus Project in Year 2015
- Existing 2011 Plus Project in Year 2020
- Existing 2011 Plus Project in Year 2025
- Interim Year 2015 Cumulative Plus Project Conditions
- Interim Year 2020 Cumulative Plus Project Conditions
- Interim Year 2015 Cumulative Plus Project Plus Student-Related Traffic
- Interim Year 2020 Cumulative Plus Project Plus Student-Related Traffic

As previously mentioned, the Cumulative Buildout Year (2025), both with and without the Project, was analyzed in the 2008 Final EIR and its traffic report.

The roadway noise impacts associated with each of these traffic scenarios are addressed in Impact 4.10-5, Impact 4.10-5(a), and Impact 4.10-5(b).

Impact 4.10-5 addresses noise impacts associated with Existing Plus Project in Year 2020, Existing Plus Project in Year 2025, and Cumulative Buildout (2025) roadway noise impacts, all of which would be significant and unavoidable.

Impact 4.10-5(a) addresses noise impacts associated with Existing Plus Project in Year 2015, Interim Year 2015 Cumulative Plus Project, and Interim Year 2020 Cumulative Plus Project roadway noise impacts, all of which would be less than significant.

Impact 4.10-5(b) addresses noise impacts associated with the Interim Year 2015 and 2020 Cumulative Plus Project and Student-Related Traffic scenario, which considers the impacts of vehicle trips associated with students traveling between the Project Site and Minarets High School until such time as an on-site high school is constructed and operational, all of which would be less than significant.

Roadway noise levels were calculated for the same roadway segments in the Project vicinity as were analyzed in the 2008 Final EIR. This task was accomplished using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the Revised TIS included in this Revised EIR. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions.

Vibration Levels Associated with Construction Equipment

Groundborne vibration levels resulting from construction activities occurring within the project area and were estimated by data published by Harris Miller Miller & Hanson, Inc. for the FTA. Potential vibration levels are identified for on- and off-site locations that are sensitive to vibration, including residences, and schools.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on noise if it would do any of the following:

- Expose persons to or generate noise levels in excess of standards established in the local general plan
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- Expose people residing or working in the Project Site to excessive noise levels from a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport
- Expose people residing or working in the Project Site to excessive noise levels from a project located within the vicinity of a private airstrip

Human Exposure to Noise

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered “substantial.” As discussed previously in this section, a noise level increase of 3 dBA is barely perceptible to most people, while a 5 dBA increase is readily noticeable and a difference of 10 dBA would be perceived as a doubling of loudness. Based on this information, the following thresholds would apply to the operational characteristics of the Proposed Project:

- Less than 3 dBA: not discernable: not significant
- Less than 5 dBA: noticeable, but not significant, if noise levels remain below County’s 60 dBA noise level standard at sensitive land uses
- 3 dBA or greater: potentially significant if the noise increase would meet or exceed the County’s 60 dBA noise level standard at sensitive land uses
- 5 dBA or greater: potentially significant

Human Exposure to Groundborne Vibration

The CEQA Guidelines also do not define the levels at which groundborne vibration or groundborne noise is considered “excessive.” For the purpose of this analysis, groundborne vibration impacts associated with human annoyance would be significant if the Proposed Project exceeds 85 VdB, which is

the vibration level that is considered by the FTA to be the threshold for human annoyance as described in Table 4.10-2 (Human Response to Different Levels of Groundborne Vibration). In terms of groundborne vibration impacts on structures, this analysis uses the FTA's vibration damage threshold of approximately 100 VdB for fragile buildings and approximately 95 VdB for extremely fragile historic buildings (HMMH 2006).

■ Effects Not Found to Be Significant

Threshold	If the project is located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airstrip, would it expose people residing or working in the project site to excessive noise levels?
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The Proposed Project area is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The nearest public airport to the Proposed Project area is the Madera Municipal Airport, which is located approximately 15 miles west of the Proposed Project area, in the city of Madera. Thus, *no impact* related to the exposure to people residing or working in the Project Site to excessive noise levels is anticipated, and no further analysis is required in this EIR.

Threshold	If the project is located within the vicinity of a private airstrip, would it expose people residing or working in the project site to excessive noise levels?
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The Proposed Project area not located within the vicinity of a private airstrip. The nearest "airstrip" would be the Interstate Medical Transport, a medical use helipad, which is located approximately 5 miles south of the Proposed Project area. Therefore, *no impact* related to the exposure of people residing or working in the Project Site to excessive noise levels is anticipated to occur from a private airstrip, and no further analysis is required in this EIR.

■ Impacts and Mitigation

Threshold	Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
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Impact 4.10-1 **Construction activities associated with the Proposed Project would generate noise levels that exceed the noise standards established by the Madera County General Plan. This is considered a potentially significant impact. Implementation of mitigation measures MM4.10-1(a) and MM4.10-1(b) would reduce this impact, but noise levels could still be substantial. However, the project's construction noise impacts would be temporary, and would not occur during recognized sleep hours. Therefore, this impact would be considered *less than significant*.**

Implementation of the Proposed Project would result in the development of residential, commercial retail, office, highway commercial, visitor commercial, light industrial, and business park uses, in addition to open space and recreational uses, schools, and other institutional and public uses. Specifically, the project proposes a mixed-use development consisting of up to 5,190 dwelling units (du), about 3 million

square feet of commercial, retail, office, public institutional, and light industrial uses, and approximately ~~217~~218 acres of mapped open space, not including approximately ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in the residential neighborhoods. Another ~~38~~37 acres would be set aside for utilities and stormwater facilities, ~~at least up to~~ 3060 acres for schools, and ~~222~~8 acres for the proposed, but not anticipated SR-41 re-alignment right-of-way. It is ~~anticipated~~assumed that the Proposed Project would be constructed beginning in ~~2009~~2013, with full buildout of the Proposed Project by 2025, which represents an approximately ~~sixteen~~12-year construction period. Development of the project's infrastructure is anticipated to begin in ~~2009~~2013, and the residential, industrial, and commercial uses would be developed starting in 20143, and occur over a ~~14~~12-year period in response to market conditions. Construction of the residential and mixed use components of the Proposed Project will generally begin in and around the Town Center area and continue eastward to the San Joaquin River, including development both north and south of the Town Center area. Schools will be developed in phases as demand dictates. Construction activities occurring within the Proposed Project area would involve excavation and grading activities followed by construction of the proposed facilities and associated parking as well as roadway and landscaping improvements, which would involve the use of heavy equipment. Estimates for noise levels generated by construction equipment is based upon available data presented by the EPA and the FTA's *Transit Noise and Vibration Impact Assessment, Final Report*, of May 2006.

Construction activities would also involve the use of smaller power tools, generators, and other equipment that generate noise. Haul trucks using the local roadways would generate noise as they move along the road. Each stage of construction would involve a different mix of operating equipment, and noise levels would vary based on the amount and types of equipment in operation and the location of the activity. Based on the information presented in Table 4.10-6 and the diminishment of noise levels at a rate of 6 dBA per doubling of distance, the noisiest phase of construction would exceed the 50 dBA L_{eq} noise limit at a distance of 3,200 feet. The closest existing noise-sensitive location is the Sumner Hill Subdivision, located approximately 280 feet east of the Project Site. Generally, construction will begin at the Town Center and continue east to the San Joaquin River.

Although the construction activities would exceed the 50 dBA L_{eq} noise standard identified in the General Plan during construction activities, the increase in noise levels would be temporary in nature, and would not generate continuously high noise levels, although occasional single-event disturbances are possible.

As previously described, the Sumner Hill Subdivision is located directly to the east and north of the Proposed Project Site. Development of the Proposed Project could potentially generate construction noise levels that would exceed the 50 dBA L_{eq} noise limit at the Sumner Hill Subdivision. Additionally, because of the phased nature of development, the potential exists that residential and school uses would be developed and occupied while subsequent phases of construction activities occur within the 3,200 foot distance described above. Therefore, these residential and school uses would potentially be impacted by construction noise levels.

To reduce the noise levels resulting from construction of the Proposed Project to the extent feasible, the following mitigation measures shall be implemented:

- MM4.10-1(a) *The Project Applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by contractors to reduce construction noise levels:*
- *As individual parcels within the Project Site are proposed to be developed, notification shall be mailed to owners and occupants of all developed land uses immediately bordering the parcels to be developed including the Sumner Hill Subdivision, and all occupied lands within the Project Site bordering the parcel to be developed. The notification shall provide a schedule for major construction activities that will occur through the duration of the construction period within each parcel to be developed. In addition, the notification will include the identification and contact number for a designated construction manager for the proposed development that would be available on site to monitor construction activities. The construction manager will be located at the on-site construction office during construction hours for the duration of all construction activities.*
 - *Hours of construction shall be limited to between 7:00 A.M. and 6:00 P.M. on weekdays and from 8:00 A.M. to 5:00 P.M. on Saturdays.*
 - *Ensure that construction equipment is properly muffled according to industry standards.*
 - *Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible.*
 - *Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, noise barriers or noise blankets.*

- MM4.10-1(b) *The Project Applicant shall require by contract specifications that construction staging areas, along with the operation of earthmoving equipment within the Project Site, would be located as far away from vibration- and noise-sensitive sites as possible, such as the Sumner Hill Subdivision, and occupied land within the Project Site. Contract specifications shall be included in the Proposed Project construction documents, which shall be reviewed and approved by the County.*

Under mitigation measure MM4.10-1(a), the implementation of noise attenuation measures may include the use of noise barriers (e.g., sound walls) or noise blankets. As a general rule of thumb, a sound wall should be able to reduce noise by 5 dBA. Further, construction activities would not occur during recognized sleep hours, with the highest noise generating activities limited to day time hours, and no construction would occur on Sundays or federal holidays. In addition, mitigation measure MM4.10-1(b), which requires that construction staging areas and earthmoving equipment be located as far away from noise and vibration-sensitive land uses as possible, would also reduce construction-related noise levels.

No other feasible mitigation measures are available. Because construction noise would be reduced where feasible, and because mitigation measures would be implemented, this impact would be *less than significant*.

Other Construction Activities

Construction of Portable (or Temporary) Classrooms

In order to accommodate high-school-age students during those years prior to operation of an on-site high school (in 2021) when the existing Minarets High School would not have adequate capacity to accommodate students from the Proposed Project (in years 2018, 2019, and 2020), temporary classrooms would have to be added at Minarets High School. It is anticipated that five to six temporary classrooms would be developed per year to accommodate the high-school aged students from both within and outside of the Rio Mesa for a total of about 15 portable classrooms by 2020. Additional information

about the need for portable classrooms can be found in Impact 4.12-3(a) in Section 4.12 (Public Services and Recreation). There are no existing noise sensitive uses located within the vicinity of Minarets High School, as the surrounding area is undeveloped.

Construction of the temporary classrooms would not expose noise sensitive receptors to excessive construction noise. Construction of these structures would utilize slab-on-grade foundations, with minimal grading or excavation required and typical building construction techniques, similar to construction for the Proposed Project. It is anticipated that the temporary classrooms would have to be added during the summer months to avoid disruption to existing students, which would be the only proximate sensitive receptors. Because construction noise would occur during the summer, when students are not on-campus, this impact would be *less than significant*.

Construction of Recharge Basins

The Proposed Project also includes the construction of three recharge basins to recharge groundwater, if required, to provide an alternative source of water supply. It is anticipated that each of the recharge basins would each be 2 acres in size and 20 feet deep. Because one of the basins is already in place, having been constructed as part of the recharge test performed by KDSA, excavation would require the export of approximately 129,000 cubic yards of soil to construct the remaining two basins. Construction of the basins is anticipated for 2014.

Construction noise associated with construction of the two recharge basins would be less than significant with the implementation of mitigation measures MM4.10-1(a) and MM4.10-1(b). These mitigation measures would also apply to construction of the recharge basins. Under mitigation measure MM4.10-1(a), the Project Applicant is required to implement noise attenuation measures, such as the use of noise barriers (e.g., sound walls) or noise blankets. As a general rule of thumb, a sound wall would reduce noise by 5 dBA. Additionally, as required under MM4.10-1(a), construction activities would be limited to the hours of 7:00 AM and 6:00 PM on weekdays and from 8:00 AM to 5:00 PM on Saturdays. As such, construction-related noise would not occur during recognized sleep hours, with the highest noise generating activities limited to day time hours, and no construction would occur on Sundays or federal holidays. In addition, mitigation measure MM4.10-1(b), which requires that construction staging areas and earthmoving equipment be located as far away from noise and vibration-sensitive land uses as possible, would also reduce construction-related noise levels. No other feasible mitigation measures are available. Because construction noise would be reduced where feasible, and because mitigation measures would be implemented, this impact would be *less than significant*.

Construction of 8-Mile Water Pipeline

If the use of Holding Contract No. 7 water proves unavailable and the use of alternative water supply sources becomes necessary, two 30-inch water pipelines would be constructed along Avenue 15, from the western portion of the Project Site (at SR-41) to a point 8 miles westward, to deliver water from an off-site location. Construction activities are described in detail in Section 3.7.4 (Utility Infrastructure Improvements) of this Revised EIR.

The 2008 Final EIR concluded that construction noise would temporarily exceed the residential noise standards of Madera County; however, it also determined that such impacts would be less than

significant with the implementation of mitigation measures MM4.10-1(a) and MM4.10-1(b). These mitigation measures would also apply to construction of the pipeline. Under mitigation measure MM4.10-1(a), the Project Applicant is required to implement noise attenuation measures, such as the use of noise barriers (e.g., sound walls) or noise blankets. Additionally, as required under mitigation measure MM4.10-1(a), construction activities would be limited to the hours of 7:00 AM and 6:00 PM on weekdays and from 8:00 AM to 5:00 PM on Saturdays. As such, construction-related noise would not occur during recognized sleep hours, with the highest noise generating activities limited to day time hours, and no construction would occur on Sundays or federal holidays. In addition, mitigation measure MM4.10-1(b), which requires that construction staging areas and earthmoving equipment be located as far away from noise and vibration-sensitive land uses as possible, would also reduce construction-related noise levels. Because construction noise would be reduced through the provision of sound attenuation measures and would be limited to daytime hours, construction-related noise impacts associated with the pipeline impact would be *less than significant*.

Impact 4.10-2 Operation of the Proposed Project could expose noise-sensitive land uses to noise levels that exceed the standards established by Madera County. This is a potentially significant impact. However, implementation of mitigation measure MM4.10-2 would reduce this impact to a *less-than-significant* level.

Sources of noise generated by implementation of the Proposed Project would include new stationary sources, such as rooftop heating, ventilation, and air conditioning (HVAC) systems for the office and commercial uses. The Proposed Project would also introduce new activity and noise to the area as people are attracted to the new commercial uses that would develop as part of the Proposed Project. Noise levels resulting from stationary noise sources could exceed the County's 50 L_{eq} and 70 L_{max} daytime noise standards applicable to nontransportation noise sources. However, the Tesoro Viejo Specific Plan specifies that all air conditioners, heating, cooling and ventilating equipment and all other mechanical, lighting or electrical devices shall be screened, shielded and/or sound buffered from surrounding properties and streets.

The shielding installed around the HVAC systems would typically reduce noise levels by approximately 15 dBA, which could reduce HVAC system noise to approximately 50 dBA L_{eq} at 50 feet from the equipment. While the County does not have exterior noise restrictions for commercial and office uses, providing shielding would ensure that impacts related to the HVAC systems are at or below the 50 dBA L_{eq} guideline established in the County's General Plan. Therefore, the impact associated with noise generated by nonvehicular operations would be *less than significant*.

Operation of the Proposed Project would involve the delivery of goods and food stuffs to the commercial and retail operations associated with the Proposed Project. Two noise sources would be identified with delivery operations: the noise of the diesel engines of the semi-trailer trucks and the backup beeper alarm that sounds when a truck is put in reverse, as is required and regulated by Cal-OSHA. The noise generated by idling diesel engines typically ranges between 64 and 66 dBA at 75 feet. This noise would be temporary in nature, typically lasting no more than five minutes. Backup beepers are required by Cal-OSHA to be at least 5 dBA above ambient noise levels. These devices are highly directional in nature, and when in reverse the trucks and the beeper alarm would be directed towards the

loading area and adjacent commercial structures. Backup beepers are, of course, intended to warn persons who are behind the vehicle when it is backing up. The loading docks associated with the Proposed Project would be screened from sensitive receptors both on and off site by intervening structures and design of the loading spaces. In addition, these noise sources would be limited to the commercial and mixed use districts, and therefore, loading areas would not be located adjacent to areas of the Project Site zoned for residential uses. Loading areas may be located adjacent to residential uses within the Mixed Use Community Core and the Mixed Use Neighborhood Commercial areas, and the noise generated by the backup beepers would potentially exceed the 50 dBA L_{eq} exterior noise levels. The Tesoro Viejo Specific Plan specifies that all loading areas for commercial and retail uses shall be located at the rear or sides of buildings within the commercial and mixed-use districts.

The location of the loading areas to the rear and sides and within alleys would ensure that the backup beepers from loading activities would be directed away from residential uses within the mixed use areas of the Proposed Project. Additionally, the following mitigation measure would ensure that delivery activities do not impact residential uses in the mixed use areas of the Proposed Project:

MM4.10-2 The commercial and retail uses within the mixed use areas of the Proposed Project shall not engage in loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, refuse containers or similar objects between the hours of 10:00 P.M. and 6:00 A.M. if such activities would cause noise levels to exceed Madera County's nighttime exterior noise levels of 45 dBA L_{eq} and 65 dBA L_{max} .

The design standards established by the Specific Plan regarding loading areas would ensure that commercial loading areas within the mixed use areas of the Proposed Project would be directed away from the residential uses in the mixed use area, while mitigation measure MM4.10-2 limits the hours of such activities so that loading activities would not occur during recognized sleep hours. Because loading activities would be directed away from residential uses, and would not occur during recognized sleep hours with compliance of the identified mitigation measure, impacts would remain ***less than significant***.

Impact 4.10-3 Operation of the Proposed Project would generate traffic that would contribute to the exposure of the proposed residential uses to noise levels in excess of established standards of the Madera County General Plan. This is considered a potentially significant impact. However, site design, including setbacks and landscaped buffers would ensure that this impact remains *less than significant*.

According to the project traffic study, the Proposed Project would result in increased traffic levels in the project vicinity. As shown in Table 4.10-4, noise monitoring around the Project Site indicates that existing noise levels do not exceed the 60 dBA L_{dn} noise standard for residential and other sensitive uses at distances of 300 to 400 from the roadway. As a general rule, in areas where the noise environment is dominated by traffic, the L_{dn} is approximately equal to the L_{eq} during the peak-hour under normal traffic conditions (Caltrans 1998). Therefore, it was not necessary to convert the L_{eq} to L_{dn} for comparison purposes.

As shown in Table 4.10-7 (Projected Noise Levels), the future roadway noise levels with the Proposed Project traffic would exceed the 60 dBA L_{dn} exterior noise limits at a distance of 50 feet from the roadway. Future project related noise levels along SR-41 range from 73.5 dBA L_{dn} to 82.5 dBA L_{dn} , with

the segment between Avenue 15 and Road 204 being the closest to the proposed residential uses with predicted noise levels of 75 dBA L_{dn} . As shown in Figure 3-4 (Conceptual Land Use Plan for Tesoro Viejo), the uses adjacent to SR-41 would be Open Space, Highway Service Commercial and Light Industrial/Business Park, while the Mixed Use Community Core and the High Density and Medium Density Residential uses of the Western Gateway District would be located at least 1,500 feet to the east of SR-41, and at least 1,200 feet from the proposed realignment of SR-41, if the realignment is implemented. The commercial uses located along SR-41 would serve as noise barriers reducing the traffic noise levels at the noise sensitive uses. As described in Section 4.10.1, noise levels from a particular source decline as distance to the receptor increases. A commonly used rule of thumb for roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically “hard” locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically “soft” locations (i.e., the area between the source and receptor is unpacked earth or has vegetation, including grass). Therefore, because the proposed residential uses would be located at least 1,500 feet from SR-41, noise levels would be reduced to approximately 60 dBA L_{dn} . Additionally, the noise levels may also be reduced by intervening structures of the commercial and light industrial uses located to the west of the residential uses; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA. These project components would reduce the roadway noise levels to below 60 dBA L_{dn} at noise-sensitive land uses within the Project Site.

In addition, the Madera County General Plan Policy 7.A.1 requires that all residential units be constructed such that interior noise levels do not exceed 45 dBA L_{dn} with the windows closed. Such measures may include the use of increased insulation or double-paned windows.

Because the noise sensitive residential uses will be located at least 1,500 feet to the east of SR-41 and further screened from roadway noise levels by intervening commercial and light industrial structures and all residential shall be constructed such the interior noise levels do not exceed 45 dBA L_{dn} , the residential uses of the Proposed Project would not be exposed to noise levels above the standards set forth in the Madera County General Plan. Further, all residential units will be developed in accordance with the Madera County General Plan. Therefore, this impact would be considered *less than significant*. No mitigation is required.

Table 4.10-7 Projected Noise Levels

Roadway Segment	Sound Level at 50 feet from roadway (dBA <i>L_{eq}</i>)				
	Land Use	Existing	Future with Project	Standard	Exceeds Standard with Project
SR-41					
North of Road 145	Undeveloped	72.6	74.3	60.0	Y
Road 145 to Avenue 15	Undeveloped	72.7	73.5	60.0	Y
Avenue 15 to Road 204	Commercial/Agriculture	73.5	75.0	60.0	Y
Road 204 to Avenue 13	Commercial/Agriculture	73.6	76.7	60.0	Y
Avenue 13 to Avenue 12	Agriculture	73.6	77.2	60.0	Y
Avenue 12 to Children's Blvd	Commercial/Agriculture	75.7	79.4	60.0	Y
Children's Blvd to Friant Road	Commercial	77.9	81.0	60.0	Y
Friant Road to Herndon Avenue	Commercial	79.1	81.7	60.0	Y
South of Herndon Avenue	Commercial	80.5	82.5	60.0	Y
Road 145					
Road 36 to SR-41	Residential/Agriculture	63.7	66.5	60.0	Y
SR-41 to Road 206	Undeveloped	60.7	65.9	60.0	Y
Road 36					
Road 145 to Avenue 15	Residential/Agriculture	60.6	64.7	60.0	Y
Avenue 15 to Avenue 12	Residential/Agriculture	61.7	66.0	60.0	Y
Avenue 12 to Avenue 9	Residential/Agriculture	59.6	64.7	60.0	Y
Road 206					
Road 145 to Friant Road	Residential	58.1	63.1	60.0	Y
Friant Road					
South of Road 206	Residential	65.2	70.5	60.0	Y
Children's Avenue					
Road 40½ to Peck Blvd	Commercial	66.4	74.5	60.0	Y
Avenue 9					
Road 36 to Road 40½	Agriculture	62.0	65.0	60.0	Y
Avenue 12					
Road 36 to SR-41	Residential	67.4	70.0	60.0	Y
Avenue 15					
Road 36 to SR-41	Residential	60.8	65.3	60.0	Y

SOURCE: PBS&J 2007 (Model: Federal Highway Administration Traffic Noise Model 2.5 [FHWA TNM 2.5])

Bold text indicates noise levels exceed Madera County's 60 dBA *L_{dn}* exterior limit for transportation sources.

Threshold	Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
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Impact 4.10-4 **Construction activities associated with the Proposed Project would not generate or expose persons or structures off site to excessive groundborne vibration. This is considered a less-than-significant impact. Implementation of mitigation measure MM4.10-1(b) would further reduce this *less-than-significant* impact.**

Construction activities that would occur under the Proposed Project within the Project Site would include excavation, which would have the potential to generate low levels of groundborne vibration. Table 4.10-3 (Vibration Source Levels for Construction Equipment) identifies various vibration velocity levels for the types of construction equipment that would operate within the Project Site during construction. Based on the information presented in Table 4.10-3, vibration levels could reach as high as approximately 87 VdB within 25 feet of the Project Site. Construction activities occurring under the Proposed Project would, therefore, have the potential to impact the nearest sensitive receptors to the Project Site, as shown in Table 4.10-8 (Predicted Construction Vibration Levels).

No.	Noise-Sensitive Use	Location	Construction Equipment/Activity	Approximate Distance from Area of Construction Activity (feet)	Approximate Vibration Level at Sensitive Uses (VdB) ^a	Exceed FTA Vibration Threshold for Human Annoyance
R1	Residential	East side of Killarney Street (Sumner Hill Subdivision)	Bulldozer for excavation and grading within Project Site	50	81	No
R2	Proposed School	40 feet south of Road 204	Bulldozer for excavation and grading within Project Site	50	81	No
R3	Residential	30 feet west of Huntington Drive	Bulldozer for excavation and grading within Project Site	500	61	No
R4	Residential	350 feet west of SR-41	Bulldozer for excavation and grading within Project Site	400	63	No

SOURCE: PBS&J 2007

^a The vibration levels at the off-site sensitive uses are determined with the following equation from the HMMH *Transit Noise and Vibration Impact Assessment, Final Report*: $L_v(D) = L_v(25 \text{ ft}) - 20 \log(D/25)$, where L_v = vibration level of equipment, D = distance from the equipment to the receptor, $L_v(25 \text{ ft})$ = vibration level of equipment at 25 feet.

As shown in Table 4.10-8, given the distance of the sensitive uses from the Project Site, the vibration levels experienced at the property lines of these on-site and off-site sensitive receptors could reach up to approximately 81 VdB. Even if construction were to occur closer to sensitive receptors than the distances indicated in Table 4.10-8, the construction would have to be within approximately 25 feet of the use to exceed the 85 VdB threshold established by the FTA for human annoyance. As none of the on-site or off-site sensitive uses are calculated to be within 25 feet of construction activity at any location, groundborne vibration would not exceed the FTA's vibration impact thresholds for human annoyance, and this impact would be *less than significant*. However, implementation of mitigation measure

MM4.10-1(b) would ensure that less-than-significant construction-related vibration impacts associated with human annoyance would be further minimized during construction of the Proposed Project by requiring the operation of vibration-generating equipment as far away from vibration-sensitive sites as feasible.

Threshold	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
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Impact 4.10-5 **Operation of the Proposed Project under three traffic scenarios, including Year 2025 Cumulative Plus Project, Existing Plus Project in Year 2020, and Existing Plus Project in Year 2025, would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity. Because no feasible mitigation is available to reduce this impact to a less-than-significant level, this impact would be considered *significant and unavoidable*.**

A number of traffic scenarios have been evaluated in the original 2008 traffic report and the 2012 Revised Traffic Impact Study; accordingly, an operational noise evaluation has been conducted for each scenario. The Year 2025 Cumulative Plus Project scenario, the Existing Plus Project in Year 2020 scenario, and the Existing Plus Project in Year 2025 scenario are evaluated in this impact discussion, whereas the remaining traffic scenarios, including the Existing 2011 Plus Project in Year 2015, Interim Year 2015 Cumulative Plus Project Conditions, and Interim Year 2020 Cumulative Plus Project Conditions scenarios, are evaluated in Impact 4.10-5(a). The scenarios are evaluated in separate impact discussions to account for different significance conclusions.

Year 2025 Cumulative Plus Project (Buildout) Roadway Noise Analysis

The principal noise source in the Proposed Project area is traffic on local roadways, specifically noise from SR-41. The increase in traffic resulting from full implementation of the Proposed Project (assumed in year 2025) would increase the ambient noise levels in the project vicinity. Table 4.10-9 (Projected Cumulative and Project-Related Noise Levels) identifies the changes in future noise levels along roadway segments in the vicinity of the Project Site, and identifies the land uses along these roadways. Noise levels were estimated at 50 feet from the roadway. Further, all future roadway analysis assumed completion of roadway improvement measures required as part of traffic mitigation measures. As discussed under Section 4.10.3 (Thresholds of Significance) this EIR assumes that the Proposed Project’s contribution to an increase in noise levels of less than 3.0 dBA would not be significant; an increase of 3.0 dBA or greater over ambient noise levels is substantial and significant if the projects contribution to the increased noise levels would meet or exceed the County’s 60 dBA L_{dn} noise level standard at sensitive land uses. If the Proposed Project’s contribution to an increase in noise levels is less than 5 dBA, the increase would be noticeable, but not significant if the noise levels remain within Madera County’s 60 dBA transportation noise limit, while any increase in noise level above 5.0 dBA is considered perceptible and significant.

Table 4.10-9 Projected Cumulative and Project-Related Noise Levels

Roadway Segment	Sound Level at 50 feet from Right-of-Way (dBA Leq)						
	Land Use	Existing	Future without Project	Future with Project	Cumulative Increase (Year 2025 without Project Traffic Volumes)	Project Increase (Year 2025 with Project Traffic Volumes)	Project Impact?
SR-41							
North of Road 145	Undeveloped	72.6	74.2	74.3	1.6	0.1	N
Road 145 to Avenue 15	Undeveloped	72.7	72.1	73.5	-0.6	1.4	N
Avenue 15 to Road 204	Commercial/Agriculture	73.5	72.4	75.0	-1.1	2.6	N
Road 204 to Avenue 13	Commercial/Agriculture	73.6	72.4	76.7	-1.2	4.3 ^a	N
Avenue 13 to Avenue 12	Agriculture	73.6	73.9	77.2	0.3	3.3 ^a	N
Avenue 12 to Children's Blvd	Commercial/Agriculture	75.7	78.1	79.4	2.4	1.3	N
Children's Blvd to Friant Road	Commercial	77.9	80.4	81.0	2.5	0.6	N
Friant Road to Herndon Avenue	Commercial	79.1	81.8	81.7	2.7	-0.1	N
South of Herndon Avenue	Commercial	80.5	82.9	82.5	2.4	-0.4	N
Road 145							
Road 36 to SR-41	Residential/Agriculture	63.7	67.0	66.5	3.3	-0.5	N
SR-41 to Road 206	Undeveloped	60.7	65.4	65.9	4.7	0.5	N
Road 36							
Road 145 to Avenue 15	Residential/Agriculture	60.6	64.3	64.7	3.7	0.4	N
Avenue 15 to Avenue 12	Residential/Agriculture	61.7	64.3	66.0	2.6	1.7	N
Avenue 12 to Avenue 9	Residential/Agriculture	59.6	64.3	64.7	4.7	0.4	N
Road 206							
Road 145 to Friant Road	Residential	58.1	62.4	63.1	4.3	0.7	N
Friant Road							
South of Road 206	Residential	65.2	70.7	70.5	5.5	-0.2	N
Children's Avenue							
Road 40½ to Peck Blvd	Commercial	66.4	74.0	74.5	7.6	0.5	N

Table 4.10-9 Projected Cumulative and Project-Related Noise Levels

Roadway Segment	Sound Level at 50 feet from Right-of-Way (dBA Leq)						
	Land Use	Existing	Future without Project	Future with Project	Cumulative Increase (Year 2025 without Project Traffic Volumes)	Project Increase (Year 2025 with Project Traffic Volumes)	Project Impact?
Avenue 9							
Road 36 to Road 40½	Agriculture	62.0	64.8	65.0	2.8	0.2	N
Avenue 12							
Road 36 to SR-41	Residential	67.4	69.5	70.0	2.1	0.5	N
Avenue 15							
Road 36 to SR-41	Residential	60.8	61.1	65.3	0.3	4.2	Y

SOURCE: PBS&J 2007 (Model: Federal Highway Administration Traffic Noise Model 2.5 (FHWA TNM 2.5))

Bold text indicates the Proposed Project’s increase above the significance threshold.

^a The current and proposed land uses along these roadway segments are agriculture or commercial; therefore, the increase above 3.0 dBA would not be significant at non-sensitive land uses.

For purposes of analysis, the average peak-hour traffic volumes were extrapolated from the project traffic study and input into the model to estimate existing and future traffic noise levels on roadway segments in the project vicinity where existing or reasonably foreseeable sensitive receptors are located. Traffic noise impacts were modeled comparing noise levels along surrounding roadway segments with and without project impacts for the following conditions:

- Existing traffic levels
- Traffic levels at buildout without the Proposed Project, but with other proposed developments in the surrounding area
- Traffic levels in the buildout year with the Proposed Project and other proposed developments

In order to determine the Proposed Project’s contribution to future roadway noise levels, the future roadway noise levels with and without project traffic volumes were compared to establish the appropriate baseline conditions, since Year 2025 noise levels with project traffic volumes also includes all traffic from year 2025 without project. As shown in Table 4.10-9, future roadway noise levels without the Proposed Project would range from 61.1 dBA L_{dn} to 82.9 dBA L_{dn}, while roadway noise levels with project would range from 63.1 dBA L_{dn} to 82.5 dBA L_{dn}. The noise levels projected represent the worst-case peak hour noise levels; the predicted values do not take into account the effect of any noise barriers or topography that may affect noise levels. In addition, the modeling runs use the worst-case traffic volumes by considering the project development scenario that would produce the most traffic on the studied roadway segments. Roadway segments were given a residential designation based on the presence of any current or planned residential uses located along the roadway, irrespective of the existing County land use designation, as any residential use would be considered a sensitive receptor. Noise modeling output files are attached in Appendix G.

As shown in Table 4.10-9, the future without project greatest increase in noise levels would be up to 7.6 dBA along Children’s Avenue, while the Proposed Project’s greatest contribution to the future noise levels would be up to 4.3 dBA along SR-41 between Road 204 and Avenue 13. The current uses along

SR-41 between Road 204 and Avenue 13 are agricultural and commercial, and the future proposed uses would be commercial; therefore, the increase of 4.3 dBA would not be considered a significant impact because it is below the 5 dBA threshold for non-sensitive land uses. The roadway segment along Avenue 15 between Road 36 and SR-41 would experience similar ambient increase of 4.2 dBA, from 61.1 dBA to 65.3 dBA. While the majority of the land uses along Avenue 15 are agricultural uses, there are several scattered residential uses located to the south of and within 50 feet of Road 15. The increase of 4.2 dBA would exceed the 3 dBA threshold for increases where the County's 60 dBA transportation related noise limit is exceeded for sensitive uses. As described in Impact 4.10-3, the Proposed Project's noise-sensitive residential and institutional land uses would be set back approximately 1,500 feet from SR-41 and the proposed commercial uses would be located adjacent to SR-41 and would serve as noise barriers, which would reduce the traffic noise levels at the Proposed Project's noise sensitive uses. These project components would reduce the roadway noise levels to below 60 dBA L_{dn} at noise-sensitive land uses within the Project Site. Therefore, the ambient increase in roadway noise levels would not expose noise-sensitive locations within the Project Site to noise levels that would exceed the 60 dBA L_{dn} exterior noise standard.

While the noise sensitive uses of the Proposed Project would not be exposed to noise levels that exceed the Madera County exterior noise limit; the Proposed Project's contribution to roadway noise levels would exceed the 3 dBA significance threshold for increases in ambient noise levels. One roadway segment that has noise sensitive uses (Avenue 15 between Road 36 and SR-41) would increase from 61.1 dBA L_{dn} without the Proposed Project to 65.3 dBA L_{dn} with the Proposed Project, which represents an increase of 4.2 dBA. Because noise levels at sensitive uses along this roadway segment would increase above 3 dBA, and transportation-related noise would exceed the 60 dBA limit established by Madera County, this impact would be considered ***significant and unavoidable***. For existing uses, mitigation measures could include soundwalls/berms. However, in some instances, there may not be sufficient space between the road and the residence to construct a soundwall or a soundwall may not be effective due to the need to keep a driveway open to the road. To reduce interior noise, a residential building facade can be upgraded to include dual-glazed windows and installation of air conditioning systems to enable closure of windows and doors for long periods of time. Even if these measures were employed, they would not reduce exterior noise levels. Additionally, both of these mitigation options would require the permission and approval of individual property owners at existing uses, and there is no guarantee that such permission would be granted. Therefore, for purposes of this EIR, it is assumed that these potential mitigation measures would not be implemented.

Existing 2011 Plus Project in Year 2020 Roadway Noise Analysis

The same analytic approach was taken for the Existing 2011 Plus Project in Year 2020 scenario, which assumes that the Proposed Project would include 50 percent residential and 25 percent nonresidential buildout. The results are shown in Table 4.10-10 (Existing 2011 Plus Project in Year 2020 Project Roadway Noise Levels). Under Existing 2011 Plus Project in Year 2020 conditions, the roadway segment along Avenue 15 between Road 36 and SR-41 would experience an ambient increase of 3.2 dBA, from 63.3 to 66.2 dBA, which would exceed the 3 dBA significance threshold for roadways with sensitive uses (i.e., residential) where the noise increase would meet or exceed the County's 60 dBA noise level standard. The 2008 Final EIR also identified that this roadway segment would experience a significant

**Table 4.10-10 Existing 2011 Plus Project in Year 2020 Project Roadway Noise Levels
[New]**

Roadway Segment	Sound Level at 50 feet from Right-of-Way (dBA _{Leq})				
	Land Use	Existing (2011)	Existing 2011 Plus Project in 2020	Project Increase	Project Impact?
SR-41					
North of Road 145	Undeveloped	70.1	70.1	0.0	N
Road 145 to Avenue 15	Undeveloped	69.4	69.9	0.5	N
Avenue 15 to Road 204	Commercial/Agriculture	70.3	71.4	0.1	N
Road 204 to Avenue 13	Commercial/Agriculture	70.4	72.9	0.5	N
Avenue 13 to Avenue 12	Agriculture	70.4	72.9	0.5	N
Avenue 12 to Children's Blvd	Commercial/Agriculture	72.5	73.7	1.2	N
Children's Blvd to Friant Rd	Commercial	72.4	74.1	1.7	N
Friant Road to Herndon Ave	Commercial	73.1	74.2	1.1	N
South of Herndon Ave	Commercial	73.5	74.4	1.1	N
Road 145					
Road 36 to SR-41	Residential/Agriculture	65.0	64.6	-0.4	N
SR-41 to Road 206	Undeveloped	62.6	63.0	0.4	N
Road 36					
Road 145 to Avenue 15	Residential/Agriculture	56.4	54.3	-2.1	N
Avenue 15 to Avenue 12	Residential/Agriculture	60.9	62.6	1.7	N
Avenue 12 to Avenue 9	Residential/Agriculture	61.4	61.9	0.5	N
Road 206					
Road 145 to Friant Rd	Residential	63.4	62.9	-0.5	N
Friant Road					
South of Road 206	Residential	64.0	64.1	0.1	N
Children's Avenue					
Road 40½ to Peck Blvd	Commercial	70.7	70.5	-0.2	N
Avenue 9					
Road 36 to Road 40½	Agriculture	66.1	65.7	-0.4	N
Avenue 12					
Road 36 to SR-41	Residential	69.1	69.1	0.0	N
Avenue 15					
Road 36 to SR-41	Residential	63.3	66.5	3.2	Y

SOURCE: Atkins (2011) (calculation data and results are provided in Attachment A)

ambient noise increase of 4.2 dBA under full buildout of the Proposed Project. Therefore, the increase of 3.2 dBA would not result in a new significant impact. The 2008 Final EIR evaluated the provision of mitigation measures along impacted roadways with existing noise sensitive uses such as sound walls or

berms or acoustical retrofitting of individual residences. As previously described in this Revised EIR, in some instances, there may not be sufficient space between the road and the residence to construct a soundwall or a soundwall may not be effective due to the need to keep a driveway open to the road. To reduce interior noise, a residential building facade can be upgraded to include dual-glazed windows and installation of air conditioning systems to enable closure of windows and doors for long periods of time. Even if these measures were employed, they would not reduce exterior noise levels. Additionally, both of these mitigation options would require the permission and approval of individual property owners at existing uses, and there is no guarantee that such permission would be granted. Therefore, for purposes of this EIR, it is assumed that these potential mitigation measures would not be implemented and this impact would be considered *significant and unavoidable*.

Existing 2011 Plus Project in Year 2025 (Buildout) Roadway Noise Analysis

An analysis was also done for the Existing 2011 Plus Project in Year 2025 (Buildout) scenario to include existing 2011 background traffic plus traffic generated by the Project at buildout to determine whether roadway noise levels would exceed the identified thresholds. Table 4.10-11 (Existing 2011 Plus Project in Year 2025 Roadway Noise Levels) shows the anticipated noise levels based on the contribution of the Proposed Project at buildout to the existing base traffic volumes.

Under the Existing 2011 Plus Project in Year 2025 (Full Buildout) scenario, roadway noise levels along Avenue 15 between Road 36 and SR-41 would continue to exceed the significance threshold as ambient noise levels would increase by 6.2 dBA, from 63.3 to 69.5 dBA. While this is 2.0 dBA greater than the increase identified in the 2008 Final EIR, this would not result in a substantially more severe impact, as the Year 2025 buildout conditions identified any increase above the 3 dBA threshold as significant.

Additionally, under the Existing 2011 Plus Project in Year 2025 (Buildout) conditions, noise levels along the roadway segment of Road 36 along Avenue 15 to Avenue 12 would increase by 3.8 dBA, from 60.9 to 64.7 dBA, which would also exceed the significance threshold. But the Cumulative Year 2025 conditions, both with and without Project conditions, this roadway would only experience a Project-related increase of 1.7 dBA, which is less than the identified threshold. The difference results from the fact that the Existing 2011 Plus Project in Year 2025 (Buildout) scenario assumes the existing roadway network is affected by full buildout of the Project without other associated development and related road improvements; this is a scenario that is highly unlikely and not anticipated in the County's planning efforts. The primary purpose of this alternative is to isolate Project impacts compared to existing conditions so that the County can take that into account, as well as the share of Project impacts shown in cumulative forecasts to determine the appropriate share of Project-related mitigation. Anticipated roadway improvements that were identified in the 2008 Final EIR are not included in this scenario, specifically the intersection of SR-41 and Avenue 13 and the intersection of SR-41 NB Ramps and Avenue 12, as these intersections are planned improvements and not part of the existing roadway network. The result is that traffic under this alternative is distributed along the existing roadway network without regard to the planned improvements. Therefore, the increase of 3.8 dBA along the roadway segment of Road 36 would occur only if the distribution of traffic volumes occurred by reason of the absence of any planned and funded improvements associated with the County's planning for all development. With the planned improvements that were identified in the 2008 Final EIR, the ambient noise increase would remain below the 3 dBA threshold as described below under Impact 4.10-5(a) in

Table 4.10-11 Existing 2011 Plus Project in Year 2025 Roadway Noise Levels [New]

Roadway Segment	Land Use	Sound Level at 50 feet from Right-of-Way (dBA Leq)			
		Existing (2011)	Existing 2011 Plus Project in Year 2025	Project Increase	Project Impact?
SR-41					
North of Road 145	Undeveloped	70.1	70.5	0.4	N
Road 145 to Avenue 15	Undeveloped	69.4	70.8	1.4	N
Avenue 15 to Road 204	Commercial/Agriculture	70.3	72.9	2.6	N
Road 204 to Avenue 13	Commercial/Agriculture	70.4	75.7	5.3	N
Avenue 13 to Avenue 12	Agriculture	70.4	75.5	5.1	N
Avenue 12 to Children's Blvd	Commercial/Agriculture	72.5	75.0	2.5	N
Children's Blvd to Friant Rd	Commercial	72.4	74.2	1.8	N
Friant Road to Herndon Ave	Commercial	73.1	73.7	0.6	N
South of Herndon Ave	Commercial	73.5	73.8	0.5	N
Road 145					
Road 36 to SR-41	Residential/Agriculture	65.0	63.7	-1.3	N
SR-41 to Road 206	Undeveloped	62.6	64.9	2.3	N
Road 36					
Road 145 to Avenue 15	Residential/Agriculture	56.4	55.6	-0.8	N
Avenue 15 to Avenue 12	Residential/Agriculture	60.9	64.7	3.8	Y ^a
Avenue 12 to Avenue 9	Residential/Agriculture	61.4	62.9	1.5	N
Road 206					
Road 145 to Friant Rd	Residential	63.4	61.8	-1.6	N
Friant Road					
South of Road 206	Residential	64.0	64.3	0.3	N
Children's Avenue					
Road 40½ to Peck Blvd	Commercial	70.7	69.9	-0.8	N
Avenue 9					
Road 36 to Road 40½	Agriculture	66.1	64.9	-1.2	N
Avenue 12					
Road 36 to SR-41	Residential	69.1	68.9	-0.2	N
Avenue 15					
Road 36 to SR-41	Residential	63.3	69.5	6.2	Y

SOURCE: Atkins (2011) (calculation data and results are provided in Attachment A)

a. While the Project increase in this scenario exceeds the significance threshold, under Cumulative (2025) conditions the increase is reduced to 1.7 dBA, which is below the significance threshold, due to planned and funded improvements to the street network.

Table 4.10-14 (Interim Year 2020 Cumulative Plus Project Roadway Noise Levels). Nonetheless, without the anticipated roadway improvements identified in the 2008 Final EIR, the estimated traffic increase

associated with the Project at full buildout in year 2020 under existing roadway conditions would exceed the 3 dBA threshold, and this impact would be considered *significant and unavoidable*.

Impact 4.10-5(a) Operation of the Proposed Project in the Existing 2011 Plus Project in Year 2015 scenario and the Interim Year 2015 and 2020 Cumulative Plus Project scenarios would generate increased local traffic volumes, but would not cause a substantial permanent increase in ambient noise levels in the Project vicinity. This is considered a less-than-significant impact.

The Year 2025 Cumulative Plus Project scenario, the Existing Plus Project in Year 2020 scenario, and the Existing Plus Project in Year 2025 scenario are evaluated in Impact 4.10-5, whereas the remaining traffic scenarios, including the Existing 2011 Plus Project in Year 2015, Interim Year 2015 Cumulative Plus Project Conditions, and Interim Year 2020 Cumulative Plus Project Conditions scenarios, are evaluated in this impact discussion. The scenarios are evaluated in separate impact discussions to account for different significance conclusions.

Existing 2011 Plus Project in Year 2015 Roadway Noise Analysis

To determine whether the Proposed Project would result in significant increases in ambient noise levels in interim years compared to Existing 2011 conditions, an Existing 2011 Plus Project in Year 2015 scenario was analyzed to include existing 2011 background traffic noise levels compared to traffic noise levels generated by a portion of Project buildout expected in the Year 2015 (20 percent residential and 10 percent nonresidential buildout). As shown in Table 4.10-12 (Existing 2011 Plus Project in Year 2015 Roadway Noise Levels), the traffic associated with Interim Year 2015 Cumulative Plus Project would not result in substantial increases in noise along any roadway segments compared to 2011 without Project Conditions.

Impacts associated with the Existing 2011 Plus Project in Year 2015 traffic scenario would be considered *less than significant*. No mitigation is required.

Interim Year 2015 Cumulative Plus Project Roadway Noise Analysis

To determine whether the Proposed Project and cumulative development would result in significant increases in ambient noise levels during interim years, an Interim Year 2015 Cumulative Plus Project scenario was analyzed to include anticipated 2015 background traffic noise levels (including cumulative projects) without the Proposed Project compared to the same traffic noise levels with a portion of Project buildout expected in the Year 2015 (20 percent residential and 10 percent nonresidential buildout). As stated in the 2012 traffic study, this scenario includes limited roadway improvements that provide access to Rio Mesa cumulative development (Avenue 12, Avenue 13, and Rio Mesa Boulevard). As shown in Table 4.10-13 (Cumulative Year 2015 Plus Project Roadway Noise Levels), the traffic associated with Interim Year 2015 Cumulative Plus Project would not result in substantial increases (e.g., increases that exceed the identified significance threshold) in noise along any roadway segments compared to the Interim Year 2015 Cumulative Without Project Conditions scenario. Impacts associated with the Interim Year 2015 Cumulative Plus Project traffic scenario would be considered *less than significant*. No mitigation is required.

Table 4.10-12 Existing 2011 Plus Project in Year 2015 Roadway Noise Levels [New]

Roadway Segment	Sound Level at 50 feet from Right-of-Way (dBA Leq)				
	Land Use	Existing (2011)	Existing 2011 Plus Project in Year 2015	Project Increase	Project Impact?
SR-41					
<u>North of Road 145</u>	<u>Undeveloped</u>	<u>70.1</u>	<u>70.1</u>	<u>0.0</u>	<u>N</u>
<u>Road 145 to Avenue 15</u>	<u>Undeveloped</u>	<u>69.4</u>	<u>69.6</u>	<u>0.2</u>	<u>N</u>
<u>Avenue 15 to Road 204</u>	<u>Commercial/Agriculture</u>	<u>70.3</u>	<u>70.8</u>	<u>0.5</u>	<u>N</u>
<u>Road 204 to Avenue 13</u>	<u>Commercial/Agriculture</u>	<u>70.4</u>	<u>71.6</u>	<u>0.2</u>	<u>N</u>
<u>Avenue 13 to Avenue 12</u>	<u>Agriculture</u>	<u>70.4</u>	<u>71.6</u>	<u>0.2</u>	<u>N</u>
<u>Avenue 12 to Children's Blvd</u>	<u>Commercial/Agriculture</u>	<u>72.5</u>	<u>73.0</u>	<u>0.5</u>	<u>N</u>
<u>Children's Blvd to Friant Rd</u>	<u>Commercial</u>	<u>72.4</u>	<u>74.0</u>	<u>1.6</u>	<u>N</u>
<u>Friant Road to Herndon Ave</u>	<u>Commercial</u>	<u>73.1</u>	<u>75.0</u>	<u>1.9</u>	<u>N</u>
<u>South of Herndon Ave</u>	<u>Commercial</u>	<u>73.5</u>	<u>75.3</u>	<u>1.8</u>	<u>N</u>
Road 145					
<u>Road 36 to SR-41</u>	<u>Residential/Agriculture</u>	<u>65.0</u>	<u>64.8</u>	<u>-0.2</u>	<u>N</u>
<u>SR-41 to Road 206</u>	<u>Undeveloped</u>	<u>62.6</u>	<u>62.7</u>	<u>0.1</u>	<u>N</u>
Road 36					
<u>Road 145 to Avenue 15</u>	<u>Residential/Agriculture</u>	<u>56.4</u>	<u>55.7</u>	<u>-0.7</u>	<u>N</u>
<u>Avenue 15 to Avenue 12</u>	<u>Residential/Agriculture</u>	<u>60.9</u>	<u>61.6</u>	<u>0.7</u>	<u>N</u>
<u>Avenue 12 to Avenue 9</u>	<u>Residential/Agriculture</u>	<u>61.4</u>	<u>61.6</u>	<u>0.2</u>	<u>N</u>
Road 206					
<u>Road 145 to Friant Rd</u>	<u>Residential</u>	<u>63.4</u>	<u>63.2</u>	<u>-0.2</u>	<u>N</u>
Friant Road					
<u>South of Road 206</u>	<u>Residential</u>	<u>64.0</u>	<u>64.0</u>	<u>0.0</u>	<u>N</u>
Children's Avenue					
<u>Road 40½ to Peck Blvd</u>	<u>Commercial</u>	<u>70.7</u>	<u>70.6</u>	<u>-0.1</u>	<u>N</u>
Avenue 9					
<u>Road 36 to Road 40½</u>	<u>Agriculture</u>	<u>66.1</u>	<u>66.0</u>	<u>-0.1</u>	<u>N</u>
Avenue 12					
<u>Road 36 to SR-41</u>	<u>Residential</u>	<u>69.1</u>	<u>69.1</u>	<u>0.0</u>	<u>N</u>
Avenue 15					
<u>Road 36 to SR-41</u>	<u>Residential</u>	<u>63.3</u>	<u>64.8</u>	<u>1.5</u>	<u>N</u>

SOURCE: Atkins (2011). (calculation data and results are provided in Attachment A)

Table 4.10-13 Interim Year 2015 Cumulative Plus Project Roadway Noise Levels [New]

Roadway Segment	Sound Level at 50 feet from Right-of-Way (dBA Leq)				
	Land Use	Cumulative No Project (2015)	Cumulative Plus Project in Year 2015	Project Increase	Project Impact?
SR-41					
<u>North of Road 145</u>	<u>Undeveloped</u>	<u>70.9</u>	<u>70.9</u>	<u>0.0</u>	<u>N</u>
<u>Road 145 to Avenue 15</u>	<u>Undeveloped</u>	<u>69.4</u>	<u>69.8</u>	<u>0.4</u>	<u>N</u>
<u>Avenue 15 to Road 204</u>	<u>Commercial/Agriculture</u>	<u>70.3</u>	<u>70.8</u>	<u>0.5</u>	<u>N</u>
<u>Road 204 to Avenue 13</u>	<u>Commercial/Agriculture</u>	<u>70.3</u>	<u>70.9</u>	<u>0.6</u>	<u>N</u>
<u>Avenue 13 to Avenue 12</u>	<u>Agriculture</u>	<u>70.9</u>	<u>71.7</u>	<u>0.2</u>	<u>N</u>
<u>Avenue 12 to Children's Blvd</u>	<u>Commercial/Agriculture</u>	<u>73.9</u>	<u>74.2</u>	<u>0.3</u>	<u>N</u>
<u>Children's Blvd to Friant Road</u>	<u>Commercial</u>	<u>73.7</u>	<u>74.0</u>	<u>0.3</u>	<u>N</u>
<u>Friant Road to Herndon Avenue</u>	<u>Commercial</u>	<u>74.4</u>	<u>74.2</u>	<u>-0.2</u>	<u>N</u>
<u>South of Herndon Avenue</u>	<u>Commercial</u>	<u>75.7</u>	<u>75.3</u>	<u>-0.4</u>	<u>N</u>
Road 145					
<u>Road 36 to SR-41</u>	<u>Residential/Agriculture</u>	<u>66.1</u>	<u>66.0</u>	<u>-0.1</u>	<u>N</u>
<u>SR-41 to Road 206</u>	<u>Undeveloped</u>	<u>66.8</u>	<u>67.3</u>	<u>0.5</u>	<u>N</u>
Road 36					
<u>Road 145 to Avenue 15</u>	<u>Residential/Agriculture</u>	<u>61.5</u>	<u>61.3</u>	<u>-0.2</u>	<u>N</u>
<u>Avenue 15 to Avenue 12</u>	<u>Residential/Agriculture</u>	<u>62.1</u>	<u>62.6</u>	<u>0.5</u>	<u>N</u>
<u>Avenue 12 to Avenue 9</u>	<u>Residential/Agriculture</u>	<u>63.3</u>	<u>63.4</u>	<u>0.1</u>	<u>N</u>
Road 206					
<u>Road 145 to Friant Road</u>	<u>Residential</u>	<u>65.5</u>	<u>65.4</u>	<u>-0.1</u>	<u>N</u>
Friant Road					
<u>South of Road 206</u>	<u>Residential</u>	<u>65.1</u>	<u>65.2</u>	<u>0.1</u>	<u>N</u>
Children's Avenue					
<u>Road 40½ to Peck Blvd</u>	<u>Commercial</u>	<u>72.6</u>	<u>73.1</u>	<u>0.5</u>	<u>N</u>
Avenue 9					
<u>Road 36 to Road 40½</u>	<u>Agriculture</u>	<u>67.4</u>	<u>67.3</u>	<u>-0.1</u>	<u>N</u>
Avenue 12					
<u>Road 36 to SR-41</u>	<u>Residential</u>	<u>69.5</u>	<u>69.5</u>	<u>0.0</u>	<u>N</u>
Avenue 15					
<u>Road 36 to SR-41</u>	<u>Residential</u>	<u>63.7</u>	<u>65.2</u>	<u>1.5</u>	<u>N</u>

SOURCE: Atkins (2011) (calculation data and results are provided in Attachment A)

Interim Year 2020 Cumulative Plus Project Roadway Noise Analysis

In addition, an Interim Year 2020 Cumulative Plus Project scenario was analyzed to include anticipated 2020 background traffic noise levels (including cumulative projects) without the Proposed Project compared to the same traffic noise levels with a portion of Project buildout expected in the Year 2020

(50 percent residential and 25 percent nonresidential buildout). As stated in the 2012 traffic study, this scenario includes limited roadway improvements that provide access to Rio Mesa cumulative development (Avenue 12, Avenue 13, and Rio Mesa Boulevard). As shown in Table 4.10-14 (Interim Year 2020 Cumulative Plus Project Roadway Noise Levels), the traffic associated with Interim Year 2020 Cumulative Plus Project conditions would not result in substantial increases (e.g., increases that exceed the indentified significance threshold) in noise along any roadway segments compared to 2020 Without Project Conditions. Impacts associated with the Interim Year 2020 Cumulative Plus Project traffic scenario would be considered *less than significant*. No mitigation is required.

Impact 4.10-5(b) Operation of the temporary classrooms at Minarets High School during the Interim Year 2015 and 2020 Cumulative Plus Project and Student-Related Traffic scenarios would not generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the Project vicinity. This is considered a *less-than-significant* impact.

To determine whether the Proposed Project would result in significant increases in ambient noise levels due to the interim school-related traffic associated with the Proposed Project, a Cumulative (Year 2015) Plus Project and Student-Related Traffic scenario was analyzed that assumed 2015 background traffic noise levels (including cumulative projects) with student-generated trips associated with Proposed Project (generated by a total of 1,091 residential units, which correlates to 199 high-school students) as compared to the same traffic noise levels without the Proposed Project in the Year 2015. This analysis only evaluated roadway segments that would result in student-generated trips from the Proposed Project Site, and not the entire Project Study Area. As shown in Table 4.10-15 (Cumulative Year 2015 Plus Project and Student-Generated Trips Roadway Noise Levels), the traffic associated with the Proposed Project's student-generated trips during Interim Year 2015 Cumulative Plus Project conditions would not result in substantial increases (e.g., increases that exceed the indentified 3 dBA significance threshold for increases in ambient noise levels) in noise along any roadway segments compared to 2015 Without Project Conditions.

In addition, a Cumulative (Year 2020) Plus Project and student-generated trips scenario was analyzed that included anticipated 2020 background traffic noise levels (including cumulative projects) with student-generated trips associated with Proposed Project (generated by a total of 2,727 residential units, which correlates to 496 high-school students) as compared to the same traffic noise levels without the Proposed Project in the Year 2020. As shown in Table 4.10-16 (Cumulative 2020 Plus Project and Student-Generated Trips Roadway Noise Levels), the Project-related trips, including student-generated traffic associated with Interim Year 2020 Cumulative Plus Project conditions, would not result in substantial increases (e.g., increases that exceed the indentified 3 dBA significance threshold for increases in ambient noise levels) in noise along any roadway segments compared to 2020 Without Project Conditions.

As shown in Table 4.10-15 and Table 4.10-16, student-generated traffic associated with the Proposed Project would not result in a substantial permanent increase in roadway noise levels. Therefore, this would be a *less-than-significant* impact, and no mitigation is required.

Table 4.10-14 Interim Year 2020 Cumulative Plus Project Roadway Noise Levels [New]

Roadway Segment	Sound Level at 50 feet from Right-of-Way (dBA _{L_{eq}})				
	Land Use	Cumulative No Project (2020)	Cumulative Plus Project in Year 2020	Project Increase	Project Impact?
SR-41					
<u>North of Road 145</u>	<u>Undeveloped</u>	<u>71.7</u>	<u>71.7</u>	<u>0.0</u>	<u>N</u>
<u>Road 145 to Avenue 15</u>	<u>Undeveloped</u>	<u>69.5</u>	<u>70.2</u>	<u>0.7</u>	<u>N</u>
<u>Avenue 15 to Road 204</u>	<u>Commercial/Agriculture</u>	<u>70.4</u>	<u>71.4</u>	<u>1.0</u>	<u>N</u>
<u>Road 204 to Avenue 13</u>	<u>Commercial/Agriculture</u>	<u>70.3</u>	<u>71.7</u>	<u>1.4</u>	<u>N</u>
<u>Avenue 13 to Avenue 12</u>	<u>Agriculture</u>	<u>71.4</u>	<u>73.3</u>	<u>1.9</u>	<u>N</u>
<u>Avenue 12 to Children's Blvd</u>	<u>Commercial/Agriculture</u>	<u>75.1</u>	<u>75.7</u>	<u>0.6</u>	<u>N</u>
<u>Children's Blvd to Friant Rd</u>	<u>Commercial</u>	<u>74.9</u>	<u>75.4</u>	<u>0.5</u>	<u>N</u>
<u>Friant Road to Herndon Ave</u>	<u>Commercial</u>	<u>75.3</u>	<u>75.7</u>	<u>0.4</u>	<u>N</u>
<u>South of Herndon Ave</u>	<u>Commercial</u>	<u>75.7</u>	<u>76.0</u>	<u>0.3</u>	<u>N</u>
Road 145					
<u>Road 36 to SR-41</u>	<u>Residential/Agriculture</u>	<u>67.2</u>	<u>66.9</u>	<u>-0.3</u>	<u>N</u>
<u>SR-41 to Road 206</u>	<u>Undeveloped</u>	<u>68.3</u>	<u>68.2</u>	<u>-0.1</u>	<u>N</u>
Road 36					
<u>Road 145 to Avenue 15</u>	<u>Residential/Agriculture</u>	<u>64.3</u>	<u>64.0</u>	<u>-0.3</u>	<u>N</u>
<u>Avenue 15 to Avenue 12</u>	<u>Residential/Agriculture</u>	<u>63.2</u>	<u>64.2</u>	<u>1.0</u>	<u>N</u>
<u>Avenue 12 to Avenue 9</u>	<u>Residential/Agriculture</u>	<u>64.8</u>	<u>65.1</u>	<u>0.3</u>	<u>N</u>
Road 206					
<u>Road 145 to Friant Rd</u>	<u>Residential</u>	<u>67.2</u>	<u>67.0</u>	<u>-0.2</u>	<u>N</u>
Friant Road					
<u>South of Road 206</u>	<u>Residential</u>	<u>66.2</u>	<u>66.3</u>	<u>0.1</u>	<u>N</u>
Children's Avenue					
<u>Road 40½ to Peck Blvd</u>	<u>Commercial</u>	<u>74.2</u>	<u>74.8</u>	<u>0.6</u>	<u>N</u>
Avenue 9					
<u>Road 36 to Road 40½</u>	<u>Agriculture</u>	<u>68.6</u>	<u>68.4</u>	<u>0.2</u>	<u>N</u>
Avenue 12					
<u>Road 36 to SR-41</u>	<u>Residential</u>	<u>69.9</u>	<u>69.8</u>	<u>-0.1</u>	<u>N</u>
Avenue 15					
<u>Road 36 to SR-41</u>	<u>Residential</u>	<u>64.3</u>	<u>67.0</u>	<u>2.7</u>	<u>N</u>

SOURCE: Atkins (2011) (calculation data and results are provided in Attachment A)

Table 4.10-15 Cumulative Year 2015 Plus Project and Student-Generated Trips Roadway Noise Levels [New]

Roadway Segment	Land Use	Sound Level at 50 feet from Right-of-Way (dBA L _{eq})			
		Cumulative No Project (2015)	Cumulative Plus Project and Student-Generated Trips in Year 2015	Project Increase	Project Impact?
SR-41					
North of Road 145	Undeveloped	70.9	71.0	0.1	N
Road 145 to Avenue 15	Undeveloped	69.4	69.8	0.4	N
Avenue 15 to Road 204	Commercial/Agriculture	70.3	70.3	0.0	N

SOURCE: Atkins (2012) (calculation data and results are provided in Appendix G)

Table 4.10-16 Cumulative Year 2020 Plus Project and Student-Generated Trips Roadway Noise Levels [New]

Roadway Segment	Land Use	Sound Level at 50 feet from Right-of-Way (dBA L _{eq})			
		Cumulative No Project (2015)	Cumulative Plus Project and Student-Generated Trips in Year 2015	Project Increase	Project Impact?
SR-41					
North of Road 145	Undeveloped	71.7	71.9	0.2	N
Road 145 to Avenue 15	Undeveloped	69.5	70.3	0.8	N
Avenue 15 to Road 204	Commercial/Agriculture	70.4	70.6	0.2	N

SOURCE: Atkins (2012) (calculation data and results are provided in Appendix G)

Threshold	Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
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Impact 4.10-6 Construction activities associated with development proposed under the Proposed Project would result in a substantial temporary or periodic increase in ambient noise levels. Implementation of mitigation measures MM4.10-1(a) and MM4.10-1(b) would reduce this impact, but noise levels could still be substantial. However, the project’s construction noise impacts would be temporary, and would not occur during recognized sleep hours. Therefore, this impact would be considered *less than significant*.

As discussed in Impact 4.10-1 and shown in Table 4.10-6, construction activities associated with the Proposed Project during the daytime could result in noise levels as high as 86 dBA L_{eq}. These construction activities could potentially represent a substantial temporary or periodic increase in ambient noise levels at the off-site sensitive use locations. However, the construction activities associated with the Proposed Project would only occur during the hours of 7:00 A.M. to 6:00 P.M. Monday through Saturday, as required by mitigation measure MM4.10-1(a), and thus would not occur during recognized sleep hours or on days that residents are most sensitive to exterior noise.

As discussed in Impact 4.10-1, mitigation measures MM4.10-1(a) and MM4.10-1(b) would serve to reduce construction noise to the extent possible. The temporary increases in ambient noise at off-site locations associated with construction activities of the Proposed Project would be considered *less than significant*.

Impact 4.10-7 Operation of the Proposed Project would not expose people residing or working in the area to temporary increases in ambient noise levels due to the proposed schools that would be located within the Project Site. This is considered a *less-than-significant* impact.

When completely occupied, the Tesoro Viejo Project will accommodate an estimated 15,650 people, with a school age population of approximately ~~3,600~~2,600 to 3,400 students based on projections by the Chawanakee Unifies School District. The Project Applicant anticipates school enrollment at the lower number at full buildout. The Tesoro Viejo Project area itself is expected to include ~~two~~up to three ~~public elementary~~K-8 schools in the “5 Points”/Central neighborhood and either or both the Town Center and North Canal neighborhood. A ~~potential~~ high school campus site is ~~tentatively~~ reserved in the Town Center area, ~~as well as an additional elementary school should student enrollment justify the need.~~ However, if an elementary school is included in the Town Center, there may be no elementary school in the North Canal neighborhood. Essentially, the third elementary school ~~and the high school~~ will be provided should student enrollment justify the need. The first elementary school is to be constructed prior to occupancy of the first dwelling units and the high school as early as possible depending on enrollment to justify the need, which is assumed to be in the fall of 2021.

The school or schools in the Town Center neighborhood would be connected to athletic playing fields to the southeast of the Madera Canal. The fields would serve both the high school and community uses at nights, on weekends, and during the summer.

Depending on ultimate requirements, locating schools in the Town Center may result in a reorganization of land uses around the Town Center to maintain the proposed amount of Town Center Mixed Use and High Density Residential land uses. This reorganization may result in the loss of some area of Medium Density Residential land use, but housing can be recovered through shifting land uses or increasing densities in other residential areas. Alternately, schools may be relocated within the core area.

In total, ~~at least up to 3060~~ acres of the Project Site have been identified for potential school uses, ~~not including some portion of the Town Center.~~ It is anticipated that the Applicant will finance and construct these schools, and it is possible that they will be operated as charter schools pursuant to the California Charter Schools Act, as well as those sections of the Education Code that apply to charter schools. The California Charter Schools Act is contained in Part 26.8 of the Education Code (EC), Sections 47600 through 47664.

The potential exists that school related noises, such as signal bells/buzzers, play field activities and after school events such as nighttime football games would impact the workers, patrons, and residences of the Proposed Project. Noise from on-site school activities would be limited to typical school activities such as students participating in physical education and recreation activities. Such noise would potentially be audible at the Proposed Project residences, but would be of short duration and would occur during the

typically less noise-sensitive daytime hours during which school is in session or outside of recognized sleep hours.

As envisioned in the Proposed Project’s Specific Plan, the potential school locations would be developed to be adjacent to planned open space areas, or adjacent to similar institutional uses such as a library (Community Design + Architecture 2007, amended May 2012). While the primary purpose behind these locations is to maximize the ability of school age children to safely and comfortably walk or bike to school, the location of these campuses adjacent to planned open space would serve to reduce potential noise impacts on residential uses in the vicinity of the proposed schools. Therefore, because the schools would be located adjacent to open space or similar institutional uses; impacts from school activities on noise sensitive uses would be *less than significant*, and no mitigation is required.

4.10.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of cumulative noise impacts depends on the impact being analyzed. For construction impacts, only the immediate area surrounding the construction activity would be included in the cumulative context. For operational impacts, the cumulative context is the MCTC Rio Mesa Traffic Model area, which is consistent with the cumulative context for the traffic analysis.

Threshold	Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
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Increases in noise at sensitive uses would occur as a result of construction of the Proposed Project, along with other construction in the vicinity. As discussed in Impact 4.10-1, construction of the Proposed Project would expose many nearby sensitive receptors to exterior noise levels above the 50dBA noise standard identified in the General Plan. This construction noise would be temporary, and mitigation measures would be implemented to reduce the impact of the noise; however, exterior noise levels would still be above 50 dBA L_{eq} .

Other construction that may occur in the vicinity of the Proposed Project Site would contribute noise levels similar to those generated for the Proposed Project. Where this development adjoins the Proposed Project construction, the combined construction noise levels would have a cumulative effect on nearby sensitive uses. Noise is not strictly additive, and a doubling of noise sources would not cause a doubling of noise levels; however, cumulative construction noise levels would be in excess of 50 dBA L_{eq} at nearby sensitive receptors. While cumulative construction noise levels would potentially exceed the limits established by the Madera County General Plan; however, construction noise would not occur during recognized sleep hours, and mitigation measures have been identified to reduce potential impacts to less than significant levels. Therefore, the Proposed Project’s contribution would not be cumulatively considerable and cumulative impacts would be and the cumulative impact of the project would also be *less than significant*.

With regard to stationary sources, noise would be generated from sources in the Proposed Project and other projects in the project vicinity. The major stationary source of noise that will be introduced would likely be HVAC equipment located on the rooftops of new developments and parking structures. As discussed in Impact 4.10-2, this HVAC equipment generally produces noise levels of that could exceed the County's 50 dBA L_{eq} and 70 max daytime noise standards. Shielding, which is required, could reduce these noise levels by up to 15 dBA, to about 50 dBA L_{eq} at 50 feet. Because shielding would be required for all development associated with the Proposed Project, noise levels from individual stationary sources would not exceed the applicable County noise standard, and because this shielding would be expected to be installed on all new development in the project area, it is expected that all rooftop stationary sources in the Project Area would similarly generate less-than-significant noise levels.

As discussed above, noise is not strictly additive; a doubling of noise sources does not create a doubling of noise levels. Because all rooftop equipment would be shielded, no source would generate maximum noise levels of greater than 50 dBA L_{eq} at 50 feet. Consequently, multiple units would have to be located within 50 feet of a receptor to achieve noise levels that would exceed the County standards. The development types associated with the Proposed Project and other nearby projects are not so dense that multiple stationary units would be so closely spaced, either on site or off site. Consequently, the cumulative effect of multiple HVAC units, and mechanical equipment would be less than significant and the contribution of the project would not be cumulatively considerable. This would be a *less than significant* impact.

Other cumulative noise sources associated with operation of the Proposed Project would be the expected daily delivery of merchandise and produce, as well as the collection of refuse. The growth provided by this development will generate the need for delivery of merchandise and products. The project identified mitigation measure would prohibit the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, refuse containers, or similar objects between the hours of 10:00 P.M. and 6:00 A.M. in such a manner as to cause a noise disturbance across a residential real property line. It is possible that the delivery of merchandise and food goods would also occur during the same time as adjacent commercial deliveries; however, such deliveries would not occur within the same location. Therefore, because of the temporary nature of noise generated by delivery activities, and the fact that there are several intervening structures that would serve to further reduce the noise, the noise levels associated with delivery activities would be reduced at sensitive receptors. Therefore, the cumulative effect of multiple deliveries occurring during the same time would not be cumulatively considerable. The Proposed Project would not make a cumulatively considerable contribution to the impact, which would be considered *less than significant*.

Noise level increases at sensitive uses would also occur as a result of increased traffic from the Proposed Project and other cumulative projects in the vicinity. As shown in Table 4.10-9, existing noise levels at 18 of the 20 study roadway segments currently exceed the 60 dBA L_{dn} exterior noise limit for noise sensitive uses. As shown in Table 4.10-9, project-related and cumulative development traffic would add to noise levels that currently exceed the County standard for residential uses, and would exceed the thresholds of significance established in this EIR. As stated under Impact 4.10-3, design features of the Proposed Project would ensure that noise sensitive uses developed as part of the Proposed Project would not be exposed to noise levels above the 60 dBA L_{dn} exterior noise standard; however, because the Proposed

Project would contribute considerably to the noise levels that currently exceed the County’s standards, and the thresholds of significance for this EIR, the cumulative impact of the Proposed Project would be ***significant and unavoidable***.

Threshold	Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
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As discussed in Impact 4.10-4, construction of the Proposed Project would produce temporary vibration impacts that would be less than significant. Cumulative development in the project area is not considered likely to result in the exposure of on-site or off-site receptors to excessive groundborne vibration, due to the localized nature of vibration impacts and the fact that all construction would not occur at the same time and at the same location. Madera County has approved development of a portion of the North Fork Village and is processing an application for development of the remainder of the North Fork Village, in addition to Tesoro Viejo. Furthermore, the County is processing applications for the large master-planned Village of Gateway (also referred to as Castle & Cooke) immediately outside of Rio Mesa to the west and anticipates further applications for development of the Gunner West area south of the Village of Gateway area, as well as other possible development in Rio Mesa.

Only receptors located in close proximity to each construction site would be potentially affected by both activities. For the combined vibration impact from multiple projects to reach cumulatively significant levels, heavy construction activity would have to occur simultaneously within 50 feet of any receptor. Because buildings associated with the Proposed Project would not be within 50 feet of buildings associated with other development in the immediate area, it is not likely that heavy construction activity from multiple projects would simultaneously occur at distances of 50 feet or less from the same receptor. Therefore, vibration from future development could not combine with construction vibration of the Proposed Project to result in a significant cumulative impact. The contribution of the Proposed Project to such an impact would not be cumulatively considerable because the Proposed Project would include mitigation to reduce the project’s impact, and the cumulative impact of the project would be ***less than significant***.

Threshold	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
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Substantial permanent increases in noise would occur primarily as a result of increased traffic on local roadways due to the Proposed Project and other projects within the study area. Cumulative traffic-generated noise impacts have been assessed based on the contribution of the Proposed Project to the future cumulative traffic volumes in the project vicinity. The noise levels associated with existing traffic volumes near the surrounding sensitive noise receptors for cumulative traffic volumes without the project, cumulative traffic volumes with the project, and the contribution of traffic noise generated by the Proposed Project are identified in Table 4.10-9.

As shown in Table 4.10-9, cumulative development including the Proposed Project would increase local noise levels by up to 7.6 dBA, which exceeds the 3 dBA significance threshold. Additionally, the Proposed Project’s contribution to the cumulative impact exceeds the 3 dBA threshold at three roadway segments; SR-41 between Road 204 and Avenue 13 would increase from 72.4 dBA L_{dn} without the

Proposed Project to 76.7 dBA L_{dn} with the project, an increase of 4.3 dBA; SR-41 between Avenue 13 and Avenue 12 would increase from 73.9 dBA L_{dn} without the Proposed Project to 77.2 dBA L_{dn} with the Proposed Project, an increase of 3.3 dBA; and Avenue 15 between Road 36 and SR-41 would increase from 61.1 dBA L_{dn} without the Proposed Project to 65.3 dBA L_{dn} with the Proposed Project, an increase of 4.2 dBA. As these increases are above the 3.0 dBA threshold and there is no feasible mitigation to reduce the impact to a level of less than significant, the cumulative impact would be significant and the cumulative contribution to the impact would be cumulatively considerable. Consequently, the cumulative impact of the Proposed Project would be ***significant and unavoidable***.

Threshold	Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
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Periodic and temporary noise levels would be generated by construction of the Proposed Project and other cumulative development in the vicinity. As discussed in Impact 4.10-1, the Proposed Project would, by itself, expose some receptors to noise levels in excess of County noise standards. However, construction noise impacts are localized in nature and decrease substantially with distance; consequently, in order to achieve a substantial cumulative increase in construction noise levels, more than one source emitting high levels of construction noise would need to be in close proximity to a noise receptor. As discussed previously, the North Fork Village and Village of Gateway are located north and south of the Proposed Project. Thus, the possibility exists that a substantial cumulative increase in construction noise levels could result from construction associated with the Proposed Project and the North Fork Village and Village of Gateway developments; ~~H~~however, the construction activities associated with the Proposed Project and other development within the Project vicinity would only occur during the hours of 7:00 A.M. to 7:00 P.M. Monday through Saturday, and thus would not occur during recognized sleep hours or on days that residents are most sensitive to exterior noise. As discussed in Impact 4.10-1, mitigation measures MM4.10-1(a) and MM4.10-1(b) would serve to reduce construction noise to the extent possible. Similar mitigation measures are required for the North Fork Village and Village of Gateway developments. Therefore, the cumulative temporary increases in ambient noise at off-site locations associated with construction activities of the Proposed Project would be considered ***less than significant***.

The development of the Proposed Project's three to four schools would serve to temporarily increase ambient noise levels due to typically school-related activities and these activities could potentially impact noise sensitive uses. The schools developed as part of the Proposed Project would be located within the mixed use and residential areas of the Project Site and residents of the Proposed Project would be the only noise sensitive receptors that would potentially be impacted by noise generated by school activities. Therefore, the Proposed Project schools would not contribute to a cumulative temporary increase in ambient noise levels at off-site locations, and this impact would be considered ***less than significant***.

4.10.5 References

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4.11 POPULATION AND HOUSING

This section summarizes existing and forecasted population, employment, and housing characteristics of Madera County. This section identifies proposed increases in population, employment, and housing with implementation of the Proposed Project. Increases in population, employment, and housing are analyzed to determine consistency with the 1995 Rio Mesa Area Plan, the Madera County General Plan (1995), and Madera County Housing Element (2004), all of which are policy documents that guide land use development decisions for the southeastern portion of the County where the Proposed Project is located.

Changes in population, employment, and housing demand are social and economic effects, not environmental effects. According to Section 15382 of the CEQA Guidelines, “An economic or social change by itself shall not be considered a significant effect on the environment.” According to CEQA, these effects should be considered in an EIR only to the extent that they create adverse impacts on the physical environment, such as increased traffic and associated air quality and noise impacts, and increased demands on public services and utilities. These effects are described in Section 4.14 (Transportation/Traffic), Section 4.3 (Air Quality), Section 4.10 (Noise), Section 4.12 (Public Services and Recreation), and Section 4.14 (Utilities and Service Systems) of this EIR.

Data used in preparation of this section were obtained from various sources, including the U.S. Census Bureau, the California Department of Finance, the Madera County General Plan, and the Rio Mesa Area Plan (RMAP). Bibliographic entries for selected reference materials are provided in Section 4.11.7 (References) of this section.

4.11.1 Environmental Setting

■ Regional Setting

Population, housing, and employment data for the Proposed Project are available from the US Census for the Madera Metropolitan Statistical Area (MSA), which is comprised of Madera County. The San Joaquin Council of Governments is in the process of developing the San Joaquin Valley Regional Blueprint, which is a regional transportation, land use, and environmental vision through the year 2050 that responds to the many challenges associated with population growth in the region. The Blueprint encompasses the region’s eight counties, including Madera County. The major San Joaquin County Blueprint outcomes will include a Vision Statement for future growth through the year 2050 and a set of Guiding Principles that represent the preferred Transportation/Land Use/Environmental Blueprint Scenario. Preparation of the Regional Blueprint is a two-year process and is currently in the visioning stage.

■ Population

In 2007, Madera County had a total estimated population of 148,721, an increase of 19 percent since 2000, according to the California Employment Development Department. Comparatively, Fresno County grew by 15 percent, Merced County grew by 20 percent, and California grew by 12 percent over this time period.

Madera County has experienced a varied growth rate over the last 60 years. Since 1970, the population has steadily increased in the unincorporated areas of the County, while the percentage of population growth within the County’s incorporated cities has declined. As shown in Table 4.11-1 (Population Trends for Madera County), the highest rates of growth occurred between 1940 and 1950, a 58 percent increase over the ten-year period. The County’s slowest growth occurred during the 1950s and 1960s, with the growth rate slowing to less than 1 percent a year.

Area	1940	1950	1960	1970	1980	1990	2000
Chowchilla (incorporated)	N/A	N/A	4,525	4,349	5,122	5,930	11,127
Madera (incorporated)	N/A	N/A	14,430	16,044	21,732	29,281	43,207
Madera (unincorporated)	N/A	N/A	21,513	21,126	36,262	52,879	68,775
Madera (County-wide)	23,314	36,964	40,468	41,519	63,116	88,090	123,109

SOURCE: Madera County 1995a; U.S. Census Bureau 2006

Between 1970 and 1980, Madera County again experienced marked growth, increasing 52 percent over the ten-year period. From 1980 to 1990, the population in the unincorporated areas of the County grew by 46 percent, and 31 percent in the cities. Between 1990 and 2000, Madera County’s population increased by 40 percent, compared to 14 percent for the State.

Table 4.11-2 (Population Projections for Madera County) shows projected growth in the County through 2050 compared to adjacent counties and the State, estimated by the California Department of Finance. Although the County’s population will grow by over 290,000 people from 2000 to 2050, the rate of growth is slowing. Similar trends are seen in the adjacent counties of Merced and Fresno and the state of California. The County population is projected to increase by 73 percent from 2000 to 2020, 28 percent between 2020 and 2030, 26 percent between 2030 and 2040, and 20 percent from 2040 to 2050.

Area	2000 ^a	2010	2020	2030	2040	2050
Madera County	124,696	162,114	212,874	273,456	344,455	413,569
Merced County	211,481	273,935	348,690	439,905	541,161	652,335
Fresno County	804,508	983,478	1,201,792	1,429,228	1,670,542	1,928,411
California	34,105,437	39,135,676	44,135,923	49,240,891	54,266,115	59,507,876

SOURCE: California Department of Finance, Demographic Research Unit, 2007
^a 2000 numbers are also projections, and don't reflect actual 2000 population recorded in U.S. Census

■ Employment

Industry Employment

In 2006, of the 59,100 employed population 16 years and older, the leading industries in Madera County were farm jobs (22.7 percent), trade, transportation, and utilities (11.9 percent), educational and health services (13.0 percent), and government (22.5 percent) (CEDD 2007a). Table 4.11-3 (Employment by

Major Sector for Madera County—2000, 2006) provides employment information by major sector for Madera County in 2000 and 2006.

<i>Industry</i>	<i>Jobs^a</i>		<i>Percent Change</i>
	<i>2000</i>	<i>2006</i>	
Farm Jobs	11,900	10,300	-13.4
Natural Resources, Mining and Construction	1,500	2,900	93.3
Manufacturing	2,900	3,300	13.8
Trade, Transportation and Utilities	4,200	5,400	28.6
Information	600	500	-16.7
Financial Activities	700	900	28.6
Professional and Business Services	2,200	2,500	13.6
Educational and Health Services	4,400	5,900	34.1
Leisure and Hospitality	2,500	2,700	8.0
Other Services	800	800	0.0
Government	7,600	10,200	34.2
<i>Total</i>	<i>39,200</i>	<i>45,400</i>	<i>15.5</i>

SOURCE: CEDD 2007a

^a Industry employment is by place of work; excludes self-employed individuals, unpaid family workers, household domestic workers, and workers on strike.

Between 2000 and 2006, employment in Madera County has increased 15.5 percent, or 6,100 jobs (CEDD 2007a). With the exception of farm jobs and the information industry, all major industries increased employment over these years. Four industries increased by the largest shares of new jobs: natural resources, mining, and construction (93.3 percent), trade, transportation, and utilities (28.6 percent), financial activities (28.6 percent), and government (34.1 percent).

During the period 2000–2006, Madera’s total labor force (all employable persons 16 years of age and over) posted 15.7 percent growth, a gain of 8,600 persons. In 2006, the County’s unemployment rate dropped 1.7 percentage points to 7.0 percent over this period. Madera’s unemployment rate has declined significantly since 2000, yet remains above California’s rate of 4.9 percent in 2006 (CEDD 2007a). More recent data collected by the California Employment Development Department indicates an unemployment rate of 6.1 percent in September, 2007, a drop of 0.9 percent since 2006 (CEDD 2007b).

Jobs-to-housing Balance

The jobs-to-housing balance is defined as a measure of an area’s total employment to total housing units. When the jobs-to-housing ratio exceeds 1.0, the area is considered to have an excess of jobs, and when the ratio is below 1.0, the area is considered to have a job deficit. In 2006, the total number of occupations in Madera County based on U.S. Census estimates was 50,752, and the total number of

housing units was approximately 47,671; thus, the jobs-to-housing ratio in the County in 2006 was estimated at 1.1, indicating a fairly balanced community (U.S. Census Bureau 2007b).^{97,98}

■ Housing

The Madera County Housing Element shows that single-family detached residential units account for the majority of housing in Madera County. Madera County has a significantly higher proportion of single-family detached units (76.3 percent) than the state average (56.0 percent), while the County has a total of 13.0 percent of its housing in multi-family developments compared to 32.4 percent for the State (Madera County 2006). The other notable difference is with mobile homes, where the County has 9 percent of its housing in mobile homes and the state has only 4.8 percent of its housing in this type. This difference in percentage of housing in mobile homes is attributed to the fact that the County’s unincorporated area is largely rural compared to more urbanized counties. Table 4.11-4 (Housing Stock by Type and Vacancy for Madera County and California—2000) presents comparative data on the housing stock in Madera County and California for 2000. The table summarizes the total housing stock in both areas according to the type of structures in which units are located, total occupied units, and vacancy rates (Madera County 2006).

Table 4.11-4 Housing Stock by Type and Vacancy for Madera County and California—2000								
DOF Estimates	Total	Single Family		Multi-Family		Mobile Homes	Occupied	Vacancy %
		Detached	Attached	2 to 4	5 Plus			
Madera County								
Units	39,680	30,282	679	1,973	3,173	3,573	36,516	N/A
Percentage	100.0	76.3	1.7	5.0	8.0	9.0	92.0	8.0
California								
Units	12,242,576	6,853,693	840,801	1,012,613	2,950,373	585,096	11,335,419	N/A
Percentage	100.0	56.0	6.9	8.3	24.1	4.8	92.6	7.4

SOURCE: Madera County 2004

The current 2007 estimated number of housing units in Madera County by the California Department of Finance is approximately 48,460 units, of which approximately 28,756 are located in the unincorporated areas of Madera County. The housing breakdown in the unincorporated area is 84.7 percent single-family, 3.6 percent multi-family, and 11.7 percent mobile home (CDOF 2007).

Need by Income Category, Housing Prices, and Availability

As required by Government Code Section 65584, the California Department of Housing and Community Development developed projections of regional housing need for Madera County.

⁹⁷ 2006 Census data was used for the jobs-to-housing balance instead of 2007 employment estimates from the California Employment Development Department to use a consistent source for both housing and employment data.

⁹⁸ The Census data includes workers that are excluded by the California Employment Development Department, including self-employed individuals, household domestic workers, and workers on strike.

Table 4.11-5 (Housing Need by Income Category for Madera County—2001 to 2008) depicts Madera County’s housing need for 2001 through 2008.

<i>Income Category</i>	<i>HCD Need Determination^e</i>	<i>Percentage of Total</i>
Very Low ^a	1,759	35.6
Low ^b	1,075	21.7
Median-Moderate ^c	691	14.0
Above Moderate ^d	1,420	28.7
Total	4,945	100.0

SOURCE: Madera County 2007

- ^a A Very Low Income Housing Unit is a housing unit that is affordable to a household whose combined income is lower than 50 percent of the median income for Madera County, which is \$25,750 in 2007 for a household of four.
- ^b A Low Income Housing Unit is a housing unit that is affordable to a household whose combined income is between 50 and 80 percent of the median income Madera County, which is \$41,200 in 2007 for a household of four.
- ^c A Median-Income Housing Unit is a housing unit that is affordable to a household whose combined income is between 81 and 100 percent of the median income for Madera County, which is \$51,500 in 2007 for a household of four.
- ^d A Moderate-Income Housing Unit is a housing unit that is affordable to a household whose combined income is between 101 and 120 percent of the median income for Madera County, which is \$61,800 in 2007 for a household of four.
- ^e The original numbers from HCD have been reduced to reflect unit transfers to Chowchilla and Madera because of annexations by these two cities (Inclusionary Housing Study and Draft Ordinance, 2007).

Based on Table 4.11-5, the yearly need for 2001 through 2008 is about 706 residential units. The total allocation is broken down into four categories: (1) very low (1,759 units or approximately 35.6 percent of the total units), (2) low (1,075 units or approximately 21.7 percent of the total units), (3) median-moderate (691 units or approximately 14 percent of the total units), and (4) above moderate (1,420 units or approximately 28.7 percent of the total units). In other words, of the 4,945 units allocated, 71.3 percent must be in the affordable range (very low, low, and moderate) and 28.7 percent in the above-moderate range.

The current vacancy rate for the unincorporated areas of County is 14.1 percent, while the current vacancy rate for the entire County (including both unincorporated and incorporated areas) is 10.3 percent (California Department of Finance 2007). In 2000, the vacancy rate for Madera County (including both incorporated and unincorporated areas) was eight percent, as reflected in Table 4.11-4. This shows that vacancy rates in the County have increased from eight percent to 10.3 percent between 2000 and 2007. A vacancy rate of 5 percent is often identified as the socially desirable vacancy rate for combined sale and rental housing. The high-vacancy rate for the unincorporated areas of the County is generally attributed to the large number of seasonal and vacation residences in the foothill areas.

Underutilized Land

The Madera County Housing Element analyzed underutilized lands in Madera County. A parcel is considered underutilized if it has an improvement value of between \$1,000 and \$15,000 based on the 2003 Assessor’s parcel information. This typically includes parcels with secondary structures, such as barns or sheds, or dilapidated houses. According to the Madera County Housing Element, the land use designations with the greatest acreage of underutilized lands is Rural Residential (57,537 acres) and

Exclusive Agriculture (55,531 acres), which are the primary land use designations of the project site. The Madera County Housing Element encourages use of underutilized lands.

Persons per Dwelling Unit

The California Department of Finance estimates that the average persons per dwelling unit in 2007 in Madera County, based off the 2000 benchmark, is 3.2. The persons per dwelling unit average for the 2007 incorporated areas of the County is approximately 3.5, while the unincorporated portions of the County is approximately 3.0.

4.11.2 Regulatory Setting

■ Federal

There are no federal housing regulations applicable to the Proposed Project.

■ State

California Department of Housing and Community Development (HCD)

State Housing Law (Government Code Section 65580) requires local government plans to address the existing and projected housing needs of all economic segments of the community through their housing elements. The housing element is one of seven state-mandated elements that every general plan must contain, and is required to be updated every five years and determined legally adequate by the State. The purpose of the housing element is to identify the community's housing needs, state the community's goals and objectives with regard to housing production, rehabilitation, and conservation to meet those needs, and define the policies and programs that the community will implement to achieve the stated goals and objectives. Madera County last updated its Housing Element in 2004. Applicable goals and policies from the County's Housing Element related to this section of the EIR, including a consistency analysis for each, are provided below under the Madera County General Plan.

■ Local

Madera County General Plan

Goals and policies of the Madera County General Plan (Madera County 1995b) that are related to the jobs-to-housing balance and are relevant to the Proposed Project are presented below.

Residential Land Use Goal

- Goal 1.C** To provide adequate land in a range of residential densities to accommodate the housing needs of many income groups expected to reside in Madera County.

Commercial Land Use Goal

- Goal 1.D** To designate adequate commercial land for and promote development of commercial uses to meet the present and future needs of Madera County residents and visitors and maintain economic vitality.

Industrial Land Use and Economic Goals and Policies

Goal 1.E To designate adequate land for and promote development of industrial uses to meet the present and future needs of Madera County residents for jobs and maintain economic vitality.

Policies 1.E.3 The County shall encourage the retention, expansion, and development of new businesses, especially those that provide primary wage-earner jobs, by designating adequate land and providing infrastructure in areas where resources and public facilities and services can accommodate employment generators.

Jobs-to-housing Balance Goal

Goal 1.F To work toward a jobs-housing balance in existing urban areas and new growth areas.

Policy Consistency

The Proposed Project designates approximately 70 percent of the total acreage in the Project Area for residential land uses, and would provide a range of residential densities and housing types to accommodate a spectrum of buyers and household types. Therefore, the Proposed Project would be consistent with Goal 1.C.

One of the specific objectives listed in the Specific Plan is to create a master planned balanced community to include a mix of residences, employment, recreational opportunities, and commercial uses for residents. The Proposed Project provides nearly 10 percent of the total acreage in the Project Area for commercial, retail, and industrial land uses. Goal 1 of the Proposed Project's Land Use Goals, which are presented in the Specific Plan and also identified as project objectives in Chapter 3 (Project Description) of this EIR, sets a goal for the project to provide a viable and balanced mix of regional and local-serving commercial and employment uses. Therefore, the Proposed Project is consistent with Goal 1.D.

Consistent with the RMAP and Goal 1.E, the Proposed Project accommodates approximately 3.0 million square feet of employment-based land uses, including approximately 640,000 square feet of light industrial uses. Light industrial and business park areas, located adjacent to the Community Core, allow for a wide range of employment generating land uses and are intended to serve the county as major employment areas.

The Proposed Project contains a goal to develop a set of permitted commercial and employment uses within Tesoro Viejo that provide a wide range of employment and shopping opportunities for existing and future residents of Madera County. Additional goals of the Specific Plan are to provide a viable and balanced mix of regional and local-serving commercial and employment uses, and encourage job creation and self-employment opportunities to ensure a vital and self-sustaining town. Thus, the Proposed Project is consistent with Goal 1.E and Policy 1.E.3 above.

It is estimated that the jobs-to-housing ratio as a result of the Proposed Project would be approximately 1.4⁹⁹ upon full buildout, but the jobs-to-housing ratio of the RMAP as a whole would be 1.05¹⁰⁰, which is comparable to the existing jobs-housing balance of 1.1 in 2006 in Madera County. Therefore, as the Proposed Project contributes to an overall jobs-housing balance in the RMAP area, the Proposed Project is consistent with Goal 1.F above.

Madera County Housing Element

The latest Housing Element for the Madera County General Plan (adopted on March 9, 2004 and amended December 13, 2004) provides goals and programs for the provision of housing throughout Madera County through 2008 (Madera County 2004). The Housing Element also identifies and analyzes the existing and projected housing needs of the County and provides the County’s housing goals, objectives, and programs. Objectives and policies in the Madera County Housing Element that are relevant to the Proposed Project are presented below.

New Construction Goals and Policies

- Goal HE-1** To encourage new residential development in suitable locations that meet the projected needs of all economic segments of the community.
- Policy 1.0** The County shall encourage the development of a variety of living environments.
- Policy 1.2** The County shall encourage the construction of at least 4,426 new housing units in the unincorporated area for very low, low, and moderate-income families by July 1, 2009.
- Policy 1.17** The County shall encourage future large developments to include diverse housing types at a range of prices.

Encourage and Maintain Affordable Housing Goals and Policies

- Goal HE-2** To encourage and maintain affordable housing in Madera County for many income groups.
- Policy 2.0** The County shall encourage the provision of units available for sale or rent to low and moderate income households.

Job/Housing Balance Goals and Policies

- Goal HE-7** To provide a well-balanced and diverse economy that provides an adequate number of jobs to support the local population.
- Policy 7.2** As a means to encourage that the new growth areas have a balance of residential and commercial uses, the County shall continue to use its job-housing policy in the new growth areas, including, but not limited to, the Rio Mesa Area Plan, Castle-

⁹⁹ Based upon the information used in the traffic analysis, the Proposed Project generates approximately 7,358 jobs and provides approximately 5,190 dwelling units. The jobs-to-housing ratio is calculated by dividing the number of dwelling units into the total number of jobs (e.g., 7,358/5,190 = 1.42)

¹⁰⁰ Based upon the information used in the traffic analysis, the entire RMAP area would generate approximately 31,068 jobs and 29,456 dwelling units, which corresponds to a jobs-to-housing ratio of 1.05.

Cooke Area Plan, State Center Community College, and Gunner Ranch Area Plan.

Policy Consistency

The Proposed Project would develop a variety of residential densities and mixed-use residential living opportunities that would provide a variety of living environments for the residents of the County. The Specific Plan proposes housing units from very low-density residential (0.3–2.0 du/acre) to high-density residential (12–25 du/acre) and mixed-use (12–30 du/acre) in order to accommodate persons and families of all interests, needs, and economic circumstances. The Vision of the Specific Plan includes providing a “wide array of housing opportunities for people of many income levels to ensure that both those who help the local economy run and those who drive it can find comfortable housing in which to lead their lives and raise their families.” Thus, the Proposed Project would be consistent with the goals and policies for new housing construction.

Policies 1.2 and 2.0 of the General Plan states that the County shall encourage the provision of for-sale or for-rent housing units to low and very-low income households, or the construction of at least 4,426 new housing units in the unincorporated area for very low, low, and moderate-income families by July 1, 2009. The Proposed Project does not define or classify housing specifically for these households. However, Madera County recently adopted an Inclusionary Housing Study and Draft Ordinance in May, 2007, which is a preliminary step to developing and adopting an inclusionary housing program and housing ordinance. Once the program and ordinance is adopted, developers will participate in helping the County meet its affordable housing goals by either constructing inclusionary units or through the payment of in-lieu fees or other alternatives.

It is estimated that the jobs-to-housing ratio at buildout of the RMAP would be approximately 1.05, which is comparable to the existing estimated jobs-to-housing balance in the County of 1.1 in 2006 and indicates a balanced community. Therefore, the Proposed Project is consistent with Policy 1.B.1.

Rio Mesa Area Plan

Goals and policies of the Rio Mesa Area Plan (1995) that are related to the jobs-to-housing balance and are relevant to the Proposed Project are presented below.

Land Use Goals

- | | |
|---------------|--|
| Goal 1 | Create a balanced community to include residential, commercial, employment, open space, and recreational opportunities for residents. |
| Goal 2 | Allow for a range of product types and densities to provide housing opportunities to a variety of income levels and family needs and to respond to changing market conditions. |

Land Use Policies

- | | |
|-------------------|--|
| Policy 1.1 | Encourage jobs generating uses that will increase employment opportunities for Madera County residents. |
| Policy 2.5 | Provide affordable housing opportunities within the high and medium density residential land use designations. |

Policy 2.6 Integrate and disperse affordable housing units throughout the high and medium density residential neighborhoods, thereby avoiding the concentration of affordable units in one area.

Policy Consistency

The proposed Specific Plan states in Section 1.2 (Project Vision) that it will provide a healthy mix of housing, employment, retail, and recreational destinations in order to create a place that is both home and destination. The Land Use Plan for the Proposed Project reflects this vision. Therefore, the Proposed Project is consistent with Goal 1 above.

Goal 9 of the Proposed Project's Land Use Goals, which are presented in the Specific Plan and also identified as project objectives in Chapter 3 of this EIR, states for the project to provide detached and attached housing to serve a spectrum of buyers and household types, and to provide "move-up" and "move-down" opportunities for present residents in the vicinity and the surrounding region. Therefore, the Proposed Project is consistent with Goal 2 above.

Goal 34 of the Proposed Project's Economic Vitality Goals, which are presented in the Specific Plan and also identified as project objectives in Chapter 3 of this EIR, states for the project to develop a set of permitted commercial and employment uses within Tesoro Viejo that provide a wide range of employment and shopping opportunities for existing and future residents of Madera County. Goal 33 also states for the project to encourage job creation and self-employment opportunities to ensure a vital and self-sustaining town. Therefore, the Proposed Project is consistent with Policy 1.1 above.

The Proposed Project does not identify nor prohibit the provision of affordable housing within its medium- and high-density residential neighborhoods. Madera County recently adopted an Inclusionary Housing Study and Draft Ordinance in May, 2007, which is a preliminary step to developing and adopting an inclusionary housing program and housing ordinance. Once the program and ordinance is adopted, developers will participate in helping the County meet its affordable housing goals by either constructing inclusionary units or through the payment of in-lieu fees or other alternatives.

4.11.3 Project Impacts and Mitigation

■ Analytic Method

This analysis considers whether population and household growth would occur with implementation of the Proposed Project and whether this growth: (1) is within County forecasts, (2) can be considered substantial with respect to remaining growth potential in the County as articulated in the General Plan, and/or (3) would result in the displacement of housing or people. Specifically, population and housing impacts were conducted by comparing the Proposed Project with growth projections for the County from the California Department of Finance, which include buildout of the Rio Mesa Area Plan (Madera County 1994). The potential for the project to indirectly induce growth by extending roads or infrastructure is addressed in Section 5.4 (Growth-Inducing Impacts).

■ Thresholds of Significance

Although a project's social and economic effects are not considered to be significant environmental effects under CEQA, if those aspects of the project might affect physical conditions in the area, they are evaluated under CEQA. Thus, this section addresses the potential effects of the Proposed Project on existing businesses and jobs, housing demand, and the jobs-to-housing balance to the extent that there could be resultant physical impacts to the environment.

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on population, employment, and housing if it would do any of the following:

- Induce substantial growth in an area either directly or indirectly
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere
- Displace a substantial number of businesses and jobs, necessitating the construction of replacement facilities elsewhere
- Have effects on the demand for housing and the relationship between jobs and housing that could have indirect implications for residence and community patterns and related physical environmental impacts

■ Effects Not Found to Be Significant

Threshold	Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?
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Presently, the Project Site is developed primarily with agricultural uses. Because no residential uses are located within the Project Area, development of the Proposed Project would not require the demolition of any existing residential units and construction of replacement housing would not be necessary. Rather, implementation of the Proposed Project would permit residential uses in an area that historically prohibited these uses prior to adoption of the RMAP. Consequently, *no impact* would occur, and no further analysis is required in this EIR.

Threshold	Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?
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As discussed above, no residential uses are located within the Project Area boundaries. Implementation of the Proposed Project would not displace substantial numbers of people and would not necessitate the construction of replacement housing elsewhere. No existing housing will be demolished as part of the Proposed Project. Consequently, *no impact* would occur, and no further analysis is required in this EIR.

■ Impacts and Mitigation Measures

Threshold	Would the project induce substantial population growth in the area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?
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Impact 4.11-1 Implementation of the Proposed Project would accommodate projected population and housing growth in the area. This is considered a *less-than-significant* impact.

A discussion of growth inducing impacts of the Proposed Project, consistent with CEQA Guidelines, is contained in Section 5.4 (Growth-Inducing Impacts) of this EIR. This threshold and the discussion below address both direct growth in population resulting from new housing and indirect population growth impacts from the extension of roads or infrastructure or provision of employment opportunities.

Direct Population Growth from New Housing

Implementation of the Proposed Project would result in the addition of 5,190 new residential units and an anticipated population increase to the County of 15,650 by 2025.¹⁰¹ By averaging the 2020 and 2030 population projections for the County (see Table 4.11-2), it is anticipated that the population of the County at the time of the proposed 2025 full buildout would be 243,165, or an increase in 94,444 people from 2007. Therefore, the Proposed Project would account for approximately 17 percent of anticipated population growth in the County by 2025. This increase in population, while considered a substantial percentage in relation to the level of forecasted population growth, will be phased over the next fifteen to twenty years until buildout of the Proposed Project.

This population growth is also anticipated under the RMAP and the County General Plan (1995), which identify the Project Site as a new growth area. The RMAP, which was adopted into the County General Plan in 1995, anticipated that at buildout of the Rio Mesa area in the year 2030 to 2050, the RMAP will house a population in excess of 100,000, and result in the development of approximately 30,000 dwelling units through the year 2030. The Proposed Project accounts for approximately 16 percent of this forecasted population growth in the RMAP area and 17 percent of the total housing units, and, therefore, falls within the anticipated growth. Therefore, growth envisioned under the Proposed Project is not considered adverse.

Indirect Population Growth from New Employment

The Proposed Project would result in the creation of up to 7,358 permanent employment positions (Table 4.11-6 [Total Number of Workers—Proposed Project Buildout]), not including the construction jobs that will result for local contractors. With an estimated increase of 5,190 housing units at buildout, this results in a jobs-housing balance of approximately 1.42 at full buildout of the Proposed Project, indicating a slightly jobs-rich community.

¹⁰¹ The population estimate is calculated by multiplying the sum of the proposed 2025 full buildout (rounded up to 5,200 residential units) by approximately 3.0, which is the estimated average number of persons per dwelling unit in unincorporated Madera County in 2007. The difference between a population of 15,600 and 15,650 accounts for the fact that the actual persons per dwelling unit is 3.0154 and the actual unit count is 5,190.

<i>Industry</i>	<i>Mean Square Feet per Industry</i>	<i>Mean Square Feet per Worker</i>	<i>Yield</i>
Commercial	916,938	400	2,292
Office	259,182	300	864
Public Institutional	76,230	450	169
Light Industrial	1,219,680	690	1,768
Highway Service	1,132,560	500	2,265
Total	3,604,590¹⁰²		7,358

SOURCE Fehr & Peers 2007 (Assumptions in MCTC Rio Mesa Traffic Model V2.0)

In addition to the direct population growth allowed by the supply of housing in any given project, the creation of employment positions creates an additional indirect demand for housing and associated population growth when existing residents in the area at the time jobs are created do not fill the new employment opportunities associated with the project, either because they lack the required skills or they are already employed. As specified above, the Proposed Project will create an estimate of 7,358 permanent employment positions; however, as noted above, unemployment in Madera County stands at 6.1 percent in 2007, which is relatively high compared to the state unemployment rate, so it is reasonable that some of the employment opportunities associated with the Proposed Project will be filled by current residents within the vicinity of the Project Site that would not necessitate the provision of additional housing.

The Proposed Project is designed to provide the necessary infrastructure and facilities, such as utility lines and roadways, to areas that are not currently served by infrastructure and necessary to accommodate the direct and indirect growth in population. The extension of this infrastructure would allow Specific Plan buildout. While utilities infrastructure related to stormwater, water, and sewer would be sized to meet the needs of the Proposed Project, the design of this infrastructure would not preclude “upsizing” to accommodate other approved developments in the remainder of the designated Rio Mesa Village (that is, the Morgan and Jamison properties). However, while the water distribution system could be upgraded to accommodate additional (and future) development, each property or proposed development would be required to secure its own separate water source.

In terms of traffic infrastructure, the on-site and off-site improvements required to accommodate the Proposed Project would significantly contribute towards making the region more accessible. The RMAP provides a Circulation Concept Plan (Madera County 1994, 48) for the Project Site and its immediate area that serves as a template for the major road network proposed for Tesoro Viejo and reflected in the Tesoro Viejo Specific Plan. Additionally, the Rio Mesa Community Village Infrastructure Master Plan details a Street Systems Master Plan for the Proposed Project. Chapter 3 of this EIR summarizes the

¹⁰² As a result refinements made to the Proposed Project during the planning process, which occurred after the traffic model was developed and finalized, the Project reflects less commercial and light industrial uses than assumed in the traffic model (the traffic model is the source of the employment information used.) Overall, the Proposed Project would generate fewer jobs than assumed in the traffic model, which would serve to further balance the jobs-to-housing ratio. However, in order to provide a worst-case scenario in terms of the total number of jobs provided by the Proposed Project, this analysis is consistent with the higher employment assumptions used in the traffic analysis, which reflects a greater number of trips and a higher jobs-to-housing ratio. The revised jobs-to-housing ratio is estimated to be 1.3.

street network to be provided within the Project Area, defined in detail in the Circulation Element, Chapter 4 of the Specific Plan.

While anticipated population growth is consistent with County plans, the environmental effects associated with this growth, such as those resulting from increased traffic, noise, and increased demands on services and utilities, may be significant. This EIR identifies the potential regional and local effects of the expected growth, such as increased traffic, and increased demands on services and utilities, in the appropriate sections of this EIR and are, therefore, not addressed in this section; however, the Madera County General Plan does not restrict population growth or establish a population cap for the County. Thus, population and housing growth alone would not be considered a significant environmental impact.

Therefore, while the Proposed Project would result in planned growth and may induce additional, but anticipated growth in the area, the growth is consistent with current General Plan forecasts for the County. As such, this impact is considered *less than significant*. No mitigation is required.

Threshold	Would the project displace substantial numbers of businesses and jobs, necessitating the construction of replacement facilities elsewhere?
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Impact 4.11-2 Implementation of the Proposed Project would not displace substantial numbers of businesses and jobs, necessitating the construction of replacement facilities elsewhere. This is considered a *less-than-significant* impact.

The RMAP estimated employment in the entire Rio Mesa Plan Area would be approximately 31,000 at full buildout. While the Proposed Project would create an estimate of 7,358 new jobs within the Project Site, plus additional construction-related jobs, it is also likely that due to the existing agricultural base of the Project Site, the Proposed Project would also eliminate agriculture-related jobs. The agricultural land where individuals work would be converted to other land uses as a result of the Proposed Project. It is anticipated that approximately 50 permanent full-time agricultural or ranch-related jobs and up to 200 temporary (short-term, seasonal) agricultural jobs are provided by the existing operations at the Project Site (personal communication, Ken Lazarus, Sumner Peck Ranch, November 30, 2007). The loss of the permanent agricultural jobs would not be substantial in light of the existing 10,600 agricultural related jobs in Madera County as of 2006 (see Table 4.11-3). Even so, it is recognized that those working in the agricultural industry that would lose their jobs may have to seek employment outside of the Project Site because they may not be interested in or qualified for the positions created by the 7,358 new (nonagricultural) jobs that the Proposed Project would create. In addition, with respect to the short-term and seasonal agricultural jobs, the nature of those jobs is to seek work throughout the State and beyond in response to crop cycles, climactic conditions, and other factors. Given the agricultural opportunities available within the region, it is assumed that seasonal work would continue to be available.

Agriculture-related activities generally require open space with a minimum of built structures (e.g., silos, work shops, equipment sheds, etc.); therefore, with respect to the CEQA threshold, which relates to physical environmental impacts, rather than economic affects, the Proposed Project would not necessitate the construction of replacement facilities elsewhere that may result in physical impacts to the environment.

Additionally, the Proposed Project contains the following project objectives (see Chapter 3 of this EIR) that encourage the preservation of agricultural operations for local community sustenance, employment, and education:

- Goal 31** Encourage some continued vineyard, orchard and farming operations where feasible by clustering of dwellings and infrastructure to allow open space preservation and functional agricultural use for local community sustenance and interest.
- Goal 32** Encourage sustainable methods of local food production to sustain both local business and the health of the land and seek to incorporate farmer’s markets into local commercial activities and edible gardens into schools and open squares.
- Goal 33** Promote opportunities for youth education and employment in agriculture.

Therefore, as the Proposed Project would not eliminate a substantial number of jobs necessitating replacement facilities elsewhere, and encourages the retention of agricultural resources, this is considered a *less-than-significant* impact. No mitigation is required.

Threshold	Would the project have effects on the demand for housing and the relationship between jobs and housing that could have indirect implications for residence and community patterns and related physical environmental impacts?
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Impact 4.11-3 Implementation of the Proposed Project would not have a significant effect on the demand for housing and the relationship between jobs and housing that could have direct implications for residence and community patterns and related environmental impacts. This is considered a *less-than-significant* impact.

The jobs-to-housing ratio is a tool generally used to measure the relationship between housing and employment growth within a geographic region, without regard to economic constraints or individual preferences. A relatively balanced jobs-to-housing ratio indicates that jobs and housing are located in reasonable proximity to one another in a region, which can result in fewer vehicle miles traveled in commutes to work, and thus reductions in adverse impacts related to congestion, air quality, and noise that are associated with increased traffic. Thus, a significant increase or decrease in the existing jobs-to-housing ratio caused by a project would indicate that the project could cause adverse impacts related to growth, by necessitating the need for people to commute in or out of an area to meet their housing or employment needs.

A jobs-to-housing ratio is typically expressed as a ratio of the number of employees to the number of dwelling units. Ratios of 1.0 to 1.5 generally represent a balanced community. However, even if communities have a statistical balance between jobs and housing, they are still very likely to experience sizable levels of in- and out-commuting given the existence of employment and residential opportunities elsewhere in the region.

Development of residential uses in the project area prior to the development of employment generating uses would result in a localized imbalance between jobs and housing. Conversely, establishment of substantial new employment generating uses in a project area without provision of new housing would

also result in a localized imbalance between jobs and housing. Both of these impacts can be considered potentially significant.

Buildout Jobs-to-housing Balance

Based on an estimate of 7,358 jobs that would be created as a result of implementation of the Proposed Project, and considering the 5,190 new residential dwelling units to be constructed by 2025, the Proposed Project would produce a jobs-to-housing ratio of 1.42, indicating jobs-rich community. However, as previously mentioned, the jobs-to-housing ratio within the RMAP area would be approximately 1.05 at buildout, which represents a balanced community and is consistent with the goals of the RMAP, the RMAP EIR, and the County's Housing Element.

The Proposed Project also includes various objectives and goals listed below that encourage a balance between employment opportunities and housing, and a mix of land uses within close proximity to encourage walking and bicycling between uses. Implementation of these objectives and goals, in addition to complying with mitigation measures MM4.11-3(a) and MM4.11-3(b) will, through time, serve to ensure that an adequate jobs-to-housing balance is provided in the Project Site and the RMAP area. Therefore, impacts of the Proposed Project with respect to the long-term (or buildout) jobs-to-housing balance within the County would be *less than significant*.

Proposed Project Objectives

- Create a master planned balanced community to include a mix of residences, employment, recreational opportunities, and commercial uses for residents.
- Create a strong sense of community based on intra-community linkages, respect for natural features of the land, and inclusion of balanced uses.

Proposed Project Goals

- Goal 1** Provide a viable and balanced mix of regional and local-serving commercial and employment uses.
- Goal 2** Encourage properly designed mixed-use and residential neighborhoods to insure compatibility with and transportation choices for access to residential and nonresidential uses by creating a pedestrian-supportive environment that activate Tesoro Viejo's streets.
- Goal 3** Create a vibrant mixed-use community core that provides for the needs of the all residents and visitors to the Rio Mesa area, serving as the major Community Center for Rio Mesa, containing all major public and community services.
- Goal 4** Create an attractive and easily accessible neighborhood-serving Village Center within the eastern center of the community that meets the convenience needs of nearby residents of Tesoro Viejo neighborhoods and adjacent villages.
- Goal 6** Promote a diverse community and create opportunities for housing near workplaces.
- Goal 17** Create a network of multi-use and hiking trails along Tesoro Viejo's open space corridors that complements the walkways and paths along the community's streets in order to encourage walking and bicycling for transportation and recreation.

Interim Jobs-to-housing Balance

Pending approval of the Proposed Project, initial development applications within the Project Area will require review and approval by the Madera County Planning Commission or Board of Supervisors. The County's review process will allow the regulation of subsequent development projects to ensure that development phasing does not create significant, long-term imbalances between employment generation and housing opportunities. The County may require individual development applications to prepare economic analysis of project impacts on the interim jobs-to-housing balance for the Project Site or for the greater Rio Mesa area. The potential for an interim jobs-to-housing imbalance is minimized by implementation of mitigation measure MM4.16-4 of the RMAP EIR, and proposed here for consistency (as mitigation measures MM4.11-3(a) and MM4.11-3(b)), which ensures that there are interim review mechanisms with respect to the jobs-to-housing balance for the Proposed Project. As previously mentioned, the jobs-to-housing ratio within the RMAP area would be approximately 1.05 at buildout, which represents a balanced community.

MM4.11-3(a) The County shall review subsequent development plans and projects to assure that development phasing does not create significant, long-term imbalances between employment generation and housing opportunities within Tesoro Viejo and Rio Mesa.

MM4.11-3(b) The County may require individual developments to prepare economic analysis of the project impacts on the interim jobs-to-housing balance for Tesoro Viejo and Rio Mesa.

Therefore, impacts of the Proposed Project with respect to the interim jobs-to-housing balance within the County would be ***less than significant***. No mitigation is required.

4.11.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The cumulative context for the population and housing analysis is the RMAP area. The RMAP, which was adopted in 1995, is the planning document that provides the County with guiding principles and a planning framework to shape future land use decision-making relative to the RMAP area, which includes the Rio Mesa Village (including the Proposed Project, as well as the Morgan and Jamison properties), North Fork Village, and Avenue 12 Village. Importantly, as a foundational principle, the RMAP seeks to establish a balanced community (at buildout) with respect to the jobs-to-housing balance.

Information from the MCTC Rio Mesa Traffic Model is also presented in this cumulative analysis in order to reflect that conditions that would occur in year 2025, which is the buildout year for purposes of the Proposed Project.

Threshold	Would the project induce substantial population growth in the area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)?
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Based on information used in the MCTC Rio Mesa Traffic Model, without the Proposed Project, Madera County would have approximately 68,144 dwelling units by the year 2025. Utilizing the 2007 persons-per-dwelling unit average of 3.2 for Madera County (average of both the incorporated and unincorporated areas), 68,144 dwelling units would yield a population of 218,061¹⁰³.

As previously mentioned, buildout of the RMAP area (with the Proposed Project) is expected to result in 29,456 dwelling units. Utilizing the 2007 persons-per-dwelling unit average of 3.0 for unincorporated Madera County would yield a population of 88,368¹⁰⁴ in the RMAP area, or approximately 40.1 percent of the forecasted County population, which is consistent with the County’s intent to focus growth in the southeastern portion of Madera County. Implementation of the Proposed Project would result in an approximate increase in population of 15,650, or 7 percent of the County’s anticipated population growth.¹⁰⁵

As discussed in the environmental setting portion of this section, the Proposed Project is located within the Rio Mesa Area Plan, an area of the County that is experiencing substantial and planned growth in the housing supply compared to other areas of the region due to availability of land. The County General Plan was amended in 1995 to include the RMAP and associated population projections for the Rio Mesa area. Therefore, while cumulative growth in the Rio Mesa area may represent a significant portion of the projected growth in the County, it is planned for in the Madera County General Plan and RMAP to accommodate the anticipated growth projections. Therefore, cumulative growth would be less-than-significant, and the Proposed Project’s contribution to cumulative growth would not be cumulatively considerable and would be *less than significant*.

In addition, the Proposed Project would add approximately 7,358 jobs to the County job market, which would add to the projected housing demand, indirectly inducing population growth in the Rio Mesa area; however, the Proposed Project, along with the other projects envisioned under the RMAP, some of which are currently in the entitlement process, would not result in any long term imbalances between employment generation and housing. The jobs-to-housing ratio for RMAP areas is anticipated to be 1.05, which is considered a balanced community. Additionally, as specified above, projected population growth as a result of cumulative projects in the Rio Mesa area, including the Proposed Project, is forecasted in the County’s General Plan and RMAP. Therefore, cumulative growth would be less-than-significant, and the Proposed Project’s contribution to cumulative growth would not be cumulatively considerable and would be *less than significant*. No mitigation is required.

¹⁰³ This number is obtained by multiplying 3.2 by 68,144.

¹⁰⁴ This number is obtained by multiplying 3.0 by 29,456.

¹⁰⁵ This percentage is obtained by dividing 15,650 by 218,061.

Threshold	Would the project displace substantial numbers of businesses and jobs, necessitating the construction of replacement facilities elsewhere?
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The majority of cumulative development that is anticipated to occur in the RMAP area is on existing vacant land that would not necessitate the removal of substantial numbers of businesses and jobs. Similarly, as explained above under Impact 4.11-2, the Proposed Project is currently developed with largely vacant and agricultural land that would not result in the loss of substantial jobs necessitating the construction of replacement facilities elsewhere. Therefore, cumulative impacts would be considered less-than-significant, and the Proposed Project's contribution to cumulative impacts would not be cumulatively considerable and would be *less than significant*. No mitigation is required.

Threshold	Would the project have effects on the demand for housing and the relationship between jobs and housing that could have indirect implications for residence and community patterns and related physical environmental impacts?
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As previously mentioned, buildout of the RMAP area (with the Proposed Project) is expected to result in by 29,456 dwelling units and 31,068 jobs. This represents a jobs-to-housing ratio of 1.05, which essentially results in a balanced community. Compared to the 2006 jobs-to-housing ratio of 1.1 for Madera County, the development of cumulative projects in the RMAP area is even more balanced, indicating that cumulative projects would have a positive effect on the jobs-to-housing balance both within the RMAP area and the County as a whole. Furthermore, implementation of mitigation measures MM4.11-3(a) and MM4.11-3(b) would ensure that during interim years, the development phasing would maintain a healthy balance between employment generation and housing opportunities for the Project Site and the greater Rio Mesa area. As an example, the MCTC Rio Mesa Traffic Model assumes that there would be 14,478 dwelling units (9,025 dwelling units outside of the Project Site and 5,190 dwelling units within the Project Site, plus 263 dwelling units on the Jamison parcel). The model also assumes 18,924 jobs (8,798 jobs outside of the Project Site and 7,358 jobs within the Project Site, rounded up, plus 2,767 jobs developed on the Morgan parcel). This results in a jobs-to-housing ratio of 1.3. It should be noted that the model assumptions for the EIR assumed full buildout of Rio Mesa Village (i.e., the Project and the Jamison and Morgan parcels) and 30 percent buildout in the remainder of Southeast Madera County. Because the Rio Mesa Area Plan designated Rio Mesa Village as the employment center for the Plan Area, the assumption of full buildout for Rios Mesa Village and only 30 percent elsewhere results in a high jobs-to-housing ratio. At buildout, the overall Rio Mesa Area Plan is consistent with the 2006 jobs-to-housing ratio within the County. Thus, the cumulative impact on the County jobs-to-housing ratio is considered less-than-significant, and the Proposed Project's contribution to cumulative impacts would not be cumulatively considerable and would be *less than significant*.

4.11.5 References

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- . 2007b. Selected Economic Characteristics and ACS Demographic and Housing Estimates, 2006 American Community Survey.

4.12 PUBLIC SERVICES AND RECREATION

This section addresses the potential environmental effects of the proposed Tesoro Viejo Specific Plan (Proposed Project) on public services. For purposes of this EIR, public services consist of (1) fire protection and emergency medical response services, (2) police protection, (3) schools, (4) libraries, and (5) parks.

Data used in this analysis was taken from various sources, including the *Infrastructure Master Plan for Rio Mesa Community Village* (IMP) (PPEG 2007, amended 2008), which was prepared for the Project Applicant in conjunction with the proposed Specific Plan, the *Tesoro Viejo Specific Plan* (Community, Design + Architecture 2007), the *Rio Mesa Area Plan* (RMAP) EIR (Madera County 1995), and contacts with the Madera County Sheriff and Fire Departments, the Golden Valley Unified School District (GVUSD), and the Chawanakee Joint Unified School District (CJUSD). This analysis also references the Gateway Village Specific Plan Draft Program EIR, prepared for the recently approved Village of Gateway development that is located southwest of the Project Site (ESA 2006). Bibliographic entries for reference materials are provided in Section 4.12.17 (References) of this section.

Fire Protection and Emergency Medical Response Services

4.12.1 Environmental Setting

■ Fire Protection

Fire protection services to unincorporated Madera County are provided by the Madera County Fire Department (MCFD). The MCFD also provides backup fire protection to the City of Madera and the Central California Women's Facility (located in northern Madera County). The closest fire station to the Project Site is Bonadelle Ranchos Station, Station No. 19, approximately 6.4 miles to the west (refer to Figure 4.12-1 [Existing Police Stations, Fire Stations, Schools, and Hospitals]). Station No. 3 is also within 15 miles of the Project Site.

As of the date of publication of the NOP (November 2006), the MCFD consisted of fifteen fire stations, a fleet of approximately fifty apparatus and support vehicles, and a staff that included 22 career fire suppression personnel provided through a contract with CAL FIRE, and approximately 185 paid call firefighters, and 6 full-time support personnel provided by the County (Rowney 2007). Fire inspection, clerical, and mechanical support personnel are directly employed by the County.

The MCFD measures the adequacy of its fire protection services using Insurance Services Office (ISO) standards. These standards rate factors such as average first alarm response time, the number of available fire-fighting staff, the distribution of hydrants, and the reliability and discharge of the hydrant water supply. The ISO scale ranges from 1 to 10, with ISO 1 representing exemplary public protection and ISO 10 indicating poor fire protection service.

The current ISO standard for the Project Site is ISO 10 unprotected (Maggio 2008), and according to the Madera County General Plan, protection for rural areas should meet or exceed an ISO 8 threshold

(Policy 3.H.1). Average first alarm response times to the Project Site are estimated to be up to 20 minutes (Rowney 2007), which meets the General Plan threshold of 20 minutes for rural areas (Policy 3.H.2). The MCFD does not use a firefighter-to-population staffing ratio as an indicator of adequate/inadequate service.

■ Emergency Medical Response Services

Madera County does not have a department devoted to emergency medical response services. Instead, the County provides these services through collaboration with a number of public and private entities. First response services are provided by MCFD; therefore, average first alarm response times are considered to be the same as for fire protection services (FCH 2007). Additional ambulatory services are provided by Pistoresi Ambulance and Sierra Ambulance, both of which are private providers. Hospitals in the vicinity of the Project Site include Madera Community Hospital and Children’s Hospital Central California. The Madera County Hospital is located in the city of Madera, approximately 20 miles west of the Project Site, and the Children’s Hospital Central California is located near Avenue 9 and SR-41, about 2 miles southwest of the Project Site (see Figure 4.12-1).

4.12.2 Regulatory Framework

■ Federal

There are no federal statutes related to fire protection and emergency medical response services that would apply to the Proposed Project.

■ State

California Uniform Fire Code

State fire regulations are set forth in Sections 13000 et seq. of the *California Health and Safety Code*, which include regulations concerning building standards (as also set forth in the *California Building Code*), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

Policy Consistency Analysis

The Proposed Project would be required to comply with all standards outlined in the *California Uniform Fire Code* to obtain operational and building permits and to acquire adequate insurance coverage. This would ensure consistency with the *California Uniform Fire Code*.

■ Regional

There are no regional statutes related to fire protection and emergency medical response services that would apply to the Proposed Project.

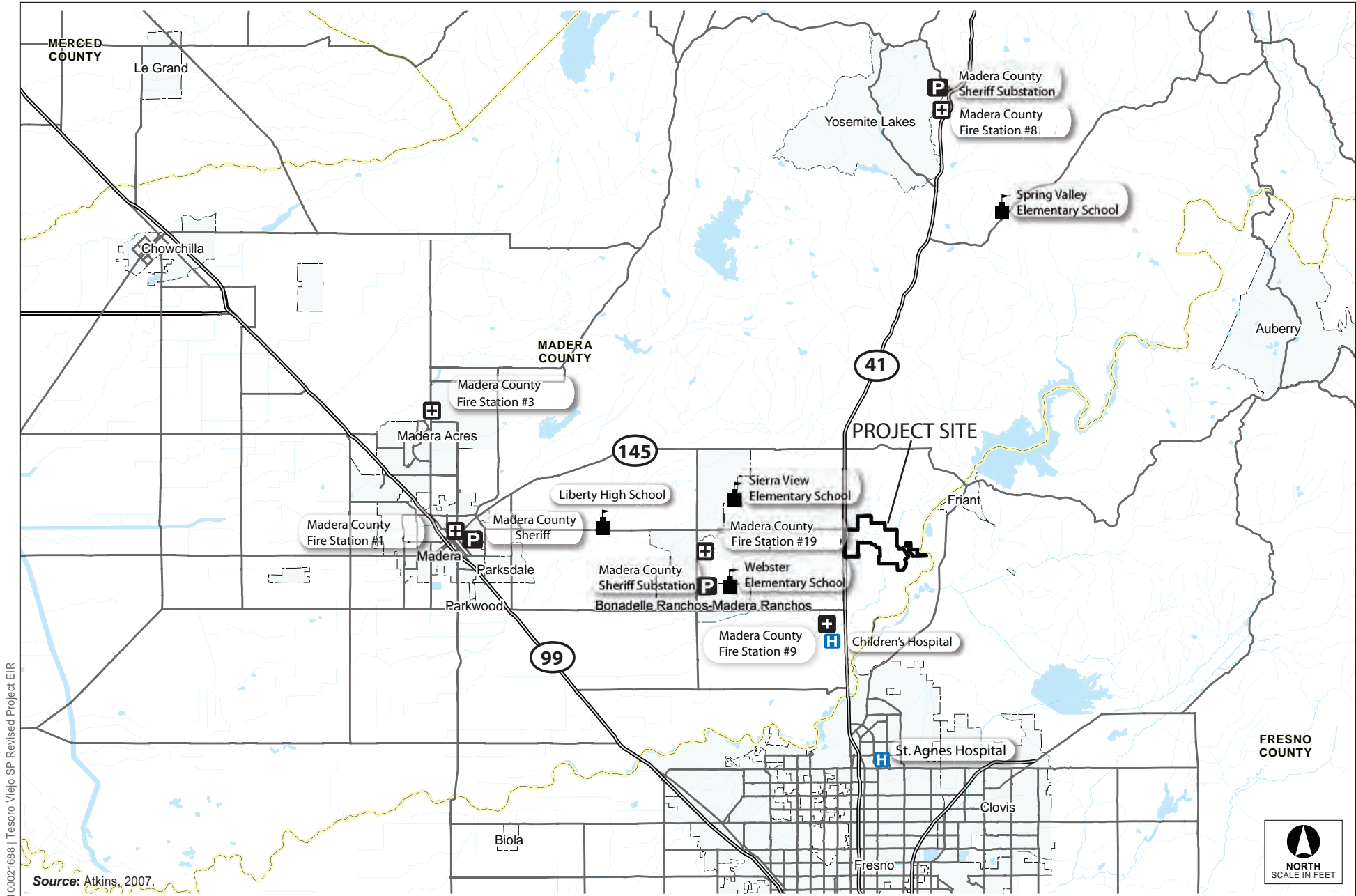


Figure 4.12-1
Existing Police Stations, Fire Stations, Schools, and Hospitals

■ Local

Madera County General Plan

The 1995 Madera County General Plan includes the following policies relevant to the provision of fire protection and emergency medical services:

- Policy 3.H.1** The County shall encourage local fire protection agencies in Madera County to maintain the following as minimum fire protection standards (expressed as Insurance Service Organization [ISO] ratings):
- ISO 4 in urban areas
 - ISO 6 in suburban areas
 - ISO 8 in rural areas
- Policy 3.H.2** The County shall encourage local fire protection agencies in the county to maintain the following as minimum standards (expressed as average first alarm response times to emergency calls):
- 10 minutes in urban areas
 - 15 minutes in suburban areas
 - 20 minutes in rural areas
- Policy 3.H.4** The County shall require new development to develop or fund fire protection facilities that, at a minimum, maintain the above service level standards.

Policy Consistency

Policies 3.H.1, 3.H.2, and 3.H.4 require County agencies to maintain certain fire protection standards. These policies do not apply directly to the Proposed Project. However, the Proposed Project would include several features that would help the County to ensure compliance with these policies. Unless construction of the fire station required as part of the approval of the nearby Central Green project makes it unnecessary, the Proposed Project would include the construction of a new fire station, which would be located within or adjacent to the Town Center. In addition, the Proposed Project would add funds to the general tax base, which would allow the County to fund additional fire protection and emergency medical response services. No physical barriers to the provision of fire protection and emergency medical response services, such as a significant increase in traffic on roads used by fire and medical response vehicles, would result from implementation of the Proposed Project. The Proposed Project, therefore, would not impede the County's ability to meet the ISO and average first response time standards outlined in the *Madera County General Plan*.

4.12.3 Project Impacts and Mitigation

■ Analytic Method

Information on existing service levels of service, collected from the MCFD, was compared against conditions reasonably expected to occur with implementation of the Proposed Project. The MCFD does not use a firefighter-to-population ratio to determine its staffing needs. Rather, to evaluate and estimate future staffing needs, the MCFD uses a first alarm response goal of six minutes or less for suburban areas. Where the Proposed Project would generate a need for new staffing or equipment such that new fire protection facilities would be required, the construction of new facilities is considered to be a potentially significant impact. Substantial adverse physical impacts related to the construction of such facilities are discussed, with consideration of factors such as relevant environmental findings from the RMAP and the availability of construction-related mitigation.

■ Thresholds of Significance

The following threshold of significance is based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on fire protection and emergency medical response services if it would do any of the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency medical response services

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to fire protection and emergency medical response services from implementation of the Proposed Project.

■ Impacts and Mitigation

Threshold	Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency medical response services?
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Impact 4.12-1 **The Proposed Project would necessitate the construction of new fire protection and emergency medical response facilities to achieve acceptable ISO standards and maintain response times. Construction of such facilities would result in potentially adverse physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR. This would ensure that the Proposed Project’s impact with respect to fire protection and emergency medical response services would be *less than significant*.**

The Proposed Project would increase the residential population at the Project Site by up to 15,650 residents by 2025. This added residential population would increase the demand for fire protection services.

To comply with Madera County General Plan Policy 3.H.1 and to provide adequate public safety for the Proposed Project’s residents, employees, and visitors, the MCFD would need to upgrade facilities and staffing to meet an ISO 4 standard. (An ISO standard of 4 would be required because the Project Site will change from a rural to an urban environment with implementation of the Proposed Project.) The MCFD estimates that 8 additional fire fighters would be needed to meet demand for fire protection services generated by the Proposed Project and to improve the existing ISO standard (Rowney 2007).

To achieve the necessary improvement in ISO standards and response times, and to accommodate the new fire fighters, one new fire station must be constructed within the Project Site (unless the Central Green Fire Station is provided as a substitute at the discretion of the MCFD¹⁰⁶). In addition, fire flow infrastructure (hydrants and water mains) must be installed (PPEG 2007, amended 2008).

The new station would be funded by Tesoro Viejo residents and businesses (and other benefiting Rio Mesa properties) through County Development Impact fees, Community Facilities fees, or an alternative fee assessment mechanism, and contributions by other nearby developments benefitting from the service. The new residents would fund staffing by contributing to the local tax base. In addition to funding the construction of the station, residents would pay a portion of total operating costs through impact fees and taxes imposed by the County, or by participation in a County Service Area or equivalent district.

The MCFD anticipates that the Proposed Project would provide an ISO of 4 and an average first alarm response time of 4 minutes (Rowney 2007), which would ensure that the Project is consistent with Policy 3.H.1 and 3.H.2 of the County’s General Plan. (The average first alarm response time would decrease from 20 minutes to 4 minutes because the Project Site will change from a rural to an urban environment with implementation of the Proposed Project.)

The RMAP states that new fire stations should be located in or adjacent to the community core or other locations with good accessibility. In addition, stations should be centrally located within the initial response area and adjacent to major arterials to increase access and reduce response times. To the extent needed, the Proposed Project includes provision for a County Fire Station within or adjacent to the

¹⁰⁶ For purposes of this analysis, it is assumed that a new fire station would be constructed within the Project Site.

community core, which is centrally located in the Specific Plan to facilitate rapid deployment of fire response teams and easy access to SR-41, Road 204, and other major arterials.

The impacts of the construction of a new fire station were studied in the RMAP EIR and were found to be less than significant (Madera County 1995). Moreover, construction-related mitigation measures provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this document would prevent substantial adverse physical impacts related to the construction of new fire protection facilities from occurring. All potential construction-related impacts have been mitigated to a less-than-significant level. Additional traffic-related impacts from the construction and operation of the new fire station are considered in Section 4.13 (Transportation/Traffic). While the Proposed Project would require a new fire station to maintain acceptable service ratios, response times, and other performance objectives for fire protection and emergency medical response services, the construction of such facilities would not cause significant environmental impacts. The Proposed Project would have a *less-than-significant* impact with regard to fire protection and emergency medical response services.

4.12.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which would result in no project-related impacts.

The MCFD anticipates an increase in demand for fire services from other developments in the area in addition to demand generated by the Proposed Project. Examples of reasonably foreseeable projects include the recently approved Village of Gateway development to the south of the Project Site and the North Fork Village development to the north.

The geographic context for the cumulative fire protection analysis is unincorporated Madera County because this is the service area for the MCFD. To serve new residents, the County must expand fire protection services in tandem with population growth; however, the MCFD does not use a firefighter-to-population ratio to gauge department performance. The number of additional staff that would be needed to meet cumulative demand for fire protection service cannot be accurately estimated at this time because the ISO standards and first alarm response time standards used by the MCFD for planning future staff and physical expansions include numerous factors (traffic network conditions, water supply availability, etc.) that cannot be estimated in sufficient detail to accurately predict the need for new facilities. However, a qualitative analysis of future expansion is provided.

Threshold	Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection and emergency medical response services?
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In response to cumulative demand from all projects in the area, the MCFD expects to augment staffing levels and the number of available responding units in all divisions. The number of additional staff needed to meet cumulative demand is not known at this time. However, it is anticipated that new facilities would be constructed to house new staff and fire protection equipment. Potentially significant environmental impacts could result from the construction of such facilities.

Construction-related impacts were determined to be less than significant at the project level. While a new fire station is assumed as part of the Proposed Project to achieve the necessary improvement in ISO standards and response times, and to accommodate the new fire fighters, it is possible that the Central Green Fire Station could be provided as a substitute at the discretion of the MCFD. However, for purposes of this analysis, it is assumed that the fire station would be provided within this Project Site. Impacts related to the construction of this facility are included in the discussion in this EIR. The Proposed Project would comply with all construction mitigation measures listed in provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic). The Proposed Project’s contribution to a cumulative impact with regard to the construction of new fire protection and emergency medical response facilities is not considerable and would be *less than significant*.

Law Enforcement

4.12.5 Environmental Setting

Law enforcement in unincorporated Madera County is provided by the Madera County Sheriff’s Department (MCSD). As of November 2006, the MCSD had 116 personnel with 82 sworn law enforcement officers. The closest police station to the Project Site is the Madera County Sheriff Sub-Station on Avenue 12, approximately 5 miles to the southwest. The Project Site falls within the bounds of Beat 3, a police beat that is staffed by a single deputy at any given time (Bernard 2007). Police shifts are 12 hours long.

The MCSD strives to maintain a ratio of 1.2 deputies per thousand citizens within its service area (Bernard 2007). In addition, it attempts to staff at least one sergeant for every five deputies and 0.6 support staff per thousand citizens. However, as of 2006, MCSD deputy staffing was at about 1.1 officers per thousand citizens.¹⁰⁷ The MCSD is currently understaffed by about 8 deputies.¹⁰⁸

¹⁰⁷ This figure is the ratio of 82 law enforcement officers to the total 2006 population of unincorporated Madera County (approximately 74,723 according to the California Department of Finance) divided by 1,000.

The MCSD strives to achieve an average response time of 10 minutes to urbanized areas (Bernard 2007). Currently, average response times to the Project Site and the Sumner Hill development are around 15 minutes (Bernard 2007), which are considered acceptable given the existing agricultural and low-density residential uses.

To provide an acceptable level of service, MCSD requires a wide range of equipment including, but not necessarily limited to, patrol vehicles outfitted with emergency equipment, radio communications, rifles, shotguns, on-board computers, evidence collection materials, and traffic control devices. In addition, each officer must have personal equipment that includes, but is not necessarily limited to, a firearm, firearm magazines, ammunition, pepper spray, handcuffs, portable radio, ballistic vest, helmet, personal protective gear, and investigation equipment.

4.12.6 Regulatory Framework

■ Federal

There are no federal statutes related to law enforcement services that would apply to the Proposed Project.

■ State

There are no state statutes related to law enforcement services that would apply to the Proposed Project.

■ Regional

There are no regional statutes related to law enforcement services that would apply to the Proposed Project.

■ Local

There are no local statutes related to law enforcement services that would apply to the Proposed Project.

4.12.7 Project Impacts and Mitigation

■ Analytic Method

Information on existing service levels of service, collected from the MCSD, was compared against conditions reasonably expected to occur with implementation of the Proposed Project. The MCSD measures adequate service using a police-to-population ratio of 1.2 deputies per thousand citizens. This analysis determines whether the Proposed Project would generate demand for additional deputies and law enforcement equipment. Where the Proposed Project would generate a need for new staffing or equipment such that new police protection facilities would be required, the construction of new facilities

¹⁰⁸ Calculated by multiplying the MCSD's desired service ratio of 1.2 law enforcement offices per thousand population times the total 2006 population of unincorporated Madera County (75,000) and subtracting the number of existing officers currently employed by the MCSD.

is considered to be a potentially significant impact. Substantial adverse physical impacts related to the construction of such facilities are discussed, with consideration of factors such as relevant environmental findings from the RMAP and the availability of construction-related mitigation.

■ Thresholds of Significance

The following threshold of significance is based on Appendix G of the 2007 CEQA Guidelines. For the purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on police protection services if it would do any of the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for police protection services

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to law enforcement from implementation of the Proposed Project.

■ Impacts and Mitigation

Threshold	Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for police protection services?
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Impact 4.12-2 **The Proposed Project would require new facilities to maintain acceptable service ratios and response times. Construction of such facilities would result in potentially significant physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR. This would ensure that the Proposed Project’s impact with respect to police protection would be *less than significant*.**

Implementation of the Proposed Project would result in up to 15,650 additional residents at full buildout in 2025. As a result, the MCSD expects that the Proposed Project would substantially increase the demand for police protection services.

The significance threshold for the Proposed Project for police protection is based on the MCSD’s staffing and average first alarm response time goals. To achieve an average first alarm response time of 10 minutes, the MCSD must meet staffing ratios of 1.2 deputies per thousand citizens (Bernard 2007). Current MCSD staffing ratios are around 1.1 deputies per thousand citizens, and response times to the Project Site average around 15 minutes. Because the Proposed Project would introduce a new population

of up to 15,650 people, approximately 19 new deputies¹⁰⁹ would be needed to meet the increased demand for police protection generated by the Proposed Project. In addition, eleven additional squad cars and standard protection equipment would be needed for the new deputies (Bernard 2007). To offset potential impacts on law enforcement staffing, the Proposed Project would generate fees for a County Service Area (CSA), which is a fund that would help offset capital costs for equipment and facilities. The Tesoro Viejo Project Applicants would not be responsible for contributing to the MCSD's existing deficit of 8 officers, but residents of Tesoro Viejo would contribute to the Madera County tax base, which funds police staffing and helps to offset potential staffing shortfalls.

A new police station would be constructed to house the new deputies required to serve Tesoro Viejo residents. The RMAP states that new police stations should be located in or adjacent to the community core or other locations with good accessibility. In addition, stations should be centrally located within the initial response area and adjacent to major arterials to increase access and reduce response times. A new Sheriff's Department Substation would be centrally located near the new County Fire Station.

The impacts of construction of a new police station were studied in the RMAP EIR and were found to be less than significant (Madera County 1995). Construction-related mitigation measures provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this document would prevent substantial adverse physical impacts related to the construction of new police protection facilities from occurring. All potential construction-related impacts have been mitigated to a less-than-significant level. Additional traffic-related impacts from the construction and operation of the new police station are considered in Section 4.13 (Transportation/Traffic). While the Proposed Project would require a new police station to maintain acceptable service ratios, response times, and other performance objectives for law enforcement services, the construction of such facilities would not cause significant environmental impacts. The Proposed Project would have a *less-than-significant* impact with regard to police protection.

4.12.8 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which would result in no project-related impacts.

The geographic context for the cumulative police protection services analysis is unincorporated Madera County because this is the service area for the MCSD. To serve new residents, the MCSD must expand police protection services in tandem with population growth. Cumulative impacts to the MCSD are

¹⁰⁹ Calculated by multiplying the MCSD's desired service ratio of 1.2 law enforcement offices per thousand residents times the estimated population of the Proposed Project, 15,650 people.

estimated using population estimates of approximately 131,700 residents¹¹⁰ for unincorporated Madera County.

Threshold	Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for police protection services?
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In response to cumulative demand from all projects in the area, the MCS D expects to augment staffing levels and the number of available responding units in all divisions. Assuming a population increase of 56,977 throughout unincorporated Madera County by 2025,¹¹¹ approximately 68 new deputies¹¹² would be needed to meet cumulative demand for police protection services. It is anticipated that new facilities would be constructed to house new deputies and equipment needed to expand existing police protection services. Potentially significant environmental impacts could result from the construction of such facilities.

Construction-related impacts were determined to be less than significant at the project level. A new police substation is included as part of the Proposed Project, and impacts related to the construction of this facility are included in the discussion this EIR. The Proposed Project would comply with all construction mitigation measures listed in provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), and Section 4.10 (Noise). The Proposed Project’s contribution to a cumulative impact with regard to the construction of new police protection facilities is not considerable and would be *less than significant*.

Schools [Revised in Part]

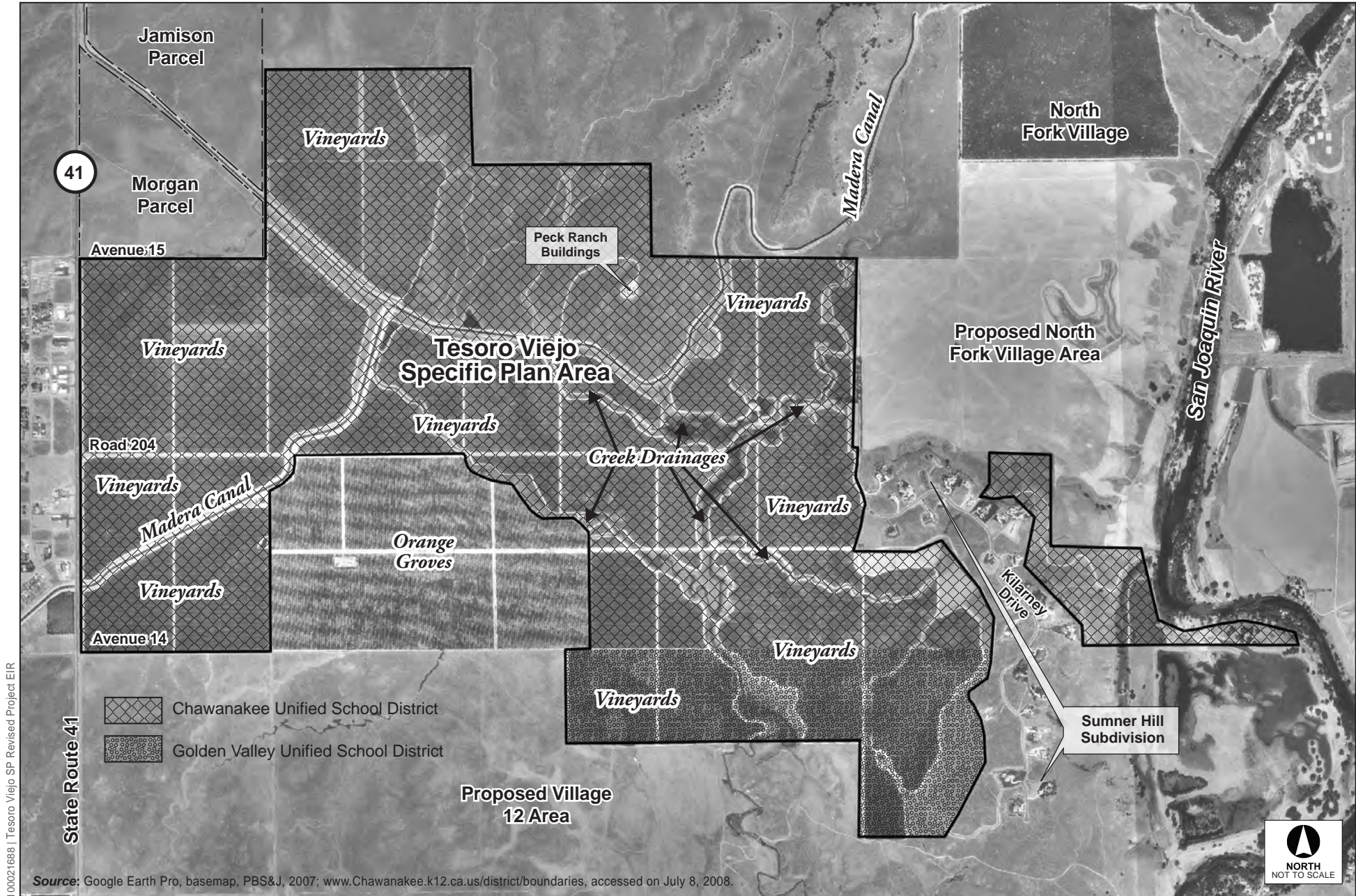
4.12.9 Environmental Setting

The Project Site is located within the boundaries of the Golden Valley Unified School District (GVUSD) and the Chawanakee Unified School District (CUSD), as illustrated by Figure 4.12-1a (School District Boundaries). The GVUSD includes a very small area of the Project Site south of Avenue 14. The

¹¹⁰ The 2000 population for unincorporated Madera County was 68,775 (see Section 4.11 [Population and Housing]). The overall population of Madera County is expected to grow by 73 percent between 2000 and 2020 (as stated in Section 4.11), which is approximately 3.7 percent per year. Assuming that the growth rate for unincorporated Madera County would be similar to the rest of the county and extending this growth trend to 2025 (which assumes a population increase of 91.5 percent between 2000 and 2025) results in an estimated population of approximately 131,700 for unincorporated Madera County at full project buildout. (Because population growth is expected to drop off after 2020 and because urban areas such as the cities of Madera and Chowchilla would likely account for a large percentage of the County’s growth, this is considered to be a conservative estimate of growth for unincorporated Madera County.)

¹¹¹ Calculated by subtracting the 2006 population of 74,723 (see previous discussion) from the estimated 2025 population of 131,700.

¹¹² Calculated by multiplying the MCS D’s desired service ratio of 1.2 law enforcement offices per thousand residents times the estimated cumulative population increase of 56,977 people.



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Figure 4.12-1a
School District Boundaries

GVUSD includes two elementary schools, one middle school, one standard high school, one continuation high school, and one child development center. Webster Elementary School, Sierra View Elementary School, Ranchos Middle School, and Liberty High School are within the attendance area of the Project Site.

The CUSD includes the vast majority of the Project Site (from Avenue 14 to the north). The CUSD includes two elementary schools, the North Fork School and Spring Valley School. The CUSD also includes Mountain Oaks High School, located at 33087 Road 228, and will open the new Minarets High School in the 2009/10 school year.

The Project Site is within the attendance boundaries of GVUSD's Webster Elementary School (kindergarten through 6th grades), which is located at 36477 Ruth Avenue, about 8 miles southwest of the Project Site. For the 2006/07 school year, enrollment at Webster Elementary was around 700, which represents the school's full operating capacity (Forshee 2007) (refer to Table 4.12-1 [School Enrollment Projections for Schools Serving Project Site]).

<i>Grade Level</i>	<i>Operating Capacity^a</i>	<i>2006/07 Enrollment</i>	<i>2007/08 Enrollment</i>	<i>2008/09 Projected Enrollment</i>	<i>Shortfall for 2008/09 Enrollment</i>	<i>2009/10 Projected Enrollment</i>	<i>Shortfall for 2008/09 Enrollment</i>
Elementary Schools Total	1,300	983	1,007	1,349	(49)	1,593	(293)
Middle Schools Total	351	310	354	398	(47)	461	(110)
High School Total	675	576	585	709	(34)	798	(123)
<i>Districtwide Total</i>	<i>2,326</i>	<i>1,902</i>	<i>2,179</i>	<i>2,456</i>	<i>(130)</i>	<i>2,852</i>	<i>(526)</i>

SOURCE: GVUSD 2005; Forshee 2007

The nearest middle school to the Project Site is GVUSD's Ranchos Middle School (7th through 8th grades), which is located at 12220 Road 36, about 8.8 miles west of the Project Site. Ranchos Middle School has a maximum capacity of 351 students and anticipates an enrollment of close to that number for the 2007/08 school year (Forshee 2007).

The nearest high school to the Project Site is GVUSD's Liberty High School, which is located at 12220 Road 36, about 5 miles west of the Project Site. Liberty High School has a maximum physical capacity of about 675 students. For the 2006/07 school year, the enrollment at Liberty High School was about 576 students, and 585 students are expected for the 2007/08 school year (Forshee 2007).

There are several alternative education facilities in the GVUSD. These include Lincoln Community Day School, Valley Teen Ranch Community Day School, Golden Valley Adult School, Centennial Independent Study School, and Independence Continuation High School.

4.12.10 Regulatory Framework

■ Federal

There are no federal statutes related to schools that would apply to the Proposed Project.

■ State

There are no state statutes related to schools that would apply to the Proposed Project.

■ Regional

There are no regional statutes related to schools that would apply to the Proposed Project.

■ Local

Madera County General Plan

The 1995 *Madera County General Plan* includes the following policies relevant to the provision of school services:

- Policy 3.I.3** The County shall should plan and approve residential uses in those areas that are most accessible to school sites in order to enhance neighborhoods, minimize transportation requirements and costs, and minimize safety problems.
- Policy 3.I.5** The County shall encourage the location of schools in areas with safe pedestrian and bicycle access.
- Policy 3.I.7** Specific plan and area plans shall identify school facilities required to serve the development encompassed by the plans and shall provide a mechanism to ensure that the school facilities will be available concurrent with the need for the facilities.

Policy Consistency

Policies 3.I.3 and 3.I.5 refer to planning actions that should be undertaken by the County in order to ensure that schools would be safe, accessible, and appropriately located. The GVUSD and CUSD has worked with the Project Applicant during the planning process for this Project and would continue to work with CUSD to determine the most appropriate locations for Project Site schools given the land uses proposed in the Specific Plan. This collaboration will occur during the project review process. Policy 3.I.7 requires specific plans to identify the school facilities that would be needed to serve the needs of future residents. The Proposed Project would introduce up to a maximum of 3,623 new students based on current factors (see Table 4.12-2 [Projected Population of School-Age Children, Tesoro Viejo Project]). The Proposed Project would fund the construction of ~~two~~ up to three ~~public elementary~~ K-8 schools in the “5 Points”/Central neighborhood and either or both the Town Center and North Canal neighborhood. A ~~potential~~ high school campus site is ~~tentatively~~ reserved in the Town Center area, ~~as well as an additional elementary school should student enrollment justify the need.~~ The first elementary school is to be constructed prior to occupancy of the first dwelling units and the high school as early as possible depending on enrollment to justify the need.

However, if an elementary school is included in the Town Center, there may be no elementary school in the North Canal neighborhood. Essentially, the third elementary school ~~and the high school~~ will be provided should student enrollment justify the need. The school or schools in the Town Center neighborhood would be connected to athletic playing fields to the southeast of the Madera Canal. The

fields would serve both the high school and community uses at nights, on weekends, and during the summer. The Specific Plan designates ~~at least up to 3060~~ acres of land for such potential facilities on the Project Site, ~~not including land in Tesoro Viejo's Town Center~~. Thus, the Proposed Project is in compliance with these policies.

<i>Grade Level</i>	<i>Number of Students Anticipated in Age Group per Household^a</i>	<i>Total Number of New Households</i>	<i>Total Number of Students Projected for Age Category</i>
Grades K-6 (Combined Elementary/Middle School)	0.4115	5,190	2,136
Grades 7-8 (Combined Elementary/Middle School)	0.1045	5,190	542
Grades 9-12 (High School)	0.1820	5,190	945
<i>Total</i>			<i>3,623</i>

Rio Mesa Area Plan

The following Rio Mesa Plan policies are relevant to the Proposed Project.

3.2.1 Land Use

- Goal 4** Ensure adequate, timely, and cost effective public services for lands contained in the area plan.
- Policy 4.1** Provide adequate school, park, and recreational facilities at time of need through coordination between appropriate districts, the County, and private development proponents.
- Policy 4.2** The Rio Mesa area should be consolidated into one school district. This can be accomplished by joining an existing district or creation of a new separate district.

Policy Consistency

The Project Applicant has worked with the CUSD during the planning process for this Project and would continue to work with CUSD to determine the most appropriate locations for Project Site schools given the land uses proposed in the Specific Plan unless GVUSD becomes the Rio Mesa area-wide district. The Project Applicant's current plan is that the schools within the Project Site would be privately constructed by the Project Applicant and would be created as charter schools pursuant to the California Charter Schools Act (as well as those sections of the Education Code that apply to charter schools). The California Charter Schools Act is contained in Part 26.8 of the Education Code (EC), Sections 47600 through 47664. While this is the current plan, the Project Applicant would consider non-charter schools to the extent such a decision can satisfy the goals of the Proposed Project to create high-quality schools in a timely and cost-effective manner.

Irrespective of the type of schools that would be provided to serve the Project Site, all schools must be associated with a school district in some manner. Therefore, the Project Applicant anticipates either a boundary adjustment so that the Project is entirely within one district, or within a new district, if one is formed for the Rio Mesa Area Plan area. Thus, the Proposed Project is in compliance with Policies 4.1 and 4.2 of the Rio Mesa Area Plan.

4.12.11 Project Impacts and Mitigation

■ Analytic Method

The analysis provided in this section is based upon communication with the GVUSD and CUSD, and information contained in the *Madera County General Plan*. Where the Proposed Project would generate a need for new teachers or classrooms such that new school facilities would be required, the construction of new facilities is considered to be a potentially significant impact. Substantial adverse physical impacts related to the construction of such facilities are discussed, with consideration of factors such as relevant environmental findings from the RMAP and the availability of construction-related mitigation.

■ Thresholds of Significance

The following threshold of significance is based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on schools if it would do any of the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for schools

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to schools from implementation of the Proposed Project.

■ Impacts and Mitigation

Threshold	Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios or other performance objectives for schools?
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Impact 4.12-3 **The Proposed Project would increase the demand for on-site schools, requiring the construction of new facilities. Construction of such facilities would result in potentially significant physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures listed in this EIR. This would ensure that the Proposed Project’s impact with respect to on-site schools would be *less than significant*.**

As shown in Table 4.12-2 (Projected Population of School-Age Children, Tesoro Viejo Project), when completely occupied, the Proposed Project would have a population of up to 15,650 people in 5,190 households (assuming maximum buildout), a maximum of 3,623 children under 18 years of age.

Currently all existing schools in the project area are full, or close to full, in terms of physical classroom capacity. To service the K–12 educational needs of future residents, the Proposed Project includes planned funding for the construction of ~~two~~ up to three ~~public elementary~~ K–8 schools in the “5 Points”/Central neighborhood and either or both the Town Center and North Canal neighborhood. A ~~potential~~ high school site is ~~tentatively~~ reserved in the Town Center area, ~~as well as an additional elementary school should student enrollment justify the need.~~ However, if an elementary school is included in the Town Center, there may be no elementary school in the North Canal neighborhood. Essentially, the third elementary school ~~and the high school~~ will be provided should student enrollment justify the need. The first elementary school is to be constructed prior to occupancy of the first dwelling units and the high school as early as possible depending on enrollment to justify the need, which is assumed to be in the fall of 2021.

The school or schools in the Town Center neighborhood would be connected to athletic playing fields to the southeast of the Madera Canal. The fields would serve both the high school and community uses at nights, on weekends, and during the summer.

Depending on ultimate requirements, locating schools in the Town Center may result in a reorganization of land uses around the Town Center to maintain the proposed amount of Town Center Mixed Use and High Density Residential land uses. This reorganization may result in the loss of some area of Medium Density Residential land use, but housing can be recovered through shifting land uses or increasing densities in other residential areas. Alternately, schools may be relocated within the core area.

In total, ~~at least up to 3060~~ acres of the Project Site have been identified for school uses, ~~not including some portion of the Town Center.~~ It is anticipated that the Applicant will finance and construct these schools, and it is possible that they will be operated as charter schools pursuant to the *California Charter Schools Act*, as well as those sections of the Education Code that apply to charter schools. The *California Charter Schools Act* is contained in Part 26.8 of the Education Code (EC), Sections 47600 through 47664.

The applicable school district would be responsible for working with the Project Applicant to determine the best locations for the new schools and to approve the charters. Potential elementary school sites are designated in the Tesoro Viejo Specific Plan for the Five Points/Central Neighborhood and the North Canal Neighborhood (see Chapter 3 [Project Description] for a description of these neighborhoods). A site for a potential high school and one of the elementary schools or a potential middle school is planned for the Tesoro Viejo Town Center.

Construction-related mitigation measures provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) of this document would prevent substantial adverse physical impacts related to the construction of new fire protection facilities from occurring. All potential construction-related impacts have been mitigated to a less-than-significant level. Additional traffic-related impacts from the construction and operation of the new schools are considered in Section 4.13 (Transportation/Traffic). While the Proposed Project would require the construction of new schools, the construction would not cause significant environmental impacts. The Proposed Project would have a *less-than-significant* impact with regard to schools.

Impact 4.12-3(a) The Proposed Project would increase the demand for off-site classroom space in grades 9–12 until an on-site high school were constructed, requiring the addition of temporary classrooms at Minarets High School to accommodate students for a 3-year period beginning in 2018 and ending in 2020. Construction of such facilities would result in potentially significant physical impacts. However, these facilities would comply with construction-related mitigation measures listed in this EIR. This would ensure that the Proposed Project’s impact with respect to construction of off-site schools would be less than significant.

Subsequent to certification of the 2008 Final EIR, and in response to a court order issued by the Court of Appeal for the Fifth Appellate District, the 2008 Final EIR has been revised to consider interim impacts associated with accommodating Tesoro Viejo students at off-site schools until on-site schools became operational. With respect to K–8 schools, the Applicant is now committing to the availability of one on-site K–8 school (e.g., elementary/middle) prior to occupancy of the first dwelling unit, rather than after up to 250 dwelling units are occupied, as previously committed. Therefore, there would be no demand for Tesoro Viejo students to attend off-site elementary/middle schools.

With respect to high-school students, the on-site high school would be constructed and operational by half of dwelling unit buildout, which is conservatively estimated to be in the fall of 2021 based on the assumed buildout by 2025. Until that time, high-school students from the Tesoro Viejo Project Site would attend Minarets High School. In order to determine whether adequate capacity exists at Minarets High School to accommodate Tesoro Viejo students and other students within the CUSD enrollment area between 2013 (when construction at Tesoro Viejo begins) and 2021 (when the on-site Tesoro Viejo high school is assumed open), an enrollment and capacity analysis was conducted. The results of that analysis are presented in this impact discussion.

Table 4.12-2(a) (Rio Mesa Land Use Allocations in the Rio Mesa Model [Excluding Tesoro Viejo]) provides the Rio Mesa land use allocations according to the Madera County Transportation Commission (MCTC) Travel Forecasting Model for the Rio Mesa 2025 Cumulative Forecast (e.g., buildout conditions for the Tesoro Viejo Project) and the Rio Mesa Cumulative Full Buildout conditions (e.g., at some future date, beyond 2025). For purposes of this analysis, the 2025 Cumulative Forecast was used because it reflects the buildout year for the Tesoro Viejo development (Memorandum from Madera County Transportation Commission to VRPA Technologies, January 2012).

According to Table 4.12-2(a), it anticipated that by 2025 there would be 3,388 dwelling units within the Rio Mesa that are also within the CUSD enrollment area (excluding Tesoro Viejo). Table 4.12-2(b) (Rio Mesa and Non-Rio Mesa Student Enrollment within the Chawanakee Unified School District Enrollment Area) identifies the additional number of dwelling units that would be developed within the CUSD enrollment area associated with Tesoro Viejo (5,190 dwelling units) and outside of the Rio Mesa area (644 dwelling units), for a total of 9,222 dwelling units by 2025. While this analysis assumes that all of the dwelling units would be within the CUSD enrollment area, a portion of the Tesoro Viejo development that is designated for low density and very low density development falls within the boundaries of the Golden Valley Unified School District, as illustrated by Figure 4.12-1a. However, this analysis assumes that all of Tesoro Viejo's high school students would attend Minarets High School, which provides a conservative evaluation. Further, because the portion of the Project Site that is within the GVUSD enrollment area would not be developed until after 2021, when an on-site high school is available, no Tesoro Viejo high school students would attend a GVUSD high school in any event.

Because the court requested an analysis of interim impacts to schools (in this case, Minarets High School), Table 4.12-2(b) identifies the dwelling units that would be developed within the CUSD enrollment area on a yearly basis from 2012 to 2025 for the Rio Mesa (excluding Tesoro Viejo), for the Tesoro Viejo development, and also for development outside of the Rio Mesa. Table 4.12-2(b) also correlates the number of dwelling units to the number of high school students that would be generated by those dwelling units, also on an annual basis from 2012 to 2025. Comparing the number of high-school students generated to the remaining unused capacity at Minarets High School, it is anticipated that there would be inadequate capacity at Minarets High School beginning in 2017, assuming the current capacity of 600 students provided for in Phase I of the high school's development program. However, given that the student shortfall in 2017 is only 3 students, and the enrollment projections are based on a more aggressive development scenario than would likely occur, it is assumed that the high school will have adequate capacity in 2017.

However, beginning in 2018 and continuing through 2020, Minarets High School as currently built would not have adequate capacity to accommodate students from within its enrollment boundaries, which would consist of students from both the Rio Mesa and non-Rio Mesa areas. In order to accommodate these students, either temporary classrooms would need to be constructed at Minarets High School or Phase II of the Minarets High School development program as described in the EIR for that program, which would provide an additional capacity of 600 students, or a portion thereof, would need to be operational. Since the District has indicated that it is unlikely that Phase II would be operational by 2018, this EIR assumes that temporary classrooms would be required.

Table 4.12-2(a) Rio Mesa Land Use Allocations in the Rio Mesa Model (Excluding Tesoro Viejo) [New]

Description/Developer	Rio Mesa Cumulative Full Buildout		Rio Mesa 2025 Cumulative Forecast		Rio Mesa 2025 Cumulative Forecast within CUSD Enrollment Area, Excluding Tesoro Viejo	
	du	Employment	du	Employment	du	Notes
Rio Mesa Area Cumulative Projects						
<u>Kesterson/North Fork Village</u>	<u>3,056</u>	<u>2,335</u>	<u>942</u>	<u>698</u>	<u>942</u>	
<u>Urretia</u>	<u>1,887</u>	<u>5,096</u>	<u>582</u>	<u>1,523</u>	<u>582</u>	<u>No request for entitlements has been filed as of June 2012.</u>
<u>Freels/River Ranch Estates</u>	<u>4,982</u>	<u>766</u>	<u>1,536</u>	<u>229</u>	<u>1,536</u>	<u>This was an approved project when the MCTC forecasts were developed, but it has subsequently been withdrawn. There are no pending entitlements.</u>
<u>Tesoro Viejo</u>	<u>4,691</u>	<u>6,270</u>	<u>1,446</u>	<u>1,874</u>	<u>0</u>	<u>Tesoro Viejo Development is assumed to include 1,091 du in 2015; 2,727 du in 2021; 3,030 du in 2021; and full build out of 5,190 du in 2025. The dwelling units for Tesoro Viejo are included in Table 2.</u>
<u>Sumner Hill</u>	<u>212</u>	<u>0</u>	<u>65</u>	<u>0</u>	<u>65</u>	
<u>Coombs</u>	<u>3,722</u>	<u>3,321</u>	<u>1,148</u>	<u>993</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Gunner East</u>	<u>4,717</u>	<u>5,584</u>	<u>1,454</u>	<u>1,669</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Riverbend Ranch</u>	<u>427</u>	<u>0</u>	<u>132</u>	<u>0</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Jim Cobb</u>	<u>827</u>	<u>1,712</u>	<u>255</u>	<u>512</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Gateway Village</u>	<u>4,944</u>	<u>2,459</u>	<u>1,524</u>	<u>735</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Rolling Hills, et al.</u>	<u>311</u>	<u>1,111</u>	<u>96</u>	<u>332</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Dunmore Homes</u>	<u>1,402</u>	<u>81</u>	<u>432</u>	<u>24</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Gunner West</u>	<u>2,778</u>	<u>6,957</u>	<u>857</u>	<u>2,080</u>	<u>0</u>	<u>In GVUSD boundaries</u>
<u>Subtotal</u>	<u>33,956</u>	<u>35,692</u>	<u>10,470^a</u>	<u>10,670</u>	<u>3,125</u>	
<u>Jamison</u>			<u>263^b</u>		<u>263^b</u>	<u>Assumes all of Jamison is within the CUSD boundaries; no entitlements pending.</u>
<u>Grand Total</u>	<u>33,956</u>	<u>35,692</u>	<u>10,733^c</u>	<u>10,670</u>	<u>3,388</u>	<u>Because of the circumstances surrounding the Freels and Urretia developments, as noted above, this is likely an overstatement of the Rio Mesa 2025 Cumulative Forecast (by up to 62 percent).</u>

SOURCE: MCTC, Memorandum to VRPA regarding Summary of basis for Cumulative 2025 Forecast in MCTC Rio Mesa Travel Forecasting Model (January 4, 2012); District maps from CUSD and GVUSD websites (accessed on April 4, 2012)

du = dwelling unit; CUSD = Chawanakee Unified School District; GVUSD = Golden Valley Unified School District

a. 10,470 du minus 1,446 du associated the Tesoro Viejo in this table equals 9,024 du, which is consistent (within 1 unit) with the cumulative population and housing assumptions in the 2008 Tesoro Viejo Specific Plan Final EIR (p. 4.11-20) for development in Rio Mesa outside of the Project Site.

b. The cumulative population and housing analysis in the 2008 Tesoro Viejo Specific Plan Final EIR (p. 4.11-20) includes 263 du for the Jamison parcel.

c. The cumulative population and housing analysis in the 2008 Tesoro Viejo Specific Plan Final EIR shows a total of 14,478 du in the Rio Mesa 2025 cumulative forecast, which is calculated as 9,024 du outside of the Project Site (see Footnote a); 263 du associated with the Jamison parcel (see Footnote b); and 5,190 du associated with buildout of Tesoro Viejo. It is alternatively derived (within 1 dwelling unit) as 10,733 du minus 1,446 du associated with Tesoro Viejo in this table plus the actual count of 5,190 du associated with buildout of Tesoro Viejo.

Table 4.12-2(b) Rio Mesa and Non-Rio Mesa Student Enrollment within Chawanakee Unified School District Enrollment Area
[New]

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Dwelling Units														
Cumulative Rio Mesa Projects (without Tesoro Viejo) ^a	242	484	726	968	1,210	1,452	1,694	1,936	2,178	2,420	2,662	2,904	3,146	3,388
Tesoro Viejo	0	0	0	1,091	1,418	1,745	2,072	2,399	2,727	3,054	3,381	3,708	4,035	5,190
Cumulative Projects—Non-Rio Mesa ^b	46	92	138	184	230	276	322	368	414	460	506	552	598	644
Total Dwelling Units	288	576	864	2,243	2,858	3,473	4,088	4,703	5,319	5,934	6,549	7,164	7,779	9,222
Students														
Rio Mesa Students (cumulative projects without Tesoro Viejo, 0.182 student/du) ^c	44	88	132	176	220	264	308	352	396	440	484	529	573	617
Rio Mesa Students (Tesoro Viejo only, 0.182 student/du)	0	0	0	199	258	318	377	437	496	556	615	675	734	945
Non-Rio Mesa Students (0.077 student/du) ^d	4	7	11	14	18	21	25	28	32	36	39	43	46	50
Total Students (based upon dwelling units)	48	95	143	389	496	603	710	817	925	1,032	1,139	1,246	1,353	1,611
Total Assumed Students at Minarets High School for 2012 through 2014^e	410	410	410											
Percentage of Student Population Contributing to Total Number of Students at Minarets														
Rio Mesa Students (cumulative projects without Tesoro Viejo)				45.30%	44.40%	43.82%	43.41%	43.11%	42.87%	42.44%	42.56%	42.56%	42.56%	42.56%
Rio Mesa Students (Tesoro Viejo only)				51.06%	52.03%	52.66%	53.10%	53.42%	53.68%	0.00%	0.00%	0.00%	0.00%	0.00%
Non-Rio Mesa Students				3.64%	3.57%	3.52%	3.49%	3.47%	3.45%	7.56%	7.44%	7.44%	7.44%	7.44%
Total				100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 4.12-2(b) Rio Mesa and Non-Rio Mesa Student Enrollment within Chawanakee Unified School District Enrollment Area

[New]

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Remaining Unused Capacity at High Schools														
<u>Remaining Unused Capacity of Minarets High School at Full Planned Buildout (assumes total capacity of 1,200 students; includes Phase I and II of development)^f</u>	<u>790</u>	<u>790</u>	<u>790</u>	<u>811</u>	<u>704</u>	<u>597</u>	<u>490</u>	<u>383</u>	<u>275</u>	<u>724</u>	<u>677</u>	<u>629</u>	<u>581</u>	<u>534</u>
<u>Remaining Unused Capacity of Minarets High School at Current Capacity (assumes total capacity of 600 students; includes Phase I of high school only)^f</u>	<u>190</u>	<u>190</u>	<u>190</u>	<u>211</u>	<u>104</u>	<u>-3</u>	<u>-110^g</u>	<u>-217^g</u>	<u>-325^g</u>	<u>124</u>	<u>77</u>	<u>29</u>	<u>-19^h</u>	<u>-66^h</u>
<u>Tesoro Viejo High School (total capacity of 1,200 students)ⁱ</u>										<u>644</u>	<u>585</u>	<u>525</u>	<u>466</u>	<u>255</u>

SOURCE: Atkins (2012).

du= dwelling unit

a. Assumes a straight line growth of 242 du per year beginning in 2012, which is calculated as 3,388 du (see Table 4.12-2(a)) divided by 14 years (Year 2012 to Year 2025). Also, because of the circumstances surrounding the Freels and Uretia developments, as noted in Table 4.12-2(a), this is likely an overstatement of the Rio Mesa 2025 Cumulative Forecast (by up to 62 percent).

b. Assumes growth of 46 du per year beginning in 2012 as reflected on page B-2 of the Development Fee Justification Study, prepared for CUSD by Paoli & Odell, March 2008.

c. While the Development Fee Justification Study (prepared for CUSD by Paoli & Odell, March 2008) shows a high-school student generation rate of 0.162 student/du for development in Rio Mesa, we are using the higher rate of 0.182 student/du that the CUSD required for the Tesoro Viejo Project, which provides an overstatement of high school students that would be generated as compared to what the District assumed in its study.

d. High-school student generation rate is taken from the Development Fee Justification Study (prepared for CUSD by Paoli & Odell, March 2008).

e. Minarets High School began operation in the 2008/09 school year. According to enrollment data provided by the California Department of Education's web site, in its first year Minarets High School had a total enrollment of 27 students in grade 9. In the following 2009/10 year, enrollment increased to 134 students in grades 9 and 10. Finally, for the 2010/11 year (the last year that data is available), enrollment increased to 291 students in grades 9, 10, and 11. While enrollment data is not available for the current 2011/12 school year, Minarets' current enrollment presumably now includes the grade 12, which would mean that this is the first year that the high school is serving all four grades (9-12) for which it was designed. Assuming that the student population per grade has remained relatively static and that the influx of 9th graders is approximately 120 students (the size of the 9th grade class in the 2010/11 year), the current population of Minarets High School from within CUSD boundaries would likely be approximately 410 students. Also, because the land uses expected in the Rio Mesa and non-Rio Mesa areas result in fewer than 410 students, we are assuming a relatively stable student population from 2012 through 2015, with growth occurring in year 2016 and beyond.

f. Excludes Tesoro Viejo beginning in 2021 since the Tesoro Viejo on-site high school will be operational at that time.

g. Temporary (e.g., portable) classrooms will be required until the on-site Tesoro Viejo high school is available in 2021.

h. Phase II of Minarets High School must be constructed to accommodate non-Tesoro Viejo development within the CUSD enrollment area.

i. Assumes all students from Tesoro Viejo will attend the Tesoro Viejo on-site high school beginning in 2021.

Table 4.12-2(b) indicates that there would be a capacity shortfall of approximately 110 students in 2018, a capacity shortfall of approximately 217 students in 2019, and a capacity shortfall of approximately 325 students in 2020, assuming all potential school-age children within grades 9–12 enrolled as students within the CUSD enrollment area. Just over 50 percent of this capacity shortfall is attributed to Tesoro Viejo, with the balance attributed to other development in the Rio Mesa, as well as development outside of the Rio Mesa. It is anticipated that five to six temporary classrooms would need to be developed per year to accommodate the high-school students for a total of about 15 portable classrooms by 2020. Each temporary classroom is assumed to be 24 feet by 40 feet in size and would accommodate a classroom size of about 22 students. Figure 4.12-1b (Representative Portable Classroom Locations) shows representative locations for the fifteen portable classrooms, although they could be placed anywhere the District chooses within its high school site.

As indicated in the footnotes to Table 4.12-2(b), the capacity shortfalls are based upon the use of two high school generation rates: (1) a rate of 0.077 students per dwelling unit for non-Rio Mesa development that is taken from the District's Development Fee Justification Study (Paoli & Odell, March 2008); and (2) a rate of 0.182 students per dwelling unit for Rio Mesa development that was requested by the CUSD in its comment letter on the Draft EIR for use associated with the Tesoro Viejo Project. In this EIR, the latter rate has been applied to all Rio Mesa development; however, in the Districts Development Fee Justification Study (Paoli & Odell 2008, March), it suggested a generation rate of 0.162 students per dwelling unit for Rio Mesa development. If the lower generation rate were applied to this analysis, there would be a capacity shortfall of about 44 fewer students (meaning 281 students, rather than 325 students, in 2020, and the resulting need for only thirteen portable classrooms rather than fifteen portable classrooms). Further, there would be adequate capacity in Phase I of the Minarets High School development program to accommodate the District's projected enrollment (without Tesoro Viejo) in 2024 and 2025. As Table 4.12-2(b) reflects, the District would not have adequate capacity by 2024 to accommodate its students (excluding Tesoro Viejo students, since an on-site high school would be operational for them).

Impacts associated with the construction of the portable classrooms are provided as follows in this EIR: Impact 4.3-2 (construction-related air quality impacts); Impact 4.3-3 and Impact 4.3-8 (operational air quality impacts related to the new Interim Year Cumulative Plus Project Plus School-Related Trips traffic scenarios); Impact 4.10-1 (construction-related noise impacts); Impact 4.10-6 (operational noise impacts related to the new Interim Year Cumulative Plus Project Plus School-Related Trips traffic scenarios); Impact 4.13-10 (operational traffic impacts related to the new Interim Year Cumulative Plus Project Plus School-Related Trips traffic scenarios); and Section 4.15 (construction-related emissions of greenhouse gases). The Tesoro Viejo Revised EIR evaluates those impacts that are unique to the construction of portable classrooms, a development component that was not specifically evaluated in the Minarets High School Final EIR. The Tesoro Viejo Revised EIR also evaluates and the operational impacts associated with students traveling to and from both Rio Mesa and non-Rio Mesa development areas and Minarets High School (as provided in the new Interim Year Cumulative Plus Project Plus School-Related Trips traffic scenarios). These impact discussions conclude that impacts associated with construction and operation of the portable classrooms can be reduced to less than significant with the implementation of the identified mitigation measures.

In addition, the Minarets High School Final EIR also evaluated the construction and operational impacts associated with both Phase I and Phase II of the high school in the Minarets High School Final EIR (Final Environmental Impact Report, Proposed Minarets High School, Minarets Joint Union High School District, 2000). The portable classrooms would be placed in areas otherwise slated for development as part of Phase II of the high school's development program (refer to Figure 2-5 [Project Preliminary Site Plan] of the Minarets High School Final EIR). It can be assumed that many, if not all, of the impacts were, in fact, already analyzed in the Minarets High School Final EIR document since buildings would be constructed in the same locations under the District's Site Plan. Impacts related to ground disturbance that was otherwise assumed to occur as part of implementation of the District's site plan was analyzed in the Minarets High School Final EIR, including impacts related to aesthetics, agricultural resources, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, and storm drainage. With respect to those impacts that are dependent on the number of students at the high school, including population and housing, law enforcement and fire protection, recreation, solid waste, water supply and treatment, wastewater treatment and disposal, and energy resources, while near-term development would temporarily exceed the 600-student capacity provided for in Phase I of the Minarets High School development program (between 2018 and 2020 only), the Minarets High School Final EIR evaluated a total of 1,200 students; therefore, these impacts are also analyzed in the Minarets High School Final EIR.

With specific respect to traffic impacts, the Minarets High School Final EIR traffic section assumed a total of 600 students (Phase I) and ultimately 1,200 students (Phase II) would be traveling to and from the high school site from various locations within the District's enrollment area. However, recognizing that student enrollment would temporarily exceed 600 students between 2018 and 2020, this document evaluates the additional trips from those students set in two interim year cumulative contexts (both 2015 and 2020).

Pages 1-3 through 1-21 of the Minarets High School Final EIR summarize the environmental impacts of that development, concluding that significant and unavoidable impacts would occur relative to the alteration of the visual character of the site and its surrounding, including scenic vistas; inconsistency with Madera County General Plans goals and policies related to agricultural resources, including conflicts with *Williamson Act* contracts; and indirectly fostering economic or population growth resulting in the construction of additional housing in the area. All other impacts would be less than significant or less than significant with the incorporation of the identified mitigation measures. In terms of cumulative impacts, the Minarets High School Final EIR identified significant cumulative impacts related to agricultural resources, biological resources, wildland fire hazards, aesthetics, and traffic. It can be assumed that most of those impacts have already occurred by reason of completion of the first phase of the high school.

While the Proposed Project and other cumulative development in the area would require the construction of portable classrooms to accommodate students from 2018 through 2020, the construction and operation of those classrooms would not cause significant environmental impacts (as described above). The Proposed Project would have a *less-than-significant* impact with regard to the construction and operation of off-site schools.



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Source: Google Earth Pro, basemap; Atkins, 2012.

Figure 4.12-1b

Representative Portable Classroom Locations [New]

4.12.12 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which would result in no project-related impacts.

Projections of school-age children are not available for specific school districts through the year 2025 (which is the year that full buildout of the Proposed Project is assumed). This makes it difficult to predict exactly how many existing school districts or schools would be affected by cumulative development. For the purposes of this analysis, the geographic context for the cumulative school analysis is the MCTC Rio Mesa Traffic Modeling area, which provides a buildout year of 2025. Cumulative estimates for new dwelling units in the RMAP area are based on estimates used in the MCTC Rio Mesa Traffic Model (described in Chapter 3 [Project Description]). According to the model, 9,025 new dwelling units, in addition to the 5,190 dwelling units provided by the Proposed Project, are anticipated by 2025.

Threshold	Would the Proposed Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios or other performance objectives for schools?
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According to the MCTC Rio Mesa Traffic Model, cumulative development within the RMAP area by 2025 is expected to result in up to 14,478 dwelling units, including 5,190 dwelling units associated with the Proposed Project, 9,025 dwelling units associated with the remainder of the Rio Mesa Area, and 263 dwelling units on the Jamison parcel.¹¹³ Table 4.12-3 (Projected Population of School-Age Children, Cumulative Demand) uses the same factors as applied to the Proposed Project to estimate the number of school-age children that would be expected to reside in the MCTC Rio Mesa Traffic Modeling area, which is approximately 10,106 children. It is anticipated that new teachers would be hired, new equipment would be needed, and new schools would be constructed to meet cumulative demand for educational services. At buildout of the entire RMAP area, which would result in a population of 88,368 (refer to Section 4.11; [Population and Housing]), it is estimated that including up to two high schools, up to four middle schools, and up to 14 to 15 elementary schools would be required to serve the school-age population (Final RMAP 2007, page 39). Potentially significant impacts could result from the increase in demand for educational services.

As stated previously, the Proposed Project would offset impacts by constructing new schools required for the Proposed Project. Each project anticipated under the cumulative scenario would be expected to do the same or to contribute funding proportionate to its individual impact on schools.

¹¹³ As stated in Section 3.12 (Project Description) of this document, the term “Rio Mesa area” in reference to the MCTC Rio Mesa Traffic Model the Rio Mesa Village (Tesoro Viejo, and the Morgan and Jamison properties), North Fork Village, Avenue 12 Village, Gunner Ranch West Area Plan, the Village of Gateway, and a few other smaller developments that are outside of the RMAP area.⁴⁴³ The MCTC Rio Mesa Traffic Model assumed that 30 percent of the RMAP area would be developed by the year 2025.

Table 4.12-3 Projected Population of School-Age Children, Cumulative Demand

Grade Level	Number of Students Anticipated in Age Group per Household ^a	Total Number of New Households	Total Number of Students Projected for Age Category
Grades K–6 (Combined Elementary/Middle School)	0.4115	14,478	5,958
Grades 7–8 (Combined Elementary/Middle School)	0.1045	14,478	1,513
Grades 9–12 (High School)	0.1820	14,478	2,635
<i>Total</i>			<i>10,106</i>

SOURCE: Fehr & Peers (MCTC Rio Mesa Traffic Model Assumptions)

^a Factors provided by CUSD in their comment letter on the Draft EIR dated March 21, 2008.

Impacts related to the construction of the new schools required to accommodate an increase in school-age children as a result of the Proposed Project are included in the discussion this EIR. Construction-related impacts were determined to be less than significant at the project level. The Proposed Project would comply with all construction mitigation measures listed in provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), and Section 4.10 (Noise). Any off-site schools constructed due to cumulative demand would undergo subsequent environmental review prior to construction, and similar mitigation measures would likely apply to off-site school construction.

The Proposed Project's contribution to a cumulative impact with regard to schools is not considerable and would be *less than significant*.

Recreation

4.12.13 Environmental Setting

■ Parks

There are several public parks and recreational areas in the vicinity of the Project Site. The Project Site is approximately 40 miles south of the 750,000-acre Yosemite National Park and 16 miles west of the 1.3 million-acre Sierra National Forest, which includes the John Muir Wilderness, Nelder Grove, and the Devil's Postpile National Monument. Millerton Lake State Recreation Area, Hensley Lake Recreation Area, and Eastman Lake are approximately 4, 12, and 20 miles from the Project Site, respectively. Shaver Lake and Bass Lake are also approximately 30 miles from the site. South of the Project Site, in the City of Fresno, are nine city parks that fall within a 10-mile radius of the Project Site: Fort Washington Beach Park, Woodward Park, Kaiser Park, Belcher Park, Holman Park, Rotary East Park, Robinson Park, Oso de Oro Lake Park, and El Dorado Park.

■ On-Site Open Space

There is no existing publicly owned or publicly accessible open space on the Project Site other than some banks of the San Joaquin River. The majority of the Project Site is devoted to agricultural uses.

4.12.14 Regulatory Framework

■ Federal

There are no federal statutes related to recreation that would apply to the Proposed Project.

■ State

Quimby Act

The *Quimby Act of 1975* (*California Government Code* Section 66477) was enacted to help mitigate the impacts of development on the availability and quality of park facilities and open spaces. Under the *Quimby Act*, local governments are granted authority to reserve land for recreational uses. The Act also requires new developments to contribute in-lieu fees to local governments or devote land for recreational uses. Madera County adopted the requirements of the *Quimby Act* in Section 15.03 (Park and Recreational Facility Acquisition and Dedication) of the Madera County Code.

Policy Consistency

The *Quimby Act* allows a requirement of 3 acres of parkland per 1,000 residents, and the Madera County Code requires 0.003 acre per person. Both methodologies require the same acreage. For example, the Proposed Project would generate 15,560 residents. Using the *Quimby Act* methodology, 15.56 residents per thousand multiplied by three acres of parkland per thousand residents equals 46.68 acres of parkland. Using the County's methodology, 15,560 residents multiplied by 0.003 acres per person also equals 46.68 acres of parkland.

The Proposed Project would supply approximately ~~200~~217218 acres of mapped open space, as well as an additional ~~200~~217218 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in the developed areas. Therefore, the Proposed Project would provide between 200 and 417 acres of open space, some of which would consist of parks, playing fields, horse riding trails/facilities, court areas, recreational swimming areas, and recreational buildings. While not all of the open space would be devoted to active recreational uses, residents would also be able to enjoy passive recreational activities at sites reserved for habitat preservation. Assuming a population of 15,560, the Proposed Project would provide between 12.9 acres and 26.8 acres of parkland per 1,000 residents, which far exceeds the *Quimby Act* requirement of 3 acres of parkland per 1,000 residents. This provision of open space would satisfy the Proposed Project's responsibilities pursuant to the *Quimby Act*.

■ Regional

There are no regional statutes related to recreation that would apply to the Proposed Project.

■ Local

Madera County General Plan

The 1995 General Plan includes the following general policies relevant to the provision of parks and recreational opportunities:

- Policy 4.A.4** The County shall strive to achieve and maintain a standard of three acres of improved parkland per 1,000 population.
- Policy 4.A.5** The County shall require the dedication of land and/or payment of fees, in accordance with local authority and state law (e.g. Quimby Act) to ensure funding for the acquisition and development of public recreation facilities. The fees are to be set and adjusted as necessary to provide for a level of funding that meets the actual cost to provide for all of the public parkland and park development needs generated by new development.
- Policy 4.B.1** The County shall encourage development of private recreation facilities to reduce demands on public agencies.
- Policy 4.C.2** The County shall promote the development of a public trail system in connection with development of the San Joaquin River Parkway.

Policy Consistency

The Proposed Project would supply approximately ~~217~~218 acres of mapped open space or approximately 13.9 acres per thousand Tesoro Viejo residents, not including approximately ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in developed areas. While not all open space would be devoted to active recreational uses, residents would also be able to enjoy passive recreational activities at sites reserved for habitat preservation. This would assist the County in meeting its required quota of 3 acres of developed open space per thousand residents per the requirements of General Plan Policy 4.A.4. It would also satisfy Policy 4.A.5, which requires private developers to dedicate land or funding to the provision of open space, and Policy 4.B.1, which encourages the development of private recreational facilities. Recreational trails on the Project Site would connect to the regional San Joaquin River Parkway trail network, consistent with Policy 4.C.2.

San Joaquin River Parkway Master Plan

The San Joaquin River Conservancy is an agency that was created by the state legislature under the *San Joaquin River Conservancy Act (Public Resources Code Division 22.5, Section 32500)* in January 1993 to develop and manage the San Joaquin River Parkway. The Parkway, a 22-mile regional greenspace and wildlife corridor extending from Friant Dam to Highway 99, and running adjacent to the Project Site, includes a trail system, recreational opportunities, and educational features. The San Joaquin River corridor constitutes a unique and important resource of regional and statewide significance with environmental, cultural, scientific, agricultural, educational, recreational, scenic, flood conveyance, and wildlife values. The Conservancy is expected to acquire up to 5,900 acres of private and public land for ecological restoration, recreation and other uses.¹¹⁴ The San Joaquin River Parkway Conservancy prepared and adopted the San Joaquin River Parkway Master Plan (PMP) in 2000 for management of the Parkway corridor. The PMP consists of conservation areas, recreational and educational facilities, and river trails.

¹¹⁴ The Conservancy has not indicated any desire to purchase land from the Project Site.

The eastern edge of the Project Site runs along the San Joaquin River corridor, north of Ledger Island. The following PMP policies pertain to recreation and open space¹¹⁵ in the San Joaquin River corridor:

- Policy NRD1.1** New facilities shall be sited in restored or previously developed areas. Visitor overlooks and viewing areas shall be located so as to avoid intrusion into sensitive habitat areas and to avoid habitat fragmentation.
- Policy RO3** Link all recreation areas and natural reserves between Highway 99 and Friant Dam with a continuous, multipurpose trail on land and with canoe put-in, take-out, and rest areas along the river to create a recreation system with a variety of recreational opportunities within the Parkway. Connect the multipurpose trail with other local and regional trails and bikeways originating in surrounding areas. Do not construct a trail or canoe facilities downstream of Highway 99 unless warranted by recreational demand and in response to identified needs in managing indiscriminate activities.
- Policy BZ8** Where low density residential uses or passive recreational activities in the Parkway adjoin wildlife habitat, there should be a minimum 100-foot wide buffer zone and an additional setback zone or area without structures that is not less than 50 feet wide. The setback zone could be used for compatible landscaping, patio, or parking uses, but not a building. Where the 100-foot buffer plus 50-setback approach is not feasible, an offsetting expansion of the corridor width on the opposite shore should be a priority.

Policy Consistency

Except for a small 0.5-acre parcel planned for river-oriented visitor commercial and recreational uses (Special Purpose B), the Specific Plan does not propose any development in the area covered by the PMP. Uses in the Special Purpose B zone would comply with the PMP policies by providing low-intensity recreational opportunities, such as canoe/kayak rentals or other similar amenities. The on-site trails proposed for the Project Site would connect to existing and proposed trails along the San Joaquin River. Buffer recommendations in Policy BZ8 would be observed, where applicable, although specific plot-by-plot plans have not yet been prepared for the Proposed Project.

4.12.15 Project Impacts and Mitigation

■ Analytic Method

The analysis in this section focuses on the effects of the Proposed Project on parks, open space, and recreational facilities in the vicinity of the Project Site. This analysis determines whether the increase in employees, residents, and/or visitors associated with the Proposed Project would require the

¹¹⁵ Additional PMP policies are discussed in Section 4.9 (Land Use and Planning) and in Section 4.4 (Biological Resources).

construction or expansion of existing recreational facilities that would result in an adverse impact on the environment or result in the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of those facilities would occur or be accelerated.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact to public recreational services if it would do any of the following:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to recreational resources from implementation of the Proposed Project.

■ Impacts and Mitigation

Threshold	Would the Proposed Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
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Impact 4.12-4 The Proposed Project would not significantly increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. This is considered a *less-than-significant* impact.

At full buildout the Proposed Project, there would be up to 15,650 residents, which would increase the local demand for neighborhood and regional parks and other open space or recreational facilities. The demand for such amenities could increase usage of existing parks, resulting in physical deterioration of those parks. However, the Proposed Project would provide on-site parks, open spaces, and recreational facilities pursuant to *Quimby Act* and General Plan policies. This would reduce the demand on neighborhood and regional parks and on other existing recreational facilities.

According to General Plan Policy 4.A.4, the County strives to meet a ratio of 3 acres of improved parkland per thousand residents. Based on the Proposed Project’s estimated population figures, future neighborhood parks on the Project Site would be required to cover at least 47 acres¹¹⁶ per General Plan and *Quimby Act* requirements.

The Proposed Project would supply approximately 247,218 acres of mapped open space, as well as an additional 200,128 acres of open space and recreational areas associated with boulevards, trails, and

¹¹⁶ Calculated by multiplying 3 acres times 15,650 residents and dividing by 1,000 residents.

neighborhood parks that would be incorporated in the developed areas. Therefore, the Proposed Project would provide between 200 and 417 acres of open space, some of which would consist of parks, playing fields, horse riding trails/facilities, court areas, recreational swimming areas, and recreational buildings. While not all of the open space would be devoted to active recreational uses, residents would also be able to enjoy passive recreational activities at sites reserved for habitat preservation. Assuming a population of 15,560, the Proposed Project would provide between 12.9 acres and 26.8 acres of parkland per 1,000 residents, which far exceeds the *Quimby Act* requirement of 3 acres of parkland per 1,000 residents. This provision of open space would far exceed the requirements of the *Quimby Act* and General Plan Policy 4.A.4. The open space would comprise existing natural drainages and other areas intended to serve recreational, habitat, and storm drainage functions on the Project Site, along with a system of trails and other linear improvements. Future parks in the Proposed Project would include a “Central Park,” two or more town squares, and smaller neighborhood parks, greens, and plazas. While not all of the open space area provided would be developed open space (a portion would remain in an undeveloped state to provide habitat or drainage functions), passive recreational opportunities would be possible near undeveloped open spaces due to an extensive trail system (Figure 4.12-2 [Proposed Trail Network for the Tesoro Viejo Project]) that would connect the project’s residential and commercial areas and neighborhood parks. Boulevards, trails, and other neighborhood parks would account for an additional 200-acre area within the developed neighborhoods of the Project Site, including playgrounds and other active recreational uses. On-site trails would connect to the San Joaquin River Parkway and trails on adjacent properties (provided that private trail systems on adjacent properties are developed). Trails would serve as recreational amenities as well as providing safe, automobile-free transportation corridors for schoolchildren, dog walkers, joggers, and other pedestrians.

Tesoro Viejo residents would be expected to use the new facilities associated with the Tesoro Viejo development more frequently than existing off-site parks because the new parks would either be accessible by foot and/or would be much closer to the Project’s residential uses than off-site neighborhood parks. The impact of the increased population on the physical deterioration of existing neighborhood parks is, therefore, expected to be negligible. While use of regional parks would be expected to intensify due to the population increase, millions of acres of regional, state, and national parks and recreation areas are accessible within an hour’s drive from the Project Site, and the demand for recreational opportunities would be diffused over this large area. Because use of regional parks would not be concentrated in a given area, no significant physical deterioration of any regional park would be expected.

The new residents of the Proposed Project would be expected to use on-site neighborhood parks and recreational facilities over existing off-site parks due to their proximity and accessibility. No significant increase in the use of existing neighborhood parks would be anticipated. A slight increase in the use of existing regional parks would be expected to occur; however, the intensity of this use would not be such that accelerated physical deterioration of these amenities would occur. This would be a *less-than-significant* impact. No mitigation is required.

Threshold	Would the Proposed Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?
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Impact 4.12-5 The Proposed Project would require the construction of recreational facilities to meet new demand. Construction of such facilities would result in potentially adverse physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures listed in this EIR. This would ensure that the Proposed Project’s impact with respect to new recreational facilities would be *less than significant*.

As previously discussed, the Proposed Project would provide approximately ~~217~~218 acres of mapped open space and parkland, not including approximately ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated in developed areas. It is also likely that recreational fields and gymnasiums would be added as part of the proposed new school campuses. Potentially significant adverse physical effects could result from the construction of these facilities.

However, new recreational facilities are included as part of the Proposed Project, and project-related construction impacts are discussed throughout this EIR. The Proposed Project would comply with all construction mitigation measures listed in provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic). All potential construction-related impacts have been mitigated to a less-than-significant level. Therefore, the Proposed Project would not have an adverse physical effect on the environment due to the construction of new recreational facilities. This would be a *less-than-significant* impact.

4.12.16 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which would result in no project-related impacts.

For the purposes of this analysis, the geographic context for the cumulative recreation analysis is the MCTC Rio Mesa Traffic Modeling area, which provides a buildout year of 2025. According to the MCTC Rio Mesa Traffic Model, 9,025 new dwelling units, in addition to the 5,190 dwelling units provided by the Proposed Project and 263 dwelling units provided for the Jamison parcel, are anticipated by 2025 (for a total of 14,478 dwelling units). Utilizing the 2007 persons-per-dwelling unit average of 3.0 for unincorporated Madera County, which is also the factor used to estimate the full buildout population of the Proposed Project, would yield a cumulative population of 43,434.

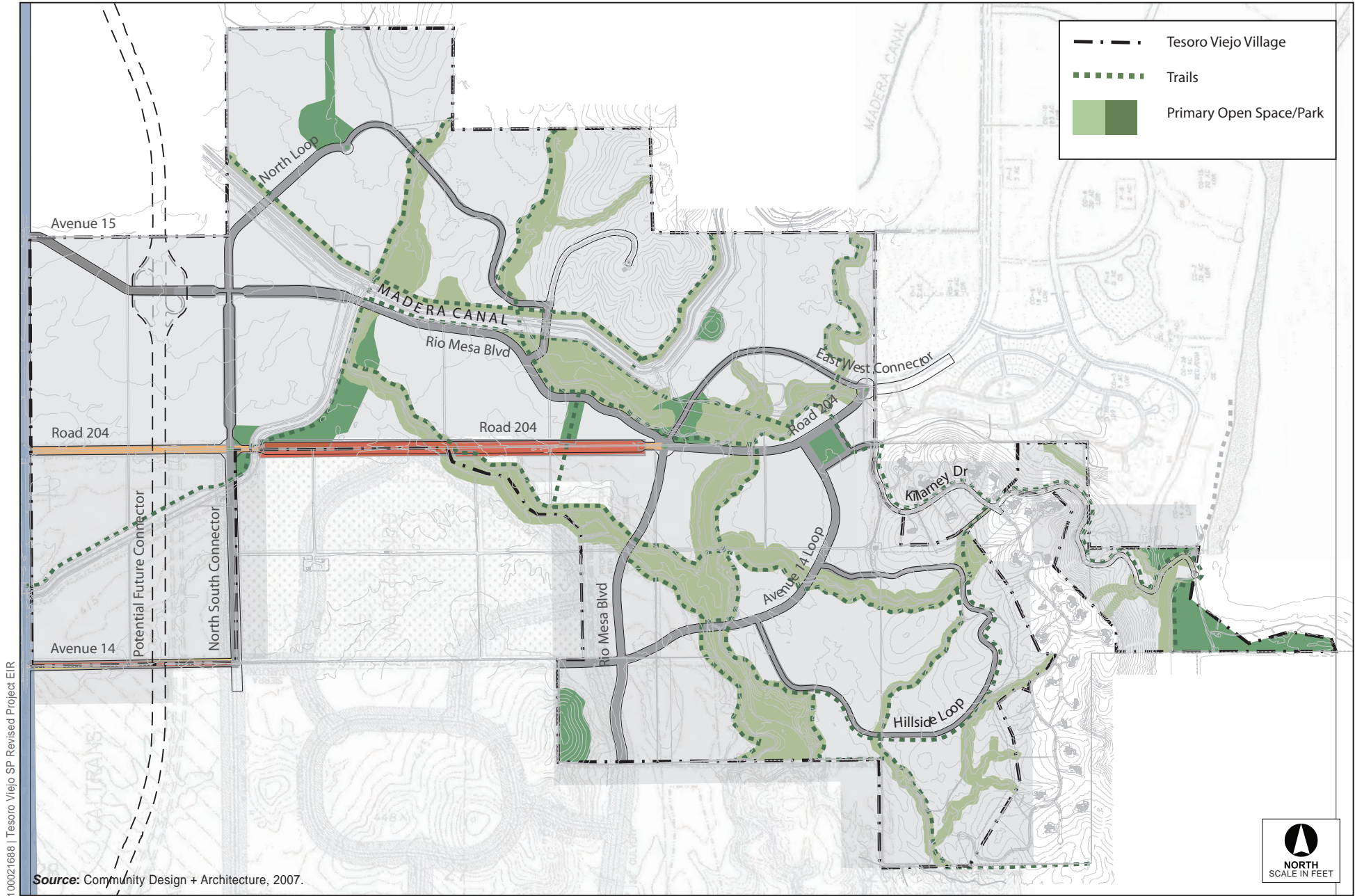


Figure 4.12-2
Proposed Trail Network for Tesoro Viejo Project

Threshold	Would the Proposed Project increase the use of existing neighborhood and regional parks or other recreational facilities such that a substantial physical deterioration of the facility would occur or be accelerated?
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As stated in the project-level analysis, the Proposed Project would provide approximately 26.6 acres of open space (both improved and unimproved) and parkland per thousand Tesoro Viejo residents. The Proposed Project's contribution to recreational amenities would minimize substantial physical impacts on existing facilities by concentrating demand for parks and recreational facilities within the bounds of the Project Site. Other projects considered in the cumulative scenario would be expected to dedicate land or funding according to Policy 4.A.5 of the General Plan. Assuming a cumulative population of 43,434 for the RMAP area in 2025, 128 acres of developed open space would be required to meet increased demand for parks.¹¹⁷ Much of this area would be provided within the boundaries of new developments, but in some cases developments could provide in lieu fees to support the development of regional park and recreational facilities. Application of Policy 4.A.5 would maintain the parkland-to-resident ratios identified in Policy 4.A.1, which requires that the County provide at least 3 acres of developed open space per thousand residents. This ratio was set by the County to ensure that increased usage of existing neighborhood and regional parks or other recreational facilities would not occur, causing substantial physical deterioration of these amenities to occur or to be accelerated. Therefore, cumulative impacts are considered to be less than significant. The contribution of the Proposed Project to the cumulative physical deterioration of existing neighborhood and regional parks and other recreational facilities would not be considerable and impacts would be *less than significant*.

Threshold	Would the Proposed Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?
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The Proposed Project would comply with all of the construction mitigation measures identified in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), and Section 4.10 (Noise). Any regional recreational facilities constructed due to cumulative demand would undergo subsequent environmental review prior to construction. Similar mitigation would likely apply to the construction of these off-site recreational facilities. Therefore, cumulative impacts are considered to be less than significant. The Proposed Project's contribution to a cumulatively considerable impact with regard to the construction or expansion of recreational facilities would not be considerable and impacts would be *less than significant*.

4.12.17 References

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¹¹⁷ Calculated by applying the 3 acres of improved parkland per thousand residents standard to the estimated 2025 RMAP population of 42,645.

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4.13 TRANSPORTATION/TRAFFIC [REVISED IN PART]

This section evaluates the potential for implementation of the Proposed Project to result in impacts to parking, access, traffic, circulation, and other transportation modes, including the potential for the Proposed Project to increase local and regional traffic volumes, exceed a level of service (LOS) standard, increase hazards due to a design feature, interfere with emergency access, result in an inadequate parking supply, or conflict with applicable alternative transportation programs.

Data used in preparation of this section is taken from the transportation impact analysis report conducted for the project by Fehr & Peers (dated August 2007) and the revised traffic impact study conducted for the Project by VRPA Technologies, Inc. (dated March 26, 2012). The 2007 report and 2012 study are included as Appendix H and Appendix H1, respectively, of this document. The study 2012 revised traffic impact study was prepared for the purpose of isolating impacts compared to existing conditions and analyzing interim traffic conditions related to the proposed Tesoro Viejo development, including the potential interim impacts of school traffic. This revised supplemental analysis was prepared pursuant to the Writ of Mandate issued by the Madera County Superior Court in accordance with the decision of the Fifth District Court of Appeal requiring revisions and additions to the 2008 Final EIR previously prepared for the Project and now de-certified by the court.

The 2007 transportation impact analysis report (incorporated into the 2008 Final EIR) evaluated three scenarios:

1. Existing Traffic 2007 Conditions, Far-Term (
2. Far-Term Cumulative) Baseline Without Project Conditions (2025), and Far-Term (
3. Far-Term Cumulative) with Project Conditions (2025):

The 2012 revised traffic impact study evaluated the following additional seven scenarios in response to the court order:

1. Existing 2011 Conditions (Baseline)
 - Current Year 2011 traffic conditions
2. Existing 2011 Plus Project in 2015
 - Current Year 2011 traffic plus Project traffic expected for buildout in year 2015 (20 percent residential and 10 percent nonresidential buildout) conditions
3. Existing 2011 Plus Project in 2020
 - Current Year 2011 traffic plus Project traffic expected for buildout in year 2020 (50 percent residential and 25 percent nonresidential buildout) conditions
4. Existing 2011 Plus Project in 2025
 - Current Year 2011 traffic plus Project traffic expected for buildout in year 2025 (full buildout) conditions
5. Interim Year 2015 Cumulative Plus Project
 - Interim Year 2015 cumulative traffic plus Project (20 percent residential and 10 percent nonresidential buildout) conditions

6. Interim Year 2020 Cumulative Plus Project

- Interim Year 2020 cumulative traffic plus Project (50 percent residential and 25 percent nonresidential buildout) conditions

7. Analysis of Potential Construction Period Impacts on Avenue 15 Related to the Water Supply Alternative

- Current Year 2011 traffic conditions considering temporary redistribution of traffic considering lane closures and other barriers along Avenue 15

In addition to the seven scenarios listed above, the revised 2012 study also included the analysis of impacts from interim school-related trips associated with the occupancy of homes that would generate high-school students until such time as an on-site high school is available, which is assumed to occur in 2021. This school-related trips analysis would affect the interim scenarios (2015 and 2020) and would include the addition of trips at several study intersections and segments resulting from high school students (grades 9–12) living within the Project Site and traveling to/from Minarets High School, which is located within the Chawanakee Unified School District (CUSD) approximately 15 miles north of the Project Site. The analysis assumes that private vehicles would be used (e.g., no busing is assumed), producing a worst case analysis. The Project now includes the construction of an elementary school in its first phase of development, which makes the analysis of trips to/from an off-site elementary school unnecessary. The following two scenarios were analyzed considering the addition of school-related trips:

1. Interim Year 2015 Cumulative Plus Project Plus School-Related Trips

- Year 2015 cumulative traffic plus Project traffic (20 percent residential and 10 percent nonresidential buildout) plus Project school-related trips conditions

2. Interim Year 2020 Cumulative Plus Project Plus School-Related Trips

- Year 2020 cumulative traffic plus Project traffic (50 percent residential and 25 percent nonresidential buildout) plus Project school-related trips conditions

4.13.1 Environmental Setting

The project is located within the Rio Mesa Area Plan (RMAP) planning area, which consists of approximately 15,000 acres and three separate developments: North Fork Village, Rio Mesa Village, and the Avenue 12 Village. The RMAP planning area is bounded by State Route (SR) 41 ~~onto~~ to the west, Road 145 to the north, the San Joaquin River and Fresno County to the east, Road 145 and the Millerton Lake State Recreational area to the north and northeast, and the San Joaquin River to the south. The Rio Mesa Village Development consists of the ~~4,579~~1,585-acre Tesoro Viejo project, as well as the adjacent Morgan and Jamison parcels. For the purposes of the traffic analysis, the entire Rio Mesa Village was examined because the County of Madera desired a coordinated approach to infrastructure planning within the village. The 103-acre Morgan property is assumed to be designated for industrial uses, and the Jamison Property is assumed to include 52 acres of low-density residential development, 12 acres of open space, and 13 acres of Caltrans right-of-way.

■ Roadway Network

Regional access to the study area is provided by SR-41 and SR-145. SR-41 is the major north/south roadway serving the Project Site, and defines the western boundary of the Tesoro Viejo Specific Plan

area. It connects with Yosemite National Park to the north, with the city of Fresno, with SR-99, and with Interstate 5 (I-5) to the south.

Local access to the Project Site is provided via Avenue 15, Road 204, and Avenue 12. The major east/west access is provided by Road 204, which roughly bisects the project. Most of the roadways serving the Project Site are rural roadways with limited shoulders and pedestrian facilities. The major roadways are described below:

- **State Route 41** is the primary regional facility in Madera County and extends from San Luis Obispo County through the city of Fresno to Yosemite National Park. It is a two-lane, rural, undivided highway north of the Children's Boulevard interchange to Yosemite National Park, a four-lane north/south freeway from Children's Boulevard to Friant Road, and a six-lane freeway south of Friant Road through the city of Fresno. SR-41 runs through the Project Site. Based on 2005 traffic data from Caltrans, the average daily traffic (ADT) volume north of Avenue 12 is approximately 15,400 vehicles per day.
- **State Route 145/Road 145** is a two-lane, east/west roadway that extends from SR-99 in the City of Madera to Road 206 in Madera County. The average daily traffic on SR-145/Road 145 west of SR-41 is approximately 6,200 vehicles per day. SR-145/Road 145 is planned to be widened to a four-lane, divided arterial in the future.
- **Avenue 15** is a two-lane, east/west, rural road which extends from the city of Madera to SR-41. Portions of the roadway provide access to residential and commercial uses. It forms the northern boundary of the Project Site and would extend east of SR-41 with the development of the Proposed Project. Future plans call for Avenue 15 to be a four-lane, divided arterial with an interchange at SR-41.
- **Avenue 14** forms the southern boundary of the Project Site and extends from SR-41 west. It is a two-lane roadway providing access to residential uses.
- **Avenue 12** is located south of the Project Site and extends from east of SR-41 to west of SR-99. It is a two-lane roadway which is ultimately planned to be a four-lane, divided arterial. Future plans include the extension of Avenue 12 through the RMAP development and an interchange with SR-41.
- **Avenue 9** is a two-lane, east/west, county road with a posted speed limit of 55 miles per hour (mph). The county road runs south of the Project Site and extends from Children's Boulevard to west of SR-99.
- **Children's Boulevard** is a County road that runs south of the Project Site and extends from Avenue 9 to the northbound SR-41 on-ramp. It varies between two and six lanes in width. From SR-41, Children's Boulevard is the main access road to the Central California Children's Hospital.
- **Road 36** is a north/south County road that runs west of the Project Site. It varies between two and four lanes in width. It extends from SR-145 to Avenue 9.
- **Friant Road** is located in Fresno County and extends along the San Joaquin River from the community of Friant to SR-41 in the City of Fresno. Friant Road is a four-lane road from the City of Fresno to Lost Lake Park, which is just south of the town of Friant, and a two-lane road from Lost Lake Park north.
- **Herndon Avenue** is an east/west road in Fresno County. It varies between two and six lanes wide. The roadway extends from SR-99 to east of SR-168, with interchanges at both freeways as well as an interchange at SR-41.

■ Traffic Operations Analysis Methodology

The operations of roadway facilities are described with the term “level of service” (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels of service are defined ranging from LOS A (best operating conditions) to LOS F (worst operating conditions). LOS E corresponds to operations “at capacity”. When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F.

The LOS criteria and methods for analyzing signalized, unsignalized, and roundabout intersections as well as highway and freeway segments are described below.

Signalized Intersections

Traffic conditions at signalized intersections were evaluated using the Transportation Research Board’s 2000 Highway Capacity Manual (HCM) method. Intersection LOS analysis was conducted using the Synchro traffic signal timing program for signalized intersections and the Highway Capacity Software (HCS) program for unsignalized intersections. This operations analysis method uses various intersection characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the average control delay experienced by motorists traveling through an intersection. Control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. Table 4.13-1 (Signalized Intersection LOS Criteria) summarizes the relationship between average delay per vehicle and LOS for signalized intersections. In Madera County, acceptable operations at signalized intersections are generally defined as LOS D or better.

Table 4.13-1 Signalized Intersection LOS Criteria

<i>Level of Service</i>	<i>Description</i>	<i>Average Control Delay per Vehicle (seconds)</i>
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	< 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and/or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0
E	Operations with long delays indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80.0

SOURCE: Transportation Research Board 2000

Unsignalized Intersections

Traffic conditions at unsignalized intersections were also evaluated using the 2000 HCM method. With this method, operations are defined by the average control delay per vehicle (measured in seconds) for each movement that must yield the right-of-way. At two-way or side-street stop-controlled intersections, the control delay (and LOS) is calculated for each controlled movement, the left-turn movement from

the major street and for the entire intersection. For controlled approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. The delays for the entire intersection and for the movement or approach with the highest delay are reported. At four-way stop-controlled intersections, LOS is based on the average delay experienced on all approaches. Table 4.13-2 (Unsignalized Intersection LOS Criteria) summarizes the relationship between delay and LOS for unsignalized intersections. Peak hour traffic signal warrants were also evaluated for unsignalized intersections.¹¹⁸

<i>Level of Service</i>	<i>Description</i>	<i>Average Control Delay Per Vehicle (Seconds)</i>
A	Little or no delay	< 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

SOURCE: Transportation Research Board 2000

Roundabouts

Roundabout analyses were conducted using the SIDRA roundabout LOS software. This program provides an effective tool for analyzing roundabouts with moderate to low levels of congestion (i.e., V/C ratios less than 0.85). This software is consistent with HCM methods as it uses gap acceptance parameters. Note that the environmental factor was modified for use in this assessment to reflect American driver behavior, as recommended by the software developer. The LOS criteria for roundabout intersections are the same as for unsignalized intersections, as presented in Table 4.13-2.

Roadway Segments

Roadway segment service levels were calculated by comparing the AM and PM peak hour volumes to LOS thresholds for a Multi-Lane Rural Highway found in Table 4.13-3 (Capacities per Lane per Hour for Various Highway Facilities). The LOS thresholds were referenced from Table 2.A.8 found in the Transportation and Circulation section of the Madera County General Plan.

¹¹⁸ Unsignalized intersection warrant analysis is intended to examine the general correlation between existing conditions and the need to install new traffic signals. Existing peak-hour volumes are compared to a subset of the standard traffic signal warrants recommended in the MUTCD and associated state guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely on the warrants because the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data and conduct a timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

Table 4.13-3 Capacities per Lane per Hour for Various Highway Facilities

LOS	Freeways	Two-Lane Rural Highway	Multi-Lane Rural Highway	Expressway	Arterial	Collector
A	700	120	470	720	450	300
B	1,100	240	945	840	525	350
C	1,550	395	1,285	960	600	400
D	1,850	675	1,585	1,080	675	450
E	2,000	1,145	1,800	1,200	750	500

SOURCE: Madera County 1995a

Freeway Mainline Segments

For the freeway mainline segments, LOS was calculated using the 2000 HCM method. This method considers peak hour traffic volumes, free-flow speeds, percentage of heavy vehicles, and the number of travel lanes. These factors are used to determine vehicle density, measured in passenger cars per mile per lane. Table 4.13-4 (Freeway Mainline LOS Definitions) summarizes the relationship between vehicle density and LOS for mainline freeway segments.

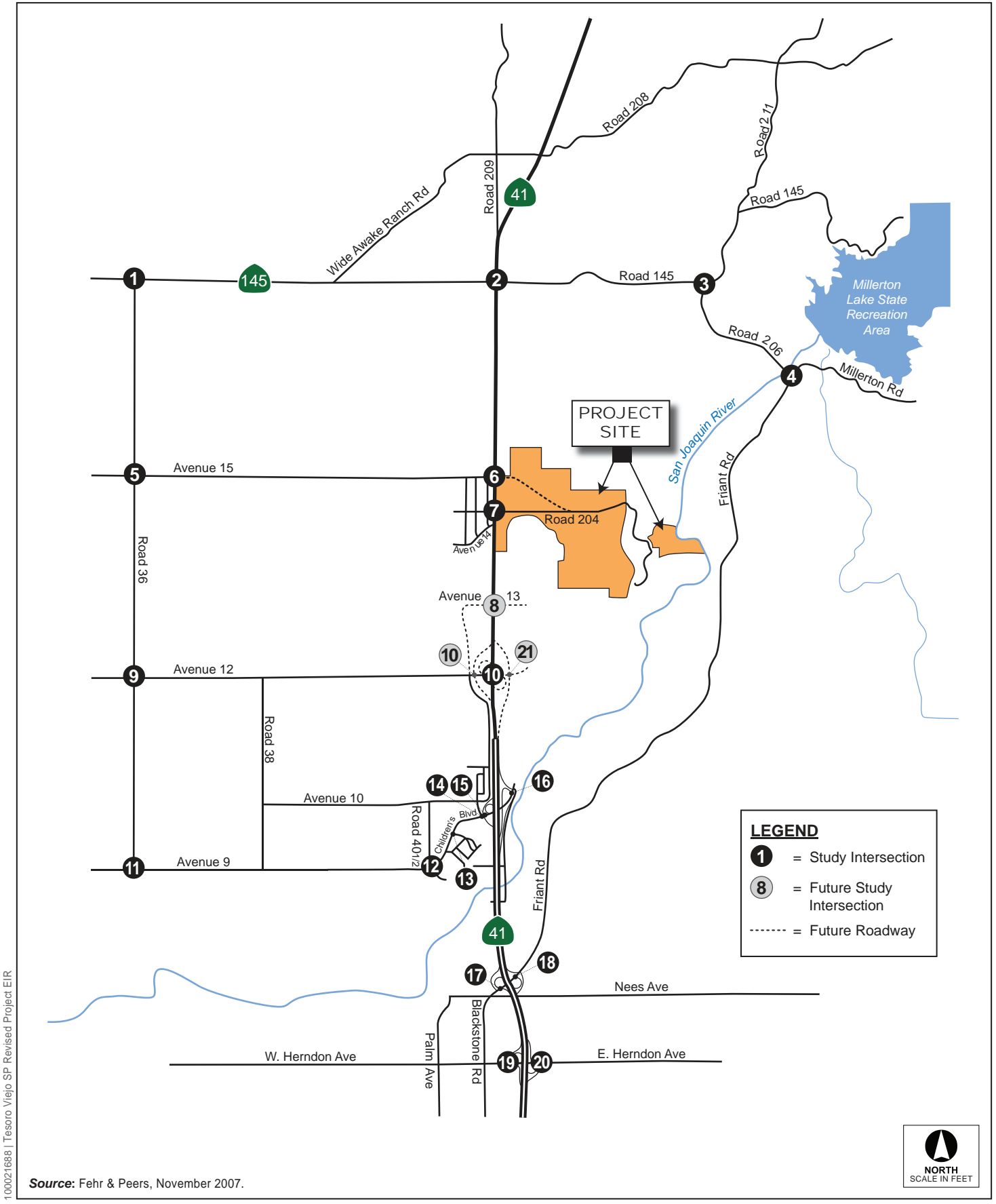
Table 4.13-4 Freeway Mainline LOS Definitions

LOS	Description	Density Range (Passenger Cars Per Mile Per Lane)
A	Free-flow operations where vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	< 11
B	Relative free-flow operations where vehicles maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	> 11 to 18
C	Travel is still at relative free-flow speeds, although freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	> 18 to 26
D	Speeds begin to decline slightly with increasing flows and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	> 26 to 35
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	> 35 to 45
F	Breakdown in vehicle flow.	> 45

SOURCE: Transportation Research Board 2000

Existing Traffic Volumes and Levels of Service

The traffic study conducted for the project analyzed 21 signalized and unsignalized intersections. The location of each intersection is indicated on Figure 4.13-1 (Site Location Map and Study Intersection Locations). These study locations were chosen to represent those intersections deemed most likely to experience increases in traffic due to the Proposed Project, and all locations that could potentially experience significant project related impacts, and are as follows:



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Source: Fehr & Peers, November 2007.



Figure 4.13-1
Site Location Map and Study Intersection Locations

1. Road 36/SR-145
2. SR-41/SR-145/Road 145
3. Road 206/Road 145
4. Road 206/Friant Road
5. Road 36/Avenue 15
6. SR-41/Avenue 15
7. SR-41/Road 204
8. SR-41/Avenue 13 (Future Study Intersection)
9. Road 36/Avenue 12
10. SR-41/Avenue 12
11. Road 36/Avenue 9
12. Road 40½/Avenue 9/Children’s Boulevard
13. Children’s Boulevard/Peck Boulevard
14. Children’s Boulevard/Lanes Bridge Drive
15. SR-41 Southbound Ramps/Children’s Boulevard/Rio Mesa Boulevard
16. SR-41 Northbound Ramps/Children’s Boulevard /Rio Mesa Boulevard
17. SR-41 Southbound Ramps/Friant Road/Blackstone Avenue
18. SR-41 Northbound Ramps/Friant Road/Blackstone Avenue
19. SR-41 Southbound Ramps/Herndon Avenue
20. SR-41 Northbound Ramps/Herndon Avenue
21. SR-41 Northbound Ramps/Avenue 12 (Future Study Intersection)

Weekday morning (7:00 to 9:00 A.M.) and evening (4:00 to 6:00 P.M.) peak period intersection turning movement counts for the study intersections were collected in ~~September 2006 and January 2007~~ October 2011. For each intersection count period, the hour with the highest traffic volume was identified as the peak hour. The existing 2011 peak hour traffic volumes were used with the existing 2011 lane configurations and signal phasing (for signalized intersections) as inputs into the LOS calculations to evaluate current 2011 operations ~~and are~~. The LOS information is summarized in Table 4.13-5 (Existing 2011 Peak Hour Intersection Levels of Service). Figure 4.13-2 (Existing 2011 AM Peak Hour Traffic Volumes) and Figure 4.13-2(a) (Existing 2011 PM Peak Hour Traffic) illustrates the existing (2011) peak hour turning movement volumes, and Figure 4.13-3 (Existing Conditions 2011 Lane Configurations and Traffic Controls Geometry) presents the existing 2011 intersection lane configurations and traffic control devices (stop signs or traffic signals).

All of the intersections were shown to operate at an acceptable LOS D or better during both the AM and PM peak hours in 2011 except:

- SR-41/Avenue ~~1215~~ —LOS E during the AM peak hour ~~and LOS E during the PM peak hour~~

Table 4.13-5 Existing Peak Hour Intersection Levels of Service

Intersection		Control ^a	Peak Hour	Delay (in seconds) ^{b,c}	LOS
1	Road 36/SR 145	SSSC	AM PM	2 (11) 1 (12)	A (B) A (B)
2	SR 41/SR 145	Signal	AM PM	18 26	B C
3	Road 206/Road 145	SSSC	AM PM	5 (10) 6 (9)	A (A) A (A)
4	Road 206/Friant Road	SSSC	AM PM	4 (12) 5 (18)	A (B) A (C)
5	Road 36/Avenue 15	SSSC	AM PM	12 (21) 8 (14)	B (C) A (B)
6	SR 41/Avenue 15	SSSC	AM PM	2 (21) 7 (>50)	A (C) A (F)
7	SR 41/Road 204	SSSC	AM PM	1 (40) 0 (39)	A (E) A (E)
8	SR 41/Avenue 13	Future Analysis Only			
9	Road 36/Avenue 12	Signal	AM PM	15 15	B B
10	SR 41/Avenue 12	Signal	AM PM	26 61	C E
11	Road 36/Avenue 9	SSSC	AM PM	3 (15) 2 (14)	A (C) A (B)
12	Road 40 1/2/Avenue 9/Children's Boulevard	SSSC	AM PM	0 (16) 0 (13)	A (C) A (B)
13	Children's Boulevard/Peck Boulevard	SSSC	AM PM	6 (12) 12 (24)	A (B) B (C)
14	Children's Boulevard/Lanes Bridge Drive	SSSC	AM PM	26 (>50) 5 (37)	D (F) A (E)
15	SR 41 SB Ramps/Children's Boulevard	Signal	AM PM	3 4	A A
16	SR 41 NB Ramps/Children's Boulevard	Signal	AM PM	1 1	A A
17	SR 41 SB Ramps/Friant Road/Blackstone Avenue	Signal	AM PM	12 15	B B
18	SR 41 NB Ramps/Friant Road/Blackstone Avenue	Signal	AM PM	9 12	A B
19	SR 41 SB Ramps/Herndon Avenue	Signal	AM PM	9 7	A A
20	SR 41 NB Ramps/Herndon Avenue	Signal	AM PM	38 36	D D
21	SR 41 NB Ramps/Avenue 12	Signal	Future Analysis Only		

Results in **bold** represent unacceptable levels of service.

^a Signal = signalized intersection, SSSC = side-street stop-controlled intersection

^b Signalized intersection level of service determined using the HCM 2000 method.

^c Side-street stop-controlled intersections level of service is based on average delay per vehicle (in seconds) according to the Highway Capacity Manual, Transportation Research Board, 2000. For side-street stop-controlled intersections, delay is reported as: Intersection average (worst case approach).

Table 4.13-5 Existing 2011 Peak Hour Intersection Levels of Service [Revised]

Intersection		Control	Peak Hour	Delay (in seconds)	LOS
1	Road 36/SR-145	One-Way Stop Sign	AM	11.0	B*
			PM	11.3	B*
2	SR-41/SR-145	Signalized	AM	20.1	C
			PM	22.9	C
3	Road 206/Road 145	Two-Way Stop Sign	AM	9.2	A*
			PM	9.6	A*
4	Road 206/Friant Road	Two-Way Stop Sign	AM	13.3	B*
			PM	20.4	C*
5	Road 36/Avenue 15	All-Way Stop Sign	AM	12.1	B*
			PM	9.3	A*
6	SR-41/Avenue 15	One-Way Stop Sign	AM	>50.0	F+
			PM	29.0	D+
7	SR-41/Road 204	Two-Way Stop Sign	AM	=	D**
			PM	=	D**
8	SR-41/Avenue 13	Future Analysis Only			
9	Road 36/Avenue 12	Signalized	AM	26.0	C
			PM	22.9	C
10	SR-41/Avenue 12	Signalized	AM	45.5	D
			PM	31.7	C
11	Road 36/Avenue 9	One-Way Stop Sign	AM	12.3	B*
			PM	13.3	B*
12	Road 40½/Avenue 9	Two-Way Stop Sign	AM	13.7	B*
			PM	13.0	B*
13	Children's Boulevard/Peck Boulevard	One-Way Stop Sign	AM	17.2	C+
			PM	17.2	C+
14	Children's Boulevard/Lanes Bridge Drive	Signalized	AM	12.9	B
			PM	13.5	B
15	SR-41 SB Ramps/Children's Boulevard	Signalized	AM	18.4	B
			PM	17.5	B
16	SR-41 NB Ramps/Rio Mesa Boulevard	Signalized	AM	13.2	B
			PM	13.6	B
17	SR-41 SB Ramps/Friant Road	Signalized	AM	14.1	B
			PM	18.6	B
18	SR-41 NB Ramps/Friant Road	Signalized	AM	21.5	C
			PM	40.8	D
19	SR-41 SB Ramps/Herndon Avenue	Signalized	AM	11.7	B
			PM	9.7	A
20	SR-41 NB Ramps/Herndon Avenue	Signalized	AM	52.7	D
			PM	31.4	C
21	SR-41 NB Ramps/Avenue 12	Future Analysis Only			

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

LOS = level of service

DELAY is measured in seconds.

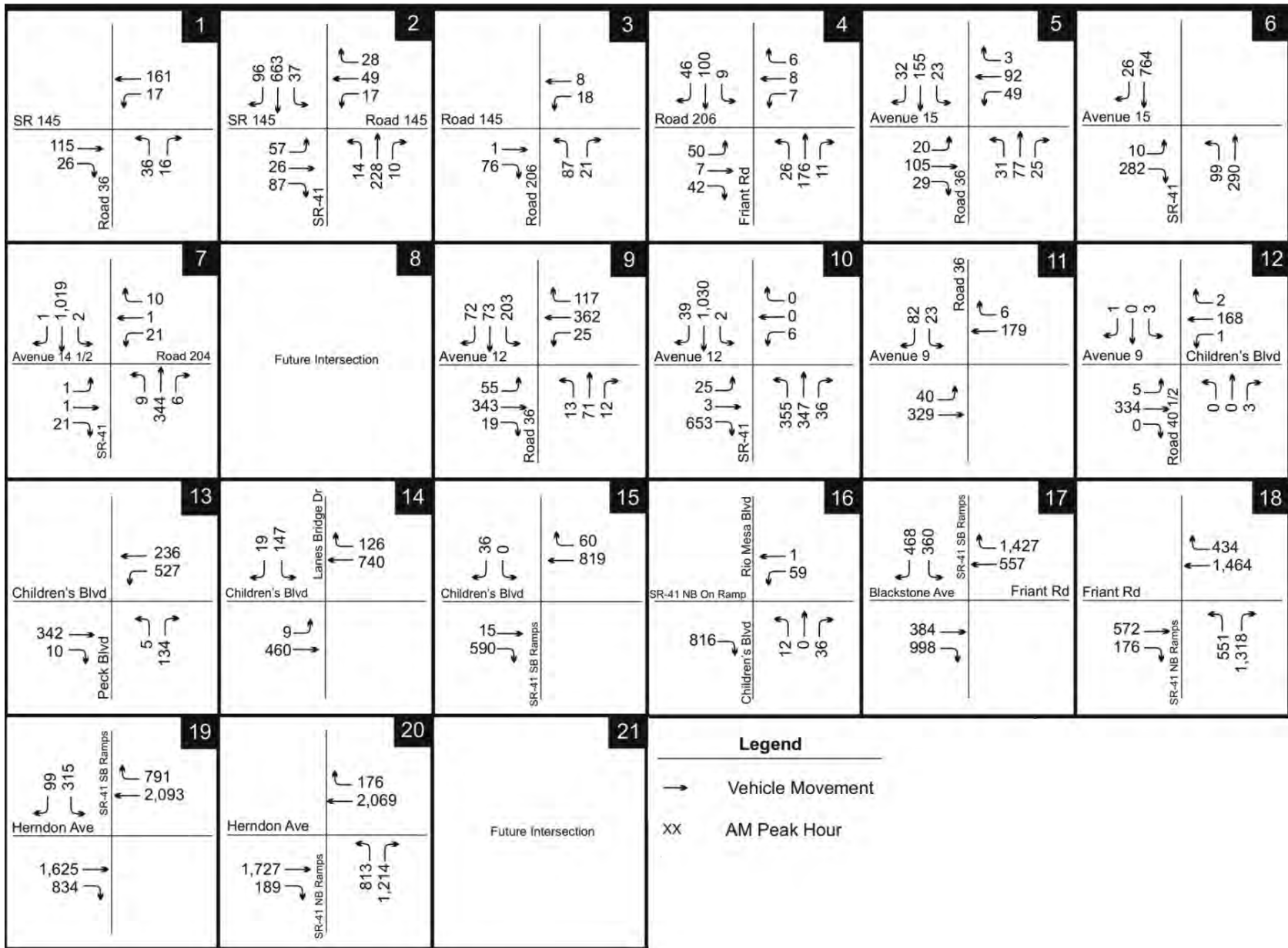
BOLD denotes LOS standard has been exceeded.

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

+ Meets peak hour signal warrants.

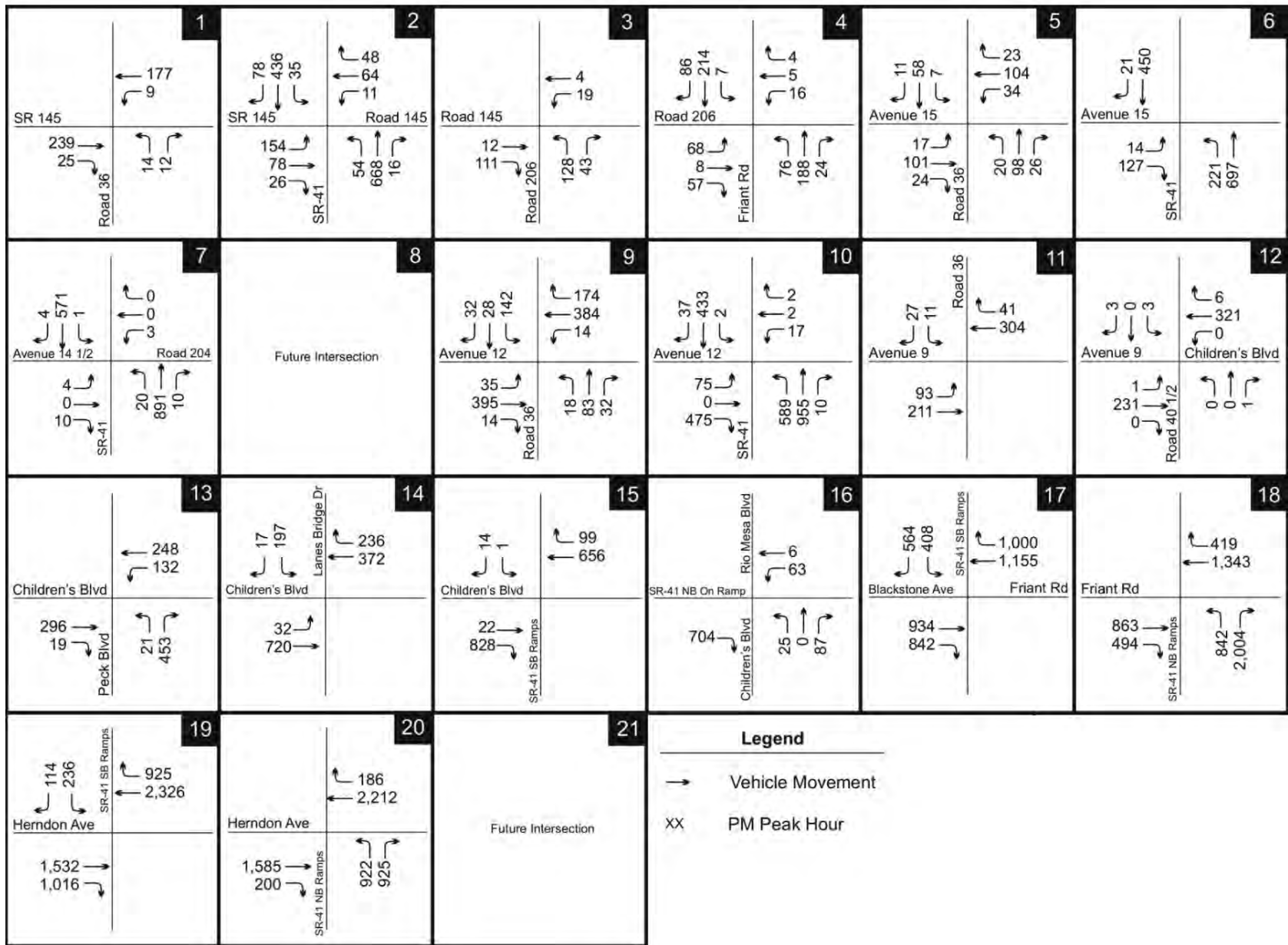
* Does not meet signal warrants.

** Traffic signal not warranted: LOS D assumed.



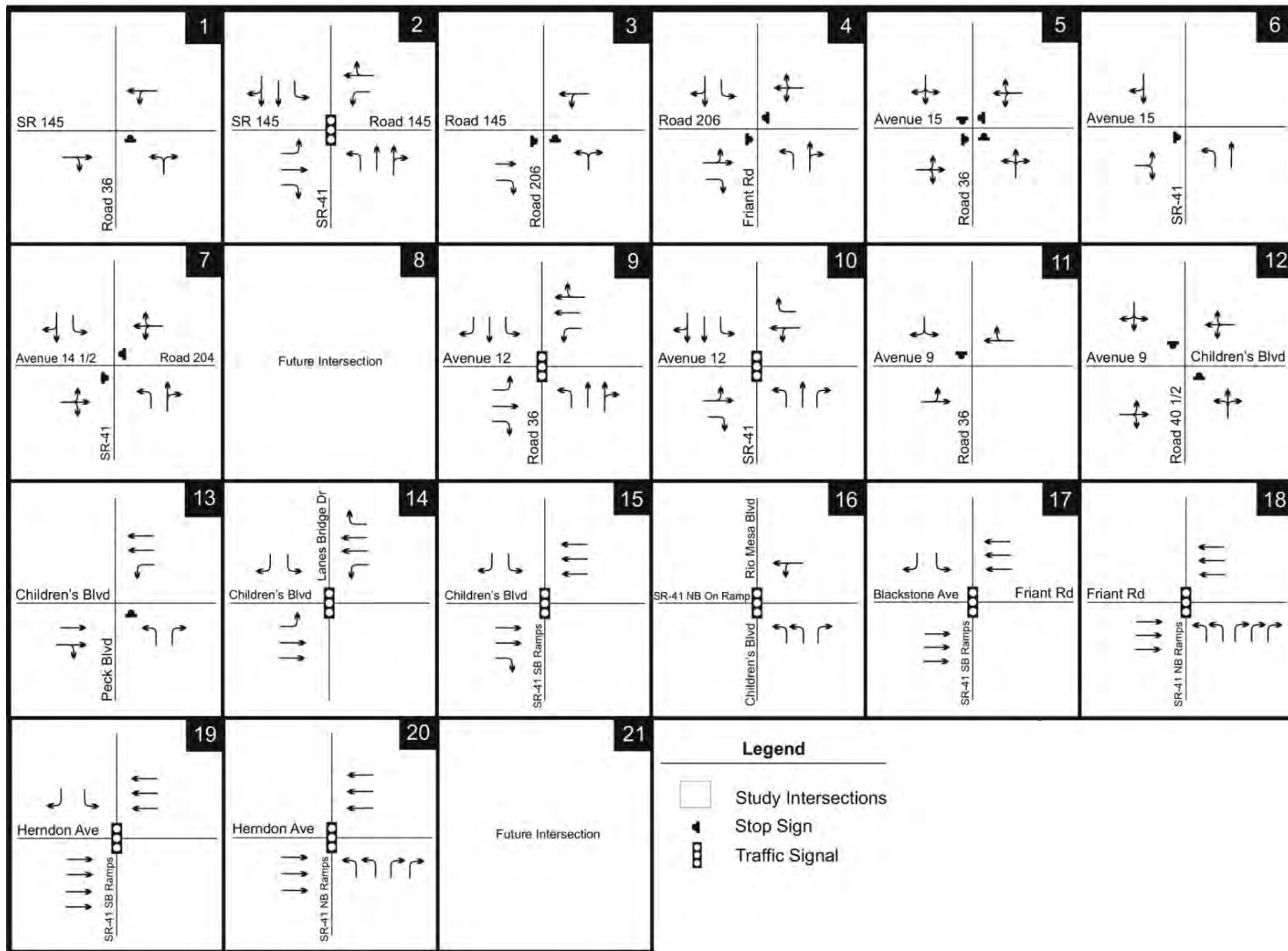
Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-2
Existing 2011 AM Peak Hour Traffic [Revised]



Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-2(a)
Existing 2011 PM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-3
Existing 2011 Lane Geometry [Revised]

The following side street stop controlled intersections operate at an acceptable LOS D or better during both the AM and PM peak hours, but have one approach which operates at an unacceptable LOS:

- SR-41/Avenue 15—PM intersection average LOS A with a eastbound approach LOS F
- SR-41/Road 204—AM and PM intersection average LOS A with a westbound approach LOS E
- Children’s Boulevard/Lanes Bridge Road—AM intersection average LOS C with a southbound approach LOS F, PM intersection average LOS A with a southbound approach LOS E

In addition to intersection LOS, a signal warrant evaluation was performed to determine if the existing stop controlled intersection would require signalization under existing conditions. To assess the need for signalization of the stop controlled intersections, the Manual of Uniform Traffic Control Devices (MUTCD) (Federal Highway Administration, 2000), presents eight signal warrants. Generally, meeting one of the signal warrants could justify signalization of an intersection. The peak hour volume warrant (Warrant 3) analysis for rural conditions was conducted using the available data. The results of the traffic signal warrant analysis are shown in Table 4.13-6 (Existing Peak Hour Signal Warrant Analysis). Detailed signal warrant calculations are provided in Appendix H of this EIR.

Table 4.13-6 Existing Peak Hour Signal Warrant Analysis [Deleted]

	<i>Intersection</i>	<i>Control^a</i>	<i>Peak Hour Warrant Met?</i>
1	Road 36/SR 145	SSSC	No
3	Road 206/Road 145	SSSC	No
4	Road 206/Friant Road.	SSSC	Yes
5	Road 36/Avenue 15	SSSC	No
6	SR 41/Avenue 15	SSSC	Yes
7	SR 41/Road 204	SSSC	No
11	Road 36/Avenue 9	SSSC	No
12	Road 40 ½/Avenue 9/Children’s Boulevard	SSSC	No
13	Children’s Boulevard/Peck Boulevard	SSSC	Yes
14	Children’s Boulevard/Lanes Bridge Drive	SSSC	Yes

SOURCE: Fehr & Peers 2007

^a—SSSC = side street stop controlled intersection

As shown in Table 4.13-6, the rural peak hour volume traffic signal warrant is currently satisfied at four intersections: Friant Road/Road 206; A signal warrant analysis conducted for the intersections of SR-41/Avenue 15; and Children’s Boulevard/Peck Boulevard; indicates that both intersections currently (2011) meet peak hour signal warrants; however, the intersection of Children’s Boulevard/Lanes Bridge Drive Although traffic signal warrants are satisfied at these intersections, only Friant Road/Road 206 at Peck Boulevard also currently (2011) operates at an acceptable LOS C. Only peak hour volumes were analyzed in the signal warrant analysis since they are the most reliably predictive of future conditions.

A highway segment analysis was performed for the following highway segments:

1. Southbound SR-41, North of ~~Road~~ SR-145
2. Northbound SR-41, North of ~~Road~~ SR-145
3. Southbound SR-41, ~~Road~~ SR-145 to Avenue 15
4. Northbound SR-41, ~~Road~~ SR-145 to Avenue 15
5. Southbound SR-41, Avenue 15 to Road 204
6. Northbound SR-41, Avenue 15 to Road 204
7. Southbound SR-41, Road 204 to Avenue ~~13~~⁴⁴⁹ 12
8. ~~Southbound~~ Northbound SR-41, Road 204 to Avenue ~~13~~² 12

A freeway segment analysis was performed for the following freeway segments:

1. Southbound SR-41, Avenue 13 to Avenue 12¹²⁰
2. Northbound SR-41, Avenue 13 to Avenue ~~12~~³ 12¹²¹
3. Southbound SR-41, Avenue 12 to Children's Boulevard
4. Northbound SR-41, Avenue 12 to Children's Boulevard
5. Southbound SR-41, Children's Boulevard to Friant Road
6. Northbound SR-41, Children's Boulevard to Friant Road
7. Southbound SR-41, Friant Road to Herndon Avenue
8. Northbound SR-41, Friant Road to Herndon Avenue
9. Southbound SR-41, South of Herndon Avenue
10. Northbound SR-41, South of Herndon Avenue

Existing highway segments were analyzed based on ~~the~~ peak hour volumes and are shown in Table 4.13-7 (Existing 2011 Highway Segment Level of Service), ~~while~~ Table 4.13-8 (Existing 2011 Freeway Segment Level of Service) illustrates the levels of service for existing (2011) freeway segments. All freeway and highway segments analyzed operate at an acceptable LOS D or better, ~~except for SR-41 south of Herndon Avenue in the PM peak hour.~~

■ Public Transit

The Madera County Connection provides transit service within eastern Madera County and service is provided along SR-41. Stop locations include the Children's Hospital, the SR-41/Road 145 park and ride lot, and downtown Madera. Due to lack of demand, there are currently no stops at the Project Site. The service runs daily from approximately 6:00 A.M. to 1:00 A.M. Transfers are provided between the Madera Area Express and the Fresno Area Express.

⁴⁴⁹ ~~For existing conditions only, highway segment extends from Avenue 14 1/2 to Avenue 12.~~

¹²⁰ Freeway segment analyzed in future scenarios only.

¹²¹ Freeway segment analyzed in future scenarios only.

Table 4.13-7 Existing Highway Segment Level of Service

Segment	Direction of Travel	Peak Hour	# of Lanes	Volume	Volume/Lane ^a	LOS
SR 41: North of Road 145	Southbound	AM	1	811	811	B
		PM		456	456	A
SR 41: North of Road 145	Northbound	AM	1	316	316	B
		PM		920	920	A
SR 41: Road 145 – Avenue 15	Southbound	AM	1	865	865	B
		PM		500	500	B
SR 41: Road 145 – Avenue 15	Northbound	AM	1	368	368	A
		PM		883	883	B
SR 41: Avenue 15 – Road 204	Southbound	AM	1	894	894	B
		PM		589	589	B
SR 41: Avenue 15 – Road 204	Northbound	AM	1	476	476	B
		PM		1104	1104	C
SR 41: Road 204 – Avenue 12	Southbound	AM	1	920	920	B
		PM		584	584	B
SR 41: Road 204 – Avenue 12	Northbound	AM	1	454	454	A
		PM		1110	1110	C

SOURCE: Fehr & Peers 2007^a. Roadway segments were analyzed using the volume per lane LOS thresholds for a Multi-Lane Rural Highway found in Table 4.13-3

Table 4.13-7 Existing 2011 Highway Segment Level of Service [Revised]

Segment	Direction of Travel	Peak Hour	# of Lanes	Volume	Density	LOS
SR-41: North of SR 145	Northbound	AM	1	313		A
		PM		870		B
SR-41: North of SR 145	Southbound	AM	1	796		B
		PM		549		B
SR-41: Avenue 15 to SR-145	Northbound	AM	1	300		A
		PM		738		B
SR-41: Avenue 15 to SR-145	Southbound	AM	1	790		B
		PM		473		B
SR-41: Road 204 to Avenue 15	Northbound	AM	1	389		A
		PM		918		B
SR-41: Road 204 to Avenue 15	Southbound	AM	1	1,046		C
		PM		577		B
SR-41: Avenue 12 to Road 204	Northbound	AM	1	372		A
		PM		1,032		C
SR-41: Avenue 12 to Road 204	Southbound	AM	1	1,071		C
		PM		584		B

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

LOS = level of service

BOLD denotes LOS standard has been exceeded.

Table 4.13-8 Existing Freeway Segment Level of Service

Segment	Direction of Travel	Peak Hour	# of Lanes	Volume	Density ^a	LOS
SR 41: Avenue 13 to Avenue 12	Southbound	AM PM		Future Analysis Only		
SR 41: Avenue 13 to Avenue 12	Northbound	AM PM		Future Analysis Only		
SR 41: Avenue 12 to Children's Boulevard	Southbound	AM PM	2	1,530 1,063	12 8	B A
SR 41: Avenue 12 to Children's Boulevard	Northbound	AM PM	2	824 1,775	6 14	A B
SR 41: Children's Boulevard to Friant Road	Southbound	AM PM	2	2,329 2,302	18 18	B B
SR 41: Children's Boulevard to Friant Road	Northbound	AM PM	2	1,595 2,575	12 20	B C
SR 41: Friant Road to Herndon Avenue	Southbound	AM PM	3	3,392 2,836	18 15	B B
SR 41: Friant Road to Herndon Avenue	Northbound	AM PM	3	2,238 3,663	12 19	B C
SR 41: South of Herndon Avenue	Southbound	AM PM	3	4,475 4,114	23 21	C C
SR 41: South of Herndon Avenue	Northbound	AM PM	3	3,675 4,982	19 27	C D

SOURCE: Fehr & Peers 2007

^a—Density measured in passenger cars per mile per lane

■ Pedestrian and Bicycle Facilities

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Limited sidewalks are provided along the existing roadways in the study area. Crosswalks are provided at major intersections.

Bicycle facilities include Class I bike paths, Class II bike lanes, and Class III bike routes. Bike paths are paved trails that are separated from roadways. Bike lanes are located in the street, and are identified by striping, pavement legends, and signs. Bike routes are roadways that have been designated for bicycle use and usually do not include additional pavement width for cyclists, and are identified by signs only.

There are no existing bicycle facilities within the Proposed Project Site. However, future facilities are planned and are described in the Madera County 2004 Regional Bicycle Transportation Plan as well as the Rio Mesa Area Plan (RMAP). A Class II bike lane is planned for Avenue 12 from Road 38 to SR-41. A Class III bike route is planned for Avenue 12 from SR-41 to the San Joaquin River. Furthermore, RMAP defined a conceptual circulation plan that included the provision of Class II bike lanes on all arterial, collector and local access roads, and the provision of Class III bike routes on all local rural roads.

Table 4.13-8 Existing 2011 Freeway Segment Level of Service [Revised]

<u>Segment</u>	<u>Direction of Travel</u>	<u>Peak Hour</u>	<u># of Lanes</u>	<u>Volume</u>	<u>Density^e</u>	<u>LOS</u>
<u>SR-41: Avenue 13 to Avenue 12</u>	<u>Northbound</u>	<u>AM</u> <u>PM</u>	<u>Future Analysis Only</u>			
<u>SR-41: Avenue 13 to Avenue 12</u>	<u>Southbound</u>	<u>AM</u> <u>PM</u>	<u>Future Analysis Only</u>			
<u>SR-41: Children's Boulevard to Avenue 12</u>	<u>Northbound</u>	<u>AM</u> <u>PM</u>	<u>2</u>	<u>738</u> <u>1,554</u>	<u>5.7</u> <u>12.0</u>	<u>A</u> <u>B</u>
<u>SR-41: Avenue 12 to Children's Boulevard to Avenue 12</u>	<u>Southbound</u>	<u>AM</u> <u>PM</u>	<u>2</u>	<u>1,689</u> <u>925</u>	<u>13.0</u> <u>7.1</u>	<u>B</u> <u>A</u>
<u>SR-41: Friant Road to Children's Boulevard</u>	<u>Northbound</u>	<u>AM</u> <u>PM</u>	<u>2</u>	<u>1,574</u> <u>2,316</u>	<u>12.1</u> <u>17.8</u>	<u>B</u> <u>B</u>
<u>SR-41: Friant Road to Children's Boulevard</u>	<u>Southbound</u>	<u>AM</u> <u>PM</u>	<u>2</u>	<u>2,303</u> <u>1,837</u>	<u>17.7</u> <u>14.2</u>	<u>B</u> <u>B</u>
<u>SR-41: Herndon Avenue to Friant Road</u>	<u>Northbound</u>	<u>AM</u> <u>PM</u>	<u>3</u>	<u>2,833</u> <u>4,249</u>	<u>14.6</u> <u>21.9</u>	<u>B</u> <u>C</u>
<u>SR-41: Herndon Avenue to Friant Road</u>	<u>Southbound</u>	<u>AM</u> <u>PM</u>	<u>3</u>	<u>3,900</u> <u>2,707</u>	<u>20.1</u> <u>13.9</u>	<u>C</u> <u>B</u>
<u>SR-41: South of Herndon Avenue</u>	<u>Northbound</u>	<u>AM</u> <u>PM</u>	<u>3</u>	<u>4,495</u> <u>5,710</u>	<u>23.3</u> <u>32.2</u>	<u>C</u> <u>D</u>
<u>SR-41: South of Herndon Avenue</u>	<u>Southbound</u>	<u>AM</u> <u>PM</u>	<u>3</u>	<u>5,111</u> <u>4,298</u>	<u>27.3</u> <u>22.2</u>	<u>D</u> <u>C</u>

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

LOS == level of service

BOLD denotes LOS standard has been exceeded.

4.13.2 Regulatory Framework

The key planning documents containing regulatory policies related to transportation were reviewed for the Proposed Project. These documents include the following:

■ Federal

There are no relevant federal regulations applicable to the Proposed Project.

■ State

There are no relevant State regulations applicable to the Proposed Project.

■ Regional

Madera County General Plan

The Circulation Element of the Madera County General Plan includes policies to ensure that adequate access is provided and maintained for all County land uses. The following are the goals and policies relevant to the Proposed Project.

Goal 2.A

To provide for the long-range planning and development of the county's roadway system, ensure the safe and efficient movement of people and goods, and provide sufficient access to existing and new development.

Policy 2.A.2 Existing and new streets and roads shall be dedicated, widened, and constructed according to the roadway design and access standards generally defined in Part I of this Policy Document. Exceptions to these standards may be necessary, but should be kept to a minimum. Exceptions shall be permitted only upon determination by the County Road Commissioner that safe and adequate public access and circulation are preserved where such exceptions are permitted.

Policy 2.A.3 The County shall continue to develop and implement the latest technology in road construction.

Policy 2.A.4 The County shall ensure the installation of signals, signs, lighting, and other traffic safety and operation improvements necessary for the safe and efficient movement of all types of traffic.

Policy 2.A.7 The County shall require that all medians on local streets be landscaped. Landscaping shall not interfere with public safety. The developer, in cooperation with the County, shall provide a mechanism for landscaping maintenance.

Policy 2.A.8 The County shall develop and manage its roadway system to maintain a minimum LOS D on all State and County Roadways. For planning applications, LOS shall be measured for roadway segments and shall be based on the capacities shown in Table 2.A.8 (and shown as Table 4.13-3 in this EIR). The County may also require analysis of specific intersections when intersections are deemed to be critical for specific projects or locations.

Policy 2.A.9 To identify the potential impacts of new development on traffic service levels, the County shall require the preparation of traffic impact analyses for developments determined to be large enough to have potentially significant traffic impacts. The County may allow exceptions to the LOS standards where it finds that the improvements or other measures required to achieve the LOS standards are unacceptable. In allowing any exception to the standards, the County shall consider the following factors:

- a. The number of hours per day that the intersection or roadway segment would operate at conditions worse than the standard.
- b. The ability of the required improvement to significantly reduce peak hour delay and improve traffic operations.
- c. The right-of-way needs and the physical impacts on surrounding properties.
- d. The visual aesthetics of the required improvement and its impact on community identity and character.

- e. Environmental impacts including air quality and noise impacts.
- f. Construction and right-of-way acquisition costs.
- g. The impacts on general safety.
- h. The impacts of the required construction phasing and traffic maintenance.
- i. The impacts on quality of life as perceived by residents.

Exceptions to the standards should be allowed only after all feasible measures and options are explored, including alternative forms of transportation.

Policy 2.A.10 The County shall strive to meet the LOS standards through a balanced transportation system that provides alternatives to the automobile.

Policy 2.A.13 Through-traffic shall be accommodated in a manner that discourages the use of neighborhood roadways, particularly local streets. This through-traffic, including through truck traffic, shall be directed to appropriate routes in order to maintain public safety and local quality of life.

Policy 2.A.19 The County shall assess fees on new development sufficient to cover the fair share portion of that development’s impacts on the local and regional transportation system. Exceptions may be made when new development generates significant public benefits (e.g., low income housing, needed health facilities) and when alternative sources of funding can be identified to offset foregone revenues.

Policy 2.A.21 The County shall require that new nonresidential development provide for off-street parking, either on-site or through contributions to consolidated lots or structures, particularly where these facilities are located in or near residential areas.

Goal 2.B To promote a safe and efficient mass transit system, including both rail and bus, to reduce congestion, improve the environment, and provide viable non-automotive means of transportation in and through Madera County.

Policy 2.B.7 The County shall, where appropriate, require new development to provide sheltered public transit stops, with turnouts. The County shall also consider development of turnouts in existing developed areas when roadway improvements are made or as deemed necessary for traffic flow and public safety.

Goal 2.C To maximize the efficient use of transportation facilities so as to: 1) reduce travel demand on the county’s roadway system; 2) reduce the amount of investment required in new or expanded facilities; 3) reduce the quantity of emissions of pollutants from automobiles; and 4) increase the energy-efficiency of the transportation system.

Policy 2.C.1 The County shall promote the use of transportation control measures (TCM) that divert automobile trips to transit, walking,

and bicycling, through planning and provision of appropriate facilities and incentives. TCM programs shall include the following:

- a. Passenger rail
- b. Trip reduction programs
- c. Telecommunications
- d. Traffic flow improvements
- e. Park-and-ride lots
- f. Ride-share programs
- g. Parking management
- h. Bicycling programs
- i. Short-range transit
- j. Alternative work schedules
- k. Fleet operators alternative fuel program

Policy 2.C.2 The County shall continue to investigate and promote feasible land use and transportation strategies that will result in fewer automobile trips. To this end, the County shall encourage the concentration of urban development to maximize the feasibility of transit.

Policy 2.C.5 The County should require major development projects to prepare transportation studies that address potential use of bicycle routes and facilities and the use of public transportation.

Goal 2.D To provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation to meet the needs of commuters and recreational users.

Policy 2.D.1 The County shall promote the development of a comprehensive and safe system of bicycle routes for short-range commuting and shopping trips and recreational uses. Bikeways should be constructed that will serve the greatest number of users.

Policy 2.D.4 The County shall encourage the provision of bicycle routes along state highways. Where this occurs, automobile and bicycle facilities shall be separated.

Policy 2.D.6 The County shall promote non-motorized travel (bikeways, pedestrian, and equestrian) through appropriate facilities, programs, and information, including through the school system and local media.

Policy 2.D.7 The County shall require developers to finance and install pedestrian walkways, equestrian trails, and multi-purpose paths in new development, as appropriate.

Goal 2.G To promote the efficient movement of goods and people within new growth areas and between new growth areas and other major destinations in the county and the region.

Policy 2.G.1 The County shall require that land use form and transportation systems in designated new growth areas be designed to provide residents and employees with the opportunity to accomplish

many of their trips within the new growth area by walking, bicycling, and using transit.

Policy 2.G.2 The County shall require that transportation systems and improvements planned and constructed in designated new growth areas provide links to transportation systems outside the new growth area and address impacts on transportation facilities outside the new growth area.

Goal 5.K To integrate air quality planning with the transportation planning process.

Policy 5.K.1 The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways. This includes traffic signals and traffic signal coordination, parallel roadways, and intra- and inter-neighborhood connections where significant reductions in overall emissions can be achieved.

Policy 5.K.2 The County shall continue and, where appropriate, expand the use of synchronized traffic signals on roadways susceptible to emissions improvement through approach control.

Policy 5.K.3 The County shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.

Policy 5.K.4 The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.

Policy 5.K.5 The County shall require large new developments to dedicate land for and construct appropriate improvements for suitably located park-and-ride lots, subject to the requirements of California Government Code Section 66000 et seq. (AB 1600).

Consistency Analysis

The goals expressed within the Madera County General Plan are reflected in the objectives for the Proposed Project. Table 4.13-9 (Madera County General Plan Consistency Analysis) reviews the consistency of the Tesoro Viejo Specific Plan with the relevant transportation policies in the Madera County General Plan.

Table 4.13-9 Madera County General Plan Consistency Analysis

<i>Circulation Element Goals & Policies</i>	<i>Project Consistency</i>
Goal 2.A	See Analysis Below
Policy 2.A.2	A hierarchical system of roadways is planned for the Proposed Project that includes the following six facility types: Core streets, community boulevards, collectors, residential streets, industrial-highway service-commercial streets, and alleys (see Figure 3-6: Conceptual Circulation and Trail Plan). These facility types roughly correspond with several of the Roadway Classifications identified in Table I-3 of the Madera County General Plan. In particular, the arterial, collector, and local roadway classes. The proposed roadway system is comparable in terms of function, access, typical spacing, and typical cross section. Therefore, the proposed system of roadways would be consistent to County guidelines and standards in terms of meeting the community's access and mobility needs.
Policy 2.A.3	The Specific Plan for the Proposed Project does not include any detailed information on roadway construction. It is a planning document, and as such deals with many characteristics of the proposed development at a conceptual level. This type of detailed information is normally developed as part of the design phase of the project. Roadway construction practices used as part of the development of the Proposed Project are not anticipated to deviate from methods currently employed by the transportation engineering industry. As a result, the Proposed Project would be expected to be consistent with this policy
Policy 2.A.4	<p>Implementation of the Proposed Project would include several features to ensure the safe and efficient movement of traffic. The Circulation Element of the Specific Plan identifies the following safety related elements:</p> <ul style="list-style-type: none"> ■ Standards for safe and attractive sidewalks are provided to ensure the creation of a pedestrian friendly environment. ■ Adequate and aesthetically pleasing lighting shall be provided for safety and security ■ Core streets, located in the "highest intensity" areas, such as the Town Center and the Village Center, are expected to see high pedestrian activity. The emphasis would be on keeping traffic speeds low on these streets. Due to the higher pedestrian volume, these streets would have the greatest amount of area dedicated to the pedestrian realm. ■ The streets in residential areas would have low speed limits, and the emphasis in these areas would be on walking, biking, neighborhood livability, and access to homes over automobile through traffic. ■ Trails and pathways should be well-lit and have relatively uninterrupted lines-of-sight to improve visibility and safety where high speeds may occur. ■ Curb radii at intersections in pedestrian focused areas should be 10 to 15 feet where curb bulb-outs are not used. ■ Marked crosswalks with high-visibility markings should be used at intersections where significant pedestrian travel is expected, such as near schools, shops, churches and community centers. ■ Pedestrian bulb-outs should be used to reduce pedestrian crossing distances at intersections, and to make pedestrians more visible to drivers. Bulb-outs should also use a minimum corner radius, which tends to help pedestrians by slowing the speeds of turning vehicles. ■ Where used, sidewalk bulb-outs should generally extend into the street for the width of a parking lane less one foot, in order to provide for a shorter crossing width, increased pedestrian visibility, more space for pedestrian queuing, and a place for sidewalk amenities and planting. ■ Pedestrian refuges should be used in wide or busy streets to improve the safety of pedestrians. Refuge islands should have preferred dimensions of 6 feet wide by 8 feet long. ■ Special attention should be paid to the streets surrounding schools to ensure that walking and bicycling are safe ways of getting from home to school and back. Additional measures to be considered in school zones include reduced speed zones; marked crosswalks; parking controls; traffic calming measures; crossing guards; signalized crossings with pedestrian activators; pedestrian refuge islands at intersections; technological devices at signalized intersections such as countdown pedestrian signals, audible signals, and passive pedestrian detection devices; and special crosswalk striping and school crossing signs. Furthermore, school buildings should be accessible to pedestrians from all sides, secure bike parking should be located close to the building's entrance, and bus drop-off zones are separated from auto drop-off zones to minimize conflicts. <p>Based on these safety element features described in the Specific Plan, the Proposed Project would be consistent with this policy.</p>
Policy 2.A.7	The Specific Plan states that all medians would be lined with large canopy trees; therefore, the Proposed Project would be consistent with this policy.

Table 4.13-9 Madera County General Plan Consistency Analysis

<i>Circulation Element Goals & Policies</i>	<i>Project Consistency</i>
Policy 2.A.8	Proposed roadways and intersections would be designed to provide a high LOS to vehicular traffic, which is consistent with County policies to provide sufficient capacity to maintain LOS D or better. Significant impacts at intersections and roadway segments are identified below in Section 4.13.3. All study area intersections are projected to operate at an acceptable LOS of LOS D or better with or without the Proposed Project. However, six intersections would require a greater amount of right-of-way in order to operate at an acceptable LOS with the addition of project traffic. In addition, implementation of the project would result in two intersections that are planned as roundabouts operating at an unacceptable LOS. Finally, implementation of the Specific Plan would result in two roadway segments operating at an unacceptable LOS without additional right-of-way. However, mitigation measures are identified below that would allow these impacted intersections and roadway segments to operate at an acceptable LOS. As a result, the Proposed Project would be consistent with this policy.
Policy 2.A.9	This policy refers to the identification of situations where the County's LOS standards may be relaxed. No such areas have been designated within the study area. For this reason, the Proposed Project would be consistent with this policy.
Policy 2.A.10	<p>There is a strong emphasis on designing the Proposed Project to encourage the use of alternative modes of travel. One of the major themes running throughout the Specific Plan is the concept of a pedestrian friendly environment. The main idea captured by the plan is of community cohesiveness around a community core which is as accessible as possible by non-vehicular means for residents of Tesoro Viejo and the adjoining villages.</p> <p>In particular, the Proposed Project includes an extensive pedestrian network, as well as an extensive network of trails that can be used by pedestrians and bicyclists, as illustrated in Figure 3-6 (Conceptual Circulation and Trail Plan). Bicycle lanes are also indicated on several of the street types that will be developed in the Proposed Project. In addition, the major roadways have been designed to accommodate future transit service, with transit stops located on the side medians of the Core Boulevards. Therefore, the Proposed Project is consistent with the intent of the Madera County General Plan to provide alternative means of transportation to the automobile.</p>
Policy 2.A.13	The Specific Plan roadway system has been designed to effectively separate thru-traffic from local traffic. Community Boulevards are generally located within mid- to low-density residential neighborhoods and the Highway Commercial and Industrial areas in the Western Gateway area, and serve as important routes for traffic that is moving through the Tesoro Viejo community. These streets are designed to accommodate higher volumes of traffic with features that serve to control traffic speeds. These roads include Road 204, Rio Mesa Boulevard, and the North-South Connector. The roadway network also includes several loop roads (North Loop, Avenue 14 Loop, and Hillside Loop) that would make it easy for traffic to reach every part of the community without using the quieter and slower residential streets. Finally, truck traffic would access commercial and industrial land uses via a network of Industrial/HCS Streets, which are specifically designed to accommodate these vehicles. For these reasons, the Proposed Project would be consistent with this policy.
Policy 2.A.19	This policy refers to the County's assessment of development impact fees as a means of paying for necessary roadway improvements. As discussed in Section 4.14.3, the Project Applicant(s) would pay a fair share contribution towards improvements to local and regional transportation systems. Therefore, the Proposed Project would be consistent with this policy.
Policy 2.A.21	The Specific Plan identifies parking standards for all land uses, including minimum parking stalls per use, site planning considerations, access, pedestrian circulation, lighting, paving surfaces, and landscaping. Several schematic figures in Section 3 of the Specific Plan also show illustrative depictions of the Highway Service, Commercial Office, and other areas that would require off-street parking. Table 3.7.1 shows minimum required parking guidelines that would be used to determine the amount of off-street parking. The plan also emphasizes the shared use of off-street parking to meet the requirements of two or more structures. Implementation of the proposed Specific Plan is anticipated to include a sufficient amount of off-street parking to meet the anticipated demand. As a result, the Proposed Project would be consistent with this policy.
Goal 2.B	See Analysis Below
Policy 2.B.7	The major roadways in the Specific Plan area have been designed to accommodate future transit service, with transit stops located on the side medians of the Core Boulevards. As no specific development plans for transit stops area are available, the Project Applicant would work with Madera County to provide sheltered transit stops with turnouts or on bulbouts. Therefore, the Proposed Project would be consistent with this policy.

Table 4.13-9 Madera County General Plan Consistency Analysis

<i>Circulation Element Goals & Policies</i>	<i>Project Consistency</i>
Goal 2.C	See Analysis Below
Policy 2.C.1	There are several key elements of the Specific Plan that demonstrate a commitment to diverting automobile trips to transit, walking, and bicycling modes through the planning and provision of appropriate facilities and incentives. Most notable is the extensive trail network that would run adjacent to the many open space corridors that cross through the site and that are parallel to primary roads. In addition, many of the street types defined in the Specific Plan provide on-street bicycle lanes, which provides scenic routes for people who wish to use the trails recreationally and direct and efficient routes for those wishing to use it as an alternative to driving to move within the community. Therefore, the Proposed Project would be consistent with this policy.
Policy 2.C.2	The Specific Plan reflects the integration of land use and transportation in a way that would result in fewer automobile trips. In particular, high density residential is clustered around mixed used development in the Town and Village Centers. As a result, the Proposed Project would be consistent with this policy.
Policy 2.C.4	The proposed Specific Plan includes several vehicle trip reduction measures. Most notable, is the way the plan balances jobs and housing, and proposes a mix of different land uses within close proximity to each other. The balancing jobs and housing would enable many residents to live and work within the same community. By arranging a mix of different land uses in close proximity to each other, such as residential next to retail, or residential next to office, residents would be provided with opportunities to walk or bike to the store or to the office. The proposed plan also includes an extensive network of trails and on-street bicycle lanes that would run adjacent to the many open space corridors that cross through the site and parallel primary roads. In this way the trails would provide direct and efficient routes for those wishing to use them as an alternative to driving. For these reasons, the Proposed Project would be consistent with this policy.
Policy 2.C.5	See discussion for Policies 2.A.10 and 2.C.1.
Goal 2.D	See Analysis Below
Policy 2.D.1	See discussion for Policies 2.A.10 and 2.C.1.
Policy 2.D.6	See discussion for Policies 2.A.10 and 2.C.1.
Policy 2.D.7	The Project Applicant of Proposed Project would finance and install pedestrian walkways, and multi-purpose paths. Therefore, the Proposed Project would be consistent with this policy.
Goal 2.G	See Analysis Below
Policy 2.G.1	See discussion for Policies 2.A.10 and 2.C.1. The land use form and transportation systems in the study area have been designed to provide residents and employees with opportunities to accomplish many of their trips within the new growth area either by walking, bicycling, and using transit. For this reason, the Proposed Project would be consistent with this policy.
Policy 2.G.2	The roadway system for the Proposed Project would connect directly with State Route 41, Road 204, Avenue 14, and Avenue 15. In addition, the proposed hiking and biking trails along the greenways would link the Community Core and residential neighborhoods with the San Joaquin River. Proposed trail connections would also provide access to the Little Table Mountain area and adjoining communities. Therefore, the transportation systems in the new growth area provide links to transportation systems outside the new growth area. As discussed in Section 4.14.3, implementation of the Specific Plan would impact transportation facilities outside of the new growth area. All study area intersections are projected to operate at an acceptable LOS of LOS D or better under Cumulative (2025) conditions with or without the Proposed Project. However, six intersections would require a greater amount of right-of-way in order to operate at an acceptable LOS with the addition of project traffic. In addition, implementation of the Specific Plan would result in two roadway segments operating at an unacceptable LOS without additional right-of-way. However, mitigation measures are identified below that would allow these impacted intersections and roadway segments to operate at an acceptable LOS. Based on the above, the Proposed Project would be consistent with this policy.

Table 4.13-9 Madera County General Plan Consistency Analysis

<i>Circulation Element Goals & Policies</i>	<i>Project Consistency</i>
Goal 5.K	See Analysis Below
Policy 5.K.1	<p>The Specific Plan presents a conceptual circulation plan for the Proposed Project. Based on the level of information provided, a traffic analysis was conducted of the internal roadways (see traffic impact analysis report prepared by Fehr & Peers in Appendix H of this EIR). The analysis revealed that proposed major internal project roadways would operate at an acceptable LOS (i.e., LOS D or better) with projected 2025 daily volumes. However, when the following major intersections were evaluated as two-lane roundabouts, they were found to operate at unacceptable LOS during the peak hour:</p> <ul style="list-style-type: none"> ■ Road 204/Rio-Mesa Boulevard/East-West Connector ■ Road 204/North-South Connector <p>The Road 204/Rio Mesa Boulevard five legged intersection can be made to operate at LOS D or better if the proposed roundabout approaches flare from two lanes to three lanes. The Road 204/North-South Connector intersection would not meet the LOS D standard as a roundabout, but would work as a conventional signalized intersection, with three lane approaches on Road 204 and two lanes on the North-South Connector, with single turning lanes on all approaches, assuming that local streets are provided. With local streets, this roundabout may meet the LOS D standard. In any case, mitigation measures are identified that would allow these impacted intersections to operate at an acceptable LOS. Therefore, the Proposed Project would be consistent with this policy.</p>
Policy 5.K.2	<p>The primary roadway that is susceptible to emissions improvement through approach control is SR-41. As part of the cumulative no project intersection and roadway improvements identified in Table 4.13-12 all of the existing non-signalized intersections along SR-41 would be signalized. These include the following:</p> <ul style="list-style-type: none"> ■ SR-41/Avenue 15 ■ SR-41/Road 204 <p>In addition, a new intersection would be created at Avenue 13, and this intersection would also be signalized. With these improvements, all of the intersections along SR-41, between Nees Avenue and Road 145 would be signalized. The responsibility for management of this roadway and synchronization of these signals would rest with Madera County. As a result, the Proposed Project would be consistent with this policy.</p>
Policy 5.K.3	See discussion for Policies 2.A.10 and 2.C.1.
Policy 5.K.4	Transit service would be provided to the proposed development by the Madera County Connection bus service. The Specific Plan does not include any detailed information on the financial arrangement between the Proposed Project and the transit provider with regards to future transit service. However, the Project Applicant, in consultation with Madera County, would pay a fair share contribution towards the cost of transit equipment and facilities to serve the proposed development. For this reason, the Proposed Project would be consistent with this policy.
Policy 5.K.5	<p>There are two existing park-and-ride lots in the immediate vicinity of the Proposed Project. One is in the community of Rolling Hills, along SR-41, approximately 4 miles south of the Project Site. The other is located at the intersection of SR-41 and Road 145, approximately 4 miles north of the Project Site.</p> <p>There are several logical locations for park-and-ride lots within the proposed development, such as the highway service/commercial land use located along SR-41. As no specific development plans within the Specific Plan area are available, the Project Applicant would work with Madera County to identify and construct park-and-ride lots. Therefore, the Proposed Project would be consistent with this policy</p>

Madera County 2009 Road Impact Fee Program Update

The Madera County General Plan requires the County to “assess fees on new development sufficient to cover the fair share portion of a development’s impacts on the local and regional transportation system.” To accomplish this, the County “prepared and adopted a Traffic Fee Allocation Ordinance implementing traffic mitigation fees for the Capital Improvement Program (CIP) in 1995.” The Program was amended in 1996. A CIP was also adopted that “includes transportation improvements designed to achieve adopted level of service (LOS) standards based on a horizon of at least 15 years.”

After publication of the 2008 Final EIR, Madera County updated its Road Impact Fee Program (2009 Fee Program) for improvements along SR-41 and within the remainder of the County, demonstrating the County's continued commitment to a program of fair share allocations (VRPA Technologies, Inc. 2009). The County's efforts produced additional funding sources to upgrade and maintain the existing and future transportation systems. The 2009 Fee Program was necessary to address changes in land use and development patterns and to reflect changes in the Regional Traffic Model, which was revised in 2001.

The 2009 Fee Program is provided as Appendix H3. It includes the justification for the 2009 Fee Program and also provides a list of CIP projects for the County roadway system. California law requires that there be a nexus between fees levied on new development and facilities to be improved with the fees. This study updates the research and analysis to support the nexus between fees levied on new development within the County and roads that will need to be improved as a result of that new development. The nexus requirement, along with other relevant requirements of state law, is addressed in the 2009 Fee Program.

Madera County 2004 Regional Transportation Plan

The 2004 Regional Transportation Plan (RTP) provides a comprehensive, coordinated long-range transportation plan for projects in the region. It is prepared by the Madera County Transportation Commission (MCTC), which is the Regional Transportation Planning Agency (RTPA) for Madera County. The RTP establishes the goals, objectives, and policies for future transportation improvements. The RTP also identifies the actions that should be taken and the funding needs and options available for successful implementation.

The RTP maintains a LOS standard of "D" for local facilities. Any segment of local roadway that is worse than LOS D is considered to be a deficiency in the transportation system. These deficiencies may then become the basis for project priorities in the capital improvement program. Caltrans' LOS standard is "C" on routes within the Interregional Road System, which includes state routes 41, 49, 99, 145, 152, and 153. However, Caltrans acknowledges that this standard may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS.

The RTP establishes the following seven goals to provide a multimodal transportation system in Madera County:

- Promote affordable, accessible, and viable public and private transportation systems responsive to current and future users.
- Retain and increase economic activity and competitiveness through improved transportation systems, including Intelligent Transportation Systems.
- Enhance transportation system coordination, efficiency, and intermodal connectivity.
- Maintain a safe and reliable transportation system in a state of good repair.
- Encourage the coordination of land use decisions and transportation systems.
- Improve the quality of the natural and human environment through the implementation of effective transportation systems, including Intelligent Transportation Systems.
- Maximize funding to maintain and improve the transportation network.

The RTP contains a series of transportation improvement projects, some of which could potentially benefit the Proposed Project including widening SR-145, Avenue 12, and SR-41. These improvements are divided into two categories: those for which funding have been identified from an established source, such as State or federal funds; and those for which funding would need to be identified before construction could begin. Project priorities were based on the goals discussed above.

Consistency Analysis

The future year analysis for the project was conducted using the MCTC Rio Mesa Traffic Model V2.0. As an RTPA, MCTC is responsible for developing and maintaining a microcomputer-based traffic simulation model that includes latest planning assumptions described in the RTP regarding the growth and distribution of population, and developed land. Therefore, by using the MCTC Rio Mesa model, the traffic analysis would be consistent with the Madera County 2004 RTP.

Madera County 2004 Regional Bicycle Transportation Plan

The Madera County 2004 Regional Bicycle Transportation Plan, prepared in January 2004, identifies a desire to create an extensive bicycle transportation network in Madera County including individual cities and unincorporated areas. The document establishes the following four goals as well as policies to meet these goals:

- Provide safe, accessible, and continuous bicycle facilities as an integral component of a multi-modal transportation network.
- Recognition of the bicycle as a viable alternative mode of transportation that necessitates inclusion in local, regional, and state transportation planning efforts.
- Promote bicycle safety through the education and enforcement of traffic laws.
- Advance the development of a continuous bicycle transportation network through the maximization of funding opportunities.

RMAP provides conceptual circulation plans for the development of bicycle facilities which include Class II bike lanes on all arterial, collector and local access roads except local rural roads where Class III routes would be designated as needed. Specifically, bike lanes are proposed along Children's Boulevard from SR-41 to the Children's Hospital, and Avenue 12 from Road 38 to SR-41.

Consistency Analysis

The Tesoro Viejo Specific Plan includes a great deal of information on the prominent role that alternative modes of transportation would play in the proposed development. A key part of the vision for the project is the desire to enable the residents of the community, and the people that would be working there, to make trips by walking, biking, or utilizing public transit, as opposed to the automobile. The Specific Plan describes the network of trails, and how the network would be developed in such a way to ensure that users of these trails would be safe. The trails cross the community, and travel along the Madera Canal, and other open space conservation areas, and parallel many of the major roads. The trails would tie into regional bike facilities at several points. In the east, the trail would connect with the proposed San Joaquin River trail. In the west, the trail would connect with the existing north/south Class III bike route along the SR-41 corridor. Furthermore, every effort would be made to ensure that the trail system can connect to other trail systems on adjacent properties (North Fork Village, Avenue

Twelve Village) where feasible. The Specific Plan also includes a provision for the supply of bike parking, and on-street bicycle lanes on several of the Specific Plan’s street types. These elements are all consistent with the Madera County Regional Bicycle Transportation Plan’s goals to provide safe, accessible, and continuous bicycle facilities as an integral component of a multi-modal transportation network; and to recognize the bicycle as a viable alternative mode of transportation that necessitates inclusion in local, regional, and state transportation planning efforts.

Although the Specific Plan does not specifically address the other goals of the regional bike plan, they are implied in the spirit of the plan. These other goals include promoting bicycle safety through the education and enforcement of traffic laws; and advancing the development of a continuous bicycle transportation network through the maximization of funding opportunities.

Rio Mesa Area Plan

The Project is part of the Rio Mesa Area Plan, which is a 15,000-acre mixed-use development. The circulation element of RMAP includes the following goals and policies:

- Goal 1** Provide a safe and efficient circulation system for the movement of people and goods throughout the area plan.
 - Policy 1.1** Circulation design shall take into account land use and transportation plans of Madera County, Caltrans, the City of Madera, and Fresno County.
 - Policy 1.2** Create a transportation system that minimizes impacts on adjacent communities.
- Goal 2** Provide a circulation system which supports planned land uses while maintaining a desired LOS on all streets and at all intersections.
 - Policy 2.1** Maintain a LOS not less than LOS “D” for intersections during peak hours.
- Goal 3** Encourage east/west linkages to connect the project to other activity areas within the County
 - Policy 3.1** Extend Avenues 9, 12, and 15 into the project area to promote east/west linkages.
- Goal 4** Provide for a non-vehicular circulation system to connect activity centers throughout the area plan and to connect development areas to the San Joaquin River Parkway and master trail system, as may be adopted by the San Joaquin River Conservancy and Madera County pursuant to state law.
 - Policy 4.1** The trails system should be coordinated with regional trail planning.
 - Policy 4.2** Provide for limited access to the river corridor in the form of roads, trails, and staging areas, in a manner consistent with the San Joaquin River Parkway Plan as approved by the Parkway Conservancy and Madera County.

Policy 4.3 Plan for an extensive trails system to link the campus with the community at large (applies to the University Overlay Plan).

In addition, the RMAP includes bus turnouts and shelters, sidewalks on all street sections (except local rural roads) and similar off-street trails, and bicycle facilities along project roadways.

Consistency Analysis

The proposed Circulation Plan for Tesoro Viejo is based on the Rio Mesa Area Plan, with adjustments to ensure consistency with the principles of the Specific Plan. Therefore, there is a high degree of consistency with the Rio Mesa Area Plan. Various refinements and modifications have been made to adjust both for current approved plans for the adjacent North Fork Village and expected development in the Avenue Twelve Village. As discussed above, both the North Fork Village and Avenue Twelve Villages are also part of the Rio Mesa Area Plan.

■ Local

There are no relevant local regulations applicable to the Proposed Project.

4.13.3 Project Impacts and Mitigation

■ Analytic Method

This section describes the development. In response to the court's order, new 2011 traffic counts were obtained to establish the Existing 2011 (Baseline) scenario. The 2012 revised traffic impact study provides an assessment of the traffic forecasts. Whereas the Proposed Project is expected to generate in 2015, 2020, and 2025 compared to existing (2011) conditions as well as for cumulative traffic for interim years 2015 and 2020. The Existing Plus Project scenarios assume the existing (2011) street network, whereas the cumulative interim scenarios assume limited roadway improvements required to provide access to assumed Rio Mesa cumulative development (Avenue 12, Avenue 13, and Rio Mesa Boulevard access). The cumulative year (2025) traffic forecasts both with and without the Proposed Project are unchanged, analysis of the existing conditions traffic described in Section 4.14.1 is based on existing, or Base (2007) year, traffic counts since these scenarios evaluate future buildout conditions and were accepted by the court subject to explanation of the basis for cumulative development forecasts provided below.

Atkins independently peer-reviewed the Revised Traffic Impact Study (VRPA Technologies, Inc., March 26, 2012), which is included as Appendix H1 to this EIR, with respect to data, the future year methodologies, and conclusions to confirm the adequacy of the information to support the impact analysis is based on traffic provided herein.

■ Cumulative Buildout Forecasts for 2025

Traffic forecasts that for the 2025 buildout scenario were developed using the MCTC travel demand forecasting model. Two future year scenarios were developed. The "without project" scenario includes all of the land use growth and highway improvements that are projected to occur in the eighteen years

between the existing conditions year and the cumulative year (2025), but not including the Proposed Project’s land use data. The “with project” scenario adds in the Proposed Project’s land use data to the cumulative year (2025) baseline. The steps involved in developing the future year forecasts are described below.

A memorandum by the MCTC, which is included in Appendix H2 of this document, describes the basis for the cumulative 2025 forecast used in the Rio Mesa Traffic Model.

The Rio Mesa Traffic Model uses cumulative population and employment forecasts that are based on Department of Finance (DOF) population projections for Madera County and neighboring counties, supplemented by historical growth patterns and local agency plans and local agency judgments to forecast future housing and employment for subareas within the counties. As further described in the MCTC memorandum, the Rio Mesa Cumulative 2025 Forecast for the entire Rio Mesa Area was arithmetically determined to be approximately 30 percent of the Cumulative Full Buildout Scenario for the same area, providing the basis upon which to make decisions regarding distribution of projected growth among subareas (or projects) within the Rio Mesa Area and their corresponding traffic analysis zones (TAZs). The results are those shown in the 2008 Final EIR and have not been changed.

■ Project Land Use

The key input to the MCTC model is the land use data associated with existing and proposed development. Residential development is defined in terms of dwelling units. Commercial development is defined in terms of thousands of square feet (KSF/ksf). A listing of the residential and non-residential elements of the Proposed Project, including the Jamison and Morgan properties, is provided in Table 4.13-10 (Tesoro Viejo Specific Plan Residential and Non-Residential Elements).

Table 4.13-10 Tesoro Viejo Specific Plan Residential and Non-Residential Elements [Revised]	
Residential Units	Non-Residential Units
<ul style="list-style-type: none"> ■ 715 high-density residential dwelling units (DUs) ■ 2,092 medium density ■ 2,195 low density^a ■ 451 very low density 	<ul style="list-style-type: none"> ■ 2,034,000 square feet of retail ■ 2,134,000 square feet of industrial/business park^b ■ 335,000 square feet of office ■ 76,000 square feet of public and institutional ■ 3060 acres of school^c ■ 335 acres of open space^d
TOTAL Total of 5,453 residential units^a	TOTAL Total of 4,579 KSF ksf nonresidential^b
<p>^a Includes 263 units on the Jamison property</p> <p>^b Includes 1,500,000 494,108 square feet industrial on the Morgan property</p> <p>^c Elementary schools</p> <p>^d Includes approximately 118 acres of the Jamison property</p>	

As indicated by Table 4.13-10, the traffic study prepared for the Proposed Project includes approximately 263 residential units associated with the Jamison property and 1,500,000 square feet of industrial uses associated with the Morgan property based on RMAP. With respect to the environmental analysis for the Proposed Project, the traffic analysis is the only analysis that specifically accounted for the Morgan and Jamison properties. Initially, the Morgan and Jamison properties were included in the traffic analysis

because collectively, those properties and the Proposed Project comprise the Rio Mesa Village, which is one of the three villages in the Rio Mesa Area Plan. While there are no development applications on file with the County for the Morgan and Jamison properties, and there are none anticipated in the near term, the County felt that it would be appropriate to determine the Rio Mesa Village transportation infrastructure considering all potential development in the village. At the conclusion of the traffic study, it was determined that the vast majority of the impacts were attributed to the Tesoro Viejo project. A detailed assessment of the percent contribution attributable to each of the projects is provided in Tables 16A, 16B, 16C, and 17 of the traffic impact analysis report, which itself is provided as Appendix H of this EIR. In summary, the Tesoro Viejo project accounts for approximately 90 percent of the traffic impacts in the Rio Mesa Village (with the least contribution of 83.7 percent and the greatest contribution of 93.4 percent).

As a result refinements made to the Proposed Project during the planning process, which occurred after the MCTC Rio Mesa Traffic Model V2.0 was developed and finalized, the Project reflects less commercial and light industrial uses than assumed in the MCTC Rio Mesa Traffic Model and reflected in Table 4.13-11. Overall, the Proposed Project would generate fewer trips than assumed in the MCTC Rio Mesa Traffic Model. However, in order to provide a worst-case scenario in terms of the total number of trips generated by the Proposed Project, this analysis is consistent with the higher employment assumptions used in the traffic analysis. It is estimated that the traffic analysis overstates traffic impacts by not more than 5 percent.

1. *Trip Generation*—The amount of traffic entering and exiting the Project Site was estimated.
2. *Trip Distribution*—The directions trips use to approach and depart the site was projected.

The results for each step are described in the following sections.

Table 4.13-11 Madera County Urban Area Trip Generation Rates

<i>Land use</i>	<i>Units</i>	<i>Home-Work</i>	<i>Home-Shop</i>	<i>Home-Other</i>	<i>Non-Home</i>	<i>Total</i>
Productions						
Single Family	Dwelling Units	2.574	1.430	3.875	2.903 ^a	7.879 ^b
Multi-Family	Dwelling Units	1.860	1.144	1.573	1.502 ^a	4.577 ^b
Attractions						
Retail	Employment	3.773	5.600	4.675	8.023	30.094 ^c
Office	Employment	2.772		1.360	1.232	6.596 ^c
Industrial	Employment	2.772		0.510	0.308	3.898 ^c
Other	Employment	2.310		1.360	1.232	6.134 ^c
Government	Employment	1.232		0.187	0.169	1.757 ^c
Education	Employment	1.694		6.290	2.310	12.604 ^c

SOURCE: Madera County 2001

^a Used for control total only.

^b Non-home based trips not included in total.

^c Total includes Non-home based trips x 2 to account for Non-Home base reallocation to non-home uses.

■ Trip Generation

The amount of traffic generated by the Proposed Project was estimated using the MCTC Rio Mesa Traffic Model V2.0 adopted in 2002. This model projects daily traffic for future 2025 conditions. The trip generation rates for the traffic model are calibrated for Madera County and three categories of rates are provided i.e., urban, foothills/mountains and rural. The Proposed Project is considered urban. Rates are provided for home-work, home-shop, home-other, non-home based, internal-external, and external-internal purposes. Table 4.13-11 (Madera County Urban Area Trip Generation Rates) provides MCTC daily trip generation rates for productions (i.e., residential uses) and attractions (i.e., jobs) in urban areas.

Based on buildout assumptions and observed historical local data, Fehr & Peers assumed that AM peak hour volumes comprise 8.1 percent of ADT and PM peak hour volumes comprise 9 percent of ADT. Directionality was determined using ITE inbound/outbound trip generation percentages for the AM and PM peak hours.

The Rio Mesa Traffic Model is currently unable to produce model runs for the Existing (2011) Plus Project and interim year scenarios. Therefore, in order to determine Project trips for these additional scenarios while remaining consistent with the 2025 forecasts in the 2008 Final EIR, the following approach was applied as part of the 2012 analysis:

1. Initial AM and PM peak hour Project trip generation was calculated for the existing plus Project and interim scenarios using trip rates contained in the ITE *Trip Generation Manual, 8th Edition*.¹²² Trip generation calculations performed for the year 2015 and 2020 conditions reflect development of a portion of the Tesoro Viejo Specific Plan along with the expected land uses for year 2025 buildout conditions. The Project description and land use assumptions are consistent with the 2008 Final EIR Project description for all land uses except the Shopping Center and Office square footages.
2. A ratio of total trips generated for the interim 2015 and 2020 conditions to the total trips generated for the 2008 Final EIR full buildout (2025) conditions was calculated. The ratios for the two partial build scenarios were then applied to the full build 2025 Project trips. For example, if the 2015 ratio is determined to be 0.33 (or 33 percent), the 2025 Project trips assigned to the study intersections would be multiplied by 0.33 to obtain Project trips for 2015 on an intersection level.
3. Year 2025 buildout Project trips from the 2008 Final EIR were derived by subtracting “Cumulative 2025 Without Project Trips” from the “Cumulative 2025 With Project Trips.” This step, in addition to the calculations detailed in Step 2, resulted in three sets of turning movement counts for the 2015, 2020, and 2025 Project trips.
4. The Project trips calculated using the above approach were then added to the various “without Project” scenarios and used for the determination of Proposed Project impacts.

Considering the trip generation process described above, the trip generation comparison by scenario is shown in Table 4.13-11(a) (Project Trip Generation by Scenario).

¹²² ITE trip generation for the existing plus project and interim scenarios (in the revised 2012 study) was determined for the sole purpose of comparing to the Full Buildout in 2025 ITE trip generation. The ITE trip generation estimates were not directly used in the LOS analyses.

Table 4.13-11(a) Project Trip Generation by Scenario [New]

Land Use ^a	Size	AM Peak Hour					PM Peak Hour				
		Rate	In:Out	Volume			Rate	In:Out	Volume		
				In	Out	Total			In	Out	Total
Project Buildout (from 2007 Transportation Impact Analysis Report)^b											
Multi-Family Residential (220)	715 du	0.51	20:80	73	292	365	0.62	65:35	288	155	443
Single Family Residential (210)	4,738 du	0.75	25:75	888	2,665	3,554	1.01	63:37	3,015	1,771	4,785
Shopping Center (820)	2,034 ksf	1.00	61:39	1,241	793	2,034	3.73	49:51	3,718	3,869	7,587
Light Industrial (110)	2,134 ksf	0.92	88:12	1,728	236	1,963	0.97	12:88	248	1,822	2,070
Office (710)	335 ksf	1.55	88:12	457	62	519	1.49	17:83	85	414	499
Public Institutional ^c	76 ksf	2.70	90:10	185	21	205	3.60	30:70	82	192	274
Elementary School (520)	600 students	0.45	55:45	149	122	270	0.15	49:51	44	46	90
High School (530)	1,000 students	0.42	68:32	286	134	420	0.13	47:53	61	69	130
Total				5,005	4,324	9,330			7,541	8,337	15,878
Project Buildout (2012 Revised Traffic Impact Study)											
Multi-Family Residential (220) ^b	715 du	0.51	20:80	73	292	365	0.62	65:35	288	155	443
Single Family Residential (210) ^b	4,738 du	0.75	25:75	888	2,665	3,554	1.01	63:37	3,015	1,771	4,785
Shopping Center (820) ^d	2,028,807 ksf	1.00	61:39	1,238	791	2,029	3.73	49:51	3,708	3,859	7,567
Light Industrial (110) ^e	2,134,440 ksf	0.92	88:12	1,728	236	1,964	0.97	12:88	248	1,822	2,070
Office (710) ^d	259,182 ksf	1.55	88:12	354	48	402	1.49	17:83	66	321	386
Public Institutional ^c	76,230 ksf	2.70	90:10	185	21	206	3.60	30:70	82	192	274
Elementary School (520)	600 students	0.45	55:45	149	122	270	0.15	49:51	44	46	90
High School (530)	1,000 students	0.42	68:32	286	134	420	0.13	47:53	61	69	130
Total				4,900	4,308	9,208			7,513	8,235	15,747
Percent of Buildout (compared to TIAR and EIR)						98.7%					99.2%
Project 2015 (20% Residential and 10% Nonresidential)											
Multi-Family Residential (220)	143 du	0.51	20:80	15	58	73	0.62	65:35	58	31	89
Single Family Residential (210)	948 du	0.75	25:75	178	533	711	1.01	63:37	603	354	957
Shopping Center (820)	202,881 ksf	1.00	61:39	124	79	203	3.73	49:51	371	386	757
Light Industrial (110)	213,444 ksf	0.92	88:12	173	24	196	0.97	12:88	25	182	207
Office (710)	25,918 ksf	1.55	88:12	35	5	40	1.49	17:83	7	32	39
Public Institutional ^c	7,623 ksf	2.70	90:10	19	2	21	3.60	30:70	8	19	27
Elementary School (520)	60 students	0.45	55:45	15	12	27	0.15	49:51	4	5	9
High School (530)	100 students	0.42	68:32	29	13	42	0.13	47:53	6	7	13
Total				586	727	1,313			1,082	1,016	2,098
Percent of Buildout (compared to TIAR and EIR)						14.1%					13.2%

Table 4.13-11(a) Project Trip Generation by Scenario [New]

Land Use ^a	Size	AM Peak Hour					PM Peak Hour				
		Rate	In:Out	Volume			Rate	In:Out	Volume		
				In	Out	Total			In	Out	Total
Project 2020 (50% Residential and 25% Nonresidential)											
Multi-Family Residential (220)	358 du	0.51	20:80	36	146	182	0.62	65:35	144	78	222
Single Family Residential (210)	2,369 du	0.75	25:75	444	1,333	1,777	1.01	63:37	1,507	885	2,393
Shopping Center (820)	507,202 ksf	1.00	61:39	309	198	507	3.73	49:51	927	965	1,892
Light Industrial (110)	533,610 ksf	0.92	88:12	432	59	491	0.97	12:88	62	455	518
Office (710)	64,796 ksf	1.55	88:12	88	12	100	1.49	17:83	16	80	97
Public Institutional ^c	19,058 ksf	2.70	90:10	46	5	51	3.60	30:70	21	48	69
Elementary School (520)	150 students	0.45	55:45	37	30	68	0.15	49:51	11	11	23
High School (530)	250 students	0.42	68:32	71	34	105	0.13	47:53	15	17	33
Total				1,465	1,816	3,282			2,704	2,540	5,244
Percent of Buildout (compared to TIAR and EIR)						35.2%					33.0%

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

du = dwelling units, ksf = thousand square feet

a. Numbers in parentheses correspond to the land use code contained in the ITE Trip Generation Manual.

b. The residential uses include 263 du from the Jamison parcel, for a total of 5,453 du, which is consistent with the assumptions in the 2007 traffic report.

c. SOURCE: Fresno COG Trip Rates. All other trip rates from ITE *Trip Generation Manual, 8th Edition*.

d. The square footage associated with the shopping center and office uses have been revised in the 2012 revised traffic study to be consistent with the assumptions in the 2008 *Tesoro Viejo Specific Plan* and 2008 *Final FIR*.

e. The light industrial uses include 1,494,108 square feet of light-industrial development associated with the Morgan parcel, for a total of 2,134,440 square feet, which is consistent with the assumptions in the 2007 traffic report.

■ Project Trip Distribution

The distribution of traffic generated by the Proposed Project was estimated using the MCTC Rio Mesa Traffic Model V2.0. Based on the model, approximately 5 percent of project trips are expected to head north of the Project Site on SR-41, 25 percent south on SR-41, and 13 percent west. It was assumed that 30 percent of proposed development in the Rio Mesa modeling area (i.e. the Rio Mesa Area Plan plus adjacent projects west of SR-41) was developed by the time the Proposed Project was fully constructed. Based on this assumed land use pattern, 57 percent of the project trips stay within the Rio Mesa area, which includes the Tesoro Viejo, Morgan, and Jamison properties. The actual internalization rate for the Tesoro Viejo project is estimated to be 35 percent. Project trip distribution to the surrounding area is illustrated in Figure 4.13-4 (Project Trip Distribution).

As noted earlier, in the revised 2012 traffic study, some manual adjustments were made to redistribute traffic for Project trips at future study intersection and segment locations that were not functional or improved when considering the 2011 traffic network. While some manual adjustments were made, overall trip distribution patterns reflected in the 2012 report are similar to what was assumed in the 2008 Final EIR. The method of determining trip distribution in the revised 2012 traffic study was to subtract “Without Project” volumes from “With Project” volumes. Peak hour Project trips anticipated at study

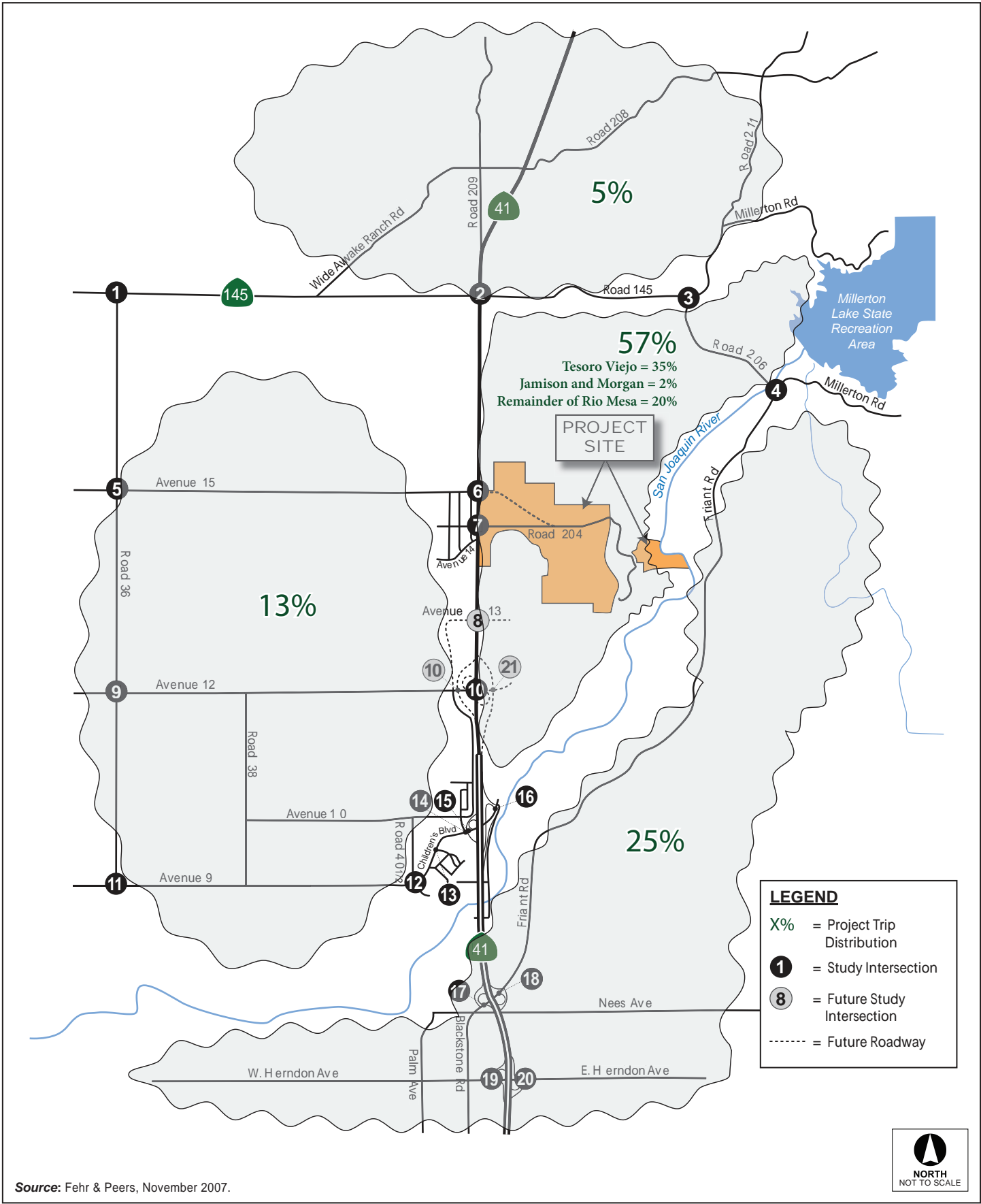


Figure 4.13-4
Project Trip Distribution

intersections for the year 2015 forecast are shown in Figure 4.13-4(a) (Peak Hour Project Trips for the Existing Plus Project in 2015 Scenario [20% Residential and 10% Nonresidential Buildout]) and Figure 4.13-4(b) (Peak Hour Project Trips for the Interim 2015 Scenario [20% Residential and 10% Nonresidential Buildout]). Peak hour Project trips anticipated at study intersections for the year 2020 forecast are shown in Figure 4.13-4(c) (Peak Hour Project Trips for the Existing Plus Project in 2020 Scenario [50% Residential and 25% Nonresidential Buildout]) and Figure 4.13-4(d) (Peak Hour Project Trips for the Interim 2020 Scenario [50% Residential and 25% Nonresidential Buildout]). Peak hour Project trips anticipated at study intersections for the year 2025 forecast are shown in Figure 4.13-4(e) (Peak Hour Project Trips for the Existing Plus Project in 2025 Scenario [Full Buildout]).

■ Cumulative (2025) Traffic Forecasts

The MCTC Rio Mesa Traffic Model V2.0 produces daily forecasts for the roadways throughout Madera County and Fresno County based on projected land use development and roadway improvements. Land uses for the Project Site were removed from the model to develop “without project” forecasts.

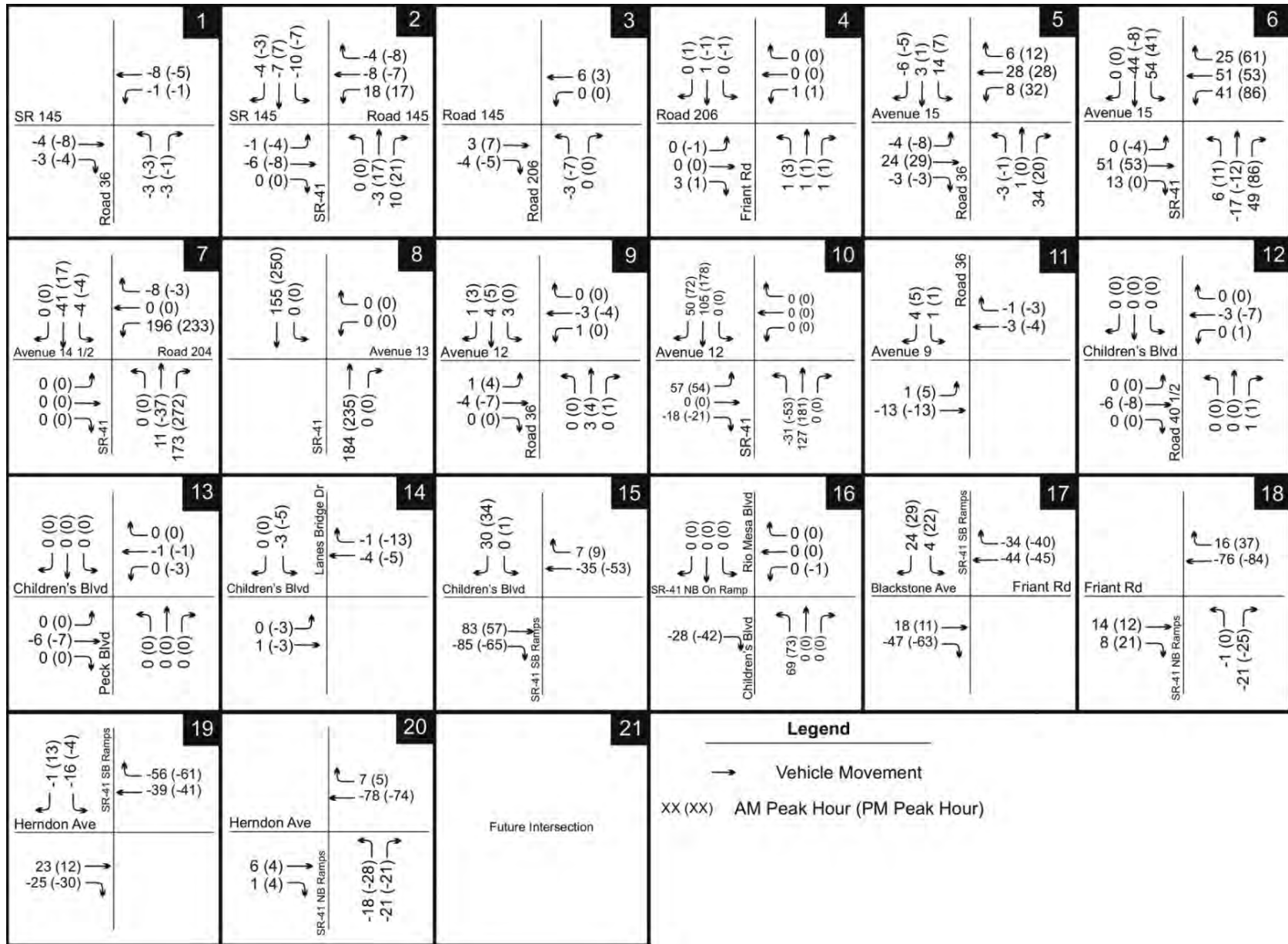
Given the build-out assumptions that have already been incorporated into the future model estimates and the local data that indicate the region has not experienced peak hour volumes that exceed 9 percent of annual ADT for the past 8 years, peak hour factors of 8.1 percent in the AM and 9 percent in the PM were used for developing future forecasts estimates for operational analysis. Directionality of traffic volumes was developed using land use growth and Institute of Transportation Engineers (ITE) inbound/outbound trip generation rate percentages for the AM and PM peak hours.

To develop “with project” forecasts, the project land use and roadways were then added into the model and the process above was repeated for Cumulative (2025) with Project traffic conditions.

■ Cumulative (2025) Roadway Assumptions

Major roadway network improvements are projected to occur by 2025 to support envisioned land use development as well as address the existing deficiencies noted in Table 4.13-1, Table 4.13-2, and Table 4.13-4 above. For this EIR, the cumulative without project roadway and intersection lane configurations that satisfy LOS D (or better) were assumed. This includes the widening of SR-41, the signalization of intersections, in conjunction with providing turn pockets as necessary, where background traffic volumes indicate peak hour volume signal warrants are satisfied and preliminary analyses indicate poor operations without improvements over the existing condition. Roadway and intersection improvements for the cumulative without project scenario are explained in Table 4.13-12 (Cumulative No Project Intersection and Roadway Improvements Retrofit Existing Intersections and Roadway Segments). Lane configurations and traffic control used in the 2025 intersection analysis are shown on Figure 4.13-5 through Figure 4.13-10.

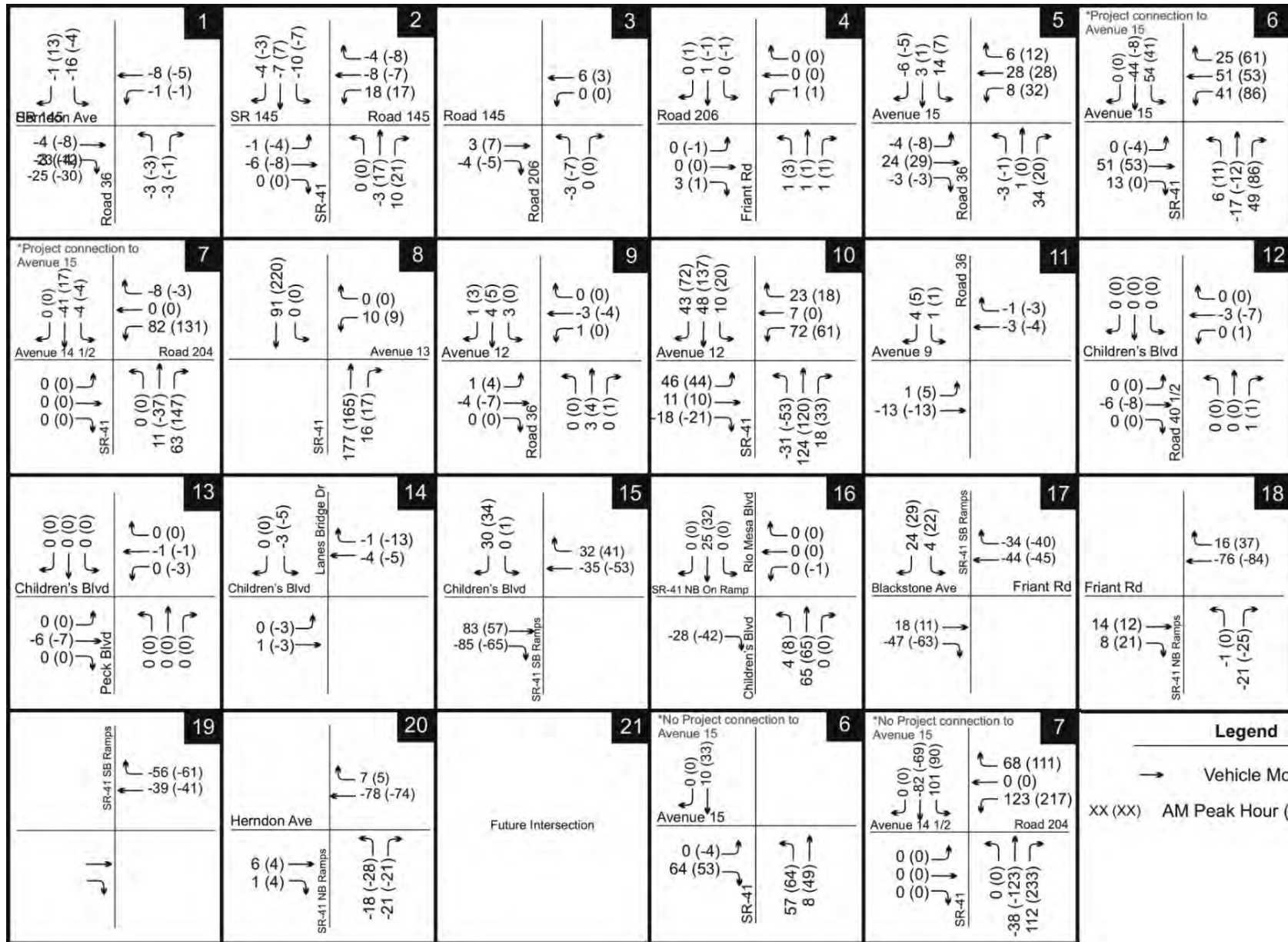
The improvements assumed in the Cumulative Scenario would be necessary to meet the region’s long-term transportation needs to maintain the RMAP LOS D policy. Funding sources are actively being sought for these improvements and this study assumes that funding mechanisms would be in place to allow implementation of these roadway projects by 2025.



Source: Source: VRPA Technologies, Inc., March 2012.

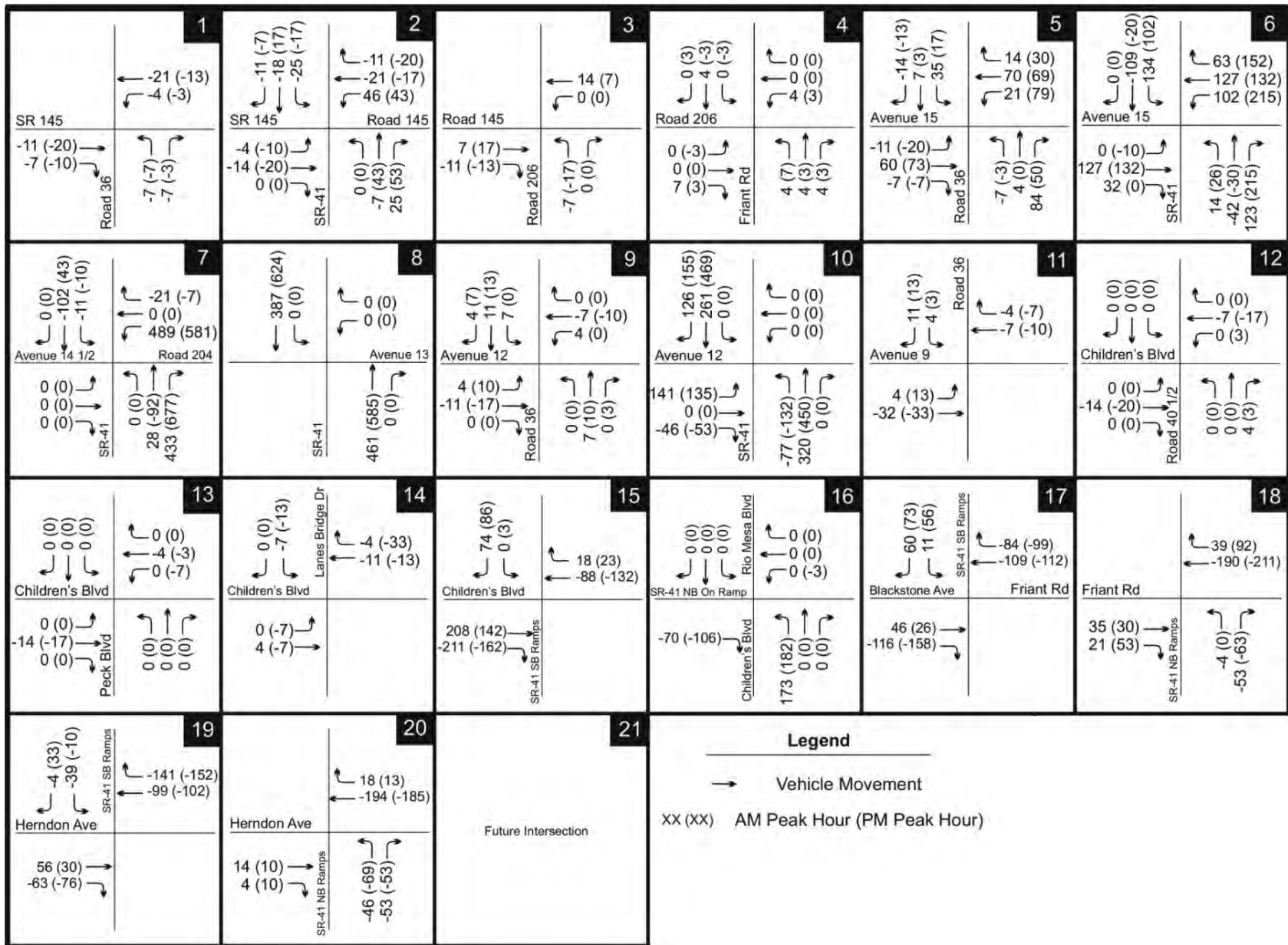
Figure 4.13-4(a)

Peak Hour Project Trips for the Existing Plus Project in 2015 Scenario (20% Residential and 10% Nonresidential Buildout) [New]



Source: Source: VRPA Technologies, Inc., March 2012.

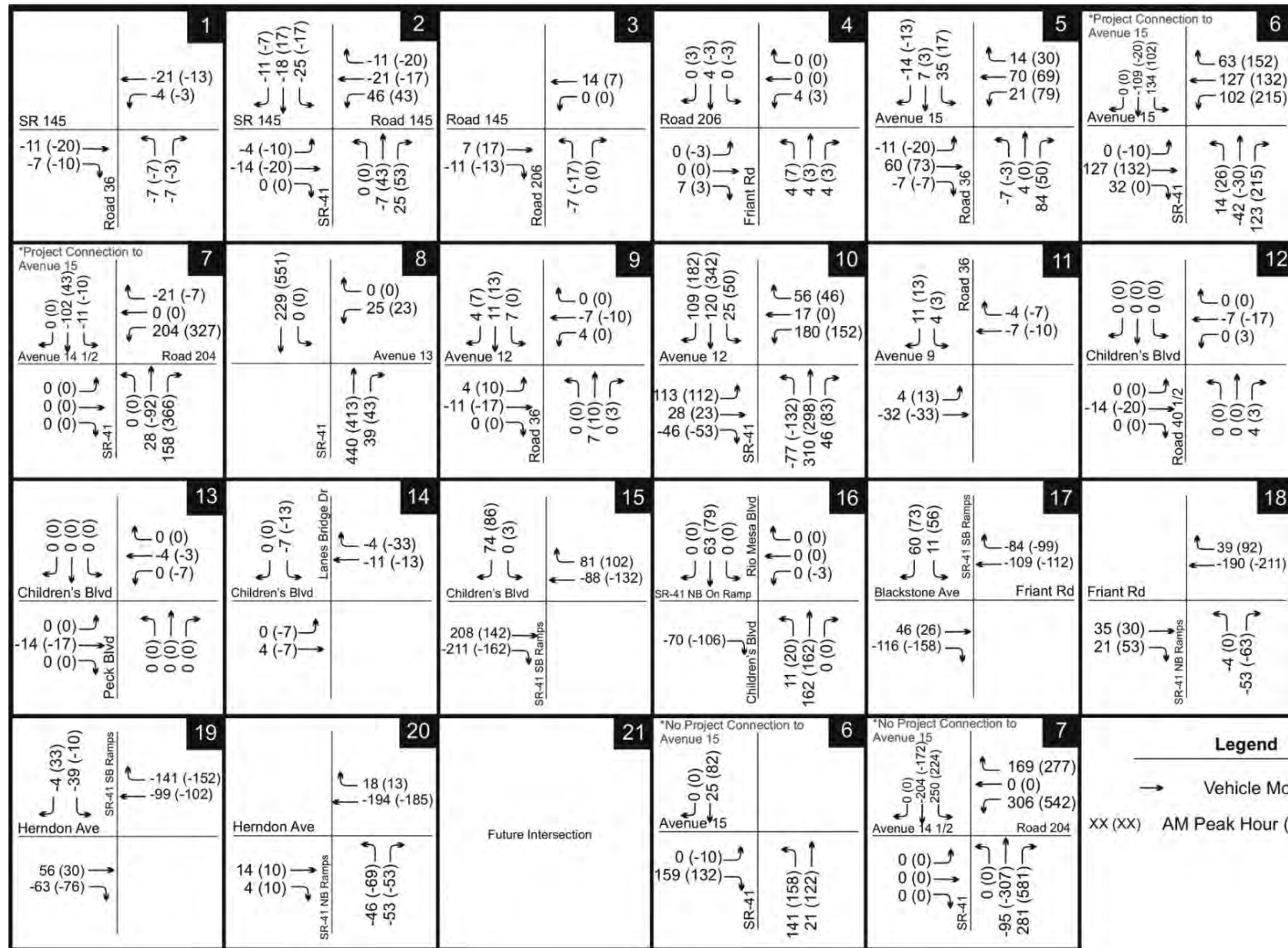
Figure 4.13-4(b)
Peak Hour Project Trips for the Interim 2015 Scenario (20% Residential and 10% Nonresidential Buildout) [New]



Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-4(c)

Peak Hour Project Trips for the Existing Plus Project in 2020 Scenario (50% Residential and 25% Nonresidential Buildout) [New]



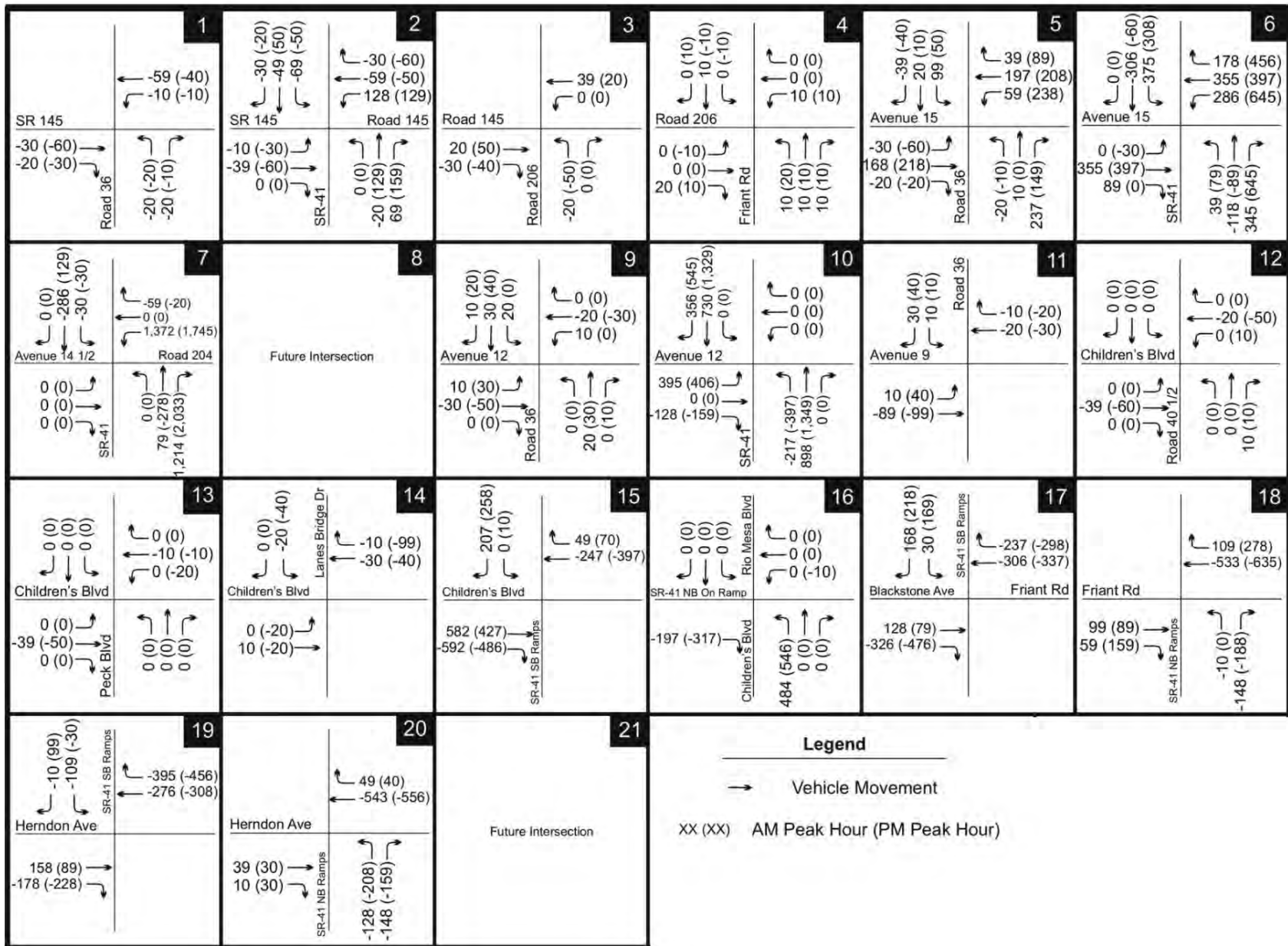
Legend

→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-4(d)
Peak Hour Project Trips for the Interim 2020 Scenario (50% Residential and 25% Nonresidential Buildout) [New]



Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-4(e) Peak Hour Project Trips for the Existing Plus Project in 2025 Scenario (Full Buildout) [New]

Table 4.13-12 Cumulative No Project Intersection and Roadway Improvements Retrofit Existing Intersections and Roadway Segments

<i>Location</i>	<i>Improvements</i>
SR-41: Avenue 12 to SR-145	<ul style="list-style-type: none"> ■ Widen both the northbound and southbound approach to two lanes, with a new freeway interchange at Avenue 12. In the study area, it is a four-lane, rural, undivided highway north of the Avenue 12 interchange, a four-lane, north/south freeway from Avenue 12 to Friant Road, and a six-lane, freeway south of Friant Avenue through the city of Fresno.
1. Road 36/SR-145	<ul style="list-style-type: none"> ■ Northbound approach: <ul style="list-style-type: none"> > Convert the shared right-and-left turn lane into separate right-turn and left-turn only lanes (adding a lane)
2. SR-41/SR-145	<ul style="list-style-type: none"> ■ Northbound approach: <ul style="list-style-type: none"> > Convert existing right-turn only lane to a shared through-right lane ■ Southbound approach: <ul style="list-style-type: none"> > Add second through and left-turn only lanes ■ Eastbound approach: <ul style="list-style-type: none"> > Convert approach to contain two left-turn only lanes, as well as a shared through-right lane ■ Westbound approach: <ul style="list-style-type: none"> > Convert existing shared through-left lane into separate through and left-turn only lanes
4. Road 206/Friant Road.	<ul style="list-style-type: none"> ■ Signalize intersection ■ For the northbound, southbound, and westbound approaches, re-stripe approaches to have shared through-right lane as well as a left-turn only lane ■ Eastbound approach: <ul style="list-style-type: none"> > Convert approach from a single lane to a four-lane approach, which contains two left-turn only lanes, a designated through lane, as well as a right-turn only lane
5. Road 36/Avenue 15	<ul style="list-style-type: none"> ■ Signalize intersection
6. SR-41/Avenue 15	<ul style="list-style-type: none"> ■ Signalize intersection ■ For the northbound and southbound approach, provide an additional through lane
7. SR-41/Road 204	<ul style="list-style-type: none"> ■ Signalize intersection ■ For the northbound and southbound approaches, re-stripe approaches to contain a left-turn only lane, a through lane, and a shared through-right lane
9. Road 36/Avenue 12	<ul style="list-style-type: none"> ■ Optimize signal timing
11. Road 36/Avenue 9	<ul style="list-style-type: none"> ■ Signalize intersection ■ Eastbound approach: <ul style="list-style-type: none"> > Convert shared through-left lane into separate through and left-turn only lanes
12. Road 40 ½/Avenue 9/Children's Boulevard	<ul style="list-style-type: none"> ■ Signalize intersection ■ For the eastbound and westbound approaches, modify existing lane configuration to contain a shared through-right lane and a left-turn only lane
13. Children's Boulevard/Peck Boulevard	<ul style="list-style-type: none"> ■ Add north leg to intersection with shared through-left-right lane for the southbound approach, and a single receiving lane for the northbound approach ■ Signalize intersection ■ Northbound approach: <ul style="list-style-type: none"> > Convert existing right-turn lane into a free right, and the existing left-turn lane into a shared through-right configuration ■ Eastbound approach: <ul style="list-style-type: none"> > Add a left-turn lane ■ Westbound approach: <ul style="list-style-type: none"> > Add second left turn lane and convert existing through lane into a shared through-right lane

Table 4.13-12 Cumulative No Project Intersection and Roadway Improvements Retrofit Existing Intersections and Roadway Segments

<i>Location</i>	<i>Improvements</i>
14. Children's Boulevard/Lanes Bridge Drive	<ul style="list-style-type: none"> ■ Southbound approach: <ul style="list-style-type: none"> > Convert existing right-turn lane into a shared left-and-right turn lane ■ Eastbound approach: <ul style="list-style-type: none"> > Add a third through lane ■ Westbound approach: <ul style="list-style-type: none"> > Removed U-turn lane, add a third through lane, and convert a through lane to a shared through-right lane
15. SR-41 SB Ramps/ Children's Boulevard/Rio Mesa Boulevard	<ul style="list-style-type: none"> ■ Eastbound approach: <ul style="list-style-type: none"> > Convert a through lane into a shared through-right lane
16. SR-41 NB Ramps/ Children's Boulevard/Rio Mesa Boulevard	<ul style="list-style-type: none"> ■ Provide north leg connection to intersection, a left-turn lane and a shared through-right lane for the southbound approach, and two receiving lanes for the northbound approach ■ Northbound approach: <ul style="list-style-type: none"> > Convert existing through lane into a second left-turn lane
17. SR-41 SB Ramps/ Friant Road/ Blackstone Avenue	<ul style="list-style-type: none"> ■ Southbound approach: <ul style="list-style-type: none"> > Add a shared right-left turn lane ■ Eastbound approach: <ul style="list-style-type: none"> > Construct a free-flow right-turn lane as well as a free-flow shared through-right lane by installing a median stretching from the southbound on-ramp to the northbound on-ramp > Provide proper signage instructing drivers desiring to get on to the southbound or northbound on-ramps to start merging right before reaching the median > Signage should be placed at appropriate locations west of the intersection to indicate correct lanes to access on-ramps
18. SR-41 NB Ramps/ Friant Road/ Blackstone Avenue	<ul style="list-style-type: none"> ■ Northbound approach: <ul style="list-style-type: none"> > Add a signal-controlled right-turn lane > Provide a designated left-turn receiving lane to allow for simultaneous northbound left and westbound through movements ■ Westbound approach: <ul style="list-style-type: none"> > Change approach to be an uncontrolled free-flow movement
19. SR-41 SB Ramps/ Herndon Avenue	<ul style="list-style-type: none"> ■ Southbound approach: <ul style="list-style-type: none"> > Convert exiting right-turn lane into a shared right-left turn lane ■ Eastbound approach: <ul style="list-style-type: none"> > Convert existing shared through-right lane into a free-flow right-turn lane ■ Westbound approach: <ul style="list-style-type: none"> > Add a second free-flow right-turn lane
20. SR-41 NB Ramps/ Herndon Avenue	<ul style="list-style-type: none"> ■ Northbound approach: <ul style="list-style-type: none"> > Add a second right-turn and left-turn only lane ■ Westbound approach: <ul style="list-style-type: none"> > Construct a free-flow shared through-right, and free-flow through lane by installing a median stretching from east of the intersection to the southbound looping on-ramp > Provide proper signage instructing drivers desiring to get on to the northbound and southbound on-ramps to start merging to the right three lanes before reaching the median > Signage should be placed at appropriate locations east of the Herndon Avenue/Fresno Street intersection to indicate correct lanes to access on-ramps > Only three through lanes would be signal-controlled

Table 4.13-12 Cumulative No Project Intersection and Roadway Improvements Retrofit Existing Intersections and Roadway Segments

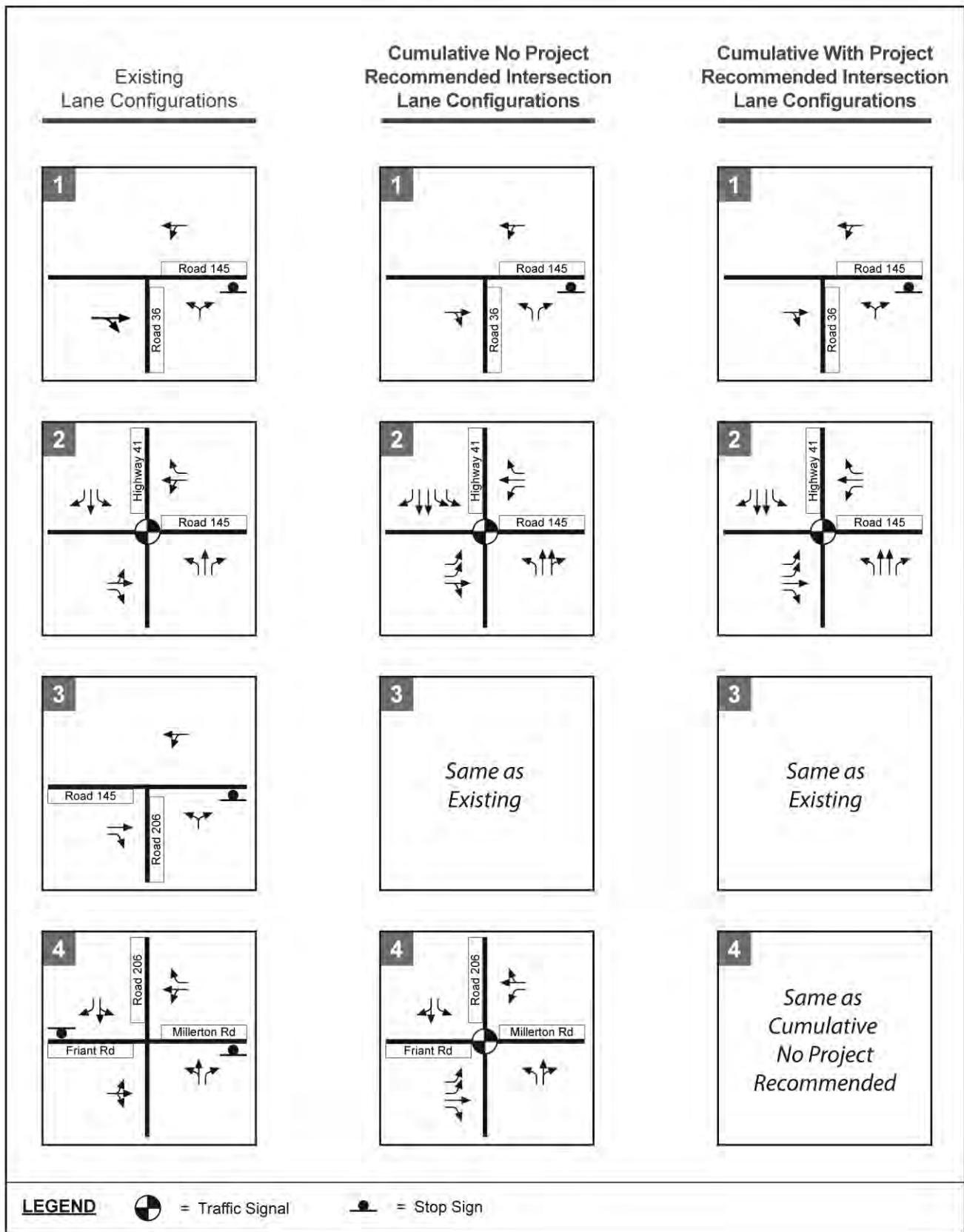
<i>Location</i>	<i>Improvements</i>
New Intersections	
8. SR-41/Avenue 13.	<ul style="list-style-type: none"> ■ Construct a new signalized intersection with the following configurations: <ul style="list-style-type: none"> > Northbound approach: <ul style="list-style-type: none"> ○ Two through lanes, one left-turn lane, and one right-turn lane > Southbound approach: <ul style="list-style-type: none"> ○ One through lane, a shared through-right lane, and a left-turn lane > Eastbound approach: <ul style="list-style-type: none"> ○ One shared through-right-left turn lane > Westbound approach: <ul style="list-style-type: none"> ○ One shared through-right turn lane, and two left-turn lanes
10. SR-41 SB Ramps/ Avenue 12.	<ul style="list-style-type: none"> ■ Construct a new interchange with a signalized junction on the local roads with the following lane configurations: <ul style="list-style-type: none"> > Southbound approach: <ul style="list-style-type: none"> ○ One right-turn lane, as well as one left-turn lane > Eastbound approach: <ul style="list-style-type: none"> ○ One through lane with a free-flow right-turn lane > Westbound approach: <ul style="list-style-type: none"> ○ One through lane with a free-flow right-turn lane
21. SR-41 NB Ramps/ Avenue 12.	<ul style="list-style-type: none"> ■ Construct a new interchange with a signalized junction on the local roads with the following lane configurations: <ul style="list-style-type: none"> > Northbound approach: <ul style="list-style-type: none"> ○ One left-turn lane a free-flow right-turn lane > Eastbound approach: <ul style="list-style-type: none"> ○ One through lane with a free-flow right-turn lane > Westbound approach: <ul style="list-style-type: none"> ○ One through lane and a shared through-right lane

SOURCE: Fehr & Peers 2007

■ Analysis of Cumulative (2025) Conditions

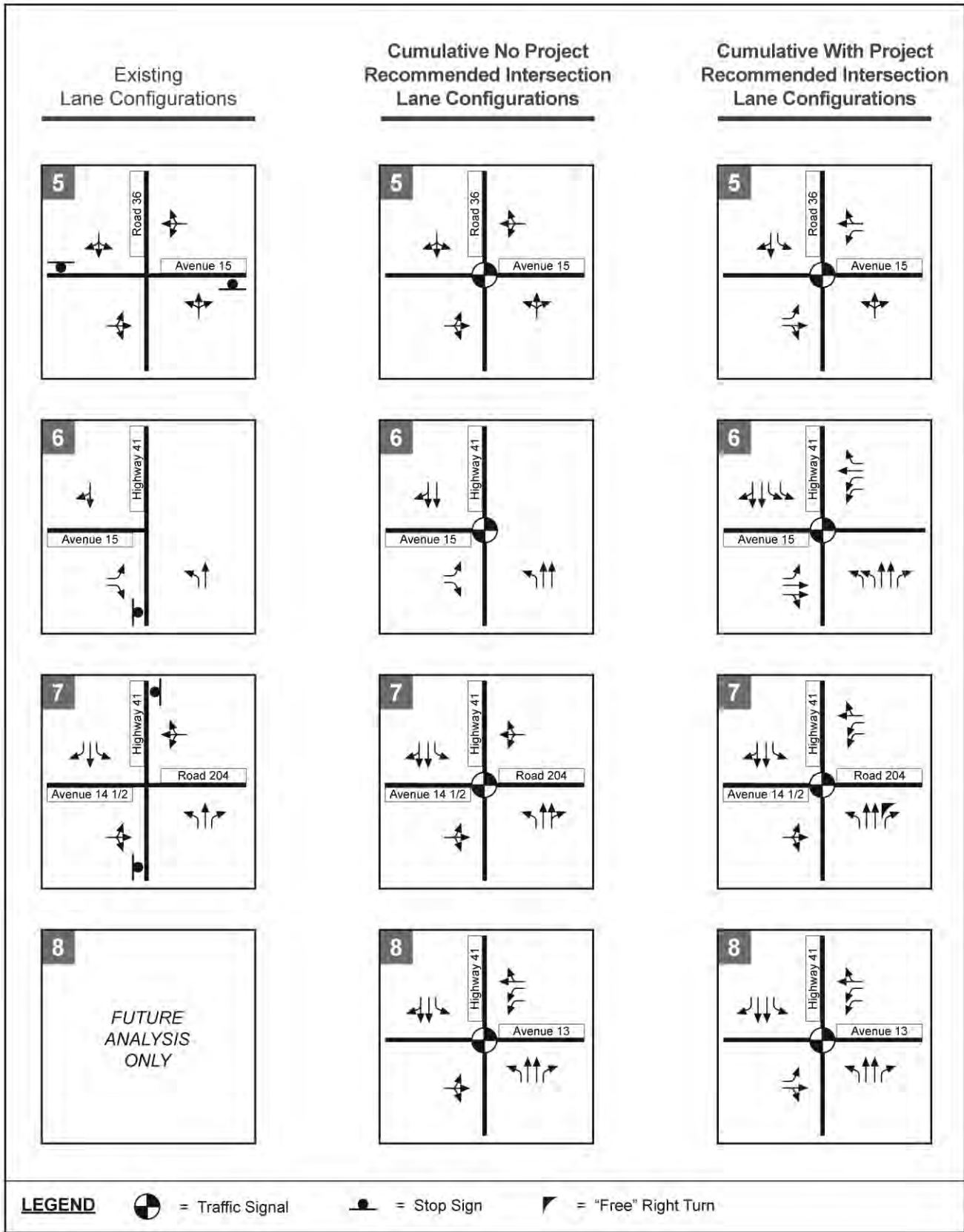
Intersection Operations

The Cumulative (2025) intersection analysis was performed using the same methods discussed previously and the results are presented in Table 4.13-13 (Cumulative [2025] Peak Hour Intersection Levels of Service). All study intersections are projected to operate within an acceptable LOS range (i.e., LOS D or better) during the Cumulative (2025) without and with project scenarios. Cumulative (2025) peak hour traffic volumes are illustrated in Figure 4.13-11 (Cumulative [2025] Peak Hour Traffic Volumes) while Cumulative (2025) plus project peak hour traffic volumes are shown in Figure 4.13-12 (Cumulative [2025] Plus Project Peak Hour Traffic Volumes).



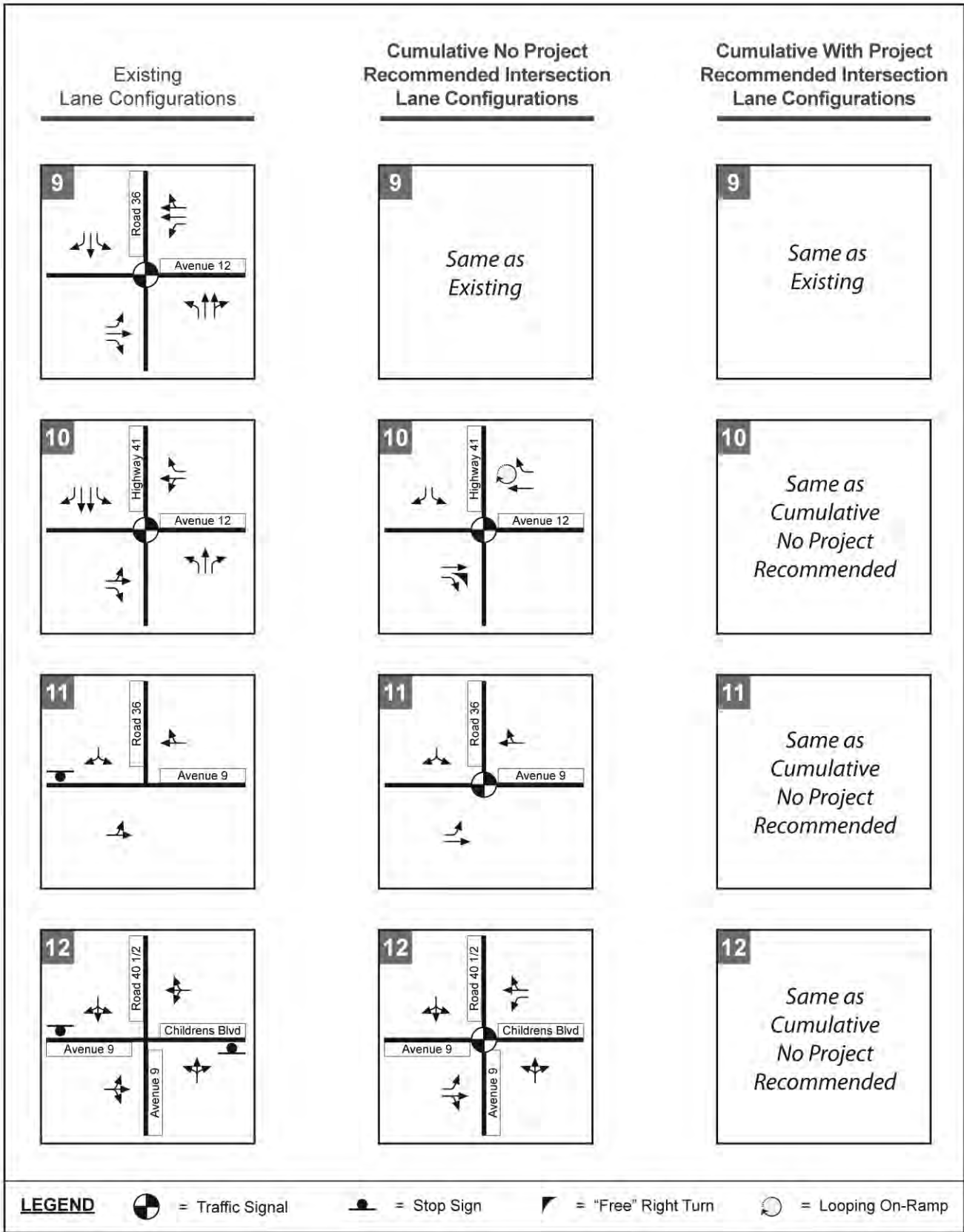
Source: Fehr & Peers, November 2007.

Figure 4.13-5
Intersection Lane Configurations and Traffic Controls Summary



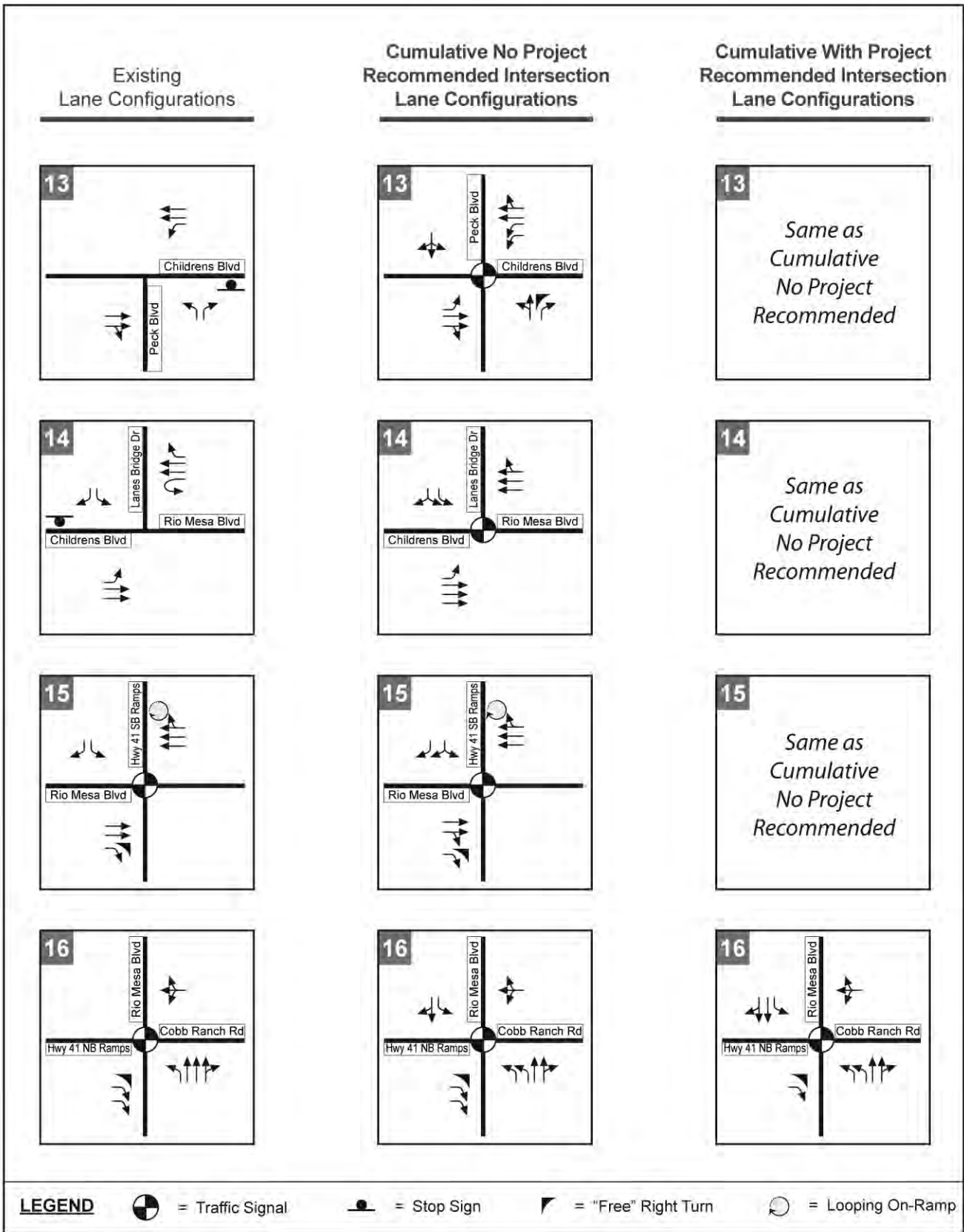
Source: Fehr & Peers, November 2007.

Figure 4.13-6
Intersection Lane Configurations and Traffic Controls Summary



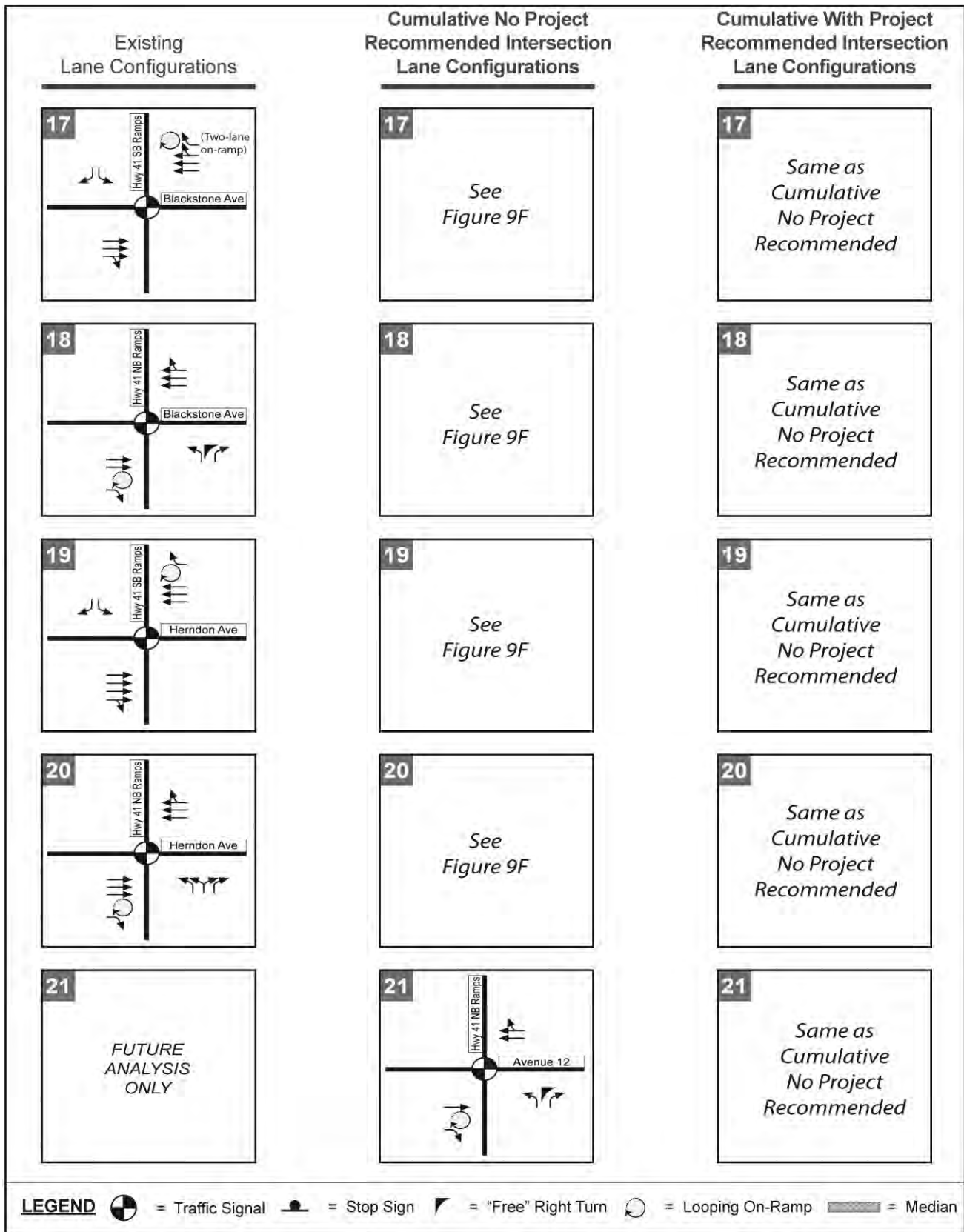
Source: Fehr & Peers, November 2007.

Figure 4.13-7
Intersection Lane Configurations and Traffic Controls Summary



Source: Fehr & Peers, November 2007.

Figure 4.13-8 Intersection Lane Configurations and Traffic Controls Summary



Source: Fehr & Peers, November 2007.

Figure 4.13-9
Intersection Lane Configurations and Traffic Controls Summary

Source: Fehr & Peers, November 2007.

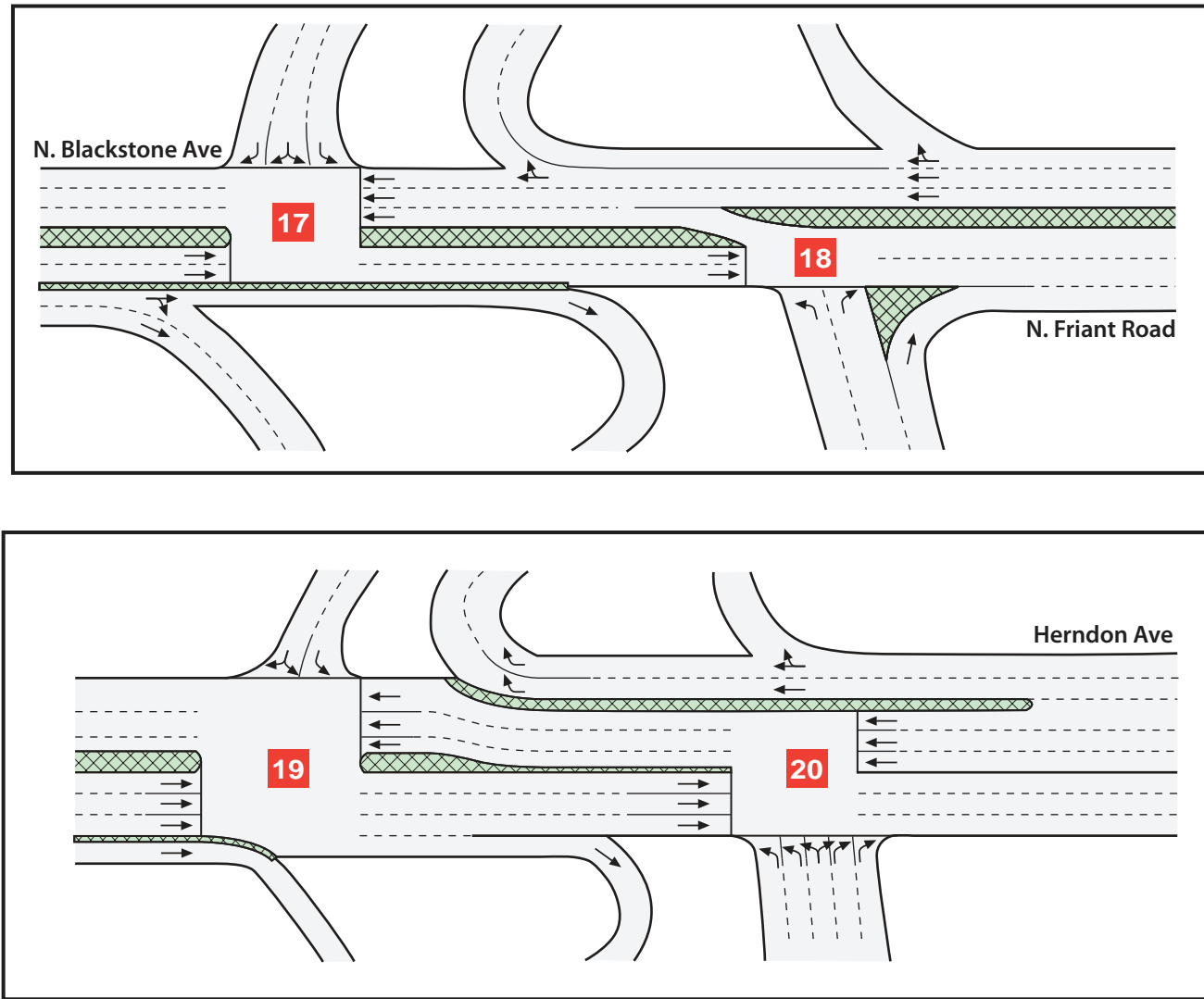


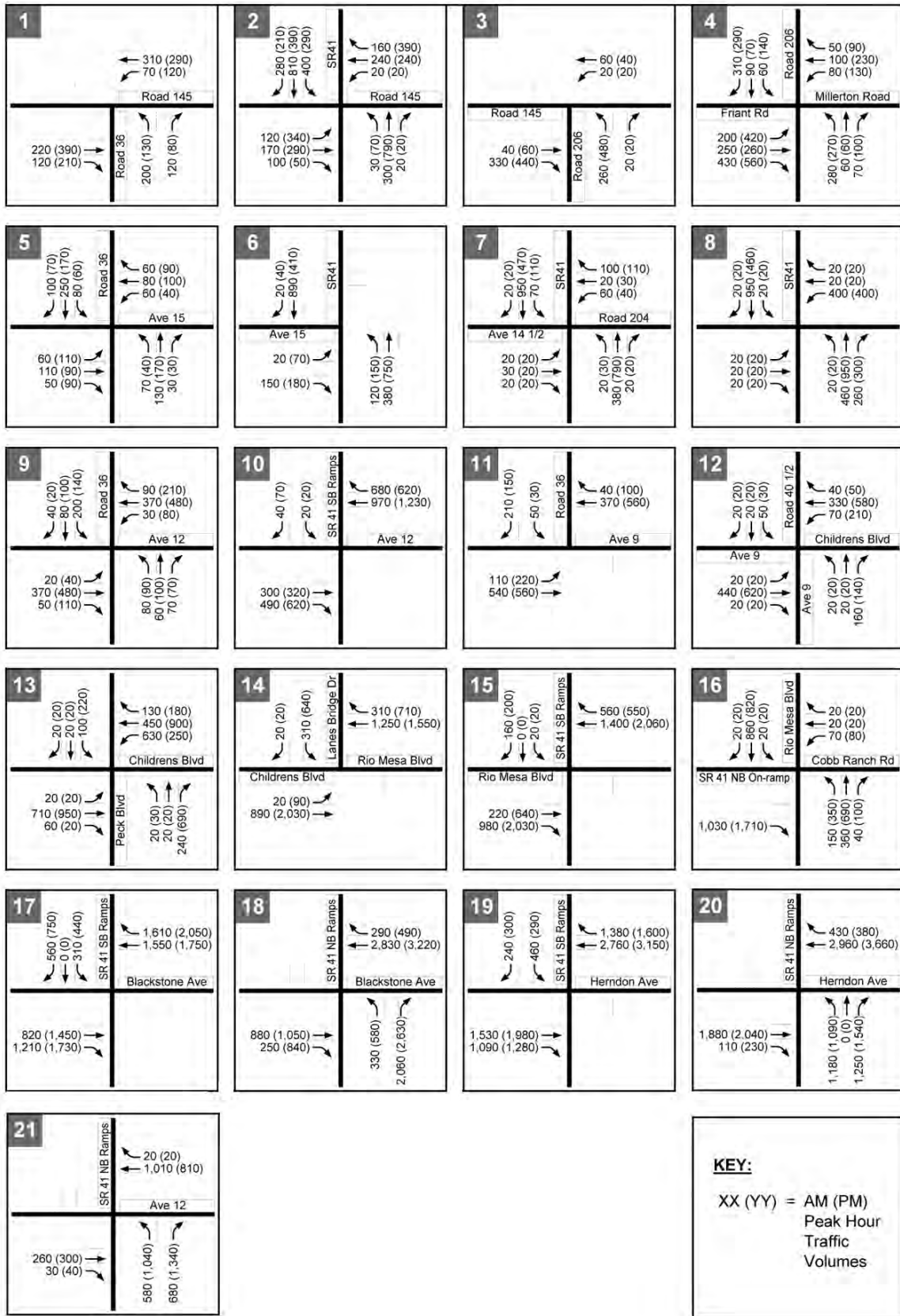
Figure 4.13-10
Intersection Lane Configurations and Traffic Controls Summary

Table 4.13-13 Cumulative (2025) Peak Hour Intersection Levels of Service

Intersection	Control ^b	Peak Hour	Cumulative (2025) Without Project		Cumulative (2025) With Project	
			Delay ^{b,c} (in seconds)	LOS	Delay ^{b,c} (in seconds)	LOS
1 Road 36/SR-145	SSSC	AM PM	8 (22) 5 (34)	A (C) A (D)	8(22) 6 (28)	A (C) A (D)
2 SR-41/SR-145	Signal	AM PM	32 39	C D	34 35	C D
3 Road 206/Road 145	SSSC	AM PM	5 (12) 8 (16)	A (B) A(C)	5 (12) 8 (17)	A (B) A (C)
4 Road 206/Friant Road	Signal	AM PM	29 34	C C	30 34	C C
5 Road 36/Avenue 15	Signal	AM PM	8 9	A A	21 24	C C
6 SR-41/Avenue 15	Signal	AM PM	13 16	B B	34 39	C D
7 SR-41/Road 204	Signal	AM PM	19 28	B C	26 29	C C
8 SR-41/Avenue 13	Signal	AM PM	19 22	B C	23 32	C C
9 Road 36/Avenue 12	Signal	AM PM	8 8	A A	8 8	A A
10 SR-41 SB Ramps/Avenue 12	Signal	AM PM	3 4	A A	5 8	A A
11 Road 36/Avenue 9	Signal	AM PM	10 15	B B	11 15	B B
12 Road 40½/Avenue 9/Children's Boulevard	Signal	AM PM	24 29	C C	22 23	C C
13 Children's Boulevard/Peck Boulevard	Signal	AM PM	18 16	B B	16 11	B B
14 Children's Boulevard/Lanes Bridge Drive	Signal	AM PM	8 19	A B	10 17	A B
15 SR-41 SB Ramps/Children's Boulevard	Signal	AM PM	5 13	A B	8 11	B B
16 SR-41 NB Ramps/Children's Boulevard	Signal	AM PM	11 13	B B	9 13	A B
17 SR-41 SB Ramps/Friant Road/Blackstone Avenue	Signal	AM PM	7 14	A B	10 13	A B
18 SR-41 NB Ramps/Friant Road/Blackstone Avenue	Signal	AM PM	11 42	B D	10 36	A D
19 SR-41 SB Ramps/Herndon Avenue	Signal	AM PM	12 27	B C	8 13	A B
20 SR-41 NB Ramps/Herndon Avenue	Signal	AM PM	29 30	C C	24 27	C D
21 SR-41 NB Ramps/Avenue 12	Signal	AM PM	14 27	B C	13 43	B D

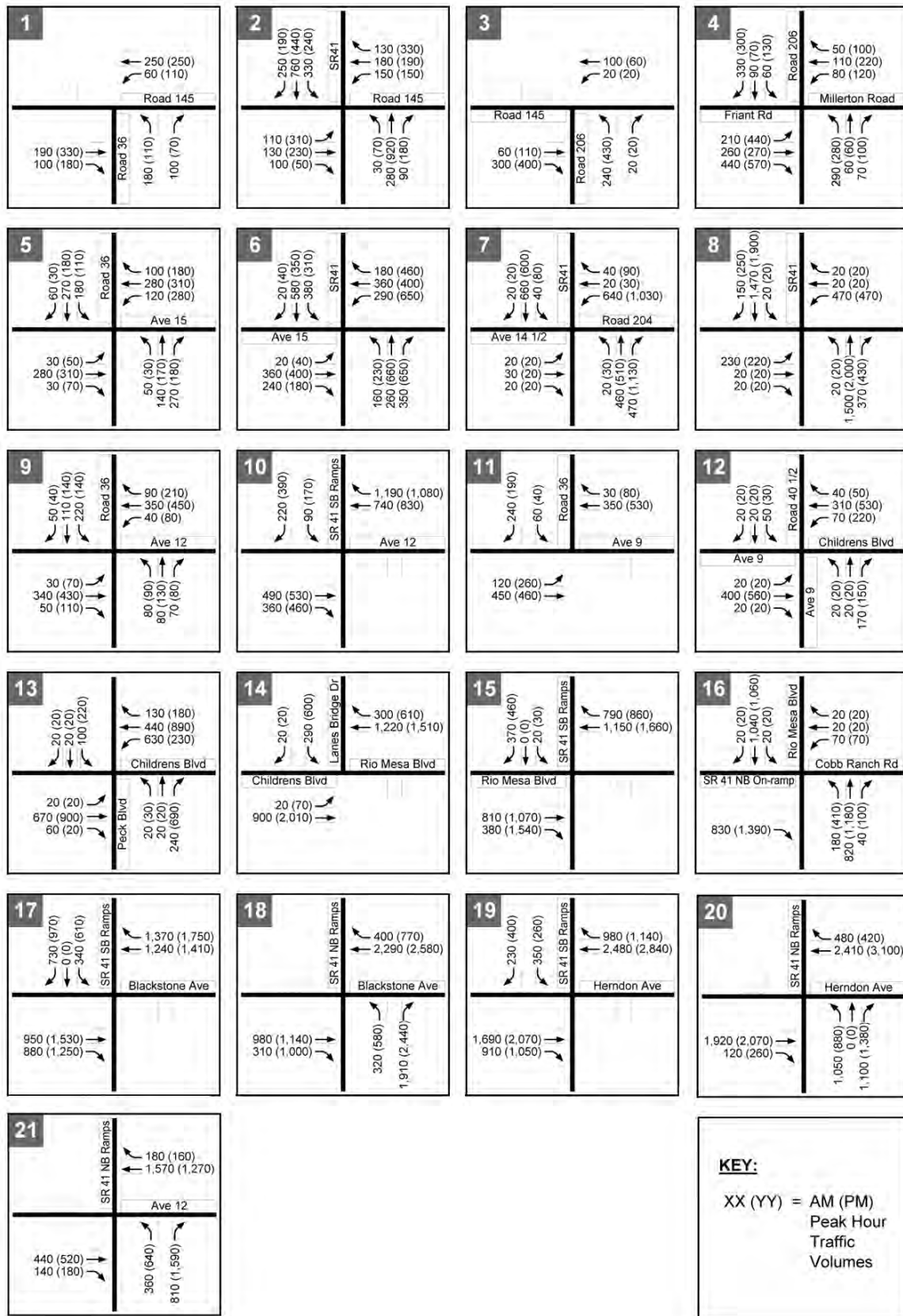
SOURCE: Fehr & Peers 2007

Results in **bold** represent unacceptable levels of service.^a Signal = signalized intersection, SSSC = side-street stop-controlled intersection^b Signalized intersection level of service determined using the HCM 2000 method.^c Side-street stop-controlled intersections level of service is based on average delay per vehicle (in seconds) according to the Highway Capacity Manual, Transportation Research Board, 2000. For side-street stop-controlled intersections, delay is reported as: Intersection average (worst case approach).



Source: Fehr & Peers, November 2007.

Figure 4.13-11
Cumulative 2025 Peak Hour Traffic Volumes



Source: Fehr & Peers, November 2007.

Figure 4.13-12
Cumulative 2025 Plus Project Peak Hour Traffic Volumes

Peak Hour Volume Traffic Signal Warrant Analysis

The peak hour volume traffic signal warrant (Warrant 3) for rural conditions was evaluated for the unsignalized intersections in the study area, as shown in Table 4.13-14 (Cumulative [2025] Peak Hour Signal Warrant Analysis). Intersections at Road 36/SR-145 and Road 206/Road 145 both satisfy the peak hour signal warrant. Although traffic signal warrants are satisfied at these intersections, both intersections are projected to operate at an acceptable LOS. Because the intersections would operate at an acceptable LOS, an evaluation of all applicable warrants should be conducted and additional factors (e.g., congestion, approach conditions, driver confusion) should be considered before the decision to install signals is made.

Table 4.13-14 Cumulative (2025) Peak Hour Signal Warrant Analysis

Intersection	Control ^a	Cumulative (2025) Without Project	Cumulative (2025) With Project
		Peak Hour Warrant Met?	Peak Hour Warrant Met?
1 Road 36/SR-145	SSSC	Yes	Yes
3 Road 206/Road 145	SSSC	Yes	Yes

SOURCE: Fehr & Peers 2007

^a SSSC = side-street stop-controlled intersection

Highway Segment Operations

Cumulative (2025) highway segments were analyzed based on the peak hour volumes shown in Table 4.13-15 (Cumulative [2025] Highway Segment Level of Service) and the LOS thresholds shown in Table 4.13-7. All study highway segments would operate at LOS D or better. Highway segment peak hour volumes are shown in Figure 4.13-13 (Mainline Segment Peak Hour Volumes).

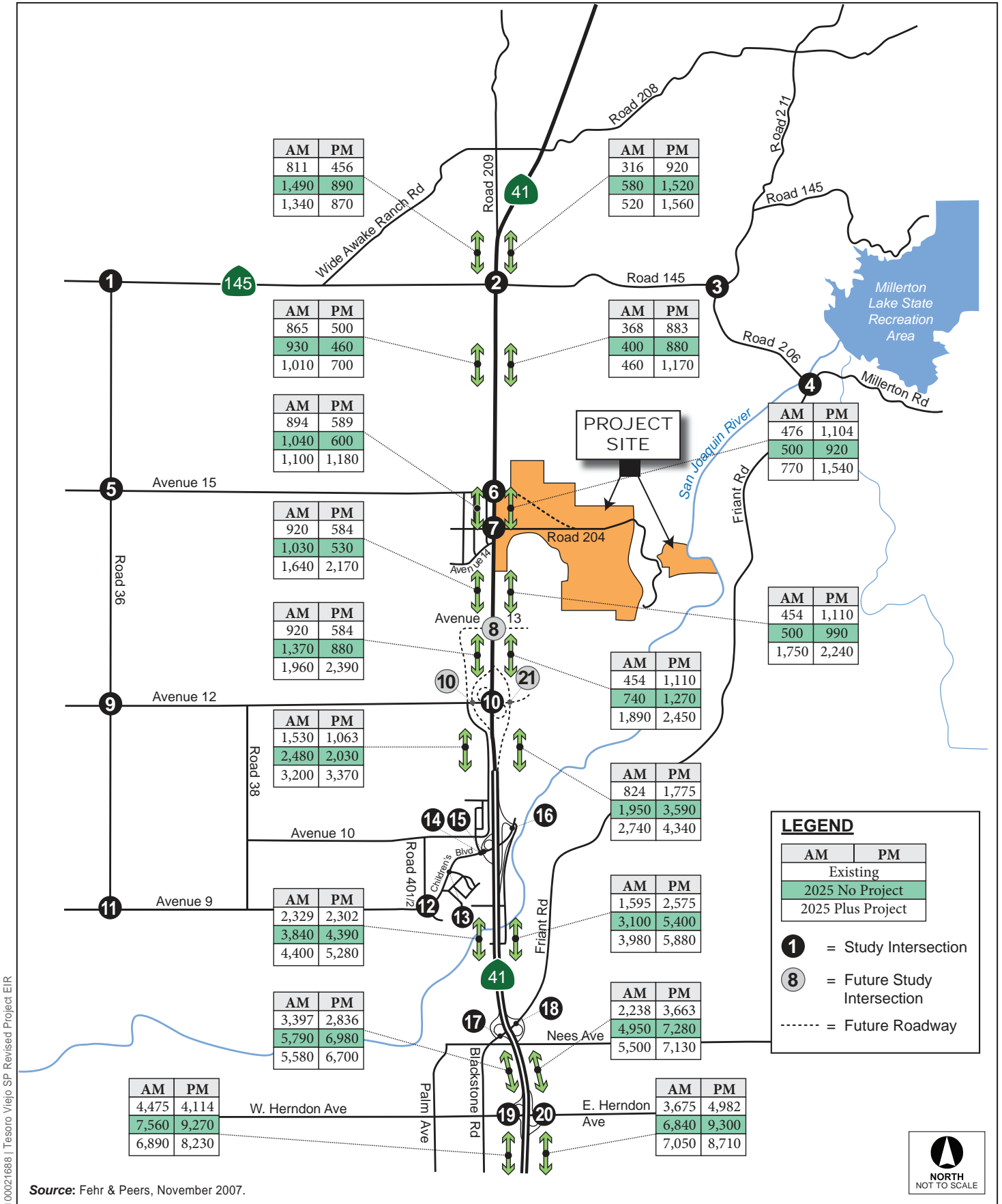
Table 4.13-15 Cumulative (2025) Highway Segment Level of Service [Revised]

Segment	Direction of Travel	Peak Hour	# of Lanes	2025 No Project			2025 Plus Project		
				Volume	V/L ^a	LOS	Volume	V/L1	LOS
SR-41: North of Road 145	Southbound	AM	2	1,490	745	B	1,340	670	B
		PM		890	445	A	870	435	A
SR-41: North of Road 145	Northbound	AM	2	580	290	A	520	260	A
		PM		1,520	760	B	1,560	780	B
SR-41: Road 145–Avenue 15	Southbound	AM	2	930	465	A	1,010	505	B
		PM		460	230	A	700	350	A
SR-41: Road 145–Avenue 15	Northbound	AM	2	400	200	A	460	230	A
		PM		880	440	A	1,170	585	B
SR-41: Avenue 15–Road 204	Southbound	AM	2	1,040	520	B	1,110	555	B
		PM		600	300	A	1,180	590	B
SR-41: Avenue 15–Road 204	Northbound	AM	2	500	250	A	770	385	A
		PM		920	460	A	1,540	770	B
SR-41: Road 204–Avenue 13	Southbound	AM	2	1,030	515	B	1,640	820	B
		PM		530	265	A	2,170	1,085	C
SR-41: Road 204–Avenue 13	Northbound	AM	2	500	250	A	1,750	875	B
		PM		990	495	B	2,240	1,120	C

SOURCE: Fehr & Peers 2007

Results in **bold** represent unacceptable levels of service.

^a Roadway segments were analyzed using the volume per lane LOS thresholds for a Multi-Lane Rural Highway found in Table 4.13-3.



LEGEND

AM	PM
Existing	
2025 No Project	
2025 Plus Project	

1 = Study Intersection
8 = Future Study Intersection
 ----- = Future Roadway



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Figure 4.13-13
Mainline Segment Peak Hour Volumes

Freeway Segment Operations

A Cumulative (2025) freeway mainline analysis was performed using the same methods discussed previously and the results are presented in Table 4.13-16 (Cumulative [2025] Freeway Segment Level of Service). The analysis results for Cumulative (2025) without Project scenario indicate that all freeway segments would operate at an acceptable LOS except for the following:

- Southbound and Northbound SR-41 from Children’s Boulevard to Friant Road. in the PM peak hour
- Southbound and Northbound SR-41 from Friant Road. to Herndon Avenue in the PM peak hour
- Southbound and Northbound SR-41 South of Herndon Avenue in the AM and PM peak hour

Segment	Direction of Travel	Peak Hour	# of Lanes	2025 No Project			2025 Plus Project		
				Volume	Density ^a	LOS	Volume	Density ^a	LOS
SR-41: Avenue 13 to Avenue 12	Southbound	AM	2	1,370	11	A	1,960	15	B
		PM	2	880	7	A	2,390	19	C
SR-41: Avenue 13 to Avenue 12	Northbound	AM	2	740	6	A	1,890	15	B
		PM	2	1,270	10	A	2,450	19	C
SR-41: Avenue 12 to Children’s Boulevard	Southbound	AM	2	2,480	19	C	3,200	25	C
		PM	2	2,030	16	B	3,370	27	D
SR-41: Avenue 12 to Children’s Boulevard	Northbound	AM	2	1,950	15	B	2,740	21	C
		PM	2	3,590	29	D	4,340	42	E
SR-41: Children’s Boulevard to Friant Road.	Southbound	AM	2	3,840	33	D	4,400	44	E
		PM	2	4,390	43	E	5,280	>45	F
SR-41: Children’s Boulevard to Friant Road.	Northbound	AM	2	3,100	24	C	3,980	35	D
		PM	2	5,400	>45	F	5,880	>45	F
SR-41: Friant Road to Herndon Avenue	Southbound	AM	3	5,790	33	D	5,580	31	D
		PM	3	6,980	>45	F	6,700	>45	F
SR-41: Friant Road to Herndon Avenue	Northbound	AM	3	4,950	27	D	5,500	30	D
		PM	3	7,280	>45	F	7,130	>45	F
SR-41: South of Herndon Avenue	Southbound	AM	3	7,560	>45	F	6,890	>45	F
		PM	3	9,270	>45	F	8,230	>45	F
SR-41: South of Herndon Avenue	Northbound	AM	3	6,840	>45	F	7,050	>45	F
		PM	3	9,300	>45	F	8,710	>45	F

SOURCE: Fehr & Peers 2007

Results in **bold** represent unacceptable levels of service.

^a Density measured in passenger cars per mile per lane

The addition of project traffic would worsen the following segments from LOS D to LOS E:

- Northbound SR-41 from Children’s Boulevard to Avenue 12 in the PM peak hour (Project residents returning from work in Fresno)
- Southbound SR-41 from Children’s Boulevard to Friant Road. in the AM peak hour (Project residents going to work in Fresno)

Freeway segment peak hour volumes are illustrated in Figure 4.13-13 (Mainline Segment Peak Hour Volumes).

Existing 2011 Plus Project Traffic Forecasts

Existing 2011 Plus Project in 2015, 2020, and 2025

Portions of the roadway network internal to the Project Site that were deemed necessary for the first phase of development were assumed to be constructed for this scenario; however, no additional roadway improvements were assumed.

Table 4.13-17 (Existing 2011 Plus Project Intersection Operations in 2015, 2020, and 2025) shows intersections that are expected to fall short of desirable operating conditions for the Existing (2011) Plus Project scenarios in all three study years (2015, 2020, and 2025). Results of the analysis show that the following three study intersections are expected to operate worse than the minimum LOS D for the Existing (2011) Plus Project in all three scenarios (Years 2015, 2020, and 2025):

- SR-41 at Avenue 15 (AM and PM peak hours)
- SR-41 at Road 204 (AM and PM peak hours)
- SR-41 at Avenue 12 (AM and PM peak hours)¹²³

Table 4.13-17 (Existing 2011 Plus Project Intersection Operations in 2015, 2020, and 2025) shows that one more intersection than in the prior two scenarios would operate worse than LOS D under the Existing (2011) Plus Project in 2025 scenario:

- Road 36 at Avenue 15 (AM and PM peak hours)

Table 4.13-17 Existing 2011 Plus Project Intersection Operations in 2015, 2020, and 2025

Intersection		Control	Peak Hour	[New]					
				Existing Plus 2015 Project		Existing Plus 2020 Project		Existing Plus 2025 Project	
				Delay	LOS	Delay	LOS	Delay	LOS
1	Road 36 / SR-145	One-Way Stop Sign	AM	10.8	B*	10.6	B*	9.6	A*
			PM	11.0	B*	10.6	B*	11.0	B*
2	SR-41 / SR-145	Signalized	AM	16.8	B	16.9	B	24.0	C
			PM	21.6	C	21.6	C	21.7	C
3	Road 206 / Road 145	Two-Way Stop Sign	AM	9.3	A*	9.3	A*	9.4	A*
			PM	9.7	A*	9.7	A*	9.8	A*
4	Road 206 / Friant Road	Two-Way Stop Sign	AM	12.1	B*	12.5	B*	13.5	B*
			PM	18.2	C*	18.7	C*	21.6	C*
5	Road 36 / Avenue 15	All-Way Stop Sign	AM	14.5	B*	24.1	C*	>50.0	F+
			PM	10.4	B*	14.2	B*	>50.0	F+
6	SR-41 / Avenue 15	One-Way Stop Sign	AM	>50.0	F+	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+	>50.0	F+

¹²³ The impact at SR-41 and Avenue 12 in the Existing (2011) Plus Project in 2015 scenario results not from the Tesoro Viejo Project traffic itself, but from the combination of Project traffic with assumed traffic from the other properties within the Rio Mesa Village for which no entitlements are currently pending.

Table 4.13-17 Existing 2011 Plus Project Intersection Operations in 2015, 2020, and 2025 [New]

	Intersection	Control	Peak Hour	Existing Plus 2015 Project		Existing Plus 2020 Project		Existing Plus 2025 Project	
				Delay	LOS	Delay	LOS	Delay	LOS
7	SR-41 / Road 204	Two-Way Stop Sign	AM	>50.0	F+	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+	>50.0	F+
8	SR-41 / Avenue 13	(Future)	AM	≡	≡	≡	≡	≡	≡
			PM	≡	≡	≡	≡	≡	≡
9	Road 36 / Avenue 12	Signalized	AM	26.5	C	27.7	C	30.0	C
			PM	21.9	C	22.2	C	24.4	C
10	SR-41 / Avenue 12	Signalized	AM	67.3	F	>80.0	F	>80.0	F
			PM	56.7	F	>80.0	F	>80.0	F
11	Road 36 / Avenue 9	One-Way Stop Sign	AM	12.2	B*	12.4	B*	12.5	B*
			PM	13.2	B*	13.2	B*	13.5	B*
12	Road 40½ / Avenue 9	Two-Way Stop Sign	AM	13.6	B*	13.6	B*	13.3	B*
			PM	12.9	B*	12.8	B*	12.4	B*
13	Children's Boulevard / Peck Boulevard	One-Way Stop Sign	AM	16.9	C+	16.6	C+	15.8	C+
			PM	17.0	C+	16.8	C+	15.9	C+
14	Children's Boulevard / Lanes Bridge Drive	Signalized	AM	13.0	B	13.1	B	12.4	B
			PM	14.0	B	13.9	B	13.8	B
15	SR-41 SB Ramps / Children's Boulevard	Signalized	AM	13.9	B	6.4	A	7.6	A
			PM	20.9	C	15.9	B	8.5	A
16	SR-41 NB Ramps / Rio Mesa Boulevard	Signalized	AM	8.3	A	5.9	A	4.7	A
			PM	10.1	B	7.7	A	3.7	A
17	SR-41 SB Ramps / Friant Road	Signalized	AM	14.4	B	14.9	B	15.9	B
			PM	19.4	B	20.7	C	26.6	C
18	SR-41 NB Ramps / Friant Road	Signalized	AM	20.5	C	19.4	B	17.0	B
			PM	37.7	D	33.8	C	25.8	C
19	SR-41 SB Ramps / Herndon Avenue	Signalized	AM	11.3	B	10.7	B	8.7	A
			PM	9.7	A	9.6	A	10.3	B
20	SR-41 NB Ramps / Herndon Avenue	Signalized	AM	46.6	D	39.1	D	28.1	C
			PM	28.3	C	24.9	C	19.5	B
21	SR-41 NB Ramps / Avenue 12	(Future)	AM	≡	≡	≡	≡	≡	≡
			PM	≡	≡	≡	≡	≡	≡

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

LOS = level of service

+ Meets peak hour signal warrants.

* Does not meet signal warrants

DELAY is measured in seconds.

BOLD denotes LOS standard has been exceeded

For signalized and all-way stop-controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop-controlled intersections, delay results show the delay for the worst approach.

Table 4.13-18 (Existing 2011 Plus Project Segment Operations in 2015, 2020, and 2025) shows the segment LOS for the Existing (2011) Plus Project scenarios in all three study years (2015, 2020, and 2025). Results of the analysis show that none of the study segments is expected to operate worse than the minimum LOS D for the Existing (2011) Plus Project in 2015 scenario.

Table 4.13-18 (Existing 2011 Plus Project Segment Operations in 2015, 2020, and 2025) shows that the following study segment is expected to operate worse than the minimum LOS D under Existing 2011 Plus Project in 2020 conditions:

- Northbound SR-41 between Avenue 12 and Road 204 (PM peak hour)

Results of the analysis in Table 4.13-18 show that the following additional study segments are also expected to operate worse than the minimum LOS D for the Existing (2011) Plus Project in 2025 scenario:

- Northbound SR-41 between Avenue 12 and Road 204 (AM peak hour)
- Southbound SR-41 between Avenue 12 and Road 204 (AM and PM peak hours)

It should be noted that impacts on SR-41 for this scenario may be overstated because interaction between Proposed Project trips and other nearby cumulative developments is assumed, while minimal roadway network connections to these developments are expected to be in place (i.e., Rio Mesa Boulevard and Avenue 12 east of SR-41).

Existing 2011 Plus Project in 2015 traffic volumes are shown in Figure 4.13-14 (Existing Plus Project in 2015 Conditions AM Peak Hour Traffic) and Figure 4.13-15 (Existing Plus Project in 2015 Conditions PM Peak Hour Traffic). Existing 2011 Plus Project in 2020 traffic volumes are shown in Figure 4.13-16 (Existing Plus Project in 2020 Conditions AM Peak Hour Traffic) and Figure 4.13-17 (Existing Plus Project in 2020 Conditions PM Peak Hour Traffic).

Existing 2011 Plus Project in 2025 traffic volumes are shown in Figure 4.13-18 (Existing Plus Project in 2025 [Full Buildout] Conditions AM Peak Hour Traffic) and Figure 4.13-19 (Existing Plus Project in 2025 [Full Buildout] Conditions PM Peak Hour Traffic).

For the study locations of SR-41 at Herndon Avenue and Friant Road, the trip distribution analysis resulted in a reduction in trips, which indicates that the Project is expected to reduce traffic volumes in many locations of Fresno County. This is expected as a result of cumulative trips being distributed to developments proposed in the Rio Mesa area (including the Project Site) instead of Fresno County.

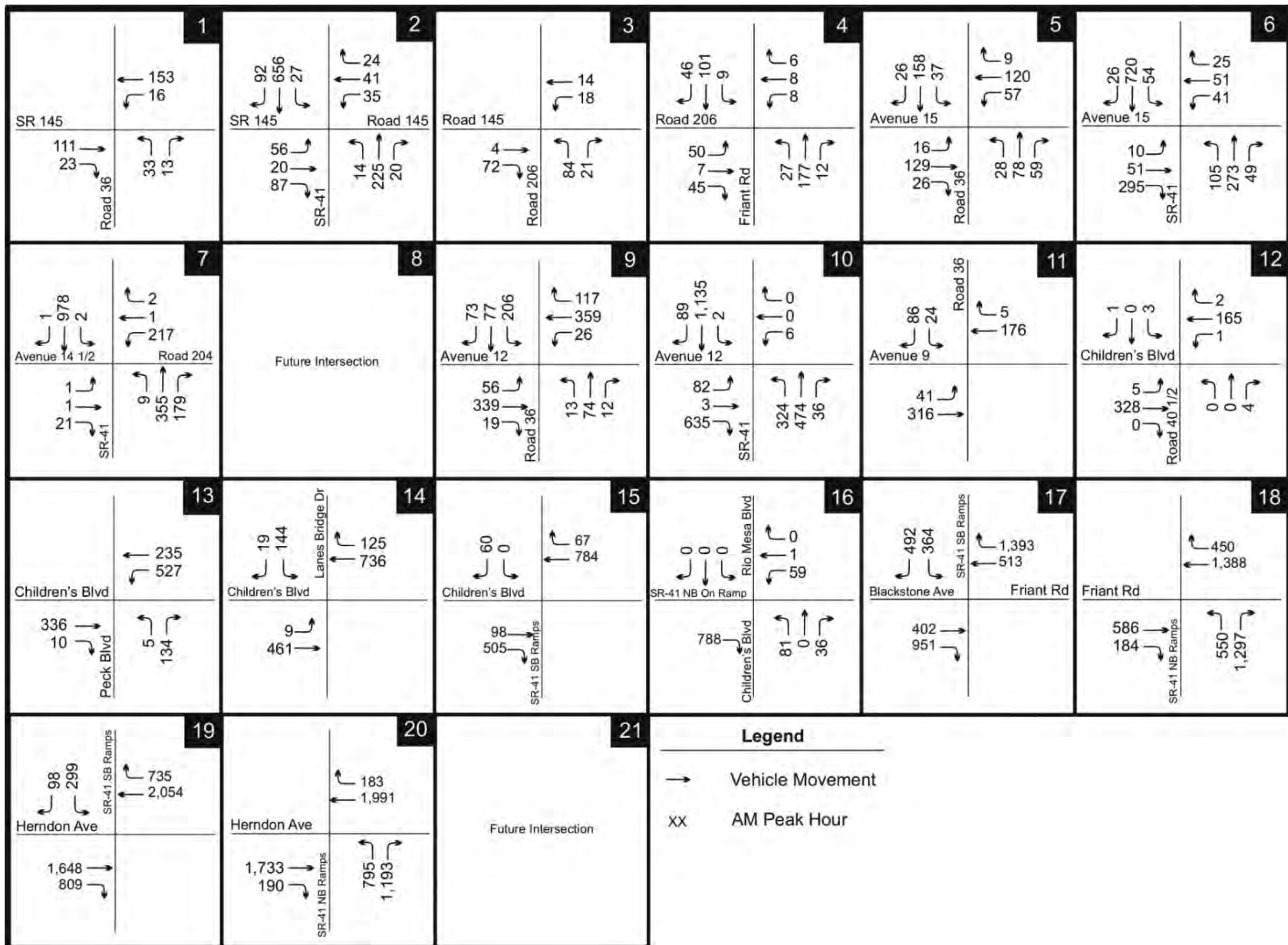
Table 4.13-18 Existing 2011 Plus Project Segment Operations in 2015, 2020, and 2025 [New]

<u>Street Segment</u>	<u>Segment Description</u>	<u>Direction</u>	<u>Peak Hour</u>	<u>Existing Plus 2015 Project Volume Density LOS</u>			<u>Existing Plus 2020 Project Volume Density LOS</u>			<u>Existing Plus 2025 Project Volume Density LOS</u>		
State Route 41												
<u>North of SR-145</u>	<u>1 lane</u>	<u>NB</u>	<u>AM</u>	<u>305</u>		<u>A</u>	<u>292</u>		<u>A</u>	<u>254</u>		<u>A</u>
			<u>PM</u>	<u>875</u>		<u>B</u>	<u>883</u>		<u>B</u>	<u>910</u>		<u>B</u>
	<u>1 lane</u>	<u>SB</u>	<u>AM</u>	<u>775</u>		<u>B</u>	<u>743</u>		<u>B</u>	<u>648</u>		<u>B</u>
			<u>PM</u>	<u>546</u>		<u>B</u>	<u>542</u>		<u>B</u>	<u>529</u>		<u>B</u>
<u>Avenue 15 to SR-145</u>	<u>1 lane</u>	<u>NB</u>	<u>AM</u>	<u>308</u>		<u>A</u>	<u>321</u>		<u>A</u>	<u>359</u>		<u>A</u>
			<u>PM</u>	<u>776</u>		<u>B</u>	<u>834</u>		<u>B</u>	<u>1,026</u>		<u>C</u>
	<u>1 lane</u>	<u>SB</u>	<u>AM</u>	<u>801</u>		<u>B</u>	<u>818</u>		<u>B</u>	<u>869</u>		<u>B</u>
			<u>PM</u>	<u>505</u>		<u>B</u>	<u>552</u>		<u>B</u>	<u>711</u>		<u>B</u>
<u>Road 204 to Avenue 15</u>	<u>1 lane</u>	<u>NB</u>	<u>AM</u>	<u>427</u>		<u>A</u>	<u>484</u>		<u>B</u>	<u>655</u>		<u>B</u>
			<u>PM</u>	<u>1,000</u>		<u>C</u>	<u>1,123</u>		<u>C</u>	<u>1,533</u>		<u>D</u>
	<u>1 lane</u>	<u>SB</u>	<u>AM</u>	<u>1,054</u>		<u>C</u>	<u>1,067</u>		<u>C</u>	<u>1,105</u>		<u>C</u>
			<u>PM</u>	<u>654</u>		<u>B</u>	<u>768</u>		<u>B</u>	<u>1,152</u>		<u>C</u>
<u>Avenue 12 to Road 204</u>	<u>1 lane</u>	<u>NB</u>	<u>AM</u>	<u>556</u>		<u>B</u>	<u>833</u>		<u>B</u>	<u>1,665</u>		<u>E</u>
			<u>PM</u>	<u>1,267</u>		<u>C</u>	<u>1,617</u>		<u>E</u>	<u>2,787</u>		<u>F</u>
	<u>1 lane</u>	<u>SB</u>	<u>AM</u>	<u>1,226</u>		<u>C</u>	<u>1,457</u>		<u>D</u>	<u>2,157</u>		<u>F</u>
			<u>PM</u>	<u>834</u>		<u>B</u>	<u>1,208</u>		<u>C</u>	<u>2,458</u>		<u>F</u>
<u>Children's Boulevard to Avenue 12</u>	<u>2 lanes</u>	<u>NB</u>	<u>AM</u>	<u>834</u>	<u>6.4</u>	<u>A</u>	<u>981</u>	<u>7.6</u>	<u>A</u>	<u>1,419</u>	<u>10.9</u>	<u>A</u>
			<u>PM</u>	<u>1,682</u>	<u>13.0</u>	<u>B</u>	<u>1,872</u>	<u>14.4</u>	<u>B</u>	<u>2,506</u>	<u>19.3</u>	<u>C</u>
	<u>2 lanes</u>	<u>SB</u>	<u>AM</u>	<u>1,776</u>	<u>13.7</u>	<u>B</u>	<u>1,904</u>	<u>14.7</u>	<u>B</u>	<u>2,291</u>	<u>17.7</u>	<u>B</u>
			<u>PM</u>	<u>1,082</u>	<u>8.3</u>	<u>A</u>	<u>1,341</u>	<u>10.3</u>	<u>A</u>	<u>2,095</u>	<u>16.1</u>	<u>B</u>
<u>Friant Road to Children's Boulevard</u>	<u>2 lanes</u>	<u>NB</u>	<u>AM</u>	<u>1,698</u>	<u>13.1</u>	<u>B</u>	<u>1,884</u>	<u>14.5</u>	<u>B</u>	<u>2,443</u>	<u>18.8</u>	<u>C</u>
			<u>PM</u>	<u>2,379</u>	<u>18.3</u>	<u>C</u>	<u>2,474</u>	<u>19.1</u>	<u>C</u>	<u>2,792</u>	<u>21.6</u>	<u>C</u>
	<u>2 lanes</u>	<u>SB</u>	<u>AM</u>	<u>2,382</u>	<u>18.4</u>	<u>C</u>	<u>2,500</u>	<u>19.3</u>	<u>C</u>	<u>2,856</u>	<u>22.1</u>	<u>C</u>
			<u>PM</u>	<u>1,954</u>	<u>15.1</u>	<u>B</u>	<u>2,131</u>	<u>16.4</u>	<u>B</u>	<u>2,720</u>	<u>21.0</u>	<u>C</u>
<u>Herndon Avenue to Friant Road</u>	<u>3 lanes</u>	<u>NB</u>	<u>AM</u>	<u>2,911</u>	<u>15.0</u>	<u>B</u>	<u>3,027</u>	<u>15.6</u>	<u>B</u>	<u>3,376</u>	<u>17.3</u>	<u>B</u>
			<u>PM</u>	<u>4,229</u>	<u>21.8</u>	<u>C</u>	<u>4,199</u>	<u>21.6</u>	<u>C</u>	<u>4,100</u>	<u>21.1</u>	<u>C</u>
	<u>3 lanes</u>	<u>SB</u>	<u>AM</u>	<u>3,870</u>	<u>19.9</u>	<u>C</u>	<u>3,826</u>	<u>19.7</u>	<u>C</u>	<u>3,693</u>	<u>19.0</u>	<u>C</u>
			<u>PM</u>	<u>2,670</u>	<u>13.7</u>	<u>B</u>	<u>2,615</u>	<u>13.4</u>	<u>B</u>	<u>2,429</u>	<u>12.5</u>	<u>B</u>
<u>South of Herndon Avenue</u>	<u>3 lanes</u>	<u>NB</u>	<u>AM</u>	<u>4,525</u>	<u>23.5</u>	<u>C</u>	<u>4,569</u>	<u>23.7</u>	<u>C</u>	<u>4,702</u>	<u>24.6</u>	<u>C</u>
			<u>PM</u>	<u>5,632</u>	<u>31.5</u>	<u>D</u>	<u>5,515</u>	<u>30.4</u>	<u>D</u>	<u>5,125</u>	<u>27.4</u>	<u>D</u>
	<u>3 lanes</u>	<u>SB</u>	<u>AM</u>	<u>5,017</u>	<u>26.6</u>	<u>D</u>	<u>4,875</u>	<u>25.7</u>	<u>C</u>	<u>4,450</u>	<u>23.0</u>	<u>C</u>
			<u>PM</u>	<u>4,161</u>	<u>21.4</u>	<u>C</u>	<u>3,955</u>	<u>20.3</u>	<u>C</u>	<u>3,266</u>	<u>16.8</u>	<u>B</u>

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

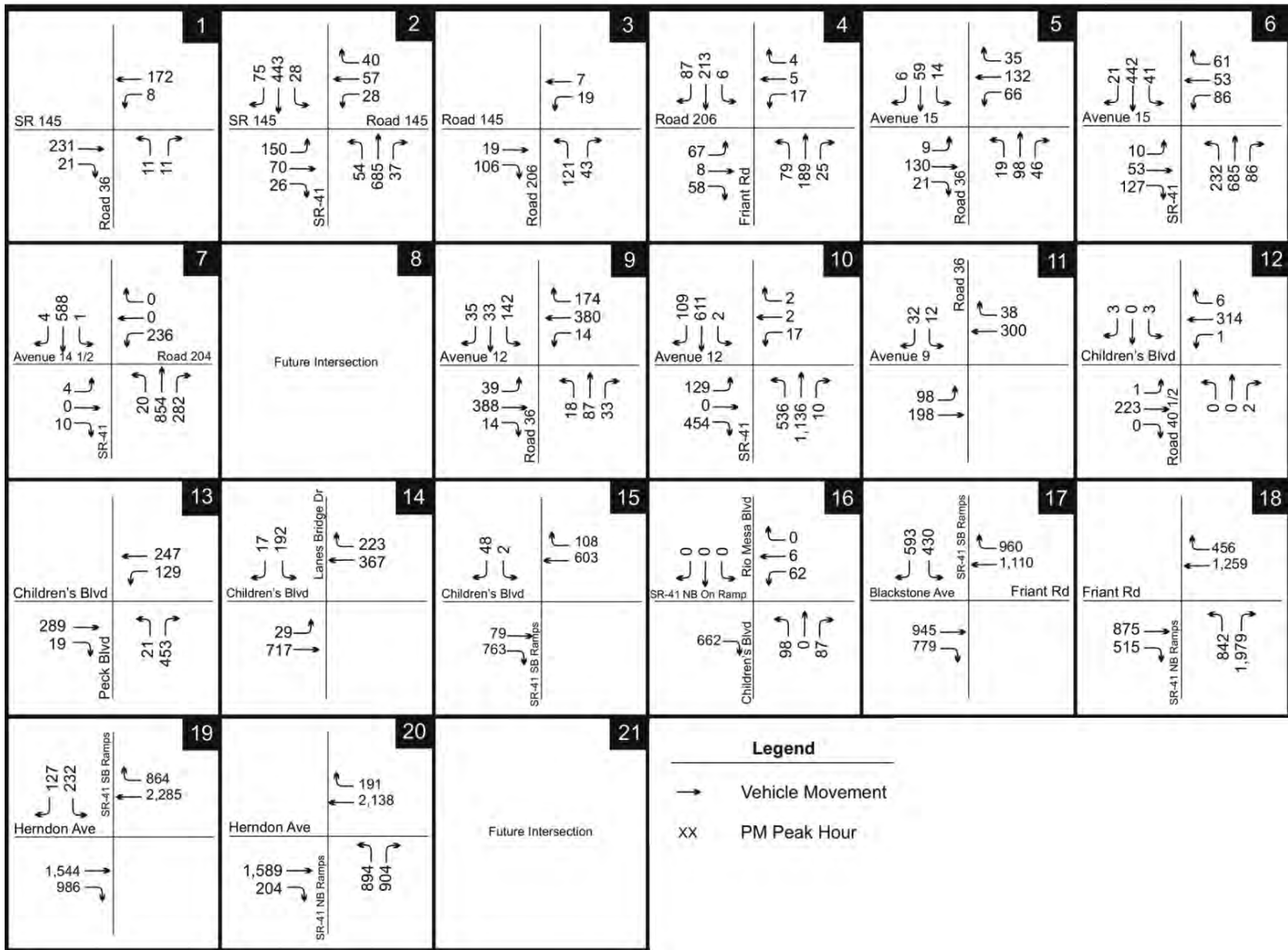
LOS = Level of Service

BOLD denotes LOS standard has been exceeded.



Source: VRPA Technologies, Inc., March 2012.

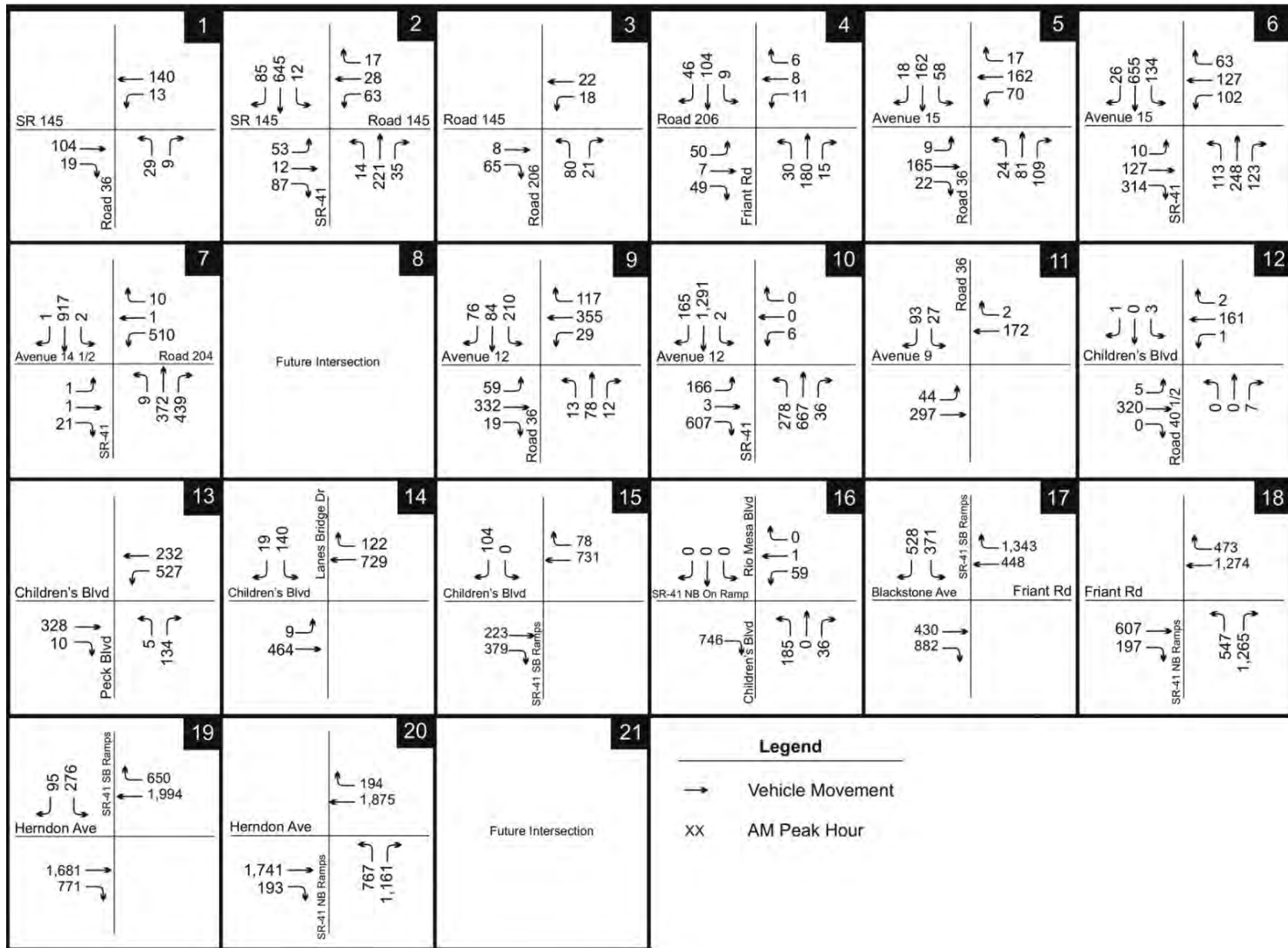
Figure 4.13-14 Existing Plus Project in 2015 Conditions AM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

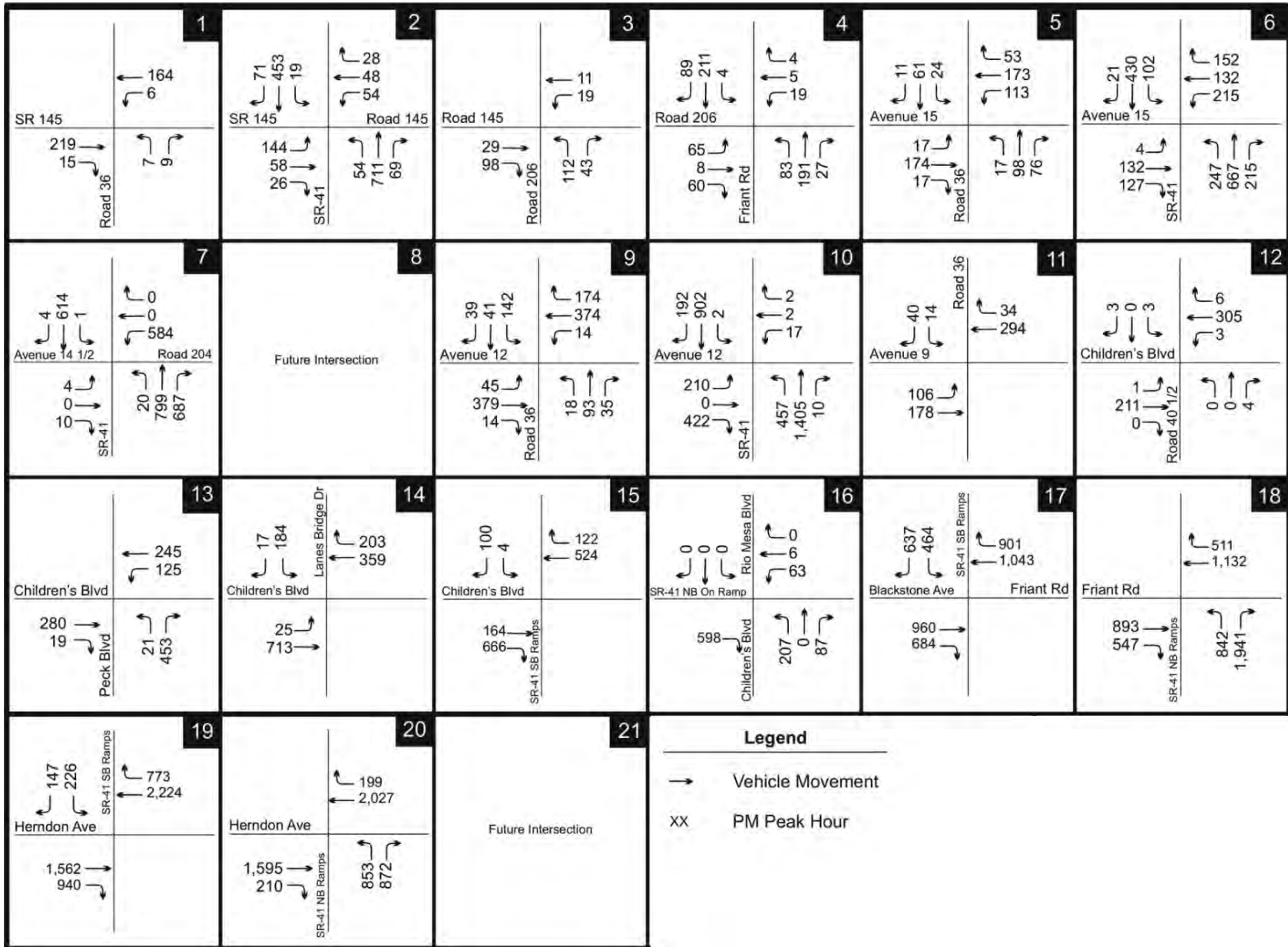
Figure 4.13-15

Existing Plus Project in 2015 Conditions PM Peak Hour Traffic [New]



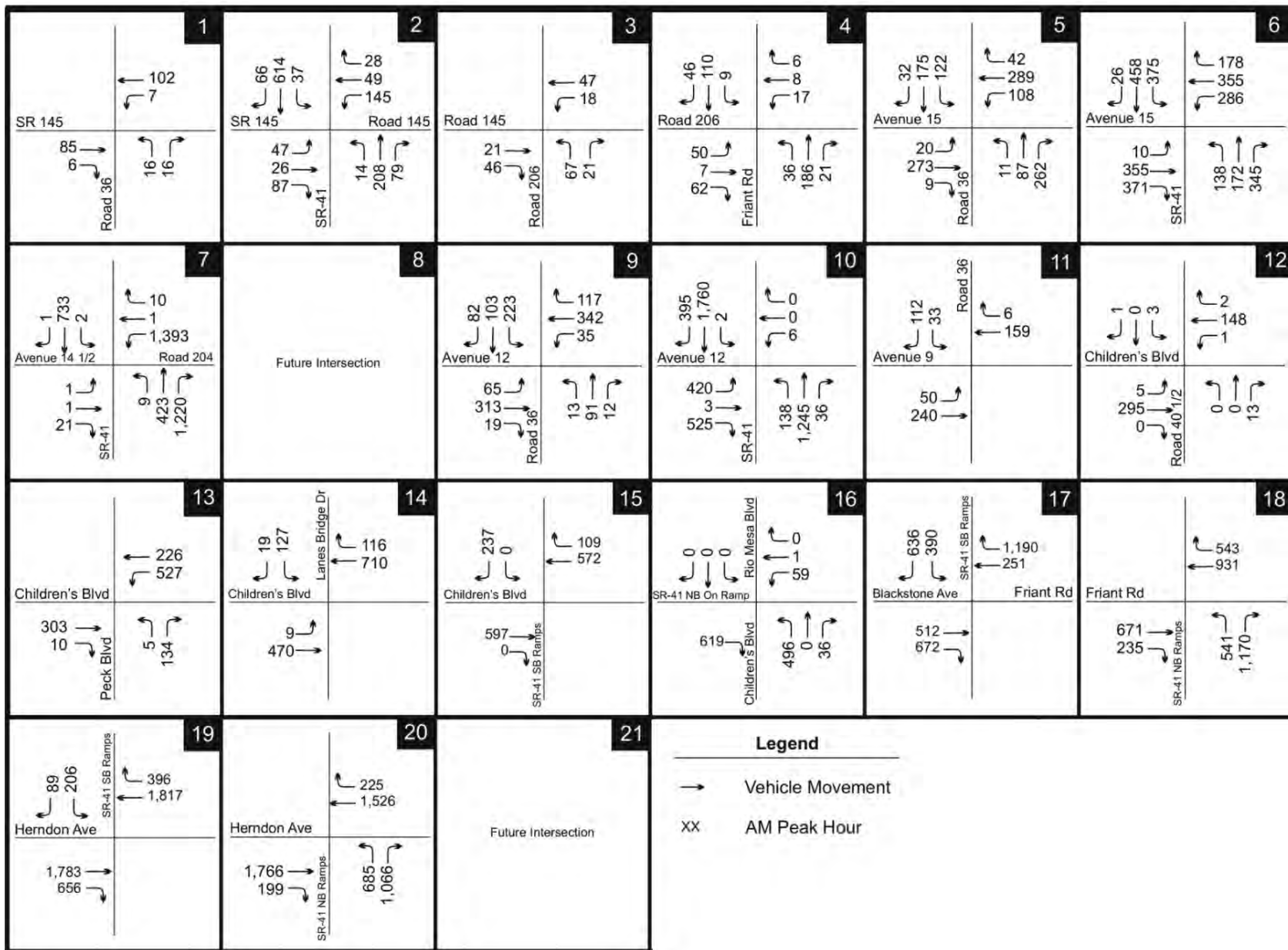
Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-16 Existing Plus Project in 2020 Conditions AM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

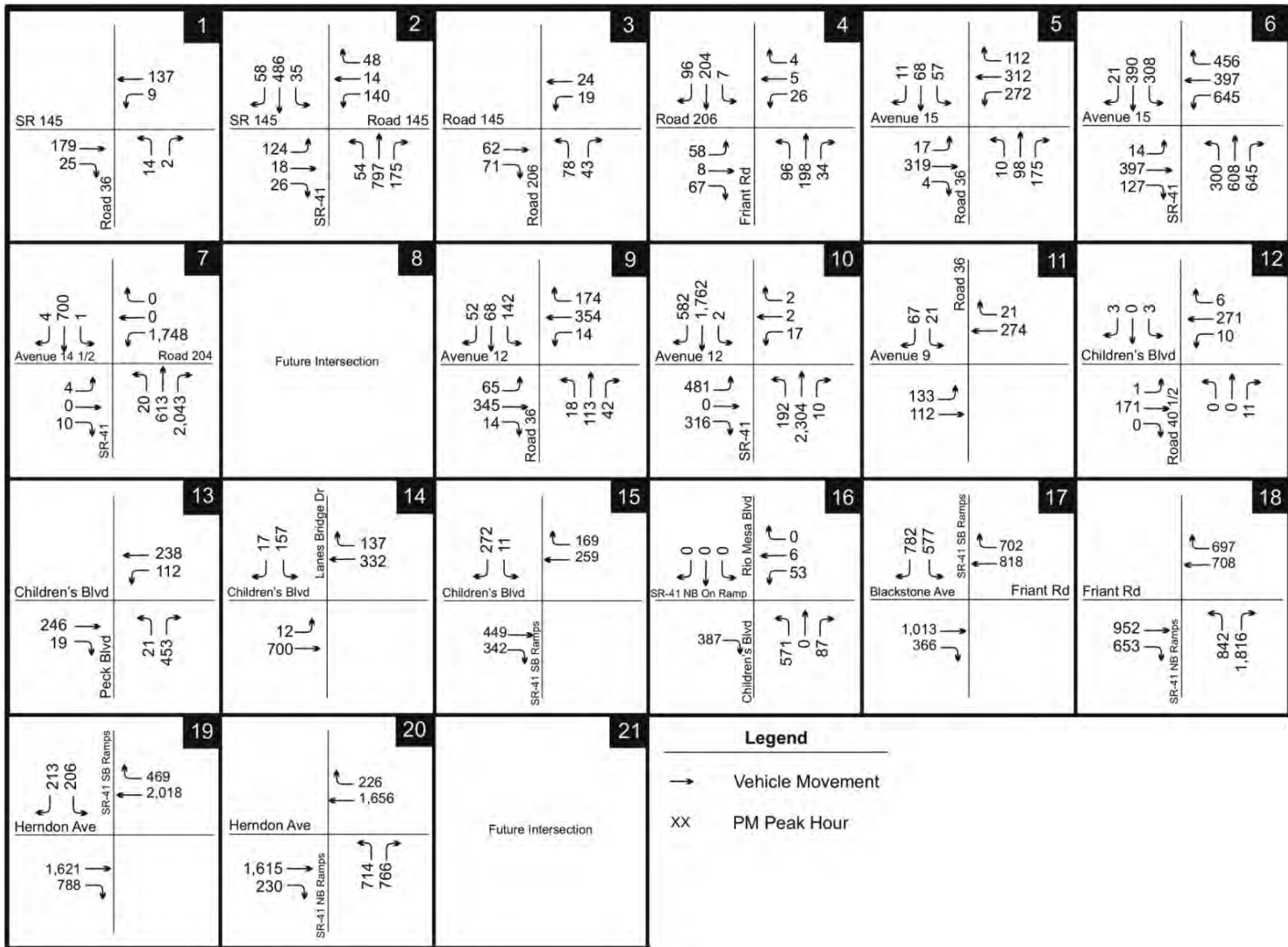
Figure 4.13-17
Existing Plus Project in 2020 Conditions PM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-18

Existing Plus Project in 2025 (Full Buildout) Conditions AM Peak Hour Traffic [New]



Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-19

Existing Plus Project in 2025 (Full Buildout) Conditions PM Peak Hour Traffic [New]

■ Interim 2015 and 2020 Cumulative Traffic Forecasts

Interim Year 2015 Cumulative Without Project traffic volumes are shown in Figure 4.13-20 (Interim Year 2015 Cumulative Without Project AM Peak Hour Traffic) and Figure 4.13-21 (Interim Year 2015 Cumulative Without Project PM Peak Hour Traffic). Interim Year 2015 Cumulative Plus Project traffic volumes are shown in Figure 4.13-22 (Interim Year 2015 Cumulative Plus Project AM Peak Hour Traffic) and Figure 4.13-23 (Interim Year 2015 Cumulative Plus Project PM Peak Hour Traffic).

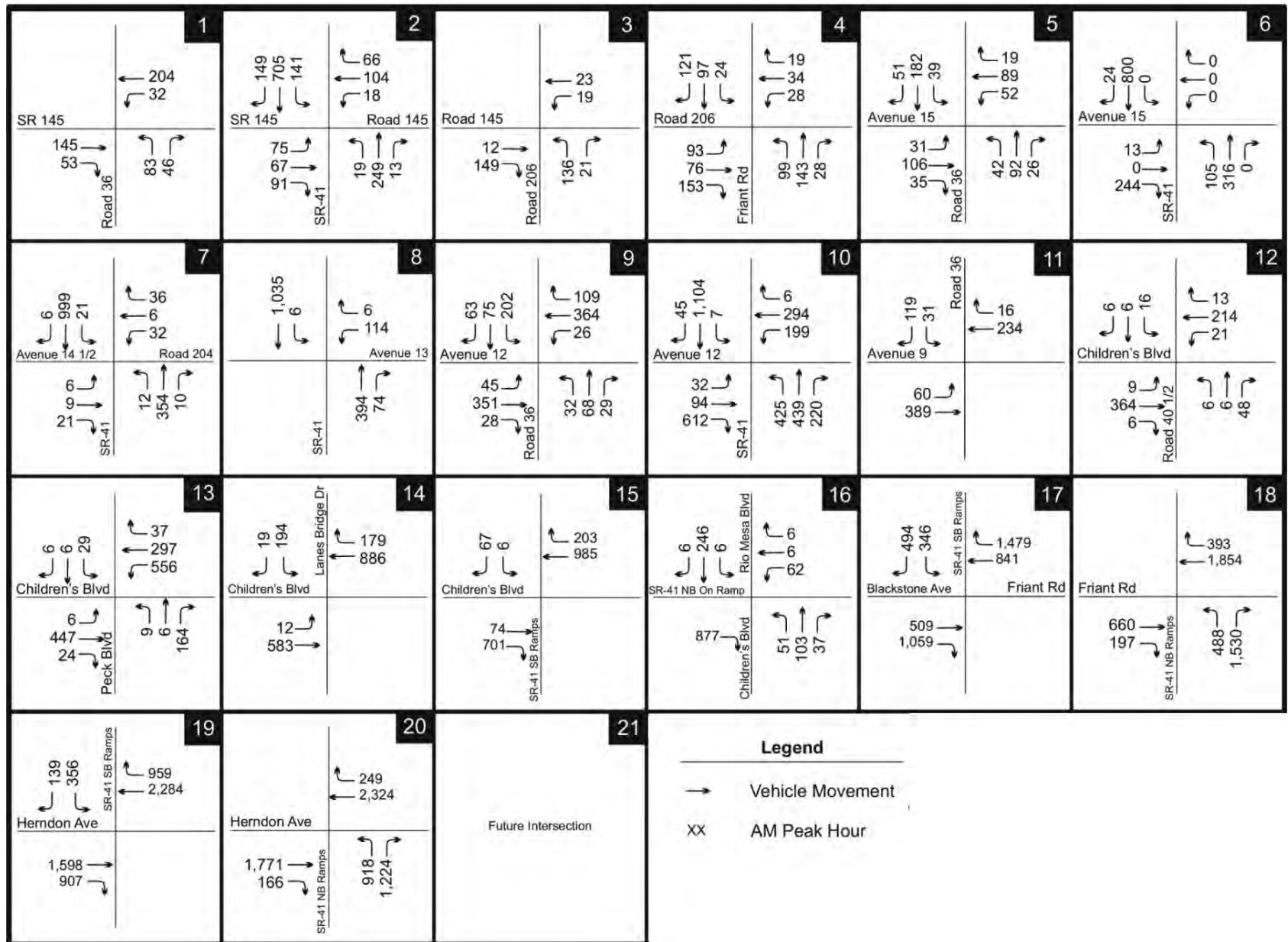
Portions of the roadway network internal to the Project Site that are deemed necessary for this phase of development, as well as limited roadway improvements that provide access to the assumed Rio Mesa cumulative development in 2015 and 2020 (Avenue 12, Avenue 13, and Rio Mesa Boulevard access), were assumed to be in place. Such an assumption is required if cumulative development is also assumed for this scenario. No additional roadway improvements in the study area are assumed to be in place by the year 2015 based on the financially-constrained list of projects in the 2011 RTP. Although several roadway network improvements in the study area are expected to be in place by the year 2020, the financially-constrained list of projects in the 2011 RTP and discussions with MCTC staff indicate none of these improvements are fully funded. Therefore, out of conservatism, these roadway network improvements were not assumed in place for this scenario.

Table 4.13-19 (Interim Years Cumulative 2015 and 2020 Intersection Operations) shows intersections that are expected to fall short of desirable operating conditions for the Interim Year 2015 Cumulative Plus Project scenario. Results of the analysis show that the following eight study intersections are expected to operate worse than the minimum LOS D for the Interim Year 2015 Cumulative Plus Project scenario:

- Road 206 at Friant Road (PM peak hour)
- SR-41 at Avenue 15 (both with and without potential Proposed Project connection to Avenue 15, AM and PM peak hours)
- SR-41 at Road 204 (both with and without potential Proposed Project connection to Avenue 15, AM and PM peak hours)
- SR-41 at Avenue 13 (AM and PM peak hours)
- SR-41 at Avenue 12 (AM and PM peak hours)
- Children's Boulevard at Peck Boulevard (AM and PM peak hours)
- SR-41 NB Ramps at Friant Road (PM peak hour)
- SR-41 NB Ramps at Herndon Avenue (AM and PM peak hours)

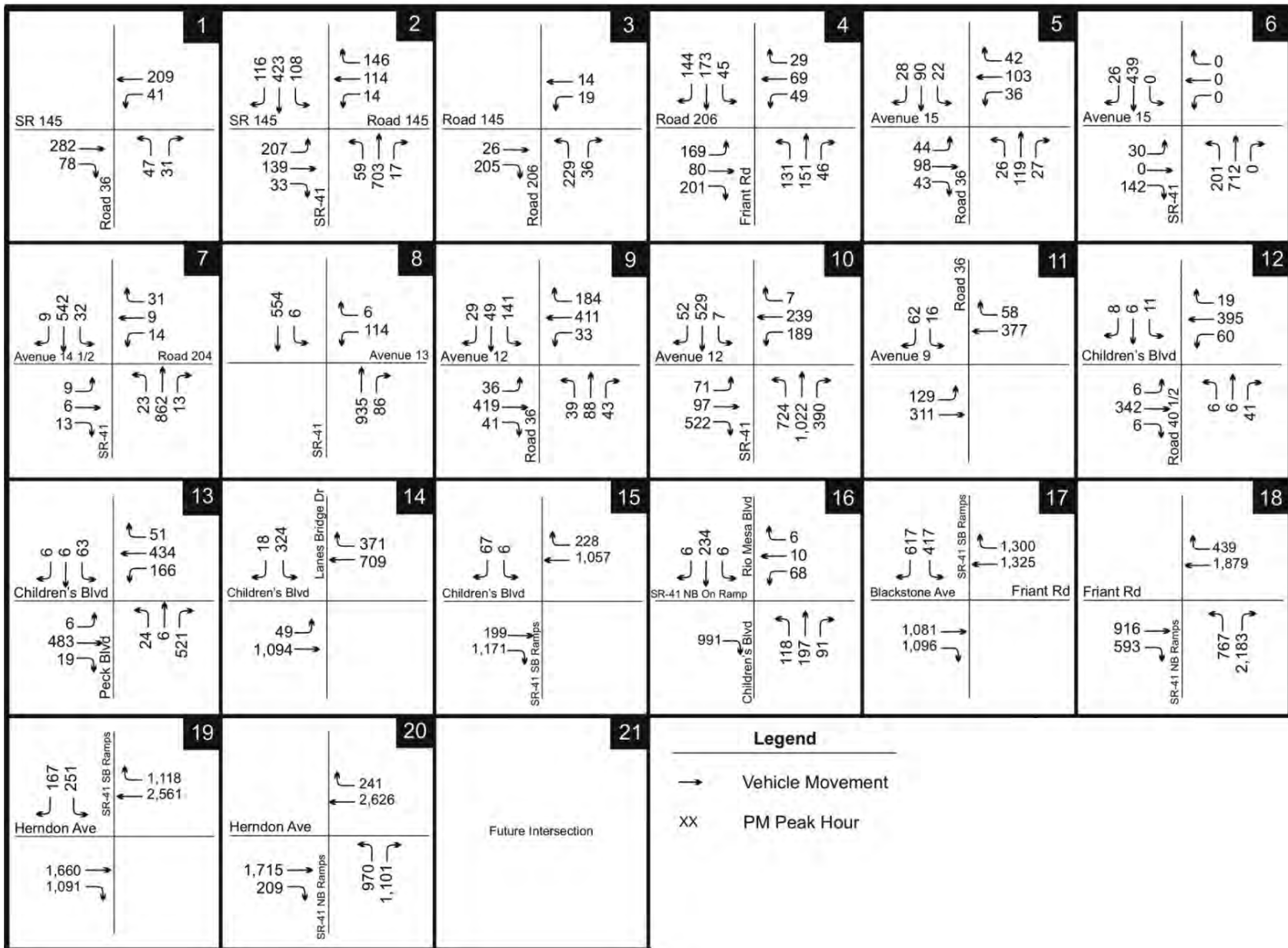
Table 4.13-20 (Interim Years Cumulative 2015 and 2020 Segment Operations) shows the segment LOS for Interim Year 2015 Cumulative Plus Project scenario. Results of the analysis show that the following study segment is expected to operate worse than the minimum LOS D for the Interim Year 2015 Cumulative Plus Project scenario:

- Northbound SR-41 south of Herndon Avenue (PM peak hour)



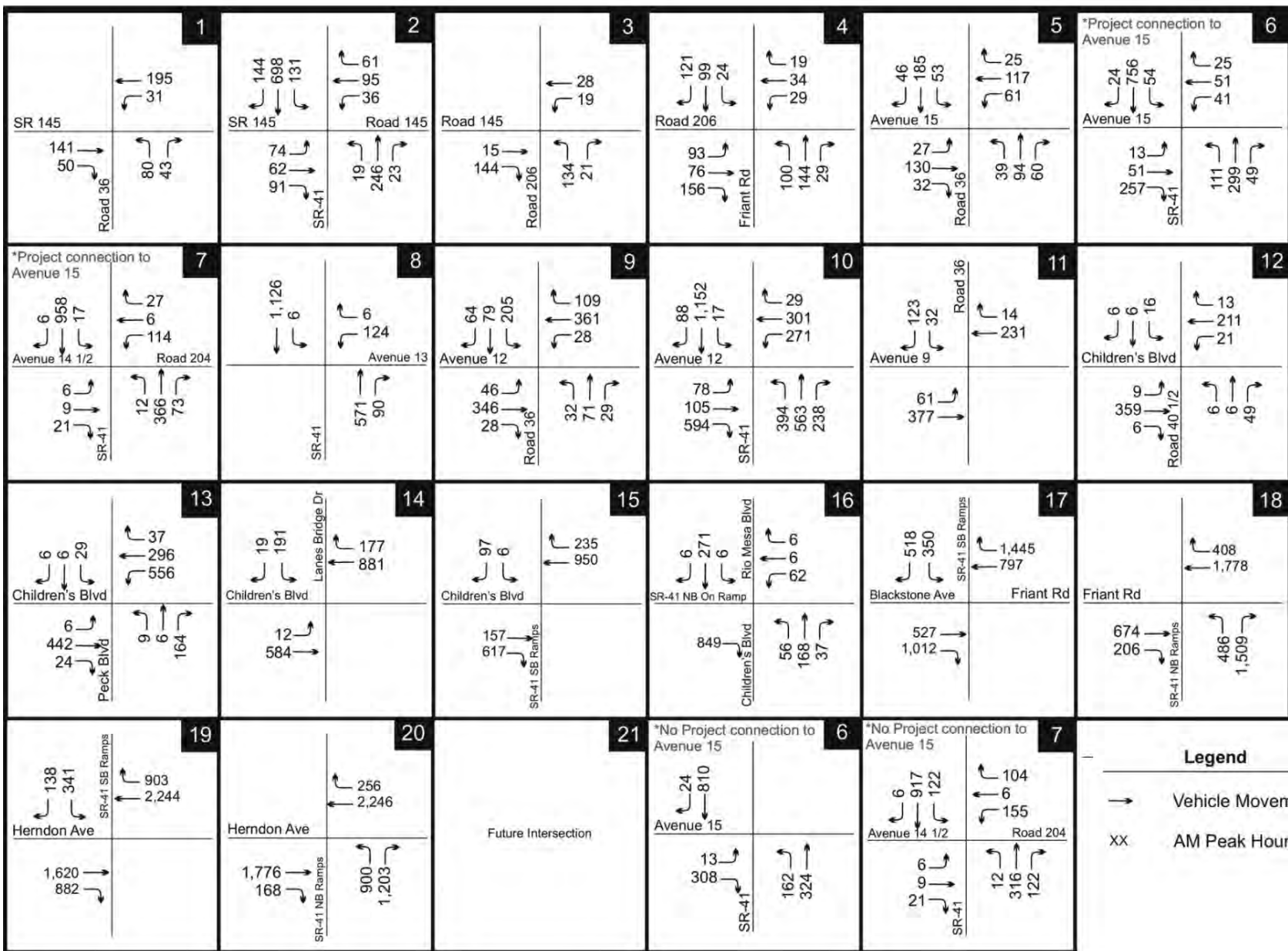
Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-20 Interim Year 2015 Cumulative Without Project AM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

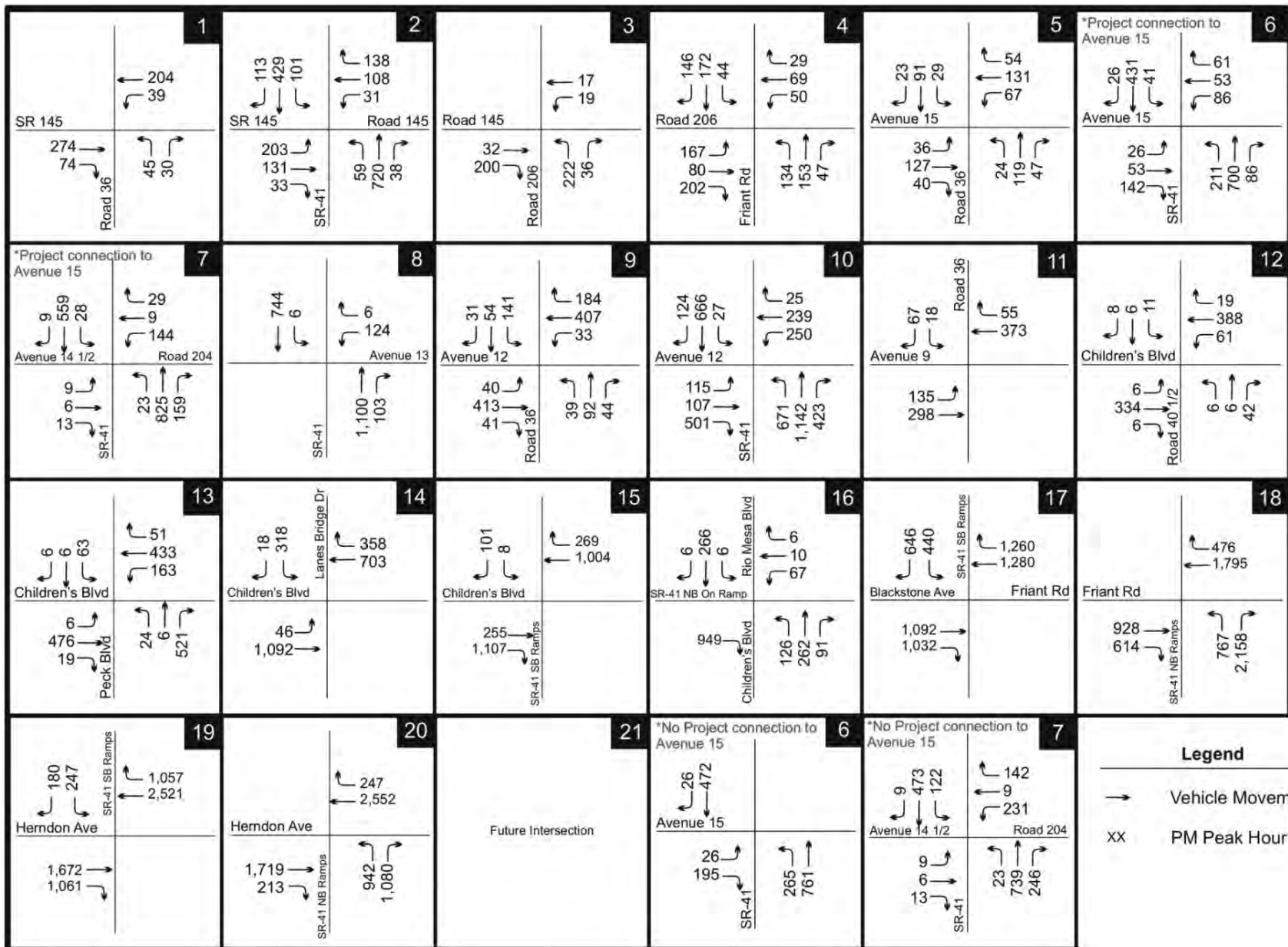
Figure 4.13-21 Interim Year 2015 Cumulative Without Project PM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-22

Interim Year 2015 Cumulative Plus Project AM Peak Hour Traffic [New]



Legend

→ Vehicle Movement

XX PM Peak Hour

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-23 Interim Year 2015 Cumulative Plus Project PM Peak Hour Traffic [New]

Table 4.13-19 Interim Years Cumulative 2015 and 2020 Intersection Operations [New]

	Intersection	Control	Peak Hour	Interim 2015 Plus Project		Interim 2020 Plus Project	
				Delay	LOS	Delay	LOS
1	Road 36 / SR-145	One-Way Stop Sign	AM	12.3	B*	16.5	C+
			PM	13.5	B*	19.9	C+
2	SR-41 / SR-145	Signalized	AM	25.4	C	29.7	C
			PM	33.7	C	50.6	D
3	Road 206 / Road 145	Two-Way Stop Sign	AM	9.8	A*	10.7	B+
			PM	10.7	B*	12.9	B+
4	Road 206 / Friant Road	Two-Way Stop Sign	AM	21.2	C+	>50.0	F+
			PM	>50.0	F+	>50.0	F+
5	Road 36 / Avenue 15	All-Way Stop Sign	AM	12.3	B+	23.6	C+
			PM	11.1	B+	21.1	C+
6	SR-41 / Avenue 15 (with Project connection to Avenue 15)	Two-Way Stop Sign	AM	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+
	SR-41 / Avenue 15 (without Project connection to Avenue 15)	One-Way Stop Sign	AM	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+
7	SR-41 / Road 204 (with Project connection to Avenue 15)	Two-Way Stop Sign	AM	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+
	SR-41 / Road 204 (without Project connection to Avenue 15)	Two-Way Stop Sign	AM	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+
8	SR-41 / Avenue 13	One-Way Stop Sign	AM	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+
9	Road 36 / Avenue 12	Signalized	AM	21.4	C	28.6	C
			PM	20.7	C	23.0	C
10	SR-41 / Avenue 12	Signalized	AM	>80.0	F	>80.0	F
			PM	>80.0	F	>80.0	F
11	Road 36 / Avenue 9	One-Way Stop Sign	AM	13.1	B+	17.7	C+
			PM	15.1	C+	24.8	C+
12	Road 40½ / Avenue 9	Two-Way Stop Sign	AM	15.9	C*	25.1	D+
			PM	19.7	C*	>50.0	F+
13	Children's Boulevard / Peck Boulevard	One-Way Stop Sign	AM	>50.0	F+	>50.0	F+
			PM	>50.0	F+	>50.0	F+
14	Children's Boulevard / Lanes Bridge Drive	Signalized	AM	11.8	B	10.3	B
			PM	12.6	B	25.7	C
15	SR-41 SB Ramps / Children's Boulevard	Signalized	AM	9.6	A	8.2	A
			PM	20.9	C	45.5	D

Table 4.13-19 Interim Years Cumulative 2015 and 2020 Intersection Operations [New]

Intersection	Control	Peak Hour	Interim 2015 Plus Project		Interim 2020 Plus Project	
			Delay	LOS	Delay	LOS
16 SR-41 NB Ramps / Rio Mesa Boulevard	Signalized	AM	9.3	A	10.6	B
		PM	11.1	B	12.5	B
17 SR-41 SB Ramps / Friant Road	Signalized	AM	14.1	B	15.8	B
		PM	21.1	C	29.3	C
18 SR-41 NB Ramps / Friant Road	Signalized	AM	26.4	C	69.5	E
		PM	>80.0	F	>80.0	F
19 SR-41 SB Ramps / Herndon Avenue	Signalized	AM	12.1	B	13.3	B
		PM	9.5	A	12.6	B
20 SR-41 NB Ramps / Herndon Avenue	Signalized	AM	55.9	E	72.2	E
		PM	59.3	E	>80.0	F
21 SR-41 NB Ramps / Avenue 12	(Future)	AM	≡	≡	≡	≡
		PM	≡	≡	≡	≡

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

LOS = level of service

+ Meets peak hour signal warrants.

* Does not meet signal warrants

DELAY is measured in seconds.

BOLD denotes LOS standard has been exceeded

For signalized and all-way stop-controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop-controlled intersections, delay results show the delay for the worst approach.

Table 4.13-20 Interim Years Cumulative 2015 and 2020 Segment Operations [New]

Street Segment	Segment Description	Direction	Peak Hour	Interim Year 2015 Cumulative Plus Project			Interim Year 2020 Cumulative Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
State Route 41									
North of SR-145	1 lane	NB	AM	381		A	463		A
			PM	1,061		C	1,301		D
	1 lane	SB	AM	973		C	1,190		C
			PM	643		B	761		B
Avenue 15 to SR-145	1 lane	NB	AM	337		A	385		A
			PM	817		B	924		B
	1 lane	SB	AM	834		B	900		B
			PM	498		B	539		B
Road 204 to Avenue 15 (with Project connection to Avenue 15)	1 lane	NB	AM	459		A	556		B
			PM	997		C	1,118		C
	1 lane	SB	AM	1,054		C	1,067		C
			PM	659		B	780		B

Table 4.13-20 Interim Years Cumulative 2015 and 2020 Segment Operations [New]

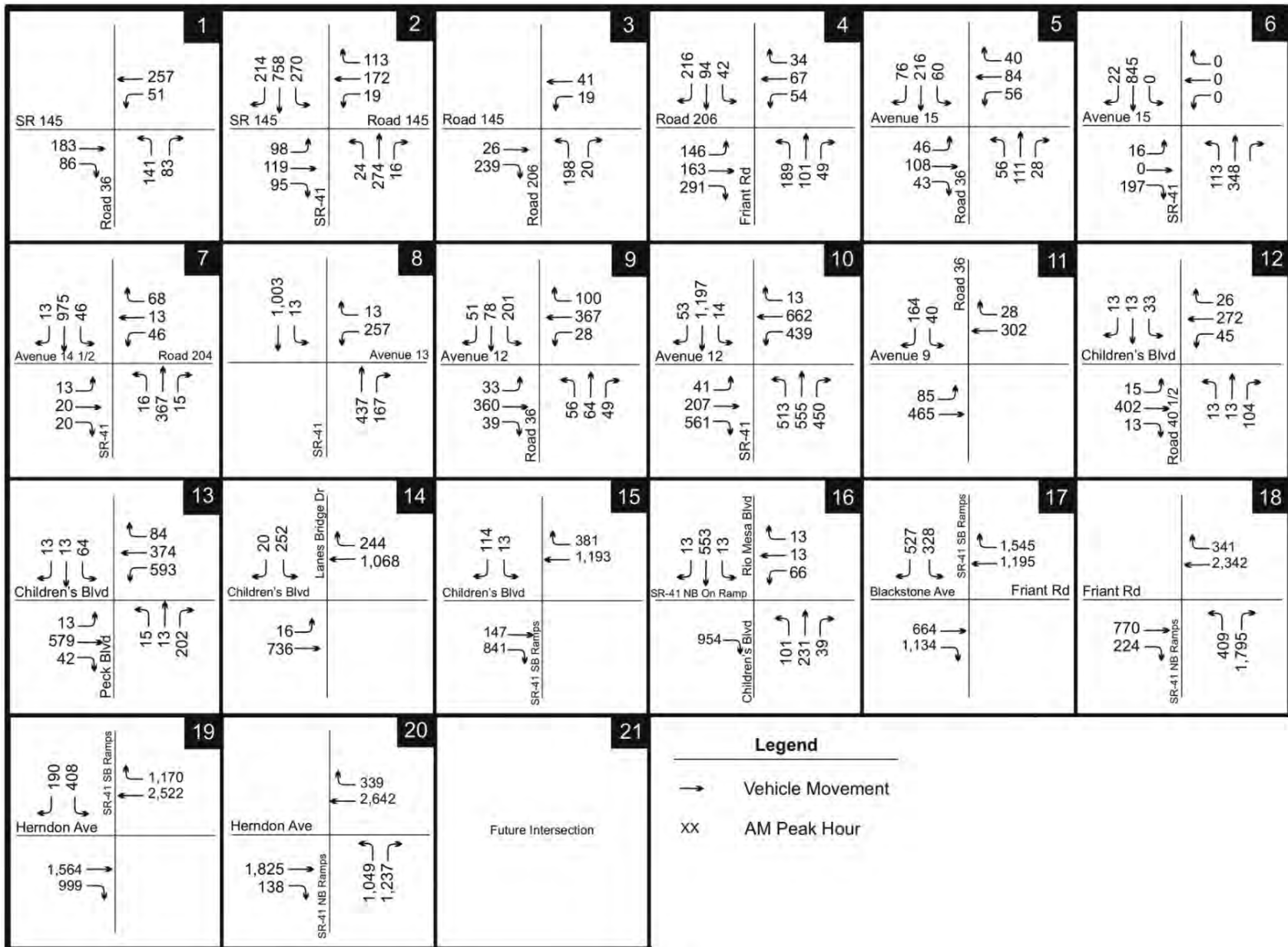
Street Segment	Segment Description	Direction	Peak Hour	Interim Year 2015 Cumulative Plus Project			Interim Year 2020 Cumulative Plus Project		
				Volume	Density	LOS	Volume	Density	LOS
<u>Road 204 to Avenue 15 (without Project connection to Avenue 15)</u>	<u>1 lane</u>	<u>NB</u>	<u>AM</u>	<u>486</u>		<u>B</u>	<u>623</u>		<u>B</u>
			<u>PM</u>	<u>1,026</u>		<u>C</u>	<u>1,186</u>		<u>C</u>
	<u>1 lane</u>	<u>SB</u>	<u>AM</u>	<u>1,118</u>		<u>C</u>	<u>1,226</u>		<u>C</u>
			<u>PM</u>	<u>667</u>		<u>B</u>	<u>799</u>		<u>B</u>
<u>Avenue 13 to Road 204</u>	<u>1 lane</u>	<u>NB</u>	<u>AM</u>	<u>577</u>		<u>B</u>	<u>890</u>		<u>B</u>
			<u>PM</u>	<u>1,106</u>		<u>C</u>	<u>1,379</u>		<u>D</u>
	<u>1 lane</u>	<u>SB</u>	<u>AM</u>	<u>1,132</u>		<u>C</u>	<u>1,245</u>		<u>C</u>
			<u>PM</u>	<u>750</u>		<u>B</u>	<u>1,081</u>		<u>C</u>
<u>Avenue 12 to Avenue 13</u>	<u>1 lane</u>	<u>NB</u>	<u>AM</u>	<u>670</u>		<u>B</u>	<u>1,088</u>		<u>C</u>
			<u>PM</u>	<u>1,282</u>		<u>C</u>	<u>1,641</u>		<u>E</u>
	<u>1 lane</u>	<u>SB</u>	<u>AM</u>	<u>1,257</u>		<u>C</u>	<u>1,518</u>		<u>D</u>
			<u>PM</u>	<u>868</u>		<u>B</u>	<u>1,348</u>		<u>D</u>
<u>Children's Boulevard to Avenue 12</u>	<u>2 lanes</u>	<u>NB</u>	<u>AM</u>	<u>1,195</u>	<u>9.2</u>	<u>A</u>	<u>1,797</u>	<u>13.8</u>	<u>B</u>
			<u>PM</u>	<u>2,236</u>	<u>17.2</u>	<u>B</u>	<u>3,112</u>	<u>24.3</u>	<u>C</u>
	<u>2 lanes</u>	<u>SB</u>	<u>AM</u>	<u>2,017</u>	<u>15.5</u>	<u>B</u>	<u>2,451</u>	<u>18.9</u>	<u>C</u>
			<u>PM</u>	<u>1,417</u>	<u>10.9</u>	<u>A</u>	<u>2,077</u>	<u>16.0</u>	<u>B</u>
<u>Friant Road to Children's Boulevard</u>	<u>2 lanes</u>	<u>NB</u>	<u>AM</u>	<u>1,976</u>	<u>15.2</u>	<u>B</u>	<u>2,543</u>	<u>19.6</u>	<u>C</u>
			<u>PM</u>	<u>3,043</u>	<u>23.7</u>	<u>C</u>	<u>4,075</u>	<u>36.5</u>	<u>E</u>
	<u>2 lanes</u>	<u>SB</u>	<u>AM</u>	<u>2,766</u>	<u>21.4</u>	<u>C</u>	<u>3,343</u>	<u>26.6</u>	<u>D</u>
			<u>PM</u>	<u>2,684</u>	<u>20.7</u>	<u>C</u>	<u>3,771</u>	<u>31.7</u>	<u>D</u>
<u>Herndon Avenue to Friant Road</u>	<u>3 lanes</u>	<u>NB</u>	<u>AM</u>	<u>3,357</u>	<u>17.2</u>	<u>B</u>	<u>4,065</u>	<u>20.9</u>	<u>C</u>
			<u>PM</u>	<u>4,878</u>	<u>25.7</u>	<u>C</u>	<u>5,767</u>	<u>32.8</u>	<u>D</u>
	<u>3 lanes</u>	<u>SB</u>	<u>AM</u>	<u>4,355</u>	<u>22.5</u>	<u>C</u>	<u>4,896</u>	<u>25.8</u>	<u>C</u>
			<u>PM</u>	<u>3,890</u>	<u>20.0</u>	<u>C</u>	<u>5,360</u>	<u>29.2</u>	<u>D</u>
<u>South of Herndon Avenue</u>	<u>3 lanes</u>	<u>NB</u>	<u>AM</u>	<u>5,036</u>	<u>26.7</u>	<u>D</u>	<u>5,753</u>	<u>32.6</u>	<u>D</u>
			<u>PM</u>	<u>6,440</u>	<u>41.0</u>	<u>E</u>	<u>7,443</u>	<u>=</u>	<u>F</u>
	<u>3 lanes</u>	<u>SB</u>	<u>AM</u>	<u>5,661</u>	<u>31.7</u>	<u>D</u>	<u>6,305</u>	<u>39.1</u>	<u>E</u>
			<u>PM</u>	<u>5,581</u>	<u>31.0</u>	<u>D</u>	<u>7,149</u>	<u>=</u>	<u>F</u>

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

LOS = level of service

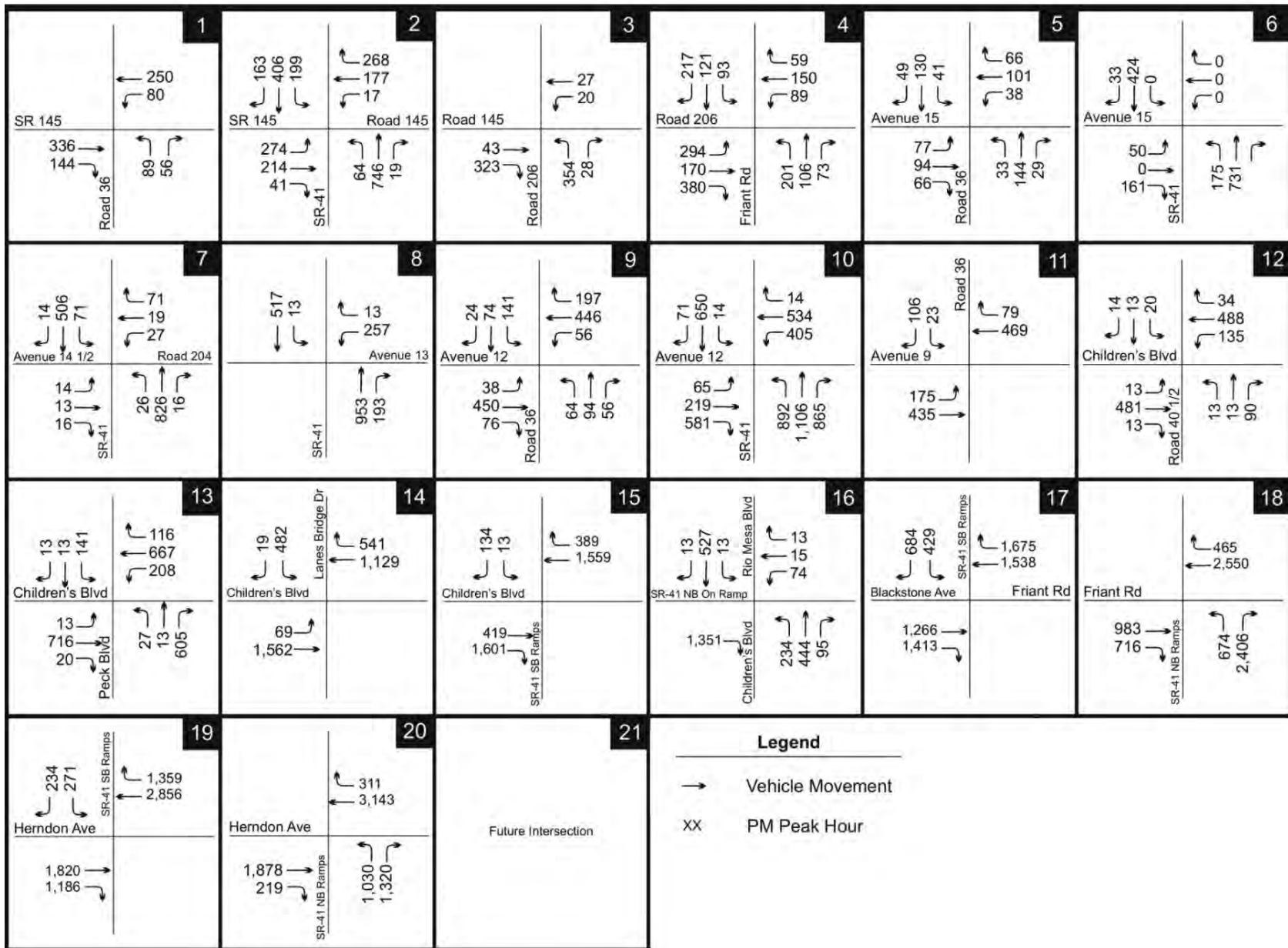
BOLD denotes LOS standard has been exceeded.

Interim Year 2020 Cumulative Without Project traffic volumes are shown in Figure 4.13-24 (Interim Year 2020 Cumulative Without Project AM Peak Hour Traffic) and Figure 4.13-25 (Interim Year 2020 Cumulative Without Project PM Peak Hour Traffic). Interim Year 2020 Cumulative Plus Project traffic volumes are shown in Figure 4.13-26 (Interim Year 2020 Cumulative Plus Project AM Peak Hour Traffic) and Figure 4.13-27 (Interim Year 2020 Cumulative Plus Project PM Peak Hour Traffic).



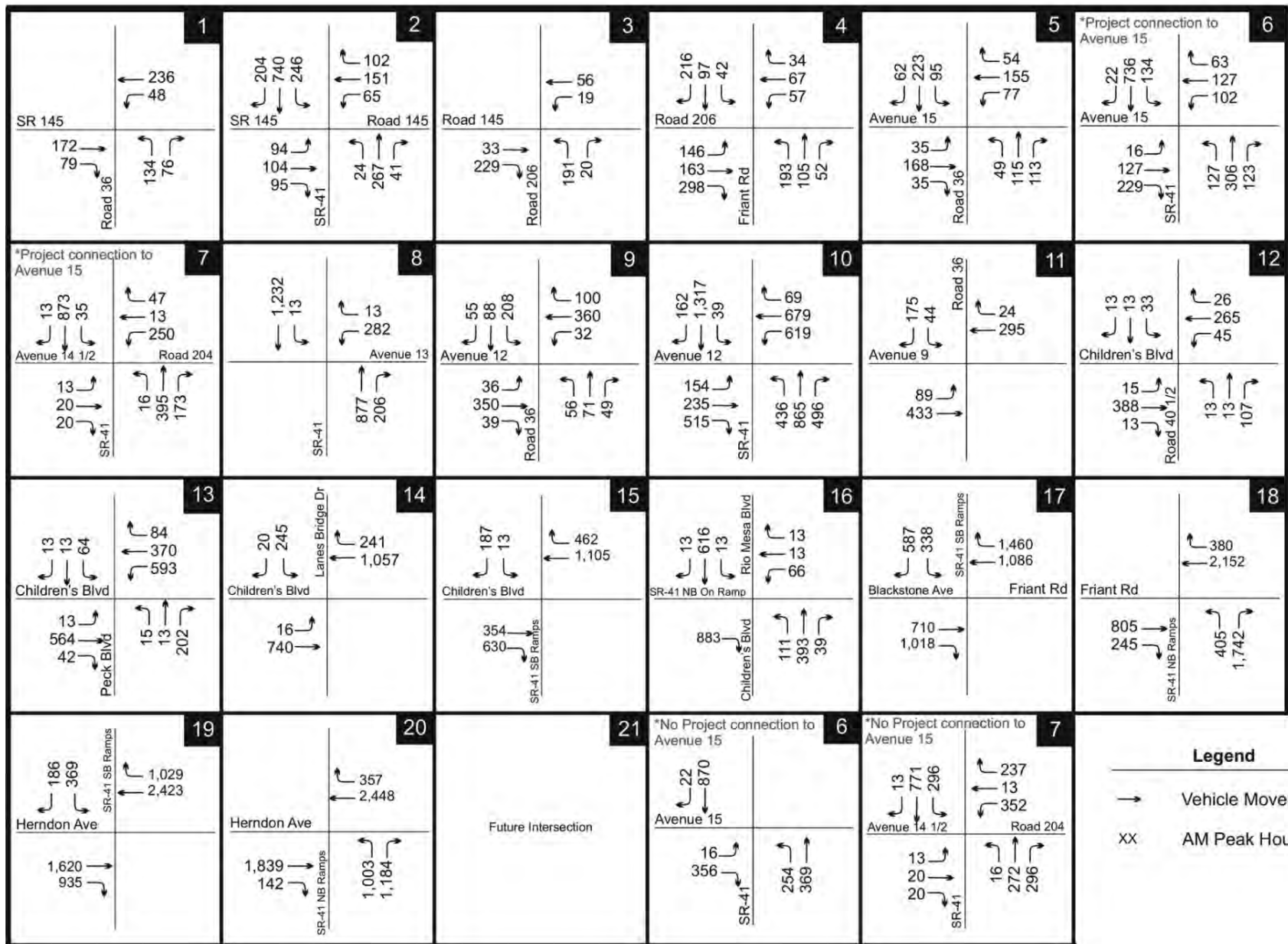
Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-24 Interim Year 2020 Cumulative Without Project AM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

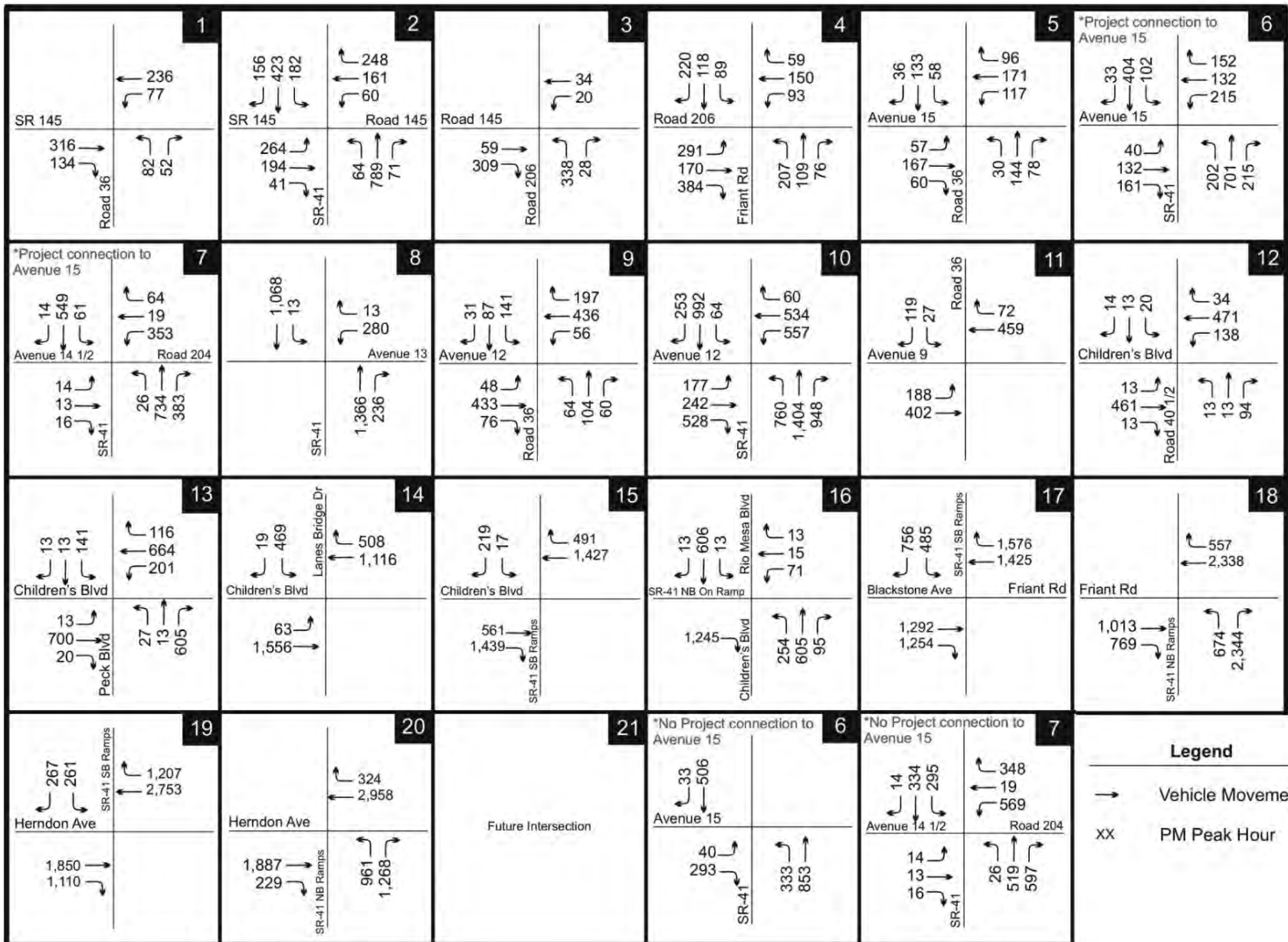
Figure 4.13-25 Interim Year 2020 Cumulative Without Project PM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-26

Interim Year 2020 Cumulative Plus Project AM Peak Hour Traffic [New]



Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-27 Interim Year 2020 Cumulative Plus Project PM Peak Hour Traffic [New]

Results of the analysis shown in Table 4.13-19 (Interim Years Cumulative 2015 and 2020 Intersection Operations) show a ninth intersection expected to operate worse than the minimum LOS D for the Interim Year 2020 Cumulative Plus Project scenario:

- Road 40½ at Avenue 9 (PM peak hour)

Table 4.13-20 (Interim Years Cumulative 2015 and 2020 Segment Operations) shows that the following additional study segments are expected to operate worse than the minimum LOS D for the Interim Year 2020 Cumulative Plus Project scenario than in 2015:

- Northbound SR-41 between Avenue 12 and Avenue 13 (PM peak hour)
- Northbound SR-41 between Friant Road and Children’s Boulevard (PM peak hour)
- Southbound SR-41 south of Herndon Avenue (AM and PM peak hours)

■ Temporary Construction Conditions on Avenue 15 Related to the Water Supply Alternative

As part of the revised 2012 traffic study, a scenario was evaluated that assumes temporary construction conditions on Avenue 15 related to construction of an 8-mile pipeline (from SR-41 to a point 8 miles westward) for a potential alternative source of water for the Project. This scenario used existing (2011) traffic volumes. The potential pipeline construction would affect traffic operations along Avenue 15 between Cottonwood Creek Ranch to a point just east of SR-41, as shown in Figure 3-7 (Avenue 15 Pipeline Location) and Figure 3-8 (Avenue 15 Pipeline Construction Details) of Chapter 3 (Project Description). The pipeline construction would take approximately 150 days to complete, with a maximum of 1,000 linear feet of roadway being affected at any one time.

Avenue 15 currently exists as a two-lane roadway in the area that would be impacted by construction of the pipeline. This scenario assumes that up to 1,000 feet along the southern lane would be closed for pipeline construction each day between 9:00 AM and 4:00 PM based on information provided by the contractor in consultation with Madera County. This would result in both directions of traffic utilizing the one remaining northern lane, with flaggers located at each end to direct traffic flow. It was assumed that average vehicle speed would be 30 miles per hour (mph) through the whole length of the construction zone, which would result in a clearance time of 23 seconds (i.e., it would take a vehicle 23 seconds to drive across the 1,000-foot construction zone). Since there would be more than one vehicle traveling in each direction, the actual clearance time for each stream of traffic is assumed to be 40 seconds. Therefore, vehicle stop-time delay would equal 40 seconds. There would be no permanent signing and striping as a result of the construction activities. Temporary signing would be needed to facilitate traffic operations in the construction zone. Typical signs would warn motorists of the lane closure and the presence of flaggers.

The Synchro methodology used to evaluate the Avenue 15 construction activities is similar to that applied for analyzing the signalized study intersections in the other analysis scenarios. A Synchro file, created to represent Avenue 15, assumed a two-phase signal located on the roadway that allows only one lane of directional vehicular traffic to flow at one time. This signal phasing essentially represents flagging operations. Table 4.13-21 (Potential Pipeline Construction—Synchro Methodology Results) shows the

results of the Synchro analysis. Results show that no major traffic delays (those that occur if the LOS would fall below LOS D) would be expected during construction of the pipeline along Avenue 15.

Table 4.13-21 Potential Pipeline Construction—Synchro Methodology Results [New]

Avenue 15 Segment	AM Peak Hour				PM Peak Hour			
	Direction	Delay (sec)	LOS	Clearance Time (sec)	Direction	Delay (sec)	LOS	Clearance Time (sec)
West of Road 36	EB-WB	12.0	B	69.2	EB-WB	11.6	B	67.8
East of Road 36	EB-WB	11.8	B	68.7	EB-WB	11.8	B	68.5
West of SR-41	EB-WB	11.9	B	68.8	EB-WB	11.8	B	66.0

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

School-Related Project Traffic Impacts

As previously discussed, the revised 2012 study included the analysis of impacts from interim school-related private vehicle trips associated with the occupancy of homes that would generate high-school students until such time as an on-site high school is available, which is assumed to occur in 2021. The school-related trips analysis would affect the interim scenarios (2015 and 2020) and would include the addition of trips at several study intersections and segments resulting from high school students (grades 9–12) living within the Project Site and traveling to/from Minarets High School, approximately 15 miles north of the Project Site.

Student Trip Generation and Distribution

Student generation for the Proposed Project was estimated assuming that 0.182 high school students (in grades 9–12) would be generated by each dwelling unit within the Project Site, which is the same assumption made in the 2008 Final EIR at the request of the CUSD. Student trip generation is shown in Table 4.13-22 (Tesoro Viejo—Student Trip Generation).

Table 4.13-22 Tesoro Viejo—Student Trip Generation [New]

Grade Level	Residential Units ^a	Student Generation Rate	Students	AM Peak Hour					PM Peak Hour				
				Rate ^b	In:Out ^b	Volume			Rate ^b	In:Out ^b	Volume		
						In	Out	Total			In	Out	Total
Interim Year 2015													
High School (9–12)	1,091	0.182	199	0.42	68:32	57	27	83	0.13	47:53	12	14	26
Totals	≡	≡	199	≡	≡	57	27	83	≡	≡	12	14	26
Interim Year 2020													
High School (9–12)	2,727	0.182	496	0.42	68:32	142	67	208	0.13	47:53	30	34	65
Totals	≡	≡	496	≡	≡	142	67	208	≡	≡	30	34	65

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).
 a. Represents total of all types of residential units (multi-family and single family) as assumed in the TIS analysis.
 b. SOURCE: ITE, Trip Generation Manual, 8th Edition. The in:out split refers to trips entering and exiting Minarets High School.

The AM and PM peak hour trip generation for student-related Proposed Project trips is based upon the student generation rates contained in the ITE Trip Generation Manual, 8th Edition. Since the Documentation of

Rio Mesa Cumulative Land Use and Travel Forecasts and the Madera County Travel Forecasting Model Documentation and User Manual do not specify vehicle occupancy by trip type, the peak hour trip rates and in-out percentages from the ITE Trip Generation Manual were applied. It should be noted that the PM peak hour for school-related trips is between 2:00 and 4:00 PM, which coincides with school dismissal, while the PM peak hour for all other trips is between 4:00 and 6:00 PM, as analyzed in the revised 2012 traffic study and the 2007 traffic study for all land uses. Therefore, the PM peak hour trip generation found in the ITE Trip Generation Manual and used in the analysis corresponds to the number of school trips occurring between 4:00 and 6:00 PM, which is less than the number of school trips expected to occur between 2:00 and 4:00 PM.¹²⁴

Student-related trip distribution was estimated based on knowledge of the study area, the location of Proposed Project residential land uses, and the location of the existing Minarets High School. Figure 4.13-28 (Chawanakee Unified School District Boundary Map) shows the CUSD boundaries and the location of the Minarets High School. As shown in the figure, most of the Project Site is included in the CUSD, with a much smaller portion located within the Golden Valley Unified School District (GVUSD). Figure 4.13-29 (School-Related Trip Distribution with Project Access to Avenue 15) and Figure 4.13-30 (School-Related Trip Distribution without Project Access to Avenue 15) show the Proposed Project student trip distribution for Minarets High School, both with and without the Proposed Project access connection at Avenue 15. Each of the intersections and roadway segments are illustrated by Figure 4.13-29 (School-Related Trip Distribution with Project Access to Avenue 15) and Figure 4.13-30 (School-Related Trip Distribution without Project Access to Avenue 15). As shown in Figure 4.13-29 and Figure 4.13-30, not all study intersections and segments would experience an increase in traffic volumes associated with student-related trips. The following intersections and segments would see an increase in traffic volumes:

Intersections

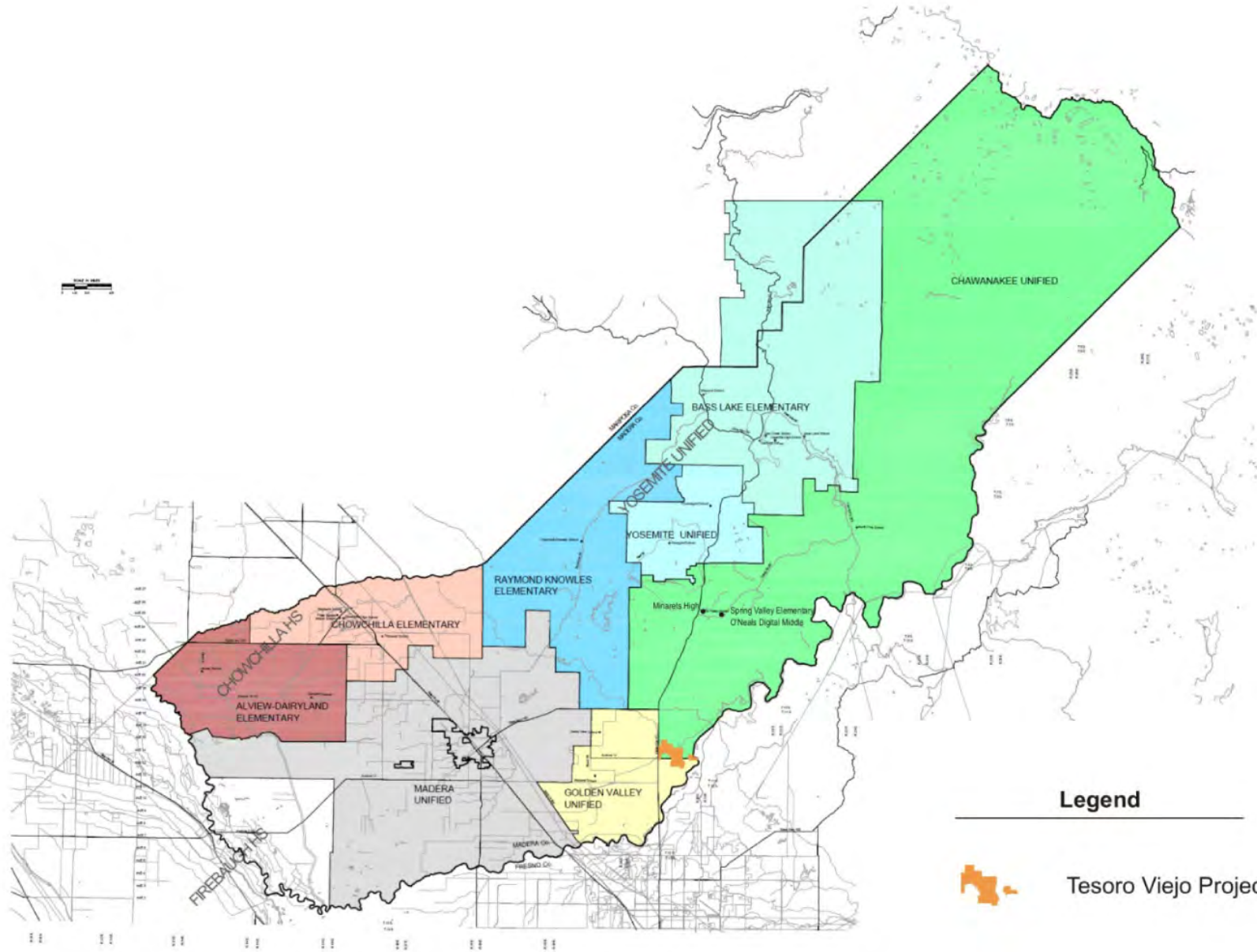
- 2. SR-41/SR-145
- 6. SR-41/Avenue 15
- 7. SR-41/Road 204
- 22. SR-41/Road 200
- 23. Road 200/Outback Industrial Way
- 24. Outback Industrial Way/Minarets High School Driveway #1
- 25. Outback Industrial Way/Minarets High School Driveway #2

Roadway Segments

- SR-41 between:
 - North of SR-145
 - SR-145 and Avenue 15
 - Avenue 15 and Road 204

Intersections 22 through 25 are intersections that were specifically evaluated for the school-related traffic impact analysis and are considered “new” from the perspective that they are in addition to the 21

¹²⁴ The PM peak hour between 4:00 PM and 6:00 PM represents the worst-case afternoon peak hour because the total number of all trips is higher.



Source: Source: VRPA Technologies, Inc., March 2012.

Legend



Tesoro Viejo Project Site



Figure 4.13-28
Chawanakee Unified School District Boundary Map [New]

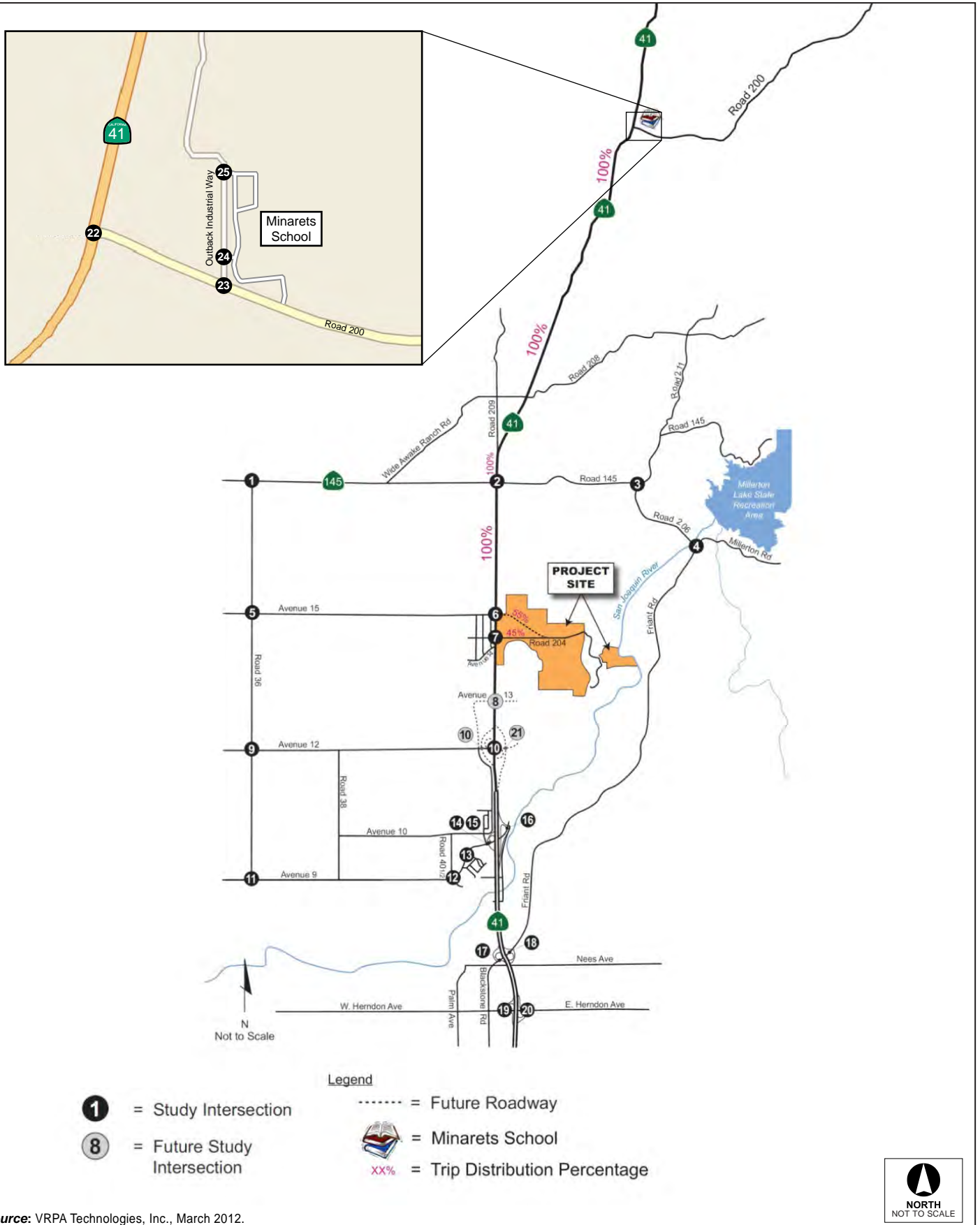
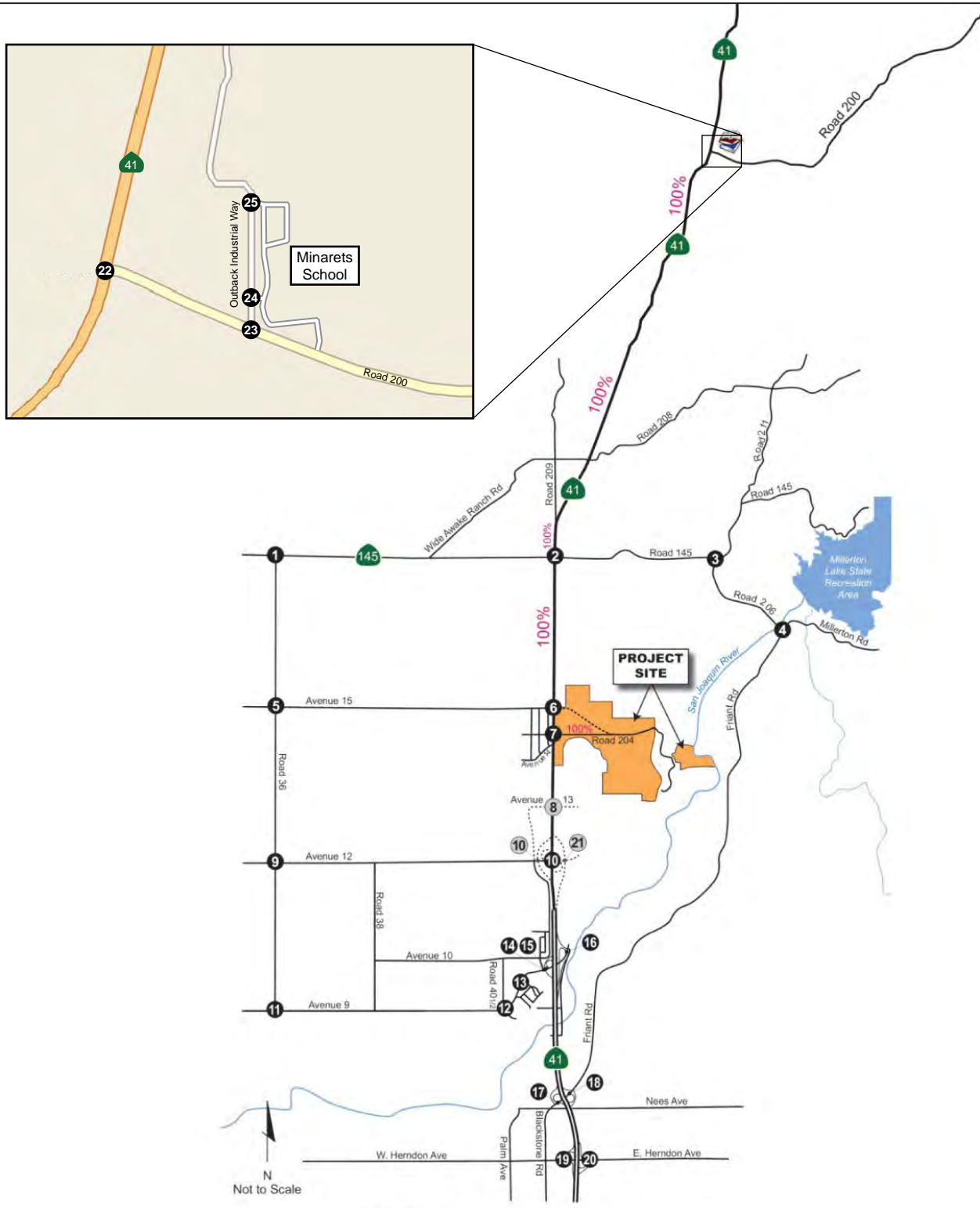



Figure 4.13-29
School-Related Trip Distribution with Project Access to Avenue 15 [New]



- Legend**
- 1** = Study Intersection
 - 8** = Future Study Intersection
 - = Future Roadway
 -  = Minarets School
 - XX% = Trip Distribution Percentage

Source: VRPA Technologies, Inc., March 2012.



Figure 4.13-30
School-Related Trip Distribution without Project Access to Avenue 15 [New]

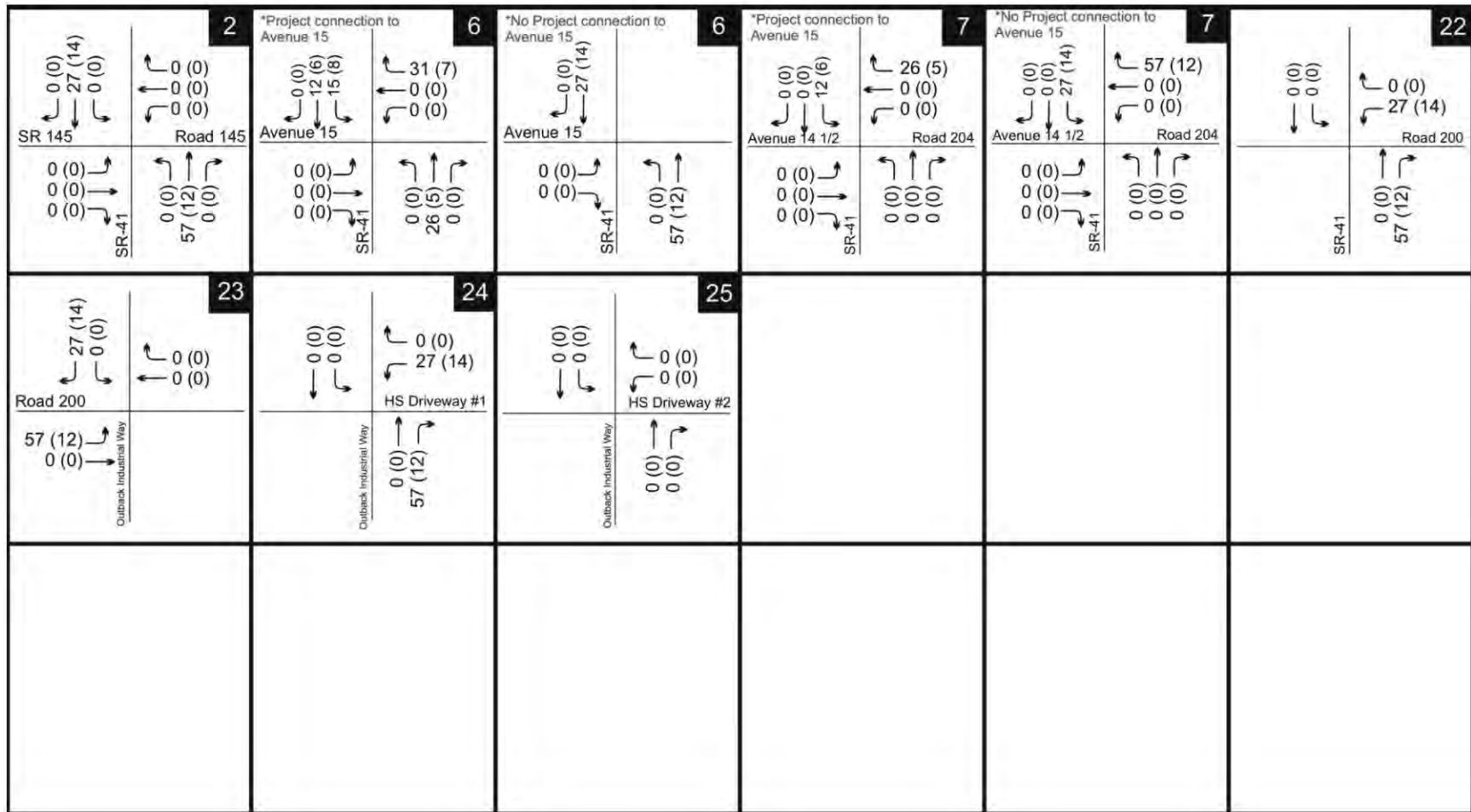
intersections evaluated in both the 2007 and 2012 traffic studies for the other scenarios. Proposed Project student-related trips shown in Table 4.13-22 (Tesoro Viejo—Student Trip Generation) were distributed to the roadway system using the trip distribution percentages shown in Figure 4.13-29 and Figure 4.13-30. Figure 4.13-31 (Student-Related Project Trips for the Interim 2015 Scenario) shows the total AM and PM peak hour student-related trips for the year 2015. Figure 4.13-32 (Student-Related Project Trips for the Interim 2020 Scenario) shows the total AM and PM peak hour student-related trips for the year 2020.

Interim Years 2015 and 2020 Cumulative Plus Project Plus Student-Related Traffic Conditions

The Interim Years 2015 and 2020 Cumulative Plus Project scenarios were analyzed to include student-related traffic generated by the Proposed Project to/from Minarets High School. The lane geometries assumed to exist in the years 2015 and 2020 for the intersections evaluated in this schools analysis are shown in Figure 4.13-33 (2015 and 2020 Lane Geometry for Schools Analysis). Figure 4.13-34 (Mitigated 2015 Lane Geometry) shows the mitigated lane geometry for Interim Year 2015 Cumulative Plus Project Conditions. Figure 4.13-35 (Mitigated 2020 Lane Geometry) shows the mitigated lane geometry for Interim Year 2020 Cumulative Plus Project Conditions. Figure 4.13-35 assumes all of the mitigation measures recommended for the Project during the Interim Year 2020 Cumulative Plus Project conditions. Figure 4.13-34 assumes all of the mitigation measures recommended for the Project during the Interim Year 2015 Cumulative Plus Project conditions. This mitigated lane geometry was used to analyze impacts associated with student-related trips in order to determine if additional mitigation (beyond that which is already required as a result of implementing the Proposed Project) would be needed to accommodate school trips. The additional mitigation would be required to alleviate student-related traffic impacts created by adding Project school trips to the study area roadway network.

Interim Year 2015 Cumulative Plus Project traffic volumes shown in Figure 4.13-36 (Interim Year 2015 Cumulative Plus Project AM Peak Hour Traffic) and Figure 4.13-37 (Interim Year 2015 Cumulative Plus Project PM Peak Hour Traffic) were obtained from overall Project traffic data identified earlier in this section. Figure 4.13-36 and Figure 4.13-37 include the four additional intersections evaluated as part of this schools analysis (Intersections 22 through 25). Interim Year 2020 Cumulative Plus Project traffic volumes shown in Figure 4.13-38 (Interim Year 2020 Cumulative Plus Project AM Peak Hour Traffic) and Figure 4.13-39 (Interim Year 2020 Cumulative Plus Project PM Peak Hour Traffic) were obtained from overall Project traffic data identified earlier in this section. Figure 4.13-38 and Figure 4.13-39 include the four additional intersections evaluated as part of this schools analysis (Intersections 22 through 25).

For those intersections evaluated in the analysis of school-related traffic impacts, volumes were determined by applying a growth rate to existing traffic volumes. This growth rate was calculated based on the method and details shown in Appendix J of the revised 2012 traffic impact study (included as Appendix H1 to this EIR). Project student-related trips shown in Figure 4.13-31 (Student-Related Project Trips for the Interim 2015 Scenario) were added to the traffic volumes shown in Figure 4.13-36 (Interim Year 2015 Cumulative Plus Project AM Peak Hour Traffic) and Figure 4.13-37 (Interim Year 2015 Cumulative Plus Project PM Peak Hour Traffic). The resulting peak hour traffic volumes are shown in



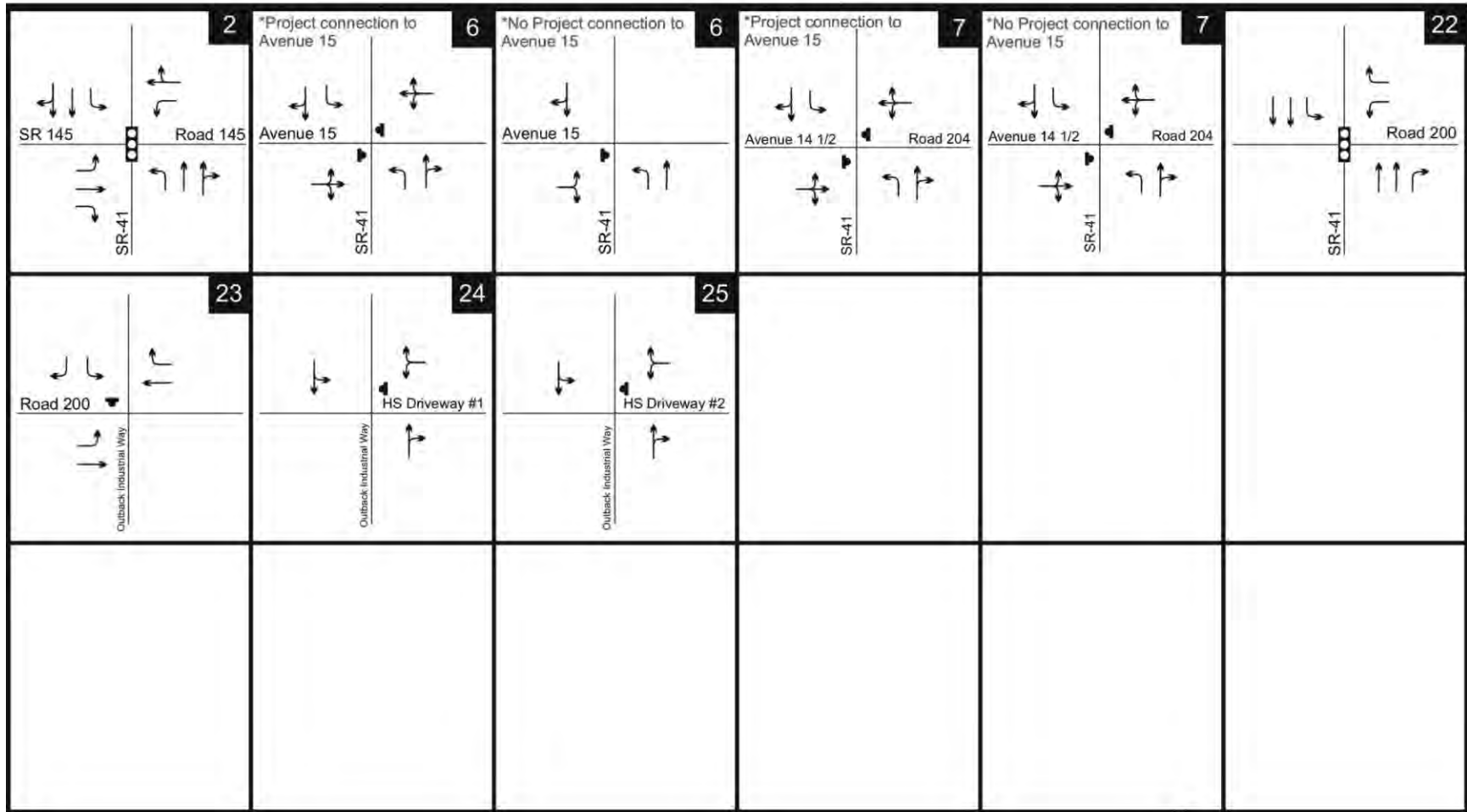
Legend

→ Vehicle Movement




XX (XX) AM Peak Hour (PM Peak Hour)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-31
Student-Related Project Trips for the Interim 2015 Scenario [New]

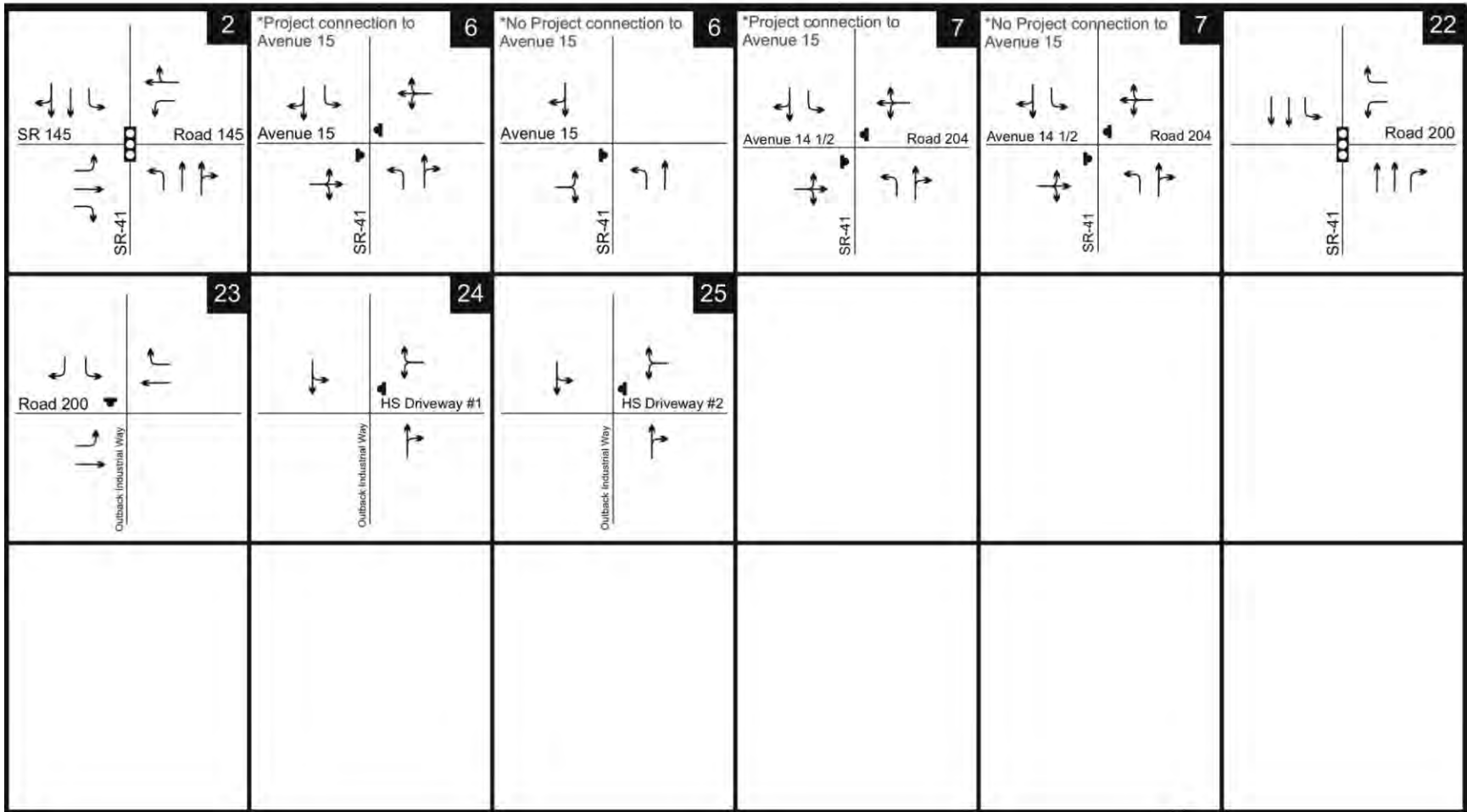


Legend




-  Study Intersections
-  Stop Sign
-  Traffic Signal

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-32
Student-Related Project Trips for the Interim 2020 Scenario [New]

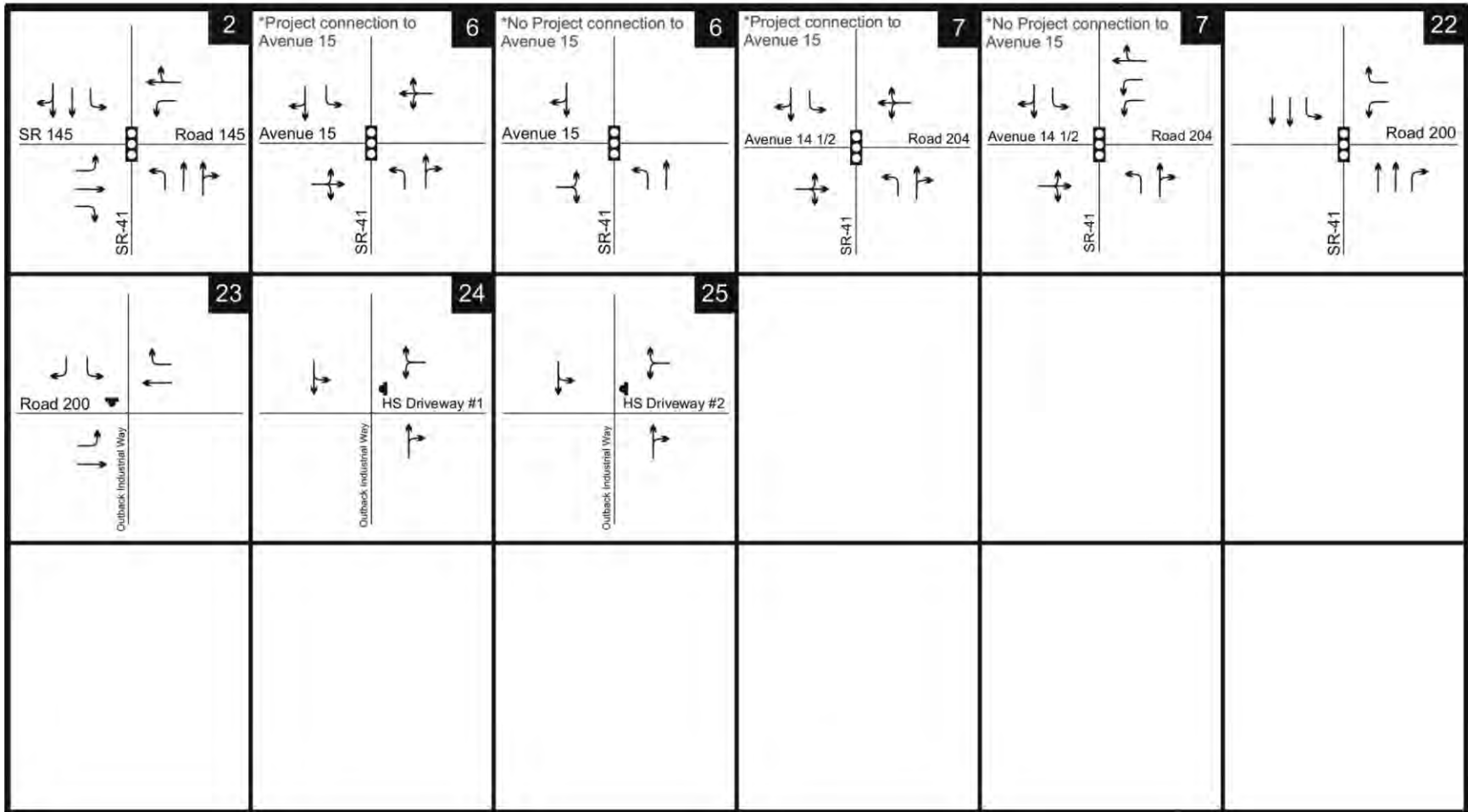


Legend

-  Study Intersections
-  Stop Sign
-  Traffic Signal

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-33
2015 and 2020 Lane Geometry [New]

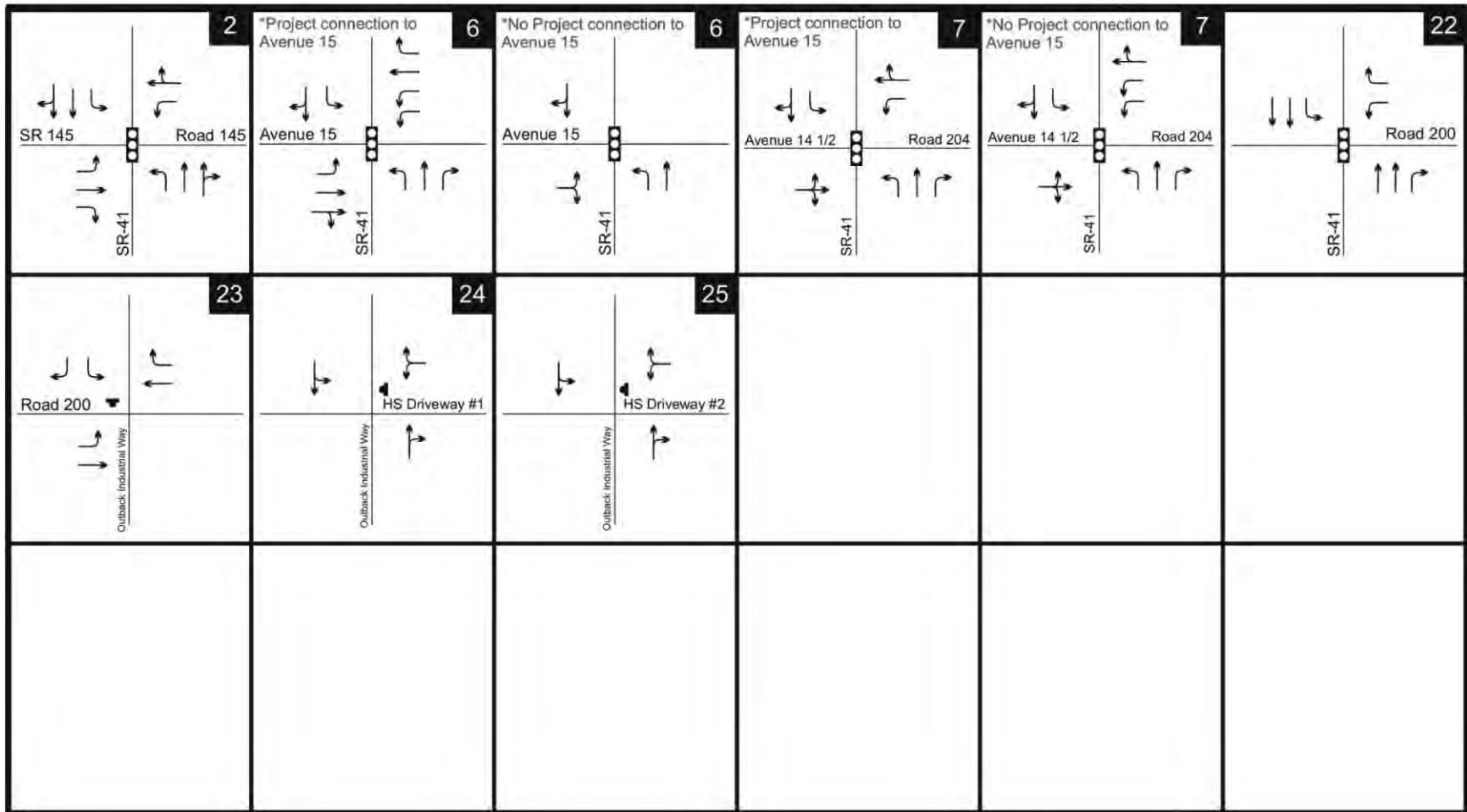


Legend




- Study Intersections
- Stop Sign
- Traffic Signal

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-34
Mitigated 2015 Lane Geometry [New]

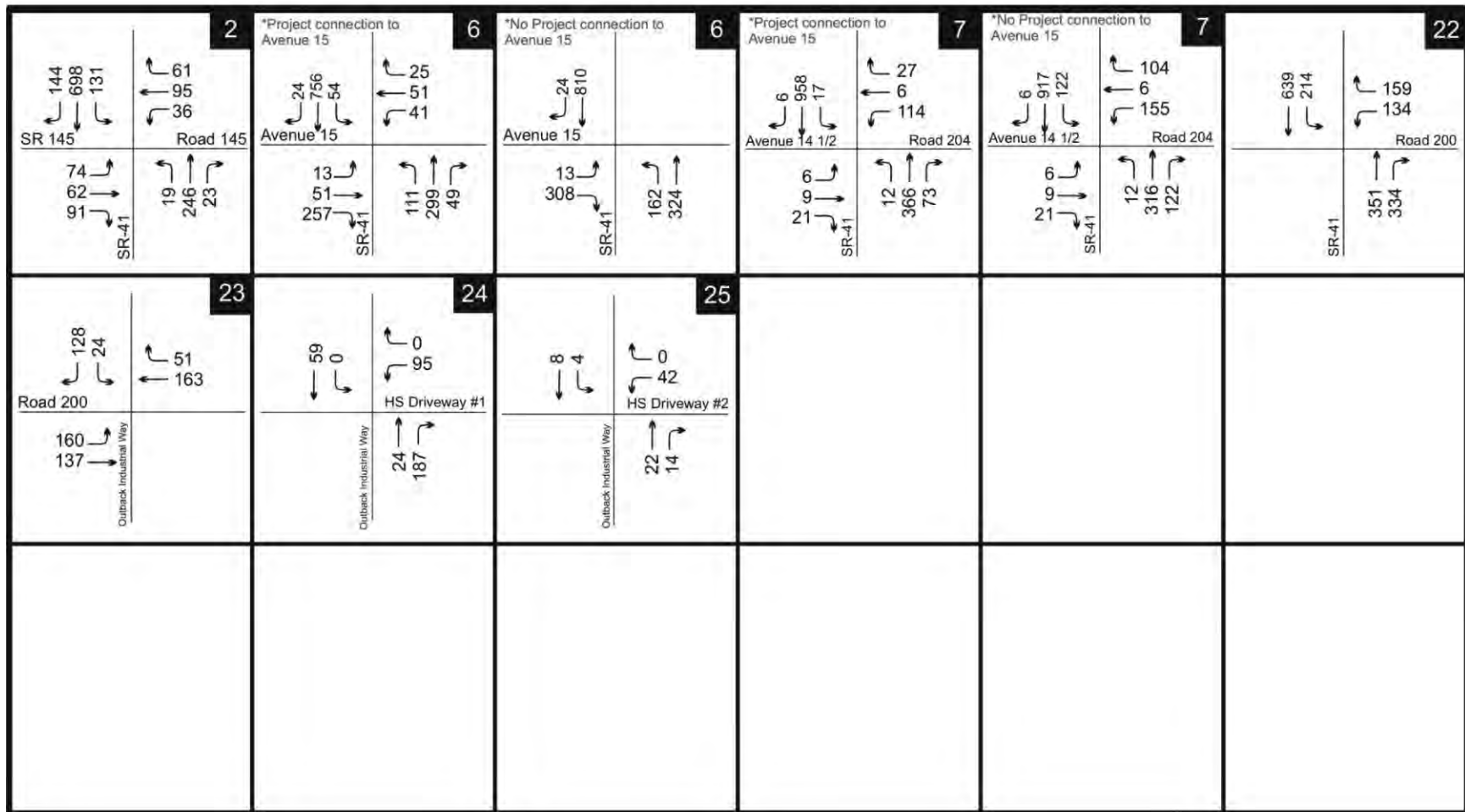


Legend

-  Study Intersections
-  Stop Sign
-  Traffic Signal

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-35
Mitigated 2020 Lane Geometry [New]



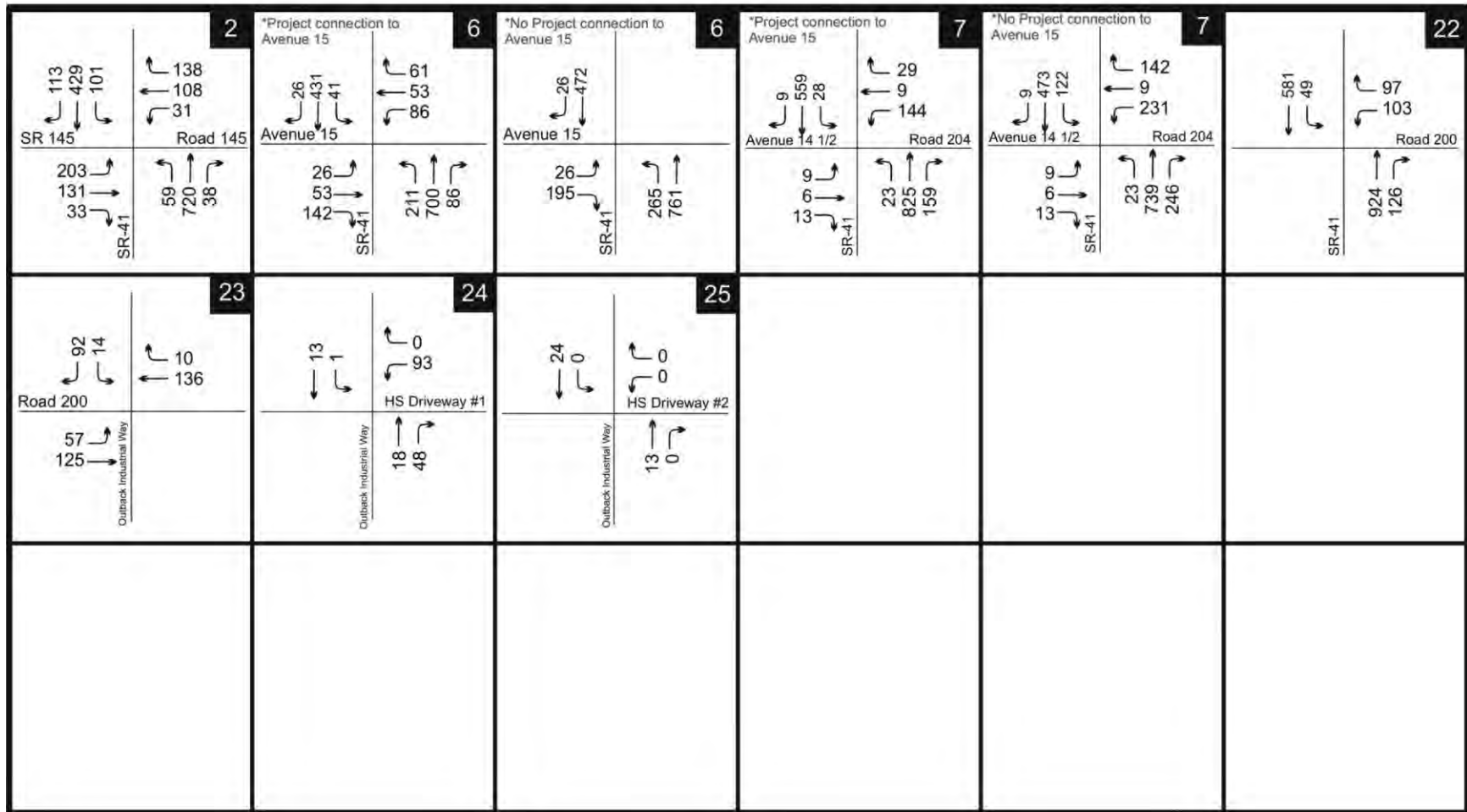
Legend

→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-36 Interim Year 2015 Cumulative Plus Project AM Peak Hour Traffic [New]



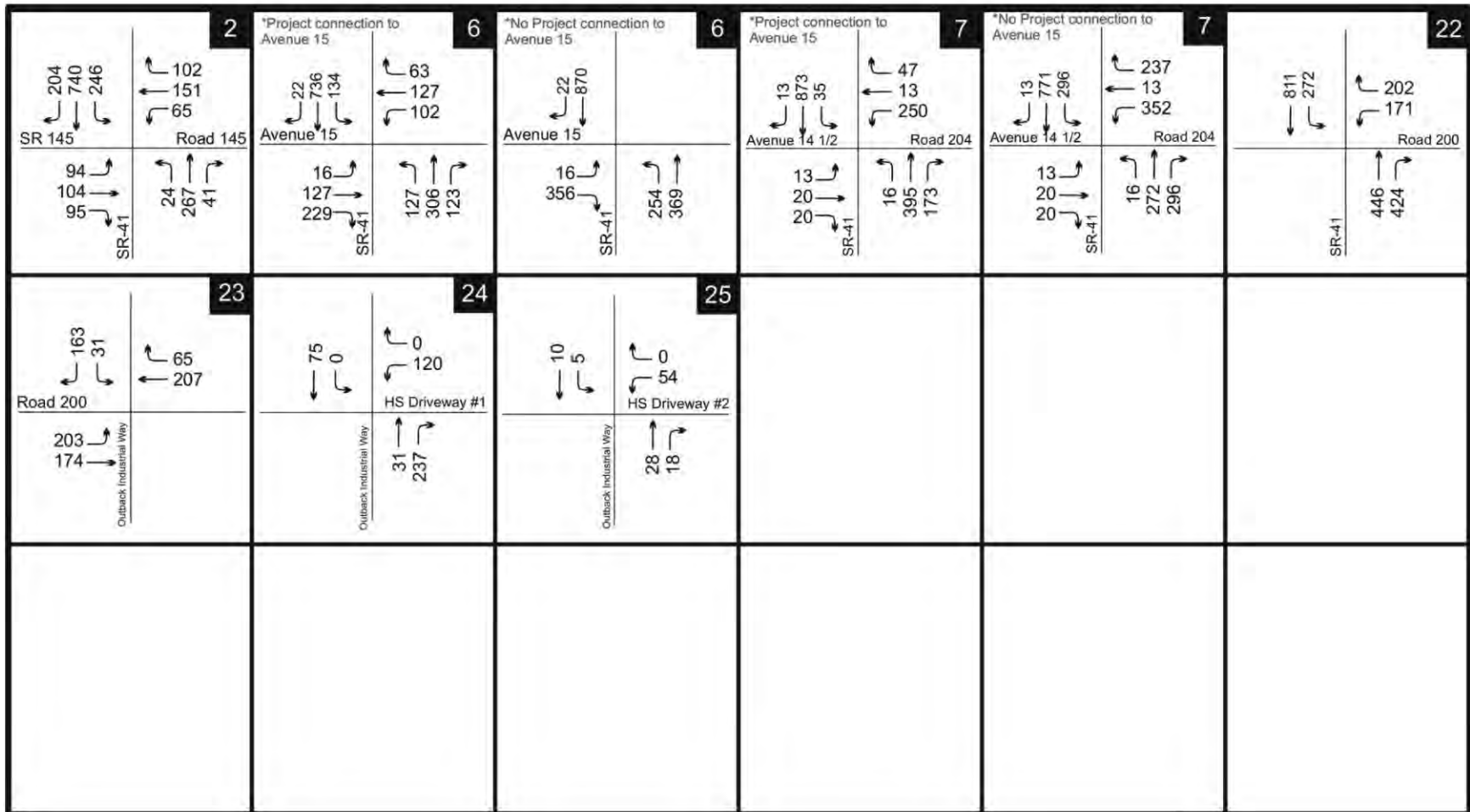
Legend

→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-37 Interim Year 2015 Cumulative Plus Project PM Peak Hour Traffic [New]



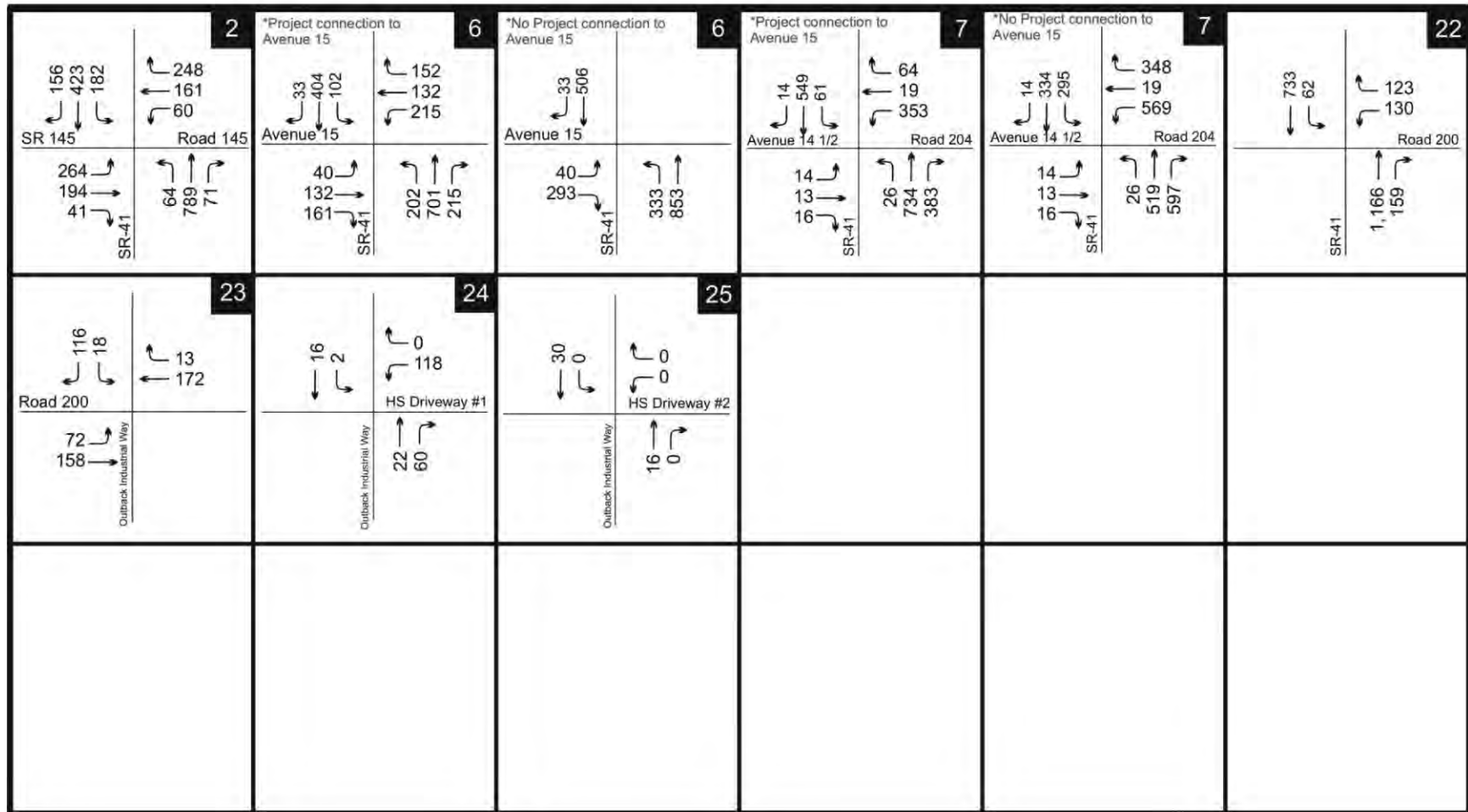
Legend

→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-38 Interim Year 2020 Cumulative Plus Project AM Peak Hour Traffic [New]



Legend

→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-39
Interim Year 2020 Cumulative Plus Project PM Peak Hour Traffic [New]

Figure 4.13-40 (Interim Year 2015 Cumulative Plus Project Plus School-Related Trips AM Peak Hour Traffic) and Figure 4.13-41 (Interim Year 2015 Cumulative Plus Project Plus School-Related Trips PM Peak Hour Traffic).

The resulting peak hour traffic volumes are shown in Figure 4.13-42 (Interim Year 2020 Cumulative Plus Project Plus School-Related Trips AM Peak Hour Traffic) and Figure 4.13-43 (Interim Year 2020 Cumulative Plus Project Plus School-Related Trips PM Peak Hour Traffic).

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 and 2012 CEQA Guidelines. For the purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on transportation/traffic if it would result in any of the following:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
- Exceed, either individually or cumulatively, a LOS standard established by the county congestion management agency for designated roads or highways?
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?
- Result in inadequate parking capacity?
- Conflict with adopted policies, plans, or programs ~~supporting alternative transportation (e.g., bus turnouts regarding public transit, bicycle racks)?~~, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities

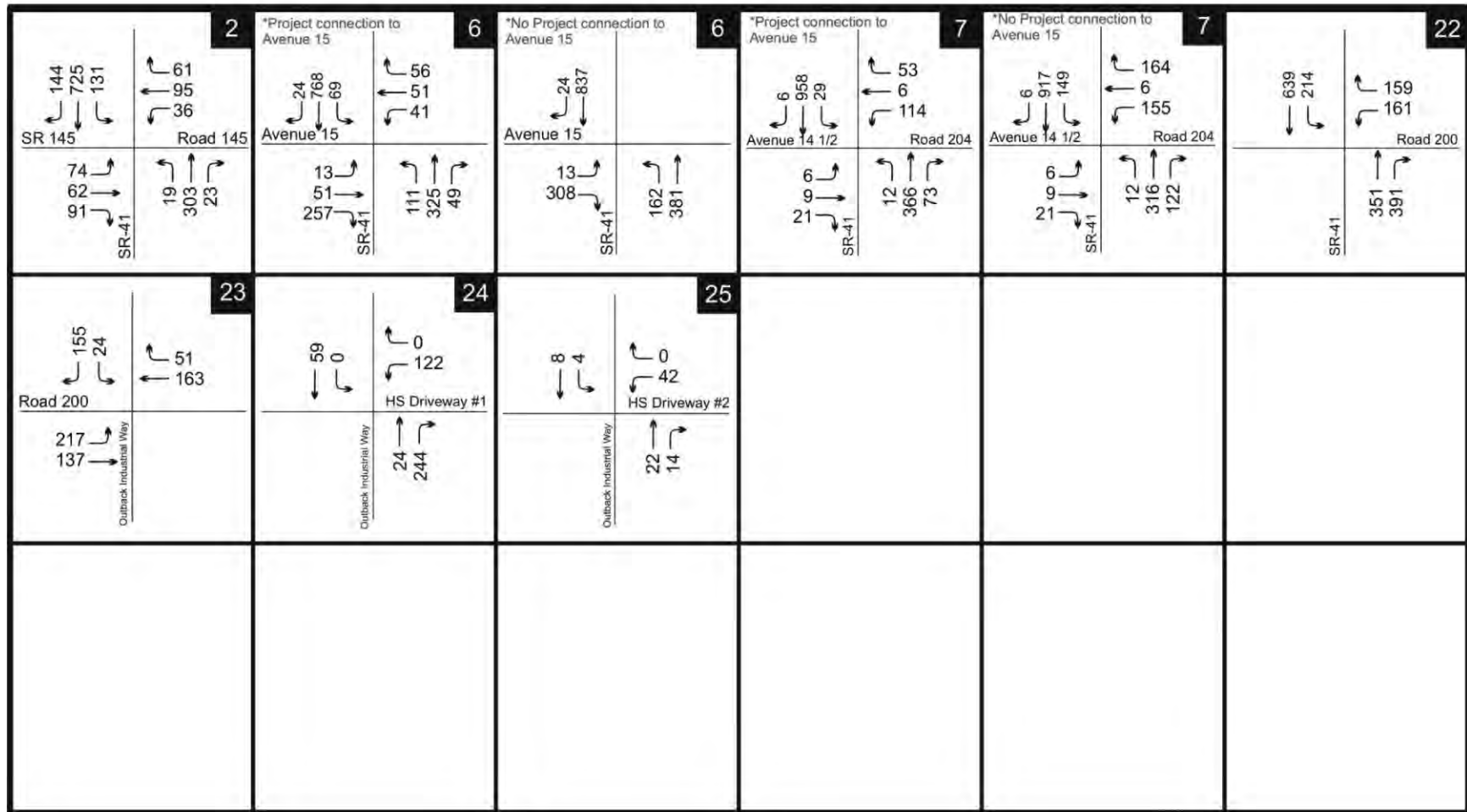
For the purposes of this EIR, a substantial increase in traffic is defined in a way that is consistent with both the Madera County General Plan, and with accepted transportation engineering practice. Impacts are defined separately for each component of the transportation system. These include the roadway system; the transit system; the bicycle system; the pedestrian system; and for site access, internal circulation, and parking.

The 2012 CEQA Guidelines no longer require an evaluation of the adequacy of parking capacity to be analyzed as part of an environmental document. However, since this threshold of significance was included as part of the 2008 Final EIR, the adequacy of parking capacity analysis has been retained in this EIR, as well.

Roadway System

Traffic impacts would be considered significant if the Proposed Project would result in any of the following:

- Deterioration of signalized or unsignalized intersection from LOS D (or better) to LOS E or LOS F



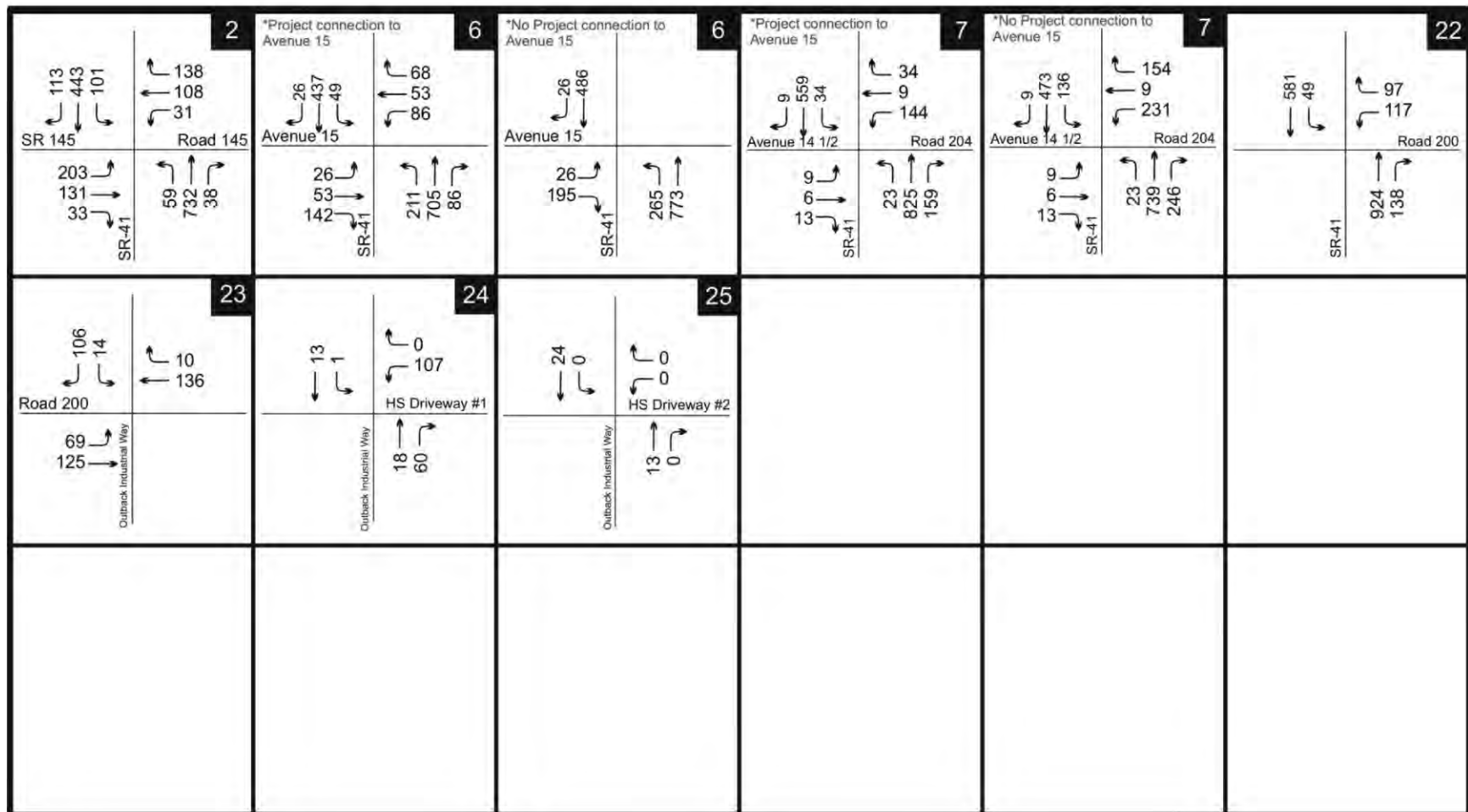
Legend

→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-40 Interim Year 2015 Cumulative Plus Project Plus School-Related Trips AM Peak Hour Traffic [New]



Legend

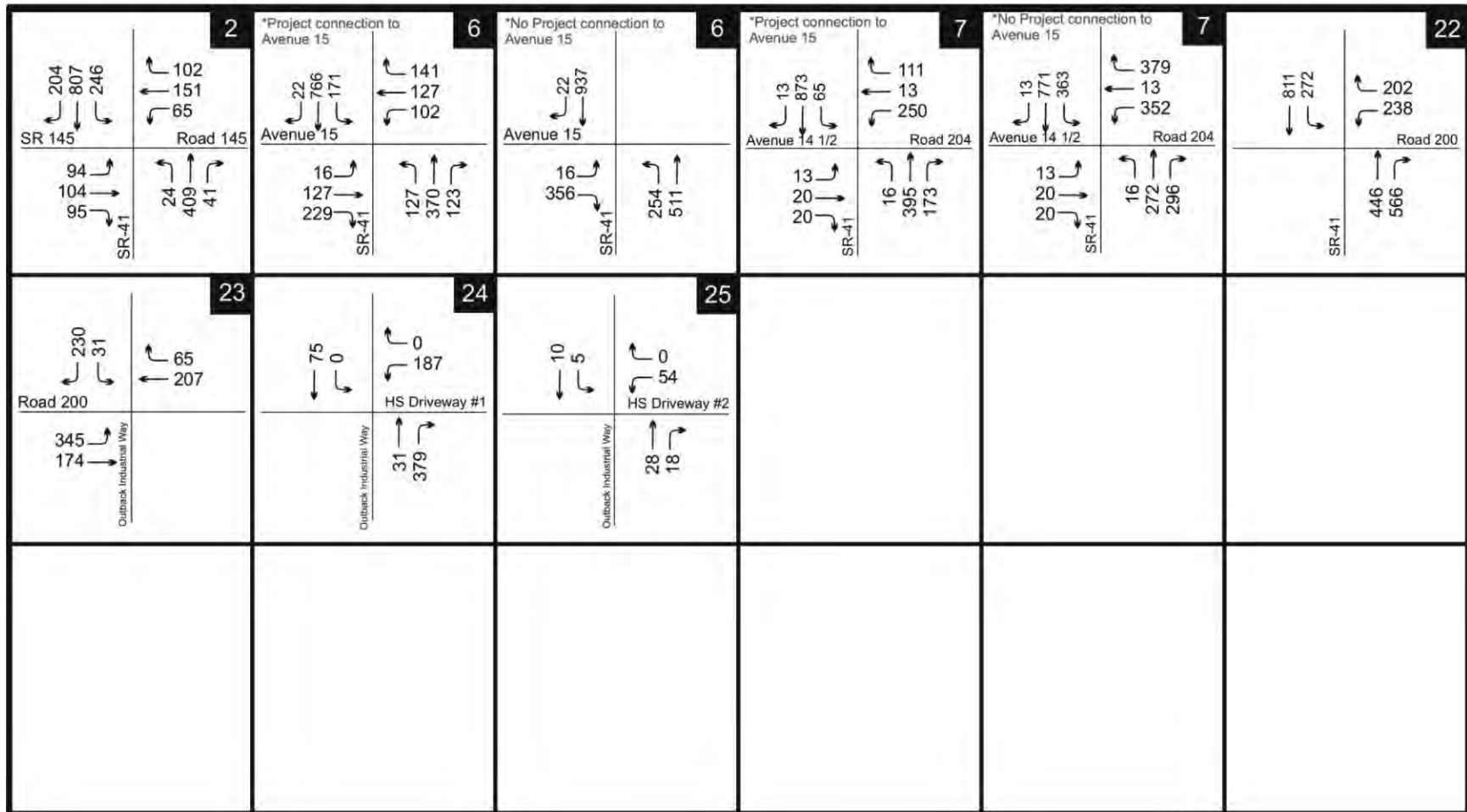
→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-41

Interim Year 2015 Cumulative Plus Project Plus School-Related Trips PM Peak Hour Traffic [New]



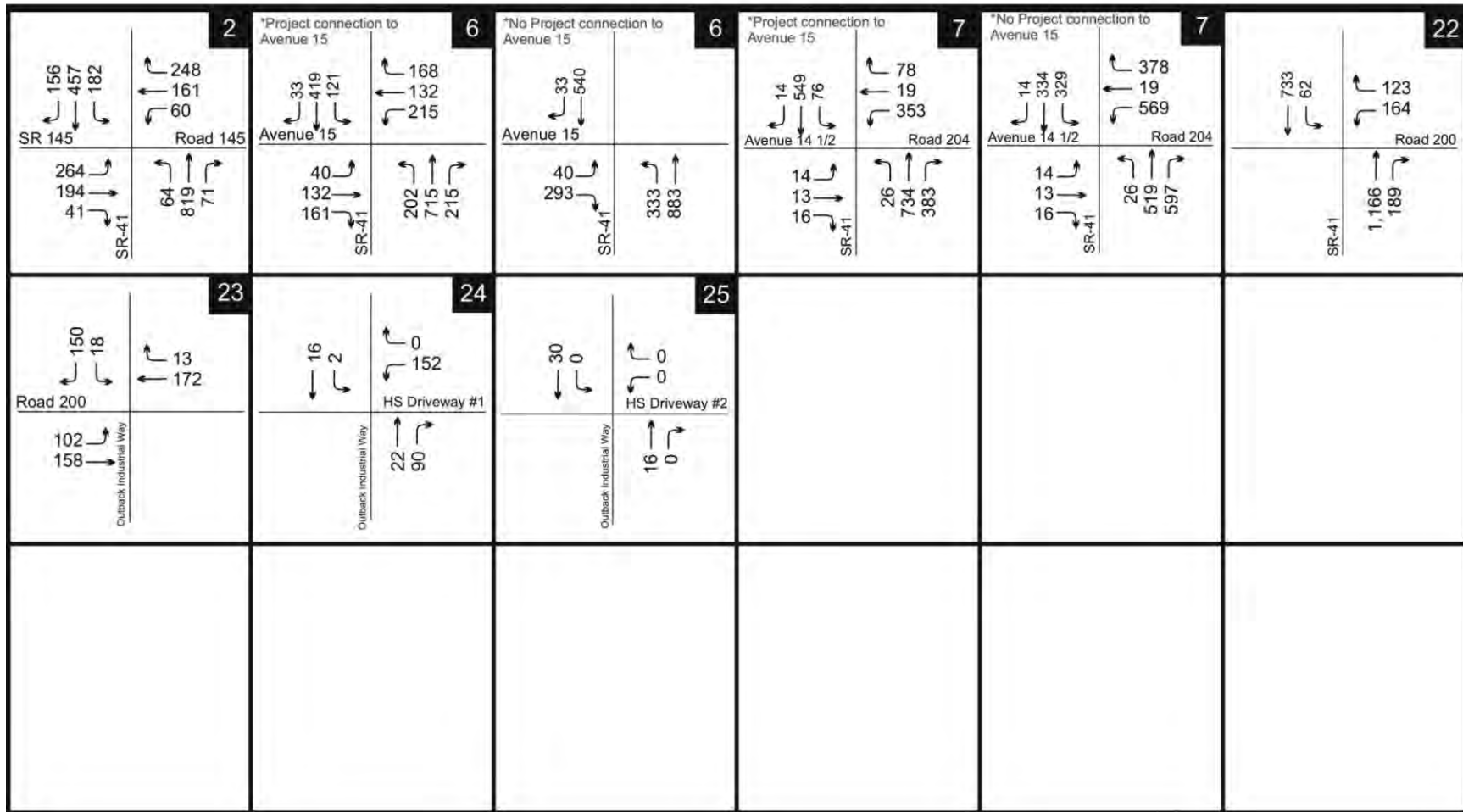
Legend

→ Vehicle Movement

xx (xx) AM Peak Hour (PM Peak Hour)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-42 Interim Year 2020 Cumulative Plus Project Plus School-Related Trips AM Peak Hour Traffic [New]



Legend

→ Vehicle Movement

XX (XX) AM Peak Hour (PM Peak Hour)

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-43 Interim Year 2020 Cumulative Plus Project Plus School-Related Trips PM Peak Hour Traffic [New]

- Deterioration of roadway segment from LOS D (or better) to LOS E or LOS F
- Unsignalized intersection operating at LOS E or worse, and volumes meeting at least one of the traffic signal warrants
- Increases in the amount of right-of-way required for a signalized or unsignalized intersection to operate at LOS D (or better)
- Increases in the amount of right-of-way required for a roadway segment to operate at LOS D (or better)

Transit System

Transit impacts would be considered significant if any of the following occur:

- The Proposed Project or any Project related mitigation measure disrupts existing transit services or facilities. This includes disruptions caused by Proposed Project driveways on transit streets, impacts to transit stops/shelters, and impacts to transit operations from traffic improvements proposed or resulting from the Project.
- The Proposed Project interferes with planned transit services or facilities
- The Proposed Project creates demand for public transit services above that which is provided or planned
- The Proposed Project conflicts or creates inconsistencies with adopted transit system plans, guidelines, policies or standards

Bicycle System

Bicycle impacts would be considered significant if any of the following occur:

- The Proposed Project disrupts existing bicycle facilities
- The Proposed Project interferes with planned bicycle facilities. This includes failure to dedicate right-of-way for planned on and off-street bicycle facilities included in an adopted Bicycle Master Plan.
- The Proposed Project conflicts or creates inconsistencies with adopted bicycle system plans, guidelines, policies or standards

Pedestrian System

Pedestrian impacts would be considered significant if any of the following occur:

- The Proposed Project disrupts existing pedestrian facilities. This can include adding new vehicular, pedestrian or bicycle traffic to an area experiencing pedestrian safety concerns such as adjacent crosswalk or school.
- The Proposed Project interferes with planned pedestrian facilities
- The Proposed Project conflicts or creates inconsistencies with adopted pedestrian system plans, guidelines, policies or standards

Site Access, Internal Circulation, and Parking

A site access, internal circulation, or parking impact would be considered significant if the Proposed Project would result in any of the following:

- A substantial left-turn demand at an unsignalized intersection from a side street to a roadway with more than four lanes near the site
- Designs for on-site circulation, access and parking areas that fail to meet industry standard design guidelines
- An insufficient quantity of on-site parking for vehicles
- Increases in off-site parking demand above the available supply in the immediate area of the Project
- An insufficient quantity of on-site parking for bicycles
- Lack of, or an insufficient, ingress left-turn lane length at a driveway, causing the ingress left-turn vehicle queue to spill out onto the street's adjacent through travel lane
- Lack of, or an insufficient, ingress right-turn lane length at a driveway, causing the ingress vehicle queue to spill out onto the street's adjacent through travel lane

■ Effects Not Found to Be Significant

Threshold	Would the Proposed Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
-----------	---

The Proposed Project would not result in an increase in air traffic levels or a change in the location of air traffic patterns that would result in substantial safety risks, as the primary modes of transport affected by the project are automobile, bicycle, and pedestrian. The project would include no provisions for airborne shipping or receiving. The nearest facility with any kind of air service is the heliport located at Children's Hospital, located approximately 8 miles southwest of the project. The project is not in the direct flight path to the heliport, as the primary approaches are directly from the east, or directly from the west. In the event that a medical helicopter did need to fly over the Project Site, it is anticipated to be at an altitude (above 15,000 feet) where it would not be affected in any way by the project.

Based on this, there would be *no impact* to air traffic patterns as a result of the Proposed Project, and no further analysis is required in this EIR.

■ Impacts and Mitigation

Due to the length and complexity of this section, the following presents an overview of each traffic-related impact analysis. This section has been organized as follows:

■ Intersection Operations

- > Impacts to intersection operations for the Cumulative (2025) With Project and Without Project scenarios are addressed under Impact 4.13-1.
- > Impacts to intersection operations for the Existing (2011) Plus Project in 2015, 2020, and 2025 scenarios are addressed under Impact 4.13-4 and Impact 4.13-5.
- > Impacts to intersection operations for the Interim Year 2015 and 2020 Cumulative Plus Project scenarios are addressed under Impact 4.13-6 and Impact 4.13-7.
- > Impacts to intersection operations during temporary construction activities are addressed under Impact 4.13-3.

> Impacts to intersection operations due to interim school-related traffic generated by the Proposed Project and other cumulative development (in years 2015 and 2020) associated with trips from the Project Site to and from Minarets High School are addressed under Impact 4.13-10.

■ **Segments**

> Impacts to roadway segments under the Cumulative (2025) With Project scenario are addressed under Impact 4.13-2.

> Impacts to roadway segments for the Existing (2011) Plus Project in 2015, 2020, and 2025 scenarios and Interim Year 2015 and 2020 Cumulative Plus Project scenarios are addressed under Impact 4.13-8.

> Impacts due to temporary construction activities on Avenue 15 related to the construction of a water pipeline are addressed under Impact 4.13-9.

> Impacts to study area freeway segments are addressed under Impact 4.13-11.

■ **Hazards**

> Impacts related to hazards due to design features or incompatible uses are addressed under Impact 4.13-12.

■ **Emergency Access**

> Impacts due to inadequate emergency access are addressed under Impact 4.13-13.

■ **Parking Capacity**

> Impacts due to inadequate parking capacity are addressed under Impact 4.13-14.

■ **Conflicts with Plans, Policies, or Programs**

> Impacts due to conflicts with adopted policies, plans, or programs supporting alternative transportation are addressed under Impact 4.13-15.

Threshold	Would the Proposed Project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
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Impact 4.13-1 **Operation of the Proposed Project would result in all study area intersections operating at an acceptable LOS range (i.e., LOS D or better) during Cumulative (2025) conditions with or without the project. However, six intersections would require lane improvements (e.g. additional turn lanes) and a greater amount of right-of-way to accommodate the lane improvements, so that each intersection could operate at an acceptable LOS with the addition of project traffic. This is considered a potentially significant impact. Implementation of mitigation measures MM4.13-1(a) through MM4.13-1(f) would reduce this impact to a less-than-significant level. However, in order to implement five of the six mitigation measures, Caltrans would have to construct or give Madera County ~~would need to receive permission from Caltrans~~ to construct the improvements. If Caltrans did not construct or give such permission ~~is not given~~, the significant traffic impacts addressed by five of the six mitigation measures would remain and impacts would, therefore, be *significant and unavoidable*.**

As shown in Table 4.13-13, all study intersections are projected to operate at an acceptable LOS (i.e., LOS D or better) during Cumulative (2025) conditions with or without the project. However, the following six intersections would require lane improvements (e.g., additional turn lanes) and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS with the addition of project traffic.

- State Route 41/State Route 145
- Road 36/Avenue 15
- State Route 41/Avenue 15
- State Route 41/Road 204
- State Route 41/Avenue 13
- State Route 41 Northbound Ramps/Children's Boulevard

This represents a potentially significant impact. To mitigate the project's significant impacts at these study area intersections, the following mitigation measures are required:

- MM4.13-1(a) Prior to the approval of a project phase that significantly affects the intersection of SR-41/SR-145, ~~the County, Caltrans~~ shall re-stripe the shared through-right lane into a through lane and add a right turn only lane for the northbound approach, add a second left-turn lane to the southbound approach, and re-stripe a shared through-right lane into a through lane and add a right-turn only lane for the eastbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41/SR-145 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.*
- MM4.13-1(b) Prior to the approval of a project phase that affects the intersection of Road 36/Avenue 15, the County, shall re-stripe the shared through-right lane into a through lane and add a right-turn only lane for the southbound, eastbound, and westbound approaches. Madera County shall make the final determination as to when a project phase significantly affects the intersection of Road 36/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.*
- MM4.13-1(c) Prior to the approval of a project phase that affects the intersection of SR-41/Avenue 15, the County, shall provide an east leg connection, with a through lane, right-turn lane, and two left-turn lanes for the westbound approach; and two receiving lanes for the eastbound approach. In addition, the Project Applicant shall add a right-turn lane and a second left-turn lane for the northbound approach, and add two left-turn lanes for the southbound approach. Finally, the Project Applicant shall add one through lane, and convert the right-turn lane into a shared through-right lane for the eastbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.*
- MM4.13-1(d) Prior to the approval of a project phase that affects the intersection of SR-41/Road 204, ~~the County, Caltrans~~ shall re-stripe the shared through-right lane into a through lane and a free-flow right-*

turn only lane for the northbound approach, and add two left-turn lanes and re-stripe the shared through-left-right turn lane to a shared through-right lane for the westbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-1(e) Prior to the approval of a project phase that affects the intersection of SR-41/Avenue 13, ~~the County, Caltrans~~ shall re-stripe the shared through-right lane into a through lane and add a right-turn-only lane for the southbound approach, and add a left-turn lane and re-stripe the shared through-left-right turn lane to a shared through-right lane for the eastbound approach. Madera County shall determine when a project phase significantly affects the intersection of SR-41/Avenue 13 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-1(f) Prior to the approval of a project phase that affects the intersection of SR-41 northbound ramps/Children's Boulevard intersection, ~~the County, Caltrans~~ shall add a through lane for the southbound approach and remove one free-flow right-turn lane for the eastbound approach. Madera County shall make the final determination as to when a project phase significantly affects the intersection of SR-41 northbound ramps/Children's Boulevard and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

Implementation of mitigation measures MM4.13-1(a) through MM4.13-1(f) would provide lane improvements and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS. As a result, the impact would be reduced to a less-than-significant level. However, Madera County does not have jurisdiction over five of the six intersections that are located along SR-41. The only intersection that Madera County can guarantee that improvements are made is Road 36/Avenue 15. As a result, the County would need to receive permission from Caltrans to construct the improvements at these intersections. As there is no guarantee that these improvements would be in place before the project is fully built out, implementation of the Proposed Project could result in a *significant and unavoidable* impact.

Impact 4.13-2 Operation of the Proposed Project would result in all major internal project roadways operating at an acceptable LOS (i.e., LOS D or better) under Cumulative (2025) conditions with the Proposed Project. However, when two intersections planned as two-lane roundabout were evaluated as two-lane roundabouts, they were found to operate at unacceptable LOS during the peak hour. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.13-2(a) and MM4.13-2(b) would reduce this impact to a *less-than-significant* level.

The proposed major internal project roadways were evaluated with projected Cumulative (2025) daily volumes and were found to operate at acceptable LOS (i.e., LOS D or better). However, when two

intersections planned as two-lane roundabouts were evaluated as two-lane roundabouts, they were found to operate at unacceptable LOS during the peak hour:

- Road 204 / Rio Mesa Boulevard / East/West Connector
- Road 204 / North/South Connector

This is considered a potentially significant impact. The Road 204/Rio Mesa Boulevard/East-West Connector five-legged intersection can be made to operate at LOS D or better if the proposed roundabout approaches flare from two lanes to three lanes. The Road 204/North-South Connector intersection would not meet the LOS D standard as a roundabout, but would work as a conventional signalized intersection, with three lane approaches on 204 and two lanes on the North-South Connector, with single turning lanes on all approaches. The traffic analysis is assuming only the backbone roads in the Infrastructure Master Plan; it is possible that a denser grid of roads around the intersections could provide sufficient alternate routes to reduce the traffic through these intersections so that either or both may work as a roundabout. To mitigate the project's significant impacts at these study area intersections, the following mitigation measures are required:

- MM4.13-2(a) The Project Applicant shall construct the roundabout at the intersection of Road 204/Rio Mesa Boulevard/East-West Connector with approaches that flare from two lanes to three lanes. Prior to constructing the roundabout, the Project Applicant (in consultation with Madera County) shall study the road grid around the intersection to determine if it is dense enough to provide a sufficient number of alternative routes that would allow the intersection to operate as a roundabout with a LOS D or better with two-lane approaches. Madera County shall make the final determination as to the number of lanes needed on the roundabout approaches.*
- MM4.13-2(b) Prior to constructing the roundabout at the intersection of Road 204/North-South Connector, the Project Applicant, in consultation with Madera County, shall study the road grid around the intersection to determine if the road grid is dense enough to provide a sufficient number of alternative routes that would allow the intersection to operate as a roundabout with a LOS of LOS D or better. If the road grid is unable to provide a sufficient number of alternative routes, the intersection shall be constructed as a conventional signalized intersection, with three lane approaches on Road 204 and two lanes on the North-South Connector, with single turning lanes on all approaches. Madera County shall make the final determination as to whether the road grid is dense enough to provide a sufficient number of alternative routes that would allow the intersection to operate as a roundabout with a LOS D or better. Madera County shall make the final determination as to the number of lanes needed on the roundabout approaches, if the roundabout is determined to be feasible.*

The implementation of mitigation measures MM4.13-2(a) and MM4.13-2(b) would reduce impacts associated with operating the intersections of Road 204 / Rio Mesa Boulevard / East/West Connector and Road 204 / North/South Connector as roundabouts to a ***less-than-significant*** level.

Impact 4.13-3 Construction activities associated with the Proposed Project would temporarily impact the LOS on nearby roadway segments. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.13-3(a) and MM4.13-3(b) would reduce this impact to a *less-than-significant* level.

It is anticipated that the Proposed Project would be constructed in numerous phases, depending on market conditions, beginning in ~~2009~~2013, with full buildout of the Proposed Project by 2025, which represents an approximately ~~sixteen~~12-year construction period. Development of the project's infrastructure, which would include streets, storm drains, distribution systems for water, sewer, gas, electricity, and telephones, the sewage treatment plant, and the detention basin, is anticipated to begin in ~~2009~~2013, and the residential, industrial, and commercial uses would be developed starting in 2014~~3~~, and occur over a ~~14~~12-year period in response to market conditions. Construction of the residential and mixed use components of the Proposed Project would generally begin in and around the Town Center area and continue eastward to the San Joaquin River, including recognizing that development would also occur both north and south of the Town Center area. Schools would be developed in phases as demand dictates. It is anticipated that the Western Gateway highway commercial and light industrial components of the Proposed Project would occur gradually, with more during the latter phases of development than in the early phases.

The peak phases of construction are unknown as detailed construction plans are not available. However, it is expected that the most intense periods of construction would occur during the first phases as infrastructure and uses with a greater amount of density/intensity, such as residential and mixed-uses associated with the Town Center, would be constructed first.

Potential off-site impacts associated with construction activities are due primarily to construction worker trips and material hauling. The total number of construction-related trips would vary from year to year depending on the type and intensity of construction work being performed. Regardless, the arrival and departure times for construction workers would remain the same and would occur during off-peak hours, typically arriving before 7:00 A.M. and leaving before 4:00 P.M. The movement of heavy construction equipment (e.g., graders and bulldozers) to and from the construction site would also be scheduled during off-peak hours. Nonetheless, there is the potential for conflicts between construction activities and through traffic and as such impacts are considered to be potentially significant. To mitigate impacts associated with construction travel, the following mitigation measures are required:

MM4.13-3(a) Trucks delivering materials to and from the construction site shall stay on designated truck routes determined by Madera County. It is expected that most of the truck trips would occur to and from SR-41, thus, primary truck routes during construction would be along Road 204. A construction haul route map shall be prepared.

MM4.13-3(b) Should a temporary road and/or lane closure be necessary during construction, the Project Applicant shall provide traffic control activities and personnel, as necessary, to minimize traffic impacts. This may include detour signage, cones, construction area signage, flagmen and other measures as required for safe traffic handling in the construction zone.

Implementation of mitigation measures MM4.13-3(a) through MM4.13-3(b) would reduce construction-related traffic impacts to a *less-than-significant* level.

Impact 4.13-4 **Operation of the Proposed Project would result in three study area intersections (SR-41/Avenue 15, SR-41/Road 204, and SR-41/Avenue 12) operating at an unacceptable LOS (below LOS D) during the Existing 2011 Plus Project in 2015, 2020, and 2025 scenarios. Operation of the Proposed Project would result in one additional study intersection (Road 36/Avenue 15) operating at an unacceptable LOS (below LOS D) during the Existing 2011 Plus Project in 2025 scenario. Each of these intersections would require lane improvements (e.g., additional turn lanes and widening) and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS with the addition of Project traffic. These are considered potentially significant impacts. However, implementation of mitigation measures MM4.13-4(a) through MM4.13-4(i) and MM4.13-5 would reduce these impacts to a less-than-significant level at all three of the impacted intersections during the Existing 2011 Plus Project in 2015 and 2020 scenarios and at three of the four intersections (SR-41/Avenue 15, SR-41/Avenue 12, and Road 36/Avenue 15) during the Existing 2011 Plus Project in 2025 scenario. During this scenario, the impacts on the fourth intersection (SR-41/Road 204) would remain significant and unavoidable, and it is evaluated in Impact 4.13-5.**

For Existing 2011 Conditions (without the Proposed Project), the installation of a traffic signal at the SR-41/Avenue 15 intersection is already required to achieve an acceptable level of service. As shown in Table 4.13-17 (Existing 2011 Plus Project Intersection Operations in 2015, 2020, and 2025), the following four intersections would require lane improvements (e.g., additional turn lanes) so that each intersection could operate at an acceptable LOS with the addition of Project traffic:

1. SR-41/Avenue 15 (2015, 2020, and 2025)
2. SR-41/Road 204 (2015, 2020, and 2025)
3. SR-41/Avenue 12 (2015, 2020, and 2025)
4. Road 36/Avenue 15 (2025)

This represents a potentially significant impact. To mitigate the Project's significant impacts to a less-than-significant level at these intersections during the Existing 2011 Plus Project scenarios (2015, 2020, and 2025), the following mitigation measures are required. However, only three of these intersections can be mitigated to a less-than-significant level (SR-41/Avenue 15, SR-41/Avenue 12 and Road 36/Avenue 15) during all three scenario years: 2015, 2020, and 2025. The fourth intersection—SR-41/Road 204 (for the Existing 2011 Plus Project in 2025 scenario)—can be mitigated, but impacts would remain significant and unavoidable in 2025. This intersection is separately addressed under Impact 4.13-5 for the Existing 2011 Plus Project in 2025 scenario, which requires an additional mitigation measure (mitigation measure MM4.13-5). All other study area intersections would operate at an acceptable level of service, and no mitigation would be required.

Existing 2011 Plus Project in 2015

MM4.13-4(a) *Prior to the approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 15, Caltrans shall provide an east leg connection, with one left-turn lane and one through/right-turn lane*

(only one shared left/through/right-turn lane is needed for Tesoro Viejo phased development with a dedicated left-turn lane needed for Jamison and Morgan phased development) for the westbound approach. Caltrans shall widen the southbound approach to one left-turn lane and one through/right-turn lane (add left-turn lane for Tesoro Viejo Project). In addition, Caltrans shall restripe the northbound approach to one left-turn lane and one through/right-turn lane (include shared right-turn lane for Tesoro Viejo Project). Finally, Caltrans shall restripe the eastbound approach to one left/through/right-turn lane (include a shared through lane for the Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-4(b) Prior to the approval of a Project phase by 2015 that affects the intersection of SR-41/Road 204, Caltrans shall install a traffic signal (Tesoro Viejo Project) at this intersection. Additionally, Caltrans shall widen the westbound approach to two left-turn lanes and one through/right-turn lane (add dual left-turn lanes for the Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-4(c) Prior to the approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the eastbound approach to one left-turn/through lane and two right-turn lanes (add second right-turn lane for Jamison and Morgan phased development). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

Existing 2011 Plus Project in 2020 (in Addition to Mitigation Listed Above)

MM4.13-4(d) Prior to the approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 15, Caltrans shall widen the westbound approach to two left-turn lanes, one through lane, and one right-turn lane (add second left-turn lane and dedicated right-turn lane for Tesoro Viejo Project). Additionally, Caltrans shall widen the eastbound approach to one left-turn/through lane and one right-turn lane (add dedicated right-turn lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-4(e) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Road 204, Caltrans shall widen the northbound approach to one left-turn lane, one through lane, and one right-turn lane for a free right turn (add dedicated right-turn lane with free movement for the Tesoro Viejo Project). Additionally, shall widen the southbound approach to one left-turn lane, one through lane,

and one through/right-turn lane (add second through lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-4(f) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the northbound approach to one left-turn lane, two through lanes, and one right-turn lane (add second through lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

Existing 2011 Plus Project in 2025 (in Addition to Mitigation Listed Above)

MM4.13-4(g) Prior to approval of a Project phase by 2025 that affects the intersection of Road 36/Avenue 15, the County shall install a traffic signal at the intersection. The County shall widen the westbound, southbound, and eastbound approaches to one left-turn lane and one through/right-turn lane (add dedicated left-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 36/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-4(h) Prior to approval of a Project phase by 2025 that affects the intersection of SR-41/Avenue 15, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one right-turn lane (add second left-turn lane, second through lane, and dedicated right-turn lane for Tesoro Viejo Project). Additionally, Caltrans shall widen the southbound approach to two left-turn lanes, one through lane, and one through-right-turn lane (add second left-turn lane for Tesoro Viejo Project and second through lane for Jamison and Morgan development). Caltrans shall widen the eastbound approach to one left-turn lane, one through lane, and one through/right-turn lane (add dedicated left-turn lane and shared through/right-turn lane for Tesoro Viejo Project). Finally, Caltrans shall widen the segment along SR-41 between Avenue 15 and Road 204 to two lanes in each direction (add one lane in each direction for Jamison and Morgan development) to coincide with adjacent intersection improvements.¹²⁵ Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-4(i) Prior to approval of a Project phase by 2025 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one

¹²⁵ This roadway segment mitigation is not required based on segment level of service results, but to be consistent with mitigation measures at adjacent intersections (SR-41/Avenue 15 and SR-41/Road 204).

right-turn lane (add second left-turn lane for Jamison and Morgan development). Caltrans shall restripe the westbound approach to one left-turn lane and one through/right-turn lane (for Tesoro Viejo Project). Additionally, Caltrans shall widen the southbound approach to one left-turn lane, two through lanes, and one right-turn lane (add dedicated right-turn lane for Tesoro Viejo Project). Finally, Caltrans shall widen the eastbound approach to one left-turn lane, one left-turn/through lane, and two right-turn lanes (add dedicated left-turn lane for Tesoro Viejo Project). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

The level of service resulting from the potential improvements in 2015, 2020, and 2025 is shown in Table 4.13-23 (Mitigated Existing 2011 Plus Project Intersection Operations) for the four intersections that required mitigation. As can be seen from Table 4.13-23, each of these four intersections are expected to operate at LOS D or better in 2025 (with mitigation), except the intersection of SR-41/Road 204. As indicated earlier, this intersection is addressed under Impact 4.13-5.

The corresponding mitigated intersection lane geometries are shown in Figure 4.13-44a through Figure 4.13-44g (Mitigated Lane Geometry for All Scenarios). The mitigation measures identified for the Existing 2011 Plus Project in 2025 scenario is a subset of the mitigation measures identified for the Cumulative 2025 Plus Project scenario, with the exception of mitigation measures identified for the SR-41/Avenue 12 intersection. The Cumulative 2025 Plus Project scenario assumed the SR-41/Avenue 12 intersection would be constructed as an interchange by the year 2025. However, the Existing 2011 Plus Project in 2025 scenario does not assume an interchange would be constructed at this location and identifies mitigation measures for this intersection. Therefore, the mitigation measure identified for the Existing 2011 Plus Project in 2025 scenario at the SR-41/Avenue 12 intersection is different from the mitigation measure identified for the Cumulative 2025 Plus Project scenario.

All mitigation measures required to improve operations at Project buildout to an acceptable level of service are feasible, as determined during preparation of the 2008 Final EIR. As noted above, there is a current deficiency at the intersection of SR-41/Avenue 15 that requires mitigation (installation of a traffic signal) prior to development of the Proposed Project or other cumulative projects. Additionally, as shown below under Impact 4.13-5 (for the Existing 2011 Plus Project in 2025 scenario) and in Table 4.13-23 (Mitigated Existing 2011 Plus Project Intersection Operations), mitigation measures are required in each Existing 2011 Plus Project scenario (2015, 2020, and 2025) to improve three of the four intersections identified in Table 4.13-23 so they operate at acceptable levels of service (LOS D or better).¹²⁶ Implementation of mitigation measures MM4.13-4(a) through MM4.13-4(i) would provide lane improvements and a greater amount of right-of-way to accommodate the lane improvements so that three of the four impacted intersections operate at an acceptable LOS. As a result, the impact at intersections SR-41/Avenue 15, SR-41/Avenue 12, and Road 36/Avenue 15 would be reduced to a ***less-than-significant*** level during the Existing 2011 Plus Project scenarios in 2015, 2020, and 2025.

¹²⁶ The impact at SR-41 and Avenue 12 in the Existing (2011) Plus Project in 2015 scenario results not from the Tesoro Viejo Project traffic itself, but from the combination of Project traffic with assumed traffic from the other properties within the Rio Mesa Village for which no entitlements are currently pending.

Table 4.13-23 Mitigated Existing 2011 Plus Project Intersection Operations [New]

Intersection	Control	Peak Hour	Existing Mitigation		Existing Plus 2015 Project Mitigation				Existing Plus 2020 Project Mitigation				Existing Plus 2025 Project Mitigation			
			Delay	LOS	Delay	LOS	Project Trips	% ^a	Delay	LOS	Project Trips	% ^a	Delay	LOS	Project Trips	% ^a
5 Road 36 / Avenue 15	Signalized	AM	≡	≡	≡	≡	≡	≡	≡	≡	≡	≡	25.2	C	720	50.3%
		PM	≡	≡	≡	≡	≡	≡	≡	≡	≡	≡	≡	20.3	C	832
6 SR-41 / Avenue 15	Signalized	AM	22.0	C	47.5	D	229	13.5%	41.3	D	571	28.0%	51.3	D	1,598	52.1%
		PM	13.7	B	41.1	D	367	19.3%	53.3	D	914	37.4%	35.5	D	2,748	63.8%
7 SR-41 / Road 204	Signalized	AM	≡	≡	47.3	D	327	18.5%	31.7	C	816	35.7%	>80.0	F ^b	2,290	60.0%
		PM	≡	≡	33.7	C	478	23.9%	24.4	C	1,192	43.8%	>80.0	F ^b	3,579	69.6%
10 SR-41 / Avenue 12	Signalized	AM	≡	≡	31.5	C	290	10.4%	45.7	D	725	22.5%	42.9	D	2,034	44.9%
		PM	≡	≡	37.6	D	411	13.7%	36.9	D	1,024	28.3%	48.2	D	3,073	54.2%

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

LOS = level of service

DELAY is measured in seconds.

For signalized intersections, delay results show the average for the entire intersection.

a. Percentage of total traffic composed of Project trips.

b. Intersection is still expected to operate at LOS F at this location after implementation of ultimate improvements. Once Avenue 12 and Rio Mesa Boulevard are constructed east of SR-41, some Project traffic is expected to re-distribute to these access roads and the LOS at this location is expected to improve to an acceptable LOS.

Impact 4.13-5 Operation of the Proposed Project would result in the intersection of SR-41/Road 204 operating at an unacceptable LOS (below LOS D) during the Existing 2011 Plus Project in 2025 scenario. This is considered a potentially significant impact. Implementation of mitigation measures MM4.13-4(b), MM4.13-4(e), and MM4.13-5 would reduce this impact, but not to a less-than-significant level. For this intersection, there is no additional, feasible mitigation measure(s) available to reduce potentially significant impacts during the Existing 2011 Plus Project in 2025 scenario without construction by the County or other developers of additional road segments tied to cumulative development. Therefore, impacts would remain *significant and unavoidable*.

As shown in Table 4.13-23 (Mitigated Existing 2011 Plus Project Intersection Operations), the intersection of SR-41/Road 204 would require lane improvements (e.g., additional turn lanes) so that the intersection could operate at an acceptable LOS with the addition of Project traffic. This represents a potentially significant impact. Implementation of mitigation measures MM4.13-4(b) and MM4.13-4(e), identified above under Impact 4.13-4 for the Existing 2011 Plus Project scenarios in 2015 and 2020, respectively, and mitigation measure MM4.13-5 would also assist in mitigating the Project's significant impacts at this intersection during the Existing 2011 Plus Project in 2025 scenario, but an acceptable LOS would not be achieved.

MM4.13-5 *Prior to approval of a Project phase by 2025 that affects the intersection of SR-41/Road 204, Caltrans shall widen the northbound approach to one left-turn lane, two through lanes, and one right-turn lane with free right (add second through lane for Tesoro Viejo development). In addition, Caltrans shall widen the segment along SR-41 between Avenue 15 and Road 204 to two lanes in each direction (add one lane in each direction for Jamison and Morgan development) to coincide with adjacent intersection improvements.¹²⁷ Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.*

However, as indicated in Table 4.13-23 (Mitigated Existing 2011 Plus Project Intersection Operations), the intersection of SR-41/Road 204 is projected to operate at LOS F (in both the AM and PM) after implementation of mitigation measures MM4.13-4(b), MM4.13-4(e), and MM4.13-5 under the Existing (2011) Plus Project in 2025 scenario. This is a *significant and unavoidable* impact.

The unmitigable impact at the SR-41/Road 204 intersection is caused by the large amount of Proposed Project traffic distributed to this location as a result of the assumed lack of future connections at Avenue 13, Avenue 12, and Rio Mesa Boulevard to the east of SR-41 without other approved development. Once these connections are constructed with the development of cumulative projects, there would be a decrease in traffic volumes along several sections of SR-41 and its intersections because traffic generated by and attracted to the cumulative development is provided with more direct routes

¹²⁷ This roadway segment mitigation is not required based on segment level of service results, but to be consistent with mitigation measures at adjacent intersections (SR-41/Avenue 15 and SR-41/Road 204).

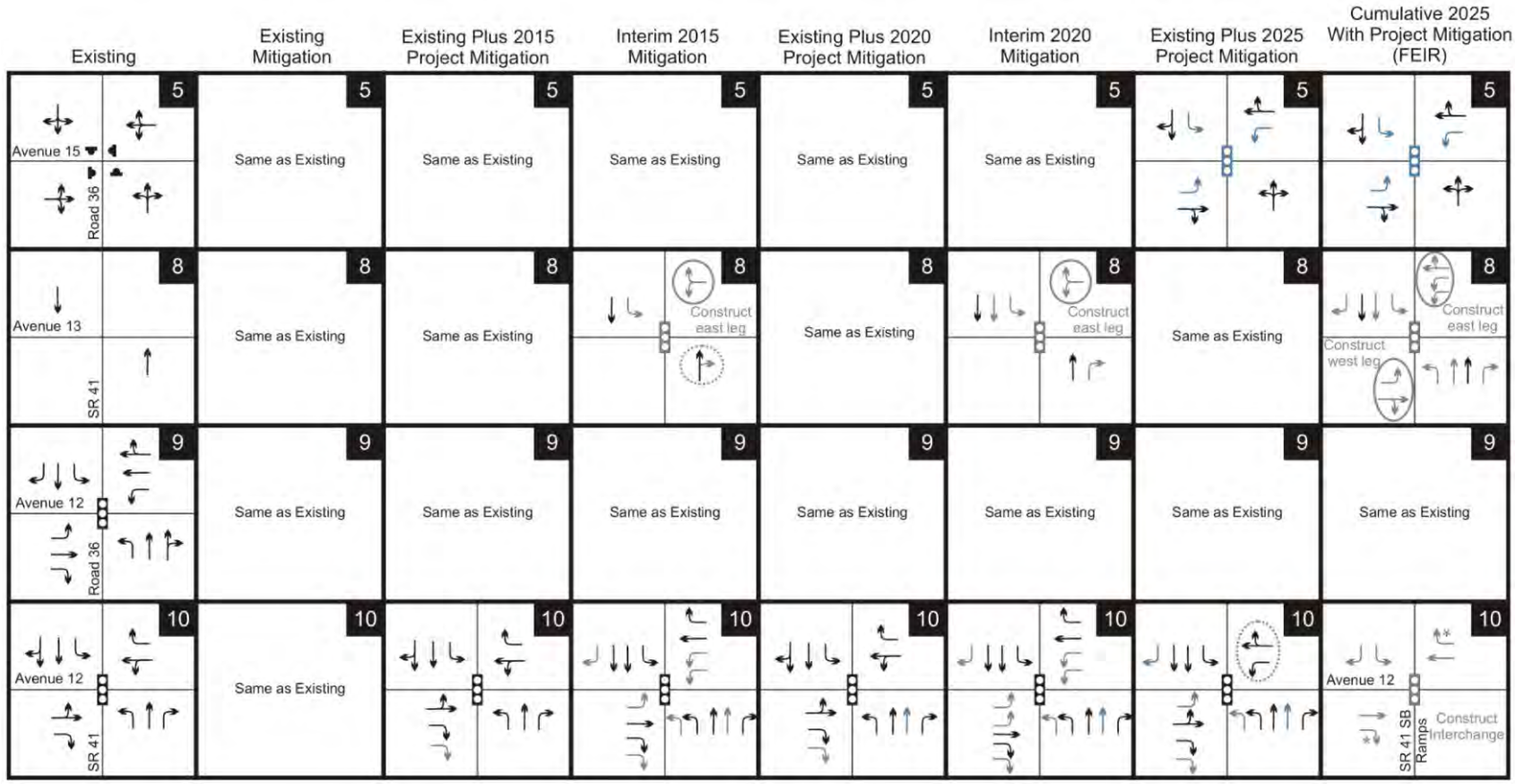
Existing	Existing Mitigation	Existing Plus 2015 Project Mitigation	Interim 2015 Mitigation	Existing Plus 2020 Project Mitigation	Interim 2020 Mitigation	Existing Plus 2025 Project Mitigation	Cumulative 2025 With Project Mitigation (FEIR)
	1 Same as Existing	1 Same as Existing	1 Same as Existing	1 Same as Existing	1 Same as Existing	1 Same as Existing	1 Same as Existing
	2 Same as Existing	2 Same as Existing	2 Same as Existing	2 Same as Existing	2 Same as Existing	2 Same as Existing	2
	3 Same as Existing	3 Same as Existing	3 Same as Existing	3 Same as Existing	3 Same as Existing	3 Same as Existing	3 Same as Existing
	4 Same as Existing	4 Same as Existing	4 	4 Same as Existing	4 	4 Same as Existing	4

Legend

- Study Intersections
- Stop Sign
- * Free Right Turn
- Traffic Signal
- Re-stripe
- Mitigation (Tesoro Viejo)

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-44a
Mitigated Lane Geometry for All Scenarios [New]



Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-44b
Mitigated Lane Geometry for All Scenarios [New]

Existing	Existing Mitigation	Existing Plus 2015 Project Mitigation	Interim 2015 Mitigation	Existing Plus 2020 Project Mitigation	Interim 2020 Mitigation	Existing Plus 2025 Project Mitigation	Cumulative 2025 With Project Mitigation (FEIR)
<p>Avenue 9 Road 36</p>	11 Same as Existing	11 Same as Existing	11 Same as Existing	11 Same as Existing	11 Same as Existing	11 Same as Existing	11 Same as Existing
<p>Avenue 9 Road 40 1/2</p>	12 Same as Existing	12 Same as Existing	12 Same as Existing	12 Same as Existing	12 Same as Existing	12 Same as Existing	12 Same as Existing
<p>Children's Blvd Peck Blvd</p>	13 Same as Existing	13 Same as Existing	13 Construct north leg	13 Same as Existing	13 Construct north leg	13 Same as Existing	13 Construct north leg
<p>Children's Blvd Lanes Bridge Dr</p>	14 Same as Existing	14 Same as Existing	14 Same as Existing	14 Same as Existing	14 Same as Existing	14 Same as Existing	14 Same as Existing

Legend

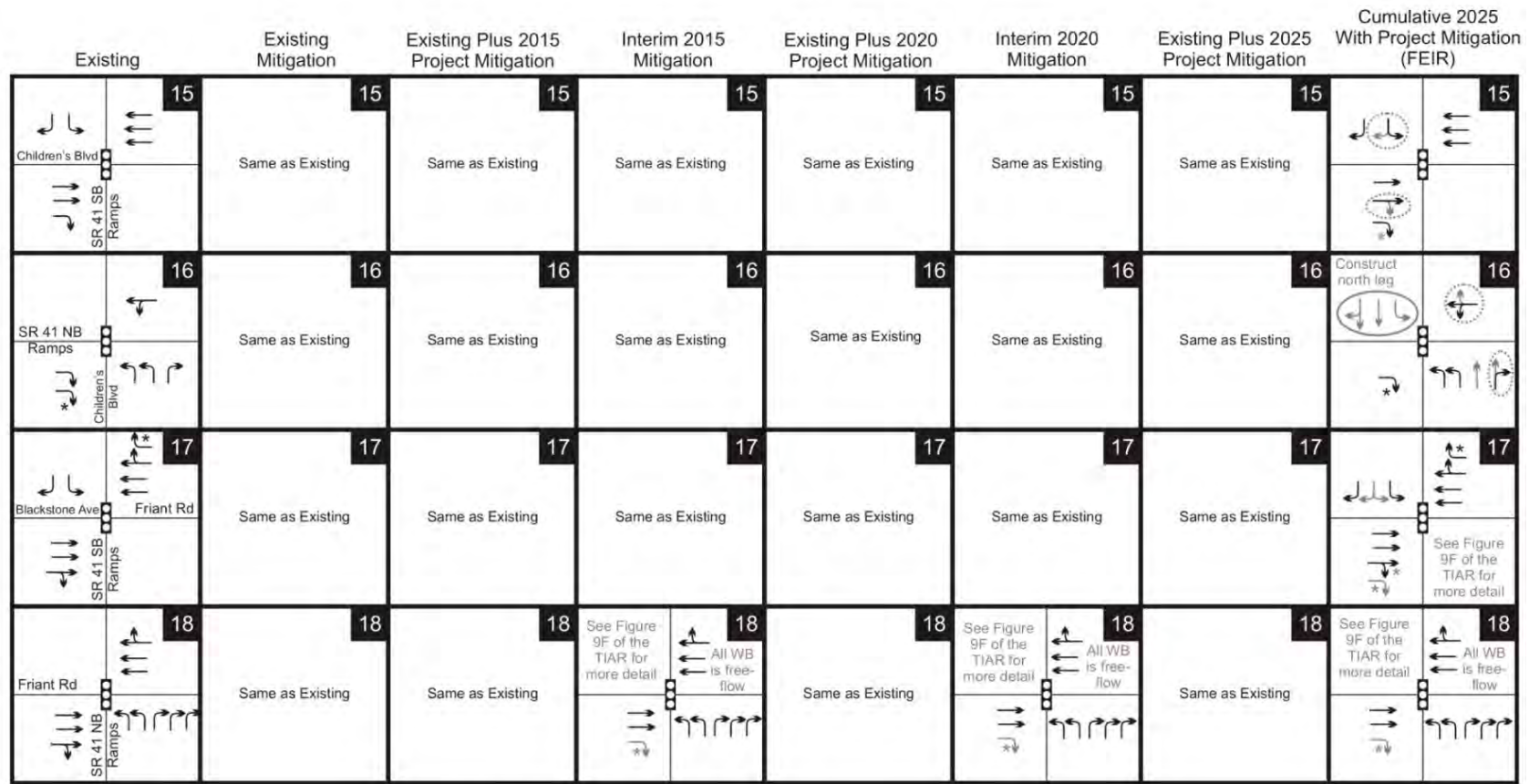
- Study Intersections
- Stop Sign
- Traffic Signal

- Free Right Turn
- Re-stripe

- Mitigation (Tesoro Viejo)
- Mitigation (Cumulative)

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-44c
Mitigated Lane Geometry for All Scenarios [New]

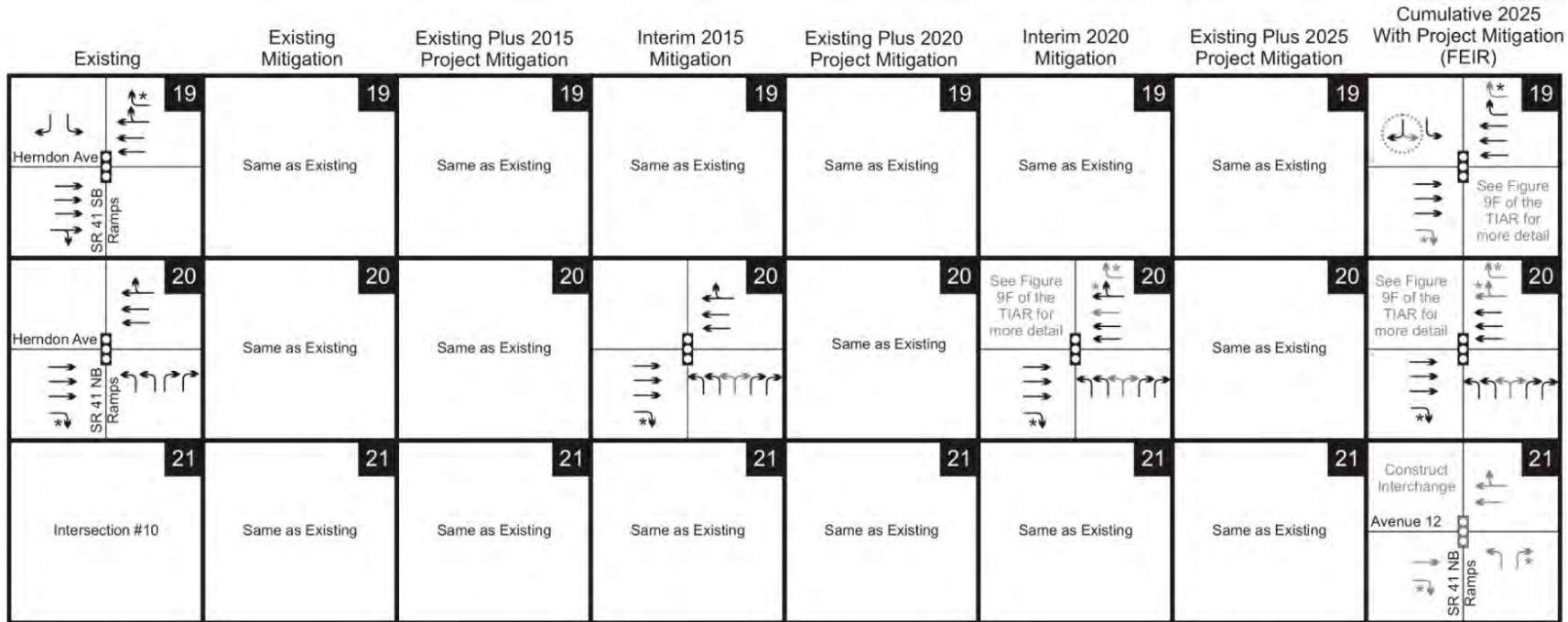


Legend

- Study Intersections
- Stop Sign
- Traffic Signal
- Free Right Turn
- Re-stripe
- Mitigation (Tesoro Viejo)
- Mitigation (Cumulative)

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-44d
Mitigated Lane Geometry for All Scenarios [New]

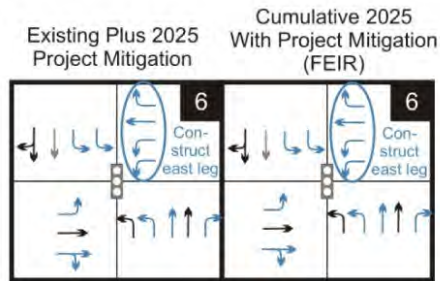
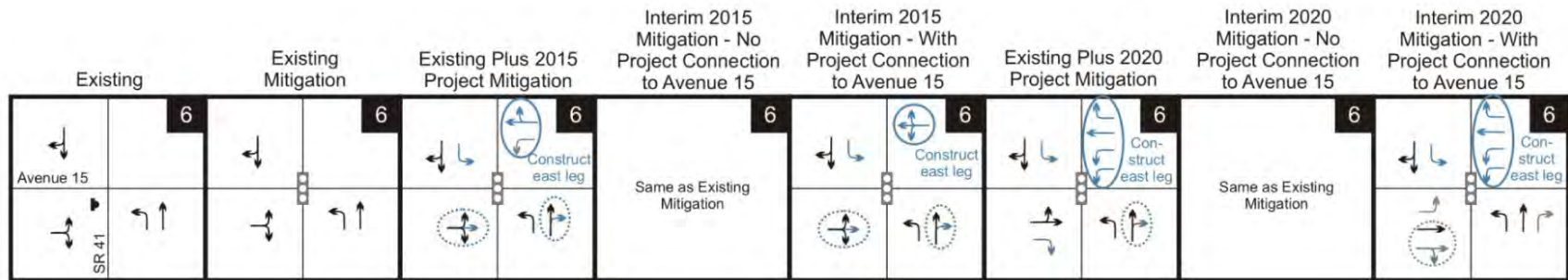


Legend

- Study Intersections
- Stop Sign
- Free Right Turn
- Traffic Signal
- Re-stripe
- Mitigation (Tesoro Viejo)
- Mitigation (Cumulative)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-44e
Mitigated Lane Geometry for All Scenarios [New]

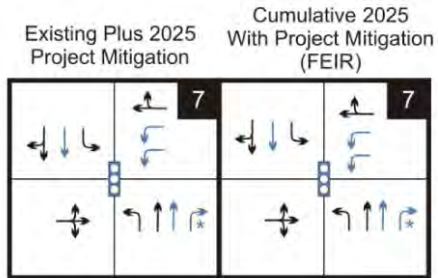
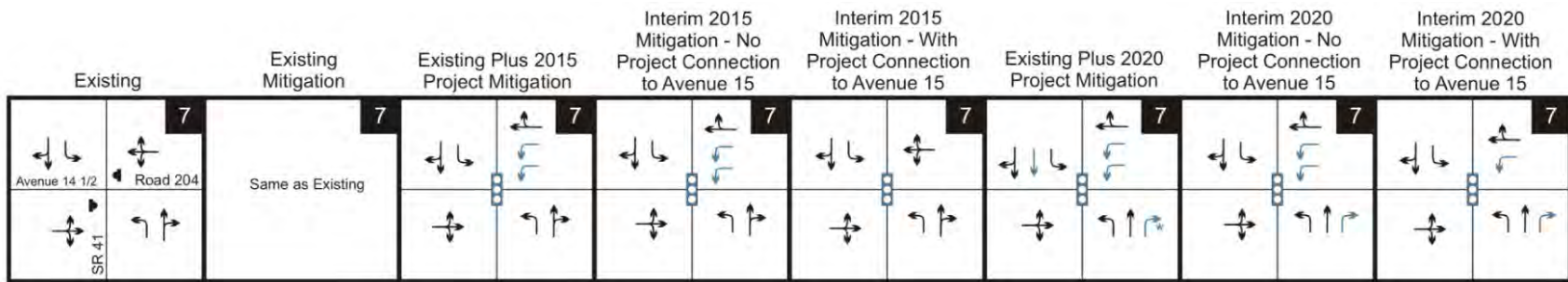


Legend

- Study Intersections
- Stop Sign
- Traffic Signal
- Free Right Turn
- Re-stripe
- Mitigation (Tesoro Viejo)
- Mitigation (Cumulative)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-44f
Mitigated Lane Geometry for All Scenarios [New]



Legend

- Study Intersections
- Stop Sign
- Traffic Signal

- Free Right Turn
- Re-stripe

- Mitigation (Tesoro Viejo)
- Mitigation (Cumulative)

Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-44g
Mitigated Lane Geometry for All Scenarios [New]

(Avenue 12, Avenue 13, and Rio Mesa Boulevard) and is not diverted to Road 204. Therefore, under cumulative buildout conditions (in 2025), the impact at the SR-41/Road 204 intersection would be considered less than significant.

Impact 4.13-6 Operation of the Proposed Project would result in nine study area intersections (Road 206/Friant Road, SR-41/Avenue 15, SR-41/Road 204, SR-41/Avenue 13, SR-41/Avenue 12, Road 40½/Avenue 9, Children’s Boulevard/Peck Boulevard, SR-41 Northbound Ramps/Friant Road and SR-41 Northbound Ramps/Herndon Avenue) operating at an unacceptable LOS (below LOS D) during one or both of the Interim Year (2015 and 2020) Cumulative Plus Project scenarios. Each of these intersections would require lane improvements (e.g., additional turn lanes and widening) and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS with the addition of Project traffic. These are considered potentially significant impacts. However, implementation of mitigation measures MM4.13-6(a) through MM4.13-6(o), as well as mitigation measures MM4.13-4(a) through MM4.13-4(f) and MM4.13-5, would reduce this impact to a less-than-significant level at eight of the nine impacted intersections during one or both of the Interim Year (2015 and 2020) Cumulative Plus Project scenarios. The ninth intersection (SR-41/Avenue 12) during the Interim Year 2020 Cumulative Plus Project Scenario would remain significant and unavoidable, and it is separately evaluated in Impact 4.13-7.

As shown in Table 4.13-19 (Interim Years Cumulative 2015 and 2020 Intersection Operations), the following nine intersections would require lane improvements (e.g., additional turn lanes) so that the intersection could operate at an acceptable LOS with the addition of Project traffic:

1. Road 206/Friant Road (2015 and 2020)
2. SR-41/Avenue 15 (2015 and 2020)
3. SR-41/Road 204 (2015 and 2020)
4. SR-41/Avenue 13 (2015 and 2020)
5. SR-41/Avenue 12 (2015 and 2020)
6. Road 40½/Avenue 9 (2020)
7. Children’s Boulevard/Peck Boulevard (2015 and 2020)
8. SR-41 Northbound Ramps/Friant Road (2015 and 2020)
9. SR-41 Northbound Ramps/Herndon Avenue (2015 and 2020)

This represents a potentially significant impact. To mitigate the Project’s significant impacts to a less-than-significant level at these intersections during the Interim Year (2015 and 2020) Cumulative Plus Project scenarios, the mitigation measures identified below are required. However, only eight of these intersections can be mitigated to a less-than-significant level during both interim scenario years: 2015 and 2020. The ninth intersection—SR41/Avenue 12 for the Interim Year 2020 Cumulative Plus Project scenario—can be mitigated, but impacts would remain significant and unavoidable. This intersection is separately addressed under Impact 4.13-7 below for the Interim Year 2020 Cumulative Plus Project

scenario. All other study area intersections would operate at an acceptable level of service and no mitigation would be required.

In order to achieve acceptable levels of service at the intersection of SR-41/Avenue 13 during both Interim Year scenarios (2015 and 2020), it is assumed that a traffic signal would be installed, an east leg extension is provided for the westbound approach, the southbound approach is widened, and the northbound approach is restriped for access to cumulative developments, regardless of whether the Project is constructed.

Interim Year 2015 Cumulative Plus Project Conditions

The following mitigation measures would be required in addition to mitigation measures MM4.13-4(a) through MM4.13-4(c) for the Existing 2011 Plus Project in 2015 scenario to address cumulative development and achieve acceptable levels of service (LOS D or better):

MM4.13-6(a) Prior to approval of a Project phase by 2015 that affects the intersection of Road 206/Friant Road, the County shall install a traffic signal. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 206/Friant Road and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(b) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 15 (with Proposed Project connection to Avenue 15), Caltrans shall provide an east leg connection, with one left-turn/through/right-turn lane (due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the dedicated left-turn lane required for the Existing 2011 Plus Project in 2015 is no longer needed) for the westbound approach. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(c) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Road 204 (with Proposed Project connection to Avenue 15), Caltrans shall provide an east leg connection, with one left-turn/through/right-turn lane (due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the dedicated left-turn lane required for the Existing 2011 Plus Project in 2015 is no longer needed) for the westbound approach. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(d) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one right-turn lane (add second left-turn lane and second through lane). Additionally, Caltrans shall widen the westbound approach to two left-turn lanes, one through lane, and one right-turn lane (add

dual left-turn lanes and convert shared through/right-turn lane into a through lane only). Caltrans shall widen the southbound approach to one left-turn lane, two through lanes, and one right-turn lane (add dedicated right-turn lane and convert shared through/right-turn lane into a through lane only). Finally, Caltrans shall widen the eastbound approach to one left-turn lane, one through lane, and two right-turn lanes (add dedicated left-turn lane and convert the shared left-turn/through lane into a through lane only). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(e) Prior to approval of a Project phase by 2015 that affects the intersection of Children's Boulevard/Peck Boulevard, the County shall install a traffic signal. Development planned under the Gunner Ranch West Area Plan (GRWAP) assumes a southbound leg is installed with one left-turn lane and one through/right-turn lane (install southbound leg with one left-turn lane and one through/right-turn lane), the eastbound approach is widened to one left-turn lane, one through lane, and one through/right-turn lane (add dedicated left-turn lane), the westbound approach is re-stripped to one left-turn lane, one through lane, and one through/right-turn lane (re-stripe to include shared right-turn lane), and the northbound approach is restriped to include one left-turn lane and one through/right-turn lane (add shared through lane).¹²⁸ Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Children's Boulevard/Peck Boulevard and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(f) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Friant Road Northbound Ramps, Caltrans shall reconstruct the interchange. Caltrans shall convert all westbound movements into free flow (add free flow movement signal phasing) and convert the eastbound approach into two through lanes and one right-turn lane with a free right (convert shared through/right-turn lane into dedicated right-turn lane with free flow movement). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Friant Road Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(g) Prior to approval of a Project phase by 2015 that affects the intersection of SR-41/Herndon Avenue Northbound Ramps, Caltrans shall widen the northbound approach to two left-turn lanes, one left/right-turn lane, and two right-turn lanes (add shared left/right-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Herndon Avenue Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

¹²⁸ Assumed improvements are expected to be constructed for access to cumulative developments (Gunner Ranch West and Villages of Gateway).

The Existing 2011 Plus Project in 2015 scenario was based on the existing roadway network, and therefore, it was assumed that Avenue 12 (east of SR-41), Avenue 13, and Rio Mesa Boulevard (north of Children's Boulevard) would not exist. The Interim Year 2015 Cumulative Plus Project scenario assumed that these roadways would be built as a part of cumulative development, and, therefore, some trips were distributed to these roadways for this scenario. As a result, more mitigation is required to alleviate impacts at Avenue 15 and Road 204 under the Existing 2011 Plus Project in 2015 scenario than under the Interim Year 2015 Cumulative Plus Project scenario. However, the Existing 2011 Plus Project in 2015 scenario may not be realized since it is likely that other cumulative development would be built while the Project is being built. Therefore, it is expected that Avenue 12 (east of SR-41), Avenue 13, and Rio Mesa Boulevard (north of Children's Boulevard) would be constructed before the Project is fully built out. If that is the case, the mitigation measures identified for Avenue 15 and Road 204 under the Existing 2011 Plus Project in 2015 scenario would not be required and the more likely mitigation measures would be those identified for the Interim Year 2015 Cumulative Plus Project scenario (mitigation measures MM4.13-6(a) through MM4.13-6(g)).

The level of service resulting from the potential improvements in the Interim Year 2015 Cumulative Plus Project scenario is shown in Table 4.13-24 (Mitigated Interim Years 2015 and 2020 Intersection Operations) for the eight intersections that required mitigation. In Table 4.13-24, the SR-41/Avenue 15 and SR-41/Road 204 intersections have been identified both with and without a Project connection to Avenue 15. As can be seen from Table 4.13-24, each of these eight intersections operate at LOS D or better in 2015 (with mitigation). The corresponding mitigated intersection lane geometries are shown in Figure 4.13-44a through Figure 4.13-44g (Mitigated Lane Geometry for All Scenarios).

All mitigation measures required to improve operations to an acceptable level of service are feasible, as determined in the 2008 Final EIR. As noted earlier, there is a current deficiency at the intersection of SR-41/Avenue 15 that requires mitigation (installation of a traffic signal) prior to development of the Proposed Project or other cumulative projects. Implementation of mitigation measures MM4.13-6(a) through MM4.13-6(g), as well as mitigation measures MM4.13-4(a) through MM4.13-4(c), would provide lane improvements and a greater amount of right-of-way to accommodate the lane improvements so that all of the eight impacted intersections operate at an acceptable LOS during the Interim Year 2015 Cumulative Plus Project scenario. As a result, the impact at intersections Road 206/Friant Road, SR-41/Avenue 15, SR-41/Road 204, SR-41/Avenue 13, SR-41/Avenue 12, Children's Boulevard/Peck Boulevard, SR-41 Northbound Ramps/Friant Road and SR-41 Northbound Ramps/Herndon Avenue would be reduced to a *less-than-significant* level during the Interim Year 2015 Cumulative Plus Project scenario.

Table 4.13-24 Mitigated Interim Years 2015 and 2020 Intersection Operations [New]

	Intersection	Control	Peak Hour	Interim 2015 Plus Project Mitigated				Interim 2020 Plus Project Mitigated			
				Delay	LOS	Project Trips	% ^a	Delay	LOS	Project Trips	% ^a
4	Road 206 / Friant Road	Signalized	AM	21.3	C	8	0.9%	31.5	C	27	1.8%
			PM	28.6	C	5	0.4%	53.1	D	13	0.7%
6	SR-41 / Avenue 15 (with Project connection to Avenue 15)	Signalized	AM	52.3	D	229	13.2%	35.5	D	571	27.0%
			PM	52.6	D	367	19.2%	38.8	D	914	36.7%
6	SR-41 / Avenue 15 (without Project connection to Avenue 15)	Signalized	AM	26.2	C	139	8.5%	39.7	D	346	18.3%
			PM	16.8	B	195	11.2%	20.5	C	484	23.5%
7	SR-41 / Road 204 (with Project connection to Avenue 15)	Signalized	AM	28.0	C	103	6.4%	36.4	D	256	13.7%
			PM	33.3	C	251	13.8%	38.5	D	627	27.9%
7	SR-41 / Road 204 (without Project connection to Avenue 15)	Signalized	AM	27.0	C	284	15.8%	33.7	C	707	30.5%
			PM	43.0	D	459	22.7%	39.1	D	1,145	41.4%
8	SR-41 / Avenue 13	Signalized	AM	13.6	B	294	15.3%	18.0	B	733	27.9%
			PM	19.5	B	411	19.7%	38.7	D	1,030	34.6%
10	SR-41 / Avenue 12	Signalized	AM	38.2	D	353	9.2%	>80.0	F ^b	881	15.8%
			PM	30.1	C	441	10.3%	70.7	E ^b	1,103	16.9%
12	Road 40 1/2 / Avenue 9	Signalized	AM	=	=	=	=	31.3	C	-17	N/A
			PM	=	=	=	=	40.6	D	-34	N/A
13	Children's Boulevard / Peck Boulevard	Signalized	AM	25.4	C	-7	N/A	28.1	C	-18	N/A
			PM	16.9	B	-11	N/A	22.9	C	-27	N/A
18	SR-41 NB Ramps / Friant Road	Signalized	AM	10.9	B	-60	N/A	11.8	B	-152	N/A
			PM	20.0	C	-39	N/A	27.6	C	-99	N/A
20	SR-41 NB Ramps / Herndon Avenue	Signalized	AM	23.4	C	-103	N/A	21.4	C	-257	N/A
			PM	28.8	C	-110	N/A	38.4	D	-274	N/A

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

LOS = level of service

DELAY is measured in seconds.

For signalized intersections, delay results show the average for the entire intersection.

a. Percentage of total traffic composed of Project trips.

b. Recommend consideration to constructing an interchange.

Interim Year 2020 Cumulative Plus Project Conditions

For this scenario, the following mitigation measures would be required in addition to mitigation measures MM4.13-4(d) through MM4.13-4(f) identified above for the Existing 2011 Plus Project in 2020 scenario to address cumulative development and achieve acceptable levels of service (LOS D or better):

MM4.13-6(h) *Prior to approval of a Project phase by 2020 that affects the intersection of Road 206/Friant Road, the County shall install a traffic signal. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 206/Friant Road and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the*

amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(i) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 15 (with Proposed Project connection to Avenue 15), Caltrans shall widen the eastbound approach to one left-turn lane, one through lane, and one through-right-turn lane (add dedicated left-turn lane and re-stripe right-turn lane to include a shared through lane). Additionally, Caltrans shall widen the northbound approach to one left-turn lane, one through lane, and one right-turn lane (add dedicated right-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 15 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(j) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Road 204 (with Proposed Project connection to Avenue 15), Caltrans shall provide one left-turn lane and one through/right-turn lane to the westbound approach.¹²⁹ Additionally, Caltrans shall provide one left-turn lane, one through lane, and one right-turn lane to the northbound approach.¹³⁰ Finally, Caltrans shall retain the existing one left-turn lane and one through/right-turn lane to the southbound approach.¹³¹ Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(k) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Road 204 (without Proposed Project connection to Avenue 15), Caltrans shall provide one left-turn lane, one through lane, and one right-turn lane to the northbound approach.¹³² Additionally, Caltrans shall retain the existing one left-turn lane and one through/right-turn lane to the southbound approach.¹³³ Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Road 204 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(l) Prior to approval of a Project phase by 2020 that affects the intersection of Road 40½/Avenue 9, the County shall install a traffic signal. Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Road 40½/Avenue 9 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project

¹²⁹ Due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the second left-turn lane required for the Existing 2011 Plus Project in 2020 scenario is no longer needed.

¹³⁰ Due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the free flow movement for the right-turn lane is no longer needed.

¹³¹ Due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the second through lane is no longer needed.

¹³² Due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the free flow movement for the right-turn lane is no longer needed.

¹³³ Due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the second through lane is no longer needed.

Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(m) Prior to approval of a Project phase by 2020 that affects the intersection of Children's Boulevard/Peck Boulevard, the County shall install a traffic signal. Development planned under the Gunner Ranch West Area Plan (GRWAP) assumes a southbound leg is installed with one left-turn lane and one through/right-turn lane (install southbound leg with one left-turn lane and one through/right-turn lane), the eastbound approach is widened to one left-turn lane, one through lane, and one through/right-turn lane (add dedicated left-turn lane), the westbound approach is restriped to include one left-turn lane, one through lane, and one through/right-turn lane (add shared right-turn lane) and the northbound approach is restriped to include one left-turn lane and one through/right-turn lane (add shared through lane).¹³⁴ Madera County shall make the final determination as to when a Project phase significantly affects the intersection of Children's Boulevard/Peck Boulevard and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(n) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Friant Road Northbound Ramps, Caltrans shall reconstruct the interchange. Caltrans shall convert all westbound movements into free flow (add free flow movement signal phasing) and convert the eastbound approach into two through lanes and one right-turn lane with a free right (convert shared through/right-turn lane into dedicated right-turn lane with free flow movement). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Friant Road Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-6(o) Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Herndon Avenue Northbound Ramps, Caltrans shall widen the northbound approach to two left-turn lanes, one left/right-turn lane, and two right-turn lanes (add shared left/right-turn lane). Additionally, Caltrans shall widen the westbound approach to three through lanes, one through/right-turn lane, and one right-turn lane with free flow movement for through/right-turn lane and dedicated right-turn lane (add fourth through lane and dedicated right-turn lane with free flow movements). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Herndon Avenue Northbound Ramps and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

The Existing 2011 Plus Project in 2020 scenario was based on the existing roadway network, and therefore, it was assumed that Avenue 12 (east of SR-41), Avenue 13, and Rio Mesa Boulevard (north of Children's Boulevard) would not exist. The Interim Year 2020 Cumulative Plus Project scenario assumed that these roadways would be built, and, therefore, some trips were distributed to these roadways for this

¹³⁴ Assumed improvements are expected to be constructed for access to cumulative developments (Gunner Ranch West and Villages of Gateway).

scenario. As a result, more mitigation is required to alleviate impacts at Avenue 15 and Road 204 under the Existing 2011 Plus Project in 2020 scenario than under the Interim Year 2020 Cumulative Plus Project scenario. However, the Existing 2011 Plus Project in 2020 scenario may not be realized since it is likely that other cumulative development would be built while the Project is being built. Therefore, it is expected that Avenue 12 (east of SR-41), Avenue 13, and Rio Mesa Boulevard (north of Children's Boulevard) would be constructed before the Project is fully built out. If that is the case, the mitigation measures identified for Avenue 15 and Road 204 under the Existing 2011 Plus Project in 2020 scenario would not be required and the more likely mitigation measures would be those identified for the Interim Year 2020 Cumulative Plus Project scenario (mitigation measures MM4.13-6(h) through MM4.13-6(o)).

The level of service resulting from the potential improvements in the Interim Year 2020 Cumulative Plus Project scenario is shown in Table 4.13-24 (Mitigated Interim Years 2015 and 2020 Intersection Operations) for the nine intersections that require mitigation. The SR-41/Avenue 15 and SR-41/Road 204 intersections have been identified both with and without a Project connection to Avenue 15 in Table 4.13-24. As can be seen from Table 4.13-24, each of these nine intersections operate at LOS D or better in 2020 (with mitigation), except the intersection of SR-41/Avenue 12. As indicated earlier, this intersection is addressed under Impact 4.13-7 for the Interim Year 2020 Cumulative Plus Project scenario. The corresponding mitigated intersection lane geometries are shown in Figure 4.13-44a through Figure 4.13-44g (Mitigated Lane Geometry for All Scenarios).

All mitigation measures required to improve operations to an acceptable level of service are feasible, as determined in the 2008 Final EIR. As noted earlier, there is a current deficiency at the intersection of SR-41/Avenue 15 that requires mitigation (installation of a traffic signal) prior to development of the Proposed Project or other cumulative projects. Implementation of mitigation measures MM4.13-6(h) through MM4.13-6(o), as well as mitigation measures MM4.13-4(a) through MM4.13-4(f) and MM4.13-5, would provide lane improvements and a greater amount of right-of-way to accommodate the lane improvements so that eight of the nine impacted intersections operate at an acceptable LOS during the Interim Year 2020 Cumulative Plus Project scenario. As a result, the impact at intersections Road 206/Friant Road, SR-41/Avenue 15, SR-41/Road 204, SR-41/Avenue 13, Road 40½/Avenue 9, Children's Boulevard/Peck Boulevard, SR-41 Northbound Ramps/Friant Road and SR-41 Northbound Ramps/Herndon Avenue would be reduced to a *less-than-significant* level during the Interim Year 2020 Cumulative Plus Project scenario.

Impact 4.13-7 **Operation of the Proposed Project would result in the intersection of SR-41/Avenue 12 operating at an unacceptable LOS (below LOS D) during the Interim Year 2020 Cumulative Plus Project scenario. This is considered a potentially significant impact. Implementation of mitigation measures MM4.13-7, MM4.13-6(d), MM4.13-4(f), and MM4.13-4(c) would reduce this impact, but not to a less-than-significant level. For this intersection, there is no additional, feasible mitigation measure(s) available to reduce potentially significant impacts during the Interim Year 2020 Cumulative Plus Project scenario. Therefore, impacts would remain *significant and unavoidable*.**

The SR-41/Avenue 12 intersection would require lane improvements (e.g., additional turn lanes) so that the intersection could operate at an acceptable LOS with the addition of Project traffic. This represents a

potentially significant impact. Implementation of mitigation measures MM4.13-7, MM4.13-6(d), MM4.13-4(f), and MM4.13-4(c) would help alleviate potentially significant impacts at the SR-41/Avenue 12 intersection under the Interim Year 2020 Cumulative Plus Project scenario.

MM4.13-7 Prior to approval of a Project phase by 2020 that affects the intersection of SR-41/Avenue 12, Caltrans shall widen the eastbound approach to two left-turn lanes, one through lane, and two right-turn lanes (add dual left-turn lanes). Caltrans shall widen the westbound approach to two left-turn lanes, one through lane, and one right-turn lane (add dual left-turn lanes and convert the shared left-turn/through lane into a through lane only). Additionally, Caltrans shall widen the northbound approach to two left-turn lanes, two through lanes, and one right-turn lane (add second left-turn lane). Finally, Caltrans shall widen the southbound approach to one left-turn lane, two through lanes, and one right-turn lane (add dedicated right-turn lane). Madera County shall make the final determination as to when a Project phase significantly affects the intersection of SR-41/Avenue 12 and as to how much additional right-of-way would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

As indicated in Table 4.13-24 (Mitigated Interim Years 2015 and 2020 Intersection Operations), the intersection of SR-41/Avenue 12 is projected to operate at LOS F (in the AM) and LOS E (in the PM) after mitigation under the Interim Year 2020 Cumulative Plus Project scenario. This is a **significant and unavoidable** impact.

Achieving an acceptable level of service at the SR-41/Avenue 12 intersection would require construction of a full interchange at Avenue 12 or other mitigation measures that are determined to be infeasible at this time due to cost. Construction of the interchange at Avenue 12 would require funding by several sources, with a large portion of the funding coming from cumulative developments planned in the Rio Mesa area. Such commitments have yet to be made. The unmitigable impact at the SR-41/Avenue 12 intersection is a cumulative impact that is not specifically triggered by traffic generated by the Proposed Project.

Impact 4.13-8 **Operation of the Proposed Project would result in all roadway segments operating at an acceptable LOS (i.e., LOS D or better) under the Existing 2011 Plus Project (2015, 2020, and 2025) scenarios and Interim Year (2015 and 2020) Cumulative Plus Project scenarios. However, four roadway segments would require lane improvements (e.g., lane widening) and a greater amount of right-of-way to accommodate the lane improvements so that the roadway segment could operate at an acceptable LOS with the addition of Project traffic. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.13-8(a) through MM4.13-8(d) would reduce this impact to a less-than-significant level.**

Existing 2011 Plus Project (2015, 2020, and 2025)

As shown in Table 4.13-18 (Existing 2011 Plus Project Segment Operations), all roadway segments are projected to operate at an acceptable LOS (i.e., LOS D or better) during Existing 2011 Plus Project (2015, 2020, and 2025) conditions except for the segment along SR-41 between Avenue 12 and Road 204

(northbound only during the Existing 2011 Plus Project in 2020 scenario and northbound and southbound during the Existing 2011 Plus Project in 2025 scenario). This segment would require lane improvements (e.g., lane widening) and a greater amount of right-of-way to accommodate the lane improvements so that the roadway segment could operate at an acceptable LOS with the addition of Project traffic.

To mitigate the Project's significant impacts at this segment, the following mitigation measures are required:

Existing 2011 Plus Project in 2020

MM4.13-8(a) Prior to approval of a Project phase by 2020 that affects the roadway segment of SR-41 between Avenue 12 and Road 204, Caltrans shall widen SR-41 to four lanes (add one lane in each direction for the Jamison and Morgan development) along this segment of the roadway. Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

The level of service resulting from the identified improvements is shown in Table 4.13-25 (Mitigated Existing 2011 Plus Project Segment Operations) for the roadway segment. As indicated in Table 4.13-25, traffic generated during the Existing 2011 Plus Project scenarios in 2015, 2020, and 2025 along SR-41 between Avenue 12 and Road 204 would be at acceptable levels of service (LOS D or better) with the implementation of the mitigation measures identified above. Therefore, impacts to study area roadway segments during the Existing 2011 Plus Project (2015, 2020, and 2025) scenarios would be ***less than significant***.

Table 4.13-25 Mitigated Existing 2011 Plus Project Segment Operations [New]

Street Segment	Direction	Peak Hour	Segment Description	Existing Mitigation		Segment Description	Existing Plus 2015 Project Mitigation				Segment Description	Existing Plus 2020 Project Mitigation				Segment Description	Existing Plus 2025 Project Mitigation			
				Volume	LOS		Volume	LOS	Project Trips	% ^a		Volume	LOS	Project Trips	% ^a		Volume	LOS	Project Trips	% ^a
State Route 41																				
Avenue 12 to Road 204	NB	AM	1 lane	372	A	1 lane	556	B	184	33.1%	2 lanes	833	A	461	55.3%	2 lanes	1,665	B	1,293	77.7%
		PM	1 lane	1,032	C	1 lane	1,267	C	235	18.5%	2 lanes	1,617	B	585	36.2%	2 lanes	2,787	D	1,755	63.0%
	SB	AM	1 lane	1,071	C	1 lane	1,226	C	155	12.6%	2 lanes	1,457	B	387	26.6%	2 lanes	2,157	C	1,086	50.3%
		PM	1 lane	584	B	1 lane	834	B	250	30.0%	2 lanes	1,208	B	624	51.7%	2 lanes	2,458	C	1,874	76.2%

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

LOS = level of service

a. Percentage of total traffic composed of Project trips.

Interim Year (2015 and 2020) Cumulative Plus Project

The following three roadway segments would require lane improvements (e.g., lane widening) and a greater amount of right-of-way to accommodate the lane improvements so that the roadway segment could operate at an acceptable LOS with the addition of Project traffic:

1. SR-41 south of Herndon Avenue (2015 and 2020)
2. SR-41 between Avenue 12 to Avenue 13 (2020)
3. SR-41 between Friant Road to Children's Boulevard (2020)

To mitigate the Project's significant impacts at these three segments, the following mitigation measures are required:

Interim Year 2015 Cumulative Plus Project Conditions

MM4.13-8(b) Prior to approval of a Project phase by 2015 that affects the roadway segment of SR-41 south of Herndon Avenue, Caltrans shall widen SR-41 to four lanes in each direction along this segment of the roadway. Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

Interim Year 2020 Cumulative Plus Project Conditions (in Addition to the Mitigation Listed Above)

MM4.13-8(c) Prior to approval of a Project phase by 2020 that affects the roadway segment of SR-41 between Avenue 12 and Avenue 13, Caltrans shall widen SR-41 to four lanes (add one additional lane in each direction).¹³⁵ Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

MM4.13-8(d) Prior to approval of a Project phase by 2020 that affects the roadway segment of SR-41 between Friant Road and Children's Boulevard, Caltrans shall widen SR-41 to three lanes in each direction (add one additional lane in each direction). Madera County shall make the final determination as to when a Project phase significantly affects this segment of SR-41 and as to how much additional widening would be required to accommodate the needed improvements. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

The level of service resulting from the identified improvements is shown in Table 4.13-26 (Mitigated Interim Years 2015 and 2020 Segment Operations) for these three segments. As indicated in Table 4.13-26, traffic generated during the Interim Years 2015 and 2020 Cumulative Plus Project scenarios along SR-41 between Avenue 12 and Avenue 13, between Friant Road and Children's

¹³⁵ Due to assumed connections at Avenue 12, Avenue 13, and Rio Mesa Boulevard for cumulative development, the additional one lane in each direction is no longer needed between Avenue 13 and Road 204.

Table 4.13-26 Mitigated Interim Years 2015 and 2020 Segment Operations [New]

Street Segment	Direction	Peak Hour	Segment Description	Interim Year 2015 Cumulative Plus Project Mitigated					Segment Description	Interim Year 2020 Cumulative Plus Project Mitigated				
				Volume	Density	LOS	Project Trips	% ^a		Volume	Density	LOS	Project Trips	% ^a
State Route 41														
Avenue 12 to Avenue 13	NB	AM	1 lane	670		B	193	28.8%	2 lanes	1,088		B	479	44.0%
		PM		1,282		C	182	14.2%		1,641		B	456	27.8%
	SB	AM	1 lane	1,257		C	101	8.0%	2 lanes	1,518		B	254	16.7%
		PM		868		B	229	26.4%		1,348		B	574	42.6%
Friant Road to Children's Boulevard	NB	AM	2 lanes	1,976	15.2	B	79	4.0%	3 lanes	2,543	13.1	B	198	7.8%
		PM		3,043	23.7	C	50	1.6%		4,075	21.0	C	123	3.0%
	SB	AM	2 lanes	2,766	21.4	C	19	0.7%	3 lanes	3,343	17.2	B	50	1.5%
		PM		2,684	20.7	C	119	4.4%		3,771	19.4	C	292	7.7%
South of Herndon Avenue	NB	AM	4 lanes	5,036	19.4	C	-14	n/a	4 lanes	5,753	22.3	C	-40	n/a
		PM		6,440	25.4	C	-91	n/a		7,443	31.0	D	-230	n/a
	SB	AM	4 lanes	5,661	21.9	C	-155	n/a	4 lanes	6,305	24.7	C	-382	n/a
		PM		5,581	21.6	C	-135	n/a		7,149	29.2	D	-345	n/a

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

LOS = level of service

a. Percentage of total traffic comprised of Project trips.

Boulevard, and south of Herndon Road would be at acceptable levels of service (LOS D or better) with the implementation of the mitigation measures identified above. Therefore, impacts to study area roadway segments during the Interim Years 2015 and 2020 Cumulative Plus Project scenarios would be *less than significant*.

Impact 4.13-9 **Temporary construction activities on Avenue 15 related to the construction of an 8-mile water pipeline would not significantly impact area intersections or roadways. This is considered *less-than-significant* impact.**

As part of the revised 2012 traffic study, a scenario was evaluated that assumes temporary construction conditions on Avenue 15 related to construction of an 8-mile pipeline (from SR-41 to a point eight miles westward) that would deliver an alternative source of water for the Project. This scenario used existing (2011) traffic volumes. The potential pipeline construction would affect traffic operations along Avenue 15 between the Cottonwood Creek Ranch Water Supply location to a point just east of SR-41, as shown in Figure 3-7 (Avenue 15 Pipeline Location) and Figure 3-8 (Avenue 15 Pipeline Construction Details) of Chapter 3 (Project Description). The pipeline construction would take approximately 150 days to complete, with a maximum of 1,000 linear feet of roadway being affected at any one time.

To analyze traffic-related construction impacts, a Synchro file, created to represent Avenue 15, assumed a two-phase signal located on the roadway that allows only one lane of directional vehicular traffic to flow at one time. This signal phasing essentially represents flagging operations. Table 4.13-21 (Potential Pipeline Construction—Synchro Methodology Results) shows the results of the Synchro analysis, indicating that no major traffic delays would occur during construction of the pipeline along Avenue 15, and, therefore, impacts are *less than significant*. No mitigation is required.

Impact 4.13-10 **Interim school-related traffic generated by the Proposed Project associated with trips between the Project Site and Minarets High School would impact area intersections and roadways. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.13-10(a), MM4.13-10(b), MM4.13-6(a) through MM4.13-6(o), MM4.13-4(a) through MM4.13-4(f), and MM4.13-5 would reduce this impact to a *less-than-significant* level.**

Interim Year 2015 Cumulative Plus Project Plus School-Related Trips Conditions (Intersection and Segment Analysis)

Table 4.13-27 (Interim Years 2015 and 2020 Intersection Operations With and Without School-Related Trips) shows the intersection LOS results, indicating that one study intersection is expected to operate worse than the minimum LOS D with the addition of student-related trips in the Interim Year 2015 Cumulative Plus Project Plus School-Related Trips scenario: SR-41/Avenue 15 (with Proposed Project access connection to Avenue 15).

Table 4.13-28 (Interim Years 2015 and 2020 Segment Operations With and Without School-Related Trips) shows the segment LOS. The results of the analysis show that none of the study segments are expected to operate worse than the minimum level of service with the addition of student-related trips in the Interim Year 2015 Cumulative Plus Project Plus School-Related Trips scenario.

Table 4.13-27 Interim Years 2015 and 2020 Intersection Operations With and Without School-Related Trips [New]

Intersection	Control	Peak Hour	Interim 2015 Plus Project without School-Related Trips		Interim 2015 Plus Project with School-Related Trips		Interim 2020 Plus Project without School-Related Trips		Interim 2020 Plus Project with School-Related Trips	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
2 SR-41 / SR-145	Signalized	AM	25.4	C	25.6	C	29.7	C	28.2	C
		PM	33.7	C	33.8	C	50.6	D	52.2	D
6 SR-41 / Avenue 15 (with Project connection to Avenue 15)	Signalized	AM	52.3	D	55.6	E	35.5	D	38.0	D
		PM	52.6	D	53.9	D	38.8	D	41.0	D
6 SR-41 / Avenue 15 (without Project connection to Avenue 15)	Signalized	AM	26.2	C	26.9	C	39.7	D	47.7	D
		PM	16.8	B	17.1	B	20.5	C	21.5	C
7 SR-41 / Road 204 (with Project connection to Avenue 15)	Signalized	AM	28.0	C	31.2	C	36.4	D	38.0	D
		PM	33.3	C	34.1	C	38.5	D	39.4	D
7 SR-41 / Road 204 (without Project connection to Avenue 15)	Signalized	AM	27.0	C	28.2	C	33.7	C	34.1	C
		PM	43.0	D	45.9	D	39.1	D	42.7	D
22 SR-41 / Road 200	Signalized	AM	12.2	B	12.8	B	13.9	B	15.3	B
		PM	9.4	A	9.7	A	11.7	B	12.4	B
23 Road 200 / Outback Industrial Way	One-way Stop Controlled	AM	15.6	C*	18.5	C*	20.1	C+	35.4	E+
		PM	11.4	B*	11.7	B*	12.7	B+	13.6	B+
24 Outback Industrial Way / Minarets High School Driveway #1	One-way Stop Controlled	AM	10.2	B*	10.7	B*	10.9	B*	12.7	B*
		PM	9.3	A*	9.4	A*	9.5	A*	9.9	A*
25 Outback Industrial Way / Minarets High School Driveway #2	One-way Stop Controlled	AM	8.9	A*	8.9	A*	9.1	A*	9.1	A*
		PM	7.3	A*	7.3	A*	7.3	A*	7.3	A*

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

LOS = level of service

DELAY is measured in seconds

BOLD denotes LOS standard has been exceeded

For signalized intersections, delay results show the average for the entire intersection. For one-way stop controlled intersections, delay results show the delay for the worst approach.

+ Meets peak hour signal warrants.

* Does not meet signal warrants.

Table 4.13-28 Interim Years 2015 and 2020 Segment Operations With and Without School-Related Trips [New]

Street Segment	Direction	Peak Hour	Segment Description	Interim 2015 Plus Project without School-Related Trips		Interim 2015 Plus Project with School-Related Trips		Segment Description	Interim 2020 Plus Project without School-Related Trips		Interim 2020 Plus Project with School-Related Trips	
				Volume	LOS	Volume	LOS		Volume	LOS	Volume	LOS
State Route 41												
North of SR-145	NB	AM	1 lane	381	A	438	A	1 lane	463	A	605	B
		PM		1,061	C	1,073	C		1,301	D	1,331	D
	SB	AM	1 lane	973	C	1,000	C	1 lane	1,190	C	1,257	C
		PM		643	B	657	B		761	B	795	B
Avenue 15 to SR-145	NB	AM	1 lane	337	A	394	A	1 lane	385	A	527	B
		PM		817	B	829	B		924	B	954	C
	SB	AM	1 lane	834	B	861	B	1 lane	900	B	967	C
		PM		498	B	512	B		539	B	573	B
Road 204 to Avenue 15 (with Project connection to Avenue 15)	NB	AM	1 lane	459	A	485	B	1 lane	556	B	620	B
		PM		997	C	1,002	C		1,118	C	1,132	C
	SB	AM	1 lane	1,054	C	1,066	C	1 lane	1,067	C	1,097	C
		PM		659	B	665	B		780	B	795	B
Road 204 to Avenue 15 (without Project connection to Avenue 15)	NB	AM	1 lane	486	B	543	B	1 lane	623	B	765	B
		PM		1,026	C	1,038	C		1,186	C	1,216	C
	SB	AM	1 lane	1,118	C	1,145	C	1 lane	1,226	C	1,293	D
		PM		667	B	681	B		799	B	833	B

SOURCE: VRPA Technologies, Inc., *Tesoro Viejo Revised Traffic Impact Study* (March 26, 2012).

LOS = level of service

BOLD denotes LOS standard has been exceeded

The following mitigation measures, in addition to mitigation measures MM4.13-6(a) through MM4.13-6(g), MM4.13-4(a) through MM4.13-4(c), and MM4.13-5 would be required to mitigate student-related Proposed Project impacts for the Interim Year 2015 Cumulative Plus Project scenario to acceptable levels of service:

MM4.13-10(a) Prior to the approval of a Project phase that affects the intersection of SR-41/Avenue 15 (with Proposed Project connection to Avenue 15) by the year 2015, Caltrans shall widen the eastbound approach to one left-turn lane and one through/right-turn lane (add a dedicated left-turn lane for Tesoro Viejo development). In addition, Caltrans shall widen the westbound approach to one left-turn lane and one through/right-turn lane (add a dedicated left-turn lane for Tesoro Viejo development). The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.

The levels of service resulting from the implementation of mitigation measure MM4.13-10(a), as well as mitigation measures MM4.13-4(a) through MM4.13-4(c) and MM4.13-5, are shown in Table 4.13-29 (Mitigated Interim Years 2015 and 2020 Intersection Operations with School-Related Trips). Figure 4.13-45 (Existing and Interim Mitigation [for School-Related Impacts]) shows the recommended intersection mitigation for the Interim Year 2015 Cumulative Plus Project scenario with the addition of Project student-related trips. As can be seen from Table 4.13-29, with the implementation of the identified mitigation measures, the Proposed Project would result in acceptable levels of service (LOS D) at the intersection of SR-41/Avenue 15, which is impacted by school-related trips under the Interim Year 2015 Cumulative Plus Project scenario. Therefore, the expected interim school-related traffic generated by the Proposed Project within the CUSD under the Interim Year 2015 Cumulative Plus Project scenario would result in a **less-than-significant** impact to area intersections and roadways.

Table 4.13-29 Mitigated Interim Years 2015 and 2020 Intersection Operations with School-Related Trips [New]

Intersection	Control	Peak Hour	Interim 2015 Plus Project without School-Related Trips		Interim 2015 Plus Project with School-Related Trips		Interim 2020 Plus Project without School-Related Trips		Interim 2020 Plus Project with School-Related Trips	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
6 SR-41 / Avenue 15 (with Project connection to Avenue 15)	Signalized	AM	52.3	D	36.6	D	≡	≡	≡	≡
		PM	52.6	D	38.5	D	≡	≡	≡	≡
23 Road 200 / Outback Industrial Way	One-way Stop-Controlled / Signalized	AM	≡	≡	≡	≡	20.1	C+	21.5	C
		PM	≡	≡	≡	≡	12.7	B+	15.2	B

SOURCE: VRPA Technologies, Inc., Tesoro Viejo Revised Traffic Impact Study (March 26, 2012).

LOS = level of service

DELAY is measured in seconds

For signalized intersections, delay results show the average for the entire intersection. For one-way stop controlled intersections, delay results show the delay for the worst approach.

+ Meets peak hour signal warrants.

Interim Year 2020 Cumulative Plus Project Plus School-Related Trips Conditions (Intersection and Signal Analysis)

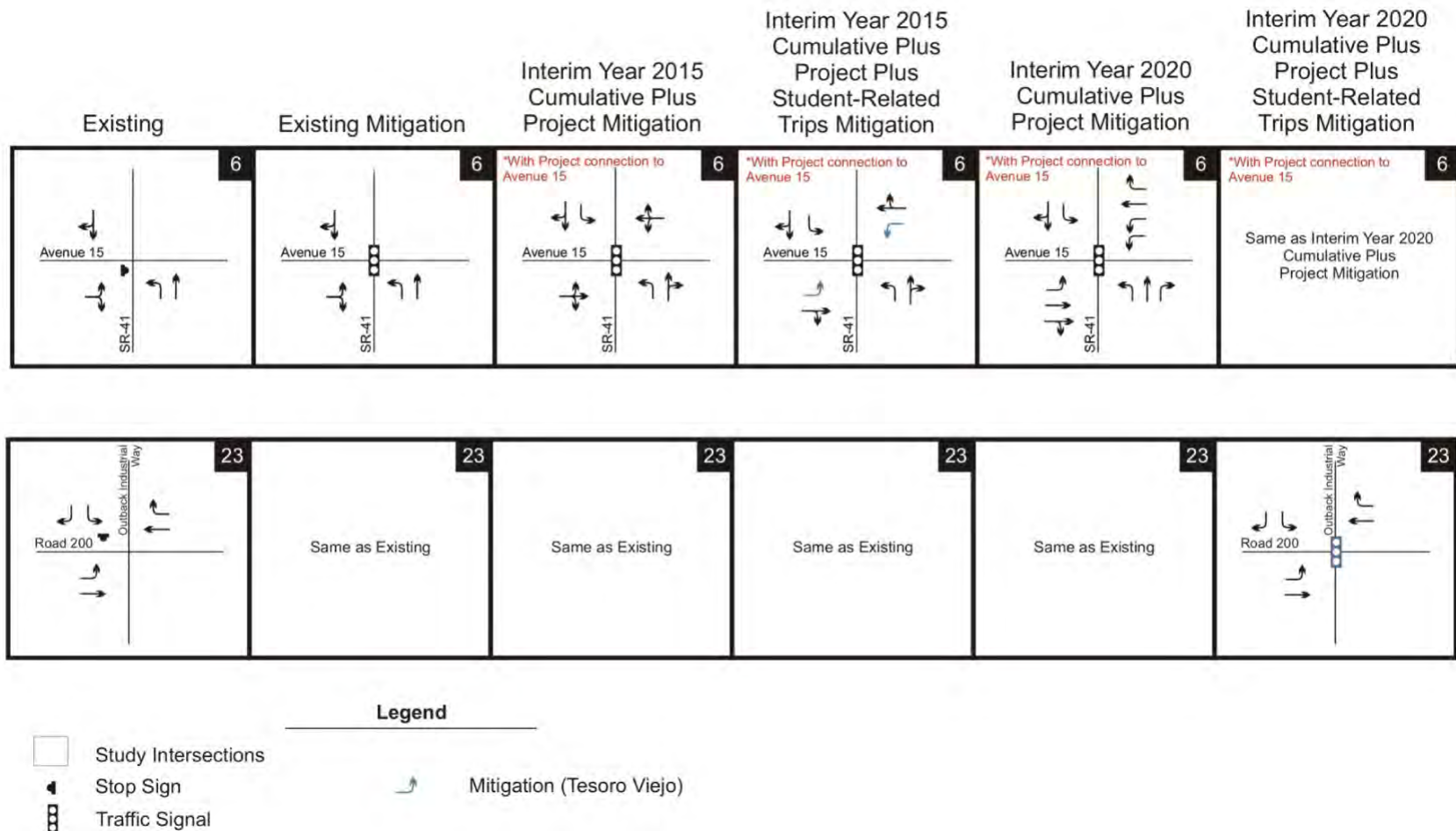
Table 4.13-27 (Interim Year Intersection Operations With and Without School-Related Trips) shows the intersection LOS results, indicating that one study intersection is expected to operate worse than the minimum LOS D with the addition of student-related trips and meets peak hour signal warrants: Road 200 at Outback Industrial Way. It should be noted that this intersection also meets peak hour signal warrants without the addition of Proposed Project student-related trips.

Table 4.13-28 (Interim Years 2015 and 2020 Segment Operations With and Without School-Related Trips) shows the segment LOS. Results of the analysis show that none of the study segments are expected to operate worse than the minimum LOS D with the addition of student-related trips.

The following mitigation measure, in addition to mitigation measures MM4.13-6(h) through MM4.13-6(o), as well as mitigation measures MM4.13-4(d) through MM4.13-4(f) and MM4.13-5, would be required to mitigate student-related Proposed Project impacts on intersections for the Interim Year 2020 Cumulative Plus Project scenario to acceptable levels of service:

MM4.13-10(b) *Prior to the approval of a Project phase that affects the intersection of Road 200/Outback Industrial Way by the year 2020, the County shall install a traffic signal at this intersection. The Project Applicant shall pay a fair share contribution towards the construction of the improvements and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.*

The levels of service resulting from the implementation of mitigation measure MM4.13-10(b), as well as mitigation measures MM4.13-4(d) through MM4.13-4(f) and MM4.13-5, are shown in Table 4.13-29 (Mitigated Interim Years 2015 and 2020 Intersection Operations with School-Related Trips). Figure 4.13-45 (Existing and Interim Mitigation [for School-Related Impacts]) shows the recommended intersection mitigation for the Interim Year 2020 Cumulative Plus Project scenario with the addition of Project student-related trips. As can be seen from Table 4.13-29, with the implementation of the identified mitigation measures, the Proposed Project would result in acceptable levels of service (LOS D or better) at the intersection of Road 200/Outback Industrial Way, which is impacted by school-related trips under the Interim Year 2020 Cumulative Plus Project scenario. Therefore, the expected interim school-related traffic generate by the Proposed Project within the CUSD under the Interim Year 2020 Cumulative Plus Project scenario would result in a *less-than-significant* impact to area intersections and roadways.



Legend

- Study Intersections
- Stop Sign
- Traffic Signal
- Mitigation (Tesoro Viejo)

Source: Source: VRPA Technologies, Inc., March 2012.

Figure 4.13-45 Existing and Interim Mitigation (for School-Related Impacts) [New]

Threshold	Would the Proposed Project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?
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Impact 4.13-411 **Operation of the Proposed Project would result in additional vehicular traffic volumes along study area freeway segments that would exceed established service levels on freeway segments under the jurisdiction of Caltrans. This is considered a potentially significant impact. Implementation of mitigation measure MM4.13-411 would widen impacted segments from four to six lanes in both directions to reduce this impact to a less-than-significant level. However, in order to implement this mitigation measure, Madera County would need to receive permission from Caltrans to construct the improvements. If such permission is not given, the significant traffic impact addressed by the mitigation measure would remain and impacts would, therefore, be *significant and unavoidable*.**

As previously described above, the MCTC has established a threshold of LOS D or better for all roadway segments in the County. For purposes of this analysis, all freeway segments under the jurisdiction of Caltrans are assumed to abide by the MCTC's established threshold. As indicated in Table 4.13-15, all highway segments in the County would operate at LOS D or better with or without the project under Cumulative (2025) conditions. However, as shown in Table 4.13-16, the addition of project traffic would worsen the LOS along the following freeway segments from LOS D to LOS E.

- Northbound SR-41 from Children's Boulevard to Avenue 12 in the PM peak hour
- Southbound SR-41 from Children's Boulevard to Friant Road in the AM peak hour

In addition, project traffic would add 1 percent or more to cumulative traffic and worsen the LOS from LOS E to LOS F along the following freeway segment.

- Southbound SR-41 from Children's Boulevard to Friant Road in the PM peak hour

These reductions in LOS represent a potentially significant impact. The impacts listed above would require the widening of SR-41 from four lanes (two lanes in each direction) to six lanes (three lanes in each direction) along SR-41 between Avenue 12 to Friant Road. Since these improvements are needed by reason of the project, the Project Applicant, in consultation with the County, is expected to ensure that the improvements are in place before the project is fully developed. Other projects contributing to the need for this widening should contribute based on their share of traffic added. To mitigate the Proposed Project's significant impacts along these segments, the following mitigation measure is required:

MM4.13-411 *Prior to full project buildout, ~~the County~~ Caltrans shall ensure that SR-41 is widened from four lanes (two in each direction) to six lanes (three in each direction) from Avenue 12 to Friant Road. The Project Applicant shall pay a fair share contribution towards the widening of these segments and the amount of the fair share contribution shall be determined by Madera County in consultation with the Project Applicant.*

Implementation of mitigation measure MM4.13-411 would reduce impacts along study area freeway segments listed above to a less-than-significant level. However, Madera County does not have jurisdiction over SR-41. As a result, the County would need to receive permission from Caltrans to widen

these segments. As there is no guarantee that these segments would be widened before the project is fully built out, implementation of the Proposed Project could result in a *significant and unavoidable* impact.

Threshold	Would the Proposed Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
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Impact 4.13-512 Operation of the Proposed Project would not substantially increase hazards due to design features or incompatible uses. This is a considered a *less-than-significant* impact.

The roadway network serving the Proposed Project Site would be constructed to provide sufficient road widths, intersection traffic controls, travel lanes, and clear sightlines, to safely accommodate traffic flow. Therefore, conflicts between automobile traffic generated by the Proposed Project would be minimal.

A majority of the Project Site is currently utilized for agricultural purposes. With implementation of the Proposed Project, virtually all of the Project Site’s land area would be converted to non-agricultural uses. As mentioned in Chapter 3 (Project Description), and as seen in Figure 3-4 (Conceptual Land Use Plan for Tesoro Viejo), the project would consist of a mixture of residential, commercial retail, office, highway commercial, visitor commercial, light industrial, and business park uses, in addition to open space and recreational uses, schools, and other institutional and public uses. The Specific Plan encourages some continued vineyard, orchard, and farming operations where feasible; however, these operations would be limited to functional agriculture use for local community sustenance. Therefore, only a few small, isolated parcels are anticipated to continue to be used for agricultural purposes. As a result, conflicts between automobile and pedestrian traffic generated by the Proposed Project and agricultural equipment that would serve the remaining agricultural uses would be minimal.

The Proposed Project includes an extensive pedestrian network and trail system, which would intersect the roadway network at several locations. Several safety features have been incorporated into the design of sidewalks, crosswalks, trails, and roadways, to ensure that the interface between the different modal networks is safe. These features include the use of marked crosswalks with high-visibility markings and the use of bulb-outs to reduce crossing distances at intersections. Adequate and aesthetically pleasing lighting would also be provided for the safety, security, and comfort of pedestrians and bicyclists. Trails and pathways would be well-lit and have relatively uninterrupted lines-of-sight to improve visibility and safety. Next, roadways would be designed to keep traffic speeds low in those areas with high concentrations of pedestrians or bicyclists, such as the Town Center, the Village Center, and in the immediate vicinity of schools. Finally, bicycle lanes would also be provided on each side of many streets to separate bicycle traffic from pedestrian traffic. As a result conflicts between automobile traffic and pedestrian traffic generated by the Proposed Project would be minimal.

For the reasons given above, any impacts associated with project design features would be *less than significant*, and no mitigation is required.

Threshold	Would the Proposed Project result in inadequate emergency access?
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Impact 4.13-613 **Operation of the Proposed Project would not result in inadequate emergency access. This is considered a *less-than-significant* impact.**

As discussed in Chapter 3, the RMAP sets the general standards for an adequate circulation system of streets, highways, trails, and pathways for the Project Site. The Proposed Project would be required to meet all applicable RMAP and state regulatory standards for providing adequate emergency access. As a result, emergency vehicles would have adequate access to all of the populated areas within the Specific Plan area. Therefore, any impacts associated with emergency access during operation would be *less than significant*, and no mitigation would be required.

During construction of the Proposed Project, temporary road or lane closures could potentially block emergency access along Road 204 and along new roads within the Project Site. Major access to the site would be provided along Road 204, Avenue 14, and Rio Mesa Boulevard, with regional access provided by SR-41. The presence of multiple alternative routes to the Specific Plan Area minimizes the potential for interference with emergency routes during construction. Therefore, any impacts associated with emergency access during construction would be *less than significant*, and no mitigation is required.

Threshold	Would the Proposed Project result in inadequate parking capacity?
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Impact 4.13-714 **Operation of the Proposed Project would not result in inadequate parking capacity. This is considered a *less-than-significant* impact.**

The Specific Plan does not lay out detailed parking plans for the Proposed Project. However, minimum parking requirements for residential and mixed-use land uses contained in the Specific Plan do conform to the Madera County Code. In general, two parking spaces would be required for each single-family, live-work, and townhouse dwelling unit, with fractional distinctions above and below this per unit parking space standard for multi-family and mixed-use residential units. Parking for commercial uses would also be governed by the Madera County Code. As parking provided by the Proposed Project would adhere to parking standards contained in the Madera County Code, impacts associated with parking would be *less than significant*, and no mitigation is required.

Threshold	Would the Proposed Project conflict with adopted policies, plans, or programs <u>supporting alternative transportation (e.g., bus turnouts, bicycle racks) regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?</u>
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Impact 4.13-815 **Implementation of the Proposed Project would not conflict with adopted policies, plans, or programs supporting alternative transportation regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. This is considered a *less-than-significant* impact.**

As discussed above under Section 4.13.2, the Proposed Project would not conflict with adopted policies, plans, or programs supporting alternative transportation. On the contrary, a major element of the vision for the Proposed Project involves promoting walking, bicycling, and transit as viable modes of

transportation within the community. These policies are intended to decrease auto-dependency, and mitigate the effects of congestion and pollution by offering a variety of services and attractions near as many homes as possible. To that end, the project includes a substantial pedestrian network, as well as an extensive system of bicycle trails and paths. The anticipated effect would be to enhance the adopted policies, plans, and programs supporting alternative transportation. As a result, any impacts associated with adopted policies, plans, or programs supporting alternative transportation would be *less than significant*, and no mitigation is required.

4.13.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

To determine cumulative (2025) development conditions, both with and without the Proposed Project, the MCTC Rio Mesa Traffic Model V2.0 makes assumptions regarding near- and far-term land use development, as well as funded and nonfunded transportation improvements. This model incorporates land use projections throughout Madera County and Fresno County.¹³⁶

On a cumulative “without Project”¹³⁷ basis, the MCTC Traffic Model accounts for approximately 68,144 du of total development and 65,258 employed persons within Madera County, and 9,025 du of total development and 8,798 employed persons within the generally defined southeastern Madera County Rio Mesa area. The Rio Mesa area includes the RMAP area, which consists of the Rio Mesa Village (Tesoro Viejo, and the Morgan and Jamison properties), North Fork Village, and Avenue 12 Village; however, the model also includes the developments of Gunner Ranch West Area Plan, the Village of Gateway, and a few other smaller developments that are outside of the RMAP area.¹³⁸ Collectively, this is called the MCTC Rio Mesa Traffic Modeling area. The MCTC Rio Mesa Traffic Model V2.0 assumed that 30 percent of the RMAP area would be developed by the year 2025.

Threshold	Would the Proposed Project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
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As stated previously, Cumulative (2015, 2020, and 2025) conditions with and without the project rely upon the forecasts provided in the MCTC’s Rio Mesa Traffic Model V2.0 which constitutes a summary of project projections within Southeastern Madera County. Therefore, the project-specific traffic analysis

¹³⁶ The MCTC Traffic Model also accounts for growth in Fresno County through 2025, which assumes a total employment of 557,354 and a population of 1,290,264. From a cumulative development perspective, growth in Fresno County is relevant only to the analysis of traffic impacts, as well as air quality and noise impacts since the air quality and noise modeling relies, in part, on cumulative traffic volumes.

¹³⁷ Cumulative “without Project” and cumulative “with Project” are terms used in the traffic analysis to reflect conditions in the year 2025, both with and without the Proposed Project.

¹³⁸ The Rio Mesa Area also includes the Proposed Project, but for purposes of the traffic model, the Proposed Project was removed to determine cumulative (without Project) background conditions.

provided under Impact 4.13-1 considers trips generated by the Proposed Project, as well as future development, in its development of future baseline conditions.

As noted under Impact 4.13-1, all study intersections are projected to operate at an acceptable LOS range (i.e., LOS D or better) under cumulative (2025) conditions with and without the project (per the 2008 Final EIR). However, six intersections would require lane improvements (e.g., additional turn lanes) and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS with the addition of the Proposed Project's traffic. With the incorporation of mitigation measures MM4.13-1(a) through MM4.13-1(f), which are listed under Impact 4.13-1, project-specific impacts to all study area intersections with regard to providing lane improvements and a greater amount of right-of-way to accommodate the lane improvements, would be less than significant, and the Project Applicant would pay a fair share contribution towards improvements. However, in order to implement five of the six mitigation measures, Madera County would need to receive permission from Caltrans to construct the improvements. If such permission is not given, the significant traffic impacts addressed by five of the six mitigation measures would remain, and impacts would be significant. The only intersection to which Madera County can guarantee that improvements are made is Road 36/Avenue 15.

Since the 2007 traffic analysis for the Proposed Project evaluates cumulative (year 2025) conditions with the project as compared to cumulative (year 2025) conditions without the project, the mitigation measures identified under Impact 4.13-1 also apply to the cumulative impacts (including the Proposed Project). Therefore, because the project's contribution to substantial increases in traffic in relation to the existing traffic local street system would be cumulatively considerable due to the fact that all mitigation measures cannot be guaranteed to be implemented, this cumulative project impact would be ***significant and unavoidable***.

As noted under Impact 4.13-2, two intersections planned as roundabouts are projected to operate at an unacceptable LOS range (i.e., LOS ~~D~~E or ~~better~~F) under Cumulative (2025) conditions. With the incorporation of the mitigation measures listed under Impact 4.13-2, impacts to these intersections would be less than significant. Since the project-specific analysis includes future development identified in the vicinity of the proposed Project Site, the mitigation measures identified under Impact 4.13-2 would also apply to the potential cumulative impacts of the Proposed Project. Therefore, because the project's contribution to impacts at these intersections would not be cumulatively considerable, this cumulative project impact would be ***less than significant***.

During construction, the Proposed Project would temporarily increase traffic volumes on the surrounding roadway network. As mentioned previously, the total number of construction-related trips would vary depending on the type and intensity of construction work being performed. Future development in the area may conduct construction work simultaneously with the Proposed Project's construction, thereby resulting in varying increases in traffic volumes. However, the Proposed Project would incorporate mitigation measures MM4.13-3(a) through MM4.13-3(b) that would ensure that the flow of traffic along surrounding roadways would not be significantly impacted as a result of construction activities, including temporary lane closures. It is assumed that the nearby future development would also include similar measures to reduce potential temporary impacts to the local roadway network as determined by Madera County. Therefore, since the project's contribution to

construction-related traffic impacts would not be cumulatively considerable, this cumulative project impact would be *less than significant*.

Existing 2011 Plus Project in 2015, 2020, and 2025 Cumulative Scenarios

As discussed under Impact 4.13-4, four intersections would require lane improvements (e.g., additional turn lanes) so that the intersections could operate at an acceptable LOS with the addition of Project traffic. With the incorporation of mitigation measures MM4.13-4(a) through MM4.13-4(i) and MM4.13-5, which are listed under Impact 4.13-4, Project-specific impacts to three of the four impacted intersections would be less than significant, and, therefore, cumulative impacts would be *less than significant*.

However, as discussed under Impact 4.13-5, the fourth intersection of SR-41/Road 204 (during the Existing 2011 Plus Project in 2025 scenario) is projected to operate at LOS F (in both the AM and PM) after mitigation. This is a significant and unavoidable impact, even with the implementation of mitigation measures MM4.13-4(b), MM4.13-4(e), and MM4.13-5. As noted under Impact 4.13-5, the unmitigable impact at the SR-41/Road 204 intersection is caused by the large amount of Project traffic distributed to this location as a result of the currently non-existent connections at Avenue 13, Avenue 12, and Rio Mesa Boulevard to the east of SR-41 (which were assumed built in the interim and cumulative buildout scenarios). Therefore, once these connections are constructed with the development of cumulative projects, there would be a decrease in traffic volumes along several sections of SR-41 and its intersections because traffic generated by and attracted to the cumulative development is provided with more direct routes (Avenue 12, Avenue 13, and Rio Mesa Boulevard) and is not diverted to Road 204. Therefore, the impact at the SR-41/Road 204 intersection would no longer be considered unmitigable. However, because the Project's contribution to substantial increases in traffic in relation to the existing traffic's local street system would be cumulatively considerable, the cumulative Project impact for the Existing 2011 Plus Project in 2025 scenario for this intersection only would be *significant and unavoidable*.

As discussed under Impact 4.13-8, the following roadway segment would require lane improvements (e.g., lane widening) and a greater amount of right-of-way to accommodate the lane improvements so that the roadway segment could operate at an acceptable LOS with the addition of Project traffic in 2020 and 2025: SR-41 between Avenue 12 and Road 204. With the incorporation of mitigation measure MM4.13-8(a), impacts to this segment would be less than significant. Therefore, because the Project's contribution to impacts along this roadway segment would not be cumulatively considerable, this cumulative Project impact would be *less than significant*.

Interim Year 2015 and 2020 Cumulative Plus Project Scenarios

As discussed under Impact 4.13-6, nine intersections would require lane improvements (e.g., additional turn lanes) so that the intersections could operate at an acceptable LOS with the addition of Project traffic. With the incorporation of mitigation measures MM4.13-6(a) through MM4.13-6(o), as well as mitigation measures MM4.13-4(c) through MM4.13-4(f) and MM4.13-5, which are listed under Impact 4.13-6, Project-specific impacts to eight of the nine impacted intersections would be less than significant, and, therefore, cumulative impacts would be *less than significant*.

However, as discussed under Impact 4.13-7, the ninth intersection of SR-41/Avenue 12 is projected to operate at LOS F (in the AM) and LOS E (in the PM) after mitigation under the Interim Year 2020 Cumulative Plus Project scenario. This is a significant and unavoidable impact, even with the implementation of mitigation measures MM4.13-7, as well as MM4.13-6(d), MM4.13-4(f), and MM4.13-4(c). Achieving acceptable levels of service at the SR-41/Avenue 12 intersection would require construction of a full interchange at Avenue 12 or other mitigation measures that are determined to be infeasible at this time due to cost. The unmitigable impact at the SR-41/Avenue 12 intersection is a cumulative impact that is not specifically triggered by traffic generated by the Proposed Project. However, because the Project's contribution to substantial increases in traffic in relation to the existing traffic's local street system would be cumulatively considerable, the cumulative Project impact for the Interim Year 2020 Cumulative Plus Project scenarios for this intersection only would be **significant and unavoidable**.

As discussed under Impact 4.13-8, the following three roadway segments would require lane improvements (e.g., lane widening) and a greater amount of right-of-way to accommodate the lane improvements so that the roadway segments could operate at an acceptable LOS with the addition of Project traffic: SR-41 between Avenue 12 and Avenue 13, between Friant Road and Children's Boulevard, and south of Herndon Road. With the incorporation of mitigation measures MM4.13-8(b) through MM4.13-8(d), impacts to these intersections would be less than significant. Since the Project-specific analysis includes future development identified in the vicinity of the Project Site, the mitigation measures identified under Impact 4.13-8 for both Interim Year scenarios would also apply to the potential cumulative impacts of the Proposed Project. Therefore, because the Project's contribution to impacts along these roadway segments would not be cumulatively considerable, this cumulative Project impact would be **less than significant**.

■ Impacts Related to Construction of the 8-Mile Pipeline

As part of the revised 2012 traffic study, temporary construction impacts related to the construction of an 8-mile pipeline along Avenue 15 were analyzed using existing (2011) traffic volumes.

It is anticipated that the Proposed Project would be constructed in numerous phases, depending on market conditions, beginning in 2013, with full buildout of the Proposed Project by 2025, which represents an approximately 12-year construction period. Development of the Project's infrastructure, which would include streets, storm drains, distribution systems for water, sewer, gas, electricity, and telephones, the sewage treatment plant, and the detention basin, is anticipated to begin in 2013. This is assumed to include construction of the 8-mile pipeline along Avenue 15. Construction of the residential and mixed use components of the Proposed Project will generally begin in and around the Town Center area and continue eastward to the San Joaquin River, including development both north and south of the Town Center area. Schools will be developed in phases as demand dictates. It is anticipated that the Western Gateway highway commercial and light industrial components of the Proposed Project would occur gradually, with more during the latter phases of development than in the early phases.

Construction-related traffic impacts are typically localized, with traffic delays occurring most proximate to the construction activities. Cumulative construction-related traffic impacts would occur when several construction activities occur during the same period of time. Using the most conservative assumption,

construction of the pipeline would occur during the same time as construction of the Town Center, which is located to the south and east of the pipeline. However, construction of the pipeline would take only 150 days, during which time the Town Center would not yet be occupied; therefore, there would be no vehicles traveling to and from the Project Site along Avenue 15. Therefore, because there would be no major traffic delays as a result of construction of both the pipeline and the Town Center, cumulative impacts are also considered *less than significant*.

Interim School-Related Traffic Impacts

As noted under Impact 4.13-10, one study intersection is expected to operate worse than the minimum LOS D with the addition of student-related trips for the Interim Year 2015 Cumulative Plus Project scenario: SR-41/Avenue 15 (with Proposed Project access connection to Avenue 15). However, none of the study segments under the Interim Year 2015 Cumulative Plus Project scenario are expected to operate worse than the minimum level of service with the addition of student-related trips.

As noted in Impact 4.13-10, one study intersection is expected to operate worse than the minimum LOS D and meet peak hour signal warrants with the addition of student-related trips for the Interim Year 2020 Cumulative Plus Project scenario: Road 200/Outback Industrial Way. It should be noted that this intersection also met peak hour signal warrants without the addition of Proposed Project student-related trips. However, none of the study segments under the Interim Year 2020 Cumulative Plus Project scenario are expected to operate worse than the minimum level of service with the addition of student-related trips.

With the implementation of mitigation measures MM4.13-10(a) and MM4.13-10(b), in addition to mitigation measures MM4.13-6(a) through MM4.13-6(o), MM4.13-4(a) through MM4.13-4(f), and MM4.13-5, the Proposed Project would result in acceptable levels of service (LOS D or better) at the two intersections impacted by school-related trips. Therefore, interim school-related traffic generated by the Proposed Project with respect to travel from the Project Site to Minarets High School (and back) would result in a less-than significant impact to area intersections and roadways, and, therefore, would result in a cumulatively *less-than-significant* impact.

Threshold	Would the Proposed Project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?
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As discussed above, the MCTC has established a threshold of LOS D or better for all roadway segments in the County. Any segment of local roadway that is worse than LOS D is considered to be a deficiency in the transportation system. For purposes of this analysis, all freeway segments under the jurisdiction of Caltrans are assumed to abide by the MCTC's established threshold.

As indicated in Table 4.13-16 (Cumulative 2025 Freeway Segment Level of Service), the addition of project traffic would worsen the LOS along segments of SR-41 from LOS D to LOS E. In addition, project traffic would add 1 percent or more to cumulative traffic and worsen the LOS from LOS E to LOS F along one segment of SR-41. However, with the incorporation of the mitigation measure listed under Impact 4.13-48 (mitigation measure MM4.13-4-11), which requires the widening of SR-41 from four lanes (two in each direction) to six lanes (three in each direction) along impacted segments, project-

specific impacts along these freeway segments would be less than significant, and the Proposed Project would pay a fair share contribution towards improvements. However, Madera County does not have jurisdiction over SR-41. As a result, the County would need to receive permission from Caltrans to widen the segments listed in the mitigation measure. If such permission is not given, the significant traffic impacts addressed by this mitigation measure would remain, and impacts would be significant.

Since the traffic analysis for the Proposed Project evaluates cumulative (year 2025~~0~~) conditions with the project as compared to cumulative (year 2025) conditions without the project, the mitigation measure identified under Impact 4.13-48 also apply to the cumulative impacts (including the Proposed Project). Therefore, because the project’s contribution to exceeding a level of service standard established by the MCTC would be cumulatively considerable due to the fact that the mitigation measure cannot be guaranteed to be implemented, this cumulative project impact would be **significant and unavoidable**.

Existing (2011) highway segments were analyzed based on peak hour volumes and are shown in Table 4.13-7 (Existing 2011 Highway Segment Level of Service). Table 4.13-8 (Existing 2011 Freeway Segment Level of Service) illustrates the levels of service for existing (2011) freeway segments. As indicated in these two tables, all freeway and highway segments analyzed currently operate at acceptable LOS D or better. As part of the roadway segment impact analysis conducted for the 2012 revised traffic study, the following highway and freeway segments would require mitigation: (1) SR-41 between Avenue 12 and Road 204 (Highway); (2) SR-41 south of Herndon Avenue (Freeway); (3) SR-41 between Avenue 12 to Avenue 13 (Freeway); and (4) SR-41 between Friant Road to Children’s Boulevard (Freeway). As indicated under Impact 4.13-11, impacts to study area roadway segments (highway and freeway) during the Existing 2011 Plus Project (2015, 2020, and 2025) conditions and Interim Year (2015 and 2020) Cumulative Plus Project conditions would be less than significant with the implementation of the mitigation measures identified for the Proposed Project. Therefore, cumulative Project impacts would also be **less than significant**.

Threshold	Would the Proposed Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
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It is anticipated that future development would be required to adhere to standard engineering practices and requirements and would be subject to planning and design review by the presiding jurisdiction to avoid traffic hazards created by design features and land use incompatibilities. For this reason, and because such impacts (if and where they occur) are relatively site specific, cumulative impacts associated with such traffic hazards are less than significant. As discussed under Impact 4.13-512, any impacts associated with project design features would be less than significant. For these reasons, the contribution of the Proposed Project to any cumulative impacts from traffic hazards is also less than significant. This is considered to be a **less-than-significant** cumulative project impact.

Threshold	Would the Proposed Project result in inadequate emergency access?
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It is anticipated that construction and operation of the cumulative projects would generate additional traffic on surface streets and intersections in the area of cumulative analysis and would, from time to time, result in lane closures and other temporary constraints to access. However, as discussed above,

operational traffic associated with the cumulative projects and future growth in general is captured within the assumptions that form the future “without project” traffic volumes utilized in the traffic study for the 2008 Final EIR and this EIR, and which represent an incremental change over existing conditions. It is not anticipated that future levels of traffic associated with future development would result in a significant impairment of emergency access. As discussed in Impact 4.13-~~613~~, the Proposed Project would provide adequate emergency access. For this reason, the contribution of the Proposed Project to any cumulative impacts due to emergency access would not be cumulatively considerable. This is considered to be a ***less-than-significant*** cumulative project impact.

Threshold	Would the Proposed Project result in inadequate parking capacity?
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Future development accounted for in the MCTC model would be required to provide adequate on-site parking in accordance with the Madera County Code as a condition of development approval, and thus it is unlikely that future development would have a significant cumulative effect on parking demand in the area. As discussed under Impact 4.13-~~714~~, parking provided by the Proposed Project would adhere to parking standards contained in the Madera County Code. Therefore, the contribution of the Proposed Project to cumulative parking impacts would not be cumulatively considerable. This is considered to be a ***less-than-significant*** cumulative project impact.

Threshold	Would the Proposed Project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks) <u>regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?</u>
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Future development could conflict with adopted policies, plans, or programs supporting alternative transportation. As discussed under Impact 4.13-~~815~~, the Proposed Project is anticipated to enhance the adopted policies, plans, and programs supporting alternative transportation by offering a variety of services and attractions near as many homes as possible. Therefore, the contribution of the Proposed Project to a potentially significant cumulative impact with regards to adopted policies, plans, or programs supporting alternative transportation would not be cumulatively considerable. This is considered to be a ***less-than-significant*** cumulative project impact.

4.13.5 References

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- ===== . 2012. *Revised Traffic Impact Study*, March.

4.14 UTILITIES AND SERVICE SYSTEMS

This section of the EIR assesses the change in the demand for utilities that would be required in connection with development of the Proposed Project. The utilities addressed in this section include water supply, storage, and distribution; wastewater collection, transmission, and treatment; and solid waste collection and disposal. For purposes of this analysis, and considering the land uses proposed as part of the project, the term “wastewater,” as used in this section, includes sanitary waste (or sewage) and industrial waste, which is limited to discharges from the proposed restaurants. Stormwater and stormwater drainage facilities are discussed in Section 4.8 (Hydrology and Water Quality) of this document.

The Proposed Project would develop the Project Site with residential, commercial, and light industrial uses, thus introducing a new demand for utilities. This section assesses whether the resulting change in demand would exceed the capacity of the existing infrastructure serving the Project Site, thus triggering the need for new facilities or expanded utility capacity, the construction of which could result in adverse physical impacts.

An Amended Infrastructure Master Plan (IMP), which is provided in Appendix I of this EIR, was prepared for the Proposed Project by Provost and Pritchard (2007a, amended 2008a) to provide planning and design standards for water, wastewater, storm drainage, and other utilities. The IMP identifies the infrastructure needs of the Proposed Project. Two properties located to the north of the Project Site—the Jamison and Morgan properties—are included in the IMP to meet the County’s requirements that the IMP address future infrastructure needs associated with the potential development of those properties pursuant to the Rio Mesa Area Plan (RMAP) land use designations. These properties are not affiliated with the Proposed Project, and any potential actions associated with these properties are not analyzed in this EIR. Further, the previously entitled 49 lots of the Sumner Hill subdivision, which bisects the Project Site (other than with regard to connecting access ways), are not proposed to be served by infrastructure proposed by the IMP (other than accommodation of drainage) because they have existing infrastructure, including the water treatment system on “Outlot J” and leach fields having easements on other outlots that are not proposed for development, although they are within the Project Site.

~~An amended~~ Water Supply Assessment (WSA), which is provided in Appendix J of this EIR, was prepared for the ~~Proposed~~ Project by Provost and Pritchard (2007b, amended 2008b) to confirm whether the projected future water supplies would be sufficient to meet projected future demands of the Proposed Project. The WSA identifies the water sources that would be utilized by the Proposed Project, and discusses reliability issues with regard to each source. The WSA compares future demands of the Proposed Project with future supplies under normal, single-dry, and multiple-dry year hydrological scenarios.

The 2008 WSA (Provost and Pritchard Engineering Group [PPEG], 2008) assumed reliance on a combination of San Joaquin River surface water that had been obtained and has been used since about 1981 on the Project lands pursuant to that contract between the landowner of the Project lands and the United States Bureau of Reclamation (USBR) known as Holding Contract No. 7, and recycled water that would be obtained from the Project’s on-site wastewater treatment plant. The WSA concluded the

3,150 acre-feet per year (AFY) of Holding Contract No. 7 Water would be made available under limitations agreed to by Tesoro Viejo Master Mutual Water Company (TVMMWC)¹³⁹ in its agreement with Friant Water Authority, Madera Irrigation District, and Chowchilla Water District and would be adequate to meet all demands not met with the Project's recycled water. The 2008 WSA also indicated potential supplies could be available from the Madera Irrigation District (MID) by reason of the location of the Project within the boundaries of MID, but it did not elaborate on such supplies because of the presumed legal sufficiency of contractual rights to Holding Contract No. 7 water.¹⁴⁰ The 2008 WSA concluded that sufficient water supplies were available through Holding Contract No. 7 to satisfy the projected 20-year demands through 2028 for the Project during normal, critical-dry, and multiple-dry years, as well as at full buildout (PPEG 2008). The TVMMWC approved and adopted the 2008 WSA by Resolution 01-08 in July 2008.

A supplemental WSA (SWSA) and a supplement to the SWSA (SSWSA) were prepared in 2012 in response to the First Amended Peremptory Writ of Mandate in Case No. MCV045353 issued by the Madera County Superior Court On November 29, 2011. The Court found that the EIR needed "to disclose, discuss and analyze uncertainties surrounding the proposed use of Holding Contract No. 7 as the Project's source of water" and needed to identify "alternative water sources which might supply water to the Project if Holding Contract water were not available, as well as the environmental impacts of using such alternative sources." The SWSA and SSWSA supplements and amends the 2008 WSA by addressing alternative water supplies absent Holding Contract No. 7 water. The TVMMWC approved and adopted the SWSA by Resolution 12-01 in February 2012.

Together, the 2008 WSA, the 2012 SWSA, and the 2012 SSWSA comprise the water supply assessment for the Project, and an analysis of the environmental impacts associated with the water supplies set forth in those assessments are provided in this revised section. Atkins independently peer-reviewed the SWSA and SSWSA to confirm the adequacy of the information to support the impact analysis provided herein.

The provision of utilities services to the Proposed Project could either fall under the jurisdiction of an existing agency or a new agency could be formed to serve the Proposed Project and/or RMAP area. The new agency could either be a public agency or a quasi-private entity. Responsibility for providing utility services would likely be assigned initially to a public agency, such as the existing, non-operational County Service Area 22 or a new County Service Area, with a probable transition to a Community Services District or Public Utilities District, encompassing this and other villages envisioned in the RMAP. Under this scenario, property owners' associations could be ultimately responsible for financing maintenance and operations of some utilities (PPEG 2007a, amended 2008a). The Project could also be annexed to the existing Sierra Foothills Public Utility District. In any of these scenarios, the Tesoro Viejo Master Mutual Water Company (TVMMWC) would provide water to a servicing agency and the servicing agency would distribute water to retail customers. TVMMWC is owned by the owners of the land within the Proposed Project (presently consisting of one owner and shareholder) and will provide all of the water required for the Proposed Project (PPEG 2007b, amended 2008b).

¹³⁹ The Tesoro Viejo Master Mutual Water Company (TVMMWC) is a private mutual water company formed pursuant to California Water Code Sections 55000 et seq. It is responsible for providing a safe and reliable water supply to the residential and commercial customers located within its service area. The TVMMWC is required by state law to prepare and adopt a Water Supply Assessment to provide to Madera County.

¹⁴⁰ Refer to Appendix B in the 2008 WSA ("Expert Report of Professor Joseph L. Sax" dated December 12, 2006).

Water Supply, Storage, and Distribution [Revised in Part]

4.14.1 Environmental Setting

All existing on-site water demands are met with surface water delivered from the San Joaquin River under a contract with the United States Bureau of Reclamation, entitled “Contract for Settlement of Certain Former Water Rights from the San Joaquin River,” also known as Holding Contract Number 7 (PPEG 2007b, amended 2008b). Currently, on-site agricultural uses use an average of about 3,000 acre-feet (AF) annually for irrigation purposes (PPEG 2007b, amended 2008b). Monthly historical diversions from 2004 to 2006 (shown in Figure 4.14-1 [Historical versus Proposed Water Use]) are taken from the WSA and annual historical diversions from 1987 to 2006 (shown in Figure 4.14-2 [Historic Water Use]), were provided by Provost and Pritchard.

No on-site facilities presently exist to receive, treat, store, or deliver surface water for urban uses (PPEG 2007b, amended 2008b).

■ Regional Conditions and Water Sources

A combination of surface water and groundwater is used to meet water demand in Madera County. The following summarizes information concerning these resources in the context of water supply planning for the Proposed Project.

Surface Water

Surface water from the San Joaquin River is a primary source of supply for municipal and irrigation uses in Madera County. Numerous agencies and municipalities have rights to water from the San Joaquin River. Those demands are met through the Friant Division of the Central Valley Project (CVP), which is operated by the USBR, or directly from the San Joaquin River.

USBR Central Valley Project (CVP)

The USBR constructed Friant Dam to capture and store the entire flow of the San Joaquin River at Millerton Lake and to divert the controlled water into the Madera and Friant-Kern canals. State Water Right Decision No. 935 (Decision 935) issued in 1959 by the State Water Rights Board, predecessor to the State Water Resources Control Board (SWRCB), granted rights to the San Joaquin River to the USBR and approved the appropriation of 98 percent of the San Joaquin River flows (up to 2.8 million acre-feet [AF] with a direct diversion right of up to 6,500 cubic feet per second), with the understanding that the remaining 2 percent of water of the river would occur during very wet years or during flood periods. (Downey Brand 2012)

CVP Friant Division Water Reliability

There are three types of CVP Friant Division water allocations on the San Joaquin River. Class 1 and Class 2 water allotments total 2.2 million AF. Class 1 supplies are dependable in practically every year, with partial deficiencies only in occasional critical dry years. Class 2 water is that water in excess of Class 1, and is less dependable in its quantity and frequency of occurrence. A third source of Friant

Division CVP water is Section 215 water, which is surplus flood flow on the San Joaquin River. Section 215 water is only available when Millerton Reservoir is in flood release mode. (PPEG 2008)

Since completion of Friant Dam in 1947, there have been many years with below-average rainfall, including the driest two-year period on record (1975-77), the single driest year on record (1976-77), and the third driest year on record (2006-07).

Holding Contracts

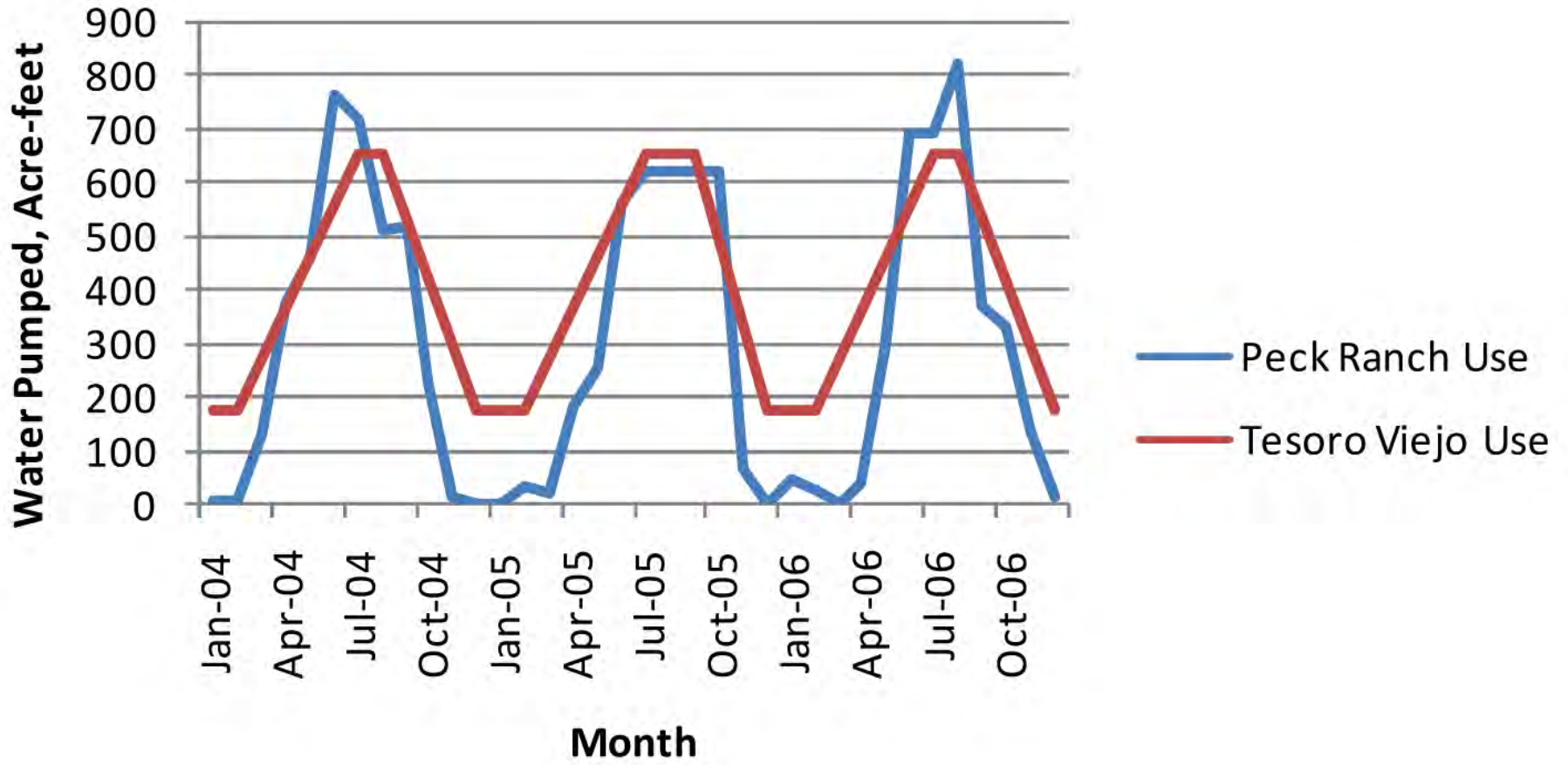
Some lands along the San Joaquin River have the right, either by virtue of being riparian or pursuant to USBR Holding Contracts, to divert San Joaquin River water. There are 215 such contracts that were offered by the USBR to landowners on the San Joaquin River below Friant Dam to Gravelly Ford. USBR created the concept of holding contracts to avoid a long drawn-out legal battle that, because of the unique circumstances surrounding the extraction of water on lands near the San Joaquin River, would pose many unique legal issues. In that respect, the holding contracts were considered “physical solutions” or water right settlements. Each Holding Contract provides, in pertinent part, that (i) the landowners have certain rights to the waters of the San Joaquin River, (ii) in recognition of those rights, the United States will not object to diversions from the river for “any reasonable beneficial use of the water of the river for irrigation and/or domestic purposes” on the property described in the contract, and (iii) to ensure an adequate supply, the United States will release sufficient water from behind Friant Dam to maintain a flow of 5 cubic feet per second (cfs) downstream of all such contract holders’ properties, to Gravelly Ford, without water shortage. Water delivered under holding contracts is not CVP water chargeable against contractual commitments to CVP contractors, however.

During every type of water year (i.e., dry, normal, or wet), the USBR has been able to meet all of its contractual obligations that have been exercised under the Holding Contracts, while having more water behind Friant Dam to meet at least a portion of the Class 1 entitlements and maintain a minimum required 5 cfs flow at Gravelly Ford for fisheries purposes (PPEG 2008).

The SWRCB has in the past treated the holding contracts as a vested prior right, both in Decision 935 and subsequently, including specific recognition of the holding contracts in Order WR 2009-058-DWR, recognizing the contracts as a form of water entitlement with priority over other rights.

The predecessor of the current owner of the land comprising the Project, land in the Sumner Hill subdivision, and land south of and adjacent to the Project now separately owned are within the boundaries of Holding Contract No. 7. Figure 4.14-3 (Holding Contract Map) shows the boundaries of Holding Contract No. 7. In the opinion of Professor Joseph Sax, one of the country’s foremost experts on water law, the owners of the land subject to Holding Contract No. 7 have an entitlement to divert and use water from the river by federal contract.¹⁴¹ Professor Sax’s opinion is that they do not have a water right that arises out of state law, but rather have a contractual right as defined in the holding contract. These lands have been diverting water from the San Joaquin River in accordance with the terms of that contract for many years without objection from the USBR or anyone else (Downey Brand 2012).

¹⁴¹ The complete text of this analysis was included in Appendix B in the 2008 WSA (“Expert Report of Professor Joseph L. Sax,” dated December 12, 2006).



Source: Rio Mesa Community Village Amended Infrastructure Master Plan, September 2007; Provost & Pritchard Engineering Group, Inc., 2007.

Figure 4.14-1
Historical versus Proposed Water Use

Water Use Under Holding Contract 7 (Peck Ranch et al.)

Year	Peck Ranch			Marchiando			Total Water Usage (Acre-Feet) ¹	Irrigated Acreage	Acre Feet per Acre	Sumner Hill Water Usage (Acre-Feet) ²	Sumner Hill Lots on Water ³
	Water Usage (Acre-Feet)	Peck Ranch Irrigated Acreage	AF/A	Water Usage (Acre-Feet)	Marchiando Irrigated Acreage	AF/A					
1987	3273	946	3.46	563	227	2.48	3836	1173	3.27		
1988	3147	946	3.33	775	227	3.41	3922	1173	3.34		
1989	3200	946	3.38	778	227	3.43	3978	1173	3.39		
1990	2660	946	2.81	894	227	3.94	3554	1173	3.03		
1991	2750	940	2.93	847	227	3.73	3597	1167	3.08		
1992	2192	940	2.33	927	227	4.08	3119	1167	2.67		
1993	3109	940	3.31	800	227	3.52	3909	1167	3.35		
1994	2818	940	3.00	824	227	3.63	3642	1167	3.12		
1995	2526	993	2.54	788	227	3.47	3314	1220	2.72		
1996	2710	1056	2.57	708	227	3.12	3418	1283	2.66		
1997	3385	1056	3.21	686	227	3.02	4071	1283	3.17		
1998	2973	1056	2.82	652	227	2.87	3625	1283	2.83		
1999	3572	1056	3.38	610	227	2.69	4182	1283	3.26		
2000	3372	1056	3.19	560	227	2.47	3932	1283	3.06		
2001	3112	1056	2.95	619	227	2.73	3731	1283	2.91		
2002	3259	1056	3.09	787	227	3.47	4046	1283	3.15		
2003	2993	952	3.14	802	227	3.53	3795	1179	3.22		
2004	2590	1046	2.48	789	227	3.48	3379	1273	2.65		
2005	2865	1053	2.72	732	227	3.22	3597	1280	2.81	86	35
2006	2927	1053	2.78	650	227	2.86	3577	1280	2.79	88	35

Average Water Use Under Holding Contract 7 (Peck Ranch et al.)

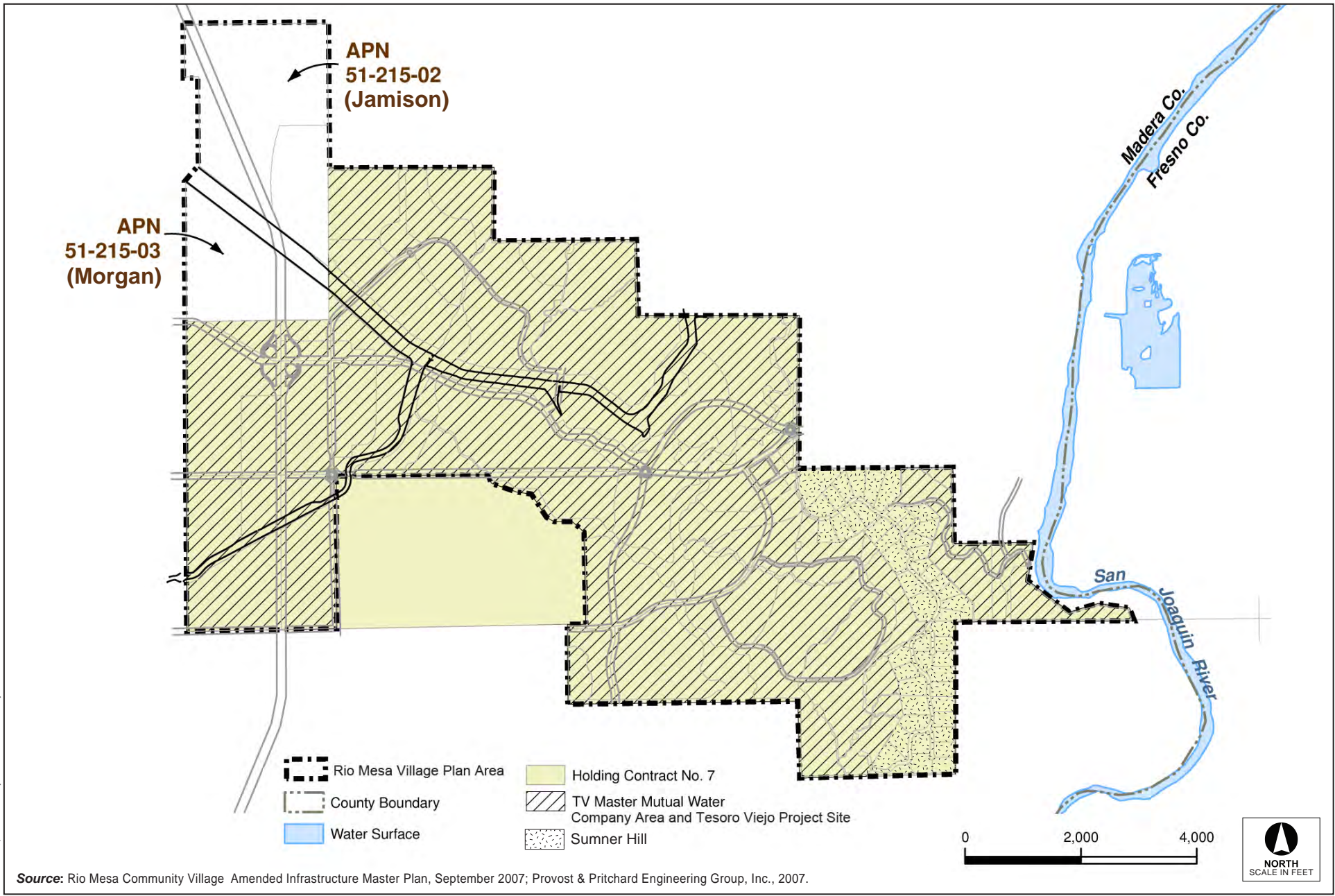
	Peck Ranch			Marchiando			Subtotal			Sumner Hill
	Water Usage (Acre-Feet)	Peck Ranch Irrigated Acreage	AF/A	Water Usage (Acre-Feet)	Marchiando Irrigated Acreage	AF/A	Total Water Usage (Acre-Feet)	Irrigated Acreage	Acre Feet per Acre	
1981-2006	N/A	N/A	N/A	N/A	N/A	N/A	3810.04	1238.31	3.08	
1987-2006	2971.65	1001.65	2.97	739.55	227	3.26	3711.2	1228.65	3.03	
5-Year Highest Total	3372.2	1034	3.26	858.80	227	3.78	4200.60	1288.60	3.37	
3-Year Highest Total	3443.00	1056	3.26	889.33	227	3.92	4255	1287.67	3.30	
2001-2006	2957.67	1036	2.86	729.83	227	3.22	3687.50	1263.00	2.92	

1. Excluding Sumner Hill
2. Prior Years of record not available.
3. There are 49 lots total

Source: Tesoro Viejo Master Mutual Water Company, September 2007; Provost & Pritchard Engineering Group, Inc., 2007.



Figure 4.14-2
Historic Water Use



Source: Rio Mesa Community Village Amended Infrastructure Master Plan, September 2007; Provost & Pritchard Engineering Group, Inc., 2007.

Figure 4.14-3
Holding Contract Map [Revised]

Legal Uncertainty Concerning Reliance on Holding Contract No. 7 Water

It is not the intent of this EIR, nor is it required under CEQA, to resolve legal issues concerning water supply, but rather to address the Court's direction to provide a "sincere and reasoned attempt to analyze the water sources the Project is likely to use." In accordance with the First Amended Peremptory Writ of Mandate issued by the Court in November 2011, the following is provided in the interest of disclosure concerning the legal uncertainty involved in relying on Holding Contract No. 7 as a permanent water supply for the Project. In accordance with the writ, this discussion provides a synopsis of the specific documents cited by opponents to the Project (the "Jackson letter" and the "Farm Bureau" decision) in the litigation that led to issuance of the writ as well as other documents relevant to the controversy.

In 2007, the Project Applicant was considering whether to consolidate their longstanding point of diversion for Holding Contract No. 7 with a point of diversion used by a neighboring landowner with a different holding contract to the north. In so doing, the Project Applicant inquired of USBR staff whether the agency would object to such a change. The Friant Division Area Manager, Michael Jackson, stated that USBR would not object to the change in point of diversion, but Mr. Jackson expressed an opinion that USBR would object to the change in the purpose of the use of water from agricultural to municipal and industrial (M&I) unless the Holding Contract were amended (the "Jackson Letter").¹⁴² Subsequently, the Project Applicant entered into an agreement with the Friant Water Users Authority, Madera Irrigation District (MID), and Chowchilla Water District that limited the maximum quantity of water to be diverted as part of the Project. That agreement was included in the 2008 WSA. In a letter to the SWRCB in 2009, the Regional Director of USBR (Donald Glaser) stated USBR would not object to the Project relying on Holding Contract No. 7 for M&I purposes, thus reversing the position taken in the Jackson Letter by reason of the agreement reached to limit diversions for such purposes. On April 25, 2012, USBR staff (Michael Jackson) confirmed USBR's position enunciated by Mr. Glaser, stating "provided the use of water pursuant to Holding Contract No. 7 for M&I purposes is limited to 3,150 AF of water per year as noted in your letter, Reclamation anticipates no objection to prospective diversions from the San Joaquin River by the County of Madera and the owners of the land covered by Holding Contract No. 7."¹⁴³ Accordingly the issue raised by the original Jackson Letter has been resolved and no longer poses any uncertainty or concern. However, in his letter to the SWRCB, Mr. Glaser also indicated that, from USBR's perspective, (1) that agency's only obligation to the landowner under the holding contract is to release sufficient water to maintain a live stream and not to object to the diversion of water for use on the lands in question, and (2) a holding contract does not confer a state water right, and any issues relating to whether or not a landowner has a state law water right are between the landowner and the SWRCB (Downey Brand 2012). That position relates to a different question and different area of legal uncertainty regarding the ability of the Project to rely on the Holding Contract No. 7, as discussed hereafter.

In 2010, in response to a complaint by Revive the San Joaquin, the SWRCB Chief Deputy Director informed the Project Applicant that (1) there was no record of a state law water right related to the

¹⁴² The Jackson Letter is provided in Appendix J3 of this Revised EIR.

¹⁴³ U.S. Bureau of Reclamation, "Use of Holding Contract No. 7 Water for Municipal and Industrial Purposes (Your Letter dated January 17, 2012), from Michael Paul Jackson, Area Manager, to John Sanger, Sanger & Olson, April 25, 2012.

Project land that would authorize the diversion of water for most of the Project lands, although a small portion probably had riparian rights, and (2) that the permits granted to USBR did not authorize diversions below Friant Dam. At the same time, the Chief Deputy Director suggested that USBR amend its permits for such activities. Therefore a question was raised as to the continued right of the Project Applicant (or other holding contactors, including Madera County for the benefit of the Sumner Hill Subdivision) to take water from the river. That issue is problematical if, in fact, diversion of such water depends on a state water right approved by the SWRCB, as implied in the Glaser letter, in contradiction to the Sax opinion. The Chief Deputy Director further opined that the holding contracts in some way replaced or were based on prior state law water rights. But, under California water law, there would only be a record of such a right if the use had begun after 1914 and if the diversion were made from a surface stream. The available information indicates the use of some water under holding contracts (although not Holding Contract No. 7) began well before 1914 and was not made by means of surface water diversion, but rather through groundwater pumping. Such an extraction of groundwater, even if fed by percolation from a stream, would not require the landowner to obtain a permit from the state. Thus, the absence of a record of a state law water right for the property might not be surprising. Nonetheless, SWRCB does have a role in overseeing the administration of water rights in the state, and it has the authority to bring an enforcement action that would compel the Project Applicant to “prove up” its water rights. And the SWRCB did raise questions regarding the right to divert such water as it is being diverted in the absence of certain parts of the USBR permit and the absence of any recorded state water right for a diversion. Obviously that creates legal uncertainty. Yet, when it ultimately dismissed the complaint by Revive the San Joaquin, the SWRCB implicitly found that the use of water under Holding Contract No. 7 did not injure legal users of water or harm the environment, as alleged by Revive the San Joaquin. Thus, assuming no substantial change in the use of water on the property, there would then be an element of estoppel or law of the case that would be claimed by the Project Applicant and could potentially prevent the SWRCB from pursuing an enforcement action against activities that had been previously found not to cause harm (Downey Brand 2012).

In an unpublished Madera County Superior Court opinion in 2006 (*Madera County Farm Bureau v. Madera County Board of Supervisors* [Super. Ct. Stanislaus County, No. 350927]), the court determined that a water supply assessment for the River Ranch Estates Project, which also would rely on holding contract water, violated the Water Code and CEQA. While the Court’s decision, which preceded Professor Sax’s report about the validity of holding contract water, did not establish that an entitlement to water under a holding contract would not provide a reliable source of water, it found substantial evidence had not been provided to indicate a reliable water entitlement under Water Code Section 10910. And while not so holding, the court expressed skepticism regarding whether state water rights supported the use of holding contracts. Of course the court did not have the Sax opinion before it as did the Madera County Superior Court; the latter stated that the Sax opinion constituted substantial evidence.

When considered together, the expressed views of the USBR staff, the *Madera County Farm Bureau* unpublished opinion, and the SWRCB staff opinions create some uncertainty about the ability to rely on Holding Contract No. 7 as a permanently reliable water entitlement for the Project, at least in the absence of USBR’s amending its SWRCB permits to clarify the right of diversion below Friant Dam as

suggested by SWRCB staff. USBR has so far been unwilling to do.¹⁴⁴ It is unlikely such uncertainty can be resolved unless some initiative is taken either by SWRCB or the Project Applicant to obtain a final judicial resolution in federal and/or state court, and, if such resolution were sought and received, it is unknown when such resolution might occur, if ever. What is reasonably clear is that even if pursued in the near future by someone, the resolution would not occur within a period of time relevant to County decision-making on the Project. The Project Applicant believes that resolution might take a decade.

As previously mentioned, and in response to the Court's desire to disclose, discuss, and analyze the uncertainty of Holding Contract No. 7 water as the Project's source of water, given the remaining legal uncertainty, this Revised EIR contains information about alternative water sources that could supply water to the Project if Holding Contract No. 7 water were to become unavailable at some time in the future, as well as the environmental impacts of using such alternative sources.

Madera Irrigation District (MID)

The Madera Irrigation District (MID) is a major regional water purveyor. The MID encompasses a primary service area of approximately 120,000 acres in Madera County, including the City of Madera. MID's water supply is from multiple sources, including water rights on the Fresno River and Class 1 and Class 2 Friant Division CVP supplies for irrigation use. CVP water is conveyed through the Madera Canal. In addition, MID holds certain pre-1914 appropriative rights on Big Creek and Soquel Creek. These rights can be stored in Hensley Lake and/or Hidden Dam for release in summer and fall. The potential exists to deliver water under MID's pre-1914 rights via the San Joaquin River and/or the Friant-Madera Canal and MID Lateral 6.2 (PPEG 2008; RPC 2012). MID has an approved water bank (for which it has been seeking purchasers of water bank shares to finance the construction of the bank) that would provide a firm source of potential water supplies during dry and critical dry years. An EIS/EIR for construction of the water bank has been certified.

The Project site lies within MID and is entitled to receive water for irrigation purposes as a district landowner, although no such water has yet been taken from MID. As discussed hereafter, the Project Applicant has recently executed a term sheet with MID that is intended to lead to an executed agreement, which would provide for the delivery of water for M&I purposes to the Project by MID from its pre-1914 and/or CVP water, backed by its water bank, thus providing firm and reliable supply for all years to the Project.

CVP Class 1 and Class 2 Water Rights in Madera County

CVP Class 1 and Class 2 water agreements between the USBR and Madera County water districts (e.g., Chowchilla Water District and Gravelly Ford Water District), in addition to MID, constitute an average year Class 1 supply of approximately 130,000 AFY and an average year Class 2 supply of approximately 110,000 AFY. Madera County itself has its own Class 1 contract with USBR for one subdivision. The average annual delivery of Class 1 supply is approximately 90 percent of the contracted amounts, and for Class 2, supply the average delivery is 30 percent of contracted amounts (RPC 2012).

¹⁴⁴ As noted, subsequent letters from USBR staff in 2009 and 2012 clarify the fact that the use of the water for M&I purposes by contrast to irrigation is no longer an issue.

Groundwater

Refer to Section 4.8 (Hydrology and Water Quality) for a discussion of groundwater resources.

4.14.2 Regulatory Framework

■ Federal

There are no federal statutes related to water supply, storage, treatment, and distribution that would apply to the Proposed Project.

■ State

Senate Bill 221 (SB 221)

SB 221 applies to the *Subdivision Map Act*, conditioning a tentative map on the applicant to verify that the public water supplier has sufficient water supply available to serve the proposed development. SB 221 defines subdivision to mean a proposed residential development of more than 500 dwelling units, except for a public water system that has fewer than 5,000 service connections, and “subdivision” means any proposed residential development that would account for an increase of 10 percent or more in the number of the public water system’s existing service connections.

Senate Bill 610 (SB 610)

SB 610 requires that a city or county, and the associated public water system, prepare a Water Supply Assessment (WSA) for any project approval subject to CEQA which proposes to construct 500 dwelling units or more. A WSA was prepared by Provost and Pritchard Engineering Group for Tesoro Viejo Master Mutual Water Company in ~~September 2007, amended in July 2008, and supplemented in 2012, and is provided as Appendix J and Appendix J1 of this document, respectively.~~ The findings of Together, the 2008 WSA (Appendix J) and the 2012 supplement (Appendix J1) are summarized below comprise the WSA for the Project.

Policy Consistency

~~The Tesoro Viejo Master Mutual Water Company TVMMC has prepared a WSA pursuant to SB 610 and SB 221. This document demonstrates, as required by SB 610, that there would be sufficient water supply to serve the Proposed Project.~~¹⁴⁵

California Supreme Court Ruling Concerning Water Supply Availability Analyses

On February 1, 2007, the California Supreme Court issued its decision in the matter of *Vineyard Area Citizens For Responsible Growth v. City of Rancho Cordova* (42 Cal.4th 412) (*Vineyards*). The decision enunciates four overarching principles with regard to the manner in which cities and counties should prepare water

¹⁴⁵ When the original WSA was prepared in 2007, the Project was envisioned as 5,190 dwelling units and 3,009,996 square feet of nonresidential uses. Since that time, the amount of nonresidential square footage has decreased to 3,004,551 (a decrease of 5,445 square feet), and the number of dwelling units has remained the same. The 2008 WSA reflects this change, which remain the same for the SWSA.

supply analyses when preparing EIRs for large land use plans pursuant to CEQA. These principles are as follows:

1. An EIR may not simply assume that a water supply will be available. Decision-makers must be presented with sufficient facts to evaluate the pros and cons of supplying the amount of water that will be needed for full buildout.
2. The water supply analysis cannot be limited to the first few years or first phases of development. To the extent reasonably possible, the EIR must include an assessment of the potential effects of producing the long-term water supply.
3. Although CEQA, consistent with Senate Bill 610 (Water Code, section 10910 et seq.), does not preclude the approval of major land use projects or plans absent a guaranteed water supply, the EIRs for such projects should nevertheless address how certain or “likely” such supplies are. The EIR must include a reasoned analysis of the circumstances affecting the likelihood of the water’s availability.
4. Where there is some uncertainty regarding actual availability of the water supply, there must be some discussion of possible replacement sources or alternatives to use of the anticipated water and the environmental consequences of those contingencies.

While it is Professor Sax’s opinion that the owners of the land subject to Holding Contract No. 7 water have an entitlement to divert and use water from the river by federal contract, it is possible that such water might not be available at some time in the future by reason of state orders and/or court decisions invalidating or limiting its continued use. Therefore, the 2012 SWSA and SSWSA identify alternatives in the event that Holding Contract No. 7 water would not be available for the Project. In accordance with *Vineyards* case and the Writ of Mandate, the water supply impact analysis provided herein identifies alternatives to meet Project water demand in the event Holding Contract No. 7 water were determined by the Court to not be legally available.

California Department of Public Health

The California Department of Public Health (DPH) and its division of Drinking Water and Environmental Management are responsible for enforcing the federal and state *Safe Drinking Water Acts* and for enforcing Title 22 of the *California Code of Regulations (CCR)*. Specific responsibilities of Drinking Water and Environmental Management include: the enforcement of drinking water quality standards, issuance of operating permits for water suppliers, review of plans and specifications for new water treatment facilities, enforcement actions for noncompliance with laws and regulations, and review of water quality monitoring results.

The proposed water system would be under the regulatory jurisdiction of the Merced District Office of the Drinking Water Field Operations Branch of the DPH. The water treatment facility associated with the Proposed Project would be required to meet water quality and monitoring requirements detailed in Title 22 of the CCR, and it would be required to obtain a water supply permit from the Merced District Office. As part of the permit application process, the system operated by TVMMWC must demonstrate that it has adequate technical, managerial, and financial capacity to meet Project needs.

The proposed Wastewater Reclamation Plant would also meet water-recycling criteria that are outlined in the California Health Laws Related to Recycled Water (also known as the “Purple Book”) published by DPH. A Title 22 Engineering Report for use of recycled water for irrigation and toilet flushing would

require DPH approval. Additional information concerning recycled water system permits and requirements is provided in Section 4.8 (Hydrology and Water Quality), as well as in the Wastewater section, below.

■ Regional

There are no regional statutes related to water supply, storage, treatment, and distribution that would apply to the Proposed Project.

■ Local

Integrated Regional Water Management Plan

Madera County has completed its Integrated Regional Water Management Plan (IRWMP), which provides a comprehensive review of past, present, and future water demands and supplies on a regional basis (Boyle Engineering 2008). The IRWMP estimated that urban and rural water demand for 2006 was approximately 29,500 AF, or 2.5 percent of the total approximately 1.2 million AF water demand in the County in 2006. It further noted, because of agriculture's heavy reliance on groundwater and the continued overdraft of the basins in the County, the potential reductions in available surface water supplies due to reallocation of water for environmental uses and conversion of agricultural land to urban uses, that average annual agricultural water use in Madera County will level off and be approximately 1.2 million AFY by 2030. According to the IRWMP, the projected water demand for the entire County in 2030 is estimated to be 1.3 million AFY, which is approximately 8 percent greater than the current demand. Agriculture will account for about 1.2 million AFY, or 92 percent of the total demand. Urban and rural water demand by 2030 will be three times the 2006 demand and will account for the remaining 8 percent, or about 100,000 AFY. The IRWMP water demand projections assumed an average 270 gallons per capita per day (gpcd) for all municipal and industrial (M&I) uses (Boyle Engineering 2008).

Because the IRWMP includes the population increase at the Project in the population estimates assumed in the IRWMP urban demand water projections, the Project is, therefore, included in the water demand projections presented in the IRWMP for year 2030 population (RPC 2012).

Madera County General Plan

The 1995 Madera County General Plan contains the following policies relevant to water supply, storage, treatment, and distribution:

Goal 3.A To ensure the timely development of public facilities and to maintain an adequate level of service to meet the needs of existing and future development.

Policy 3.A.1 The County shall ensure through the development review process that adequate public facilities and services are available to serve new development. The County shall not approve new development where existing facilities are inadequate unless the applicant can demonstrate that all new necessary public facilities will be installed or adequately financed and maintained (through fees or other means).

Policy Consistency:

All infrastructure construction would be developer-financed, through a mix of private and Mello-Roos Community Facilities District or other similar County-sponsored and privately supported financing.

- Policy 3.A.2** The County shall ensure that public facilities and services are developed and operational as they are needed to serve new development.

Policy Consistency:

Construction of all infrastructure shall be phased with development.

- Policy 3.A.3** The County shall require new urban development to be served by community sewer and water systems where such systems are available or can be feasibly provided.

Policy Consistency:

A community water system would serve the Proposed Project.

- Policy 3.A.4** The County shall discourage expansion of rural communities unless necessary services can be provided.

Policy Consistency:

Necessary infrastructure and services shall be provided as part of the Proposed Project.

- Policy 3.A.5** The County shall require detailed public facility planning as part of the area plans for designated new growth areas.

Policy Consistency:

An IMP has been provided for the Proposed Project.

- Goal 3.B** To ensure that adopted facility and service standards are achieved and maintained through the use of equitable funding methods.

- Policy 3.B.1** The County shall require that new development pay its fair share of the cost of developing new facilities and services and upgrading existing public facilities and services subject to the requirements of California Government Code Section 66000, et seq. (AB 1600); exceptions may be made when new development generates significant public benefits (e.g., low income housing) and when alternative sources of funding can be identified to offset foregone revenues.

Policy Consistency:

All infrastructure construction would be developer-financed, through a mix of private and Mello-Roos Community Facilities District or other similar County-sponsored and privately supported financing.

Goal 3.C

To ensure the availability of an adequate and safe water supply and the maintenance of high quality water in water bodies and aquifers used as sources of domestic and agricultural water supply.

Policy 3.C.1 The County shall approve new development only if an adequate water supply to serve such development is demonstrated.

Policy Consistency:

An adequate water supply has been demonstrated in the Project-specific Water Supply Assessment.

Policy 3.C.2 The County shall approve new development based on the following guidelines for water supply:

- Urban and suburban development should rely on community water systems.
- Rural communities should rely on community water systems. Individual wells may be permitted in cases where no community water system exists or can be extended to the property, but development will be limited to densities which can be safely developed with wells.
- Agricultural areas should rely on public water systems where available, otherwise individual water wells are acceptable.

Policy Consistency:

A community water system is proposed for the Project.

Policy 3.C.4 The County shall require that water supplies serving new development meet state water quality standards.

Policy Consistency:

Water supplies shall conform to the applicable Department of Public Health (DPH) and Environmental Protection Agency (EPA) regulations in effect at the time of design and construction.

Policy 3.C.6 The County shall promote efficient water use and reduced water demand by:

- Requiring water-conserving design and equipment in new construction
- Encouraging water-conserving landscaping and other conservation measures
- Encouraging retrofitting existing development with water-conserving devices
- Encouraging use of recycled or grey water for landscaping

Policy Consistency:

Water conservation and reclamation would be emphasized in project design, in order to meet the water use goals stated in the Area Plan EIR and reduce use of river water. Water-conserving

plumbing fixtures and conjunctive reuse of reclaimed water are principles central to the project design standards.

Policy 3.C.7 The County shall promote the use of reclaimed wastewater to offset the demand for new water supplies.

Policy Consistency:

The project proposes to irrigate all major street median islands, major street frontage landscaping, parks, and other irrigated recreational open space, including VLDR open spaces with reclaimed water, where practical and economically feasible. At full buildout, current plans call for use of all available reclaimed water to irrigate such spaces, with freshwater required to fully meet the irrigation demand.

Policy 3.C.11 The County shall support programs for the agricultural use of reclaimed water.¹⁴⁶

Policy Consistency:

The Project proposes to irrigate all major street median islands, major street frontage landscaping, parks, and other irrigated recreational open space, including VLDR open spaces with reclaimed water, where practical and economically feasible. As development occurs, reclaimed water in excess of the amount needed for allowable uses within the developed areas of the Project Site could be used to irrigate agricultural land within the Community Village currently using River water and may be used for off-site agricultural irrigation.

Rio Mesa Area Plan

The RMAP contains the following policies relevant to water supply, storage, treatment, and distribution:

Goal 1 Provide an overall master plan for the placement and sizing of necessary infrastructure to service the entire plan area, or logical subarea thereof as approved by the County.

Policy 1.1 Facilities shall be sized consistent with infrastructure master plans or local subareas thereof as approved by the County and not solely to individual project needs.

Policy Consistency:

Facilities shall be sized according to the IMP for the Proposed Project and for the balance of the Rio Mesa Village, as required.

Policy 1.2 Limit adverse impacts on surrounding communities by providing needed public facilities in coordinated planning with surrounding

¹⁴⁶ The term reclaimed water and recycled water are used interchangeably in this section. The WSA and the County's General Plan use the term reclaimed water, whereas the SWSA uses the term recycled water. In all cases, it is defined to mean water which, as a result of treatment, is suitable for direct beneficial use or a controlled use that would not otherwise occur.

areas, and restricting land use intensity to avoid severe traffic impacts on neighboring communities.

Policy Consistency:

There is no mention of coordinated planning in the IMP or limits on land use intensity because of other policies requiring that the IMP address this one village.

Goal 2 Require provision of infrastructure concurrent with need, provided ultimate master plans are implemented.

Policy 2.1 Prepare an infrastructure phasing plan to cover the entire area plan or logical subarea thereof as approved by the County, to ensure that public services, utilities and infrastructure are in place when development occurs.

Policy Consistency:

An IMP has been prepared for the Rio Mesa Community Village.

Policy 2.3 Areas lacking availability of public facilities should not be developed for urban use unless necessary infrastructure either exists or will be provided for at the time of development.

Policy Consistency:

Necessary infrastructure would be provided at the time of development.

Goal 3 Ensure an efficient use of available water resources unless necessary infrastructure is available or provided by a district or developer.

Policy 3.2 Xeric landscaping is to be encouraged in publicly and privately landscaped areas to minimize the use of irrigation water, throughout the development area.

Policy Consistency:

There is no mention of xeric landscaping in the IMP for the Proposed Project due to the desire to consume as much reclaimed water on the Project Site as possible.

Goal 4 Ensure that an adequate quantity of quality of water will be available for all new and existing development.

Policy 4.3 Development on property with river water contracts, must commit to the use of river water (inclusive of river underflow wells), to the extent the project engineer, in his/her professional judgment, finds that the use of river water is feasible, and obtains an opinion that such use is lawful. (If river water, or groundwater provided by existing wells, is not available as proposed in this plan and subsequent Infrastructure Master Plan, the County shall require the developer of such subsequent development plans to prove an alternative water source that will

not adversely impact the groundwater of surrounding properties, as a component of a subsequent EIR.)

Policy Consistency:

The IMP contained an analysis of the river water rights and found sufficient capacity. River water is the only potable source of water planned for the Project.

Policy Consistency

For the General Plan and RMAP, with respect to water supply, storage, and distribution, a policy consistency analysis has been provided after each policy.

4.14.3 Project Impacts and Mitigation

■ Analytic Method

An Amended The WSA was completed by Provost and Pritchard (2007b, amended 2008b) prepared for the Project to confirm whether there are adequate projected water supplies to serve the Proposed Project. The Amended it consists of the WSA approved by the TVMMWC in 2008 (2008 WSA) and an SWSA and SSWSA completed and approved by the TVMMWC in 2012. Together, these documents comprise the WSA for the Proposed Project. The 2008 WSA is provided in Appendix J to this EIR. To determine impacts on water supply resulting from implementation of the Proposed Project, the WSA evaluated whether the projected future water supplies would be sufficient, and the 2012 SWSA and SSWSA are provided in Appendix J1 to meet projected future demands of the Proposed Project. The WSA identifies the water sources that would be utilized by the Proposed Project in the future, and discusses reliability issues with regard to each source. The WSA compares future demands of the Proposed Project with future supplies under normal, single-dry, and multiple-dry year hydrological scenarios.

Water use rates, which are used to determine water demand, vary according to land use type. Based on the extent, type and intensity of a proposed development, an average daily water use rate can be approximated. This EIR assesses water demand using residential, commercial, industrial, mixed use, schools/institutional, landscape and open space, and commercial agricultural uses.

Water demand estimates for the Proposed Project are based on land uses proposed in the Specific Plan. Indoor potable water demand was estimated based on land use type and historical unit use factors for similar development in the San Joaquin Valley. Outdoor water demand was based on irrigable acreage based on planned open-space acres and/or percent landscaped coverage for each land use type. The reader is referred to the 2008 WSA, the 2012 SWSA, and the 2012 SSWSA included in Appendix J and Appendix J1 for additional information concerning methodologies used for the water supply and demand analysis.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G to the 2007 Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on water supply if it would result in any of the following:

- Require new or expanded water entitlements and resources, if there are not sufficient water supplies available to serve the project from existing entitlements and resources¹⁴⁷
- Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects¹⁴⁸

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to water supply, storage, and distribution.

■ Impacts and Mitigation Measures

Threshold	Would the Proposed Project exceed water supplies available to serve the project from existing entitlements, or are new or expanded entitlements needed?
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Impact 4.14-1 The Proposed Project would not exceed water supplies available to serve the Project from existing entitlements, and no new or expanded entitlements are needed. This is considered a *less-than-significant* impact.

Use of Holding Contract No. 7 Water (Including Demand Forecasts)

Water demand estimates for the Proposed Project are based on land uses proposed in the Specific Plan. Indoor potable water demand was estimated based on land use type and historical unit use factors for similar development in the San Joaquin Valley. Outdoor water demand was based on irrigable acreage composed of planned open-space acres and/or percent landscaped coverage for each land use type. At full buildout, the Proposed Project’s estimated average demand would be 4,810 AF annually (PPEG 2007b, amended 2008b). Actual and projected demand by land use type is shown below in Table 4.14-1 (Tesoro Viejo Past, Current, and Projected Demand by Land Use Type in Average Years [AF Annually]).

¹⁴⁷ This threshold has been slightly modified from the text found in CEQA Guidelines, Appendix G (Section XVI(d)), for ease of comprehension.

¹⁴⁸ This threshold only addresses water treatment, rather than both water and wastewater treatment, as suggested by CEQA Guidelines, Appendix G (Section XVI(b)). Wastewater treatment is addressed in Section 4.14.7 of this EIR.

Table 4.14-1 Tesoro Viejo Past, Current, and Projected Demand by Land Use Type in Average Years (AF Annually) [Revised]

<i>Land Use Type</i>	1997	2002	2007	2012	2017	2022	2027	<i>Buildout</i>
Residential	—	—	—	111	669	1,226	1,783	2,343
Commercial and Industrial	—	—	—	29	173	317	461	606
Mixed Use Community Core	—	—	—	3	18	34	49	64
Schools	—	—	—	4	23	42	61	80
Landscaping and Common Areas, including Agriculture ^a	—	—	—	82	490	899	1,308	1,717
Commercial Agricultural ^b	3,385	3,259	3,300 ^c	3,657 ^d	2,686	1,726	1,000	—
Total	3,385	3,259	3,300	3,886	4,059	4,244	4,662	4,810

SOURCE: PPEG 2007b, amended 2008b

There is proposed to be a high school and third elementary school within the Town Center with additional acreage for irrigation and additional demand for potable water which will be offset by reduced commercial or residential uses displaced by such schools. The likely effect would be a decreased demand for freshwater and increased demand for reclaimed water.

^a Includes Very Low Density Residential (VLDR) irrigable areas.

^b The Project Sponsor may choose to utilize the 2228 acres of reserved freeway right-of-way for agricultural purposes or landscaping to the extent adequate water is available.

^c 3,300 is an estimated quantity.

^d Includes 442 acres using 1,326 acre-feet on increased agricultural acres less 970 acre-feet from encroachment of residential and commercial use.

Water demand is anticipated to increase slightly in dry years due to an approximately five percent increase in irrigation demand (see Table 4.14-2 [Tesoro Viejo Buildout Projected Demand by Land Use Type in Average, Critical Dry and Multiple Dry Years (AF Annually)]), but there would be no reduction of indoor use since maximum water conservation practices would be used continuously throughout the useful life of the Proposed Project (PPEG 2007b, amended 2008b). Water-conserving plumbing fixtures and conjunctive reuse of reclaimed water are principles central to the project design standards. However, neither the TVMMWC nor any of the potential operating districts have adopted any policies of their own concerning municipal water conservation. Should the operating district selected not adopt its own water conservation requirements prior to building occupancy, the project would be subject to Madera County's Water Conservation Ordinance No. 532 until such time as the District adopts its own ordinance or policies.

Table 4.14-2 Tesoro Viejo Buildout Projected Demand by Land Use Type in Average, Critical Dry and Multiple Dry Years (AF Annually)

<i>Land Use Type</i>	<i>Average</i>	<i>Critical Dry</i>	<i>Multiple 2</i>	<i>Multiple 3</i>
Residential	2,343	2,392	2,392	2,392
Commercial and Industrial	606	606	606	606
Mixed Use Community Core	64	64	64	64
Schools	80	84	84	84
Landscaping and Common Areas, including Agriculture	1,717	1,717	1,717	1,717
Total	4,810	4,863	4,863	4,863

SOURCE: PPEG 2007b, amended 2008b

If a drought lasted for three years or longer, the second and third year demand would be the same as for a single-dry year (the “critical dry year”), which is approximately 4,863 AF annually (assuming full Project buildout), as shown in Table 4.14-2. As shown in Table 4.14-1, maximum water demands would occur at buildout. These demands would be met with reclaimed water and/or water purchased from the Madera Irrigation District. The buildout peak demand was estimated to be 4,810 AF annually (PPEG 2007b, amended 2008b).

The projected demand associated with the Proposed Project would be met with San Joaquin River water and with reclaimed domestic wastewater (also referred to as reclaimed water). At buildout, up to 1,717 AF annually of reclaimed wastewater would be reclaimed and used to supply the Proposed Project. This would be almost all of the effluent produced by the wastewater treatment plant. As a result of the Agreement With Other Water Users, the use of San Joaquin River water through Holding Contract Number 7 is limited to 3,150 AF annually except as discussed below, as shown in Table 4.14-3 (Tesoro Viejo Buildout Projected Supply by Source During Average, Critical Dry and Multiple Dry Years [AF Annually]). The balance of the project demand will be met through irrigation use of reclaimed water.

Table 4.14-3 Tesoro Viejo Buildout Projected Supply by Source During Average, Critical Dry and Multiple Dry Years (AF Annually)

<i>Water Source</i>	<i>Average</i>	<i>Critical Dry</i>	<i>Multiple 2</i>	<i>Multiple 3 and Multiple 4</i>
Surface Water (Holding Contract) ^a	3,150	3,150	3,150	3,150
Reclaimed Water ^a	1,717	1,717	1,717	1,717
<i>Supply Total</i>	<i>4,867</i>	<i>4,867</i>	<i>4,867</i>	<i>4,867</i>
<i>Demand Total</i>	<i>4,810</i>	<i>4,863</i>	<i>4,863</i>	<i>4,863</i>
<i>Difference</i>	<i>57</i>	<i>4</i>	<i>4</i>	<i>4</i>

SOURCE: PPEG 2007b, amended 2008b

^a Surface water diversion amount set equal to demand remaining after projected recycled water use.

Long-term surface water availability for the Project Site is derived from a contract with the United States Bureau of Reclamation, entitled “Contract for Settlement of Certain Former Water Rights from the San Joaquin River,” also known as Holding Contract Number 7 (PPEG 2007b, amended 2008b). Holding Contract Number 7 provides a reliable surface water source for the Project Site, limited to the place of use (POU) defined by the contract and shown in Figure 4.14-3 (Holding Contract Map). The water supply under Holding Contract Number 7 has no specific supply limits; the supply could exceed 5,000 AF annually since that amount could be put to reasonable and beneficial agricultural use (PPEG 2007b, amended 2008b). However, the Project Applicant and TVMMWC have agreed to limit withdrawals to 3,150 AFY plus additional amounts for which there are compensatory reductions in withdrawals or discharges of treated effluent into the River, if permitted.

Tesoro Viejo would divert water from the San Joaquin River throughout the year, with maximum diversions occurring in July and August. At full build-out, diversions in July and August would approximate a maximum daily demand of 21.67 acre-feet per day, or 650 acre-feet per month. This equates to a maximum diversion of 10.9 cubic feet per second (cfs). Since the water treatment plant

would be sized to meet maximum daily demand on a 24-hour basis, river diversions would not be as large as the peak hour demands experienced by the distribution system.

Figure 4.14-1 compares the projected monthly Tesoro Viejo pumping regime at buildout and historical diversion data obtained from the Project Applicant for years 2004 through 2006 (PPEG 2007a, amended 2008a). As further discussed in Section 4.4 (Biological Resources), the Proposed Project is anticipated to result in a 13 percent increase in diversion during the extremely dry winter months or a 7.7 percent increase in October, but it will not affect actual downstream river flows because of the rules requiring 5 cfs minimum flows measured at Gravelly Ford. Figure 4.14-1 also demonstrates that modeled demand of the Proposed Project at buildout could exceed historical diversions during the summer months. The larger anticipated diversions of the Project may be amplified in critical or multiple dry years. However, as previously stated, releases from Friant Dam are regulated to maintain a minimum flow at a point downstream of the project (Gravelly Ford). Therefore, the Proposed Project will not result in a substantial and adverse alteration of available aquatic habitat or impair fish movement, particularly during the sensitive life cycle stages for native fish, which spawn in the spring (Moyle 2002), and there would be no impacts. This subject is more fully addressed in Impact 4.4-6 in Section 4.4 (Biological Resources) of this EIR.

In light of the RWQCB's Wastewater Reuse Policy, the primary method of effluent disposal would be as reclaimed water for irrigation. Treated effluent would be applied for irrigation of major street medians, major street frontage landscaping, parks, and other irrigated recreational open space (PPEG 2007a, amended 2008a). There are approximately 247,218 acres of open space and parks proposed in the land use plan for Tesoro Viejo, in addition to another 200,128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated into the Proposed Project. Reclaimed wastewater would also be used to irrigate open space in the VLDR-zoned areas. Treated effluent may also be used for agricultural irrigation or for industrial uses where allowed, and to the extent available (PPEG 2007a, amended 2008a).

The Project Applicant is considering several options for disposal of any excess effluent produced over the years, although all effluent is expected to be used for on-site irrigation at the present time. The options include, but are not limited to the following: discharge to the San Joaquin River; transport to an offsite storage pond via an underground pipe for application to crop land not adjacent to the Rio Mesa Community Village; or the allowance of percolation of the excess treated effluent into the groundwater basin through unlined storage basins. One or a combination of these options could be used if there were to be excess effluent.

Reclaimed water could also be a reliable water supply. Its availability is guaranteed provided wastewater is adequately treated to appropriate regulatory standards. Total availability of reclaimed wastewater would be proportionate to the volume of water used by residents, and would be expected to increase as more phases of construction are completed. At full buildout, in a normal hydrological year, reclaimed water would meet an estimated 35 percent of total water demand for the Proposed Project (PPEG 2007b, amended 2008b). In addition, the Project Site is located entirely within the service area of the Madera Irrigation District and is entitled to purchase water from the District on the same terms that water is sold to other landowners within the District. It is not anticipated that this water would be necessary to meet project demands, but it is available.

The TVMMWC has approved the Amended WSA as the public water agency to serve the Proposed Project (PPEG 2007b, amended 2008b). TVMMWC is owned by the owners of the land within the Proposed Project (presently consisting of one owner and shareholder). Ultimately, water service would be provided by a County operated service area, a new Community Services District or a Public Utilities District, or through annexation to the Sierra Foothills Public Utility District. In any case, TVMMWC would arrange to provide water to the servicing agency by contract and the servicing agency would be the actual purveyor of water to retail customers (PPEG 2007b, amended 2008b). The property is currently irrigated with surface water from the San Joaquin River pursuant to the Holding Contract. River water would also be the primary source of the urban water supply. A small portion of the Project Site may use subsurface flows of the San Joaquin River pumped from wells; this source is river underflow, subject to Holding Contract Number 7, and is not accurately characterized as groundwater (PPEG 2007b, amended 2008b). (Refer to Section 4.8 [Hydrology and Water Quality] for a description of on-site groundwater resources.)

Holding Contract No. 7 Conclusion

The 2008 WSA concludes that sufficient water supplies exist to meet the projected 20-year demands for the Project, as well as the demands at full buildout during normal, critical dry, and multiple dry years (PPEG 2007b, amended 2008b). As such, no ~~new entitlements~~ or expanded entitlements are required for the ~~Proposed Project~~. Sufficient if the Project's originally anticipated use of Holding Contract No. 7 is, in fact, the Project's source of water supplies are available to serve the project from existing entitlements and resources; as a result, impacts related to water supply. Impacts would be less than significant. ~~No, and no~~ mitigation is required.

Alternative Water Supplies (Including Modified Demand Forecasts)

Holding Contract No. 7 water is anticipated to be the source of water for the Project, as described above. However, in the event that Holding Contract No. 7 water is not available at some time in the future by reason of state orders and/or court decisions invalidating or limiting its continued use, the Project Applicant has identified alternatives for Project water supply. Those supplies, which would rely on a combination of on- and/or off-site groundwater and surface water from existing entitlements, would together provide a firm supply during normal, critical dry, and multiple dry years. Any use of groundwater by the Project under these alternatives would be water balanced, which means that the net demand of the Project would be directly offset by either groundwater recharge or fallowing of existing agricultural lands overlying the Madera Sub-basin (RPC 2012).

In the SWSA, the two scenarios relying on groundwater are referred to as Alternative 2 and Alternative 3. Alternative 4 (Purchase of MID Water and Use of Unused Flood Flows for Irrigation and/or Recharge) is supplemental to Alternatives 2 and 3 in that intentional recharge would be used in lieu of land retirement for mitigating groundwater pumping at CWCR. Alternatives 2 and 3 use a combination of on-site and/or off-site groundwater, in varying amounts, and both use surface water from existing entitlements (identified in Alternative 4). Alternative 1 is Holding Contract No. 7 water (which is not evaluated in the SWSA, but was assigned a number by the SWSA preparers for ease of understanding and to avoid the need to refer back to the 2008 WSA). In the following description of water supply alternatives, the same numbering is used as in the SWSA.

Following preparation of the SWSA, a fifth scenario was identified by a Term Sheet executed by the Project Applicant and MID.¹⁴⁹ This alternative would consist of surface water backed up by storage in a planned MID groundwater bank. Although the Term Sheet does not represent a binding agreement by its own terms, MID and the Project Applicant are in the process of preparing a binding agreement pursuant to the Term Sheet, and the Project Applicant anticipates that a binding agreement will be reached. In response to the Term Sheet, a Supplement to the Supplemental Infrastructure Master Plan (SSIMP) and a Supplement to the Supplemental Water Supply Assessment (SSWSA) were prepared to describe this potential alternative source of water supply.

In addition, on-site groundwater recently discovered to be available is now anticipated to be used under all water supply scenarios.

The following identifies the approach to demand estimates assumed for developing the alternative water supply portfolio, presents the elements of each water supply alternative, summarizes necessary permits, approvals, and entitlements that would be needed to implement an alternative, and describes reliability and water quality considerations. The potential environmental impacts on groundwater and surface water are addressed in Impact 4.8-4 in Section 4.8 (Hydrology and Water Quality). Infrastructure requirements are addressed in Impact 4.14-2, below.

Revised Demand Forecasts

Table 4.14-1, above, summarized from the 2008 WSA, identifies Project water demand based on the availability of Holding Contract No. 7 water and corresponding demand assumptions and factors made then. As explained in the SWSA, the loss of Holding Contract No. 7 water would make it desirable to reduce water demand to the extent possible, and such reduced demand is planned even if such water is available. Thus, separate demand assumptions for water use type (e.g., land uses) under the alternative water supply scenarios were developed.¹⁵⁰ In summary, interior demands at Year 2025 buildout are estimated to be 1,160 AFA and exterior demands for irrigation are estimated to be 2,710 AFA. With an unallocated reserve¹⁵¹ of 190 AFA, the total demand at buildout is forecast to be 4,060 AFA (RPC 2012).

As shown in Table 4.14-3(a) (Comparison of 2008 WSA Buildout Demand and 2012 SWSA Buildout Demand with Alternate Water Supply [Normal Rainfall Year]), this revised Project water demand

¹⁴⁹ While the MID surface water alternative is called Alternative 5 in the SSWSA, because Alternative 4 is supplemental to both Alternatives 2 and 3, and Alternative 1 is the use of Holding Contract No. 7 water, there are only three primary water supply alternatives (i.e., Alternative 2, Alternative 3, and Alternative 5).

¹⁵⁰ The SWSA was prepared to address issues raised by the Court concerning alternative water supplies should Holding Contract No. 7 water be unavailable. In preparing the SWSA, it was determined that water demand could be reduced from that assumed in the 2008 WSA (Table 4.14-1 and Table 4.14-2, above). This does not mean, however, that water to meet the demand presented in the 2008 WSA would be insufficient in the event an alternate supply is used. More water could be obtained from alternate supplies that would meet demand estimates in the 2008 WSA. Such reductions in demand can also be achieved if Holding Contract No. 7 water is used.

¹⁵¹ Unallocated reserve is associated with system losses in potable and nonpotable distribution, interior consumptive use (i.e., a use that does not generate wastewater), and wastewater system operation (wastewater collection and effluent storage). Based on use of sealed distribution and collection piping and real-time flow monitoring systems, it is anticipated that system pipeline losses will be negligible. In addition, the unit demand coefficients utilized in Appendix B of the SWSA are considered conservative given recent advances in high-efficiency water fixtures and state-of-the-art irrigation systems that will likely make the unallocated reserve an unnecessary demand component on a permanent basis (RPC 2012).

involves a 750 AFA reduction in gross demand compared to that shown in the 2008 Final EIR. This would be achieved by applying a 20 percent reduction in per capita water consumption relative to 2005 baseline conditions, consistent with the intent of the California 20x2020 Water Conservation Plan.¹⁵² The Project's net demand would be reduced by 190 AFA (6 percent) from the net water demand estimated in the 2008 Final EIR. Table 4.14-3(a) illustrates these differences under normal year conditions.

Table 4.14-3(a) Comparison of 2008 WSA Buildout Demand and 2012 SWSA Buildout Demand with Alternate Water Supply (Normal Rainfall Year) [New]

<u>Water Demand</u>	<u>2008 WSA (AFA)^a</u>	<u>2012 SWSA (AFA)</u>	<u>Difference (AFA)</u>	<u>Difference (%)</u>
<u>Total Demand</u>	<u>4,810</u>	<u>4,060</u>	<u>-750</u>	<u>-16%</u>
<u>Reclaimed Water</u>	<u>1,720^b</u>	<u>1,160</u>	<u>-560</u>	<u>-32%</u>
<u>Net Demand</u>	<u>3,090</u>	<u>2,900^c</u>	<u>-190</u>	<u>-6%</u>

SOURCE: RPC (2012).

a. Assumes 100% of demand met with Holding Contract No. 7 water

b. Rounded from 1,717 AFA reported in 2008 WSA

c. Includes 190 AFA of unallocated reserve. Unallocated reserve is associated with system losses in potable and nonpotable distribution, interior consumptive use (i.e., a use that does not generate wastewater), and wastewater system operation (wastewater collection and effluent storage). Based on use of sealed distribution and collection piping, and real-time flow monitoring systems, it is anticipated that system pipeline losses will be minimal. In addition, the unit demand coefficients utilized in Appendix B are considered conservative given recent advances in high-efficiency water fixtures and state-of-the-art irrigation systems that will likely make the unallocated reserve an unnecessary demand component on a permanent basis (RPC 2012).

The reader is referred to Section 8.1 (Water Demands at Year 2025 Buildout) and Table 3, Table 4, and Table 5 in the SWSA, which is included in Appendix J1 in this RDEIR, for additional detail regarding demand assumptions for the alternatives by water use type.

Reclaimed water from the Project's on-site wastewater treatment plant would be treated to tertiary standards for direct beneficial reuse within the Project and would comprise a portion of the water supply portfolio, as provided in the 2008 Final EIR. As shown in Table 4.14-3(a), the total buildout supply of reclaimed water would be approximately 1,160 AFA. This is 560 AFA less than projected in the 2008 WSA (1,720 AFA). Because there would be additional water conservation measures for interior uses to be consistent with 20x2020 Water Conservation Plan reduction goals (although such measures are not required), which would reduce the amount of wastewater to be reclaimed. The tertiary treated effluent would be used for all landscape and turf irrigation, but it would not be sufficient to meet all exterior demands (2,710 AFA). This would result in the need for up to an additional approximately 1,800 AFA¹⁵³ of nonpotable water, which could either be imported groundwater or untreated water from the San Joaquin River or Lateral 6.2, depending on quantities available from each source (RPC 2012).

The net demand for 2,900 AFA equates to a gross unit area demand of approximately 1.81 AFA for buildout (year 2025) conditions. In comparison, the net unit demand shown in the 2008 Final EIR was

¹⁵² Senate Bill x7-7 (2009) authorized the 20x2020 Water Conservation Plan, which establishes per capita reduction targets for urban residential and commercial development statewide where municipal water service is provided with 3,000 service connections or more. Although the Project is not required to comply with the plan because water would be provided by a private water system, it is viewed as environmentally desirable (RPC 2012).

¹⁵³ Includes the 190 AFA of unallocated reserve (estimated total is rounded upward). This is calculated as the exterior demand of 2,710 AFA minus the use of 1,160 AFA of recycled water plus 190 AFA of unallocated resource, which is 1,740 AFA, rounded up to 1,800 AFA.

approximately 1.93 AFA. In terms of per capita consumption, IRWMP water demand projections (which includes the Project, as noted above) assume a 270 gpcd average demand for all M&I uses. The reduced net demand of 2,900 AFY is equivalent to 165 gpcd average demand, or a per capita reduction of 40 percent compared to IRWMP projections.

Table 4.14-3(b) (Alternative Water Supply Year 2025 Water Demand by Rainfall Year Type [AFY]) summarizes water demands at Year 2025 buildout based on varied levels of annual precipitation from average years (approximately 13 inches) to dry years (approximately 6 inches). Consecutive 2- and 3-year drought condition demands are also shown. While urban water demands are not anticipated to change significantly based on annual precipitation totals, an approximate 10 percent demand reduction is assumed for 2- and 3-year consecutive dry periods. It is anticipated Madera County would institute its water shortage contingency ordinance during extended drought periods, and that Project residents and businesses would fully comply with the County ordinance regarding interim water use restrictions.

Table 4.14-3(b) Alternative Water Supply Year 2025 Water Demand by Rainfall Year Type (AFY) [New]

<i>Water Use</i>	<i>Normal</i>	<i>Dry</i>	<i>2-Year Dry</i>	<i>3-Year Dry</i>
<u>Agriculture</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Residential</u>	<u>2,790</u>	<u>2,790</u>	<u>2,510</u>	<u>2,510</u>
<u>Commercial</u>	<u>980</u>	<u>980</u>	<u>890</u>	<u>890</u>
<u>Schools</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>Unallocated</u>	<u>190</u>	<u>190</u>	<u>190</u>	<u>190</u>
<i>Total</i>	<u>4,060</u>	<u>4,060</u>	<u>3,690</u>	<u>3,690</u>

SOURCE: RPC (2012).

Water Supply Alternative 2: On-Site and Imported Groundwater for M&I Purposes and MID Water for Agriculture Until Project Buildout

Under Water Supply Alternative 2, no Holding Contract No. 7 water is assumed available for the Project. Water would be supplied from a new on-site groundwater well network and imported groundwater from the CWCRC. Groundwater is assumed to be the sole source of M&I supply to satisfy demand at buildout (in Year 2025) and thereafter. It is further assumed on-site agricultural irrigation demands would be supplied with MID Class 1 water through MID Lateral 6.2 until Year 2025 when agricultural operations have entirely ceased. Reclaimed water from the Project's on-site wastewater treatment plant would still be used to meet exterior demand. Table 4.14-3(c) (Water Supply Alternative 2: On-Site and Imported Groundwater for M&I Purposes and MID Water for Agriculture Until Project Buildout [acre-feet/year]) illustrates the sources of water under this scenario.

Table 4.14-3(c) Water Supply Alternative 2: On-Site and Imported Groundwater for M&I Purposes and MID Water for Agriculture Until Project Buildout (acre-feet/year) [New]

<u>Water Source</u>	<u>Year 2010</u>	<u>Year 2015</u>	<u>Year 2020</u>	<u>Year 2025</u>	<u>Year 2030</u>
<u>Holding Contract No. 7</u>	<u>3,300</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Groundwater—On-Site</u>	<u>0</u>	<u>200</u>	<u>400</u>	<u>400</u>	<u>400</u>
<u>Groundwater Import (CWCR)</u>	<u>0</u>	<u>380</u>	<u>930</u>	<u>2,500</u>	<u>2,500</u>
<u>Lateral 6.2—Ag</u>	<u>0</u>	<u>2,810</u>	<u>1,830</u>	<u>0</u>	<u>0</u>
<u>Reclaimed Water</u>	<u>0</u>	<u>170</u>	<u>520</u>	<u>1,160</u>	<u>1,160</u>
<u>Total</u>	<u>3,300</u>	<u>3,560</u>	<u>3,680</u>	<u>4,060</u>	<u>4,060</u>

SOURCE: RPC (2012).

Under this alternative (and all new scenarios), approximately seven groundwater wells with yields ranging from 80 to 150 gallons per minute (gpm) would be installed on-site along Road 204 and the extension of the alignment of Road 42 to achieve a sustainable safe yield of 400 AFY, which is likely at the low end of safe yield based on hydrogeologic investigations.¹⁵⁴ The locations of these seven supply wells are illustrated by Figure 4.8-1(b) (Tesoro Viejo Deep Groundwater Elevations and Flow Direction: May 2011) in Section 4.8 (Hydrology and Water Quality) of this EIR. Higher production may be possible, but is not assumed in this analysis until studies confirm higher production is possible. For purposes of this analysis, it is assumed that seven wells pumping at 95 gpm each would provide a wellfield capacity of approximately 670 gpm.

The wells would be sited at least 0.5 mile from off-site neighboring wells west of Highway 41 to prevent the lowering of on-site production potential and to avoid adverse impacts on off-site groundwater users (e.g., localized drawdown). The reader is referred to Impact 4.8-4 in Section 4.8 (Hydrology and Water Quality) for a detailed analysis of potential effects on off-site groundwater of operating an on-site groundwater well network.

Approximately one-half of the on-site groundwater production amount (200 to 250 AFY) would be intentionally recharged on-site in three excavated basins in the southwest portion of the Project Site where subsurface geology is suitable for recharge.¹⁵⁵ The source of this recharge water would be a combination of natural recharge from higher topographic areas north of the Madera Canal, stormwater runoff, CVP Class 1 or Class 2 water from Lateral 6.2, direct river diversion by Holding Contract or exchange agreements, and/or imported CWCR groundwater.

There are ten irrigation wells at CWCR. Nine of these wells are illustrated by Figure 4.8-1(d) (CWCR Groundwater Elevations and Flow Direction: January 2012) of Section 4.8 (Hydrology and Water

¹⁵⁴ There are two wells at the Project Site (TW-1 and TW-2), which were drilled in 2010 and are constructed such that they could be used as supply wells. Pumping tests conducted at well TW-1 in 2010 and at TW-2 in 2011 indicate sustainable pumping rates for these wells of 150 and 80 gpm, respectively. Development information for two other wells, referred to as the North and South wells and located to the east and near TW-1, indicates well yields of 150 gpm (PRC 2012a, 2012b, 2012c). The locations of TW-1 and TW-2 are illustrated by Figure 4.8-4 (Tesoro Viejo Deep Groundwater Elevations and Flow Direction: May 2011) in Section 4.8 (Hydrology and Water Quality) of this EIR.

¹⁵⁵ One basin has already been excavated and was used for a pilot testing program to evaluate recharge potential.

Quality) of this EIR.¹⁵⁶ The tenth well—Well 5—is located approximately 2,000 feet to the east of Well 4.

Three of these wells, which have depths ranging from 752 to 812 feet below ground surface (bgs), are currently used for irrigation of almond orchards. Pumping tests and measured pumping rates indicate the wells are what are considered “high-yield” wells and are capable of rates of at least 2,400 gpm producing at least 2,500 AF of water (RPC 2012c). To meet the balance of the urban demand (2,500 AFY, refer to Table 4.14-3[c]), groundwater would be imported from three CWCR production wells through an approximately 8-mile-long dual pipeline system within the County’s Avenue 15 right-of-way directly from CWCR to the Project Site. On-site storage and distribution facilities would be installed under this alternative, as would also be required for Holding Contract No. 7 water and other sources.

CWCR is capable of supplying groundwater in excess of that required to satisfy the balance of the demand for Project water. However, in order to maintain water balance at CWCR and to avoid any adverse net effect on groundwater resource availability for the Project and neighboring off-site groundwater users, almond production served by the northern wells at CWCR would be retired as development of the Project proceeds to buildout in the Year 2025. Assuming the DWR published consumptive use value of 1.7 AFA for almond irrigation, an ultimate land retirement of 1,470 acres would be required to fully offset the 2,500 AFY export to the Project at buildout, assuming no agricultural use remains at the Project Site and no intentional recharge at CWCR.

Water Supply Alternative 3: On-Site and Imported Groundwater for M&I Purposes and MID Water for Agriculture Before and After Project Buildout

Water Supply Alternative 3 assumes no Holding Contract No. 7 water would be available for the Project, and that water would be supplied from the new on-site groundwater well network and imported groundwater from the CWCR. Approximately 400 AFY would be provided from the on-site well network, identical to Alternative 2. In this variation of Water Supply Alternative 2, it is assumed there would be some agricultural demand on site: one-half of the irrigated landscape acreage in the very low density residential (VLDR) area would remain in agricultural use. At buildout, this would result in groundwater pumpage from CWCR of 1,900 AFY, a reduction of approximately 600 AFY compared to Alternative 2 (which assumes that 2,500 AFY would be provided from the CWCR well system). To meet the agricultural demand, 600 AFY would be provided by MID Class 1 supply delivered at the Project’s Lateral 6.2 turnout. In addition, this approach would reduce the almond orchard following offset at CWCR from approximately 1,470 acres to approximately 1,120 acres as compared to Alternative 2. Reclaimed water from the Project’s on-site wastewater treatment plant would still be used to meet exterior demand. Table 4.14-3(d) (Water Supply Alternative 3: On-Site and Imported Groundwater for M&I Purposes and MID Water for Agriculture Before and After Project Buildout) illustrates the sources of water under this scenario.

¹⁵⁶ The wells are not numbered consecutively. Instead, they are numbered as Wells 1 through 9 and 16.

Table 4.14-3(d) Water Supply Alternative 3: On-Site and Imported Groundwater for M&I Purposes and MID Water for Agriculture Before and After Project Buildout
[New]

<u>Water Source</u>	<u>Year 2010</u>	<u>Year 2015</u>	<u>Year 2020</u>	<u>Year 2025</u>	<u>Year 2030</u>
<u>Holding Contract No. 7</u>	<u>3,300</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Groundwater—on Site</u>	<u>0</u>	<u>200</u>	<u>400</u>	<u>400</u>	<u>400</u>
<u>Groundwater—CWCR</u>	<u>0</u>	<u>380</u>	<u>930</u>	<u>1,900</u>	<u>1,900</u>
<u>Lateral 6.2—Ag</u>	<u>0</u>	<u>2,810</u>	<u>1,830</u>	<u>600</u>	<u>600</u>
<u>Reclaimed Water</u>	<u>0</u>	<u>170</u>	<u>520</u>	<u>1,160</u>	<u>1,160</u>
<u>Total</u>	<u>3,300</u>	<u>3,560</u>	<u>3,680</u>	<u>4,060</u>	<u>4,060</u>

SOURCE: RPC (2012).

Water Supply Alternative 4: On-Site and Imported Groundwater for M&I Purposes, MID Water for Agriculture Uses, and Recharge in Lieu of Land Retirement

Water Supply Alternative 4 is identical to Alternatives 2 and 3 in that it would rely on on-site and imported groundwater; however, under this alternative, intentional recharge would be used in lieu of land retirement for mitigating groundwater pumping at CWCR. Recharge could occur at any geologically favorable location overlying the Madera Sub-basin on the Madera County valley floor such as the Madera Water Bank, Cottonwood Creek east of Highway 99, the Project Site, at CWCR, or some combination of these recharge areas. Recharge water could be purchased CVP Friant Class 1 and/or Class 2 water and/or unused flood flows accounted for on a rolling 5-year average basis. This water could be delivered to recharge site(s) either from Lateral 6.2, the Friant-Madera Canal, or any other conveyance facility in the MID system. No new entitlements would be needed for this alternative because the Project Site is in the MID service area, including the POU authorized in the USBR contract with MID, and use would be limited to beneficial agricultural and recharge. And the Project has an agreement to purchase flood flows.

Intentional recharge using Class 1 and/or Class 2 water and/or unused flood flows could potentially offset all or part of the 1,470 or 1,120 acres of land retirement assumed for Alternatives 2 and 3 with and without on-site residual agriculture. Under this alternative, it is also assumed some on-site agricultural demand may continue as a part of the Project even after buildout in areas designated for VLDR where there could be clustered residences amid vineyards and other agricultural uses.

Water Supply Alternative 5: Reliance on On-Site Groundwater and MID Water for All Uses

Water Supply Alternative 5 assumes no Holding Contract No. 7 water would be available for the Project and that water would instead be supplied from MID surface water sources and from on-site groundwater.

Under this alternative, pursuant to the executed Term Sheet, MID surface water would be a firm and guaranteed M&I water supply of up to 3,000 afy, including multiple dry-year conditions, by one or more of the following:

- Use of pre-1914 appropriative rights possessed by MID
- Use of groundwater storage facilities at the Madera Water Bank (for which MID has acquired the land and has a certified Final EIR)
- A proposed contract amendment to its existing agreement with USBR to include M&I uses for federal Class 1 and/or Class 2 CVP supplies

MID would guarantee a firm supply in all years based on its pre-1914 rights and its water bank. Once there is a definitive agreement, TVMMWC would eliminate the potential for using water from CWCR and substitute the MID water in lieu of what would have been provided by the CWCR source as a potential substitute for holding contract water. Under this alternative, there would be no need for intentional groundwater recharge on the Project Site to prevent offsite impacts that could otherwise potentially result from the Project's planned use of off-site groundwater.

If approved, the term of the proposed agreement would be 30 years with right of renewal. The water supply would be delivered from a new turnout on Lateral 6.2 and/or directly from the San Joaquin River at the existing Holding Contract point of diversion. The use of water under Alternative 5 would require the same water infrastructure and water treatment processes as if Holding Contract No. 7 water were used. As previously mentioned, the Project is already eligible to use MID water for irrigation purposes. In this alternative, it would obtain water for M&I purposes. The Project's use of MID water would not affect MID's ability to meet their other contractual demands because of the water bank.

Table 4.14-3(e) (Water Supply Alternative 5: Reliance on On-Site Groundwater for M&I Purposes and MID Water for M&I Uses and Agriculture Uses until Year 2025) illustrates the sources of water under this scenario. In this alternative, it is assumed that there would be no residual agricultural uses at Year 2025 buildout and thereafter.

Table 4.14-3(e) Water Supply Alternative 5: Reliance on On-Site Groundwater for M&I Purposes and MID Water for M&I Uses and Agriculture Uses until Year 2025 [New]

<u>Water Source</u>	<u>Year 2010</u>	<u>Year 2015</u>	<u>Year 2020</u>	<u>Year 2025</u>	<u>Year 2030</u>
<u>Holding Contract No. 7</u>	<u>3,300</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Groundwater—On Site</u>	<u>0</u>	<u>200</u>	<u>400</u>	<u>400</u>	<u>400</u>
<u>MID Water – M&I</u>	<u>0</u>	<u>380</u>	<u>930</u>	<u>2,500</u>	<u>2,500</u>
<u>MID Water—Agriculture</u>	<u>0</u>	<u>2,810</u>	<u>1,830</u>	<u>0</u>	<u>600</u>
<u>Reclaimed Water</u>	<u>0</u>	<u>170</u>	<u>520</u>	<u>1,160</u>	<u>1,160</u>
<u>Total</u>	<u>3,300</u>	<u>3,560</u>	<u>3,680</u>	<u>4,060</u>	<u>4,060</u>

SOURCE: RPC (2012d).

Table 4.14-3(f) (Water Supply Alternative 5: Reliance on On-Site Groundwater for M&I Purposes and MID Water for M&I Uses and Agriculture Uses Remaining at Buildout) illustrates the sources of water under this scenario. In this alternative, it is assumed that there would be residual agricultural uses at Year 2025 buildout and thereafter.

Table 4.14-3(f) Water Supply Alternative 5: Reliance on On-Site Groundwater for M&I Purposes and MID Water for M&I Uses and Agriculture Uses until Year 2025 [New]

<u>Water Source</u>	<u>Year 2010</u>	<u>Year 2015</u>	<u>Year 2020</u>	<u>Year 2025</u>	<u>Year 2030</u>
<u>Holding Contract No. 7</u>	<u>3,300</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Groundwater—On Site</u>	<u>0</u>	<u>200</u>	<u>400</u>	<u>400</u>	<u>400</u>
<u>MID Water – M&I</u>	<u>0</u>	<u>380</u>	<u>930</u>	<u>1,900</u>	<u>1,900</u>
<u>MID Water—Agriculture</u>	<u>0</u>	<u>2,810</u>	<u>1,830</u>	<u>600</u>	<u>600</u>
<u>Reclaimed Water</u>	<u>0</u>	<u>170</u>	<u>520</u>	<u>1,160</u>	<u>1,160</u>
<u>Total</u>	<u>3,300</u>	<u>3,560</u>	<u>3,680</u>	<u>4,060</u>	<u>4,060</u>

SOURCE: RPC (2012d).

Permits, Entitlements, and Approvals

Groundwater in the Madera Sub-basin is unadjudicated. No water rights permits or entitlements to develop and use groundwater are required. No new or expanded entitlements would be required if MID surface water is used to supply the Project except for a contract with MID. The Project Site is located within the MID service area. It is within the POU permitted under MID’s contract with USBR. While it is fully entitled to a portion of MID’s right to divert water from the San Joaquin River at Millerton Dam for beneficial agricultural and recharge uses, the proposed new agreement would be required to implement Alternative 5.

To develop and convey groundwater on site and off site, each new well would require a well drilling permit issued by Madera County. For construction of the pipeline to import CWCR groundwater to the site, U.S. Army Corps of Engineers Clean Water Act Section 404 and California Department of Fish and Game Section 1602 permits for activities in USGS “blue line stream” drainages, such as road and pipeline crossings, would likely be required (refer to Impact 4.4-10 of Section 4.4 [Biological Resources] for a more detailed discussion), along with any necessary encroachment permits for work within County and Caltrans rights-of-way. It would also require acceptance of the systems by County Service Area 22 for treatment, distribution, and operations unless operated wholly by TVMMWC as a private system.

Use of surface water either directly from the San Joaquin River or from the Madera Canal or Lateral 6.2 for the alternatives would require on-site treatment to meet potable water standards and DPH approval for a potable water treatment plant would be necessary. If surface water diverted from the river or delivered by Lateral 6.2 is included as a supplemental nonpotable supply, then treatment meeting reclaimed water standards would apply for that portion, which would require DPH review and approval of a Title 22 Engineering Report for use of reclaimed water for irrigation and toilet flushing. In addition, Central Valley Regional Water Quality Control Board (Region 5) approval of wastewater treatment and reuse, including review and approval of Report of Waste Discharge and Title 22 Engineering Report would also be necessary. The aforementioned approvals would also be necessary if Holding Contract No. 7 is used for water supply.

Groundwater Reliability

A safe yield of approximately 400 AFY of groundwater could be developed on site under all water supply alternatives. Presently, there is no overdraft indicated in the vicinity of the Project (see Impact 4.8-4 in Section 4.8 [Hydrology and Water Quality]). Groundwater is firm and reliable for all water years, provided an average of about one-half of the on-site pumpage is intentionally recharged at the Project Site (RPC 2012).

Groundwater developed at the CWCR, which would have otherwise been used for irrigation at the ranch, is a reliable long-term source of water supply. Although water levels at or near the ranch have been declining, the aquifer is deep enough to provide reliable supply despite the projected water level declines. Either some of the irrigated land now supplied by wells at CWCR would be retired, so that overall consumptive use associated with pumpage from CWCR wells would not be increased, or recharge with purchased CVP Class 1 or Class 2 water or unused flood flows would substitute for some or all of the land retirements otherwise necessary. Accordingly, the CWCR source is considered firm and reliable for all water years (RPC 2012).

Groundwater Quality Considerations

Groundwater is of potable quality at both on-site and CWCR wells and would not require treatment beyond conventional disinfection. Use of surface water either directly from the river or from the MID canal or Lateral 6.2 would require on-site treatment to meet potable water standards as already provided for in the 2008 Final EIR. The primary constituents of concern for use of surface water are turbidity, fecal coliform, and total coliform. Intentional recharge of surface water at the Project Site or elsewhere overlying the Madera Sub-basin is expected to improve groundwater quality. For instance, total dissolved solids (TDS) concentrations in river water below Friant Dam are approximately 30 mg/l on an average annual basis. The aquifer at Tesoro Viejo has water quality with TDS values in the range of 170 to 270 mg/l, and the aquifer at CWCR has TDS values in the range of 220 to 195 mg/l. Intentional recharge with river water will improve groundwater quality, in part, by reducing TDS values on an ongoing basis (RPC 2012).

Environmental Impacts of Water Supply Alternatives (Alternatives 2, 3, 4, or 5)

Consistent with the *Vineyards* case, and as directed by the Writ of Mandate, this Draft Revised EIR discloses the potential hydrogeologic impacts of using groundwater as an alternate source of supply should Holding Contract No. 7 water not be available. Such effects could include changes in groundwater availability for existing uses, changes in groundwater quality, and changes in surface water flows and quality due to groundwater-surface water interaction. These have been addressed in Section 4.8 (Hydrology and Water Quality) of the Revised EIR to the degree that available information allows. Based on available water quality evaluation, no mitigation would be necessary to implement one or more of the alternate water supply portfolio alternatives because no significant hydrology or water quality impacts have been identified.

Impact 4.3-2 in Section 4.3 (Air Quality), Impact 4.10-1 (Noise), and Section 4.15 (Energy and Climate Change) addresses the potential construction-related air quality, noise, and greenhouse gas impacts,

respectively, associated with construction of the recharge basins and concludes that impacts can be reduced to less-than-significant levels with implementation of the identified mitigation measures.

Potential impacts on biological resources associated with construction of the 8-mile-long dual water pipeline required to deliver water from the CWCR site to the Project Site are addressed in Impact 4.4-1, Impact 4.4-4, Impact 4.4-5, Impact 4.4-7, and Impact 4.4-11 of Section 4.4 (Biological Resources). Potential impacts on fisheries resources associated with use of the various water supply alternatives (in terms of water quantity or quality of the San Joaquin River) are addressed in Impact 4.4-6 in Section 4.4 (Biological Resources). These impact evaluations conclude that impacts would be less than significant, or significant impacts can be reduced to less than significant with implementation of mitigation measures.

Impact 4.2-3(a) discusses the use of groundwater from CWCR with respect to agricultural operations at the site, which concludes that impacts would be less than significant.

Alternative Water Supply Alternatives Conclusion

The 2012 SWSA and SSWSA conclude that sufficient alternative water supplies other than Holding Contract No. 7 exist to meet the projected 20-year demands for the Project, as well as the demands at full buildout during normal, critical dry, and multiple dry years (RPC 2012). No new or expanded entitlements are required for the Project. Impacts would be *less than significant*, and no mitigation is required.

Threshold	Would the Proposed Project require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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Impact 4.14-2 **The Proposed Project would require the construction of new water treatment facilities. Construction of such facilities would result in potentially adverse physical impacts. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR. This would ensure that the Proposed Project’s impact with respect to water treatment would be *less than significant*.**

Water Infrastructure Assuming the Use of Holding Contract No. 7 or MID Water

No TVMMWC facilities presently exist on the Project Site to receive, treat, store, or deliver surface water for urban uses. TVMMWC would contract with its shareholding landowner to utilize existing facilities owned by them to divert water from the river and possibly from wells near the river. Water would be diverted via an existing intake and pipeline owned by the landowner from the river to a site within the project area (PPEG 2007b, amended 2008b).

A water treatment plant would be constructed to serve the Tesoro Viejo Project. It would be located west of the existing terminus of the river diversion pipeline and irrigation lines. The water treatment plant would process river water pumped through pipelines in an existing easement, which runs from the river intake pumps through the Sumner Hill subdivision. A redundant supply pipeline may be run in a

parallel alignment, as needs dictate (PPEG 2007a, amended 2008a). The water treatment facilities are shown in Figure 4.14-4 (Proposed Backbone Water System).

The proposed treatment plant must be sized and designed to meet consecutive maximum day demand with one treatment plant operating unit out of service (PPEG 2007a, amended 2008a). Treatment would conform to the applicable DPH and EPA regulations in effect at the time of design and construction. The construction of this facility would be phased with development of the Project (PPEG 2007a, amended 2008a).

The treatment methodologies discussed in the IMP are, of necessity, general in nature. No specific recommendations can be made until water samples are available and the required treatment program is developed; however, it can be assumed that the San Joaquin River water supplies can be treated to meet DPH primary and secondary standards with conventional and available technologies (PPEG 2007a, amended 2008a).

Although water production capacity must be adequate to meet consecutive maximum day demand, water distribution pumping capacity and redundancy must be adequate to meet peak hour flow demand (or maximum day demand plus fire flow, whichever is greater) with any single booster pump out of service.

Water storage requirements include three components: fire flow, peak demands, and contingency backup. Water storage requirements would increase as the development progresses. Additional water supply redundancy would reduce the requirement for backup storage; more-intensive land use would increase the fire flow and storage requirement.

Fire Flow

Fire flow storage must be sufficient to provide 120 minutes of operation at the highest required fire flow while also meeting maximum day demand of the project, as developed at the time. For residential only development, fire flow would be a minimum of 1,000 gallons per minute (gpm). As commercial, industrial, or school uses are developed, required fire flow and fire storage would increase (PPEG 2007a, amended 2008a). Minimum fire flow requirements for each land use type are provided in the IMP.

Peak Demand

The water supply infrastructure would be designed to meet maximum day demand on a sustained basis over a number of days, and peak hour demands sustained for six hours each day. Peak hour demands would be met by pumping from treated storage in addition to the sustained water supply. The treated storage, referred to as peak demand storage, would be refilled daily during lower demand hours. Calculations demonstrating the need for peak demand storage, and the required capacity thereof, shall be submitted with each application for subdivision improvement drawings, for approval by the operating District (PPEG 2007a, amended 2008a).

Storage

Storage tanks would be placed next to the treatment plant, and adjacent to the Madera Canal. Contingency backup storage of treated water provides a measure of safety against equipment or power

failure. Storage of treated water equivalent to 20 percent of average day demand for the cumulatively approved units would be provided.

The greater of fire flow storage and peak hour storage must be added to contingency storage requirements to reach the total treated storage requirement. All storage volumes would be net usable volume of the tanks or reservoirs proposed (PPEG 2007a, amended 2008a).

Treatment

As previously mentioned, no TVMMWC facilities presently exist to receive, store, or deliver surface water within the Tesoro Viejo Project; therefore, a surface water treatment plant would be constructed to serve the Project. It would be located near the existing terminus of the river supply pipeline, and existing water filtration facilities, adjacent to the wastewater treatment plant (PPEG 2007a, amended 2008a).

Use of surface water either directly from the San Joaquin River or from the Madera Canal or Lateral 6.2 would require on-site treatment to meet potable water standards for potable uses. California Department of Public Health (DPH) approval for a potable water treatment plant would be necessary. In addition, Central Valley Regional Water Quality Control Board (Region 5) approval of wastewater treatment and reuse, including review and approval of Report of Waste Discharge and Title 22 Engineering Report would also be necessary. Based on design and economic considerations, supplemental nonpotable surface water treatment may be integrated with the reclaimed water filtration and disinfection processes, thereby reducing the required treatment capacity of the potable water treatment plant (RPC 2012).

Water Infrastructure for Groundwater

Potable Water Treatment

Generally, groundwater would not require treatment to meet potable standards, other than conventional disinfection.

Timing of Water Infrastructure Projects

The CWCR wells, pumps, and pipelines delivering water to TVMMWC under the groundwater-use alternatives would not be implemented until and unless the Holding Contract No. 7 water was determined to not be legally available. In this case, it would take approximately one year to construct the CWCR groundwater import Project and obtain necessary permits and approvals, which is considered sufficient time to implement that Project to meet initial phases of the Project (RPC 2012).

On-site groundwater would be used for the initial phase of the Project in all alternative water supply scenarios, as indicated above, and may also be used as a redundant/dry year supply if Holding Contract and/or other surface water sources are ultimately confirmed or added to the supply portfolio (RPC 2012).

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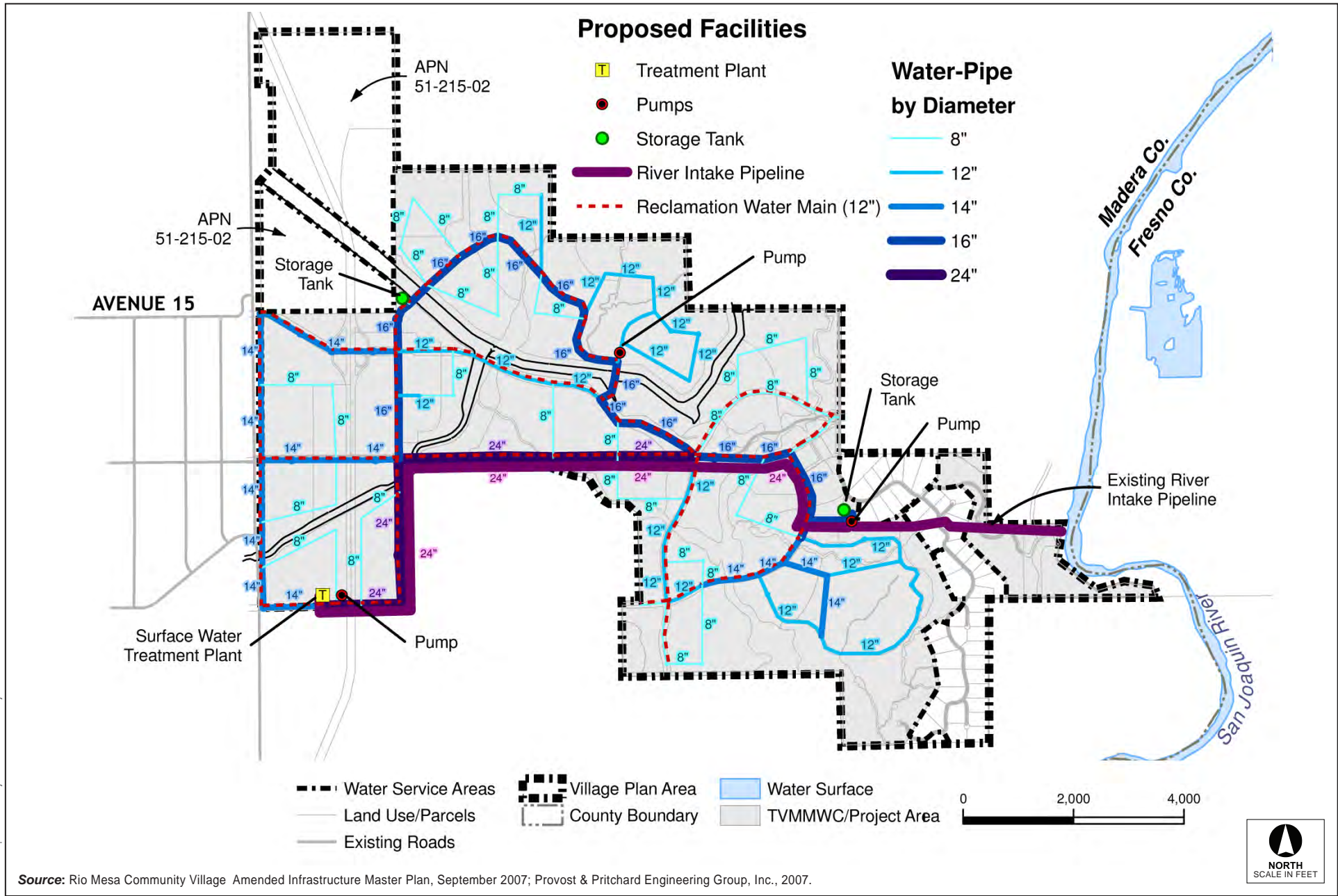


Figure 4.14-4
Proposed Backbone Water System

Construction of New Facilities

The construction and operation of water supply facilities could result in the following potentially significant environmental impacts:

- Exposure of soils to erosion and loss of topsoil during construction
- Surface water quality degradation (cumulative impact)
- Destruction or disturbance of subsurface archeological or paleontological resources
- Construction-related air emissions
- Construction and operations-related noise impacts
- Visual and/or light and glare impacts
- Loss of protected species and degradation or loss of their habitats
- Conversion of existing agricultural lands or resources
- Degradation of fisheries habitat (cumulative impact)
- Exposure to pre-existing listed and unknown hazardous materials contamination

Because the construction of a new water treatment plant and distribution system is considered to be part of the Proposed Project, environmental impacts resulting from general construction are addressed in this EIR. Construction-related mitigation measures provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) would prevent substantial adverse physical impacts related to the construction of new water treatment and water distribution facilities from occurring. All potential construction-related impacts have been mitigated to a less-than-significant level in each of these respective sections. Because the water treatment plant is part of the Proposed Project and not part of a regional system that needs to be addressed separately, there are no impacts related to construction of new water treatment facilities with respect to water supply. This is considered to be a *less-than-significant* impact.

4.14.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

Cumulative development would increase the demand for water supply, storage, and distribution. The water supply facilities have sufficient capacity to serve the projected demand from the Proposed Project, but do not have capacity to serve other foreseeable and approved projects. The proposed facilities are intended to serve only the Proposed Project and are not considered regional facilities. For this reason, there is no contribution to cumulative impacts with regard to water supply, storage, and distribution.

~~The geographic context for the analysis of cumulative aesthetic impacts varies by threshold. Thus, the geographic context for the Cumulative Analysis is presented for each threshold.~~

Threshold	Would the Proposed Project exceed water supplies available to serve the project from existing entitlements, or are new or expanded entitlements needed?
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The geographic context for cumulative impacts associated with the availability of existing water supplies assuming Holding Contract No. 7 supply would be the San Joaquin River watershed. Because the Proposed Project would be using surface water diverted from the San Joaquin River pursuant to Holding Contract ~~Number No.~~ 7, the cumulative impact on water supply for all users of San Joaquin River surface water is potentially significant. Due to the nature of this shared resource, the following mitigation measure applies:

MM4.14-cum1 The County shall require a Water Supply Verification, pursuant to Senate Bill 221 and/or Senate Bill 610, for all development occurring in the County, independent of the size of the proposed development. This will ensure adequacy of the water supply and reliability of this shared resource.

The Proposed Project would divert up to 3,150 AF annually from the San Joaquin River plus any additional amounts for which there are compensatory reductions in withdrawals or permitted discharges into the River of treated effluent (refer to Table 4.14-3), which would represent no increase in diversions over current uses. From a cumulative perspective, the water diversions from the San Joaquin River include approximately 200,000 ~~acre-feet~~AF being diverted under holding contracts, 800,000 ~~acre-feet~~AF allocated as Class I water supplies, and an additional 1,400,000 ~~acre-feet~~AF allocated as Class II water. Holding contracts represent the highest priority rights on the San Joaquin River, and are fulfilled without shortage every year. ~~The~~It is anticipated the Proposed Project's water supply ~~is~~would be based upon TVMMWC's rights under Holding Contract No. 7 (PPEG 2007b, amended 2008b) and would, therefore, not contribute to any increase in cumulative diversions.

Class I water supplies are considered dependable in practically every year, with partial deficiencies only in occasional critically dry years. Class II water is that water in excess of Class I commitments, and accordingly is less dependable as to its quantity and frequency of occurrence. Class II water supply allotments have averaged 45 percent of Class II contractual amounts since 1966 (PPEG 2007b, amended 2008b). The Project would not contribute to any increase in diversions.

Because the Project-specific impact is less than significant and would occur under existing entitlements, the Project would not contribute to cumulatively considerable impacts. Upon implementation, the Proposed Project's contribution to a cumulative impact with regard to this threshold would, therefore, be ***less than significant***.

In the event Holding Contract No. 7 water is not available, and one of the water supply alternatives is implemented, the water supply portfolios have been designed to ensure they would be water balanced (i.e., no net increase) in water supplies that would require the need for new or expanded entitlements. In addition, as demonstrated in Impact 4.8-4 (in Section 4.8 [Hydrology and Water Quality], the Project would not have an adverse physical effect on local or regional groundwater conditions. Thus, the Project's impacts would be neither adverse nor cumulatively considerable, and the cumulative impact would be ***less than significant***.

Threshold	Would the Proposed Project require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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Construction impacts related to the new water treatment facility are site-specific and would not contribute to cumulative impacts. Project-specific impacts related to construction of the water treatment facility would be less than significant due to compliance with construction mitigation measures discussed in Impact 4.14-2. The Proposed Project's contribution to a cumulative impact with regard to the construction of a new water treatment facility is not considerable and would be *less than significant*.

4.14.5 References

The references for Section 4.14 and Section 4.15 were misplaced, in some cases. The text of the 2008 Final EIR has been revised to provide the correct references in the correct sections; ~~however, no new references have been added.~~

- Community Design + Architecture. 2007~~8~~, amended 2008~~12~~. ~~Amended Proposed Tesoro Viejo Specific Plan~~, July.
- Madera County. 1995a. *Final Rio Mesa Area Plan*. Prepared by The Keith Companies, March 21.
- . 1995b. *Madera County General Plan*, October.
- McCormick, Kidman, and Behrens. 2002. *Water Supply and Development: A User's Guide to California Statutes Including SB 221 (Kuehl) and SB 610 (Costa)*, pp.7–11. Sacramento: Association of California Water Agencies.
- Provost and Pritchard Engineering Group (PPEG). 2007a, amended 2008a. *Amended Infrastructure Master Plan for Rio Mesa Community Village*. Prepared for Tesoro Viejo, Inc., July.
- . 2007b, amended 2008b. *Amended Water Supply Assessment for the Tesoro Viejo Project*. Prepared for Tesoro Viejo Master Mutual Water Company, July.
- Ripley Pacific Company (RPC). 2012. *Supplemental Water Supply Assessment for the Tesoro Viejo Project, Madera County, CA*.
- . 2012a. *Supplemental Water Supply Assessment. Volume 2A (Groundwater Conditions in the Madera Sub-Basin and in the Southeast Madera County Area)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- . 2012b. *Supplemental Water Supply Assessment. Volume 2B (Groundwater Conditions at and near the Tesoro Viejo Project)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- . 2012c. *Supplemental Water Supply Assessment. Volume 2C (Groundwater Production, Water Levels, Water Quality, and Soil Borings at the Cottonwood Creek Ranch)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- . 2012d. *Supplement to Supplemental Water Supply Assessment for the Tesoro Viejo Project, Madera County, CA*.
- Sherwood Design Engineers (SDE). 2012a. *Tesoro Viejo, Inc. Supplemental Infrastructure Master Plan*, May 15.
- . 2012b. *Tesoro Viejo, Inc. Supplement to Supplemental Infrastructure Master Plan*, May 23.

Wastewater Collection, Transmission, and Treatment [Revised in Part]

4.14.6 Environmental Setting

The Project Site is undeveloped land; consequently, there are no existing wastewater facilities or conveyance structures on site to serve the Project.

4.14.7 Regulatory Framework

■ Federal

NPDES Permits

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the *Clean Water Act of 1972* to regulate municipal and industrial discharges to surface waters of the US. The discharge of wastewater to surface waters is prohibited unless an NPDES permit has been issued to allow that discharge. Each NPDES permit includes the following provisions: effluent and receiving water limits of allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, and self-monitoring activities; and other regulatory requirements.

The NPDES permit and the Waste Discharge Requirements (WDR) are used to identify discharge prohibitions, effluent limitations, and monitoring and reporting requirements. The discharge prohibitions and limitations in the permit are designed to ensure the maintenance of public health and safety, protection of receiving water resources, and safeguarding of designated beneficial uses of water bodies. Discharge limitations in the permit define allowable effluent concentrations for flow, biochemical oxygen demand (BOD), total suspended matter, residual chlorine, settleable matter, total coliform, oil and grease, and pH. Limitations also encompass mineralization and toxicity to aquatic life. The provisions provide stipulations for the disposal of solid materials, and limitations on impacts to receiving waters. The permit also specifies the sampling, monitoring, and reporting of requirements for compliance with waste discharge regulations. The monitoring program entails sampling influent, effluent, and the receiving water. The provisions of the NPDES permit and the WDR are enforceable through an order issued by the RWQCB or civil action.

Title 40 of the *Code of Federal Regulations* (CFR), Part 503 and Part 258, serves as the basis for the RWQCB requirements for biosolids disposal by land application or in a landfill. Title 27 of the *California Code of Regulations* (CCR) and standards established by the RWQCB in a General Order for the Disposal of Biosolids regulate the disposal of biosolids.

Title 40 of the CFR, Parts 405 through 471, contains the Federal Categorical Pretreatment Standards for the pretreatment of industrial wastes discharged to publicly owned treatment works.

Policy Consistency

According to the Amended IMP, there are several options for the disposal of excess effluent generated by the Proposed Project, including the potential for discharge to the San Joaquin River, which would require an NPDES permit, as well as groundwater recharge, and reclaimed water irrigation. The primary method of disposal will be reclamation onto landscaped areas, public open spaces, and the VLDR open space within the Project Site (PPEG 2007a, amended 2008a). A decision regarding the proposed method to dispose of excess effluent has not yet been made; therefore, permits to discharge to the San Joaquin River have not yet been acquired. However, as a condition of project approval, the County would ensure that the Proposed Project is properly permitted for any and all discharges to the San Joaquin River. Therefore, the Proposed Project would be consistent with this policy. Specific information related to an individual NPDES permit for the Proposed Project is also included in Section 4.8 (Hydrology and Water Quality) of this EIR.

■ State

Porter-Cologne Water Quality Control Act

The *Porter-Cologne Water Quality Control Act*¹⁵⁷ is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the State must adopt water quality policies, plans, and objectives that will provide protection to the State's waters for the use and enjoyment of the people of California. In California, the State Water Resources Control Board (SWRCB) has authority and responsibility for establishing policy for water quality control issues for the State. The SWRCB delegates regional authority for planning, permitting, and enforcement to the nine Regional Water Quality Control Boards (RWQCB). The Porter-Cologne Act authorizes the SWRCB and RWQCB to issue NPDES permits and WDRs containing waste discharge requirements, and to enforce these permits. SWRCB and RWQCB regulations implementing the Porter-Cologne Act are included in Title 27 of the CCR. Regional water quality requirements, criteria, and prohibitions are found in the Regional Water Quality Control Plan or "Basin Plan."

California Department of Public Health Services

DPH and its division of Drinking Water and Environmental Management are responsible for enforcing the federal and state *Safe Drinking Water Acts*, and for enforcing Title 22 of the CCR. Specific responsibilities of Drinking Water and Environmental Management include: the enforcement of drinking water quality standards, issuance of operating permits for water suppliers, review of plans and specifications for new water treatment facilities, enforcement actions for noncompliance with laws and regulations, and review of water quality monitoring results. The water treatment facility associated with the Proposed Project would meet water quality and monitoring requirements detailed in Title 22. The proposed wastewater reclamation plant would meet water-recycling criteria that are outlined in the California Health Laws Related to Recycled Water (also known as the "Purple Book") published by DPH.

¹⁵⁷ *California Water Code* Sections 13000 et seq.

Wastewater Recycling Standards—California Water Code (CWC)

The California Legislature has declared the primary interest of the people of California in the development of facilities to recycle wastewater to supplement existing water supplies and to meet future water demands (CWC Sections 13510–13512). State policy (State Board Resolution No. 77-1) affirms this commitment to encourage recycled water use. However, because reclamation projects tend to add to the salt balance problem in the region, they must be carefully planned and implemented.

The mineral quality of the receiving water (surface or groundwater) can be adversely affected by high salt content of the reclaimed water. Each cycle of water use increases the salinity of the water. The amount of the increase depends on the type of use; normal domestic use generally adds 200 to 300 mg/L of total dissolved solids (TDS) to the initial concentration. Agricultural use generally doubles the salinity, while industrial uses most often degrade water quality to a level where it may be unsuitable for discharge. Therefore, it is important that the type of reclaimed wastewater use and the likely effects on water quality be evaluated carefully prior to initiating such reuse.

Master Reclamation Permit

Any person who proposes to produce or use recycled water must file a report (CWC section 13522.5) and obtain water reclamation requirements (CWC section 13523) or a master reclamation permit (CWC Section 13523.1). The CWC (Sections 13500–13529.4) requires that Department of Public Health (DPH) establish criteria for each type of use of recycled water and the DPH regulations for this purpose are contained in Title 22, CCR. As of March 2012, DPH has not adopted regulations concerning recharge of groundwater with recycled water are pending.

Policy Consistency

The Proposed Project, upon approval and implementation, would receive and abide by all relevant permits, including, but not limited to, a NPDES permit if surface water discharge is to be used for disposal of excess effluent, WDR for biosolids disposal, a master reclamation permit for recycled water use, and all drinking water would meet Title 22 standards for drinking water quality. Therefore, the Proposed Project would be consistent with these policies. Specific information related to these permits is also included in Section 4.8 (Hydrology and Water Quality) of this EIR.

■ Regional

The Central Valley RWQCB has a “Wastewater Reuse Policy”, which can be found in the Basin Plan. This policy:

... encourages the reclamation and reuse of wastewater...where practicable and requires as part of a Report of Waste Discharge an evaluation of reuse and land disposal options as alternative disposal methods. Reuse options should include consideration of the following, where appropriate, based on the quality of the wastewater and the required quality for the specific reuses: industrial and municipal supply, crop irrigation, landscape irrigation, ground water recharge, and wetland restoration. Where studies show that Year-round or continuous reuse or land disposal of all of the wastewater is not practicable, the Regional Water Board will require dischargers to evaluate how reuse or land disposal can be optimized, such as consideration of reuse/disposal for part of the flow and seasonal reuse/disposal options (e.g., dry season land disposal). (CIWMB 2007c, p. IV-14.00)

Policy Consistency

According to the Amended IMP, there are several options for the disposal of excess effluent generated by the Proposed Project, including the potential for discharge to the San Joaquin River (as previously discussed), groundwater recharge, and reclaimed water irrigation. The primary method of disposal will be reclamation onto landscaped areas, public open spaces and the VLDR open space within the Project Site (PPEG 2007a, amended 2008a). A decision regarding the proposed method to dispose of excess effluent has not yet been made; however, a decision to implement surface water discharge to dispose of excess effluent may not be consistent with the “Water Reuse Policy” unless other options prove infeasible. Disposal of excess effluent through groundwater recharge or recycled water irrigation would, however, be consistent with the above-mentioned policy.

■ Local

Madera County General Plan

The following policies from the 1995 Madera County General Plan apply to wastewater collection, transmission, and treatment:

Goal 3.A To ensure the timely development of public facilities and to maintain an adequate level of service to meet the needs of existing and future development.

Policy 3.A.1 The County shall ensure through the development review process that adequate public facilities and services are available to serve new development. The County shall not approve new development where existing facilities are inadequate unless the applicant can demonstrate that all new necessary public facilities will be installed or adequately financed and maintained (through fees or other means).

Policy Consistency:

All infrastructure construction would be developer-financed, through a mix of private and Mello-Roos Community Facilities District or other similar County-sponsored and privately supported financing.

Policy 3.A.2 The County shall ensure that public facilities and services are developed and operational as they are needed to serve new development.

Policy Consistency:

Construction of all infrastructure shall be phased with development.

Policy 3.A.3 The County shall require new urban development to be served by community sewer and water systems where such systems are available or can be feasibly provided.

Policy Consistency:

A community wastewater system would serve the Proposed Project.

Policy 3.A.4 The County shall discourage expansion of rural communities unless necessary services can be provided.

Policy Consistency:

Necessary infrastructure and services shall be provided as part of the Proposed Project.

Policy 3.A.5 The County shall require detailed public facility planning as part of the area plans for designated new growth areas.

Policy Consistency:

An IMP has been provided for the Proposed Project.

Goal 3.B To ensure that adopted facility and service standards are achieved and maintained through the use of equitable funding methods.

Policy 3.B.1 The County shall require that new development pay its fair share of the cost of developing new facilities and services and upgrading existing public facilities and services subject to the requirements of California Government Code Section 66000, et seq. (AB 1600); exceptions may be made when new development generates significant public benefits (e.g., low income housing) and when alternative sources of funding can be identified to offset foregone revenues.

Policy Consistency:

All infrastructure construction would be developer-financed, through a mix of private and Mello-Roos Community Facilities District or other similar County-sponsored and privately supported financing.

Goal 3.D To ensure adequate wastewater collection and treatment and the safe disposal of liquid and solid waste.

Policy 3.D.1 The County shall limit the expansion of urban communities to areas where community wastewater treatment systems can be provided. In areas with no public wastewater treatment systems, the County shall limit development to densities that can safely be developed with on-site systems.

Policy Consistency:

A community wastewater treatment system is part of the Proposed Project.

Policy 3.D.2 The County shall promote efficient water use and reduced wastewater system demand by:

- Requiring water-conserving design and equipment in new construction
- Encouraging retrofitting with water-conserving devices
- Designing wastewater systems to minimize inflow and infiltration, to the extent economically feasible

Policy Consistency:

Water conservation and reclamation would be emphasized in project design, in order to meet the water use goals stated in the Area Plan EIR and reduce use of river water. Water-conserving plumbing fixtures and conjunctive reuse of reclaimed water are principles central to the project design standards.

Policy 3.D.3

The County shall permit onsite sewage treatment and disposal on parcels where all current regulations can be met; where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards; and where community sewer service is not available and cannot be provided.

Policy Consistency:

Onsite sewage treatment is proposed for the very low density residential uses on the eastern portion of the Project Site. When the community wastewater treatment plant is built, connection to the community system will be feasible. Allowing development of those lots without connection to the community system is inconsistent with the General Plan policy.

Policy 3.D.4

The County shall require that the development, operation, and maintenance of onsite disposal systems comply with the requirements and standards of the County Department of Environmental Health.

Policy Consistency:

All disposal operations would operate under the permitting authority of the Regional Water Quality Control Board and the DPH.

Rio Mesa Area Plan

The RMAP contains the following policies relevant to water supply, storage, treatment, and distribution:

Goal 1 Provide an overall master plan for the placement and sizing of necessary infrastructure to service the entire plan area, or logical subarea thereof as approved by the County.

Policy 1.1 Facilities shall be sized consistent with infrastructure master plans or local subareas thereof as approved by the County and not solely to individual project needs.

Policy Consistency:

Facilities shall be sized according to the IMP for the Proposed Project.

Policy 1.2

Limit adverse impacts on surrounding communities by providing needed public facilities coordinated planning with surrounding areas, and restricting land use intensity to avoid severe traffic impacts on neighboring communities.

Policy Consistency:

There is no mention of coordinated planning in the IMP. The lack of coordinated plans with adjacent development is inconsistent with the General Plan policy.

Goal 2

Require provision of infrastructure concurrent with need, provided ultimate master plans are implemented.

Policy 2.1

Prepare an infrastructure phasing plan to cover the entire area plan or logical subarea thereof as approved by the County, to ensure that public services, utilities and infrastructure are in place when development occurs.

Policy Consistency:

An IMP has been prepared for the Rio Mesa Community Village.

Policy 2.3

Areas lacking availability of public facilities should not be developed for urban use unless necessary infrastructure either exists or will be provided for at the time of development.

Policy Consistency:

Necessary infrastructure would be provided at the time of development.

Policy Consistency

For the General Plan and RMAP, and with respect to wastewater collection, transmission, and treatment, a policy consistency analysis has been provided after each policy.

4.14.8 Project Impacts and Mitigation

■ Analytic Method

Water use and wastewater flows are positively correlated. In general, wastewater is generated from indoor water uses, such as toilets, as well as industrial and commercial discharges, such as those resulting from restaurant operations. To determine the amount of wastewater that would be generated by the Proposed Project, wastewater flow projections were based on land use type. Residential flow generation was based upon gallons per Equivalent Dwelling Unit (EDU) per day; commercial land use generation was calculated by square footage, and school flows were based upon projected student population. These

values were used to estimate the average daily wastewater flow (ADWF) in gallons per day (gpd) for each land use category.

Unit wastewater flows were based on data from the 2003 edition of “Wastewater Engineering—Treatment and Reuse,” by George Tchobanoglous, and from “Small and Decentralized Wastewater Management Systems,” by Ron Crites and George Tchobanoglous, both recognized texts on wastewater generation, treatment and disposal.

Using the dwelling unit totals, wastewater generation values were computed based on dwelling units, assuming 3.2 people per dwelling unit¹⁵⁸ and 75 gallons per person per day. This results in a total of 240 gpd per EDU, a figure that is proportionate to flows contributed by new developments in the Central Valley, such as the Quail Lakes subdivision east of Clovis. For high-density residential units, a lower per-EDU contribution of 206 gpd has been used to account for lower occupancy rates and thus, lower use of water-demanding plumbing fixtures.

For commercial land uses, wastewater generation was based on the amount of planned commercial square footage, assuming 70 gallons for every 1,000 square feet in addition to the anticipated number of residential units.

Wastewater impacts were then determined by comparing the estimated future wastewater flows to the capacity of the sewer lines and the water treatment plants to determine whether sufficient capacity exists and/or whether there is the need for additional wastewater conveyance or treatment systems.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G to the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on wastewater conveyance systems or treatment facilities if it would do either of the following:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments, or require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects¹⁵⁹

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to wastewater collection, transmission, and treatment.

¹⁵⁸ In order to provide a conservative analysis, and one that more closely matches the actual flows from new developments in the Central Valley, an average of 3.2 people per dwelling unit was applied, rather than the 2007 average of 3.0 people per dwelling unit for unincorporated Madera County.

¹⁵⁹ Combines the thresholds from the CEQA Guidelines Appendix G (Section XVI(b) and XVI(c)) to cover possible adverse physical impacts from the expansion of wastewater treatment facilities.

■ Impacts and Mitigation Measures

Threshold	Would the Proposed Project exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil and groundwater quality? ¹⁶⁰
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■ Biosolids

Impact 4.14-3 The Proposed Project would not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to biosolid disposal. This is considered a *less-than-significant* impact.

Disposal of biosolids generated by the WWTP in Rio Mesa Community Village will be in accordance with regulations contained in EPA 40 CFR 503, and State Water Resources Control Board Water Quality Order 2000-01-DWQ, “*General Waste Discharge Requirements for the Discharge of Biosolids to Land ~~for~~ Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities (General Order).*” Biosolids generated at the wastewater treatment plant would be trucked to the County-operated Fairmead Landfill for ultimate disposal; Fairmead receives all biosolids currently produced by publicly owned treatment works in the County.

In any case, all disposal operations will operate under the permitting authority of the Regional Water Quality Control Board (RWQCB) and the Department of Health Services (DHS), and shall comply with any future Madera County ordinance which regulates land application of treated municipal sludge. (No ordinance is currently in place, though such legislation has been considered.)

Prior to commencement of wastewater treatment operations, the District operating the Wastewater Treatment Plant shall prepare, for approval by RWQCB and DHS, a Biosolids Disposal Plan. Such plan shall address expected chemical composition, monitoring, and testing of biosolids, in addition to long-term impacts upon the disposal site, underlying groundwater and current cropping patterns.

The solid wastes produced by wastewater treatment would be processed and treated to Class A pathogen reduction levels. Class A biosolids contain no detectible levels of pathogens and are suitable for disposal with minimum restrictions on use. Treatment processes may include stabilization by digestion or composting to reduce potential pathogens to permissible levels. To help ensure that Class A sludge quality can be produced, industrial wastewater pre-treatment, monitoring, permitting, and control programs will be implemented, as appropriate, in accordance with USEPA 40 CFR 403 regulations (PPEG 2007a, amended 2008a) through the issuance of WDRs by the RWQCB.

Average daily flow of wastewater to the treatment plant is expected to be 1.9 million gallons per day (mgd) at full buildout of the Project. There would be ~~one~~1 ton of solids generated by the WWTP each day. At 25 percent moisture, 1,500 tons of biosolids would be generated every year, requiring approximately 70 trucks per year to haul off the solids. Impacts related to the transportation of biosolids

¹⁶⁰ The Regional Water Quality Control Board requirements may allow for degradation of groundwater; therefore, as required by CEQA, the threshold was modified to address groundwater and soil quality impacts.

have been assumed in the traffic analysis provided in Section 4.13 (Transportation/Traffic) of this EIR. Impacts related to landfill capacity are addressed later in this section.

Because the biosolids disposal processes would be in conformance with Waste Discharge Requirements to be issued by the RWQCB and would not impact soil or groundwater quality, this impact is considered *less than significant*. No mitigation is required.

Threshold	Would the Proposed Project exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or impact soil and groundwater quality? ¹⁶¹
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■ Effluent Disposal

~~At present, the Project Applicant is considering several options for disposal of the excess effluent produced over the years, although there is not projected to be any excess effluent not needed for on-site irrigation at the present time. There options include, but are not limited to the following: discharge to the San Joaquin River; transport to an offsite storage pond via an underground pipe for application to crop land not adjacent to the Rio Mesa Community Village; or the allowance of percolation of the excess treated effluent into the groundwater basin through unlined storage basins. One or a combination of these options could be used if there were to be excess effluent; therefore, the impacts associated with each option are discussed in detail below. Similarly, Impact 4.8-2 in Section 4.8 (Hydrology and Water Quality) of this EIR also addresses the potential water quality impacts from each of these potential disposal methods.~~

As described in Impact 4.14-1, the amount of recycled water available for exterior demand would be less than projected in the 2008 Final EIR, because less wastewater would be generated as a result of additional conservation measures. This would result in a shortfall in recycled water to be used for exterior irrigation. Because no excess effluent requiring disposal is anticipated with the water supply alternatives, there would be *no impact*.

~~Surface Water Discharge~~

~~**Impact 4.14-4** The Proposed Project would not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to effluent disposal. This is considered a *less than significant* impact.~~

~~In the case that excess effluent is discharged to the San Joaquin River, all discharges would comply with the requirements of the applicable NPDES permit, which requires protection of the beneficial uses of the San Joaquin River, with the most restrictive use being a municipal drinking water supply. To maintain compliance with the CVRWQCB's Water Reuse Policy, this option would be implemented only if the other options that include some conjunctive use of the effluent prove infeasible. This impact would be *less than significant*. No mitigation is required.~~

¹⁶¹ The Regional Water Quality Control Board requirements may allow for degradation of groundwater; therefore, as required by CEQA, the threshold was modified to address groundwater and soil quality impacts.

Recycled Water Irrigation

Impact 4.14-5 **The Proposed Project could exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to recycled water irrigation. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.14-5(a) through MM4.14-5(d) would reduce this impact to a *less-than-significant* level.**

In light of the RWQCB's Wastewater Reuse Policy, the primary method of effluent disposal would be as reclaimed water for irrigation. Treated effluent would be applied for irrigation of major street medians, major street frontage landscaping, parks, and other irrigated recreational open space (PPEG 2007a, amended 2008a). There are approximately ~~247~~218 acres of open space and parks proposed in the land use plan for Tesoro Viejo, in addition to another ~~200~~128 acres of open space and recreational areas associated with boulevards, trails, and neighborhood parks that would be incorporated into the Proposed Project. Reclaimed wastewater would also be used to irrigate open space in the VLDR zoned areas and possibly elsewhere. Treated effluent may also be used for agricultural irrigation or for industrial uses where allowed, and to the extent available (PPEG 2007a, amended 2008a). In all cases, treated effluent would be applied in accordance with all applicable laws and regulatory approvals.

It is anticipated there would be ~~2,128 acre-feet~~approximately 1,570 AF of effluent produced each year, less than needed for outdoor uses. For the Tesoro Viejo project, the required spray disposal acreage needed during a 100-year annual rainfall year would be 515 acres.¹⁶² Projected demand exceeds available supplies. The remainder of the Rio Mesa Community Village would require an additional 115 acres of disposal land, totaling 630 acres (PPEG 2007a, amended 2008a). Less acreage would be needed for disposal in dry years. As development occurs, reclaimed water in excess of the amount needed for allowable uses within the developed areas, if any, would be used to irrigate agricultural land within the Community Village and may also be used or for off-site agricultural irrigation or for permitted discharge to the San Joaquin River (PPEG 2007a, amended 2008a; RPC 2012, 2012a, 2012b, 2012c, 2012d; SDE 2012a, 2012b).

~~The acreage and location of offsite parcels will be determined following an in-depth study of the Proposed Project's wastewater disposal needs, as well as consultation with the Madera County Engineering Department. Preliminary studies by Provost and Pritchard indicate a need for approximately 500 acres of offsite land for wastewater disposal. If needed, A~~ storage pond would be constructed to contain excess effluent prior to land application; the required volume of the storage pond is unknown at this time. Also, although the effluent would meet Title 22 requirements for unrestricted use and the application of treated wastewater would be in conformance, impacts related to the land application of treated wastewater may occur. If this disposal method is chosen, specific impacts related to the offsite disposal area would need to be subsequently addressed.

As discussed in the IMP, SIMP, and SSIMP, water balance calculations have been prepared to demonstrate an effective balance between effluent storage and available reclamation areas, allowing

¹⁶² Different vegetation types require different levels of irrigation. It is assumed that irrigated land would consist of Bermuda grass or a similar vegetation type.

application of effluent in a manner that does not exceed the agronomic demand of the receiving lands. Therefore, the likelihood of reclaimed water passing beyond the root zone of the various crops and turf being irrigated is considered low. Potential impacts from reclaimed water irrigation to surface water quality are discussed in more detail in Section 4.8 (Hydrology and Water Quality) of this EIR.

Irrigation ~~of using~~ recycled water may impact soil and groundwater quality as a result of elevated salt loading from the recycled water compared to raw surface water. Root zone salt concentrations increase through evapotranspiration. Irrigated agriculture must maintain proper root zone salt concentrations or yield reductions would result. Leaching of salts occurs during periods when precipitation exceeds evapotranspiration or through application of excess irrigation water throughout the irrigation season or as single flushing event.

Salt loading must maintain a proper leaching fraction to maintain soil health and prevent excessive leaching to groundwater. Wastewater regularly contains 150 to 380 mg/L increase in salt concentration than the source water (Tchobanoglous et al. 2003). One major source of TDS is the use of water softeners to mitigate the hardness of groundwater. Since the project would rely solely upon river water, which is inherently soft and does not benefit from salt-based water softening, such softeners would be prohibited for use within the development to reduce the increase of TDS between the source water and effluent (PPEG 2007a, amended 2008a).

Because of the high quality of the supply water, the proposed recycled water may result in an increase of two to three times the salt concentration of the source water; therefore, the use of recycled water for the disposal of wastewater could result in a potentially substantial degradation of the soil and/or groundwater as a result of increased salt concentration. RWQCB Resolution 68-16, known as the “Antidegradation Policy,” which is further described in Section 4.8.3 (Regulatory Framework) of Section 4.8 (Hydrology and Water Quality) allows for a manageable increase in the concentration of salt in groundwater as long as best management practices (BMPs) for salt control are implemented and the project is considered a benefit to the people of the State. The use of recycled water irrigation must comply with the Antidegradation Policy by either showing no impact to groundwater or implementing BMPs for salt. Consequently, wastewater collection and treatment systems would be required to prove they can achieve these standards prior to receiving waste discharge requirements. If BMPs are implemented and some level of degradation is allowed, the project may degrade groundwater or soil quality even while complying with Waste Discharge Permits from the RWQCB. ~~Salt management BMPs, such as the prohibition or water softeners, would reduce the impact of recycled water use, but concentrated irrigation of recycled water with significantly elevated levels of TDS may result in increased salt in the groundwater or accumulation in the soil profile.~~ As a result, the following mitigation measures are required:

- MM4.14-5(a) The Developer shall determine and implement (with the approval of the County) best practicable treatment or control methods of the discharge prior to operation of the wastewater treatment plant to avoid pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.*
- MM4.14-5(b) A design application rate for recycled water irrigation shall be established to reduce impacts for salts. The design application rate may limit total salt load or require blending with surface water. This shall*

be implemented by the Developer's Project Engineer, with approval by the County, prior to operation of the wastewater treatment plant.

MM4.14-5(c) *The effluent limitation for salinity (as electrical conductivity, or EC) shall not exceed 500 µmhos/cm over source water EC or a greater limit established and enforced by the Central Valley Regional Water Quality Control Board.*

MM4.14-5(d) *Water softeners shall be prohibited for use within the Project Site.*

With implementation of mitigation measures MM4.14-5(a) through MM4.14-5(d), impacts related to recycled water irrigation (and salt loading) would be ***less than significant***.

Groundwater Recharge

Impact 4.14-6 **The Proposed Project could exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or adversely impact soil or groundwater quality due to groundwater recharge. This is considered a potentially significant impact. However, implementation of mitigation measures MM4.14-5(c) and MM4.14-5(d) would reduce this impact to a *less-than-significant* level.**

In the case that ~~excess~~ effluent is percolated to groundwater, impacts could be potentially significant. If groundwater flux is not sufficient to adequately dilute effluent, pollutant loading may occur. For this reason, effluent quality should be sufficient to protect and maintain groundwater quality. To ensure adequate effluent quality, mitigation measures MM4.14-5(c) and MM4.14-5(d), which are identified in Impact 4.14-5, are required.

With implementation of mitigation measures MM4.14-5(c) and MM4.14-5(d), impacts related to groundwater recharge would be ***less than significant***.

Threshold	Would the Proposed Project result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments, or require or result in construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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Impact 4.14-7 **There is no existing wastewater treatment plant to serve the Proposed Project; therefore, there is no existing capacity to serve the Proposed Project's projected wastewater demand. Implementation of the Proposed Project would require new wastewater treatment facilities, the construction of which could cause significant environmental effect. However, these facilities would be constructed as part of the Proposed Project and, thus, would comply with construction-related mitigation measures identified in this EIR. This would ensure that the Proposed Project's impact with respect to wastewater treatment would be *less than significant*.**

Sewer (or wastewater) service to the Project Site would include a pipeline system, trunk collection lines, force mains, pumping stations, and a tertiary-level treatment/reclamation facility, as well as a reclaimed

wastewater distribution system, including pumps and purple pipelines. Property owners in the new Tesoro Viejo subdivision would support maintenance of these systems through sewer service charges. A permanent WWTP would be constructed in increments as development occurs, funded by the development. An interim treatment plant may be constructed at the location of the lift station on the south side of Road 204, east of Rio Mesa Boulevard, until development warrants the construction of a permanent treatment plant. The WWTP, as proposed, would be constructed on approximately 11 acres, and would be located north of Avenue 14, and west of the proposed SR-41 alignment.

The eastern portion of the Project Site is planned for very low-density residential land uses and is anticipated to rely upon individual septic systems (PPEG 2007a, amended 2008a). The remainder of the Tesoro Viejo project's wastewater would be conveyed to the proposed permanent treatment plant to be located north of Avenue 14, and east of the SR-41. In light of the RWQCB's Wastewater Reuse Policy, the primary method of effluent disposal would be as reclaimed water for irrigation. The proposed wastewater facilities are shown in Figure 4.14-5 (Proposed Backbone Sewer System).

The decision on the specific treatment plant design will be determined at the time of final project design. Treatment would combine an aerated biological process and mechanical clarification process. Disinfection would occur via ultra-violet light (PPEG 2007a, amended 2008a).

Lift stations shall be wet-well designs employing submersible non-clog pumps. Each lift station shall have a minimum of two pumps. The station shall be capable of meeting the peak design flow with one pump out of service (PPEG 2007a, amended 2008a). Only one lift station is shown in the IMP, which is located just south of Road 204, east of Rio Mesa Boulevard.

All phases of the Wastewater Treatment Plant would include the filtration and disinfection systems necessary to produce tertiary effluent.

Wastewater flow projections were made to determine the size of master planned pipeline facilities and the wastewater treatment plant. Each land use type would generate the same unit wastewater flow. Residential flow generation was based upon gallons per EDU per day; commercial land use generation was calculated by square footage; school flows were based upon projected student population (Table 4.14-4 [Wastewater Generation Factors]) (PPEG 2007a, amended 2008a). These values were used to estimate the ADWF in gpd for each land use category.

Average day wastewater generation rates were determined from the product of unit wastewater values identified in Table 4.14-4 and the appropriate unit (dwelling units for residential land uses and acres for commercial land uses), as shown in Table 4.14-5 (Wastewater by Land Use) (PPEG 2007a, amended 2008a). The average daily wastewater flow to the plant at full buildout for the Rio Mesa Community Village would be 1.90 mgd (PPEG 2007a, amended 2008a).

Peak hourly wastewater generation rates were estimated because the site is currently undeveloped and no historical wastewater peaking factor could be observed. A typical peak hour to average day peaking factor of 3.0 was assumed for all land use types. At full buildout, the peak hourly flow is expected to be 3,959 gpm. Measured data should be used to determine an actual peaking factor when flow measurements become available; future facilities sizes could be adjusted, if necessary (PPEG 2007a, amended 2008a).

Table 4.14-4 Wastewater Generation Factors			
<i>Residential</i>	<i>Per Capita Use (GPCD)</i>	<i>Capita/DU</i>	<i>GPD/DU</i>
Very Low Density Residential (1 DU/acre)	75	3.20	240 gpd per DU
Low Density Residential (5 DU/acre)	75	3.20	240 gpd per DU
Medium Density Residential (9 DU/acre)	75	3.20	240 gpd per DU
High Density Residential (20 DU/acre)	75	2.75	206.25 gpd per DU
School	15 gpd per student	1,440 students	21,600 gpd
<i>Commercial</i>	<i>GPD/1,000 sf</i>	<i>Floor Area Ratio</i>	<i>GPD/Acre</i>
Highway Service	70	0.25	762 gpd per acre
Neighborhood	70	0.35	1067 gpd per acre
Community Core	70	0.50	1525 gpd per acre
Light Industrial	Not Applicable	Not Applicable	3100 gpd per acre
Agriculture	Not Applicable	Not Applicable	Not Applicable
Open Space	Not Applicable	Not Applicable	Not Applicable
Freeway ROW (estimate)	Not Applicable	Not Applicable	Not Applicable
STP and other Utilities	Not Applicable	Not Applicable	Not Applicable
Stormwater Basins	Not Applicable	Not Applicable	Not Applicable
Canals	Not Applicable	Not Applicable	Not Applicable

SOURCE: PPEG 2007a, amended 2008a, Appendix C, p. 3

Table 4.14-5 Wastewater by Land Use			
<i>Land Use</i>	<i>Per Capita Use GPCD</i>	<i>Capita/DU</i>	<i>GPD/DU</i>
Residential			
Very Low	75	3.20	240
Low	75	3.20	240
Medium	75	3.20	240
High	75	2.75	206.25
	<i>GPD/1,000 sf</i>	<i>Floor Area Ratio</i>	<i>GPD/acre</i>
Commercial			
Highway Service	70	0.25	762
Neighborhood	70	0.35	1,067
Community Core	70	0.50	1,525
Industrial			3,100
School			1,150

SOURCE: PPEG 2007a, amended 2008a, Table 4

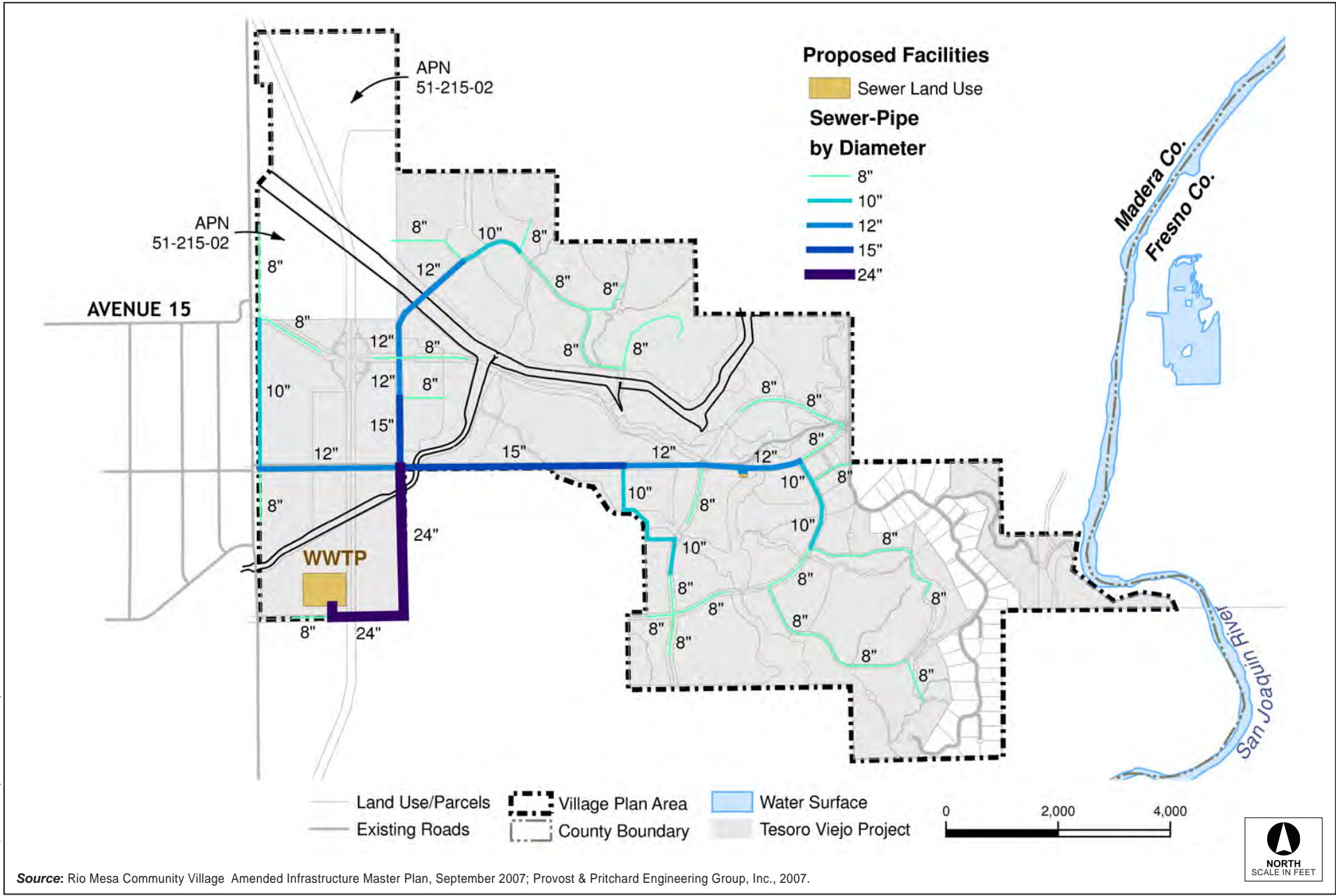


Figure 4.14-5
Proposed Backbone Sewer System

To reduce initial capital costs, the facility would be constructed in four phases. The final decision on the capacity of each phase would be made as development proceeds and absorption rates are better known. At buildout, maximum plant capacity would need to be 1.90 mgd to accommodate the ADWF from both Tesoro Viejo and the balance of the Rio Mesa Community Village. All facilities were sized for ADWF because on-site effluent storage ponds and WWTP unit processes would have sufficient capacity to attenuate diurnal peaks associated with incoming sewage flows. Effluent storage pond volumes were selected to provide adequate storage during 100-year rainfall events. In addition, the WWTP would be designed so that, if necessary, it could be easily expanded to treat additional flows (PPEG 2007a, amended 2008a, Appendix C p. 6).

Although there is currently no existing wastewater treatment capacity available to the Proposed Project, a permanent WWTP would be built within the Proposed Project boundaries to meet projected capacity. Construction of the wastewater treatment facilities would include construction of the main pipeline system, lift station, and permanent treatment plant. Wastewater collection facilities would include gravity sewer mains of 8 to 18 inches in diameter, force mains, and lift stations in areas where gravity conveyance is not feasible. The collection system would be constructed in phases, designed to correspond with the service needs of the development phases. The construction and operation of a new WWTP could result in, at a minimum, the following potentially significant environmental impacts:

- Exposure of soils to erosion and loss of topsoil during construction
- Surface water quality degradation (cumulative impact)
- Destruction or disturbance of subsurface archeological or paleontological resources
- Construction-related air emissions
- Construction and operations-related noise impacts
- Visual and/or light and glare impacts
- Loss of protected species and degradation or loss of their habitats
- Conversion of existing agricultural lands or resources
- Degradation of fisheries habitat (cumulative impact)
- Exposure to pre-existing listed and unknown hazardous materials contamination

Because the construction of a new wastewater treatment plant is considered to be part of the Proposed Project, environmental impacts resulting from general construction are addressed in this EIR. Construction-related mitigation measures provided in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), Section 4.10 (Noise), and Section 4.13 (Transportation/Traffic) would prevent substantial adverse physical impacts related to the construction of new wastewater treatment facilities from occurring. All potential construction-related impacts have been mitigated to a less-than-significant level in each of these respective sections. Because the wastewater treatment plant is part of the Proposed Project and not part of a regional system that needs to be addressed separately, there are no impacts related to construction of new wastewater treatment facilities with respect to wastewater treatment. This is considered to be a *less-than-significant* impact.

4.14.9 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which would result in no project-related impacts.

Cumulative development would increase the demand for wastewater collection, transmission, and treatment. The wastewater treatment plant has sufficient capacity to serve the projected demand from the Proposed Project, but does not have capacity to serve other foreseeable and approved projects. The proposed facilities are intended to serve only the Proposed Project and are not considered regional facilities. For this reason, there is no contribution to cumulative impacts with regard to wastewater collection, transmission, and treatment.

The geographic context for the analysis of cumulative impacts varies by threshold. Thus, the geographic context for the cumulative analysis is presented for each threshold.

Threshold	Would the Proposed Project exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board or impact soil and groundwater quality?
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■ Biosolids

The geographic context for cumulative impacts associated with wastewater treatment requirements related to biosolids would be that portion of southeastern Madera County within the service area of Fairmead Landfill. As discussed in the solid waste section, not all of the solid waste generated in the cumulative scenario would be expected to be sent to the Fairmead Landfill. Assuming that the County would continue to make efforts to comply with AB 939, development could reasonably be expected to divert 50 percent of the solid waste produced through recycling and source reduction programs, which is the AB 939 threshold for waste diversion. The estimated volume of solid waste sent to the landfill under the cumulative scenario after diversion would be 202,598 cubic yards per year, or about 1,500 tons per year. This would represent approximately 1 percent of the landfill's annual permitted disposal capacity.¹⁶³ Because there is remaining permitted capacity at the landfill, the Proposed Project's contribution to the cumulative impact would be *less than significant*.

■ Surface Water Discharge

The geographic context for cumulative impacts associated with wastewater treatment requirements related to surface water discharge would be the San Joaquin River watershed. Because of the requirements set forth by the Regional Water Quality Control Board, cumulative impacts related to discharge of treated wastewater to the San Joaquin River would be less than significant. For the same reason, the Proposed Project would not considerably contribute to cumulative impacts, and the Proposed Project's impact with regard to this threshold would be *less than significant*.

¹⁶³ According to the 2007 Landfill Methane Outreach Program, the Fairmead Landfill has an expected closure date of 2033 with an annual acceptance of about 121,000 tons per year.

■ Recycled Water Irrigation and Groundwater Recharge

The geographic context for cumulative impacts associated with wastewater treatment requirements related to recycled water irrigation would be the Madera groundwater subbasin, which is part of the San Joaquin Valley groundwater basin. Cumulative impacts related to the use of recycled water for irrigation purposes within the subbasin are potentially significant. Because the Proposed Project represents less than 1 percent of the total subbasin area, and it would comply with all prevailing regulatory requirements, as well as the Proposed Project's mitigation measures, the Proposed Project would not considerably contribute to cumulative impacts, and the Proposed Project's impact with regard to this threshold would be *less than significant*.

Threshold	Would the Proposed Project result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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The geographic context for cumulative impacts associated with the construction of wastewater treatment facilities includes buildout of the RMAP. Because the cumulative impacts associated with this threshold are confined to the Project Site and the other parcels that comprise the RMAP, and the WWTP has been conceptually designed to accommodate all development in the RMAP area, cumulative impacts would be less than significant. Further, project-specific impacts related to construction of the wastewater treatment facility are less than significant, as demonstrated in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), Section 4.7 (Hazards and Hazardous Materials), Section 4.8 (Hydrology and Water Quality), and Section 4.10 (Noise), and compliance with mitigation measures contained in this section would also ensure the project's cumulative contribution with respect to this threshold is not considerable and would be *less than significant*.

4.14.10 References

The references for Section 4.14 and Section 4.15 were misplaced, in some cases. The text of the 2008 Final EIR has been revised to provide the correct references in the correct sections; ~~however, no new references have been added.~~

Boyle Engineering. 2008. *Integrated Regional Water Management Plan*. Prepared by Boyle Engineering Corporation in association with Kenneth D. Schmidt & Associates, April.

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Madera County. 1995a. *Final Rio Mesa Area Plan*. Prepared by The Keith Companies, March 21.

———. 1995b. *Madera County General Plan*, October.

Provost and Pritchard Engineering Group (PPEG). 2007a, amended 2008a. *Amended Infrastructure Master Plan for Rio Mesa Community Village*. Prepared for Tesoro Viejo, Inc., July.

- _____. 2007b, amended 2008b. *Amended Water Supply Assessment for the Tesoro Viejo Project*. Prepared for Tesoro Viejo Master Mutual Water Company, July.
- Ripley Pacific Company (RPC). 2012. *Supplemental Water Supply Assessment for the Tesoro Viejo Project, Madera County, CA*.
- _____. 2012a. *Supplemental Water Supply Assessment. Volume 2A (Groundwater Conditions in the Madera Sub-Basin and in the Southeast Madera County Area)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- _____. 2012b. *Supplemental Water Supply Assessment. Volume 2B (Groundwater Conditions at and near the Tesoro Viejo Project)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- _____. 2012c. *Supplemental Water Supply Assessment. Volume 2C (Groundwater Production, Water Levels, Water Quality, and Soil Borings at the Cottonwood Creek Ranch)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- _____. 2012d. *Supplement to Supplemental Water Supply Assessment for the Tesoro Viejo Project, Madera County, CA*.
- Sherwood Design Engineers (SDE). 2012a. *Tesoro Viejo, Inc. Supplemental Infrastructure Master Plan, May 15*.
- _____. 2012b. *Tesoro Viejo, Inc. Supplement to Supplemental Infrastructure Master Plan, May 23*.
- Tchobanoglous, Burton, and Stensel. 2003. *Wastewater Engineering: Treatment and Reuse*. 4th edition. Table 3-16, p 187.

Solid Waste¹⁶⁴

4.14.11 Environmental Setting

■ Landfill Capacity and Diversion

In 2005,¹⁶⁵ unincorporated Madera County sent 79,988 tons of solid waste to landfills (CIWMB 2009a). Sixteen percent of this total represents residential disposal, while the remaining 84 percent was attributed to business disposal (CIWMB 2008b). The California Integrated Waste Management Board's Disposal Reporting System (DRS) reports that, as of 2004,¹⁶⁶ the County had reached an 80 percent solid waste diversion rate (CIWMB 2008a). The Madera County Resource Management Agency (RMA) achieves this diversion threshold through a limited business recycling program and through post-disposal sorting of industrial wastes (Quinlan 2007). The County does not have a post-construction or residential recycling program but does remove some post-construction wastes out of the waste stream in the Mammoth Material Recovery Facility (MRF). A residential curbside recycling program is planned for the near future (Quinlan 2007). The RMA estimates that approximately 3.75 cubic yards of solid waste are produced per Madera County resident per year.

The Fairmead Sanitary Landfill, located West of Highway 99 at Avenue 22 and Road 19-1/2, and the North Fork Transfer Station, located on Road 274 near the Town of North Fork, serve the solid waste

¹⁶⁴ Please refer to Section 4.7 (Hazards and Hazardous Materials) for a discussion of hazardous solid and/or liquid wastes.

¹⁶⁵ As of the date of publication, the most current CIWMB-verified disposal data available are from 2005.

¹⁶⁶ As of the date of publication, the most current CIWMB-verified diversion rate data available are from 2004.

disposal and transfer needs of unincorporated Madera County. The County owns the landfill, but contracts its operation to Madera Disposal, Inc. The Fairmead Sanitary Landfill consists of the old portion of the landfill (46 acres), an expansion area (over 100 acres), and the Mammoth Material Recovery Facility (MRF). The older portion of the landfill is no longer in operation. The MRF was constructed in 1995 as part of the County's efforts to comply with Assembly Bill 939, which mandates a 50 percent reduction in solid waste disposal by 2000 (relative to 1990 levels). A sorting facility at the MRF is used to extract recyclables from the waste stream, which are then recovered and sold (MCRMA 2001). The MRF is a "dirty MRF" which means that recyclables are not pre-sorted out of the waste stream; solid waste is passed through the MRF in order to remove them (Quinlan 2007).¹⁶⁷

The Fairmead Sanitary Landfill has a maximum permitted capacity of 9,400,000 cubic yards, with 59.1 percent (5,552,894 cubic yards) remaining (CIWMB 2007a). The maximum permitted daily disposal capacity of the landfill is 1,100 tons per day or 401,500 tons per year (Madera County 2007, CIWMB 2007a).¹⁶⁸ As previously mentioned, the landfill is being filled at a rate of approximately 79,988 tons per year (in 2005) for waste generated in unincorporated Madera County, which represents approximately 20 percent of the facility's annual maximum cubic yard capacity in 2005 (CIWMB 2007a, CIWMB 2008a).¹⁶⁹ The Fairmead Sanitary Landfill also accepts waste generated in the incorporated portions of Madera County and the City of Chowchilla. In 2005, the Fairmead Sanitary Landfill accepted a total of 144,129 tons of solid waste, which consisted of 79,988 tons of solid waste generated in unincorporated portions of Madera County, 48,105 tons of solid waste generated in incorporated portions of Madera County, and 16,035 tons of solid waste generated in the City of Chowchilla (CIWMB 2008c). In total, the waste from these three sources accounted for approximately 36 percent of the facility's annual maximum cubic yard capacity (CIWMB 2007a, CIWMB 2008c). While the landfill is permitted up until 2033, the RMA estimates that the landfill could be filled sooner, depending on the level of population growth that occurs in the area in the next decade (Quinlan 2007). At the disposal levels produced in 2005, the landfill could be filled by approximately 2031. If the landfill were filled at the maximum annual capacity, it would be full by approximately 2015.

■ Solid Waste Collection

The County has a franchise agreement with Madera Disposal Services (MDS), providing that MDS has an exclusive right to provide solid waste disposal services in the unincorporated areas of Madera County south and west of the Madera Canal, an area that includes the Project Site. If the MRA's plans for a residential recycling service and an expanded business recycling program were enacted, MDS would provide weekly curbside collection services for residences and a range of commercial collection services for businesses within the vicinity of the Project Site (PPEG 2007a, amended 2008a).

¹⁶⁷ A "clean MRF," by contrast, processes pre-sorted recyclables and is, therefore, substantially more efficient.

¹⁶⁸ Estimated using a conversion factor of 0.625 ton per cubic yard provided by the RMA.

¹⁶⁹ Estimated using disposal figures reported to the California Integrated Waste Management Board Disposal Reporting System (DRS), which states that 79,988 tons (127,981 cubic yards) of solid waste were sent to the landfill in 2005.

4.14.12 Regulatory Framework

■ Federal

There are no federal statutes related to solid waste collection and disposal systems that would apply to the Proposed Project.

■ State

Assembly Bill 939 (AB 939)

The *Integrated Waste Management Act of 1989* (AB 939) mandates that all cities and counties in California divert 50 percent of their solid waste (using 1990 levels as a baseline) from landfills or transformation facilities by January 1, 2000 (CIWMB 2007). Local and county governments are responsible for implementing diversion programs in order to meet these goals, and generally do so using means such as source reduction, recycling, and composting programs.

Policy Consistency Analysis

The Proposed Project would increase the amount of waste sent to the Fairmead Sanitary Landfill due to the introduction of new, more intense land uses at the Project Site. However, the County is currently planning to extend current residential and commercial recycling programs in anticipation of projected growth, which would help to divert a large volume of the solid waste produced by the Proposed Project from the Fairmead Landfill. In addition, the Madera County Planning Department would review and if necessary, require modifications to the Proposed Project's waste diversion strategies as a step in Specific Plan approval and subsequent permit approval processes. As a condition of project approval, the County would insure that the Proposed Project's contributions to the solid waste stream would be diverted from landfills at an appropriate threshold level to meet AB 939 goals. Therefore, the Proposed Project would not conflict with Assembly Bill 939, the *Integrated Waste Management Act of 1989*.

■ Regional

There are no regional statutes related to solid waste collection and disposal that would apply to the Proposed Project.

■ Local

Madera County General Plan

The following policy from the 1995 Madera County General Plan applies to solid waste collection and disposal requirements for new development:

Policy 3.F.6 The County shall require that all new development complies with applicable provisions of the Madera County Integrated Waste Management Plan.

Policy Consistency Analysis

As stated under the policy consistency analysis for AB 939, the County is planning new recycling programs for residential and commercial uses. In addition, the County would likely require appropriate waste management practices from the Proposed Project as conditions of development permit approval. As such, the Proposed Project would not conflict with Madera County General Plan Policy 3.F.6 or the Madera County Integrated Waste Management Plan.

4.14.13 Project Impacts and Mitigation

■ Analytic Method

To determine the amount of solid waste generated by the Proposed Project, solid waste generation factors identified by the RMA and the CIWMB are applied to the maximum number of new residents and employees anticipated with buildout of the Proposed Project. To determine solid waste impacts associated with implementation of the Proposed Project, estimated future solid waste generation amounts are compared to the total anticipated remaining capacity at landfills that serve the City to determine whether adequate capacity exists. The information in this section is also based upon communication with the Madera County, on information stated in the RMAP EIR, and on the findings of the IMP.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G to the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact on solid waste if it would do any of the following:

- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs¹⁷⁰
- Fail to comply with applicable federal, state, and local statutes and regulations related to solid waste

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to solid waste collection and disposal.

¹⁷⁰ These standards have been slightly modified from the text found in CEQA Guidelines, Appendix G, for ease of comprehension.

■ Impacts and Mitigation Measures

Threshold	Would the Proposed Project be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?
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Impact 4.14-8 **Implementation of the Proposed Project would not generate solid waste that would exceed the permitted capacity of the Fairmead Landfill, the landfill currently serving the Project Site. This is considered a *less-than-significant* impact.**

According to the California Integrated Waste Management Board, the Fairmead Landfill has permitted capacity for up to 1,100 tons per day or 401,500 tons per year (or 250,938 cubic yards per year) (CIWMB 2007a). The landfill has a remaining capacity of 5,552,894 cubic yards (as of January 1, 2004), which is permitted to serve the County through approximately 2033, although it may be filled sooner depending on the level of population growth that occurs in the area in the next decade. The landfill has a maximum permitted capacity of 9,400,000 cubic yards; therefore, the landfill is approximately 41 percent filled (CIWMB 2007a). In addition, records indicate that approximately 144,129 tons per year (or 395 tons per day) were disposed of in the Fairmead Landfill in 2005, which represents approximately 36 percent of the landfill's daily capacity of 1,100 tons per day (CIWMB 2007a; CIWMB 3008c).

Following development of the Proposed Project, up to 15,650 additional residents and 7,358 employees would contribute to the landfill, contributing an estimated 25,415 tons per year (or 70 tons per day), or 15,885 cubic yards of solid waste per year (refer to Table 4.14-6 [Project-Related Solid Waste Generation]). If a residential recycling program was not implemented and none of this waste was diverted, this would increase the amount of solid waste going to the landfill on an annual basis by approximately 18 percent.¹⁷¹ The existing disposal volume plus the volume of solid waste generated by the Proposed Project would represent approximately 42 percent¹⁷² of the Fairmead Landfill's daily disposal capacity of 1,100 tons per day.

However, it is unlikely that all solid waste produced by the Proposed Project would be sent to the Fairmead Landfill. The County is legally obligated to maintain a 50 percent diversion rate under AB 939. If the villages proposed in the RMAP were approved, the RMA states that it would develop a residential and commercial recycling program at the Fairmead Landfill in order to extend the life of the landfill and to continue to meet AB 939 diversion goals (Quinlan 2007). The County has been very successful in diverting solid wastes from the landfill to date, diverting 80 percent of its solid waste stream in 2005. If 50 percent of the solid wastes produced by the Proposed Project were diverted per the requirements of AB 939, the Proposed Project's solid waste needs would represent 35 tons per day. In combination with current disposal rates, this would represent 39 percent of the Fairmead Landfill's annual disposal capacity, with the Project contributing a maximum of only approximately 3 percent. The contribution of

¹⁷¹ Calculated by dividing adding the 25,415 tons per year generated by the Proposed Project to the current waste stream of 144,129 tons per year, and determining the relative percentage.

¹⁷² Calculated by adding the 395 tons per day generated in the County and disposed of at the Fairmead landfill in 2005 to the 70 tons per day that is expected to be generated by the Proposed project, and determining the percentage as compared to the landfill's daily disposal capacity of 1,100 tons per day.

the Proposed Project to existing solid waste disposal would not exceed the landfill’s permitted capacity, and, therefore, would result in a *less-than-significant* impact. No mitigation is required.

Table 4.14-6 Project-Related Solid Waste Generation					
Solid Waste Generator Type	Solid Waste Generation Rate ^a	Approximate Quantity	Project Totals		
Residents	1 pound per day per resident	15,650 Residents	15,650 pounds per day	2,856 tons per year ^b	1,785 cubic yards per year ^c
Commercial/ Retail Employees	16.8 pounds per day per employee	7,358 Employees	123,614 pounds per day	22,560 tons per year	14,100 cubic yards per year
Project Total			139,264 pounds per day	25,416 tons per year	15,885 cubic yards per year

SOURCES: CIWMB 2007, with project totals calculated by PBS&J 2007

^a Based on CIWMB jurisdictional profile for Madera County, 2006.

^b 1 ton=2,000 pounds.

^c Cubic yards are estimated using a conversion factor of 0.625 tons per cubic yard (provided by Quinlan, 2007).

Threshold	Would the Proposed Project fail to comply with applicable federal, state, and local statutes and regulations related to solid waste?
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Impact 4.14-9 Implementation of the Proposed Project would comply with all applicable federal, state, and local statutes and regulations related to solid waste. This is considered a *less-than-significant* impact.

Pursuant to Policy 3.F.6 in the Madera County General Plan, the Proposed Project would be expected to comply with diversion strategies in the County’s Integrated Waste Management Plan (IWMP). The Proposed Project’s waste diversion strategies would be reviewed by the County for compliance with the conditions of the IWMP when determining whether to approve the Specific Plan. If approved, the Proposed Project would also be expected to comply with all waste disposal conditions outlined by the County in development permits. These conditions would help the County to meet its required diversion thresholds under AB 939. The Proposed Project would, therefore, not conflict with any federal, state, or local statutes or regulations related to solid waste disposal. This impact would be *less than significant*. No mitigation is required.

4.14.14 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the cumulative solid waste analysis is Madera County, as this is the area served by the Fairmead Landfill. Because solid waste disposal needs are estimated on a per capita basis, the increase in population expected in Madera County between 2006 and 2025 full buildout would be expected to generate a proportionate increase in solid waste disposal demand.

Threshold Would the Proposed Project be served by a landfill with insufficient permitted capacity to accommodate the project’s solid waste disposal needs?

The Madera County Transportation Commission’s Rio Mesa Traffic Model assumes that the population of Madera County in 2025 (the estimated date of Specific Plan buildout) would be 219,992 persons, including the Proposed Project. The labor force would have an estimated 69,504 employees. Assuming that current waste generation rates remained constant, cumulative development in southeastern Madera County would be expected to generate 253,248 tons or 405,196 cubic yards of waste annually (see Table 4.14-7 [Cumulative Development (2025) Solid Waste Generation]). This would represent 63 percent of the Fairmead Landfill’s annual permitted disposal capacity. An estimate of the number of years that the Fairmead Landfill would last given the increased development is not possible as such a projection depends on how construction of the cumulative scenario would be phased between the present and 2025, as well as the amount of recycling and waste diversion that would occur.

Table 4.14-7 Cumulative Development (2025) Solid Waste Generation

Solid Waste Generator Type	Solid Waste Generation Rate ^a	Approximate Quantity	Project Totals		
Residents	1 pound per day per resident	219,992 Residents	219,992 pounds per day	40,149 tons per year ^b	64,238 cubic yards per year ^c
Commercial/ Retail Employees	16.8 pounds per day per employee	69,504 Employees	1,167,667 pounds per day	213,099 tons per year	340,959 cubic yards per year
Project Total			1,387,659 pounds per day	253,248 tons per year	405,196 cubic yards per year

SOURCES: CIWMB 2007; with project totals calculated by PBS&J 2007

^a Based on CIWMB jurisdictional profile for Madera County, 2006a.

^b 1 ton=2,000 pounds.

^c Cubic yards are estimated using a conversion factor of 0.625 tons per cubic yard (RMA 2007).

Not all of the solid waste generated in the cumulative scenario would be expected to be sent to the Fairmead Landfill. Assuming that the County would continue to comply with AB 939, development could reasonably be expected to divert 50 percent of the solid waste produced through recycling and source reduction programs, which is the AB 939 threshold for waste diversion. The estimated volume of solid waste sent to the landfill under the cumulative scenario after diversion would be 202,598 cubic yards per year. This would represent 32 percent of the landfill’s annual permitted disposal capacity. This is a less-than-significant cumulative impact. The Proposed Project’s contribution to the cumulative impact would not be cumulatively considerable due to the proposed or required recycling and waste diversion effects, and the project’s contribution to the cumulative impact would be *less than significant*.

Threshold Would the Proposed Project fail to comply with applicable federal, state, and local statutes and regulations related to solid waste?

This project and all projects in Madera County would be required to comply with all applicable federal, State, and local statutes and regulations related to solid waste. Prior to approving the Specific Plan for the Proposed Project, the RMA or County Engineer would review the waste management strategies

contained in the IMP and/or in other documents related to the Proposed Project. The Proposed Project would also be subject to the conditions of building permits issued by the County, which would ensure that the Project would meet all relevant goals provided in applicable federal, state, and local statutes and regulations pertaining to solid waste. The Proposed Project's contribution to this cumulative impact would be *less than significant*.

4.14.15 References

The references for Section 4.14 and Section 4.15 were misplaced, in some cases. The text of the 2008 Final EIR has been revised to provide the correct references in the correct sections; ~~however, no new references have been added.~~

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- . 2012b. *Supplemental Water Supply Assessment. Volume 2B (Groundwater Conditions at and near the Tesoro Viejo Project)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- . 2012c. *Supplemental Water Supply Assessment. Volume 2C (Groundwater Production, Water Levels, Water Quality, and Soil Borings at the Cottonwood Creek Ranch)*. Prepared by Kenneth D. Schmidt & Associates for Tesoro Viejo Master Mutual Water Company, March.
- . 2012d. *Supplement to Supplemental Water Supply Assessment for the Tesoro Viejo Project, Madera County, CA*.
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4.15 ENERGY AND CLIMATE CHANGE

This section of the EIR assesses the change in the consumption of energy resources—electricity, natural gas, and petroleum fuels—that would occur with development of the Proposed Project. It determines whether such consumption would be wasteful and/or inefficient and whether an increased demand for energy resources would exceed the capacity of existing energy infrastructure, resulting in a need for new facilities. This section also addresses the climate change impacts of construction and operation of the Proposed Project and provides estimates of its greenhouse gas emissions.

The Proposed Project is a Specific Plan for a mixed-use residential, commercial, and industrial development known as Tesoro Viejo. During buildout of the Specific Plan, permanent and temporary demand for energy resources would be generated, and greenhouse gases would be emitted. Consumption of energy resources and subsequent emissions would result from construction, new and intensified land uses, and project-related transportation. Solid waste associated with the Proposed Project would also emit greenhouse gases during decomposition.

Sources used for this section include energy forecast and consumption reports by the California Energy Commission (CEC); the *2006 Integrated Energy Policy Report* (CEC 2006); *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (AEP 2007), the *Mitigation Measures and Global Warming Resources* (COAG 2007); and the *Climate Change 2007: Fourth Assessment Report* (IPCC 2007). This section also uses quantitative data from the San Joaquin Valley Air Pollution Control District (SJVAPCD); the 2007 URBEMIS air quality modeling software; the *Transportation Impact Analysis Report for Tesoro Viejo* (Fehr and Peers 2007; Appendix H); the *Tesoro Viejo Infrastructure Master Plan* (PPEG 2007; amended 2008, Appendix I); and the California Air Resources Board (CARB) websites.

Energy

4.15.1 Environmental Setting

■ Electricity

In 2003, Californians used approximately 6,732 kilowatt-hours (kWh) of electricity per person compared to the average US per capita consumption of 13,121 kWh. To date, California's per capita consumption is the lowest state per capita consumption in the country (CEC 2006e). This is due in part to California's mild climate, which reduces electricity demand for heating and cooling. In addition, California has strict state building code standards requiring energy efficiency (see discussion of Title 24 under the Regulatory Framework).

While per capita consumption is low, the state's overall electricity consumption is the second highest in the country due to California's large population and thriving economy. California consumes approximately 238,710 million kWh of electricity total per day. Table 4.15-1 (2006 California Electricity Production by Fuel Type and Geographic Source) inventories California's electricity production

according to source of electricity¹⁷³ and by the proportion of in-state to imported electricity. As shown below, the state consumed approximately 327,080 gigawatt-hours (GWh) of electricity in 2006.

Table 4.15-1 2006 California Electricity Production by Fuel Type and Geographic Source

<i>Fuel Type</i>	<i>In-state</i>	<i>Imported</i>	<i>Total Electricity Produced (GWh)^c</i>	<i>Percent (%) of Total System Production</i>
Coal ^a	17,573	28,662	46,235	14.14%
Large Hydro	43,088	12,951	56,039	17.13%
Natural Gas	106,968	15,258	122,226	37.37%
Nuclear	31,959	6,191	38,150	11.66%
Renewables	30,514	1,701	32,215	9.85%
Biomass	5,735	550	6,285	1.92%
Geothermal	13,448	260	13,708	4.19%
Small Hydro	5,788	448	6,236	1.91%
Solar ^b	616	0	616	0.19%
Wind	4,927	443	5,370	1.64%
Total	260,616	66,464	327,080	100.00%

SOURCE: CEC 2006b (from CEC 2006g)

^a The in-state coal-fired generation includes electricity generated from several out-of-state coal-fired power plants that are owned by and reported by California utilities. There are other out-of-state generation facilities that are owned by California utilities, which are reported as imports.

^b This number only includes generator-reported electricity, not electricity produced by many small-scale photovoltaic installations throughout the state. Based on the Energy Commission's Renewable Energy Program records, the state has financed approximately 135,517 kilowatts (kW) of solar photovoltaic capacity. Assuming that each installed kW of PV-generated 1,500 kWh in 2005, then the combined output of these PV systems would add another 203.3 gigawatt-hours to the gross system power totals.

^c 1 GWh = 1,000 MWh = 1,000,000 kWh. A **watt** is the rate of energy transfer equivalent to 1 ampere flowing under a pressure of 1 volt at unit power factor. A **watt-hour** is an electric energy unit of measure equal to 1 watt of power supplied to (or taken from) an electric circuit steadily for 1 hour.

In 1999, 82 percent of the electricity consumed in California was produced in state. In 2005, this number dropped to 78 percent (CEC 2007a). The slight drop in California's productive capacity can be linked to the closure of several aging power plants, such as the Hunter's Point coal-powered facility in San Francisco and the Humboldt Bay Unit 3 nuclear facility in Eureka (CEC 2007a).

While the California Energy Commission (CEC) has set a state goal of meeting 20 percent of California's electricity demand through renewable energy resources by 2010, the state does not appear to be on track to meet this goal (CEC 2006a). Private electricity providers, such as PG&E, Southern California Edison, and San Diego Gas and Electric, have contracts with renewable energy providers for approximately 3,936 megawatts (MW) of renewable capacity. However, renewable facilities that are online and delivering electricity today contribute only 242 MW out of this total. In addition to making the rest of the currently contracted renewable facilities operational, up to 1,500 MW of contracted sources would be needed to meet the Commission's 2010 goal.

¹⁷³ The production of electricity requires the consumption or conversion of resources, including water, wind, oil, natural gas, coal, solar, geothermal, and nuclear.

Electrical service is supplied to the Project Site by Pacific Gas and Electric Company (PG&E) from an existing substation on Avenue 12, 1 mile west of SR-41 and 3 miles from the Project Site. PG&E is the largest electricity supplier in northern California, supplying approximately 15 million consumers within a 70,000-square-mile area (PG&E 2007a). PG&E reports that its 2006 portfolio of power sources consisted of fossil fuel and gas power plants (42 percent), non-emitting nuclear generation (24 percent), large hydroelectric facilities (22 percent), and other sources (12 percent) such as wind, geothermal, biomass, and small hydropower (PG&E 2007b). In 2000, PG&E delivered approximately 81,656,564 MWh of electricity to its statewide customers. Approximately 35 percent of this total went to residential usage, while the remaining 65 percent went towards commercial, industrial and institutional usage.

■ Natural Gas

At 422 therms per year, California's per capita natural gas consumption is lower than the national average of 502 therms per year (CEC 2007c).¹⁷⁴ However, in terms of total statewide natural gas consumption, California is second only to Texas. As with electricity, California's high statewide natural gas consumption results from the state's large population and its vigorous economy.

In 2006, 13.5 percent of California's natural gas supply was provided through in-state sources. The rest of the natural gas consumed in California came from the southwest (40.3 percent), the Rocky Mountains (27.7 percent), and Canada (23.4 percent) (CEC 2007a). Table 4.15-2 (2005 Annual Natural Gas Demand, California and PG&E Service Areas) shows the 2005 California natural gas demand for residential and nonresidential consumers. Over half of the 2,092,180 million cubic feet of natural gas consumed in California annually goes towards the production of electricity.

	<i>Statewide (million cubic feet)</i>	<i>PG&E (million cubic feet)</i>
Residential	469,390	193,815
Nonresidential	551,880	240,900
Electricity Generation	1,070,910	298,570
Total	2,092,180	733,285

SOURCE: CEC 2006c (2005 data is the most current information available)

Annual total was estimated from average daily delivery volume

0.1 million cubic feet = 10,310 therms

PG&E, the natural gas provider serving the Project Site, supplies 733,285 million cubic feet, or approximately 35 percent of the state's total natural gas demand. PG&E provides natural gas service from an existing pipeline at Avenue 10 and SR-41, approximately 4 miles south of the Project Site.

■ Oil and Petroleum

Because California is one of the top oil-producing states in the country, the state has been historically able to meet a large portion of its internal demand for petroleum resources through in-state sources.

¹⁷⁴ Based on 2005 data, the most current information available.

However, as with other energy resources, demand for energy resources has risen steadily over the past decades while production capacity and extraction volume have decreased.

California has several major refining facilities with a combined crude oil distillation capacity totaling more than 1.9 million barrels per day (CEC 2007b). While California is currently ranked fourth in the nation among oil producing states (behind Louisiana, Texas, and Alaska) (CEC 2007b), its crude oil production has been slipping in the last decade. California experienced a 23 percent decrease in production between 1996 and 2006 (CEC 2006h). In 2005, approximately 39.4 percent of California's oil supply was produced in-state, 20.1 percent was imported from Alaska, and 40.4 percent was from foreign sources (CEC 2007b).

California consumes more petroleum products (gasoline, diesel, fuel oil, and kerosene) than any other state, nearly 44 million gallons of gasoline and 10 million gallons of diesel every day (CEC 2006h). According to the CEC, approximately half of the energy consumed in California is for transportation (CEC 2007d). Although alternative fuels, such as alcohol-based fuels, biomass fuels (e.g., biodiesel), natural gas and hydrogen, are in increasing demand, the transportation sector relies heavily on petroleum fuels. In 2006, Californians consumed an estimated 20 billion gallons of gasoline and diesel fuel for transportation, an increase of nearly 50 percent over the last 20 years (CEC 2007d). The overall fuel efficiency for Madera County was 15.22 miles per gallon in 2006 (Caltrans 2006), which includes all personal and business vehicles. Madera County fuel efficiency is expected to rise by about 5 percent by 2025 (Caltrans 2006). Statewide fuel efficiency is approximately 18.82 miles per gallon (Caltrans 2006). The Madera County fuel efficiency total assumes that the transportation fleet in Madera County would include a larger number of heavy trucks.

The declining supply of in-state petroleum products, coupled with increasing demand, has resulted in an increased need for imported oil resources. According to the CEC, California's reliance on crude oil imports will increase from 405 million barrels in 2005 to between 585 million (low forecast) and 685 million (high forecast) barrels in 2025.

■ Greenhouse Gas Emissions

Agricultural greenhouse gas emissions, which represent the primary source of existing greenhouse gas emissions at the Project Site, have not been studied as extensively as urban emissions. Factors such as the type and age of farm equipment, water pumping patterns, livestock emissions (particularly methane), and shipping and processing of agricultural goods all affect greenhouse gas emissions. At present, there is not a sufficient amount of disaggregated data available to be able to model these variables with accuracy. Nor is there a reliable estimate of the per acre emissions for agricultural uses (comparable to the estimates for developed urban floor area that are used to estimate the Project's electricity and natural gas usage). Therefore, to accurately model existing emissions at the Project Site would require an independent field study, something that is well beyond the scope of this EIR. It is assumed that the carbon sequestration capacity of the crops at the Project Site offsets the majority of the emissions associated with the site's current agricultural use. Thus, existing emissions are assumed to be negligible.

4.15.2 Regulatory Framework

■ Federal

Energy Policy Act of 2005

The *Energy Policy Act of 2005* is a federal policy that promotes the development of renewable energy resources. In addition, the Act provides incentives (i.e. tax credits) to residential and business consumers who purchase energy-efficient vehicles and appliances, who install qualified fuel cells, stationary microturbine power plants, and solar power equipment, and to businesses that retrofit or construct new buildings to meet energy efficient standards.

Policy Consistency

The *Energy Policy Act* is an incentive-based program that encourages business and residential energy consumers to utilize alternative energy resources. Compliance is voluntary. Therefore, while the Proposed Project would incorporate alternative energy or energy efficiency features, failing to take advantage of any or all of the incentives provided in the Act would not constitute a breach in compliance with this policy.

■ State

Senate Bill 1389

Senate Bill 1389, the *California Integrated Energy Policy*, was passed by the State Legislature on August 22, 2002. This bill requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report (IEPR) for electricity, natural gas, and transportation fuels. The IEPR contains an analysis of the policies and actions that are necessary to ensure that the state has adequate energy resources—including a range of alternative energy resources—to meet its needs. The IEPR also includes recommendations to reduce energy demand and to improve the state's energy infrastructure.

According to the 2006 IEPR Update,¹⁷⁵ statewide demand for energy resources will grow dramatically over the next several decades. As a result, the state is expected to rely more heavily on imported fuels and electricity in the future. On one hand, the increase in statewide demand is attributable to unavoidable factors such as population and economic growth. However, the IEPR stresses the role that land use planning patterns established in the early and mid twentieth century has played in increasing energy demand.

A dispersed urban geography—often referred to as sprawl—combined with inefficient building design result in unnecessary consumption of electricity and fuels for transportation, heating, cooling, lighting, and other common uses. The size of the average American home has nearly doubled since 1950 (CEC 2007e). The size and type of housing have been demonstrated to have strong relationships to residential energy use patterns. Detached single family homes consume over 20 percent more energy than

¹⁷⁵ The IEPR is prepared biennially during odd years. The IEPR Update is an interim report prepared in even years which critiques the State's progress with respect to the IEPR recommendations. This EIR discusses both the recommendations in the 2007 IEPR and the progress evaluation in the IEPR Update.

multifamily homes and 9 percent more than attached single family homes (Rang 2006). In addition, due to a supply of relatively inexpensive petroleum fuels, a high vehicle ownership rate, and dispersed land uses, the vehicle miles travelled (VMT) per capita in California is predicted to increase at a steeper rate than corresponding population increases (CEC 2007e).

The 2006 IEPR Update notes that suburban developments may potentially encourage wasteful energy consumption because such uses often include large, inefficient single-family homes accessible only by automobile. However, the report also notes that local governments and developers can employ design strategies, including “smart growth strategies”¹⁷⁶—mixed use development, alternative transportation features, varied housing sizes and types, etc.—and the conservation measures contained in Title 24 and local municipal codes, to curb wasteful energy consumption.

Policy Consistency

According to the IEPR, inefficient land use practices are a factor in the state’s growing energy shortage. Because the IEPR is an administrative report, not a directive policy, it does not contain thresholds or standards with which to assess the Proposed Project. Nor is there a compliance requirement inherent in this document.

However, in spite of the lack of measurable thresholds, it appears that the Proposed Project would be consistent with the general intent of the IEPR’s land use recommendations. For example, the Proposed Project would incorporate several energy-saving design strategies for both site design and building design. The Proposed Project would include a mix of residential, commercial, and industrial uses, providing residents with the option to work close to home. The Proposed Project would also encourage the future development of transportation alternatives by incorporating pedestrian and bicycle amenities. These features are considered “smart growth principles” by most smart growth advocates. The Proposed Project would comply with Title 24 building standards (which are also codified in the *Madera County Municipal Code*), helping to minimize energy consumption for heating, cooling, and lighting. The Proposed Project would therefore be reasonably consistent with the recommendations of the IEPR.

Title 24

Title 24 of the *California Code of Regulations (CCR), Energy Efficient Standards for Residential and Nonresidential Buildings*, was adopted in 1978 by the CEC in response to a legislative mandate to reduce California’s energy consumption. Title 24 requires developers to incorporate energy conserving features into new construction. The standards are updated periodically to allow consideration and possible incorporation of new energy-efficiency technologies and methods (FREC 2007). The CEC adopted the 2005 Standards on November 5, 2003, and the Building Standards Commission adopted them on July 21, 2004.

Policy Consistency

Title 24 does not contain enforcement mechanisms, such as sanctions for noncompliance; thus, there are no direct means of ensuring that the Proposed Project would not conflict with this portion of the CCR. However, the *Madera County Municipal Code* has incorporated energy efficiency standards for new

¹⁷⁶ The CEC defines smart growth as “the application of specific development principles to make prudent use of resources and create genial, low-impact communities through enlightened design and layout” (CEC 2006a).

developments pursuant to the goals in Title 24. The Proposed Project would be required to demonstrate compliance with the Municipal Code to receive a development permit. Thus, the Proposed Project would be required to demonstrate consistency with the goals in Title 24 through compliance with the Municipal Code. Table 4.15-15 under the climate change analysis lists several energy efficiency (and greenhouse gas emissions-reducing) practices that would be followed by the Proposed Project.

■ Regional

There are no regional statutes related to expansion of energy facilities and energy consumption that apply to the Proposed Project.

■ Local

Madera County General Plan

Several policies in the *Madera County General Plan* provide general guidelines for utility infrastructure for new developments. These include the following:

- Policy 3.A.1** The County shall ensure through the development review process that adequate public facilities and services are available to serve new development. The County shall not approve new development where existing facilities are inadequate unless the applicant can demonstrate that all necessary public facilities will be installed or adequately financed and maintained (through fees or other means).
- Policy 3.A.4** The County shall discourage expansion of rural communities unless necessary services can be provided.

Policy Consistency

Both Policy 3.A.1 and Policy 3.A.4 are policies that require the County to restrict new development in areas not currently served by utilities infrastructure unless infrastructure is installed prior to development of habitable structures. This requirement would affect the phasing of the Proposed Project, requiring the Project Applicant to demonstrate that sufficient utilities infrastructure would be in place prior to construction of habitable structures. Infrastructure construction would begin two years prior to construction of habitable structures. This phasing approach would ensure compliance with the General Plan policies.

Madera County Municipal Code

Section 10-2.704.2 of the *Madera County Municipal Code* requires all proposed new subdivisions to conform to a number of energy conservation requirements. These requirements are listed below:

- (A) The design of a subdivision for which a tentative map is required, pursuant to the subchapter “Maps Required”, shall provide, to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision.
- (B) Examples of passive or natural heating opportunities in subdivision design include design of lot size and configuration to permit orientation of a structure in an east-west alignment for southern exposure.

- (C) Examples of passive or natural cooling opportunities in subdivision design include design of lot size and configuration to permit orientation of a structure to take advantage of shade or prevailing breezes.
- (D) In providing for future passive or natural heating or cooling opportunities in the design of a subdivision, consideration shall be given to local climate, to contour, to configuration of the parcel to be divided, and to other design and improvement requirements, and such provision shall not result in increasing allowable densities or the percentage of a lot which may be occupied by a building or structure under applicable planning and zoning in force at the time the tentative map is filed.
- (E) The requirements of this section do not apply to condominium projects which consist of the subdivision of airspace in an existing building when no new structures are added.
- (F) For the purposes of this section, *feasible* means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

Policy Consistency

Title 24 of the *Public Resources Code* requires that new buildings be built according to certain energy efficiency standards. The *Madera County Municipal Code* Section 10-2.704.2, would make these standards mandatory for all new construction under the Proposed Project. Thus, the Proposed Project would be legally required to demonstrate consistency with this policy prior to receiving development permits and during the Project's operational phase.

4.15.3 Project Impacts and Mitigation

■ Analytic Method

The Proposed Project would result in development consisting of commercial, light industrial and residential land uses. This analysis estimates the Proposed Project's energy consumption based on the types and intensity of proposed land uses, the total annual VMT (from the *MCTC Rio Mesa Traffic Model* [MCTC 2002]), and types and intensity of construction activities. This analysis also discusses whether energy efficiency regulations and Specific Plan design strategies would prevent wasteful energy consumption associated with the Proposed Project. Finally, planned physical expansion of electricity and natural gas infrastructure detailed in the *Infrastructure Master Plan* (IMP) is examined to determine whether it would result in adverse environmental impacts (PPEG 2007, amended 2008).

The following sections describe the methods used to estimate the Proposed Project's energy consumption. The estimates assume the maximum buildout scenario described in the Project Description (Table 3-1).

Construction

The Proposed Project would consume petroleum for operation of construction vehicles and to generate electricity for equipment, such as welding machines and power tools. Energy consumed by construction power equipment would be relatively minimal, as would construction energy required for lighting and heating of trailers and operation of ancillary electrical equipment. Energy would also be required for

mining, extraction and transportation of raw materials, and pre-construction manufacturing, an indirect form of consumption. It is impossible to accurately estimate the amount of energy that would be consumed during construction activities as the exact nature and duration of construction phasing is currently unknown. Indirect energy consumption is also impossible to estimate at this time because the designs for individual structures have not been determined, and thus, it is not clear what types of raw materials would be needed for construction.

Operation

Electricity and Natural Gas Consumption. Table 4.15-3 (Estimated Annual Electricity Use of Proposed Project at Maximum Buildout) below shows the Proposed Project's estimated electricity consumption. Electricity and natural gas consumption vary by the type of uses in a building, the type of construction materials used to construct it, and the efficiency of the energy-consuming devices it contains. This analysis focuses primarily on differences in consumption rates by land use type.

Consumption factors from the Commercial End-Use Survey (CEC 2006d) and the Residential Appliance Saturation Study (CEC 2004) were applied to the square footage and dwelling unit totals for the Proposed Project to obtain a consumption figure for each proposed use. Electricity would be used by on-site residents and occupants for space heating and cooling, ventilation, water heating, cooking, interior and exterior lighting, office and other equipment, air compressors, motors, and industrial processing. Based on the land uses included in the Specific Plan (see Table 3-1 [Proposed Land Uses for the Tesoro Viejo Project] in Chapter 3 [Project Description]), approximately 67,945,871,66,019,318 kWh of electricity would be consumed annually by the Proposed Project at full buildout.

Table 4.15-4 (Estimated Annual Natural Gas Use of Proposed Project at Maximum Buildout) shows the Proposed Project's estimated natural gas usage. Consumption factors from the CEC Commercial End-Use Survey were applied to the square footage and dwelling unit totals for the Proposed Project, resulting in a consumption figure for each proposed use, as well as a total consumption estimate. Natural gas would be used by on-site residents and occupants for space heating, water heating, cooking, and industrial processing. Based on the land uses included in the Proposed Project, approximately 2,140,414,2,101,138 therms of natural gas would be consumed annually upon full buildout.

Vehicular Consumption. The majority of the energy consumed in the form of petroleum products by the Proposed Project during its operational phase (excluding construction-related consumption) would be attributable to vehicular consumption. Table 4.15-5 (Estimated Annual Petroleum Use of Proposed Project at Maximum Buildout) shows the Proposed Project's estimated diesel and gasoline consumption at full buildout in 2025. This data is based on the *California Motor Vehicle Stock, Travel and Fuel Forecast* prepared by the California Department of Transportation (Caltrans 2006) and on estimates of VMT based on current statewide averages (calculations are shown in the Notes).

Table 4.15-3 Estimated Annual Electricity Use of Proposed Project at Maximum Buildout [Revised]

<i>Land Use</i>	<i>Maximum Buildout (du/sf)</i>	<i>Consumption Factor (kWh per du/sf)</i>	<i>Total Usage (kWh)</i>
Mixed Use Community Core			
Medium Density Residential ^a	350-324 du	4,469	1,564,150 <u>1,447,956</u>
Community Commercial ^b	775,368 sf	14.06	10,901,674
Professional Office	259,182 sf	13.1	3,395,284
Public Institutional	76,230 sf	7.46	568,676
<i>Subtotal</i>	—	—	16,429,784 <u>16,313,590</u>
Residential			
High Density Residential	540-511 du	3,877	2,093,580 <u>1,981,147</u>
Medium Density Residential	1,827 <u>1,828</u> du	4,469	8,164,863 <u>8,169,332</u>
Low Density Residential	1,877 <u>1,756</u> du	7,105	13,336,085 <u>12,476,380</u>
Very Low Density Residential	451- 631 du	7,105	3,204,355 <u>4,483,255</u>
<i>Subtotal</i>	—	—	26,798,883 <u>27,110,114</u>
Special Purpose Uses			
Special Use "A"			
■ Visitor Commercial	23,958 sf	14.06	336,849
■ Low Density Residential	55 <u>50</u> du	7,105	390,775 <u>355,250</u>
Special Use "B"			
■ Recreation Commercial	5,445 sf	14.06	76,557
<i>Subtotal</i>	—	—	804,181 <u>768,656</u>
Mixed Use Neighborhood Commercial			
Medium Density Residential	90 du	4,469	402,210
Neighborhood Commercial	91,476 sf	14.06	1,286,153
<i>Subtotal</i>	—	—	1,688,363
Commercial/Industrial			
Light Industrial	640,332 <u>432,420</u> sf	9.84	6,300,867 <u>4,255,013</u>
Highway Service Commercial	1,132,560 <u>1,129,700</u> sf	14.06	15,923,794 <u>15,883,582</u>
<i>Subtotal</i>	—	—	22,224,660 <u>20,138,595</u>
Total	—	—	67,945,871 <u>66,019,318</u>

SOURCE: CEC 2006d; CEC 2004; and Community Design + Architecture 2007, amended May 2012.

^a Factors for residential uses reflect average energy consumption factors for various dwelling unit types as documented in the Residential Appliance Saturation Study (CEC 2004). Applying the residence types from Table 2-3 to the Proposed Project, the following equivalencies were assumed: High Density Residential = 5+ Unit Apt, Medium Density Residential = Town Home, and Low Density/Very Low Density = Single Family.

^b Factors for commercial, office, institutional, and industrial uses reflect statewide average energy consumption factors by land use as documented in the Commercial End-Use Survey (CEC 2006d). Applying the land use types from Table 8-1 to the Proposed Project, the following equivalencies were assumed: Community Commercial, Visitor Commercial, Recreation Commercial, Neighborhood Commercial and Highway Service Commercial = Retail, Professional Office = Small Office, Public Institution = School, and Light Industrial = Miscellaneous.

Table 4.15-4 Estimated Annual Natural Gas Use of Proposed Project at Maximum Buildout [Revised]

<i>Land Use</i>	<i>Maximum Buildout (du/sf)</i>	<i>Consumption Factor (therms per du/sf)</i>	<i>Total Use (therms)</i>
Mixed Use Community Core			
Medium Density Residential ^a	350-324 du	284	99,40092,016
Community Commercial ^b	775,368 sf	0.05	38,768
Professional Office	259,182 sf	0.11	28,510
Public Institutional	76,230 sf	0.16	12,197
<i>Subtotal</i>	—	—	<u>178,875171,491</u>
Residential			
High Density Residential	540-511 du	232	125,280118,552
Medium Density Residential	1,827-1,828 du	284	518,868519,152
Low Density Residential	1,877-1,756 du	454	852,158797,224
Very Low Density Residential	451-631 du	454	204,754286,474
<i>Subtotal</i>	—	—	<u>1,701,0601,721,402</u>
Special Purpose Uses			
Special Use "A"			
■ Visitor Commercial	23,958 sf	0.05	1,198
■ Low Density Residential	55-50 du	454	24,97022,700
Special Use "B"			
■ Recreation Commercial	5,445 sf	0.05	272
<i>Subtotal</i>	—	—	<u>26,44024,170</u>
Mixed Use Neighborhood Commercial			
Medium Density Residential	90 du	284	25,560
Neighborhood Commercial	91,476 sf	0.05	4,574
<i>Subtotal</i>	—	—	30,134
Commercial/Industrial			
Light Industrial	640,332-432,420 sf	0.23	147,27699,457
Highway Service Commercial	1,132,560-1,129,700 sf	0.05	56,62854,485
<i>Subtotal</i>	—	—	<u>203,904153,942</u>
Total	—	—	<u>2,140,4142,101,138</u>

SOURCE: CEC 2006d; CEC 2004; Community Design + Architecture 2007, amended May 2012.

^a Factors for residential uses reflect average energy consumption factors for various dwelling unit types as documented in the Residential Appliance Saturation Study (CEC 2004). Applying the residence types from Table 2-3 to the Proposed Project, the following equivalencies were assumed: High Density Residential = 5+ Unit Apt, Medium Density Residential = Town Home, and Low Density/Very Low Density = Single Family.

^b Factors for commercial, office, institutional, and industrial uses reflect statewide average energy consumption factors by land use as documented in the Commercial End-Use Survey (CEC 2006d). Applying the land use types from Table 8-1 to the Proposed Project, the following equivalencies were assumed: Community Commercial, Visitor Commercial, Recreation Commercial, Neighborhood Commercial and Highway Service Commercial = Retail, Professional Office = Small Office, Public Institution = School, and Light Industrial = Miscellaneous.

Table 4.15-5 Estimated Annual Petroleum Use of Proposed Project at Maximum Buildout

	Madera County		Proposed Project
	2006	2025	2025 Buildout
Total Vehicle Miles Traveled (VMT) (million miles) ^a	1,501.14	2,296.23	8.8814
Fuel Consumption per VMT (miles per gallon) ^b	15.2241	15.9595	15.9595
Total Fuel Consumption (million gallons): ^b			
■ Gasoline	69.78	102.14	0.3951
■ Diesel	28.83	41.74	0.1614
<i>Total Fuel Consumption (million gallons)^b</i>	<i>98.60</i>	<i>143.88</i>	<i>0.5565</i>

SOURCE: Caltrans 2006

^a Total VMT assumes current statewide average of 9,057 VMT per person.

^b The Caltrans model assumes a slight increase in fuel efficiency by 2025. Caltrans's projected 2025 fuel efficiency for Madera County assumes that the County's vehicle fleet will include a large number of heavy trucks in 2025. A large percentage of the trucks factored into this average would be associated with the agricultural industry. The fuel efficiency associated with the Proposed Project would likely be substantially higher, as personal vehicles associated with urban uses are subject to higher fuel efficiency requirements.

Table 4.15-6 (Estimated Annual Energy Use of Proposed Project at Maximum Buildout) shows the estimated operational energy usage from all energy sources. This table converts the totals from the previous tables into British thermal units (Btu), a standard energy metric used for comparison of the energy potential of various fuels.

Table 4.15-6 Estimated Annual Energy Use of Proposed Project at Maximum Buildout

	Annual Consumption (million Btu)	Percent of Total
Electricity	231,899	45%
Natural gas	214,041	41%
Gasoline	48,994	9%
Diesel	22,432	4%
<i>Total (Btu)</i>	<i>517,366</i>	<i>100%</i>

SOURCE: PBS&J 2007 (compiled from data in Table 4.15-3 through Table 4.15-5)

Btu=British thermal units; 1 Btu is the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit.

1 kWh of electricity = 3413 Btu

1 therm of natural gas =100,000 Btu

1 gallon of gasoline = 124,000 Btu and 1 gallon of diesel = 139,000 Btu. The total Btu for transportation fuels listed above assumes that 71 percent of the transportation fuels used by the Proposed Project would be gasoline fuels, while the remaining 29 percent would be diesel fuels.

■ Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2007 CEQA Guidelines. For purposes of this EIR, implementation of the Proposed Project may have a significant adverse impact to energy resources if it would do any of the following:

- Encourage the wasteful or inefficient use of energy
- Require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects

■ Effects Not Found to Be Significant

There are no Effects Not Found to Be Significant with respect to energy facilities and energy consumption with implementation of the Proposed Project.

■ Impacts and Mitigation Measures

Threshold	Would the Proposed Project encourage the wasteful or inefficient use of energy?
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Impact 4.15-1 **The Proposed Project would not encourage the wasteful or inefficient use of energy. This is considered a *less-than-significant* impact.**

Construction. Energy would be consumed during construction of the Proposed Project, primarily in the form of petroleum fuels and electricity. Fuel would be needed for vehicles and construction equipment and to run electrical generators for uses such as lighting, welding machines and power tools. Fuel would also be consumed during the production and transport of raw materials.

Construction of the Proposed Project would result in a permanent consumption of finite energy resources. However, construction would consist of temporary activities that would not result in long-term demand for energy.

The California Air Resources Board recently passed amendments to Title 13 of the CCR which would require heavy diesel vehicles to restrict idling to five minutes or less. While these requirements were designed to prevent polluting emissions (see Section 4.2 [Air Quality]), the anti-idling amendments have the added benefit of reducing fuel consumption.

Operation. The Proposed Project would result in the long-term consumption of energy in the form of electricity, natural gas, and petroleum-based fuel. The Proposed Project would consume an estimated 67,945,871,66,019,318 kWh of electricity, 2,140,414,2,101,138 therms of natural gas, and 0.5565 million gallons of petroleum, a combined total of 517,366 million Btu annually.

There are several features of the Proposed Project that would help to minimize wasteful energy consumption. First, one of the Specific Plan's goals, Goal 27, endorses energy efficient practices. Goal 27 reads as follows:

Goal 27 Adopt "Green Building" practices for site and building design that focus on resource and energy efficiency, and where feasible, treatment of irrigation and stormwater runoff through natural, landscape-based processes.

This policy would be applied to all new development constructed under the Tesoro Viejo Specific Plan.

The Proposed Project would also include several site design features that would help to minimize energy consumption. For example, the Proposed Project would include dense, mixed-use neighborhoods on a

portion of the Project Site. Smaller dwelling units require less energy for light, electricity, heating, cooling, cooking, and other uses. The site layout would also include trail networks and other outdoor recreation opportunities, encouraging residents to spend time outdoors where they would be expected to consume less energy. These site design features are in line with the smart growth principles recommended in the IEPR (CEC 2007e) for reducing wasteful energy consumption. (Further detail on site design is discussed under the climate change analysis.)

Design details for individual structures have not been developed; however, all structures and site layouts would be required to comply with energy conservation standards specified in Title 24 of the CCR. The standards, with which all new buildings must comply, establish energy budgets for different types of residential and nonresidential buildings. Pursuant to *Madera County Municipal Code* Section 10-2.704.2, energy-efficient measures would be implemented to the maximum extent feasible under the Proposed Project. Development proposed under the Specific Plan would be required to demonstrate compliance with Section 10-2.704.2. (Additional energy efficiency design features are summarized under the climate change analysis, below.)

Finally, in terms of transportation fuel efficiency, the Proposed Project would increase total VMT in the project area, but because it would increase population density and include a mix of uses, it would be expected to result in a shorter average trip length. The MCTC Rio Mesa Traffic Model produces an average trip length of 1.17 miles for the Rio Mesa Area at full RMAP buildout (Fehr and Peers 2007b). The Proposed Project would include pedestrian and bicycle amenities, such as a trail network (see Figure 4.12-2 [Proposed Trail Network for the Tesoro Viejo Project] in Section 4.12 [Public Services and Recreation]), pedestrian boulevards, and bike lanes. The accessibility of alternative transportation options would be expected to reduce residents' dependence on motor vehicles and, thus, on petroleum fuels.

The Proposed Project would consume energy, but such consumption would not be expected to be wasteful or inefficient. Construction activities would not require a permanent or substantial consumption of energy. The Proposed Project would incorporate energy efficiency site layout and building design features which would minimize wasteful, inefficient energy consumption. This would be a *less-than-significant* impact.

Threshold	Would the Proposed Project require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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Impact 4.15-2 The Proposed Project would not require new energy production or transmission facilities, the construction of which would cause significant environmental effects. This is considered a *less-than-significant* impact.

The IMP (PPEG 2007, amended 2008, which is contained in Appendix I of this EIR) was prepared for the Proposed Tesoro Viejo Project to provide planning and design standards for utilities. The IMP identifies the infrastructure needs of the Proposed Project with respect to energy resources.

According to the IMP, electrical service for the Proposed Project would be supplied by the Pacific Gas and Electric Company (PG&E) from an existing substation on Avenue 12, 1 mile west of SR-41 and 3 miles from the Project Site. PG&E would provide natural gas service from an existing pipeline at

Avenue 10 and SR-41, approximately 4 miles south of the Project Site. Existing and proposed street right of ways would be used to extend underground electrical transmission and gas lines to the Project Site.¹⁷⁷ No additional service infrastructure, beyond the utility lines discussed, would be required (PPEG 2007, amended 2008).

While extension of existing power and gas lines to the Project Site would require excavation, this excavation would be done in existing or planned utility right-of-ways, along with excavation for foundations and roads. Construction-related impacts to air quality, biological resources, archaeological/paleontological resources, and hydrology are discussed in Section 4.3 (Air Quality), Section 4.4 (Biological Resources), Section 4.5 (Cultural Resources), and Section 4.8 (Hydrology and Water Quality). In each of these sections, the construction-related impacts of the Proposed Project were either determined to be less than significant or were mitigated to a less-than-significant level. No additional construction-related impacts, beyond those discussed in those sections of this environmental document, would occur as a result of the extension of new utilities lines to the Project Site. The physical and environmental impact of constructing new infrastructure for the Proposed Project would not result in adverse environmental effects. This would be a *less-than-significant* impact.

4.15.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the discussion of cumulative impacts is the RMAP area because (1) this is the designated new growth area of the County and, thus, where energy efficiency policies governing new construction would be most applicable; and (2) this is the area that could be affected by construction of energy infrastructure necessary to serve the Proposed Project.

Threshold	Would the Proposed Project encourage the wasteful or inefficient use of energy?
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Construction of cumulative development would result in consumption of energy resources. However, such consumption would be temporary and would not constitute wasteful or inefficient energy use.

All development under the cumulative scenario, including the Proposed Project, would be expected to comply with the energy efficiency standards in Title 24 and the Municipal Code. In accordance with these policies, proposed developments would use site and building design strategies similar to those employed by the Proposed Project to discourage wasteful, inefficient energy consumption. Examples of improvement measures that would be employed by the Proposed Project to reduce energy consumption and emissions are listed under Impact 4.15-1 and under Impact 4.15-3.

Petroleum consumption associated with new development would be primarily attributable to transportation, especially private automobile use. New development would be concentrated in the RMAP area, as well as in other parts of southeastern Madera County, as established in the General Plan and in

¹⁷⁷ The Project Applicant would make necessary fair share contributions to cover any publically incurred costs as a result of extending this infrastructure.

the RMAP. Increased population density and mixed use development would allow residents to work, shop, and live within a small area, reducing average trip lengths. Shorter trip lengths result in lower consumption of fuels. Like the Proposed Project, cumulative development is expected to include pedestrian and bicycle amenities pursuant to the guidance of the RMAP. Clustering of new growth may create sufficient density to allow for the establishment of public transportation routes, connecting residents with major commuting cores such as the cities of Fresno or Madera. This would reduce wasteful petroleum consumption associated with unnecessary automobile trips and long commutes.

The cumulative construction and operational impact with regard to the consumption of energy resources would be less than significant. For all of the reasons previously identified with regard to the energy conservation measures of the Proposed Project, the project’s contribution to this cumulative impact would not be considerable, and the project’s cumulative impact would be *less than significant*.

Threshold	Would the Proposed Project require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
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According to the IMP, no additional energy production or transmission structures are needed to support the Proposed Project (PPEG 2007, amended 2008). The determination that existing power facilities would have sufficient capacity to serve new development takes into account reasonably foreseeable development in the vicinity of the Project Site, such as that designated in the RMAP and other local area plans. Therefore, it is not anticipated that the construction of new energy production and/or transmission facilities or expansion of existing facilities would be needed to support development under the cumulative scenario.

Construction of gas and electricity lines on other developments sites would undergo separate environmental review, which would disclose site-specific impacts that cannot be accounted for in this document due to a lack of information. The site-specific details of future development projects are speculative and fall outside the scope of this analysis.

Thus, impacts related to the construction of new energy production and/or transmission facilities or expansion of existing facilities would be less than significant for the cumulative scenario. For all of the reasons previously identified with regard to the construction of new energy production and/or transmission facilities to serve the Proposed Project, the project’s contribution to this cumulative impact would not be considerable, and the project’s cumulative impact would be *less than significant*.

4.15.5 References

All references for both energy and climate change are provided at the end of the Climate Change section.

Climate Change [Revised in Part]

4.15.6 Environmental Setting

■ Overview

The term “climate change” refers to global and regional variations in wind patterns, storm intensity, precipitation, and temperature that occur over time. It is widely accepted that emissions of greenhouse gases and aerosols, and changes in land cover associated with development are accelerating global climate change and that adverse environmental impacts would likely result. Thus, this EIR discusses how potential adverse physical and environmental impacts associated with climate change could affect the Proposed Project and how the Proposed Project, by emitting greenhouse gases and altering existing land cover, could contribute to climate change.

Over time, the Earth’s climate has undergone several periods of change, such as ice ages and warm periods, traced through fossil isotopes, ice core samples, and other measurement techniques. Recent climate change studies use the historical record to predict future climate variations and what level of fluctuation might be considered statistically “normal” given historical trends. Temperature records from the last 150 years, the Industrial Age, deviate from normal predictions in both rate and magnitude. Most climatologists predict an unprecedented warming period during the next century and beyond. This warming trend is increasingly attributed to human-generated greenhouse gas emissions resulting from the industrial processes, transportation, solid waste generation, and land use patterns of the twentieth and twenty-first centuries. According to the United Nations Intergovernmental Panel on Climate Change (IPCC), greenhouse gas emissions associated with human activities have grown since pre-industrial times, increasing by 70 percent between 1970 and 2004 (IPCC 2007b).

The IPCC has constructed several emission trajectories of greenhouse gas emissions needed to stabilize global temperatures and minimize climate change impacts. The IPCC predicted that the range of global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. The IPCC projects an increase of global greenhouse gas emissions by 25 to 90 percent between 2000 and 2030, depending on the reduction thresholds, mitigation, and alternative fuel development that are pursued around the world during this period. It should be noted that regardless of the analytical methodology used and the level of greenhouse gas reductions that are assumed, global average temperature and sea level are expected to rise under all scenarios modeled by the IPCC (IPCC 2007b).

■ Greenhouse Gases

Gases that trap heat in the atmosphere are called greenhouse gases because they transform the light of the sun into heat, similar to the glass walls of a greenhouse. Common greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Without the natural heat trapping effect of greenhouse gas, the earth’s surface would be about 34°C cooler (CAT 2006). However, it is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Global atmospheric concentrations of carbon dioxide, methane, and nitrous oxide have increased markedly since 1750 as a result of human activities and now far exceed pre-industrial values determined from ice cores spanning many thousands of years.

Climate change results from radiative forcings and feedbacks. Radiative forcing is defined as the difference between the radiation energy entering the Earth’s atmosphere and the radiation energy leaving the atmosphere. Greenhouse gases allow solar radiation to penetrate the earth’s atmosphere but slow the release of atmospheric heat. A feedback is an internal process that amplifies or dampens the climate’s response to a specific forcing (NRC 2005). For example, the heat trapped by the atmosphere may cause temperatures to rise or may alter wind and weather patterns. A gas or aerosol’s global warming potential is defined as its ability to trap heat in the atmosphere; it is the “cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas” (EPA 2006a).

Individual greenhouse gases have varying global warming potentials and atmospheric lifetimes (see Table 4.15-7 [Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases]). The carbon dioxide equivalent is a consistent methodology for comparing greenhouse gas emissions since it normalizes various greenhouse gas emissions to a consistent metric. The reference gas for global warming potential is carbon dioxide; carbon dioxide has a global warming potential of one. By comparison, methane’s global warming potential is 21, as methane has a greater global warming effect than carbon dioxide on a molecule to molecule basis (EPA 2006b). One teragram (Tg) (equal to one million metric tons) of carbon dioxide equivalent (Tg CO₂e) is the mass emissions of an individual greenhouse gas multiplied by its global warming potential.

Table 4.15-7 Global Warming Potentials and Atmospheric Lifetimes of Select Greenhouse Gases

<i>Gas</i>	<i>Atmospheric Lifetime (years)</i>	<i>Global Warming Potential (100 year time horizon)</i>
Carbon Dioxide	50–200	1
Methane	12 ±3	21
Nitrous Oxide	120	310
HFC-23	264	11,700
HFC-134a	14.6	1,300
HFC-152a	1.5	140
PFC: Tetrafluoromethane (CF ₄)	50,000	6,500
PFC: Hexafluoroethane (C ₂ F ₆)	10,000	9,200
Sulfur Hexafluoride (SF ₆)	3,200	23,900

SOURCE: EPA 2006b

Of all greenhouse gases in the atmosphere, water vapor is the most abundant, important, and variable. It is not considered a pollutant; in the atmosphere, it maintains a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from ice and snow, and transpiration from plant leaves.

Carbon dioxide (CO_2) is an odorless, colorless gas, which has both natural and anthropogenic sources. Natural sources include the following: decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of carbon dioxide are from burning coal, oil, natural gas, and wood. Concentrations of carbon dioxide were 379 parts per million (ppm) in 2005, which is an increase of 1.4 ppm per year since 1960 (IPCC 2007b). CO_2 is the most common greenhouse gas in California, constituting approximately 84 percent of all greenhouse gas emissions (CEC 2006f). CO_2 emissions in California are mainly associated with in-state fossil fuel combustion and with fossil fuel combustion in out-of-state power plants supplying electricity to California. Other activities that produce CO_2 emissions include mineral production, waste combustion, and land use changes that reduce vegetation.

Methane (CH_4) is a flammable gas and is the main component of natural gas. When one molecule of methane is burned in the presence of oxygen, one molecule of carbon dioxide and two molecules of water are released. There are no ill health effects from methane. A natural source of methane is from the anaerobic decay of organic matter. Geological deposits, known as natural gas fields, also contain methane, which is extracted for fuel. Other sources are from landfills, fermentation of manure, and cattle.

Nitrous oxide (N_2O), also known as laughing gas, is a colorless greenhouse gas. Higher concentrations can cause dizziness, euphoria, and sometimes slight hallucinations. Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used in rocket engines, racecars, and as an aerosol spray propellant.

Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were first synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone; therefore, their production was stopped as required by the Montreal Protocol in 1987.

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs for automobile air conditioners and refrigerants.

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above the earth's surface are able to destroy the compounds. PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane and hexafluoroethane. Concentrations of tetrafluoromethane in the atmosphere are over 70 parts per trillion (ppt) (EPA 2006c). The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It has the highest global warming potential of any gas evaluated, 23,900. Concentrations in the 1990s were about 4 ppt (EPA 2006c). Sulfur hexafluoride is used for insulation in electric power transmission and

distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Ozone is a greenhouse gas; however, unlike other greenhouse gas, ozone in the troposphere is relatively short-lived and, therefore, its effects are not globally important. It is difficult to make an accurate determination of the contribution of ozone precursors (nitrogen oxides and volatile organic compounds) to global climate change (Cal EPA 2004).

Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light. Aerosols can also affect cloud formation. Sulfate aerosols are emitted when fuel-containing sulfur is burned. Black carbon (or soot) is emitted during bio mass burning or incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

Generally, this analysis focuses on the major sources of greenhouse gases including Carbon Dioxide (CO₂), Nitrous Oxide (N₂O), and methane (CH₄). Transportation related emissions, energy consumption emissions, and solid waste emissions are quantified and other potential sources of greenhouse gases are discussed qualitatively in this section.

■ Federal and State Greenhouse Gas Inventories

In 2004, total worldwide greenhouse gas emissions was estimated to be 20,135 Tg CO₂e, excluding emissions/removals from land cover change and forestry. In 2004, greenhouse gas emissions in the US were 7,074.4 Tg CO₂e (CEC 2006f). Emissions rose from 2004 to 2005, increasing by 0.8 percent. In 2005, total US greenhouse gas emissions were 7,260.4 Tg CO₂e, a 16.3 increase from 1990 emissions (CEC 2006f). The United States gross domestic product increased by 55 percent over the same period (CEC 2006f). The main causes of the 2005 increase were strong economic growth, which led to increased demand for electricity, and an increase in electricity demand due to warmer summer conditions. However, a decrease in demand for fuels due to warmer winter conditions and higher fuel prices moderated the increase in emissions.

California is the second largest greenhouse gas emitter in the United States and the sixteenth largest in the world. In 2004, California produced 492 Tg CO₂e (CEC 2006f), which is approximately seven percent of US emissions and 2.44 percent of global emissions.

CO₂ produced from fossil fuel combustion represents 81 percent of California's total greenhouse gas emissions (CEC 2006f). The remaining greenhouse gases released include: 2.8 percent from noncombustion sources of CO₂, 5.7 percent from methane, 6.8 percent from nitrous oxide, and 2.9 percent from other high GWP gases.

■ Greenhouse Gas Emissions from Development

Sources of greenhouse gases associated with new development include direct residential and nonresidential energy consumption, transportation emissions, electricity generation, landfill emissions and construction emissions.¹⁷⁸

California's transportation sector is heavily dependent upon oil, with petroleum-based fuels currently supplying 96 percent of California's transportation energy needs (California 2007). By percentage, the transportation sector is the largest contributor to greenhouse gas emissions in California. The nearly 26 million registered vehicles operating in California produce between 27 and 41 percent of the state's greenhouse gas emissions (CEC 2007e; CEC 2007d; CEC 2006f). Within the transportation sector, light vehicles (i.e., cars, light trucks, and motorcycles) account for about 60 percent of the petroleum-based energy consumption. Dispersed development patterns, which require higher per capita VMTs, can exacerbate the generation of greenhouse gases by requiring longer and more frequent vehicle trips. By contrast, compact development containing a mix of residential and nonresidential land uses provides opportunities for residents to live and work within close proximity, reducing VMT.

Electricity generation is California's second largest source of greenhouse gas emissions. While some emissions are generated out of state, California greenhouse gas inventories consider all greenhouse gas emissions released during generation of the electricity used in California (even emissions released out of state) to be California emissions. Out-of-state electricity generation accounts for a large portion of the electricity generation emissions because out-of-state fuel sources have higher carbon intensity than in-state sources. While imported electricity is a relatively small share of California's electricity mix (ranging from 22 to 32 percent of total electrical energy used), out-of-state electricity generation sources contribute 39 to 57 percent of the greenhouse gas emissions associated with electricity consumption in California. Electricity imported to California from the Southwest is other generated by coal-fired plants, while imports from the Pacific Northwest are from hydroelectric dams.

Direct residential energy consumption (electricity and natural gas) accounts for approximately 14 percent of California's greenhouse gas emissions (NAHB 2003). Industrial energy use accounts for about 20.5 percent (CEC 2006f). Other sources of greenhouse gases not explicitly quantified in the 2006 CEC inventory include solid waste emissions, emissions from the extraction and processing of raw materials, and emissions from construction processes.

¹⁷⁸ It is difficult to trace greenhouse gases by source and economic sector. For example, the CEC greenhouse gas inventory (CEC 2006f) reports landfill methane emissions in the methane portion of the inventory and CO₂ sinks associated with landfills in the CO₂ portion of the inventory. Fuel-related greenhouse gas emissions from transporting wastes to landfills are reported in the transportation category, while landfill emissions (which are largely composed of methane) are often reported in the agricultural category. In addition, there are both direct and indirect sources of emissions associated with new development. For example, the natural gas burned to heat homes is considered a direct source of emissions, while the natural gas burned to produce electricity may be considered an indirect source. Standards for reporting emissions by source and economic sector have yet to be fully developed. The percentages reported in this section are estimates based on the current CEC inventory.

■ Land Cover Changes

Sinks (i.e. greenhouse gas removal processes) play an important role in the greenhouse gas inventory. Forests, certain agricultural crops and other carbon-storing land uses are considered sinks, reservoirs that remove and store atmospheric CO₂. Sinks help to regulate temperature fluctuations associated with the greenhouse effect. Land cover conversions may result in the production of additional greenhouse gas emissions, but they can also affect the earth's ability to offset such emissions by reducing its carbon storage capacity.

4.15.7 Regulatory Framework

■ Federal/International

Montreal Protocol

The Montreal Protocol was signed in 1987 and amended in 1990 and 1992. The Montreal Protocol governs compounds that deplete ozone in the stratosphere—chlorofluorocarbons (CFCs), halons, carbon tetrachloride, and methyl chloroform. The Protocol provided that these compounds were to be phased out by 2000 (2005 for methyl chloroform). In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change (IPCC) to assess “the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation” (Ontario 2007).

Kyoto Protocol

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change (UNFCCC). Under the Convention, governments: “gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change” (IPCC 2004).

A particularly notable result of UNFCCC efforts was a treaty known as the Kyoto Protocol. Countries sign the treaty to demonstrate their commitment to reducing greenhouse gas emissions or to engaging in emissions trading. More than 160 countries representing 55 percent of global emissions (not including the United States) are currently participating in the protocol. In 1998, U. S. Vice President, Al Gore, symbolically signed the Protocol; however, in order for the Protocol to be formally ratified the U.S. Congress must adopt it, which has not yet occurred.

Climate Change Action Plan

In October 1993, President Clinton announced his *Climate Change Action Plan*, with the goal of returning greenhouse gas emissions to 1990 levels by the year 2000. This was to be accomplished through 50 initiatives, relying on innovative voluntary partnerships between the private sector and government aimed at producing cost-effective reductions in greenhouse gas emissions. As of September 2007, 20

states have completed comprehensive Climate Action Plans that detail the steps that each state can take to reduce their contribution to climate change. However, without specific targets for emissions reductions, incentives for cleaner technologies, or other clear policies, climate action plans cannot achieve real reductions in greenhouse gas emissions (IPCC 2004).

Supreme Court Case 05-1120

The United States Environmental Protection Agency (EPA) currently does not regulate greenhouse gas emissions from motor vehicles. *Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the U.S. Supreme Court on November 29, 2006, in which it was petitioned that EPA regulate four greenhouse gas, including carbon dioxide, under Section 202(a)(1) of the *Clean Air Act*. A decision was rendered on April 2, 2007, in which the Court held that petitioners have standing to challenge the EPA and that the EPA has statutory authority to regulate emission of greenhouse gas from motor vehicles.

Policy Consistency

None of these policies pertain directly to the Proposed Project. They are listed to give the reader context regarding the current national regulatory and judiciary response to the climate change issue.

■ State

Executive Order S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following greenhouse gas emission reduction targets: by 2010, reduce greenhouse gas emissions to 2000 levels; by 2020, reduce greenhouse gas emissions to 1990 levels; by 2050, reduce greenhouse gas emissions to 80 percent of 1990 levels. The California Climate Action Team's (CAT) 2006 Report to the Governor contains recommendations and strategies to help ensure the targets in Executive Order S-3-05 are met (Cal EPA 2006).

Policy Consistency

Consistency with this policy is discussed under the Project Impacts and Mitigation discussion.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the *California Global Warming Solutions Act of 2006*, which focuses on reducing greenhouse gas emissions in California. Greenhouse gases, as defined under AB 32, include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the California Air Resources Board (CARB), the State agency charged with regulating statewide air quality, to adopt rules and regulations that would achieve greenhouse gas emissions equivalent to statewide levels in 1990 by 2020. On or before June 30, 2007, CARB is required to publish a list of discrete early action greenhouse gas emission reduction measures that can be implemented by 2010. The law further requires that such measures achieve the maximum technologically feasible and cost effective reductions in greenhouse gases from sources or categories of sources to achieve the statewide greenhouse gas emissions limit for 2020.

A multi-agency group called the Climate Action Team (CAT) published a public review draft of *Proposed Early Actions to Mitigate Climate Change in California* in 2006. The *Proposed Early Actions to Mitigate Climate Change in California* report prepared by CARB (2007) describes additional recommendations for discrete early action measures to reduce greenhouse gas emissions. Most of the strategies were in the 2006 CAT Report or are similar to the 2007 CARB strategies. As the 2007 report is only a draft and is not the final, this assessment focuses on Project compliance with the 2006 CAT Report. The 2006 CAT Report strategies that apply to the project are contained in Table 4.15-14 below.

Three new regulations are proposed to meet the definition of “discrete early action greenhouse gas reduction measures.” These include the following: a low carbon fuel standard; reduction of HFC-134a emissions from nonprofessional servicing of motor vehicle air conditioning systems; and improved landfill methane capture (CARB 2007). CARB estimates that by 2020, the reductions from those three measures would be approximately 13 to 26 million metric tons of CO₂e. In addition, ARB staff are working on several non-regulatory measures including guidance documents and protocols to encourage the public, local government and businesses to take positive steps to reduce greenhouse gas emissions.

AB 32 also requires that by January 1, 2008, CARB shall determine what the statewide greenhouse gas emissions level was in 1990, and approve a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. While the level of 1990 greenhouse gas emissions has not yet been approved, reported emissions estimates vary from 425 to 468 Tg CO₂e (CEC 2006f).

Policy Consistency

Consistency with this policy is discussed under the Project Impacts and Mitigation discussion.

Title 24

Although it was not originally intended to reduce greenhouse gases, by reducing California’s energy consumption, Title 24 has become a de facto means of reducing California’s greenhouse gas emissions. Energy efficient buildings require less electricity, and electricity production by fossil fuels results in greenhouse gas emissions. Therefore, increased energy efficiency results in decreased greenhouse gas emissions. The energy efficiency standards in Title 24 are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The latest amendments, made in October 2005, currently require new homes to use half the energy they used only a decade ago.

Policy Consistency

Consistency with this policy is discussed under the Project Impacts and Mitigation discussion.

Senate Bill 1368

Senate Bill (SB) 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (PUC) to establish a greenhouse gas emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. Similarly, the CEC was tasked with establishing a similar standard for local publicly-owned utilities by June 30, 2007. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity

provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and the CEC. In January 2007, the PUC adopted an interim greenhouse gas Emissions Performance Standard, which requires that all new long-term commitments for baseload generation entered into by investor-owned utilities have emissions no greater than a combined cycle gas turbine plant (i.e., 1,100 pounds of CO₂ per megawatt-hour [MWh]). A “new long-term commitment” refers to new plant investments (new construction), new or renewal contracts with a term of 5 years or more, or major investments by the utility in its existing baseload power plants. In May 2007, the CEC approved regulations that prohibit the state’s publicly owned utilities from entering into long-term financial commitments with plants that exceed the standard adopted by the PUC of 1,100 pounds of CO per MWh.

Policy Consistency

As the primary supplier of electricity to the Project Site, PG&E would be responsible for meeting the standards of SB 1368. However, the Proposed Project would not obstruct or impede PG&E’s attempts to meet greenhouse gas emissions performance standards. Therefore, no policy inconsistencies would occur with implementation of the Proposed Project.

Senate Bill 1078

SB 1078 establishes a renewable portfolio standard (RPS) for electricity supply. The RPS requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2017. This target date was moved forward by SB 107 to require compliance by 2010. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. The outcomes of this legislation would impact regional transportation powered by electricity.

Policy Consistency

As the primary supplier of electricity to the Project Site, PG&E would be responsible for meeting the standards of SB 1078. However, the Proposed Project would not obstruct or impede PG&E’s attempts to substitute existing nonrenewable energy sources with renewable sources. Therefore, no policy inconsistencies would occur with implementation of the Proposed Project.

Senate Bill 97

The provisions of Senate Bill 97, enacted in August 2007 as part of the State Budget negotiations, direct the Office of Planning and Research (OPR) to propose CEQA Guidelines advising lead agencies how to mitigate the impacts of greenhouse gas emissions. OPR has been directed to promulgate such guidelines by July 2009, and the Resources Agency has been directed to adopt such guidelines by January 2010. At this time, however, there are no CEQA Guidelines or other formal direction from regulatory agencies regarding the analysis of greenhouse gas emissions.

Policy Consistency

The OPR guidelines were not available as of the date of preparation of this document and were unavailable for use in this analysis. Because standards have not yet been developed, no policy inconsistencies with SB 97 can be determined.

Additional Climate Change Initiatives

Western Regional Climate Action Initiative. The Western Regional Climate Action Initiative was signed on February 26, 2007 by five states: Washington, Oregon, Arizona, New Mexico, and California. British Columbia, Canada joined on April 20, 2007. The Initiative calls for collaboration to identify, evaluate, and implement ways to reduce greenhouse gas emissions in the states collectively and to achieve related co-benefits. The Initiative calls for designing a regional market-based multi-sector mechanism, such as a load-based cap and trade program by August 2008. In addition, a multi-state registry would track, manage, and credit entities that reduce greenhouse gas emissions. California is also exploring the possibility of cap and trade systems for greenhouse gases. The Market Advisory Committee to CARB published draft recommendations for designing a greenhouse gas cap and trade system for California (Ontario 2007).

Executive Order S-01-07. Governor Arnold Schwarzenegger enacted Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The process for meeting the 2020 target includes coordination between the California Environmental Protection Agency, the University of California, the California Energy Commission to develop and propose, a draft compliance schedule to meet the 2020 Target by June 30, 2007. The order also requires that a Low Carbon Fuel Standard for transportation be established for California.

Assembly Bill 1493. Assembly Bill 1493, enacted on July 22, 2002, requires CARB to develop and adopt regulations that reduce greenhouse gas emitted by passenger vehicles and light duty trucks. Regulations adopted by CARB would apply to 2009 and later model year vehicles. CARB estimates that the regulation would reduce climate change emissions from the light duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (CARB 2004).

Policy Consistency

The Western Regional Climate Action Initiative calls for the creation of a regional market-based emissions trading system. While opportunities for project mitigation may arise following development of this system, this policy is not presently relevant for local land use practices. Executive Order S-01-07 and AB 1493 state statewide thresholds for vehicular fuel efficiency improvements. These policies are summarized for informational purposes only and do not apply to the Proposed Project. There would be no inconsistencies with these policies as a result of Project implementation.

■ Regional

There are no regional statutes related to global climate change that would apply to the Proposed Project.

■ Local

There are no local statutes related to global climate change that would apply to the Proposed Project.

4.15.8 Project Impacts and Mitigation

■ Analytic Method

The analysis in this section discusses climate change impacts predicted by the IPCC and how they would be expected to impact the Proposed Project. This analysis also estimates the construction and operational greenhouse gas emissions that would be generated by the Proposed Project and the contributions that such emissions would make towards global climate change.

The Proposed Project would generate greenhouse gases through the construction and operation of new residential, commercial, and recreational uses. Greenhouse gas emissions from the project would arise from project construction activities, and from operational sources, including vehicular emissions, emissions from habitable structures (residential and nonresidential), and solid waste decomposition. An estimated inventory of greenhouse gases (i.e., CO₂, CH₄, and N₂O) was developed for the Proposed Project. This inventory is compared to Executive Order S-3-05 and AB 32 emissions targets on a per capita basis. This analysis also assesses the greenhouse gas reduction potential of the Proposed Project's design, land use, and transportation features, discusses the Proposed Project's compliance with applicable climate change policies, and identifies improvement measures (modified from the reduction strategies identified in the CAT report [2006] and issued by the California Attorney General's Office [AGO 2007]) to reduce greenhouse gas emissions.

It is valuable to note one important qualification regarding the calculation and inventory of the Proposed Project's greenhouse gas emissions. Models and methodologies used in this analysis evaluate and model aggregate emissions. With respect to the global impact of climate change, however, these models do not demonstrate how much these aggregate emissions relating to a particular project are "new" emissions specifically attributable to development pursuant to the proposed Specific Plan. For example, while vehicular greenhouse gas emissions are calculated below, many (and perhaps the large majority) of drivers who would be going to and from the Tesoro Viejo development are already driving and generating greenhouse gas emissions in some other location. Some portion of the transportation emissions "generated" by the Proposed Project would actually be emissions relocated from another location to the Project Site. Likewise, the residents who would contribute to solid waste emissions are to some extent already generating such emissions elsewhere. Thus, in evaluating the project's contribution to greenhouse gas emissions, aggregate emission figures are disclosed, but the determination of significance is based upon the consistency of the project with nascent emissions reductions thresholds and with policies, such as AB 32 and Executive Order S-3-05, which specify project-specific actions that can be taken to reduce emissions.

An inventory of the project's three most important greenhouse gas emissions (CO₂, CH₄, and N₂O) is presented below. The emissions of the individual gases were estimated, then converted to their CO₂ equivalents (CO₂e) using the individually determined global warming potential (global warming potential)

of each gas. Thus, total greenhouse gas emissions equals total CO₂ emissions plus total CO₂e emissions from CH₄ and N₂O.

Construction Emissions

The project would emit greenhouse gases during construction of the project from the operation of construction equipment and from worker and building supply vendor vehicles. Emissions during construction were estimated using the URBEMIS 2007 model. The project construction emissions of CO₂ are shown in Table 4.15-8 (Estimated CO₂ Construction Emissions, ~~2009~~2013–2025) below. Emissions of nitrous oxide and methane are negligible in comparison and were not estimated. Emissions estimates for each phase were based on construction phasing and square footage data for each project land use category as provided by the Project Applicant.

Table 4.15-8 Estimated CO₂ Construction Emissions, 20092013–2025 [Revised]	
<i>Construction Activity</i>	<i>Tons CO₂ Produced</i>
Asphalt (2010 to 2024)	2,857
Building (2011 to 2025)	42,054
Coating (2012 to 2025)	29
Fine Grading (2011 to 2024)	29,123
Mass Grading (2009 to 2021)	27,043
Trenching (2009 to 2021)	5,870
<u>Pipeline Construction (2012 to 2013)</u>	<u>343</u>
<u>Off-Site School Construction (2018 to 2020)</u>	<u>79</u>
<u>Recharge Basins (2014)</u>	<u>307</u>
Total CO₂ Project Construction Emissions	<u>107,705</u>

SOURCE: URBEMIS 2007 (output data is provided in Appendix C)

This climate change analysis has been augmented to consider construction of those features of the Project that were not previously considered, which include (1) construction of two recharge basins and an 8-mile pipeline traveling from the Project Site to Cottonwood Creek Ranch, which is the location of an off-site source of alternative water supply, and (2) construction of portable classrooms at Minarets High School that are needed to accommodate students from Tesoro Viejo until such time as an on-site Tesoro Viejo high school is constructed and operational to meet their needs or Phase II of Minarets High School is constructed and operational. URBEMIS output for modeling of the portable classrooms, recharge basins, and 8-mile pipeline are included in Appendix C of this Revised EIR.

Construction of Portable (or Temporary) Classrooms

In order to accommodate high-school-age students during those years prior to operation of an on-site high school (in 2021) when the existing Minarets High School would not have adequate capacity to accommodate students from the Proposed Project (in years 2018, 2019, and 2020), temporary classrooms would have to be added at Minarets High School. It is anticipated that five to six temporary classrooms would be developed per year to accommodate the high-school aged students from both within and outside of the Rio Mesa for a total of about fifteen portable classrooms by 2020. Additional information

about the need for portable classrooms can be found in Impact 4.12-3(a) in Section 4.12 (Public Services and Recreation). The construction-related air quality analysis and, therefore, this greenhouse gas emissions analysis assumed that a maximum of six classrooms would be added during the summer to approximate the worst-case yearly emissions.

Construction of the temporary classrooms would increase construction emission between 2018 and 2020. Table 4.15-8 identifies the emissions anticipated from construction of the temporary classrooms (in tons per year), as well as the emissions anticipated from construction of the other components of the Project.

Construction of Recharge Basins

The Proposed Project also includes the construction of three recharge basins to recharge groundwater, if required, to provide an alternative source of water supply. It is anticipated that each of the recharge basins would each be 2 acres in size and 20 feet deep. Because one of the basins is already in place, having been constructed as part of the recharge test performed by KDSA, excavation would require the export of approximately 129,000 cubic yards of soil to construct the remaining two basins. Construction of the basins is anticipated for 2014.

Construction of the two recharge basins would result in additional construction-related emissions. It is anticipated that construction of the recharge basins would occur over a 12-month period beginning in 2014 and that all the soil would be balanced on site, meaning that soil removed from the excavation would be used as fill elsewhere on site and would be considered incidental to construction. The construction-related air quality analysis and, therefore, this greenhouse gas emissions analysis, assumed that a total of 4 acres would be disturbed daily for 10 hours per day during 2014. Table 4.15-8 shows the anticipated total emissions for construction of the recharge basins, as well as the emissions anticipated from construction of the other components of the Project.

Construction of 8-Mile Pipeline

If the use of Holding Contract No. 7 water proves unavailable and the use of alternative water supply sources becomes necessary, two 30-inch water pipelines would be constructed along Avenue 15, from the western portion of the Project Site (at SR-41) to a point 8 miles westward, to deliver water from an off-site location. Construction activities are described in detail in Section 3.7.4 (Utility Infrastructure Improvements) of this Revised EIR.

Table 4.15-8 shows the anticipated total emissions for construction of the 8-mile pipeline, as well as the emissions anticipated from construction of the other components of the Project.

Operational Emissions

Electricity and Natural Gas Emissions. The Proposed Project would use electricity for its commercial, residential, retail, and other components, which would contribute to greenhouse gas emissions. The generation of electricity through the combustion of fossil fuels typically yields CO₂ and, to a much smaller extent, CH₄ and N₂O. To determine emissions from electricity consumption, annual electricity use must be established. The project-related electricity emissions were estimated by using project electricity and natural gas use estimates from Table 4.15-3 and Table 4.15-4, above. The emissions factors for electricity use and natural gas combustion were obtained from the California

Climate Action Registry (CCAR 2007). Greenhouse gas emissions from these two sources are as shown in Table 4.15-9 (Estimated Greenhouse Gas Emissions from Electricity Use) and Table 4.15-10 (Estimated Greenhouse Gas Emissions from Natural Gas Use).

Geographic Region and Emissions Source	Energy Use MWh/year	N ₂ O (tons) ^a	N ₂ O CO ₂ e (tons)	CO ₂ (tons) ^b	CH ₄ (tons) ^c	CH ₄ CO ₂ e (tons)	Total CO ₂ e (tons)
State of California (2006)	294,865,000	545.5	169,105.1	118,615,344	987.8	20,743.8	118,805,192
Proposed Project (2025)	<u>67,946,66,019</u>	0.1	39.0	27,333	0.2	4.8	27,376

SOURCE: PBS&J 2007 (Data from 2004 Statewide Inventory)

^a Emissions Factor of .0037 was used for N₂O.
^b Emissions Factor of 804.54 was used for CO₂.
^c Emissions Factor of .0067 was used for CH₄.

Vehicular Emissions. The largest source of greenhouse gas emissions associated with the Proposed Project would be on- and off-site motor vehicle use. CO₂ emissions, the primary greenhouse gas associated with mobile sources, are directly related to the quantity of fuel consumed. Two important determinants of transportation-related greenhouse gas emissions are vehicle miles traveled (VMT) and vehicle fuel efficiency. VMT in California has steadily increased over the last quarter-century (CEC 2006e).

Geographic Region and Emissions Source	Energy Use MWh/year	N ₂ O (tons) ^a	N ₂ O CO ₂ e (tons)	CO ₂ (tons) ^b	CH ₄ (tons) ^c	CH ₄ CO ₂ e (tons)	Total CO ₂ e (tons)
State of California (2005)	21,570,375,800	237.77	73,708.8	125,542,693.0	14028.44	294,597.3	125,910,999
Proposed Project (2025)	<u>2,140,414,2,101,138</u>	0.02	7.3	12,458.0	1.39	29.2	12,494

SOURCE: PBS&J 2007 (data from 2004 Statewide Inventory)

^a Emissions factor of 0.000022 was used for N₂O.
^b Emissions Factor of 11.6403 was used for CO₂.
^c Emissions Factor of 0.0013 was used for CH₄.

The vehicular CO₂ emissions of the Proposed Project at full buildout were estimated using URBEMIS 2007, an air quality modeling program recommended by the San Joaquin Valley Air Pollution Control District (SJVAPCD) (shown in Table 4.15-11 [Estimated Vehicular CO₂ Emissions for Proposed Project, 2025]).

Type of Use	Annual CO ₂ Emissions (tons) ^a
Residential	7,407.03
Nonresidential	51,754.78
Total	59,161.81

SOURCE: URBEMIS 2007 (calculation sheets are provided in Appendix C; statewide data not available)

^a Daily emissions figures in URBEMIS report were multiplied by 365 to get an annual emissions estimate.

Combustion of fossil fuels also generates CH₄ and N₂O. Since URBEMIS 2007 does not currently calculate CH₄ and N₂O emissions, emissions factors for each gas were obtained from the California Climate Action Registry (CCAR 2007) and were used with data on the fleet mix, fuel type and VMT for the Proposed Project to calculate their emissions, as shown in Table 4.15-12. (Estimated Vehicular N₂O and CH₄ Emissions from Motor Vehicles, 2025).

<i>Geographic Region and Emissions Source</i>	<i>Estimated Annual VMT^a (million miles)</i>	<i>N₂O (tons)</i>	<i>CH₄ (tons)</i>	<i>Total N₂O Emissions (tons CO₂e)^a</i>	<i>Total CH₄ Emissions (tons CO₂e)^b</i>	<i>Annual CO₂ Emissions (tons)</i>
State of California	505,063.00	13,764,473.24	898,861.01	4,266,986,703.95	18,876,081.31	4,285,862,785.26
Madera County	2,296.23	62,579.12	4,086.60	19,399,526.16	85,818.65	19,485,344.81
Proposed Project	0.2943	8.02	0.52	2,486.37	11.00	2,497.37

SOURCE: Emission factors taken from California Climate Action Registry General Reporting Protocol, Version 2.2, March 2007; Appendix C, Table C4; based on estimated fleet composition for 2025.

^a VMT information for the state of California is from Caltrans 2006. VMT information for the Proposed Project is based on the URBEMIS 2007 model outputs (see Appendix C).

^b Composite emissions factor for N₂O = 0.068 g/mile. N₂O emissions were converted to CO₂e by total emissions x 310 (global warming potential factor for N₂O).

^c Composite emissions factor for CH₄ = 0.059 g/mile. CH₄ emissions were converted to CO₂e by total emissions x 21 (global warming potential factor for CH₄).

Although vehicular energy consumption would increase under the Proposed Project, the transportation demand management plan and traffic improvements proposed for the project are designed to improve energy efficiency of the transportation system by increasing the use of more fuel-efficient public transit, carpools, and vanpools, and improving circulation system levels of service. Any reductions in traffic congestion realized through implementation of enhanced transit operations would also allow for more energy-efficient vehicular travel.

Solid Waste Emissions. Since the project involves residential and commercial uses, solid waste generated by the project would also contribute to greenhouse gas emissions. Treatment and disposal of municipal, industrial, and other solid waste produces significant amounts of CH₄. In addition to CH₄, solid waste disposal sites also produce biogenic CO₂ and nonmethane volatile organic compounds (NMVOCs) as well as smaller amounts of N₂O, nitrogen oxides (NO_x) and carbon monoxide (CO). CH₄ produced at solid waste sites contributes approximately 3 to 4 percent to the annual global anthropogenic greenhouse gas emissions (IPCC 2001; IPCC 2006).

In many industrialized countries, waste management has changed a great deal over the last decade. Waste minimization and recycling/reuse policies have been introduced to reduce the amount of waste generated, and increasingly, alternative waste management practices (recycling, source reduction, etc.) have been implemented to reduce the environmental impacts of waste management. Also, landfill gas recovery has become more common as a measure to reduce CH₄ emissions from solid waste disposal sites. Therefore, an important factor in estimating solid waste emissions is the amount of waste diverted through the project Waste Diversion and Recycling Plan. The Proposed Project would be required to divert at least 50 percent of waste produced per the requirements of AB 939 (see discussion under Impact 4.14-9, Section 4.14 (Utilities and Service Systems)).

CH₄ and CO₂ emissions from solid waste generated by the Proposed Project were estimated based on formulas provided in the State Workbook: Methodologies for Estimating Greenhouse Gas Emissions. Estimates were obtained by multiplying the tons of solid waste landfilled annually by the percent of degradable material the waste would be expected to contain, by the percent dissimilated, and by the pounds of gas produced per pound of biomass. Landfill gas is approximately 50 percent CH₄ and 50 percent CO₂. Total project emission of greenhouse gases from landfill material is shown in Table 4.15-13 (Greenhouse Gas Emissions from Solid Waste). N₂O emissions from landfills are considered negligible because the microbial environment in landfills is not conducive to the nitrification and denitrification processes that result in N₂O emissions. N₂O emissions are therefore not explicitly modeled as part of greenhouse gas emissions generated through solid waste.

Table 4.15-13 Greenhouse Gas Emissions from Solid Waste

<i>Geographic Region</i>	<i>Solid Waste tons/year</i>	<i>CH₄^a tons</i>	<i>CO₂ tons</i>	<i>Total CO₂e</i>
State of California (2004)^b				
Total Solid Waste Produced in 2004	77,900,000	3,215,089	5,626,405	73,143,270
Solid Waste Landfilled (52% of Total)	40,900,000	1,688,025	2,954,043	38,402,564
Proposed Project (2025)^c				
Maximum Operational Solid Waste	15,858	654	1,145	14,890
Operational Emissions Assuming Implementation of 50% Waste Diversion Plan	7,929	327	573	7,445

SOURCE: Calculated by PBS&J using methods in State Workbook: Methodologies for Estimating Greenhouse Gas Emissions (pages 5-1 to 5-3).

^a Landfill gas emissions = tons landfilled x .22x.77x.67.

^b Most current data available; CIWMB 2007

^c From Table 4.14-6 (Project-Related Solid Waste Generation) in Section 4.14 (Utilities and Service Systems)

Table 4.15-14 (Estimated Annual Operational Greenhouse Gas Emissions of Proposed Project, 2025) shows the total annual operational greenhouse gas emissions associated with the Proposed Project. This summarizes all of the Project-related emissions in Table 4.15-9 through Table 4.15-13.

Table 4.15-14 Estimated Annual Operational Greenhouse Gas Emissions of Proposed Project, 2025

<i>Source of Emissions</i>	<i>Annual CO₂e Emissions (tons)</i>	<i>Percent of Total</i>
Electricity Use and Generation	27,376	25%
Natural Gas Use	12,494	11%
Vehicular CO ₂	59,162	54%
Vehicular N ₂ O and CH ₄	2,497	2%
Solid Waste (assuming 50% diversion)	7,445	7%
Total	108,974	100%

SOURCE: Compiled from data in Table 4.15-9 to Table 4.15-13.

Other Greenhouse Gas Emissions

Ozone is a greenhouse gas; however, unlike the other greenhouse gases, ozone in the troposphere is relatively short-lived and therefore is not global in nature. According to CARB, it is difficult to make an accurate determination of the contribution of ozone precursors (NO_x and ROGs) to global warming (CARB 2004b). Therefore, it is assumed that project emissions of ozone precursors would not significantly contribute to global climate change. At present, there is a federal ban on CFCs; therefore, it is assumed the project would not generate emissions of these greenhouse gases. The project may emit a small amount of HFC emissions from leakage and service of refrigeration and air conditioning equipment and from disposal at the end of the life of the equipment (EPA 2004c). However, the details regarding refrigerants to be used in the project and the capacity of these are unknown at this time. PFCs and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated the project would contribute significant emissions of these additional greenhouse gases.

Operational Impacts Associated with Interim Use of Minarets High School

It is anticipated that there would be vehicle trips associated with students traveling between the Project Site and Minarets High School until such time as an on-site high school is constructed and operational. These interim year trips would result in increased vehicle miles traveled (VMT) and, therefore, increased mobile source emissions as compared to the vehicle miles projected for high school trips in the 2008 Final EIR. While the VMT associated with the commute to and from the Minarets High School from the Project Site would be much greater than if those same students commuted to the on-site High School, the overall mobile source emissions for the Project would be less in the Interim Year 2020 Cumulative Plus Project scenario than in the Buildout Year 2025 scenario because there would be fewer students associated with a residential development program that is 50 percent of buildout in 2025. Because climate change analysis is a cumulative impact, the worst case, or highest level of emissions would be used to determine significance. Since the Buildout Year 2025 scenario would have greater CO₂ emissions from operational activities than the Interim Year 2020 Cumulative Plus Project scenario, the Buildout Year 2025 scenario would be the year used to determine Project significance. The original analysis based significance on the 2025 year emissions, therefore, represents the worst-case analysis.

■ Thresholds of Significance

There are no widely agreed upon thresholds of significance for greenhouse gas emissions, and no State or applicable regional regulatory agency has formally adopted or issued guidance regarding the analysis of greenhouse gas emissions in EIRs (AEP 2007). Section 15064.7 of the CEQA Guidelines encourages public agencies to develop and publish their own thresholds of significance for CEQA analyses where relevant; this provides justification for lead agencies to determine their own climate change thresholds. While this EIR does not employ specified significance thresholds for the climate change analysis, it breaks the discussion of climate changes impacts into two topics: (1) a discussion of how climate change could affect the Proposed Project and its residents; and (2) a discussion of how the Proposed Project would contribute to cumulative climate change via release of greenhouse gas emissions.

The first part of the analysis discusses possible repercussions of climate change that have been referred to in recent studies and how these changing environmental conditions could affect the Proposed Project. The second part of the analysis compares per capita Project emissions to per capita California emissions. This is discussed in the context of statewide emissions targets in Executive Order S-3-05 and AB 32.¹⁷⁹

■ Impacts and Mitigation Measures

Impacts of Climate Change on the Proposed Project

The impacts of climate change on human societies and on the environment will vary around the world. Some changes may be irreversible. According to the IPCC Fourth Assessment report (IPCC 2007b), large differences in regional population, income and technological development are strong determinants of climate change vulnerability. Recent studies tracing the potential impacts of climate change on the food supply, coastal flooding and water scarcity found that the number of people potentially affected is considerably greater in areas characterized by relatively low per capita income and large population growth (IPCC 2007b). This difference is largely explained not by differences in climatic variation but by differences in economic vulnerability (IPCC 2007b). While the Proposed Project's residents would not be expected to experience the same level of economic or technological vulnerability to climate change as that experienced in poorer, more populated regions of the world, potentially significant adverse impacts to the Proposed Project are possible.

The following constitutes a list of potentially significant climate change effects that have been modeled in recent studies, particularly the IPCC's 2007 *Summary for Policymakers*. A general description of each effect is given, followed by a discussion of how each effect would apply to the Proposed Project. Although this analysis makes a good-faith effort to consider how climate change effects identified by the IPCC and other prominent climate change studies might affect the Proposed Project, it is not possible to prepare an exhaustive list of all of the possible adverse climate change impacts that could occur. The type and degree of the impacts climate change will have on humans and the environment are still largely speculative. Moreover, the effects of climate change are exceptionally difficult to predict at the local scale or with any temporal certainty.

- **Sea level rise.** Climate change is expected to raise sea levels by up to 4 feet (IPCC 2007b). Because the Project Site is at an inland location, sea level rise would not directly affect the Proposed Project. Indirect effects related to sea level rise are speculative at this time.
- **Natural disasters.** Precipitation patterns would be affected by climate change. Such changes could result in increased flooding and weather-related disasters (IPCC 2007b). Again, because the Project Site is inland it would be shielded from coastal storms. However, the frequency of large floods on rivers and streams could also increase, which could affect the portion of the site closest to the San Joaquin River. A small portion of the Project Site is located in the 100-year flood zone (which could be flooded more frequently if the frequency of large storms increased).

¹⁷⁹ The reduction targets contained in Executive Order S-3-05 and AB 32 are statewide targets; neither policy states how responsibility for meeting the targets would be divided geographically or by jurisdiction. No existing policies require the Proposed Project to demonstrate compliance with the emissions reductions standards in these policies. However, the quantitative analysis of the Proposed Project's projected emissions, presented in context of a qualitative discussion of the state's overall emissions reductions thresholds, provides the reader with a sense of the magnitude of the Proposed Project's climate change impact with respect to State goals.

- **Water supply.** As stated, changes to regional precipitation patterns are anticipated with climate change. Reduced snow pack and drought, for example, could lead to alterations in San Joaquin River flow, decreased storage in Millerton Lake, and alterations in groundwater/surface water supply ratios in Madera County, impacting the regional water supply. Potential reductions in surface water supply would induce more reliance upon groundwater supplies in some areas, with an associated reduction in groundwater volume and a lowering of the local groundwater table.¹⁸⁰ If climate change contributed to reduced surface water supplies or a change in timing, creating seasonal deficits, there could be a substantial regional effect on surface water flow and water table levels. The WSA prepared on behalf of the Proposed Project may need to be updated at a hypothetical future date to compensate for alterations to the existing water supply. It is assumed that the water treatment and recycling facilities proposed as part of the Proposed Project could help to meet any potential future deficits.
- **Air quality.** Climate change could adversely impact air quality, resulting in respiratory health impacts (Cal EPA n.d.). If air quality deteriorated in the San Joaquin Valley Air Basin as a result of climate change, residents of the Proposed Project could be exposed to adverse levels of pollution. However, this would be a regional, not a project-specific effect.
- **Sanitation.** Extreme precipitation and severe weather events are predicted to become more frequent and may strain the existing capacity of sanitation and water-treatment facilities, resulting in increases in infectious and diarrheal diseases (Cal EPA n.d.). The Proposed Project would involve construction of a wastewater treatment plant; however, this plant would not be directly connected to the stormwater system. Thus, severe weather events would not strain the capacity of the sanitation plant unless they restricted the plant's ability to discharge treated effluent.
- **Disease vectors.** The distribution and nature of infectious disease vectors may change. This could affect residents of the Proposed Project; however, the types of impacts associated with this effect are highly speculative.
- **Heat waves.** Increased morbidity associated with heat waves may occur (IPCC 2007b). All other things equal, residents of the Proposed Project could be subject to heat wave effects associated with rising temperatures. Title 24 building design standards include insulation standards to moderate indoor temperatures. Because the Proposed Project would comply with Title 24, sensitive Tesoro Viejo residents would have access to temperature-moderated indoor shelter during heat waves. Higher temperatures, including heat waves, would likely reduce demand for heating and increase demand for indoor cooling.
- **Agricultural industry and food supply.** Changes to weather, precipitation and temperature could affect the Madera County agricultural industry and at a larger level, the California food supply. The Proposed Project does not include commercial agricultural uses, thus impacts to agriculture as an industry would not directly affect the Tesoro Viejo development. Furthermore, threats to the food supply are not strictly a local issue; development at the Project Site would not disproportionately expose Proposed Project residents to food supply impacts if climate change were to affect the quantity or quality of the food supply.

¹⁸⁰ It should be noted that water drawn from wells at the Project Site cannot be accurately characterized as “groundwater” due to a high level of hydrologic connectivity to the San Joaquin River. In areas adjacent to the San Joaquin River, surface water and local groundwater interact such that extracted groundwater is really surface water that has seeped through the bank walls. There is no true groundwater supply at the Project Site. Thus, even in an extreme climate change scenario, the Proposed Project would not contribute to a lowering of the water table and a shortage of groundwater would not directly affect Project residents.

- **Biome shifts/sensitive species.** Changes in weather patterns are likely to affect local biomes, causing regional shifts in species populations and composition. Sensitive species may face extinction as a result of such shifts due, for example, to degradation of habitat and an increase in invasive species. Changes in the species composition would not directly affect the Proposed Project or its residents. Generally CEQA requires an analysis of how a project would affect sensitive species, not how a reduction in sensitive species would affect a project. The Proposed Project would contribute to climate change by emitting greenhouse gases, a topic that is discussed in more detail below.

Impacts of the Proposed Project on Climate Change

The greenhouse gas emissions from a given project cannot be demonstrated to have a material effect on global climate; therefore, climate change is fundamentally a cumulative issue. Even a very large development project would not individually generate sufficient greenhouse gas emissions to measurably influence global climate change. However, while the Proposed Project's contributions to climate change would be less than significant on a project level, greenhouse gas contributions from multiple sources combine to form cumulatively considerable emissions, resulting in a significant adverse impact. Thus, while a project-level analysis of global climate change would not link any significant impacts to the Proposed Project, further cumulative analysis is required.

The geographic context for the cumulative climate change analysis is the State of California. While the issue of climate change is a global concern, this analysis focuses on how changes in land use patterns, which are planned and governed at local and regional levels, would contribute to California emissions reductions targets. Local land use planning determines factors such as the average size of residences and the preferred mode of transportation for a given area. For the purposes of controlling greenhouse gas emissions, this analysis assumes that land use decisions that minimize the consumption of combustion fuels are more effective than those that allow or encourage wasteful energy consumption. In addition, land uses and operational practices that generate less solid waste are anticipated to generate lower emissions.

The Proposed Project would generate an estimated 108,974 tons CO₂e annually at full buildout. Because there are no available State or local significance thresholds for judging a project's climate change impact, this analysis looks at the emissions generated by the Proposed Project in light of two recent emissions target policies, Executive Order S-3-05 and AB 32. Executive Order S-3-05 mandates the following statewide greenhouse gas emission targets:

- Reduction of greenhouse gas emissions to 2000 levels by 2010
- Reduction of greenhouse gas emissions to 1990 levels by 2020
- Reduction of greenhouse gas emissions to 80 percent of 1990 levels by 2050

Assembly Bill 32 contains the same reduction target as Executive Order S-3-05 for the year 2020 (i.e., reduction of 2020 greenhouse gas emissions to 1990 levels) but does not specify reductions targets for any other year.

One approach for assessing the Proposed Project's emissions with respect to these policies is to compare the estimated annual per capita emissions for the Proposed Project to the estimated per capita emissions for the State of California. The annual per capita emissions for each Tesoro Viejo resident would be

approximately 6.96 tons CO₂e. This was determined by dividing the total annual emissions with the estimated number of Tesoro Viejo residents, which are estimated to be 15,650. Table 4.15-15 (Estimated California Per Capita Reductions Needed to Meet State Greenhouse Gas Reduction Targets) shows what per capita emissions would need to be in the target years to meet the Executive Order S-3-05 and AB 32 standards.

<i>Year^a</i>	<i>Estimated Population</i>	<i>Reduction Goal</i>	<i>Greenhouse Gas Target (Tg CO₂e)</i>	<i>Per Capita Target (tons CO₂e per person)^b</i>
2000	34,105,437	N/A	481.0	15.55
2010	39,135,676	GHG emissions below 2000 levels	481.0	13.55
2020	44,135,923	GHG emissions below 1990 levels	433.5 ^c	10.83
2050	59,507,876	GHG emissions 80% of 1990 levels	346.8 ^d	6.42

SOURCE: Population data is from Table 4.11-2 (California Department of Finance 2007); greenhouse gas targets are derived from estimated emissions in CEC 2006f.

^a Target years specified in Executive Order S-3-05 and/or AB 32. The CARB estimate of 2000 levels is provided as a baseline.

^b Calculated by dividing the Greenhouse Gas Target by the projected population for a given target year. 1 Tg CO₂e = one million metric tons = 1.1023 million short tons CO₂e.

^c Based on the 2004 CARB estimate of 1990 levels. See State and Federal Greenhouse Gas Inventories subsection.

^d Calculated by multiplying 433.5 x 80%.

The per capita approach appears to suggest that the per capita emissions for residents of the Proposed Project would fall below the emissions thresholds of Executive Order S-3-05 and AB 32 for the year 2020, but that it would exceed the 2050 threshold for Executive Order S-3-05 by a small amount. However, these results are speculative. There are several sources of potential error in project-level greenhouse gas inventories and in comparisons between site-specific and statewide emissions data.

First, the assumptions that were used to generate the Project inventory may be inaccurate. For example, the Proposed Project could fail to meet the solid waste diversion rate specified in AB 939 or the VMT could be higher than predicted. In either of these cases, emissions would significantly exceed those reported in the Project inventory. In addition, the inventory does not take into account changes in land cover associated with the Proposed Project. If a carbon sink were converted as a result of the Proposed Project, it would not only generate new greenhouse gases, it would release carbon that is currently sequestered in plants and soils and/or preclude future carbon intake through the paving of pervious surfaces. The Project Site is devoted to agricultural uses, including orchard fruit and row crops. With implementation of the Proposed Project, farmland would be converted to other uses, and the percent impervious surface at the Project Site would increase.¹⁸¹ Finally, this inventory does not take into account the point raised in the introduction to the analysis, that attempts to prepare project-specific inventories cannot account for the fact that a portion of the emissions produced by a new project would be relocated from another area, and would not be a new source. Thus, the inventory prepared for the Proposed Project captures the gross rather than the net increase in emissions.

¹⁸¹ It would be impossible to prepare an accurate greenhouse gas inventory for existing agricultural uses at the Project Site because the available data on crop carbon sequestration and agricultural emissions is insufficient for this purpose.

In addition, while there are several methodologies for preparing emissions inventories for certain types of sources, such as solid waste emissions or vehicle emissions, CARB has yet to define a preferred methodology for determining the total emissions of a development project. Combining methodologies that serve different purposes or that focus on only one type of emission may result in double counting or omission of certain sources of emissions (see Footnote 6). The total CO₂e emissions for the State of California include “shared” emissions from public works projects, public services, commercial shipping activities, air travel, and other activities or services that would benefit the residents of the Proposed Project, but which cannot be accounted for in a project-specific inventory using existing methodologies. In a per capita project-level analysis, emissions related to economic and governmental activities are treated as externalities, while statewide estimates capture these emissions. In addition, the per capita approach makes it difficult to account for construction impacts, except through a depreciation method. Averaging the estimated 106,976 tons of CO₂e produced by the Proposed Project over a useful life of approximately 50 years¹⁸² would add an additional 2,140 tons of CO₂e to the annual Project emissions. This would raise the annual per capita emissions to 7.1 tons of CO₂e.

Given the high level of uncertainty inherent in project-specific quantitative inventories and thresholds, the California Attorney General’s Office (AGO) suggests that mitigation should be applied to offset potentially significant impacts.

Emissions Reductions Strategies

This section describes the greenhouse gas emissions reduction strategies that would be employed by the Proposed Project. First, the integral emissions-reducing features of the Specific Plan are summarized, followed by a discussion of Title 24, an existing regulatory policy that minimizes greenhouse gas emissions by requiring energy efficient design features for new construction. Finally, this section discusses mitigation measures¹⁸³ proposed in the 2006 and 2007 *Proposed Early Actions to Mitigate Climate Change in California* (CAT and CARB, respectively) and by the California Attorney General’s Office (AGO 2007).

Tesoro Viejo Specific Plan Features. The Tesoro Viejo Specific Plan contains goals and design guidelines that would help reduce the operational emissions generated by the Proposed Project. These goals and design guidelines include the following:¹⁸⁴

- Provide a viable and balanced mix of regional and local-serving commercial and employment uses.
- Encourage properly designed mixed-use and residential neighborhoods to insure compatibility with and transportation choices for access to residential and nonresidential uses by creating a pedestrian-supportive environment that activate Tesoro Viejo’s streets.
- Promote a diverse community and create opportunities for housing near workplaces.

¹⁸² This assumes that no major capital improvements would be required to Tesoro Viejo structures for 50 years following completion of construction and would be completed in 2025.

¹⁸³ Only those that apply to land use and development.

¹⁸⁴ Based on the land uses specified for the Proposed Project, the URBEMIS 2007 model applies a 16.78 percent trip reduction for mixed use development and a 13.68 percent trip reduction for pedestrian/bicycle friendly design measures. This is assumed in the VMT that is calculated for the Proposed Project and indicated in the inventory tables above.

- Provide an opportunity for high-density, multi-family housing near and within the mixed-use employment center of Tesoro Viejo.
- Design multimodal streets that effectively facilitate vehicular traffic and future transit connections but also provide for a safe, attractive, and continuous pedestrian and bicycle circulation system throughout Tesoro Viejo.
- Minimize or eliminate the need for wide arterial streets by creating an interconnected circulation network that distributes traffic across many streets while providing the capacity necessary to accommodate the levels and types of traffic anticipated in the land use plan and those of the surrounding area.
- Plan pedestrian-oriented mixed-use areas that maintain an adequate level of parking and access for automobiles, but that encourage a park-once approach that minimizes the total demand for parking.
- Create a circulation network that is interconnected with the regional transportation system.
- Create a network of multi-use and hiking trails along Tesoro Viejo's open space corridors that complements the walkways and paths along the community's streets to encourage walking and bicycling for transportation and recreation.

Title 24 Design Features. Although building plans have not yet been prepared, some or all of the following Title 24 energy conservation measures would be required. Title 24 energy conservation measures would reduce Project greenhouse gas emissions by reducing energy consumption. The nonresidential Title 24 manual is over 700 pages long and the residential manual is over 300 pages long, therefore, this list only contains a sample of the types of measures that the Proposed Project would be required to implement pursuant to this policy.

- Specified products shall consider locally produced and manufactured items as much as possible where appropriate.
- The specified products shall include options for use of recycled content.
- Exterior wall systems shall be fully insulated beyond minimum Energy Code standards.
- The roofing systems shall include insulation that meets or exceeds minimum Energy Code requirements.
- Glazing shall specify insulated Low-E glass with thermal break window frame systems.

Mechanical & Plumbing Systems

- Variable Frequency Drives (VFDs) shall be specified for hot and chilled compressors and water pumps.
- Air Handling Units (AHU) shall utilize a 100 percent Outside Air Economizer Cycle.
- "Low flow" water efficient fixtures shall be specified throughout.
- Electronic faucets shall be specified where appropriate.
- Hot water circulating systems shall minimize wait time and water loss at fixtures. The systems shall be specified to operate on a timer to maximize hot water system efficiency.
- The VFDs shall modulate to match actual building demands.

Electrical Systems

- All light fixtures for indoor use shall be Fluorescent type with T-8 or T-5 lamps and Electronic Ballasts.
- All exterior Light fixtures shall be HID type.
- Use occupancy sensors for all areas allowed by code, such as offices and conference rooms.
- Use VFDs as a means of motor starting on mechanical equipment.
- Energy star rated motors and fixtures shall be specified for the project.

Landscaping and Irrigation

- The landscape plans shall call for the use of drought tolerant plant species wherever possible to avoid excessive water demand and to minimize water treatment, a high energy-consuming process.
- Use of mulch shall be specified for landscape areas to further retain moisture.
- Irrigation systems shall be designed so that the application rate does not exceed the infiltration rate of the soil, and shall minimize overspray and runoff.
- Control valves shall be installed to account for different site-specific characteristics (i.e. full sun/full shade, level/sloping, shrub/lawns, street trees, etc.).
- Rain sensors shall interrupt the normal irrigation cycle when significant amounts of rainfall are detected.

CAT and AGO Mitigation Measures. Mitigation measures that are suggested in the CAT/CARB reports and from the AGO’s suggested *Global Warming Mitigation Measures* are hereby applied to the Proposed Project as a means of ensuring compliance with Executive Order S-3-05 and AB 32 greenhouse gas reduction targets.

Table 4.15-16 Required Climate Change Mitigation	
<i>Measures Recommended by CAT/CARB</i>	<i>Mitigation Measure Proposed</i>
A new statewide goal of planting 5 million trees in urban areas by 2020 would be achieved through the expansion of local urban forestry programs. Trees shall be planted near structures to act as insulators from weather, thereby decreasing energy requirements. Trees also store carbon.	MM4.15-3(a) Trees and other shade structures shall be incorporated into residential and nonresidential development to maximize summer shade and to minimize winter shade.
If Transportation Refrigeration Units (TRUs) access the site, implement measures to reduce emissions; install electrification in applicable projects (i.e., truck stops, warehouses, etc.)	MM4.15-3(b) The Project Applicant shall require the installation and use of electrical support for TRUs at loading docks, to the extent feasible and practicable.
Cost-effective reductions to reduce energy consumption and to lower carbon dioxide emissions in the cement industry.	MM4.15-3(c) The Project Applicant shall require the use of "green" cement (which contains recycled materials and is produced using emission-reducing technologies), if available, structurally appropriate for the intended use, and where feasible and practicable.
<i>Measures Recommended by AGO</i>	<i>Mitigation Measure Proposed</i>
The project shall include the necessary infrastructure to encourage the use of alternative fuel vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).	MM4.15-3(d) The Proposed Project shall require the installation of facilities to support the use of alternative fuel vehicles, if feasible and available based on market conditions.

Table 4.15-16 Required Climate Change Mitigation

Coordinate controlled intersections so that traffic passes more efficiently through congested areas. Where signals are installed, require the use of Light Emitting Diode (LED) traffic lights.	MM4.15-3(e) The Proposed Project shall require the use of LED traffic lights, where feasible.
Require that the project include efficient lighting. (Fluorescent lighting uses approximately 75 percent less energy than incandescent lighting to deliver the same amount of light.)	MM4.15-3(f) The Project Applicant shall require future building owners and tenants to use energy efficient lighting, to the extent feasible and appropriate.
Impose measures to address the "urban heat island" effect by, e.g., requiring light-colored and reflective roofing materials and paint; light-colored roads and parking lots; shade trees in parking lots; and shade trees on the south and west sides of new or renovated buildings.	MM4.15-3(g) Project buildings shall have passive solar design features that include roof overhangs or canopies that block summer shade, but that allow winter sun, from penetrating south facing windows. Trees and other shade structures shall be incorporated into residential development to maximize summer shade and to minimize winter shade. The Proposed Project shall meet the nonroof surfaces requirement through a combination of shade coverage, open grid pavement, and paving materials that meet the solar reflectance index requirements, if feasible and practicable.
Require energy efficient design for buildings. This may include adhering to local building codes for new construction and renovation to require a higher level of energy efficiency.	MM4.15-3(h) All roofing materials used in commercial/retail buildings shall be Energy Star certified. All roof products shall also be certified to meet ATSM high emissivity requirements. MM4.15-3(i) Where feasible, recycled components shall be used in the construction of Proposed Project buildings.
Project construction shall require reuse and recycling of construction and demolition waste.	MM4.15-3(j) The Project Applicant shall require the reuse or recycling of construction waste materials in all construction contracts, as appropriate and feasible.
Require measures that reduce the amount of water sent to the sewer system- see examples in CCAT standard above. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped to the end user, thereby saving energy.)	MM4.15-3(k) The Project Applicant shall require the installation of water saving devices that reduce the flow of wastewater to the sewer system, to the extent feasible.
Project shall ensure that each commercial and residential unit includes recycling and composting containers and convenient facilities for residents and businesses.	MM4.15-3(l) The Proposed Project shall include recycling containers and facilities for all waste products removed from the waste stream by the Madera Disposal Service. Such containers shall be clearly labeled, regularly maintained, and widely distributed throughout high traffic areas of the Project Site. Recycling services shall be provided for residential and nonresidential uses.
Provide on-site bicycle and pedestrian facilities (showers, bicycle parking, etc.) for commercial uses, to encourage employees to bicycle or walk to work.	MM4.15-3(m) The Proposed Project shall include one bicycle parking space for every 20 off-street vehicle parking spaces for commercial uses.
Promote ride sharing and car sharing programs e.g., by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and designating adequate passenger loading and unloading and waiting areas.	MM4.15-3(n) The Proposed Project may support a ride sharing program by designating a certain percentage of parking spaces for high-occupancy vehicles, providing larger parking spaces to accommodate vans used for ride-sharing, and/or designating adequate passenger loading and unloading and waiting areas. MM4.15-3(o) The Proposed Project may support a car-sharing program. Accommodations for such programs include providing parking spaces for the car-share vehicles at convenient locations accessible by public transportation.

SOURCE: CAT 2006; AGO 2007

Measures recommended by the CAT/CARB and AGO reports that are already required by other policies or which are included in the Specific Plan goals and design guidelines include the following:

- The Proposed Project promotes jobs/housing proximity and mixed-density residential development.
- The Proposed Project has been designed to accommodate pedestrians, bicycles and transit. It contains several pedestrian safety/traffic calming design measures including marked crosswalks, sidewalks of 5 feet or more in width, separation of sidewalks from roads by bike lanes, on-street parking, and/or planter boxes.
- The Proposed Project would include Class 1 bike trails and Class 2 bike paths that run through the entire project and connect with existing San Joaquin River Parkway bike paths. The entire Project would lie within ½ mile of Class 1 and 2 bike lanes.
- The Proposed Project would limit vehicle idling time during construction to five minutes or less per mitigation measure MM4.15-1 (see above).
- In the future, all development in the Specific Plan Area would be fitted with water meters, consistent with the requirements of state law.

The following measures cannot be applied directly as mitigation to the Proposed Project because they require actions on the part of the County or other parties for implementation. However, the Project Applicant may contribute to the following programs through the actions indicated:

- The types of recycling services offered at the Project Site may be extended to include options such as food and green waste recycling.
 - > The Proposed Project would designate separate sorting and storage areas for such wastes.
 - > The Proposed Project may provide public education and publicity about additional recycling services.
- Public transportation does not currently serve the Project Site. However, if public transportation is developed, the following measures may be implemented:
 - > The Proposed Project may impose parking fees and residential parking permit limits to increase the cost of driving and parking private vehicles.
 - > The Proposed Project may offer public transit discounts to residents.
 - > The Proposed Project may provide shuttle service to public transit.
 - > The Proposed Project may provide public education and publicity about public transportation services.
- The Project Applicant may contribute funds for energy management services, research and development for energy efficient equipment and vehicles, and public education and publicity about energy efficiency programs and incentives.
- The Project Applicant may incorporate on-site renewable energy production (through, e.g., participation in the California Energy Commission’s New Solar Homes Partnership).
- The Project Applicant may fund off-site projects (e.g., alternative energy projects) that would reduce carbon emissions, or could purchase “credits” from another entity that would fund such projects.

Measures recommended by the CAT/CARB and AGO that are not currently proposed as mitigation, but which may be implemented in the future include the following:

- The Project Applicant may contribute funding towards methane recovery in local landfills and wastewater treatment plants to generate electricity.

- The Proposed Project may strive to exceed the State’s 50 percent recycling goal.
- The Proposed Project may strive to achieve a reduction in combined space heating, cooling and water heating energy that exceeds the current Title 24 Standards.
- Buildings included in the Proposed Project may comply with LEED certified green building standards.

Conclusion

Although the extent and magnitude of global climate change impacts is uncertain, experts agree that climate change will have significant and adverse cumulative impacts. Some of these impacts will affect the Proposed Project directly, while other impacts will be felt more strongly in other parts of the world. The Proposed Project would generate greenhouse gases during construction and operational phases, and greenhouse gases emitted by the Proposed Project would contribute to climate change effects.

Determining whether a project’s contributions to climate change would be significant is difficult because there are no CEQA-approved standards, thresholds, or methodologies. California’s current emissions reductions goals, those specified in AB 32 and Executive Order S-3-05, apply to the state as a whole and are not specific to local regions or individual development projects. This EIR estimates California per capita emissions for 2000, 2010, 2025 and 2050, which are the years with stated reduction targets identified in state policies, based on statewide population projections for those years. These numbers are compared to the per capita emissions for the Proposed Project. While this comparison provides useful context, and a reasonable approach to determine impacts of the Proposed Project, there are limitations to any methodological approach for evaluating impacts associated with climate change until there is further study and a coordinated and approved approach for conducting such analysis in the context of CEQA.

If there is still uncertainty as to whether a project would contribute to a significant impact, the California AGO requires that mitigation be applied to offset possible effects. The Emissions Reductions Strategies subsection discusses a number of strategies that would be employed to reduce the Project’s climate change contribution. These include self-mitigating Project features, emissions-reducing regulatory strategies already in place (such as the Title 24 energy efficiency standards), and new mitigation measures modeled on the recommendations of the CAT, CARB and the AGO. All feasible mitigation identified by the CAT, CARB and the AGO have been applied to the Proposed Project. Implementation of mitigation measures MM4.15-3(a) through MM4.15-3(o), which represents all feasible mitigation, is anticipated to reduce the Proposed Project’s contribution to the cumulative impact to a *less-than-significant* level.

4.15.9 References

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4.16 MANDATORY FINDINGS OF SIGNIFICANCE

Under the *California Environmental Quality Act* (CEQA), an EIR must be prepared when certain specified impacts may result from construction or implementation of a project. An EIR has been prepared for the proposed Project, which fully addresses all of the Mandatory Findings of Significance, as described below.

4.16.1 Degradation of the Environment

Under Section 15065(a) of the CEQA Guidelines, a finding of significance is required if a project “has the potential to substantially degrade the quality of the environment.” In practice, this is the same standard as a significant effect on the environment, which is defined in Section 15382 of the CEQA Guidelines as “a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.”

This EIR, in its entirety, addresses and discloses all potential environmental effects associated with construction and operation of the proposed project, including direct, indirect, and cumulative impacts in the following resource areas:

- Aesthetics
- Agriculture
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Mineral Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation/Traffic
- Utilities and Service Systems
- Energy and Climate Change

As summarized in Table 2-42 (Summary of Environmental Effects and Project Requirements/Mitigation Measures), this EIR discloses all potential environmental impacts, the level of significance prior to mitigation, project requirements that are required by law or are incorporated as part of the project description, feasible mitigation measures, and the level of significance after the incorporation of mitigation measures.

4.16.2 Long-Term Impacts

As described in Section 15065(a)(2) of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the

potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals. Section 5.3 (Significant Irreversible Environmental Effects) of this document addresses the short-term and irretrievable commitment of natural resources to ensure that the consumption is justified on a long-term basis. In addition, Section 5.2 (Significant Environmental Effects That Cannot Be Avoided If the Proposed Project Is Implemented) and Table 2-42 identify all significant and unavoidable project-related impacts that could occur, thereby creating a long-term impact on the environment. Lastly, Section 5.4 (Growth-Inducing Impacts) identifies any long-term environmental impacts caused by the proposed project with respect to economic or population growth.

4.16.3 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

Under Section 15065 of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has potential environmental effects that are individually limited, but cumulatively considerable. As defined in Section 15065(a)(3) of the CEQA Guidelines, cumulatively considerable means “that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.” Cumulative impacts are addressed for each of the environmental topics listed above and are provided in Sections 4.1 through 4.15 of this EIR.

4.16.4 Impacts on Species

Under Section 15065(a)(1) of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to (1) substantially reduce the habitat of a fish or wildlife species; (2) cause a fish or wildlife population to drop below self-sustaining levels; or (3) substantially reduce the number or restrict the range of an endangered, rare, or threatened species. Section 4.4 (Biological Resources) of this EIR (which is supported by a list of special-status species potentially occurring at the project site and a biological report and wetlands delineation, all of which are provided in Appendix D1 (Biological Evaluation Tesoro Viejo Project Site Rio Mesa Planning Area) and Appendix D2 (Waters of the United States Report for the Tesoro Viejo Project Site Rio Mesa Planning Area) to this document) fully addresses impacts related to the reduction of the fish or wildlife habitat, the reduction of fish or wildlife populations, and the reduction or restriction of the range of special-status species.

4.16.5 Impacts on Historical Resources

Section 15065(a)(1) of the CEQA Guidelines states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to eliminate important examples of a major period of California history or prehistory. Section 15065(a)(1) amplifies *Public Resources Code* (PRC) Section 21001(c) requiring that major periods of California history are preserved for future generations. It also reflects the provisions of PRC Section 21084.1 requiring a

finding of significance for substantial adverse changes to historical resources. Section 15064.5 of the CEQA Guidelines establishes standards for determining the significance of impacts to historical resources and archaeological sites that are an historical resource. Section 4.5 (Cultural Resources) of this EIR (which is supported by a Cultural Resources Technical Report) fully addresses impacts related to California history and prehistory, historic resources, archaeological resources, and paleontological resources.

4.16.6 Impacts on Human Beings

Consistent with Section 15065(a)(4) of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to cause substantial adverse effects on human beings, either directly or indirectly. Under this standard, a change to the physical environment that might otherwise be minor must be treated as significant if people would be significantly affected. This factor relates to adverse changes to the environment of human beings generally, and not to effects on particular individuals. While changes to the environment that could indirectly affect human beings would be represented by all of the designated CEQA issue areas, those that could directly affect human beings include air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services, transportation/traffic, and utilities, which are addressed in Sections 4.2, 4.5, 4.6, 4.7, 4.9, 4.10, 4.11, 4.13, and 4.14 of this EIR, respectively.

4.16.7 References

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CHAPTER 5 Other CEQA Considerations

Section 15126 of the *California Environmental Quality Act* (CEQA) Guidelines requires that all aspects of a project must be considered when evaluating its impact on the environment, including planning, acquisition, development, and operation. As part of this analysis, the Environmental Impact Report (EIR) must also identify (1) significant environmental effects of the Proposed Project, (2) significant environmental effects that cannot be avoided if the Proposed Project is implemented, (3) significant irreversible environmental changes that would result from implementation of the Proposed Project, (4) growth-inducing impacts of the Proposed Project; (5) mitigation measures proposed to minimize significant effects, and (6) alternatives to the Proposed Project.

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSED PROJECT

Table 2-42 (Summary of Environmental Effects and Project Requirements/Mitigation Measures), which is contained in Chapter 2 (Summary) of this EIR, and Sections 4.1 through 4.15 of this EIR provide a comprehensive identification of the Proposed Project's environmental effects, including the level of significance both before and after mitigation.

5.2 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED [REVISED IN PART]

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. Development of the Proposed Project would result in the following significant and unavoidable project-related impacts:

- Agricultural Resources
 - > Implementation of the Proposed Project would directly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the FMMP, to nonagricultural uses
- Air Quality
 - > Operation of the Proposed Project would exceed SJVAPCD standards for ROG and NO_x and would result in a projected air quality violation
 - > Operation of the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants (PM₁₀, and precursors of ozone—ROG and NO_x) for which the Proposed Project region is in nonattainment under an applicable federal or state ambient air quality standard
- ~~Cultural Resources~~
 - > ~~Implementation of the Proposed Project could affect a Traditional Cultural Property, which is an area held sacred to the Native American community~~

- Noise

- ~~Operation of the Proposed Project would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity~~
 - Operation of the Proposed Project under three traffic scenarios (i.e., Year 2025 Cumulative Plus Project, Existing Plus Project in Year 2020, and Existing Plus Project in Year 2025) would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity.

- Traffic/Transportation

- Operation of the Proposed Project would result in all study area intersections operating at an acceptable LOS range (i.e., LOS D or better) during Cumulative (2025) conditions with or without the project. However, six intersections would require lane improvements (e.g. additional turn lanes) and a greater amount of right-of-way to accommodate the lane improvements, so that each intersection could operate at an acceptable LOS with the addition of project traffic. While mitigation measures exist that would reduce this impact to a less-than-significant level, in order to implement five of the six mitigation measures, Madera County would need to receive permission from Caltrans to construct the improvements. If such permission is not given, the significant traffic impacts addressed by five of the six mitigation measures would remain
 - Operation of the Proposed Project would result in the intersection of SR-41/Road 204 operating at an unacceptable LOS (below LOS D) during the Existing 2011 Plus Project in 2025 scenario. Implementation of mitigation measures would reduce this impact, but not to a less-than-significant level. For this intersection, there is no additional, feasible mitigation measure(s) available to reduce potentially significant impacts during the Existing 2011 Plus Project in 2025 scenario. The unmitigable impact at the SR-41/Road 204 intersection is caused by the large amount of Proposed Project traffic distributed to this location as a result of the currently non-existent connections at Avenue 13, Avenue 12, and Rio Mesa Boulevard to the east of SR-41. Therefore, once these connections are constructed with the development of cumulative projects, there would be a decrease in traffic volumes along several sections of SR-41 and its intersections because traffic generated by and attracted to the cumulative development is provided with more direct routes (Avenue 12, Avenue 13, and Rio Mesa Boulevard) and is not diverted to Road 204. Therefore, under cumulative buildout conditions (in 2025), the impact at the SR-41/Road 204 intersection would be considered less than significant.
 - Operation of the Proposed Project would result in the intersection of SR-41/Avenue 12 operating at an unacceptable LOS (below LOS D) during the Interim Year 2020 Cumulative Plus Project scenario. Implementation of mitigation measures would reduce this impact, but not to a less-than-significant level. For this intersection, there is no additional, feasible mitigation measure(s) available to reduce potentially significant impacts during the Existing Interim Year 2020 Cumulative Plus Project scenario. Achieving an acceptable level of service at the SR-41/Avenue 12 intersection would require construction of a full interchange at Avenue 12 or other mitigation measures that are determined to be infeasible at this time due to cost. Construction of the interchange at Avenue 12 would require funding by several sources, with a large portion of the funding coming from cumulative developments planned in the Rio Mesa area. Such commitments have yet to be made. The unmitigable impact at the SR-41/Avenue 12 intersection is a cumulative impact and not specifically triggered by traffic generated by the Proposed Project.

- > Operation of the Proposed Project would result in additional vehicular traffic volumes along study area freeway segments that would exceed established service levels on freeway segments under the jurisdiction of Caltrans. While a mitigation measure exists that would reduce this impact to a less-than-significant level, Madera County would need to receive permission from Caltrans to construct the improvements. If such permission is not given, the significant traffic impact addressed by the mitigation measure would remain

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL EFFECTS

Section 15126.2(c) of the CEQA Guidelines requires a discussion of any significant irreversible environmental changes that would be caused by the Proposed Project. Specifically, Section 15126.2(c) states:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as a highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to ensure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if any of the following would occur:

- The primary and secondary impacts would generally commit future generations to similar uses
- The project would involve a large commitment of nonrenewable resources
- The proposed consumption of resources is not justified (e.g., the project involves the wasteful use of energy)
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project

Development of the Proposed Project would result in the commitment of Madera County to commercial, industrial, and residential uses at the Project Site, including associated on-site and off-site infrastructure improvements, which would preclude any other uses for the lifespan of the project. As discussed previously, the Rio Mesa Area Plan (RMAP) identifies a long-term plan for the Specific Plan Area as one of three community cores or “villages” that would accommodate new housing and related land uses associated with anticipated future Madera County population growth. Although the proposed development would commit future generations to using the Project Site for developed rather than agricultural purposes, such a commitment is consistent with planned uses for the site as reflected by the RMAP, which was amended to the County’s General Plan.

Resources that would be permanently and continually consumed as a result of construction and/or operation of the project include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would not result in significant environmental impacts related to the unnecessary, inefficient, or wasteful use of resources.

With respect to energy, new buildings in California are required to conform to energy conservation standards specified in Title 24 of the *California Code of Regulations* (CCR). The standards establish “energy

budgets” for different types of residential and nonresidential buildings, with which all new buildings must comply. Energy-efficient measures would be implemented to the maximum extent feasible in all development under the Proposed Project, including low-flow plumbing fixtures and drip irrigation. In order to conform to CCR Title 24, efficient energy use in the Specific Plan Area would be required, which would ensure that energy-efficient building design and construction is followed.

Where feasible, project features would be designed to maximize solar gain and minimize heat-reflective surfaces, as well as providing landscaping, where appropriate, to reduce heat reflection on adjacent structures pursuant to the requirements of Title 24. The development would be sited and designed to maximize access to sunlight and air. The Proposed Project would utilize water-conserving plants to the greatest extent feasible in the landscape plan according to the Tesoro Viejo Water Supply Analysis, as well as reclaimed water for irrigation and other resource conservation practices. A tree nursery has also been established on the Project Site to provide mature trees for the Proposed Project, if approved. Mature trees have a higher survival rate, minimize energy consumption through shading and cooling, and require less intensive watering. Therefore, the use of energy on site would occur in an efficient manner.

Compliance with all applicable building codes, as well, as project mitigation measures and project features, would ensure that all natural resources are conserved or recycled to the maximum extent feasible. It is also possible that new technologies or systems would emerge, or would become more cost-effective or user-friendly, that would further reduce the site’s reliance upon nonrenewable natural resources; however, even with implementation of conservation measures, consumption of natural resources would generally increase with implementation of the Proposed Project.

Construction and operational activities related to the Proposed Project would result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline for automobiles and construction equipment.

With respect to aspects of the project that could result in irreversible damage caused by environmental accidents, the Proposed Project would not involve uses that handle acutely hazardous materials, as discussed in Section 4.7 (Hazards and Hazardous Materials) of this EIR. The project consists of residential, commercial, and light industrial uses that would use primarily household-type cleaning materials, such as detergents, cleansers, pesticides, and herbicides. These are not considered acutely hazardous materials according to the National Institutes of Health. No acutely hazardous materials were associated with the Proposed Project in Section 4.7. There is the possibility for contaminated soil to be encountered during grading, excavation, and/or ground disturbance associated with the Proposed Project. Such contamination may have resulted from past ranching or agricultural operations on the Project Site over the last 100 years. However, the risks of accidental contamination from handling these materials or transport of these materials off site would be reduced to a less-than-significant level through compliance with the many federal, State, and local regulations regarding the handling and disposal of such materials. Thus, no irreversible damage would result from any potential environmental accidents associated with the project.

5.4 GROWTH-INDUCING IMPACTS

As required by the CEQA Guidelines, an EIR must include a discussion of the ways in which the Proposed Project could directly or indirectly foster economic development or population growth, or the construction of additional housing and how that growth would, in turn, affect the surrounding environment (CEQA Guidelines Section 15126.2(d)). Growth can be induced in a number of ways, by eliminating obstacles to growth or by stimulating economic activity within the region. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth unforeseen at the time of project approval. There is no determination under CEQA of whether induced growth is beneficial, detrimental, or of little significance to the environment.

In general, a project has the potential to foster spatial, economic, or population growth in a geographic area if it meets any one of the criteria identified below:

- The project removes an impediment to growth (e.g., the establishment of an essential public service, or the provision of new access to an area)
- The project results in the urbanization of land in a remote location (leapfrog development)
- The project establishes a precedent-setting action (e.g., a change in zoning or general plan amendment approval)
- Economic expansion or growth occurs in an area in response to the project (e.g., changes in revenue base, employment expansion, etc.)

If a project meets any one of these criteria, it may be considered growth inducing. Generally, growth-inducing projects are either located in isolated, undeveloped, or underdeveloped areas, necessitating the extension of major infrastructure such as sewer and water facilities or roadways, or encourage premature or unplanned growth.

5.4.1 Remove an Impediment to Growth/Precedent-Setting Action

The Proposed Project would result in a slight modification of existing Rio Mesa Area Plan (RMAP) land use designations; however, as discussed in Section 4.9 (Land Use and Planning), the land use designations in the RMAP are substantially consistent with the uses proposed in the Specific Plan. As a plan for new development that is consistent with the County's General Plan, as reflected in the RMAP, the Specific Plan would not remove an existing impediment to growth with respect to land use or zoning designations. The proposed Specific Plan would not set a precedent by allowing commercial, residential, and light industrial uses in a location where they are currently prohibited.

In terms of physical improvements that could remove an impediment to growth, the Proposed Project would extend infrastructure, such as utility lines and roadways, to areas that are not currently served by infrastructure. The extension of this infrastructure would allow Specific Plan buildout. While utilities infrastructure related to stormwater, water, and sewer would be sized to meet the needs of the Proposed Project, the design of this infrastructure would not preclude "upsizing" to accommodate other approved developments. However, while the water distribution system could be upgraded to accommodate

additional (and future) development, each property or proposed development would be required to secure its own water supply.

In terms of traffic infrastructure, the on-site and off-site improvements required to accommodate the Proposed Project would significantly contribute towards making the region more accessible, and would also provide most of the necessary improvements to allow development of the adjacent Morgan and Jamison parcels. As further described in Section 4.13 (Transportation/Traffic), the Proposed Project contributes approximately 90 percent of the need for the traffic improvements (with the least contribution of 83.7 percent and the greatest contribution of 93.4 percent). The remaining contribution would be attributable to the development that could occur in the Morgan and Jamison parcels. Also, by increasing the capacity of existing SR-41 to accommodate the Proposed Project, which currently provides increased freeway capacity, an impediment to growth, an obstacle to additional growth may be removed. Improved accessibility is a necessary element of Specific Plan development.

5.4.2 Urbanization of Land in a Remote Location

By introducing nonagricultural land uses in an area formerly dominated by agricultural uses, and by expanding the existing network of electricity, water, sewer, storm drain, communications, roadways, and other infrastructure, the Proposed Project would increase the desirability of nearby rural lands for development, resulting in possible “leapfrog” development. This project, in part, responds to nearby development that is in a more advanced state of planning, including the Village of Gateway and North Fork developments. In other words, the Proposed Project would be influenced by previous developments as well as potentially triggering future development. The high demand for new housing in California, and in this area in particular, would likely draw a number of new residents to the project area following buildout of the Specific Plan.

The Madera County General Plan and the County’s zoning policy restrict new growth to certain areas, while reserving other areas for existing land uses. The Proposed Project, along with many of the adjacent properties, fall within a designated new growth area referred to as the “Rio Mesa.” The land uses allowed in the Rio Mesa area are set forth and described in the Rio Mesa Area Plan (RMAP).

The RMAP is an adopted element of the Madera County General Plan intended to provide guidance for this southeastern subarea of the County along the western edge of the San Joaquin River. It is also intended to provide a planning framework for the development of more detailed implementation plans and measures of which this Proposed Project is one. The RMAP area covers approximately 15,000 acres, and plans for about 35,000 du, commercial and light industrial uses, and open space. The Proposed Project would encompass virtually all the area designated in the RMAP as the Rio Mesa Village (also referred to as the Rio Mesa Community Village), which is one of the three designated villages in the RMAP, with the North Fork Village to the north and the Avenue 12 Village to the south.

The RMAP is intended to prevent the unplanned expansion of urban uses and, instead, provide for orderly and planned development, even if that results in urbanization of land in remote locations. While the RMAP provides a planning framework, it would result in the direct conversion of land in a remote location to urban uses.

5.4.3 Economic Expansion or Growth

Between 2000 and 2006, industry employment in Madera County has increased 15.5 percent, or 6,100 jobs (CEDD 2007a). With the exception of farm jobs and the information industry, all major industries increased employment over these years. Four industries increased by the largest shares of new jobs: natural resources, mining, and construction (93.3 percent), trade, transportation, and utilities (28.6 percent), financial activities (28.6 percent), and educational and health services (34.1 percent).

During the period 2000–2006, Madera’s total labor force (all employable persons 16 years of age and over) posted a 15.7 percent growth, representing a gain of 8,600 persons. In 2006, the County’s unemployment rate dropped 1.7 percentage points to 7.0 percent. Madera’s unemployment rate has declined significantly since 2000, yet remains above California’s rate which was 4.9 percent in 2006 (CEDD 2007a). More recent data collected by the California Employment Development Department for 2007 indicates an unemployment rate in Madera County of 6.1 percent, which represents a drop of 0.9 percent since 2006 (CEDD 2007b).

Of the total jobs projected for Madera County by the Rio Mesa Traffic Model V2.0 for the 2030 scenario, 8,800 jobs are attributable to the RMAP area, not including the buildout of the Tesoro Viejo Specific Plan, which would directly contribute an additional 6,518 new jobs (see Section 4.11 [Population and Housing]). Because much of the land within the RMAP area is undeveloped or devoted to agricultural uses, current employment in the RMAP area is estimated at approximately 300 jobs.¹⁸⁵ The total projected employment for the RMAP area in 2030 would be approximately 29 times current employment levels. Development under the Proposed Project would account for approximately one of every three new jobs in the RMAP area and approximately one out of every four jobs countywide during the 2006 to 2030 period. The generation of new jobs as a result of the Proposed Project would have a beneficial or neutral effect upon the County’s unemployment rate, which at 7 percent, is currently higher than the California average of 4.9 percent (based on 2006 data) (CEDD 2007c).

Some of the new jobs generated by the Proposed Project could be filled by currently unemployed residents of unincorporated Madera County as well as by unemployed residents in neighboring communities. Also, it is possible that existing, employed residents of unincorporated Madera County and/or neighboring communities could change jobs and fill the new employment opportunities offered by the proposed development, providing an additional potential labor pool. In some cases, it is possible that new jobs generated by the Proposed Project would be filled by individuals that move to Madera County from other areas.

In addition to the permanent jobs projected, construction employees would also be required to construct the Proposed Project. The number of construction employees would vary depending upon the phase of construction, but would include up to 1,000 employees during the most labor-intensive phases of construction. It is anticipated that out-of-area construction employees would commute from elsewhere in the region, rather than relocate to the RMAP area for a temporary construction assignment. In addition,

¹⁸⁵ This figure assumes that approximately 0.02 full-time, nonseasonal agricultural jobs are generated per acre of agricultural production in Madera County (based on countywide agricultural job totals in Section 4.11 [Population and Housing] and agricultural acreage in Section 4.2 [Agricultural Resources]). It also assumes that all existing jobs in the RMAP area are related to the agricultural industry. The area of the RMAP is 15,000 acres.

due to the nature of construction activities, the employment opportunities resulting from construction-related work assignments are not considered permanent. Construction-related activities would, therefore, have a negligible impact on population and housing resources.

The combination of land uses in the Proposed Project would function to increase retail and commercial sales and activities within the County. The creation of new commercial activities would contribute to the economic vitality of the County, which would enable the continued provision of high-quality services and programs for residents and businesses and would contribute to the municipal revenue stream, as noted above. Furthermore, the Proposed Project would pay all applicable development fees for the necessary infrastructure and public services improvements, including those associated with water, park, sewer, roadways, and police, and would result in increased property tax revenues.

The positive revenue stream may result in the creation of indirect and induced jobs. Indirect jobs are those that would be created when the future owners and/or managers of the retail-commercial uses purchase goods and services from businesses in the region, and induced jobs are those that are created when wage incomes of those employed in direct and indirect jobs are spent on the purchase of goods and services in the region. Local economic impacts are primarily the result of purchases of goods and services as well as payment of taxes and salaries, which affects the regional economy of the County, and, on a more indirect basis, California. Therefore, the positive revenue stream and the resulting increased economic viability of the project site could result in indirect growth-inducing impacts.

5.5 MITIGATION MEASURES PROPOSED TO MINIMIZE SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT

Table 2-42 (Summary of Environmental Effects and Project Requirements/Mitigation Measures), which is contained in Chapter 2 of this EIR, provides a comprehensive identification of the Proposed Project's environmental effects and proposed mitigation measures.

5.6 ALTERNATIVES TO THE PROPOSED PROJECT

Alternatives to the Proposed Project are presented in Chapter 6 (Alternatives to the Proposed Project) of this ~~Draft~~ Revised EIR.

5.7 REFERENCES

- California Employment Development Department (CEDD). *Labor Market Information Division. 2007a. Madera County Industry Employment and Labor Force—by Annual Average*, March 2006 Benchmark, October 19.
- . 2007b. *Madera County Industry Employment and Labor Force—by Month*, October 19.
- . 2007c. *Madera County Snapshot, 2006*.
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- Fehr & Peers. 2007. *Transportation Impact Analysis Report for Tesoro Viejo Project*, November.

Madera County. 1995a. *Final Rio Mesa Area Plan*. Prepared by The Keith Companies, March 21.
———. 1995b. *Madera County General Plan*, October.

CHAPTER 6 Alternatives to the Proposed Project

The following discussion evaluates alternatives to the Proposed Project and examines the potential environmental impacts associated with each alternative. Through comparison of these alternatives to the Proposed Project, the relative environmental advantages and disadvantages of each are weighed and analyzed. The *California Environmental Quality Act* (CEQA) Guidelines require that the range of alternatives addressed in an EIR be governed by a rule of reason. Not every conceivable alternative must be addressed, nor do infeasible alternatives need to be considered (CEQA Guidelines Section 15126.6). Section 15126.6 of the CEQA Guidelines states that the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, other plans or regulatory limitations, and jurisdictional boundaries. The discussion of alternatives must focus on alternatives capable of either avoiding or substantially lessening any significant environmental effects of the project, even if the alternative would impede, to some degree, the attainment of the project objectives or would be more costly. The alternatives discussion should not consider alternatives whose implementation is remote or speculative, and the analysis need not be presented in the same level of detail as the assessment of the project.

The Proposed Project is intended to create a mix of residential, commercial retail and office, highway commercial, visitor commercial, and light industrial uses, plus open space and recreational uses, schools, and other institutional and public uses. General objectives for the Proposed Project have been identified by both the County and the Applicant. As identified in Section 3.6 (Project Objectives and Goals), the objectives of the Proposed Project are as follows:

- Create a master planned balanced community to include a mix of residences, employment, recreational opportunities, and commercial uses for residents.
- Create a strong sense of community based on intra-community linkages, respect for natural features of the land, and inclusion of balanced uses.
- Ensure adequate utilities, services, and infrastructures for residents.
- Provide an array of recreational and open space uses for residents of the Proposed Project and surrounding communities. These would include parks and playgrounds that would be linked by pedestrian and bicycle trails along greenways that would serve to create an open space network.
- Accommodate projected regional growth in a location that is consistent with the approved County of Madera General Plan and the approved Rio Mesa Area Plan (RMAP).
- Provide development and transitional land use patterns that do not conflict with adjoining properties and existing and proposed land uses.

Chapter 2.2 of the Tesoro Viejo Specific Plan contains thirty-six specific goals and objectives, which are provided below, grouped by topic:

Land Use

- Goal 1** Provide a viable and balanced mix of regional and local-serving commercial and employment uses.

- Goal 2** Encourage properly designed mixed-use and residential neighborhoods to insure compatibility with and transportation choices for access to residential and nonresidential uses by creating a pedestrian-supportive environment that activate Tesoro Viejo’s streets.
- Goal 3** Create a vibrant mixed-use community core that provides for the needs of the residents and visitors to the Rio Mesa area, serving as the major Community Center for Rio Mesa, containing all major public and community services.
- Goal 4** Create an attractive and easily accessible neighborhood-serving Village Center within the eastern center of the community that meets the convenience needs of nearby residents of Tesoro Viejo neighborhoods and adjacent villages.
- Goal 5** Reflect anticipated marketing needs and public demand by providing a diversity of housing types and locations that will be marketable within the region.
- Goal 6** Promote a diverse community and create opportunities for housing near workplaces.
- Goal 7** Provide development guidelines and standards to lead builders, designers, and developers to create residential neighborhood and individual homes that encourage diverse and creative housing types and ensure the highest possible quality of community and architectural design.
- Goal 8** Encourage the creation of fine-grained detail in architectural and urban form that provides visual interest and complexity.
- Goal 9** Provide detached and attached housing to serve a spectrum of buyers and household types, and to provide “move-up” and “move-down” opportunities for present residents in the vicinity and the surrounding region.
- Goal 10** Provide an opportunity for high-density, multi-family housing near and within the mixed-use employment center of Tesoro Viejo.

Transportation and Circulation

- Goal 11** Design multimodal streets that effectively facilitate vehicular traffic and future transit connections but also provide for a safe, attractive and continuous pedestrian and bicycle circulation system throughout Tesoro Viejo.
- Goal 12** Design roadways to be aesthetically and environmentally sensitive features of Tesoro Viejo.
- Goal 13** Minimize or eliminate the need for wide arterial streets by creating an interconnected circulation network that distributes traffic across many streets while providing the capacity necessary to accommodate the levels and types of traffic anticipated in the land use plan and those of the surrounding area.
- Goal 14** Plan pedestrian-oriented mixed-use areas that maintain an adequate level of parking and access for automobiles, but that encourage a park-once approach that minimizes the total demand for parking.
- Goal 15** Create a circulation network that is interconnected with the regional transportation system.

- Goal 16** Design all streets with the intention that land uses will front directly on them by using landscape medians, setbacks, and local access lanes on streets with higher levels of through traffic volume.
- Goal 17** Create a network of multi-use and hiking trails along Tesoro Viejo’s open space corridors that complements the walkways and paths along the community’s streets in order to encourage walking and bicycling for transportation and recreation.

Community Facilities and Services

- Goal 18** Create high-quality schools, parks, libraries, police and fire stations, public utility centers, post-offices and similar community facilities that are integrated into the mixed-use centers of Tesoro Viejo; these uses will be key assets of the community and their design and quality must reflect their importance.
- Goal 19** Provide a high level of community facilities and services and utility services and infrastructure that will be phased in accordance with development.
- Goal 20** Provide the appropriate level of county and district services within Tesoro Viejo to meet the needs of its residents, businesses, and workers; and that also reflects the importance of Tesoro Viejo Town Center within Southeastern Madera County.

Natural, Cultural, and Recreational Resources

- Goal 21** Preserve features and resources of environmental and cultural value to enhance the future identity and value of Tesoro Viejo as a community.
- Goal 22** Identify, preserve and incorporate significant natural features such as channels, bluffs, rock outcroppings, and steep slopes into a functional open space system that is integrated into the community plan.
- Goal 23** Preserve significant biological, archaeological, and paleontological resources in a manner to reflect their importance.
- Goal 24** Establish conservation areas along drainage ways to provide an effective buffer between new development and sensitive biological and wildlife resources while allowing these areas to be a visual and recreational amenity.
- Goal 25** Create and maintain access to the San Joaquin River for both residents and visitors to the extent possible within the control of the Project Applicant and the County.
- Goal 26** Meet and, as appropriate, exceed the parks and recreation standards of Madera County.
- Goal 27** Adopt “Green Building” practices for site and building design that focus on resource and energy efficiency, and where feasible, treatment of irrigation and stormwater runoff through natural, landscape-based processes.
- Goal 28** Use of reclaimed water for landscape irrigation and other nonpotable water uses for parkways, open space areas, and agricultural uses is strongly encouraged.
- Goal 29** To the extent feasible, provide for the future use of reclaimed water for landscape irrigation within the developed areas of Tesoro Viejo.
- Goal 30** Emphasize planting of native trees, shrubs and groundcovers suitable to climatic conditions while still providing visual interest and variety.

Agricultural Resources

- Goal 31** Encourage some continued vineyard, orchard and farming operations where feasible by clustering of dwellings and infrastructure to allow open space preservation and functional agricultural use for local community sustenance and interest.
- Goal 32** Encourage sustainable methods of local food production to sustain both local business and the health of the land and seek to incorporate farmer’s markets into local commercial activities and edible gardens into schools and open squares.
- Goal 33** Promote opportunities for youth education and employment in agriculture.

Economic Vitality

- Goal 34** Develop a set of permitted commercial and employment uses within Tesoro Viejo that provide a wide range of employment and shopping opportunities for existing and future residents of Madera County.
- Goal 35** Enhance the vitality of the Town Center by encouraging uses that allow for safe around-the-clock activity that makes it an attractive environment for shopping, entertainment, recreation, living, and working.
- Goal 36** Encourage job creation and self-employment opportunities to ensure a vital and self-sustaining town.

Based on the CEQA Guidelines, several factors need to be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include (1) the nature of the significant impacts of the proposed project; (2) the ability of alternatives to avoid or substantially lessen the significant impacts associated with the project; and (3) the feasibility of the alternatives, including the ability of the alternatives to meet the objectives of the project. The analysis in this EIR indicates that the project would result in significant and unavoidable impacts with respect to the following:¹⁸⁶

- Agricultural Resources
 - > Implementation of the Proposed Project would directly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the FMMP, to nonagricultural uses
- Air Quality
 - > Operation of the Proposed Project would exceed SJVAPCD standards for ROG and NO_x and would result in a projected air quality violation
 - > Operation of the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants (PM₁₀, and precursors of ozone—ROG and NO_x) for which the Proposed Project region is in nonattainment under an applicable federal or state ambient air quality standard
- Cultural Resources
 - > Implementation of the Proposed Project could affect a Traditional Cultural Property, which is an area held sacred to the Native American community

¹⁸⁶ While there are also significant and unavoidable cumulative impacts, the alternatives analysis required by CEQA is to identify those alternatives to the Proposed Project that could reduce project-related impacts.

- Noise
 - > Operation of the Proposed Project would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity
- Traffic/Transportation
 - > Operation of the Proposed Project would result in all study area intersections operating at an acceptable LOS range (i.e., LOS D or better) during Cumulative (2025) conditions with or without the project. However, six intersections would require lane improvements (e.g. additional turn lanes) and a greater amount of right-of-way to accommodate the lane improvements, so that each intersection could operate at an acceptable LOS with the addition of project traffic. While mitigation measures exist that would reduce this impact to a less-than-significant level, in order to implement five of the six mitigation measures, Madera County would need to receive permission from Caltrans to construct the improvements. If such permission is not given, the significant traffic impacts addressed by five of the six mitigation measures would remain
 - > Operation of the Proposed Project would result in additional vehicular traffic volumes along study area freeway segments that would exceed established service levels on freeway segments under the jurisdiction of Caltrans. While a mitigation measure exists that would reduce this impact to a less-than-significant level, Madera County would need to receive permission from Caltrans to construct the improvements. If such permission is not given, the significant traffic impact addressed by the mitigation measure would remain

6.2 ALTERNATIVES TO THE PROJECT

In addition to the analysis of the No Project alternative, this alternatives analysis evaluates alternatives that would avoid or substantially lessen the significant aesthetic, agricultural, air quality, cultural resource, noise, and traffic/transportation impacts associated with implementation of the Proposed Project (refer to the previous section for an identification of the project's impacts). As the lead agency, Madera County will make any final determination with respect to whether to proceed with the Proposed Project or whether to accept or reject any of the alternatives identified in this section.

The alternatives that are evaluated include the following:

- Alternative Location
 - > Other Locations within Madera County
 - > Other Locations outside of Madera County
- Higher Jobs-to-housing Ratio in the RMAP Area
- Significantly Reduced Intensity Alternatives
 - > Avoidance of Agricultural Resources Impacts
 - > Avoidance of Air Quality Impacts
 - > Avoidance of Cultural Resources Impacts
 - > Avoidance of Noise Impacts
 - > Avoidance of Traffic/Transportation Impacts
- No Project/No Development
- Incorporation by Reference of the Alternatives Analysis in the RMAP EIR

The analysis of potential impacts assumes that each alternative would adhere to applicable project requirements and implement all feasible mitigation measures.

6.2.1 Alternative Locations

Section 15126.6(f)(2) of the CEQA Guidelines requires that alternative locations to the Proposed Project are identified and discussed.

■ Other Locations within Madera County

An alternative site within Madera County would involve the development of the Project at a different location. Given that the Project Applicant does not own or control any other property in the County that is approximately 1,500 acres in size, the ability of the Applicant to find and purchase an alternative site to develop the Project is speculative. In addition, the development of an alternative site would likely result in the same or similar short-term and long-term impacts because any site large enough to accommodate the Proposed Project within the County would likely be used for agricultural purposes, similar to the Project Site, and would not have available infrastructure. Also, the Project Site is designated as a new growth area by both the approved Madera General Plan and its approved RMAP. As a result, locating the Proposed Project on a different site in the County may result in a location that is not designated or envisioned for growth, and the proposed mix of uses may conflict with uses allowed on the alternative site. Thus, the selection of an alternative site would not avoid or substantially lessen the significant impacts of the Project and would be considered infeasible due to site suitability (given that the RMAP area is a designated growth area in the County), economic viability (since an off-site location within the County is not currently under the ownership of the Project Applicant), and availability of infrastructure. For these reasons, consideration of an alternative site within Madera County has been rejected as infeasible and eliminated from detailed consideration in this EIR.

■ Other Locations Outside of Madera County

Madera County is bordered by Merced County to the north and Fresno County to the south. All three counties are projected to experience a significant amount of growth between now and 2025, which is the buildout year of the Proposed Project. For example, as reflected by Table 4.11-2, which is provided in Section 4.11, Population and Housing, of this EIR, the population of Madera County is projected to increase by 119 percent during between 2000 and 2030. In comparison, the populations of Merced County and Fresno County are projected to increase by 108 percent and 78 percent, respectively, over the same time period (refer also to Table 4.11-2). Based on these projected growth rates, the housing provided by the Proposed Project would better meet the growing population of Madera County as compared to the population of the neighboring counties, which are growing at a less rapid rate. In addition, as with an alternative location within Madera County, the Project Applicant does not own or control any other property in Fresno or Merced Counties that is approximately 1,500 acres in size, and the ability of the Applicant to find and purchase an alternative site in another county to develop the Project is speculative. In addition, the development of an alternative site would likely result in the same or similar short-term and long-term impacts because any site large enough to accommodate the Proposed Project within the Central Valley would likely be used for agricultural purposes, similar to the Project

Site, and would not have available infrastructure. Thus, the selection of an alternative site outside of Madera County would not avoid or substantially lessen the significant impacts of the Project and would be considered infeasible due to economic viability (since an alternative site outside of the County is not currently under the ownership of the Project Applicant and the Applicant has invested considerable resources in processing a project in Madera County, and the County similarly desires growth in the RMAP area) and availability of infrastructure. Therefore, consideration of an alternative site outside Madera County has been rejected as infeasible and has been eliminated from detailed consideration in this EIR.

6.2.2 Higher Jobs-to-Housing Ratio in the RMAP Area

The jobs-to-housing balance is defined as a measure of an area's total employment to total housing units. When the jobs-to-housing ratio exceeds 1.0, the area is considered to have an excess of jobs, and when the ratio is below 1.0, the area is considered to have an excess of housing. In 2006, the total number of people employed in Madera County was estimated at 50,752, and the total number of housing units was approximately 47,671 (US Census American Community Survey, 2006); thus, the jobs-to-housing balance ratio in the County in 2006 was estimated at 1.1, indicating a fairly balanced community.¹⁸⁷ Overall, the RMAP identifies that the jobs-to-housing balance in the RMAP area should be fairly balanced. With the proposed project, the RMAP area would achieve a jobs-to-housing balance of 1.05, as further discussed in Section 4.11 (Population and Housing) of this EIR.

The RMAP originally proposed to reach a jobs-to-housing ratio of 1.5. A higher jobs-to-housing ratio indicates that there would be more jobs provided as compared to the number of housing units that would be provided. A higher jobs-to-housing ratio would result in more traffic impacts because more employees would need to travel to the RMAP area from outlying areas, such as Fresno County or elsewhere within Madera County. Therefore, the land uses identified in the RMAP for the Project Site were revised to reduce the Proposed Project and RMAP jobs-to-housing balance and eliminate or reduce traffic impacts. The Project that is currently proposed, and is the subject of this EIR, reflects the revised land uses and achieves a job/housing balance of 1.05 in the RMAP area. Thus, the selection of an alternative that would provide a higher jobs-to-housing ratio would cause greater traffic impacts as compared to the Proposed Project. Therefore, this alternative has been rejected as infeasible and has been eliminated from detailed consideration in this EIR.

6.2.3 Significantly Reduced Intensity Alternatives

■ Avoidance of Agricultural Resources Impacts

Conversion of Farmland to a Mixed-Use Development

The impacts of converting farmland to a mixed-use development were analyzed previously in the 1994 RMAP EIR. In spite of the fact that the RMAP EIR found that significant and unavoidable impacts to agriculture would result from plan implementation (and the same finding has been made for the

¹⁸⁷ United States Census, Selected Economic Characteristics and ACS Demographic and Housing Estimates, 2006 American Community Survey. See Section 4.11.1, Population and Housing, of this EIR.

Proposed Project), Madera County felt that the conversion of some agricultural lands was warranted in exchange for other social and economic benefits, such as the provision of new housing, tax revenue, and economic development. The Board of Supervisors issued a Statement of Overriding Conditions in association with the RMAP EIR and adopted the RMAP in 1995. The conclusions from the RMAP EIR and data from the FMMP (Important Farmland Maps and California Farmland Conversion Reports) provide a reference for the analysis provided in this EIR.

The only way to avoid impacts resulting from the conversion of agricultural uses to a developed site (or reduce them to a less-than-significant level) is either to not develop the Project Site, or to develop it at such a low-intensity that the vast majority of the Project Site could continue to be used for agricultural purposes. While this alternative would avoid or reduce one of the significant impacts of the Project, it is considered infeasible because the Project Site is, in fact, designated as a new growth area by both the approved Madera General Plan and its approved RMAP, and the County has already determined that the conversion of agricultural uses to other purposes is warranted. As a result, a significantly reduced density project, which essentially is a “no project” alternative, would not be consistent with the planning objectives articulated in the County’s General Plan and RMAP, or the Statement of Overriding Considerations that was issued and adopted in association with the RMAP EIR, which already disclosed and overrode this same impact. This alternative has been rejected as infeasible and has been eliminated from detailed consideration in this EIR.

■ Avoidance of Air Quality Impacts

Operational Emissions (ROG and NO_x)

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities on the Project Site after occupation. Stationary, area source emissions would be generated by the consumption of natural gas for space and water heating devices, and the operation of landscape maintenance equipment. Mobile emissions would be generated by the motor vehicles traveling to and from the Project Site. Delivery trucks would make periodic trips to and from the Project Site. This EIR has concluded that operation of the Proposed Project would exceed SJVAPCD standards for ROG and NO_x and would result in a projected air quality violation.

While the Tesoro Viejo Specific Plan contains goals and objectives for its design that would help reduce the operational emissions that would otherwise be generated by the Proposed Project, and the Applicant would participate in the Independent Source Rule (ISR) “offset” program established by the SJVAPCD, the Proposed Project would still generate emissions that exceed the thresholds of significance recommended by the SJVAPCD for ROG and NO_x. The exceedance of the SJVAPCD thresholds for these two criteria pollutants is primarily due to the increase in motor vehicles traveling to and from the Project Site.

Because the thresholds for ROG and NO_x are only 10 tons/year, and the Proposed Project results in emissions of 143.90 and 64.0 tons/year of ROG and NO_x, respectively, including all of the emissions reduction efforts suggested by the Tesoro Viejo Specific Plan and the ISR offset program, it is clear that nearly any development on the project site would cause the thresholds to be exceeded. In fact, it is estimated that a project that consists of only 2,200 single-family dwelling units or 900,000 square-feet of

commercial uses with 500 single-family dwelling units could be developed if this impact were to be reduced to a less-than-significant level, assuming that same mitigation as suggested for the Proposed Project. Therefore, this alternative is considered infeasible because the Project Site is, in fact, designated as a new growth area by both the approved Madera General Plan and its approved RMAP, and the County has already determined that the proposed land uses are, in fact, desired. As a result, a significantly reduced density project would not be consistent with the planning objectives articulated in the County's General Plan and RMAP, or the Statement of Overriding Considerations that was issued and adopted in association with the RMAP EIR, which already disclosed and overrode this same impact. This alternative has been rejected as infeasible and has been eliminated from detailed consideration in this EIR.

Cumulatively Considerable Net Increases of Criteria Pollutants (PM₁₀, and precursors of ozone ROG and NO_x) in a Nonattainment Area

Operation of the Proposed Project would result in a cumulatively considerable net increase of criteria pollutants (PM₁₀, and precursors of ozone ROG and NO_x) for which the Proposed Project region is in nonattainment under an applicable federal or State ambient air quality standard. As discussed in the previous section, operation of the Proposed Project would generate emissions that exceed the thresholds of significance recommended by the SJVAPCD for ROG and NO_x. Because the Valley is in nonattainment for ozone, and both ROG and NO_x are precursors of ozone, the Proposed Project would make a cumulatively considerable contribution to ozone emissions. The County has also prepared and adopted a Statement of Overriding Considerations in association with the RMAP EIR to override this same impact. Therefore, refer to the previous discussion regarding the infeasibility of an alternative that avoids air quality impacts (or reduces them to a less-than-significant level).

■ Avoidance of Noise Impacts

Substantial Permanent Increase in Ambient Noise Levels

Operation of the Proposed Project would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity. The principal noise source in the Proposed Project area is traffic on local roadways, specifically noise from SR-41. The increase in traffic resulting from implementation of the Proposed Project would increase the ambient noise levels in the project vicinity. As discussed in Section 4.10, Noise, of this EIR, it is assumed that the Proposed Project's contribution to an increase in noise levels of less than 3.0 dBA would not be significant, and an increase of 3.0 dBA or greater over ambient noise levels would be substantial and significant if the projects contribution to the increased noise levels would meet or exceed the County's 60 dBA L_{dn} noise level standard at sensitive land uses. If the Proposed Project's contribution to an increase in noise levels is less than 5 dBA, the increase would be noticeable, but not significant if the noise levels remain within Madera County's 60 dBA transportation noise limit, while any increase in noise level above 5.0 dBA is considered perceptible and significant.

One roadway segment within the study area that has noise sensitive uses (Avenue 15 between Road 36 and SR-41) would increase from 61.1 dBA L_{dn} without the Proposed Project to 65.3 dBA L_{dn} with the Proposed Project, which represents an increase of 4.2 dBA. Because noise levels at sensitive uses along this roadway segment would increase above 3 dBA, and transportation-related noise would exceed the

60 dBA limit established by Madera County, this impact would be considered significant and unavoidable.

According to the *Technical Noise Supplement* (Caltrans 1998) a reduction of 50 percent of vehicle trips would reduce noise levels by 3 dBA. Therefore, in order to reduce the Proposed Project's contribution to roadway noise to a less-than-significant level, a minimum of 50 percent of the Proposed Project's vehicle trips would have to be reduced because any increase in noise levels above 3 dBA would be considered significant along the affected roadway. While this alternative would avoid or reduce one of the significant impacts of the Project, it is considered infeasible because the Project Site is, in fact, designated as a new growth area by both the approved Madera General Plan and its approved RMAP. A significantly reduced density project, which essentially is a "no project" alternative, would not be consistent with the planning objectives articulated in the County's General Plan and RMAP, or the Statement of Overriding Considerations that was issued and adopted in association with the RMAP EIR, which already disclosed and overrode this same impact. This alternative has been rejected as infeasible and has been eliminated from detailed consideration in this EIR.

■ Avoidance of Traffic/Transportation Impacts

Intersection Level of Service

Operation of the Proposed Project would result in all study area intersections operating at an acceptable LOS range (i.e., LOS D or better) during Cumulative (2025) conditions with or without the project. However, six intersections would require lane improvements (e.g., additional turn lanes) and a greater amount of right-of-way to accommodate the lane improvements so that each intersection could operate at an acceptable LOS with the addition of project traffic (refer to Table 4.13-16 of Section 4.13 (Traffic/Transportation) of this EIR for a list of the intersections and improvements). While there is mitigation available to reduce these impacts to a less-than-significant level, in order to implement five of the six mitigation measures, Madera County would need to receive permission from Caltrans to construct the improvements. (The only intersection that Madera County can guarantee that improvements are made is Road 36/Avenue 15.) If such permission is not given, the significant traffic impacts addressed by five of the six mitigation measures would remain and impacts would be significant and unavoidable. Therefore, the traffic impacts associated with the Proposed Project are entirely mitigable, assuming that Caltrans is amenable to the mitigation.

The only way to avoid impacts to five of the six intersections (such that mitigation would not be required) would be to reduce the Proposed Project by approximately 50 percent (personal communication, Fehr & Peers, November 27, 2007). While this alternative would reduce the significant traffic impacts of the Project, it is considered infeasible because the Project Site is, in fact, designated as a new growth area by both the approved Madera General Plan and its approved RMAP. As a result, a significantly reduced density project would not be consistent with the planning objectives articulated in the County's General Plan and RMAP, or the Statement of Overriding Considerations that was issued and adopted in association with the RMAP EIR, which already disclosed and overrode this same impact. This alternative has been rejected as infeasible and has been eliminated from detailed consideration in this EIR.

Freeway Segment Service Levels

Operation of the Proposed Project would result in additional vehicular traffic volumes along two study area freeway segments that would exceed established service levels on freeway segments under the jurisdiction of Caltrans. This EIR recommends that SR-41 is widened from four lanes (two lanes in each direction) to six lanes (three lanes in each direction) between Avenue 12 to Friant Road. Implementation of this mitigation measure would reduce the traffic impacts within this freeway segment¹⁸⁸ to a less-than-significant level. However, in order to implement this mitigation measure, Madera County would need to receive permission from Caltrans to construct the improvements. If such permission is not given, the significant traffic impact addressed by the mitigation measure would remain and impacts would be significant and unavoidable.

The only way to avoid impacts to these two freeway segments (such that mitigation would not be required) would be to reduce the Proposed Project by at least 50 percent, but, more likely, a far greater reduction would be necessary (personal communication, Fehr & Peers, November 27, 2007). While this alternative would reduce the significant traffic impacts of the Project, it is considered infeasible because the Project Site is, in fact, designated as a new growth area by both the approved Madera General Plan and its approved RMAP. As a result, a significantly reduced density project would not be consistent with the planning objectives articulated in the County's General Plan and RMAP, or the Statement of Overriding Considerations that was issued and adopted in association with the RMAP EIR, which already disclosed and overrode this same impact. This alternative has been rejected as infeasible and has been eliminated from detailed consideration in this EIR.

6.2.4 No Project/No Development Alternative

Consistent with Section 15126.6(e)(1) of the CEQA Guidelines, this alternative assumes that no development would occur on the Project Site in the foreseeable future. The Project Site would remain unchanged and none of the proposed infrastructure improvements would occur. In general, no new environmental effects would directly result from the selection of this alternative. Maintaining the Project Site in its present state would avoid any environmental impacts associated with aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazardous materials, hydrology and water quality, land use, noise, population and housing, public services and recreation, traffic, and utilities and service systems that were identified for the Proposed Project. As such, no adverse environmental impacts directly or cumulatively associated with the Proposed Project would occur under the No Project/No Development Alternative.

■ Avoidance of Cultural Resources Impacts

Impacts to a Traditional Cultural Property

During the Native American consultation conducted for the Proposed Project by the Project Applicant, local Native American representatives indicated that Traditional Cultural Properties, including cemeteries, ceremonial caves, and other sacred sites, are located on the Project Site and could be

¹⁸⁸ The traffic analysis actually divides the segment described in this alternatives discussion into two separate segments.

adversely affected by implementation of the Proposed Project (either directly or indirectly). Senate Bill 18, signed into law in September 2004, requires cities to contact and consult with California Native American tribes prior to amending or adopting a general plan or specific plan, or designating land as open space. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage for the purpose of protecting or mitigating impacts to cultural places. The legally required SB 18 consultation between Madera County and the local Native American representatives could result in the protection or mitigation of potential impacts to cultural places that could be adversely affected by implementation of the Proposed Project. However, SB 18 only requires consultation between the County and tribes, but does not require mutually agreeable resolution for the purpose of preserving or mitigating impacts to cultural places. While it is entirely possible, and even likely, that a mutually agreeable resolution could be achieved that would protect and/or mitigate impacts to cultural places, which is the goal of the consultation process, because the outcome cannot be guaranteed absent the consultation process, the EIR conservatively determined that potential project-related impacts on Native American cultural places would be significant and unavoidable. There is no alternative that could avoid or substantially lessen potential impacts on Traditional Cultural Places absent the conclusion of the SB 18 process, except for the No Project/No Development alternative, which is discussed below.

6.2.5 Incorporation of the Alternatives Analysis Provided in the RMAP EIR

Because several alternatives were evaluated in association with the RMAP EIR and, therefore, are directly applicable to the Proposed Project and the Project Site, Section 9 (Alternatives to the Proposed Project) of the RMAP EIR is hereby incorporated by reference. The RMAP EIR, which was prepared by Madera County as a Program EIR, evaluated the environmental impacts that would result from construction and operation of the entire 15,000-acre area of the Rio Mesa Area Plan, which includes approximately 30,000 dwelling units within the three Villages of Rio Mesa, North Fork, and Avenue 12. Of the 30,000 dwelling units, the Proposed Project contributes approximately 5,190 dwelling units, which represents approximately 17 percent. The RMAP Final EIR (State Clearinghouse Number 1995109900) was certified in the spring of 1995, and the Notice of Determination was filed with the Office of Planning and Research on March 27, 1995.

As required by Section 15150(c) of the CEQA Guidelines, this document summarizes the incorporated portions of the alternatives analysis provided in the RMAP EIR. The alternatives analysis of the RMAP EIR provides an analysis of six alternatives (see pages 9-1 through 9-21 of the RMAP EIR), which include (1) no project/no development; (2) existing zoning; (3) very low density; (4) low-density concept; (5) University concept; and (6) alternative location. All of the alternatives resulted in lesser or similar impacts, with the exception of the University Concept alternative, which resulted in greater impacts. However, the University Concept alternative is no longer relevant because the tenth campus of the University of California has been constructed in the nearby County of Merced.

The alternatives analysis provided in the RMAP EIR provides the foundation upon which the Proposed Project's land uses were developed, and, essentially, has already taken into account the potentially significant impacts of the Proposed Project, along with the other development projects within the RMAP

area. Therefore, the alternatives analysis provided in the RMAP EIR, along with the alternatives rejected as infeasible for the Proposed Project, collectively identify a reasonable range of alternatives that could substantially lessen one or more of the significant effects of the Project.

The RMAP EIR is available for public review at Madera County:

Madera County Planning Department
2037 West Cleveland Avenue
Madera, California 93637

6.3 ATTAINMENT OF PROJECT OBJECTIVES

Implementation of any of the identified Project alternatives would not meet the majority of (or, in some cases, any of) the Project's objectives. In particular, none of the alternatives would create a master-planned balanced community that would include a mix of residences, employment, recreational opportunities, and commercial uses for residents; accommodate projected regional growth in a location that is consistent with the approved Madera County General Plan and the approved RMAP; or provide development and transitional land use patterns that are consistent with adjoining properties and existing and proposed land uses.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Of the alternatives analyzed in this EIR, the No Project Alternative is considered the environmentally superior alternative as it would avoid all of the significant and unavoidable impacts of the Proposed Project. If the No Project Alternative is determined to be the environmentally superior alternative, CEQA requires that an environmental superior alternative must also be identified among the remaining alternatives. Apart from the No Project/No Development Alternative, the environmentally superior alternative would be the reduced development alternative, which reduces project development by approximately 50 percent in order to avoid traffic impacts on intersection levels of service and freeway segments.

6.5 REFERENCES

- Community Design + Architecture. 2007~~8~~, amended 2008~~12~~. ~~Amended Proposed Tesoro Viejo Specific Plan~~, July.
- Fehr & Peers. 2007. Personal communication with traffic consultant, December 5.
- Madera County. 1995a. *Final Rio Mesa Area Plan*. Prepared by The Keith Companies, March 21.
- . 1995b. *Madera County General Plan*, October.

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Applied Earthworks	Cultural Resources Report
Community Design + Architecture	Specific Plan
Fehr and Peers	Traffic and Transportation Report
Live Oak Associates	<u>Biology and Wetlands Delineation Report (for Project and Off-Site Pipeline)</u>
Provost and Pritchard	Water Supply Assessment, Infrastructure Master Plan
<u>Ripley Pacific Associates/Kenneth D. Schmidt Associates</u>	<u>Supplemental Water Supply Assessments</u>
<u>Sherwood Design Engineers</u>	<u>Supplemental Infrastructure Master Plans</u>
<u>VRPS Technologies</u>	<u>Revised Traffic Impact Study</u>
<u>Wood Rogers</u>	<u>Pipeline Plans</u>