Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
ETC Annual Reports and Certifications	)	WC Docket No. 14-58
	)	

PETITION FOR RECONSIDERATION OF CENTURYLINK

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CenturyLink[1] hereby seeks partial reconsideration of the Wireline Competition Bureau's ("Bureau's") February 22, 2019 Noncompliance Letter[2] to the extent that it excludes from CenturyLink's compliance totals for four states—Arkansas, Kansas, Montana, and Wisconsin—those locations that the Universal Service Administrative Company's ("USAC's") auditors declined to verify because of purported mismatches between the geocoordinate and address information in CenturyLink's records and the coordinates and address information CenturyLink reported to USAC (the "Mismatch Locations"), including Mismatch Locations where USAC also raised questions about whether the location is in an eligible census block (the "Census Block Locations"). Further, in light of ongoing, industry-wide discussions with the Commission and USAC regarding the reporting of multi-dwelling unit ("MDU") locations in the HUBB and

[1] This Petition is filed by the subsidiary entities of CenturyLink, Inc. that were the subject of the Noncompliance Letter, *infra* note 2. Those entities are the operating company subsidiary entities that are designated as Eligible Telecommunications Carriers (ETCs) in Arkansas, Kansas, Montana, and Wisconsin, including CenturyTel of Arkansas, Inc. dba CenturyLink, United Telephone Company of Kansas, Qwest Corporation (Montana) dba CenturyLink QC, and CenturyTel of the Midwest-Kendall, LLC dba CenturyLink (collectively, "CenturyLink").

[2] Letter from Ryan Palmer, Chief, Telecommunications Access Policy Division, Wireline Competition Bureau, FCC, to Jeffrey S. Lanning, CenturyLink (Feb. 22, 2019) ("Noncompliance Letter"). CenturyLink is concurrently filing a separate Petition for Stay of the Noncompliance Letter.

shortcomings in the HUBB that prevent carriers from removing locations that no longer meet program requirements ("Unremovable Locations"), CenturyLink also requests that the Commission not impose penalties on CenturyLink based on MDU Locations that USAC declined to verify in the audit or Unremovable Locations that USAC erroneously included in the audit. Finally, CenturyLink hereby notifies the Commission that it reported additional locations in the HUBB on February 27, 2019. These additional locations, taken in combination with the Mismatch Locations alone, are sufficient to bring CenturyLink's total locations served above the 40 percent compliance milestone for the 2015-2017 period. Addition of the Census Block Locations, as well as an appropriate treatment of the MDU Locations and Unremovable Locations, will only increase CenturyLink's measured level of compliance.

The Commission should act to ensure that CenturyLink's support is not withdrawn in this case. To do so, the Commission should reconsider the Noncompliance Letter to the extent necessary to count the Mismatch Locations (including the Census Block Locations) towards CenturyLink's compliance total (or permit CenturyLink to re-submit them based on the internal location information provided to USAC). The Commission also should take notice of the additional locations that CenturyLink submitted into the HUBB on February 27, 2019 and restore CenturyLink's support.[3] Finally, the Commission should decline to impose penalties at this time based on MDU Locations or Unremovable Locations pending further Commission consideration of these industry-wide issues.

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[3] *See* 47 C.F.R. § 54.320(d)(1)(iv)(A)("as the eligible telecommunications carrier reports that it has lessened the extent of its non-compliance, and the Wireline Competition Bureau or the Wireless Telecommunications Bureau issues a letter to that effect, it will move down the tiers until it reaches Tier 1 (or no longer is out of compliance with the relevant milestone)").

This request pertains only to the 2017 milestone. CenturyLink has modified its reporting methodology for 2018 and future years to ensure that Mismatch Locations will not be an issue in the future. CenturyLink also looks forward to working with the Commission, USAC, and other CAF-II model-based support recipients to reach a common understanding of the location reporting and auditing requirements that will allow for the CAF-II program's continued success.[4] And, of course, CenturyLink will continue to deploy broadband services to more Americans as required under its CAF-II commitments in accordance with program rules.

INTRODUCTION AND SUMMARY

If a CAF-II recipient accepted federal support intended to fund broadband service in rural areas and used it for other purposes, that CAF-II recipient would be in default and deserving of penalties. If a recipient used CAF-II support to build networks that failed to meet Commission-established standards, or if it failed to reach the prescribed percentage of the required locations by the established deadlines, that CAF-II recipient would be in default and deserving of penalties. This, however, is none of those cases. Here, CenturyLink is in compliance with the Commission's 2017 buildout milestone—the auditors' finding to the contrary is a data problem, not a build-out problem.

CenturyLink's good-faith effort to heed USAC's reporting guidance led to the auditors' concluding that they could not reconcile the company's HUBB reporting with other CenturyLink records. Specifically, in its reporting on the locations that it serves, CenturyLink recognized that the location information in an internal database of addressable locations was derived from a third-party vendor using automated geocoding tools, and the company took seriously USAC

[4] *See* Letter from Mike Saperstein, US Telecom, to Marlene H. Dortch, FCC, WC Docket No. 10-90 (filed March 6, 2019) ("USTelecom March 6 Ex Parte").

guidance that it should "review," "clean up" and "potentially reprocess" such data to improve its accuracy. In following that guidance, however, it appears that CenturyLink unwittingly introduced additional complexity into the audit trail, creating a divergence between the information in its internal systems, which shows where CenturyLink can provide CAF-qualifying service, and the location information it reported to USAC.

"Clean[ing] up" and "reprocessing" geolocation data, by definition, results in the submission of records that do not match the original data found in the carrier's records. A framework in which eligible telecommunications carriers ("ETCs") are encouraged to groom geolocation data, but then are penalized for doing so, would trap recipients in an impossible Catch-22. But that is what has happened here.

CenturyLink therefore requests that the Wireline Competition Bureau ("Bureau") reconsider its decision to reject these Mismatch Locations based on this discrepancy between the two sets of geocode data.[5] There is simply no public-policy rationale for withholding support or otherwise penalizing CenturyLink for reporting the Mismatch Locations as it did, acting reasonably and consistently with the CAF-II rules and USAC guidance. Nor is there any value in deterring CAF-II recipients from trying to improve the quality of their location data. Most importantly, withholding support would withdraw the capital that the Commission has recognized is needed to permit CenturyLink to deploy in high-cost areas.

USAC also declined to verify a number of locations that CenturyLink reported based on questions regarding whether certain Mismatch Locations were located in eligible census blocks because USAC generated its own geocodes, and disagreements about how MDU Locations

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[5] Alternatively, CenturyLink should be allowed to re-submit these locations based on the Living Unit data.

should be reported.[6] USAC's characterization of CenturyLink's compliance was further impacted by shortcomings in the design of the HUBB, which has prevented CenturyLink from removing locations that were valid when initially identified but have since been rendered invalid (for example, because of increased demand at the node level) ("Unremovable Locations"). This resulted in USAC extrapolating CenturyLink's level of compliance from an incorrect sample. In light of ongoing discussions among CAF-II recipients, the Commission, and USAC regarding these issues, the Commission should not impose penalties on CenturyLink at this time based on these findings, pending resolution of these discussions.[7]

In addition, CenturyLink hereby reports that it is in full compliance with the 40 percent deployment milestone. Specifically, on February 27, 2019, CenturyLink submitted in the HUBB additional qualifying locations which, when combined with the Mismatch Locations alone, meet or exceed the 40 percent milestone in each state and in the aggregate. CenturyLink therefore requests that it "have its support fully restored" and that USAC "repay any funds that were recovered or withheld."[8]

Therefore, for the reasons explained in more detail below, the Bureau should reconsider the Noncompliance Letter to accept the Mismatch Locations (including the Census Block Locations), decline to impose penalties at this time based on the MDU Locations or Unremovable Locations, recognize the new locations that CenturyLink submitted on February 27, 2019, find CenturyLink in compliance with the 40 percent milestone, and direct USAC not to

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[6] These categories overlap for some locations. For example, every Census Block Location is also a Mismatch Location (while most Mismatch Locations are not Census Block Locations).

[7] *See* USTelecom March 6 Ex Parte, *supra* note 4.

[8] 47 C.F.R. § 54.320(d)(1)(v).

implement any withholding of support or additional reporting obligations. To the extent that the Commission declines to do so, CenturyLink seeks waiver of the penalty provisions to avoid a damaging loss of support.

FACTUAL BACKGROUND

Commission Requirements. Recipients of CAF-II model-based support, including CenturyLink, are required to use this funding to offer broadband service to a specified number of locations within their Commission-designated CAF-II service territories.[9] The Commission's Rules set specific deployment milestones over the six-year term of support.[10] The first milestone calls for support recipients to "complete deployment to 40 percent of supported locations by December 31, 2017," the end of the third full program year.[11] Support recipients are required to report to the Commission on their progress in deploying broadband to supported locations,[12] and recipients that fail to meet these milestones are subject to non-compliance measures organized into four "tiers" ranging from Tier 1 (failure to meet deployment obligations by 5-15 percent), which results in additional reporting obligations, to Tier 4 (failure to meet deployment obligations by 50 percent or more), which involves the withholding of 50 percent of the carrier's monthly support for each state subject to non-compliance, as well as additional reporting obligations.[13]

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[9] *See id.* § 54.310.

[10] *See id.* § 54.310(c).

[11] *Id.*

[12] *See id.* § 54.316.

[13] *See id.* § 54.320(d).

CenturyLink's Deployment and Reporting. CenturyLink receives CAF-II model-based support in 33 states.[14] The process for recording and reporting CAF II enablement begins as new network facilities are deployed and existing facilities are upgraded.[15] Information about these new and modified facilities, such as addresses and capabilities (including the length of the loop), are entered into a variety of databases utilized by various CenturyLink operating companies to manage the network ("Network Management Databases"). Spatial location information (specifically, latitude and longitude coordinates) for network facilities frequently are entered in the Network Management Databases. Generally, however, CenturyLink's Network Management Databases do not contain latitude and longitude coordinates for actual or potential customer locations. Instead, actual and potential customer locations are referenced using unique postal addresses, as well as non-postal addresses (for example, rural routes, colloquial names, and physical descriptions of locations such as "a quarter mile past the church" or "near the intersection of Route 100 and Mill Road") that have been input in company records over many years.

CenturyLink has a database named FRAMEWORK that provides a single interface into the disparate Network Management Databases and supports the company's service availability (i.e., loop qualification) tool. The loop qualification tool allows CenturyLink personnel and prospective customers to check to see what types and levels of service they can receive at their address (e.g., whether DSL is available, and at what speeds). Service availability is determined

[14] *See* News Release, "CenturyLink Accepts Nearly $506 Million in Annual Support from Connect America Fund to Expand and Support Broadband for Over 2.3 Million Consumers in 33 States" (Aug. 27, 2015), https://docs.fcc.gov/public/attachments/DOC-335071A1.pdf.

[15] For a more detailed description of CenturyLink's recordkeeping and reporting, *see generally* Declaration of Richard A. Rousselot (Attachment A) ("Rousselot Declaration").

using a logic-based analysis of the characteristics of the network facilities associated with the requested address, including loop length. This analysis does not use or make reference to spatial characteristics, such as actual or potential customer latitude and longitude. Indeed, geocoordinates are not stored in the FRAMEWORK database.

In 2011, CenturyLink developed a Living Unit database to facilitate, among other things, network planning and regulatory compliance. This Living Unit Database was modified in 2013 to facilitate CAF-II planning and compliance. This Living Unit database pulls a range of information about actual and potential customer locations from the FRAMEWORK database, including the addresses. The Living Unit database assigns estimated latitude and longitude coordinates to these locations using a number of commercial and publicly available geocoders, primarily software from Alteryx, a commercial vendor of analytical software that includes automated address geocoding and third-party data among other functionalities. As CenturyLink's service area contains tens of millions of potential customer locations, it would not be feasible to develop geocoordinate estimates using GPS in the field or desktop analysis of maps and satellite imagery for every location.

It is CenturyLink's experience that automated geocode information is not always accurate, particularly in less-populated rural areas.[16] Other CAF-II recipients have similarly recognized the difficulty in geocoding rural locations. For example, AT&T has relayed to the Commission that "standard geolocating software and techniques, at least in rural areas, are inconsistent and change often" and has submitted to the Commission detailed diagrams that illustrate how the same address input into multiple geocoders will return widely varying latitude and longitude ("lat/long") coordinates, and even how "the same address input into the same

[16] *See id.* at ¶¶ 6-8.

geocoder but several months apart will return different lat/long coordinates as underlying data is updated regularly."[17]

USAC's instructions for HUBB filing recognize three methods of generating geocode locations for reporting purposes: (1) geolocation with global positioning satellite ("GPS") in the field; (2) desktop geolocation using web-based maps and imagery; and (3) automated address geocoding.[18] Given the large number of locations that CenturyLink must serve under its CAF-II obligations, it had to largely reject the first two methods.

USAC's instructions explicitly recognize that the third method—automated address geocoding—is less accurate and may not meet USAC's expectation that, "[w]herever possible, location coordinates should *represent the structure being served*" but that, "[a]t a minimum, coordinates should represent a point on the correct property or parcel of land where service is being delivered."[19] Therefore, USAC instructs that:

> At times, geocoding can even produce coordinates that are far removed from the actual location being mapped, particularly in rural areas where the reference data is often unreliable or simply out of date. This means that you will need to review and clean up

[17] *See* Letter from Mary L. Henze, AT&T, to Marlene H. Dortch, FCC, WC Docket No. 10-90 (filed Sept. 4, 2018), https://ecfsapi.fcc.gov/file/10904052799978/hubb%20exparte.pdf. AT&T underscored the importance of flexibility by emphasizing in a subsequent letter how updating geocoded data and address clean-up is "probably one of the most challenging steps in this process due to data entry inconsistencies both within companies and in public data sources. *See* Letter from Ola Oyefusi, AT&T, to Marlene H. Dortch, FCC, WC Docket No. 10-90, at 3 (filed Oct. 12, 2018), https://ecfsapi.fcc.gov/file/101237684689/Form%20477%20Address%20Proposal%20Exparte%20(As%20Filed%20101218).pdf.

[18] USAC, *Geolocation Methods*, at 2, https://www.usac.org/_res/documents/hc/pdf/tools/HUBBGeolocationMethods.pdf (last visited Feb. 27, 2019) ("*Geolocation Methods*").

[19] *Id.* (emphasis added).

> geocoding results – and potentially reprocess some of them – to ensure accuracy.[20]

Based on USAC's guidance, rather than simply submitting the automated geocode information from its Living Unit database into the HUBB, CenturyLink "review[ed] and clean[ed] up" the geocoding for its HUBB submissions by using generally accepted geocoding methodologies, including verification of some samples using the second method described by USAC—desktop geolocation. This geocoding effort used information from commercially-available databases of addresses, roads, and demographics to develop improved coordinates for CAF locations designed to identify more closely the "structure being served" or, at minimum, "a point on the correct property or parcel of land where service is being delivered."[21] These improved geocode estimates of latitude and longitude are identified internally by CenturyLink as "Interpolated Locations."

CenturyLink filed the Interpolated Locations in the HUBB in an effort to meet USAC's expectations for accurate latitude and longitude coordinates. The Interpolated Locations represent the same locations that are shown in CenturyLink's Network Management Databases, such as the Living Unit database. In most cases, they are linked by association with the same address or close physical proximity to the geocoded location in the Living Unit database.[22] In some cases, the Interpolated Locations are a considerable distance from the locations found in

[20] *Id.* at 5.

[21] *Id.* at 2.

[22] As discussed below, CenturyLink also provided USAC with a spreadsheet correlating the two sets of geocodes during the audit process. In some cases, the address for a location was edited where the address developed through the geocoding process was more accurate than the one found in CenturyLink's internal databases.

the Living Unit data base, which derives its latitude and longitude coordinates from commercial geolocation databases.[23] In such cases, the Interpolated Locations are improvements, frequently assigning the locations to actual structures or registered parcels of land, and not assigning living units to implausible locations, such as the middle of a lake.[24] Like the Living Unit database estimates of latitude and longitude, each set of Interpolated Location coordinates is directly associated with a unique address in CenturyLink's Network Management Databases.

USAC's Audit. In 2018, USAC conducted a "verification" (audit) of CenturyLink's compliance with CAF-II deployment milestones, reviewing a sample of locations reported in USAC's HUBB portal as of March 1, 2018 to "determine[] whether the location data was accurate and complete and whether service at these locations fulfilled the [CAF-II program's] performance requirements."[25]

As USAC's Closure Report acknowledges, its mandate from the Commission is to "'confirm that CAF Phase II ETCs are in fact meeting the terms and conditions of that support by verifying the build-out certifications that recipients of CAF Phase II Model support are required to provide.'"[26] The Commission has indicated that USAC could do this, "for instance,

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[23] A major source of these discrepancies is that some locations in the address databases are randomly assigned to road segments within the census block when the geocoder cannot identify enough addresses in a census block to match the number of locations identified by the Census Bureau. While relatively few locations are assigned in this manner, the number is more significant in rural areas. This is consistent with the approach in the Connect America Cost Model. *See Connect America Fund*, Report and Order, 28 FCC Rcd 5301, 5322-23 ¶¶ 50-55 (WCB 2013).

[24] *See* Rousselot Declaration at ¶ 8 & Exh. A-1.

[25] Noncompliance Letter at 1.

[26] USAC, High Cost Verifications Program, Deployment Verification Closure Report (SAC# 485104, Montana), at 1 (Nov. 9, 2018) ("USAC Closure Report") (quoting *Connect America Fund*, *et al.*, Report and Order, 29 FCC Rcd 15644, 15694-95 ¶ 144 (2014) ("*December 2014*

by reviewing documentary evidence such as customer subscription records or online service qualification tools showing that service is available at a particular location."[27] In auditing CenturyLink, USAC reviewed records from multiple Network Management Databases for each location in samples selected for four states, including service availability screenshots[28] and device information.[29] USAC also reviewed information from the Living Unit database.[30]

In response to USAC's Process Questionnaire at the start of the audit, CenturyLink specifically described the process it had used, starting with the commercial geocodes in the Living Unit database and its use of other data to improve those coordinates to arrive at the more accurate coordinates that were then reported in the HUBB.[31] CenturyLink also described how it revised the addresses filed in the HUBB where the verified address information used to create the Interpolated Location estimates of latitude and longitude differed from the addresses in CenturyLink's Living Unit database.[32] Naturally, as a result of these actions, the two lists of geocodes did not always match.

CAF Order")). The closure reports for each of the four states are substantively the same; for brevity, citations herein refer to the Montana report.

[27] *December 2014 CAF Order*, 29 FCC Rcd at 15695, n.319.

[28] Rousselot Declaration at Exh A-3.

[29] Rousselot Declaration at Exh A-2.

[30] USAC Closure Report at 1.

[31] *See* CenturyLink Response to USAC Process Questionnaire at 3-4 (Question 9), attached to email from Kenneth Buchan, CenturyLink, to Vinodini Mathialagan, USAC (Apr. 17, 2018) ("CenturyLink Questionnaire Response").

[32] Rousselot Declaration at ¶ 16.

In the course of the audit, USAC inquired about the location information contained in CenturyLink's Living Unit database and the Interpolated Locations that had been entered into the HUBB. CenturyLink explained to the auditors the process by which CenturyLink had generated the Interpolated Locations and provided USAC with a spreadsheet that correlated the Living Unit geocodes to the Interpolated Location geocodes for all locations in USAC's audit sample.[33]

Closure Report and Noncompliance Letter. Nevertheless, USAC's Closure Report concluded that CenturyLink had a "compliance gap" of more than 50 percent in four states—Arkansas, Kansas, Montana, and Wisconsin (the "Four States").[34] In most cases, the audit did *not* indicate that there was an issue with the number of locations that had been enabled. Rather, USAC's conclusion was based principally on USAC's finding that there was a discrepancy between the geocodes associated with the addresses in CenturyLink's Living Unit database and the Interpolated Locations that CenturyLink entered in the HUBB. In addition, although both the Living Unit database and the Interpolated Locations indicate that all of the reported locations are inside eligible census blocks, USAC generated its own geocode estimates by applying a third source of geocoding information to the addresses that CenturyLink listed in the HUBB. Based on its own geocodes, USAC raised questions about whether some of the Mismatch Locations are located in eligible census blocks, and on this basis declined to verify these Census Block Locations. USAC also found fault with CenturyLink's methodology with respect to locations that CenturyLink reported as MDU Locations. Finally, USAC included in its sample locations

[33] *Id.* at ¶ 17.

[34] *See* Noncompliance Letter at 1.

that CenturyLink had sought to remove from the HUBB because they were no longer CAF-qualifying by the end of 2017.[35]

On December 3, 2018, CenturyLink submitted a Response to each of the Closure Reports. The Responses explained, among other things, that the differences between the geocode locations in the HUBB and those in CenturyLink systems (or other geocoding sources) are not grounds for disqualifying locations from consideration.[36] In the final Closure Report, USAC stated that it would have accepted disparities between the HUBB data and other CenturyLink records only if they were a "reasonable distance" apart.[37]

Based on USAC's Closure Report, the Wireline Competition Bureau issued the Noncompliance Letter on February 22, 2019, finding CenturyLink in "Tier 4" noncompliance with its deployment obligations in the Four States.[38] As a result, USAC has informed CenturyLink that it will begin withholding 50 percent of CenturyLink's CAF-II support in the Four States and will impose quarterly reporting obligations.[39]

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[35] *See* Letter from Jeffrey S. Lanning, CenturyLink, Vice President, CenturyLink, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 14-58 (filed Feb. 28, 2018); this submission was provided to USAC on the same date. Email from Kenneth W. Buchan, CenturyLink, to Joelle Tester, USAC (Feb. 28, 2018) ("Comprehensive Location Submission").

[36] *See, e.g.*, CenturyLink's Response to High Cost CAF II Verification (SAC# 485104) (Dec. 3, 2018) (App. C to USAC Closure Report) ("CenturyLink Response"). As with the USAC Closure Report itself, the Montana document is used herein for citation purposes. *See supra* not 26. CenturyLink also disputed the exclusion of the Census Block Locations and the MDU Locations and the inclusion of Update Locations in USAC's sample.

[37] *See*, *e.g*., USAC's Response to CenturyLink's Reply (SAC #485104), attachment to USAC Closure Report, at 2 ("USAC Response"). As with the USAC Closure Report itself, the Montana document is used herein for citation purposes. *See supra* note 26.

[38] Noncompliance Letter at 1.

[39] *See, e.g.*, Letter from USAC to Kenneth Buchan, CenturyLink (SAC# 485104), OMB Control No. 3060-1228 (Feb. 25, 2019).

DISCUSSION

I. CENTURYLINK'S EFFORT TO IMPROVE THE ACCURACY OF ITS GEOCODE LOCATIONS WAS CONSISTENT WITH THE CAF-II RULES AND BUREAU AND USAC GUIDANCE

CenturyLink has made a good faith effort to ensure that it has reported the locations it serves in CAF-II supported areas in a manner that is consistent with guidance from the Commission and USAC. In particular, CenturyLink's decision to report the Interpolated Locations in the HUBB was sound, fully in keeping with the purpose of the CAF-II program, and consistent with the reporting guidance provided by both the Commission and USAC. It would therefore be inconsistent with the program rules for the Commission to find CenturyLink out of compliance – much less to treat it as though it had failed to deploy facilities altogether.

In providing guidance regarding reporting location data, the Bureau underscored that the "Commission requires carriers to file accurate and timely location data so that USAC can determine if carriers have met their interim and final milestones and to provide critical information to states and Tribal governments to successfully undertake oversight of carriers within their jurisdiction."[40] In particular, USAC has indicated that, "[w]henever possible, location coordinates should *represent the structure being served*" but that, "[a]t a minimum, coordinates should represent a point on the correct property or parcel of land where service is being delivered."[41]

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[40] "WCB Provides Guidance to Carriers Receiving Connect America Fund Support Regarding Their Broadband Location Reporting Obligations," Public Notice, 31 FCC Rcd 12900, 12909 (WCB 2016).

[41] *Geolocation Methods* at 2 (emphasis added).

As discussed above, the geocode information in CenturyLink's internal databases, including the Living Unit database, is generated using automated geocoding software and in many cases does not provide the precise coordinates of the *structure* being served. In CenturyLink's experience, the coordinates generated by automated geocoding software tend to represent a point on the road at the edge of the property being served, such as the driveway entrance or mailbox.[42] In rural areas, these locations can be distant from the house or other structure(s) on the parcel. In some cases, CenturyLink found that the automated geocodes generated by its internal systems did not even represent "the correct property or parcel of land where service is being delivered."[43]

As a result, CenturyLink took seriously USAC's direction that it "review and clean up geocoding results – and potentially reprocess some of them – to ensure accuracy."[44] It was for this reason that CenturyLink took the extra step of creating the Interpolated Locations that it entered into the HUBB portal—to report geocode locations where possible that correspond with the actual home or other structure served.[45]

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[42] Rousselot Declaration at ¶ 9.

[43] *Geolocation Methods* at 2. *See also* Rousselot Declaration at ¶¶ 7-8.

[44] *Geolocation Methods* at 5.

[45] While CenturyLink has used the Interpolated Location database in place of the Living Unit database for some planning and compliance purposes, CenturyLink has not loaded Interpolated Locations into the Living Unit database because that database is relied on for a variety of regulatory and non-regulatory purposes and changing the data in the Living Unit database solely to reflect CAF-II requirements would generate unnecessary cost and complexity for CenturyLink in other aspects of its operations and regulatory compliance activities. Rousselot Declaration at ¶ 14.

The fact that the data in the HUBB differed from that in CenturyLink's Living Unit database should have come as no surprise, because USAC invited precisely this result. As noted above, USAC has directed carriers relying on automated geocoding to "review and clean up geocoding results – and potentially reprocess some of them – to ensure accuracy."[46] There is no way that CenturyLink could "clean up" or "reprocess" its Living Units database without creating a discrepancy between the Living Units database and its HUBB entries. The audit finding rejecting the Mismatch Locations effectively turns USAC's own guidance on its head by rejecting locations because CenturyLink made an effort to improve upon the location information in its internal systems. It would be patently unreasonable to penalize CenturyLink for following USAC's own geocoding instructions.[47]

The audit's approach failed to fully consider the evidence and the context of CenturyLink's submissions. USAC states that it "is aware of the limitations of geo-coding and therefore accepted locations where the distance between the *original* certified data in the HUBB and the *revised* data for the Living Units were within reasonable distance," which USAC determined to be 7.6 meters.[48] USAC's characterization of the certified data in the HUBB as

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[46] *Geolocation Methods* at 5.

[47] Notably, the 2017 filing year was both the first year that the HUBB was in use and the first year that USAC performed verifications of CAF-II recipients' deployment data. The novelty of both processes militates strongly in favor of a more cooperative approach to resolving this simple misunderstanding regarding data reporting expectations.

[48] USAC Response at 2 (emphasis added). USAC's imposition of a 7.6-meter standard in this context is arbitrary and unreasonable. *See infra* p. 19. However, USAC's ability to identify the distance between the two geocordinates indicates that USAC was not, in fact, confused about the relationship between the two sets of geocoordinates, nor their linkage to the underlying locations enabled by CenturyLink's network. It would not have been possible for USAC to calculate the distance between the two estimates without knowing which estimates correspond to the same location.

"original" data and the Living Units data as "revised" data strongly suggests a fundamental misunderstanding of CenturyLink's data and process. As discussed above, CenturyLink used the raw automated geocode data in the Living Units database as the starting point for its HUBB geocoding effort (not the other way around), and followed additional steps, consistent with USAC direction, to derive more reliable data to enter into the HUBB. Thus, if anything, the Living Unit data was the "original" data in the process—although a better characterization is that the two sets of data simply represent two different sets of geocoding estimates for the same list of addresses, each created for a distinct purpose.

As noted above, CenturyLink had described this process in detail in its response to USAC's Process Questionnaire at the outset of the audit,[49] and explained it further to USAC in extensive correspondence over the course of the audit.[50] Among the voluminous supporting documentation that CenturyLink provided was a spreadsheet that specifically tied each location identified in the Living Unit database to the Interpolated Location data CenturyLink entered in the HUBB, and both of them to the underlying address in CenturyLink's Network Management Databases.[51] CenturyLink therefore disputes USAC's assertion that "there was no documentation provided by CenturyLink to link the two pairs of coordinates despite having received numerous opportunities to do so over the course of the verification."[52]

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[49] *See* CenturyLink Questionnaire Response at 3-4 (Question 9).

[50] *See* Rousselot Declaration at ¶ 16.

[51] *See id.* at ¶ 18.

[52] USAC Response at 2.

Second, USAC's use of 7.6 meters in comparing the Living Unit data to CenturyLink's HUBB data is not well founded. USAC describes this distance as a "buffer" that "offers an established approach in that the HUBB determines eligibility during automated validations by permitting at least some room for inaccuracy of geocoders."[53] As far as CenturyLink is aware, however, the HUBB uses a 7.6 meter buffer for recipients of CAF-II model-based support only for determining whether a geocoded location is inside or outside a covered census block.[54] That buffer "reflects the spatial accuracy of the census block boundaries and U.S. Census Bureau TIGER database, which has a published map accuracy for well-fined points (such as street intersections) of 7.6 meters at the 90 percent confidence level."[55] The distance between CenturyLink's Living Unit geocodes and its Interpolated Locations has nothing to do, however, with the accuracy of the Census Bureau's census block boundary data. The difference between the Living Unit data and the Interpolated Location data reflects CenturyLink's efforts to improve upon the inherent inaccuracies in the automated geocode information. CenturyLink, USAC, and the Commission have every reason to believe that automated geocode locations will, in some instances, be inaccurate by more than 7.6 meters.[56] There was therefore no basis for USAC to reject CenturyLink's HUBB data based on a 7.6-meter accuracy test.

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[53] *Id.* at 2.

[54] *See* USAC, "HUBB Frequently Asked Questions," at 5-6, https://www.usac.org/_res/documents/hc/pdf/tools/HC-HUBB-FAQ.pdf (last visited Mar. 4, 2019).

[55] *Id.* at 5.

[56] See supra nn.18-20, 23 and associated text.

For all these reasons, there is no basis for USAC's determinations that CenturyLink's "process for tying supporting documentation to locations is inaccurate."[57] USAC unreasonably expected automated geocodes in CenturyLink's Living Unit database to match very closely with CenturyLink's HUBB entries, which have been processed per USAC instruction to improve their accuracy. This expectation is unreasonable and cannot support a finding of noncompliance.

USAC also raised questions about whether some of the Mismatch Locations were located in eligible census blocks.[58] In raising this question, USAC relied on neither geocodes in the Living Unit database nor the Interpolated Locations; rather, USAC "utilized a geocoding tool to convert addresses reported in the HUBB."[59] Given the well-established questions about the validity of automated geocoding tools (including from USAC), there is no reason to believe that USAC's geocoding tool is any more accurate than the tools used by CenturyLink (all of which are established, industry-leading geocoding products). Thus, USAC has not shown that these Mismatch locations are outside of eligible census blocks.[60] As a result, the Census Block Locations should be counted along with all of the other Mismatch Locations.

Based on the foregoing, the Bureau should reconsider the Noncompliance Letter to the extent that it declined to count the Mismatch Locations (including the Census Block Locations) towards CenturyLink's compliance total. If the Commission declines to do so, the Commission

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[57] USAC Response at 4.

[58] *See* USAC Response at 8.

[59] *Id.* USAC states that it "did not disqualify any of the locations based solely on ineligible census blocks. Instead, USAC's consideration of the locations in ineligible census blocks was an additional concern for USAC as part of the greater concern with linking HUBB coordinates with Living Unit coordinates." *Id.*

[60] It would be arbitrary and capricious to accord decisional weight in this audit to results from the geocoder selected by USAC over ones produced by other widely-used geocoders.

should afford CenturyLink the opportunity to cure this situation by re-submitting its location information as reflected in its Living Unit database. CenturyLink implemented the Interpolated Location reporting approach in good faith to provide geocoordinates closer to structures in accord with USAC's reporting guidance. The HUBB was deployed as a new system in 2017 and CenturyLink had no notice that its approach for reporting locations would be problematic for USAC's auditors. CenturyLink should not be penalized through the exclusion of thousands of locations to which it has deployed broadband based only on rejection of its data management approach. Instead, at a minimum, it should be permitted to remedy this situation through re-submission of geocode information for the Mismatch Locations to reflect the Living Unit database.

II. THE COMMISSION SHOULD NOT IMPOSE PENALTIES FOR MDU LOCATION REPORTING OR UNREMOVABLE LOCATION ISSUES AT THIS TIME

USAC's auditors also found fault with CenturyLink's reporting in two other respects—locations reported as MDU Locations and Unremovable Locations. Both of these issues are currently the topic of discussions among CAF-II recipients, Commission staff, and USAC, [61] and the Commission should not impose penalties based on these issues at this time.

These ongoing discussions address certain shortcomings in the design of the HUBB. These shortcomings created issues for CenturyLink's reporting in situations where multiple locations resolve, based on the best available geocoding information, to the same set of geocode points. Current issues with the HUBB also prevent carriers from removing Unremovable Locations—locations that were validly identified as enabled in 2015 or 2016, but were no longer

[61] *See, e.g.,* USTelecom March 6 Ex Parte Letter at 2.

enabled as of 2017.[62] Although CenturyLink provided an accurate CAF-II enablement count to USAC in a comprehensive report of deployed locations as of year-end 2017,[63] USAC disregarded this data when it pulled its samples from the HUBB. By extrapolating CenturyLink's statewide compliance from a sample that improperly included locations that are no longer enabled, USAC was certain to understate CenturyLink's progress towards the CAF-II buildout goals.

Pending the resolution of these ongoing discussions, CenturyLink respectfully requests that the Commission not impose penalties on CenturyLink as a result of disqualification of MDU Locations or the inclusion of Unremovable Locations in the sample.

III. EVEN IF THERE HAD BEEN NONCOMPLIANCE, CENTURYLINK HAS ALREADY REMEDIED IT AND IS NO LONGER SUBJECT TO WITHHOLDING

In addition to the issues identified above, the Commission should recognize that, on February 27, 2019, the company submitted, and certified to the accuracy of, deployment data in the HUBB for additional locations that CenturyLink deployed in 2018. When combined with CenturyLink's prior HUBB submissions (including the Mismatch Locations), CenturyLink has exceeded, for each state, the number of locations needed to demonstrate compliance with the 40 percent milestone for 2017. Because the CAF-II framework only contemplates withholding and other corrective measures *while the ETC remains noncompliant*,[64] and CenturyLink has

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[62] A location may no longer be enabled over time for any number of reasons, including destruction of the living unit (e.g., natural disaster) or network changes such as node exhaust.

[63] *See* Comprehensive Location Submission.

[64] 47 C.F.R. § 54.320(d)(1)(v) ("If at any point during the support term, the eligible telecommunications carrier [subject to default penalties] reports that it is eligible for Tier 1 status, it will have its support fully restored, USAC will repay any funds that were recovered or withheld, and it will move to Tier 1 status.").

demonstrated compliance with the 2017 buildout milestones, the Bureau should reconsider the Noncompliance Letter. In that connection, the Bureau should issue a letter recognizing the company's compliance, as contemplated by section 54.320(b)(1)(i)-(iv) of the Commission's rules.

In setting out the mechanisms for addressing ETCs that failed to satisfy CAF-II buildout milestones – *i.e.*, the withholding of support at increasing levels and the imposition of additional reporting requirements – the Commission repeatedly made clear that it was seeking to "create incentives for ETCs to come into compliance as soon as possible," after which remedial measures would expire.[65] Thus, for example, an ETC in "Tier 1" noncompliance must file quarterly reports only "until [it] reports that it has reduced the compliance gap to less than five percent of the required number of locations for that interim milestone and the Bureau issues a letter to that effect." ETCs in "Tier 2," "Tier 3," and "Tier 4" noncompliance will suffer withholdings of 15, 25, and 50 percent, respectively, but will have all their support restored and be reimbursed for all withheld support once they report, and the Bureau issues a letter confirming, that they have reduced their compliance gaps to less than 15 percent.[66] As the Commission summarized: "If *at any point during the support term* the ETC reports that it is eligible for Tier 1 status [*i.e.*, has reduced its compliance gap to below 15 percent], it will have its support fully restored including any support that had been withheld [and] USAC will repay any funds that were recovered."[67]

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[65] *December 2014 CAF Order*, 29 FCC Rcd at 15738 ¶ 80.

[66] ETCs in "Tier 4" suffer additional withholdings if they fail to achieve a lower tier within six months, but they would still have all their support restored, including withheld support, upon reducing their compliance gap to below 15 percent. *Id*. at 15696 ¶ 147.

[67] *Id*. at 15697 ¶ 148 (emphasis added).

To the extent that there was ever any question about CenturyLink's compliance, CenturyLink resolved that concern with its February 27, 2019 submission to the HUBB describing the locations to which it has now deployed broadband service in the Four States. Specifically, the sum of the number of (1) locations that USAC confirmed as accurate in auditing CenturyLink's 2017 deployments, (2) the Mismatch Locations,[68] and (3) locations to which CenturyLink has deployed since December 31, 2017 amounts to more than forty percent of the previously unserved location in *each of the Four States*, showing that CenturyLink is in compliance with its year-end 2017 buildout obligations.[69] Inclusion of the Census Block Locations and appropriate treatment of the MDU locations and Unremovable Locations will only increase CenturyLink's measured level of compliance.

In light of the above, there is no rationale for withholding any support from CenturyLink, because the company has cured any purported deficiency and is now in compliance. The Bureau should therefore reconsider its Noncompliance Letter, and – consistent with section 54.320(d)(1)(i)-(iv), "issue a letter" that indicates CenturyLink's compliance.

To the extent that the Bureau does not issue such a letter immediately, the Bureau should waive the penalty provisions[70] to avoid a loss of support to CenturyLink. A waiver would be warranted in this instance.

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[68] For the reasons described above, and based on evidence CenturyLink provided during USAC's audit, the Bureau should conclude that CenturyLink has deployed to these locations, and credit them in evaluating CenturyLink's satisfaction of its buildout milestones.

[69] *See* Appendix B.

[70] 47 C.F.R. § 54.320(d).

The Commission's rules may be waived "for good cause shown."[71] A waiver is warranted "where particular facts would make strict compliance inconsistent with the public interest."[72] This standard is easily met here. The data discrepancy that led the auditors to decline to verify the Mismatch Locations resulted from CenturyLink's good-faith effort to provide more accurate location data, consistent with USAC guidance. Moreover, withholding of CenturyLink's support would only inhibit further deployments in unserved areas where support is critical, and could reduce the incentives of ETCs going forward to use more accurate data to avoid questions in audits. Under these circumstances, "strict compliance" with section 54.320 would be "inconsistent with the public interest," such that waiver is appropriate.

Waiver here would also be "founded upon an 'appropriate general standard'" in order to avoid discriminatory application of the underlying rule.[73] When an ETC has acted in good faith both to submit relevant data and to work with auditors, the auditors' decision not to verify compliance should not result in automatic withholding of future support payments or other penalties. Rather, the Bureau and the Commission must maintain discretion to review whether the ETC has in fact met the program's requirements. Where, as here, it has done so, waiver of section 54.320 is appropriate to ensure that unnecessary interruptions to support flows do not disrupt continued buildout.

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[71] *Id.* § 1.3.

[72] *Northeast Cellular Tel. Co., L.P. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (*citing WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969)).

[73] *Northeast Cellular*, 897 F.2d at 1166 (*quoting WAIT Radio*, 418 F.2d at 1159).

CONCLUSION

For the reasons set out above, the Bureau should reconsider the Noncompliance Letter, accept the Mismatch Locations and Census Block Locations, recognize the new locations CenturyLink submitted on February 27, 2019, decline to impose penalties at this time based on MDU Locations or Unremovable Locations, and ensure the uninterrupted flow of all of CenturyLink's CAF-II support.

Respectfully submitted,

CENTURYLINK

By: ___*/s/ Nicholas G. Alexander*___
Nicholas G. Alexander
Jeffrey S. Lanning
CenturyLink, Inc.
1099 New York Ave., NW, Suite 250
Washington, DC 20001

March 12, 2019

ATTACHMENT A – Declaration of Richard Rousselot

ATTACHMENT B – Compliance Charts

Attachment A – Declaration of Richard Rousselot

ATTACHMENT A

DECLARATION OF RICHARD A. ROUSSELOT

1. My name is Richard A. Rousselot, and I am employed by CenturyLink. My title is Director of Government Operations, and my work address is 600 New Century Parkway, New Century, Kansas 66031. My responsibilities at CenturyLink include leading the team that is responsible for service quality compliance, forward-looking cost modeling, including data analysis, mapping, financial modeling, etc. in support of business decision making and regulatory advocacy and compliance. Together with this team, I have been and am responsible for preparing CenturyLink's filing of its CAF II funded locations in the High Cost Universal Broadband (HUBB) portal.

2. I have reviewed the accompanying Petition for Reconsideration of CenturyLink, Inc. and state that the facts contained therein are accurate.

3. The process for recording and reporting CAF II enablement begins as new network facilities are deployed and existing facilities are upgraded. In a typical case, fiber trunks are strung in conduit or on poles along existing routes, digital subscriber line terminals are deployed and fed with power, and existing copper wire loops to actual and potential customer locations are connected to the terminals. Network technicians do not visit actual or potential customer locations during this initial enablement process (when a customer orders services a location visit occurs in some, but not all, cases). Information about these new and modified facilities, such as addresses and capabilities (including the length of the loop), are entered into a variety of databases utilized by CenturyLink operating companies (databases such as MARTENS and NDS for legacy CenturyLink and Qwest, respectively) to manage the network ("Network Management Databases").

4. Spatial location information, specifically latitude and longitude coordinates, for network facilities such as terminals are entered in the Network Management Databases. Generally, however, CenturyLink's Network Management Databases do not contain latitude and longitude coordinates for actual or potential customer locations. Instead, actual and potential customer locations are referenced using unique postal addresses and non-postal addresses (where non-postal addresses may include, for example, rural routes, colloquial names, and physical descriptions of locations, such as "a quarter mile past the church" or "near the intersection of Route 100 and Mill Road") that have been input in company records over many years.

5. CenturyLink has a database named FRAMEWORK that provides a single interface into the disparate Network Management Databases and supports the company's service availability (i.e., loop qualification) tool. The loop qualification tool allows CenturyLink personnel and prospective customers to check to see what types and levels of service they can receive at their address (e.g., whether DSL is available, and at what speeds). Service availability is determined using a logic-based analysis of the characteristics of the network facilities associated with the requested address, including loop length. This analysis does not use or make reference to spatial characteristics, such as actual or potential customer latitude and longitude. Indeed, geocoordinates are not stored in the FRAMEWORK database.

6. In 2011, CenturyLink developed a Living Unit database to facilitate, among other things, network planning and regulatory compliance. This Living Unit Database was modified in 2013 to facilitate CAF-II planning and compliance. This Living Unit database pulls a range of information about actual and potential customer locations from the FRAMEWORK database, including the addresses. The Living Unit database assigns estimated latitude and longitude coordinates to these locations using a number of commercial and publicly available geocoders,

primarily software from Alteryx, a commercial vendor of analytical software that includes automated address geocoding, third-party data, among other functionality. As CenturyLink's service area contains tens of millions of potential customer locations, it would not be feasible to develop geocoordinate estimates using GPS in the field or desktop analysis of maps and satellite imagery.

7. Different geocoding vendors typically produce different estimated latitude and longitude coordinates for any given address at any given time. These differences can be quite large, particularly in less populated rural areas, such as those where CAF II support is directed. The differences are attributable to different underlying information and the use of different algorithms to produce the coordinates. Over time, the latitude and longitude coordinates associated with an address in any given geocoding database also change, with a general tendency toward improved accuracy. These changes occur due to a variety of factors, including changes to the information upon which the geocoder relies and changes to the algorithms used to produce the coordinate estimates.

8. The errors in geocoding estimates can be quite large, for example where a location is arbitrarily assigned to the center of a census block, or along a road segment because of insufficient underlying information. An example can be seen in the attached screenshot from the sample for USAC's verification of CenturyLink's 2017 CAF II deployment, in which the coordinates assigned by Alteryx place the location in the middle of a lake.[1]

9. Further, many geocoding databases tend to place the coordinates associated with addresses along roads, as if they are mapping mailboxes. This makes sense as addresses are, in a sense, points along roads that provide access to structures such as houses. For CAF-II reporting,

[1] *See* Exhibit A-1

however, the Universal Service Administrative Company (USAC) instructed providers to attempt to place the coordinates on the rooftops of structures. This requires modifications to geocoordinates placed along roads and, in rural areas, the modifications will frequently move the coordinates hundreds of feet as many homes in rural areas are set back far from the roads.

10. The Commission's directions for CAF II and the instructions from USAC emphasized that CAF II recipients are required to submit geocoordinates in the HUBB that are as accurate as is feasible. Specifically, USAC instructions state that automated address geocoding results likely will need to be "clean[ed] up."

11. Recognizing that the geocoordinates in the Living Unit database likely were not as accurate as desired for the HUBB filing, my team at CenturyLink created a database containing an improved set of latitude and longitude estimates for CAF II locations using widely-accepted geocoding techniques. Doing this also had the virtue of ensuring that the coordinates for CAF II locations would stay the same even as the estimated coordinates available from commercial sources would change over time. The geocoding process we employed is similar to the methodology used by the Commission in the Connect America Model (CAM), which determined CAF II funding.

12. Using software we purchased from Alteryx, my team developed an algorithm to produce a database of Interpolated Locations, which are latitude and longitude estimates for locations in the CAF II census blocks. This algorithm drew on information from the TomTom Verified Address database, the OpenStreetMap database, and the ExperianUS database of demographic information. The resulting Interpolated Locations were then assigned according to geocoding convention back to the addresses from CenturyLink's FRAMEWORK database to assign new and, on average, improved estimated geocoordinates to the CAF II locations.

13. The assignment of Interpolated Location coordinates to the CAF II locations was an iterative process, starting by matching those where the addresses (from CenturyLink's internal, historically developed record and the Interpolated Location record) matched and then assigning them based on proximity. Approximately 40% of the Interpolated Locations had an address match; approximately 40% had coordinates placing them within 1000 feet of the Alteryx-generated estimates in the Living Unit database; the remaining 20% were farther from the Living Unit estimate but in the same census block in all but the last 1% of locations (and those were in other CAF II eligible census blocks). The resulting assignments were tested through sampling and visual inspection of many hundreds of locations, which confirmed the increased accuracy of the geocoordinate estimates.

14. Since the Interpolated Location database was developed, we have taken advantage of the improved accuracy of its estimates of latitude and longitude associated with living units and other locations in the CenturyLink service area. The Interpolated Location database has been used in place of the Living Unit database for some modeling and compliance purposes. CenturyLink has not loaded Interpolated Locations into the Living Unit database because that database is relied on for a variety of regulatory and non-regulatory purposes and changing the data in the Living Unit database solely to reflect CAF-II requirements would generate unnecessary cost and complexity for CenturyLink in other aspects of its operations and regulatory compliance activities.

15. USAC's instructions also call for locations filed in the HUBB to have the most accurate address information that is feasible. As mentioned above, CenturyLink's address and physical location descriptions of actual and potential customer locations has been developed internally over many years and does not adhere to a standardized format. In addition, a number of

locations have colloquial or generalized location information in the address field, such as "a quarter mile past the church" or "near the intersection of Route 100 and Mill Road." Accordingly, when generating the records to be filed in the HUBB, we used the address in the Interpolated Location database.

16. CenturyLink consistently provided data to USAC sufficient to validate that service was available as required at the locations entered into the HUBB. For example, screenshots from the databases that FRAMEWORK pulls from (described in para. 5 above) of the network facilities associated with the CAF II locations under review were provided to USAC,[2] as were screenshots of the results of service availability queries made using the loop qualification tool were provided for each of the CAF II locations being reviewed by USAC.[3] CenturyLink also described to USAC auditors the process, discussed above, that CenturyLink used to produce its HUBB entries.

17. In addition, we generated a file that links the Interpolated Location geocoordinates with the Living Unit geocoordinates, and both of those with the addresses in the FRAMEWORK database. The results from this file were provided to USAC on June 19, 2018. It appears from the Closure Letters that USAC used the linkage to calculate the distance between the two sets of geocoordinate estimates (those in the Living Unit database and those in the Interpolated Location database).

18. In response to the USAC review of CenturyLink's 2017 CAF II locations, my team has prepared a revised and complete set of all CAF II locations as of December 31, 2018 in which the latitude and longitude estimates from the Interpolated Location databased are removed and

[2] Examples are attached as Exhibit A-2

[3] An example is attached as Exhibit A-3

replaced with the latitude and longitude estimates that were in the Living Unit database at the time of reporting. CenturyLink has delivered these revised CAF II location files to both USAC and Commission staff.

I declare under penalty of perjury that, based on my personal knowledge, the foregoing is true and correct.

Richard A. Rousselot

March 8, 2019

Exhibit A-1

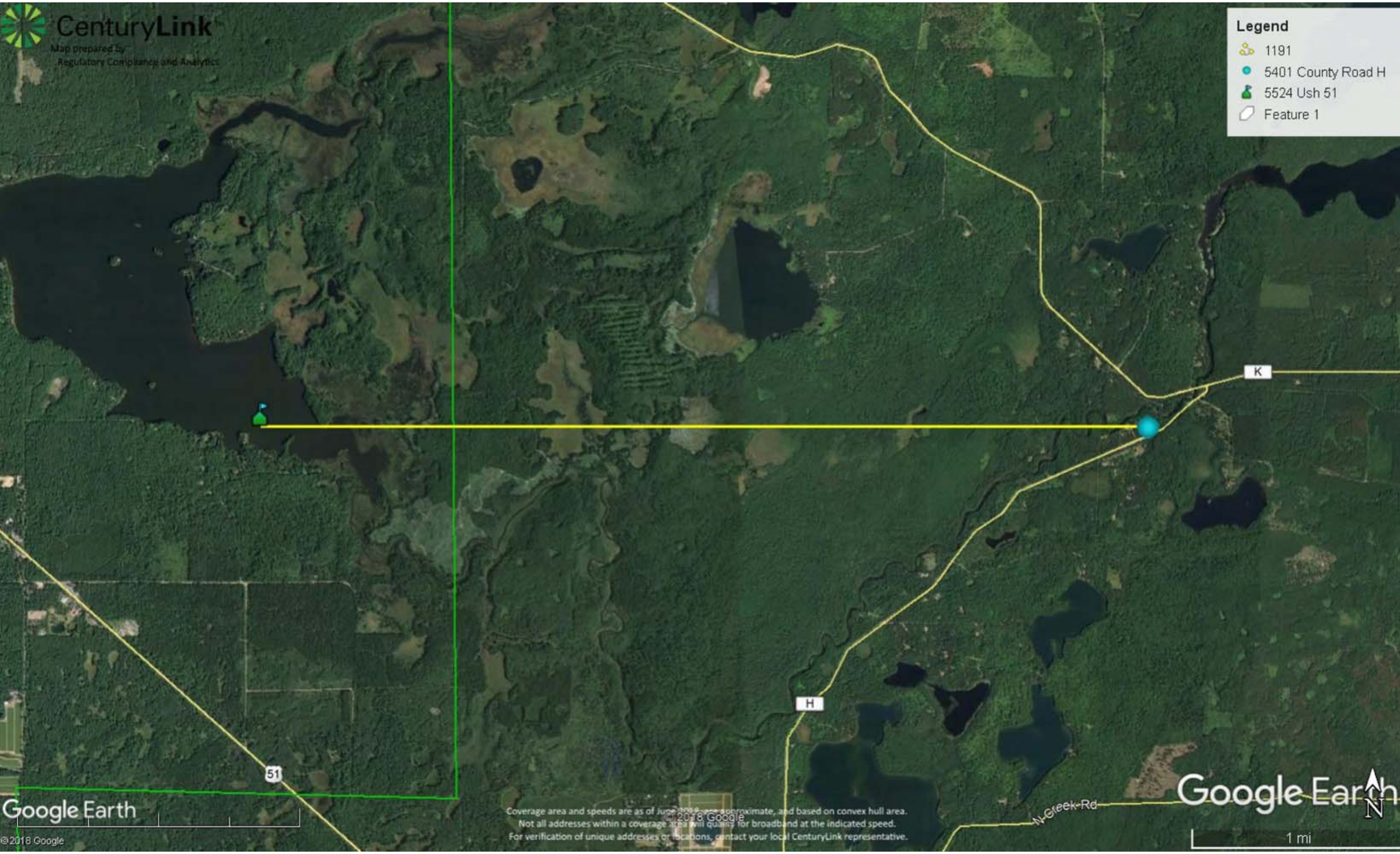
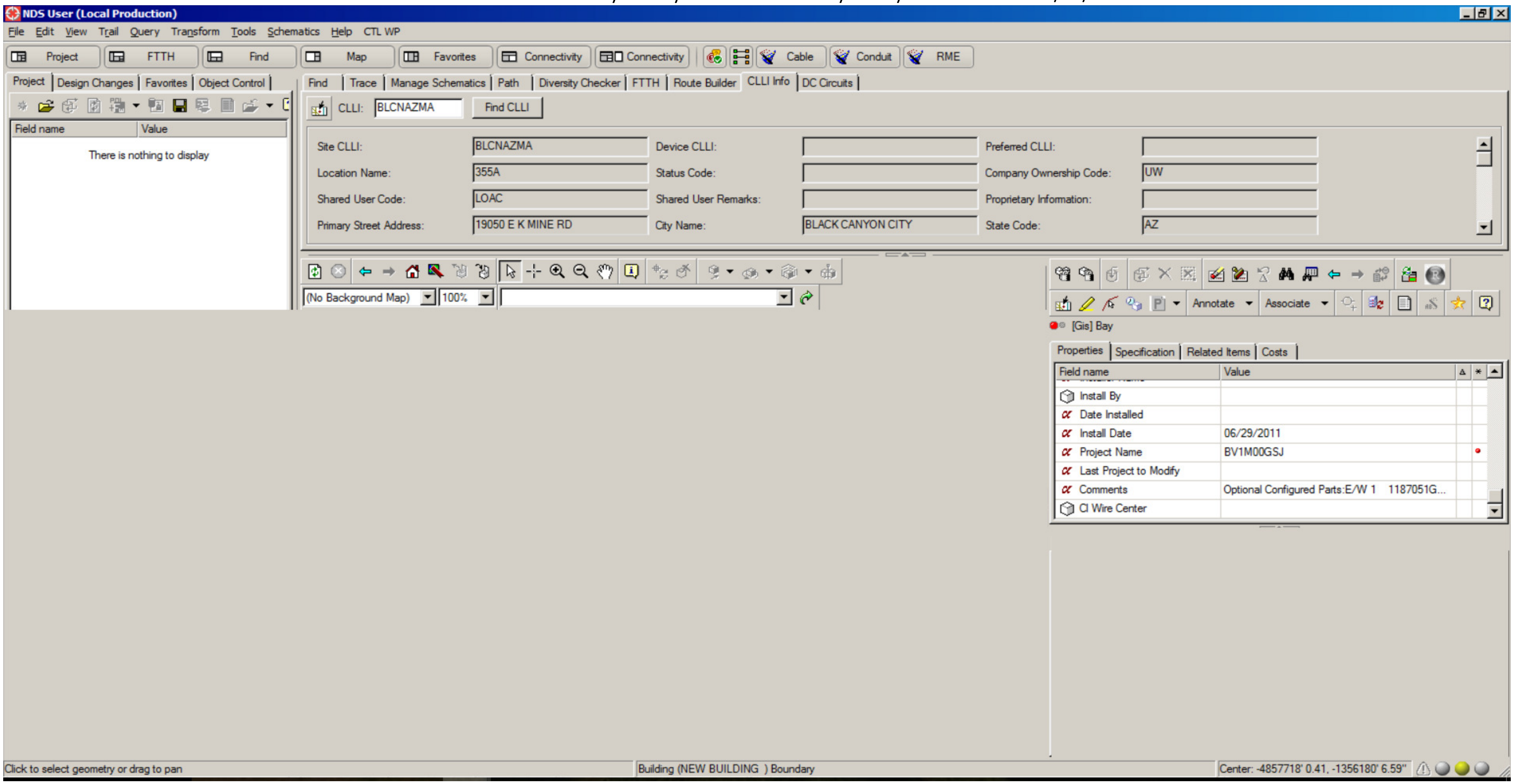
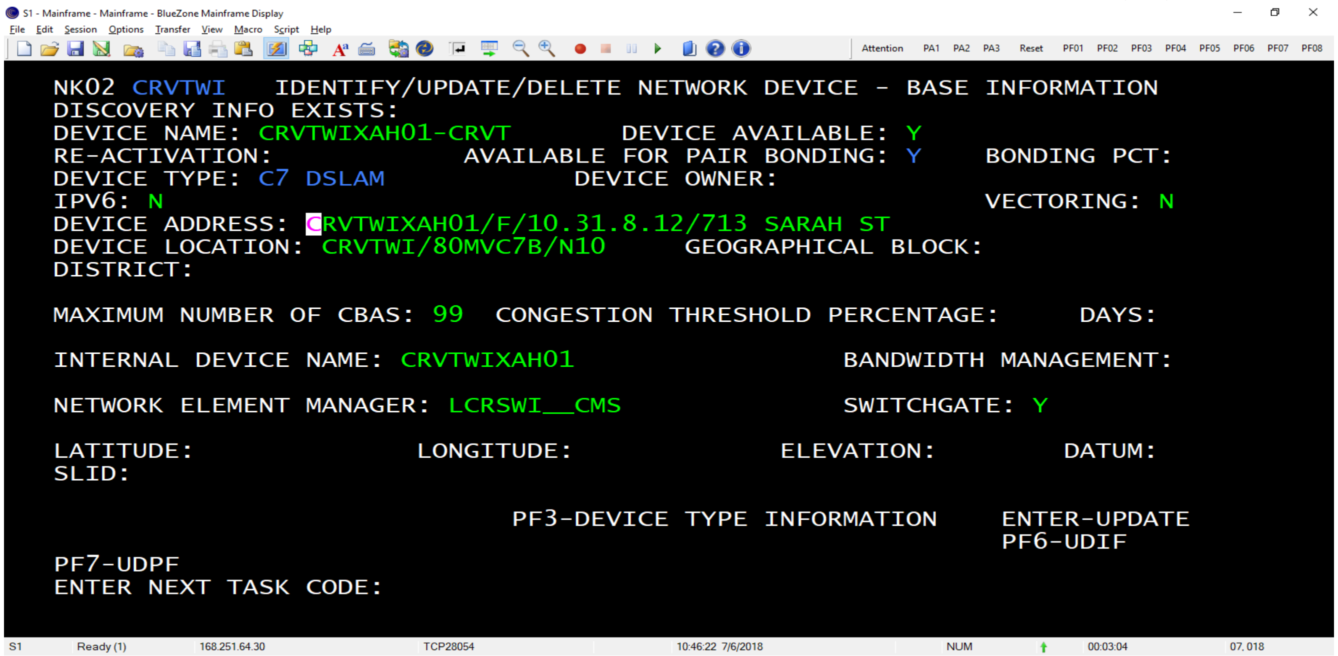

CenturyLink
Map prepared by
Regulatory Compliance and Analytics
Legend
1191
5401 County Road H
5524 Ush 51
Feature 1
K
H
51
N Creek Rd
Google Earth
© 2018 Google
1 mi
Coverage area and speeds are as of June
approximate, and based on convex hull area.
Not all addresses within a coverage
for broadband at the indicated speed.
For verification of unique addresses or
contact your local CenturyLink representative.

Exhibit A-2

Sample Record ID	USAC Location Record	USAC_Number of Units	Filed_Address*	Filed_City*	Filed_Date of Deployment*	Filed_Download/Upload Speed Tier*	Filed_Latitude*
292	12002724	12	"33955 S Old Black Canyon Hwy"	Black Canyon City	12/31/2016	3	34.070984



Sample Record ID	USAC_Location Record	USAC_Number of Units	Filed_Address*	Filed_City*	Filed_Date of Deployment*	Filed_Download/ Upload Speed Tier*
1366	11378008	2	"22 Richlen Ave"	Crivitz	12/31/2015	3



SW_SITE_CD	DEV_NM	DEV_LOCN	DEVI

Exhibit A-3

Qwest CenturyLink Loop Qualification
Web Application Version 3.0

Product Qualification

Qualification Check

Links and Online Help

Links
Help

Security

User Login

Qualification Activity

Qualification Check - Results

Qualification Criteria «

SAGA:	WI
Service Address:	22 RICHLEN AVE
	CRIVITZ, WI, 54114

CenturyLink IP Broadband Products

Notes

- IP -- Only Available for CenturyLink Internet.

CenturyLink VDSL2 Broadband Products

Notes

- This customer is served by Ethernet Central Office equipment. Dispatch is not required.
- HSI Ordering Rules.

Up to 25M Downstream / 2M Upstream
Up to 20M Downstream / 2M Upstream
Up to 15M Downstream / 1.5M Upstream
Up to 10M Downstream / 1M Upstream
Up to 10M Downstream / 896K Upstream
Up to 10M Downstream / 768K Upstream
Up to 5M Downstream / 768K Upstream
Up to 3M Downstream / 640K Upstream
Up to 3M Downstream / 512K Upstream
Up to 1.5M Downstream / 512K Upstream
Up to 1.5M Downstream / 256K Upstream
Up to 768K Downstream / 384K Upstream
Up to 768K Downstream / 256K Upstream

CenturyLink ADSL2+ Broadband Products

Notes

- This customer is served by Ethernet Central Office equipment. Dispatch is not required.
- HSI Ordering Rules.

Up to 10M Downstream / 768K Upstream

Up to 8M Downstream / 768K Upstream

Up to 5M Downstream / 768K Upstream

Up to 3M Downstream / 640K Upstream

Up to 3M Downstream / 512K Upstream

Up to 1.5M Downstream / 512K Upstream

Up to 1.5M Downstream / 256K Upstream

Up to 768K Downstream / 384K Upstream

Up to 768K Downstream / 256K Upstream

CenturyLink ATM Broadband Products

Notes

- NOT DISCLOSED! The wire center is not available.

- DO NOT ISSUE ORDER.

< Go Back

Attachment B

Audit Results for 2017 Samples

	AR		KS		MT		WI	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Sampled Locations	**382**		**346**		**390**		**349**	
Unremovable Locations	36	*9.42%*	1	*0.29%*	36	*9.23%*	40	*11.46%*
USAC Disqualification Reason								
Mismatch Only	216	*56.54%*	120	*34.68%*	173	*44.36%*	129	*36.96%*
Mismatch & Ineligible Census Block	40	*10.47%*	35	*10.12%*	20	*5.13%*	26	*7.45%*
MDU	18	*4.71%*	25	*7.23%*	45	*11.54%*	24	*6.88%*
Other	23	*6.02%*	7	*2.02%*	15	*3.85%*	22	*6.30%*
Total Sample Failure Rate*	297	*77.75%*	187	*54.05%*	253	*64.87%*	201	*57.59%*
Reduced Failure Rates if Disqualified Locations Restored								
Mismatch Only	81	*21.20%*	67	*19.36%*	80	*20.51%*	72	*20.63%*
Mismatch Only + MOICB	41	*10.73%*	32	*9.25%*	60	*15.38%*	46	*13.18%*
Mismatch Only + MOICB + MDU	23	*6.02%*	7	*2.02%*	15	*3.85%*	22	*6.30%*
Unremovable Locations								
Revised Sample	346		345		354		309	
Revised Failures	261	*75.43%*	186	*53.91%*	217	*61.30%*	161	*52.10%*

* Consistent with USAC's review, these Sample Failure Rates would be adjusted by the applicable margin of error if extrapolated to the full state, as shown on the following tables.

Revised Extrapolation: Mismatched Locations Restored

Arkansas	# of Locations	
Total Sample Locations	382	
Total USAC Sample Disqualification Unit Count	297	
Mismatch	*216*	
Ineligible Census Block	*40*	
MDU	*18*	
Other	*23*	
Less Mismatch Disqualifications	(216)	
Revised Disqualification Unit Count	81	
Sample Error Rate	21.20%	
Total HUBB Locations (2017)	22,053	
Extrapolation Error Rate	17.85%	Note: Sample error rate reduced by 3.35% per USACs review
Total Estimated Failures	3,937	
Total Estimated Passing Locations	18,116	
100% Goal for AR (Final Milesone)	45,708	
Revised 2017 HUBB Location % After Extrapolation	39.63%	% of full program deployment
Revised 2017 Compliance Gap Tier: None		
2018 Unit Count Additions Reported in the HUBB	8,648	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	58.55%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Kansas	# of Locations	
Total Sample Locations	346	
Total USAC Sample Disqualification Unit Count	187	
Mismatch	*120*	
Ineligible Census Block	*35*	
MDU	*25*	
Other	*7*	
Less Mismatch Disqualifications	(120)	
Revised Disqualification Unit Count	67	
Sample Error Rate	19.36%	
Total HUBB Locations (2017)	11,556	
Extrapolation Error Rate	16.89%	Note: Sample error rate reduced by 2.47% per USACs review
Total Estimated Failures	1,952	
Total Estimated Passing Locations	9,604	
100% Goal for KS (Final Milestone)	29,018	
Revised 2017 HUBB Location % After Extrapolation	33.10%	% of full program deployment
Revised 2017 Compliance Gap Tier: Tier 2 Quarterly Reporting + 15% Funding Reduction		
2018 Unit Count Additions Reported in the HUBB	5,481	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	51.98%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Montana	# of Locations	
Total Sample Locations	390	
Total USAC Sample Disqualification Unit Count	253	
Mismatch	*173*	
Ineligible Census Block	*20*	
MDU	*45*	
Other	*15*	
Less Mismatch	(173)	
Revised Disqualification Unit Count	80	
Sample Error Rate	20.51%	
Total HUBB Locations (2017)	14,551	
Extrapolation Error Rate	17.42%	Note: Sample error rate reduced by 3.09% per USACs review
Total Estimated Failures	2,535	
Total Estimated Passing Locations	12,016	
100% Goal for MT (Final Milestone)	33,638	
Revised 2017 HUBB Location % After Extrapolation	35.72%	% of full program deployment
Revised 2017 Compliance Gap Tier: Tier 1 Quarterly Reporting		
2018 Unit Count Additions Reported in the HUBB	6,390	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	54.72%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Wisconsin	# of Locations	
Total Sample Locations	349	
Total USAC Sample Disqualification Unit Count	201	
Mismatch	*129*	
Mismatch/Ineligible Census Block	*26*	
MDU	*24*	
Other	*22*	
Less Mismatch Disqualifications	(129)	
Revised Disqualification Unit Count	72	
Sample Error Rate	20.63%	
Total HUBB Locations (2017)	54,519	
Extrapolation Error Rate	17.38%	Note: Sample error rate reduced by 3.25% per USACs review
Total Estimated Failures	9,476	
Total Estimated Passing Locations	45,043	
100% Goal for WI (Final Milestone)	129,203	
Revised 2017 HUBB Location % After Extrapolation	34.86%	% of full program deployment
Revised 2017 Compliance Gap Tier: Tier 1 Quarterly Reporting		
2018 Unit Count Additions Reported in the HUBB	20,214	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	50.51%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Revised Extrapolation: Mismatch and Ineligible CB Locations Restored

Arkansas	# of Locations	
Total Sample Locations	382	
Total USAC Sample Disqualification Unit Count	297	
Mismatch	*216*	
Mismatch + Ineligible Census Block	*40*	
MDU	*18*	
Other	*23*	
Less Mismatch + Ineligible Census Block Disqualifications	(256)	
Revised Disqualification Unit Count	41	
Sample Error Rate	10.73%	
Total HUBB Locations (2017)	22,053	
Extrapolation Error Rate	7.38%	Note: Sample error rate reduced by 3.35% per USACs review
Total Estimated Failures	1,628	
Total Estimated Passing Locations	20,425	
100% Goal for AR (Final Milesone)	45,708	
Revised 2017 HUBB Location % After Extrapolation	44.69%	% of full program deployment
Revised 2017 Compliance Gap Tier: None		
2018 Unit Count Additions Reported in the HUBB	8,648	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	63.61%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Kansas	# of Locations	
Total Sample Locations	346	
Total USAC Sample Disqualification Unit Count	187	
Mismatch	*120*	
Mismatch + Ineligible Census Block	*35*	
MDU	*25*	
Other	*7*	
Less Mismatch + Ineligible Census Block Disqualifications	(155)	
Revised Disqualification Unit Count	32	
Sample Error Rate	9.25%	
Total HUBB Locations (2017)	11,556	
Extrapolation Error Rate	6.78%	Note: Sample error rate reduced by 2.47% per USACs review
Total Estimated Failures	783	
Total Estimated Passing Locations	10,773	
100% Goal for KS (Final Milestone)	29,018	
Revised 2017 HUBB Location % After Extrapolation	37.12%	% of full program deployment
Revised 2017 Compliance Gap Tier: Tier 1 Quarterly Reporting		
2018 Unit Count Additions Reported in the HUBB	5,481	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	56.01%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Montana	# of Locations	
Total Sample Locations	390	
Total USAC Sample Disqualification Unit Count	253	
Mismatch	*173*	
Mismatch + Ineligible Census Block	*20*	
MDU	*45*	
Other	*15*	
Less Mismatch + Ineligible Census Block Disqualifications	(193)	
Revised Disqualification Unit Count	60	
Sample Error Rate	15.38%	
Total HUBB Locations (2017)	14,551	
Extrapolation Error Rate	12.29%	Note: Sample error rate reduced by 3.09% per USACs review
Total Estimated Failures	1,789	
Total Estimated Passing Locations	12,762	
100% Goal for MT (Final Milestone)	33,638	
Revised 2017 HUBB Location % After Extrapolation	37.94%	% of full program deployment
Revised 2017 Compliance Gap Tier: Tier 1 Quarterly Reporting		
2018 Unit Count Additions Reported in the HUBB	6,390	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	56.94%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Wisconsin	# of Locations	
Total Sample Locations	349	
Total USAC Sample Disqualification Unit Count	201	
Mismatch	*129*	
Mismatch + Ineligible Census Block	*26*	
MDU	*24*	
Other	*22*	
Less Mismatch + Ineligible Census Block Disqualifications	(155)	
Revised Disqualification Unit Count	46	
Sample Error Rate	13.18%	
Total HUBB Locations (2017)	54,519	
Extrapolation Error Rate	9.93%	Note: Sample error rate reduced by 3.25% per USACs review
Total Estimated Failures	5,414	
Total Estimated Passing Locations	49,105	
100% Goal for WI (Final Milestone)	129,203	
Revised 2017 HUBB Location % After Extrapolation	38.01%	% of full program deployment
Revised 2017 Compliance Gap Tier: Grace		
2018 Unit Count Additions Reported in the HUBB	20,214	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	53.65%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Revised Extrapolation: Mismatch, Ineligible CB & MDU Locations Restored

Arkansas	# of Locations	
Total Sample Locations	382	
Total USAC Sample Disqualification Unit Count	297	
Mismatch	*216*	
Ineligible Census Block	*40*	
MDU	*18*	
Other	*23*	
Less Mismatch + Ineligible Census Block + MDU Disqualifications	(274)	
Revised Disqualification Unit Count	23	
Sample Error Rate	6.02%	
Total HUBB Locations (2017)	22,053	
Extrapolation Error Rate	2.67%	Note: Sample error rate reduced by 3.35% per USACs review
Total Estimated Failures	589	
Total Estimated Passing Locations	21,464	
100% Goal for AR (Final Milesone)	45,708	
Revised 2017 HUBB Location % After Extrapolation	46.96%	% of full program deployment
Revised 2017 Compliance Gap Tier: None		
2018 Unit Count Additions Reported in the HUBB	8,648	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	65.88%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Kansas	# of Locations	
Total Sample Locations	346	
Total USAC Sample Disqualification Unit Count	187	
Mismatch	*120*	
Ineligible Census Block	*35*	
MDU	*25*	
Other	*7*	
Less Mismatch + Ineligible Census Block + MDU Disqualifications	(180)	
Revised Disqualification Unit Count	7	
Sample Error Rate	2.02%	
Total HUBB Locations (2017)	11,556	
Extrapolation Error Rate	0.00%	Note: Sample error rate reduced by 2.47% per USACs review
Total Estimated Failures	0	
Total Estimated Passing Locations	11,556	
100% Goal for KS (Final Milestone)	29,018	
Revised 2017 HUBB Location % After Extrapolation	39.82%	% of full program deployment
Revised 2017 Compliance Gap Tier: Grace		
2018 Unit Count Additions Reported in the HUBB	5,481	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	58.71%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Montana	# of Locations	
Total Sample Locations	390	
Total USAC Sample Disqualification Unit Count	253	
Mismatch	*173*	
Ineligible Census Block	*20*	
MDU	*45*	
Other	*15*	
Less Mismatch + Ineligible Census Block + MDU Disqualifications	(238)	
Revised Disqualification Unit Count	15	
Sample Error Rate	3.85%	
Total HUBB Locations (2017)	14,551	
Extrapolation Error Rate	0.76%	Note: Sample error rate reduced by 3.09% per USACs review
Total Estimated Failures	110	
Total Estimated Passing Locations	14,441	
100% Goal for MT (Final Milestone)	33,638	
Revised 2017 HUBB Location % After Extrapolation	42.93%	% of full program deployment
Revised 2017 Compliance Gap Tier: None		
2018 Unit Count Additions Reported in the HUBB	6,390	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	61.93%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		

Wisconsin	# of Locations	
Total Sample Locations	349	
Total USAC Sample Disqualification Unit Count	201	
Mismatch	*129*	
Ineligible Census Block	*26*	
MDU	*24*	
Other	*22*	
Less Mismatch + Ineligible Census Block + MDU Disqualifications	(179)	
Revised Disqualification Unit Count	22	
Sample Error Rate	6.30%	
Total HUBB Locations (2017)	54,519	
Extrapolation Error Rate	3.05%	Note: Sample error rate reduced by 3.25% per USACs review
Total Estimated Failures	1,665	
Total Estimated Passing Locations	52,854	
100% Goal for WI (Final Milestone)	129,203	
Revised 2017 HUBB Location % After Extrapolation	40.91%	% of full program deployment
Revised 2017 Compliance Gap Tier: None		
2018 Unit Count Additions Reported in the HUBB	20,214	
Revised 2017 HUBB Locations % after extrapolation + 2018 Units Deployed	56.55%	% of full program deployment
Revised 2017 Compliance Gap Tier Inc 2018 Unit Additions: None		