# RESOLUTION NO: 16-005

# A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF EL PASO DE ROBLES TO APPROVE CONDITIONAL USE PERMIT 15-016 (VERIZON – 3800 MILL ROAD) APN: 025-701-006

WHEREAS, Table 21.16.200 of the Zoning Ordinance requires approval of a Conditional Use Permit for transmission and receiving stations in the POS (Parks & Open Space) zoning district for a site located in a public or quasi-public property/building such as a church, school, golf course, community building; and

WHEREAS, the project is located at Vina Robles Amphitheater, located at 3800 Mill Road; and

WHEREAS, the project would consist of two facilities: (1) SC-1: installation of two antennas and accessory equipment within an existing building parapet; and (2) SC-2: installation of one mono-pole and accessory equipment; and

WHEREAS, this application is Categorically Exempt from environmental review per Section 15303 of the State's Guidelines to Implement CEQA; and

WHEREAS, a public hearing was conducted by the Planning Commission on February 9, 2016, to consider the facts as presented in the staff report prepared for this project, and to accept public testimony regarding this conditional use permit request; and

WHEREAS, for SC-1, since the two antennas and equipment would be incorporated into the existing building parapet in a manner that they would be architecturally part of the roof design, the facility would be considered camouflaged, therefore, the project would be consistent with Land Use Element Policy 2B, relating to visual identity, including utility infrastructure; and

WHEREAS, for SC-2, since the equipment will be screened from view with a 6-foot-high chain link fence with vinyl slats, and the mono-pole will be painted brown to match the existing landscape, the facility would be considered camouflaged, therefore the project would be consistent with Land Use Element Policy 2B, relating to visual identity, including utility infrastructure; and

WHEREAS, based upon the facts and analysis presented in the staff report and public testimony received, and subject to the conditions of approval listed below, the Planning Commission finds that the establishment, maintenance and operation for the requested use and building would be consistent with the General Plan and not be detrimental to the health, safety, morals, comfort, convenience and general welfare of the persons residing or working in the neighborhood of such proposed use, or be injurious or detrimental to property and improvements in the neighborhood or to the general welfare of the City.

NOW, THEREFORE, BE IT RESOLVED, that the Planning Commission of the City of El Paso de Robles does hereby approve Conditional Use Permit 15-016 subject to the following conditions:

1. The project shall be constructed so as to substantially conform with the following listed exhibits and conditions established by this resolution:

EXHIBIT	DESCRIPTION
A1	SC-1 Site Plan
A2	SC-1 Equipment & Antenna Layout
A3	SC-1 Southwest & Northwest Elevations
A4	SC-1 Roof Plan & RF Signage
A5	SC-1 RF Signage Southwest & Northwest Elevations
A6	SC-1 Hammett & Edison Radio Frequency Report
B1	SC-2 Site Plan
B2	SC-2 Equipment & Antenna Layout
B3	SC-2 South & West Elevations

- This Conditional Use Permit (CUP) authorizes the construction of two antennas: (SC-1) two antennas and accessory equipment within an existing building parapet, and (SC-2) one 25-foot-tall, 18-inch diameter mono-pole painted brown, and supporting equipment on the property located at 3800 Mill Road, (APN: 025-701-006) in a manner described in attached exhibits.
- 3. This project approval shall expire on February 9, 2018, unless a building permit is issued for the project, or unless a time extension request is filed with the Community Development Department prior to expiration.
- 4. The proposed SC-1 antenna project shall comply with the recommended mitigation measures to (1) post explanatory signs as shown in Exhibit A4 & A5 and (2) mark boundaries along the roof line with paint colors to match RF Exposure levels as shown in the Hammett & Edison 2015 Radio Frequency Reports, Figure 3, to be completed prior to final of the building permit by the City. Due to the location and height, the proposed SC-2 antenna does not have any recommended mitigation measures.
- 5. The site shall be developed and maintained in accordance with the approved plans and unless specifically provided for through the Conditional Use Permit process shall not waive compliance with any sections of the Zoning Code, all other applicable regulations.
- 6. Prior to occupancy, all conditions of approval shall be completed to the satisfaction of the City Engineer and Community Developer Director or designee.
- 7. Any site specific condition imposed by the Planning Commission in approving this project may be modified or eliminated, or new conditions may be added, provided that the Planning Commission shall first conduct a public hearing in the same manner as

required for the approval of this project. No such modification shall be made unless the Commission finds that such modification is necessary to protect the public interest and/or neighboring properties, or, in the case of deletion of an existing condition, that such action is necessary to permit reasonable operation and use for this approval.

PASSED AND ADOPTED THIS 9th day of February, 2016 by the following Roll Call Vote:

AYES: Rollins, Cooper, Barth, Brennan, Donaldson, Vanderlip and Burgett NOES: ABSENT: ABSTAIN:

ATTEST:

CHAIRMAN, VINCE VANDERLIP

WARREN FRACE, SECRETARY OF THE PLANNING COMMISSION



Exhibit A1: SC-1 Site Plan



Exhibit A2: SC-1 Equipment & Antenna Layout



Exhibit A3: SC-1 Southwest & Northwest Elevations

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Exhibit A4: SC-1 Roof Plan & RF Signage



Exhibit A5: SC-1 RF Signage Southwest & Northwest Elevations

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# Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate the base station (Site No. 283910 "Vina Robles Amphitheatre SC1") proposed to be located at 3800 Mill Road in Paso Robles, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

# **Executive Summary**

Verizon proposes to install directional panel antennas above the roof of a single-story building located at 3800 Mill Road in Paso Robles. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy; certain mitigation measures are recommended to comply with FCC occupational guidelines.

# **Prevailing Exposure Standards**

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. A summary of the FCC's exposure limits is shown in Figure 1. 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. The most restrictive FCC limit for exposures of unlimited duration to radio frequency energy for several personal wireless services are as follows:

Wireless Service	Frequency Band	Occupational Limit	Public Limit	
Microwave (Point-to-Point)	5-80 GHz	$5.00 \text{ mW/cm}^2$	1.00 mW/cm <sup>2</sup>	
WiFi (and unlicensed uses)	2-6	5.00	1.00	
BRS (Broadband Radio)	2,600 MHz	5.00	1.00	
WCS (Wireless Communication)	2,300	5.00	1.00	
AWS (Advanced Wireless)	2,100	5.00	1.00	
PCS (Personal Communication)	1,950	5.00	1.00	
Cellular	870	2.90	0.58	
SMR (Specialized Mobile Radio)	855	2.85	0.57	
700 MHz	700	2.40	0.48	
[most restrictive frequency range]	30-300	1.00	0.20	

#### **General Facility Requirements**

Base stations typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A

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small antenna for reception of GPS signals is also required, mounted with a clear view of the sky. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

# **Computer Modeling Method**

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation," dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna's radiation pattern is not fully formed at locations very close by (the "near-field" effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

#### Site and Facility Description

Based upon information provided by Verizon, including zoning drawings by SAC Wireless, LLC, dated May 26, 2015, it is proposed to install two Andrew Model CWT070X06F directional panel antennas within individual enclosures, configured to resemble vent pipes, above the roof of the single-story concession stand at the Vina Robles Amphitheatre, located at 3800 Mill Road in Paso Robles. The antennas would employ no downtilt, would be mounted at an effective height of about 22 feet above ground, 3½ feet above the peak of the roof, and would be oriented toward 20°T and 150°T. The maximum effective radiated power in any direction would be 1,800 watts, representing simultaneous operation at 970 watts for AWS and 830 watts for PCS; no operation on cellular or 700 MHz frequencies is presently proposed from this site. There are reported no other wireless telecommunications base stations at the site or nearby.

#### **Study Results**

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be  $0.024 \text{ mW/cm}^2$ , which is 2.4% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 12% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

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Levels are calculated to exceed the applicable public exposure limit on the sloped roof of the subject building in front of the antennas, as shown in Figure 3.

#### **Recommended Mitigation Measures**

Due to their mounting locations and height, the Verizon antennas would not be accessible to unauthorized persons, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training, to include review of personal monitor use and lockout/tagout procedures, be provided to all authorized personnel who have access to the roof, including employees and contractors of Verizon and of the property owner. No access within 4 feet directly in front of the antennas themselves, such as might occur during certain maintenance activities, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. It is recommended that boundary lines be marked at the edge of the sloped roof sections in front of the antennas and that explanatory signs<sup>\*</sup> be posted at the roof access hatch and next to the boundary markings, as shown in Figure 3.

#### Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the base station proposed by Verizon Wireless at 3800 Mill Road in Paso Robles, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training authorized personnel, marking boundaries, and posting explanatory signs is recommended to establish compliance with occupational exposure limits.

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<sup>\*</sup> Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.

# Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-20309, which expires on March 31, 2017. This work has been carried out under her direction, and all statements are true and correct of her own knowledge except, where noted, when data has been supplied by others, which data she believes to be correct.

OF PROFESSION PHOREA L. R alt 133 Andrea L. Bright, RE E 20309 707/996-5200 Exp. 3-31-2017

August 13, 2015

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#### FCC Radio Frequency Protection Guide

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements ("NCRP"). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency	Electro	Electromagnetic Fields (f is frequency of emission in M						
Applicable Range (MHz)	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm <sup>2</sup> )			
0.3 - 1.34	614	614	1.63	1.63	100	100		
1.34 - 3.0	614	823.8/f	1.63	2.19/f	100	$180/f^2$		
3.0 - 30	1842/ f	823.8/ f	4.89/ f	2.19/f	900/ f <sup>2</sup>	180/ f <sup>2</sup>		
30 - 300	61.4	27.5	0.163	0.0729	1.0	0.2		
300 - 1,500	3.54√f	1.59 <b>\</b> f	<b>√</b> f/106	<b>V</b> f/238	f/300	f/1500		
1,500 - 100,000	137	61.4	0.364	0.163	5.0	1.0		
1000 -		/	<ul> <li>Occupat</li> </ul>	ional Expos	sure			



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has built those formulas into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radio sources. The program allows for the description of buildings and uneven terrain, if required to obtain more accurate projections.

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FCC Guidelines Figure 1

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# **RFR.CALC<sup>™</sup> Calculation Methodology**

## Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

#### Near Field.

Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density  $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$ , in mW/cm<sup>2</sup>,

and for an aperture antenna, maximum power density  $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$ , in mW/cm<sup>2</sup>,

where  $\theta_{BW}$  = half-power beamwidth of the antenna, in degrees, and

- $P_{net}$  = net power input to the antenna, in watts,
  - D = distance from antenna, in meters,
  - h = aperture height of the antenna, in meters, and
  - $\eta$  = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

## Far Field.

OET-65 gives this formula for calculating power density in the far field of an individual RF source:

power density 
$$S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$$
, in mW/cm<sup>2</sup>,

where ERP = total ERP (all polarizations), in kilowatts,

RFF = relative field factor at the direction to the actual point of calculation, and

D = distance from the center of radiation to the point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 ( $1.6 \times 1.6 = 2.56$ ). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radiation sources. The program also allows for the description of uneven terrain in the vicinity, to obtain more accurate projections.

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Methodology Figure 2

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**Calculated RF Exposure Levels on Roof** 

# **Recommended Mitigation Measures**



#### Notes:

Zoning drawing from SAC Wireless, LLC, dated May 26, 2015. Calculations performed according to OET Bulletin 65, August 1997. Training should be provided to all persons with access to the roof.



# HAMMETT & EDISON, INC.

CONSULTING ENGINEERS SAN FRANCISCO F3TL Figure 3

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Exhibit B1: SC-2 Site Plan



Exhibit B2: SC-2 Equipment & Antenna Layout



Exhibit B3: SC-2 South & West Elevations