

Staff Report to the Zoning Administrator

Application Number: 05-0193

Applicant: Karen McPhereson (Ridge Communications for Verizon Wireless) Owner: Public Storage Institutional Fund APN: 025-351-06 Agenda Date: December 16, 2005 1-6-06

Agenda Item #: ***** # / Time: After 10:00 a.m. 8:30 A.m.,

Project Description: Pruposal to install six antennas in a new faux chimney on the roof of **an** existing commercial building (max ht. 49') and to install an equipment shelter and generator onsite. Requires an Amendment to Commercial Development Permit 85-836-CDP as extended by 88-0062.

Location: Property located on the north side of Soquel Drive approximately 100 feet east of the intersection of Soquel Drive and Prather Lane (at 2325 Soquel Drive).

Supervisoral District: First District (District Supervisor: Janet Beautz)

Permits Required: Commercial Development and Amendment to 85-836-CDP

Staff Recommendation:

- Approval of Application 05-0193, based on the attached findings and conditions.
- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.

Exhibits

- A. Project plans
- B. Findings
- C. Conditions
- D. Categorical Exemption (CEQA determination)
- E. Assessor's parcel map
- F. Zoning and General Plan maps
- G. Photo-simulations of site
- H. Radio-Frequency Study
- I. Noise Study for generator

- J. Letter from Karen McPhereson, dated 11/3/05
- K. Letter from Dominican Hospital, dated 9/29/04
- L. Map of existing Verizon facilities in the vicinity, with coverage before and after installation of project
- M. Public comments
- N. Photos of mock up



Parcel Information

Parcel Size:	About 1 acre (approx. 43,629 sq. ft.)			
Existing Land Use - Parcel:	Commercial self-storage facility			
Existing Land Use - Surrounding:	Public park to the north; service commercial and			
-	residential uses to the east; public facilities, medical			
	office, and high-density residential to the south; professional office and medical offices to the west.			
Project Access:	Vehicular easement proposed from Soquel Drive			
Planning Area:	Live Oak			
Land Use Designation:	C-S (Service Commercial)			
Zone District:	C-4 (Commercial Service)			
Coastal Zone:	Inside <u>X</u> Outside			
Appealable to Calif. Coastal Comm	<u>Yes</u> <u>X</u> No			

Environmental Information

Geologic Hazards:	Not mapped/no physical evidence on site
Soils:	Elkhom Sandy Loam
Fire Hazard:	Not a mapped constraint
Slopes:	Site is flat
Env. Sen. Habitat:	Not mapped/no physical evidence on site
Grading:	No grading proposed
Tree Removal:	No trees proposed to be removed
Scenic:	Site is mapped scenic, but not visible from Highway 1
Drainage:	Existing drainage adequate
Traffic:	No increase beyond occasional maintenance and repair traffic
Roads:	Existing roads adequate
Parks:	Winklefarm Park (A County Park) located to north
Archeology:	Not mapped/no physical evidence on site

Services Information

Urban/Rural Services Line:	X inside Outside		
Water Supply:	Santa Cruz City Water District		
Sewage Disposal:	Santa Cruz County Sanitation District		
Fire District:	Central Fire District		
Drainage District:	Zone 5		

History

The existing 3-story, 39,230 square foot storage building was originally approved under Commercial Development Permit 85-836-CPD in 1987, with a time extension approved in 1988 under Amendment 88-0062.

The existing application was accepted by the County Planning Department on March 29,2005, and deemed complete on July 11, 2005.

Application #: 05-0193 APN: 025-351-06 Owner: Public Storage Institutional Fund

Project Scope and Setting

Verizon Wireless (represented by Ridge Communications) proposes to construct a 15'-2" tall monopole with 6 antennas on top of the existing storage building. To camouflage the tower and incorporate the design of the facility into the building, the applicant proposes to enclose the tower with a "faux chimney" cylinder, which will be painted a color to match the existing structure. The antennas will be located on the rear third of the building, about 230 feet from the edge of the Soquel Drive right-of-way. An equipment shelter and generator will be located at the rear of the site, surrounded by a six foot high chain link fence and a concrete sound wall around the generator. Roof mounted wireless antennas have been approved by the County in the past, including on the roof of the Live Oak Business Park across Highway 1 from the project site (approved in February 2003 under Commercial Development Permit 02-0278).

The project site is located on Soquel Drive, surrounded by a mix of offices, auto repair shops, medical clinics, a public park (to the north), and both single and multi-family residences. To mitigate visual impacts on the Soquel Drive comdor, the applicant proposes to locate the tower at the rear of the public storage building in a "faux chimney" with colors to match the existing building.

The site plans and applicant submitted information erroneously refer to this site as "Soquel Drive and 41st Avenue." This is a misnomer for the site, used by Verizon as an identifier for the proposed site. The documents are accurate in terms of the address of the site and resulting analysis, which refer to the site location as 2325 Soquel Drive, the actual project site.

Zoning & General Plan Consistency

The property is zoned C-4 (Service Commercial), a zone designation in which Wireless Communications Facilities are permitted uses with a Commercial Development Permit. The C-4 zone district implements the C-S (Service Commercial) General Plan Land Use designation. All C-4 site standards will be met, as there are no rear or side yard setbacks that apply to the proposed equipment cabinets and generator at the northeast comer of the property. The maximum height of the facility will be about 49 feet above grade, below the maximum height of 72 feet for communications towers.

The area is mapped a scenic resource area due to the proximity of Highway 1, a County designated scenic road. However, the proposed facility is not visible from Highway 1 due to existing development between Soquel Drive and Highway 1. Soquel Drive is not designated as a scenic road in the County General Plan.

Wireless Communications Facilities Regulations

The proposed building-mounted antenna enclosed in a "faux" chimney complies with County standards for Wireless Communications Facilities (Section 13.10.661 of the County Code). The project site is located on a C-4 zoned lot, a zoning designation which is outside of the prohibited and restricted zones outlined in Sections 13.10.661(b) and (c) of the County Code.

Visual Character

The proposed antennas enclosed in a "faux chimney" of about 15 feet in height will be designed to complement the design of the storage building, as the color of the "chimney" will be required to match the color of the building, and the chimney will be required to be square shaped in order to appear as an architectural feature of the building. Section 13.10.661(f) of the County Code states that "Wireless communication facilities shall be sited in the least visually obtrusive location that is technically feasible," but docs not state that these facilities must be completely hidden from view. Camouflaging the tower as a "faux chimney" will not prevent the facility from being visible from all surrounding properties, but will disguise the tower as an architectural element of the existing building.

A line of trees along the northern property line will screen visibility of the "chimney" from Winkefarm Park and the residential neighborhoods to the north, except during the winter months when the deciduous trees loose their leaves. During the winter, the "chimney" will be visible from some portions of the park, but will still be partially obscured by tree branches and adjacent evergreens, and will not tower over existing vegetation.

Alternative site analysis

An alternative site analysis is not required for this site, as the proposed Wireless Communications Facility will be located on a C-4 (Service Commercial) zoned property. However, Section 13.10.662(b)(14) of the County Code states the applicant shall provide information concerning the feasibility of co-location on nearby sites, and discuss the reasons why such joint use is not a viable option or alternative to a new facility.

The applicant explored the e different potential sites outside of the prohibited or restrictive zones: one a co-location on the existing PG&E tower behind Dominican hospital, and two on the Dominican hospital site itself (at 1555 and 1595 Soquel Drive).

The co-location site explored is a PG&E tower located just under ½ mile to the northwest of the proposed site. Sprint PCS antennas are attached to the top of this tower, and Metro PCS antennas were recently approved for co-location. Sprint PCS and Verizon antennas require at least 10 foot separation, requiring an extension to the existing tower or construction of a new metal structure below the existing antennas, which PG&E is unwilling to allow.

The other two sites explored were PF (Public Facility) zoned parcels within the Dominican Hospital complex. However, Dominican Hospital did not wish to enter into an agreement with Verizon Wireless (see Exhibit K for letter).

Finally, increasing capacity at existing Verizon Wireless antenna sites in the vicinity (such as the existing facilities at the De Laveaga Golf Course and the 7th Avenue PG&E yard) were determined to be unfeasible due to difficulties installing addition antennas. Verizon also identified a gap in their network at this location, especially during peak evening call times (Exhibit M).

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Radio Frequency (RF) Exposure

The attached reoort on Radio Frequency emissions has determined the emissions from the proposed facility to be within the maximum public exposure limits set by the Federal Communications Commission (FCC) (Exhibit H). The maximum ambient RF exposure levels within 1,000 feet of the proposed antennas will be 2.1% of the maximum FCC exposure limit on the ground, and **3.4%** of the maximum FCC public exposure limit at the second story of adjacent buildings.

Section 47 USC 332(c)(7)(iv) of the Telecommunications Act of 1996 forbids jurisdictions from regulating the placement, construction, or modification of Wireless Communications Facilities based on the environmental effects of RF emissions **if** these emissions comply with FCC standards.

Conclusion

As proposed and conditioned, the project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan/LCP. Please see Exhibit "B" ("Findings") for a complete listing of findings and evidence related to the above discussion.

Staff Recommendation

- **APPROVAL** of Application Number **05-0193**, based on the attached findings and conditions.
- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.

Supplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.

The County Code and General Plan, as well as hearing agendas and additional information are available online at: www.co.santa-cruz.ca.us

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Wireless Communication Facility Permit Findings

1. The development of the proposed wireless communications facility as conditioned will not significantly affect any designated visual resources, environmentally sensitive habitat resources (as defined in the Santa Cruz County General Plan LCP Sections 5.1, 5.10, and 8.6.6.), and/or other significant County resources, including agricultural, open space, and community character resources; or there are no other environmentally equivalent and/or superior and technically feasible alternatives to the proposed wireless communications facility as conditioned (including alternative locations and/or designs) with less visual and/or other resource impacts and the proposed facility has been modified by condition and/or project design to minimize and mitigate its visual and other resource impacts.

This finding can be made, as the proposed wireless antennas will be disguised as a "faux chimney," incorporated as an architectural element of the existing Public Storage building. Furthermore, the facility will be shielded from views from adjacent park land by existing vegetation for most of the year, and will be located more than 200 feet from Soquel Drive to further minimize visibility to pedestrians and vehicles traveling along Soquel Drive. The property is located within a mapped scenic resource area due to the proximity of Highway 1, a County designated scenic road, but neither the existing public storage building nor the proposed faux chimney will be visible from Highway 1.

The applicant explored three potential sites nearby, including one co-location onto an existing PG&E tower. The co-location was determined to be unfeasible, as the proposed Verizon antennas were determined to be incompatible with the existing wireless service providers on the PG&E tower, and PG&E was unwilling to consider construction an extension to the tower to provide the necessary separation between service providers. The two other sites were located on PF (Public Facility) zoned sites within the Dominican Hospital complex, but Dominican Hospital was unwilling to offer the sites as potential locations for a wireless communication facility (Exhibit K).

2. That the site is adequate for the development of the proposed wireless communications facility and, for sites located in one of the prohibited and/or restricted areas set forth in Sections 13.10.661(b) and 13.10.661(c), that the applicant has demonstrated that there are not environmentally equivalent or superior and technically feasible: (1) alternative sites outside the prohibited and restricted areas; and/or (2) alternative designs for the proposed facility as conditioned.

This finding can be made, as the project site is zoned C-4 (Commercial Service), a zone district that is located outside of the restricted or prohibited zones established by the County. Co-location on a nearby PG&E tower was determined to not be feasible due to incompatibility with existing wireless providers already co-located on the site, and nearby PF (Public Facility) zoned sites in the Dominican Hospital complex were not pursued as Dominican Hospital was unwilling to enter into an agreement with Verizon Wireless.







Owner: Public Storage Institutional Fund

3. The subject property upon which the wireless communications facility is to be built is in compliance with all rules and regulations pertaining to zoning uses, subdivisions and any other applicable provisions of this title (County Code 13.10.660) and that all zoning violation abatement costs, if any, have been paid.

This finding can be made, as the existing Public Storage facility continues to comply with all conditions of approval of Commercial Development Permits 85-0836 and 88-0062. No active code compliance investigations are under way.

4. The proposed wireless communication facility as conditioned will not create a hazard for aircraft in flight.

This finding can be made, as the proposed facility will be required to obtain approval from the Federal Aviation Administration prior to construction. The proposed facility is located about 2,000 feet to the east of the helipad for Dominican Hospital, and will be lower than surrounding obstacles such as the trees along the northern property line.

5. The proposed wireless communication facility as conditioned is in compliance with all FCC and California PUC standards and requirements.

This finding can be made, as the proposed antennas and equipment cabinets comply with all FCC and California PUC standards and requirements, including RF exposure levels within 1,000 feet of the proposed antennas. RF exposure levels will be not exceed 2.1% of the maximum public exposure limit on the ground as set by the FCC and California PUC standards.

Development Permit Findings

1. That the proposed location of the project and the conditions under which it would be operated or maintained will not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public, and will not result in inefficient or wasteful use of energy, and will not be materially injurious to properties or improvements in the vicinity.

This finding can be made, as the proposed wireless communication towers located within a "faux chimney" will comply with all FCC requirements for public Radio Frequency exposure levels, and the structure will be required to comply with all applicable building and electrical codes. The structure will be located and designed to minimize negative visual impacts to surrounding properties and Soquel Drive, as it will be located more than 200 feet from Soquel Drive and will be designed and painted to resemble a chimney structure on the existing Public Storage building. Finally, the proposed generator will be self-contained within a sound enclosure to minimize noise impacts to neighbors during a power outage or testing.

2. That the proposed location of the project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the zone district in which the site is located.



3. That the proposed use is consistent with all elements of the County General Plan and with any specific plan which has been adopted for the area.

This finding can be made, in that the proposed wireless communications facility a commercial use consistent with the use requirements specified for the Service Commercial (C-S) land use designation in the County General Plan, a designation which is implemented by the C-4 zone district.

The proposed Wireless Communications Facility will comply with General Plan Policy 5.10.12 (Development Visible from Urban Scenic Roads), as the proposed facility will be located in an area that is not visible from Highway 1, the nearest designated scenic road.

The proposed facility will comply with General Plan Policy 8.5.4 (Soquel Avenue Design Guidelines), in that the facility will not be visually imposing on Soquel Drive as it will be located more than 200 feet from the edge of the right-of-way, and will be designed as a "faux chimney" to appear as an architectural element of the existing building.

The proposed generator, as conditioned, will comply with Objective 6.9b of the General Plan (the Noise Element), in that the generator will be enclosed within a sound enclosure to reduce noise levels to those specified within the General Plan, and a condition of approval will limit the hours





maintenance or trials can be conducted to the hours of 8am to 8pm (Condition of Approval IV.F).

A specific plan has not been adopted for this area of Soquel Drive.

4. That the proposed use will not overload utilities and will not generate more than the acceptable level of traffic on the streets in the vicinity.

This finding can be made, in that adequate utility service is available to the proposed facility, and traffic generated will only be the occasional maintenance trip.

5. That the proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood.

This finding can be made, in that the proposed wireless communication facility will be shrouded in a "faux chimney" to appear as an architectural element of *the* existing Public Storage building. The neighborhood in the vicinity of the Public Storage building contains a wide variety of uses, ranging from auto repair shops to medical offices to single-familyresidences, and *the* proposed facility will be compatible with this diverse range of uses, as it will be disguised as an architectural element of the existing building and will not be a use that generates excessive noise or traffic.



6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and anyotherapplicable requirements of this chapter.

This finding can be made, as the proposed facility has been reviewed by the County's Urban Designer, who determined that the project will be compatible with the surrounding neighborhood as it will be located more than 200 feet from Soquel Drive to minimize visibility, and will be enclosed in a "faux chimney" to disguise the facility as an architectural element of the existing building.

Conditions of Approval

Exhibit A: Project plans, 4 sheets, drawn by Omni Design Group, dated March 21,2005

- I. This permit authorizes the construction of a Wireless communications facility consisting of six antennas enclosed in a "faux chimney" on an existing storage building, up to a maximum height of 49 feet. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:
 - A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.
 - B. Obtain a Building Permit from the Santa Cruz County Building Official.
 - C. The applicant shall obtain approval from the California Public Utilities Commission and the Federal Communications Commission to install and operate this facility.
- II. Prior to issuance of a Building Permit the applicant/owner shall:
 - **A.** Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder).
 - B. Submit Final Architectural Plans for review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "A"on file with the Planning Department. The final plans shall include the following additional information:
 - 1. Identify finish of exterior materials and color for Planning Department approval. Paint must be non-reflective, and colors and materials must match those used on the existing building. Color boards must be in **8.5**" x 11" format.
 - 2. Details showing compliance with fire department requirements.
 - C. Submit four copies of the approved Discretionary Permit with the Conditions of Approval attached. The Conditions of Approval shall be recorded prior to submittal, if applicable.
 - D. Submit proof of approval from the Federal Aviation Administration (FAA) for the proposed tower. Any modifications to the tower required by the FAA, such as required lights or painting, may require an amendment to this permit.
 - E. Meet all requirements and pay any applicable plan check fee of the Central Fire Protection District.

- * Sunà tint Submit wrilten confirmation from Dominican Hospital and the Sutter Maternity F. stating the proposed facility will not interfere with the Wireless Communications System at Dominican Hospital or any medical equipment.
- G. Submit a lighting plan. All lighting must be manual and must not be visible from neighboring properties.
- H To guarantee that the "faux chimney" tower remains in good visual condition and to ensure the continued provision of mitigation of the visual impact of the wireless communications facility, the applicant shall submit a maintenance program prior to building permit issuance which includes a signed contract for maintenance with the company that provides for annual visual inspection and follow up repair, painting, and resurfacing as necessary.
- I. The "faux chimney" shall be square in shape (rather than cylindrical), so as to appear as an architectural element of the existing building, and shall be represented as such on all building plans.
- III. All construction shall be performed according to the approved plans for the Building Permit. Prior to final building inspection, the applicant/owner must meet the following conditions:
 - Α. All site improvements shown on the final approved Building Permit plans shall be installed.
 - в. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.
 - C. The project must comply with all recommendations of the approved soils reports.
 - D. Pursuant to Sections 16.40.040 and 16.42.100 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.100, shall be observed.
- IV. **Operational Conditions**
 - A. Any modification in the type of equipment shall be reviewed and acted on by the Planning Department staff. The County may deny or modify the conditions at this time, or the Planning Director may refer it for public hearing before the Zoning Administrator.

- The "faux chimney," fences, and equipment cabinets shall be permanently Β. maintained and replacement materials and/or paint shall be applied as necessary.
- C. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.
- D. If future technological advances would allow for reduced visual impacts resulting from the proposed telecommunication facility, the applicant agrees through accepting the tenns of this permit to make those modifications which would allow for reduced visual impact of the proposed facility as part of the normal replacement schedule. If, in the future, the facility is no longer needed, the applicant agrees to abandon the facility and be responsible for the removal of all permanent structures and the restoration of the site as needed to re-establish the area consistent with the character of the surrounding vegetation.
- E. If, as a result of future scientific studies and alteration of industry-wide standards resulting from these studies, substantial evidence is presented to Santa Cruz County that radio frequency transmissions may pose a hazard to human health and/or safety and existing Federal standards are modified, the Santa Cruz County Planning Department shall set a public hearing and in its sole discretion, inay revoke or modify the condition of this permit.
- F. Maintenance or testing of the generator shall only occur between the hours of 8am and 8pm. The quentus shall be myffed and the more for the generation shall comply with the ord, Specification. for the ge generator
- Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including BrP, treatment attorneys' fees), against the COUNTY, it officers, employees, and agents to attack. set aside, void, or annul this development approval of the COUNTY or a mendment of this development approval which is Approval Holder. V.
 - COUNTY shall promptly notify the Development Approval Holder of any claim, A. action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.

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EXHIBIT C



- B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
 - 1. COUNTY bears its own attorney's fees and costs; and
 - 2. COUNTY defends the action in good faith.
- C. <u>Settlement</u>. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.
- D. <u>Successors Bound</u>. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.

Minor variations to this permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10 of the County Code.

Please note: This permit expires two years from the effective date unless you obtain the required permits and commence construction.

Approval Date:

Effective Date:

Expiration Date:

Don Bussey Deputy Zoning Administrator

David Keyon Project Planner

Appeals: Any property owner, or other person aggrieved, or any other person whose interests are adversely affected by any act or determination of the Zoning Administrator, may appeal the act or determination to the Planning Commission in accordance with chapter 18.10 of the Santa Cruz County Code.

CALIFORNIA ENVIRONMENTAL QUALITY ACT NOTICE OF EXEMPTION

The Santa Cruz County Planning Department has reviewed the project described below and has determined that it is exempt from the provisions of CEQA as specified in Sections 15061 - 15332 of CEQA for the reason(s) which have been specified in this document.

Application Number: 05-0193 Assessor Parcel Number: 025-351-06 Project Location: 2325 Soquel Drive

Project Description: Construct a wireless communication facility on an existing commercial building

Person or Agency Proposing Project: Karen McPhereson (Ridge Communications for Verizon Wireless)

Contact Phone Number: (925) 200-6328

- A. _____ The proposed activity is not a project under CEQA Guidelines Section 15378.
- **B.** _____ The proposed activity is not subject to CEQA as specified under CEQA Guidelines Section 15060 (c).
- C. _____ Ministerial Project involving only the use of fixed standards or objective measurements without personal judgment.
- **D.** <u>Statutory Exemption</u> other than a Ministerial Project (CEQA Guidelines Section 15260 to 15285).

Specify type:

E. <u>X</u> <u>Categorical Exemption</u>

Specify type: 15301: Existing facilites

F. Reasons why the project is exempt:

Construction of a wireless communications facility on an existing building

In addition, none of the conditions described in Section 15300.2 apply to this project.

David Keyon, Project Planner

Date:_____





F







Aerial photograph showing the photosimulation viewpoints.











Previsualists

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project applicant. Questions? Call 1.877,799.3210 or visit

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Photographs of views looking south from the park.



Previsualists



2/20/2005

Verizon Wireless • Proposed Base Station (Site No. 158581 "Soquel & 41st Ave") 2325 Soquel Drive • Santa Cruz, California

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. 158581) proposed to be located at 2325 Soquel Drive in Santa **Cruz**, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. In Docket 93-62, effective October 15, 1997, the FCC adopted the human exposure limits for field strength and power density recommended in 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 Institute of Electrical and Electronics Engineers ("IEEE") Standard C95.1-1999, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes nearly identical exposure limits. 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 limit for exposures of unlimited duration to radio frequency energy for several personal wireless services are as follows:

Personal Wireless Service	Approx, Frequency	Occupational Limit	Public Limit
Personal Communication ("PCS")	1,950MHz	$5.00\mathrm{mW/cm^2}$	1.00mW/cm^2
Cellular Telephone	870	2.90	0.58
Specialized Mobile Radio	855	2.85	0.57
[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 "cabinets") 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 about 1 inch thick. 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



HAMMETT & EDISON, INC. CONSULTING ENGINEERS SAN FRANCISCO

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Verizon Wireless • Proposed Base Station (Site No. 158581 "Soquel & 41st Ave") 2325 Soquel Drive • Santa Cruz, California

the horizon, with very little energy wasted toward the sky or the ground. Along with the low power of such facilities, this means that it is generally not possible for exposure conditions lo 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 attached 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 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 Omni Design Group, Inc., dated January 11, 2005, it is proposed to mount six Andrew Model 731DG65VTAXM directional dualband antennas within a new fiberglass enclosure, configured to resemble a chimney, above the roof of the Public Storage Inc. building located at 2325 Soquel Drive in Santa Cruz. The antennas would he mounted at effective heights of about 42 feet and 47 feet above ground, at least 13 feet above the roof, and would be oriented in pairs at 120° spacing, to provide service in all directions. The maximum effective radiated power in any direction would be 2,880 waits, representing simultaneous operation at 640 watts for PCS and 2,240 watts for cellular service. There are reported no other wireless telecommunications base stations installed nearby.

Study Results

For a person anywhere at ground, the maximum atnbient RF exposure level due to the proposed Verizon operation is calculated to be 0.012 mW/cm^2 , which is 2.1% of the applicable public exposure limit. The maximum calculated level on the roof of the subject building is 26% of the public exposure limit; the maximum calculated level at the second floor elevation of any nearby building' is 3.4% 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. Figure 3 attached provides the specific data required under Santa Cruz County Code Section 13.10.659(g)(2)(ix), for reporting the analysis of RF exposure conditions.



Located at least 30 feet away, based on the drawings and on aerial photographs from Terraserver

HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

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Verizon Wireless • Proposed Base Station (Site No. 158581 "Soquel & 41st Ave") 2325 Soquel Drive • Santa Cruz, California

Recommended Mitigation Measures

Since they are to be mounted above the roof of the building, the Verizon antennas are not accessible to the general public, 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, no access within 13 feet in front of the Verizon antennas themselves, such as might occur during building maintenance activities, should he allowed while the site is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory warning signs[†] at roof access location(s) and on the enclosure housing the antennas, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that the base station proposed by Verizon Wireless at 2325 Soquel Drive in Santa Cruz, California, can comply with the prevailing standards for limiting human exposure to radio frequency energy and, therefore, need 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.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30,2005. This work has been carried out **by** him or under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which dala he believes to he correct.



March 28, 2005

[†] Warning signs should comply with ANSI C95.2 color, symbol, and content conventions. In addition, contact information should be provided (*e.g.*, a telephone number) to arrange for access tu 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.



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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, which are nearly identical to the more recent Institute of Electrical and Electronics Engineers Standard C95.1-1999, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, **3** kHz to 300 GHz." These limits apply for continuous exposures from all sources and are intended to provide a prudent niargin 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:



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.



FCC Guidelines Figure 1



*2*7

RFR.CALC[™] Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The US. 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 cell sites. The near field zone is defined by the distance, D, from an antenna beyond which the manufacturer's published, **far** field antenna **patterns** will be fully formed, the near field may exist for increasing D until some or all of three conditions have been met:

1) $D > \frac{2h^2}{\lambda}$ 2) D > 5h 3) $D > 1.6\lambda$

where h = aperture height of the antenna, in meters, and λ = wavelength of the transmitted signal, in meters.

The FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives this formula for calculating power density in the near field zone about an individual RF source:

power density
$$\mathbf{S} = \frac{180}{\theta_{\text{BW}}} \mathbf{x} \frac{0.1 \times P_{\text{net}}}{\pi \times D \times h}$$
, in mW/cm²,

where θ_{BW} = half-power beamwidth of antenna, in degrees, and

 P_{net} = net power input to the antenna, in watts.

The factor of 0.1 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates distances to FCC public and occupational limits.

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/cm²

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

RFF = relative tield 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 Lo **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





Verizon Wireless • Proposed Base Station (Site No. 158581) 2325 Soquel Drive • Santa Cruz, California

Compliance with Santa Cruz 'County Code §13.10.659(g)(2)(ix)

'Compliance with the FCC's non-ionizing electromagnetic radiotion (NIER) standards or other applicable standards shall be demonstrated for any new wireless communication facility through submission, at the time of application tor the necessary permit or entitlement. d NIER calculations specifying NIER levels in the area surrounding the proposed facility. Calculations shall be made of expected NER exposure levels during peak operation periods at a range of distances from fifty (50) to one thousand (1,000) feet, taking into account cumulative NIER exposure levels from the proposed source in combination with all other existing NIER transmission sources within a one-mile radius. This should also include o pian to ensure that the public would be kept at a safe distance from any NER transmission Source associated with the proposed wireless communication facility, consistent with the NIER standards oi the FCC, or any potential future superceding standards.⁴



Calculated Cumulative NIER Exposure Levels during Peak Operation Periods

Calculated using formulas in FCC Office of Engineering Technology Bulletin No. 65 (1997), considering terrain variations within 1,000 feet of site.

Maximum effective radiated power (peak operation) - 2,880 watts

Effective Verizon antenna height above ground - 47 feet and 42 feet

Other sources nearby -None

Other sources within one mile - No AM, FM, or TV broadcast stations No two-way stations close enough to affect compliance

Plan for restricting public access - Antennas are mounted on a storage building



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VW158581595 Figure 3A



Verizon Wireless • Proposed Base Station (Site No. 158581) 2325 Soquel Drive • Santa Cruz, California

> Calculated NIER Exposure Levels Within 1,000 Feet of Proposed Site



Aerial photo from Terraserver

Legend blank - less than 1% of FCC public limit (*i.e.*, more than 100 times below) - 1% and above near ground level (highest level is 2.1%)

Calculated using formulas in FCC Office of Engineering Technology Bulletin No. 65 (1997), considering terrain variations within 1,000 feet of site. See text for further information.



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VW158581595 Figure 3B



E-mail: larry.hansen@eainonoise.com Web Site: www.eainonoise.com

07 July 2005

Ridge Communications 12667 Alcosta Boulevard / Suite 175 San Ramon, CA 94583

Attention: Ms. Karen McPherson

Subject: Soquel and 41st Avenue Site, Engine-Generator Acoustic Analysis

Reference: Verizon Wireless Site #158581/Santa Cruz, CA \\ EAI File Number E01-6194

Dear Ms. McPherson:

Pursuant to your request, Engineered Aeroacoustics, Inc. (EAI) has reviewed the design parameters and acoustic criteria regarding an installation of a Generac Model SD060, 60-kW, engine-generator (EnGen) for the Verizon Wireless site location at 2325 Soquel Drive, Santa Cruz, CA 95065. It is the understanding of EAI that the stated acoustical goal is to be **50-dBA** at 12-feet distance (property line) from the EnGer concrete pad, as stated in Santa Cruz County Code, section 13.10.663, paragraph 1 1:60-Ldn (DNL) at property line.

This acoustic criteria is achievable for the selected EnGen model and power rating. EAI has aeroacoustically sized silencer modules, for the air intake, radiator-discharge (RADDIS) and engine exhaust gas mufflers as well as matched panel section acoustic modulus to provide the requisite, combined system attenuation to achieve the stated criteria based on the following assumptions:

1. The factory furnished weather/sound enclosure will be replaced with a drop-over enclosure, acoustically matched to the Inlet/RADDIS silencer aeroacoustic performance and it will completely enclose the EnGen, skid-base and sub-base fuel tank (reference EAI Conceptual Drawing Number C-E16194-00, appended to this report).

2. Air Intake and RADDIS silencers have been aeroacoustically matched to assure requisite sound attenuation and aerodynamic EnGen loading to meet stated performance limits of the EnGen manufacturer.

3. The defacto site acoustical ambient is a nominal 35-dBA maximum (at the measuring location) so it will not adversely sum with the attenuated EnGen enclosure, intake and Raddis silencer sound pressure levels or be adjusted per ASTM/ISO Ac oustic Standards.

EAI has demor strated a noise attenuation system for a 300-kW natural gas EnGen that Continued ...

2711 Nevada Ave. North, Minneapolis, MN 55427-2806, United Stales of America (763) 535-0102 FAX: (763) 535-0131 Visit our website: w.eainonoise.com



Ridge Communications Soquel and 41st Avenue, Verizon Wireless Site 07 July 2005 Page 2 of 2

yielded a 43-dBA sound pressure level at 3-feet (1-meter) distance from the unit in a rural environment. Acoustic testing had to be accomplished on a day with dead-calm wind conditions and suspended when birds sang! Even with the aforementioned precautions, it was the EAI engineers' considered opinion that the majority of measured sound pressure levels were natural in origin. It has been EAI's experience from a multitude of site acoustic measurements that a realistic, true ambient of 50-dBA, or lower, is fairly uncommon in either a rural or urban environment.

As stated above, aeroacoustic computer simulations were accomplished for the 60-kW EnGen and site topography as presented on furnished site drawing sheets T-1, A-I, A-2, Z-1 and Z-2. The iteration of computer summary sheets are depicted on EAI "Exhibit A" (60-kW EnGen without acoustic treatment), EAI "Exhibit B" (silenced RADDIS only), EAI "Exhibit C (silenced Inlet only) and EAI 'Exhibit D" (acoustic modulus of enclosure wall/ceiling section only), appended to the end of this report. It should be noted that the EAI computer aeroacoustic model has the capability to implement infinite sound attenuation for the all EnGen elements not under active analysis. Thereby, each of the EnGen's component noise sources may be individually analyzed to match specific performance characteristics to the appropriate noise abatement hardware configurations. A sampling of high performance, acoustic and aerodynamic designs for a variety of rated power generation equipment may be found on the EAI web site, listed below.

We hope the above text answers your immediate questions concerning the proposed acoustical design features. Please feel free to contact us with any questions or concerns.

Respectfully yours,

ENGINEERED AEROACOUSTICS, INC.

awrence F. Hansen - Principal Engineer

Enclosures: EAI Exhibits A, B, C & D, EAI Drawing # C-E16194-00 and EAI web site card Web Site: www.eainonoise.com

file: Ltr Ridge Comm McPherson 6194.wpd

1972 - 2005: OVER 33 YEARS OF AEROACOUSTIC SOLUTIONS

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November 3.2005

David Keyon County of Santa Cruz, Planning Department 701 Ocean St., 4th floor Santa Cruz, CA 95060

RE: Verizon Wireless Application 05-0193

David:

Attached please find two plot maps which show Verizon's coverage with the proposed site, known as Soquel & 41st, and without. The light green color shows in building coverage.

This site is a capacity offload site of our existing sites as well as improving in building coverage in the area, where people want to **use** their "free" calling. Verizon is at near capacity on all of its cell sites in Santa Cruz County. There is only a limited amount of radio spectrum that each carrier is allocated, and with the amount of usage we are supporting, we *are* at near exhaustion. No other wireless service provider is carrying near the amount of traffic that Verizon is.

It would be far less expensive to add capacity at adjacent sites than to build a new one and we would do so if it were a possible alternative.

We are using (6) CDMA carriers in the Santa Cruz area, out of the (7) that are available under our license. At the rate we are seeing an increase in traffic, more people will experience dropped calls or inability to make/receive calls unless we provide this capacity offload within the next couple of years. As a public utility, we are mandated by the California Public Utilities Commission to provide a certain level of service to our subscribers,

The existing nearby Verizon sites are Delaveaga (at the golf course on a SC County owned tower), Capitola (at the motorcycle shop near Hwy 1), Twin Lakes (at the PG&E yard, and Live *Oak* (at the SBC CO). These sites are all at or near call carrying capacity. If we do not build additional sites, then customers will not be able to make or receive calls during the busy hours of the day (which includes the evenings with heavy calling from residential areas). Also, without additional sites, it is unlikely that during another earthquake that people will be able to use their cell phones.



require an extension to the tower. PG&E determined an extension would not be feasible at that location. Secondly, we are not able to install a generator below PG&E lines. Verizon wants generators at all new sites as they want to be the carrier who is be up and running in a disaster, such as an earthquake, to provide valuable service to your community. We choose not to co-locate at 1555 Soquel Dr. and **1595** Soquel Dr. as both properties are owned by Dominican Hospital and they did not wish to enter into an agreement that obligates them over an extended period of time. Please see the attached letter.

Regarding the concern about interference with Hospital communication systems. Regulation of the use of radio spectrum in the U.S. is sole jurisdiction of the Federal Communications Commission. The only exception to this is federal government users of radio spectrum (which is regulated by the NTIA). Licensed radio services are provided protection from interference. Unlicensed (Part **15**) services are not. If **a** garage door opener, cordless phone, family radio walkie-talkies, baby monitors or other Part 15 device receives interference from a licensed service, then it is up to the owner of the unlicensed device to either handle the interference on their end or live with the consequences. Local jurisdictions have no authority in this. The FCC Rules do state their expectation that licensed service operators will work together to mitigate any interference that may occur. Here is where the FCC refers to protections afforded to things like the medical facility (this is **a** section of Part15-unlicensed services):

 $\frac{http://a257.g.akamaitech.net/7/257/2422/12feb20041500/edocket.access.gpo.gov/cfr_2004/octqtr/47cfr15.5.htm$

Verizon has cell sites on dozens of hospitals and medical facilities in the Northern California market and have experienced absolutely no interference problem either to the hospital or to the cell site. As an FCC licensed service, the FCC rules apply to our operation and that of all other radio services. Since we have cell sites placed on rooftops of hospitals and medical facilities with no interference, it is unlikely that any interference would result from having a cell site some distance away.

You mentioned a condition you placed on a recent approval near the Hospital asking for confirmation from the Hospital that the wireless facility would not interfere with Hospital communications or any medical equipment. This condition would place an unfair burden on Verizon if placed on our approval. I do not know what type of communication system the hospital uses. If they are licensed they will be operating in a spectrum that Verizon will not interfere with. If they are using unlicensed communication systems it is unlikely Verizon would cause any interference as this site is not that close to their facility. In the event they are using a licensed communication system Verizon and the Hospital would be required to work together to mitigate any interference that may occur.

Thanks,

Karen McPherson

Ridge Communications 925–200-6328



1555 Soquel Drive Santa Cruz, CA 95065

To Tony Trampetti Site Acquisition Representative Ridge Communications, Inc.

Date September 29,2004 From Kelly Duffin Vice President Dominican Hospital

Subject Verizon Colocation on Dominicanowned property

Copies to

Mr. Trampetti,

I'm writing in response to your inquiry of colocation of telecom services on Dominicanowned properties located at 1555 Soquel Drive and 1595 Soquel Drive in Santa Cruz, California.

At this time, the hospital does not wish to enter into an agreement that obligates it over an extended period of time for non-medical purposes. While we recognize the public telecom benefits that such an arrangement may hold, we respectfully decline to entertain this offer of colocation.



EXHIBIT L



EXHIBIT ļ





PICTURE 1: VIEW FROM WINKLE AVE, ABOUT 200' NORTH OF SOQUEL DR.









PICTURE 2: VIEW FROM WINKLE AVE., ABOUT 150' SOUTH OF CAMDEN CT.





PICTURE 3: VIEW OF "FAUX CHIMNEY" FROM SOQUEL DR.





PICTURE 4: VIEW FROM WINKLE FARM PARK IN WINTER

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PICTURE 5: VIEW FROM THURBER LN, ABOUT 300' NORTH OF SOQUEL DR. ONLY PORTION OF THURBER LN. WHERE TOWER IS VISIBLE

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