November 13, 2014

VIA ELECTRONIC SUBMISSION

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: *Connect America Fund, et al.*, WC Docket No. 10-90, WT Docket No. 10-208, WC Docket No. 14-58, WC Docket No. 07-135, CC Docket No. 01-92

Dear Ms. Dortch:

Now is the time to make a reality the ambitious redesign of universal service support begun by the Commission in 2011. The Connect America Fund ("CAF") Phase II program will bring robust broadband service to 4.2 million locations in the hardest to serve parts of this country, and the sooner the program is implemented, the sooner this massive infrastructure deployment can begin, bringing investment, jobs, and economic development to the approximately 18 percent of the country that stands to benefit from this program. CAF Phase II will guarantee vibrant broadband connections for millions of rural Americans, giving them access to the education, employment, healthcare, and economic benefits of the Internet, while also creating new markets and customers for edge and content providers. An order that appropriately recognizes the scope of the ambitious challenge of connecting 4.2 million locations – by providing adequate funding and time to build out these rural networks – will bring huge economic and social benefits to the country.

As the Commission correctly observed in its recent *Further Notice*, "the marketplace for broadband has continued to evolve" since the agency established the initial speed benchmarks for CAF-funded broadband services.[1] Consistent with that evolution, the Commission has

[1] *Connect America Fund*, FCC 14-54, Report and Order, Declaratory Ruling, Order, Memorandum Opinion and Order, Seventh Order on Reconsideration, and Further Notice of Proposed Rulemaking, ¶ 139 (2014) ("*Further Notice*") (noting the FCC's establishment of "a speed benchmark for broadband of 4 Mbps/1 Mbps, with speeds for the later years of an anticipated 2012-2017 timeframe increasing to 6 Mbps downstream and 1.5 Mbps upstream").

proposed to establish a new downstream broadband standard of 10 Mbps – a standard to which all eligible telecommunications carriers ("ETCs") selecting model-based support (as well as other ETCs receiving CAF support) would be required to adhere.[2]

USTelecom's members support the use of a 10 Mbps minimum broadband standard, provided the Commission makes appropriate adjustments in the CAF Phase II program by extending the support term and build-out period for price cap carriers making a statewide commitment from five years to 10 years.[3] This view is shared by the Communications Workers of America ("CWA"), which represents the workforce of the largest price cap carriers and which "enthusiastically supports" the Commission's proposed 10 Mbps broadband standard with appropriate adjustments to the support and build-out periods for CAF Phase II.[4] Though price cap carriers continue to be, as the Commission has recognized, "in a unique position" to deploy robust broadband efficiently in their service areas,[5] the massive network build-out required to achieve a 10 Mbps broadband standard—a build-out unprecedented in scope and scale in the United States—necessitates additional support and time.

To put in perspective the work that would be involved, according to data from the adopted Connect America Cost Model ("CAM"), which is based on the National Broadband Map, CAF Phase II will provide funding to deploy broadband to more than 4.2 million locations—six times the number of locations that are expected to receive "new or improved broadband" as a result of the Broadband Initiatives Program ("BIP") established pursuant to the American Reinvestment and Recovery Act ("ARRA").[6] Because more than 83 percent of Americans who lack access to fixed broadband live in areas served by price cap carriers,[7] CAF Phase II stands to catalyze profound progress toward our nation's goal of ubiquitous broadband availability. However, the

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2 *Id.* ¶ 140.

3 *See, e.g.*, Comments of Windstream Corporation, WC Docket No. 10-90, at 3 (filed Aug. 8, 2014) ("Windstream Comments"); Comments of CenturyLink, WC Docket No. 10-90, at 8 (filed Aug. 8, 2014) ("CenturyLink Comments").

4 Letter to the Honorable Tom Wheeler, Chairman, FCC, from Larry Cohen, President, Communications Workers of America, WC Docket No. 10-90 (Oct. 31, 2014) ("CWA Letter").

5 *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC 17663, ¶ 177 (2011) ("*USF/ICC Transformation Order*"), *aff'd In re: FCC 11-161*, 753 F.3d 1015 (10th Cir. 2014).

6 U.S. Department of Agriculture, Rural Utilities Service, Broadband Initiatives Program Quarterly Report, as of March 31, 2014, at 4 (noting that 728,733 subscriber locations are expected to receive "new or improved broadband" as a result of BIP funding) ("March 2014 BIP Report").

7 *USF/ICC Transformation Order* ¶ 127 (2011).

geographic scale of this project is immense—these CAF Phase II locations cover an area that is approximately 18 percent of the land mass of the United States.[8]

These locations are primarily in very rural areas with limited existing network infrastructure.[9] Indeed, of the more than 4.2 million locations for which CAF Phase II funding will be available, more than 1.87 million (or 44 percent) currently have available fixed Internet access service that is only marginally better than dial-up (*i.e.*, download speeds less than 768 Kbps). Deploying the network infrastructure necessary to support 10 Mbps broadband for these and other customer locations will be a mammoth undertaking, pushing fiber far deeper into very rural areas, installing new advanced electronics, and rerouting and reconfiguring copper loops.

Deploying the network infrastructure necessary to provide 10 Mbps broadband service will require price cap carriers to drive fiber deeper into their networks, which has obvious public interest benefits. This fiber deployment would provide more vibrant broadband connections that would boost economic development, spark innovation, and improve the way people live and work in rural areas in America.[10] Indeed, in modeling the cost of a broadband network for universal service purposes, the Commission observed that, because fiber is "capable of meeting ultra high-speed needs," bringing "fiber closer to the home by pushing it deeper into the network puts into place an infrastructure that has long-term strategic benefits."[11] Greater fiber deployment

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[8] *See* CAM411_CB_Funded_List_3_10_YesNo.csv file (funded CAF II locations), available at http://transition.fcc.gov/wcb/CAM411_CB_Funded_List_3_10_YesNo.csv and the Census Bureau's 2010 Census Block shape files publicly available at https://www.census.gov/geo/maps-data/data/tiger-line.html.

[9] For example, to provide broadband service to all CAF Phase II eligible locations would require a network design and build to enable, on average, just seven locations per square mile. This calculation is based on dividing the total number of current CAF Phase II eligible locations by the total area of the current CAF Phase II eligible census blocks.

[10] *See, e.g.*, Comments of ADTRAN, Inc., WC Docket No. 10-90, at 5-6 (filed Aug. 8, 2014) ("ADTRAN Comments") (noting that, for locations close to a central office or remote terminal, "broadband service providers will be able to offer even higher speeds" than the proposed 10 Mbps standard, which would allow "many of the rural subscribers" to enjoy download speeds that are "even more comparable to the offerings being made available to urban customers").

[11] *Connect America Fund; A National Broadband Plan for Our Future; High-Cost Universal Service Support*, Notice of Inquiry and Notice of Proposed Rulemaking, FCC 10-58, Appendix C: Omnibus Broadband Initiative, The Broadband Availability Gap, at 76 (rel. April 21, 2010) ("Broadband Availability Gap"); *see also* Federal Communications Commission, Omnibus Broadband Initiative, Connecting America: The National Broadband Plan at 114 (March 2010) ("National Broadband Plan"), available at http://www.fcc.gov/national-broadband-plan ("pushing fiber deeper into broadband networks considerably improves the performance and reliability of those networks …").

also would facilitate the availability of wireless broadband services. As the Commission recently noted, "Today's data-centric wireless broadband services demand higher capacity, scalable, and cost-efficient backhaul links such as fiber …."[12]

In addition to expanding substantially their middle- and last-mile fiber networks, price cap carriers participating in the CAF Phase II program will leverage their existing copper networks where possible in meeting a 10 Mbps broadband standard. This approach is financially prudent and technologically sound. As Chairman Wheeler has observed, the "high-speed capacity" of copper is increasing, which, according to the Chairman, means that a provider's existing copper infrastructure has a "new future" in a broadband network.[13]

Nonetheless, even where reliance upon existing copper is feasible, substantial network infrastructure and redesign is required to shorten copper loop lengths so they are capable of providing 10 Mbps broadband. This type of redesign is often not necessary in a 4 Mbps deployment and is the main reason that 10 Mbps broadband cannot be deployed in unserved areas as quickly or as affordably as 4 Mbps broadband.[14]

Commission staff recognized this fact in developing the National Broadband Plan nearly five years ago. Specifically, the staff considered the cost of providing broadband service utilizing a 12 kft loop (which is the network architecture modeled for providing 4 Mbps broadband) as compared to loops of 3 kft or 5 kft in length (which are capable of supporting broadband speeds well in excess of 4 Mbps); according to the staff, "due to the cost of driving fiber an additional 7,000 to 9,000 feet closer to the user," the cost of deploying broadband service utilizing 3 kft DSL or 5 kft DSL in unserved areas in the U.S. would be more than double the cost of using a 12 kft design—$37.3 billion or $29.1 billion versus $14.2 billion.[15] Deploying fiber closer to the user is exactly what will be necessary to meet the proposed 10 Mbps broadband standard, and the Commission's estimate that it would more than double the cost turns out to be on the mark, as USTelecom explains below.

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12 *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993 Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Sixteenth Report, 28 FCC Rcd 3700, ¶ 333, n.988 (2013); National Broadband Plan at 111 (noting that "driving fiber deeper into networks … will advance the deployment of both wireline and wireless broadband services").

13 Remarks of Tom Wheeler, Chairman, Federal Communications Commission, Mid-Atlantic Venture Association, at 4 (Nov. 4, 2014).

14 *See, e.g.*, Comments of Frontier Communications Corporation, WC Docket No. 10-90, at 4-5 (filed Aug. 8, 2014); Comments of AT&T Corp., WC Docket No. 10-90, at 44 (filed Aug. 8, 2014); Comments of ITTA, WC Docket No. 10-90, at 8-11 (filed Aug. 8, 2014); Windstream Comments at 3-4.

15 Broadband Availability Gap at 87 & 101-102 and Exhibit 4-C.

Consistent with the staff's analysis, the record confirms that providing 10 Mbps broadband will involve greater cost and complexity. For example, as CWA correctly points out, "raising the CAF minimum speed requirement to 10 Mbps increases the cost of network build-out," by requiring broadband providers to "deploy fiber deeper into the network, put in more remote terminals, reconfigure distribution facilities, and pay the labor costs to do this work."[16] CWA accurately concludes that, if broadband providers are going "to build networks capable for delivering 10 Mbps in very rural locations," the Commission must provide for increased "funding and build-out period" as a matter of "simple economics."[17]

Likewise, ADTRAN, a manufacturer of telecommunications equipment used in the Internet and Internet access networks, explains that a broadband provider can offer 4 Mbps broadband service over a loop that is 12 kft from the central office or remote terminal using ADSL2+ technology; however, in order to provide 10 Mbps broadband service, the provider would have to reduce that loop length to approximately 8 kft.[18] By virtue of reduced loop lengths, a broadband provider must install "additional fiber and remote terminals to provide reliable service to locations currently beyond 8 kft from the central office or remote terminal."[19] Furthermore, beyond requiring the deployment of more remote terminals, "service providers will need to upgrade middle mile facilities, as well as connectivity to the Internet, to accommodate the increased traffic" resulting from 10 Mbps broadband.[20]

To be sure, each broadband provider's network is different. Price cap carriers that are likely to participate in CAF Phase II serve different geographic areas and have built and upgraded networks over time to different network architectures and capacities. Some providers may have high-quality copper last mile networks with sufficient pairs available to design exclusively for pair bonding solutions, while others may have to design and build more extensive solutions in order to deliver 10 Mbps broadband service.

Despite these differences, typically a remote terminal cabinet housing a DSLAM or similar broadband network equipment has four distribution routes (north, south, east, and west). When a broadband provider shortens loop lengths, it ends up with four new remote terminal locations (*i.e.*, one new remote terminal cabinet on each shortened distribution route) plus the original

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16 CWA Letter at 1.

17 *Id.*; *see also id.* at 2 (noting that increasing the broadband speed requirement without providing a longer build-out and funding period "could lead some carriers to refuse to participate in the subsidy program in some or even all states, leaving rural communities behind").

18 ADTRAN Comments at 5.

19 *Id.*; *see also* CenturyLink Comments, Description of CenturyLink CAF Phase II Network Design, Planning & Deployment, ¶¶ 8-10 & 24 (a 10 Mbps broadband standard "will require the placement of substantially more fiber routes than the initial 4/1 broadband service deployment" and will necessitate the placement of additional feeder distribution interfaces and DSLAMs).

20 ADTRAN Comments at 9.

location (to serve customers near that remote terminal). If any routes split (which they often do), the number of remote terminals would double.

In an attempt to quantify the additional time and cost involved in deploying the network infrastructure required to support 10 Mbps broadband service in previously unserved areas as compared to 4 Mbps broadband service, USTelecom analyzed three network scenarios that price cap carriers are likely to encounter in meeting this standard in rural and underserved areas. The exact costs will vary, but the findings confirm the staff's analysis that the network infrastructure costs associated with providing 10 Mbps broadband as compared to providing 4 Mbps broadband are at least double.

The first two examples that USTelecom analyzed examined network builds in two Distribution Areas (DAs) that contain locations in CAF II eligible census blocks. A DA is the basic building block of the copper network and is defined by the area that is served by a single "cross connect" that connects individual local loops to the central office. A wire center contains, on average, about 80 DAs. However, a DA's size and features can vary dramatically depending upon a number of factors such as geography and the density of service locations. In rural areas, DAs with loop lengths in excess of 20 kft for the provision of POTS are not uncommon.

Example 1 (Maps 1-A and 1-B) is a rural DA where the existing copper network is constructed based on a standard POTS network design. The DA is approximately three miles in length and one mile wide. To meet the 4 Mbps broadband standard, the carrier serving this area would need to install an ADSL2+ DSLAM and provision it with fiber transport. Using pair bonding, the existing copper network and existing cross connect would be sufficient to deliver 4 Mbps broadband service to every location in the DA. The total estimated cost for provisioning this DA with 4 Mbps broadband is $191,000.[21]

By contrast, the estimated cost to deploy 10 Mbps broadband to this same DA is approximately $425,000 or 122 percent higher. A 10 Mbps build also would take approximately 50 percent more time because it requires splitting the original DA into three DAs and thus involves time-consuming copper reconfiguration. While some of the existing copper network (as bonded pair) could still be utilized, speeds of 10 Mbps and above require shorter loop lengths and thus the deployment of more equipment and fiber in order to reach all locations. (See Map 1-B) Specifically, the deployment of 10 Mbps broadband to all locations in this DA would require: 15 kft of fiber from the backbone to a VDSL2 DSLAM installed at the location of the existing cross connect; 10 kft (approximately 5 kft each) of fiber from the first DSLAM to two additional

[21] This estimated cost was calculated as follows: $150,000 for fiber (approximately 15 kft of fiber from the backbone to the new DSLAM), $1,000 for copper work on the existing cross connect, and $40,000 for the equipment, site prep, and installation of the DSLAM.

VDSL2 DSLAMs; and, reconfiguration of existing copper loops to the two newly installed cross connects so all locations can be reached with loop lengths no longer than 7 kft.[22]

Example 2 (Maps 2-A and 2-B) involves two DAs that are currently served with POTS over a standard copper network with cross connects in both DAs. Because these two DAs are geographically small and close together (approximately 0.5 miles), a single ADSL2+ DSLAM and bonded copper pairs would be adequate to serve all the locations in both DAs with 4 Mbps broadband. Only 1.5 kft of fiber would be necessary to connect this DSLAM to the backbone because there is already fiber in the area. The total cost of upgrading these two DAs to 4 Mbps broadband would be approximately $79,700.[23]

By contrast, the total cost of deploying 10 Mbps broadband to these two DAs would be approximately $119,000, or 49 percent higher. Both DAs are small and thus the existing cross connects and copper loops (bonded) would suffice to reach all locations without substantial copper work. Unlike Example 1, no DA split is required, and fiber is more readily available. However, a DSLAM in just one of the DAs would no longer be sufficient; both DAs would require a VDSL2 DSLAM to ensure loop lengths to all locations are no longer than 7 kft.[24]

These two examples illustrate the difference that existing copper loop length can make in the cost of deploying the network infrastructure capable of delivering 10 Mbps broadband. The need to "split" a single DA into three DAs to achieve 10 Mbps-capable loop lengths makes Example 1 more costly because of higher equipment (fiber and electronics) and labor costs (copper reconfiguration).

To determine whether these two DAs are typical of what could be expected in CAF Phase II, one USTelecom member analyzed the average loop length in its DAs containing locations in CAF Phase II eligible census blocks ("CAF Phase II DAs"). This analysis reflected that DAs with loop lengths averaging from 11 kft to 16 kft, similar to Examples 1 and 2, account for 50 percent of this member's CAF Phase II DAs. Furthermore, an additional 30 percent of this carrier's CAF Phase II DAs have average loop lengths in excess of 20 kft and some as long as 230 kft. Fewer than 20 percent of the DAs have average loop lengths of 7 kft or below that likely could be provisioned with 10 Mbps broadband at essentially the same cost as 4 Mbps broadband.

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[22] The $425,000 estimated cost of this 10 Mbps deployment was calculated as follows: $250,000 for fiber; $61,000 for copper work; and $114,000 for equipment, site prep, and installation of the three DSLAMs.

[23] This estimated cost was calculated as follows: $24,500 for the fiber; $15,200 for copper work; and, $40,000 for the equipment, site prep, and installation for the DSLAM.

[24] The $119,000 estimated cost of this 10 Mbps deployment was calculated as follows: $26,500 for fiber (includes an additional 200 feet to connect the second DSLAM); $15,600 for copper work; and $77,000 for equipment, site prep, and installation of the two DSLAMs.

The potential variance in geography and location density of DAs makes it difficult to estimate a typical cost to deploy 10 Mbps broadband. Nonetheless, for the carrier involved, its cost to provide 10 Mbps broadband is likely to be at least twice the cost to deploy 4 Mbps broadband. Whatever efficiencies might otherwise be realized in the 20 percent of the CAF Phase II DAs where the cost of deploying 10 Mbps versus 4 Mbps broadband is essentially the same are clearly outweighed by the fact that the carrier will face significantly higher costs in the remaining 80 percent of its DAs where 10 Mbps broadband is to be deployed.[25]

In Example 3 (Maps 3-A, 3-B, 3-C, and 3-D), USTelecom analyzed a 10 Mbps broadband build in a representative wire center with CAF Phase II eligible locations in the southwestern United States. Map 3-A is a satellite picture of the area, which reflects the type of terrain and the low population density that characterize the area.

Map 3-B identifies the customer locations and network configuration required to deliver 4 Mbps broadband in this wire center. Because the existing architecture uses a 12 kft design for voice service, minimal network reconfiguration would be required to deploy 4 Mbps broadband. The total estimated cost of the network deployment necessary to meet a 4 Mbps broadband standard in this wire center is approximately $2.1 million.[26]

Map 3-C reflects the same wire center locations with the network infrastructure required to deliver 10 Mbps broadband. This deployment would necessitate a substantial reconfiguration of the network as fiber would have to be deployed closer to customer locations, requiring a total of 49 sites (nearly 250 percent more sites than for 4 Mbps). The total estimated cost of the network deployment necessary to meet a 10 Mbps standard is approximately $4.6 million.[27] Thus, for this wire center, the cost of deploying the network infrastructure necessary to provide 10 Mbps broadband is approximately $2.5 million or 116 percent higher than the cost associated with a 4 Mbps network build.

In comparing the difference in the quantity of fiber required to provide 10 Mbps broadband versus 4 Mbps broadband in this wire center, Map 3-D reflects that 68 percent more fiber would be necessary to meet the 10 Mbps broadband standard. Specifically, under a 10 Mbps broadband

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[25] Analogously, the Commission concluded that the most expensive locations (250,000 out of 7 million total locations) reflected an extraordinary portion of the overall investment gap. Broadband Availability Gap, at 40 (noting that "the highest-gap 250,000 housing units account for $13.4 billion of the total $23.5 billion investment gap").

[26] This estimated cost was calculated based on installing electronic equipment at 20 sites, at an estimated cost of $1,358,258, and connecting these sites with fiber, at an estimated cost of $769,258.

[27] This estimated cost was calculated based on installing electronic equipment to 49 sites, at an estimated cost of $3,156,483, and connecting these sites with fiber, at an estimated cost of $1,447,518. The estimated cost for the 10 Mbps broadband deployment is understated because it does not reflect the additional cost of the network configuration that would be required.

standard, more than 421,000 fiber sheath feet would be required, as compared to approximately 250,000 feet for a 4 Mbps broadband build.

Beyond the additional financial investment required to meet the 10 Mbps broadband standard, price cap carriers face numerous challenges that make the current five-year build-out deadline practically impossible to meet. For example, one USTelecom member estimates that it would be required to place, replace, or upgrade 14,500 sites to fulfill its CAF Phase II state-wide obligations based on a 10 Mbps broadband standard. Given its currently planned network upgrades and CAF Phase I build-out obligations, this company would have to more than double its network deployment to meet a 10-year build-out deadline. Under the current five-year build-out period, this carrier would have to increase its deployment by 300 percent – an extremely difficult if not impossible task.

In the same vein, another USTelecom member reports that it currently deploys approximately 3000 sites per year, which are mostly upgrades and new developments in suburban and urban areas driven by competitive circumstances. If this carrier were to accept all of the CAF Phase II locations in the area it serves, it estimates that it would have to deploy an additional 74,000 sites for a 10 Mbps network. With a 10-year build-out period, this would require the carrier to increase its deployment by nearly 250 percent. Under the current five-year build-out, it would have to increase its deployment by nearly 500 percent, which is unachievable.

Increasing build-out capacity is not simply a matter of increased manpower. Indeed, many of the factors that affect network build-out programs are beyond the carriers' control. For example, as noted above, carriers will require considerably more fiber and network equipment to satisfy a 10 Mbps standard; even assuming manufacturers are able to meet this increased demand, it likely will take additional time for them to do so, and carriers will face an unsteady supply chain as manufacturers ramp up their production.

Likewise, even assuming the fiber and network equipment are available on a timely basis, carriers rely upon outside vendors to perform certain installation work in the field. There are a limited number of qualified vendors able to deploy fiber, install equipment, reconfigure copper, or perform other important tasks associated with an extensive network deployment program. This is particularly true in rural areas where the CAF Phase II program is targeted. Carriers are often at the mercy of their vendors in completing network build-out programs, and are competing against each other for the availability of the same vendors.

Furthermore, the deployment of fiber deeper into the network will necessitate trenching in many locations. This will require that broadband providers address rights-of-way issues and coordinate with numerous local municipalities in building out their networks.

The network build-out envisioned by the CAF Phase II program is further complicated by the involvement of electric utilities, upon which carriers must rely to provide the necessary electricity to power new broadband equipment in the field. Electric utilities have their own networks to build and maintain, and they do so on their own schedule, which may or may not coincide with the build-out plans to price cap carriers operating under the CAF Phase II program.

And, of course, carriers must deal with the weather. Extreme weather – both in terms of temperature and precipitation – can set back the best laid network deployment plans, and carriers are likely to have to confront both in the upcoming years. In this regard, it is notable that the distribution of CAF II-eligible locations is weighted toward states that experience long and cold winters, during which time CAF II deployment will not be possible.

Although considerably smaller in scope and scale, BIP provides a useful illustration of the challenges associated with nationwide broadband network build outs. Under ARRA, awardees originally were required to substantially complete their BIP projects within two years and fully complete projects within three years of the award. RUS made BIP awards in two phases, the last phase of which concluded on September 30, 2010.[28] Thus, Congress required and RUS reasonably expected that BIP projects would be fully completed no later than September 30, 2013, and BIP awardees developed network deployment plans designed to meet that deadline.

However, even with no increase in the broadband speeds that BIP-funded networks were expected to provide, the original three-year deadline proved impossible to meet. Thus, due to "issues beyond the control of awardees and the agency," RUS extended the build-out deadline for BIP awardees for almost two additional years.[29] This extension was warranted because, according to RUS, "[w]eather, seasonal conditions, and project volumes have posed challenges for … suppliers of goods and services and awardees."[30]

These challenges have continued. Indeed, of the 297 last mile and middle projects for which RUS awarded BIP funds, only 44 (less than 15 percent) were fully "operational" as of March 31, 2014, "meaning the awardee is providing service throughout its proposed service territory."[31]

The Commission's CAF Phase II program can be the catalyst for a massive infusion of investment in delivering robust broadband services to very rural communities with little prospect of otherwise enjoying the benefits of broadband. Because of their "long history of providing service throughout the relevant areas," including extensive fiber and copper network deployments to date, price cap carriers continue to be in a "unique position to deploy broadband" in these areas. Nevertheless, even for price cap carriers, as the Commission's staff has recognized and the record evidence in this proceeding confirms, substantial incremental time and expense would be required to meet a 10 Mbps standard. Under the circumstances, in order to balance the costs and benefits of the CAF Phase II program, the Commission should extend the support term for price cap carriers making a statewide commitment from five years to 10 years and provide 10 years to complete the build-out of the network. With these changes, price cap

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28 U.S. Department of Agriculture, Rural Utilities Service, Broadband Initiatives Program Quarterly Report, as of December 27, 2010, at 3.

29 *See* Letter from Jonathan S. Adelstein, Administrator, RUS, to BIP Awardees, at 1 (Oct. 7, 2010).

30 *Id.*

31 March 2014 BIP Report, at 2.

carriers will be able to help the Commission achieve its objective of bringing robust broadband to millions of Americans in rural and high-cost areas.

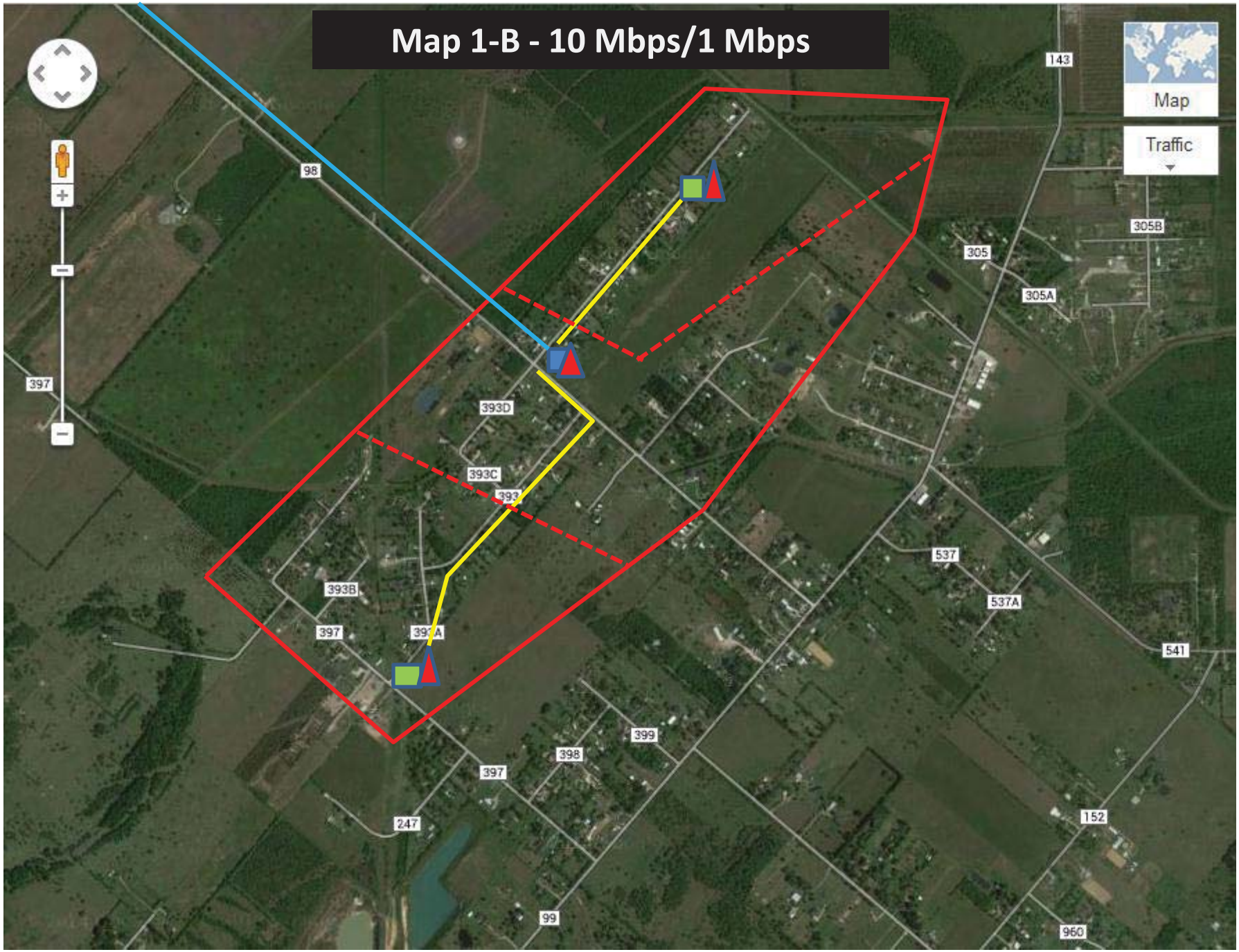
Sincerely,

/s/ Jonathan Banks

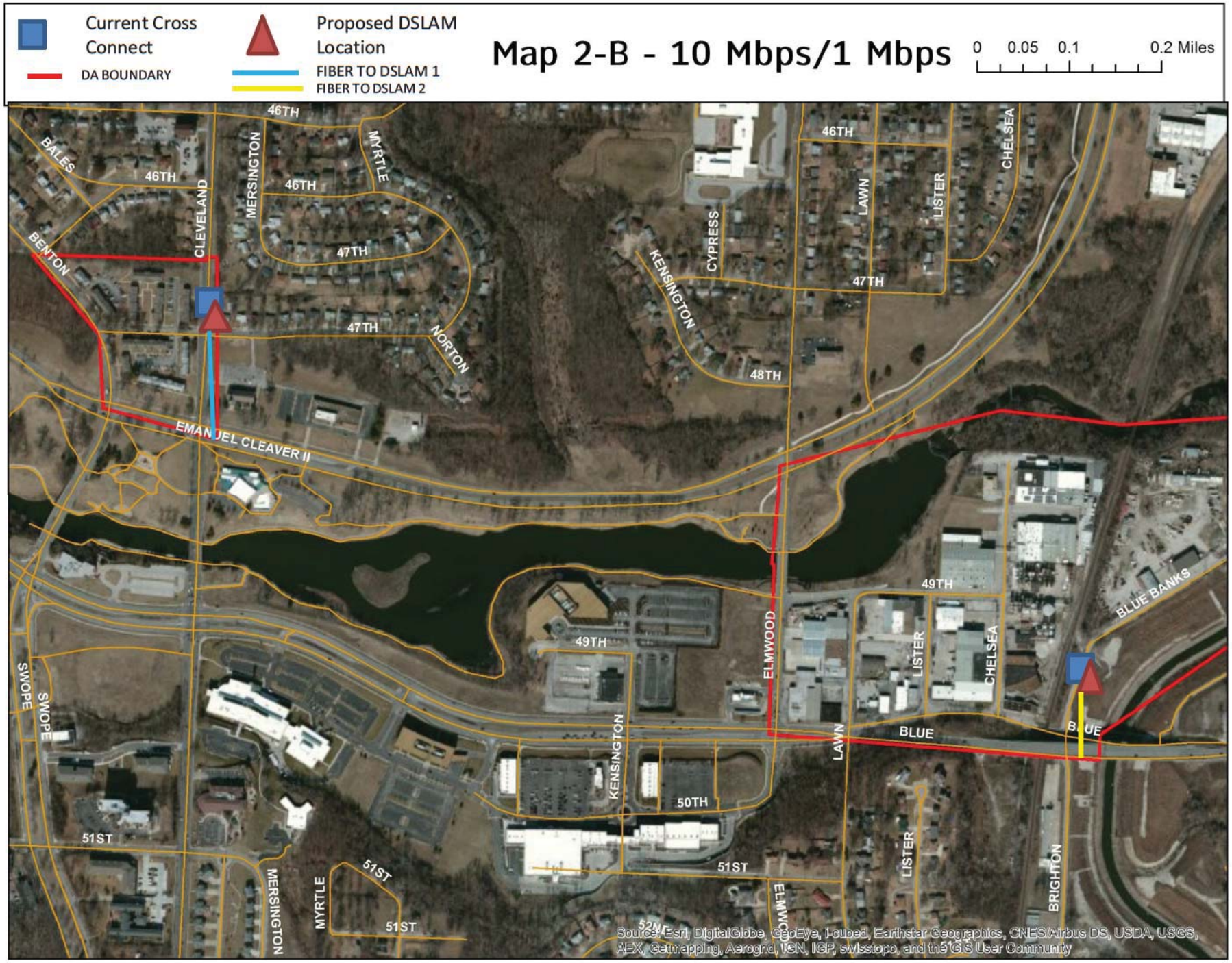
Jonathan Banks

Cc: Daniel Alvarez
Carol Mattey
Alexander Minard
Katherine King


Map 1-A - 4 Mbps/1 Mbps
Map
Traffic
143
98
305B
305
305A
397
393D
393C
393
537
537A
393B
397
393A
541
399
398
397
247
152
99
960
DA BOUNDARY
CURRENT CROSS CONNECT
PROPOSED DSLAM LOCATION
FIBER TO DSLAM 1

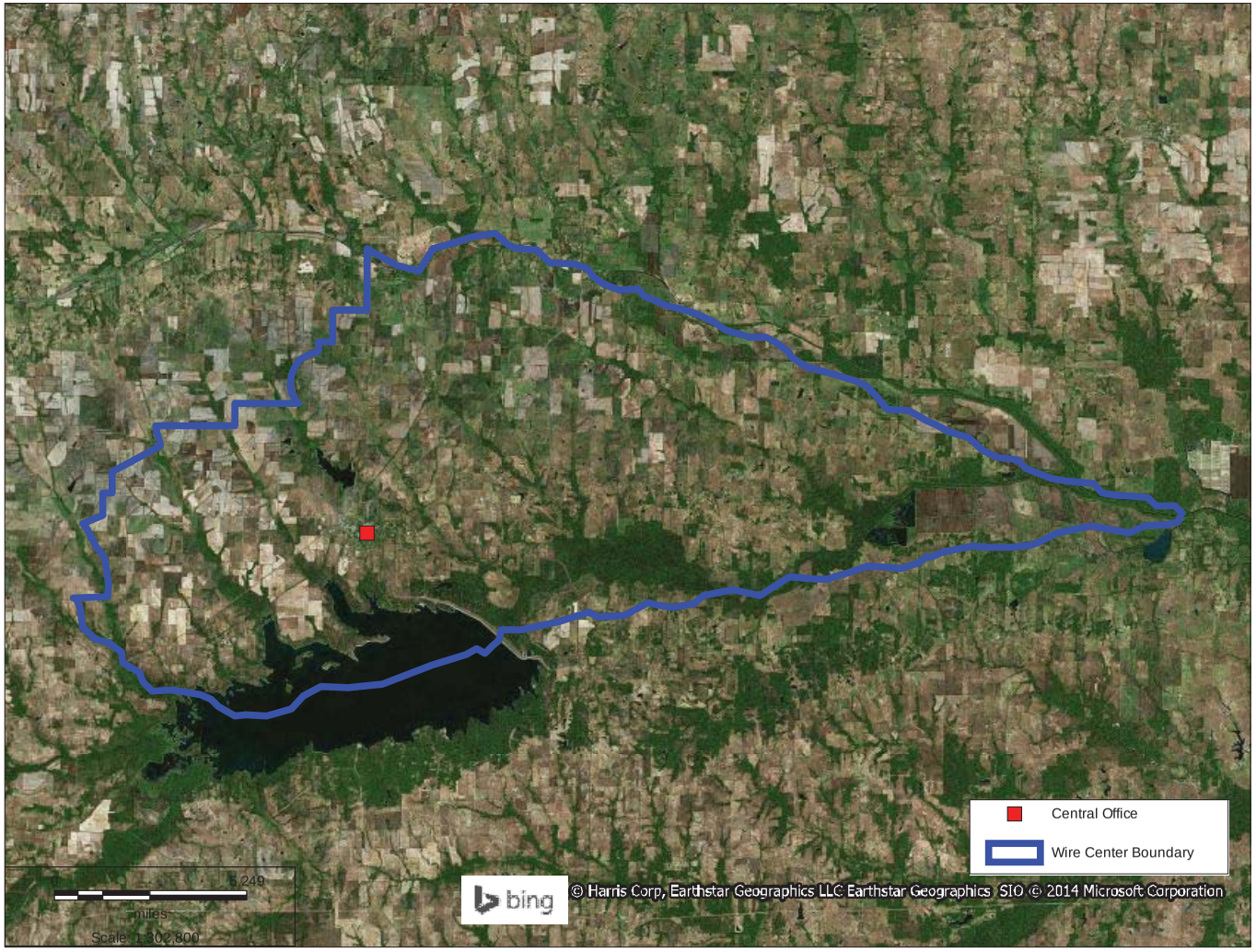

Map 1-B - 10 Mbps/1 Mbps
Map
Traffic
143
98
305B
305
305A
397
393D
393C
393
393B
397
393A
537
537A
541
399
398
397
247
152
99
960
DA BOUNDARY
NEW DA BOUNDARY
CURRENT CROSS CONNECT
NEW CROSS CONNECT
PROPOSED DSLAM LOCATION
FIBER TO DSLAM 1
FIBER TO DSLAM 2-3


Current Cross Connect
Proposed DSLAM Location
DA BOUNDARY
FIBER TO DSLAM 1
Map 2-A - 4 Mbps/1 Mbps
0 0.05 0.1 0.2 Miles
BALES
BENTON
CLEVELAND
MERSINGTON
MYRTLE
NORTON
CYPRESS
KENSINGTON
LAWN
LISTER
CHELSEA
ELMWOOD
BLUE BANKS
BLUE
BRIGHTON
SWOPE
EMANUEL CLEAVER II
46TH
47TH
48TH
49TH
50TH
51ST
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


Current Cross Connect
DA BOUNDARY
Proposed DSLAM Location
FIBER TO DSLAM 1
FIBER TO DSLAM 2
Map 2-B - 10 Mbps/1 Mbps
0 0.05 0.1 0.2 Miles
46TH
BALES
BENTON
CLEVELAND
MERSINGTON
MYRTLE
47TH
NORTON
CYPRESS
KENSINGTON
48TH
LAWN
LISTER
CHELSEA
EMANUEL CLEAVER II
49TH
ELMWOOD
BLUE BANKS
BLUE
SWOPE
50TH
51ST
BRIGHTON
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

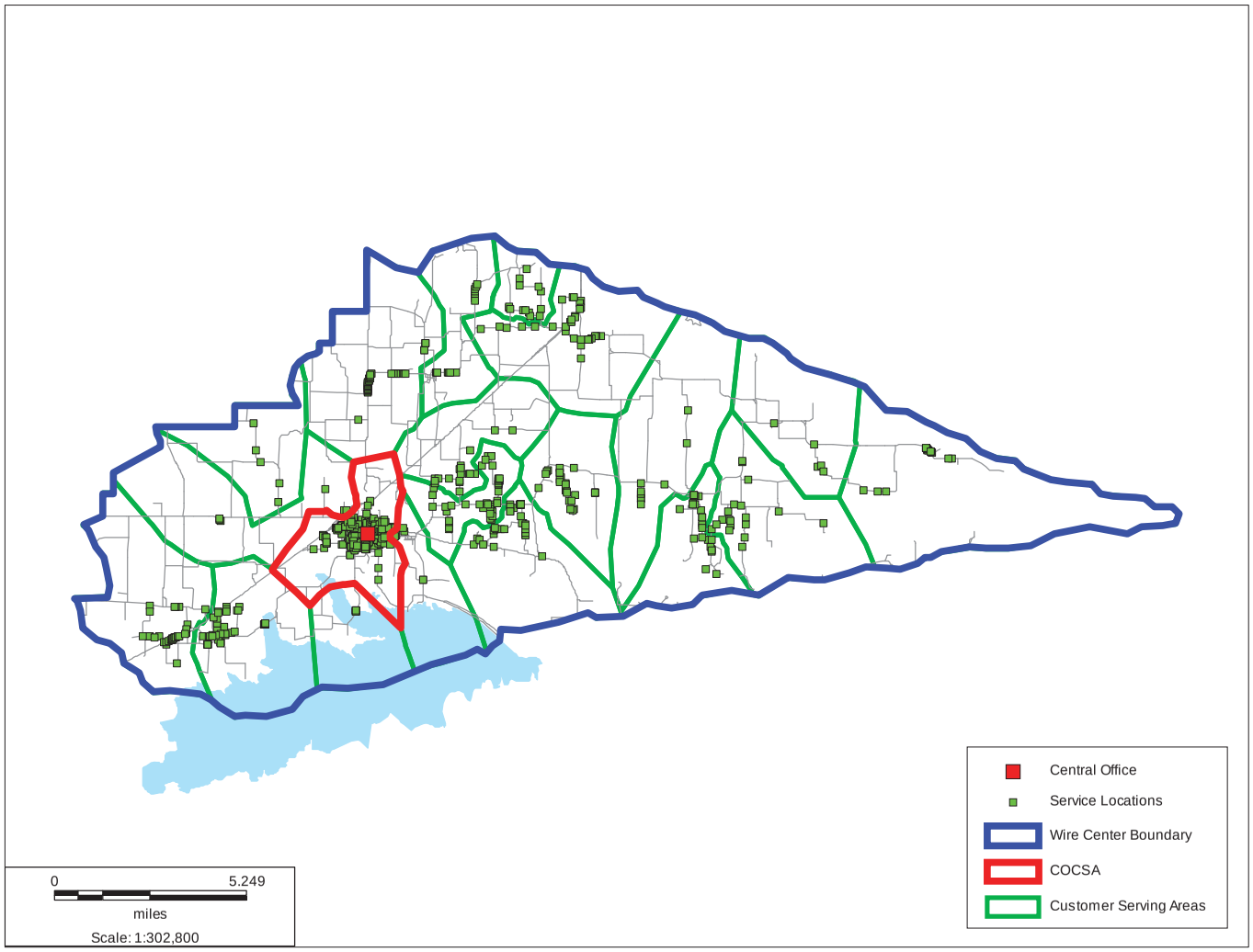
Representative Wire Center with CAF II-Eligible Locations

MAP 3-A



Investment Overview
12kft Copper Customer Serving Area

MAP 3-B



Fiber Investment

$ 769,258

Electronic Investment

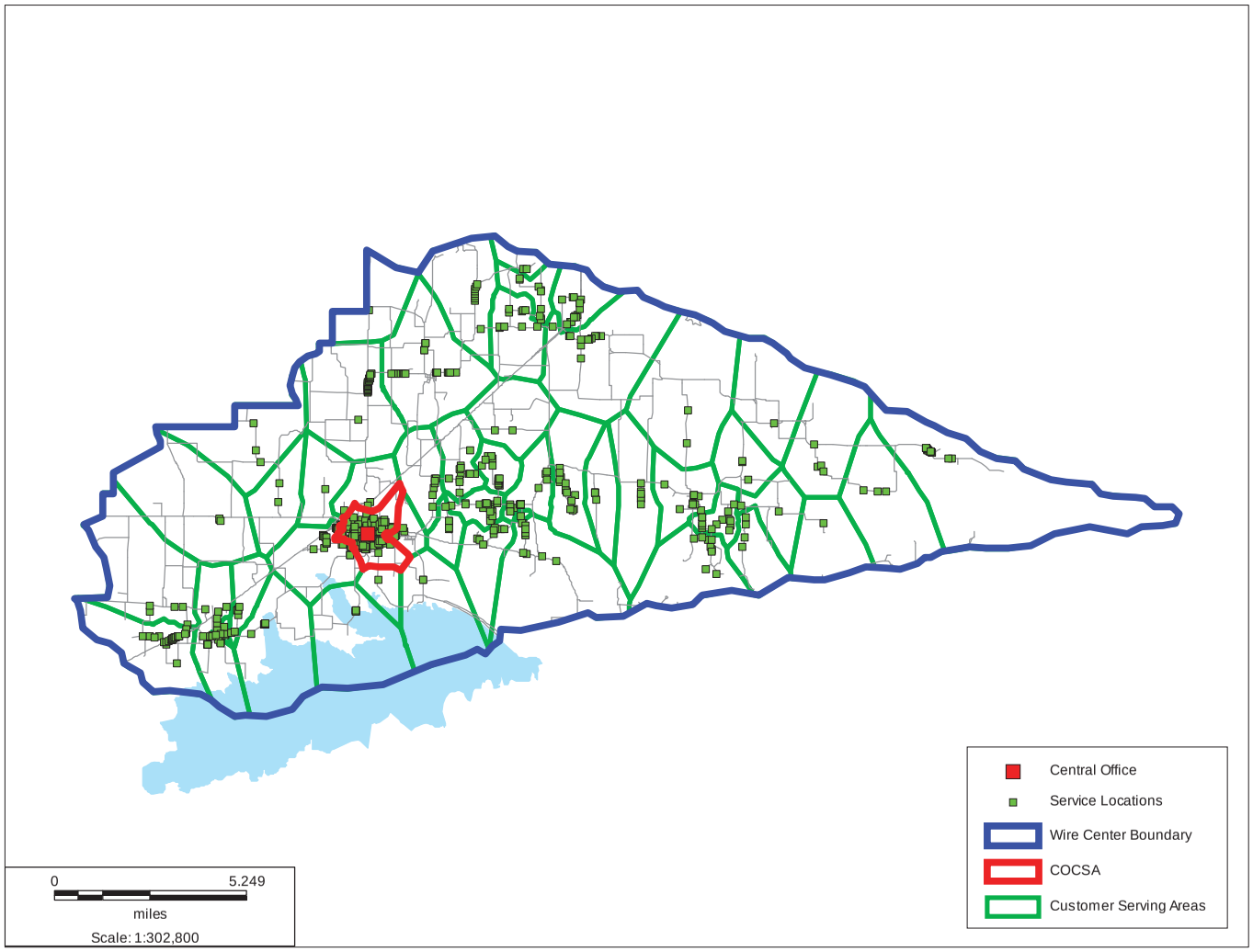
$ 1,358,258

Number of Sites

20

Investment Overview
5kft Copper Customer Serving Area

MAP 3-C



Fiber Investment

$ 1,447,518

Electronic Investment

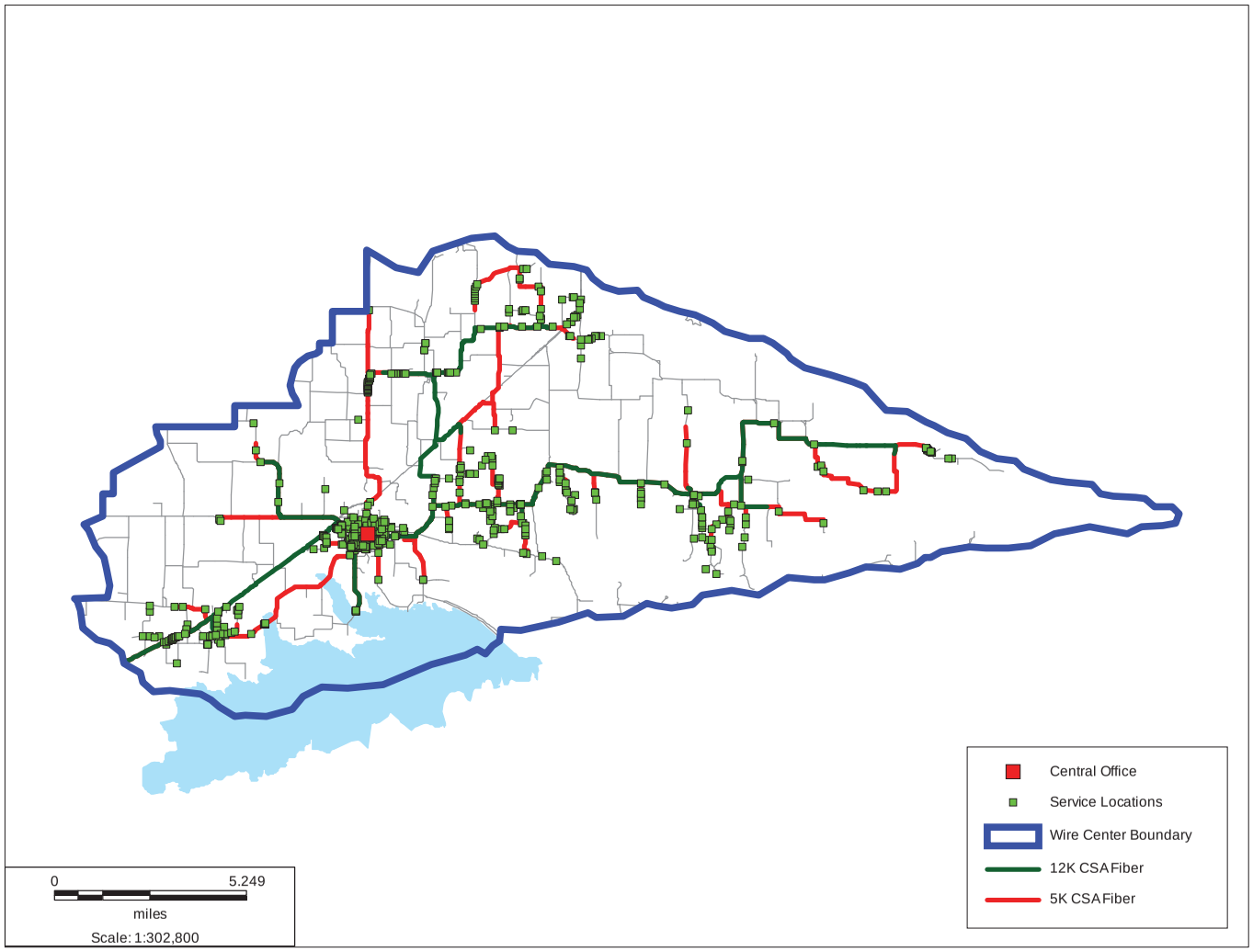
$ 3,156,483

Number of Sites

49

Fiber Comparison between 5kft vs. 12kft Copper Customer Serving Area

MAP 3-D



5kft Customer Serving Area

Fiber Sheath Feet

421,090ft

12kft Customer Serving Area

Fiber Sheath Feet

250,643ft