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June 16, 2020

City and Borough of Sitka
Planning and Community Development
100 Lincoln Street
Sitka, AK 99835

RE: Lease of Municipal Property – Tower Construction

Verizon Wireless is bringing wireless service to the Sitka Community. Multiple cellular sites are planned to be constructed. This build will be comprised of both collocations on existing structures as well as new construction.

Verizon Wireless has entered into a "Built to Suit" agreement with Vertical Bridge Development, LLC ("Vertical Bridge") to build several new towers in the Sitka area. Vertical Bridge is a full service communication infrastructure provider. This letter request is related to a potential new tower in the Granite Creek vicinity. The proposed facility is located on a large parcel of land owned by the City and Borough of Sitka. The attached National Wetlands Inventory graphic has a red cloud identifying the general area for the proposed site build.

New Horizons Telecom, Inc. is a design/build company based in Palmer Alaska specializing in telecommunication infrastructure. Both Verizon Wireless and Vertical Bridge have engaged New Horizons to provide services for this site build.

Vertical Bride is proposing construction of an 85-foot monopole with a 10-foot lightning rod. Final structure height will be 95-feet. Verizon plans to locate their antennas at the 70 foot height. There will be remaining space on the tower to accommodate other wireless carriers antennas in the future.

The minimum lease area required for this site build is 50 ft x 50 ft. We also assume construction of a short access road to the lease area. The lease application for the tower build will be by Vertical Bridge.

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Construction of this facility will fill a documented significant gap in cellular communications and wireless broadband coverage to the surrounding area by Verizon. The attached narrative describes the proposed tower project and responds to elements of Sitka General Code.

Should the Planning Commission have any questions regarding this project, please contact us at the information below.

Respectfully,

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Steve Hedges
Vertical Bridge, Tower Development
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Attachments:

Lease application
NWI mapping with site location

Lease Application

No Name Mountain – Granite Creek
Parcel 24940000

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1.0 Introduction

More than 50% of American homes no longer use traditional landline telephone service and instead choose to be wireless only. The demand for data on provider networks also continues to grow exponentially. In light of this growing reliance on wireless communications and increased data demand, additional infrastructure has become essential to providing reliable service. The demand for access to wireless communications continues to grow exponentially across both Alaska and the continental United States.

The proposed construction will fill an existing significant gap in cellular and wireless broadband service coverage for Verizon Wireless. The proposed tower location is the least intrusive, reasonably available and technically feasible location for the proposed tower construction.

The below sections present a description of radio frequency science, applicable federal law governing telecommunications, and the decision logic used to justify the site location for the proposed tower build.

1.1 Radio Frequency Description and Evolution

Wireless networks are a complex mesh of radio frequencies that have an exclusive license to operate by the Federal Communication Commission (FCC). This mesh of licensed frequencies allows cellular communications to be delivered at a wide variety of scales. The scale that can be covered by the frequencies is directly proportional to the type of spectrum being used and distance between each set of antennas delivering the signals.

Radio Frequency (RF) is a frequency or band of frequencies in the range 10^4 to 10^{11} or 10^{12} Hz at which radio waves are transmitted, and they're suitable for use in telecommunications. Hertz (Hz) is the unit of RF and it refers to the number of cycles per second. Wavelength is the distance between successive crest of a wave, peaks of the electromagnetic waves. The relationship between RF and Wavelength is as follows: Wavelength = C/Frequency where C is the speed of light (3 x $10^{\wedge 8}$ m/s). Radio Frequencies are allocated and regulated by the FCC and are a part of the electromagnetic spectrum.

The FCC has established safety guidelines for Human Exposure to Radiofrequency Electromagnetic Fields that broadcaster/wireless carriers must adhere to.

A cellular network is a radio network distributed over land through cells where each cell includes a fixed location transceiver known as base station. Multiple cells together provide radio coverage over larger geographical areas.

Mobile communication operators use radio spectrum to provide mobile calling and data services. In order to keep up with a demand that is exponentially growing, the technology continues to evolve. Factors that affect wireless network performance include the following;

- Physical Obstructions – Wireless signals have difficulty penetrating solid objects such as hills, buildings, foliage, etc. The more obstructions there are between the transmitter and receiver the higher the chances of a poor signal level.
- Network Range and Distance between Devices – The way wireless signal propagates and with obstructions on the way, the further apart the devices are, the weaker the signal becomes. The signal strength

decreases, roughly in an inverse cubic relation with respect to the distance between two devices (4Gon Solutions). For example, if the distance between two devices doubles, the signal becomes at least eight times weaker.

- Network Usage and Load – If the number of active users in the network increases due to a special event or something of that nature, the resources required to support them may not be available. This results in reducing network performance by decreased data speeds or reduced accessibility.

1.2 Telecommunications Act of 1996

The Telecommunications Act of 1996 was enacted to encourage the rapid deployment of new telecommunications technologies, while also preserving state and local control over zoning matters. *T-Mobile Northeast LLC v. City of Lawrence*, 755 F.Supp.2d 286, 290 (D. Mass. 2010) (internal citations omitted). The Act generally preserves state and local authority over the placement and construction of telecommunication tower facilities. The Act places several limitations on local control. Specifically, the Act dictates that:

(1) A local government cannot unreasonably discriminate among providers of functionally equivalent services; and
(2) A local government cannot prohibit or effectively prohibit the provision of personal wireless services; and
(3) A local government cannot deny or limit an application for the construction of a wireless tower on the basis of the health or environmental effects of radio frequency emissions, as long as the proposed tower complies with FCC requirements for emissions; and
(4) Any local government decision to deny a request to construct personal wireless facilities must be in writing and supported by substantial evidence.

2.0 Existing Significant Gap in Verizon Wireless Coverage

The area of Sitka in the vicinity of the proposed tower build is currently underserved by Verizon Wireless for both voice and data coverage, which results in a significant gap in coverage for the Verizon Wireless system.

2.1 Site Selection Process

To fill the significant gaps in Verizon Wireless service, Verizon engineers used computer modeling to determine an idealized design point for tower construction and a surrounding search radius containing properties which, dependent upon topography and other surface interference, could serve as a build location. A potential tower location within the search ring would be ideal to fill the existing significant gap in Verizon Wireless coverage.

Verizon Wireless preference is to collocate on existing towers wherever possible. There were no existing towers or buildings for collocation in the general vicinity.

2.2 Tower and Site Design

Through choices in site design and tower height the proposed construction is designed to fill the significant gap in Verizon Wireless coverage in the least intrusive manner possible. The proposed site is located on a parcel of land which is undeveloped. The surrounding area is a large undeveloped lot. The general area depicted in the attached

graphic was selected due to its proximity to existing power. Another factor was that this area is not in wetlands (refer to attached graphic).

A detailed site plan for the tower construction will be developed. The drawings will be certified by a licensed professional engineer demonstrating soundness and conformity with all applicable codes, as well as State and federal law. The tower complex will be surrounded by a six-foot chain link fence. The tower site will be accessed using a new driveway.

The tower structure is a monopole. Site placement will allow existing trees to screen the site.

2.3 Site Dimensions and Tower Height

The minimum site area required for this tower build is 50 ft x 50 ft. An access road to the site will also need to be developed. The tower is designed to be at the height necessary to assure that the significant gap in Verizon Wireless service coverage can be filled along with allowing collocation for future carriers.

This tower will be constructed to an engineering standard that allows multiple carriers to locate equipment on the structure. The proposed tower is designed and engineered to accommodate future additional sets of antennas, of equal or lesser specification to Verizon Wireless proposed equipment.

2.4 Tower Illumination

Vertical Bridge prefers not to illuminate towers. Illumination is typically only installed when instructed by the FAA for the health and safety of aviators or when otherwise required by federal and state agencies.

The FAA determination for this location has not been filed. A licensed surveyor will need to provide documentation giving both vertical and horizontal placement for the proposed tower before this can be determined.

3.0 Application Criteria City & Borough of Sitka, Alaska

The Vertical Build proposed tower requires Real Property Disposal, 18.12. The proposed structure also exceeds height restrictions. A height variance to allow a 95 ft structure (85 ft tower with 10 foot lightning rod) will need to be processed for the proposed lease to be of use by Vertical Bridge for a tower build.

4.0 Conclusion

Verizon Wireless network includes a significant gap in coverage in the proposed site vicinity. After a search of available sites which could meet the technical requirements necessary to fill the coverage gaps, Verizon has identified a location within No Name Mountain – Granite Creek, Parcel 24940000, Alaska. This location will allow for construction meeting network requirements. As described in this application, this tower location is the least intrusive and most appropriate option to meet the significant gap in Verizon Wireless coverage, which can only be met through placement of a new tower. Finally, the proposed tower will affirmatively protect the public health, safety, and welfare by providing cellular and wireless broadband services to a currently underserved area,

impacting both area households and residents and transient customers seeking to access this technology from roadways and public spaces in the area. Verizon Wireless and Vertical Bridge respectfully requests that the City and Borough Planning Commission grant both the height variance and land disposal required for this site build.

U.S. Fish and Wildlife Service

National Wetlands Inventory

Granite Creek

June 15, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine