

REQUEST FOR WAIVER OF TEMPORARY FILING FREEZE

By this application, GCI Communication Corp. (“GCI”) hereby petitions the International Bureau (the “Bureau”) to waive the temporary freeze (the “Filing Freeze”) on the filing of new applications for fixed-satellite service (“FSS”) earth station licenses in the 3.7-4.2 GHz Band (the “C-Band”).¹ A waiver in this instance is appropriate as it will “serve the public interest and not undermine the objectives of the freeze.”² GCI is seeking authority to install and operate a 3.6 meter Viasat 8136 antenna earth station (the “Station”) in Mountain Village, Alaska to communicate with ALSAT and Eutelsat 115WB.³ GCI’s operation of the Station will not cause harmful interference into surrounding networks.

Section 1.925 of the FCC rules empowers the Commission to waive specific requirements of its rules upon request if (a) the underlying purpose of the rule would not be served or would be frustrated by the application of the rule, and a waiver would serve the public interest; or (b) unique or unusual circumstances are presented such that it would be inequitable, unduly burdensome or contrary to the public interest to enforce the rule, and the applicant has no reasonable alternative.⁴ A waiver is appropriate here because GCI is facing unique

¹ See *Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations and Fixed Microwave Stations in the 3.7-4.2 GHz Band, 90 Day Window to File Applications for Earth Stations Currently Operating in 3.7-4.2 GHz Band*, Public Notice, DA 18-398 (rel. Apr. 19, 2018) (“Filing Freeze PN”).

² *Id.* at 3.

³ Due to the approaching winter season, GCI is concurrently seeking an emergency STA for this authority.

⁴ 47 C.F.R. §1.925(b)(3).

circumstances that warrant a deviation from the Filing Freeze as such deviation will serve the public interest.⁵

I. Introduction

Providing mobile service to Alaska is particularly challenging. Such challenges include “its remoteness, lack of roads, challenges and costs associated with transporting fuel, lack of scalability per community, satellite and backhaul availability, extreme weather conditions, challenging topography, and short construction season.”⁶ GCI must utilize a variety of technologies in order to provide dependable services, and often must do so in innovative ways. This includes using FSS in conjunction with its terrestrial mobile and fixed wireless networks. GCI’s relies on the C-Band to provide its FSS operations, and has a very long history of providing C-Band satellite communications solutions that advance the satellite technology space in an effort to provide communications services in rural Alaska.

In this instance, grant of a waiver of the Filing Freeze is necessary for GCI to continue providing reliable communications services, including critical emergency 911 services, to GCI’s customers and, would serve the public interest. Here, GCI is seeking to file for a new FSS Earth Station in the C-Band to replace existing microwave services that have become unreliable due to extensive damage caused by harsh weather elements in remote areas of Alaska. Specifically,

⁵ See *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969), *cert. denied*, 409 U.S. 1027 (1972).

⁶ *Connect America Fund; Universal Service Reform – Mobility Fund; Connect America Fund - Alaska Plan*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 10139, 10162, ¶ 72 (2016) (“*Alaska Plan R&O*”) (citing *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17829, ¶ 507 (2011) (“*USF/ICC Transformation Order*”), *aff’d sub nom. FCC 11-161*, 753 F.3d 1015 (10th Cir. 2014)).

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GCI's towers located on Askinuk and Pilcher Mountains is expected to experience severe icing issues that has caused its microwave link, which services remote villages in western Alaska (including Mountain Village, St. Mary's and Pitkas Point) to become unreliable. GCI experienced these icing issues on Askinuk mountain in past years, affecting service in another remote community in Alaska – Chevak – for which it sought and obtained a license to operate on the C-Band in the event of severe icing, and similar icing issues on Pilcher Mountain in past years.⁷

As discussed in further detail herein, GCI's link for Mountain Village is the primary link to communications in these villages, and provides not only mobile wireless voice and broadband services, but also supports GCI's TERRA network which provides critical telehealth and school access services that would otherwise not be accessible due to the remote geography, lack of roads connecting Alaskan villages, the high cost of travel and the harsh Alaskan weather. In addition, this network is responsible for wireless 911 routing, and serves as a backup to wireline 911 services. In an effort to remedy this situation, GCI examined a number of potential options to replace its microwave services, including flyaway Ku-Band VSAT stations, however these emergency deployments have proven not to be an adequate solution in this area of Alaska.

Without a grant of this requested waiver and license, remote residents in western Alaska may not have access to vital communications services, including accessing 911 services.

⁷ In that case, GCI received an emergency STA, and was granted a waiver of the Filing Freeze to receive a permanent C-Band authorization for an earth station in this village due to “(1) the unique operational conditions in remote western Alaska, (2) the absence of viable alternatives, and (3) the importance of the services that GCI provides to these remote Alaskan villages.” *In the Matter of GCI Communication Corp. Request for Waiver of the Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations in the 3.7-4.2 GHz Band*, IBFS File No. SES-LIC-20180608-01392, Order, DA 19-725, ¶ 6 (IB Aug. 1, 2019).

II. Grant of GCI's Requested Waiver Will Not Undermine the Freeze

Grant of GCI's requested waiver will not undermine the objective of the Filing Freeze. The International, Public Safety and Homeland Security, and Wireless Telecommunications Bureaus state that this objective is to limit "the potential for speculative applications that might be filed in anticipation of potential future actions by the Commission."⁸ That is certainly not the case here. As noted above, allowing GCI to file and register for a new C-Band Earth Station would permit GCI to continue to offer critical services to rural and remote areas in western Alaska. GCI has no reasonable alternative, as the C-Band presents the only current viable option for providing such communications services to these villages on a going-forward basis – as attempts to use microwave operations or the Ku-band have failed. Fiber is also not a viable alternative as this region experiences permafrost, which causes uneven freezing and thawing at or near the ground surface that can damage buried fiber optic cable. GCI has a demonstrated need for this authorization to provide necessary services now and in the future.⁹ For good cause shown, GCI requests a waiver of Filing Freeze, consistent with the request for relief set forth herein, and any other such relief as the Bureau may deem proper.

III. GCI's Critical C-Band Operations in Mountain Village

A grant of this application would allow GCI to provide critical services to over 1600 western Alaskan residents over this license. Many, if not most, of these affected residents rely solely on GCI's FSS services for a link to the world outside of their remote villages.

⁸ Filing Freeze PN at 3.

⁹ See, e.g., *In the Matter of GCI Communication Corp. Request for Waiver of the Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations in the 3.7-4.2 GHz Band*, IBFS File No. SES-LIC-20180608-01392, Order, DA 19-725, ¶ 6 (IB Aug. 1, 2019).

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Grant of the requested Application is necessary to provide important services to the rural Alaska village of Mountain Village, including:

- Yukon Kuskokwim Health Corporation - Telehealth Services: Satellite data circuit supporting an internal/private point-to-point data network extension from YKHC Subregional Clinics. YKHC has subregional health clinics in the covered communities, which GCI serves from this location. Uses of the satellite circuit likely include Voice-Over Internet Protocol (VoIP) calling, video teleconferencing, internal/private systems/records access, e-mail and other forms of communications.
- Lower Yukon School District in the covered communities – Distance Learning Services: Satellite data circuit primarily supporting Internet access serving the school district. Secondary access includes VoIP calling, video teleconferencing, internal/private systems/records access, etc.
- Federal Aviation Administration (FAA) – Federal Government Assistance: Satellite data circuits in transport images from weather cameras to assist pilots in determining real-time local weather conditions throughout the state in an effort to reduce weather-related aviation incidents and last-minute changes to flight patterns.
- GCI's Rural Wireless System: Satellite data circuit supporting GCI's cellular/rural wireless system to provide wireless services – including wireless 911, subscriber authentication, voice trunking, wireless data, etc. – for the covered communities.
- Critical Long-Distance Voice Service: GCI offers Measured Toll Service (“MTS”) for consumers and businesses using the C-Band spectrum via trunking over the microwave radio system. For the covered communities, this allows residents to contact state troopers

and other emergency officials at all times via wireline 911, but especially in critical situations.

IV. Overview of Severe Weather in Mountain Village, AK

GCI's C-Band earth station in the rural Alaskan village of Mountain Village will only be used in circumstances when the existing GCI TERRA C-Band microwave radio system experiences degraded service, which cuts-off communications to approximately 1600 Alaskans in Nunam Iqua, Alakanuk, Emmonak, St Mary's, Mountain Village, Pitkas Point, and Pilot Station. The microwave system is the primary link to communications in these villages, supporting a variety of critical services described above.

The GCI TERRA C-Band microwave radio system utilizes a mountaintop microwave repeater location on Pilcher and Askinuk Mountains. This site routinely experiences severe icing conditions during the winter and spring months. This severe icing has significantly damaged the microwave radio antennas and waveguides, leading to link degradations and service outages. Below are four annotated pictures showing the relative positions of the microwave radio antennas on the Askinuk and Pilcher towers and the links served from this site (Figures 1 and 3) and the type of severe icing that is common on these mountain tower (Figures 2 and 4). In an effort to account for the severe weather, GCI previously reduced the height of the Askinuk tower by nearly 70-feet in order to reduce the risk of falling ice and to minimize the damage that it causes to GCI's microwave radio antennas and waveguides however, despite this effort, GCI's TERRA services are still severely impacted and disrupted.

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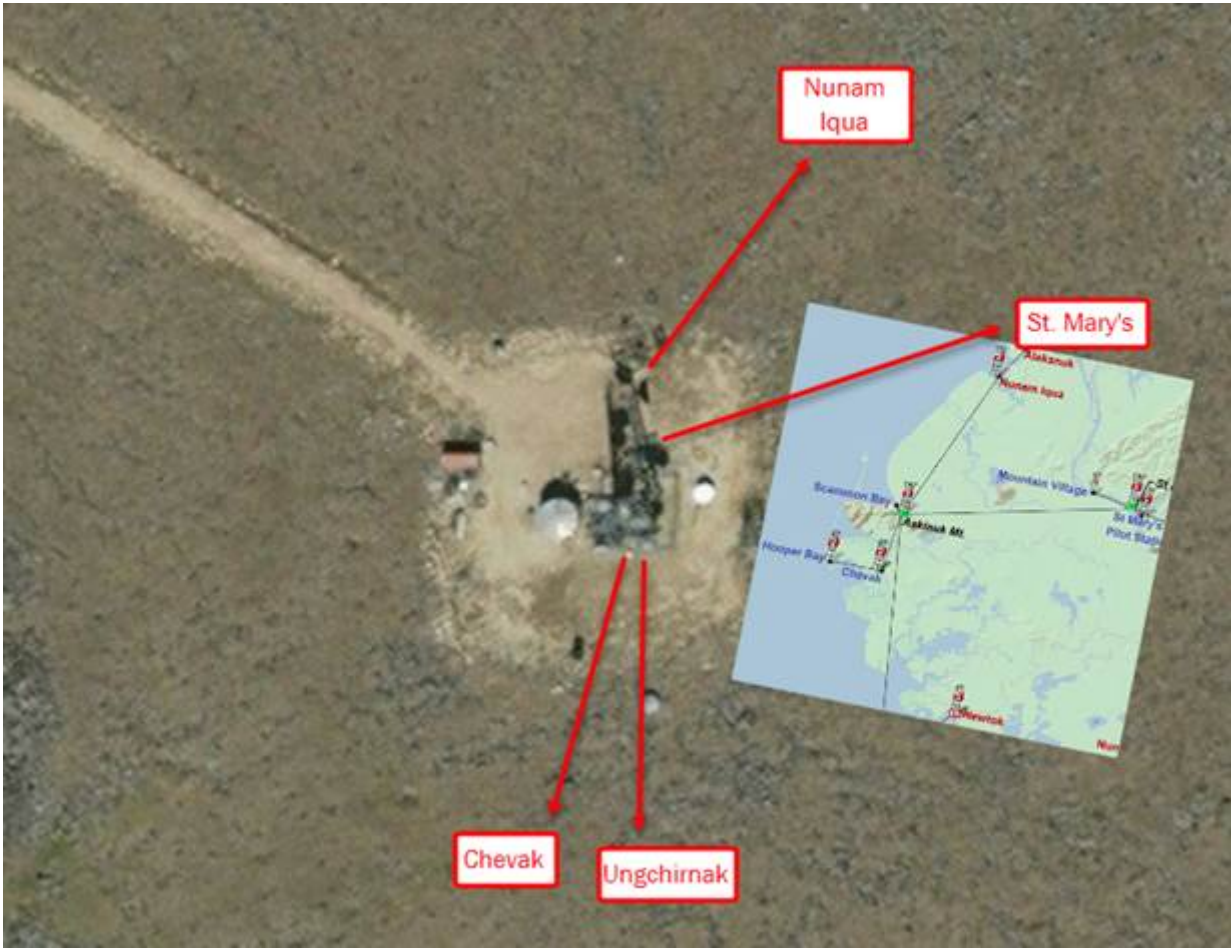


Figure 1: Askinuk Mt. Aerial Photo (Bing) w/ Deltanet/TERRA Inset (annotated)

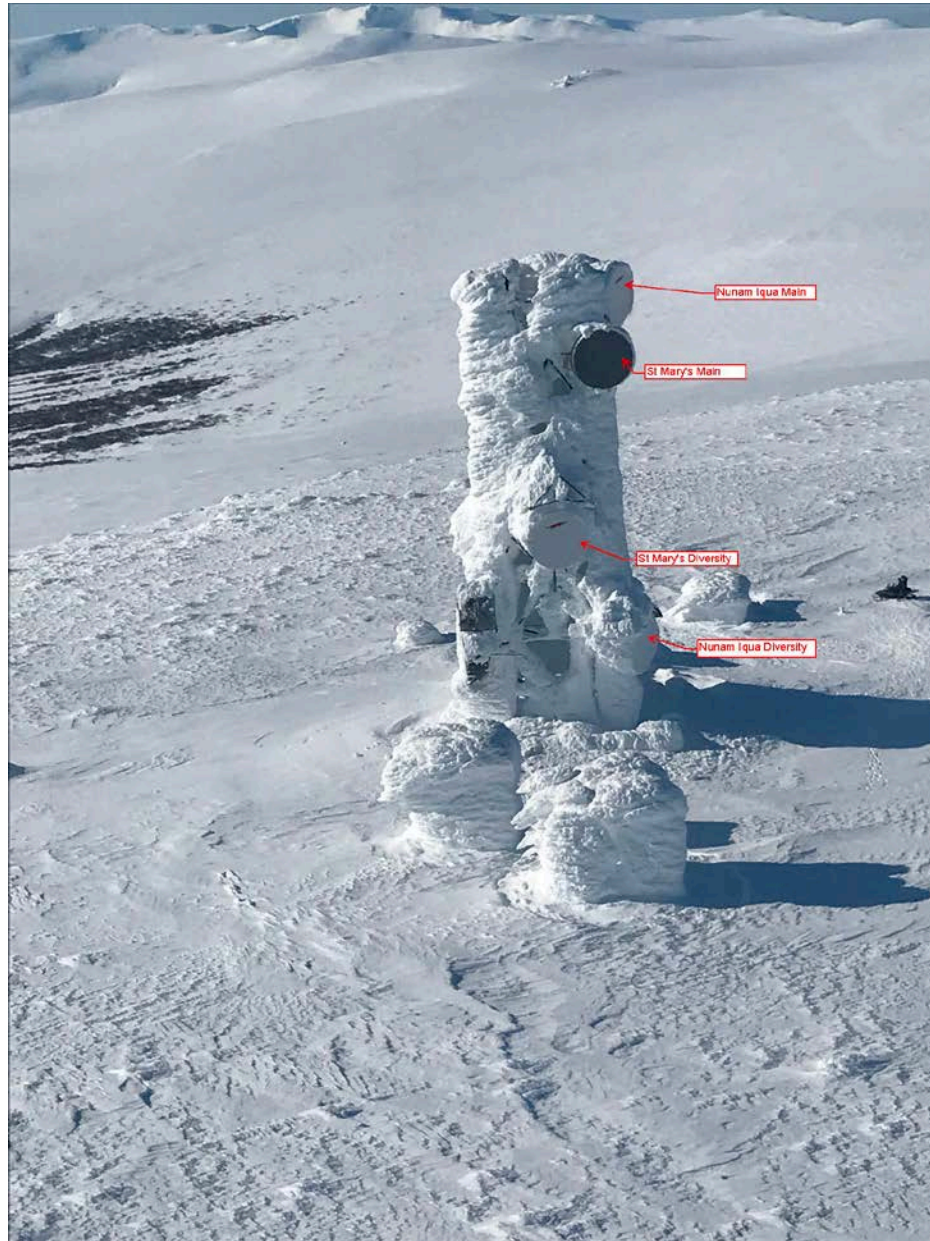


Figure 2: Askinuk Tower; Winter (2018) (annotated)

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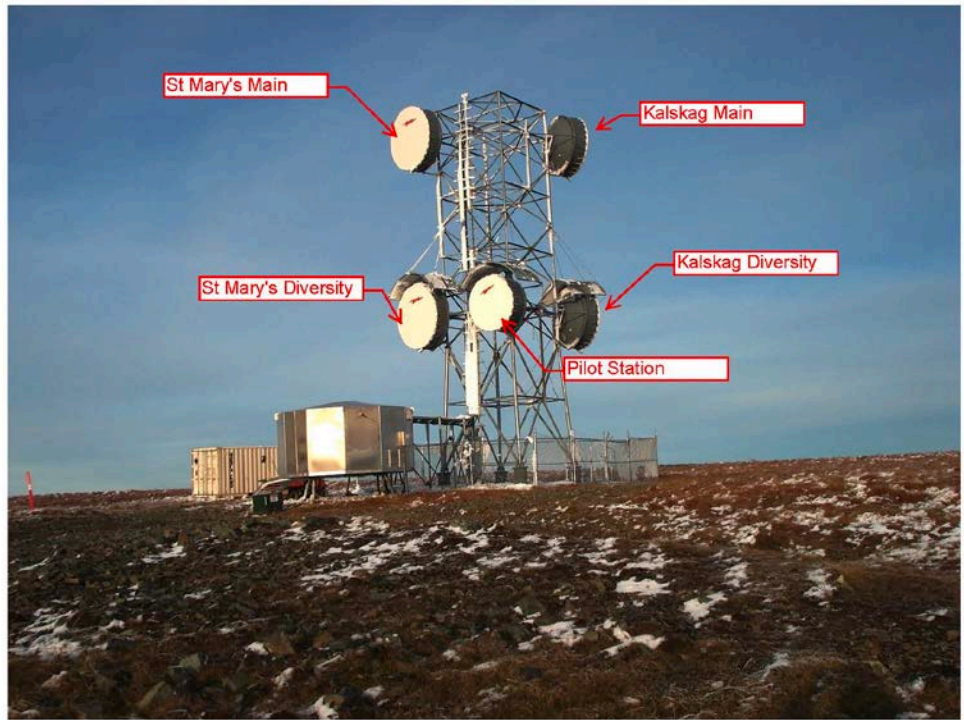


Figure 3: Pilcher Mt. Photo w/ Deltanet/TERRA Inset (annotated)

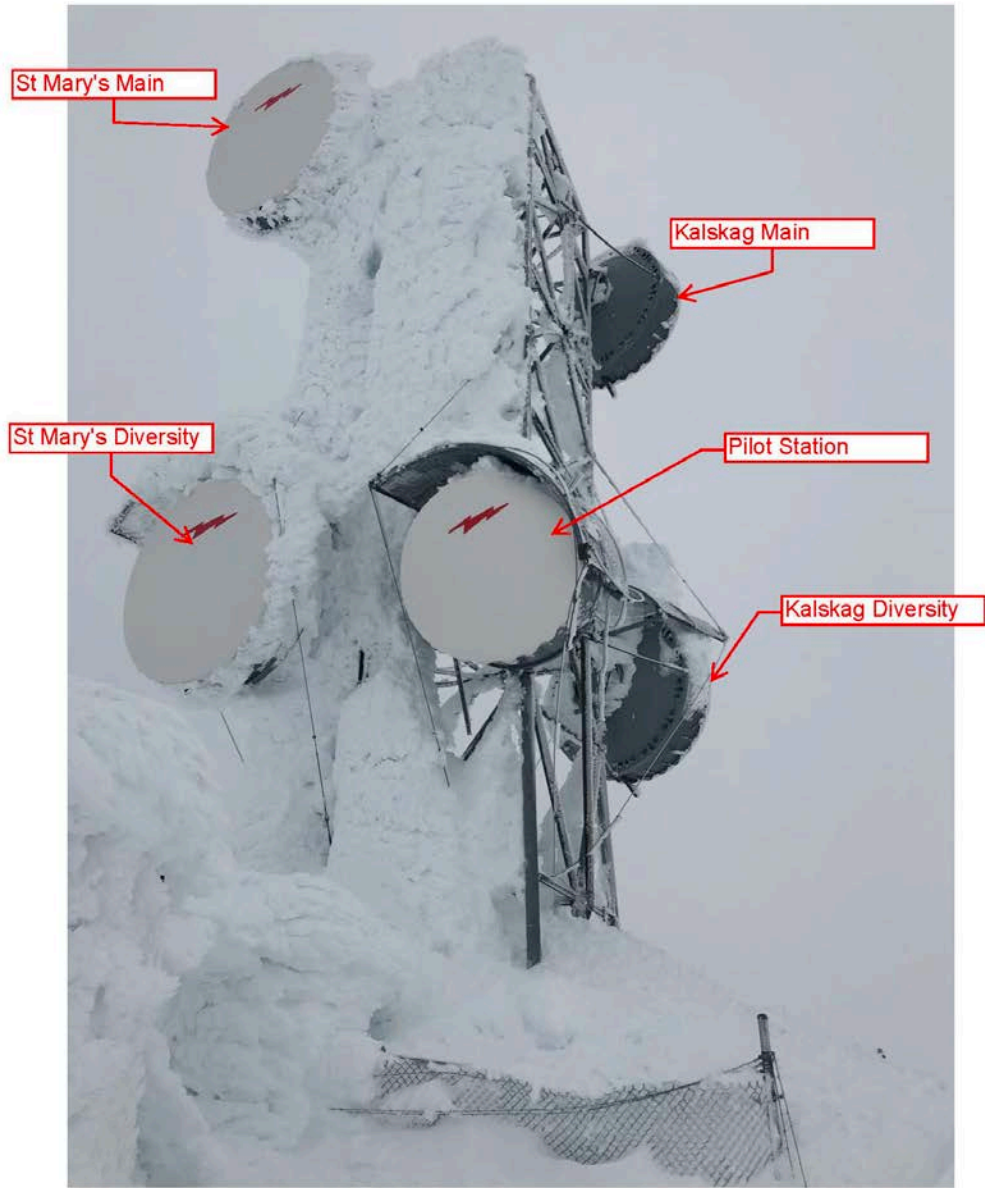


Figure 4: Pilcher Tower; Winter (annotated)

V. There are no Suitable Transmission Alternatives to the C-Band during the Mountain Village Winter Season

GCI explored alternative methods of providing service to Mountain Village prior to seeking this waiver of the Filing Freeze to file for a license to operate on the C-Band. The result of this assessment is that the C-Band is the exclusive means to provide telecommunications services into the remote village of Mountain Village (and affecting approximately 1600 western Alaskans) when severe weather renders the microwave link unreliable, which has occurred consistently over the past two spring and winter seasons.

Alternative Satellite Bands: GCI explored temporarily operating in this area using flyaway Ku-Band VSAT stations, however these emergency deployments proved unable to offer reliable services in this area of Alaska. As a general matter, the currently available Ku- and Ka-band options are not realistic alternative options due to (a) the limited lower link availability resulting from more challenging propagation conditions and higher link margins required for Ku- or Ka-band fading;¹⁰ (b) the prohibitively high cost associated with replacing or upgrading ground segment equipment; and, (c) the lack of available Ku- or Ka-band satellites having satisfactory coverage over the state of Alaska - in other words, there is not enough capacity or coverage of Ku-band satellites to move all of the C-Band services and there is minimal, if any, Ka-Band coverage in Mountain Village. For these reasons, the available alternative satellite bands are not currently an option to replace GCI's TERRA C-Band microwave radio system in Mountain Village.

¹⁰ For instance, weather characteristics such as rain, snow, or fog may cause signal fade on these satellite bands. This is especially concerning in Alaska, where snowfall could occur anytime from September to June, and its natural attributes make it even more difficult to rely on other satellite bands.

Fiber: Utilizing existing or deploying new fiber is also not a suitable alternative for GCI's services in Mountain Village. The nearest location to Mountain Village that has existing fiber-optic facilities that connect back to Anchorage is in Levelock, AK, which is hundreds of miles away from Mountain Village, and across the Bering Sea. The shortest distance between Levelock and Mountain Village includes both over-land and subsea components, making the route a difficult one (financially, environmentally, reliably, etc.). To connect to that existing fiber would require a new subsea fiber to be buried deep into hundreds of miles of arctic ocean floor and to lay terrestrial fiber either across the tundra or buried below the tundra. GCI investigated this option and realized that there were significant challenges associated with such an effort that realistically prohibit taking such action.

- Deploying a new fiber along the coast would run over the Arctic tundra and would need to be safeguarded against damage caused by the complex and changing structure of permafrost, which can range in thickness from a single meter to many hundreds of meters. And, it would require permitting in a national wildlife refuge, which is generally not permitted.¹¹ In addition, uneven freezing and thawing at or near the surface can result in dramatic changes to landforms, such as ice wedges (i.e., growing cracks in the ground) and pingos (i.e., small hills that arise quickly due to subsurface pressures), which can damage buried fiber optic cable.¹²

¹¹ Much of the land in rural Alaska is protected by numerous federal and state laws that limit human activity, including the Alaska National Interest Lands Conservation Act, the National Wildlife Refuge System Administration Act, the National Wildlife Refuge System Improvement Act of 1997, the Wilderness Act, the Wild and Scenic Rivers Act, the Marine Mammal Protection Act, and the Arctic Refuge Comprehensive Conservation Plan.

¹² U.S. Fish & Wildlife Serv., *Ice Wedges, Polygons, and Pingos*, <https://www.fws.gov/refuge/arctic/permcycle.html> (last visited Sept. 12, 2019) (describing the process by which the permafrost cycles through these changes); Nat'l Snow & Ice Data Ctr., *All*

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- A subsea fiber would be required to run hundreds of miles in the sea and would need to be safeguarded against additional elements, including ice and rough sea floors.¹³

Both of these options are not viable alternatives in the instance that the Mountain Village station freezes up and GCI must restore services in the middle of the Alaskan winter. In short, if it were feasible to install fiber to serve Mountain Village, then GCI would have already done so.

* * *

Given the critical services being provided via C-Band in Mountain Village and the lack of alternatives methods of serving this remote community, GCI respectfully requests that the Commission grant its waiver request and ultimately grant GCI a permanent C-Band earth station license in Mountain Village.

About Frozen Ground – How Does Frozen Ground Affect Land?

https://nsidc.org/cryosphere/frozenground/how_fg_affects_land.html (last visited Sept. 12, 2019) (describing how freezing and thawing in the Arctic can change the shape of the land).

¹³ Submarine fiber, particularly in Alaska's cold and icy waters carries inherent risk. The more ice that accumulates, the higher the probability of cuts to the fiber, resulting in decreased reliability.