Short Description

Statement of strategic support for broadband as a driver of economic development.

Objectives

- Prioritize broadband as a strategic resource for the development of the local economy
- Highlight the importance of digital communications in service delivery to citizens across all sectors of life, including healthcare, education and public safety
- Reinforce these principles in the long range planning documents that municipalities generate, particularly general, area and specific plans, CIP planning documents and EIR documents for public improvements.

Background

Ensuring access to broadband will be the defining factor in whether or not a community will be able to deliver emergency services and healthcare, prepare its students for the careers of tomorrow and support the development of living wage jobs.

To build our local economy, we need better infrastructure, particularly faster and cheaper broadband access for businesses, institutions and residents. It will require a coordinated and sustained cooperation between public and private partners to help develop these resources in costs effective and efficient ways and a reframing of the way in which local governments think about communications infrastructure.

While connected economically to the Silicon Valley, the Central Coast is, in many ways, a model of the economic inequality that faces communities without robust and redundant connections to broadband infrastructure. Huge swaths of our tri-county region feature a challenging topography of coastline, mountains, and farmland which are not well served by current providers, and there is a significant amount of area where no service is available at all. The patchwork of local and state regulations and rural / suburban orientation of our communities has limited investment by private providers.

After the boom (and bust) of fiber builds in the 1990s and early 2000s, telecommunications providers have focused on wireless services to capture revenue from the explosion of mobile telephony, at the expense of further investments or upgrades to existing local fiber loops.

According to the OECD Communications Outlook (published biannually), telecoms capital expenditures peaked in early 2000 and has started to declining. One paper commissioned by Federal Communications Commission in 2009 authored by Robert C. Atkinson & Ivy E. Schultz estimated that capital expenditures have dropped from $59 to $51 billion between 2008-2009.

Faced with these economic realities, and facing significant pressure to create stable regional employment in a variety of industries, it is incumbent upon local jurisdictions to do everything in their power to lower the barriers to entry for the deployment of additional broadband resources.

Discussion

One of the most consistent problems in the regional economy has been the need to develop employment in a number of disciplines, from research and development and information

technology to smart manufacturing, supply chain management and sourcing and hospitality. Access to broadband is extremely limited and large swaths of southern Santa Cruz and Monterey Counties, and nearly all of San Benito County, are severely underserved, which has negative consequences for businesses hoping to locate or expand regionally. This in turn is reflected in the region's labor market, which has struggled throughout the "great recession" which began in 2008.

One way to combat these trends is to use the long term planning skills of public sector agencies in encouraging and prioritizing the development of broadband resources on the Central Coast.

As an economic development engine, broadband can help sustain and expand the region's businesses so that they can reach global markets, actualize cost savings by government agencies, improve public safety communications, provide health and medical services at lower costs, offer workforce development to unemployed and underemployed residents to learn new job skills, and prepare local youth with the technology skills essential for their future for a very limited investment of public sector dollars and administrative overhead.

A number of communities nationwide have made prioritizing the deployment of additional broadband resources as part of their ongoing economic development strategy. Kansas City, Kansas worked with Google to develop a community fiber network as part of the Google "Fiber for Communities," pilot project. Burbank, Pasadena Palo Alto and Santa Clara County have been leaders in developing municipal fiber networks and economic development policies that prioritize access to network resources. These communities' efforts have helped stabilize local labor and real estate markets as well as municipal finances.

By taking concrete steps to lower the administrative hurdles for further development of internet infrastructure, **[Name of Community]** hopes to encourage additional private sector investment, which will, in turn help deliver better services to our citizens.

One of the simplest steps within the span of control of the municipality is the insertion of language encouraging broadband adoption into future planning documents, as well as directing public works and utility service workers to plan for and include broadband infrastructure in future street excavations as well as develop better maps, coordination tools and noticing systems to encourage competition and open access to the public right of way.

The Central Coast Broadband Consortium, a regional planning and policy group funded in part by the California Advanced Services Fund is in the process of building a publicly accessible development platform that aggregates information on existing infrastructure and market demand. Members of the group, which has been active for more than a decade, have contributed public works, GIS and policy expertise in order to develop a mapping and planning interface that can be used by carriers, companies and municipalities to ease the barriers to entry for broadband infrastructure development. The region will have access to this resource beginning in 2014.

Fiscal Impact

Depending on the suite of policies and programs adopted the financial implications of this directive are somewhat flexible. At a minimum, this change is more conceptual and strategic rather than operational. While additional analysis and effort will have to be taken in future planning efforts as well as capital improvement planning, there are no fixed costs associated

with those efforts. This being said, the opportunity cost of not supporting, evaluating and investing in the infrastructure that is the backbone of the national economy is significant.

Get Connected Resolution

[Name of Local Government]

Get Connected!

Declaration of Support for Get Connected! and a Call to Action

WHEREAS, closing the Digital Divide is vital to the economic prosperity and quality of life for residents in [Name of Local Government] and throughout California.

WHEREAS, [Name of Local Government] finds and declares that high-speed Internet access referred to generically as "broadband" and including both wireline and wireless technologies is essential 21st Century infrastructure in a digital world and global economy.

WHEREAS, [Name of Local Government] recognizes that California is home to a wellspring of innovation that has given rise to the evolution of broadband and other information technologies, however Californians' adoption and use of broadband technology is only approximately equivalent to the national average.

WHEREAS, [Name of Local Government] acknowledges that 38% of all Californians, 40% of low-income households, and [percentage of residents in local jurisdiction or region] are not connected to the Internet with broadband, leaving more than 14 million Californians without high-speed Internet access at home.

WHEREAS, [Name of Local Government] is committed to helping families and children be healthy, productive and self-sufficient and realizes that the use of broadband can save both time and money for residents while helping them bridge the economic divide.

WHEREAS, [Name of Local Government] is committed to helping students obtain the highest-quality education possible incorporating digital literacy and understands that high-speed Internet connectivity and the availability of computing devices both at school and at home are critical teaching and learning tools for academic achievement.

WHEREAS, [Name of Local Government] is committed to reducing its carbon footprint and recognizes that broadband is a strategic "green" technology that decreases greenhouse gas emissions and dependence on foreign oil by enabling e-government and the provision of more services online.

WHEREAS, [Name of Local Government] is committed to Digital Inclusion and increasing citizen participation in the public process through expanded engagement using broadband.

WHEREAS, [Name of Local Government] recognizes that it has the opportunity to impact broadband deployment and adoption in its several local government roles and responsibilities, including as a policy leader, planning body, land use approval agency, purchaser-consumer of communications equipment and information technology, and a service provider.

WHEREAS, [Name of Local Government] welcomes the opportunity to partner with the California Emerging Technology Fund along with the Governor, Legislature, other local

governments, civic leaders, community organizations, employers, labor representatives, educators, and policymakers to encourage adoption of broadband technology.

NOW, THEREFORE, BE IT RESOLVED that [Name of Local Government] hereby joins with the California Emerging Technology Fund in launching and promoting Get Connected! —a public awareness program to close the Digital Divide—and declares 2009 and 2010 as target years for all residents, businesses and community organizations to Get Connected!

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] requests all of their departments and agencies to review scopes of responsibilities, work plans, and services to identify and report back to the [Board of Supervisors or City Council] within six (6) months on the strategic actions that will remove barriers to and promote the deployment and adoption of broadband among residents, customers, and recipients of public services.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] directs that appropriate policies promoting and supporting the deployment and adoption of broadband be promulgated and incorporated into the General Plan and other appropriate land use and economic development plans.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] directs the [County Administrative Officer or City Manager] and other appropriate departments to determine how to optimize the use of broadband technology to inform and engage residents to increase citizen participation in the public processes of governance and expand Digital Inclusion.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] will seek to cooperate and share the results of Get Connected! with neighboring jurisdictions and other public agencies and shall post this resolution on the [county or city] website and send a copy to the [regional Council of Governments] for appropriate distribution to other local governments.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] authorize the use of their names as champions of Get Connected! On the websites of the California Emerging Technology Fund (www.CETFund.org and www.GetConnectedToday.com) and in printed materials pertaining to Get Connected!

APPROVED AND ADOPTED this _____ day of _____, 2010.

California Emerging Technology Fund
Sample Resolution for Local Governments

Shadow Conduit Policy

Short Description

Require the installation of additional conduit in the public right of way when a street opening or encumbrance permit is processed on behalf of telecommunications providers (both ILEC and CLEC), utility service providers or communications carriers.

Policy Objectives

- Minimize disruption of the City's public infrastructure and maximize the return on investment for Capital Improvement / Transportation Projects
- Allow the planned development of the telecommunications infrastructure and plan for additional deployments as the economics become more favorable or technology of the physical plant evolves (i.e. DOCSIS, multimode fiber).
- Ease the barrier of entry for future applicants and increase competition due to reduced costs for installation

Background

One of the major costs in building out middle mile and last mile broadband infrastructure is associated with the cost (and administrative hurdles, including public notice and approval of local jurisdiction) associated with opening a street and putting privately owned and/or operated utilities into the public right of way.

While telephone service (per California's law, Section 7901), as well as cable television and video service (per Digital Infrastructure and Video Competition Act of 2006) are delivered via state franchises which supersede the authority of local jurisdictions, it is still within the control of local land use authorities to determine *how and where* communications infrastructure is put into the public right of way.

Given that a number of communities have a very impacted subterranean footprint, with legacy telephone and utility lines competing for space with municipal utilities, water and wastewater pipes, it is the responsibility of public works and municipal utilities directors across the state to carefully monitor how and where telecommunication infrastructure is deployed.

This regulatory function, in addition to prohibiting subterranean chaos, maximizes the return on taxpayer investments for street improvements and paving projects. Nearly 35 years since to passage of Prop 13, local governments have struggled to expand and maintain public infrastructure.

A number of cities and counties have wrestled with how to balance deployment of new technology with preserving existing transportation infrastructure. In San Francisco, the Department of Public Works and the Committee for Utility Liaison on Construction and Other Projects (CULCOP) only allow a street to be cut once every five years per their standing order number 178,940.

Communications providers are given an opportunity twice a year to submit 5 year plans to the City, which will not allow for an opening of the public right of way twice within a five year period. Each street opening requires that the company doing the subterranean work submit a number of documents including authorization to use the public right-of-way, insurance, Business Tax

Registration Certificate, contact information. Additionally, the City requires a $25,000 deposit and written confirmation that construction will not be delayed.

One sensible approach to encouraging coordination of street cuts and preserving the public investment in the transportation infrastructure has been developed by the City of Boston (and administered through their Public Improvement Commission and Office of Telecommunications) is to deploy a “shadow conduit” whenever the street is opened, particularly when that street bisects a commercial or industrial zone or a community anchor organization.

In June of 2012, the White House directed the Federal Government to develop a “dig once” policy which echoes the structure and function of this policy. Specifically, the executive order called for: “the installation of underground fiber conduit along highway and roadway rights of way can improve traffic flow and safety through implementation of intelligent transportation systems (ITS) and reduce the cost of future broadband deployment. Accordingly, within 1 year of the date of this order the Department of Transportation . . . shall review dig once requirements in its existing programs and implement a flexible set of best practices that can accommodate changes in broadband technology and minimize excavations consistent with competitive broadband deployment.”

The Federal Highway Administration estimates that it is ten times more expensive to dig up and then repair an existing road to lay fiber than to dig a channel for it when the road is being fixed or built. According to estimates provided the House of Representatives by the Telecommunications Industry Association (TIA), “more than half of the costs of new broadband deployment are expenses that can be ascribed to the digging up and repaving of roadways. Further, it is estimated that the inclusion of broadband conduit in [roadway] construction would add less than 1% to the cost of the overall project.”

Discussion

A “shadow conduit” policy is most effective when deployed in concert with a robust policy to notice and coordinate infrastructure improvements while the street is open.

In most jurisdictions, other utilities are only notified during the construction phase of a new installation of fiber or conduit, primarily so they can mark conduits or resources that they own (i.e. USA noticing) to prevent damage during the installation of new fiber or conduit.

This approach does not afford enough time for truly coordinated construction efforts. Municipalities can do their level best to provide a level playing field for all applicants by providing access uniformly while the street is open.

A “shadow conduit” policy requires that a telecommunications provider will, in the process for applying for access to the public right of way, allow the jurisdiction in question to catalogue the planned run in their internal databases, then notice all other known telecommunications and cable providers in order to coordinate in the placement of conduit beneath an existing street.

This approach has been developed by large municipalities, including San Francisco and Boston to minimize disruption to the City's public ways, allow the planned development of telecommunications facilities and provide future Network applicants’ reasonable and timely access to City streets and facilitate the timely construction of new networks.

In this schema, the first applicant becomes the “lead company,” while all other telecommunications and cable providers “piggyback” on the installation at the time that the street is open.

As part of chartering a project, the “lead company” will provide a map of the proposed underground route and the number of conduits requested when the street is open.

At that point, the municipality reviews the application and opens a 60-day window for noticing and processing of the application so that all other utility and communications companies who wish to have access to the project are made aware of the street opening.

What differentiates this approach beyond just a simple noticing protocol is that the municipality will accept applications from other utilities, communications, cable and internet providers to go into the same installation as the “lead company,” leading to better long term coordination and planning.

As a final step in the process, the municipality, also places additional “shadow” conduit along the run, planning for the eventual deployment of additional telecommunications resources as demand increases in future years for utility, cable, communications or internet service.

This final “shadow” conduit, which is deployed empty is owned and maintained solely by the public agency and can later be rented as needed to communications providers.

Fiscal Impacts

Placing “shadow conduit” has fiscal impacts. While the cost of bare, simple conduit placed into an open trench is fairly low (estimated by the US Department of Transportation’s Federal Highway Administration at 75-80 cents per foot for 2” HDPE pipe), it will have to be incorporated into CIP planning.

When taken into the larger context of a street opening or paving project, the costs for shadow conduit become even more competitive.

The Federal Highway Administration estimates it is ten times more expensive to dig up and then repair an existing road to lay fiber, than to dig a channel for it when the road is being fixed or built.

More recent data provided by the office of Representative Anna Eshoo suggests that the inclusion of broadband conduit in construction projects will add less than 1 percent to the cost of the overall project.

Further cost recovery can be borne by the “lead applicant” and other providers who wish to take advantage of the street opening. California Government Code Section 50030 provides a mechanism (Upheld by the State Supreme Court in Williams Communications, LLC v. City of Riverside) for jurisdictions to charge fees for installation of telecommunications facilities in the public rights-of-way, provided that these fees are commensurate with the reasonable costs of providing the service for which the fee is charged.

The costs of a full fiber installation, which includes conduit, laterals, handholds, ducts, engineering and project management costs are somewhat variable and are based on geology, choice of technology and soft costs.

In 2009, as part of the CCBC's second round application for American Recovery and Reinvestment Act's Broadband Technologies Opportunity Program funds, a cost of roughly $50 per foot was arrived at through engineering estimates. This cost included the placement of dark fiber.

The lion's share of the per foot cost was absorbed through pure construction cost, using boring as the primary method. Fiber costs were roughly $2 per foot, while micro-ducted conduit were costed out at $2.75. Another $2.50 was required for permits, environmental documents and other clearances. Planners will have to take into account overhead on administrative time, design and engineering costs and taxes on raw materials as well as other documentation costs.

This estimate is for a fully entitled and cleared installation with fiber, a more value engineered approach can be much more affordable, particularly if the costs of the street opening (via trenching) are backed out.

Broadband Infrastructure – Information Collection, Mapping and Regional Coordination

Short Description

Motion to direct staff to digitally collect and disseminate information on proposed extensions to the community's communications and broadband infrastructure. By developing a robust internal process to catalogue, publically notice and map pending extensions, coordination between communications and data providers can be increased while impacts on the community's airspace, transportation and other vital infrastructure can be minimized.

Policy Objectives

- Maximize the value of existing infrastructure and future improvements
- Provide insight into the communications infrastructure to inform Emergency Operations, Public Safety and Homeland Security planning with respect to critical infrastructure and continuity of governance
- Increase the visibility and importance of communications infrastructure in public planning documents
- Decrease administrative barriers to entry for communications providers and speed up permit processing times.

Background

Local governments cannot impose local franchise requirements on telephone or cable operations, nor are they legally allowed to set up prerequisites for market entry for private telecommunications providers. However, California Public Utilities Code § 7901.1 (California Code - Section 7901.1) does ensure that "municipalities shall have the right to exercise reasonable control as to the time, place, and manner in which roads, highways, and waterways are accessed."

Like telephone (or even telegraph) corporations, telecommunications providers (either ILEC or CLECS) may construct "lines along and upon any public road or highway, along or across any of the waters or lands within this State, and may erect poles, posts, piers, or abutments for supporting the insulators, wires, and other necessary fixtures of their lines, in such manner and at such points as not to incommode the public use of the road or highway."

Although public works departments require applicants to detail where they are excavating when building out communications infrastructure, the maps submitted by applicants are not supplied in digital formats. As a result, visibility into the physical plant that makes up the internet in this region is limited, which has negative impacts for communities hoping to foster economic development and plan for long range contingencies.

This issue is known and well documented by the California Public Utilities Commission, and addressing it is of the major areas of work underwritten by the California Advanced Services Fund.

One of the persistent problems in the public sector is lack of human resources for long term data collection. Stretched by years of fiscal budget trimming, public works departments are struggling to keep up with existing workload. Under present conditions, securing a street

opening permit may take some time, as individual plans must be laboriously checked and commented (typically on physical media) and then processed through public hearings.

Cataloguing existing broadband resources in electronic form could reduce administrative processing time, provide greater visibility into a community's broadband infrastructure and inform a communities' long range planning processes.

There are several existing models of how this data can be collected and utilized. While this specific initiative may seem novel, it is based on long standing procedures developed to help coordinate between utility and communications providers and local jurisdictions.

Nearly all communities in the Monterey Bay area members of Underground Service Alert of California - North; a nonprofit mutual benefit organization founded in 1976 that links the owners of underground service lines with potential excavators. USA's joint noticing system is a simple way to increase coordination of construction amongst providers and is a model that can be leveraged and emulated.

The City of Seattle Washington has developed a specific Planning Analysis and Coordination Tool (PACT) to increase communication and collaboration amongst providers and the City for communication infrastructure upgrades. In PACT, providers and utilities are given a login to the tool where they are required to map out their future plans (over a three year period) and the City of Seattle provides a quarterly report on the projects that it intends to undertake, which includes the method and scope of each project (aerial, boring, trenching, ect.)

Like Seattle's PACT program, the City of San Francisco also requires a high level of planning and coordination between providers to minimize impact on traffic flow and streets within the City. Protected behind a password protected wall, the City's Five Year excavation planning tool leverages the municipal GIS to increase coordination between providers. It can be found online here: http://bsm.sfdpw.org/5year/

Developing this tool for the Central Coast, using collected geo-spacial data will be a key objective of the Central Coast Broadband Consortium, but it will be necessary to direct public works staff to develop a process to collect and report this data.

Discussion

Future applicants for street opening or encumbrance permits for broadband, communications and utility infrastructure should be required to provide GIS or CAD drawings of the routes in question in order to catalogue where resources are in the ground.

Insight into these assets can help a municipality develop priority fiber routes that serve commercial and industrial areas and allow Cities and counties to incorporate those plans into other city initiatives (i.e. Wastewater, Water, Gas, Steam and Paving projects).

Once collected, this data provide a higher level of awareness of communications infrastructure which can have implications on zoning, land use and economic development initiatives as well as long term Capital Improvement Project planning. For example, alternate routes can be suggested to preserve the value of existing streets and minimize the impact of construction to residents, businesses and visitors to the Central Coast.

This geo-spacial data (valuable in itself for internal uses), can be leveraged even further when combined with an adopted policy to increase coordination and noticing between providers via a digital Planning and Coordination Tool.

Fiscal Impact

Unknown. The development of coordination and planning tool is the deliverable the CASF / CETF funded work of the Central Coast Broadband Consortium. Noticing through USA and cataloguing through GIS present negligible costs, mainly in staff time.

RESOLUTION NO.

RESOLUTION OF THE (CITY COUNCIL / BOARD OF SUPERVISORS) OF THE (CITY/COUNTY) OF_____ DIRECTING STAFF TO DIGITALLY COLLECT AND DISSEMINATE INFORMATION ON PROPOSED EXTENSIONS TO THE COMMUNITY'S COMMUNICATIONS UTILITY AND BROADBAND INFRASTRUCTURE AND FURTHERMORE, TO DEVELOP AN INTERNAL PROCESS TO CATALOGUE, PUBLICALLY NOTICE AND DIGITALLY MAP PENDING EXTENSIONS OF THE COMMUNITY'S UTILITY, COMMUNICATIONS AND BROADBAND INFRASTRUCURE.

WHEREAS, the development of the internet and its associated technologies has had broad and significant impact on service delivery in public safety, education, healthcare and commerce; and

WHEREAS, the (City / County) of _____ is interested in closing the digital divide, fostering the attraction, expansion and retention of local businesses; and

WHEREAS, insight into the community's communications, utility and broadband infrastructure has the potential to inform Emergency Operations and Public Safety and Homeland Security planning with respect to critical infrastructure and continuity of governance ; and

WHEREAS, California Public Utilities Code § 7901.1 (California Code - Section 7901.1) does ensure that "municipalities shall have the right to exercise reasonable control as to the time, place, and manner in which roads, highways, and waterways are accessed; and

WHEREAS, the (City / County) of _____ wishes to facilitate the development of a more resilient and higher capacity communications infrastructure by reducing administrative barriers to entry for telecommunications, cable, communications, utility and internet service providers; and

WHEREAS, data on these utility, broadband and communications resources provide a higher level of awareness of vital infrastructure which can have implications on zoning, land use and economic development initiatives as well as long term Capital Improvement Project planning; and

WHEREAS, these insights can help the (City/ County) of _____ develop priority fiber routes that serve commercial and industrial areas and provide valuable input into other initiatives such as Wastewater, Water, Gas, Steam and Paving projects; and

WHEREAS, the Central Coast Broadband Consortium, utilizing funds from the California Public Utilities Commission is in the process of developing a regional broadband mapping, planning and coordination tool ; and

NOW, THEREFORE, BE IT RESOLVED by the (City Council / Board of Supervisors) of the (County / City) of _____ as follows:

Section 1: Collection of Electronic Data: Future applicants for street opening or

encumbrance permits for broadband, communications and utility infrastructure should be required to provide GIS or CAD drawings of the routes in question in order to catalogue where resources are in the ground.

Section 2: Staff Data Collection, reporting and noticing: staff processing applications for communications, utility and broadband service amendments or extensions shall catalogue electronically submitted information into the (City/County)'s GIS and provide access to these map layers to the Central Coast Broadband Consortium's regional mapping, planning and coordination tool.

PASSED AND ADOPTED this __th day of _____, 2012, by the following vote:

AYES:

NOES:

ABSENT:

DISQUALIFIED:

APPROVED: _____
Chair

ATTEST: _____
City Manger / County Administrative Officer

Attachment A

Draft Conduit Specifications

INSTALLATION REQUIREMENTS – CONDUIT FOR FIBER OPTIC CABLE.

SUBARTICLE (Page) is deleted and the following substituted:

Fiber Optic Cable Conduit: Prevent the ingress of water, dirt, sand, and other foreign materials into the conduit prior to, during and after construction. Exclude water and debris from buried conduit and from the top riser assembly of aboveground conduit using a foam-sealing material, rubber plug, or other device designed for this application and approved by the Engineer. Use a UV-rated flexible conduit to protect the cable from the top of the conduit riser to the span messenger where the cable is to be lashed.

Ensure that the conduit fill ratio (outer cable diameter to inner conduit/duct diameter) does not exceed 50%.

Install the conduit system so the fiber optic cable maintains a minimum bend radius of 20 times the cable diameter.

Install the conduit as shown in the plans. Provide all fittings and incidental materials necessary to construct a complete installation. Use approved methods for connecting inner duct or conduit within or between plowed portions, trenched portions, and bored portions. Submit the conduit manufacturer's coupling method and material to the Department's Project Manager for approval.

Fiber Optic Cable Locate Wire: Install locate wire in the trench or bore with all underground conduits. Do not install locate wire in a conduit with fiber optic cable. Ensure the locate wire provides end-to-end electrical continuity for electronically locating the underground conduit system.

Do not run locate wires into field cabinets. Terminate locate wires at the first and last pull boxes in the conduit run. Ensure that wire termination occurs only at the top of a pull box.

In a trenching operation, install the locate wire no more than 3 inches [75 mm] above the conduit. Ensure that the locate wire enters all access points, and that a minimum of 10 feet [3 m] of slack locate wire is coiled and neatly stored at each access point to allow for future additions or repairs to the conduit route marking system.

In a boring operation, install the locate wire in an encasement.

Core-drill the access point wall at the conduit diameter and at the location indicated in the plans. After placement, apply a nonshrink grout or other acceptable material around the conduit/locate wire to seal the hole.

Perform continuity tests and insulation resistance tests on all locate wires. Provide the Engineer with all test results. If the installation of the locate wire is not continuous, replace the locate wire at no additional cost.

Make locate wire splices in a flush grade-level pull box. Ensure that locate wire splices are waterproof and suitable for direct burial. Ensure that locate wire splices at the pull box meet NEC requirements. Ensure that locate wire splices include a mechanical crimp connection with a butt sleeve, an oxide-preventing aerosol lacquer, mastic electrical splicing tape, and standard electrical tape using methods and materials approved by the Engineer. At the completion of the installation, provide the Engineer with as-built drawings that document all splice locations.

SUBARTICLE (Page) is deleted and the following substituted:

Furnish and Install: The Contract unit price per foot [meter] of Conduit, furnished and installed, will include furnishing all hardware and materials as specified in the Contract Documents, and all labor, trenching, backfilling, and restoration materials necessary for a complete and accepted installation.

Payment for conduit placed in the ground or used on bridge decks will be based on the horizontal path of the installed conduit as measured in a straight line between the centers of pull boxes, cabinets, poles, etc. No allowance will be made for sweeps or vertical distances above or below the ground or the bridge deck.

Due to conditions which may exist on the project site, the Contractor may furnish conduit in variable lengths.

Furnishing and installing the locate wire is included in the cost of the conduit.

Conduit used for Fiber Optic Cable includes the cost of furnishing and installing the locate wire and the cost of conducting the continuity test and the insulation resistance test.

SUBARTICLE (Page) is deleted and the following substituted:

Install: The Contract unit price per foot [meter] of Conduit, installed, will include all miscellaneous hardware and materials, labor, trenching, backfilling, and restoration materials necessary for a complete and accepted installation.

The Engineer will supply conduit in sections with one coupling per section and elbows as required.

Payment for conduit placed in the ground or used on bridge decks will be based on the horizontal path of the installed conduit as measured in a straight line between the centers of pull boxes, cabinets, poles, etc. No allowance will be made for sweeps or vertical distances above or below the ground or the bridge deck.

Installing the locate wire is included in the cost of the conduit. Conduit used for Fiber Optic Cable includes the cost of installing the locate wire and the cost of conducting the continuity test and the insulation resistance test.

COUNTY OF SANTA CRUZ

Report on Broadband Connectivity and Expansion

Prepared for the Board of Supervisors

9/3/2013

Table of Contents

Section 1: Information Services

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What is Broadband

Broadband or high-speed Internet allows users to access the Internet and Internet-related services at significantly higher speeds than those available through "dial-up" Internet access services. Broadband speeds vary significantly depending on the particular type and level of service ordered and may range from as low as 200 kilobits per second (Kbps), or 200,000 bits per second, to 30 megabits per second (Mbps), or 30,000,000 bits per second. Some recent offerings even include 50 to 100 Mbps. Broadband services for residential consumers typically provide faster downstream speeds (from the Internet to your computer) than upstream speeds (from your computer to the Internet).

Broadband can be provided over different platforms:

- Digital Subscriber Line (DSL)
- Cable Modem
- Fiber
- Wireless
- Satellite
- T1/T3 Business Class

Digital Subscriber Line (DSL)

DSL is a wireline transmission technology that transmits data faster over traditional copper telephone lines already installed to homes and businesses. DSL-based broadband provides transmission speeds ranging from several hundred Kbps to millions of bits per second. The availability and speed of DSL service may depend on the distance from the home or business to the closest telephone company facility.

Cable Modem

Cable modem service enables cable operators to provide broadband using the same coaxial cables that deliver pictures and sound to your TV set. Most cable modems are external devices that have two connections, one to the cable wall outlet and the other to a computer. They provide transmission speeds of 1.5 Mbps to over 100 Mbps. Transmission speeds vary depending on the type of cable modem, cable network and traffic load. Speeds are comparable to or exceed typical residential DSL.

Fiber

Fiber optic technology converts electrical signals carrying data to light and sends the light through transparent glass fibers about the diameter of a human hair. Fiber transmits data at speeds far exceeding current DSL or cable modem speeds, typically by tens or even hundreds of Mbps. The actual speed you experience, however, will vary depending upon a variety of factors, such as how close to your computer the service provider brings the fiber and how the service provider configures the service, including the amount of bandwidth used. The same fiber providing your broadband can also simultaneously deliver voice (VoIP) and video services, including video-on-demand.

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Wireless

Wireless fidelity (WiFi) is a "short range" technology that is often used in conjunction with a customer's DSL or cable modem service to connect end-user devices, such as PCs, laptops and smartphones, located within the customer's home or business to the Internet. In these cases, WiFi allows users to move WiFi-enabled devices around within their homes or businesses without installing additional inside wiring, but the actual "connection" to the service provider is via the customer's DSL or cable modem service. WiFi technology can also be "networked" to provide wider geographic coverage, and when configured this way, may be used by some service providers in offering broadband service.

Fixed wireless technologies using longer range directional equipment can provide broadband service in remote or sparsely populated areas where other types of broadband would be too costly to provide. Speeds are generally comparable to DSL service speeds. An external antenna is usually required. With newer services now being deployed (WiMax), a small antenna located inside a home near a window is usually adequate, and higher speeds are possible.

Satellite

Just as satellites orbiting the earth provide necessary links for telephone and television service, they can also provide links for broadband services. Satellite broadband is another form of broadband technology and is particularly useful for serving remote or sparsely populated areas. Downstream and upstream speeds for satellite broadband depend on several factors, including the provider and service package purchased, the consumer's line of sight to the orbiting satellite, and the weather. Satellite service can be disrupted in extreme weather conditions. Typically a consumer can expect to receive (download) at a speed of about 1 Mbps and send (upload) at a speed of about 200 Kbps. These speeds may be slower than DSL and cable modem, but the download speed is still much faster than the download speed with dial-up Internet access. Obtaining satellite broadband can be more costly or more involved than obtaining DSL or cable modem.

T1 / T3 Business Class

Traditional business class service to commercial entities include T1 /T3 and the ethernet class services. These are higher cost, reliable dedicated network services over copper infrastructure that are packaged for non-residential use. The T1 (1.5 Mbps) and the T3 (45 Mbps) are still widely used. The relative high cost of these types of broadband, particularly T3s, has seen their usage mainly centered in commercial/business situations requiring higher volume bandwidth. A newer circuit technology, Ethernet over FiberOptic, now offers business class service over existing fiber networks up to 10 Gbps speeds. The cost of these services makes them only economically feasible for large businesses and large public entities, such as universities and governments.

Current State of Broadband Coverage

Extensive analysis of broadband access for consumer and commercial use has been completed as part of the American Recovery and Reinvestment Act of 2009. As a result, there is comprehensive data for the County regarding broadband availability and provider capacity and gaps. This data can be obtained from the National Telecommunications and Information

Administration (NTIA)[1], California Public Utilities Commission (CPUC)[2] and independent sites[3], and includes detailed information regarding geographic coverage maps and provider diversity in a specific area. A Countywide map showing unserved and underserved areas and maps showing portions of the County's unserved areas (in red) and areas served by only one provider (in green) are attached to this report. A more detailed view of the maps will be presented at the Board meeting.

In comparison to the national average, Santa Cruz has extensive broadband coverage with the exception of some minor gaps in the rural areas of the Santa Cruz Mountains, North Coast and Watsonville areas. The major providers include AT&T and the two cable providers, Comcast and Charter. There is one major local Internet Service Provider (ISP), Cruzio, whose network consists of a combination of Sunesys deployed fiber and self-deployed wireless point-to-point. There are several other smaller ISPs in Santa Cruz County, including Got.net and Surfnet. These smaller providers provide service to consumers and commercial entities through a combination of leasing fiber and other infrastructure from the major providers, such as Comcast and AT&T. From an availability standpoint, the County has extensive fiber and broadband networks that meet the needs of commercial and residential usage, although it can be expensive for smaller commercial uses.

Existing Broadband Services in the County

AT&T is one of the largest providers of broadband service in Santa Cruz County with a fiber network that covers most of the County's geographic areas. AT&T services include residential U-verse with speeds ranging from 3 Mbps to 24 Mbps depending on the residential location, and business class service from T1 up to 10 Gbps. U-verse is delivered over AT&T's LightSpeed network in some of the County's incorporated areas. AT&T has proposed an expansion of their LightSpeed network in the unincorporated area, which would bring higher speeds to residential and small-to-medium business customers. These plans are currently under review in Planning and Public Works.

Comcast and Charter are the two cable franchise providers in Santa Cruz County. Both companies provide cable broadband to residential customers and in the past three years have established business class offerings in the County. Charter, which provides cable services to South County, some parts of Aptos and Capitola, offers residential speeds up to 100 Mbps and commercial speeds up to 1 Gbps. Comcast, which serves the cities of Santa Cruz and Scotts Valley and the northern area of Santa Cruz County, provides speeds up to 45 Mbps. Comcast has recently converted their network to digital, and will be upgrading their offerings in the near future. Both providers have a strong presence in the residential areas as cable television providers. Comcast just completed an expansion in several mountain and rural communities and is under construction for the Loma Prieta area now.

Of the smaller providers, Cruzio has the largest presence with a concentration of customers in the area surrounding the City of Santa Cruz. They continue to grow their offerings for residential and commercial DSL with their Velocity product line, which offers speeds up to 48 Mbps. Cruzio also offers commercial class Internet access, but it is limited to several key geographic areas, including the cities of Santa Cruz and Watsonville and parts of the unincorporated area in Live Oak.

[1] http://www.ntia.doc.gov/category/broadband
[2] http://www.broadbandmap.ca.gov/
[3] http://www.broadband.org/

Availability and Cost of High Volume Bandwidth

0336

While broadband access is readily available in most of Santa Cruz County, there are several issues that remain hurdles to broadband availability. While the majority of the County meets the ARRA definition of served areas, there are significant pockets of residential and commercial customers in need of greater availability to larger bandwidth. These include the mountain areas bordering Santa Clara County and the rural areas surrounding Watsonville. Also, the increased demands of home based businesses and telecommuters working out of their homes have caused increased demand for larger and cost effective capacity.

The cost of larger bandwidth capacity in Santa Cruz County has also been a limiting factor. As shown on the attached maps, there are several key areas of the County for which there is only one broadband provider. As a result, many residential customers and smaller businesses with large Internet requirements are confronted with limited and potentially expensive current offerings. As an example, as the medical industry moves more towards the electronic transmission of data, local medical provider offices are seeing increased capacity needs that require data circuits that can run from $400 to $1,000 per month for capacities barely above DSL standards.

Finally, while the cable broadband networks have made significant inroads into residential broadband, there is still some lack of cable broadband infrastructure and availability in commercial and business areas. So while broadband is widely available in the County, there are pockets that lack affordable broadband or at least are not available at rates that are attractive to the end consumer.

Gigabit Network: Financial, Legal and Other Barriers

One of the solutions for increased capacity and competitive pricing is the implementation of a gigabit network, such as the Google fiber network or the Gig.U initiative that centers on universities as network "anchor" institutions. However, in Santa Cruz County, the major providers have few incentives to further build out existing infrastructures, which are already extensive. The business focus of providers has been to sign up customers while keeping capital costs at a minimum. Many of these gigabit projects target high density population areas or cities where there is a high volume of web usage, which means higher rates of advertising revenue for providers that build and maintain the network and infrastructure.

There are also significant fiscal and legal barriers. The cost of building and maintaining a competitive business model within existing markets can be prohibitive in many circumstances. Existing ordinances and permitting processes can prove to be daunting to providers, which want to quickly implement infrastructure or receive carte-blanche to run fiber in areas such as sewers and abandoned infrastructure.

Expansion Plans in Progress

Several major providers have indicated expansion plans for broadband in Santa Cruz County. There have also been discussions regarding opportunities to expand broadband in joint projects between the Santa Cruz County Regional Transportation Commission (SCCRTC) and the major providers. These projects include AT&T's proposed expansion of their LightSpeed network, the joint Sunesys/UCSC project to deploy a 90-mile backbone network between Santa Cruz and

Soledad, and the potential deployment of broadband infrastructure as part of the Monterey Bay Scenic Trail project.

0337

AT&T LightSpeed Project

AT&T has proposed expanding its LightSpeed network to the County's unincorporated area. The LightSpeed network upgrade builds upon AT&T's existing fiber network by extending fiber further into residential neighborhoods. While in most cases the additional fiber would be placed in conduit that is already in place, trenching may be required to install new conduit or repair and replace existing conduit. LightSpeed also involves the construction of new 4' x 4' x 2' cabinets that house the electronics needed to light the fiber-optics and convert the fiber signal to a bandwidth that can be transmitted from the new cabinets to homes over the existing copper distribution network. The detailed plans are under review by Planning and Public Works. With LightSpeed in place, AT&T can offer its U-verse service, which bundles television, voice and Internet, to additional consumers in the unincorporated area.

Sunesys Backbone Network Project

The Sunesys project has proposed to deploy a major fiber backbone network from Santa Cruz to Soledad (Monterey County) that would further extend their existing network in Santa Cruz. The current installed infrastructure provides broadband capacity to UCSC and Cruzio, a local ISP, and includes a major broadband connection from Sunnyvale, CA to Santa Cruz. While this would provide a large capacity backbone through the County, it will require an ISP, such as Cruzio, to provide the "last mile" connections to residential and commercial areas. The project is to be funded through a grant from the California Advanced Service Fund (CASF). At this time, the grant proposal is pending review and approval by the CPUC.

Monterey Bay Scenic Trail Project

With the acquisition of the rail line by the SCCRTC, there has been some preliminary discussion between SCCRTC Board members, AT&T and Verizon to deploy fiber along the existing rail, either on poles or through microtrenching into the existing track areas. Like the proposed Sunesys project, this would provide a backbone fiber network that would run the length of the County and intersect several major commercial areas from Davenport to Watsonville. Discussions to date have been preliminary. Further investigation of the potential of this proposed joint project is still required.

Input from Internet Service Providers

Over the past three months, County staff have met with six providers, including both large and local companies offering broadband services. These discussions have focused on fiber availability and mapping, broadband expansion plans and how that relates to economic development, and what the County can do to facilitate broadband expansion.

- **Fiber availability and mapping** – Most providers are unwilling to provide detailed maps showing the location of their fiber networks due to proprietary and security concerns, but they are willing to discuss fiber availability in specific areas that are still needed. Only Sunesys provided detailed maps of their existing and proposed fiber routes.

- **Broadband expansion plans** – Both large and local providers are interested in expanding their broadband service within the County. As described, AT&T would like to expand its LightSpeed network to offer its U-verse service in the unincorporated area. Local providers are interested in building off of the existing and proposed fiber routes to compete with the large providers and offer more options to residents and businesses. All providers are eager to work with the County on expanding broadband in connection with economic development.

- **What the County can do** – Local providers are interested in working with the County to expand broadband infrastructure. Some providers also expressed an interest in having the County develop conduit specifications based on existing industry standards so they can more easily install their networks. Information Services has drafted preliminary conduit specifications and provided them to Public Works for analysis and costing. Finally, at least one provider would like to see the County establish master lease agreements that allow the installation of broadband infrastructure on utility poles, light standards and County assets.

Summary and Conclusion

In summary, while providers have done extensive build outs of the County's fiber backbone, there is still room for improvement. Many areas of the County are limited to a single provider. To address this issue, the County could make it easier for the ISPs to work through the regulatory and permitting process, as discussed by Planning in Attachment B.

Information Services recommends the following actions:

1. Finalize conduit specifications in collaboration with Public Works and broadband providers.
2. Work with County Counsel and Public Works to establish master lease agreements that allow the installation of broadband infrastructure on utility poles, light standards and County assets.

Section 2: Planning

0339

Broadband and Economic Development

The need for greater speed, reliability and ability to use several devices simultaneously has been expressed at various community workshops related to the Sustainable Community Plan/Transit Corridor Plan and the Economic Vitality Strategy. The ability to offer high-speed Internet access, including larger bandwidth capacity at a reasonable cost, could facilitate the County's business attraction and job creation efforts. Improved broadband infrastructure combined with our proximity to the Silicon Valley, the presence of several universities (i.e., USCS, Cabrillo and Cal State Monterey Bay), and our creative and innovative culture offer great potential for economic development in Santa Cruz County. Broadband providers are eager to work with the County, and the County should welcome their contributions to our economic development opportunities.

Regulatory and Permitting Processes

The industries related to television, telephone and Internet services are rapidly evolving and converging. The 2006 Digital Infrastructure and Video Competition Act (DIVCA) eliminated the ability of local governments to enter into "franchise agreements", and provided that the installation of a network within the public right of way must be allowed in the same way that telephone companies are allowed within the public right of way. The County can limit installations only where public access and safety would be affected. Currently, Planning continues to process applications for installations within the public right of way, and Public Works is responsible for encroachment permits. The County could allow the installation of equipment within public right of ways, subject only to "time, place and manner" of access, through our encroachment permit process. This would make Public Works solely responsible for these applications and would expedite the process.

According to providers, Santa Cruz County's existing ordinances and permitting processes are considered obstacles to expanding service. In order to achieve the goal of providing greater broadband services at competitive prices, the County could apply less stringent and more streamlined regulatory approaches to foster greater competition among providers and to encourage providers to go into underserved areas. This would require streamlining the application process, including what type of information is required, when an application is considered "complete" for processing, and how extensive the "visualization" requirements need to be. It could also require ensuring permit fees are based on an "at cost" fee structure, rather than a "flat fee". Lastly, the County could consider amendments to regulations that would facilitate the deployment of broadband technology, particularly within hard-to-serve residential areas, agriculture areas and public right of ways.

As noted by Information Services, AT&T would like to expand its "U-verse" service in the unincorporated area and is preparing an application to install 80 new above-ground cabinets at a size of approximately 4' x 4' x 2' in the public right of way within both residential and commercial areas. An accommodating and streamlined County permit process would enable AT&T to deploy this improved infrastructure in the near future. Currently, these plans are being reviewed by Planning and Public Works.

Summary and Conclusion

0340

In summary, efforts to expand broadband would benefit businesses, residents and students in Santa Cruz County. To assist providers in deploying new and improved infrastructure, the County could support a number of changes to its regulatory and permitting processes.

Planning recommends the following actions:

3. Allow the installation of equipment within public right of ways, subject only to "time, place and manner" of access, through the County's encroachment permit process.
4. Streamline the application process and ensure permit fees are based on actual costs.
5. Draft amendments to County regulations that facilitate the deployment of broadband technology.
6. Work with broadband providers on economic development opportunities.

Section 3: Public Works

0341

Coordination with Utility Companies

The County Department of Public Works (DPW) works with utility companies (AT&T, PG&E, Comcast, Verizon, Soquel Creek Water, etc.) and other local public agencies (city and county water and sewer districts, and city public works departments) through quarterly utility meetings for updating and coordinating improvement projects. When County staff initiates a public works project at the design stage, DPW works directly with the affected utility companies and public agency to coordinate specific relocation of individual utilities. Once a year, the County sends a letter to all the utilities and local cities regarding upcoming improvement projects. Likewise, utility companies and the cities coordinate their improvement projects through the County encroachment section of DPW for their own utility projects.

County Utility Projects and Cost of Conduit

In reviewing upcoming utility improvement projects by the County, the Sanitation District is currently in the design phase for three sewer replacement projects in the Live Oak and Aptos areas. The projects are scheduled for construction over the next several years and will provide for the replacement of sewer lines that are at the end of their service life. These projects include the replacement of sewer lines on East Cliff Drive between 12th and 17th Avenues (approximately 1,940 linear feet), a larger project on 17th Avenue between Brommer Street and Felt Street and then on Felt Street between 17th Avenue and the Rodeo Gulch Pump Station (approximately 5,630 linear feet), and a project located under Highway 1 near Valencia Creek between Aptos Street and Moosehead Drive (approximately 765 linear feet). Because all three projects are funded by the rate payers of the County Sanitation District, additional funding would be necessary to install conduit for communication purposes (fiber optic) in the roadway adjacent to the new sewer line trenches. In situations such as this, as well as some of our roadway improvement projects, DPW would work with utility companies if they were interested in financing the installation of conduit in conjunction with County projects.

In reviewing recent cost estimates for installing conduit for a recent sanitation project, DPW is estimating a construction cost of $30 per linear foot based to install conduit for with a pull tape (includes materials, excavation, backfill, asphalt-concrete cap, and a slurry seal over the trench). This cost does not include the installation of the fiber optic lines or wire in the conduit. Additionally, this assumes pull boxes every 200 feet, with additional boxes set closer where there are bends or turns.

In evaluating abandoned sewer or drainage lines for possible installation of conduit, it would be difficult to utilize these lines since they have reached the end of their useful service life. The sewer lines that are being replaced or have been abandoned are in extremely poor structural condition due to wastewater environment the lines have been subjected too. Many of these old sewer lines were manufactured with asbestos/concrete materials which require special hazardous waste handling when removed, and they are generally located between 3 and 20 feet beneath the roadway surface. If a line is abandoned, they generally fill with water due to localized high ground water tables. In most cases, as a localized drainage line is being replaced due to its existing condition, a new drainage line is installed in the same location for purposes of keeping facilities within the existing utility easements.

Dig Once Ordinance

Currently, DPW is reviewing a proposed amendment to an existing ordinance in the City and County of San Francisco (City and County) that would require the Public Works Department or other municipal utilities to evaluate and coordinate the installation of electrical or communications infrastructure, to the maximum extent practical and feasible, in the public right of way whenever a new capital improvement project is under consideration at the planning stage, construction or reconstruction, or a roadway is being considered for repaving. The ordinance would essentially require revisions to the City and County Public Works Department's standard plans and specifications to accommodate the electrical and communications infrastructure, as well as implement an extensive notification and project coordination process with other City and County departments, utility companies and other municipal agencies. The proposed legislation is attached to this report.

DPW believes that if a similar "dig once" ordinance to the City of County of San Francisco was approved by your Board, it would allow us to move forward with a coordinated approach on the installation of communication network within the County. This coordinated effort would also require revisions to the County Design Criteria to provide recommendations on a recommended installation process of the communication system with the utility companies. DPW will continue to monitor the City and County of San Francisco's proposed ordinance amendments to accommodate communication infrastructure.

Summary and Conclusion

In summary, broadband infrastructure could be added to a number of utility improvement projects in the County based on available funding. A coordinated approach to installing a County-wide communication network could be accomplished by establishing a "dig once" ordinance similar to proposed legislation in the City and County of San Francisco.

Public Works recommends the following actions:

7. Work with utility companies on their financing and installation of conduit as part of County projects.
8. Draft an ordinance based on the San Francisco "dig once" model for the County of Santa Cruz.

FILE NO. 130412 ORDINANCE NO.

[Public Works Code - Installation of City Infrastructure in Excavation Projects]

Ordinance amending the Public Works Code to require the installation of City-owned telecommunications and electricity infrastructure in excavation projects where the City has determined that it is both financially feasible and consistent with the City's long-term goals to develop the City's electrical and communications infrastructure and to coordinate the installation of the infrastructure with municipal and utility excavators.

NOTE: Additions are *single-underline italics Times New Roman*; deletions are ~~*strike-through italics Times New Roman*~~. Board amendment additions are double-underlined; Board amendment deletions are ~~strikethrough normal~~.

Be it ordained by the People of the City and County of San Francisco:

Section 1. The Public Works Code is hereby amended by amending Section 2.4.13, to read as follows:

SEC. 2.4.13. TRANSIT, PEDESTRIAN, BICYCLE, ~~*AND*~~ STORMWATER, *ELECTRIC, AND COMMUNICATIONS INFRASTRUCTURE* IMPROVEMENTS AS PART OF PLANNING, CONSTRUCTION, RECONSTRUCTION, AND REPAVING PROJECTS.

(a) Whenever the Department or other Municipal Excavator undertakes a project involving the planning, construction, reconstruction, or repaving of a public right-of-way, such project shall include, to the maximum extent practicable and feasible, the following transit, pedestrian, bicycle, ~~and~~ stormwater, *electric, and communications infrastructure* improvements:

(1) Street and pedestrian-scale sidewalk lighting;

(2) Pedestrian and bicycle safety improvement measures, as established in any official City adopted bicycle or pedestrian safety plan or other City adopted planning documents;

(3) Appropriate access in accordance with the Americans with Disabilities Act;

(4) Public transit facilities accommodation, including, but not limited to designation of the right-of-way as a transit preferential street designation or bus rapid transit corridor;

(5) Traffic calming devices;

(6) Landscaping;

(7) Low-impact design stormwater facilities consistent with the Stormwater Design Guidelines;

(8) Other pedestrian and streetscape elements listed as appropriate to the relevant street type as identified and defined in the Better Streets Plan; ~~and~~

(9) Other street and sidewalk improvements consistent with the City's "Transit First" Policy" (Section 16.102 of the City Charter) and "Better Streets Policy" (Chapter 98.1 of the San Francisco Administrative Code)~~.~~ *and*

(10) Electric or communications infrastructure.

(b) The Director, in consultation with the Directors of the San Francisco Municipal Transportation Agency, Department of Public Health, Planning Department, Department on the Environment, San Francisco Public Utilities Commission, *Department of Technology,* and Mayor's Office on Disability shall develop orders, regulations, or amendments to the Department's Standard Plans and Specifications that address the improvements set forth in Subsection (a).

(c) To the maximum extent practicable and feasible, the Director shall condition all excavation and street improvement permits on the inclusion of the improvements set forth in Subsection (a). If such conditions would exceed the Director's regulatory authority, the Director shall coordinate with other City departments to provide, to the maximum extent practicable and feasible, said improvements on behalf of the City. As part of the decision on any permit or authorization pursuant to the Public Works Code, the Director shall take into

account the permit activity's positive and negative impacts on the integration, enhancement, or preservation of the improvements set forth in Subsection (a).

Section 2. The Public Works Code is hereby amended by adding Section 2.4.14, to read as follows:

SEC. 2.4.14. COORDINATION WITH CITY AGENCIES.

(a) Notice to City Agencies.

(1) Before filing an application for a Permit, the Applicant shall notify the San Francisco Public Utilities Commission and the Department of Technology in writing that the Applicant intends to file an application for a Permit.

(2) The Applicant shall send the notice to the San Francisco Public Utilities Commission and the Department of Technology at least sixty (60) days before filing an application for a Permit under Section 2.4.10.

(3) The notice shall state the location of the proposed Excavation, the linear feet to be excavated, the anticipated date for filing the application, and the anticipated dates on which the Excavation will be commenced and completed. The notice shall also state that the City agencies have sixty (60) days to notify the Applicant and the Department that they intend to participate in the Excavation or they will be deemed to have elected not to participate.

(b) Application Process.

(1) Notice Required. The Department shall not approve an application and issue a Permit until the Department has determined that the Applicant has followed the notice process required in this Section 2.4.14.

(2) Denial of Application. The Department shall deny an application for a Permit if the Department determines that the Applicant has failed to comply with the notice requirements of this Section 2.4.14.

(3) Approval of Application.

(A) Where City Agencies Will Not Participate. The Department may approve an application and issue a Permit if the Department finds that one of the following has occurred:

(i) The San Francisco Public Utilities Commission and the Department of Technology have received notice from the Applicant and notified the Department and the Applicant that neither agency intends to participate in the Excavation; or

(ii) Sixty (60) days have elapsed since the Applicant sent the notice to the San Francisco Public Utilities Commission and the Department of Technology and neither City agency has notified the Applicant and the Department that the agency intends to participate in the proposed Excavation.

(B) Where City Agencies Will Participate. If either the San Francisco Public Utilities Commission or the Department of Technology timely notifies the Department and the Applicant that the agency will participate in the proposed Excavation, the Department shall not approve the application or issue the Permit until the applicable City agency or agencies have had a reasonable opportunity to join in the application by submitting the necessary plans. The Department shall require the Applicant to work with the applicable City agency or agencies to enable the City to participate in the Excavation.

(c) Exception. The requirements of this Section 2.4.14 shall not apply to an application for an emergency Permit under Section 2.4.22.

Section 3. The Public Works Code is hereby amended by adding Subarticle IX, Sections 2.4.95 and 2.4.96 to read as follows:

SUBARTICLE IX

OBLIGATIONS OF CITY AGENCIES

SEC. 2.4.95. SAN FRANCISCO PUBLIC UTILITIES COMMISSION.

Upon receipt of a notice issued pursuant to Section 2.4.14 that a Utility Excavator or Municipal Excavator intends to apply for a Permit under this Article, the San Francisco Public Utilities Commission shall review the application to determine whether it is both financially feasible and consistent with the City's long-term goals to add electric infrastructure to a proposed Excavation. If

so, the San Francisco Public Utilities Commission shall notify the Applicant and the Department in the time required by the notice that the San Francisco Public Utilities Commission intends to participate in the Excavation.

SEC. 2.4.96. DEPARTMENT OF TECHNOLOGY.

Upon receipt of a notice issued pursuant to Section § 2.4.14 that a Utility Excavator or Municipal Excavator intends to apply for a Permit under this Article, the Department of Technology shall review the application to determine whether it is both financially feasible and consistent with the City's long-term goals to add telecommunications infrastructure to be owned by the City to a proposed Excavation. If so, the Department of Technology shall notify the Applicant and the Department in the time required by the notice that the Department of Technology intends to participate in the Excavation.

Section 4. Effective Date. This ordinance shall become effective 30 days from the date of passage.

Section 5. This section is uncodified. In enacting this Ordinance, the Board intends to amend only those words, phrases, paragraphs, subsections, sections, articles, numbers, punctuation, charts, diagrams, or any other constituent part of the Public Works and Administrative Codes that are explicitly shown in this legislation as additions, deletions, Board amendment additions, and Board amendment deletions in accordance with the "Note" that appears under the official title of the legislation.

APPROVED AS TO FORM:
DENNIS J. HERRERA, City Attorney

By: _____
WILLIAM K. SANDERS
Deputy City Attorney

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CHAPTER X.
COMMUNICATIONS

Sections:

x.010 : Purpose and Background

This chapter is intended to provide information, guidance, and recommendations as they relate to the development, implementation, and accessibility of communications infrastructure, particularly basic telephone, wireless telephone, and broadband Internet.

Telecommunications infrastructure and services are critical components for long-term growth and sustainability for the County, as they provide the basic resources necessary for businesses to operate and add to the quality of life for our residents. Increasingly, business success is tied to online accessibility, including e-commerce solutions, discoverability, and the overall necessity of high-quality broadband capable of high speeds with symmetric up and down transfer rates. Of equal importance is broadband to residents for access to online education, research, employment, health care, and government resources.

Historically, Mono County has suffered from a lack of quality broadband due to our rural nature and low population with dispersed community areas. With the installation of Digital 395 (see section x.020 for more information) in 2013, however, the capacity issues plaguing this area will be resolved, and new opportunities will present themselves. As such, this chapter is intended to better direct the deployment and utilization of this newly developed resource.

This chapter draws from a number of technical resources, reports, and other jurisdictions, including, but not limited to the Humboldt County General Plan, policy work developed by the City of Santa Cruz, the Eastern Sierra Innovation and Prosperity Report developed by Sierra Business Council, and the Mono County Economic Development Strategy. Each of these resources, in conjunction with their applicability to Mono County, have helped to better identify some issues, opportunities, and constraints, which are briefly addressed below, and more specifically addressed via the Goals, Objectives, and Policies that follow.

Mobile broadband and Cellular Service

With the rapid advances in mobile device technology, both providers and subscribers are increasingly looking to mobile solutions to help fill communication gaps and provide alternatives

to typical fixed deployments. While the mobile alternatives are extremely valuable at fulfilling their role, they are not a panacea for solving broadband issues throughout the county.

The primary issues with the mobile broadband solution are the data caps that are placed on customers, the overall cost of the service, and the typical requirement of a long-term contract in order to receive the service. While these are hurdles typically overcome by those looking to utilize this technology as a secondary method for accessing the Internet, for those who are looking at it as their primary, they may be insurmountable.

Another issue with mobile broadband and cellular service is the effective coverage area that exists throughout the county. For the most part, some form of cellular coverage exists in almost every community; however, it is carrier dependent. AT&T and Verizon are the two main carriers, whose coverage models overlap, but do not provide the same coverage in all of the same areas. In addition to some communities not having cellular service, there are significant sections of our primary highway corridors that have areas without coverage, which poses safety concerns and is often very inconvenient for those utilizing these transportation routes.

It is conceivable that with Digital 395 cellular coverage throughout the county will improve as of new sites are developed and existing sites improved with upgraded technology that adopts a fiber-fed backhaul. This is an important development pattern for the County that needs to be looked at strategically, and implemented thoughtfully, in order to meet the goals and objectives, while adhering to policies and parameters.

Broadband Accessibility, Reliability, and Adoption

Within the context of non-mobile broadband technology, Mono County continues to struggle with the basic aspects of accessibility, reliability, and adoption. These three aspects are closely related to each other, as the region as a whole has been starved of quality Internet until very recently. Where service is accessible (mainly in the major community areas), the reliability and usability of that service has not always been great enough to motivate everyone to adopt. Coupled with the demographics of the region (a mix of income levels, education, age, and ethnicities), there is still a portion of the population who do not use the Internet.

Outside of the Town of Mammoth Lakes, and the community of June Lake, most communities do not have more than one Internet Service Provider for customers to choose from. For the most part, smaller communities are serviced by a single fixed wireless provider (Schat.net), leaving only one other small, wireline provider (Escape Broadband) to compete with the bigger companies offering wireline service – Suddenlink and Verizon.

As a result, the market in each community has been dominated by a single (non-mobile) carrier, which limits consumer choice, stifles competition, and does not afford redundancy. In addition, business use of Internet is limited to residential grade service plans, with only a small number of T1 type connections, or similar higher speed service offerings. In general, this has not only resulted in those businesses being confined to Mammoth or June Lake, but also made it difficult or financially impractical for businesses to get higher speeds or symmetric service offerings.

This General Plan chapter places a high priority on broadband market development, and the engagement of Mono County in the regional deployment of this critical infrastructure. Participation in

local, regional, statewide, and federal efforts that are aimed at the improved diffusion of broadband and communications technology is an important part of achieving the goals and objectives outlined below.

x.020 : Definitions

- **Digital 395** : A 583 mile long Middle Mile fiber optic project between Carson City, NV and Barstow, CA. This project was jointly funded by the U.S. Department of Commerce under the American Recovery and Reinvestment Act of 2009 (ARRA), and a ratepayer fund dedicated to broadband development known as the California Advanced Services Fund which is administered out of the California Public Utilities Commission.

- **California Broadband Cooperative :** A not-for-profit telephone cooperative that will serve as the long-term owner and operator of the Digital 395 network.

- **Praxis Associates, Inc. :** A recognized California based fiber optic development firm responsible for securing the funding and serving as the lead on the design, management, and construction of the Digital 395 project.

- **Middle Mile :** In utilities and telecommunication networks, this is the core portion of the infrastructure that provides the high-capacity, long-haul routes from points of origin for service to local service providers and smaller distribution networks.

- **Last Mile :** In utilities and telecommunication networks, this is the local network that delivers service to consumers, as developed and carried out by Internet Service Providers (ISPs).

- **Anchor :** As it relates to Digital 395, these are government, education, and medical facilities, and service provider points of interconnect where services are provided by Digital 395.

- **Node :** As it relates to Digital 395, these are locations along the fiber route where hardware is located that amplifies signal in the fiber, routes traffic on the network, and provides points of interconnect.

- **Fiber Access Point (FAP) :** Typically located in underground vaults, these are points where it is possible to gain access to fibers broken out from the Digital 395 backbone for the purpose of providing a point of interconnect for future middle or last mile services.

- **Network Interface Device (NID) :** A piece of technology installed at anchors where the Digital 395 network is terminated and can be interfaced with a local network.

- **Mobile Wireless :** A general term used to describe broadband service that is offered typically by cellular carriers via 3G, 4G, LTE or similar types of networks to smartphones, tablets, and other mobile technology.

- **Fixed Wireless :** A term used to describe broadband service that is offered by an Internet Service Provider via wireless infrastructure that is installed on premise and aimed at a repeater site.

- **Wireline :** A general term that is used to describe a connection to the Internet which is provided via a hardwire, as in the case of DSL, Cable, or Fiber based technologies.

x.030 : Broadband Deployment & Implementation

Goal #1 : Facilitate the distribution of the best broadband service possible, to as many users within community areas and key transportation corridors as possible, in a timely and cost effective manner that minimizes impacts to visual and natural resources.

Objective 1A : Work with providers to deliver the best service possible to Mono County residents, businesses, and visitors.

Policy 1A-1 : Providers shall develop new infrastructure projects using the best available technology that meets or exceeds current industry standards.

Action 1A-1.1 : *Monitor standards set by the California Advanced Services Fund (CASF) for 'Served' communities.*[1] *Encourage providers to deliver services that meet or exceed these standards.*

Action 1A-1.2: *Encourage new infrastructure projects to use high-capacity wireline solutions (such as Fiber-to-the-Premise). Providers should demonstrate a justification for alternative technologies and dispersed infrastructure requirements when wireline is impractical.*

Policy 1A-2 : Providers shall develop and deliver services that improve accessibility to high quality broadband while protecting consumers and ensuring fair and equal access to those utilizing services within the County.

Action 1A-2.1 : Ensure Internet Service Providers (ISPs) possess a current Business License, and be current on all applicable Franchise Licenses, taxes, and fee payments.

Action 1A-2.2 : Ensure ISPs furnish and uphold Customer Service Standards that provide privacy protection, clear service and billing procedures, reliability, or a similar service level agreement, and means by which to contest service not meeting said standards.
Enforcement? Via Business License?

Action 1A-2.3 : Establish and maintain consumer awareness information and materials. Periodically review and publish information on local providers based on service standards, including but not limited to coverage area, speeds, etc.

Determining if consumers are receiving service they are paying for

Objective 1B : Deploy broadband to as many community areas and key transportation corridors as possible, and pursue additional providers to increase competition, and improve quality of service.

Policy 1B-1 : Work with providers and other entities to develop projects that deliver broadband service to all communities.

Action 1B-1.1 : Establish and maintain a list of high priority communities that can be referred to when providers are looking to build new projects.

Action 1B-1.2: Actively seek out providers and other reasonable alternatives to establish broadband service in Unserved communities throughout the County.

Action 1B-1.3 : Coordinate and work with Eastern Sierra Connect Regional Broadband Consortium (ESCRBC) and other entities to locate funding opportunities for providers interested in building projects in 'Unserved' and 'Underserved' communities.

Action 1B-1.4 : Pursue additional providers or other reasonable alternatives to improve the quality of service, competition, and reliability in communities throughout the County.

Action 1B-1.5: Look for opportunities to establish access to broadband in other rural or outlying areas for the purpose of enhancing Health & Safety or Economic Development purposes where traditional approaches or solutions are impractical.

Objective 1C : Minimize the impact on the environment and scenic resources while implementing projects.

Policy 1C-1 : Providers shall utilize distribution practices that cause the least amount of long-term/significant environmental and visual impacts.

Action 1C-1.1 : Look for underground opportunities in all project areas before considering overhead options.

Action 1C-1.2 : Require justification for overhead distribution before accepting or permitting.

Action 1C-1.3 : Follow policies and procedures set forth in the Mono County General Plan with respect to overhead distribution lines, including those specified in 11.010.

Action 1C-1.4 : Use existing utility corridors and common poles wherever possible, when overhead distribution has been determined to be necessary and appropriate.

Action 1C-1.5 : Look toward other route options before installing new poles.

Policy 1C-2 : Providers shall adhere to applicable regulations and guidelines when installing new infrastructure.

Action 1C-2.1 : Require new distribution lines be installed underground within Scenic Highway corridors unless a variance is granted by Mono County, and/or a deviation

authorization is obtained from the California Public Utilities Commission for overhead installation.

Action 1C-2.2 : Require that a use permit be obtained prior to allowing overhead construction in County Rights of Way other than scenic corridors.

Action 1C-2.3 : Ensure that new wireline infrastructure in installed underground in conformity with Mono County Code and General Plan Guidelines, including those presented in xx.030 2x.

Action 1C-2.4 : Require new towers & antennas for wireless distribution be placed in inconspicuous locations consistent with Mono County design guidelines, General Plan requirements, and CEQA.

Action 1C-2.5 : Ensure that any new overhead lines be installed in the least conspicuous manner possible consistent with Mono County design guidelines, General Plan requirements, and CEQA. See sections 11.010D & xx.030 2x.

Action 1C-2.6 : Allow the installation of new poles when necessary to avoid substantial adverse impacts, and in a manner consistent with section 11.010.

X.040 : Construction Of Communications Infrastructure

Goal #2 : Incorporate designs compatible with future communications infrastructure when designing public facilities such as streets, campuses, buildings, and public spaces. Accommodate potential future need for undergrounding of infrastructure when reconstructing or remodeling. Provide locations and development standards for communication infrastructure located throughout the County.

Objective 2A : Utilize existing infrastructure and facilities before constructing new ones.

Policy 2A-1 : Co-locate facilities and infrastructure to avoid proliferation of new sites and carefully choose sites to encourage the best coverage possible.

Action 2A-1.1 : Utilize existing wireline infrastructure (through fiber swaps, use of existing Digital 395 backbone, etc.) before constructing new wirelines.

Action 2A-1.2 : Place new wireline infrastructure in existing underground conduit before installing new conduit or new overhead lines.

Action 2A-1.3 : Place new telecom facilities and infrastructure on properties or at sites where other facilities exist before looking for new locations.

Action 2A-1.4 : Carefully evaluate new telecom sites so as to provide the best possible service and coverage area for the project.

Action 2A-1.5 : Require communication providers / developers to provide compelling justification as to the need for new infrastructure or locations before permitting such construction.

Action 2A-1.6 : Developers shall construct cell sites and antennae array towers with the capacity for additional providers to utilize that facility. Refer to the Mono County Design Guidelines for more information.

Action 2A -1.7 : Maintain an inventory of shadow areas and coverage gaps throughout the County. Seek out projects to help fill critical ones in line with County objectives.

Policy 2A-2 : Develop sites using Context Sensitive Solutions, including the use of design and screening tactics that minimize visual impact on their surroundings.

Action 2A-2.1 : Encourage placement of towers outside of community areas.

Action 2A-2.2 : Mitigate tower height by locating towers on hill tops (other than ridgelines) or other high points.

Action 2A-2.3 : Providers shall remove infrastructure no longer in use within one year of abandonment.

Objective 2B : Utilize public spaces or property for communication sites or infrastructure.

Policy 2B-1 : The County shall provide sites or space for communication facilities, including cabinet structures, pedestals, antennas, etc. where appropriate and feasible.

Action 2B-1.1 : Evaluate County property for viable sites and establish an inventory of locations, permissible uses, and associated costs.

Action 2B-1.2 : Construct new facilities or perform improvements taking into consideration future communication infrastructure.

Action 2B-1.3 : Consolidate and co-locate facilities in logical locations that have access to power and backhaul without interfering with County infrastructure.

Action 2B-1.4 : Review locations of Digital 395 Fiber Access Points (FAPs) within County Rights of Way and determine how providers may utilize or access FAP and install necessary infrastructure in Right of Way.

Action 2B-1.5 : Establish a Capital Project Review & Prioritization Committee to help plan and oversee capital project development and ensure integration of County standards into projects.

Objective 2C : Promote and facilitate the development of underground infrastructure to accommodate current and future use demands, protect assets, and minimize future disturbance.

Policy 2C-1 : Providers shall utilize existing conduit where available and feasible.

Action 2C-1.1 : Require providers to utilize existing conduit infrastructure before installing new infrastructure.

Action 2C-1.2 : Require providers to show evidence of need for new conduit prior to permitting construction.

Action 2C-1.3 : Establish permit review process for new communications infrastructure that encompasses all interested County departments and key players.

Policy 2C-2 : Projects conducted on County property, including Rights of Way, shall follow a 'Dig Once' objective.

Action 2C-2.1 : Install conduit in public streets during construction/re-construction for future communications infrastructure use.

Action 2C-2.2 : Look for opportunities for Special Districts to own and lease conduit space to providers.

Action 2C-2.3 : Ensure that conduit in a public rights of way is managed with net-neutrality or open standards such that any future providers may use infrastructure.

Action 2C-2.4 : Accommodate construction of conduit laterals leading to private property for potential future use.

Policy 2C-3 : Interested parties shall be notified of any opportunity for installing additional conduit or infrastructure in open trenches in County Right of Way.

Action 2C-3.1 : Look for opportunities to place new conduit through joint utility trenches.

Action 2C-3.2 : Require formal notification of utilities and interested parties of a joint trench opportunity prior to issuance of permit for construction work.

Action 2C-3.3 : Require installation of secondary or tertiary conduit whenever new conduit is being installed in public Rights of Way to accommodate future use/growth.

Objective 2D : Develop and manage underground infrastructure as 'basic infrastructure' that adheres to standards, is available for public use, and is managed as an asset in line with other public property.

Policy 2D-1 : Underground infrastructure shall be installed in accordance with standards regarding placement, material, and method.

Action 2D-1.1 : Conduit in public streets should be placed a minimum depth of three feet and meet Mono County Department of Public Works street & grading standards.

Action 2D-1.2: Conduit installed for the purposes of Middle-Mile or long-haul routes, or that is installed in major streets or arterials should be the equivalent minimum of 4" in diameter.

Action 2D-1.3 : Conduit installed for the purposes of Last-Mile or distribution routes should be a minimum of 1½" in diameter.

Action 2D-1.4 : *Conduit should be installed at the intersection of streets that is the equivalent of at least 4" in diameter and made accessible via vaults or similar appropriate means.*

Action 2D-1.5 : Encourage the use of microduct or similar technology in conduit installations so as to segregate providers.

Action 2D-1.6 : A reasonable amount of space shall be retained by the owner of the underground infrastructure for the purpose of their potential future use.

Policy 2D-2 : Underground infrastructure in public Rights of Way shall be accessible and remain available for use by qualified providers.

Action 2D-2.1 : Develop and maintain an inventory of underground conduit and infrastructure in a readily searchable manner, such as GIS.

Action 2D-2.2 : Require that all conduit in public Rights of Way contain Tracer Wire or be otherwise locatable using standard devices or means.

Action 2D-2.3 : Require that all new underground installations be mapped with GPS, or have accurate, georeferenced as-built digital drawings, and that such data is delivered to the County at the completion of construction.

Action 2D-2.4 : Require all new large-scale, commercially focused, underground infrastructure be filed with Underground Service Alert (USA).

Action 2D-2.5 : Accept offers of dedication for underground infrastructure from private developers and maintain conduit in the public's interest.

Action 2D-2.6 : Work with special districts, quasi-public entities, or third-party companies and vendors for long-term ownership or management of underground conduit, so long as the infrastructure remains available to the public at a fair price and in an open and competitive manner.

Action 2D-2.7 : *Allow developers who install conduit to recover their costs through renting or leasing space in conduit at a fair and competitive price until the point that the cost of installation is paid off.*

Policy 2D-3 : The County shall consider communications conduit as a standard aspect of a street and exploit opportunities to install infrastructure when opportunities exist and are appropriate.

Action 2D-3.1 : Conduit shall be incorporated in the design phase of new street, sidewalk, or other related transportation projects.

Action 2D-3.2 : Costs for construction and materials of conduit network in a new transportation project shall be factored into overall cost of said project.

Action 2D-3.3 : Establish a dedicated revenue account to be funded through leases or rents of County property for communications infrastructure, and to be made available for future conduit development and maintenance projects.

Action 2D-3.4 : When funding is not available for conduit, look for alternative sources including grants, special districts, or improvement district in advance of actual construction effort.

Objective 2E : Continually look for opportunities to underground existing overhead infrastructure and evaluate priorities based on safety and reliability factors and community input.

Policy 2E-1 : Utilize Rule 20, grant funds, public-private partnerships, or other similar funding opportunities to complete undergrounding projects.

Action 2E-1.1 : Establish an underground project review committee to oversee and manage future underground project priorities, plan for projects, and seek out revenue or funding opportunities to complete them.

Action 2E-1.2 : Utilize a community-based public planning process to help identify and prioritize future undergrounding projects.

Action 2E-1.3 : Establish an inventory and set of priorities for each community for future undergrounding projects based on areas of high preference or priority, as driven by public safety, reliability, community benefit (commercial cores, downtowns, etc.), or visual blight issues.

Action 2E-1.4 : Seek out creative funding strategies, including loans, mortgages, public-private partnerships, grants, or other similar opportunities so as to expedite projects.

Action 2E-1.5 : Maintain an inventory of all underground districts and past funded projects in the County.

Objective 2F : Explore and utilize above-ground infrastructure opportunities when underground solutions are not viable, or would otherwise prevent customers from having access to the best available service.

Policy 2F-1 : Consider the development and placement of cell sites, radio repeaters, or similar infrastructure based on site feasibility, accessibility, coverage, and impact.

Action 2F-1.1 : Maintain an inventory of existing cell sites in Mono County, carriers present at each location, and approximate coverage area for each site.

Action 2F-1.2 : Perform gap analyses and determine holes in coverage patterns so as to better understand value of future cell site placement, as well as priority/target areas.

Action 2F-1.3 : Require new cell sites to accommodate at least two carriers, and encourage carriers to work with existing sites before establishing new ones.

Action 2F-1.4: Require that applicants demonstrate the investigation of multiple site alternatives, and why the selected site is the preferred alternative. Require that applicants provide coverage area maps/data based on new site location.

Action 2F-1.5 : Allow developers to construct cell towers exceeding 60' in height only after obtaining a variance.

Action 2F-1.6 : Encourage use of public land for site location and pursue opportunities with federal agencies, special districts, or local agencies.

Action 2F-1.7 : Work with land management agencies to ensure knowledge and understanding of future development plans, County General Plan policies and guidelines, and find opportunities to synchronize policies and objectives between entities.

Action 2F-1.8 : Require that private property owners wishing to locate commercial communication infrastructure on their property for the benefit of consumers other than themselves secure a Director's Review approval prior to construction.

Policy 2F-2 : Install overhead distribution lines in the least conspicuous manner possible consistent with Mono County design guidelines, General Plan requirements, and California Environmental Quality Act requirements.

Action 2F-2.1 : The installation of overhead lines shall not significantly disrupt the visual character of the area. In evaluation of the impact, consideration shall be given to section 11.010D of the Mono County General Plan Land Use Element.

Action 2F-2.2 : Evaluate factors such as height that lines are placed on poles (where lower heights may better protect viewsheds), size, color, reflectivity, tension in line, etc. when reviewing projects.

X.050 : Strategic Planning For Communications Infrastructure

Goal #3 : Work with local service providers, agencies, and other resources to arrive at appropriate and creative solutions to solve communications challenges. Utilize Digital 395 infrastructure to support communication needs including expansion and development of future infrastructure.

Objective 3A : Evaluate opportunities and establish a plan for future communications infrastructure needs and development opportunities.

Policy 3A-1 : Establish a Joint Communication Planning Committee to coordinate and review communication development projects in neighboring jurisdictions or with a regional perspective.

Action 3A-1.1 : Work to develop a common set of standards and protocols for permitting, design, etc. that ensure consistency for providers and ensure the best delivery of service to our constituents.

Planning for future infrastructure – look for gaps and build projects to address those needs

Policy 3A-2 : Develop strategic plan for communications development in Mono County.

Action 3A-2.1 : Work with cellular providers and third party tower developers to gain an understanding of future development intentions.

Action 3A-2.2 : Develop and update a list of priority "Unserved" and "Underserved" areas throughout Mono County in need of broadband and engage Last-Mile Providers with the intent of developing projects in those areas.

Action 3A-2.3 : Catalog potential projects and future development plans in a GIS database for internal reference purposes and planning efforts.

Action 3A-2.4 : Evaluate Capital Improvement Plans (CIPs) for potential integration of broadband/communication projects.

Objective 3B : Develop and maintain a comprehensive inventory of communications, and related infrastructure for planning purposes.

Policy 3B-1 : The County shall establish a GIS database containing locations and information on existing infrastructure in public rights of way.

Action 3B-1.1 : Acquire maps, data, and other relevant information from special districts and service districts throughout the County who provide service to local residents.

Action 3B-1.2 : Inventory and develop a publicly accessible dataset that contains the best known locations for infrastructure that may be used by future providers for

communication purposes, or potentially interfere with the installation of future communications infrastructure.

Policy 3B-2 : Providers shall submit digital data or accurate maps depicting the location of newly installed or upgraded infrastructure.

Action 3B-2.1 : Update existing databases with new information as it becomes available.

Objective 3C : Leverage existing broadband infrastructure, including Digital 395, before constructing new infrastructure.

Policy 3C-1 : Providers shall justify the need for additional infrastructure development prior to permit approval when projects overlap or parallel existing communications infrastructure.

Action 3C-1.1 : Lease existing bandwidth, dark fiber, or conduit space from California Broadband Cooperative when network routes parallel Digital 395 infrastructure.

Action 3C-1.2 : Refer to County database of existing communications infrastructure when evaluating projects, and prior to permitting.

X.060 : Broadband Access, Adoption, & Application

Goal #4 : Work with providers to extend service to as many residents and businesses as possible. Find ways to utilize technology to improve public safety, quality of life, and economic stability of the region as a whole, while improving government accountability and transparency.

Objective 4A : Leverage Digital 395 and other broadband and communications resources to improve public safety.

Policy 4A-1 : Look for opportunities to improve communications systems for emergency services personnel, and the general public, in order to expedite response and improve service.

Action 4A-1.1 : Implement an Emergency Services Network using Digital 395 that connects the satellite facilities of emergency services personnel within Mono County, as well as surrounding jurisdictions with the intent of improving the exchange of information between all parties.

Action 4A-1.2 : Utilize the Emergency Services Network to improve Enhanced 911 services by coordinating information shared between dispatch and responders.

Policy 4A-2 : Improve cellular coverage area and establish redundant communications in communities.

Action 4A-2.1 : Evaluate provider's coverage area and perform shadow/gap analyses to determine areas along key transportation corridors and community areas without cellular coverage.

Action 4A-2.2 : Work with Joint Communications Planning Committee and neighboring land managers to pre-select and approve sites for future use in locating cell towers to improve coverage in above identified areas.

Objective 4B : Focus efforts on economic development as it relates to or relies on improved broadband and accessibility.

Policy 4B-1 : Develop an economic development strategy for Mono County with regard to broadband.

Action 4B-1.1 : Develop information and products including marketing collateral, white papers, case studies, and other relevant materials that can assist with the promotion of technology focused business in Mono County.

Action 4B-1.2 : *Develop a strategic outreach and marketing plan utilizing the developed materials and targeting technology focused businesses.*

Action 4B-1.3 : Promote telecommuting as a viable method allowing visitors to stay in the region longer and work remotely, and attract new permanent residents to relocate to the area and work from Mono County.

Action 4B-1.4 : Promote workforce development and educational opportunities to train local residents and stakeholders about benefits and uses of technology, focused on the expansion of existing business and development of new business ventures.

Policy 4B-2 : Perform a business opportunity analysis study.

Action 4B-2.1 : Evaluate locations in the County that would be viable for various types and sizes of new technology businesses.

Action 4B-2-2 : Evaluate issues, opportunities, and constraints pertaining to business development in various locations of the County.

Action 4B-2.3 : Consider changes to policies that may hinder or otherwise complicate development of technology or green business development, including waiving of permit or licensing fees.

Objective 4C : Improve accessibility to broadband for personal consumption within community areas at a level of service and price comparable to urban centers.

Policy 4C-1 : Establish free WiFi in public spaces including County buildings, parks, community centers, and in commercial corridors in community areas.

Action 4C-1.1 : Provide free WiFi for public use in County offices and facilities.

Action 4C-1.2 : *Work with service providers to establish free WiFi in commercial corridors and other public areas to support and promote local businesses.*

Action 4C-1.3 : Limit speeds on public WiFi networks so as not to compete with residential or business connections offered by local service providers.

Policy 4C-2 : Support programs and initiatives that improve broadband adoption and digital literacy.

Action 4C-2.1 : Work with regional broadband consortia, state and national initiatives, and local service providers to offer discounted Internet to low income and at-risk populations.

Objective 4D : Utilize Digital 395 and technology as a whole to improve government accountability and accessibility.

Policy 4D-1 : Leverage existing and implement new technology to utilize broadband to improve efficiency and reduce environmental and fiscal impacts.

Action 4D-1.1 : Promote use of video conferencing and virtual meetings as a means for trip reduction between County offices, and to non-County locations.

Action 4D-1.2 : Budget for, install, and make available video conferencing equipment at County locations, such as community centers, libraries, and satellite offices.

Action 4D-1.3 : Utilize mobile data terminals or other similar computing devices to provide service to customers in the field for applicable jobs and tasks.

Action 4D-1.4 : Explore and utilize paperless approaches for meetings, public information, and publication of reports, etc.

Action 4D-1.5 : Develop policies and guidelines that allow for certain County staff the ability to work remotely or telecommute when appropriate.

Policy 4D-2 : Improve government accessibility though the adoption and implementation of technology.

Action 4D-2.1 : Utilize the Internet, including websites, emails, and other similar communication vehicles to disseminate information to constituents and the general public.

Action 4D-2.2 : Provide access to public meetings via the Internet, "Public, Education, and Government (PEG) Access Channels", or other similar communication vehicles.

Policy 4D-3 : Leverage and support the California Broadband Cooperative, Eastern Sierra Connect Regional Broadband Consortium, and other similar not-for-profit broadband organizations to help achieve County goals and objectives.

Action 4D-3.1 : Maintain a County seat on the Eastern Sierra Connect Regional Broadband Consortium and maintain the County's interest in regional broadband development and adoption programs.

Action 4D-3.2 : Appoint a non-elected representative to the Board of Directors for the California Broadband Cooperative.

X.070 : Additional Considerations/Topics/Sections:

- Seek out grants and other funding opportunities related to broadband adoption and deployment
- Consider the development of policies targeted at raising revenue to support future communications infrastructure development.

[1] California Advanced Services Fund is a division of the California Public Utilities Commission (CPUC) and is responsible for increasing broadband adoption in hard to reach areas of California. More information at http://www.cpuc.ca.gov/PUC/Telco/Information+for+providing+service/CASF/index.htm.

San Leandro Commercial Broadband Strategy

Final

16 July 2012

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Table of Contents

1. Executive summary

1.1. Introduction

Access to high speed, reliable links to the Internet and internal networks is a basic, 21st Century utility, as vital to economic development as electricity or water.

The essential nature of broadband[1] service has been recognized at many levels in California: in an executive order from the Governor's office, in bills passed by the Legislature, in reports prepared by a statewide task force and various state agencies and in economic development studies prepared for jurisdictions throughout the state.

Studies by the U.S. government and by international organizations uniformly tell the same story about broadband: "it is a key driver of economic growth and national competitiveness, and it can contribute to social and cultural development."[2]

1.2. Commercial access assessment

In 2011, the City of San Leandro's Office of Business Development worked with local businesses, property owners, entrepreneurs and service providers to assess the current state of broadband access for business and industrial users. This research included two business workshops, an online survey, map analysis and one-on-one meetings.

As a result, four specific areas within the City were identified as priorities for broadband improvements due to current substandard service levels or future plans for significant development that could benefit from higher quality service:

- Downtown San Leandro
- The Davis/Doolittle/Adams Tract area
- The 880 Industrial Corridor
- The Shoreline

In some cases, acceptable commercial broadband access was completely lacking. In other cases, it was unreliable and not of sufficient speed or reliability to support business or industrial users. The City has already applied for federal funding to address some of these problem areas.

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[1] For definitions of technical terms, please see the glossary in Appendix F.

[2] *Building broadband: Strategies and policies for the developing world*, World Bank, January 2010.

The importance placed on fast, reliable commercial grade broadband service by businesses and developers supports the conclusion that extending fiber optic facilities to these areas will create economic development opportunities and maximize the positive impacts of broadband on commercial real estate values.

1.3. City policy review

City staff provided information regarding policies and practices that impact broadband service development. These policies included conditional use and encroachment permits, wireless tower policy, utility undergrounding, use of City-owned facilities and treatment of high technology businesses. San Leandro's policies were then compared to benchmarks developed by other local governments and at a state level in California.

In general, broadband-related policies and practices in the City of San Leandro meet or exceed benchmarks established elsewhere. On the whole, San Leandro is conducive to high technology businesses and uses, and works to minimize obstacles to broadband development.

In some cases, no formal policy exists but routine practice is consistent with explicit policy benchmarks established elsewhere in California. In others, general practice is broadband-friendly, but not broadband-specific.

1.4. Recommendations

The commercial access assessment and the review of City policy led to seven policy and infrastructure initiative recommendations.

Table 1.1 Summary of Recommendations

	Recommendation	Description	Cost	Funding Options
1.	Formalize and promote existing broadband-friendly practices.	Capitalize on the City of San Leandro's competitive advantages regarding development to attract new business and investment	Staff time	City
2.	Make broadband a standard planning review criterion.	Encourage the growth and universal availability of commercial-grade service by treating broadband similarly to other utilities.	Staff time	City

Table 1.1 Summary of Recommendations

	Recommendation	Description	Cost	Funding Options
3.	Adopt a comprehensive open trench policy.	Reduce costs and traffic disruption and encourage forward-thinking broadband construction through cost sharing and joint planning of street-cut projects.	Staff time	
4.	Pursue opportunities for lateral connections to major fiber routes	Extend the benefits of San Leandro's long haul and local dark fiber networks to under and unserved businesses by assisting construction of links to commercial areas and properties.	Depends on scope, thousands to millions of dollars.	Federal EDA, CASF, cost sharing
5.	Support Lit San Leandro on a non-discriminatory basis	Lit San Leandro's dark fiber network, including fiber strands owned by the City, is a resource few cities can offer and is a competitive advantage in attracting expanding and relocating businesses.	Staff time	
6.	Develop WiFi hotspots in Downtown San Leandro	Encourage foot traffic and attract connected business people and consumers by providing WiFi Internet access as a free amenity.	Staff time, under $50K to start, operating costs likely less than $10K per year.	City, PBID, grants, partners
7.	Support business connections to broadband service.	Add a broadband connection component to the City's existing business incentive programs.	$5K to $25K per business.	City, grants

The City of San Leandro can promote deployment of commercial and industrial grade broadband infrastructure and encourage faster adoption of those services by continuing to pursue the general policies and specific initiatives that it has already successfully implemented. As detailed below, the City already meets or exceeds California benchmarks in several essential categories.

Improved broadband access, including new fiber optic networks similar to Lit San Leandro, has helped cities attract relocating businesses and encouraged upgrades by existing ones. Jobs and businesses have been created in depressed areas as a result of municipal broadband policy and development initiatives.

By itself, better broadband access will not transform San Leandro's economy. But it is a necessary precondition and gaining it will open the door to new and expanding companies with more and better paying jobs.

2. Commercial Broadband Assessment

2.1. Introduction

The purpose of this report is to assess commercial broadband[3] availability in San Leandro and current City of San Leandro policies and initiatives related to broadband, and then make general and specific recommendations for addressing any gaps identified and to guide future development of this utility.

Access to broadband service – fast, reliable, high quality links to the Internet and internal networks – is a basic competitive requirement in the 21st Century economy. Broadband availability is one of the first criteria assessed when businesses consider relocating or expanding. It is considered to be a non-negotiable resource that is necessary for businesses to operate and to keep pace with global competitors. Appendix E contains a list of documents, including municipal case studies, that discuss broadband as an essential utility and consider its vital role in economic development.

As an example, the City of Santa Cruz has seen a significant increase in the number of people and businesses added to its downtown economy since an independently-owned dark fiber link was built to Silicon Valley, which provided competition to and a wider range of choices than the services offered by AT&T and Comcast. Several co-working centers have sprung up to support entrepreneurs, freelancers, telecommuters and others. City government has proactively supported construction of fiber connections, worked to put more municipal operations online and included broadband connectivity as a master plan element.

Taken together, these policies produced a broadband-ready attitude in the business community and amongst local agencies. In some respects, San Leandro's current initiatives and policies are even more advanced. By extending some and focusing others, the City can gain the same kind of benefit, perhaps to an even greater degree.

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[3] "Broadband" refers generally to any telecommunications service capable of supporting digital data transmission at high speeds. These services can include and/or support Internet, television, telephone, private data networks and various specialized uses. Broadband service can be delivered in a variety of ways, including telephone lines (e.g. DSL), coaxial cable (e.g. cable modem), fiber optic cable (e.g. Lit San Leandro), wireless cellular/mobile service (e.g. cell phones, tablets, wireless modems), WiFi, point-to-point and point-to-multipoint wireless service (e.g. TelePacific, Etheric) and hybrid networks (XO Communications). Although different organizations use different criteria, the California Public Utilities Commission considers 6 Mbps download and 1.5 Mbps upload speed to be a standard for adequate broadband service availability. Unless otherwise stated, this report uses the CPUC definition.

2.2. Summary of research

The assessment of commercial broadband availability, speed and service levels began with:

- Two broadband workshops for local businesses.
- Meetings with individual businesses and property owners.
- An online survey of the San Leandro business community.
- Meetings with Internet service providers.
- Meetings with the San Leandro and San Lorenzo School Districts.
- Follow up contact to obtain additional information.
- Evaluation of state data and initiatives.

2.3. Workshops

The first workshop was a lunch meeting held on July 19, 2011 at the City's Senior Community Center and the second was a morning session on July 26, 2011 at the Davis Street Transfer Station Education Center, which is located in an area previously identified as lacking commercial broadband availability. In total, 23 people from 16 local businesses, non-profits and the public attended, including representatives from AT&T and Comcast.

The comments, ideas and concerns expressed in the two workshops were generally consistent, focusing on specific areas which lacked access to commercial or industrial grade[4] broadband service, ideas for improving broadband service and support for the Lit San Leandro project, albeit with some questions regarding benefits and risks for the City. Concerns expressed included reservations about how broadband would be regulated and where it would installed but, equally, participants were worried about the economic impact on the City if broadband projects weren't pursued.

Participants discussed various issues they were having with broadband availability, and identified specific locations where commercial grade broadband service was not available. Problem areas mentioned included Downtown San Leandro and industrial areas along I-880 and to the west.

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[4] As used in this report, "commercial grade" service is defined as being similar to residential service in that the provider takes effectively all responsibility for installing, maintaining and supporting the service. Speeds are similar (6 to 100 Mbps), but service levels, reliability, consistency and pricing are higher. "Industrial grade" service refers to service where the customer plays a much greater role in provisioning and supporting the service, including buying different elements from different vendors and managing installation and support. Speeds would be higher – perhaps as high as a Gigabit per second or more – and quality of service levels could be as high as Tier 1. Comcast's Business Class service or AT&T's business DSL service are examples of commercial grade service. A DS-3 or dark fiber strands are examples of industrial grade service.

2.4. Online survey

The City of San Leandro posted an online survey (see Appendix A) regarding commercial broadband availability and satisfaction, and encouraged local businesses to participate. Businesses were informed of the survey via press releases and email notifications by the City and the San Leandro Chamber of Commerce. A total of 44 responses were received, most (40) in July of 2011, with the remainder posted between August 2011 and January 2012.

Table 2.1 Online survey responses

Question	5 point scale response
How satisfied are you with the speed of your current broadband service?	2.8
How satisfied are you with the reliability of your current service?	3.3
How satisfied are you with the value you are currently receiving?	2.7
How satisfied are you with the range of broadband options available at your location?	2.2
How important is broadband availability to your business operations?	4.6

1 = not satisfied at all, 5 = extremely satisfied

Table 2.2 Online survey responses

What improvements would you most like to see in broadband availability for your business?	
Improved Reliability	19%
Improved Speed	38%
Lower Cost	24%
More choices of service providers	19%

Respondents were not generally pleased with the range of broadband options available to them at their business locations, with better speed being the most desired improvement. Availability of broadband was generally seen as “absolutely crucial” to businesses. Although respondents were not required to provide their address, most did and this information was used to help identify priority areas. The majority of

respondents who were not pleased with the broadband options available to their businesses were in the downtown areas, with a smaller number reporting problems in the City's industrial areas.

2.5. Service provider follow up and gap identification

In general, the two primary Internet service providers in San Leandro – AT&T and Comcast – have focused their investments on improving television and consumer grade Internet service in residential areas. AT&T's recent service upgrades are focused in residential zones, not commercial or industrial districts, and the information provided by Comcast regarding its high speed broadband services, and confirmed by local businesses, is consistent with this pattern as well.

Specifically, the workshops and online survey produced a consistent picture of broadband service gaps in the commercial and industrial areas of San Leandro (see Appendix A for details). This information was provided to the two major broadband companies serving the City – Comcast and AT&T – for their evaluation and response. Comcast responded with a breakdown of broadband service availability in some of the City's commercial districts and AT&T displayed a map of its Project Lightspeed service nodes. This information was consistent with data collected and mapped by the City.

Project Lightspeed is AT&T's ongoing program to upgrade residential broadband service to speeds and service levels that can support video services similar to those provided by cable television companies. Although it is not designed with businesses in mind, it can support commercial grade service where it's available and, in general, upgrades made for the purposes of the project result in better overall infrastructure.

For the purposes of analysis, the Project Lightspeed nodes were mapped by the City using the assumption that each node had a uniform service radius of 1,500 feet. While this approach is too rough to predict service availability at a particular location – the actual coverage pattern of any given node is subject to many variables – it paints a useful picture of which areas of the City have been targeted for upgrades by AT&T and which have not.

When Comcast was provided with a sample list of problematic addresses, its representatives initially responded quickly with an estimate that approximately a quarter might have had problems in the recent past but should be able to order service now or in the near future. About half were addresses that Comcast would consider deploying service to if the business or property owners were willing to pay some or all of the cost of constructing the necessary facilities – the company's existing budget for these types

of upgrades is relatively small and is spread over the entire region. The remaining quarter or so were unlikely to be served by Comcast in the foreseeable future.

A Comcast representative made it clear that the company is not interested in paying for extensions of service to vacant commercial properties.

Meetings were also held with representatives from the San Leandro and San Lorenzo school districts. School sites located within the City of San Leandro are primarily located in or near residential areas, and do not generally have problems obtaining adequate broadband connectivity. Much of the cost of educational broadband connections is paid for by federal and state grants and connectivity is provided primarily by AT&T under multi-year contracts. Internet bandwidth is provided by the Corporation for Educational Network Initiatives in California (CENIC), a non-profit corporation that provides educational Internet access throughout the state.

Long haul and metropolitan fiber optic cable routes were identified from information previously obtained by the City, released by long haul carriers and provided by local business. These fiber lines are vital for providing connectivity in and out of the City as a whole, but have limited usefulness for delivering broadband service to individual locations.

Finally, information regarding broadband service availability collected by the California Public Utilities Commission (CPUC) was obtained. This data was provided to the CPUC by AT&T, Comcast and competitive carriers.

The information gathered from San Leandro businesses and residents, provided by carriers and collected by the CPUC was combined into a multi-layered map by City GIS staff. The pattern of this data is consistent with the information obtained locally.

A full set of maps is contained in Appendix C. These maps contain additional detail regarding broadband service availability from Comcast and AT&T, availability analysis by CPUC staff, Project Lightspeed and Lit San Leandro information and locations of problem areas.

There are a number of smaller service providers that offer commercial broadband service to businesses in the East Bay Area, including San Leandro. However, these companies do not generally own their own fiber or wire line facilities in the City and depend on either wireless connections or lines leased from AT&T to deliver service to end users.

As local businesses and smaller carriers reported and, in some cases, AT&T confirmed, leasable lines capable of supporting high speed, reliable Internet service are not available in several commercial and industrial areas of the City.

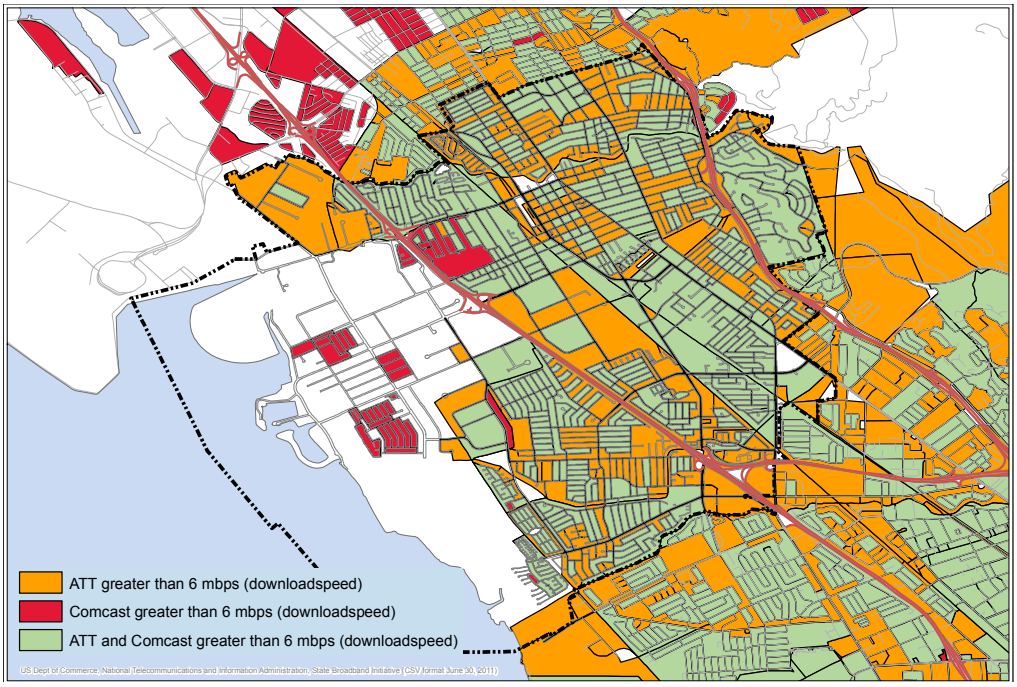


Figure 2.1 Map showing broadband availability data collected by CPUC. A full size map can be found in Appendix C.

CPUC's service availability data indicates that at least some land line-based broadband facilities in the commercial and industrial areas of San Leandro are substandard.

Wireless broadband service is theoretically available throughout the City from cellular carriers, from companies (such as TelePacific and Etheric) that offer service over a wide area from scattered towers and from providers that offer customized, point-to-point connections.

However, wireless broadband facilities operate within cost, coverage, reliability, speed and quality of service (QoS) parameters that are not suitable for all commercial uses or acceptable to all users. For example, a major software company will have bandwidth and QoS requirements that exceed wireless standards. Medical organizations have reliability needs that wireless service providers can rarely, if ever, meet. These types of users will occasionally employ wireless links for back up, mobility or other auxiliary purposes, but will not depend on it for primary service.

Broadband service problems have been identified in key commercial and industrial areas of San Leandro. These gaps can only be filled by upgrading existing land lines or deploying new ones. The importance placed on fast, reliable commercial grade broadband service by businesses and developers supports the conclusion that extending fiber optic facilities to these areas will create economic development opportunities and maximize the positive impacts of broadband on commercial real estate values.

2.6. Specific priority areas

Map-based analysis points to four specific areas in San Leandro where a higher level of commercial broadband availability would enable businesses and property owners to meet the expectations of high technology enterprises. The information used included detailed service reports provided by carriers to the CPUC, data collected in the course of this study and anecdotal reports.

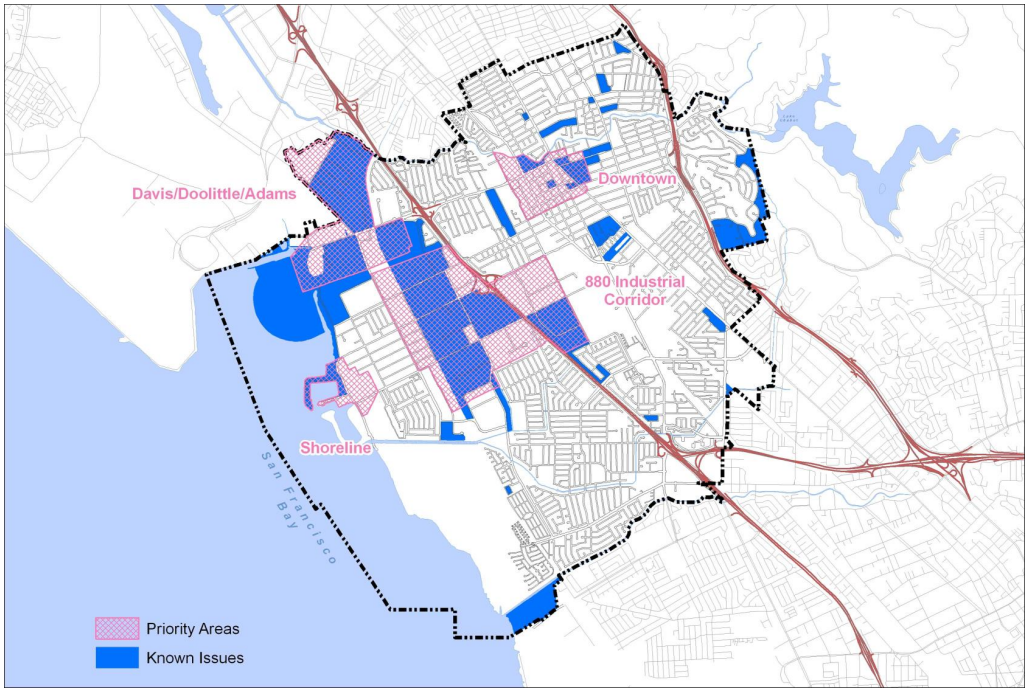


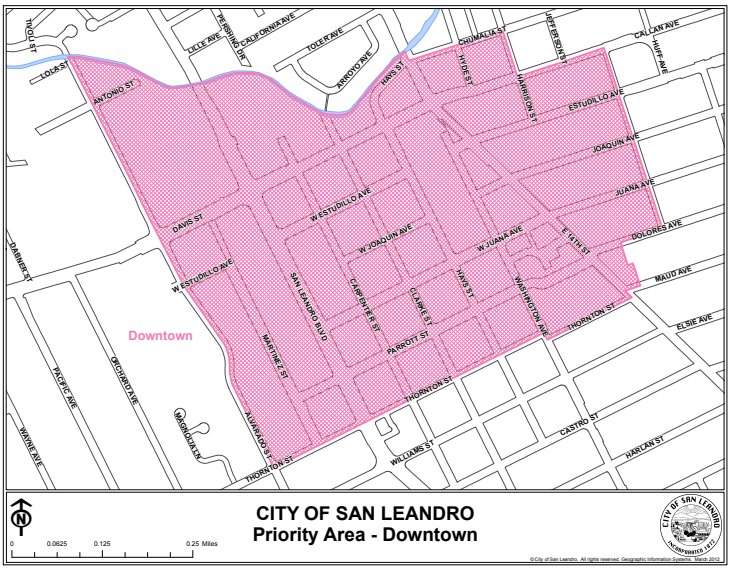
Figure 2.2 Map showing broadband development priority areas identified by research. A full size map can be found in Appendix C.

Downtown San Leandro

Downtown San Leandro is, and will remain, the focal point for office and professional uses in the City. Creekside Plaza is currently the City's only class-A office development and is home to over 1,300 high-quality jobs. OSIsoft and Wells Fargo also have sizable facilities in Downtown San Leandro. Additionally, the City's 2007 Transit Oriented Development Strategy laid the groundwork and provided environmental clearance for

over 700,000 square feet of new office development downtown. Commercial-grade broadband availability will be essential if the City is to be successful in attracting and retaining office tenants and quality jobs in growth industries.

Unlike the Davis/Doolittle/ Adams area, AT&T has installed some Project Lightspeed nodes in Downtown San Leandro. However, the pattern of placement is more consistent with a coverage plan intended to extend consumer services (including video) into residential areas than it is with directly supporting commercial grade service.



Businesses and property owners in Downtown San Leandro report problems obtaining reliable, commercial grade DSL or cable modem service, stating that it is completely unavailable or subject to lengthy – sometimes several months long – installation delays. The same is true of industrial grade service. These problems are anecdotally said to occur throughout the Downtown San Leandro area, but there is a cluster of reported broadband availability problems in the area bounded by Parrott Street/Dolores Avenue, Santa Rosa Street, Hayes Street and Estudillo Avenue. Broadband availability data provided by the CPUC is consistent with these reports.

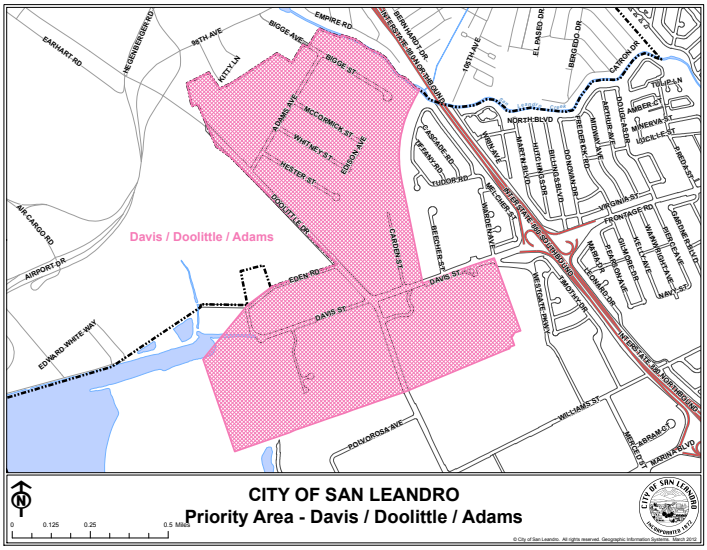
This lack of broadband availability is seen as a disadvantage for the area. Improving commercial broadband availability will benefit smaller offices as well as larger, planned developments such as OSIsoft's office expansion and Town Hall Square.

Lack of broadband service can even inhibit foot traffic as some shoppers, visitors and business people prefer to go where wireless Internet service, for example from WiFi hotspots, is more widely available. WiFi Internet access is an amenity that can attract visitors and add value for the local business community.

Davis/Doolittle/Adams area

The industrial zoned area surrounding Davis Street, Doolittle Drive and Adams Avenue is particularly problematic.

Wireless carriers claim to serve this area but, as noted above, wireless service is not always actually available in claimed service areas. Comcast claims to provide cable modem service to one street in the area. Otherwise, the area depends solely on AT&T's legacy copper wires[5] for broadband service.



Business owners in this area and smaller service providers report that these lines cannot support even the minimal, decades-old T-1 service standard.

For example, staff of a chemical company located in this area reports that they have had trouble obtaining reliable commercial grade broadband service. Originally, they used a microwave-based service that delivered adequate performance, but that service is no longer available. Currently, they are paying for a T-1 class connection, but it is unreliable and only performs at about two-thirds of its rated speed. The company considers this situation to be unacceptable and a detriment to conducting business.

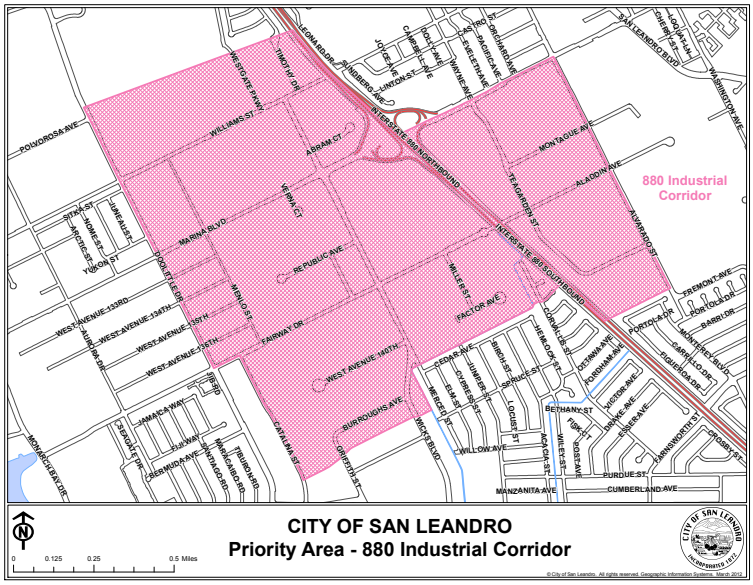
Although AT&T denies there is a complete lack of modern telecommunications facilities, its representatives admit to having problems in the area and do not contest the specific reports of broadband unavailability. The CPUC's data similarly supports a conclusion that substandard service exists in at least some of this area.

Improved broadband service availability will create an opportunity to upgrade and reposition blighted and underutilized properties in this area.

[5] A significant portion of the basic infrastructure that supports local telephone and broadband connectivity is comprised of bundles of copper wire that were installed more than fifty years ago by the former Bell System. The T-1 standard was introduced in 1961 in order to support a bi-directional speed of 1.5 Mbps at a high quality-of-service level, using the copper wires of the time. Because it is a dedicated and managed circuit, its performance is usually substantially better than shared services such as DSL or cable modem, even in cases where the claimed top speed of those shared services is many times higher. A T-1 circuit is generally considered to be the lowest level of service that can be described as industrial or carrier grade.

880 Industrial Corridor

This area can be generally described as the industrial properties on either side of Interstate 880, south of Davis Street and north of Manor Boulevard, between Doolittle Drive on the west and Alvarado Street on the east. As in Downtown San Leandro, property and business owners report problems obtaining commercial or industrial grade broadband service.



The map analysis supports this perception. There is only one AT&T Project Lightspeed node in the area, although there are others in adjacent residential areas. Likewise, Comcast's ability to serve this area is limited. The CPUC data indicate that there are gaps in land line-based broadband service, although it also shows that at least one carrier is reporting that it provides 1 Gbps service to at least one property on the east side of Alvarado Street.

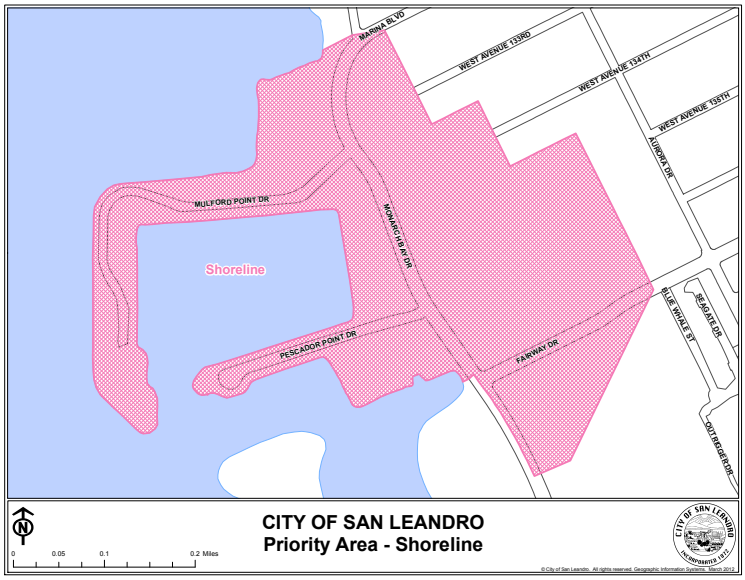
The state-of-the-art Kaiser Medical Center which is currently under construction is an example of one of the businesses in this area that will benefit from improved service availability.

Shoreline

Following the general pattern of broadband availability decreasing west of I-880, areas along the San Leandro shoreline have less access to commercial and industrial grade broadband service than most other parts of the City. In particular, the CPUC data show a fall off in available service levels along Monarch Bay Drive and the Marina area.

High quality broadband service to the shoreline area will be particularly important in the future because planning is underway for a substantial development project at that location. A conceptual master plan developed by Cal-Coast Companies and a 30-plus member Citizens Advisory Committee includes plans for a 200-room hotel, a 15,000 square foot conference center and a 250,000 square foot office campus, in addition to

retail spaces, residential development, and several community amenities.



Development of the hotel, conference center, and office complex will be dependent on the availability of commercial and industrial grade broadband service. It would be significantly less viable if broadband availability in the area does not improve. Conversely, exceptional broadband service (such as a direct fiber connection to the site) would assist efforts to attract top quality users and tenants.

3. City Policy Review

3.1. Placement of broadband facilities in public right of ways

The Encroachments Chapter (5-1) of the San Leandro Municipal Code sets out a clear process for anyone who wishes to install broadband facilities – such as conduit, fiber optics or equipment vaults – in a public right of way. It begins by stating "no person shall...place on, over or under [a] street any pipe line, conduit or other fixture...without having first obtained a permit." It then goes on to detail the required steps and applicable standards for obtaining a permit. The same rules apply to street side cabinets, underground vaults and other equipment placements, and indeed nearly any other kind of encroachment, for example building a fence, blocking a street or planting a tree. There are no specific requirements pertaining to fiber optic lines and other telecommunications gear.

The general requirements that do apply concern things such as maintaining public access to streets, having proper insurance, performing the work to a proper standard and repairing any damage caused.

Any activity in a public right of way is exempt from zoning or similar restrictions. Applicants are only required to apply to the Engineering and Transportation Department for an encroachment permit, which are typically granted if the proposal meets the technical standards referenced in the Municipal Code. City staff have thirty days to either grant the permit, with or without conditions, or provide specific reasons in writing for its rejection.

AT&T's Project Lightspeed is a recent exception. The Community Development Department was asked to review AT&T's request to place 114 equipment cabinets on city streets as part of a proactive effort to make sure residents understood what was happening and why. The objective was to ensure that consistent and acceptable measures are taken to address public safety and aesthetic concerns throughout the City. The result was a staff memo (Appendix B) issued in September 2007 that outlined a cooperative process intended to facilitate the upgrading of AT&T's residential broadband service while addressing public concerns.

City staff worked with AT&T to evaluate each specific location, identify and implement any mitigation measures necessary to avoid problems such as negative aesthetic or public safety impacts and provide detailed notice to people living and working in the vicinity. Where it was deemed necessary, proposed box sites were moved to more appropriate locations.

Staff developed fourteen standard conditions for the overall project, addressing public notice, traffic and neighborhood disruption, visual impact, public safety, emergency procedures, environmental concerns and compliance with City requirements. Then, each site was evaluated on an individual basis and specific conditions were imposed where appropriate. The work was performed by staff on a cost recovery basis.

3.2. Utility line undergrounding

The City has a long term program to move electrical and telecommunications lines from poles to underground conduit along major thoroughfares and other key streets. The program is detailed in the City's Underground Utility District Master Plan and its five-year program list. When doing this work, the City's Zoning Code also requires that all new developments on these streets either put utilities underground or pay an underground utility fee. When doing this work, the City routinely specifies additional conduit for broadband purposes.

3.3. Wireless towers and antennas

The City of San Leandro's zoning policy for wireless telecommunications facilities installed by service providers is intended to "enhance the ability of the providers of telecommunications services to provide such services to the community quickly, effectively and efficiently", while steering antenna and tower construction to non-residential areas and encouraging sharing of tower sites amongst service providers. It is also intended to reduce the visual impact of wireless telecommunications facilities.

The approval process is well-defined (see Appendix B) for permit applications, and encourage proposals that maximize use of existing towers and structures, minimize visual impacts and locate new structures in industrial areas. An established process for reviewing wireless telecommunications proposals tends to encourage the development of broadband facilities in a city.

First, wireless telephone and broadband companies are likelier to prioritize areas that have a predictable and finite process for evaluating proposed facilities. It is not so much a question of how rigorous or restrictive the policies are, but rather a question of knowing in advance what the rules and expectations are, and how long it will take to reach a definitive yes or no answer.

Second, wireless telecommunications are one of the major drivers of new fiber optic line construction. It seems a little counterintuitive at first, but providing faster fiber optic connections to a cell site or other wireless hub means more traffic can be carried by that site and more wireless bandwidth can be delivered to the surrounding area.

When a fiber optic line is built to serve a cell site, that line can also be used to support commercial and industrial service to nearby businesses.

During the review process, applicants must provide information regarding all their existing and planned wireless facilities in or near the City. Initial review of applications is usually complete within 30 days.

When a project doesn't qualify for automatic or administrative approval, the process is more intricate. In those cases, the City's Board of Zoning Adjustments has to grant a Conditional Use Permit (CUP).

To qualify for a CUP, applicants have to meet a tougher set of requirements directly related to visual impact on the public and adjacent properties. For example, applicants may be asked to submit detailed plans, visually screen facilities with plants and show that no alternatives, such as colocation on an existing tower, are feasible. This process is consistent with the City's goal of maintaining certain standards in areas with various classes of zoning while still encouraging telecommunications service upgrades.

There is no particular time limit for the Board's review and approval process, but the City has a standard time frame of three to five months to process conditional use permits, regardless of the purpose. Most of the review process is handled by staff prior to submitting it to the board for its consideration and a public hearing.

The fee for an administrative review is a flat $1,531. The City charges applicants with the direct costs for processing a conditional use permit, requiring an advance deposit of $2,500 to $3,500.

Terrestrial microwave links and satellite earth stations installed by individual users are handled by a separate section of the Zoning Code. Examples include DirecTv or DISH equipment installed on a home or point-to-point wireless broadband links installed at a business. This type of equipment is generally allowed anywhere in the City, subject to some requirements imposed for the purpose of avoiding "adverse impact on aesthetic values and public safety". These requirements primarily concern the choice of the specific location of this equipment on a given property, but don't generally prevent it from being installed somewhere on the property.

3.4. Location of broadband-intensive businesses

The City's zoning code does not specifically address high technology businesses, such as data or call centers, that might use high capacity, industrial grade broadband connections. There are no particular incentives or restrictions, and defined high

technology uses. When reviewing something that doesn't neatly fit into a specific category, the City's planning staff generally relies on common sense and looks at the original intent of a given land use rule and how it can logically be applied to new technology. Staff considers the impact on and compatibility with neighboring properties and the public, which also ties back in to original intent.

3.5. City use of broadband services

There are no particular restrictions on access to City data, which is treated as civic capital and as such is subject to full disclosure. There is an ongoing project to move public meeting agenda and minutes to an electronic access system. A considerable amount of electronic information, including GIS data, is available via the City's website and, similar to printed materials, is subject to retention and public disclosure requirements.

Similarly, there are no general policies regarding telecommuting. Although open data and telecommuting programs are not directly related to commercial broadband development, initiatives such as these can help stimulate demand and provides an opportunity for the City to lead by example.

The City participates in the CALNET 2 bulk purchasing program for telecommunications services, including broadband, run by the State of California. This program affords lower pricing than the City could reasonably expect to obtain on its own.

4. Broadband Policy Benchmarking

4.1. Policy environment

In general, California and federal policy is moving towards greater support of broadband projects and services.

The Federal Communications Commission has enacted rules that attempt to put limits on local and state review of cell tower permit applications, for example. On the other hand, those rules are being challenged and so far the federal courts have not allowed a complete preemption of local authority by the FCC. Other rules streamline procedures for installing new cables on existing utility poles.

Bay Area congresswoman Anna Eschoo introduced a bill (HR 1695) that would require federal agencies engaged in highway construction projects to routinely install broadband conduit at the same time. This initiative was similar to an executive order issued in 2006 by then California Governor Arnold Schwarzenegger.

Besides directing state agencies to include conduit in construction projects, the order included expedited review of broadband projects by state agencies, such as Caltrans, and severely limited fees that may be imposed on broadband projects in order to permit access to public right of ways.

The order also created a California broadband task force that issued a report[6] that made further recommendations to encourage the growth and deployment of broadband facilities. In general, it discussed steps that can be taken to support the deployment of both wired and wireless facilities. Those recommendations included greater state funding for broadband projects, using the state's purchasing power and anchor tenant status in many locations to support improved infrastructure and creating statewide standards for broadband construction projects.

Other broadband policies initiatives are being pursued at a local level. Cambridge, Massachusetts has implemented an "open trench" policy that requires cooperation with broadband providers when street cuts are made and generally requires open access to conduit when space is available.

In Santa Cruz, California the city council has enacted an open data policy and embarked on a project to provide a greater degree of online access to public documents and to

[6] The State of Connectivity: Building Innovation through Broadband, final report of the California Broadband Task Force, January 2008.

make it easier for the public to conduct business with the City online. Other California cities, such as Victorville, Corona and Grover Beach have developed plans and policies to encourage broadband deployment and use. These plans address the particular needs of each community, and concern issues such as residential and commercial service gaps, future institutional network needs and construction standards, and the impact of large scale greenfield developments.

4.2. Benchmark analysis

Existing broadband-related policy in San Leandro was evaluated on the basis of how well it supports development, construction and access to commercial and industrial-grade service. Four policy goals were benchmarked:

- Facilitation of infrastructure development.
- Support for smart infrastructure and connected communities.
- Protection for environmental quality and visual aesthetics.
- Efficiency of government operations and delivery of services.

Specific benchmarks for those goals, as adopted by the State of California, the California Emerging Technology Fund (CETF) and other California local governments, were used to evaluate San Leandro's current policies. A complete list of goals and benchmarks is in Appendix D.

The benchmarks used in this study are, to a large degree, derived from work done by CETF. It was established by the CPUC with the mission to "close the digital divide by accelerating deployment and adoption of broadband to unserved and underserved communities and populations." Among other initiatives, CETF has published a broadband policy guide[7] for local and regional governments.

4.3. Existing San Leandro practice meets or exceeds best practices

In many respects, San Leandro's broadband related policy is consistent with or better than the standards adopted at a state level and elsewhere in California. Particularly, San Leandro has a straightforward process for reviewing proposed projects, conditional use permits and encroachments. For the most part, high technology projects, including broadband infrastructure, tend to be evaluated within traditional planning and operational frameworks on a common sense basis. Staff generally consider high technology uses as having a positive effect on the community while giving due consideration to any specific negative aspects on a timely basis.

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[7] Getting Connected for Economic Prosperity and Quality of Life, California Emerging Technology Fund, October 2010.

Table 4.1 San Leandro policy meets or exceeds best practices

Meets or exceeds best practices	San Leandro Status	Strategy
Delineates the process for ensuring fairness and competition, including transparency, public notice and timetables and deadlines for timely review of any required local permits.	Yes. Broadband related projects handled routinely, standard 3 to 5 month process if a conditional use permit is required. City's work performed on a cost recovery basis.	Consistent with current needs, review when commercial broadband build out is complete.
Accommodates high technology, broadband intensive businesses in zoning ordinances and procedures.	Yes. High tech/broadband not specifically named, but considered routine and covered by existing use definitions.	
Incorporates routine placement of broadband conduit into utility undergrounding programs.	Yes.	No change needed.
Sets forth the process and procedures for preventing and/or mitigating environmental impacts and protecting and/or preserving visual integrity of jurisdiction.	Yes.	
Promulgates procedures to streamline the approval of easement encroachment permits consistent with principles of fairness and competition for all providers.	Yes. Transportation and Engineering Department reviews in a timely manner.	
Makes the use of public assets available to all providers on a competitive basis, commensurate with adopted policies regarding public benefits.	Yes.	
Establishes an ongoing role for the City to play in identifying broadband needs and working proactively with businesses and service providers to meet those needs.	City staff actively engaged, but no formal policy.	
Articulate the interest of the jurisdiction in monitoring the reliability and quality of broadband connectivity in the local jurisdiction and ensuring appropriate speed availability.	Community Development Department plays active and ongoing role.	

One example is the approach, described above, that the City of San Leandro took to a request by AT&T to place more than 100 utility boxes on public right of ways for its Project Lightspeed system upgrade. Although the project was out of the ordinary, standard practices were adapted to the task. The result was a well defined process that minimized uncertainty and efficiently provided answers to the applicant while safeguarding City interests such as public safety and aesthetics.

One area where the City's planning process specifically addresses broadband-related issues involves the review and approval of wireless towers, antennas and related facilities. The City makes a clear distinction between smaller broadband links installed by end users and larger carrier sites that serve the general public, and treats both types of facilities appropriately. The City's policy tends to encourage colocation by multiple carriers and does not impose any significant obstacles to expanding or upgrading wireless broadband availability, while still safeguarding legitimate City concerns such as public safety and aesthetics.

Many of the policy areas where the City meets or exceeds statewide benchmarks involve construction, maintenance and upgrading of broadband facilities, providing the most basic, and consequently most important, support for expansion of commercial broadband access.

4.4. Recommendation 1: formalize broadband-friendly policies

The City of San Leandro's existing policy and practices regarding development of broadband facilities, monitoring broadband availability and issues, and working with telecommunications providers are competitive advantages. Formalizing these practices and promoting them to business relocation and expansion prospects, real estate developers and telecommunications companies will allow the City to maximize the opportunities that those advantages create.

The process followed by the City in approving AT&T's Project Lightspeed upgrade should be considered to be a model for future broadband projects and, along with its current wireless facilities policy and expeditious review process, communicated to service providers as a way of capitalizing on these broadband friendly competitive advantages.

The same should be done with the City's practice of making public facilities available to service providers on a non-discriminatory basis,with its ongoing proactive broadband development efforts within the local business community, with prospective new businesses and with current and prospective telecommunications service providers.

5. Broadband as a Development Policy Component

5.1. Broadband infrastructure standards

The City of San Leandro does not include broadband facilities, such as empty conduit or fiber optic lines, in its review of private development plans or permit applications, for either new construction or major remodeling projects. However, broadband facilities, such as fiber optic lines, are routinely integrated into plans for City projects.

Table 5.1 Broadband infrastructure standards

Broadband facility, construction and development standards	San Leandro Status	Strategy
Sets forth the process and procedures for incorporating broadband into all public infrastructure projects.	No current policy.	Develop a simple and consistent set of broadband facilities and construction standards.
Requires projects to provide broadband connectivity and include the infrastructure components necessary to support broadband.	No current policy.	
Encourages broadband providers to size underground and overhead facilities to accommodate future expansion, changes in technology, and where possible the facilities of other telecommunications and utility providers.	Current policy encourages sharing of tower sites, no policy regarding "future proofing".	
Promotes the provision of broadband infrastructure in all public buildings, major transportation and other infrastructure projects and commercial developments.	Yes, but not formalized into a standing policy.	
Requires all public works projects include broadband conduit to be useable by multiple government agencies.	No current policy.	

On the other hand, the City does have standard practices that encourage improvement of broadband facilities, but not a formal, stated policy. As a result, the City may not always fully realize the opportunities and benefits its broadband friendly policy brings. Table 6.1 identifies broadband-development and planning policy issues that have been addressed in other California communities and statewide. These policy issues affect both public projects and private development.

The most aggressive policies regarding broadband deployment in private developments are usually found in communities where extensive greenfield residential construction is planned. For example, requirements regarding installation of fiber optic trunk lines can be appropriate when a large development involving significant new street construction is concerned, but might not make sense when reviewing a remodel proposal for a single parcel.

Since private construction in San Leandro is infill and redevelopment oriented, it is not appropriate to benchmark broadband policy against the comprehensive approaches adopted by rapidly expanding communities. On the other hand, many specific policies addressing major private sector redevelopment, remodel and infill projects, and telecommunications facilities are applicable. Policies involving publicly funded projects are more universally applicable in nature.

San Leandro's current policies and practices are either consistent with or neutral towards these benchmarks, and do not create an obstacle to deployment or adoption of commercial broadband facilities and service.

Formally addressing some or all of these issues as a matter of policy will allow the City to take long range broadband development goals and cost-benefit calculations into consideration when reviewing or implementing projects. The construction of telecommunications facilities is capital intensive and decisions are based on both short term and long term return on investment.

Explicit and consistent standards for incorporating broadband connectivity into public projects provide telecommunications companies with greater assurance that good investments in infrastructure construction and upgrades can be made prospectively.

Specifying particular review standards relating to broadband access and facilities in private sector projects can increase the regulatory burden placed on prospective businesses and developers. When evaluating these kinds of requirements, the additional, individual burden needs to be weighed against the general economic benefits of better and lower cost broadband infrastructure, reduced street construction and traffic

disruption, and more effective and efficient use of broadband services by local businesses.

Although future demand cannot be guaranteed, the knowledge that a certain standard of broadband connectivity will be predictably met as the City's overall development goals are achieved provides a basis for telecommunications companies to project demand. The greater the confidence in projected demand, the higher a given community will be on corporate capital investment priority lists.

The same considerations apply to public infrastructure investment. Consistently including broadband facilities, such as conduit or lateral connections, into public infrastructure projects can, over time, reduce the cost and the risk of future broadband facilities.

An example is the current Lit San Leandro project which was made possible by the availability of an extensive City-owned conduit network originally installed for traffic signal control purposes. The fact that City construction decisions taken many years ago met the needs of a telecommunications project today was due to planning based on the City's telecommunications needs, which in many ways parallel private development needs. Going forward, the more consistently public infrastructure projects take public and private broadband needs into account, the likelier similar outcomes will be.

5.2. Recommendation 2: make broadband a standard review criterion

As discussed above, many jurisdictions have specific broadband facilities requirements for various aspects of planning and use policies and approval procedures. In this respect, broadband is treated no differently than other essential utilities such as water, electricity and waste water.

Broadband facilities and service availability should be included as criteria when reviewing private sector development plans, much in the same way that the City currently considers electrical and water provisioning. Consideration should be given to:

- Standards or requirements for fiber connections to existing networks.
- Placement of empty conduit to support future network connections.
- Design and scale of telecommunication service entry points, vaults and closets.
- Access opportunities for competitive providers.
- Conduits and cabling for internal networks.
- Accommodation of future internal and external upgrades.

As with other utilities, this review should be appropriate to the type and scale of the project under consideration and should be justifiable on a cost-benefit basis. This review could be advisory in nature or it might lead to specific performance requirements, depending on the size, type and value of a project.

The City should also develop simple and consistent requirements for broadband inclusion in public construction projects in order to reduce the cost and risk of building telecommunications facilities now to meet future demand, and to insure that the City's infrastructure will comprehensively support it.

Telecommunications service providers should be routinely notified of any such planning or review processes, for both private and public sector projects.

6. Comprehensive Open Trench Policy

6.1. Background

Most of the cost of building utilities, including fiber optic lines, in urban areas is related to cutting open streets, placing conduit and repairing the damage done. If projects can be combined, then costs can be shared, damage and disruption minimized and timely deployment can be encouraged.

So-called open trench policies are designed to maximize this opportunity by creating a consistent and reliable procedure for sharing advance information about street cuts and facilitating cooperation between public works projects, utility companies of all kinds and both incumbent and competitive telecommunication service providers.

The intended result is to install telecommunications conduit at a greatly reduced cost and minimize future digs by providing an opportunity to inexpensively install facilities on a cooperative basis. Most of the expense involved in installing underground fiber optic lines is for digging into roadways and repairing the subsequent damage, so opportunities such as these could save money and speed construction.

For example, if a telecommunications company was notified that a water district was digging a trench on a particular route and given an opportunity to place conduit in that trench on a predetermined cost-sharing basis, it might accelerate plans to extend high speed Internet service to that area.

Other open trench policies go further, mandating the installation of empty conduit on a prospective basis any time a street is opened. Ownership of the new, empty conduit is typically in the hands of the public agency that controls the right of way.

As with broadband facility reviews, adding open trench notification procedures to City approval processes has the potential to increase project compliance costs. However, a slight increase in cost for an initial applicant would be offset by any subsequent cost sharing arrangements, and by the significant decrease in cost for potential partners. Taken as a whole, costs should decrease for everyone because over time any given company would realize more cost sharing opportunities than be subject to notification requirements.

6.2. Current status

San Leandro does not have a formal open trench policy, as recommended by Governor Schwarzenegger's executive order and the California Broadband Task Force's 2008

report, and as implemented on a pilot basis by Caltrans. As a matter of practice, the City does routinely install broadband conduit during street construction or other appropriate public works projects, and as a part of its utility undergrounding initiative. However, information about prospectively installed conduit is not systematically collected and made available to interested parties.

Table 6.1 Open trench policy

Open Trench Policy	San Leandro Status	Strategy
Requires and provides a process for notification and information about all major infrastructure and construction projects, including transportation projects and new residential subdivisions, to a shared data base so that broadband and other utility providers have the opportunity to coordinate infrastructure deployment in shared trenches, conduit, poles and towers, and other appurtenances.	No current open trench policy.	Develop an open trench policy for the City, and adapt and include it in any regional or statewide initiatives that develop. Policy should cover notification, and mandatory installation of conduit and, along key corridors, fiber. Also should address sharing of facilities.
Requires conduit space within joint utility trenches for future high speed data transmission systems.	No current policy.	
Requires installation of broadband conduit as a part of any suitable public works project.	Yes. Informal policy.	

6.3. Recommendation 3: adopt a comprehensive open trench policy

A formal notification procedure coordinated with regional and statewide programs should be implemented for street cuts. The goal of placing conduit any time a street or right of way is dug into should be established. Conduit could be installed by telecommunications service providers or the City. The cost of doing so is relatively low, involving staff time and inexpensive materials. Similarly, information regarding construction or upgrading of wireless facilities should be shared widely to encourage joint use.

7. Lateral and System Expansion Opportunities

7.1. Need for new connections

As described in Chapter 2 above, four areas of the City have a particular problem with commercial broadband availability: Downtown San Leandro, the Davis/Doolittle/ Adams tract area, the 880 Industrial Corridor and the Shoreline. Although each of these areas has unique characteristics, there is a common need to build service connections from current and planned fiber routes to businesses.

The City's existing conduit, including that leased by Lit San Leandro, goes through or near three of the four areas (the Shoreline area is the exception). Fiber routes owned by other providers also pass through the three areas (again excluding the Shoreline). In order to fully serve these areas, extensions and lateral connections will have to be built to existing lines.

A proposal to fund construction of lateral connections to the Shoreline, the 880 Indutrial Corridor and the Davis/Doolittle/Adams Tract area has been submitted by the City to the federal Economic Development Administration. The application is currently being evaluated by EDA staff.

Other work could be paid for by service providers, however in the past the providers have not always been able to justify the investment. To assist in identifying opportunities that meet investment goals, junction boxes, empty conduit, splice points and other potential connection points should be mapped. This information, together with the schedule for any planned public works projects in the area and metrics for local businesses, should be presented to potential wholesale and retail service providers to make them aware of opportunities to inexpensively reach new customers.

7.2. Recommendation 4: encourage expansion via cooperative efforts

Promoting the opportunity

Wholesale level "middle mile[8]" companies provide backbone connectivity to "last mile" broadband companies who then provide a managed level of retail Internet service to

[8] "Last mile" refers to infrastructure (e.g. fiber optic lines, distribution boxes, equipment vaults, poles, conduit) that provides broadband service to end users or end- user devices (including households, and businesses). "Middle mile" refers to broadband infrastructure that does not predominantly provide broadband service to end users or to end-user devices, and may include interoffice transport, backhaul, Internet connectivity, or special access. Middle mile facilities are the link between last mile facilities and major interconnection points, such as those that form the core of the Internet.

individual commercial accounts. In some cases, particularly with industrial grade service, last mile connectivity might be provided by a middle mile network. But most businesses customers opt for a packaged solution from a dedicated last mile provider, which could include add-ons such as technical support, connecting equipment and Internet bandwidth.

Many last mile service providers do not own the physical assets, such as DSL or fiber lines, that they use to connect to customers, but instead lease those assets from other companies. In some specific cases, though, a last mile provider might be interested in building short connections or partnering with others to do so, if problems such as middle mile capacity, access to lateral connections, permitting and funding can be addressed.

The California Public Utilities Commission provides broadband availability data, in some cases down to the street level, which can be used to identify need and plan extensions and lateral connections. It can be also be used to support or challenge eligibility for state broadband subsidies.

The City will be in position to provide much of this information and access, and it should be presented as partnership opportunities to both middle and last mile companies. These presentations can be done individually, but group presentations regarding all four under/unserved areas should also be scheduled.

Fiber-to-the-basement

A middle mile provider could potentially build a lateral connection to a multi-tenant building and then the owner, a tenant organization or specialty company could install the internal wiring necessary to distribute Internet service to tenants.

In this model, the owner and/or tenants would be their own last mile provider. The cost of the lateral and internal distribution facilities would be paid directly or indirectly by the property owner, perhaps on a cost sharing basis with other owners. It is possible that such an installation could be used as a hub to provide retail service to nearby businesses and smaller properties, in addition to serving building tenants.

The City can also make use of the fiber strands it is receiving from Lit San Leandro to encourage property owners to initiate fiber-to-the-basement projects.

Interim wireless solutions

Wireless Internet service comes via a variety of methods, including mobile broadband, WiFi, high capacity point-to-point links and lower capacity multipoint, hub-and-spoke systems. It is difficult, if not impossible, to guarantee that all properties in a given area will be reachable, or that if reached, service levels will be acceptable.

However, if there are delays in finding suitable last mile partner(s), an interim multipoint service might be capable of filling a sizable fraction of unmet downtown demand. Although there are other areas of the City where an interim wireless solution could work, it is particularly suited to Downtown San Leandro because of the concentration of smaller businesses that need commercial grade connections and the difficulty existing wireless broadband companies have in reaching them.

One possible business model would be to have businesses pay for their own premise equipment (similar to a fiber-to-the-basement model) and have a last mile company or cooperative organization install the hub equipment and provision service. The City could play a coordinating role in this effort, and might be able to add an incentive by waiving fees if an antenna placement triggers an administrative review or conditional use permit process.

8. Lit San Leandro

In 2011, the City of San Leandro worked closely with a local entrepreneur, Dr. J. Patrick Kennedy, to provide non-exclusive access to city-owned conduit for the purpose of building an 11-mile fiber optic loop through commercial and industrial areas of the City. The agreement reached provides the City with direct benefits, including ownership of a substantial number of dark fibers in the system and potential future revenue. The indirect benefits to local business activity and property values are likely much greater.

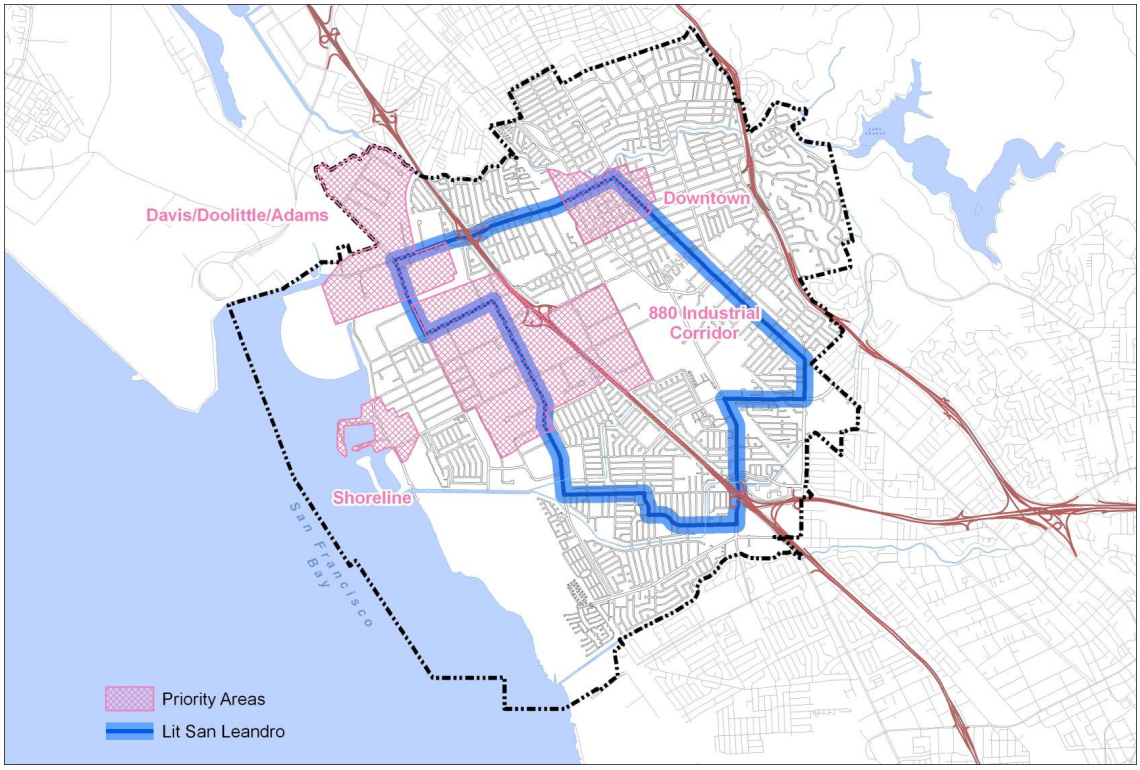


Figure 8.1 Path of Lit San Leandro's dark fiber loop. Construction is underway.

The Lit San Leandro project will provide industrial-grade connectivity directly to companies on or near its route, with two already signing up for service. It will also provide backbone connectivity to commercial-grade Internet service providers, both incumbents and new entrants into the local broadband market. It provides a high level of commercial broadband service availability to San Leandro that few cities can match.

The Lit San Leandro public-private partnership provides opportunities for the City and private businesses to cooperate on expansion efforts aimed at promoting the public good. For example, Lit San Leandro is actively pursuing expansion of its service into the four underserved areas of the City identified in this report. By cooperating with these efforts – or with similar efforts by other service providers – the City can increase

the chances that much needed broadband facilities will be built and be financially successful in the long run.

8.1. Recommendation 5: support Lit San Leandro on a non-discriminatory basis

Because it can generally expand broadband availability in the City and specifically can reach under and unserved properties and enable new kinds of businesses to be established, the Lit San Leandro project has the potential to be a significant economic development driver. It should be supported by the City's business development efforts to the same extent as any other positive, major player in the local economy.

One way for the City to ensure that Lit San Leandro is successful is to cooperate with Dr. Kennedy and other stakeholders (such as the Chamber of Commerce) to target key industry groups that are likely to benefit from this high level of commercial and industrial broadband availability.

Although San Leandro businesses are generally aware of Lit San Leandro and excited by the possibilities it provides, more active outreach efforts will be needed to spread the word to businesses and industry associations outside of the City. Businesses such as advanced manufacturing, medical research, graphic arts, software development, and data management could thrive in San Leandro because of the presence of this fiber loop. The City should work to ensure that these types of industries are made aware of the opportunities Lit San Leandro and other local bandwidth providers create.

However, the Lit San Leandro project will not, by itself, solve all of the City's commercial broadband access problems or be the preferred solution for every potential new business relocation or existing business upgrade. By supporting service providers non-exclusively and at a level appropriate to case by case circumstances, the City will maximize the benefit of its commercial broadband initiatives to all local businesses, including Lit San Leandro.

The agreement with Lit San Leandro will provide the City with up to 28 dark fiber strands throughout the network. Some of this capacity can be used to support City operations, and assist other public agencies. However, a small number of fiber strands will be sufficient for this purpose. The City has the contractual right to re-market its unused strands at its sole discretion, and it should hold these strands in reserve against the possibility that capacity offered by Lit San Leandro or other service providers is unavailable or unsuited for meeting economic development goals.

Whether it is by working cooperatively with the venture or by utilizing the fiber strands it provides, the City can make use of the funding sources described below to assist the development of Lit San Leandro, in the same way it could for other telecommunications service providers.

9. Downtown San Leandro Hotspots

Downtown San Leandro has a higher density of small businesses and a higher amount of foot traffic and retail activity than the other three identified under/unserved areas.

Problematic wireless connectivity was cited in the research conducted for this study as an issue for Downtown San Leandro businesses. Improving public broadband availability can overcome this problem and potentially create a competitive advantage for existing business and an incentive for business considering relocating to Downtown San Leandro.

9.1. Recommendation 6: limited, free WiFi

One solution is to install outdoor WiFi access points at key locations, connect it to existing City fiber or other network infrastructure and offer free, unsupported service. Depending on the type of area and the equipment required, these kinds of hotspots can cost from less than $1,000 to about $6,000 each to build, plus the cost of network access.

Operating costs (exclusive of connectivity) are generally less than $1,000 per location per year, sometimes considerably less. The cost of Internet connectivity could range from a high of around a $1,000 per location per year down to very little, if existing resources such as Lit San Leandro fiber and shared Internet bandwidth could be brought into play.

The City could play several different roles in the project, for example owning and operating it outright, coordinating an opt-in program funded by local merchants or including it in the scope of a public improvement district. Providing fiber connections to hotspots or arranging for Internet bandwidth sharing are other roles the City could play.

10. City Business Assistance Grants

The City of San Leandro has incentive programs that provide small grants and forgivable loans for eligible business projects. Traditionally these programs have been used to support facade improvement projects and energy efficiency projects.

10.1. Recommendation 7: support business connections to broadband services

A broadband connections program should be added to the list of incentives the City offers, in order to assist local businesses in meeting the upfront capital costs of connecting to broadband networks. Doing so will benefit small, medium and large businesses in the short term and improve the long term viability of buildings that will also benefit from improved broadband access.

Making broadband an eligible use of these programs would not necessarily require additional funding if broadband projects were simply included as part of the current budget appropriation.

11. Potential Funding Sources

Although the end of redevelopment agencies in California eliminated an important source of financing for economic development and infrastructure, other federal and state programs offer an opportunity for local agencies to partner with service providers and facilitate access to funds. Some of these programs might provide financial assistance to service providers that want to build facilities to reach under and unserved commercial areas of San Leandro.

1. *Federal economic development programs*. The federal Department of Commerce, through the Economic Development Administration, will partially fund public works projects used for economic development purposes. Broadband projects are theoretically eligible for this funding, and it is ideally suited to funding lateral extensions to under and unserved commercial and industrial areas. As noted above, the City is already pursuing this funding.

2. *California Advanced Services Fund*. The California Legislature has renewed this program and provided the California Public Utilities Commission with an additional $125 million to use in extending broadband service to underserved and unserved areas of the state. Although this program is more commonly thought of in connection with rural areas, it does not preclude urban infill projects. CASF funding is available to telecommunications companies that meet certain requirements for projects in geographical areas that lack defined levels of broadband service. The City can assist companies in applying for this funding by providing and validating information regarding unserved areas, including those areas identified in this study.

4. *Educational broadband programs*. The federal E-rate program provides subsidies to schools and libraries, including funds to upgrade services under certain circumstances. The Corporation for Education Network Initiatives in California (CENIC) funds, builds and manages educational broadband networks in California, including high capacity networks for higher education. Generally, the specific resources funded through these sorts of programs are restricted to use only by qualified schools, libraries and research institutions, but in many cases those specific resources can be purchased from or be made part of a larger project. When lateral construction and other network extensions are planned in San Leandro, consideration should be given to opportunities to link to eligible schools and libraries that might be able to contribute such funds.

5. *Telemedicine programs*. As with educational broadband programs, federal and state agencies provide funding for broadband resources that support telemedicine programs. For example, the California Telehealth Network, based at U.C. Davis, receives federal funding to provide network services to, primarily, rural health care facilities. Typically,

telemedicine programs buy services from existing providers rather than constructing facilities, and can potentially be anchor tenants of new broadband projects. The possibility of tapping into these funds should be considered whenever a health care provider can be served by proposed lateral or other network extensions in San Leandro.

6. *Public agencies as anchor tenants*. Local governments are no different than any other large organization: broadband access is essential and is included, to one extent or another, in budgets. The assumptions that underly many public agency budgets will be changing dramatically in the next few years. In cases where public agencies face rising costs for telecommunications services, it might make more sense to spend information technology and telecommunication budgets on building facilities rather than leasing increasingly expensive services. If a public building is located in (or proposed for) a prospective broadband project area, it might be possible to negotiate a long term lease that provides an assured source of income for the project while saving money for the agency involved.

7. *Public works projects*. If coordinated with service providers through an open trench program, planned street and other improvements create an opportunity to greatly reduce the cost of broadband facility construction. There might be cases where broadband facilities, particularly empty conduit, can be included in project budgets.

Chapter 6. Telecommunications Element

6.4 Goals

T-G1. Deployment and Availability. Communications, including high speed broadband, available to every resident, business, and institution in Humboldt County at a level of service and at price comparable to urban communities.

T-G2. Broadband Access. A broadband internet infrastructure that reliably connects Humboldt to national networks and extends throughout urbanized areas to our most rural communities.

T-G3. New Construction. Broadband service capability integrated into new buildings and developments.

T-G4. Communication Facilities. Orderly planning and appropriate development of communication facilities within the county to achieve reliable access while protecting public health and safety; minimizing visual blight; preserving the county's rural character including protect scenic, natural, and cultural resources.

6.4 Policies

T-P1. Development of Communications Infrastructure and Services. Support the development of communications infrastructure and services to facilitate the use of the best available technology for business, households, and government.

T-P2. Broadband Service Reliability. Support efforts to increase reliability and continuity of service by broadband media and communications providers through market development, installation of redundant infrastructure, diversification of providers, and system modernization.

T-P3. Communications Facility Siting. Design and site all facilities to minimize visibility, visual clutter, and reduce conflicts with surrounding land uses while recognizing that all communities in Humboldt County **should have** access to communication infrastructure.

T-PX Public Education and Government Access. Encourage the expansion of Public, Education and Government access media in all communities in the county.

T-P5. Communications Facilities Within County Rights of Way. Strongly encourage communications service providers to size underground and overhead facilities to accommodate future expansion, changes in technology, and, where possible, the facilities of other communications providers.

T-PX County Right-Of-Way and Net Neutrality. In negotiating franchise agreements and the use of county right-of-ways, the County shall strongly encourage providers to serve underserved communities and to adhere to the principal of net neutrality or unfiltered access to internet information.

T-P6. Telecommuting. Telecommuting and home-based businesses that use internet shall be considered principally permitted accessories to residential uses when operated in compliance with cottage industry performance standards.

T-P7. Broadband Internet. Promote the provision of broadband infrastructure throughout the County.

Chapter 6. Telecommunications Element

T-PX. Local Government Broadband Communications Services. Encourage and support the efforts of community based organizations or community services districts to construct, own, improve, maintain, and operate broadband facilities and to provide broadband services within communities where communications service providers are unwilling or unable to so do.

T-P8. Broadband Internet The County shall support the expansion and delivery of redundant, open broadband internet service throughout the county, and support the use of public resources to serve community anchors such as court houses, schools, libraries, civic and media access centers, public safety and health care facilities.

T-P9. Workforce Development. Continue to work with local businesses and educational and other institutions to identify special communications needs, and to ensure that there are a variety of service providers and training opportunities available to address those needs.

T-P10. Subdivision Improvement Requirements. New residential and commercial development projects shall include the infrastructure components necessary to support modern communication technologies, such as conduit space within joint utility trenches for future high-speed data equipment, and flexible telephone conduit to allow for easy retrofit for high-speed data systems.

T-P11. Joint Telecom Planning. Work with local governments, utilities, schools, medical, communications and other service providers, neighboring counties, tribes, state and federal entities to unify and coordinate communication infrastructure planning on a local, regional, and global basis.

T-P12. E-911. Ensure that the county's broadcast and broadband media using wireless and wireline communications are capable of providing timely emergency information to facilitate rapid and reliable emergency response.

T-P13. Cable Franchise Ordinance. Ensure that the county's cable franchise ordinance is kept up-to-date to deal with the changing nature of federal and state law, as well as the changing nature of communications technology so that the best possible services are available to residents, businesses, community based organizations, educational institutions and other public agencies.

T-P14. Free internet Access Encourage the installation and availability of free public-use broadband services at every County-owned building and other community anchor facilities.

T-P15. Trip Reduction. Encourage communications infrastructure improvements and expansion as a means to reduce transportation impacts and improve air quality.

T-P16. Public Communications Service Providers. Support the provision of broadband communications services by public agencies and community based organizations.

T-P17. Technology Awareness. Promote awareness, innovation and utilization of broadband communications technology by businesses and residents especially for least served people and places.

T-P18. Localism: Promote development of locally owned networks through deployment and utilization of broadband media and communications services in all communities.

Chapter 6. Telecommunications Element

6.5 Standards

T-S1. Communications Siting Standard. Siting of new communications facilities shall comply with standards contained in a Communications Facilities Ordinance that incorporates certain protections for public health and safety, with priority consideration for the goals and policies put forth in the Chapter. The Ordinance may also consider: Community Benefits, Site Co-location, Performance Standards, Tiered Permitting and other issues to be addressed.

A. Tiered Permitting. Utilize permit processes that vary depending upon the physical characteristics of the facility, its location, and its compliance with specific development and performance standards, and provisions for expanded noticing.

B. Performance Standards. Standards for siting design, visibility, construction impacts, noise, on-going operation, and other characteristics that affect the compatibility and environmental and safety impacts of proposed facilities.

C. Site Co-location. When feasible, communications facilities shall be located adjacent to, on, or incorporated into existing or proposed buildings, towers, or other structures. The County shall require new facilities to accommodate future co-location to the maximum extent feasible.

D. Public Health and Safety. Applicants shall demonstrate that proposed facilities operate within Federal Communications Commission (FCC) emission regulations and guidelines including initial and ongoing monitoring for compliance with FCC regulations.

E. Location and Siting.
1) When designing and siting towers screening should be used if possible to minimize visual impacts.
2) Stealth siting methods should be used if possible within views of scenic highways, public parks, cultural facilities and coastal scenic areas.
3) Stealthing and/or setbacks shall be used to ensure community compatibility.
4) An alternatives analysis may be required at the time of application that documents why the project as proposed is the best way to accomplish project alternatives while minimizing project impacts.

F. Design and Screening.
1) Support structures shall be designed to minimize visibility, where appropriate, with a preference towards each of the following in the order so listed: 1) use of existing structures, 2) stealth designs for concealment, and 3) monopoles.
2) Component parts, equipment cabinets, buildings, and security fencing shall be designed to achieve a minimum profile through painting, screening, landscaping, and architectural compatibility with surrounding structures.
3) Photosimulations or balloon tests with views from various vantage points may be required to show visual impact of the proposed facility.

G. Removal of Un-used Facilities. Require the timely removal of communications towers and equipment when they are no longer needed as a condition of approval.

Chapter 6. Telecommunications Element

H. Independent Review. Applicants may be required to pay the cost of independent review to evaluate siting alternatives, necessity based on adequacy of coverage or evaluation of radio frequency emissions in relation to FCC Maximum Permissible Exposure Limits

I. Waiver or Modification of Standards. Allow for a waiver or modification to standards and requirements based on specific findings showing non-detriment and necessity or that strict compliance would result in noncompliance with applicable federal or state law.

6.6 Implementation Measures

T-IM1. Communications Facilities Ordinance. Adopt a Communications Facilities Ordinance that: ensures compatibility of communications facilities with nearby land uses, is proactive in the design and siting of wireless communications facilities, provides incentives for unobtrusive and compatible wireless antennas, and establish clear standards for such facilities.

T-IM2. Broadband Deployment. Revise subdivision regulations to require the provision, where feasible, facilities for broadband communications network deployment.

T-IM3. Improvement Specifications within Road Rights-of-Way. Review the Standard Improvement Specifications for Public Improvements to determine if a location for the placement of conduit for communications use can be designated and to develop safe zones for installing new communications infrastructure.

T-IM4. Communications Infrastructure Inventory. Create and maintain an inventory of communications infrastructure located within and outside public rights-of-way and all existing and proposed communications facilities and their locations in the county, including all available tall structures that could be used for communications antennas.

T-IM5. Public Conduit. Work with other local, state and tribal jurisdictions to develop a standard for installing publicly owned communications conduit as part of capital construction projects.

T- IM6. Ongoing Communications Planning. Prepare and periodically update a communications improvement program based on existing local, countywide, and regional communications planning studies that identifies existing conditions, needed improvements, and funding programs and that establishes criteria for prioritizing projects.

T- IM7.Planning Facility Locations. Establish and utilize wireless and wireline communications siting standards, in coordination with other jurisdictions, to identify areas where future commercial or public communications facilities can be located.

T- IM8. Communications for Under Served Communities. Advocate for and seek grant funding to deliver improved communications to outlying rural areas and other underserved communities. Provide technical assistance to community service districts, other local government jurisdictions and community based organizations interested in offering broadband communications services for public, education and government purposes.

Chapter 6. Telecommunications Element

T- IM9. Broadband Reliability. Advocate for and seek grant funding to support broadband service diversity and redundant network capacity to and from the county.

T- IM10. e-Government. Continuously improve County government's use of broadband communications and digital technology to educate and provide public services with a focus on internet services, geographic information systems, public safety and emergency communications.

T-IM11 Remote Deployment Planning. Seek funding to undertake a study and environmental review to determine appropriate places to deploy wireless communication facilities that would provide reliable coverage to every community within the county. Areas approved in the report should receive expedited and streamlined permitting.

T-IM12 Increasing Public, Educational and Government Access. Work with local, state, tribal and federal governments,-community based organizations and private sector entities to develop, improve, and maintain high quality communications service providing increased community access to affordable, broadband media services for public, education and government purposes.

T-IM13 Communication Marketing. Market the County to the outside world as a tech-aware place to live and work.

T-IM14. Live interactive remote of public meetings. Seek funding and deploy live remote coverage of public meetings to communities without access to public, education, and government channels.

T-IM15. Research Possible Monitoring Policy. Support community workshops to discuss the issue of monitoring radiation outputs from wireless equipment.

CETF

CALIFORNIA EMERGING TECHNOLOGY FUND

Getting Connected for Economic Prosperity and Quality of Life

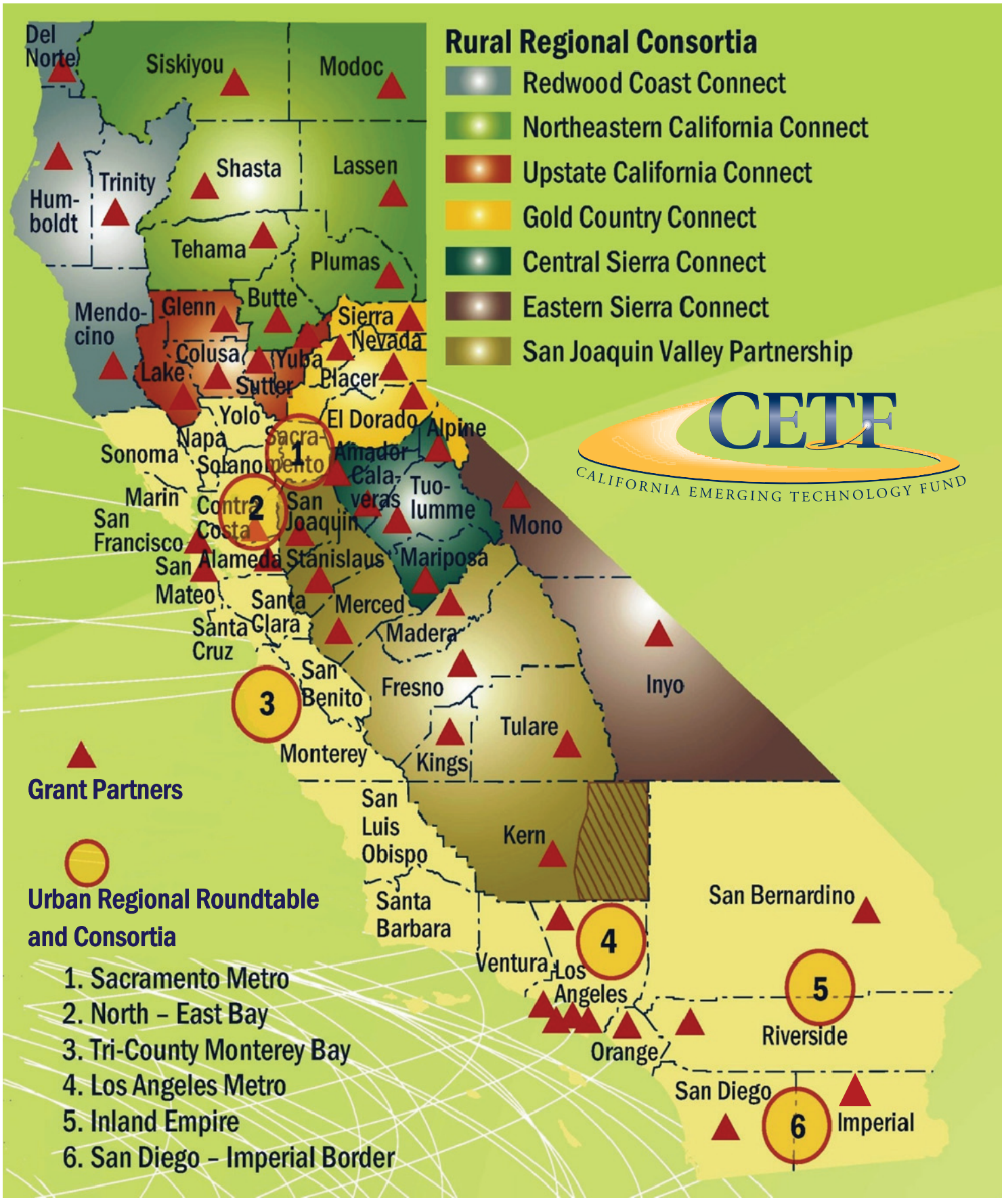
A Resource Guide for

Local and Regional Government Leaders to Promote Broadband Deployment and Adoption

GETCONNECTED!

Your Life Made Easier

Regional Consortia and Civic Leaders Join Forces to Close the Digital Divide



FOREWORD

The California Emerging Technology Fund (CETF) recognizes that local and regional governments can have substantial impact on the deployment and adoption of broadband (high-speed Internet access and use) through many leadership roles. The purpose of *Getting Connected for Economic Prosperity and Quality of Life: A Resource Guide for Local and Regional Government Leaders* is to provide information and examples from local jurisdictions to assist local and regional government officials in the promulgation of policies that will facilitate the deployment and adoption of broadband if they determine that it is a priority for their local communities. This *Resource Guide* is intended to support voluntary leadership of local and regional government officials. It was prepared in partnership with the Center for a New Orange County. CETF is grateful to the California State Association of Counties, League of California Cities, Regional Council of Rural Counties, and the California Redevelopment Association for helping gather information and obtain input.

It is recognized that closing the Digital Divide and achieving ubiquitous broadband in California require a comprehensive, multi-faceted strategy. And, while local and regional governments have direct control over certain functions that impact broadband and can have significant influence on other activities that affect the pace at which California achieves these goals, they cannot do it alone and must have the support of an overall action plan that is pursued by the state and federal governments. The release of the National Broadband Plan makes this *Resource Guide* very timely for local and regional government officials to optimize their leadership roles in closing the Digital Divide.

CETF is implementing a comprehensive Strategic Action Plan in partnership with the State of California, California Public Utilities Commission (CPUC), and other major stakeholders that includes other programs to help close the Digital Divide that will augment leadership from local and regional policymakers, such as: raising public awareness about the benefits of broadband technology (*Get Connected!*); increasing Digital Literacy and getting computers and broadband connections into the hands and homes of all students in low-performing middle schools (School2Home); and assisting Rural and Urban Regional Consortia attract capital investment for broadband infrastructure in unserved and underserved areas (Demand Aggregation Projects and the California Advanced Services Fund established by the CPUC and authorized by the Legislature). CETF also has worked with other partners to analyze and compare government-led wireless projects. Thus, this document does not address those matters. Please visit the CETF website (www.cetfund.org) for additional information.

We appreciate your interest and look forward to working with you to "get connected for economic prosperity and quality of life" in your community and to close the Digital Divide in California.

Sunne Wright McPeak
President and CEO
California Emerging Technology Fund

October 2010

FOREWORD

Welcome to the *Resource Guide for Local and Regional Government Leaders*. This report provides a roadmap for local communities to adopt policies to facilitate broadband deployment for high-speed Internet access. Enhancing broadband connectivity is essential for economic competitiveness and quality of life in the 21st Century. Closing the "Digital Divide"—making broadband available everywhere for businesses and residents and enabling digital technologies to become part of our community's and region's infrastructure—is as important as efficient transportation systems, reliable electric power, and clean tap water. However, the United States has fallen behind international competitors in broadband deployment despite national calls to restore America's place as a technology leader.

The California Emerging Technology Fund partnered with the Center for New Orange County to research the state of broadband deployment and adoption throughout California and to engage a spectrum of experts and stakeholders, including. This resulted in a report available online, from which this *Resource Guide* is derived. Stakeholders agreed that increased broadband deployment and adoption rates were an essential strategy for improving digital literacy that would help people access education tools and government services, improve their health care, and expand businesses.

The Center for a New Orange County's goal is to promote state-of-the-art infrastructure throughout California. The research findings regarding broadband deployment and adoption reveal encouraging progress taking place at local and regional levels. A host of innovations are helping to connect communities with schools, health facilities with patients, and identifying a more thorough understanding of the current and future barriers to broadband infrastructure development. One stumbling block to implementation of such efforts is the lack of understanding about what local and regional governments can do to encourage and facilitate broadband deployment. This *Resource Guide* seeks to address the gap that exists between lofty visions and the current reality for local jurisdictions and regions across California. It presents examples and analyses of what is being done around the state and provides a sample policy that can be adapted and modified to meet the particular needs of any jurisdiction.

The Center for a New Orange County is delighted to have partnered with the California Emerging Technology Fund (CETF) on this project and is grateful to an outstanding advisory group of experts and stakeholders. CETF is dedicated to closing the Digital Divide in California and is pursuing this mission with focus and diligence. The CETF Directors and staff are to be commended for their hard word. But, the goal will be achieved only if local and regional leaders also are strategically engaged. By understanding the broadband best practices and sample policies highlighted in this *Resource Guide*, policymakers and elected officials have the tools to consider how best to help their communities prosper in the digital age.

Wallace Walrod
President and CEO
Center for a New Orange County

October 2010

Getting Connected for Economic Prosperity and Quality of Life
A Resource Guide for Local and Regional Government Leaders

Broadband: Digital Pathway to Economic Prosperity

Our ability to connect through high-speed Internet access—referred to generically as "broadband"—is improving our lives in many ways—helping us share information and images, research and apply for jobs, stay in touch with loved ones, and access entertainment and news. Broadband saves consumers time and money, increases productivity in the economy, and reduces impacts on the environment. Broadband is essential 21st Century infrastructure in a digital world and global economy. It is vital to the economic prosperity of every community and the quality of life for all residents. And, it is a "green" strategy to shrink our carbon footprint.

"Identify where you want to go, get the community buy-in, and drive all action to accomplish the goals. Establish policy that does not allow your jurisdiction to say 'no'."
Supervisor David Finigan, Del Norte County, Past Chairman, Regional Council of Rural Counties

Persistent Digital Divide

A significant Digital Divide persists in California manifested by substantial differences among population groups and regions in the use of broadband. For example, only 49% lower-income households (under $40,000 annually), 50% of Latino families, and 55% people with disabilities have a broadband connection at home compared to 70% of all adults statewide and 94% of all higher-income households ($80,000 or more annually). Many rural and remote communities have no access at all and there are great variations among regions, with 64% of the Central Valley residents having a home broadband connection versus 79% in the Bay Area. This gap among regions and socio-economic segments of the population is referred to as the Digital Divide.

Progress Is Being Made

Overall, the trends are encouraging as evidenced by the changes between 2008 and 2010 in the statewide survey conducted by the Public Policy Institute of California (PPIC) that is co-sponsored by the California Emerging Technology Fund and ZeroDivide. In addition, the California Public Utility Commission (CPUC) has approved broadband infrastructure applications to the California Advanced Services Fund (CASF) that have the potential to reach about half of the currently underserved households in California if federal economic stimulus funds are awarded. The graphs show both the progress to date and the projected timeline paths to success in closing the Digital Divide. The goal is to reach 98% of all residences with broadband and to achieve 80% adoption statewide by 2015 in order to remain globally competitive. Local and regional leadership is needed to achieve the goal.

"We know that broadband is our future and we need to focus our limited resources to get the most benefit for our constituents."
Supervisor Judy Morris, Trinity County

Economic and Environmental Benefits

Broadband has many economic and environment benefits for local jurisdictions and the state overall. Broadband enhances the economy by spurring job generation and improving business efficiencies which attracts capital investment. The use of broadband for telecommuting, teleconferencing, obtaining information, researching products, and avoiding the use of paper significantly reduces impacts to the environment.

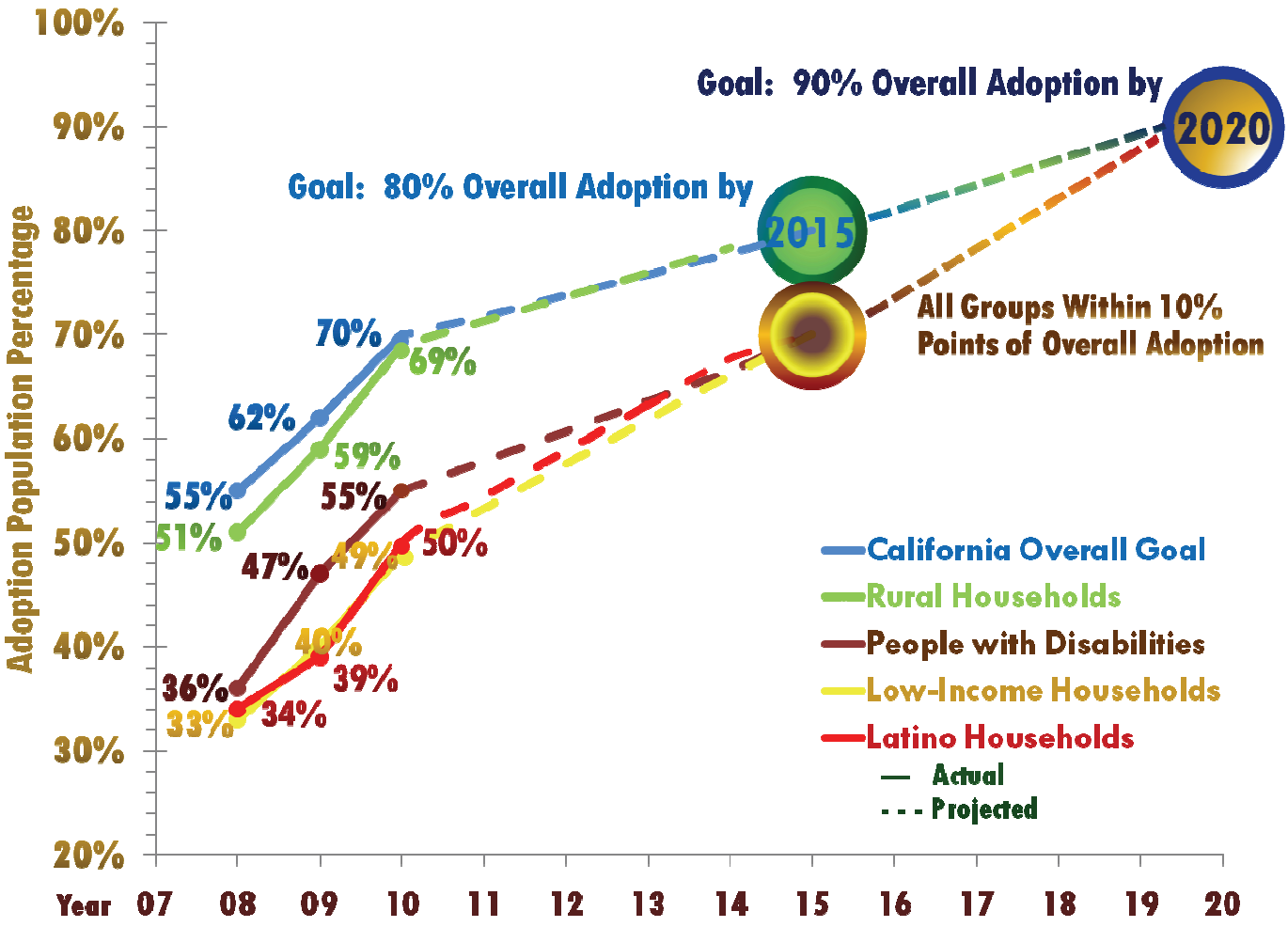
Economic Benefits of Broadband – Quick Facts

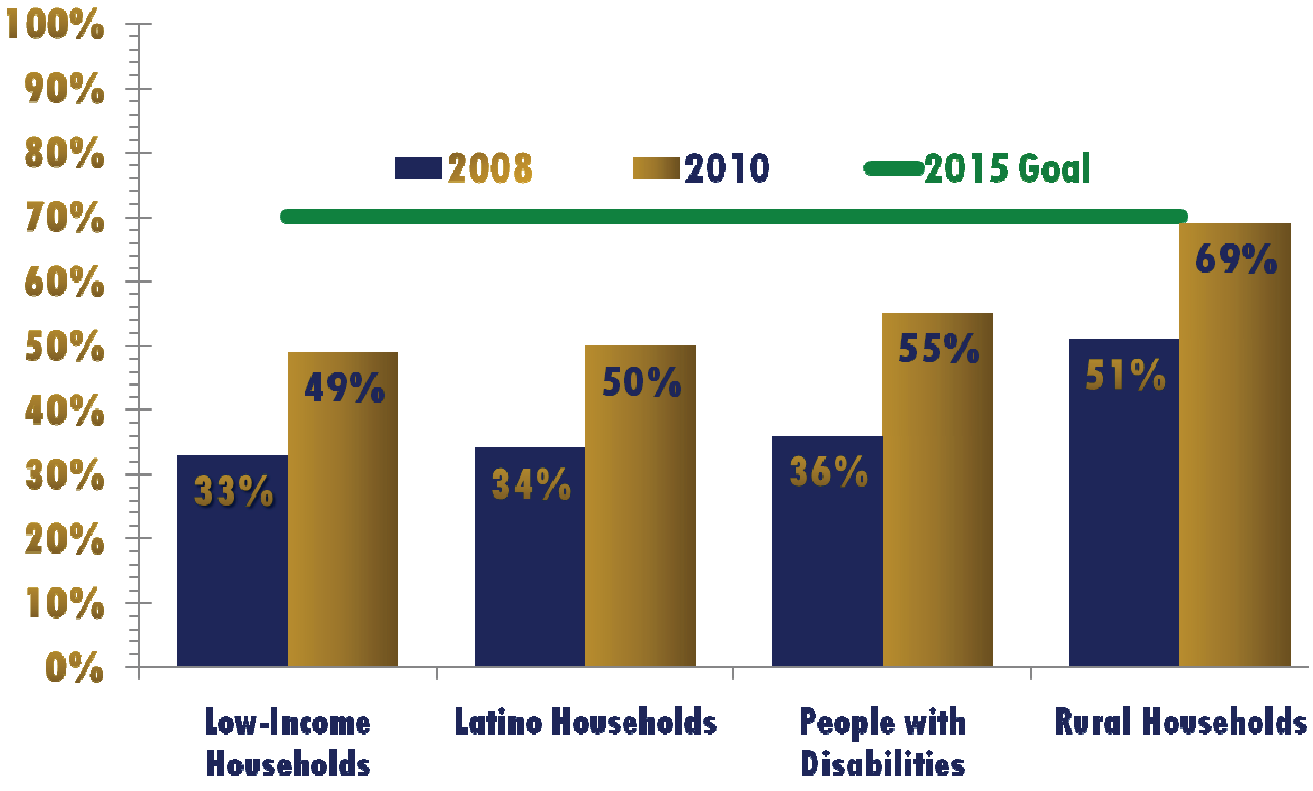
- Communities that gain access to broadband service experience an employment increase of 1-1.4 percentage points and increases in rental value of up to 6 percentage points. [U.S. Department of Commerce, 2006]
- For every $1 U.S. consumers spend online, information available on the Internet influences a further $3.45 spent in stores. Broadband leads to well-informed purchase decisions, travel reduction by pre-locating the product, and facilitating cost comparisons between vendors. [eMarketer, 2008]
- From 1998 to 2002 communities with mass-market broadband service experienced greater growth in overall employment, an increase in the total number of businesses, and more IT-intensive businesses than communities without broadband service. [33rd Research Conference on Communication, Information and Internet Policy, 2006]
- Broadband contributed 198,000 jobs and $11.6 billion to the California economy 2002-2005. Over the next decade, it is estimated that broadband if aggressively deployed and adopted could generate 1.8 million jobs and contribute $132 million payroll above the baseline. [Sacramento Regional Research Institute, 2008]
- Live videoconferencing at 115 health facilities reduced the cost of follow-up care by 42% and reduced overall costs by 6%. [California HealthCare Foundation, 2008]

Environmental Benefits of Broadband – Quick Facts

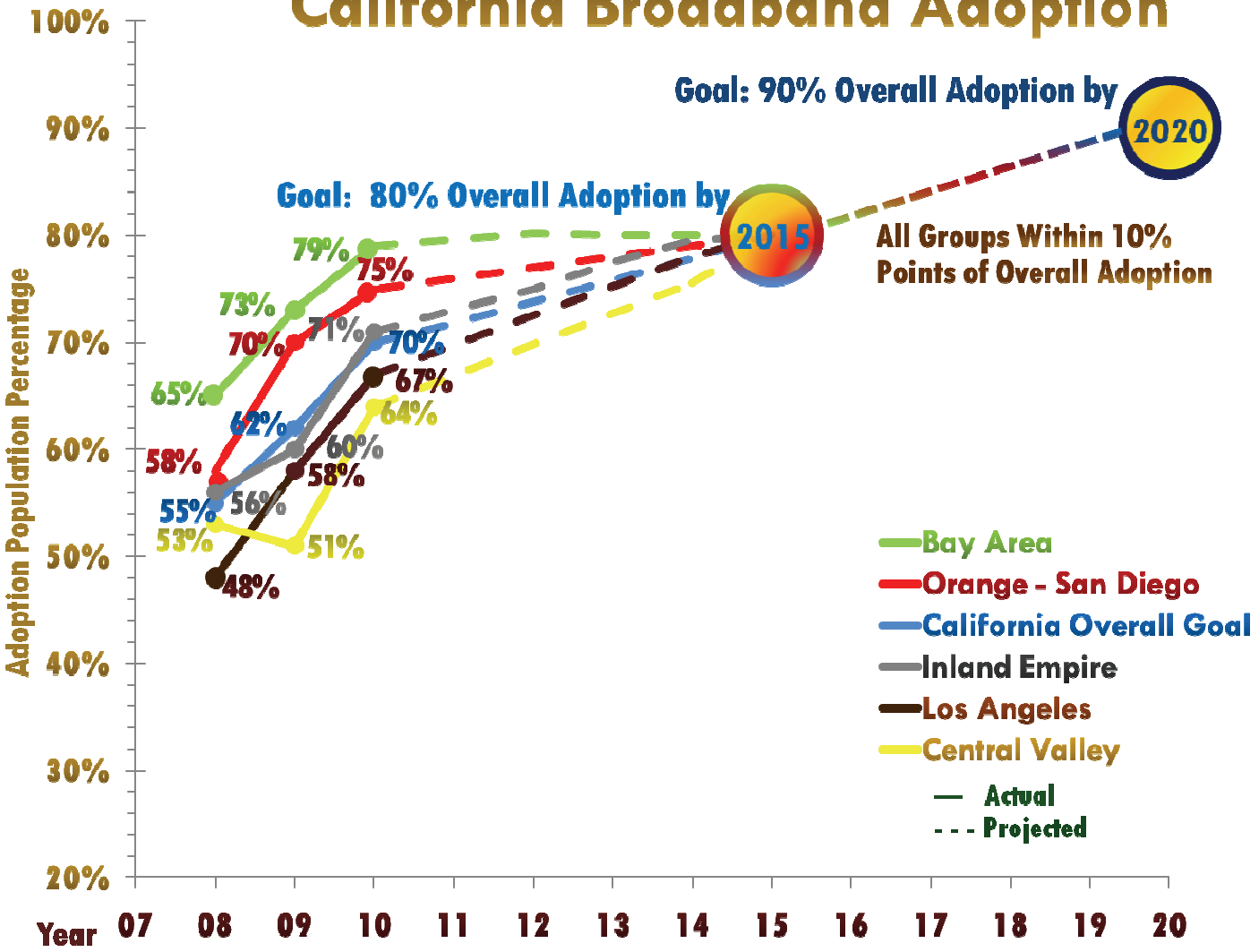
- Broadband deployment and adoption has the potential to reduce greenhouse gas emissions by more than 1.1 billion tons over the next 10 years. Of these reductions, 60% was a direct result of telecommuting efficiencies, 18% from electronic commerce simplifying business processes and distribution, 17% from teleconferencing replacing meetings, and 5% from electronic media replacing paper and/or plastic products. The potential greenhouse gas reduction is equivalent in emission savings to a decrease of 11% of U.S. oil imports. [The American Consumer Institute, 2007]
- Electronic commerce, as compared to conventional shopping, generates 36% less air pollutants, 23% less hazardous waste, and 9% less greenhouse gases. [Institute of Electrical and Electronics Engineers, 2001 International Symposium on Electronics and the Environment]
- Electronic grocery shopping with e-delivery generates 18% to 87% less greenhouse gases than conventional grocery shopping. [Institute of Electrical and Electronics Engineers, 2001 International Symposium on Electronics and the Environment]

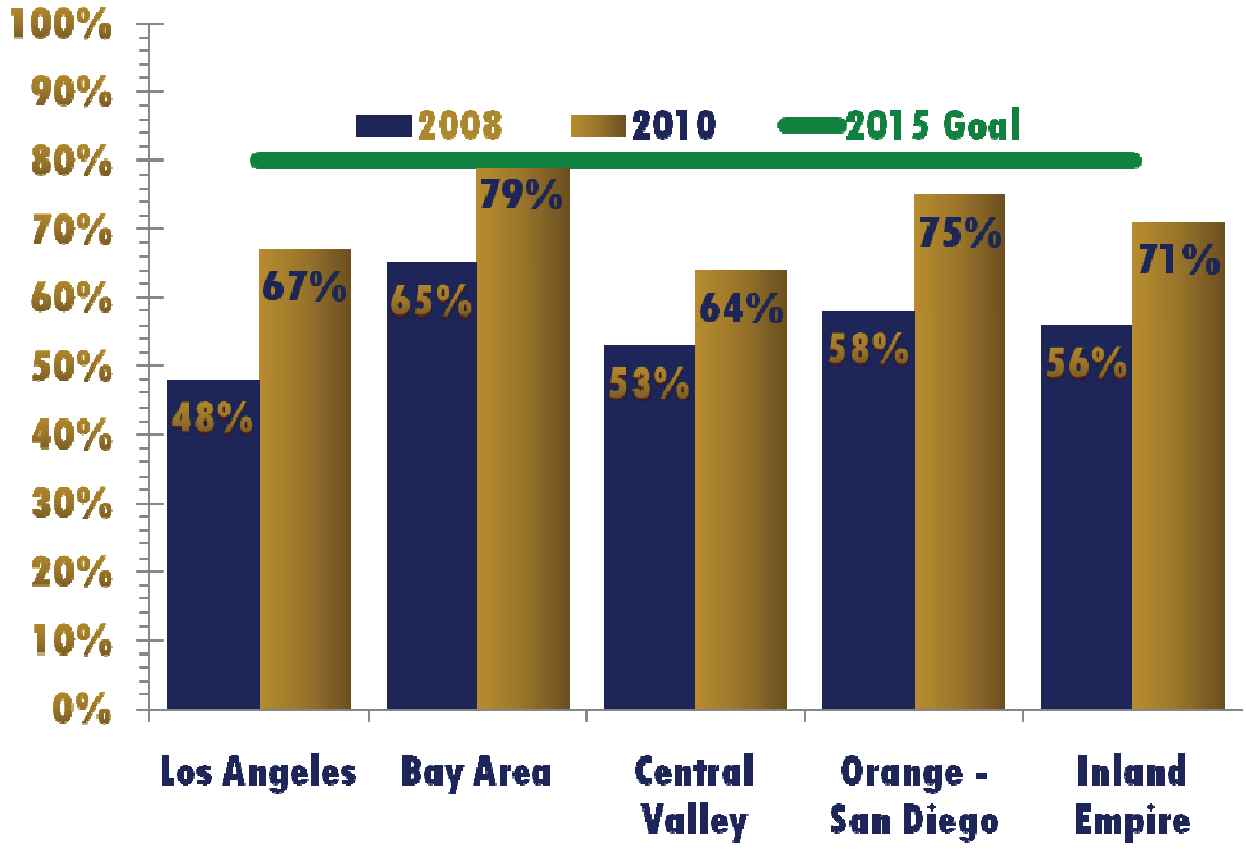
California Broadband Adoption





California Broadband Adoption





Roles of Local and Regional Governments

Local and regional government officials can have substantial impact on the deployment and adoption of broadband (high-speed Internet access and use) through their many leadership roles: (1) policy leaders; (2) planners; (3) regulators (particularly of land use); (4) consumers; and (5) service providers. These roles are embedded in the elected governing city councils and boards of supervisors, whether or not the jurisdictions appoint specific staff to function in these roles.

"In our community, adopting policies and programs which provide access to the Internet and broadband technology is not only a priority, but a necessity to our current and future socio-economic survivability."
Councilmember Deborah Robertson, City of Rialto, League of California Cities Committee Chair

"This is the wave of the future. Broadband services are vital to the economic well-being of Lake County going forward. Highspeed internet access enables our citizens to create our local economy and grow our community well-being by connecting us with each other. It also provides our lifeline to critical markets, information and services outside our area."
Supervisor Denise Rushing, Lake County

As policy leaders, local and regional governments drive the promulgation of policies and ordinances, responding to and protecting the public interest as expressed by constituents. They also implement the laws adopted by state and national governments, thus, defining the mindset regarding whether or not a local jurisdiction welcomes and facilitates investment in broadband. As planners, they prepare land use and other related plans that guide the development in their communities, thus determining "how smart" growth will be and defining the quality of life for the future. As regulators, they study and approve land uses and are in a pivotal position to require "smart" infrastructure and facilities as they approve land use projects. As consumers, local and regional governments purchase technology which, in turn, drives demand for broadband technology and services. And, as service providers, they direct whether or not broadband is integrated into government functions and used to provide information and access to public services online, thus encouraging broadband adoption. Local and regional governments in each of these roles have significant impacts on the deployment and adoption of broadband technology; each role presents an opportunity to encourage or inhibit consumer behavior regarding broadband and private-sector investment in the technology. The actions in each role determine whether or not their local community, region and California as a whole will be a global leader.

"The Internet is a way of life. In order to get a job, information about education, or important information from government, you need to be online with high speed Internet."
Councilmember José Huizar, City of Los Angeles

"It is important to include broadband as a policy priority in discussing other issues with state and federal elected representatives. It is strategic to integrate broadband deployment into all infrastructure projects."
Supervisor Jim Cook, Siskiyou County

"Prior to Mono County integrating broadband into our General Plan and tract map requirements, there were concerns expressed that the private sector might resist our efforts. As it turns out, our developers embraced it and used high-speed Internet access as a valuable marketing tool."
Supervisor Duane "Hap" Hazard, Mono County

Prospective Roles of Local Government Related to Broadband Deployment and Adoption

- Policy Leader: Promulgate policies that determine the jurisdiction's attention and attitude about broadband technology and defines the approach to facilitating or discouraging capital investment in deployment and adoption by residents.
  - Declare broadband as essential 21st century infrastructure to enhance economic global competitiveness, improve productivity, decrease impacts on the environment, increase opportunities for residents, and augment quality of life.
  - Commit to helping close the Digital Divide and promote Digital Inclusion.
  - Set an example for other agencies and employers, such as developing a program for telecommuting employees or recycling computers for non-profits or low-income families.
  - Designate a responsible person or agency for implementing the jurisdiction's policies, plans and ordinances related to broadband deployment and adoption.
  - Appoint as appropriate residents to advise the elected officials and policymakers.
- Planner: Prepare land use and other related plans (such as for economic development) that guide the development in their jurisdiction, thus determining "how smart" growth will be and defining quality of life for residents.
  - Incorporate the need and preference for broadband into general plans as a separate element and/or into all the relevant elements, such as economic development, circulation (transportation and mobility), housing and environment.
  - Promote broadband as part of "smart" (anti-dumb) growth and facilities and develop specific implementation plans.
  - Monitor broadband deployment and adoption in the local jurisdiction and update relevant plans to ensure infrastructure is adequate for future applications and consumer demand.
- Regulator: Adopt implementing ordinances for policies and plans that promote "smart" infrastructure and facilities.
  - Adopt ordinances to facilitate and streamline the approval of permits to use rights of way or public facilities consistent with principles of fairness and competition.
  - Analyze and approve land uses and construction permits that require "smart" infrastructure and facilities.
- Consumer: Purchase and utilize technology which can enable residents to access information and services, increasing demand for the technology and encouraging innovation and competition to develop new applications that will increase productivity.
  - Develop and adopt a technology plan for the jurisdiction that utilizes state-of-art equipment and software to improve internal government functions and to enable residents to use broadband.
  - Establish a process to monitor technology innovations and application trends along with a process to regularly update the technology plan.
  - Consider joint ventures or collaborative with other local governments in purchasing equipment and utilizing broadband technology.
- Service Provider: Provide information and services online through broadband that increases the relevance of the technology to consumers, which encourages adoption and reduces impacts on the environment.
  - Provide online all policies, plans, ordinances, and information about the jurisdiction.
  - Facilitate real-time online participation of residents in all public meetings.
  - Establish online public forums and mechanisms (email, surveys, exchange of views) to increase civic engagement and participation.
  - Report online data about the jurisdiction to inform the public and increase transparency.
  - Deliver online as many public services as possible to decrease trips and reduce impacts on the environment.

Leadership is Key

Leadership is key to closing the Digital Divide in California. In a few short years, California has emerged as a national leader in promoting the deployment and adoption of broadband. To be sure, there have been visionary government, community, business and labor leaders who have been trailblazers for ubiquitous connectivity harnessing telecommunications and information technology to improve economic competitiveness and quality of life. Their efforts provided a foundation for the convergence of several actions that have given rise to California's recent prominence: the Governor with the support of the Legislature appointed the California Broadband Task Force in 2007 which issued a Final Report in 2008 titled *The State of Connectivity: Building Innovation Through Broadband*; the California Public Utilities Commission (CPUC) in 2005 directed the founding of the California Emerging Technology Fund (CETF) which became operational in 2007; the CPUC with the support of the Legislature created the California Advanced Services Fund (CASF) in 2008 to assist in the deployment of broadband to unserved and underserved communities; the Governor issued an Executive Order on Digital Literacy in 2009; and the Legislature approved legislation in 2010 to extend and expand the CASF and to establish the California Broadband Council to ensure continued focus and leadership for broadband. It is now pivotal that local and regional officials embrace a larger leadership role to accelerate the deployment and adoption of broadband.

Local Leaders Provide Valuable Experience

Several local governments have been pioneers in adopting policies and ordinances to plan for and promote broadband. The experience of 8 jurisdictions—2 counties and 6 cities—was examined as case studies to identify: (a) purposes and justifications; and (b) key objectives and implementation strategies. The most frequently cited purposes are listed below along with an explanation. Attached is a Summary of the Case Studies. Also included is a Summary of Example Policies and Ordinances from California Local Governments.

Local Government Frequently Cited Purposes for Adoption of Broadband Policy

Purpose	Explanation
Critical Infrastructure	Plan for and facilitate deployment of broadband as vital 21st century infrastructure, comparable with other essential infrastructure such as water, sewer, and transportation needed for economic development.
Economic Development and Prosperity	Increase capital investment and job generation by harnessing the increased productivity derived from broadband.
Telecommuting and Quality of Life	Reduce the environmental impact of transportation, improve quality of life, and gain associated economic benefits.
Public Security and Safety	Increase the effectiveness of emergency response, law enforcement, and other public security and safety services.
Public Services	Promote online access to government services and functions.
Public Interest and Education	Enable educational institutions to take full advantage of the teaching and learning benefits of broadband.
Digital Inclusion	Provide all residents the means and opportunity to access broadband infrastructure and enjoy the benefits of increased connectivity.

Examples of Policy Components

The matrix below describes possible key components for a broadband policy (with appropriate implementing ordinance provisions) as a framework to invite and organize public and stakeholder input and feedback. One way to consider the difference between policies and ordinances is to think of a policy as setting forth the "what and why" and an ordinance as delineating the "how, when and who" of a governmental law or regulation. Of course, a local government may rely solely upon policies to guide the jurisdiction's actions without an accompanying ordinance(s).

Policy Component (What, Why)	**Ordinance Implementing Provision** (How, When, Who)
Preface	***Introduction***
State Importance of Broadband Connectivity to Global Competitiveness (Economic Prosperity, Environmental Quality and Quality of Life)	Reaffirm Importance of Broadband Connectivity to Global Competitiveness (Economic Prosperity, Environmental Quality and Quality of Life)
Delineate Roles and Responsibilities of Local (or Regional) Government: Policy Leader; Planner; Regulator; Consumer; and Service Provider	Acknowledge the inter-relationships of the Roles and Responsibilities and a description of the context and focus of the ordinance.
Components	***Provisions***
1. Broadband Connectivity as Vital to 21st Century Competitiveness, Economic Prosperity and Quality of Life	1. State how the jurisdiction will set forth the policy and into which existing other policies, rules, regulations it will be incorporated.
2. Broadband as a Strategy to Promote and Protect Environmental Quality (reduction of carbon emissions and saving energy)	2. Identify the opportunities for improving environmental quality through broadband. Perhaps reference responsibility for laws to promote sustainability, decrease air pollution and greenhouse gas emissions, and minimize the carbon footprint.
3. Facilitation of Infrastructure Development	3. Set forth the process and procedures for incorporating broadband into all infrastructure projects. Delineate timetables and deadlines.
4. Support for Smart Infrastructure and Connected Communities	4. Specify "smart building" requirements for land use and construction permits for all projects (public, commercial, residential, industrial).
5. Protection for Environmental Quality and Visual Aesthetics	5. Set forth the process and procedures for preventing and/or mitigating environmental impacts and protecting and/or preserving visual integrity of jurisdiction.
6. Commitment to Fairness and Competition	6. Delineate the process for ensuring fairness and competition, including transparency, public notice and timetables and deadlines for timely review of any required local permits.
7. Adequate Capacity and Transmission Speeds for Increasing Consumer Demand	7. Articulate the interest of the jurisdiction in monitoring the reliability and quality of broadband connectivity in the local jurisdiction and ensuring appropriate speed availability.
8. Efficiency of Government Operations and Delivery of Services	8. Direct how government operations and services are to be provided online and how the jurisdiction is to notify the public.

9. Public Safety and Emergency Communications	9. Delineate actions to optimize the use of broadband for public safety and emergency communications.
10. Commitment to Digital Inclusion	10. Set forth steps to promote Digital Inclusion, especially for unserved, underserved, and disadvantaged neighborhoods.
11. Civic Engagement and Citizen Involvement (Education about Services)	11. Direct how government information and meetings will optimize the use of broadband.
12. Designation of Responsible Leadership and Management	12. Appoint a Broadband and Information Technology Coordinator.
13. Requirements for Data and Accountability	13. Delineate the requirements for data and how information is to be compiled for use by the government and public.
14. Inter-Agency Collaboration and Inter-Jurisdictional Cooperation	14. Outline the process for ensuring inter-agency and inter-jurisdictional cooperation.
15. Other	15. Related implementation action.

"We are extremely proud of Riverside's Digital Inclusion program which, under the leadership of Steve Reneker and SmartRiverside, has already provided free computers, training, and internet access for 5,000 low income families. And we know that so many cities across the state also strive to provide high speed internet access and services to help bridge the Digital Divide for their residents; it cannot be overstated how important it is to provide best practice models for others to follow."
Mayor Ronald O. Loveridge, City of Riverside

Opportunities for Policy Adoption

A local or regional government may decide to initiative a leadership role in closing the Digital Divide with the adoption of a resolution (such as the enclosed sample *Get Connected!* resolution and "call to action") or it may adopt a stand-alone policy to promote broadband deployment and adoption (such as the enclose sample policy). The adoption of a resolution or policy may be followed by the promulgation of an implementing ordinance(s).

A local jurisdiction also may decide to incorporate broadband policy into other foundational governing and planning documents, such as the General Plan, Specific Plan(s), Redevelopment Agency Plan(s), Community Sustainability Plans, and Emergency Response Plan(s). The enclosed sample policy is suitable for incorporation into all of these kinds of documents. The effectiveness of policy can be enhanced by ensuring that all foundational governing documents are aligned to the jurisdiction's priorities and consistent with one another.

"Broadband was once considered an optional amenity, but it has become an essential and indispensable necessity. Every aspect of our lives is increasingly dependent upon a reliable internet backbone, including our businesses, schools, libraries, health care and public safety. Humboldt County is including a Telecommunications Element in our new General Plan to treat broadband as essential infrastructure, just like roads, sewer, water or electricity."
Supervisor Mark Lovelace, Humboldt County

"Local leaders have done an excellent job in building critical community infrastructures such as roads, water, sewer and electricity. They need to take this same approach and responsibility with their community's digital "highway" broadband infrastructure. Today's modern, vibrant, and economically sustainable communities need broadband infrastructure as much as they need other core infrastructures. Broadband fosters economic, cultural, educational and civic engagement opportunities. Local leaders need to actively and passionately pursue broadband development in their communities; else their communities will feel a similar effect as when new highway construction bypassed towns in the past, leaving them to wither away as the new highway took economic and quality of life opportunities elsewhere. There is much local leaders can do to promote broadband infrastructure in their community and the CETF's model policies report is a great resource to get started with."
Stephen T. Monaghan, Chief Information Officer, Nevada County

Public Awareness and Education: *Get Connected!*

The California Emerging Technology Fund developed and launched *Get Connected!* to raise overall awareness about the benefits of broadband as a foundation and support for all other strategic actions. The initial 2-year goal was to increase adoption among low-income and Latino households statewide by 10 percentage points. That goal was met and exceeded. But, there is much more work to be done to close the Digital Divide. Local and regional government leaders can take action to raise public awareness and educate constituents: convene forums to discuss the importance of broadband and digital literacy; organize a Community Connect Fair to bring resources to residents; and sponsor public service announcements on the local government or community access channels (pre-produced *Get Connected!* radio and television spots are available in multiple languages ready for adding a sponsor's name and tagline). The *Get Connected!* website (GetConnectedToday.com) is an excellent resource in multiple languages (especially for libraries, community computer centers, and school activities for parents) to help non-users learn the basics about computers and broadband. It also provides additional public information tools for policymakers and civic leaders.

"In Riverside we started to work on the Digital Inclusion Program by providing residents with computer-literacy training, a refurbished computer, and Internet at home. There is a need to gather and share best practices to develop Digital Inclusion programs that help reach scale statewide."
Steve Reneker, Chief Information Officer, City of Riverside (Smart Riverside)

"Broadband access is extremely important to the future of our local economy. It's particularly important to those of us in rural areas who are working hard to create new jobs without negatively impacting our natural environment or quality of life. It truly is the key to our economic future. It's also an important tool used by County government in our delivery of services to the public—everything from our County libraries to public health programs can benefit from broadband."
Kelly Cox, County Administrative Officer, Lake County

"Local elected officials have become visionary trailblazers in advocating for broadband. That makes a big difference in elevating the needs of our residents to get high-speed Internet service."
Gregg Jacob, IT Manager, Tuolumne County

SAMPLE RESOLUTION

[Name of Local Government]

Get Connected!

Declaration of Support for *Get Connected!* and a Call to Action

WHEREAS, closing the Digital Divide is vital to the economic prosperity and quality of life for residents in [Name of Local Government] and throughout California.

WHEREAS, [Name of Local Government] finds and declares that high-speed Internet access—referred to generically as "broadband" and including both wireline and wireless technologies—is essential 21st Century infrastructure in a digital world and global economy.

WHEREAS, [Name of Local Government] recognizes that California is home to a wellspring of innovation that has given rise to the evolution of broadband and other information technologies, however Californians' adoption and use of broadband technology is only approximately equivalent to the national average.

WHEREAS, [Name of Local Government] acknowledges that in 2010 that 30% of all Californians, 51% of low-income households, 50% of Latino families, 45% of people with disabilities, [and estimated percentage of residents in local jurisdiction or region] are not connected to the Internet with broadband, leaving more than 10 million Californians without high-speed Internet access at home.

WHEREAS, [Name of Local Government] is committed to helping families and children be healthy, productive and self-sufficient and realizes that the use of broadband can save both time and money for residents while helping them bridge the economic divide.

WHEREAS, [Name of Local Government] is committed to helping students obtain the highest-quality education possible incorporating digital literacy and understands that high-speed Internet connectivity and the availability of computing devices both at school and at home are critical teaching and learning tools for academic achievement.

WHEREAS, [Name of Local Government] is committed to reducing its carbon footprint and recognizes that broadband is a strategic "green" technology that decreases greenhouse gas emissions and dependence on foreign oil by enabling e-government and the provision of more services online.

WHEREAS, [Name of Local Government] is committed to Digital Inclusion and increasing citizen participation in the public process through expanded engagement using broadband.

WHEREAS, [Name of Local Government] recognizes that it has the opportunity to impact broadband deployment and adoption in its several local government roles and responsibilities, including as a policy leader, planning body, land use approval agency, purchaser-consumer of communications equipment and information technology, and a service provider.

WHEREAS, [Name of Local Government] welcomes the opportunity to partner with the California Emerging Technology Fund along with the Governor, Legislature, other local governments, civic leaders, community organizations, employers, labor representatives, educators, and policymakers to encourage adoption of broadband technology.

NOW, THEREFORE, BE IT RESOLVED that [Name of Local Government] hereby joins with the California Emerging Technology Fund in promoting ***Get Connected!*** —a public awareness program to close the Digital Divide in California—and embraces the goal to achieve broadband Internet access at home for 80% of all Californians statewide by 2015.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] requests all of their departments and agencies to review scopes of responsibilities, work plans, and services to identify and report back to the [Board of Supervisors or City Council] within six (6) months on the strategic actions that will remove barriers to and promote the deployment and adoption of broadband among residents, customers, and recipients of public services.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] directs that appropriate policies promoting and supporting the deployment and adoption of broadband be promulgated and incorporated into the General Plan and other appropriate land use and economic development plans.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] directs the [County Administrative Officer or City Manager] and other appropriate departments to determine how to optimize the use of broadband technology to inform and engage residents to increase citizen participation in the public processes of governance and expand Digital Inclusion.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] will seek to cooperate and share the results of ***Get Connected!*** with neighboring jurisdictions and other public agencies and shall post this resolution on the [county or city] website and send a copy to the [regional Council of Governments] for appropriate distribution to other local governments.

BE IT FURTHER RESOLVED that the [Name of Local Government] [Board of Supervisors or City Council] authorize the use of their names as champions of ***Get Connected!*** on the websites of the California Emerging Technology Fund (www.CETFund.org and www.GetConnectedToday.com) and in printed materials pertaining to ***Get Connected!***

APPROVED AND ADOPTED this _____ day of _____, 2010.

California Emerging Technology Fund
Broadband Sample Policy for Use by Local Governments

Findings and Declarations

The [Name of Local Government] hereby finds and declares that high-speed Internet access—referred to generically as "broadband" (which includes both wireline and wireless technologies)—is essential 21st Century infrastructure in a digital world and global economy. It is vital to the economic prosperity and quality of life for residents in [Name of Local Government] and throughout California. And, it can enable [Name of Local Government] to operate more efficiently and provide services to the public more cost-effectively.

The ability to be "connected" instantly through the Internet to information, services and digital tools is increasingly critical for access to and success in education, jobs, and economic opportunities. The deployment and adoption of broadband is a major strategy to spur economic development because it improves productivity, which attracts more capital investment and generates jobs, while saving both time and money for consumers.

In addition, broadband is a "green technology" that can significantly reduce impacts on the environment, shrink the carbon footprint, and decrease dependence on foreign oil by offsetting vehicle trips, decreasing the use of resources, and saving energy.

However, although California is home to a wellspring of innovation that has given rise to the evolution of information technologies and broadband, the use of broadband technology by California residents is only approximately equivalent to the national average and there is a significant Digital Divide that must be closed to remain globally competitive.

[Name of Local Government] is committed to operating government functions as cost-efficiently as possible and recognizes that information technologies and broadband can greatly assist in achieving that goal. And, [Name of Local Government] is dedicated to providing public information and making services available online for the convenience and benefit of residents as well as to reduce impacts on the environment. Residents should be able to use high-speed Internet access to transact business with our local government agencies, such as obtaining and paying for building permits or business licenses, paying utility bills, or accessing official documents and maps. Broadband is a key strategy for "greening" the services and operations of [Name of Local Government].

[Name of Local Government] is committed to helping families and children be healthy, productive and self-sufficient. And, it is recognized that the use of broadband can save both time and money for residents while helping them bridge the economic divide. Therefore, it is important that all residents within [Name of Local Government] have high-speed Internet access, particularly those living in lower-income households and publicly-supported housing.

[Name of Local Government] also is committed to helping students obtain the highest-quality education possible and understands that the ability to learn and prepare for higher education is significantly enhanced if schools incorporate digital literacy and high-speed Internet connectivity into curriculum. The availability of computing devices both at school and at home are critical teaching and learning tools for academic achievement.

[Name of Local Government] is committed to Digital Inclusion and increasing citizen participation in the public process through expanded engagement using broadband.

Therefore, it shall be the policy of the [Name of Local Government] to facilitate the deployment and adoption of broadband to provide our residents with opportunities, quality of life, and convenience. Further, it is recognized that the speed of data and image transmission capability of the broadband infrastructure is vital to drive adoption: higher speeds enable more applications that consumers perceive as relevant to their daily lives. Thus, it also shall be the policy of the [Name of Local Government] to encourage and facilitate upgrades to existing broadband infrastructure to ensure that the public and private sectors have access to sufficient broadband speeds to support consumer demand for new and evolving applications that save time, money and resources.

Responsibilities and Roles: Opportunities to Promote Broadband

The [Name of Local Government] recognizes that it has many responsibilities that affect deployment (supply) and adoption (demand) of broadband technologies and applications, including the following roles: (1) policy leader; (2) planner; (3) regulator (of land use); (4) consumer; and (5) service provider. As a policy leader, [Name of Local Government] may promulgate policies and ordinances to advance and protect the public interest or implement state and national laws that promote and accommodate high-speed Internet access. As a planner, [Name of Local Government] prepares and adopts a general plan and other land use plans that guide the development in our jurisdiction, thus determining "how smart" growth will be and defining the quality of life for the future. As a regulator, [Name of Local Government] approves land uses and building permits which can encourage, promote and/or require "smart" infrastructure and facilities within our jurisdiction. As a consumer, [Name of Local Government] purchases telecommunications and information technology equipment and services which, in turn, drives demand and improvements in these technologies and services. And, as a service provider, [Name of Local Government] has the ability to expand e-government functions by providing more information and access to public services online, thus encouraging broadband adoption. It shall be the policy of [Name of Local Government] in all of its roles and responsibilities to actively identify opportunities to implement policies, programs and actions to encourage broadband deployment and adoption.

Implementation

[Name of Local Government] shall incorporate these findings and declarations into the General Plan and all relevant elements [and Specific Plan(s), Redevelopment Agency Master Plan(s), and Community Sustainability Plan if existing and/or when prepared] and shall adopt the following implementation strategies and actions:

Land Use and Smart Infrastructure

- Promote the provision of broadband infrastructure in all public buildings, major transportation and other infrastructure projects, commercial developments, and residential neighborhoods.

- Require new or renovated residential and commercial development projects to provide broadband connectivity and include the infrastructure components necessary to support broadband and other state-of-art information and communication technologies, such as conduit space within joint utility trenches for future high speed data transmission systems. Incorporate into conditional use permits the requirements to ensure continuity of broadband service and periodic upgrades (such as every 10 years) to state-of-art broadband technologies.

- Identify local public rights-of-way and public facilities that can be used for broadband deployment and promulgate procedures to streamline the approval of easement encroachment permits consistent with principles of fairness and competition for all providers.

- Ensure a level playing field for all broadband providers—private and public (or government-led), wireline and wireless—making the use of public assets available to all providers on a competitive basis, commensurate with adopted policies regarding public benefits.

- Maintain consistency and comparability for protection of visual aesthetics as it pertains to broadband facilities with requirements for other infrastructure such as street lighting, traffic light control equipment, and power generation.

- Encourage broadband providers to size underground and overhead facilities to accommodate future expansion, changes in technology, and where possible the facilities of other telecommunications and utility providers.

- Allow for upgrades and expansions of existing broadband infrastructure and appurtenance facilities to the extent that it is adequately justified through radio frequency propagation (wireless service coverage area) maps and other means, and to the extent that the construction does not unduly impact nearby residential and historically significant areas. Consider authorizing longer-term "evergreen" permits that provide a right to providers to enter specified easements to upgrade their infrastructure for an indefinite or significant period of time (such as 20 years) to upgrade the broadband service consistent with the adopted policies.

- Locate and operate broadband infrastructure and appurtenant facilities to protect cultural and scenic resources. Site facilities at the lowest possible point along ridge lines in order to minimize visual and aesthetic impacts. Minimize the size and extent of appurtenant facilities, such as antennas, dishes, and equipment buildings, while still providing room for growth and co-location of future providers. Require, as part of a special use permit, that the top-most position of a monopole or tower be occupied with antennas to ensure that the ultimate structure height is justified. Use "stealth" technology solutions for masking views of antennas. Use a muted earth-tone colors that match the natural background setting. Landscape appropriately around the perimeter of facilities to be compatible with the surrounding vegetation.

- Require commitments for sharing new monopole or tower sites as a condition of approval if appropriate and feasible.

- Submit notification and information about all major infrastructure and construction projects, including transportation projects and new residential subdivisions, to a shared regional and/or statewide web-based data base (such as the prototype developed by the California Department of Transportation) so that broadband and other utility providers have the opportunity to coordinate infrastructure deployment in shared trenches, conduit, poles and towers, and other appurtenances to facilitate cost and time savings and minimize duplicative construction.

- Require as a condition of approval the timely removal of broadband and other advanced telecommunications towers and equipment when they are no longer needed.

Telecommuting

- Develop a program to allow and facilitate employee telecommuting (compatible with maintaining high-quality local government operations.

- Encourage and assist local employers to develop and offer telecommuting to their employees to reduce traffic congestion and environmental impacts.

Public Services and Digital Inclusion

- Prepare and implement a Technology Plan that uses state-of-art broadband and other information technologies to support the local government operations in the most cost-efficient manner possible and provide online all vital public information and critical services.

- Continue to improve the [county's] [city's] website both to (a) support the provision online of public information and critical services and (b) engage and increase citizen participation. Request [direct] all [county] [city] departments and programs to provide online all policies, plans, ordinances and key information. Request [direct] the chief executive officer [County Administrative Officer or City Manager] explore the feasibility and implement to the extent possible the opportunity for residents to participate online in all public meetings real-time and to provide input and feedback on key issues.

- Develop and provide online a comprehensive and standardized geographic information system that can be used by all public agencies to aid in the provision of public services.

- Promote the use of public buildings, such as libraries, parks and convention centers, as broadband "hot spots" to allow residents affordable [or free] high-speed Internet access.

- Ensure that public safety and emergency response agencies are capable of providing real-time information via broadband to facilitate efficient and efficient management of emergencies and natural disasters to protect lives and property.

Smart Housing

- Require all new residential subdivisions to be served with state-of-art broadband infrastructure with sufficient transmission rates to support applications relevant to residential consumers (for most commonly-used and available applications today the practical required transmission rates are in the range of at least three (3) Mbps downstream and one (1) Mbps upstream).

- Require all publicly-subsidized housing development projects to provide an independent "advanced communications network" to drive economies of scale that can result in a significantly-reduced cost basis for the lower-income residents. An "advanced communications network" is broadband infrastructure that, at a minimum, makes available affordable market-comparable high-speed Internet access service to all units via the aggregation and consolidation of service across the property. It is infrastructure in addition to the standard cables, wiring and other infrastructure required for power, television and telephone service. (If multiple services are offered, residents should be offered both "bundled" and "a la carte" options.)

- Request the local redevelopment agency (agencies) and housing authority (authorities) to adopt policies to promote and support smart affordable housing with advanced communications networks whenever their public funds are used to subsidize the construction and provision of housing for lower-income residents.

Digital Literacy and Workforce Development

- Integrate digital literacy training into all workforce development programs.

- Provide digital literacy (and computer / Internet skills upgrades) training for all employees.

Designation of Broadband Leader

- Direct the chief executive officer [County Administrative Officer or City Manager] to identify and designate an appropriate individual within management as a coordinator to be responsible for implementing policies related to broadband, information technologies, and Digital Inclusion. This designated leader shall develop a plan of action to increase and sustain the use of broadband and information technologies within the [Name of Local Government]. The broadband action plan shall set forth specific goals, objectives, activities and metrics for success for all the relevant responsibilities and roles delineated above. It shall include the promulgation of a technology plan for the operations and functions with the [county] [city] government or the incorporation and regular update of the existing technology plan. The coordinator shall prepare and submit a progress report annually to the [Board of Supervisors] [City Council].

- Direct the broadband coordinator to monitor broadband deployment and adoption within the jurisdiction of [Name of Local Government] and report rates and trends to the [Board of Supervisors] [City Council].

Interagency Cooperation

- Request that the chief executive officer [County Administrative Officer or City Manager] outline a process for ensuring inter-agency and inter-jurisdictional cooperation which shall include: sharing this policy with other jurisdictions in the region; meeting with them to explore common needs for infrastructure (including backhaul and middle mile needs); exploring opportunities to collaborate on broadband applications, such as telemedicine, or regional projects, such as library networks; and notifying neighboring jurisdictions about major infrastructure projects, such as transportation improvements along shared corridors.

- Explore opportunities to work with other public and private entities, such as schools, special districts, utilities, and private health and medical providers, to cooperate and joint-venture on broadband deployment projects and adoption programs.

Other Local Priorities

- Add other local priorities and considerations.

Please Note: For the convenience of local and regional governments, all background information and sample policies are available electronically from the California Emerging Technology Fund (www.CETFund.org).

Broadband Definition

Broadband is a generic term that refers to high-speed access to the Internet in contrast to a dial-up connection. It is described in terms of rate of transmission of data, with sufficient speeds to support applications relevant to the end user.

Broadband Technology

Broadband is technology-neutral and includes both wireline and wireless mediums, such as:

- Digital Subscriber Line (DSL)
- Cable Modem
- Fiber Optic
- WiFi
- WiMax
- Satellite

Local factors, such as population density, existing infrastructure, and terrain, will determine the technology best suited for a community or region.

California Emerging Technology Fund
Model Policies for Broadband
Summary of Case Studies

Jurisdiction	Purposes and Justifications	Key Objectives and Implementation Strategies
Humboldt County	• Economic Development and Prosperity • Critical Infrastructure • Digital Inclusion	• Assess the use of broadband to get Internet access outside of urban areas. • Establish a relationship with private Internet Service Providers. • Make telecommunications planning a fundamental aspect of future county planning.
Nevada County	• Critical Infrastructure • Digital Inclusion • Telecommuting and Quality of Life	• Develop a telecommunication program that ensures community access. • Develop easements to accommodate telecommunication systems. • Develop standards for telecommunications facilities. • Develop a telecommunication program that ensures community access. • Develop easements to accommodate telecommunication systems. • Develop standards for telecommunications facilities.
Davis	• Economic Development and Prosperity • Digital Inclusion • Telecommuting and Quality of Life	• Develop standards clearly outlining policies on telecommunications and broadband. • Encourage development of infrastructure. • Encourage a diversity of technology. • Encourage technology-related education and skills acquisition.
Foster City	• Digital Inclusion • Economic Development and Prosperity • Public Services • Public Security and Safety • Telecommuting and Quality of Life	• Retain regulatory oversight of public property. • Promote Digital Inclusion. • Promote the use of telecommunications technology. • Advance the development of state-of-the-art infrastructure.
Los Angeles	• Telecommuting and Quality of Life • Economic Development and Prosperity • Public Security and Safety	• Encourage telecommuting to reduce total vehicle miles traveled. • Utilize telecommunications technology to connect the city library system with other agencies. • Amend or revise the Infrastructure Systems Element of the General Plan to incorporate telecommunications.

Petaluma	• Digital Inclusion • Economic Development and Prosperity • Public Interest and Education • Public Services	• Combine existing infrastructure with opportunities to deploy telecommunications systems. • Encourage new development to accommodate infrastructure upgrades.
Redwood City	• Telecommuting and Quality of Life • Public Interest and Education • Critical Infrastructure • Public Security and Safety	• Address telecommunications infrastructure in an updated General Plan through the Infrastructure Element. • Mandate that new buildings include space for telecommunications equipment.
Riverside	• Digital Inclusion • Economic Development and Prosperity	• Encourage that new development accommodates telecommunications infrastructure. • Run key city programs utilizing telecommunications technology. • Offer use of network capacity to private companies, extending service where it otherwise might not be economically feasible.

"Broadband deployment and adoption stimulate economic development while enhancing the quality of life in rural communities. Broadband can serve as a catalyst for green, sustainable businesses. Employer, civic and government leadership are key to leveraging limited resources and public assets to help make the business case to expand broadband into rural areas."
Supervisor Norma Santiago, El Dorado County

"Broadband is clearly a priority for Tuolumne County and the surrounding Central Sierra Connect five-county region. Civic, community and government leaders came together in an unprecedented coalition to discuss and prioritize broadband-related issues, challenges and barriers Public-private partnerships were built in an attempt to bring new and added connectivity to rural Central Sierra communities. It will take these kinds of efforts to retain the rural quality of life we are accustomed to, but also remain economically viable and competitive, especially in challenging times."
Supervisor Teri Murrison, Tuolumne County

"California's rural communities are especially challenged to retain and grow local businesses. The availability of broadband service is increasingly critical to meeting that challenge. Local governments, partnering with local business and community service organizations, have to do all we can to encourage the expansion of broadband infrastructure."
Mayor Bridget Powers, City of Auburn

CALIFORNIA EMERGING TECHNOLOGY FUND
SUMMARY OF EXAMPLE POLICIES AND ORDINANCES FROM CALIFORNIA LOCAL GOVERNMENTS

This table summarizes existing policies regarding broadband (high-speed Internet access) and advanced telecommunications from California local governments to serve as a resource for public officials and policymakers in formulating policies for their own jurisdictions.

Jurisdiction	Source Document	Adopted Policies or Ordinances
Cities		
Davis	***General Plan*** Adopted May 2001; Amended through January 2007 (Section V: Community Facilities and Services; Chapter 8: Computers and Technology)	• Sets forth: Background (Purpose); Goals, Policies and Actions. • States: "Telecommunications infrastructure and services have been identified as important community resources, which are likely to be as important to continuing economic development of the community as basic infrastructure such as water, sewer and road systems." • Establishes the following Goals: 1. Encourage development of infrastructure and services to allow all who live work and study in the city to utilize new technologies to communicate with individuals locally, regionally, nationally and globally. (Policies: Implement a program of technology, planning installation and education. Make information regarding city government and decision-making, local services and opportunities to participate in city governance available to residents in electronic form.) 2. Pursue telecommunications as a means to reduce transportation impacts that can improve air quality and personal convenience and reduce dependence on non-renewable resources. (Policies: Encourage telecommuting for the city government, community and major employers). 3. Develop an awareness that the city that understands and supports high-technology communications. (Policy: Convey through the city's promotional documents that the city government and community understand and use modern communications technologies.)
	Municipal Code Chapter 40, Zoning 40.29.180	• Addresses location and siting of telecommunications facilities, especially aesthetic considerations. • Proscribes an external provider's investment to conform to current community standards (minimization of visual impacts, prohibition of certain types of antennas and towers).
Dublin	***Capital Improvement Plan*** Approved funding for DubLink	• Supports development and maintenance of DubLink, an underground fiber-optic network to provide high-speed voice, data and video communications to businesses. The network saves employers time and money by providing an existing "telecommunications pathway" within the city's business district on which businesses can lease space rather than construct their own lines. • Approves funds as part of the 2005-2009 Capital Improvements Plan, to expand DubLink from a broadband fiber optic network to include wireless components. The vision is to have the entire city be a "hotspot" as a tool for enhancing economic development.

Foster City	***Telecommunications Policy*** Adopted February 2000	• Outlines how the city will maintain infrastructure, identifies who is responsible for administrating telecommunications policy, and sets forth the guiding principles for the policy. • Assigns the City Manager specific duties, such as negotiating with providers for the use of city facilities and monitoring compliance with the use of rights-of-way. • Directs the city to maintain control of public facilities in leasing agreements. • Promotes Digital Inclusion and the use of advanced telecommunications.
Fremont	***Municipal Code*** Section 8-2199.7.3	• Sets forth a comprehensive set of codes addressing telecommunication issues with the following definition: "Telecommunication facility" shall mean a facility that transmits and/or receives electromagnetic signals for the following technologies: cellular technology, personal communications services, enhanced specialized mobile services and paging systems. It includes antennas and all other types of equipment used in the transmission or receipt of such signals; telecommunication towers or similar structures supporting said equipment; associated equipment cabinets and/or buildings; and all other accessory development. It does not include radio towers, television towers and public safety networks." • Focuses on the location and deployment of telecommunication towers and structures.
Irwindale	***Municipal Code*** Chapter 17.90 Wireless Communications Facility Ordinance 529 §1(part) 1998	• Sets forth a comprehensive set of codes addressing telecommunications issues, including the statements: "It is the intent of the city that the regulations contained in this chapter shall apply to all wireless communication facilities within the city to accomplish the following: A. Ensure against the creation of visual blight within the city; B. Protect the inhabitants from the possible adverse health effects associated with exposure to levels of NIER (non-ionizing electromagnetic radiation) in excess of recognized national standards; C. Ensure that a competitive and broad range of telecommunications services and high quality telecommunications infrastructure are provided to serve the community, as well as serve as an important and effective part of the city's emergency response network; and D. Simplify and shorten the process for obtaining necessary permits for telecommunication facilities while at the same time protecting the legitimate interests of the citizens. (Ord. 529 §1(part), 1998). • Focuses on the location and deployment of telecommunications towers and facilities.
Laguna Hills	***Municipal Code*** Section 9-58	• Delineates aesthetic considerations to guide providers' investments to be consistent with current community standards (such as minimizing visual impact through a prohibition of certain types of antennas and towers).
Los Angeles	***General Plan Infrastructure Systems and Public Facilities and Services Element***	• Identifies the opportunity to develop an "integrated network serving as the regional hub for public and private users" to take advantage of the benefits of broadband. • Provides guidance to city departments to promote broadband.

Malibu	***Municipal Code*** Chapter 17.46 Wireless Telecommunications Antennas and Facilities	• Recognizes the importance and rapidly-changing nature of telecommunications technology and finds that it is in the public interest to facilitate equipment upgrades, including the following statement: "The city finds that the technology associated with telecommunications equipment is subject to rapid changes and upgrades as a result of industry competition and customer demands, and anticipate that telecommunications antennas and related equipment with reduced visual impacts will be available from time to time with comparable or improved coverage and capacity capabilities. The city further finds that it is in the interest of the public health, safety, and welfare that telecommunications providers be required to replace older facilities with newer equipment of equal or greater capabilities and reduced visual impacts as technological improvements become available. Therefore, any modifications requested to an existing facility for which a permit issued pursuant to this title authorizing establishment of a wireless telecommunications facility shall permit the planning manager to review the carrier's existing facility to determine whether requiring newer equipment or applying new screening techniques that reduce visual impacts is appropriate if technically feasible." • Focuses on siting and deployment of telecommunications towers and facilities and emphasizes reductions of visual impacts and deployment of antennas to existing facilities, such as light poles.
Petaluma	***General Plan*** 2008	• Promotes Digital Inclusion by: 1. Assessing city infrastructure. 2. Developing a telecommunications infrastructure including multiple technologies. • Encourages development of telecommunications as a means for increased civic participation in government.
Redwood City	***Draft General Plan*** Draft Infrastructure Element	• Allows efficient and affordable communications. • Supports efforts to provide affordable infrastructure. • Mandates that the city keep current with technological developments in telecommunications to pursue innovative solutions.
Riverside	***General Plan*** Public Facilities and Infrastructure Element (2007)	• Sets forth the following declaration and finding: "Well-designed and maintained infrastructure systems are critical to a community's economic development goals, and they enhance the quality of neighborhoods. Infrastructure such as sewer and water lines, broadband communication networks and solid waste collection and disposal must be sufficient to accommodate the present and future needs the community. As infrastructure ages or growth outpaces capacity, isolated failures represent a real potential. Providing quality public facilities such as libraries, hospitals and community centers are also of vital importance, as they contribute to the health, education and quality of life for all residents."

		• Equates telecommunications infrastructure with other basic city infrastructure. • Ensures access to state-of-the-art Internet and modern telecommunications technology. • Directs the Public Works Department to own and operate an extensive network of fiber-optic cable. • Directs the city to partner with telecommunications companies to deploy broadband throughout the city. • Integrates broadband into public safety and education.
	Municipal Code Chapter 19.530 Wireless Telecommunications Facilities and Related Structures	• Specifies approach to location and deployment of telecommunications towers and structure.
San Diego	***Information Technology Strategic Plan (ISTP)*** 2000 **San Diego Broadband Initiative Version 2.0** –ISTP (2008)	• Sets forth the city's vision of the future and serves as a plan for setting direction and development of information technology • Recommends guidelines for integrated city-wide action for promoting information technology as part of the General Plan with encouragement of city staff to utilize information technology, developers to pre-wire residential structures, emergency telecommunication upgrades and the facilitation of standards for economic development. • Encourages utilities to implement policies as a part of their own plans for upgrading and transformation into 21st Century organizations. • Articulates improvements in information technology utilization over previous decade (referencing broadband) and sets forth plans for future deployment (ISTP 2008).
San Bruno	***Municipal Code*** Title 12 Land Use Article III Zoning Chapter 12.220 Wireless Telecommunications Facilities	• Provisions include the following passage: "The purpose of this chapter is to provide uniform standards for the design, placement, and permitting of wireless telecommunication facilities consistent with applicable federal requirements. The regulations contained herein are designed to protect and to promote public health, safety, community welfare, and the aesthetic quality of the city while at the same time providing for the managed development of wireless communication facilities. (Ord. 1711 § 1 (part), 2006)"
Counties		
Del Norte County	***Policy of Community Resolution*** August 1999	• Sets forth 10 goals for economically prosperous, safe and healthy community which is the foundation for public-sector support and promotion of broadband. • Directs that everything possible should be done to ensure that the public is provided with adequate and sufficient infrastructure (including cable, which is interpreted to encompass broadband). • Provides the imperative and basis for staff action.

Humboldt County	***Report: Living in a Networked World*** 2004 ***Draft General Plan Telecommunications Element*** 2008	• Provides information on the benefits and availability of broadband infrastructure and technology. • Incorporates into the General Plan a separate element on Telecommunications (including broadband) and provides long-term guidance for county policymakers to facilitate deployment of broadband and respond to changes in technology. • Sets forth 2 goals: (1) Ubiquitous Availability: A regional economy and quality of life strengthened by maximizing the use of telecommunications technology by ensuring availability to every resident, business and institution. (2) Broadband Reliability: A reliable broadband Internet infrastructure that distributes a choice of economically accessible broadband services into our most rural communities, and is not vulnerable to disruption, with broadband service capability integrated into new buildings and developments and broadband access in remove or rural communities and available to low-income and disadvantaged residents. • Encourages development of telecommunications infrastructure and services to facilitate the use of the best available technology for business, households and government. • Delineates additional specific policies and actions related to: Service Continuity; Government Infrastructure; Telecommunications Facilities Within County Rights-of-Way; Telecommuting; Broadband Internet; Workforce Development; Subdivision Improvement Requirements; Joint Telecom Planning; E-911; Cable Franchise Ordinance; Wireless "Hot Spots"; Reduction (reduce transportation impacts and improve air quality); Public Broadband Telecommunications Service Providers; and Technology Awareness. • Supports the development and management of an alternative fiber optic line that connects to the fiber backbone running along the U.S. 5 corridor: "The County shall support the expansion and delivery of broadband Internet in the rural or remote communities in the county through all appropriate technologies." • Specifies standards for siting telecommunications and broadband facilities, including: Site Sharing (when feasible to allow affordable co-location); Public Health and Safety; Minimize Tower Height and Size; Scenic and Culture Resources; Landscaping: Masking Structures; Expansion of Existing Facilities (that do not unduly impact nearby residential and historically significant areas); Removal of Un-used Facilities; and Shared Facility Requirement (requires commitments for sharing a new monopole or tower sites as a condition of approval). • Directs prepare of a Telecommunications Facilities Ordinance that: ensures compatibility of telecommunications facilities with nearby land uses; is proactive in the design and siting of wireless telecommunications facilities; provides incentives for unobtrusive and compatible wireless antennas; and establishes clear standards for such facilities.
Nevada County	***General Plan*** 1996	• Addresses need for easements to provide telecommunications access. • Highlights need to undertake telecommunications studies. • Mandates that telecommunications facilities be included in the Comprehensive Site Development Standards. • Instructs the County to look for opportunities to combine upgrades of telecommunications infrastructure with upgrades of other infrastructure.

	Resolution March 2009	• Declares continuing support for the Nevada County Community Broadband Leadership Council (working group of Nevada County Economic Resource Council) to promote local broadband initiatives and requires a comprehensive report on recommendations to take advantage of opportunities for and to eliminate barriers to improved broadband access and wider adoption. • Directs the Information and General Services Department (IGS) to continue to coordinate broadband initiatives, pursue available state and federal resources, and engage the private sector. • Requires all public works projects in include broadband conduit to be used by multiple government agencies. • Directs the Community Development Agency to review policies and procedures with local broadband providers and recommend changes to streamline right-of-way, tower and antenna permitting. • Encourages IGS to facilitate free wireless Internet access in county facilities most used by the public and encourages other local public and private entities to do that same. • Encourages an economic development alliance of public, private and non-profit technology-based sectors to achieve maximum accessibility of broadband services with highest possible bandwidth at lowest cost.
Stanislaus County	***Connecting Stanislaus: Community and Technology Together*** ***Strategic Plan(s)*** 1999, 2003, 2005, 2008	• Establishes and reaffirms support for *Connecting Stanislaus* as a public-private consortium that includes government, business, education, agriculture, and community-based organizations. • Declares broadband connectivity as a priority for economic development. • Sets forth formal strategies and initiatives that have been sustaining for more than a decade. • Articulates strategies and actions for telecommunications awareness, access, education and digital inclusion, including the following: — Targeted Technology Training (T3) offers 200 classes annually throughout the community: 4 hour courses on 12 topics, community-based curriculum, English and Spanish language, pre/post course evaluation, K-12 education, cities and business sector partners. — Community Web Portal (connectingstanislaus.com) established 2003. Web 2.0 upgrade January 2009. Community volunteers from seven sectors maintain data and all resources: community pages, youth pages, regional tourism, public information—a community celebration in technology access. — Annual Technology Summit (X2Annually) was an annual technology fair through first 7 years and is now targeted half-day technology summits. Seven sectors will be targeted ongoing: Small Business Tech Summit May 2008; Ag Tech Summit January 2009 (Chambers of Commerce, Farm Bureau, Agricultural Commissioner, plus business sponsor/partners). — A Technology Closet (Pilot Sprint 2010) will focus on refurbishing recycled technologies by ROP students for non-profit and faith-based organizations, linking technology recycling and reuse, education and skills training, business networking and community organizations.

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CENTER FOR A NEW ORANGE COUNTY

Leadership Action Check List

Getting Connected for Economic Prosperity and Quality of Life

The following Check List provides a spectrum of possible actions that local and regional leaders may want to consider for "Getting Connected for Economic Prosperity and Quality of Life" by promoting the deployment and adoption of broadband. It is intended only as a tool to jumpstart action and is neither prescriptive nor exhaustive. Local and regional leaders will have to determine what works best within their own jurisdictions. It is anticipated that local and regional leaders will be innovative and creative beyond this Check List in developing an action plan.

Action	Target Date	Accomplished ✓
Adopt a *Get Connected!* Resolution and Post on Your Website		
Convene Community Forums to Listen to the Public's Views on a Policy		
Hold a Public Hearing to Gather Input from Experts and Citizens on a Policy		
Adopt a Policy to Promote Broadband Deployment and Adoption		
Incorporate the Policy into the General Plan and Other Key Documents		
Provide All Essential Government Information and Public Services Online		
Develop a Telecommuting Program for Employees and Encourage Others		
Encourage All Health Providers to Join the California Telehealth Network		
Encourage Schools to Implement School2Home or a Similar Program		
Equip and Designate Libraries as Community Wireless "Hot Spots"		
Establish a Computer Refurbishing Program to Help Lower-Income Families		
Collaborate with Other Jurisdictions in a Regional Consortium		

Please send copies of your resolution, policies and updates on your action plan to:
California Emerging Technology Fund
The Hearst Building
5 Third Street, Suite 320
San Francisco, California 94103-3206 *www.CETFund.org*
An inventory of actions and resources will be posted on the CETF website.

Careers in Information Technology for Residents of Disadvantaged Communities

EmpowerNet California is a non-profit collaboration among community-based organizations (CBOs) to train residents in lower-income, disadvantaged communities for good-paying jobs in information technology (IT). EmpowerNet delivers the collective experience of successful CBOs to assist communities and Workforce Investment Boards (WIBs) build IT career ladders, especially for entry-level and transitioning workers. EmpowerNet is a web-based Toolkit of resources to help establish or expand IT skills preparation and job-placement services, including best practices, curriculum, instructional manuals, consultation and referrals.

Entry-level jobs in IT pay more, have better upward mobility, and have a greater potential for wage gains. In addition, IT workers are needed across all employment sectors and all labor markets. Further, the ability to use a computer and navigate the Internet—referred to as "digital literacy"—is a vital component of all jobs in the 21st century and a skilled required and valued by most employers. Thus, developing training programs for IT careers pathways that are targeted to lower-income entry-level and transitioning workers also is a powerful strategy to tackle poverty and promote economic development.

WHAT YOU CAN DO AS A LOCAL LEADER

- ✓ ***Find out what your local WIB is doing to offer training for IT career ladders and make sure this service is available in your community.***
- ✓ ***Advocate for and ensure that all workforce preparation programs include training for digital literacy and IT skills.***
- ✓ ***Encourage your local WIB and community training programs to take advantage of the resources provided by EmpowerNet California.***

EmpowerNet provides services for WIBs and CBOs looking to augment an existing training program or wanting to assess readiness for initiating a new program. EmpowerNet assists WIBs and CBOs quickly deploy effective IT workforce development programs for their underserved constituents. For more information: www.empowernetca.org

"Organizations like EmpowerNet provide a proven model of success for Technology Training programs throughout California that travel down a similar pathway to digital inclusion. Through use of the EmpowerNet Toolkit, organizations can leverage resources to maximize their impact on the individuals and communities they serve."
Supervisor John Gioia, Contra Costa County

Computer Recycling and Refurbishing for Public Benefit

One of the biggest barriers to closing the Digital Divide is the affordability of computers and broadband service for lower-income families. Although computing devices are increasingly more affordable and broadband providers offer a variety of entry-level subscription packages, cost still is a major hurdle for many Californians. And, having a computer in the household usually is a pre-requisite for subscribing to broadband service. Further, although mobile devices with Internet connectivity for access to vital information are becoming increasingly prevalent among lower-income consumers, workforce preparation requires keyboarding skills to compose written documents and create spreadsheets—tasks which today are not easily performed on mobile devices. Thus, for students and workers to acquire 21st century skills, it is important for them to become proficient in using computers.

As local governments seek ways to reduce environmental impacts and "green" their practices, public officials are considering strategies to keep used computers and electronic waste out of landfills both at home and abroad. Although it is a reasonable financial management practice for public agencies to use computers until the value is fully depreciated and then contract with a firm to dispose of them, often it is not known publicly where the used components end up.

In order to address these challenges, some local governments have adopted a policy and established a program for recycling their used computers, having them refurbished through workforce training programs, and making them available at no or low cost to local non-profit organizations and/or low-income families. For example, the San Diego Futures Foundation has an agreement with San Diego County and the Northrop Grumman Corporation to recycle their old computers, train workers to refurbish them, and make them available to the community. Since 1999, more than 23,000 computers have been refurbished and donated or sold at a very low price to San Diego non-profit organizations, schools, and needy families. In Northern California, Napa County has established a computer recycling program. Relia Tech, a social-benefit enterprise associated with Stride Center, hires and trains underemployed individuals to refurbish recycled computers. And, TechSoup.org, provides extensive information about lower-cost computers and broadband service throughout California.

WHAT YOU CAN DO AS A LOCAL LEADER

- ✓ ***Find out what your jurisdiction does with used computers and where they end up when replaced. Ask for a copy of your jurisdiction's written policy.***
- ✓ ***Request a simple assessment of feasibility and cost-benefit analysis of a computer recycling and refurbishing program for your jurisdiction.***
- ✓ ***Encourage other government agencies and private-sector employers to join you in establishing a computer recycling and refurbishing program.***

"In San Diego County we strongly believe that computers and broadband access are vital tools for a community. That is why we make certain that our surplus computers are refurbished with the support of San Diego Futures Foundation and then provided for free or at reduced cost to those in San Diego County who may otherwise be without access."
Supervisor Pam Slater-Price, San Diego County

Provide leadership statewide to close the "Digital Divide" by accelerating the deployment and adoption of broadband to unserved and underserved communities and populations.

Ensure that California is a global leader in the availability and use of broadband technology.

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