COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: October 18, 2018

TO: Zoning Hearing Officer

FROM: Planning Staff

SUBJECT: Consideration of a Use Permit, pursuant to Sections 6500 of the San Mateo County Zoning Regulations, to install new wireless telecommunication facility on a replacement utility pole located in the public right-of-way at the intersection of Crestview Drive and Edgewood Road in the unincorporated North Skyline area of San Mateo County.

County File Number: PLN 2018-00196 (Verizon/County of San Mateo)

PROPOSAL

The applicant proposes to install a new wireless telecommunication facility on a replacement joint utility pole located in the public right-of-way at the intersection of Crestview Drive and Edgewood Road (the project site is located in the North Skyline area of the County and just northwest of the boundary of Emerald Lake Hills). The proposed project scope consists of the installation of one 4-foot canister antenna attached to the top of a 61-foot metal utility pole (replacing the existing 51.8-foot utility pole), along with pole mounted equipment boxes. The new cylindrical antenna will be mounted at an effective height of 61 feet, to reach an overall height of 65.5 feet above ground level, maintaining at least a 6-foot separation from all power lines further down the utility pole.

RECOMMENDATION

That the Zoning Hearing Officer approve the Use Permit, PLN 2018-00196, by making the required findings and adopting the conditions of approval listed in Attachment A.

BACKGROUND

Report Prepared By: Bryan Albini, Project Planner, 650/363-1807

Applicant: Yadira Cerrato, Modus for Verizon Wireless

Land Owner: Public Right-of-Way (San Mateo County Department of Public Works)

Pole Owner: Joint Pole Association (JPA)

Location: Public Right-of-Way, northwest corner at the intersection of Crestview Drive and Edgewood Road.

APN: Right-of-Way adjacent to 093-150-040

Existing Zoning: R-1/S-13 (Single-Family Residential/Minimum 5 acre)

General Plan Designation: Right-of-Way adjacent to Very Low Density Residential

Sphere-of-Influence: City of San Carlos

Existing Land Use: Utility Poles in the Public Right-of-Way

Flood Zone: Zone X (area of minimal flood risk); FEMA Panel No. 06081C0282E; effective October 16, 2012

Environmental Evaluation: The project is categorically exempt under the provisions of Class 2, Section 15302, of the California Environmental Quality Act (CEQA) Guidelines for the replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

Setting: The existing utility pole is located within the public right-of-way, on a vegetated median strip, at the northwest corner of the intersection of Edgewood Road and Crestview Drive in the near the bounds of unincorporated Emerald Lake Hills. The surrounding area is a mix of rural open space and low density single-family residences.

Chronology:

Date		Action
May 31, 2018	-	Project submittal by applicant.
August 21, 2018	-	Project deemed complete by Planning and Building Department.
October 4, 2018	-	Zoning Hearing Officer meeting.

DISCUSSION

A. KEY ISSUES

1. Compliance with the General Plan

Staff has determined that both projects comply with all applicable County General Plan policies, specifically:

Visual Quality Policies

Policy 4.21 (*Utility Structures*) requires minimizing adverse visual impacts generated by utility structures. The project site is located within the public right-of-way along a secondary arterial road in a single-family residential area. The proposed antenna mount and support equipment located on the replacement utility pole will extend the original height of the existing pole of 51.8 feet above ground level to 65.5 feet above ground level. The replacement metal pole (see Attachment D) will be fabricated with a brown, non-reflective exterior finish that will mimic the exterior colors of the existing wooden utility pole.

2. Compliance with Zoning Regulations

The proposed project area is located within the public right-of-way in the R1/S-13 Zoning District. The zoning district standards, with the exception of height limits, are not applicable to the public right-of-way.

The maximum height allowed in the R-1/S-13 Zoning District is 36 feet. The proposed project will consist of one small cell antenna at the top of the replacement pole and ancillary mounted equipment. The proposed antenna canister and mounting brackets will exceed the maximum height allowed in the R-1/S-13 Zoning District. General Order No. 95 (GO95), mandated by the California Public Utilities Commission requires all cellular antennas to be at least 6 feet from adjacent power supply lines, and the isolator units that affix the cables directly to the utility pole. While the existing 51.8-foot pole exceeds the maximum height allowed in the zoning district, the replacement 61-foot pole is the minimum size in order to maintain the utility lines and isolator in the same location (50.2 feet above ground level) and comply with GO95 requirements. The replacement utility pole will ultimately reach 65.5 feet above ground level with the micro cell canister installed.

3. Compliance with the Wireless Telecommunication Facilities Ordinance

Staff has determined that the project complies with the applicable standards of the Wireless Telecommunication Facilities (WTF) Ordinance, as discussed below:

a. Development and Design Standards

Section 6512.2.A states that new wireless telecommunication facilities shall be prohibited in Sensitive Habitats, as defined by Policy 1.8 of the General Plan (Definition of Sensitive Habitats) for facilities proposed outside of the Coastal Zone, and by Policy 7.1 of the Local Coastal Program (Definition of Sensitive Habitats) for facilities proposed in the Coastal Zone, except

when all of the following written findings are made by the reviewing authority: (1) There is no other feasible location(s) in the area; (2) There is no alternative facility configuration that would avoid impacts to environmentally sensitive habitat areas; (3) Prohibiting such facility would be inconsistent with federal law; (4) Adverse impacts to the sensitive habitat are minimized to the maximum extent feasible; and (5) Unavoidable impacts are mitigated so that there is no loss in habitat quantity or biological productivity.

The project is not located in a sensitive habitat, as defined by Policy 1.8 of the General Plan.

Section 6512.2.B: New wireless telecommunication facilities shall not be located in areas zoned Residential (R), unless the applicant demonstrates, by a preponderance of the evidence, that a review has been conducted of other options, and no other sites or combination of sites allows feasible service or adequate capacity and coverage. This review shall include, but is not limited to, identification of alternative site(s) within 2.5 miles of the proposed facility.

The proposed facility will be located on a replacement joint utility pole within the public right-of-way. The applicant chose the proposed location to adequately provide Verizon Wireless voice and data coverage to the surrounding area where currently there exists a gap in service coverage. The area surrounding the proposed site compromises a mix of residentially zoned parcels and open space areas. Small cell facilities such as the facility currently proposed are not designed to increase the coverage area but to assist with off-loading traffic demands from the macro site network. This form of network flexibility increases data speeds and decreases dropped calls. The site specific constraints, requires that each node location be placed strategically where service is needed for a specific community.

In the Verizon Site Analysis (see Attachment E), the applicant has identified and researched alternative sites within the service area. The radius of the coverage map provided by the applicant is below the 2.5-mile radius because the function of small cell technology requires the sites to be in closer proximity to each other than typical macro cell systems. Because of this, a larger radius would not identify feasible alternative locations. Three alternative sites were identified and considered for viability. These sites were considered ineligible due to coverage issues or an inability to satisfy GO95 standards for utility line and equipment separation.

Of the locations evaluated for the placement of the proposed facility, the project site selected was the least intrusive option that would fill the gap in coverage to provide adequate wireless and data service.

Section 6512.2.C: New wireless telecommunication facilities shall not be located in areas where co-location on existing facilities would provide equivalent coverage with less environmental impact.

The applicant was unable to identify any existing wireless facilities within the required 2.5-mile radius that would either allow an opportunity for co-location or provide the necessary coverage to the target area. The cell canister technology proposed by the applicant is the least environmentally impactful wireless technology currently available.

Section 6512.2.D: Except where aesthetically inappropriate, new wireless telecommunication facilities must be constructed so as to accommodate co-location, and must be made available for co-location unless technologically infeasible.

Future co-locations are technically feasible as long as the facility being proposed complies with California Public Utilities Commission General Order 95 (GO95) engineering requirements. This proposed facility will be a pole-top mounted facility and, thus cannot be co-located in a manner that complies with PG&E GO95 requirements. The applicant does not expect future co-locations given the present equipment configuration.

Sections 6512.2.E and F: Seek to minimize and mitigate visual impacts from public views by siting new facilities outside of the public view, using natural vegetation for screening, painting equipment to blend with existing landscaping, and designing the facility to blend in with the surrounding environment.

The proposed facilities include one cell antenna canister mounted at a height of 61.5 feet above grade, on a replacement joint utility pole located in the public right-of-way. The replacement metal utility pole will be fabricated with a brown exterior finish, a similar shade to the existing wood utility pole. The antenna shall be painted a non-reflective color to blend with the existing surroundings. The equipment boxes shall also be painted a non-reflective color to match the utility pole as recommended in Condition of Approval No. 4 (see Attachment A) to reduce visual impacts and to blend in with the existing equipment. No trees or vegetation are proposed for removal.

Section 6512.2.G: The exteriors of wireless telecommunication facilities shall be constructed of non-reflective materials.

The proposed facilities will be constructed of non-reflective materials.

Section 6512.2.H: The wireless telecommunication facility shall comply with all the requirements of the underlying zoning district(s), including, but not limited to, setbacks, Design Review in the DR district(s), Architectural Review in designated Scenic Corridors, and Coastal Development Permit regulations in the CZ or CD zones.

As discussed in Section 2, Compliance with the Zoning Regulations, the existing joint utility pole, where the proposed facility will be located, is situated in the public right-of-way and is not subject to the R-1/S-13 Zoning District development standards for setbacks; compliance with height standards is discussed below. Design Review, Architectural Review, and Coastal Development regulations are not applicable in this area.

Section 6512.2.I.2: States that new equipment located on existing facilities in the public right-of-way in any Residential (R) District shall be allowed to exceed the maximum height for structures allowed in that district by 10% of the height of the existing facility, or by 5 feet, whichever is less.

The replacement equipment proposed for this wireless telecommunication facility will not be in compliance with this section. The height of the proposed facility has been designed to comply with the State's safety requirements for minimum clearance between co-located equipment and active utility lines (CPUC GO95).

Section 6512.2.J: In any Residential (R) district, accessory buildings in support of the operation of the wireless telecommunication facility may be constructed, provided that they comply with the provisions of Sections 6410 through 6411 regarding accessory buildings, except that the building coverage and floor area maximums shall apply to buildings in aggregate, rather than individually. If an accessory building, not used in support of a wireless telecommunication facility, already exists on a parcel, no accessory building in support of the operation of the wireless telecommunication facility may be constructed absent removal of the existing accessory building. If an accessory building(s) in support of the operation of the wireless telecommunication facility is constructed on a parcel, no other accessory buildings, not used in support of a wireless

telecommunication facility, shall be constructed until the accessory building(s) in support of the operation of that wireless telecommunication facility is (are) removed.

No accessory buildings will be constructed.

Section 6512.2.K: In any Residential (R) district, ground-mounted towers, spires, and similar structures may be built and used provided that they shall not cover, in combination with any accessory building(s), shelter(s), or cabinet(s), or other above-ground equipment used in support of the operation of the wireless telecommunication facility, more than 15% in area of the lot nor an area greater than 1,600 square feet. Buildings, shelters, and cabinets shall be grouped. Towers, spires, and poles shall also be grouped, to the extent feasible for the technology.

No new structures will be built or used in support of the operation of the wireless telecommunication facilities.

Section 6512.2.L: Diesel generators shall not be installed as an emergency power source unless the use of electricity, natural gas, solar, wind, or other renewable energy sources are not feasible. If a diesel generator is proposed, the applicant shall provide written documentation as to why the installation of options, such as electricity, natural gas, solar, wind, or other renewable energy sources, are not feasible.

No generators will be installed at the project sites.

b. Performance Standards

The proposed projects meet the required standards of Section 6512.3 (Performance Standards for New Wireless Telecommunication Facilities that are Not Co-Location Facilities) for lighting, licensing, provision of a permanent power source, timely removal of the facility, and visual resource protection. There is no lighting proposed, proper licenses will be obtained from both the Federal Communications Commission (FCC) and the California Public Utilities Commission (CPUC), power for the facilities will be provided by PG&E, visual impacts will be minimal, and conditions of approval will require maintenance and/or removal of the facilities when they are no longer in operation. Furthermore, road access to the proposed project sites is existing and no noise in excess of San Mateo County's Noise Ordinance will be produced.

4. Compliance with Use Permit Findings

For the use permit under review by the Zoning Hearing Officer, staff has made the following findings:

a. That the establishment, maintenance, and/or conducting of the use will not, under the circumstances of this particular case, be detrimental to the public welfare or injurious to property or improvement in said neighborhood.

Cellular communication facilities, such as the one proposed here, require the submittal and review of radio frequency (RF) reports to ensure that the RF emissions from the proposed antenna does not exceed the Federal Communications Commission's public exposure limits. The applicant submitted radio frequency reports prepared by EBI Consulting, dated May 2, 2018, confirming that the proposed facility will comply with prevailing standards for limiting public exposure to radio frequency energy and, thus, will not cause significant impact to the environment (See Attachment F). The report, based on worst-case predictive modeling, found that there are no modeled areas on any accessible ground-level walking/working surface related to the proposed Verizon antennas that exceed the FCC's occupational or general public exposure limits at this site. The worst-case emitted power density may exceed the FCC's general public limit within approximately 10 feet of Verizon's proposed antennas at the antenna face level (61.5 feet above ground level). At the nearest walking/working surfaces to the Verizon antennas, the maximum power density generated by the Verizon antennas is approximately 5.6 percent of the FCC's general public limit (1.12 percent of the FCC's occupational limit). Due to the location of the mounted antenna canister above the utility pole, it will not be accessible to the general public and therefore no mitigation measures are necessary to comply with FCC public exposure guidelines. To comply with occupational exposure limitations, staff has included Condition of Approval No. 15 (see Attachment A) for the posting of explanatory warning signs at the antennas and/or on the pole below the antennas, readily visible from any angle of approach to persons who may need to work in the vicinity (see Attachment A).

Planning Case No.	Approximate Location	Ground Floor Radio Frequency Exposure	Occupational Limit Radio Frequency Exposure
PLN 2018-00196	2195 Edgewood Road	0.00%	1.12%

With the discussion above, staff has determined that the proposed project will not have a negative environmental, health, or visual impact on persons or property within the project vicinity.

b. That this telecommunication facility is necessary for the public health safety, convenience, or welfare of the community.

Staff has determined that installation of a cellular facility at this location will allow for increased clarity, range, and capacity of the existing cellular network and will enhance services for the public. The proposed facility is the least intrusive option available to expand Verizon's network capacity and service coverage in this area of service.

B. ENVIRONMENTAL REVIEW

These projects are categorically exempt to Section 15302, Class 2, of the California Environmental Quality Act (CEQA) Guidelines for the replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

C. REVIEWING AGENCIES

San Mateo County Building Inspection Section
San Mateo County Department of Public Works
Cal-Fire

ATTACHMENTS

A. Recommended Findings and Conditions of Approval
B. Vicinity Map
C. Project Plans
D. Photo Simulations
E. Site Selection Consideration Map
F. Radio Frequency – Electromagnetic Energy Jurisdictional Report prepared by EBI Consulting, dated May 2, 2018.

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Attachment A

County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: PLN 2018-00196 Hearing Date: October 4, 2018

Prepared By: Bryan Albini, Project Planner For Adoption By: Zoning Hearing Officer

RECOMMENDED FINDINGS

Regarding the Environmental Review, Find:

1. That this project is categorically exempt from environmental review, per Class 2, Section 15302, of the California Environmental Quality Act (CEQA) Guidelines for the replacement or reconstruction of existing utility systems and/or facilities involving negligible or no expansion of capacity.

Regarding the Use Permits, Find:

2. That the establishment, maintenance, and/or conducting of the uses will not, under the circumstances of these particular cases, be detrimental to the public welfare or injurious to the property or improvements in said neighborhood because the projects will meet current Federal Communications Commission (FCC) standards as shown in the radio frequency radiation reports and have been conditioned to maintain valid FCC and California Public Utilities Commission (CPUC) licenses.

3. That the telecommunication facility is necessary for the public health, safety, convenience, or welfare of the community in that installing cellular facilities at this location will provide increased and improved cellular coverage in the area for residents, commuters, and emergency personnel.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. This approval applies only to the proposal documents, and plans described in this report and submitted to and approved by the Zoning Hearing Officer on May 31, 2018. Minor revision or modifications may be approved by the Community Development Director if they are consistent with the intent of and in substantial with this approval.

2. This use permit shall be for the proposed project only. Any change or change in intensity of use shall require an amendment to the applicable use permit. Amendments to these use permits require an application for amendment, payment of applicable fees, and consideration at a public hearing.

3. This permit shall be valid for ten (10) years until April 19, 2028. If the applicant seeks to renew these permits, renewal shall be applied for six (6) months prior to expiration with the Planning and Building Department and shall be accompanied by the renewal application and fee applicable at that time. Renewal of these permits shall be considered at a public hearing.

4. The applicant shall paint the antenna(s) brown to match the utility poles. The equipment boxes shall also be painted a non-reflective brown color to match the utility pole. Color verification will be confirmed by the Current Planning Section prior to a final inspection for the building permit.

5. During project construction, the applicant shall, pursuant to Chapter 4.100 of the San Mateo County Ordinance Code, minimize the transport and discharge of storm water runoff from the construction site into storm drain systems by:

    a. Stabilizing all denuded areas and maintaining erosion control measures continuously between October 1 and April 30. Stabilizing shall include both proactive measures, such as the placement of hay bales or coir netting, and passive measures, such as revegetating disturbed areas with plants propagated from seed collected in the immediate area.

    b. Storing, handling, and disposing of construction materials and wastes properly, so as to prevent their contact with storm water.

    c. Controlling and preventing the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, and non-stormwater discharges, to storm drains and watercourses.

    d. Avoiding cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated.

    e. Delineating with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.

    f. Protecting adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

    g. Performing clearing and earth-moving activities only during dry weather.

h. Limiting and timing application of pesticides and fertilizers to prevent polluted runoff.

i. Limiting construction access routes and stabilizing designated access points.

j. Avoiding tracking dirt or other materials off-site; cleaning off-site paved areas and sidewalks using dry sweeping methods.

k. The contractor shall train and provide instruction to all employees and subcontractors regarding the construction Best Management Practices.

6. These permits do not allow for the removal of any trees. Any tree removal will require a separate permitting process.

7. The applicant shall not enter into a contract with the landowner or lessee which reserves for one company exclusive use of the structures on this site for telecommunication facilities.

8. The wireless telecommunication facilities shall not be lighted or marked unless required by the Federal Communications Commission or the Federal Aviation Administration (FAA).

9. The applicant shall file, receive, and maintain all necessary licenses and registrations from the Federal Communications Commission (FCC), the California Public Utilities Commission (CPUC), and any other applicable regulatory bodies prior to initiating the operation of these facilities. The applicant shall supply the Planning and Building Department with evidence of each of these licenses and registrations. If any required license is ever revoked, the applicant shall inform the Planning and Building Department of the revocation within ten (10) days of receiving notice of such revocation.

10. The projects' final inspection approval shall be dependent upon the applicant obtaining a permanent and operable power connection from the applicable energy provider.

11. These wireless telecommunications facilities and all equipment associated with it shall be removed in its entirety by the applicant within 90 days if the FCC and/or CPUC license and registration are revoked or the facility is abandoned or no longer needed, and the sites shall be restored to blend with the surrounding area. The owner and/or operator of the wireless telecommunication facilities shall notify the Planning Department upon abandonment of the facility. Restoration shall be completed within two (2) months of the removal of the facility.

12. These wireless telecommunications facilities shall be maintained by the permittee(s) and subsequent owners in a manner that implements visual resource

protection requirements of Sections 6512.2.E and F above (e.g., landscape maintenance and painting), as well as all other applicable zoning standards and permit conditions.

13. Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m., weekdays and 9:00 a.m. to 5:00 p.m., Saturdays. Said activities are prohibited on Sundays, Thanksgiving, and Christmas (San Mateo Ordinance Code Section 4.88.360).

14. If technically practical and without creating any interruption in commercial service caused by electronic magnetic interference (EMI), floor space, tower space, and/or rack space for equipment in a wireless telecommunication facility shall be made available to the County for public safety communication use.

15. Explanatory signs are required to be posted at the antennas and/or on the poles below the antennas, readily visible from any angle of approach to persons who might need to work within the project area.

Building Inspection Section

16. This project requires a Building Permit.

17. The installation shall be based on the latest California Building Standards Code, which at the time of this review is the 2016 California Building Standards, Title 24.

Department of Public Works

18. No proposed construction work within the public right-of-way shall begin until County requirements for the issuance of an encroachment permit, including review of the plans, have been met and an encroachment permit issued. The applicant shall contact a Department of Public Works inspector 48 hours prior to commencing work in the public right-of-way.

Geotechnical

19. Geotechnical review during the Building Permit stage.

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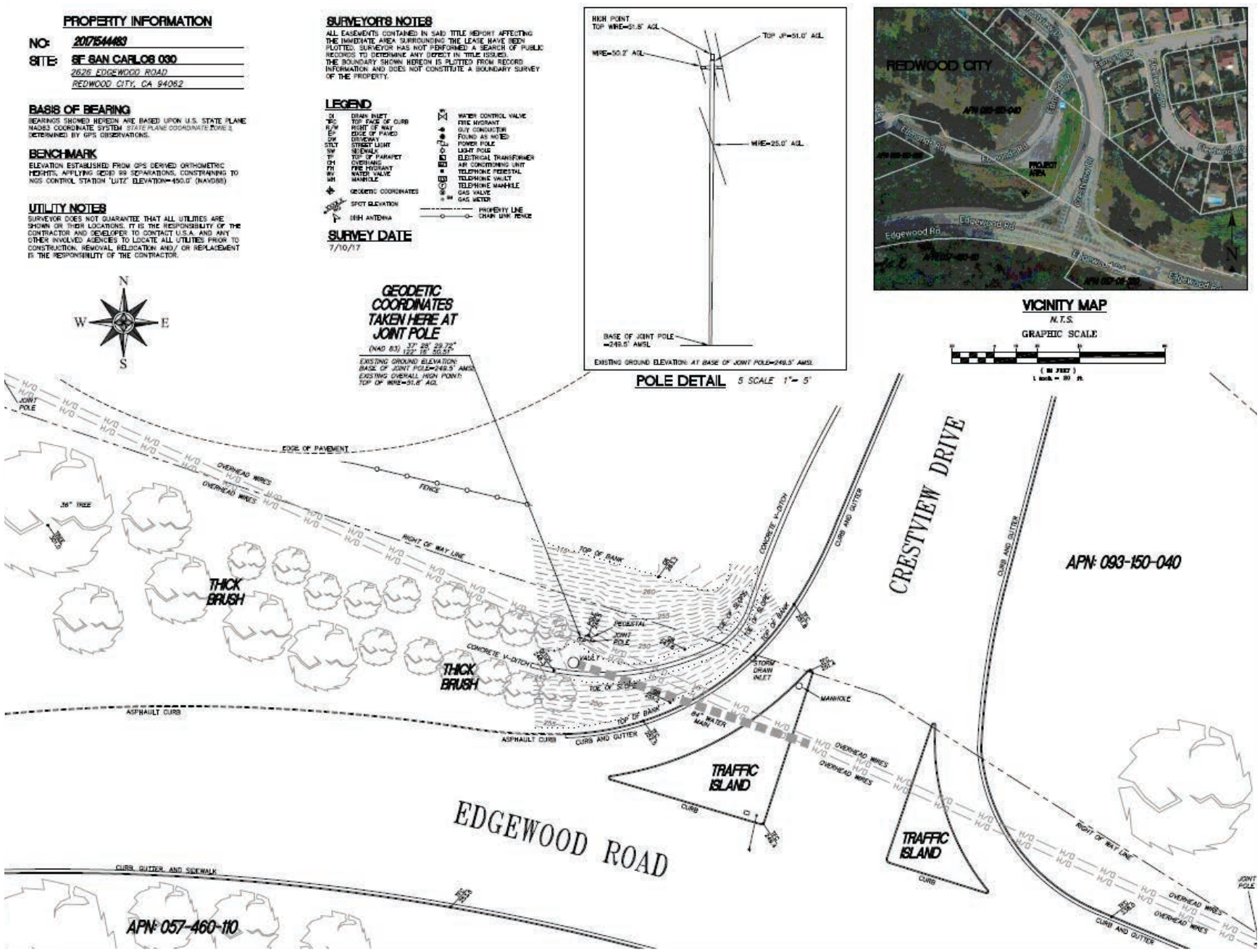
San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: JOINT POLE ASSOCIATION/MODUS

Attachment: B

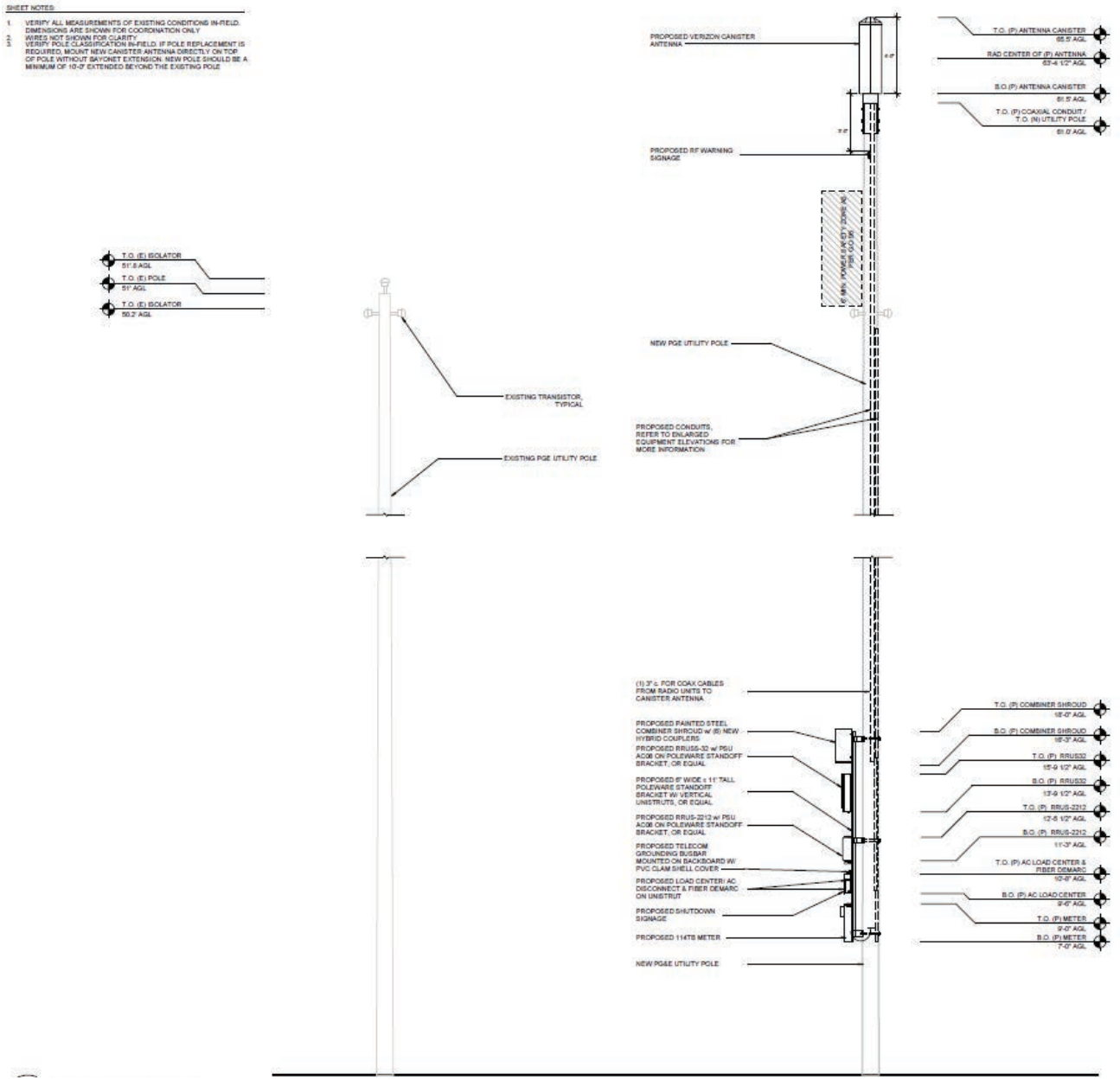
File Numbers: PLN2018-00196



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: JOINT POLE ASSOCIATION/MODUS Attachment: C

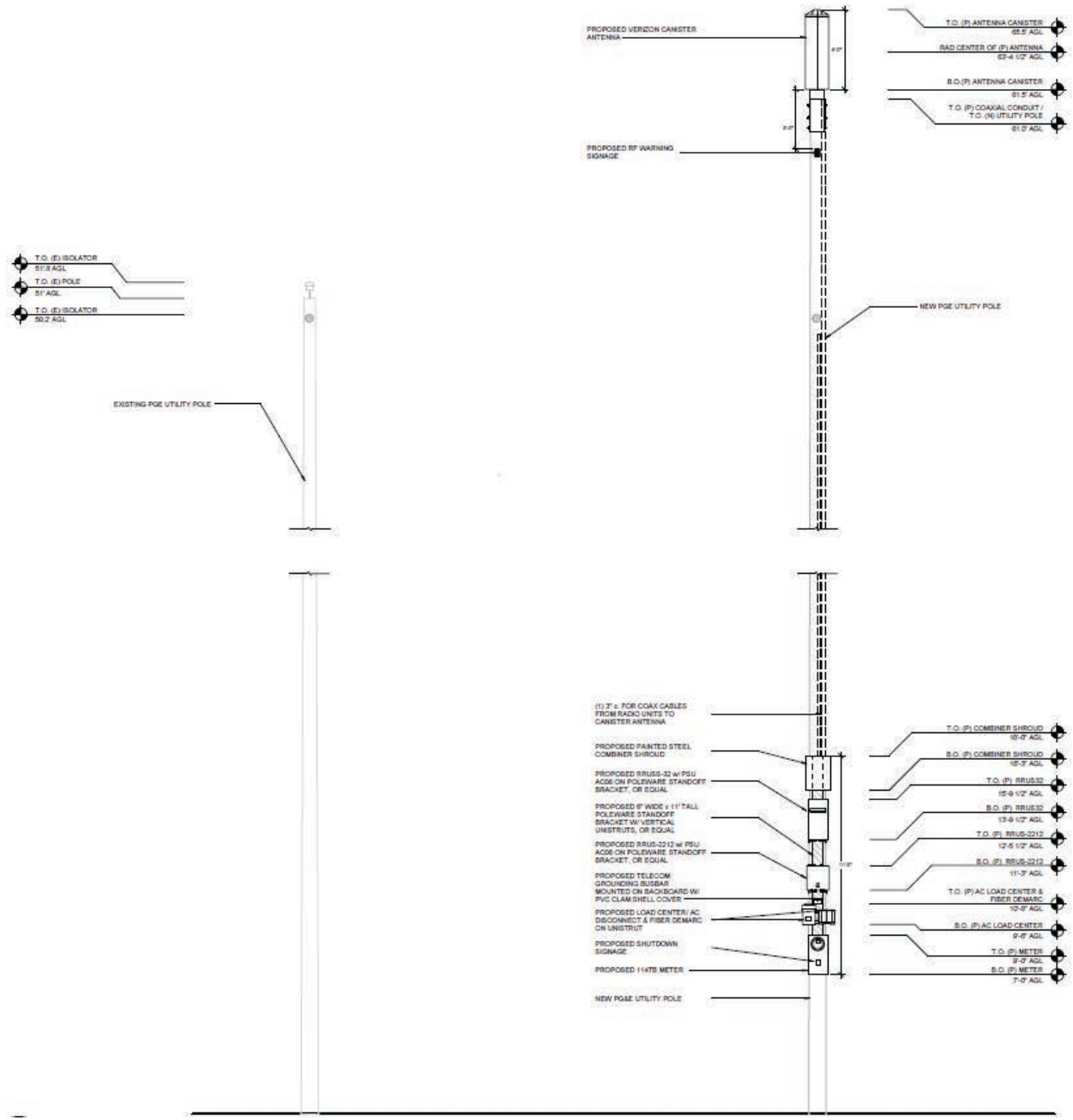
File Numbers: PLN2018-00196



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: JOINT POLE ASSOCIATION/MODUS Attachment: C

File Numbers: PLN2018-00196



San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: JOINT POLE ASSOCIATION/MODUS Attachment: C

File Numbers: PLN2018-00196

BEFORE

AFTER

PHOTO SIMULATION - NORTHEAST

San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: JOINT POLE ASSOCIATION/MODUS

Attachment: D

File Numbers: PLN2018-00196

BEFORE

AFTER

PHOTO SIMULATION - SOUTH

San Mateo County Zoning Hearing Officer Meeting

Owner/Applicant: JOINT POLE ASSOCIATION/MODUS

Attachment: D

File Numbers: PLN2018-00196


PG&E Wood Utility Pole: pole is not viable due to crossing lines at the top of pole and would require tree abatement; location may be too far from area RF wishes to cover
Adjacent to 2195 Edgewood Rd
PG&E Wood Utility Pole: G095 issues - pole is too busy, does not have available quadrants for equipment and installation
PG&E Wood Utility Pole: Pole is potentially viable, location of the pole may be too far from area RF wishes to cover

Radio Frequency - Electromagnetic Energy (RF-EME) Jurisdictional Report

Site No. SF San Carlos 030
SF San Carlos 030
Adjacent to 2195 Edgewood Rd
Redwood City, California 94062
San Mateo County
37° 28' 29.92" N, -122° 16' 49.95" W NAD83

EBI Project No. 6218000819
May 2, 2018

Prepared for:

Verizon Wireless
c/o Modus Corp
240 Stockton Street, 3rd Floor
San Francisco, CA 94108

Prepared by:

EBI Consulting
environmental | engineering | due diligence

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

Purpose of Report

EnviroBusiness Inc. (dba EBI Consulting) has been contracted by Verizon Wireless to conduct radio frequency electromagnetic (RF-EME) modeling for Verizon Site located at 2626 Edgewood Road in Redwood City, California to determine RF-EME exposure levels from proposed Verizon wireless communications equipment at this site. As described in greater detail in Section 2.0 of this report, the Federal Communications Commission (FCC) has developed Maximum Permissible Exposure (MPE) Limits for general public exposures and occupational exposures. This report summarizes the results of RF-EME modeling in relation to relevant FCC RF-EME compliance standards for limiting human exposure to RF-EME fields.

Statement of Compliance

A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

As presented in the sections below, based on worst-case predictive modeling, there are no modeled areas on any accessible ground-level walking/working surface related to the proposed antennas that exceed the FCC's occupational or general public exposure limits at this site. Additionally, there are areas where workers who may be elevated above the ground may be exposed to power densities greater than the occupational limits. Therefore, workers should be informed about the presence and locations of antennas and their associated fields.

At the nearest walking/working surfaces to the Verizon antennas, the maximum power density generated by the Verizon antennas is approximately **5.60** percent of the FCC's general public limit (**1.12** percent of the FCC's occupational limit).

Recommended control measures are outlined in Section 5.0 and within a Site Safety Plan (attached); this plan includes instructions to shut down and lockout/tagout this wireless equipment in accordance with Verizon's standard operating protocol.

1.0 INTRODUCTION

Radio frequency waves are electromagnetic waves from the portion of the electromagnetic spectrum at frequencies lower than visible light and microwaves. The wavelengths of radio waves range from thousands of meters to around 30 centimeters. These wavelengths correspond to frequencies as low as 3 cycles per seconds (or hertz [Hz]) to as high as one gigahertz (one billion cycles per second).

Personal Communication (PCS) facilities used by Verizon in this area operate within a frequency range of 1900-2100 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed a distance above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of in areas in the immediate vicinity of the antennas.

MPE limits do not represent levels where a health risk exists, since they are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size or health.

2.0 SITE DESCRIPTION

This project site includes one (1) wireless telecommunication antennas on a utility pole located at 2626 Edgewood Road in Redwood City, California.

Verizon Antenna Information (proposed Configuration)									
Antenna # and Model	Frequency (MHz)	# of Transmitters	Transmit Power (Watts)	Azimuth	Gain (dBd)	Feet above Ground (CL)	X	Y	Z (feet)
A1 Amphenol CUUT070X12Fxyz0	700 2100	2 2	60 60	20° 140° 260°	10.35 14.05	63.3	30	30	61.3

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general population/uncontrolled exposure limits for members of the general public that may be exposed to antenna fields. While access to this site is considered uncontrolled, the analysis has considered exposures with respect to both controlled and uncontrolled limits as an untrained worker may access adjacent rooftop locations. Additional information regarding controlled/uncontrolled exposure limits is provided in Section 3.0. Appendix B presents a site safety plan that provides a plan view of the utility pole with antenna locations.

3.0 FEDERAL COMMUNICATIONS COMMISSION (FCC) REQUIREMENTS

The FCC has established Maximum Permissible Exposure (MPE) limits for human exposure to Radiofrequency Electromagnetic (RF-EME) energy fields, based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general public/uncontrolled exposure limits for members of the general public.

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 public/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.

General public/uncontrolled exposure limits apply to situations in which the general public 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 public 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.

Table 1 and Figure 1 (below), which are included within the FCC's OET Bulletin 65, summarize the MPE limits for RF emissions. These limits are designed to provide a substantial margin of safety. They vary by frequency to take into account the different types of equipment that may be in operation at a particular facility and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

The FCC's MPEs are measured in terms of power (mW) over a unit surface area (cm^2). Known as the power density, the FCC has established an occupational MPE of 5 milliwatts per square centimeter (mW/cm^2) and an uncontrolled MPE of 1 mW/cm2 for equipment operating in the 1900 MHz frequency range. For the Verizon equipment operating at 700 MHz or 850 MHz, the FCC's occupational MPE is 2.83 mW/cm^2 and an uncontrolled MPE of 0.57 mW/cm^2. These limits are considered protective of these populations.

Table 1: Limits for Maximum Permissible Exposure (MPE)

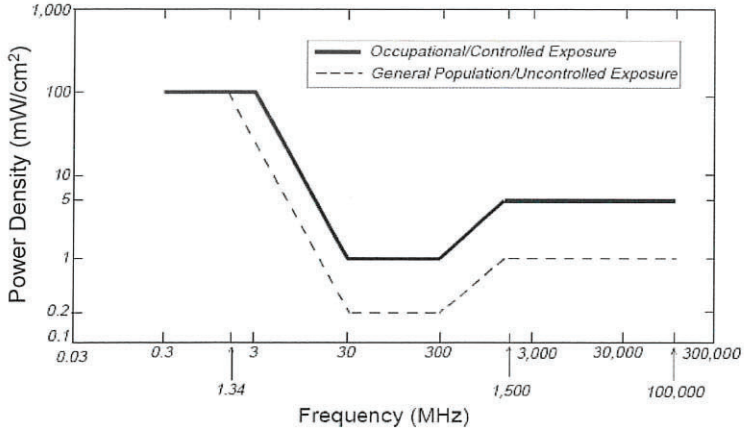
(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $[E]^2$, $[H]^2$, or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time $[E]^2$, $[H]^2$, or S (minutes)**
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

f = Frequency in (MHz)
* Plane-wave equivalent power density

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)
Plane-wave Equivalent Power Density



Based on the above, the most restrictive thresholds for exposures of unlimited duration to RF energy for several personal wireless services are summarized below:

Personal Wireless Service	Approximate Frequency	Occupational MPE	Public MPE
Personal Communication (PCS)	1,950 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Cellular Telephone	870 MHz	2.90 mW/cm^2	0.58 mW/cm^2
Specialized Mobile Radio	855 MHz	2.85 mW/cm^2	0.57 mW/cm^2
Most Restrictive Freq, Range	30-300 MHz	1.00 mW/cm^2	0.20 mW/cm^2

MPE limits are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

Personal Communication (PCS) facilities used by Verizon in this area operate within a frequency range of 1900-2100 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of areas directly in front of the antennas.

4.0 WORST-CASE PREDICTIVE MODELING

EBI has performed theoretical modeling using RoofView® software to estimate the worst-case power density at the site ground-level resulting from operation of the antennas. RoofView® is a widely-used predictive modeling program that has been developed by Richard Tell Associates to predict both near field and far field RF power density values for roof-top and tower telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit.

The modeling is based on worst-case assumptions for the number of antennas and transmitter power. The modeling assumes a maximum 4 radio configuration, with a power level of 48 dbM (60 watts) per transmitter for 700 and 2100 frequencies, in order to provide a worst-case evaluation of predicted MPE levels. The assumptions used in the modeling are based upon information provided by Verizon, and information gathered from other sources. The parameters used for the modeling are summarized in the RoofView® export files presented in Appendix C.

There are no other wireless carriers with equipment installed at this site.

Based on worst-case predictive modeling, there are no modeled areas on any accessible ground-level walking/working surface related to the proposed Verizon antennas that exceed the FCC's occupational or general public exposure limits at this site. The worst-case emitted power density may exceed the FCC's general public limit within approximately 10 feet of Verizon's proposed antennas at the antenna face level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 4 feet of Verizon's proposed antennas at the antenna face level. At the nearest walking/working surfaces to the Verizon antennas, the maximum power density generated by the Verizon antennas is approximately 5.60 percent of the FCC's general public limit (1.12 percent of the FCC's occupational limit). The composite exposure level from all carriers on this site is approximately 5.60 percent of the FCC's general public limit (1.12 percent of the FCC's occupational limit) at the nearest walking/working surface to each antenna.

The Site Safety Plan also presents areas where Verizon Wireless antennas contribute greater than 5% of the applicable MPE limit for a site. A site is considered out of compliance with FCC regulations if there are areas that exceed the FCC exposure limits and there are no RF hazard mitigation measures in place. Any carrier which has an installation that contributes more than 5% of the applicable MPE must participate in mitigating these RF hazards.

The inputs used in the modeling are summarized in the RoofView® export file presented in Appendix C. A graphical representation of the RoofView® modeling results is presented in Appendix B. It should be noted that RoofView is not suitable for modeling microwave dish antennas; however, these units are designed for point-to-point operations at the elevations of the installed equipment rather than ground level coverage.

5.0 MITIGATION/SITE CONTROL OPTIONS

EBI's modeling indicates that there are no areas in front of the Verizon antennas that exceed the FCC standards for occupational or general public exposure. All exposures above the FCC's safe limits require that individuals be elevated above the ground. In order to alert people accessing the pole, a CAUTION sign is recommended for installation at 10 feet below the bottom of the antenna.

These protocols and recommended control measures have been summarized and included with a graphic representation of the antennas and associated signage and control areas in a RF-EME Site Safety Plan, which is included as Appendix B. Individuals and workers accessing the roof should be provided with a copy of the attached Site Safety Plan, made aware of the posted signage, and signify their understanding of the Site Safety Plan.

Implementation of the signage recommended in the Site Safety Plan and in this report will bring this site into compliance with the FCC's rules and regulations.

6.0 SUMMARY AND CONCLUSIONS

EBI has prepared a Radiofrequency – Electromagnetic Energy (RF-EME) Compliance Report for telecommunications equipment installed by Verizon Site Number SC_030 located at 2626 Edgewood Road in Redwood City, California to determine worst-case predicted RF-EME exposure levels from wireless communications equipment installed at this site. This report summarizes the results of RF-EME modeling in relation to relevant Federal Communications Commission (FCC) RF-EME compliance standards for limiting human exposure to RF-EME fields.

As presented in the sections above, based on the FCC criteria, there are no modeled areas on any accessible ground-level walking/working surface related to the proposed antennas that exceed the FCC's occupational or general public exposure limits at this site. The worst-case emitted power density may exceed the FCC's general public limit within approximately 10 feet of Verizon's proposed antennas at the antenna face level. Modeling also indicates that the worst-case emitted power density may exceed the FCC's occupational limit within approximately 4 feet of Verizon's proposed antennas at the antenna face level. Workers should be informed about the presence and locations of antennas and their associated fields. Recommended control measures are outlined in Section 5.0 and within a Site Safety Plan (attached); this plan includes procedures to shut down and lockout/tagout this wireless equipment in accordance with Verizon's standard operating protocol.

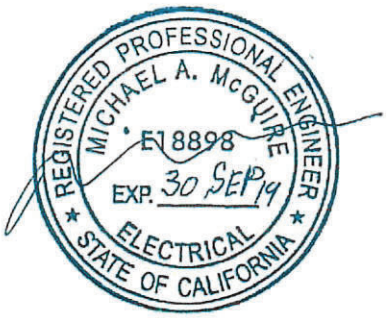
7.0 LIMITATIONS

This report was prepared for the use of Verizon Wireless. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by EBI are based solely on the information provided by the client. The observations in this report are valid on the date of the investigation. Any additional information that becomes available concerning the site should be provided to EBI so that our conclusions may be revised and modified, if necessary. This report has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this report. No other warranty, expressed or implied, is made.

Appendix A

Certifications

Reviewed and Approved by:



sealed 2may2018

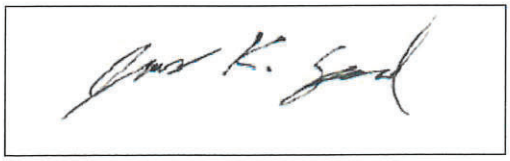
Michael McGuire
Electrical Engineer

Note that EBI's scope of work is limited to an evaluation of the Radio Frequency – Electromagnetic Energy (RF-EME) field generated by the antennas and broadcast equipment noted in this report. The engineering and design of the building and related structures, as well as the impact of the antennas and broadcast equipment on the structural integrity of the building, are specifically excluded from EBI's scope of work.

Preparer Certification

I, James Speed, state that:

- I am an employee of EnviroBusiness Inc. (d/b/a EBI Consulting), which provides RF-EME safety and compliance services to the wireless communications industry.
- I have successfully completed RF-EME safety training, and I am aware of the potential hazards from RF-EME and would be classified "occupational" under the FCC regulations.
- I am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation.
- I have reviewed the data provided by the client and incorporated it into this Site Compliance Report such that the information contained in this report is true and accurate to the best of my knowledge.



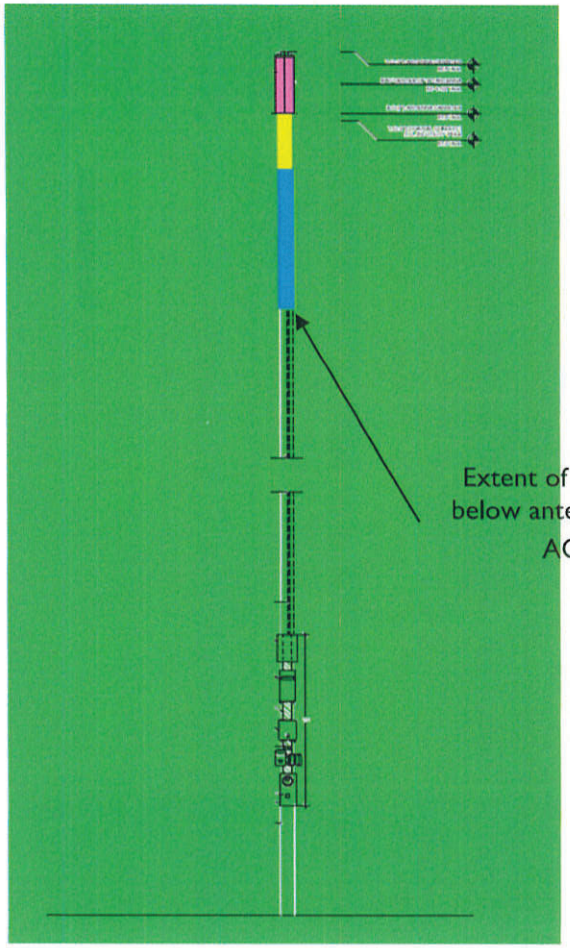
Appendix B

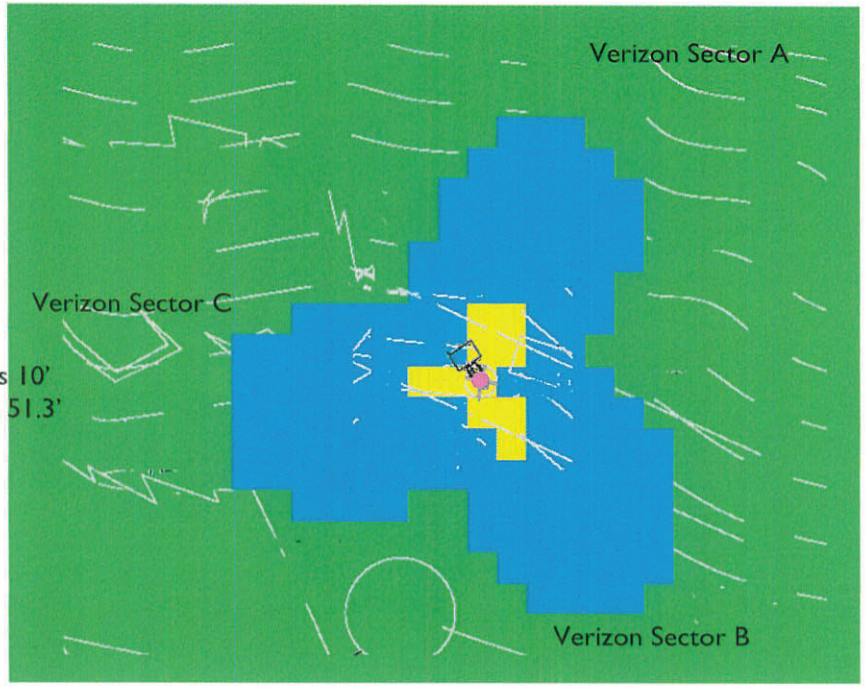
Radio Frequency Electromagnetic Energy

Safety / Signage Plans

% FCC Public Exposure Limit
Exposure Level ≥ 5,000
500 < Exposure Level ≤ 5,000
100 < Exposure Level ≤ 500
Exposure Level ≤ 100

Antenna Face Level Simulation





N

Verizon Antennas

Other Carrier Antennas

Roofview: Composite Exposure Levels

Facility Operator: Verizon Wireless

Site Name: SF San Carlos 030

Verizon Site Number: SC_030

Report Date: 05-02-18

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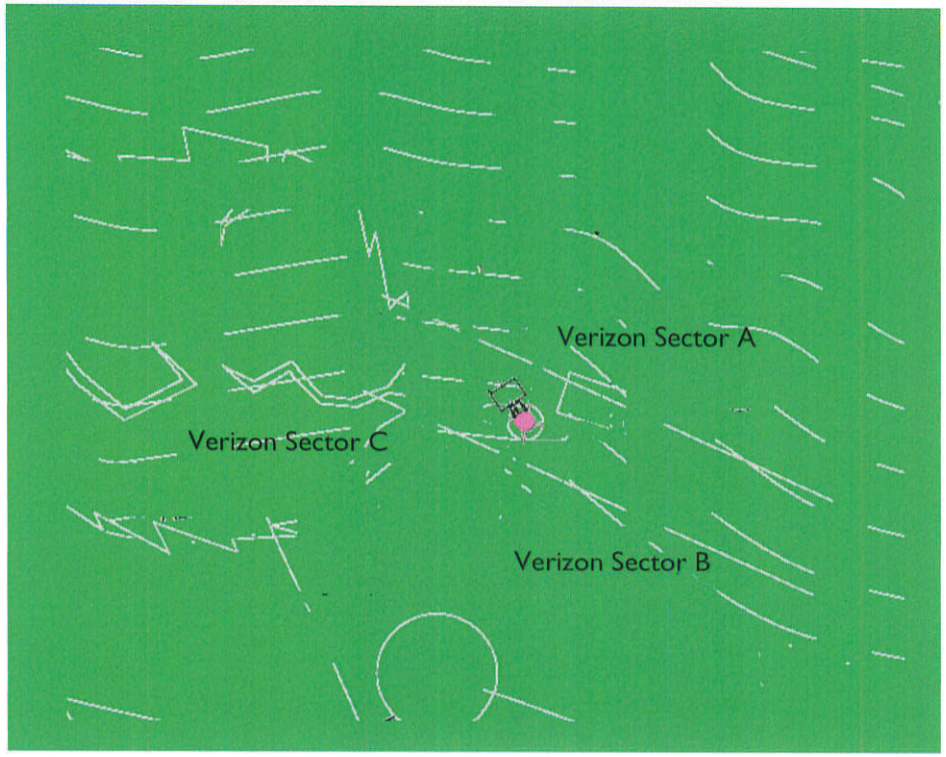
% FCC Public Exposure Limit
Exposure Level ≥ 5,000
500 < Exposure Level ≤ 5,000
100 < Exposure Level ≤ 500
Exposure Level ≤ 100

Ground Level Simulation



2' 1' 0 2' 4'
1/2"=1'-0"

Verizon Antennas

Roofview: Composite Exposure Levels
Facility Operator: Verizon Wireless
Site Name: SF San Carlos 030
Verizon Site Number: SC_030
Report Date: 05-02-18

EBI Consulting
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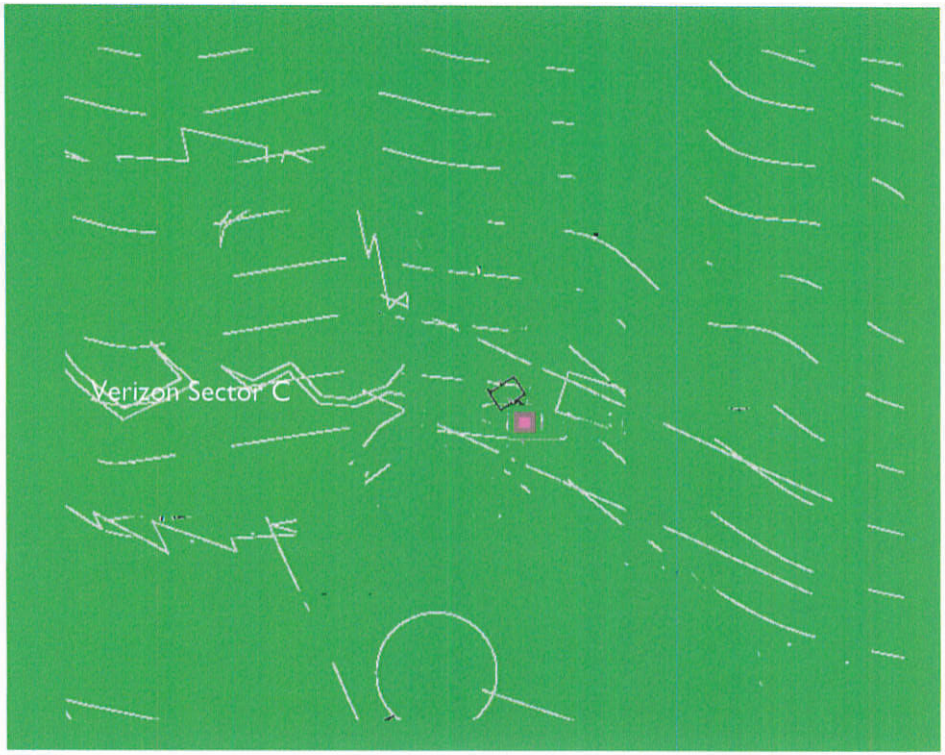
% FCC Public Exposure Limit	
	Exposure Level > 5
	Exposure Level ≤ 5

Ground Level Simulation



	Verizon Antennas
	Other Carrier Antennas

Roofview: Verizon Exposure Levels

Facility Operator: Verizon Wireless

Site Name: SF San Carlos 030

Verizon Site Number: SC_030

Report Date: 05-02-18

EBI Consulting
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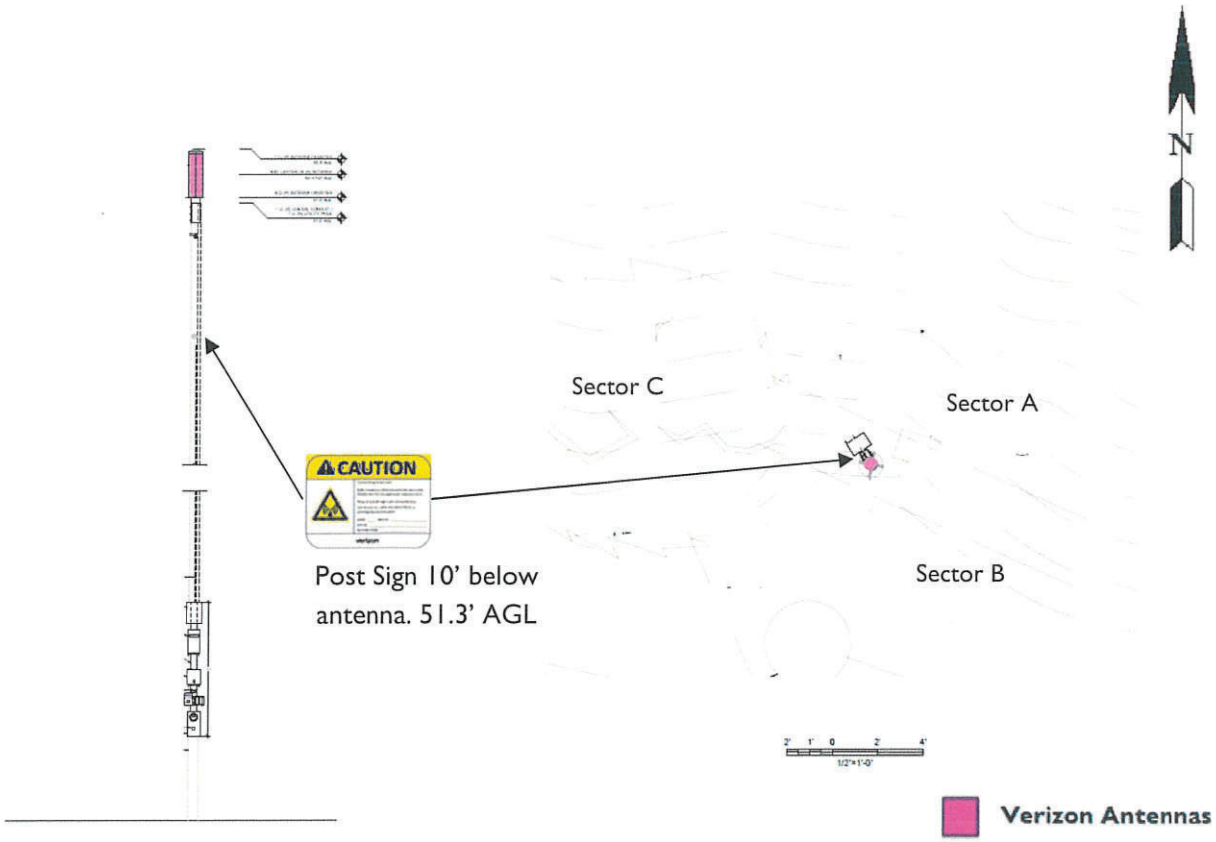
Verizon Signage Plan



Sign Image	Description	Posting Instructions	Required Signage
	**Yellow Caution Sign** Used to alert individuals that they are entering an area where the power density emitted from transmitting antennas may exceed the FCC's maximum permissible exposure limit for the general public and the occupational exposure limit.	Securely post on light pole in a manner conspicuous to all individuals entering thereon as indicated in the signage plan.	1 sign on street side of pole.

Appendix C

Roofview® Export File

StartMapDefinition

Roof Max '	Roof Max ;	Map Max '	Map Max ;	Y Offset	X Offset	Number of	envelope
120	120	140	140	20	20	1	$AE$81:EAE$81:$ET$200

StartSettingsData

Standard	Method	Uptime	Scale Facto	Low Thr	Low Color	Mid Thr	Mid Color	Hi Thr	Hi Color	Over Color	Ap Ht Mult	Ap Ht Method
4	2	1	1	100	1	500	4	5000	2	3	1.5	1

StartAntennaData It is advisable to provide an ID (ant 1) for all antennas

ID	Name	(MHz) Freq	Trans Power	Trans Count	Coax Len	Coax Type	Other Loss	Input Power	Calc Power	Mfg	Model	(ft) X	(ft) Y	(ft) Z	Type	(ft) Aper	dBd Gain	BWdth Pt Dir	Uptime Profile	ON flag
VZW A1	LTE	700	40	1	0	0		1		Amphenol	CUUT070X	30	30	61.3		4	10.35	82;20		ON•
VZW A1	LTE	2100	40	1	0	0		1		Amphenol	CUUT070X	30	30	61.3		4	14.05	73.7;20		ON•
VZW A1	LTE	700	40	1	0	0		1		Amphenol	CUUT070X	30	30	61.3		4	10.35	82;140		ON•
VZW A1	LTE	2100	40	1	0	0		1		Amphenol	CUUT070X	30	30	61.3		4	14.05	73.7;140		ON•
VZW A1	LTE	700	40	1	0	0	1			Amphenol	CUUT070X	30	30	61.3		4	10.35	82;260		ON•
VZW A1	LTE	2100	40	1	0	0	1			Amphenol	CUUT070X	30	30	61.3		4	14.05	73.7;260		ON•

StartSymbolData

Sym	Map Mark	Roof X	Roof Y	Map Label	Description (notes for this table only)
Sym		5	35	AC Unit	Sample symbols
Sym		14	5	Roof Access	
Sym		45	5	AC Unit	
Sym		45	20	Ladder	