MEMORANDUM

To: Alaska Legislature
From: Stephen McAlpine, Chairman

Subject: Regulatory Commission of Alaska’s Report to the Legislature

Attached to this letter please find the Regulatory Commission of Alaska’s report in response to the intent language included in the 2019 budget, specifically:

It is the intent of the legislature that the Regulatory Commission of Alaska produce a map of broadband coverage in the state, using the best available GIS data and technology. The Regulatory Commission of Alaska shall deliver a report summarizing mapping efforts and results to the Speaker of the House, the President of the Senate, the Co-Chairs of the House Finance Committee, the Co-Chairs of the Senate Finance Committee, and the Legislative Finance Division, by January 1, 2019.

CCS HB 286, Section 1 (Chapter 17 SLA 18).

Accompanying the report are several exhibits depicting infrastructure maps, either created by Commission staff or drawn from public sources as requested by the Legislature.

Respectfully yours,

Stephen McAlpine
Chairman
LEGISLATIVE REPORT
BROADBAND MAPPING LEGISLATIVE BUDGET INTENT LANGUAGE

REGULATORY COMMISSION OF ALASKA
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Attachments
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Exhibit B – FCC Broadband Map (Census block for Willow, Alaska)
Exhibit C – FCC Broadband Map (Census block containing the Dillingham Airport)
Exhibit D – Mobile Voice and Broadband Coverage
Exhibit E – Universal Service Administrative Company Connect America Fund Broadband Maps
Exhibit F – Alaska Communications Fixed Wireless Deployment Maps for North Pole, Ninilchik, Sterling/Funny River, and Kalifornsky
Exhibit G – GCI Middle Mile Map
Exhibit H – AT&T Middle Mile Map
Exhibit I – Alaska Communications Network Map
Exhibit J – Alaska Middle Mile Maps from the Commission’s 2017 Legislative Broadband Report
Introduction
The Legislature included the following intent language in its Budget for the Regulatory Commission of Alaska (Commission) for the Fiscal Year beginning July 1, 2018:

It is the intent of the legislature that the Regulatory Commission of Alaska produce a map of broadband coverage in the state, using the best available GIS data and technology. The Regulatory Commission of Alaska shall deliver a report summarizing mapping efforts and results to the Speaker of the House, the President of the Senate, the Co-Chairs of the House Finance Committee, the Co-Chairs of the Senate Finance Committee, and the Legislative Finance Division, by January 1, 2019.

This report responds to the Legislature's directive by summarizing the mapping requirements of various Alaska eligible telecommunications carriers that receive high cost funds to deploy broadband capable networks, the public mapping data available, and the limitations on that data and possible solutions advanced by broadband providers. It includes copies of maps produced by Alaska telecommunications carriers and filed with the Commission, as well as maps generated by Commission staff (Staff) utilizing public data sources.

Why Map Broadband Service Availability?
With the 2011 Transformation Order, the Federal Communications Commission (FCC) embarked on a process to convert its universal service focus from traditional voice services to next generation networks that are capable of providing broadband Internet service. As part of that transformation, the FCC has instituted a push to map broadband availability and speeds to track the competition among Internet Service Providers (ISP), identify unserved and underserved markets for broadband Internet service, and ensure that scarce high cost Universal Service support is used wisely and efficiently to expand service in certain underserved markets and avoid overbuilding others.

What Public Mapping Resources Are Available?
Form 477 ISP mapping
Generally, all facilities-based ISPs are required to file Form 477 data with the FCC biannually, identifying areas where they offer Internet access that exceeds 200 kbps.1 This includes traditional wireline carriers, satellite, fixed wireless, and mobile wireless ISPs. Currently the Form 477 data is collated by census block, and is publically available at a significant time-delay. The most current data set marks broadband deployment as of December 31, 2017.2 The FCC has recently compiled a report based on the June 30, 2017, data set that analyzes the status of Internet access service nationwide and state-by-state for both wireline and wireless broadband service.3 The FCC’s report analyzing the data for the period ending December 31, 2017, has not yet been released.

1 See generally https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477 (last visited 12/19/2018). Additionally, please note the following abbreviations are used throughout this report: kbps (kilobits per second), Mbps (megabits per second, equal to 1,000 kbps), and Gbps (gigabits per second, equal to 1,000 Mbps).
Fixed Broadband Deployment Mapping

The FCC presents the fixed Form 477 data provided by wireline, satellite, and fixed wireless providers in its Fixed Broadband Deployment map. Staff has provided several screen shots to demonstrate the census block-based mapping resource.\(^4\) A potential customer in a given location is, in theory, able to type in their address and obtain a list of all potential ISPs that offer service at least somewhere in the census block in which they reside. For instance, in December 2017 the Commission’s offices could have received broadband Internet service from one cable ISP, GCI Communications, Inc. (GCI), at claimed download speeds of 1 Gbps; one Asymmetric Digital Subscriber Line (ADSL) ISP, Alaska Communications (AC), at download speeds of 25 Mbps; one fixed wireless ISP, Borealis Broadband, at download speeds of 25 Mbps; and two satellite ISPs, VSAT Systems, LLC and dishNET Holding, LLC (dishNET), with download speeds of between 25 Mbps and 2 Mbps.\(^5\) Similarly, a census block that encompasses a portion of Willow, Alaska lists three offerings, an ADSL ISP, Matanuska Telephone Association (MTA), at download speeds of either 40 Mbps or 20 Mbps, and dishNET at claimed download speeds of 25 Mbps.\(^6\) Finally, the census block that includes the Dillingham Airport similarly claims three offerings: Nushagak Electric and Telephone Cooperative offering cable or ADSL wired at claimed download speeds of 6 Mbps, and dishNET at claimed download speeds of 2 Mbps.\(^7\)

The size of rural census blocks in Alaska presents an issue in interpreting the data provided by the Form 477 map since the block is depicted as served if a single address is considered serviceable by any provider. The Willow census block, for example, is massive compared to the census block containing the Commission’s offices. While it is likely that a customer seeking service in a given census block in a population center like downtown Anchorage would be able to secure service at the claimed speeds suggested in the FCC fixed broadband map, there is less confidence that a customer seeking service in the depicted Willow census block would be able to secure the speeds claimed in the mapping resource given service is dependent on the location and availability of necessary terrestrial facilities within that census block.

The potential for a false impression of service availability depicted in Form 477 data may prove misleading to both customers seeking service and policy-makers seeking to promote greater Internet access. A quick review of the Fixed Broadband Deployment map suggests most if not all of Alaska has robust satellite broadband Internet service available. However, the map fails to note that both logistical and topographical obstacles can severely inhibit satellite broadband service. Further, the Form 477 data does not provide pricing or plan information that would be helpful to consumers pursuing realistic broadband service— for instance satellite ISP service can suffer from latency issues and often have strict usage limits and long minimum contracts.\(^8\)

There is a danger that Form 477 data may be used to create a false impression of the relative health of broadband markets for policymakers that may be considering decisions on whether to regulate those markets more strictly. Staff notes a recent General Accounting Office (GAO) study that suggests that the FCC tends to overstate the availability of broadband service on tribal lands, stating in its highlights:

> The [FCC] collects data on broadband availability from providers, but these data do not accurately or completely capture broadband access on tribal lands. Specifically, FCC collects data on broadband availability; these data capture where providers may have broadband infrastructure. However, FCC considers broadband to be “available” for an entire census block if the provider could serve at least one location in the census block.

\(^4\) See Exhibits A, B and C.
\(^5\) See Exhibit A.
\(^6\) See Exhibit B.
\(^7\) See Exhibit C.
This leads to overstatements of service for specific locations like tribal lands. FCC, tribal stakeholders, and providers have noted that this approach leads to overstatements of broadband availability. Because FCC uses these data to measure broadband access, it also overstates broadband access — the ability to obtain service — on tribal lands.9

The GAO study also faulted the FCC’s failure to collect other data such as affordability, quality of service (latency, outages, speed variation), and service denials (where a provider could but won’t provide service for any number of reasons).10 The GAO went on to observe:

> [O]n three of the tribal lands we visited, we observed fiber optic cable located close to government and residential structures that did not have broadband access via fiber. According to tribal government officials, despite the physical proximity of the fiber optic cable, the tribal government and residents could not access it because the provider was not offering service or was unwilling or unable to build to the structures.11

In addition to the GAO’s critique of Form 477 data, Microsoft Corporation (Microsoft) recently provided the FCC with results from its own nationwide study of real-world broadband network capability. Microsoft supplied actual broadband usage data in contrast to ISP-reported broadband availability to demonstrate “that only a small percentage of consumers actually access the Internet at broadband speeds” in the areas highlighted.12 Microsoft recommended the FCC revamp the Form 477 reporting obligations to “report where fixed broadband connections are actually being provisioned, rather than where broadband could be provided”, and noting that improved mapping of broadband service would “assist Microsoft in better targeting its resources and collaborating with its teleco partners to provide broadband service to rural communities.”13

Given these critiques of the accuracy of Form 477 data, especially with respect to rural areas, the Commission is wary of relying on Form 477-based mapping resources to inform the Legislature of the relative state of broadband access in Alaska if that information will be used to further inform actual policy on how or whether to expend state funds on broadband deployment in a reasonable and fair basis.

**Mobile Voice and Broadband Coverage Shapefiles**

The FCC provides the public with shapefiles of mobile/wireless voice and broadband service availability from reported Form 477 data.14 It also organizes the data by census block. With the appropriate mapping software, the shapefiles can be rendered over a map to see potential coverage areas for mobile providers at varying speeds. To the best of Staff’s knowledge, the FCC does not actively audit provider claims made in Form 477 data with onsite speed tests, but does provide consumers with a Speed Test App that can be downloaded on a mobile device that allows consumers as part of a “collaborative, crowdsourcing initiative to gather anonymous data … to assess [mobile] broadband performance nationwide.”15

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10 Id. at 20-24.
11 Id. at 24.
13 Id.
Commission staff have rendered the relevant Form 477 shapefiles from the mobile providers offering service in Alaska in the attached maps.16

**Possible Augmentation of Form 477**

The FCC has not ignored the lack of granularity in the Form 477 data and resultant maps of nationwide broadband service availability. In its 2017 Further Notice of Proposed Rulemaking (FNPRM), Modernizing the FCC Form 477 Data Program, the FCC acknowledged the benefits of collecting address-level data for fixed broadband service, stating: “[H]aving national, granular broadband deployment data could greatly assist with any future disbursement of high-cost funds or universal service reverse auctions, assist consumers with locating broadband competition in their area, and with other broad public policy goals”, but also noting the significant cost to providers from obtaining that granular data, which may require physically walking facilities and recording geocodes for locations that can be served.17

Responses from providers to the 2017 FNPRM highlighted the cost and difficulty in geocoding broadband service availability. NCTA - the Internet & Television Association (NCTA) comments stated that the existing Form 477 reporting requirements were already burdensome, noting that “[i]mplementing this new requirement [in 2013] placed considerable new burdens on broadband providers, requiring many companies to devote significant resources to updating their internal records and sorting data in ways that do not serve a business purpose.”18 NCTA stated that while, in its view, “there is no need for more granular data regarding census blocks located in urban areas because such blocks tend to be small and service generally is available uniformly throughout such blocks,” it acknowledged that “there may be value in collecting more granular data regarding deployment in less densely populated areas”.19

NCTA further decried the lack of an “economically feasible”, “uniform method” for obtaining the more granular location-specific data.20 NCTA stated that for providers that do not already track street-level serviceability:

To determine all of the street addresses serviceable by its existing facilities (whether already connected, reachable by drops, or reachable by line extensions that can be constructed within a typical service interval) within its service areas, a company would likely have to expend significant funds to identify (from third-party sources, such as county tax records and postal records) potential addresses within those service areas requiring investigation, pay vendors to standardize the address formats, analyze the addresses individually against the locations of its plant, conduct field inspections in a large percentage of the census blocks where they currently have facilities, and then manually create records for each address.21

Other commenters noted that the lack of a nationwide address databank risks complications from any move to require address-specific service. Notably, the United States Telecom Association (USTelecom) remarked that “[a]s reported by the US Census … approximately 12% of all the locations nationwide have verified

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16 See Exhibit D.
19 Id. at 4.
20 Id.
21 Id. at 6-7.
geocoded addresses. Simply put … [a]ny change to the existing 477 reporting requirements does not enhance the data but skew[s] it.”22 The USTelecom did acknowledge that “road segment” and other “sub-census block” information and “best-efforts addresses” “could be useful for census blocks that have an area greater than 2 square miles”, but the association argued that any sub-census information should be voluntary not mandatory.23

High Cost Universal Broadband Portal Mapping

To the extent Universal Service funding is in question, the FCC has taken more aggressive steps to require location-specific serviceability data from carriers/providers that receive federal high cost support, at least for present and future deployments. In Alaska, three high cost programs are implicated. AC, as a price cap carrier, receives its support through the general Connect America Fund (CAF II); the two rate-of-return carriers, Alaska Telephone Company (ATC) and Summit Telephone & Telegraph Company of Alaska, Inc. (Summit), participate in the Alternative-Connect America Cost Model (A-CAM) program; and the balance of Alaska’s telecommunications carriers receive high cost support through the Alaska Plan.

Each high cost program has different data requirements and reporting deadlines, as summarized below. Carriers are instructed to upload mapping data onto the High Cost Universal Broadband (HUBB) Portal in accordance with their respective program requirements.24 The geocoded data is rendered in a publically available, highly detailed Connect America Fund Broadband Map (CAF Map).25 However, to the extent geocoded data for all broadband capability is not required, the CAF Map provides an incomplete picture of the underserved and unserved areas in Alaska. Commission staff have compiled several maps filed by the Alaska carriers receiving funding under the Alaska Plan, CAF II, and A-CAM.26

Alaska Plan Mapping/Data Requirements

As noted, all but three Alaska Eligible Telecommunications Carriers (ETCs) that receive federal high cost funds participate in the Alaska Plan. For wireline participants, there are two principal mapping requirements: recipients of funds under the Alaska Plan must file (1) detailed middle mile maps on a yearly basis,27 and (2) geocoded (address-specific) locations for new broadband capable deployments.28 There is no requirement to backfill all broadband capable locations that existed prior to the adoption of the Alaska Plan, at least at this time.

Certain mobile/wireless participants that rely on satellite backhaul to provide service must provide certifications regarding the appearance of new terrestrial middle mile that can be used and must incorporate any new facility into revised performance plans.29 Mobile/wireless participants receiving $5 million in

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23 Id.
26 See Exhibit E.
28 Alaska Plan Order, at para. 58 (stating: “[W]e will require all Alaska Plan participants to submit to USAC the geocoded locations for which they have newly deployed or upgraded broadband meeting the minimum speeds in their approved performance plans and their associated speeds. The geocoded location information should reflect those locations that are broadband-enabled where the company is prepared to offer voice and broadband service meeting the speeds committed to in the deployment plan and the relevant public interest obligations, within 10 business days.”)
29 Id. at para. 102.
support per year must also provide drive test data demonstrating broadband speeds that meet Alaska Plan criteria.\textsuperscript{30}

**Alaska Plan Middle Mile Maps**
The availability of middle mile facilities is used as a trigger in the Alaska Plan that drives performance obligations, and therefore the FCC has required participants to file detailed middle mile maps in accordance with the specifications developed by both the Wireline Competition Bureau and the Wireless Telecommunications Bureau. On behalf of Alaska Plan participants, the Alaska Telecom Association (ATA) challenged the Bureau’s middle mile mapping requirements in a petition for reconsideration, specifically the content, timing, and accuracy specifications.\textsuperscript{31}

On reconsideration, the FCC reiterated that Alaska Plan recipients must “file [yearly] maps of their fiber and microwave middle-mile networks that ‘are or will be used to support their service in eligible areas’”, which consist of “links and nodes within Alaska, including undersea cables located within territorial waters, connecting (1) ‘major nodes’; (2) outdoor cell sites; (3) anchor institutions, such as schools, libraries, medical and healthcare providers, community colleges, and other institutions of higher education; and (4) terminating locations of links”, including cell-site backhaul.\textsuperscript{32} The FCC, however, temporarily relaxed the accuracy standards for the middle mile facilities data for the 2018 mapping year, due July 1, 2018, to 50 meters, unless carriers have data accurate to the 7.6 meter standard available. The strict 7.6 meter standard will be applicable for the 2019 mapping year and beyond.\textsuperscript{33}

The Alaska Plan middle mile maps that were recently filed with the FCC have not been made available to the Commission. These maps would be much more detailed than transport facilities maps currently required from Inter-Exchange Carriers (IXCs) under 3 AAC 52.390(a) and would be partially responsive to the Legislative Budget Intent Language regarding mapping. Staff recently contacted a Universal Service Administrative Company (USAC) representative seeking access to Alaska Plan-required middle mile maps, but was informed that USAC considers those maps to be proprietary and confidential. On November 6, 2018, ATA filed comments in aid of this report, confirming that the geocoded Alaska Plan-required middle mile maps are confidential and not publically accessible.\textsuperscript{34} The Commission has generally deferred to FCC decisions on confidentiality regarding filings made pursuant to FCC requirements,\textsuperscript{35} so it would cut against that policy to use Alaska Plan-required middle mile maps to respond to the Legislative request without a carrier’s voluntary disclosure or a more forceful Legislative directive to otherwise pursue confidential material and data.

**Alaska Plan Newly Deployed Locations Mapping**
As noted, along with other high cost recipients, Alaska Plan recipients must file biannual geocoded data for locations deployed or upgraded using high cost funds. The data is uploaded to the HUBB portal and rendered on the publically available CAF Map.\textsuperscript{36} As noted, for Alaska Plan recipients, only newly deployed locations must be mapped at present. In Staff’s view, this limits the current utility of the CAF map as a policy

\textsuperscript{30} Id. at para. 103. Generally, the Alaska Plan requires a minimum speed of 10 mbps download and 1 mbps upload.


\textsuperscript{33} Id. at para. 16-20.

\textsuperscript{34} See Comments of the Alaska Telecom Association, Docket 1-17-004, filed November 6, 2018, at 3.

\textsuperscript{35} See e.g., Order U-17-050(2)/U-18-008(1), dated February 27, 2018, at 3.

driver, but does demonstrate the potential to accurately detail underserved and unserved locations if the requirement to geocode service availability for all carriers is ever implemented.

CAF II Mapping/Data Requirements (Alaska Communications)

As a price-cap carrier, AC was ineligible to participate in the Alaska Plan, however the FCC recognized AC’s unique position among Connect America Phase II participants and adopted distinct requirements for AC.\(^37\) AC is currently receiving support over a ten-year period to deploy voice and broadband service to at least 31,571 locations under generally applicable speed and latency metrics. The bulk of those locations were required to be high-cost locations in census blocks that are unserved by an unsubsidized competitor, such as GCI.\(^38\) However, up to 7,900 locations could be unserved locations that happen to be located within a census block that is partially unserved by an unsubsidized competitor. AC was required to file a performance plan identifying these specific locations by October 1, 2018, following a challenge process that required AC to notify any carrier identified in Form 477 data as providing service to the proposed partially served census block.\(^39\)

During the challenge process, GCI identified 3,049 locations proposed by AC in partially served census blocks where it claimed it could provide broadband capable service. The FCC concurred with GCI and accordingly disqualified the challenged locations.\(^40\) The FCC granted AC a waiver of the October 1, 2018 deployment plan deadline to allow AC an additional 60 days to identify its final list of unserved locations.\(^41\) AC subsequently filed its response.\(^42\)

AC is subject to similar geocoded mapping requirements as Alaska Plan recipients as far as newly deployed broadband locations utilizing CAF funds, even locations identified before the geocoding requirement was adopted.\(^43\) AC’s petition for a limited waiver of the geocoding requirement for certain deployed locations was recently denied and AC was required to file geocodes for all locations by May of 2018.\(^44\) Locations are depicted in the CAF Broadband Map.\(^45\) Similar to Alaska Plan mapping requirements, Staff could not identify any requirement to provide geocoded data for prior deployments of broadband-capable service that did not rely specifically on CAF funding to deploy. Incidentally, AC is employing fixed wireless solutions to meet many of its deployment obligations under the CAF II program and has provided the Commission with a mapped example of the reach of its fixed wireless deployments in North Pole, Ninilchik, Sterling/Funny River, and Kalifornsky.\(^46\)

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38 Id. at para. 8, 32-35.

39 Id. at para. 36, 43.


41 Id. at para. 20-21.


46 See Exhibit F.
Two local exchange carriers that are ETCs elected to participate in the A-CAM high cost program instead of the Alaska Plan. Starting in 2017 “and on a recurring basis thereafter”, A-CAM participants are required “to submit to USAC the geocoded locations to which they have newly deployed broadband”, and to identify the “number of locations at the minimum speeds required by [the FCC’s] rules.” Unlike the Alaska Plan and CAF II participants, it appears that A-CAM participants must also file geocodes for “pre-existing broadband-capable locations” by March 1, 2019. It therefore appears that A-CAM data contributions are subject to heightened requirements and should provide a more complete picture of precisely where broadband service is available, at least within the service territories of ATC and Summit.

Commission Required Maps

With the elimination of standalone ETC annual reporting in 3 AAC 53.460(a) in favor of a recently pared down FCC Form 481, the Commission no longer receives relevant service territory maps for either wireless or wireline ETCs. At present, the only substantial mapping required by the Commission, aside from maps depicting service areas for certificated local exchange carriers, is for facilities-based IXC to file maps pursuant to 3 AAC 52.399(o), which reads as follows:

On or before April 30 of each year, an interexchange carrier shall file with the commission, in accordance with 3 AAC 48.095, a map or a listing identifying each location where the carrier owns or controls interexchange facilities and identifying each type of facility that is sited at each location. After an initial filing, absent changes to the facilities map or listing, the interexchange carrier shall file verification, in accordance with 3 AAC 48.095, that no changes to the map or listing have occurred. The map or listing must include (1) satellite and earth station radio system facilities and links; (2) microwave and other non-satellite-related radio facilities and links; (3) metallic-based cable and wire facilities; and (4) non-metallic-based cable and wire facilities.

To date, the Commission has only received network facilities maps for two IXCs, GCI and Alascom, Inc. (AT&T). It is unclear if other IXCs affiliated with local exchange carriers have facilities that would satisfy the description in 3 AAC 52.390(o) as each of those LEC-affiliated IXCs maintain that they are IXC resellers and the Commission has not undertaken to challenge that description. Staff notes that at least one IXC, MTA Communications, LLC d/b/a MTA Long Distance, has recently purchased a broadband-capable network outside MTA’s local exchange territory. Additionally, MTA recently filed an ex parte with the FCC that

48 Id. at para 213.
49 3 AAC 52.390(o).
50 See Exhibits G and H.
51 See Order U-16-009(2), Order Granting Application to Discontinue Service, Cancelling Certificate of Public Convenience and Necessity, Withdrawing Tariff, and Closing Docket, dated March 31, 2016, at 3 (noting that the Fairbanks fiber network previously operated by a Golden Valley Electric Association affiliate, AlasConnect, had been sold to MTA Communications, LLC d/b/a MTA Long Distance an noting that MTA already held a statewide IXC Certificate No. 505, rendering GVEA’s IXC certificate unused and superfluous).
noted over 1,100 miles of fiber network with more than 5,000 location capable of receiving fiber-to-the-premise broadband service.52

Though not pursuant to 3 AAC 52.399(o), AC did provide the Commission with a network map associated with its widespread service territory.53

Additionally, Staff has developed its own Alaska middle mile map as part of the Commission’s 2017 Legislative Broadband Report.54

Staff notes that the Commission does not currently utilize mapping specifically for the disbursement of any state funding. Staff notes that Alaska Universal Service Fund network support to wireline local exchange carriers was recently amended to set support based on historic values and that support is not targeted specifically to areas that are considered underserved or unserved by broadband Internet.55 As such, the Commission does not currently have a regulatory purpose justifying more detailed facilities or service availability maps. However, the Commission’s recent decision to sunset the AUSF in 2023 and undertake a detailed review of the AUSF beginning in 2021, adopted in Docket R-18-001,56 could change the direction of the AUSF considerably and could make an independent case for the Commission to require the type of detailed mapping called for by the Legislative Budget Intent Language, especially if the Commission undertakes to explicitly fund broadband-capable networks using specific metrics instead of following its current practice of awarding general purpose network funding to qualifying carriers.

In the event a regulatory purpose for a granular serviceability map comes to fruition, it is worth noting that at least one state, Georgia, has, through legislation, created a public/private partnership to map statewide broadband Internet service and produce associated databases for purposes of creating a program of loans and grants to providers willing to extend facilities to unserved areas in that state.57 The assertion of authority rests in the use of state rights-of-way to site broadband-capable facilities, with providers seeking to participate in the loan/grant program receiving priority if they provide mapping data.58 The legislation also requires local governments to participate in the mapping broadband service availability within their jurisdictions.59 The Georgia approach incentivizes potential recipients of state funding to provide mapping data necessary to ensure the funding is efficiently spent, and could serve as a good model for Alaska if targeted state broadband funding is made available at some point.

Mapping Going Forward

The undeniable conclusion of this report is that the Commission cannot fully comply with the specific mapping request included in the Legislature’s Budget Intent Language because, for practical purposes, the data is not publically available and the Commission has a limited mandate that does not explicitly reach broadband service, at least beyond its obligations regarding designation of ETCs. Together these facts make it difficult, if not impossible, to require broadband providers not otherwise subject to the Commission’s limited jurisdiction to file responsive data or maps.

53 See Exhibit I
54 See Exhibit J.
55 See generally, Docket R-18-001, In the Matter of the Consideration for the Full Repeal of Alaska Universal Service Fund Regulations.
56 Adopted as part of Docket R-18-001, In the Matter of the Consideration for the Full Repeal of Alaska Universal Service Fund Regulations.
58 Id.
59 Id.
Staff has been monitoring a flurry of mapping activity at the federal level, including several recent ex parte communication notifications relevant to the material discussed herein, primarily revolving around solutions to better balance the FCC’s desire for more granular Form 477 data and maps to help identify underserved and unserved areas nationwide and to guide important policy decisions, and providers’ contention that there is no business purpose for more granular data and that the costs outweigh the benefits of any augmented data requirement.

- The American Cable Association, in an October 19, 2018, ex parte with FCC staff noted that street segment data, which as discussed above is less granular than address-specific geocoding, would help balance the FCC’s request for more detailed mapping while acknowledging the significant cost associated with capturing data for which providers have no independent business purpose. While maintaining that street segment data similarly has no independent business purpose, the association presents it as “doable”, provided that maps showing all street segments are made publically available. The association noted that rural areas often do not have street names or designations that are consistent, making any data requirement more complicated. If street segments are used, the association counsels that (1) street segments only be required on relatively large census blocks exceeding two square miles since the partially-served census block overrepresentation issue is greatest for these blocks, (2) that small operators be given longer lead times in converting to street segment data, and (3) limit data submission under Form 477 to annual from current biannual reporting.

- AT&T, in an October 12, 2018, ex parte with FCC staff, suggests a four step process for creating an address-based database for broadband service availability: (1) collecting street address information independent of service status information, (2) standardizing geocoded address submissions to ensure same format and eliminate duplicates, (3) crowdsourcing confirmation of addresses by consumers, and (4) using a completed geocoded address database to identify those addresses that could be served within ten business days of a service request. AT&T, for its part, criticized the road segment proposal, noting that it would only “display the roads where broadband is available, but it would not provide any information on locations and characteristics of areas that are unserved”, leaving doubt as to the number of homes/locations that remain unserved.

- USTelecom, in an October 17, 2018, ex parte with FCC staff, expressed support for the FCC’s efforts to identify underserved and unserved locations, but maintained that sub-census block proposals are not technically feasible and risk inaccurate data. The association noted that carriers generally “know where their network is and where existing and some potential customers are located, however this information is available via street addresses – it is not geocoded”. The association noted that all geocoding software is not set up the same way, and therefore “can produce conflicting results.” The association suggests, similar to AT&T, that the FCC first create a unified geocoded address

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61 Id. at 4-6.
62 Id. at fn. 3.
63 Id. at 8-9.
65 Id. at 6.
67 Id.
68 Id.
database before asking carriers to indicate the addresses they can serve. While street segment data could be compiled, the association notes that given similar efforts required for less accurate results, the FCC would be better off compiling an address-specific database.

• GCI, in an October 25, 2018, ex parte with FCC staff, estimated that 20% of Alaska locations do not have standard street addresses, noting that the percentage likely jumps to 75% outside more populated areas. While GCI maintains a database of “serviceable locations”, the data is not necessarily accurate until service is actually provided since the availability of cable plant or fixed wireless service in the vicinity does not mean that no barrier to service exists. GCI stated that “requiring providers to certify that their data accurately reflect the serviceability of every location (or other unit of reporting) would place a phenomenal burden on filers, particularly in remote areas ... to the point where it [risks taking] away resources from actual deployment.”

Conclusion
The Commission appreciates the opportunity to provide the Legislature with information on the broadband Internet serviceability mapping resources within Alaska both today and in the near future. The Commission is encouraged that the Legislature is interested in this important topic and looks forward to providing what expertise it can in any legislative efforts that may follow.

---

69 Id. at 2.
70 USTelecom Ex parte, at 2.
72 Id. at 2.
73 Id. at 3.
Exhibit A

FCC Broadband Map (Census block containing the RCA offices)
Fixed Broadband Deployment

Address: 701 West 8th Avenue, Anchorage, Alaska 9951

Number of Fixed Residential Broadband Providers:

- General Communication, Inc.
  - Tech: Cable
  - Down: 1000 Mbps
  - Up: 50 Mbps

- Borealis Broadband Inc.
  - Tech: Fixed Wireless
  - Down: 25 Mbps
  - Up: 25 Mbps

- dishNET Holding, LLC
  - Tech: Satellite
  - Down: 25 Mbps
  - Up: 3 Mbps

- Alaska Communications Systems Holdings, Inc.
  - Tech: ADSL
  - Down: 25 Mbps
  - Up: 2 Mbps

- VSAT Systems, LLC
  - Tech: Satellite
  - Down: 128 Kbps
  - Up: 128 Kbps

Exhibit A
FCC Broadband Map
RCA Office (Downtown Anchorage)
Exhibit B

FCC Broadband Map (Census block for Willow, Alaska)
Exhibit C

FCC Broadband Map (Census block containing the Dillingham Airport)
### Dillingham Airport, Dillingham, Alaska 99576

#### Number of Fixed Residential Broadband Providers

<table>
<thead>
<tr>
<th>Technology</th>
<th>Speed</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other</td>
<td>25/3 Mbps</td>
<td>June 2017 (latest public release)</td>
</tr>
</tbody>
</table>

#### Fixed Residential Broadband Providers

<table>
<thead>
<tr>
<th>Provider</th>
<th>Technology</th>
<th>Down (Mbps)</th>
<th>Up (Mbps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nushagak Electric &amp; Telephone Cooperative, Inc.</td>
<td>ADSL</td>
<td>6</td>
<td>2</td>
</tr>
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<td>Nushagak Electric &amp; Telephone Cooperative, Inc.</td>
<td>Cable</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>DISHNET Holding, LLC</td>
<td>Satellite</td>
<td>2</td>
<td>0.2</td>
</tr>
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**Address:** Dillingham Airport, Dillingham, Alaska 99576

**Census block:** 020700002070120

**Number of Fixed Residential Broadband Providers:** 12 or more

**Technology:** ADSL, Cable, Fiber, Fixed Wireless, Satellite, Other

**Speed:** 25/3 Mbps

**Date:** June 2017 (latest public release)
Exhibit D

Mobile Voice and Broadband Coverage
# Technology of Transmission Key

<table>
<thead>
<tr>
<th>FCC Code</th>
<th>Description</th>
<th>Generation</th>
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</thead>
</table>
| 80       | WCDMA/UMTS/HSPA
Wide Band Code Division Multiple Access
Universal Mobile Telecommunications System
High-Speed Packet Access | 3G         |
| 81       | HSPA+
Evolved High-Speed Packet Access | 4G         |
| 82       | EVDO/EVDO Rev A
EVolution, Data-Optimized
EVolution, Data-Optimized Revision A | 3G         |
| 83       | LTE
Long Term Evolution | 4G         |
| 88       | Other
TelAlaska Cellular, Inc uses Terrestrial Mobile Wireless for data in its sites where it uses Enhanced Data rates for Global Evolution (EDGE) technology. | 2G/3G      |
Exhibit D
Mobile Voice and Broadband Coverage

AT&T HSPA+
Cordova Wireless Communications, Inc. WCDMA/UMTS/HSPA

Exhibit D
Mobile Voice and Broadband Coverage
Exhibit E

Universal Service Administrative Company Connect America Fund Broadband Maps
<table>
<thead>
<tr>
<th>State</th>
<th>Plan</th>
<th>Company Name</th>
<th>Deployment Year</th>
<th>Locations Obligation</th>
<th>Locations Deployed</th>
<th>Total Support Disbursed</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK</td>
<td>AK</td>
<td>ADAK EAGLE ENTERPRISES, LLC</td>
<td>2017</td>
<td>-</td>
<td>293</td>
<td>$333,000.00</td>
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<tr>
<td>AK</td>
<td>CAF</td>
<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
<td>2015</td>
<td>-</td>
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<td>$0.00</td>
</tr>
<tr>
<td>AK</td>
<td>CAF</td>
<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
<td>2016</td>
<td>-</td>
<td>7,114</td>
<td>$4,930,903.00</td>
</tr>
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<td>AK</td>
<td>CAF</td>
<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
<td>2017</td>
<td>-</td>
<td>7,481</td>
<td>$24,625,113.00</td>
</tr>
<tr>
<td>AK</td>
<td>CAF</td>
<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
<td>2017</td>
<td>-</td>
<td>7,307</td>
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</tr>
<tr>
<td>AK</td>
<td>ACAM</td>
<td>ALASKA POWER &amp; TELEPHONE, INC.</td>
<td>2017</td>
<td>-</td>
<td>248</td>
<td>$6,446,981.28</td>
</tr>
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<td>AK</td>
<td>Plan</td>
<td>AMERICAN BROADBAND COMMUNICATIONS ET AL.</td>
<td>2017</td>
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<td>2,369</td>
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</tr>
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<td>AK</td>
<td>Plan</td>
<td>ARCTIC SLOPE TELEPHONE ASSOCIATION COOPERATIVE, INC.</td>
<td>2017</td>
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<td>2017</td>
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<td>103</td>
<td>$1,136,604.00</td>
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<td>2017</td>
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<td>44</td>
<td>$11,307,498.00</td>
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<td>Plan</td>
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<td>2017</td>
<td>-</td>
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<td>2017</td>
<td>-</td>
<td>5,370</td>
<td>$18,720,342.00</td>
</tr>
</tbody>
</table>

Total Support Disbursed: $333,000.00
### State Data

#### Local Data

<table>
<thead>
<tr>
<th>State</th>
<th>Fund</th>
<th>Company Name</th>
<th>Deployment Year</th>
<th>Locations Obligation</th>
<th>Locations Deployed</th>
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<td>$0.00</td>
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<td>CAF II</td>
<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
<td>2016</td>
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<td>7,114</td>
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<tr>
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<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
<td>2017</td>
<td>-</td>
<td>7,481</td>
<td>$24,625,113.00</td>
</tr>
</tbody>
</table>

**Legend**
- State Data
- Local Data
- Filtered by: State, Company Name

**Displaying 1-3 of 3 records**

**Download Data**
ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.

Fund: CAF II
Speed: 10 Mbps/1 Mbps
Locations Deployed: 1
Deployment Year: 2015

Latitude: 60.039038
Longitude: -151.638428

Total Support Disbursed:
- 2015: $0.00
- 2016: $4,930,905.00
- 2017: $24,625,113.00
<table>
<thead>
<tr>
<th>State</th>
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<th>Company Name</th>
<th>Deployment Year</th>
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<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
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<td>7,114</td>
<td>$4,930,905.00</td>
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<td>AK</td>
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<td>ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.</td>
<td>2017</td>
<td></td>
<td>7,481</td>
<td>$24,625,113.00</td>
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Exhibit E
USAC CAF Maps
<table>
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<th>State</th>
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<th>Company Name</th>
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<th>Locations Obligation</th>
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</thead>
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<td>-</td>
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<td>$24,625,113.00</td>
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**State Data**

**Local Data**

**Filtered by:**
- State
- Company Name

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<td>2017</td>
<td>-</td>
<td>7,481</td>
<td>$24,625,113.00</td>
</tr>
</tbody>
</table>

**Legend**
- State Data
- Local Data

**Graphical Information:**
- 8280 SKYLINE DR
- HOMER, AK 99603
- Latitude: 59.881908
- Longitude: -149.177749
- Company Name: ALASKA COMMUNICATIONS SYSTEMS HOLDINGS, INC.
- Fund: CAF II
- Speed: 10 Mbps/1 Mbps
- Locations Deployed: 1
- Deployment Year: 2015

**Speed:**
- All Speeds

**Deployment Year:**
- All Years

**Reset All**

**Displaying 1-3 of 3 records**

**Download Data**
ADAK EAGLE ENTERPRISES, LLC

401 TACAN HILL
ADAK, AK 99546
Latitude: 51.870961
Longitude: -178.674833
Company Name: ADAK EAGLE ENTERPRISES, LLC
Fund: AK Plan
Speed: 1 Mbps/256 kbps
Locations Deployed: 1
Deployment Year: 2017

State Data
Company Name: ADAK EAGLE ENTERPRISES, LLC
Fund: AK Plan
Speed: 1 Mbps/256 kbps
Locations Deployed: 1
Deployment Year: 2017

Total Support Disbursed: $333,000.00
### State Data

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<th>Company Name</th>
<th>Deployment Year</th>
<th>Locations Obligation</th>
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<td>ACAM</td>
<td>ALASKA POWER &amp; TELEPHONE, INC.</td>
<td>2017</td>
<td>-</td>
<td>248</td>
<td>$6,446,981.28</td>
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<td>Locations Obligation</td>
<td>Locations Deployed</td>
<td>Total Support Disbursed</td>
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<tr>
<td>-------</td>
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<td>------------------------------------------------------</td>
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<td>----------------------</td>
<td>--------------------</td>
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<tr>
<td>AK</td>
<td>AK Plan</td>
<td><strong>ARCTIC SLOPE TELEPHONE ASSOCIATION COOPERATIVE, INC.</strong></td>
<td>2017</td>
<td>-</td>
<td>202</td>
<td>$3,135,240.00</td>
</tr>
</tbody>
</table>
Connect America Fund Broadband Map

State Data

State
Fund
Company Name

Local Data

Company Name: ARCTIC SLOPE TELEPHONE ASSOCIATION COOPERATIVE, INC.
Fund: AK Plan
Speed: 1 Mbps/256 kbps
Locations Deployed: 1
Deployment Year: 2017

2200 AIRPORT RD
WAINWRIGHT, AK 99782
Latitude: 70.639876
Longitude: -160.010745

Total Support Disbursed
$3,135,240.00
State Data

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<th>Fund</th>
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<td>AK</td>
<td>AK Plan</td>
<td>BRISTOL BAY TELEPHONE COOPERATIVE</td>
<td>2017</td>
<td>-</td>
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<td>$1,136,604.00</td>
</tr>
</tbody>
</table>

**Legend**
- State Data
- Local Data

**Layers**

- State
- Fund
- Company Name

**Filter by**
- State
- Company Name

**Displaying 1-1 of 1 records**

**Download Data**

**USAC CAF Maps**

**Connect America Fund Broadband Map**
**State Data**

<table>
<thead>
<tr>
<th>State</th>
<th>Fund</th>
<th>Company Name</th>
<th>Deployment Year</th>
<th>Locations Obligation</th>
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<tbody>
<tr>
<td>AK</td>
<td>AK Plan</td>
<td>COPPER VALLEY TELEPHONE COOPERATIVE</td>
<td>2017</td>
<td>-</td>
<td>44</td>
<td>$11,307,498.00</td>
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</tbody>
</table>

**Local Data**

- **Fund**: AK Plan
- **State**: AK
- **Company Name**: COPPER VALLEY TELEPHONE COOPERATIVE
- **Speed**: 1 Gbps/500 Mbps
- **Locations Deployed**: 1
- **Deployment Year**: 2017
- **Latitude**: 61.1380547
- **Longitude**: -148.3523874
- **Location**: Gulkana, Valdez, AK 99686
Filtering by: State, Company Name

<table>
<thead>
<tr>
<th>State</th>
<th>Fund</th>
<th>Company Name</th>
<th>Deployment Year</th>
<th>Locations Obligation</th>
<th>Locations Deployed</th>
<th>Total Support Disbursed</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK</td>
<td>AK Plan</td>
<td>CORDOVA TEL COOP</td>
<td>2017</td>
<td>-</td>
<td>4</td>
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<td>Total Support Disbursed</td>
</tr>
<tr>
<td>-------</td>
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<td>--------------------</td>
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<tr>
<td>AK</td>
<td>AK Plan</td>
<td>MATANUSKA TELEPHONE ASSOCIATION, INC.</td>
<td>2017</td>
<td>1</td>
<td>5,370</td>
<td>$18,720,342.00</td>
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### State Data

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<th>Locations Deployment</th>
<th>Locations Obligation</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AK</td>
<td>AK Plan</td>
<td>MATANUSKA TELEPHONE ASSOCIATION, INC.</td>
<td>2017</td>
<td>1</td>
<td>5,370</td>
<td>$18,720,342.00</td>
</tr>
</tbody>
</table>

**Company:** MATANUSKA TELEPHONE ASSOCIATION, INC.

**Fund:** AK Plan

**Speed:** 10 Mbps/1 Mbps

**Locations Deployed:** 1

**Deployment Year:** 2017

---

**Locations:**

- **Address:** 22327 BARCLAY DR BLUEBERRY HILL LOT 7 BOX 4 EAGLE RIVER, AK 99577
- **EAGLE RIVER, AK 99577**

**Coordinates:**

- **Latitude:** 61.315744
- **Longitude:** -149.467064
MATANUSKA TELEPHONE ASSOCIATION, INC.

Lat: 61.413358
Lon: -149.410195

Fund: AK Plan
Speed: 25 Mbps / 3 Mbps
Locations Deployed: 1
Deployment Year: 2017

$18,720,342.00
<table>
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<th>State</th>
<th>Fund</th>
<th>Company Name</th>
<th>Deployment Year</th>
<th>Locations Deployed</th>
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<td>AK Plan</td>
<td>AMERICAN BROADBAND COMMUNICATIONS ET AL.</td>
<td>2017</td>
<td>1</td>
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Legend: Layers

State Data

Local Data

Filtered by: State, Company Name

Company Name: AMERICAN BROADBAND COMMUNICATIONS ET AL.

Fund: AK Plan

Speed: 10 Mbps/1 Mbps

Locations Deployed: 1

Deployment Year: 2017

254 NASH RD
SEWARD, AK 99664

Latitude: 60.088008
Longitude: -149.351465
Exhibit F

Alaska Communications Fixed Wireless Deployment Maps for North Pole, Ninilchik, Sterling/Funny River, and Kalifornsky
Exhibit H

AT&T Middle Mile Map
Exhibit I

Alaska Communications Network Map
Alaska Communications – Who We Are

- Extensive Long Haul Fiber Network
- High Quality Fiber & Broadband Network
- State of Art Secure IP Network
- Recent investments in Fixed Wireless Access and Satellite

Exhibit I
Alaska Communications Network Map
Exhibit J

Alaska Middle Mile Maps from the Commission’s 2017 Legislative Broadband Report