



March 11, 2019  
File: 10155545-1.0

Re: Verizon Permit Application for Small Cell Installation  
110 Howland Avenue (Parcel ID #6054-14-34746460-3-14.1)  
City of Beacon, New York, 12508  
Verizon Site Name: Howland Micro  
Technical Review Memo

Mayor Casale and the Beacon City Council:

This technical memorandum (Tech Memo) was prepared to summarize HDR's technical review of an application prepared by Young / Sommer LLC, an agent of Orange County - Poughkeepsie Limited Partnership d/b/a Verizon Wireless (Verizon), to install a "small cell" wireless telecommunication facility on a new 52-ft wooden pole at the above-referenced location (the site) in the City of Beacon. The site is in a R1-40 zoning district, and is owned by Ability Beyond Disability.

Verizon is proposing the installation of two panel antennas and other equipment on a new wooden utility pole, along with ancillary equipment on the ground at the base of the new pole. The purpose of the facility is to improve network coverage and capacity in the immediate area of the site and to increase efficiency in Verizon's local wireless network. Photos of the project area, a plan view image from the Drawing set, and 2 photosimulations ("before and after" views) of the proposed small cell are provided below.



**Photo of proposed small cell area, provided by the applicant in the 2018 application materials.**

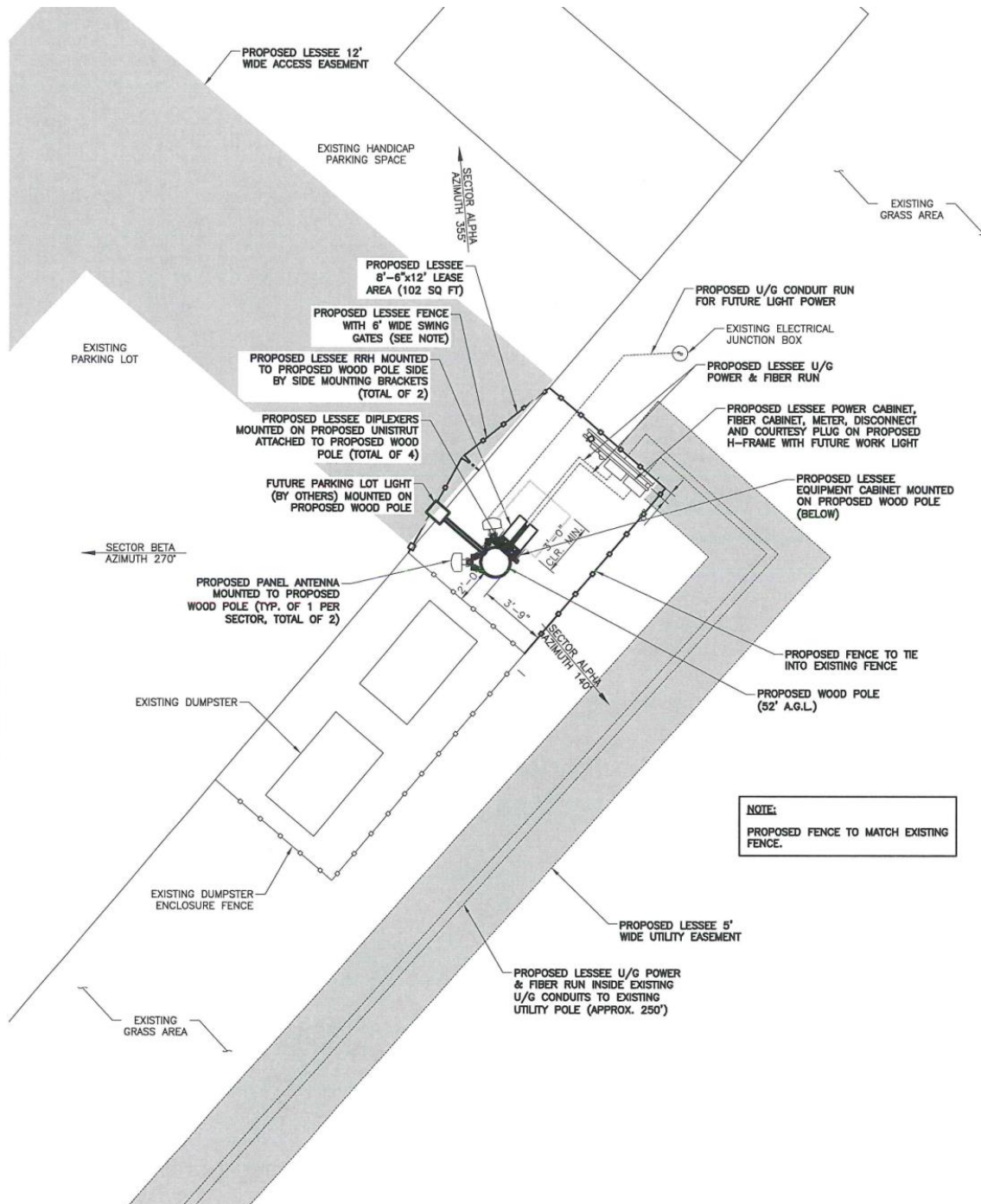




Feb 6, 2019 photo of proposed small cell area



Feb 6, 2019 photo of area behind the proposed facility. Note topography increase in grassed area and presence of drainage swale.



Plan view of proposed small cell.





**Tectonic**  
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking northeast from 110 Howland Avenue.  
Proposed installation will be visible from this location.

Distance from the photographic location to the proposed site is 150'±

**P-1**

9165.43



**Tectonic**  
PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.

Looking northeast from 110 Howland Avenue.  
Proposed installation is visible from this location.

Distance from the photographic location to the proposed site is 150'±

**S-1**

9165.43



<b>Tectonic</b> <small>PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.</small>	<p>Looking southeast from 109 Howland Avenue.  Proposed installation will be visible from this location.</p> <p>Distance from the photographic location to the proposed site is 500'±</p>	<p><b>P-2</b></p> <p>9165.43</p>
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<b>Tectonic</b> <small>PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.</small>	<p>Looking southeast from 109 Howland Avenue.  Proposed installation is visible from this location.</p> <p>Distance from the photographic location to the proposed site is 500'±</p>	<p><b>S-2</b></p> <p>9165.43</p>
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#### Photosimulations of proposed Verizon installation at 110 Howland Avenue

This review includes a general assessment of Verizon's small cell wireless facility application and consists of an analysis of the application materials HDR received in January 2019 and supplemental materials furnished in March 2019. The applicant is seeking a Special Permit (SP) for the proposed small cell installation. This Tech Memo is written for the review and comment of the City of Beacon City Council. Aside from the SP, the applicant has not identified the need for variances or waivers.



## 1. Background on Small Cells

The proposed small cell installation is intended to provide enhanced voice and data services for Verizon in the immediate site area. Small cells are low-powered wireless base stations that function like cells in a mobile wireless network, typically covering targeted indoor or localized outdoor areas ranging in size from homes and offices to stadiums, shopping malls, hospitals, and metropolitan outdoor spaces. Wireless service providers often use small cells to provide connectivity to their subscribers in areas that present capacity and coverage challenges to traditional wide-area macrocell networks, such as coverage gaps created by buildings, tower siting difficulties, and challenging terrain. Small cells typically are built to service one wireless carrier. It is noted that a small cell (or small cell network of nodes) is increasingly being utilized by wireless carriers to fulfill increased service needs in suburban settings.

The proposed small cell installation at 110 Howland Avenue is part of Verizon's 1900 and 2100 MHz (4G/LTE) licensed network roll out to provide enhanced voice and data services in the immediate site area (Howland Avenue, Route 9D, and secondary roads; residential and commercial properties). Based on the application filings and discussions with Verizon representatives, 5G service is not contemplated or proposed at this time.

## 2. Application Review and Nature of Proposed Verizon Installation

The following information was reviewed for this Tech Memo, including original and supplemental materials furnished by Verizon:

- Application package for Special Permit and Statement of Intent:
  - Young / Sommer LLC cover letter, January 9, 2019
  - Tectonic Visual Analysis, undated
  - Application for Special Permit and Rosenberg Waiver Relief and Statement of Intent, November 23, 2018
  - Application for Special Permit, no date
  - Application Processing Restriction Law, no date
  - City of Beacon Site Plan Specification Form, no date
  - City of Beacon Entity disclosure Form, no date
  - Documentation of Public Utility Status and Overview of Rosenberg Decision, no date
  - Documentation of Personal Wireless Service Facility Status an Federal Telecommunications Act of 1996, no date
  - FCC Radio Station Authorization, expiration 06/13/2019
  - Drawing Set (5 pages), prepared by EBI Engineering PC, dated 11/12/2018
  - Verizon Wireless Communication Facility, Engineering Necessity Case – “Howland Micro”, prepared by Michael Crosby, undated
  - Verizon Wireless Maintenance and Inspection Plan, Howland Micro Facility, November 19, 2018
  - RF Safety FCC Compliance of Proposed Communications Facility, Millennium Engineering, P.C., November 6, 2018
  - Non-Interference Certification of Proposed Communications Facility, Millennium Engineering, P.C., November 6, 2018
  - Short Environmental Assessment Form, November 13, 2018



- Lease Agreement, dated October 29, 2018
- Statement of Intent and Application for Special Permit and Rosenberg Waiver Relief, November 21, 2018
- January 22, 2019 – Response to John Clarke Planning and Design Memo Comments, including updated Drawings dated 1/14/19, revised Short EAF, City of Beacon water tower alternate site analysis, and updated Visual Analysis.
- March 6, 2019 filing which responded to HDR comments of March 1, 2019:
  - Narrative response letter prepared by Young / Sommer LLC
  - Antenna and ancillary equipment specifications
  - Supplemental Engineering Necessity Case (project overview, capacity, coverage, other sites in development, site selection analysis, RF justification summary, height justification)
  - Updated drawing set, dated 3-5-2019

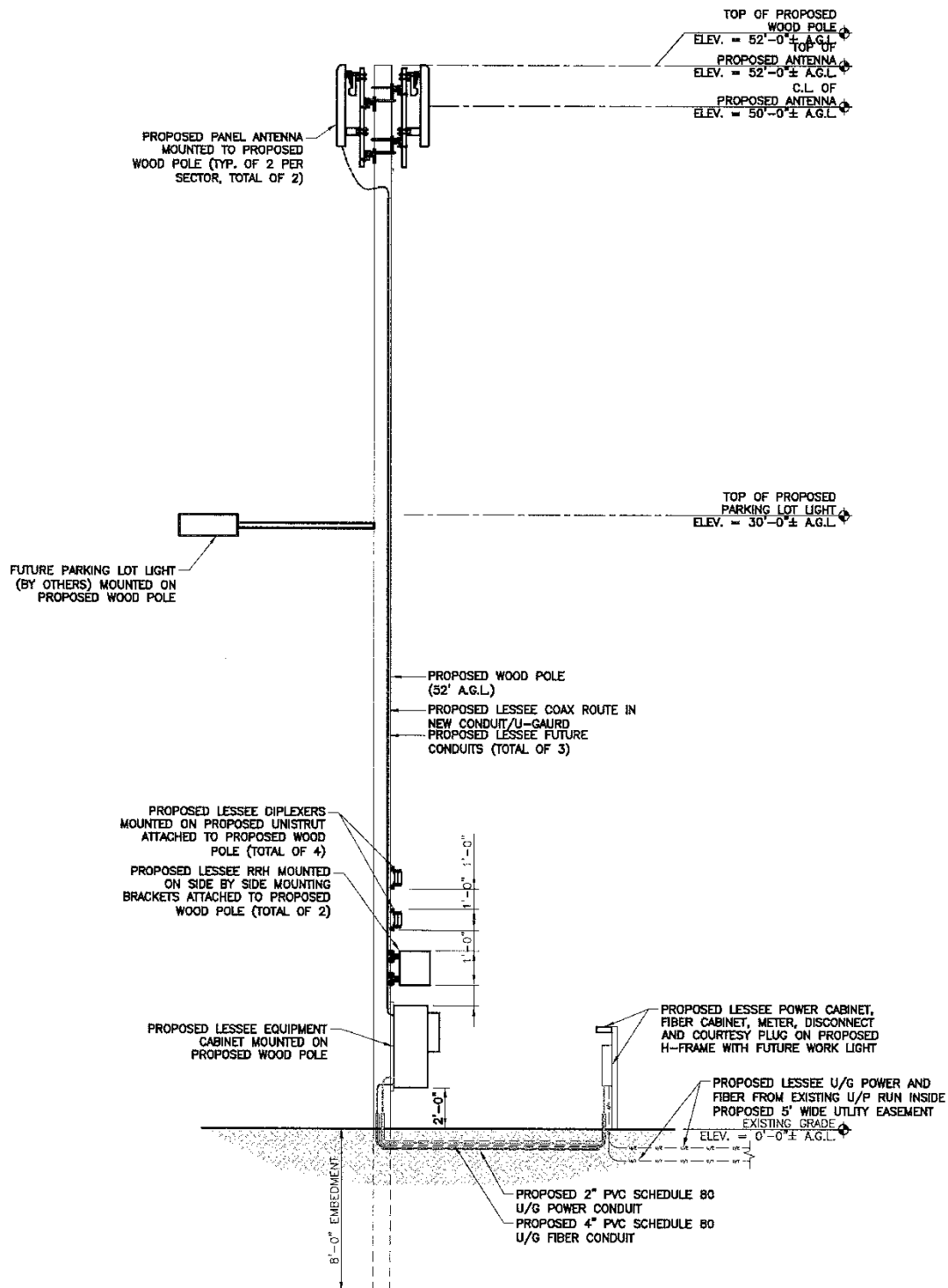
HDR also reviewed memoranda submitted by the City Planner and the City Attorney, conducted site visits, and participated in a meeting with Verizon and City representatives on February 26, 2019 to discuss the project.

### ***Proposed Small Cell Facility – 110 Howland Avenue***

Verizon is proposing the installation of the following equipment on the wood pole:

- Two panel antennas. The tops of the antennas reach 52 ft, with the centerline at 50 ft. The panel antennas measure 48” tall x 18” wide x 7” deep.
- Four small diplexers mounted to one unistrut attached to pole.
- Two remote radio head (RRH) units mounted to pole. RRH measures 25.8” x 11.8” x 7.2”, with an AC/DC converter mounted behind it. The second RRH measures 36.61 x 10.63” x 5.75”.
- One equipment cabinet. The bottom of the cabinet is 2 ft above the ground. The cabinet measures 53.8” tall x 26” wide x 20” deep. There is a heat exchanger on the front of the cabinet with a depth of 6.9” and an AC load center on the side of the cabinet with a depth of 5”.
- New conduit to run up the pole for coax cable.

The below Drawing image provides a cross-section view of the proposed facility.



Cross-section view of proposed 110 Howland Avenue wireless telecommunications facility





Verizon is proposing to lease an 8'-6" x 12' lease area (102 sq ft). The lease area is immediately adjacent (northeast of) to the existing dumpster enclosure's white fencing.

In addition, Verizon has also proposed the following:

- Underground conduit run for future parking lot light power (ties into existing electrical junction box). The simulations provided show a street light fixture below the antennas at a height of approximately 30 above grade.
- Underground power and fiber run (new) from equipment to the pole.
- Underground power and fiber run (new) inside existing underground conduits to existing utility pole; approximately 250 ft.

### ***City of Beacon Code Review***

HDR reviewed the following City of Beacon Codes as part of the application review process.

§223-24.5 – Wireless telecommunication services facilities

§223-26.4 – Small cell wireless telecommunications facilities (adopted 2/19/2019)

The “small cell” ordinance indicates that either a special permit issued by the City Council or a small cell permit issued by the Planning Board is required for small cell facilities. Based on the information provided for the 110 Howland Avenue small cell facility, a special permit is required from the City Council for the following reasons:

§223-26.4 B. (2) – Any other application for placement, installation, collocation or construction of transmission equipment that does not constitute an eligible facilities request.

§223-26.4 B. (3) – installation of a new tower over 50 feet in height.

§223-26.4 B. (6) – Installation of equipment on a pole, located at an elevation less than 8 feet from the ground.

The small cell application filings appear to be in general accordance with the City's Wireless Code requirements (§223-24.5 – Wireless telecommunication services facilities).

### ***Supplemental Information for Technical Review***

HDR submitted a request for supplemental information and clarifications on March 1, 2019, subsequent to visiting the site, reviewing the applications materials, and meeting with Verizon representatives. The below *black italicized text* indicates the HDR requests, and *red text* includes the applicant responses received. *Blue text* provides HDR's evaluation of the supplemental information submitted.

- ***Confirm all licensed frequencies proposed for Verizon operation for this small cell, in the immediate-term and as forecasted for 2-3 years out. The RF Emissions Report assumes 1900/2100 MHz (and demonstrates compliance at publicly-accessed areas in the vicinity of the proposed small cell), but does not appear to consider 700 LTE. If any other frequencies are proposed to operate at this facility, the Millennium Engineering Report of 11/6/2018 should be appropriately updated.***

**PROVIDED – 1900/2100 MHz only.** *Based on the response, there is no need to update the Millennium Report.*

- *Is co-location by another wireless carrier on the proposed 52' pole considered viable by Verizon?*  
**PROVIDED – it could be capable of accommodating co-location.** *No additional information is required; however, based on the size of the facility (pole and equipment area at the base), co-location interest at the small cell facility by another wireless carrier is unlikely and not recommended.*
- *At the 2/26/2019 meeting, the option to move the proposed small cell facility towards Mount Beacon (further back from the parking area; eastward / southeastward) was discussed. In addition to logistical constraints, the RF Engineer provided a verbal description of signal impedance that would result if the facility were located further back / into the denser tree line. A brief written narrative to this point from the RF Engineer is requested.* **PROVIDED – The applicant has noted that location of the small cell facility east / southeast is not a viable option from an RF perspective due to ‘shadowing’ from the northern tree lines and lack of an existing access road. The applicant has also stated that small cell facilities, as opposed to macro cell tower sites, typically are not designed to include construction and maintenance of access roads. Per the applicant: The possibility of moving the facility back further on the property was considered by Verizon Wireless during the initial design of this site. The site’s relocation was denied by construction due to the lack of access associated with relocating the facility further back on the property. Verizon Wireless policy concerning small wireless facility deployment prohibits construction of access roads as part of its small cell program. In addition to construction concerns, there are also radiofrequency concerns with relocating the facility further back on the property relative to the existing tree lines. Specifically the northern tree line which would create additional “shadowing” degrading the capability of the site to unacceptable levels. Lack of an access road would also create significant issues relative to maintenance of the facility.**

*There appears to be approximately 100 ft or more of grassed area where the tower could possibly move back (southeast) towards the base of the mountain. However, the ground elevation would increase by as much as 20 ft, which would likely, in turn, increase the visibility and appearance of height from Route 9D and neighboring properties to the south. The below image demonstrates the rise in topography from approximately 275 ft amsl (where the small cell is currently proposed) to the end of the property line (in yellow). See below discussion under Section 5.*



- The Drawing set (e.g., DWG Z-1) should be updated to show all property lines for the subject site, including the back property line. **PROVIDED – property lines were added.** HDR’s site visit noted a drainage swale on the slope behind the parking area with a sign marked “Private Property”. It is requested that Verizon confirm if any subgrade utilities or easements may be associated with this feature. **Information on subgrade utilities not provided.** The updated drawings provided by the applicant depict a 5 ft wide utility easement, which is for an underground power and fiber run to an existing utility pole, located about 250 ft away. Photos of the area behind the proposed compound, including the drainage swale, are included earlier in this Tech Memo.
- Confirm if any variances or waivers from the City’s Wireless Code are being requested. **PROVIDED – Per the applicant, none are requested for the 110 Howland Avenue Small Cell application.**
- Could a single “cantenna” (cylinder model antenna) be used in lieu of the 2 proposed panel antennas? This point was touched upon during the 2/26 meeting, but a brief narrative is requested. **PROVIDED – “The selected antennas have been specifically required due to their narrow horizontal and vertical beam widths as well as remote tilt capabilities. These are critical design functions necessary for this site to cover the required areas while minimizing overshooting interference. Cantennas are short (in height) inherently having opposite capabilities and are not suitable at this location. The panel antennas are proposed to be flush mounted to the pole to minimize their profile.”** The proposed configuration (2 panel antennas) appears to be reasonable based on the applicant response and HDR’s review of coverage / capacity objectives.
- An alternate height coverage map / capacity statement is requested, evaluating the feasibility of an antenna centerline height of 40 ft agl (vs. the proposed 50 ft antenna centerline height). The same frequencies (2100 MHz) and RF criteria (-95 dBm) as used in the prior Engineering Necessity Case – “Howland Micro” should be used. This supplemental information is requested to justify the proposed pole height, and the differential in coverage + capacity afforded to the area. **PROVIDED – coverage comparison was submitted as requested in the supplemental Engineering**



**Necessity Case.** *With this information, the alternate height evaluation appears to be complete and the proposed panel antenna and pole heights appear to be justified (see below discussion under Section 5).*

- **In the Engineering Necessity Case – “Howland Micro”, please describe the reason for differences between:**
  - *Page 19 – The Green “proposed coverage” on the Map entitled, Proposed (Mt. Beacon Gamma Off) 2100MHz Best Server -95dBm RSRP and Page 22 – The Yellow “proposed coverage” around the Howland site as depicted on the Map entitled, Proposed 2100 MHz Coverage.*

**PROVIDED** – *Per the applicant, some titles were mis-labeled. An updated Engineering Necessity Case was submitted. No additional information is required, plots from the RF Engineer’s reports are included below under Section 3.*

- *Provide dimensions and ‘cut sheets’ (vender specs) of all proposed pole-mounted and ground-based equipment including the panel antennas, RRH unit, diplexers, and electric meter. PROVIDED. No additional information is required.*
- *Provide location and description of FCC-type warning signage and Verizon Contact signage. RESPONSE PROVIDED – Per the applicant: “FCC warning signs are typically confirmed after an application has been approved. We will place an order for the specific required signs and provide them in advance of the next regular meeting.” The response appears reasonable, see Recommendations at end of this Tech Memo. In this case, small FCC-type signage and Verizon contact information signage (10” x 12”, or smaller) would be placed on the ground-based equipment area fencing.*
- *Confirm no back-up power (e.g., generator) is proposed as part of the application. PROVIDED – a generator is not proposed. No additional information is required.*

The applicant also confirmed that the proposed fence enclosing the equipment area will match the fencing that currently exists around the dumpsters off of the parking lot.

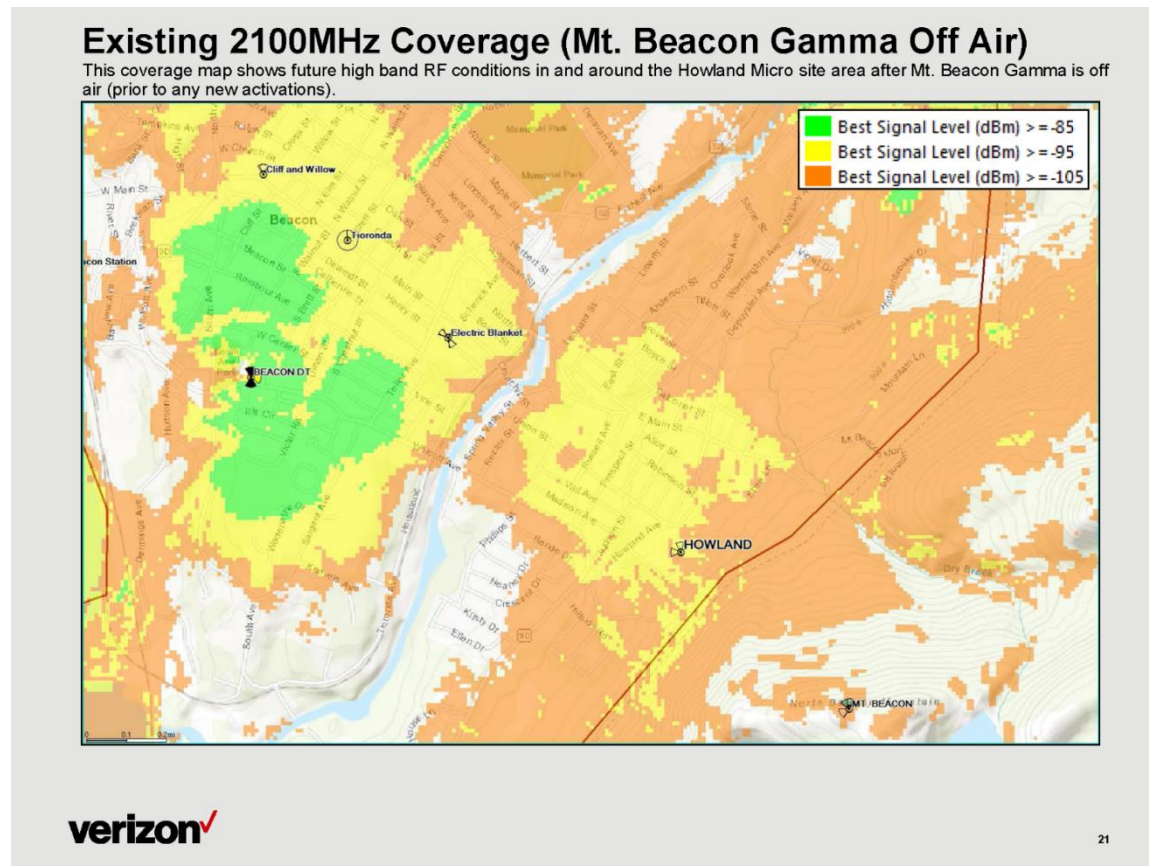
### 3. Coverage / Capacity for the Proposed Verizon Small Cell Facility

A number of factors can prevent the commencement or completion of a call from a wireless phone. A subscriber may not be able to complete a call due to limitations in *capacity* (how many callers are communicating with the same cell site at a given time). The proliferation of cell phones, smartphones and tablet computers has increased the need for network capacity, even within areas that were “covered” during the early roll-out of wireless telecommunications facilities. Industry focus has shifted from simply geographic coverage to “capacity coverage” in order to meet subscriber demand for bandwidth-intensive services. An inability to meet this demand results in overloaded networks and sluggish or interrupted service (e.g., “dropped calls”).

The site is proposed predominantly to prevent shortfalls in capacity in the local Verizon network in the area, and to supplement service from existing Verizon cell sites located at Beacon DT (rooftop of City Housing Authority) and Mt. Beacon (tower at high elevation to the southeast). Verizon has reported that the plan for the Mt. Beacon cell site will be to decommission the facility in the next 1-2 years due to the trends in the ways wireless facilities are being planned and built (i.e., lower to the ground, smaller coverage patterns,

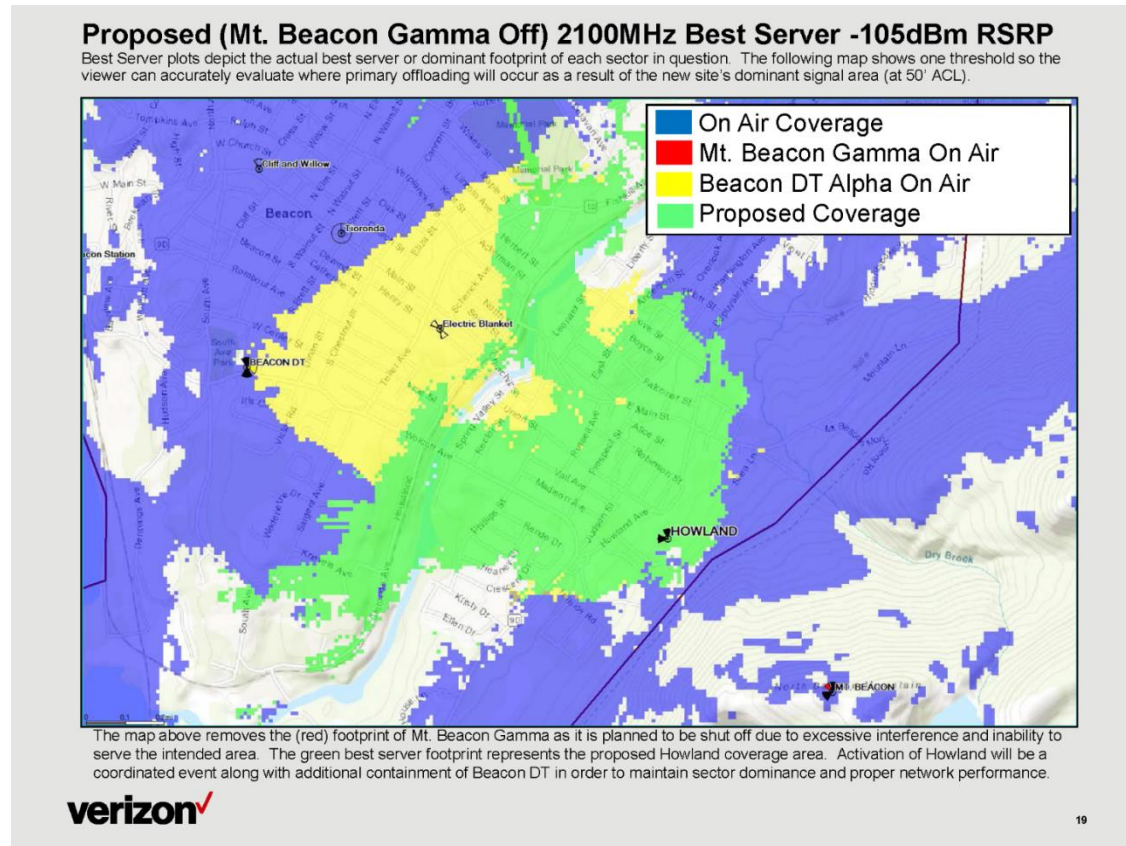
network densification objectives). The proposed Verizon small cell will provide a node in Verizon's local area network to "off-load" excessive call and data traffic that is currently experienced by nearby "macro" cell sites during times of heavy consumer use. The site, if approved, will become more important as the Mt. Beacon facility is eventually fully decommissioned.

The proposed small cell installation at 110 Howland Avenue Road will remedy capacity deficits that currently exist (and that are anticipated to increase) in the City of Beacon. Service will be enhanced for mobile users in vehicles, and at commercial / residential properties in the area. The proposed small cell will provide additional capacity to the network for purposes of "off-loading" call and data traffic from the Mt. Beacon site in the Town of Fishkill and the Beacon DT site, located off Route 9D. The below RF map images depict the Verizon service (coverage and capacity). The first map depicts 2100 MHz signal *without* the Mt. Beacon facility and *without* the proposed small cell at 110 Howland Avenue. Unshaded regions indicate areas without reliable signal (in-building, in-vehicle, or open space).



The below map (2100 MHz) provides a similar area scale, and includes signal modeling for the proposed small cell. The green area below indicates coverage and capacity for the 'open space' signal, which can be compared with the orange color in the above map. New and supplemental service has adequately been depicted. The application materials also include capacity trends from the existing macro cell sites Beacon DT

and Mt. Beacon, which demonstrate that the sectors facing towards the 110 Howland Avenue area are at capacity limits.



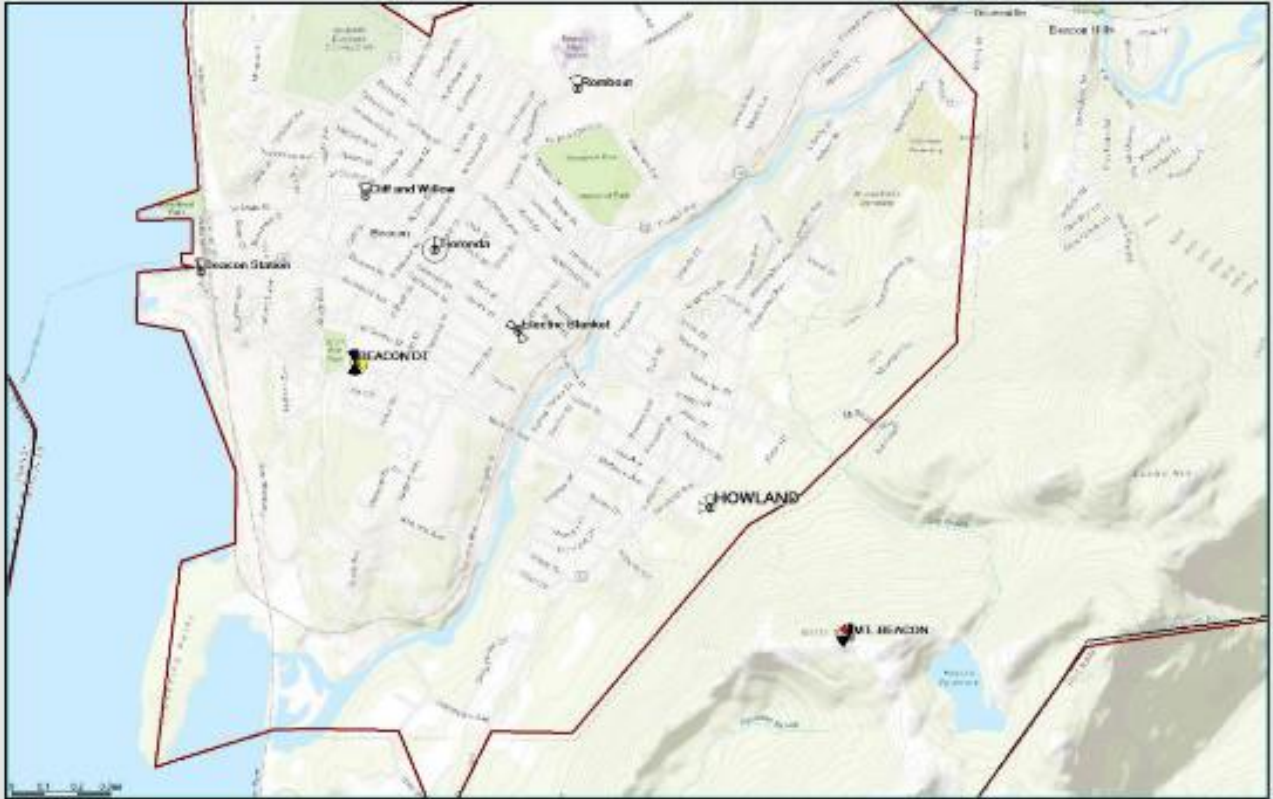
#### 4. Verizon Build-Out Plan

The applicant provided a figure depicting other Verizon wireless sites under various stages of development, as well as the existing Beacon DT (rooftop of City Housing Authority building) and Mt. Beacon “macro” sites. Small cell applications have been submitted for 2 Red Flynn Road (“Beacon Station”) and 7 Cross Street (“Cross and Willow”). The “Electric Blanket” site is a new rooftop facility location that will be proposed by Verizon at the City’s Mase Hook and Ladder building on Main Street (a future application is still pending). Other locations noted by Verizon to be in ‘due diligence’ or planning stages include “Rombout” and “Tioronda”; no details on these sites (precise locations, construction drawings) are reportedly available at this time. A figure depicting existing, proposed, and “in planning” Verizon cell sites in the City is provided below.



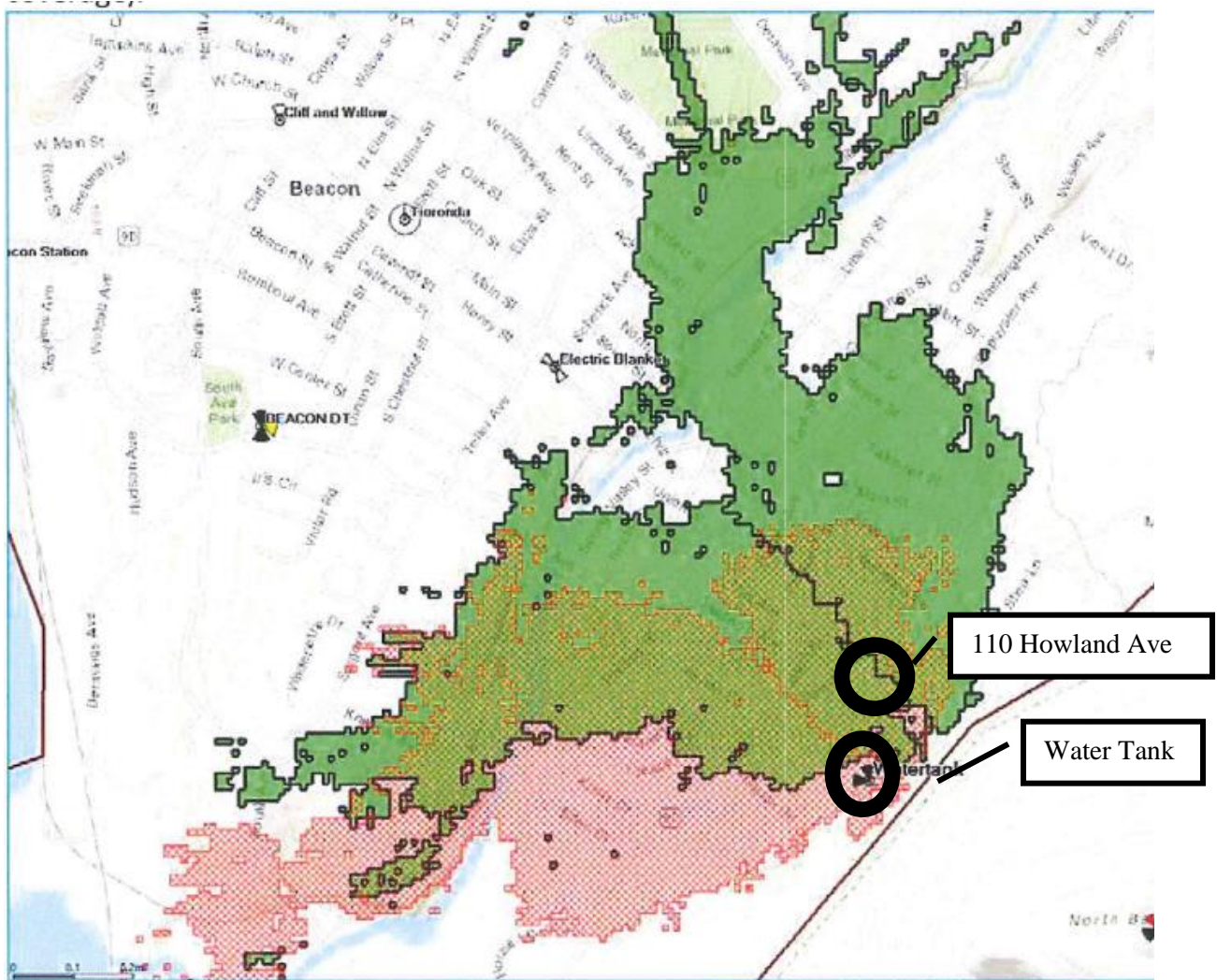
## Other sites in development

This map shows the approximate locations of other sites at various stages of development including Beacon Station, Rombout, Cliff and Willow, Tioronda and Electric Blanket.



## 5. Alternate Location and Height Evaluations

At the City of Beacon's request, the applicant completed an analysis of locating a new wireless small cell facility at the existing City of Beacon water tank, located off Howland Avenue, near the Breakneck Ridge Trail. The January 22, 2019 analysis concludes that the water tank is located too far away (800 ft) from the target area, and the height/elevation afforded is too low to meet the required coverage objectives. An image that depicts the coverage from the water tank and the proposed 110 Howland Avenue site is provided below.



**Coverage Map.** Green depicts the proposed Howland site coverage (2100 MHz, as presented above); Red depicts that of a facility located at the Beacon Water Tank.

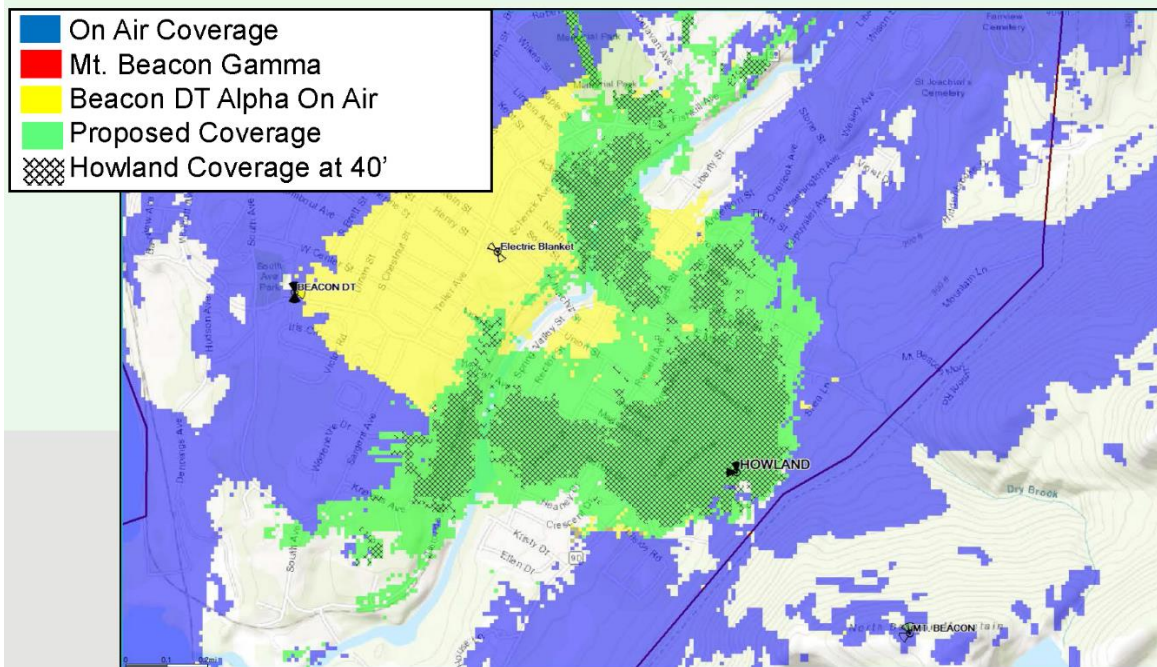
HDR also notes that the water tank appears to be on a parcel that is listed on the National/State Register of historic places (Mount Beacon Incline Railroad). The hiking trail starting at the parking area at the Route 9D / Howland Avenue corner leads to a trail and observation area at the base of the incline, from which a facility at the water tank may be more visible than the proposed site at 110 Howland Avenue.

The applicant’s Engineering Necessity Case (RF reports) note that the **on-site building rooftop** at 110 Howland Avenue was rejected from consideration due to its low height, and also obscured by “local clutter”. No additional details for the rooftop scenario were provided by the applicant, but this conclusion appears reasonable based on topographic evaluation by HDR. Further, HDR requested an **alternate height coverage map for antennas at a centerline height of 40 ft agl** (vs. the 50 ft height proposed), for comparison purposes. The below image provides a comparison of the coverage area if the centerline height of the antennas is at 40 ft (hatch lines) versus the proposed 50 ft (centerline, shown in green). As demonstrated in the figure, coverage is diminished at the 40 ft centerline height, and would be further diminished for a rooftop location (approximate 25 ft height).



## Supplemental: Height Justification

Lowering the antenna centerline from 50' to 40' causes unacceptable loss of sector dominance as well as weaker signal strength throughout the intended coverage area which would result with compromised offload and coverage capabilities. The comparison of expected dominant sector footprints is shown below.



verizon

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It was requested that the applicant discuss the option of installing the proposed utility pole at an alternate location (**further back – southeast - from the building on the 110 Howland Avenue property**).

The back end of the property is sloped and the tree line ‘converges’ towards the middle of the property (see photographs below, taken 3/6/2019, and the earlier ones in the Tech Memo). HDR feels that installation of the utility pole further away from the building and street would increase the overall height of the wireless facility, and likely make the installation more visible from other viewpoints as compared with the proposed location. Based on the site’s configuration including: available access for construction adjacent to the parking lot, with possible use of the wooden pole for parking lot lighting in the future; increase in topography towards Mt. Beacon; and existing treeline at the back end of the property which may impede signal and necessitate a taller structure with possible tree removal, grading and a new access driveway and culvert over the drainage swale, the proposed location on the site appears to be a viable option.





View of driveway, looking east



View of rear parking lot, looking northeast





View of rear parking lot, looking south

## 6. Conformance with NIER and Other Radiation Hazard Criteria

In order to comply with the Non-Ionizing Electromagnetic Radiation (NIER) hazard criteria, Millennium Engineering, P.C. (on behalf of the applicant) calculated radio frequency [RF] levels for the proposed installation (November 6, 2018 RF analysis). For general public exposures at “ground level” areas in proximity to the installation, the maximum RF levels were calculated to be less than 1% of the general public maximum permissible exposure (MPE) limit, and thus in compliance with FCC regulations. RF levels were also assessed for occupational workers at 3 feet in front of the antenna (“near field region”), and were reported to be below the FCC occupational limits.

## 7. Recommendations

The following recommendations were identified based on HDR’s technical review of the Verizon application materials. These recommendations can be considered as conditions of the special permit and/or building permit, should the application be approved by the City.



- Security fencing around the ground-based equipment and FCC warning signage should be routinely inspected and maintained at the site. It is the applicant's responsibility to comply with all FCC rules and regulations that are applicable to the site and its operations.
- The proposed antennas, mounting structures and cable runs shall be color matched to the pole and in accordance with the photosimulations provided for this application. A matte finish is recommended for all proposed equipment. For the ground-based equipment fencing, a white color and texture to match the existing fencing at the site (see above photos) is recommended. The height of the fencing (all 4 sides) shall be consistent with the existing fencing off the parking lot, and HDR recommends it be no shorter than the height of the RRH units depicted on the cross-section Drawing (approx. 7 – 8 ft). The proposed fencing shall comply with Section 223-13.G, unless the Building Inspector determines that this Section does not apply and a taller fence is permitted around the small cell pole and equipment. If approved, the height of the small cell fencing would be greater than the adjacent existing fencing (approx. 5 ft), but the additional height (and signage) would serve to deter trespassing.
- **Screening is recommended** on the south side of the existing fencing to supplement the on-site deciduous trees and to further shield possible visual impacts to residential properties to the south. Planting of 2 trees (evergreen or similar non-deciduous species amenable to thrive at the site) with minimum height of 8 ft at time of planting is recommended. HDR notes that some screening exists with the tree line at the southern property (see above site photos in this Tech Memo). Additional screening with evergreen species appears to be in consistent with nearby vegetation, and will mitigate some views of the ground-based area during 'off-leaf' season.
- If the Special Permit is approved, a structural and foundation analysis shall be provided as part of the future Building Permit application. It is understood that no guy-wires or exterior supports are proposed. The analysis should also account for a possible parking lot lighting fixture (depicted on the Drawings). Any lighting proposed or planned shall first be approved by the City Building Department. No lighting is proposed or required as part of Verizon's small cell application.

Verizon has noted that co-location by another commercial wireless carrier is not contemplated. HDR believes that if the small cell is approved and constructed, co-location would be difficult and interest to co-locate unlikely in the future.

- In addition to FCC signage, a sign with Verizon Wireless contact personnel should also be provided at the site (e.g., on fencing or near access gate). The application noted that information on signage will be provided at a future meeting.
- If constructed, As-built Drawings shall be prepared for the Building Department files which depict the actual locations and heights of all Verizon small cell equipment including - but not limited to - the wooden pole, antennas, pole-mounted equipment, fencing, and subgrade utility runs and tie-ins. Any screening or landscaping required by the City Council shall also be included on the As-Built Drawings, along with notes for the facility Maintenance Plan. Grounding and bonding certifications should also be provided to the Building Department. Any deviations to the most-recent Drawings submitted for the Special Permit review (latest version as of this Tech Memo is dated 03/05/2019) shall be noted and described to the Building Department.



- Operations should be maintained in accordance with the City's Wireless Ordinance and all other relevant City codes. In accordance with §223-24.5 O., an annual structural/safety inspection and report is required for a monopole or tower over 50 ft in height. The structure shall be inspected annually from a structural and safety perspective by a licensed profession engineer, or at any other time that the Building Inspector determines that the structure may have sustained structural damage. A copy of the inspection report shall be submitted to the Building Inspector.

In accordance with §223-24.5 J, the City Council may require annual certification of conformance with the applicable FCC NIER (RF emissions) exposure standards. HDR agrees with these code requirements. Further, it is recommended that if there is a change in operations in the future (frequency bands or class of service such as 5G), the applicant shall be required to notify the City Building Department and submit an updated RF Emissions report. The applicant has noted this would be the case in the supplemental materials that were submitted.

- Any proposed increase in Verizon's number of antennas, antenna sizes, or number/sizes of ground-based equipment cabinets shall be approved by the City prior to any modifications. Any plans for co-location will need to be reviewed and approved by the City under the appropriate application process; however, co-location interest is unlikely.
- The City Building Department should review the insurance and workers' compensation submittals to verify they are adequate. Fees and escrow should be submitted to the City prior to issuance of the Special Permit. Prior to construction, all appropriate approvals as required by the City for construction shall be obtained by Verizon.

Please feel free to contact me should you have any questions on this report. I look forward to participating at a future Council meeting, and if needed providing supplemental information based on questions or comments you have.

Sincerely,  
Henningson, Durham & Richardson  
Architecture and Engineering, P.C.  
in association with HDR Engineering Inc.

Michael P. Musso, P.E.  
Senior Project Manager

cc: Anthony Ruggiero  
Nicholas Ward-Willis, Drew Victoria Gamils  
John Clarke