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CAPE COD
COMMISSION

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**CAPE COD COMMISSION STAFF MEMORANDUM
DEVELOPMENT OF REGIONAL IMPACT REVIEW**

Date: October 21, 2024
Project: Quaker Road Monopole (File No. 24011)
Project Applicant: Vertex Towers, LLC
c/o Francis Parisi, Esq., Parisi Law Associates, P.C.
225 Dyer Street, Providence, RI 02903
Property Owner: Roman Catholic Bishop of Fall River
c/o St. Elizabeth Seton Parish
Property/ Site: 481 Quaker Road, Falmouth, MA (Assessors ID 12-05-001-010)
Title Reference: Book 187 Page 54
Subcommittee: John Druley (Chair), Catherine Ledec, Stephen Mealy, and Richard Roy

The Applicant submitted additional materials on October 11, 2024 as requested at the October 10, 2024 public hearing on the Project. The additional materials include:

- Revised DRI Application Cover Sheet
- Drainage Calculations
- Supplemental RF Report
- Updated Photos and Photo Simulations from Visibility Demonstration on 10/3/2024
- Updated Site Plans

The materials were reviewed by Commission staff and the Commission's peer review consultant, Isotrope Wireless, whose additional findings are attached here.

Community Design

RPP Community Design Objective CD3 is to "avoid adverse visual impacts from infrastructure on scenic resources."

The second balloon test provides a more accurate representation of the proposed tower's visibility, which is apparent when viewed from locations near the site drive and from some more distant locations near the shore. Because of existing vegetation in the Project vicinity, the tower's visibility still appears limited to locations very close to the Project Site, particularly the Site drives. For those locations where the tower is visible from a greater distance, the tower does not extend significantly above the tree line, and it will be a small element within the view. As such, staff suggests the Project remains consistent with Community Design Objective CD3.

Open Space

As detailed in the October 8, 2024 Staff Report, staff suggests Open Space Objective OS3, which seeks to “protect or provide open space appropriate to context,” is applicable and material to the Project.

At the October 10, 2024, public hearing the Applicant requested a finding that the requirements of Objective OS3 are not applicable to the Project and/or a waiver from strict compliance with the open space mitigation requirements. The Subcommittee should discuss whether this Objective is applicable, material, and regionally significant to the Project, whether to grant a waiver from strict compliance, and direct staff whether to include the Applicant’s requested finding in any draft Decision.

Per the Open Space Technical Bulletin, the Area of Development Impact is the total undeveloped area on the site anticipated to be impacted by the proposed development. As requested during the 10/10/2024 hearing, the Applicant calculated the square footage of undeveloped area proposed to be disturbed by development activity, not including the proposed utility trench within the existing paved parking lot and provided this information on the revised plans. Based on this revised calculation, the Area of Development Impact is 4,900 square feet (0.11 acres) and the required open space mitigation is \$10,148.

Water Resources

As noted in the staff report, projects proposed in a Potential Public Water Supply Area (“PPWSA”) must have site wide nitrogen loading concentrations less than 1 part per million (“ppm”). According to the nitrogen loading calculations the site wide load is below 1 ppm (0.75 ppm) and is therefore consistent with Objective WR1.

To ensure the protection of the PPWSA, staff recommend that all backup power generators should only use natural gas or propane as fuel to be consistent with Objective WR1.

Objective WR3 requires that projects in Marine Water Recharge Areas (“MWRA”) should not result in any additional nitrogen loading to the embayment. According to the nitrogen loading calculations (0.75 ppm NO₃) the site wide load exceeds the threshold of zero loading in the Wild Harbor watershed. This is not consistent with Objective WR3. For Projects located in Suburban Development Areas placetypes, monetary nitrogen offsets may be permitted at the

Commission's discretion to achieve consistency with WR3. The supplemental materials indicate that additional landscaping could offset the expected nitrogen loading associated with stormwater runoff. The Applicant may be able to achieve consistency with WR3 through landscaping but needs to demonstrate that any additional plantings will remove a sufficient quantity of nitrogen.

The application indicates that natural hydrology drains to the north, however grading of the compound is slightly sloped towards the west, which is the border closest to the wetland and wetland buffers identified on site. Commission staff recommend that grading be designed to ensure any runoff drains towards the northern border of the compound, consistent with existing conditions.

The landscaping proposed by the Applicant will improve but not entirely mitigate the nitrogen load. Commission staff recommend additional native plantings to be added to the current landscaping, particularly on the north and west sides, as additional buffer between the proposed project and the wetland resources.

With these additions, and appropriate project management during and after construction, the proposed Project should mitigate potential impacts allowing the Project to be consistent with WR4.

EXHIBIT A

ISOTROPE WIRELESS – REVIEW OF APPLICANT’S DEVELOPMENT OF REGIONAL IMPACT
SUPPLEMENTAL MATERIALS, DATED OCTOBER 18, 2024



Thinking outside the sphere

Review of Supplement 1 for DRI: New Monopole at 481 Quaker Road, Falmouth

October 18, 2024

Vertex Tower (Applicant) proposes a 120-ft monopole tower at 481 Quaker Road for Development of Regional Impact (DRI) approval by the Cape Cod Commission (Commission). It would be a new structure, located in a wooded area east of the parking lots of the St. Elizabeth Ann Seton Church. Supplement 1, circulated by Attorney Parisi, is responsive to some questions/issues raised in the Isotrope initial review, as well as some items discussed during the public hearing of October 10, 2024.

Summary

Vertex/Verizon, by Attorney Parisi, have provided a Supplement 1 to address/clarify some items, we provide discussion and analysis below.

Submitted supplementary information:

There are 6 sections in Supplement 1, we will focus on Sections 3 and 5, as they are most pertinent to this review.

Discussion:

The prediction plot provided in section 3 of the Supplement (Labelled "Attachment H") is appreciated as it gives an "apples to apples" comparison to the measured "drive data" provided in the application, with respect to the facilities on air (both macro-sites and small cells) and should allow the Subcommittee to review and identify any potential coverage gap in the area that would justify this additional site.

As presented in the Supplement, the Subcommittee can interpret the plots in this way:

- White areas on Attachment A indicate areas where Verizon is predicted to have sub-standard coverage on both bands (700 and 2100) that are being presented here,
- Green areas are areas where Verizon is predicted to have acceptable coverage at 700 MHz but not at 2100 MHz.
- Yellow areas are where Verizon is predicted to have acceptable coverage at both 700 MHz and 2100 MHz. One note on the yellow areas is that in the areas of SC04 and SC02, small cells that Verizon has chosen to only deploy on 2100 MHz, 700 MHz coverage may not in fact be available. However, other than these small areas north of Old Silver Beach and on



Nyes Neck, 700 MHz coverage should follow 2100 MHz coverage footprints comprehensively.

These areas generally seem to align with the coverage shown on the measured data plots (Attachments F and G in the initial application, data collected in November 2023), now that the “state” of the Small Cells shown on the plots (on-air, and which bands are active) aligns with the state of these facilities at the time of the measurement data collection, with the exception being that the location identified as “Falmouth N SC02” is now on the air on 2100 MHz, where it was not on the air for the measurements taken in November 2023.

It is valuable to have both measured data and predicted data to compare, as the measured data can validate the prediction, or in some cases it can indicate inaccuracy in the prediction. Here, it is our view that it validates the prediction.

CSquared makes some comments about validity of Small Cell coverage in Network Planning, stating that “deployment of small cells is intended to complement the macro-site network, not replace or substitute the coverage provided by macro-sites” but it should be noted that Verizon (as well as AT&T and T-Mobile) rely primarily on Small Cells or ODAS for coverage in a number of areas throughout New England, including Cape Cod and the Islands. Small Cells and ODAS are one “tool in the toolbox”, they are not a comprehensive replacement for all macro-cells, and should not be considered as such, but they are often a very effective method for providing spot/targeted coverage (and capacity relief) in particular, specific and well defined areas where necessary. There is important nuance here, and that is that while small cells are not a valid, reasonable solution to all coverage (or capacity) problems that exist in a wireless network, once deployed they do provide actual, measurable, meaningful coverage that contributes to a network footprint and should be (and usually are) considered part of that footprint.

The CSquared comments on predictive challenges for small cell coverage are valid, as many times a small cell antenna will be “within clutter” or lower than some surrounding obstructions. This introduces predictive inaccuracies and can also make the seasonal variances of small cell coverage footprints more extreme. In less technical terms, the predictive tools such as the one used by CSquared to generate Attachment H can often “overpredict” coverage of all sites lower than surrounding obstacles, because they cannot model the impact of the close-by obstacles, nor can they adjust for seasonal foliage characteristics on those obstacles, if appropriate.

However, technical discussion aside, measured coverage from a small cell is real, usable customer coverage (where and as measured, above standard) and should be shown as part of the analysis when presented, especially as a potential justification of a “gap in coverage” for a site justification. Otherwise, the represented “gap in coverage” may already have Verizon coverage that meets the standard, albeit from a small cell.

Once the area where coverage for Verizon is determined to be substandard is identified/validated as above, we can turn to Mr. Hernandez’s plots, which effectively address Section XI, B, 4 of the



Application Requirements and provide the necessary information for a DRI assessment of height vs. need. Again, as with the prior Vertex application in Falmouth “Brick Kiln Road”, the height justification analysis has 2 aspects:

1. What is the minimum height necessary for all the carriers that are supporting the application (in this case, Verizon alone)
2. What is the minimum height reasonable for future co-locators on the tower, should other carriers have interest in improving their coverage in this area.

And as well, the Subcommittee needs to find that the increased visual impact (if any) can be justified by the need(s) identified above. Referring to Section 5 of the supplement, it does not appear from these balloon flights (2) that the various heights studied by Mr. Hernandez (85-115’ antenna centerline, corresponding to 90-120’ overall tower height, assuming the studied centerline is the top carrier) will not drive a significant change in overall tower visibility, other than from locations on Church property and on Quaker Road in front of the Church.

With that being said, it appears from Mr. Hernandez’s plots that 105’ is an inflection point where a carrier mounting below that height is going to see inconsistent coverage from the site, particularly at 1900 and 2100 MHz. Therefore, if this Monopole were approved at 120’, two carriers (Verizon + one future carrier) would gain the most benefit from this site. The third carrier could collocate on the site, as the monopole is being designed for 4 total carriers, but they may not find their “high band” coverage to be satisfactory and consistent. Also, as above, modelling tools do not accurately represent the effect of taller nearby obstructions and it appears from some of the photos in Section 5 that some of the nearby trees are close to, if not taller than 85’. So the 3rd carrier could also encounter signal losses from nearby trees, if they are as tall as they appear in the photographs. This could be validated easily by drone.

Conclusion:

With the new “Attachment H”, provided, the Subcommittee should be able to determine and delineate any coverage gap(s) in the area (for Verizon) that would be filled/addressed by this site.

Additionally, Mr. Hernandez’s plots show the predicted coverage for this site at various heights and it is our opinion that they show that this site would be effective for coverage in the area at 115’ antenna centerline and at 105’ antenna centerline (although, of course, less so at 105’). Therefore, the Subcommittee can determine whether the opportunity to promote collocation and reduce the demand for additional (tower) facilities in this area outweighs the (seen from the photosimulations) limited increase in visual impact for the 10’ height difference from 110’ Monopole height to 120’ Monopole height in this instance.

This concludes our review of Supplement 1.

Michael Lawton