

Docket No.: A.18-07-011 and A.18-07-012

Exhibit No.: \_\_\_\_\_

Hearing Date: \_\_\_\_\_

Witness: Neville R. Ray

ALJ: Karl Bemederfer

Commissioner: Clifford Rechtschaffen

**SUPPLEMENTAL TESTIMONY OF NEVILLE R. RAY**

**ON BEHALF OF JOINT APPLICANTS**

**NOVEMBER 7, 2019**

**—PUBLIC VERSION—**

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1       **I. WITNESS IDENTIFICATION**

2  
3       **Q. Please state your name and position.**

4       **A.** My name is Neville R. Ray. I am the Executive Vice President and Chief Technology Officer  
5 of T-Mobile US, Inc. (“T-Mobile”). My business address is 12920 SE 38<sup>th</sup> Street, Bellevue, WA  
6 98006.

7  
8       **Q. Please describe your professional qualifications and experience.**

9       **A.** I previously submitted rebuttal testimony dated January 29, 2019 (corrected and re-served  
10 on February 4, 2019 (Hearing Ex. Jt Appl. 3-C)) and appeared as a witness at the hearing on  
11 February 5-6, 2019. My professional qualifications and experience are summarized in Joint  
12 Applicants Exhibit Jt Appl.-3C.

13  
14       **II. PURPOSE OF TESTIMONY**

15  
16       **Q. What is the purpose of your Supplemental Testimony?**

17       **A.** The purpose of my Supplemental Testimony is to respond to the network and spectrum  
18 related aspects of the additional eight questions set forth in the Assigned Commissioner’s  
19 Amended Scoping Ruling dated October 24, 2019.

20  
21       **Q: What witness will address the other aspects of the Assigned Commissioner’s**  
22 **Amended Scoping Ruling?**

23       **A.** Those other aspects will be primarily addressed by Mr. Sievert and to a lesser extent Mr.  
24 Keys.

25  
26

1 **Q. Please summarize your Supplemental Testimony.**

2 **A.** Neither the DOJ or FCC Commitments,<sup>1</sup> which were attached to and discussed in our  
3 recently filed Amended Wireless Notification,<sup>2</sup> adversely impact any of the network-related  
4 benefits of the merger including the deployment of the New T-Mobile 5G network. Specifically,  
5 the FCC Commitments establish specific buildout metrics for New T-Mobile’s network and the  
6 deployment of 5G services that did not previously exist; these commitments will not adversely  
7 impact T-Mobile’s network model or the buildout commitments in the CETF MOU.<sup>3</sup> Instead,  
8 they will only lead to accelerated buildout and enhanced coverage and speeds, and enhanced in-  
9 home broadband competition, in California, including in rural areas.

10 Similarly, the DOJ Commitments, which require (in part) New T-Mobile’s divestiture of  
11 its 800 MHz spectrum, transfer of prepaid customers and making available certain  
12 decommissioned prepaid assets to DISH, will not impede New T-Mobile’s ability to construct  
13 the world-leading 5G network described in my prior testimony. Nor do those commitments  
14 negatively impact, decrease, or detract from the benefits that this world-leading 5G network will  
15 bring to California and consumers in the state or change the network-related commitments in the  
16 CETF MOU or any of the other network-related commitments that we have made in California.  
17 The DOJ Commitments, which post-date my testimony, however, require certain modifications  
18 to my testimony regarding the 800 MHz spectrum and the migration of Sprint prepaid customers  
19 as I discuss below.

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<sup>1</sup> The FCC Commitments are set forth in an ex parte filed with the Federal Communications Commission (“FCC”) on May 20, 2019 in connection with that agency’s review of the Transaction (the “FCC Commitments”). The DOJ Commitments are set forth in the Proposed Final Judgment (“PFJ”) and the Stipulation & Order filed by the U.S. Department of Justice in the U.S. District Court for the District of Columbia on July 26, 2019 (the “DOJ Commitments”). The Asset Purchase Agreement among T-Mobile, Sprint Corporation and Dish Network Corporation (“DISH”) dated July 26, 2019 (the “Asset Purchase Agreement”) also sets forth various contractual terms among the parties regarding the divestiture of the Sprint prepaid assets to DISH. I understand that each of these documents has been filed in this proceeding and I am incorporating each of them by reference herein.

<sup>2</sup> See Amended Joint Application for Review of Wireless Transfer Notification per Commission Decision 95-10-032 (“Amended Wireless Notification”) (September 19, 2019) at § XVI. See also *id.* at Exhibit P (PFJ), Exhibit Q (Stipulation and Order), Exhibit R (Asset Purchase Agreement) and Exhibit S (FCC Commitments).

<sup>3</sup> The “CETF MOU” refers to the “Memorandum of Understanding between the California Emerging Technology Fund and T-Mobile USA, Inc. which was executed after the hearings in February. See Amended Wireless Notification, Exhibit U. I understand that the CETF MOU has also been made a part of the record of this proceeding and I am incorporating it by reference herein.

1 **Q: Was this Supplemental Testimony prepared by you or under your direction and are**  
2 **the responses you have provided true and correct and complete to the best of your**  
3 **knowledge?**

4 **A.** Yes, this Supplemental Testimony was prepared by me or under my direction and the  
5 responses I have provided are true and correct and complete to the best of my knowledge. I have  
6 attached a declaration to that effect to confirm the same. See Attachment A.

7  
8 **III. AMENDED SCOPING RULING - QUESTION NO. 1, CHANGES TO REBUTTAL**  
9 **TESTIMONY**  
10

11 **Q: The first question identified in the Amended Scoping Ruling asks “What changes are**  
12 **required to previously submitted written or oral witness testimony resulting from Sprint, T-**  
13 **Mobile or Dish Network entering into the DOJ and FCC Commitments? Can you please**  
14 **respond?**

15 **A.** Yes. The impact of the DOJ and FCC Commitments with respect to my prior testimony  
16 regarding spectrum, network assets, current Sprint prepaid customers and New T-Mobile’s  
17 customer base are each discussed separately below in response to more specific questions. Aside  
18 from those items, I have no other changes to my previously submitted testimony. In addition, I  
19 have conformed my prior testimony to correct statements that are no longer applicable in light of  
20 these post-hearing commitments. The Supplemental Testimony is intended to reflect the impact,  
21 if any, of those commitments on my prior testimony and the CETF MOU, and is not repeated in  
22 the attached redlines.<sup>4</sup>

23  
24 **Q. If there is any portion of your prior testimony that is not addressed in this Supplemental**  
25 **Testimony, is it safe to assume that there are no changes to that portion of the prior testimony?**

26 **A.** Yes. In this Supplemental Testimony, I am only addressing those limited aspects  
27 of my prior testimony which have changed as a result of the FCC or DOJ Commitments.  
28 If I do not comment on a particular aspect of my prior testimony it stands as submitted at  
29 the time of the hearing in February.

30  

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<sup>4</sup> See Attachments B (redline of Rebuttal Testimony) and C (redline of hearing transcript).

1           **IV.    AMENDED SCOPING RULING – QUESTION NO. 2, IMPACT OF DOJ AND**  
2           **FCC COMMITMENTS ON CETF MOU**  
3

4   **Q.    The second question identified in the Amended Scoping Ruling is what changes are**  
5   **required to the terms of the CETF MOU “resulting from Sprint, T-Mobile or Dish**  
6   **Network entering into the DOJ and FCC Commitments?” Can you respond?**

7   **A.**Let me clarify that neither the DOJ nor the FCC Commitments requires any changes to the  
8   network buildout terms of the CETF MOU. As for the other terms in the CETF MOU, as Mr. Sievert  
9   will explain in his testimony, the DOJ and FCC Commitments require no changes other than a  
10   conforming change to the pricing commitment in the CETF MOU. With this necessary conforming  
11   change, T-Mobile stands behind every commitment memorialized in that MOU.  
12

13   **Q.    Can you please summarize the network-related and spectrum-related commitments in**  
14   **the CETF MOU and the FCC and DOJ Commitments?**

15   **A.**The CETF MOU buildout and network-related requirements address: (i) network capital  
16   expenditures to deploy 5G technology in California; (ii) deployment of 5G technology at  
17   California cell site locations; (iii) 5G broadband speeds; (iv) 5G network improvements in  
18   certain unserved and underserved California areas; (v) 5G wireless service at certain county  
19   fairgrounds in rural California counties; and (vi) measures to assist communities impacted by  
20   emergencies.

21           Under the FCC Commitments, New T-Mobile has committed to specific and  
22   concrete national benchmarks, backed up by a robust FCC enforcement mechanism,<sup>5</sup> that  
23   provide even further assurance that (1) New T-Mobile will build a world-leading 5G  
24   network; (2) the vast majority of rural residents will receive 5G broadband service; and  
25   (3) in-home broadband competition will be significantly enhanced.

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<sup>5</sup> This mechanism includes strong verification measures, substantial voluntary contributions for any missed deadlines, and continued accrual of the voluntary contributions until any unmet obligations are fulfilled. *See* Amended Wireless Notification, Confidential Exhibit S (FCC Commitments) at 7-8.

1 The DOJ Commitments are focused on the divestiture of Sprint’s 800 MHz spectrum (which as  
2 I discuss below is not part of the 5G network build) and Sprint Prepaid Assets to DISH; they do not  
3 include the same type of deployment-specific commitments as those in the CETF MOU or the FCC  
4 Commitments.

5  
6 **Q. How do the FCC and DOJ Commitments change your testimony, if at all?**

7 **A.** Because the FCC and DOJ Commitments were adopted after the hearing, they are not  
8 reflected in my testimony. However, importantly these commitments will not adversely impact  
9 our plans for 5G buildout in any way and, if anything, the FCC Commitments (in conjunction  
10 with the CETF MOU) will only lead to accelerated build-out, and enhanced coverage and speeds  
11 in California, including in rural areas, and verification of this deployment.<sup>6</sup>

12  
13 **Q. Can you elaborate?**

14 **A.** Yes. The ultimate plans for and timing of the build-out of the 5G network over the next  
15 few years continue to be based on T-Mobile’s network model and remain largely the same. The  
16 CETF MOU and FCC Commitments, however, provide for certain accelerated build out plans as  
17 well as certain increases in coverage and speed. For example, under the CETF MOU there are  
18 approximately [BEGIN HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY (“BHC-  
19 AEO”)] **REDACTED** [END HIGHLY CONFIDENTIAL – ATTORNEYS  
20 EYES ONLY (“EHC-AEO”)] over the network model by 2024.<sup>7</sup> Similarly, the FCC  
21 Commitments provide for, among other things, the accelerated build-out of the 5G network,  
22 expanded and accelerated rural deployment, and in-home broadband commitments, including  
23 those to rural households.<sup>8</sup> In California, those commitments project accelerated mid-band  
24 deployment in approximately [BHC-AEO] **REDACTED**

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<sup>6</sup> The DOJ Commitments explicitly require New T-Mobile to comply with all network build commitments made to the FCC. *See* Amended Wireless Notification, Exhibit P (PFJ) at § VIII.A.

<sup>7</sup> Amended Wireless Notification, Confidential Exhibit U (CETF MOU), Attachment B. The additional cell sites to which mid-band spectrum will be added under the CETF MOU are flagged with hash marks on Attachment B.

<sup>8</sup> *Id.*, Confidential Exhibit S (FCC Commitments).

REDACTED

1 [REDACTED] [EHC-AEO] over what is provided for in the network model.<sup>9</sup> The combined FCC  
2 Commitments and CETF MOU are projected to accelerate mid-band deployment in  
3 approximately [BHC-AEO] [REDACTED] [EHC-AEO] of the New T-Mobile sites in California by 2021  
4 and add mid-band spectrum to approximately [BHC-AEO] [REDACTED] [EHC-AEO] more sites by 2024  
5 – many of these in rural areas.<sup>10</sup>

6 Additionally, as described above, the CETF MOU and FCC Commitments set forth  
7 additional metrics to verify buildout and coverage (e.g., the CETF MOU requires speed tests at  
8 every site and the FCC Commitments require comprehensive reports including, among other  
9 things, data from drive tests and coverage shapefiles).<sup>11</sup>

10

11 **Q: You discuss the FCC Commitments and the CETF MOU in some detail above. Do the**  
12 **FCC Commitments require any changes to the CETF MOU?**

13 A. No. As discussed above, they project certain accelerated deployment but do not  
14 require any changes to the commitments in the CETF MOU.

15

16 **Q. Do the DOJ Commitments impact the CETF MOU obligations or require any changes to**  
17 **the CETF MOU?**

18 A. No. The DOJ Commitments do not impact the commitments in the CETF MOU  
19 in any way. As I noted above, the DOJ Commitments are focused on the divestiture of

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<sup>9</sup> See generally, Attachment D, T-Mobile June 13, 2019 Confidential Response to Communications Division Data Requests 39-45; see in particular Responses to Data Requests 39 - 41, including the corresponding confidential Attachment B beginning with Bates no. TMUS-CPUC-CD TMUS-CPUC-CD002969. (This is an updated version of Attachment B to the CETF MOU showing projected changes from the FCC Commitments in red font.) I understand this Response was also provided to Cal PA, TURN, Greenlining and CWA.

<sup>10</sup> [BHC-AEO] [REDACTED]  
[REDACTED] [EHC-AEO]. See Attachment D, Response to Data Request 41 and attached spreadsheet.

<sup>11</sup> See, e.g., Amended Wireless Notification, Confidential Exhibit S (FCC Commitments) at 7 (“For New T-Mobile’s three year and six-year commitment dates, the company will provide a comprehensive report that includes data from drive tests, polygon coverage shapefiles, population and household coverage figures, site lists, marketing figures, and executive certifications.”) and Confidential Exhibit U (CETF MOU) at § VII.E (“In order to verify the data speed achieved for a given site, New T-Mobile will provide a speed test for each site conducted after necessary work is completed. The speed tests shall be conducted by an independent third party selected by CETF from a list of experts ...”).



1 the Sprint Prepaid Assets to DISH; they do not address New T-Mobile’s plans to build  
2 out the 5G network in any way.

3  
4 **V. AMENDED SCOPING RULING – QUESTION NO. 3, DISH’S CALIFORNIA**  
5 **OBLIGATIONS**

6  
7 **Q. The Amended Scoping Ruling also asks “What are Dish Network’s California service**  
8 **obligations?” Do you have any comment?**

9 **A.** I am not in a position to offer testimony on what DISH’s obligations or plans for  
10 California include or even if it has such obligations. I am aware that DISH has made  
11 various statements regarding its plans to provide service nationwide.<sup>12</sup> I am also aware,  
12 as I discuss below, that under the DOJ Commitments and the Asset Purchase Agreement,  
13 T-Mobile is obligated to divest certain assets to DISH, to make other assets available to  
14 DISH and to provide transition services and support.

15  
16 **VI. AMENDED SCOPING RULING – QUESTION NO. 4, IMPACT OF SPECTRUM**  
17 **DIVESTITURE ON NEW T-MOBILE’S 4G NETWORK AND PLANNED 5G**  
18 **NETWORK**

19  
20 **Q. The fourth question identified by the Amended Scoping Ruling asks, “How does the**  
21 **proposed transfer of spectrum to Dish Network impact the quality and extent of New T-**  
22 **Mobile’s existing 4G network and its planned 6G [sic] network?” Please explain and**  
23 **please assume that the reference to “6G” was intended as a reference to “5G”.**

24 **A.** It does not impact the quality or the extent of our existing network or our planned 5G network  
25 in any way at all. Period.

26  
27 **Q. Can you elaborate?**

28 **A.** Yes. First let me summarize the key network-related and spectrum-related  
29 aspects of the DOJ Commitments:

---

<sup>12</sup> See Amended Wireless Notification, Exhibit T (DISH July 26, 2019 ex parte to FCC)

- 1 • DISH’s option to acquire Sprint’s 800 MHz spectrum;<sup>13</sup>
- 2
- 3 • If DISH exercises its option to purchase the 800 MHz spectrum,
- 4 New T-Mobile’s option to lease back from DISH up to 4 MHz of the 800 MHz
- 5 spectrum band for up to two (2) years following its divestiture;<sup>14</sup>
- 6
- 7 • New T-Mobile’s option to lease some of DISH’s 600 MHz
- 8 spectrum;<sup>15</sup>
- 9
- 10 • New T-Mobile’s obligation to make available to DISH all T-
- 11 Mobile USA and Sprint cell sites that are decommissioned within 5 years of
- 12 closing nationwide (at least 20,000);<sup>16</sup>
- 13
- 14 • DISH and New T-Mobile’s obligation to enter into a 7-year Mobile
- 15 Virtual Network Operator (“MVNO”) agreement;<sup>17</sup> and
- 16
- 17 • New T-Mobile’s obligation to honor all existing T-Mobile and
- 18 Sprint MVNO agreements and agree to certain extensions of such agreements.<sup>18</sup>
- 19 I will discuss the 800 MHz divestiture, as well as each of these below network-
- 20 related and spectrum-related aspects of the DOJ Commitments, below.<sup>19</sup>
- 21

22 *a. 800 MHz Spectrum Divestiture*

23

24 **Q. What if any changes to your testimony are necessitated by the commitment to divest**  
 25 **Sprint’s 800 MHz spectrum to DISH?**

26 **A.** My testimony referenced New T-Mobile’s projected national spectrum holdings and  
 27 refarming plan both of which included Sprint’s 800 MHz spectrum.<sup>20</sup> Under the DOJ

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<sup>13</sup> Amended Wireless Notification, Exhibit P (PFJ) at § IV.B. If DISH does not purchase the 800 MHz spectrum, these assets will be auctioned.

<sup>14</sup> See Amended Wireless Notification, Exhibit P (PFJ) at § XV.C.

<sup>15</sup> See *id.* at § V.

<sup>16</sup> *Id.* at § IV.C-D.

<sup>17</sup> *Id.* at §§ IV.A, VI.

<sup>18</sup> *Id.* at § VII.

<sup>19</sup> In addition, although it is not a network-related commitment per se, DISH will acquire the assets primarily used by Sprint’s Boost, Virgin Mobile and Sprint-branded prepaid businesses and the Boost, Virgin Mobile (excluding Assurance Wireless), and Sprint-branded prepaid customers. See *id.* at §§ II.L, IV. The divestitures exclude the Assurance brand Lifeline business and New T-Mobile will continue to provide LifeLine service under that brand.

1 Commitments, DISH will have the option to purchase Sprint’s 800 MHz spectrum licenses, and  
2 if DISH does not purchase them they will be auctioned.<sup>21</sup> Accordingly, my testimony should be  
3 modified to reflect that post-divestiture, New T-Mobile will not permanently retain any 800 MHz  
4 spectrum and will instead have the right to lease back a certain amount of the 800 MHz spectrum  
5 if divested to DISH as I discuss below.<sup>22</sup>

6

7 **Q. And what if any impact does having to divest the 800 MHz spectrum to DISH have on**  
8 **your ability to build the 5G network you describe in your testimony?**

9 **A.** None. As my Rebuttal Testimony makes clear, New T-Mobile never planned – and does  
10 not plan - to use Sprint’s 800 MHz spectrum to provide 5G service.

11

12 **Q. You testified in your Rebuttal Testimony that the complementary spectrum that T-**  
13 **Mobile will acquire from Sprint as a result of the merger is one of the key ingredients**  
14 **needed to deliver the robust, nationwide 5G network for New T-Mobile.<sup>23</sup> If Sprint’s 800**  
15 **MHz spectrum is not needed by T-Mobile for 5G, can you clarify what types of spectrum**  
16 **are needed for 5G?**

17 **A.** Yes, I can. Perhaps it will help if I review my testimony about the spectrum that New T-  
18 Mobile will use for 5G.

19 As I explained previously, there are three types of spectrum that are critical to a  
20 successful 5G development: (1) low-band spectrum (below 1 GHz); (2) mid-band spectrum  
21 (from 1 to 6 GHz); and (3) high-band or mmWave spectrum.<sup>24</sup> I went on to explain why the  
22 companies’ spectrum is complementary:

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<sup>20</sup> See, e.g., Hearing Ex. Jt Appl. 3-C at 23:1-2, Attachment A at ¶¶ 41, 61 and 62; and Attachment B at ¶ 18; see also Hearing Tr. at 567:6-10 (Ray cross).

<sup>21</sup> See Amended Wireless Notification, Exhibit P (PFJ) at § IV.B.

<sup>22</sup> *Id.* at § IV.B.1 (“Divesting Defendants are ordered and directed, within three (3) years after the closing of the divestiture of the Prepaid Assets...to divest the 800 MHz Spectrum Licenses....”).

<sup>23</sup> Hearing Ex. Jt Appl. 3-C at 14:23-15:3 (“it is the combination of the complementary spectrum, number of cell sites, and spectral efficiency that will deliver the robust, nationwide 5G for New T-Mobile.”)

<sup>24</sup> Hearing Ex. Jt Appl. 3-C at 13:5-7.

1 Currently, T-Mobile has: a substantial amount of low-band 600 MHz  
2 spectrum; a small amount of mid-band spectrum (*i.e.*, AWS and PCS bands)  
3 currently dedicated to LTE usage; and limited amounts of high-band,  
4 mmWave spectrum in certain geographic areas. Sprint, conversely, has very  
5 little low-band spectrum, large amounts of mid-band spectrum (*i.e.*, 2.5 GHz,  
6 and PCS bands), and no high-band spectrum. On a standalone basis, neither  
7 company has enough, or the right combination of, spectrum to deliver the full  
8 scope of 5G benefits.<sup>25</sup>

9 What T-Mobile needs from Sprint in terms of spectrum to deploy the 5G network contemplated  
10 by the merger is its mid-band spectrum – in particular its 2.5 GHz spectrum – *not* its low-band  
11 spectrum, *i.e.*, 800 MHz. As I noted above, T-Mobile already has a substantial amount of low-  
12 band 600 MHz (as well as 700 MHz) spectrum that it can use to support 5G and continue to  
13 provide LTE.

14  
15 **Q. Can you point to where in your Rebuttal Testimony it describes exactly what type of**  
16 **spectrum new T-Mobile will use for 5G?**

17 **A.** Yes. The spectrum refarming table from my Rebuttal Testimony (copied below) shows  
18 that New T-Mobile will deploy 5G using the following five types of spectrum: (i) 600 MHz; (ii)  
19 PCS; (iii) AWS; (iv) 2.5 GHz and (v) mmWave, *but not 800 MHz spectrum*.<sup>26</sup> You can also see  
20 from the refarming chart that we expect to use the 800 MHz spectrum to support CDMA and  
21 LTE service for Sprint customers during the migration period and LTE-based technologies such  
22 as narrow band IoT beyond that. The allocation of the 800 MHz spectrum to narrow band IoT

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<sup>25</sup> Hearing Ex. Jt Appl. 3-C at 14:25-30.

<sup>26</sup> See Hearing Ex. Jt Appl. 3-C, Attachment A (Ray Declaration to Public Interest Statement in FCC Docket WT 18-197) at 21, Table 2. The chart also shows how much spectrum we have of each spectrum type; every rectangle in the chart indicates a spectrum block of 10 MHz except in the mmWave row, where each block signifies 100 MHz of spectrum. In addition, the first, narrower 800 MHz block signifies 4 MHz of spectrum. Thus, for example, post-merger, New T-Mobile will have (prior to the DISH divestiture) 140 MHz of 2.5 GHz spectrum and 14 MHz of total 800 MHz spectrum.

1 that is reflected in the chart was just one of many possible LTE-based technologies that we might  
2 otherwise support with this spectrum.<sup>27</sup>

3 [BHC-AEO]

4



5

6 [EHC-AEO]

---

<sup>27</sup> A similar chart to the one included above was including the Amended Wireless Notification and in my Rebuttal Testimony. *See* Amended Wireless Notification at 23; *see also* Hearing Ex. Jt Appl. 3-C at 23:1-2. The only differences between those charts and the chart in my PIS Declaration are (a) the explanatory notes in the respective versions of the chart and (b) the detail on the potential use of the 800 MHz spectrum in 2022 – 2024. As I noted above, since narrow-band IoT was only one of many possible LTE-enabled services that we might otherwise support with the 800 MHz spectrum, the [BHC-AEO][REDACTED][EHC-AEO] for 800 spectrum in the Amended Wireless Notification and in Rebuttal Testimony refer simply to “LTE”.

1 **Q. Do you discuss this anywhere else in your Rebuttal Testimony?**

2 **A.** Yes. The types of spectrum New T-Mobile intends to use for 5G are also shown on page  
3 18 of my Rebuttal Testimony in the table entitled “5G Site Count.” This table (copied below)  
4 shows how many cell sites in California will receive each of the five types of spectrum listed  
5 above that New T-Mobile plans to use for 5G. Again this chart does not show any cell sites  
6 receiving 800 MHz spectrum.<sup>28</sup>

7 **[BHC-AEO]**



8

9 **[EHC-AEO]**

10

11

12

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<sup>28</sup> Hearing Ex. Jt Appl. 3-C at 18. The site counts in these charts are rounded. As discussed above, the combined FCC Commitments and CETF MOU are projected to accelerate mid-band deployment in approximately **[BHC-AEO]** **[EHC-AEO]** of the New T-Mobile sites in California by 2021 and add mid-band spectrum to approximately **[BHC-AEO]** **[EHC-AEO]** more sites by 2024 and could slightly impact the site count for any given year.

1 **Q. Will the divestiture of the 800 MHz spectrum impact New T-Mobile’s ability to**  
2 **deploy the 5G network that was the subject of your and Mr. Sievert’s Rebuttal Testimony**  
3 **and has otherwise been described by the Joint Applicants in this – and many other –**  
4 **proceedings?**

5 A. No. The divestiture of the 800 MHz spectrum will not impact, hinder, delay or otherwise  
6 affect our ability to deliver the benefits of New T-Mobile’s 5G network in terms of coverage,  
7 speed, and capacity or otherwise meet our Post-Hearing Commitments.

8  
9 *➤ 800 MHz Will Be Available for the Time Needed to Support CDMA and LTE*

10  
11 **Q. The refarming chart seems to show that New T-Mobile will need the 800 MHz spectrum**  
12 **to continue to support CDMA and LTE service. How will you provide that service in light of the**  
13 **divestiture of the 800 MHz spectrum?**

14 A. The divestiture commitments give us three years of continued use of the 800 MHz  
15 spectrum from the time we divest Sprint’s pre-paid assets to DISH.<sup>29</sup> New T-Mobile planned  
16 and still does plan to use that spectrum exclusively to support former Sprint customers during the  
17 anticipated 3-year migration period and to complete the migration of Sprint customers before this  
18 deadline.<sup>30</sup> We did not plan, and do not plan, to use 800 MHz spectrum to support former Sprint  
19 customers after the migration period and after the legacy network is terminated. Thus, even with  
20 the divestiture, New T-Mobile will have access to sufficient 800 MHz spectrum to support Sprint  
21 customers with CDMA and LTE through the migration process.

---

<sup>29</sup> See Amended Wireless Notification, Exhibit P (PFJ) at § IV.B. I recognize that the DOJ Commitments provides that the 800 MHz spectrum must be divested “within three (3) years after the closing of the divestiture of the Prepaid Assets or within five (5) business days of the approval by the FCC of the transfer of the 800 MHz Spectrum Licenses, whichever is later” but we do not currently anticipate divesting that spectrum until the end of the 3-year period.

<sup>30</sup> See, e.g., Hearing Ex. Jt Appl. 3-C at 47:5-6 (“T-Mobile expects that all Sprint customers are likely to be completely migrated within three years.”).

1 **Q. What happens if the migration of the Sprint post-paid customers and the Assurance**  
2 **Wireline customers is not completed when you have to divest the 800 MHz spectrum?**

3 **A.** First, as I explained in my Rebuttal Testimony, based on our experience migrating  
4 MetroPCS customers after that merger, I am confident that our migration process will be  
5 successful and timely.<sup>31</sup> However, should we need additional time to complete the migration, the  
6 PFJ provides that the DOJ may grant one or more extensions of time to divest the 800 MHz  
7 spectrum not to exceed sixty (60) calendar days.<sup>32</sup> And if New T-Mobile needs the spectrum for  
8 a longer period of time and DISH has acquired the 800 MHz spectrum, New T-Mobile has the  
9 option to lease back from DISH up to 4 MHz of spectrum as needed for up to two (2) years  
10 following its divestiture.<sup>33</sup> That should be more than sufficient to provide service to any  
11 remaining Sprint customers that have not transitioned by that time. However, as I noted above,  
12 we expect our migration to be successful and timely.

13  
14 **Q. Has T-Mobile made a decision yet whether it will lease back any of the 800 MHz**  
15 **spectrum?**

16 **A.** No, that would be premature.

17  
18 **Q. Did T-Mobile plan to use the 800 MHz spectrum to provide LTE service to existing**  
19 **T-Mobile customers after the merger?**

20 **A.** No. As I explained above, we planned – and continue to plan – to use the 800 MHz  
21 spectrum exclusively to support existing Sprint customers during the migration to New T-  
22 Mobile. It was never to be used for existing T-Mobile customers and thus the divestiture of that  
23 spectrum will have no impact on our ability to provide those customers with the LTE service  
24 they currently enjoy today.

25  
26  

---

<sup>31</sup> See Hearing Ex. Jt Appl. 3-C at 46:6-21. See also Hearing Ex. Jt Appl. 4-C (Keys Rebuttal Testimony) at 15:5-14.

<sup>32</sup> See Amended Wireless Notification, Exhibit P (PFJ) at § IV.B.1.

<sup>33</sup> See *id.* at § XV.C.



1           ***b. 600 MHz Spectrum***

2  
3       **Q.     The DOJ Commitments also provide T-Mobile with the ability to lease some of DISH’s**  
4 **600 MHz spectrum. Although the Amended Scoping Ruling does not mention that spectrum,**  
5 **how does the potential to lease the 600 MHz impact your testimony?**

6       **A.     This is a development that did not exist at the time of the hearing and thus is not reflected**  
7 **or referenced in my testimony.<sup>34</sup>**

8  
9       **Q.     The PFJ requires T-Mobile and Sprint to negotiate in good faith with DISH to lease**  
10 **“some or all” of DISH’s 600 MHz Spectrum Licenses.<sup>35</sup> How much 600 MHz spectrum does**  
11 **New T-Mobile plan to lease?**

12       **A.     T-Mobile has not made any decisions regarding how much of the DISH’s 600 MHz**  
13 **spectrum it may want to lease.**

14  
15       **Q.     How will having additional 600 MHz spectrum impact the company’s 5G buildout plans**  
16 **and the consumer benefits for California that you and other T-Mobile witnesses have outlined in**  
17 **your testimony.**

18       **A.     It is difficult to answer this question at this juncture since we do not know how much 600**  
19 **MHz spectrum we will ultimately lease. However, any additional 600 MHz spectrum we would**  
20 **obtain will result in more capacity and higher speeds while we deploy mid-band radios and**  
21 **spectrum. This spectrum can be accommodated on our existing hardware so consumer benefits**  
22 **will be almost immediate. Needless to say, acquiring 600 MHz spectrum would not adversely**  
23 **impact our buildout plans in any way as it is only additive.**

24  
25  

---

<sup>34</sup> *See id.* at § V.

<sup>35</sup> *Id.* at § V.

1           c. *Decommissioned Cell Sites*

2  
3     **Q.     Another DOJ Commitment requires New T-Mobile to make available to DISH all**  
4 **decommissioned T-Mobile USA and Sprint cell sites decommissioned within 5 years of closing**  
5 **the divestiture of the Sprint prepaid businesses, along with any transport-related equipment at**  
6 **those sites. How does that new commitment impact your testimony?**

7     **A.**     This is a new development that occurred after I testified so it is not reflected in my  
8 testimony. However, substantively, this DOJ Commitment does not impact my testimony or New  
9 T-Mobile's 5G buildout since DISH's option to assume Sprint and T-Mobile sites relates solely  
10 to those cell sites that are decommissioned by New T-Mobile and transport-related equipment at  
11 those sites.<sup>36</sup>

12           T-Mobile anticipated that it would be decommissioning sites as a result of the merger and  
13 did not anticipate using these sites to build out the new 5G network.<sup>37</sup> As I previously explained  
14 in my Rebuttal Testimony:

15           Integrating the Sprint and T-Mobile networks into the New T-Mobile network  
16 would involve decommissioning a number of Sprint cell sites where they are  
17 redundant and unnecessary. These generally will be sites that are either  
18 collocated with existing T-Mobile sites (*i.e.*, on the same tower or rooftop) or  
19 located very close to an existing T-Mobile site with extensively overlapping  
20 coverage. As such, they are unnecessary to provide or maintain service, and  
21 would not be constructed by an operator in the ordinary course. For this  
22 reason, decommissioning these sites will not affect the resiliency of the New  
23 T-Mobile network or the reliability of service provided to consumers and first  
24 responders. On the other hand, eliminating these unnecessary sites is critical  
25 to realizing the projected network synergies from the transaction, which are  
26 essential to making possible the nearly \$40 billion investment in a 5G network  
27 and services, which does benefit the network's resiliency.<sup>38</sup>

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<sup>36</sup> See *id.* at § IV.C.

<sup>37</sup> See, e.g., Hearing Ex. Jt Appl. 3-C at 21:3-6; see also Hearing Tr. at 467:6 – 17 (Ray Cross).

<sup>38</sup> Hearing Ex. Jt Appl. 3-C at 52:19 – 53:2.

1 **Q. Do you know yet precisely how many of the cell sites to be decommissioned**  
2 **are in California and which ones will be offered to DISH?**

3 **A.** We have a preliminary analysis of the Sprint cell sites to be decommissioned in  
4 California which I understand was provided to the intervenors in discovery.<sup>39</sup> As I noted above,  
5 under the DOJ commitments, New T-Mobile must make available to DISH all sites that it  
6 decommissions to DISH within 5 years of closing the divestiture of the Sprint prepaid  
7 businesses. However, no final decisions have been made about which of these sites will be  
8 decommissioned.

9

10 **Q. For the sites that you are decommissioning are you providing DISH with access to**  
11 **just the tower /support structure or any related equipment?**

12 **A.** As a general rule, once a determination has been made to decommission a cell site,  
13 certain equipment that is used in the operation of New T-Mobile's business, including but not  
14 limited to the antennas, base stations installations, coaxial cables and other related equipment  
15 mounts, is removed from the site contingent upon existing lease agreements. Per the Asset  
16 Purchase Agreement, DISH will otherwise have the right and the option – but not the obligation  
17 – to acquire all the right, title and interest in certain assets (including but not limited to transport-  
18 related equipment, 800 MHz equipment and Vacated Equipment, but not including the  
19 equipment noted above) as well as leases and easements associated with the decommissioned  
20 cell sites.<sup>40</sup>

21

22

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<sup>39</sup> See, e.g., T-Mobile's November 7, 2018 Confidential Response to Cal PA DR 2-6 (including the corresponding spreadsheet that beginning with Bates no. TMUS-CPUC-PA-11008099), a copy of which is provided as Attachment E.

<sup>40</sup> See Asset Purchase Agreement, Exhibit E attached hereto as Confidential Attachment F at 2-4 (definitions of Equipment, Excluded Assets, 800 MHz Equipment and Vacated Equipment); see also *id.* at § 2.1.

1 **Q. Do you intend to offer any equipment from the decommissioned sites to DISH that**  
2 **New T-Mobile otherwise plans to utilize to support 5G deployment or LTE services or**  
3 **legacy Sprint customers in the migration process?**

4 **A.** No. New T-Mobile has no obligation to offer equipment to DISH that it plans to use to  
5 serve its current or potential customers. As I mentioned above, under the Asset Purchase  
6 Agreement, DISH will otherwise have the right and the option – but not the obligation – to  
7 acquire certain transport-related equipment, 800 MHz equipment and Vacated Equipment, none  
8 of which we plan to utilize to support 5G deployment or LTE services or legacy Sprint customers  
9 in the migration process.

10  
11 **Q. New T-Mobile has also made a commitment to keep certain Sprint generators<sup>41</sup> and**  
12 **Sprint Cells on Wheels (“COWs”) and Cells on Light Trucks (“COLTs”). Does the transition to**  
13 **DISH of the decommissioned cell sites involve any of this Sprint equipment?**

14 **A.** No, the transition to DISH of the decommissioned cell sites has no impact on that  
15 commitment.

16  
17 **VII. AMENDED SCOPING RULING – QUESTION NO. 5, IMPACT OF**  
18 **DIVESTITURE ON SPRINT PREPAID BUSINESS ON CURRENT SPRINT**  
19 **PREPAID CUSTOMERS**  
20

21 **Q. The fifth question identified in the Amended Scoping Ruling asks: “How does the**  
22 **divestiture of Sprint, Boost and Virgin pre-paid businesses impact California customers**  
23 **who are currently receiving services from one or another of these providers?” How do you**  
24 **respond?**

25 **A.** First, I would clarify that the divestiture of the Sprint Prepaid Assets does not include the  
26 customers of Assurance Wireless; an issue that Mr. Sievert addresses in his testimony. As to the  
27 prepaid Sprint customers that are divested to DISH, the retail terms and conditions of service  
28 post-divestiture will be a matter for DISH, not new T-Mobile. However, importantly, the DOJ  
29 and FCC Commitments include a number of provisions that require New T-Mobile to provide  
30 long-term wholesale service to DISH via an MVNO agreement and support services, at DISH’s

---

<sup>41</sup> See Hearing Ex. Jt Appl. 3-C at 52:8-17.

1 request, via a transition services agreement that will enable DISH to migrate its customers to the  
2 New T-Mobile network at the same time that New T-Mobile is migrating the Sprint postpaid and  
3 Assurance customers

4

5 **Q. Can you please elaborate?**

6 **A.** Yes. The DOJ Commitments include a number of obligations including requirements to:

- 7 • execute a 7-year Full MVNO agreement with DISH;<sup>42</sup>
- 8
- 9 • “take all actions required” to enable DISH to provision any new or existing  
10 customer holding a compatible device onto the network;<sup>43</sup> and
- 11
- 12 • enter into one or more transition agreements to provide billing, customer care, etc.  
13 at cost to DISH at its request.<sup>44</sup>
- 14

15 **Q. How will migration of Sprint prepaid customers be handled after the divestiture?**

16 **A.** My Rebuttal Testimony regarding the migration of Sprint’s prepaid customer base  
17 provided that they would be “migrated in exactly the same fashion and on the same timeframe as  
18 Sprint postpaid customers.” At that time the DOJ Commitments did not exist. In light of those  
19 commitments, I can no longer offer testimony as to how DISH will address the post-divestiture  
20 migration of legacy Sprint prepaid (excluding Assurance) customers to the New T-Mobile.  
21 DISH will be responsible for its customers’ handset upgrades and compatibility after the  
22 divestiture. I would note, however, that we are [BHC-AEO]

23 **REDACTED**

24

25 [EHC-AEO].<sup>45</sup> In addition, as I explained above, the DOJ Commitments

26 require New T-Mobile to “take all actions required” to enable DISH to provision any new or  
27 existing customer holding a compatible device onto the network and to do so within 90 days of

---

<sup>42</sup> *Id.* at Exhibit P (PFJ), § VI.A. A “Full MVNO Agreement” is a defined term in the PFJ that is more expansive than a standard MVNO agreement. *Id.* at § II.I.

<sup>43</sup> Amended Wireless Notification, Exhibit P (PFJ) at §§ IV.A. and B.

<sup>44</sup> *Id.* at § IV.4.

<sup>45</sup> *See* Asset Purchase Agreement, Exhibit C (Form of Master Network Services Agreement) at Annex 1, Section 2; a copy of which Annex is attached hereto as Attachment G.

1 entry of the PFJ by the federal court.<sup>46</sup> Moreover, New T-Mobile is obligated to enter into one or  
2 more transition agreements to provide billing, customer care, etc. at cost to DISH, upon its  
3 request for the first 2 to 3 years after the divestiture.<sup>47</sup> Finally, the network capacity of the New  
4 T-Mobile network is more than sufficient to handle the migration of all Sprint prepaid customers  
5 that are divested to DISH as those customers were initially part of our migration plan. In sum, T-  
6 Mobile will do all it can to make it possible for DISH to successfully and timely migrate the  
7 Sprint prepaid customers to the network. Mr. Sievert also addresses this issue in his  
8 Supplemental Testimony.

9

10 **Q. Will the divested Sprint prepaid customers have access to the same New T-Mobile**  
11 **Network they would have been on if there was no divestiture?**

12 **A.** Yes. Assuming the divested Sprint prepaid customers have a compatible device and  
13 DISH elects to serve these customers via its MVNO agreement with New T-Mobile, they will  
14 have access to the same network they would have been on had there been no divestiture as long  
15 as DISH remains a New T-Mobile MVNO under the current agreement.

16

17 **Q. Does the fact that some of the legacy Sprint customers will be divested to DISH**  
18 **adversely impact in any way the migration process for the Sprint customers that are not**  
19 **divested to DISH (i.e., the Sprint postpaid and Assurance customers)?**

20 **A.** No, the migration process will be unaffected for those customers.

21

22 **Q. You also stated in your prior testimony that “...T-Mobile will not terminate the**  
23 **CDMA network in any market without migrating users from the network first.”<sup>48</sup> How do**  
24 **the FCC and DOJ Commitments impact that testimony?**

25 **A.** These commitments did not exist at the time I provided that testimony and thus my prior  
26 testimony did not account for the divestiture of the Sprint prepaid business. In light of these  
27 commitments, my prior testimony would now have to be modified to include only Sprint CDMA

---

<sup>46</sup> See Amended Wireless Notification, Exhibit P (PFJ) at Section IV.A.1.

<sup>47</sup> *Id.* at § IV.4.

<sup>48</sup> Hearing Ex. Jt Appl. 3-C at 47:9-10.

1 customers who are not divested. As I noted above, the migration of the Sprint’s prepaid  
2 customers (not including Assurance Wireless) will be DISH’s responsibility although T-Mobile  
3 has a number of obligations to facilitate that process as I describe above. Additionally, I suspect  
4 that DISH will have every incentive to complete the migration before the CDMA network is  
5 terminated in order to continue to provide the divested Sprint prepaid customers with service  
6 under the MVNO arrangement. I would also reiterate that T-Mobile intends to maintain the 800  
7 MHz spectrum for three years to support CDMA service during our migration process and that  
8 we have an option to lease 4 MHz of spectrum for additional time if required.  
9

10 **VIII. AMENDED SCOPING RULING – QUESTION NO. 6, IMPACT OF DISH MVNO**  
11 **AGREEMENT ON NEW T-MOBILE’S 4G AND PLANNED 5G NETWORK**  
12

13 **Q. The sixth question in the Amended Scoping Ruling provides “How does the**  
14 **requirement that New T-Mobile make its network available to Dish Network for up to**  
15 **seven years impact the quality and extent of New T-Mobile’s existing 4G network and its**  
16 **planned 6G [sic] network?” Can you respond? Please assume that the reference to “6G”**  
17 **was intended as a reference to “5G”.**

18 **A.** Yes. T-Mobile’s MVNO agreement with DISH will have no adverse impact at all on our  
19 existing LTE network or on our planned world-leading 5G network. As I have previously  
20 explained in my Rebuttal Testimony, the multiplicative effects associated with more cell sites,  
21 more spectrum per cell site, and higher spectral efficiencies will result in dramatic increases in  
22 capacity, throughput and coverage.<sup>49</sup> In fact, the combined network enables *almost 2X* the 5G  
23 capacity by 2021 and *more than 2X* 5G capacity by 2024, when compared to the combined  
24 standalone networks.<sup>50</sup> That will be more than sufficient capacity to handle the DISH MVNO  
25 agreement. I would also note that our network plan already accounted for the Sprint prepaid  
26 customers so there is limited (if any) incremental loading associated with this group of customers  
27 in particular.  
28

---

<sup>49</sup> Hearing Ex. Jt Appl. 3-C at 36:11-13.

<sup>50</sup> Hearing Ex. Jt Appl. 3-C at 31:6-8.

1 **Q. The DOJ commitments also require you to extend the terms of certain other MVNO**  
2 **agreements.<sup>51</sup> Will New T-Mobile have sufficient capacity on its network to support DISH and**  
3 **these other MVNOs?**

4 **A.** Yes, as I explained above and as discussed extensively in my Rebuttal  
5 Testimony, the combination of New T-Mobile’s site density (combining T-Mobile’s  
6 sites with retained Sprint sites), its complementary spectrum portfolio, and increased  
7 spectral efficiency due to the accelerated move to 5G will result in a massive amount of  
8 capacity.<sup>52</sup> We will have more than sufficient capacity to meet the needs of our MVNO  
9 partners.

10  
11 **IX. AMENDED SCOPING RULING – QUESTION NO. 7, OTHER IMPACTS OF**  
12 **THE DOJ OR FCC COMMITMENTS ON BENEFITS OF MERGER TO**  
13 **CALIFORNIA CUSTOMERS**  
14

15 **Q. The seventh question identified in the Amended Scoping Ruling asks “In what other**  
16 **ways, if any, could the DOJ and FCC commitments change the benefits that applicants**  
17 **have claimed California customers will receive from the proposed transaction? Do you**  
18 **have any comment?**

19 **A.** Except as noted in this Supplemental Testimony, I am not aware of any changes the DOJ  
20 or FCC Commitments will have, or could have, on the California network-related benefits, or  
21 any other benefits, that we have set forth in the course of this proceeding.  
22  
23

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<sup>51</sup> See Amended Wireless Notification, Exhibit P (PFJ) at §§ VI and VII.

<sup>52</sup> See e.g., Hearing Ex. 3-C at 28 (charts illustrating the capacity of the New T-Mobile 5G network).



1           **X.    AMENDED SCOPING RULING – QUESTION NO. 8, CALIFORNIA-SPECIFIC**  
2           **VERSION OF FCC COMMITMENTS**  
3

4           **Q.    The eighth and final question identified in the Amended Scoping Ruling asks “With**  
5           **reference to the Network and In-Home Commitments set forth for New T-Mobile’s**  
6           **Nationwide 5G Network Deployment at pages 1-3 of Attachment 1,<sup>53</sup> provide all of the**  
7           **same information in the same format as contained in Sections I, II and III of Attachment 1,**  
8           **specifying the commitments for deployment in California rather than nationwide.” Is that**  
9           **something you can provide?**

10          **A.    Yes. In fact, we previously provided this same information in response to a data**  
11          **request from the Commission’s Communication Division which I understand was also**  
12          **provided to all the intervenors that had executed a non-disclosure agreement with the**  
13          **Joint Applicants. I am attaching a copy of that response to my testimony.<sup>54</sup> In addition,**  
14          **per the Amended Scoping Ruling, I am attaching the requested information in the format**  
15          **requested.<sup>55</sup> The information in both attachments with respect to California is identical;**  
16          **the format is all that varies. As I discussed above, the California information in both**  
17          **reflects projections based on the FCC Commitments for nationwide deployment.**  
18  
19

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<sup>53</sup> Per the Amended Scoping Ruling, “Attachment 1” means Attachment 1 to the May 20, 2019 Applications of T-Mobile US, Inc. and Sprint Corporation for Consent to Transfer Control of Licenses and Authorizations; WT Docket No. 18-197 to Marlene H. Dortch, Secretary, Federal Communications Commission.

I would note that the May 20, 2019 filing referenced above in the footnote to Question 8 was not an application but an ex parte filing that is otherwise attached as Confidential Exhibit S (FCC Commitments) to the Amended Wireless Notification.

<sup>54</sup> See Attachment D, T-Mobile June 13, 2019 Confidential Response to Communications Division Data Request 39.

<sup>55</sup> See Attachment H.

1           **XI. CONCLUSION**

2  
3           **Q. Circling back to the Scoping Memo issue, you said previously that “neither the DOJ**  
4 **nor the FCC Commitments require any changes to the network buildout terms of the**  
5 **CETF MOU.” That said do either the FCC Commitment or DOJ Commitment *have any***  
6 ***impact on T-Mobile’s ability to meet its network-related obligations under the CETF***  
7 **MOU?**

8           **A.** The DOJ Commitments do not impact the CETF MOU in any way. As I noted above, the  
9 DOJ Commitments are focused on the divestiture of the Sprint Prepaid Assets to DISH, and as I  
10 explained above, the divestiture of those assets, including the divestiture of 800 MHz spectrum  
11 will have no impact on New T-Mobile’s plans to build out the 5G network in any way.

12           The FCC Commitments have a limited positive impact on the CETF MOU. As I  
13 explained above, under the FCC Commitments, which are made on a nationwide basis, T-Mobile  
14 projects that the accelerated build-out of the 5G network as set forth in the CETF MOU would be  
15 further accelerated. In no case do the FCC Commitments detract from the accelerated build out  
16 in the CETF MOU. The FCC Commitments also provide for additional metrics to verify build-  
17 out, coverage and speed.

18  
19           **Q. Does this conclude your Supplemental Testimony?**

20           **A.** Yes, it does.

**Attachment Index**

Attachment A	Declaration of Neville R. Ray
Confidential Attachment B	Redlined Excerpts from Hearing Ex. Jt Appl. 3-C, Rebuttal Testimony of Neville R. Ray
Attachment C	Redlined Excerpts from February 6, 2019 Hearing Testimony of Neville R. Ray
Confidential Attachment D	T-Mobile June 13, 2019 Confidential Response to Communications Division Data Request 39-45 (including Attachment B)
Confidential Attachment E	T-Mobile November 7, 2018 Confidential Response to Cal PA DR 2-6
Confidential Attachment F	Exhibit E of the Asset Purchase Agreement
Confidential Attachment G	Annex 1 to Exhibit C of Asset Purchase Agreement
Confidential Attachment H	Network and In-Home Commitments

Public Version  
Supplemental Testimony of Neville R. Ray Submitted on Behalf of Joint Applicants  
November 7, 2019

Attachment A

Declaration of Neville R. Ray

**SUPPLEMENTAL TESTIMONY OF NEVILLE R. RAY**  
**DECLARATION**

I, Neville R. Ray, have reviewed the responses to the questions posed in the Supplemental Testimony attached hereto as Exhibit A and declare under penalty of perjury under the laws of the State of California that the responses to the questions posed are true and correct to the best of my knowledge, information and belief, and if called to testify thereon I am prepared to do so.

Dated: November 7, 2019

\_\_\_\_\_  
/s/  
Neville R. Ray

Attachment B

Redlined Excerpts from Hearing Ex. Jt Appl. 3-C, Rebuttal  
Testimony of Neville R. Ray

(PUBLIC VERSION)

1

[BHC-AEO]



2  
3

<sup>1</sup>

4

[EHC-AEO]

5

6

7

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10

11

Furthermore, because of its size and scale, and ability to offer a better value proposition to equipment manufacturers as a result of its expanded customer base, New T-Mobile will be able to more quickly move more spectrum to 5G than either standalone company. New T-Mobile will be able to: (1) increase 5G device penetration levels, and (2) therefore reduce the number of customers still relying upon LTE for service. New T-Mobile will be able to drive 5G-

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<sup>1</sup> Under the DOJ Commitments, New T-Mobile will not permanently retain any 800 MHz spectrum. Instead New T-Mobile is required to divest the 800 MHz Spectrum Licenses within three (3) years after the closing of the divestiture of the Prepaid Assets. DISH will have the option to purchase Sprint's 800 MHz spectrum licenses, and if it purchases that spectrum, New T-Mobile will have the right to lease back 4 MHz of the 800 MHz spectrum. If DISH does not purchase the 800 MHz spectrum it will be auctioned. Amended Wireless Notification, Exhibit P (PFJ) at § IV.B.

1 I. CUSTOMER MIGRATION

2  
3 **Q: Cal PA raises some concerns regarding how Sprint customers will be migrated to**  
4 **New T-Mobile (Reed Testimony at p. 13). Can you please generally describe New T-**  
5 **Mobile’s network integration and migration plans?**

6 **A:** New T-Mobile’s network and customer migration will be timely and efficient. We plan  
7 an aggressive technology migration program for the combined company that will allow for a  
8 smooth and rapid expansion of capacity and enable customers to quickly experience the benefits  
9 of the transaction. The combination will be accomplished through a network and customer  
10 migration. This migration plan involves: (1) accommodating Sprint’s existing LTE customers in  
11 California on the existing T-Mobile network as rapidly as possible after closing, and (2) utilizing  
12 the freed up spectrum resources for 5G as soon as practical thereafter.

13 This is not our first large scale migration; as described in greater detail below and in Mr.  
14 Keys’ testimony, we migrated 9 million customers from the MetroPCS network to T-Mobile’s  
15 network in 2013-14, and did it very successfully—besting our own projections and schedules,  
16 achieving greater synergies than expected, avoiding customer disruptions, surpassing expert  
17 predictions, improving service for customers and, ultimately, sparking rapid growth for  
18 MetroPCS customer base. We expect to utilize a similar approach for migrating Sprint  
19 customers, including many of the same tools and team members. Based on our experience  
20 migrating MetroPCS customers onto the T-Mobile network, I am confident this migration  
21 process will be successful.

22  
23 **Q: Cal PA also expresses concerns about how Sprint customers with incompatible**  
24 **devices will be migrated onto New T-Mobile’s network (Reed Testimony at p. 13). Please**  
25 **explain how the New T-Mobile will ensure that California consumers are efficiently**  
26 **migrated to the new network.**

27 **A:** Cal PA raises an important issue, but its concern is misplaced as we have a detailed plan  
28 for migrating all Sprint postpaid and Assurance LifeLine customers, including those with  
29 incompatible devices. Sprint customers who have handsets compatible with T-Mobile’s network  
30 or upgrade to T-Mobile-compatible handsets, will gain access to New T-Mobile’s nationwide



1 network, improved coverage quality, higher performing devices,<sup>2</sup> access to VoLTE capabilities if  
2 compatible,<sup>3</sup> and a broader choice of handsets. The remaining Sprint customers will eventually  
3 require handset change outs. The majority of these will be accomplished through the natural  
4 upgrade cycle, but New T-Mobile (similar to how the MetroPCS transition was handled) will  
5 offer promotions to expedite upgrades to compatible devices. T-Mobile expects that all Sprint  
6 customers are likely to be completely migrated within three years. By undertaking this rapid  
7 migration, New T-Mobile will drive synergies to our existing LTE network and free up valuable  
8 spectrum for 5G use in a more rapid fashion than either company could accomplish on its own.  
9 Even so, the transition from the 800 MHz CDMA network will begin no earlier than January 1,  
10 2021, and T-Mobile will not terminate the CDMA network in any market without migrating  
11 [Sprint postpaid and Assurance](#) users from the network first.

12 Additionally, a built-in LTE feature known as Multi-Operator Core Network (“MOCN”)  
13 will allow us to unify the T-Mobile and Sprint radio access networks (“RANs”) almost  
14 immediately and allow the existing customers with compatible devices to seamlessly access the  
15 best of both networks during integration. As Sprint customers are migrated off of the Sprint  
16 core, we will remove this requirement and collapse to a single New T-Mobile core network.

17  
18 **Q: What about prepaid customers; how will they be migrated to the New T-Mobile**  
19 **network?**

20 **A:** Prepaid customers ride over the same network as all other T-Mobile customers, and their  
21 migration will be identical to other customers. Similarly, [Sprint prepaid Assurance](#) customers

---

<sup>2</sup> Sprint’s existing voice services are provided using CDMA technology. CDMA does not allow a voice and data connection at the same time—so a Sprint customer on the CDMA network must choose between these services.

<sup>3</sup> VoLTE is an acronym for Voice over LTE networks. VoLTE is a standards-based technology that is required to allow for the delivery of voice calls over the LTE network. Sprint began to deploy VoLTE on its network on a standalone basis in 2018. When moving Sprint customers to the New T-Mobile network, VoLTE-capable devices of existing Sprint customers can immediately be updated through an over-the-air software upgrade. While Sprint will began deploying VoLTE in 2018, our experience is that this effort may take some time to roll out throughout the network. T-Mobile already has VoLTE available on its network and Sprint devices that are capable through a software update to use the New T-Mobile network and are compatible with VoLTE will be able to rapidly have access to VoLTE and HD Voice capabilities.

1 will be migrated in exactly the same fashion and on the same timeframe as Sprint postpaid  
2 customers. *[End of Excerpt]*

Attachment C

Redlined Excerpts from February 6, 2019 Hearing  
Testimony of Neville R. Ray

1 going to be a fairly broad answer to talk  
2 about the basic principles of migration.

3 Q Briefly, yes.

4 A The whole concept here, as you  
5 rightly outlined, we would be migrating the  
6 Sprint **postpaid and Assurance** customer base~~s~~ onto  
the T-Mobile

7 network. We only do that -- the first thing  
8 that we do is we build out sufficient  
9 capacity so that we have the performance  
10 capabilities to absorb that migrating  
11 customer base. And as you rightly point out,  
12 that migration is predicated on handset  
13 compatibility and the ability for an existing  
14 Sprint customer to use the T-Mobile network.

15 So if I boil this down,  
16 approximately 50 percent of Sprint customer  
17 base today, because they migrated to LTE,  
18 they have a device that is compatible and can  
19 work on the T-Mobile network. I'm not saying  
20 we are going to migrate 50 percent day one,  
21 because I have to build capacity to make  
22 those millions of customers, and we will do  
23 that as we move through that first three-year  
24 period. But approximately half the base has  
25 been communicated by Sprint to us having a  
26 compatible device. ]

27 So the other half as there are a  
28 volume of devices that are going to require

1 A That is the license structure.

2 Q Looking at New T-Mobile for the 600  
3 and 800 megahertz, the low band between 600  
4 and 800 megahertz, that is a 54 megahertz  
5 spectrum, right?

6 A Yes. These are national averages of  
7 spectrum. So you have 30 megahertz in 600,  
8 you have 10 approximately in 700, and then  
9 there is a 14 megahertz layer in

10 800 megahertz.

11 Q Okay. Same sort of questions for  
12 the other categories here. So we have 700  
13 megahertz of spectrum in the PCS band; is  
14 that right?

15 A Yes, 7 block.

16 Q And 40 megahertz for AWS band?

17 A Correct.

18 Q And 140 for the 2.5 gigahertz band;  
19 is that right?

20 A Correct.

21 Q If you add all these up, little map  
22 for you, you get 250 megahertz of mid-band  
23 spectrum; is that right?

24 A Approximately, yes.

25 Q If New T-Mobile has 54 megahertz of  
26 low-band spectrum and 250 megahertz of mid-band  
27 spectrum, do you agree there is only  
28 approximately one fifth the spectrum

**Commented [JA1]:** Note to parties: the table referencing spectrum holdings, which is the subject of this line of cross, has been updated to reflect the divestiture of 800 MHz spectrum. See Supplemental Testimony of Neville R. Ray at 11.

Attachment D

T-Mobile June 13, 2019 Confidential Response to  
Communications Division Data Request 39-45 (Attachment B,  
Confidential spreadsheet not included)

Attachments A, C, and D to T-Mobile June 13, 2019  
Confidential Response to Communications Division Data Request  
39-45 are not included herein, but are available upon request

(PUBLIC VERSION)

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

In the Matter of the Joint Application of Sprint )	Application No. 18-07-011
Communications Company L.P. (U-5112-C) )	
and T-Mobile USA, Inc., a Delaware )	
Corporation for Approval of Transfer of Control )	
of Sprint Communications Company L.P. )	
Pursuant to California Public Utilities Code )	
Section 854(a) )	

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In the Matter of the Joint Application of Sprint )	Application No. 18-07-012
Spectrum L.P. (U-3062-C), and Virgin Mobile )	
USA, L.P. (U-4327-C) and T-Mobile USA, Inc., )	
a Delaware Corporation for Review of Wireless )	
Transfer Notification per Commission Decision )	
95-10-032 )	

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**T-MOBILE USA’S RESPONSE TO THE COMMUNICATIONS DIVISION’S DATA  
REQUEST DATED JUNE 3, 2019  
(DR Nos. 39 to 45)**

**[CONFIDENTIAL VERSION]**

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Attorneys for T-Mobile USA, Inc.

Dated: June 13, 2019

**T-Mobile USA's Response to the Communications Division's Data Request dated  
June 3, 2019 (DR Nos. 39 to 45)**

**General Objections**

These General Objections are hereby designated as a part of, and incorporated by reference into, any response or information, written or oral, provided by T-Mobile USA ("T-Mobile") to the Communications Division ("CD") Data Request dated June 3, 2019.

1. In providing its responses to the Data Requests, T-Mobile does not waive any applicable objections or privileges. Review of the Data Requests is ongoing and T-Mobile reserves the right to assert such further objections and privileges as it may subsequently determine are applicable to the Data Requests.
2. The information transmitted by T-Mobile in response to the Data Requests is submitted pursuant to California Public Utilities Code Section 583, CPUC General Order No. 66-D, and the California Public Records Act, and shall be treated as confidential information.
3. T-Mobile's responses are based on information presently known to T-Mobile, without prejudice to T-Mobile's right to amend or supplement its responses as additional information, if any, is located, and as additional information may be imparted to T-Mobile by CD regarding the scope and meaning of the Data Requests.
4. T-Mobile objects to the Data Requests to the extent they seek information and/or any documents protected by the privilege for attorney-client communications, the doctrine protecting attorney work product, or any other applicable privilege, immunity or restriction. In responding to CD's Data Requests, T-Mobile does not waive, and it is not producing information and documents that it believes are protected by, such privileges and doctrines. The inadvertent production of any such information and documents shall not constitute a waiver of T-Mobile's rights and privileges with regard to such information and documents.
5. In responding to the Data Requests, T-Mobile does not concede the relevancy, materiality, or admissibility of any information or documents sought by the Data Requests or of any response thereto made by T-Mobile.
6. T-Mobile also objects to the Data Requests to the extent they seek information that is neither germane to this proceeding nor reasonably calculated to lead to the discovery of admissible evidence as it has no reasonable bearing on whether the Wireline Approval Application is adverse to the public interest or any review of the Wireless Application.
7. T-Mobile objects to the Data Requests to the extent they seek information and/or any documents that relate to issues which exceed the scope of the Commission's jurisdiction to review the Wireless Application or the scope of its jurisdiction over wireless services.



**Data Request 39.**

*With reference to the NETWORK AND IN-HOME COMMITMENTS set forth for New T-Mobile's Nationwide 5G Network Deployment commitments set forth at pages 1-3 of ATTACHMENT 1, provide all of the same information in the same format as contained in Sections I, II and III, but specifying the impact of, or effect on, deployment in California rather than nationwide, pursuant to the nationwide commitments.*

**Response to Data Request 39.**

Subject to and without waiving its General Objections, the left hand column of the table below lists the nationwide commitments for 5G Deployment, Rural 5G Deployment, and In-Home Broadband offered as part of its FCC commitments (as specified in Sections I, II and III of the Network and In-Home Broadband Commitments Attachment 1.<sup>1</sup> The right hand column lists the corresponding analysis of projected California deployment which was used, along with similar site specific information from the other states, to create the FCC nationwide commitments for coverage. See also T-Mobile Response to DR 40, below. Notably, the percentages for California are [BEGIN HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY] REDACTED [END HIGHLY CONFIDENTIAL] and, to the extent such metrics were provided in in Joint Applicants' testimony, are consistent with those metrics.<sup>2</sup>

[BEGIN HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY – AS MARKED]

REDACTED

<sup>1</sup> See Motion to Advise Commission of FCC Commitments, Exhibit 1 (Letter from Nancy J. Victory, Counsel, T-Mobile US, Inc., and Regina M. Keeney, Counsel, Sprint Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 18-197).

<sup>2</sup> See, e.g., Ray Rebuttal Testimony at 34:1-2, 35:1.

# REDACTED

[END HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY]

**Data Request 40.**

*Describe how the specific numbers relating to 5G network deployment, population, and speeds provided in response to Data Request 39 (above) were calculated or derived, including but not limited to the number and percentage of population, the number and percentage of urban population, the number and percentage of rural population and download speeds.*

**Response to Data Request 40.**

Subject to and without waiving its General Objections, T-Mobile responds that each of these figures was calculated through a “ground up” analysis that begins at the site level. From the site-level data T-Mobile generated all of the subsequent data as follows:

- **5G Site Deployment.** The statewide 5G site number is derived from the projected California 5G sites used in the network model (filtering only for 5G sites located within the state.)
- **Low- or Mid-band Spectrum Deployment.** The average amount of low- and mid-band spectrum deployment across California 5G sites is determined by conducting a site-by-site analysis of each projected California 5G site used in the network model and the spectrum bands (and, therefore number of megahertz of spectrum) that will be deployed on each and averaging across all California sites in the model.
- **Population Coverage (Speeds).** The speeds provided in response to DR 39 (i.e., 100 Mbps and 50 Mbps) are not derived from the network model, but instead reflect commitments the Applicants agreed to make to the FCC as conditions of the FCC’s approval of the merger. The Applicants further agreed that these speeds would be verified by drive tests.
- **Population Coverage (Low-band, Mid-band).** Population coverages by spectrum band are determined using a two-step process.

[BEGIN HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY]

**REDACTED**

<sup>3</sup> “A ‘link budget’ is a radio frequency engineering formula used to account for all of the gains and losses in a signal from a radio transmitter, through the air (or other transmission medium) to a receiver in a wireless telecommunications system.”

# REDACTED

END

**HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY**

## Step 2 Detail: Covered Population Calculation

Covered pops calculations are completed using the following steps:

- 2016 Pitney Bowes census pop estimates utilizing 2010 US Census Bureau census block centroids are used to determine all population statistics in the analysis
- Each census pop block centroid is attributed as either rural or urban.
  - Urban is defined as everything in an Urban Area/Cluster as delineated by the US Census Bureau, using US Census Bureau GIS boundary files hosted on the US Census Bureau website ([https://www.census.gov/geo/maps-data/data/cbf/cbf\\_ua.html](https://www.census.gov/geo/maps-data/data/cbf/cbf_ua.html))
  - Rural is defined as everything not classified as an Urban Area/Cluster by the US Census Bureau
- Each census pop block centroid is attributed by RF coverage signal level and best serving site identifiers from the coverage propagation maps generated from the RF planning tool
  - Total population covered is the summation of all pop block centroids designated as covered via the coverage attribution process detailed above.

➤ **In-Home Broadband.** With respect to the California-specific in-home broadband figures, T-Mobile extends the same ground-up approach that it uses to determine 5G network coverage to determine coverage and capacity for in-home broadband. This approach begins with determining network coverage using a slightly adapted link-budget analysis (to account for the higher signal quality required for in-home broadband service) determining and then aggregating California cell coverages, and then using the network model to determine, for each sector of the network in California, those areas in which there would be adequate excess capacity to offer in-home broadband. In brief, T-Mobile:

- Identified areas within the 5G network with coverage sufficient to support New T-Mobile’s in-home broadband offering (the “In-Home Broadband Coverage Area”);
- Calculated the areas within the In-Home Broadband Coverage Area where sufficient network capacity existed to offer in-home broadband services (the “In-Home Broadband Eligible Area”);
- Used the network model to determine the number of households in the In-Home Broadband Eligible Area that could be served by New T-Mobile (the “In-Home Broadband Supported Households”); and,
- Applied New T-Mobile’s marketing hierarchy to the In-Home Broadband Supported Households to determine the demographic characteristics of customers New T-Mobile would serve.

See also FCC Ex Parte re In-Home Broadband Ex Parte (March 6, 2019); a confidential copy of which is included as Attachment A, beginning with Bates no. TMUS-CPUC-CD TMUS-CPUC-CD002968 at Appendix B (Declaration of Mark McDiarmid). The Eligible Household and Supported Household figures described in the in-home broadband commitment are developed using this ground-up approach and are dependent on network deployment and capacity in California. The nationwide commitment to market to Eligible Households and have Supported Households is the product of aggregating the localized results of this analysis at the national level.

➤ **Rural Deployment.** For all of these data, the population calculations were refined further by limiting the analysis to only those census blocks that are in areas that are designated as “rural” by the US Census Bureau.

### **Data Request 41.**

*Provide an Excel spreadsheet, .csv file or shapefile containing, for each cell site to be operational in New T-Mobile's California network, the following information:*

- a. The company's Site ID number;*
- b. For each of the years 2021, 2022, 2023, 2024 and the end result:*
  - i. The total population to be covered;*
  - ii. Whether low band and/or mid band frequencies are to be deployed;*
  - iii. The population to be covered, separately by low-band and mid-band frequencies to be deployed;*
  - iv. The mean download speed to be available to T-Mobile customers served by the site (and broken out for low band and mid band frequencies if available);*
- c. The Latitude and Longitude;*
- d. The site type (e.g., Macro Tower, Macro Building, Macro Other, Small Cell, Other);*
- e. Whether the site is located in an urban or rural area, as designated by the US Bureau of the Census.*

### **Response to Data Request 41.**

T-Mobile objects to this Data Request on the grounds it is overbroad in temporal scope and vague and ambiguous with respect to the phrases “for each cell site to be operational” and “mean download speed.” T-Mobile further objects to this Data Request on the grounds it is unduly burdensome in that the data requested for 2022 and 2023 is not currently available and would require considerable resources to produce.

Subject to and without waiving its objections,<sup>4</sup> T-Mobile has prepared an Excel file marked as Confidential Attachment B, beginning with Bates no. TMUS-CPUC-CD TMUS-CPUC-CD002969, which includes the information requested above for the years 2021 and 2024.<sup>5</sup> This Excel file contains data for each of the cell sites identified in Attachment B to the CETF MOU with updates to the previously provided throughput information to reflect the FCC Commitments highlighted in red font.

T-Mobile further notes the following with respect to the information provided in Attachment B:

---

<sup>4</sup> T-Mobile provides this response with the understanding that “mean download speed” reflects actual user experience under ordinary utilization predicted by the network model to be available to T-Mobile customers served by the site when utilizing T-Mobile-Certified 5G devices that make full use of the available bandwidth.

<sup>5</sup> Providing information for the years 2021 and 2024 is consistent with witness testimony and other evidence that Joint Applicants have introduced into the record – all of which is focused on the years 2021 and 2024. See e.g., Ray Rebuttal Testimony at 27:14-17; 28:1-6; 34:1-2, 35:1; Sievert Rebuttal Testimony at 29:17-25.

- In certain instances, the information indicates that the covered POPs may be less in 2024 than they are in 2021; this is a result of adjustments to individual sites as adjacent sites are built which otherwise cover pops previously associated with the initial site. It does not reflect any diminution in overall covered pops.
- **[BEGIN HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY]**

**REDACTED**

**[END HIGHLY CONFIDENTIAL –  
ATTORNEYS EYES ONLY]**

**Data Request 42.**

*Provide the shapefiles (for CA area only) referenced in Section VI (F) of ATTACHMENT 1.*

**Response to Data Request 42.**

Section VI (F) of ATTACHMENT 1 states: “Eligible Household” is defined as a household located in a geography: (A) over which New T-Mobile’s network will provide signal quality suitable to support the In-home Broadband Service; and (B) in which New T-Mobile’s network has sufficient capacity to serve one or more households with In-home Broadband Service, as shown in the polygon shapefile submitted to the Bureau.”

T-Mobile responds that no such shapefiles have been generated or submitted to the Bureau at this time. The Applicants did previously provide the Bureau with a map of “New T-Mobile Home Internet Eligible Areas in 2024” included as Figure 3 in the attached the In-Home Broadband Ex Parte referenced above as Attachment A.



**Data Request 43.**

*Provide a copy of the Pitney Bowes (referred to in ATTACHMENT 1 as “Pitney Bowles” (sic)) data set that is referenced in Section VI(R) of ATTACHMENT 1, by shapefile, or .csv if shapefile is not available, containing the estimated population and number of households in 2016 in each census block in the state of CA.*

**Response to Data Request 43.**

T-Mobile responds that the Pitney Bowes 2016 data set referenced in Section VI(R) of Attachment 1 is attached as Confidential Attachment C as an Excel file marked with Bates no. TMUS-CPUC-CD002970. T-Mobile also utilizes a Pitney Bowes data set that includes households. That data set includes household information only available at the census block group level. T-Mobile calculated households at the census block level by using the population information provided by Pitney Bowes to determine the pro rata population in the census blocks within each census block group. That information is being provided in Confidential Attachment D, an Excel file marked with Bates no. TMUS-CPUC-CD002971 (which for ease of reference also includes the exact same population counts in Confidential Attachment C.)

**Data Request 44.**

*Provide the total population and household numbers projected in 2016 for California as a whole as reflected in the Pitney Bowes data set.*

**Response to Data Request 44.**

T-Mobile objects to this Data Request to the extent it is duplicative of information sought in Data Request 43 above.

Subject to and without waiving its objections, the total population and household numbers projected in 2016 for California are contained in Attachment D referenced above in Response to Data Request 43.

**Data Request 45.**

*Provide an explanation of whether the actual New T-Mobile network deployment could fail to achieve the California metrics provided in response to this Data Request, even if the commitments for nationwide deployment contained in ATTACHMENT 1 are met?*

**Response to Data Request 45.**

T-Mobile objects to this Data Request on the grounds it is vague and ambiguous with respect to the phrase “California metrics.”

Subject to and without waiving its objections, T-Mobile responds that given the sheer size and population of California and the relative size of the anticipated California network, it would be practically impossible to achieve the nationwide network deployment commitments specified in the FCC Commitments without meeting the California-specific projections identified in Response to Data Request 39 above. Moreover, T-Mobile’s Memorandum of Understanding (“MOU”) with CETF requires compliance with a site-specific build-out plan which for some metrics (e.g. speeds) is higher and more aggressive than the nationwide commitments made to the FCC. Thus, it is difficult to envision a scenario where T-Mobile could fail to meet the California-specific network deployment projections yet satisfy the FCC nationwide deployment commitments identified above and its commitments under the CETF MOU.

Attachment E

T-Mobile November 7, 2018 Confidential Response to Cal  
PA DR 2-6 (Confidential spreadsheet not included)

(PUBLIC VERSION)

## **Data Request 2-6.**

*How will the merger affect the amount of equipment (such as space or antennas on cell towers and utility poles) that New T-Mobile will lease as compared to the amount of equipment that T-Mobile and Sprint **currently lease pre-merger**? What will happen with existing lease agreements and contracts if the merger is approved?*

## **Response to Data Request 2-6.**

T-Mobile objects to this Data Request on the grounds it is vague and ambiguous with respect to temporal scope and the phrases “affect,” “equipment,” “lease,” and “lease agreements and contracts.” T-Mobile further objects to this Data Request on the grounds it seeks information that is dependent on decisions which will not and cannot be finalized until the transaction can be consummated or that is otherwise not in its custody, possession or control. T-Mobile also objects to the Data Request on the grounds it seeks information that is neither germane to the pending Wireline or Wireless Applications nor is reasonably calculated to lead to the discovery of relevant information; T-Mobile’s decision to lease, purchase or otherwise acquire space for its facilities has no rational bearing on whether the transfer of Sprint Wireline is adverse to the public interest or to any appropriate review of the Sprint Wireless Transfer Notification.

### **Number of Cell Sites**

Subject to and without waiving its objections, on a nationwide basis at the end of 2017, T-Mobile had slightly more than 61,000 macro cell sites, and Sprint had approximately 46,000 sites, for a total of approximately 107,000 sites between the two companies. The existing Sprint sites have been reviewed as part of an ongoing effort to: (1) select the Sprint sites to be retained and (2) determine the spectrum resources to be placed on each site. This optimization is based upon the network coverage, traffic and subscriber distribution, and the spectrum and site configurations of each standalone network to select the best sites to retain or improve for New T-Mobile. As a result, on a nationwide basis approximately 11,000 Sprint cell sites will be retained to improve either capacity or coverage for New T-Mobile and approximately 35,000 Sprint macro sites are expected to be decommissioned. In addition, New T-Mobile expects to construct approximately 10,000 new sites. New T-Mobile will have a total of approximately [BHC-AEO [REDACTED] [EHC-AEO] [REDACTED] on a nationwide basis.

In addition to these macro cells, the company expect to retain the existing Sprint small cells (approximately [BHC-AEO [REDACTED] [EHC-AEO]).

An Excel spreadsheet that includes a preliminary analysis of the various Sprint cell sites in California designated to be retained, based on an engineering analysis done by T-Mobile to model the performance of the New T-Mobile network. See Cal PA DR 002 Production Folder, document beginning with Bates no. TMUS-CPUC-PA-11008099. No final decisions on site retention have been made at this time and the specific sites may change as the plans are finalized. Consolidation plans related to other facilities (e.g., backhaul provided by other carriers) remain under consideration.

## Equipment on Towers

For the retained Sprint cell sites, 600 MHz radios will be added to nearly [BHC-AEO] [REDACTED] [EHC-AEO] cell sites nationwide, as well as additional 2.5 GHz radios to more sites than were projected by the Sprint standalone plans (nearly [BHC-AEO] [REDACTED] [EHC-AEO] more cell sites will have 2.5 GHz by 2021; nearly [BHC-AEO] [REDACTED] [EHC-AEO] more by 2024). The existing 2.5 GHz radio equipment installed on the retained Sprint cell sites will require electronics replacement to ensure compatibility with the New T-Mobile network. For the existing T-Mobile cell sites, 2.5 GHz radios will be added to the majority of sites to boost capacity. For all New T-Mobile cell sites, the AWS and PCS radio base will be upgraded (as needed) to add radios capable of both LTE and 5G. See Joint Opposition, Ray Reply Decl. at ¶¶ 33-36.

## Site Leases

With the combination of the two companies, the New T-Mobile network will save significant costs when it adds density to its network, particularly when compared to the combined site spend of T-Mobile and Sprint on a standalone basis. New T-Mobile will implement cell splitting by anchoring on the existing T-Mobile cell site infrastructure and augmenting the density of deployed cell sites. In many instances, this will obviate the need to work with the tower companies for new site leases. So long as New T-Mobile can replace existing antennas and radio equipment at existing T-Mobile and Sprint cell sites with new equipment (in most cases, improved equipment that can handle more spectrum bands and more capacity) without increasing the amount of physical space or mass (weight of the equipment) used at a site, it may only incur limited new lease payments and may be able to mitigate the need for new zoning approvals. The ability to nearly immediately create cell splits in this fashion, in many cases without incurring substantial new costs or delays, will allow New T-Mobile to more rapidly deploy a broad and deep network while simultaneously reducing the cost of adding incremental capacity.

In light of the challenges in obtaining new cell sites, cell splitting in this fashion would be infeasible without the transaction. To match the modeled throughput performance of New T-Mobile, a standalone network would require as many as approximately 162,400 cell splits by 2024. At the end of 2017, current T-Mobile only had slightly more than 61,000 macro cell sites, so matching the available capacity of New T-Mobile would require more than double the existing number of macro cell sites in the next several years. From an operational perspective, it would be impossible to obtain this many site leases and/or construct any needed new sites in this short period of time. Moreover, even if it were feasible, the costs associated with such an effort would be economically unviable. Deploying more than double the number of macro cell sites would also more than double the operational expenditures needed to support the network along with substantial increases in the costs to provide backhaul from these sites. The capital expenditures to enter into this many new tower leases or payments to construct new sites would also be impractical.

T-Mobile further responds that the cost of decommissioning approximately [BHC-AEO] [REDACTED] [EHC-AEO] Sprint macro sites nationwide is expected to be approximately [BHC-AEO] [REDACTED] [EHC-AEO]. The costs include paying off existing leases;

paying off existing backhaul agreements; labor costs; and field technician severance costs. T-Mobile expects New T Mobile to achieve approximately [BHC-AEO]REDACTED[EHC-AEO] in yearly run rate savings by 2024 from the avoidance of operating expenditures of small cells that T-Mobile and Sprint plan to build as standalone companies. Decommissioning of any Sprint cell site will not occur until: (1) there is comparable coverage from New T-Mobile and (2) there is capacity on New T-Mobile to handle the additional traffic.

Attachment F

Exhibit E of the Asset Purchase Agreement

(ENTIRE ATTACHMENT F IS CONFIDENTIAL)

(PUBLIC VERSION)



Attachment G

Annex 1 to Exhibit C of Asset Purchase Agreement

(ENTIRE ATTACHMENT G IS CONFIDENTIAL)

(PUBLIC VERSION)

Attachment H

Network and In-Home Commitments

(PUBLIC VERSION)

**Based on the nationwide commitments made to the FCC, T-Mobile and Sprint project that:**

## **NETWORK AND IN-HOME COMMITMENTS**

### **I. California 5G Network Deployment.**

(A) within three (3) years of the closing date of the T-Mobile/Sprint merger, New T-Mobile will deploy a 5G network with:

1. a Low-band 5G Coverage Area covering at least [BEGIN HIGHLY CONFIDENTIAL – ATTORNEYS EYES ONLY (“BHC - AEO”)] [REDACTED] [END HIGHLY CONFIDENTIAL –ATTORNEYS EYES ONLY (“EHC-AEO”)] of the California Population;
2. a Mid-band 5G Coverage Area covering at least [BHC-AEO] [REDACTED] [EHC-AEO] of the California Population;
3. [BHC-AEO] [REDACTED] [EHC-AEO] 5G Sites in the state;
4. [BHC-AEO] [REDACTED] [EHC-AEO] MHz of low-band and mid-band 5G Spectrum averaged over all 5G Sites deployed in the state (the sites described in Section I.A.3 above);
5. [BHC-AEO] [REDACTED] [EHC-AEO] of the California Population having access to download speeds equal to or greater than 50 Mbps, as verified by a drive test;<sup>1</sup> and
6. 86% of the California Population having access to download speeds equal to or greater than 100 Mbps,<sup>2</sup> as verified by a drive test.

(B) within six (6) years of the closing date of the T-Mobile/Sprint merger, New T-Mobile will deploy a 5G network with:

1. a Low-band 5G Coverage Area covering at least [BHC-AEO] [REDACTED] [EHC-AEO] of the California Population;
2. a Mid-band 5G Coverage Area covering at least [BHC-AEO] [REDACTED] [EHC-AEO] of the California Population;
3. [BHC-AEO] [REDACTED] [EHC-AEO] 5G Sites in the state;
4. [BHC-AEO] [REDACTED] [EHC-AEO] MHz of low-band and mid-band 5G Spectrum averaged over all 5G Sites deployed in the state (the sites described in Section I.B.3 above);

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<sup>1</sup> New T-Mobile will fund the drive tests to take place at the end of years 3 and 6. The drive tests will utilize a methodology mutually agreed to by New T-Mobile and the Wireless Telecommunications Bureau (“Bureau”) within 60 days of the closing of the T-Mobile/Sprint merger. The goal of the drive testing is to reflect actual user experience under ordinary utilization and compare them to the speed and coverage commitments stated in Sections I and II. The drive testing will involve oversight by an independent third party, but may be conducted by T-Mobile personnel. The drive testing will commence at the three (3) and six (6) year anniversary of the close of the transaction and be completed within nine (9) months thereafter in each case. The drive test would make use of T-Mobile-Certified 5G Devices.

<sup>2</sup> While not a part of the formal commitment, the [BHC-AEO] [REDACTED] [EHC-AEO] of the California Population having access to download speeds equal to or greater than 100 Mbps are expected to experience average upload speeds of 15-20 Mbps.

5. [BHC-AEO] [REDACTED] [EHC-AEO] of the California Population having access to download speeds equal to or greater than 50 Mbps, as verified by a drive test; and
6. 99% of the California Population having access to download speeds equal to or greater than 100 Mbps,<sup>3</sup> as verified by a drive test.

**II. Rural 5G Network Deployment. With regard to the in the state 5G network deployment described above, T-Mobile and Sprint further commit that:**

(A) within three (3) years of the closing date of the T-Mobile/Sprint merger, New T-Mobile will deploy a 5G network with:

1. a Low-band 5G Coverage Area covering at least [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population;
2. a Mid-band 5G Coverage Area covering at least [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population;
3. [BHC-AEO] [REDACTED] [EHC-AEO] 5G Sites Deployed in Rural Areas;
4. [BHC-AEO] [REDACTED] [EHC-AEO] MHz of low-band and mid-band 5G Spectrum averaged over 5G Sites deployed in Rural Areas (the sites described in Section II.A.3 above);
5. [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population having access to download speeds equal to or greater than 50 Mbps, as verified by a drive test; and
6. [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population having access to download speeds equal to or greater than 100 Mbps,<sup>4</sup> as verified by a drive test.

(B) within six (6) years of the closing date of the T-Mobile/Sprint merger, New T-Mobile will deploy a 5G network with:

1. a Low-band 5G Coverage Area covering at least [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population;
2. a Mid-band 5G Coverage Area covering at least [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population;
3. [BHC-AEO] [REDACTED] [EHC-AEO] 5G Sites Deployed in Rural Areas;
4. [BHC-AEO] [REDACTED] [EHC-AEO] MHz of low-band and mid-band 5G Spectrum averaged over 5G Sites deployed in Rural Areas (the sites described in Section II.B.3 above);
5. [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population having access to download speeds equal to or greater than 50 Mbps, as verified by a drive test; and
6. [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population having access to download speeds equal to or greater than 100 Mbps,<sup>5</sup> as verified by a drive test.

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<sup>3</sup> The 99% of the California Population having access to download speeds equal to or greater than 100 Mbps are expected to experience average upload speeds of 15-20 Mbps. *See* n.2.

<sup>4</sup> The [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population having access to download speeds equal to or greater than [REDACTED] bps are expected to experience upload speeds of 15-20 Mbps. *See* n.2.

<sup>5</sup> The [BHC-AEO] [REDACTED] [EHC-AEO] of the Rural Population having access to download speeds equal to or greater than 100 Mbps are expected to experience upload speeds of 15-20 Mbps. *See* n.2.

### III. In-Home Broadband.

T-Mobile and Sprint commit that:

(A) within three (3) years of the closing date of the T-Mobile/Sprint merger, New T-Mobile will:

1. Market its In-home Broadband Service product to at least [BHC-AEO] [REDACTED] [EHC-AEO] Eligible Households in California, of which at least [BHC-AEO] [REDACTED] [EHC-AEO] are Rural Households; and
2. have at least [BHC-AEO] [REDACTED] [EHC-AEO] Supported Households in California, of which at least [BHC-AEO] [REDACTED] [EHC-AEO] are Rural Households.

(B) within six (6) years of the closing date of the T-Mobile/Sprint merger, New T-Mobile will:

1. Market its In-home Broadband Service product to at least [BHC-AEO] [REDACTED] [EHC-AEO] Eligible Households in California, of which [BHC-AEO] [REDACTED] [EHC-AEO] are Rural Households; and
2. have at least [BHC-AEO] [REDACTED] [EHC-AEO] Supported Households in California, of which at least [BHC-AEO] [REDACTED] [EHC-AEO] are Rural Households.

Provided, however, that the requirements of Sections III.A.1 and III.B.1 will terminate once New T-Mobile has 9.5 million simultaneous In-home Broadband Service subscribers nationwide.