

March 6, 2020

Chairperson Bruce Flower  
And Members of the Planning Board  
20 Middlebush Road  
Wappingers Falls, NY 12590

**SUBJECT: RF ENGINEERING EVALUATION OF TARPON TOWERS  
APPLICATION TO CONSTRUCT A WIRELESS  
TELECOMMUNICATIONS FACILITY ON THE PROPERTY OF 110  
CHELSEA ROAD IN THE TOWN OF WAPPINGER, NY**

Honorable Chairman Flower and Members of the Planning Board:

This purpose of this report is to provide the Planning Board with a summary of my review of the documents received related to the Tarpon Towers application to install a 150 foot tall monopole on the property of 110 Chelsea Road in the town of Wappinger, NY. The documents received and reviewed in preparation for this report included:

- Town of Wappinger Wireless Telecommunications towers, antennas and personal wireless service facilities regulations (§240-81)
- Cuddy + Feder Applicant\_Letter (October 9, 2019)
- Techtonic Engineering Plans (October 24, 2019)
- Site Safe RF Compliance Certification (October 31, 2019)
- Verizon Wireless RF Report (September 17, 2019)

This report will focus on evaluating the RF Engineering components of the submission with respect to the Town of Wappinger Wireless Telecommunications Facilities regulations cited above. As a result, the specific reports that will be evaluated under this report are:

- Techtonic Engineering Plans (October 24, 2019)
- Site Safe RF Compliance Certification (October 31, 2019)
- Verizon Wireless RF Report (September 17, 2019)

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## **A. Tectonic Engineering Plans (October 24, 2019)**

The Engineering Plans show the Tarpon Towers planned 150 foot high monopole. The initial tenant will be Verizon Wireless, who is taking the 146' above ground level (AGL) centerline position, which is the top location on the monopole. Below them, every 10 feet, are reserved locations for other wireless carriers (four positions at 136', 126', 116' and 106' AGL). The existing treeline is also illustrated at 72' AGL. Note that all of these positions have good clearance above the existing treeline.

Overall, these plans appear to be consistent with the other application documents received.

## **B. Site Safe RF Compliance Certification (October 31, 2019)**

Town of Wappinger rule §240-81, subparagraph J (1) details requirement for the RF compliance certification. Specifically, they state "...Certification shall include site specific calculations showing expected worst case power density levels at the closest publicly accessible point to the PWSF, using the methodology described in FCC OET Bulletin No. 65..." The report provided by Site Safe, provides a very high level statement that verifies certification per the above guidelines, and is signed/sealed by a Professional Engineer. No calculations or data assumptions are detailed, so it is impossible for this reviewer to comment on the accuracy of these claims.

*Typically, these certifications are accompanied by a report with the backup information. If the Board wishes, I would be happy to review such a report to ensure consistency with the application.*

Note that no issues with respect to RF compliance are expected or anticipated from this application due to the height of the monopole relative to the accessible areas in and around the site.

## **C. Verizon Wireless RF Report (September 17, 2019)**

This report, included as Exhibit E to the October 2019 application, details the reasons behind Verizon's desire for this site. Data is presented detailing existing capacity and coverage challenges, and how the proposed site will solve both of these issues. Some of my observations related to each of these items:

Capacity: The report provides data showing how the following sites/sectors are near, at or exceeding capacity limitations currently: Beacon Gamma, Balmville Alpha, Groveville Gamma and Groveville Beta. With the addition of the proposed monopole site, coverage footprints are reduced significantly for all of the above sectors with the exception of Beacon Gamma. Even without knowing the exact distribution of the traffic, it is evident that this site, as currently designed, will do a nice job of offloading capacity from 3 of the 4 sectors.

Coverage: Verizon provides "before" and "after" predicted coverage plots, showing coverage in their 2 primary bands of operation – 700 MHz and 2100 MHz. As expected, the 700 MHz plots show much better propagation, due to the lower frequency band. Existing coverage at 700 MHz is primarily pretty good, with a few areas to the northeast and southwest of the proposed site that can be considered marginal. With the addition of the proposed site, coverage appears to be solid throughout the Castle Point area. At 2100 MHz, the existing coverage is much worse, showing gaps in coverage ("holes") to the northeast and southwest, in areas marginally covered by 700 MHz. Once the new site is added, much (not all) of the coverage gaps in the Castle Point area are

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filled in. It is important to note that the 2100 MHz band coverage, also known as AWS band, is particularly important to Verizon as they utilize a wideband channel (20 MHz) in this band, which provides for a much increased capacity / data throughput when compared to the 10 MHz channel at 700 MHz.

Though the report was thorough and technically proves the RF need for the site, it does not address the rationale for choosing the 146' AGL height for the monopole. Given the height of the monopole in comparison to the treeline and terrain, I would anticipate that lower heights are likely to solve the challenges to be addressed by this site. *I would like to see an additional analysis provided at lower heights (say 136' and 116') to see if the site goals are still met. In addition, I would like to understand why the 2100 MHz best server plot was run at 116' AGL, while the other plots were all run at 146' AGL.*

**Summary and Recommendations**

I agree that, from an RF engineering standpoint, the proposed monopole at 110 Chelsea Road is necessary to improve both capacity and coverage for Verizon Wireless voice and data services in the Castle Hill area of Wappinger.

To complete the Application, it is requested that the Applicant provide the following modifications/explanations as detailed in this report:

1. FCC RF Compliance Report
2. Expanded RF Report to include alternate antenna elevations.

I am ready to continue and complete the review of the application upon receipt of the Applicant's responses. Please feel free to reach out to me with any questions or comments.

Sincerely,



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