

STATE OF CONNECTICUT CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051 Phone: (860) 827-2935 Fax: (860) 827-2950 E-Mail: siting.council@ct.gov Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

May 5, 2023

Denise Sabo Northeast Site Solutions 54 Main Street, Unit 3 Sturbridge, MA 01566 denise@northeastsitesolutions.com

RE: **PETITION NO. 1568** – Verizon Wireless, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for proposed modifications to an existing telecommunications facility located at 440 Hayden Station Road, Windsor, Connecticut.

Dear Denise Sabo:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than May 17, 2023. Please submit an original and 15 copies to the Council's office and an electronic copy to siting.council@ct.gov. In accordance with the State Solid Waste Management Plan and in accordance with Section 16-50j-12 of the Regulations of Connecticut State Agencies, the Council requests all filings be submitted on recyclable paper, primarily regular weight white office paper. Please avoid using heavy stock paper, colored paper, and metal or plastic binders and separators. Fewer copies of bulk material may be provided as appropriate.

Please be advised that the original and 15 copies are required to be submitted to the Council's office on or before the May 17, 2023 deadline.

Copies of your responses are required to be provided to all parties and intervenors listed in the service list, which can be found on the Council's website under the "Pending Matters" link.

Any request for an extension of time to submit responses to interrogatories shall be submitted to the Council in writing pursuant to §16-50j-22a of the Regulations of Connecticut State Agencies.

Sincerely,

Melanie Bachman Executive Director

MB/IN

c: Service List dated April 4, 2023

Petition No. 1568 Verizon Wireless, LLC 440 Hayden Station Road Windsor, Connecticut Interrogatories

May 5, 2023

Notice

1. Referencing Section V, p. 3 and Attachment 5 of the Petition, has the Town of Windsor or abutters provided comments to Verizon since the Petition filing? If so, please summarize the comments. <u>No comments have been received.</u>

Project Development

- 2. Is the project, or any portion of the project, proposed to be undertaken by state departments, institutions or agencies, or to be funded in whole or in part by the state through any contract or grant? No, this is not a state or Federal funded job.
- 3. Is the proposed facility modification needed for improved coverage, capacity or both? Explain.

 <u>Capacity to help with our Windsor Locks 2 and Windsor Locks locations. 1000 Old County Circle, and 33 South Center St respectively</u>
- 4. What areas in the vicinity of the proposed site would benefit from the improved coverage/capacity? <u>-</u> 191, Rt. 20, Kenedy Rd, Hayden Station Rd. and the businesses in the vicinity of the site.
- 5. Section VI, p. 3 of the Petition, references the installation of a temporary tower, however this is inconsistent with the rest of the filing. Explain. A replacement cover letter was provided explaining this was a typo. The supplemental letter was submitted and acknowledged on 4/27/23. Revised letter attached for reference.

Existing Facility

- 6. Provide a photograph of the existing facility and a photographic simulation of the proposed modification. **Photo Sims attached**
- 7. Provide the dimensions of the existing fenced equipment compound. 37' 4" x 41'

Proposed Modifications

- 8. Would Verizon's proposed antenna installation at the existing facility be capable of providing 5G wireless service? At what frequencies? 5G would be installed initially on our c-band spectrum (3.6 GHz) and 850MHz spectrum and would eventually be available in other frequency bands as the technology and equipment becomes available.
- 9. Provide typical construction workdays and hours, and the anticipated duration of construction. Monday Friday during normal business hours or as landlord allows. Typically, will take place Monday Saturday 9-5pm.

Public Safety

- 10. Referencing Petition Attachment 6, the cumulative MPE table does not account for Dish Wireless existing equipment which was approved by the Council in December of 2021. Additionally, the note under the table states that two exempt modification requests from 2022 were used. The T-Mobile exempt modification (EM-t-mobile-164-220307) used a -10 dB reduction rather than a far-field radio frequency analysis. Provide a rigorous cumulative far-field radio frequency analysis for the facility that accounts for Verizon's proposed equipment and all other entities equipment on the tower, accounting for a 6-foot tall person at ground level and the actual antenna patterns for the facility with a cumulative %MPE at or below 100%. New EME attached.
- 11. Identify the applicable safety standards and/or codes for the proposed equipment, machinery or technology that would be used or operated at the facility. **Verizon Technicians adhere to strict State, National, and Osha Standards.**
- 12. Sheets T-1 and C-1.1 of Attachment 3 reference the installation of a battery cabinet. How long would the battery backup alone supply power to Verizon's equipment? A full string of batteries should last close to 8 hours
- 13. Sheet C-1.3 of Attachment 3 references the installation of a flood light. What would this flood light be used for and would it be on all the time, have a motion sensor or work on a preset timer? ? The proposed Flood lights will be used when servicing the equipment cabinets during evening/night emergency calls. The Lights will work from a timer that the technician will set while on site, if the tech fails to turn lights off the activated timer will shut the lights after X minutes.

STATE OF CONNECTICUT CONNECTICUT SITING COUNCIL

IN RE:	:	
A PETITION FOR A DECLARATORY	:	PETITION NO.
RULING ON THE NEED TO OBTAIN A	:	
SITING COUNCIL CERTIFICATE FOR THE	:	
PROPOSED MODIFICATION OF AN	:	
EXISTING WIRELESS	:	

TELECOMMUNICATIONS FACILITY AT

440 HAYDEN STATION RD, WINDSOR CT : April 11, 2023

PETITION FOR A DECLARATORY RULING: INSTALLATION HAVING NO SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies ("R.C.S.A."), Verizon Wireless LLC ("Verizon") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Petition") that no Certificate of Environmental Compatibility and Public Need ("Certificate") is required under Section 16-50k(a) of the Connecticut General Statutes ("C.G.S.") for the modification of an existing wireless telecommunications facility at 440 Hayden Station Road, Windsor, Connecticut (the "Existing Facility").

II. Existing Facility

The Existing Facility is located on an approximately 3.76-acre parcel owned by CB BAGGS LLP, the tower is owned by Crown Castle LLC. The Facility consists of a 96-foot monopole tower. **Attachment 1** contains the owner's authorization permitting Verizon to file this Petition. The Facility was originally approved for use by the Town of Windsor Zoning Board of Appeals on October 3rd, 1996 as documented in **Attachment 2**.

III. Verizon Facility

Verizon's proposed modification to its facility is illustrated on the plans submitted as **Attachment 3**. Verizon proposes to expand the existing 1,517sqft compound by an additional 24"x15"(360sqft) to accommodate their 12'x20' concrete pad that will house their proposed ground equipment. The proposed new fence will match the existing compound fence. No Generator or backup power is proposed at this time. Installation of Verizon's facility will take approximately three (3) weeks to complete. Construction will occur during normal business hours, or as allowed by the tower and/or property owner.

Verizon Planned Installation:

Install New Tower Equipment:

(3) Commscope NHHS4-65B-R3B

(3) Commscope NHHS4-03B-R3B
(3) Commscope NHHSS-65B-R2BT4
(3) Samsung MT6407-77A
(1) Raycap RVZDC-6627-PF-48 CCIV2
(3) Samsung CBRS RRHRT440Γ-48A
(3) Samsung RF4402D-D1A

(3) Samsung RF4439D-25A (1) 12.5' Platform Mount

Installation of Verizon's facility will cost approximately \$55,000.

Verizon has confirmed that the Modified Facility is capable of supporting the additional antennas and other changes to the tower mounted equipment as documented in the Structural Analysis Report by Crown Castle dated February 23, 2023, annexed hereto as Attachment 4.

IV. The Proposed Modification Will Not Have A Substantial Adverse Environmental Effect

1. Physical Environmental Effects

The modification of Verizon's Facility will not involve a significant alteration to the physical and environmental characteristics of the Property. No native trees will need to be removed and no on-site or off-site wetlands or watercourses will be impacted by the proposed facility expansion.

2. Visual Effects

There will be no visual impact made to the existing tower. Verizon's equipment will be installed at the 50ft level of the 96ft monopole which will have a minimal visual impact when viewed from the public right-of-way or adjacent private properties.

3. FCC Compliance

Radio frequency ("RF") emissions resulting from Verizon's proposed modification of the Existing Facility will be well below the standards adopted by the Federal Communications Commission ("FCC"). Included in Attachment 6 is a Radio Frequency Emissions Analysis Report prepared by Verizon. This report confirms that the modified facility will operate well within the RF emission standards established by the FCC.

V. Notice to the Municipality, Property Owner and Abutting Landowners

On April 11, 2023, a copy of this Petition was sent to Mayor Donald Trinks of The Town of Windsor as well as Eric Barz, Town Planner. A notice of Verizon's intent to file this Petition was also sent to the owners of land that may be considered to abut the Property or are within 200-feet. Included in **Attachment 5** is a sample abutter's letter and the list of those abutting landowners who were sent notice.

VI. Conclusion

Based on the information provided above, the Petitioners respectfully requests that the Council issue a determination in the form of a declaratory ruling that the new facility compound will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

Denise Sabo Northeast Site Solutions- Agent for Crown Castle USA Inc. o/b/o Verizon (203) 435-3640 denise@northeastsitesolutions.com

Attachments

Cc: Mayor Donald Trinks Town of Windsor 275 Broad Street Windsor, CT 06095

Eric Barz, Town Planner Town of Windsor 275 Broad Street Windsor, CT 06095



Radio Frequency Emissions Analysis Report

Prepared for:



verizon /

Crown Site ID: 876326_Hayden Station

Verizon Wireless Site Name: Windsor NE CT

Verizon Wireless FUZE ID: 16897287

Site Address:

440 Hayden Station Road Windsor, CT 06095

May 30, 2023

Fox Hill Telecom Project Number: 230546

Site Compliance Summary					
Compliance Status:	COMPLIANT				
Site total MPE% of FCC					
general population	42.89 %				
allowable limit:					



May 30, 2023

Crown Castle 1800 W. Park Drive Westborough, MA 01581

Emissions Analysis for:

Crown Castle Site: 876326 – Hayden Station

Verizon Wireless Site: Windsor NE CT

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades for Verizon Wireless to the Crown Castle facility located at **440 Hayden Station Road, Windsor, CT**, for the purpose of determining whether the emissions from the Proposed Verizon Wireless Antenna Installation, in addition to all existing radio systems located on this property, are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μ W/cm²). The number of μ W/cm² calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) - (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.



General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (μ W/cm²). The general population exposure limits for the 700 MHz frequency band & the 850 MHz cellular frequency band are approximately 497 μ W/cm² and 586 μ W/cm² respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 3500 MHz (CBRS) and 3700 MHz (C Band) frequency bands is 1000 μ W/cm². Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report the percentage of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed upgrades to the Crown Castle facility for Verizon Wireless located at **440 Hayden Station Road**, **Windsor**, **CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the far field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **far field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors considered, the worst case **far field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4 \ ERP}{R^2}$$

S = Power Density (in μ w/cm²) ERP = Effective Radiated Power from antenna (watts) R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.



For each Verizon Wireless sector, the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE	700 MHz	4	40
LTE / 5G	850 MHz	4	40
LTE	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	40
LTE	3500 MHz (CBRS)	4	0.30
5G	3700 MHz (C Band)	8	20

Table 1: Channel Data Table



The following **Verizon Wireless** antennas listed in *Table 2 – Antenna Data* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS), 3500 MHz (CBRS) and 3700 MHz (C Band) frequency bands. This is based on feedback from Verizon Wireless regarding anticipated antenna selection. Maximum gain values for all antennas are listed in *Table 3 – Verizon Wireless Inventory and Power Data* below.

			Antenna
	Antenna		Centerline
Sector	Number	Antenna Make / Model	(ft)
A	1	Commscope NHHS4-65B-R3B	50
A	2	Commscope NHHSS-65B-R2BT4	50
A	3	Samsung MT6407-77A	50
В	1	Commscope NHHS4-65B-R3B	50
В	2	Commscope NHHSS-65B-R2BT4	50
В	3	Samsung MT6407-77A	50
C	1	Commscope NHHS4-65B-R3B	50
C	2	Commscope NHHSS-65B-R2BT4	50
C	3	Samsung MT6407-77A	50

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.



RESULTS

Per the calculations completed for the proposed Verizon Wireless configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna			Antenna Gain	Channel	Total TX		
ID	Antenna Make / Model	Frequency Bands	(dBd)	Count	Power (W)	ERP (W)	MPE %
Antenna	Commscope	700 MHz / 850 MHz /	12.85 / 12.95 /				
A1	NHHS4-65B-R3B	1900 MHz (PCS)	15.95	8	320	9,416.76	2.69
		700 MHz / 850 MHz /					
Antenna	Commscope	2100 MHz (AWS) /	12.65 / 13.05 /				
A2	NHHSS-65B-R2BT4	3500 MHz (CBRS)	15.85 / 15.55	12	321.40	9,291.03	2.27
Antenna	Samsung						
A3	MT6407-77A	3700 MHz (C Band)	23.15	8	132	27,263.02	9.51
				S	Sector A Comp	osite MPE%	14.47
Antenna	Commscope	700 MHz / 850 MHz /	12.85 / 12.95 /				
B1	NHHS4-65B-R3B	1900 MHz (PCS)	15.95	8	320	9,416.76	2.69
		700 MHz / 850 MHz /					
Antenna	Commscope	2100 MHz (AWS) /	12.65 / 13.05 /				
B2	NHHSS-65B-R2BT4	3500 MHz (CBRS)	15.85 / 15.55	12	321.40	9,291.03	2.27
Antenna	Samsung						
В3	MT6407-77A	3700 MHz (C Band)	23.15	8	132	27,263.02	9.51
	Sector B Composite MPE%						14.47
Antenna	Commscope	700 MHz / 850 MHz /	12.85 / 12.95 /				
C1	NHHS4-65B-R3B	1900 MHz (PCS)	15.95	8	320	9,416.76	2.69
		700 MHz / 850 MHz /					
Antenna	Commscope	2100 MHz (AWS) /	12.65 / 13.05 /				
C2	NHHSS-65B-R2BT4	3500 MHz (CBRS)	15.85 / 15.55	12	321.40	9,291.03	2.27
Antenna	Samsung						
C3	MT6407-77A	3700 MHz (C Band)	23.15	8	132	27,263.02	9.51
Sector C Composite MPE%						14.47	

Table 3: Verizon Wireless Inventory and Power Data table



Table 4: All Carrier MPE Contributions shows all additional identified carriers on site and their emissions contribution estimates, along with the newly calculated maximum Verizon Wireless far field emissions contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas the highest recorded sector value be used for composite site emissions values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three Verizon Wireless sectors have the same configuration yielding the same results for all three sectors. Table 5 below shows a summary for each Verizon Wireless Sector as well as the composite estimated emissions value for the site.

Site Composite MPE%					
Carrier	MPE%				
Verizon Wireless – Max Per Sector Value	14.47 %				
Sprint	3.83 %				
Clearwire	0.31 %				
T-Mobile	9.49 %				
AT&T	5.03 %				
Dish	9.76 %				
Site Total MPE %:	42.89 %				

Table 4: All Carrier MPE Contributions

Verizon Wireless Sector A Total:	14.47 %
Verizon Wireless Sector B Total:	14.47 %
Verizon Wireless Sector C Total:	14.47 %
Site Total:	42.89 %

Table 5: Site MPE Summary



Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated Verizon sector(s). For this site, all three Verizon Wireless sectors have the same configuration yielding the same results for all three sectors.

Verizon Wireless _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (µW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
Verizon Wireless 700 MHz LTE	4	1507.32	50	4.33	700 MHz	497	0.87%
Verizon Wireless 850 MHz LTE / 5G	4	1596.32	50	3.16	850 MHz	586	0.54%
Verizon Wireless 1900 MHz (PCS) LTE	4	1574.20	50	19.8	1900 MHz (PCS)	1000	1.98%
Verizon Wireless 2100 MHz (AWS) LTE	4	1538.37	50	15.4	2100 MHz (AWS)	1000	1.54%
Verizon Wireless 3500 MHz (CBRS) LTE	4	12.56	50	0.3	3500 MHz (CBRS)	1000	0.03%
Verizon Wireless 3700 MHz (C Band) 5G	8	3407.88	50	95.1	3700 MHz (C Band)	1000	9.51%
						Total:	14.47 %

Table 6: Verizon Wireless Maximum Sector MPE Power Values



Summary

All calculations performed for this analysis yielded results that were within the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the Verizon Wireless facility as well as the site composite emissions estimates value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

Verizon Wireless Sector	Power Density Value (%)
Sector A:	14.47 %
Sector B:	14.47 %
Sector C:	14.47 %
Verizon Wireless Maximum Total (per sector):	14.47 %
Site Total:	42.89 %
Site Compliance Status:	COMPLIANT

The estimated composite emissions value for this site, assuming all carriers present, is 42.89 % of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite estimated values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan Principal RF Engineer

Fox Hill Telecom, Inc

Worcester, MA 01609 (978)660-3998



SITE NUMBER: 876326

SITE NAME: HAYDEN STATION

VZW SITE NAME: WINDSOR NE CT

VZW SITE NUMBER: 617244220

VZW FUZE PROJECT #: 16897287

VZW COLLOCATION ON EXISTING MONOPOLE TOWER

440 HAYDEN STATION ROAD WINDSOR, CT 06095 (HARTFORD COUNTY)

EXISTING VIEW: LOCATION 1

TOWER



SITE #: 876326

SITE NAME: HAYDEN STATION VZW FUZE PROJECT#: 16897287

ADDRESS: 440 HAYDEN STATION ROAD

WINDSOR, CT 06095

COUNTY: HARTFORD





SITE #: 876326

SITE NAME: HAYDEN STATION VZW FUZE PROJECT#: 16897287

ADDRESS: 440 HAYDEN STATION ROAD

WINDSOR, CT 06095

COUNTY: HARTFORD







