

# Staff Report to the Zoning Administrator

Application Number: 05-0424

Applicant: Parsons (for Sprint PCS) Attn: Elizabeth AronOwner: Ronald Ballauf, TrusteeAPN: 071-081-03

Agenda Date: June 2,2006

Agenda Item #: 4 Time: After 10:00 p.m.

**Project Description:** Proposal to install 3 panel antennas onto an existing monopole, a microwave dish, ground equipment shelter, a GPS unit, expand an existing 6-foot tall fence and construct a 344 square foot pad. Requires an Amendment to Commercial Development Permits 94-0044, 94-0097, 98-0436, 03-0006, and 04-0071, and a Biotic pre-site.

**Location:** Project is located at the northwest end of Rose Acres Lane about 300 yards northwest from San Lorenzo Way, Felton (6961 Rose Acres Lane).

Supervisoral District: 5th District (District Supervisor: Mark Stone)

**Permits Required:** Amendment to Commercial Development Permit 97-0880, 01-0312, and 03-0056

#### **Staff Recommendation:**

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- Approval of Application 05-0481, based on the attached findings and conditions.

#### Exhibits

- A. Project plans
- B. Findings
- C. Conditions
- D. Categorical Exemption (CEQA determination)
- E. Assessor's parcel map
- F. Zoning and General Plan map
- G. NIER Study by Hammet & Edison,.
- H. Aerial Photos and Photo-simulation
- I. Comments & Correspondence Inc

County of Santa Cruz Planning Department 701 Ocean Street, 4<sup>th</sup> Floor, Santa Cruz CA 95060

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#### **Parcel Information**

| Parcel Size:                     | 71.65 acres (EMIS estimate)                      |  |  |
|----------------------------------|--|--|--|
| Existing Land Use - Parcel:      | Residential (single-familydwelling), Wireless    |  |  |
|                                  | Communications facility, Timberland Production   |  |  |
| Existing Land Use - Surrounding: | Residential (single-familydwelling)              |  |  |
| Project Access:                  | Rose Acres Lane – a private 50-foot right of way |  |  |
| Planning Area:                   | San Lorenzo Valley                               |  |  |
| Land Use Designation:            | RM (Mountain Residential)                        |  |  |
| Zone District:                   | TP (Timber Production)                           |  |  |
| Coastal Zone:                    | <u>Inside</u> <u>X</u> Outside                   |  |  |

#### **Environmental Information**

| Geologic Hazards:   | Not mapped/no physical evidence at the project site               |
|---------------------|---|
| Soils:              | Soils Report not required   |
| Fire Hazard:        | Not a mapped constraint   |
| Slopes:             | No slopes over 30% at project site or access road                 |
| Env. Sen. Habitat:  | Mapped biotic resources, however none identified by Environmental |
|                     | Planning staff and habitat not present                            |
| Grading:            | No grading proposed   |
| Tree Removal:       | No trees proposed to be removed                                   |
| Scenic:             | Yes, visible from Highway 9                                       |
| Drainage:           | Existing drainage adequate  |
| Traffic:            | No additional trip generation                                     |
| Roads:              | Existing roads adequate   |
| Parks:              | Existing park facilities adequate                                 |
| Sewer Availability: | NIA   |
| Water Availability: | N/A   |
| Archeology:         | Not located within a mapped resource area                         |

#### **Services Information**

| Urban/Rural Services Line: | Inside        | <u>X</u> Outside    |
|----------------------------|---------------|---------------------|
| Water Supply:              | NIA           |                     |
| Sewage Disposal:           | NIA           |                     |
| Fire District:             | Felton Fire P | Protection District |
| Drainage District:         | Zone <b>6</b> |                     |

#### History

The project site is developed with two existing monopoles. The 82-foot monopole was approved under Commercial Development Permit 94-0097 in June of 1994. An Amendment was subsequently approved in 2003, which authorized placing additional antennae and a microwave dish on this monopole under Permit 03-0006. An additional Amendment, Permit 04-0071, was approved in April of 2004, which allowed twelve panel antennae to be mounted onto the 82-foot

monopole as well as the construction of a six-foot high chain link fence with redwood slates around a portion of the lease area. Permit 04-0071 also authorized the construction of a 230 square foot equipment shed with in-ground utilities. The second monopole is a 70-foot high "monopine" approved in 1998 under Commercial Development Permit 98-0436. In April of 2004,

#### **Analysis and Discussion**

The current proposal consists of a co-location to install **3** panel antennas, a microwave dish, ground equipment shelter, a GPS unit and the construction of a 344 square foot concrete pad for an emergency generator. The existing 6-foot tall fence will be expanded to provide screening for the additional pad area.

As a condition of approval, the proposed antennae will be painted to match the existing telecommunication tower. In addition, the proposed 6-foot high chain link fence will surround the entire associated ground utility shelter and lease area further reducing the potential aesthetic impacts to the surrounding area.

#### **Zoning Issues**

The property is an approximately 70-acre parcel, zoned Timberland Production (TP) with a Mountain Residential General Plan designation. The proposed wireless communication facility is an allowed use within the TP zone district and does not fall within the Prohibited or Restricted Areas contained in County Code Section 13.10.661(b) and (c).

This application is subject to County Code 13.10.660 (Regulations for the siting, design, and construction of wireless communications facilities). Regarding subsection 13.10.661(f), the application is consistent with site location requirements in that the proposed antennas have been sited in the least visually obtrusive, are proposed to be camouflaged to preserve the visual character and aesthetic values of the parcel and surrounding area. The proposal is a co-location as encouraged per County Code 13.10.661(g), which states that potentially increasing the visual impact of an existing tower must be weighed against the potential visual impact of constructing a new separate tower/facility nearby. Based on evidence submitted, the subject proposal does not *significantly* increase the visual impact of the existing facility. Development on this site does not place new development on a ridge, nor does the development disturb the existing topography or on-site vegetation.

#### **Alternative Site Analysis**

An alternative site analysis is not required for the proposed project, since placing the proposed antennae at the proposed site would significantly *reduce* environmental impacts. The creation of additional road grading, electrical utilities, and the potential that an additional tower may need to be erected to accommodate Sprint PCS coverage needs, all of which would create unnecessary, additional impacts to the environment and/or scenic resources that are located on the surrounding parcels.

#### **Visual Impacts**

The existing monopoles on the project site are visible from the Highway 9, a County of Santa Cruz designated scenic corridor. The proposed project is designed such that it will appear as additional antennae on an existing telecommunication facility. The proposed antennae will be painted to match the exterior of the existing telecommunications tower. The equipment cabinets and generators will be enclosed in a six-foot high chain link fence with redwood slats. No further visual analysis has been required.

Private views will be affected by the wireless communications facility, in that the proposed project is clearly visible from the properties located to the west, east, south, and north of the project site. These views will not he substantially altered by the proposed project, as the project as designed will resemble the existing telecommunication design which is already visible from the surrounding residences.

The proposed telecommunication antennae will be painted to match the existing exterior of the telecommunication tower. The additional associated ground equipment shelter will be placed near the base of the existing development. The new ground equipment shelter will be surrounded with a 6-foot high chain link fence with redwood slats.

The proposed Spring PCS co-location mounted antennae extension fully complies with all Federal Communication Commission (FCC) guidelines, construction requirements, technical standards, interference protection and radio frequency regulations.

#### Generator

A backup generator will be installed to provide coverage in the event of a power outage, and will be located adjacent to the proposed equipment cabinets. Due to the proximity of the generator to residences, the backup generators shall only be operated during power outages and for testing and maintenance purposes, and noise attenuation measures shall he included to reduce noise levels at the facility to a maximum interior noise level of forty-five **(45)** Ldn within nearby residences.

#### Radio Frequency (RF) Exposure

The applicant has submitted a study by Hammett and Edison, Inc., consulting engineers, which indicates that the maximum calculated cumulative level within 1,000 feet for the simultaneous operation of all five carriers is 1.2% of the public exposure limit; the maximum calculated level at the second floor elevation of any nearby building is 2.1% of the public limit set by the Federal Communications Commission.

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. The RF emissions of the proposed wireless communications facility comply with the 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

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- APPROVAL of Application Number 05-0424, based on the attached findings and conditions.

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: <u>www.co.santa-cruz.ca.us</u>

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## Wireless Communication Facility Use 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 conditions and/or project design to minimize and mitigate its visual and other resource impacts.

This finding can be made, in that the proposed co-location will not result in a significant increase in visual impacts as the new antennas will be located below the existing antennas on the monopine, and the antennas will not protrude beyond the existing "branches." Existing vegetation will help shield visibility of the facility from Highway 9, a County designated scenic comdor. Finally, no evidence of biotic resources was discovered on site.

2. That the site is adequate for the development of the proposed wireless communications facility and that the applicant has demonstrated that there are not environmentally superior and technically feasible alternative sites or designs for the proposed facility.

This finding can be made, in that the project is a co-location onto an existing facility, where the visual impacts of additional antennas will be less than the impact of the construction of a new tower/facility nearby as the site is shielded from Highway 9 by existing vegetation and topography. Therefore, no environmentally superior sites exist in the vicinity.

**3.** That 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 and that all zoningviolation abatement costs, if any, have been paid.

This finding can be made, in that the existing residential and commercial use of the subject property is in compliance with the requirements of the zone district and General Plan designation, in which it is located.

No zoning violation abatement fees or active zoning violations are applicable to the subject property.

4. That the proposed wireless communications facility will not create a hazard for aircraft in flight.

This finding can be made, in that the proposed antennas will be located on an existing monopine. The existing monopine is 86.8 feet in height and therefore too low to interfere with aircraft in flight.

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# 5. That the proposed wireless communications facility is in compliance with all FCC and California PUC standards and requirements.

This finding can be made, in that the maximum ambient RF levels at ground level due to the existing wireless communications facilities and the proposed operation are calculated to be 1.2% of the most restrictive applicable limit, and 2.1 % of the applicable public limit on the second floor of nearby structures.

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## **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 co-location of three wireless communication antennas and associated equipment will be required to comply with all applicable building and electrical codes, and standards of the California Public Utilities Commission (PUC) and the Federal Communications Commission (FCC). The cumulative maximum ambient Radio Frequency (RF) levels for all five wireless communication facilities on site will not exceed 2.1% of the maximum public exposure levels.

Condition of Approval IV.I requires that the most recent and efficient technology will be used and upgrades to more efficient and effective technologies will be required to occur as new technologies are developed.

The project will not be materially injurious to properties or improvements in the vicinity in that the new antennas will be located on an existing tree pole and will be camouflaged by existing "branches," minimizing their visual impact, and noise from the generator will be required to comply with the limits set forth in the General Plan.

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.

This finding can be made, in that co-locations are permitted within the TP (Timber Production) zone district where the visual impacts of adding new antennas are less than constructing a new facility on another parcel nearby...The proposed lo-location of three antennas and construction of associated equipment cabinets complies with all applicable provisions of the County's Wireless Communication Facility Ordinance (Sections 13.10.660through 13.10.668), as the project is a co-location on an existing facility with minimal increase to visual impacts. Furthermore, the proposed equipment cabinets and generator will comply with all TP zone district setbacks.

**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, as the proposed co-location will not adversely impact the light, solar opportunities, air, and/or open space available to other structures or properties since the existing tower meets all setbacks and site standards for the TP zone district as specified in Objective 8.1.3 of the General Plan. The proposed development is a conditional use within the TP zone district in

accordance with General Plan Policy 5.12.3.

The proposal is located on a site within the scenic comdor for Highway 9. Since all three proposed antennas will be mounted on a 82-foot tree pole, and existing vegetation screens most of the tower from the Highway, the visual impact of the proposed co-location will be negligible and will comply with Objective 5.10.3 of the General Plan (Protection of Public Vistas).

A specific plan has not been adopted for this portion of the County.

# 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, as the proposed co-location of three antennas onto an existing tree pole and the associated equipment cabinets will not overload utilities since no water or sewer service will be used and adequate electricity is available to the site. The project will not generate traffic on the streets in the vicinity in that the facilities are planned for wattendeanon-habitable operation. Improved wireless communication resulting from the installation of this facility may have apositive impact on traffic circulation in that drivers will have improved access to emergency services thereby reducing response time.

# 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 antennas will be camouflaged by the existing "branches" of the monopine and will be painted to match the existing antennas, and a chain link fence with redwood slats will screen the proposed equipment cabinets. The wireless antenna co-location will not increase the land use intensity or dwelling unit density of the neighborhood.

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

This finding can be made, in that the proposed wireless communication antennas and associated equipment cabinets will be screened from view of motorists on Highway 9 by existing trees and vegetation. Furthermore, the antennas will be lower than the existing antennas on the tree pole and will be partly camouflaged by the "branches" of the tree pole. The antennas will be painted to match the color of the existing antennas to further minimize their visual impact.

**EXHIBIT B** 

### **Conditions of Approval**

- Exhibit A: Project Plans entitled "Sprint PCS Rose Acres SF70XC835-A," prepared by MSA Architecture & Planning, Inc., 9 sheets, dated March 31,2006.
- I. This permit authorized the installation of three panel wireless antennas at about 70 feet above ground level on an existing monopine, the installation of a microwave dish at about **65** feet above ground level, a ground equipment shelter, a GPS unit, the expansion of an existing 6-foot tall fence, and the construction of a 344 square foot concrete pad. 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.
  - D. To ensure that the storage of hazardous materials on the site does not result in adverse environmental impacts, the applicant shall submit a Hazardous Materials Management Plan for review and approval by the County Department of Environmental Health Services.
- 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 architecturalplans 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. Any changes from the approved Exhibit "A" for this development permit on the plans submitted for the Building Permit must be clearly called out and labeled by standard architectural methods to indicate such changes. Any changes that are not properly called out and labeled will not be authorized by any Building Permit that is issued for the proposed development. The final plans shall include the following additional information:
    - 1. Identify finish and color of exterior materials of the antennas, the equipment cabinets/telco boxes, microwave, and fencing for Planning Department approval. Paint for the antennas must be non-reflective and match the existing paint color of the antennas, while the proposed equipment shelter/cabinets shall be painted a neutral earth tone color.
    - 2. Identify the height and material of fencing surrounding the lease area for Planning Department approval. New fence shall match existing.

- **3.** Grading, drainage, and erosion control plans.
- **4.** All new electric and telecommunications lines shall be placed underground.
- 5. Details showing compliance with fire department requirements, including all requirements of the Urban Wildland Intermix Code, if applicable.
- 6. Plans shall include details of noise attenuation measures for the backup generator. Noise levels must not exceed a maximum exterior noise level of sixty (60) Ldn at the property line and a maximum interior noise level of forty-five (45) Ldn within nearby residences.
- 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. To guarantee that the camouflaged, ground-mounted 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 the following:
  - 1. A signed contract for maintenance with the company that provides the exterior finish and camouflage materials, for annual visual inspection and follow-up repair, painting, and resurfacing **as** necessary.
- E. Meet all requirements of and pay all required drainage fees to the County Department of Public Works, Drainage. Drainage fees will be assessed on the net increase in impervious area.
- F. Obtain an Environmental Health Clearance for this project from the County Department of Environmental Health Services.
- *G.* Meet all requirements and pay any applicable plan check fee of the Felton Fire Protection District.
- H. Submit aplan review letter from the project soils engineer, which states that the final building, grading and drainage plans are in conformance with the recommendations made in the soils report prepared for the site.
- III. All constructionshall be performed according to the approved plans for the Building Permit. Prior to final building inspection, the applicant/owner must meet the following conditions:
  - A. All site improvements shown on the final approved Building Permit plans shall be installed.

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- B. 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. Submit an observation from the project soils engineer, which states that the project, as constructed, is in compliance with report recommendations.
- D. Submit a noise study to confirm noise levels from the backup generator will not exceed a maximum exterior noise level of sixty (60) Ldn at the property line and a maximum interior noise level of forty-five (45) Ldn within nearby residences. Additional noise attenuation measures may be necessary.
- E. 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. A Planning Department review that includes a public hearing shall be required for any future co-location at this wireless communications facility.
  - B. 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.
  - C. The equipment cabinet area must be locked at all times expect when authorized personnel are present. The antennas must not be accessible to the public.
  - D. The NIER hazard zone will be posted with bilingual NIER hazard warning signage that also indicates the facility operator and a 24-hour emergency contact who is authorized by the applicant to act on behalf of the applicant regarding an emergency situation.
  - E. The camouflage materials, ground-mounted tower and antennas shall be permanently maintained and replacement materials and/or paint shall be applied as necessary to maintain the camouflage of the tower.
  - F. All noise generated from the approved uses shall be contained on the property.



- G. Within 90 days of the commencement of normal operations, or within 90 days after any modification to power output of the facility, a report must be submitted documenting the non-ionizing electromagnetic radiation (NIER) emissions of the project in order to verify compliance with the FCC's NIER standards.
- H. All site, building, security and landscape lighting shall be directed onto the lease site and away from the scenic comdor and adjacent properties. Light sources shall not be visible from adjacent properties. Light sources can be shielded by landscaping, structure, fixture design or other physical means. Building and security lighting shall be integrated into the building design.
- I. If future technological advances would allow for reduced visual impacts resulting from the proposed telecommunicationfacility, the applicant agrees through accepting the terms 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.
- J. If, as a result of future scientific studies and alteration of industry-wide standards resulting from those 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, may revoke or modify the condition of this permit.
- K. 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 enforcementactions, up to and including permit revocation.
- V. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.

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- A. COUNTY shall promptly notify the Development Approval Holder of any claim, 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.
- 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'sfees 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 settlementmodifying 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>SuccessorsBound</u>. "DevelopmentApproval 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 he approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10of 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 Robin Bolster-Grant 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.

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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 Sprint PCS, a personal wireless telecommunications carrier, to evaluate the base station (Site No. SF70xc835A) proposed to be located at 7000 Rose Acres Lane in Felton, 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. Freauency | Occupational Limit      | Public Limit            |
|------------------------------------|-------------------|-------------------------|-------------------------|
| Personal Communication ("PCS")     | 1,950 MHz         | 5.00 mW/cm <sup>2</sup> | 1.00 mW/cm <sup>2</sup> |
| 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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**28** :

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 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 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 Sprint, including zoning drawings by MSA Architecture & Planning, Inc., dated April 13, 2005, it is proposed to mount three Andrew Model UMWD-065 16-XD directional panel antennas on a new 79<sup>1</sup>/2-foot steel pole, configured to resemble a tree, to replace an existing pole located near 7000 Rose Acres Lane in Felton. The antennas would be mounted at an effective height of about 70 feet above ground and would be oriented toward 90°T, 210°T, and 330°T. The maximum effective radiated power in any direction during peak operation periods would be 1,000 watts. Proposed to be mounted lower on the same pole is a 4-foot microwave "dish" antenna, for interconnection of this site with others in the Sprint network.

Proposed to be relocated to the top of the replacement pole are similar antennas for use by T-Mobile, another wireless telecommunications carrier. Verizon Wireless, Cingular Wireless, and Nextel SMR, three other carriers, have installed similar antennas on another pole, located about 55 feet to the southwest. For the purposes of the study, transmitting facilities for these carriers are assumed to be as follows:

| Carrier           | Antenna Model    | Maximum<br>ERP | Antenna Height<br>( <b>above</b> ground) |
|-------------------|------------------|----------------|--|
| T-Mobile          | DAPA 58210       | 1,000 watts    | 77 feet                                  |
| Verizon Wireless  | Andrew DB874H105 | 800            | 71                                       |
| Cingular Wireless | Allgon 7920      | 1,000          | 54                                       |
| Nextel SMR        | Andrew DB844H90  | 1,000          | 48                                       |

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#### **Study Results**

For a person anywhere at ground, the maximum ambient RF exposure level within 1,000 feet due to the proposed Sprint operation by itself is calculated to be  $0.00030 \text{ mW/cm}^2$ , which is 0.030% of the applicable public limit. The maximum calculated cumulative level within 1,000 feet for the simultaneous operation of all five carriers is 1.2% of the public exposure limit; the maximum calculated level at the second floor elevation of any nearby building is 2.1% of the public 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. The microwave dish antenna is in point-to-point service and is so directional that it makes no significant contribution to RF exposure at ground level.

#### **No Recommended Mitigation Measures**

Since they are to be mounted on a tall pole, the Sprint antennas are not accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. It is presumed that the several carriers will, as FCC licensees, take adequate steps to ensure that their employees or contractors comply with FCC occupational exposure guidelines whenever work is required near the antennas themselves.

#### Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that the base station proposed by Sprint PCS at 7000 Rose Acres Lane in Felton, 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.

HAMMETT & EDISON, INC. CONSULTING ENGINEERS SAN FRANCISCO

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#### 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, 2007. 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 data he believes to be correct.

-13026M-20676 William F. Exp. 6-30-07

July 1,2005



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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 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:

| Freauency  | Electro                             | <u>magnetic F</u> | <u>Fields (f is fr</u>              | <u>equency of</u> | emission in               | <u>MHz)</u>  |  |
|--|-------------------------------------|-------------------|-------------------------------------|-------------------|---------------------------|--|--|
| Applicable<br>Range<br>(MHz)   | Electric<br>Field Strength<br>(V/m) |                   | Magnetic<br>Field Strength<br>(A/m) |                   | Equivalen<br>Power<br>(mW | Equivalent Far-Field<br>Power Density<br>(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 <sup>2</sup>  |  |
| 3.0- 30  | 18421 f                             | 823.8/ f          | <b>4.89</b> / 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/106                              | √f/238            | f/300                     | <i>f/1500</i>  |  |
| 1,500- 100,000   | 137                                 | 61.4              | 0.364                               | 0.163             | 5.0                       | 1.0  |  |
| 1000<br>100<br>100<br>100<br>100<br>100<br>100<br>0<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>100<br>10 | Public Ex.                          | posure<br>10      | FM                                  | ional Expos       | sure                      |  |  |

Frequency (MHz)

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



## **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 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  $\lambda$  = 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 
$$\mathbf{S} = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$$
, in mW/cm<sup>2</sup>,

where  $\theta_{BW}$  = 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/cm<sup>2</sup>,

where ERF' = 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



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

"Compliance with the FCC's non-ionizing electromagnetic radiation (NIER) standards or other applicable standards shall be demonstrated for any new wireless communication facility through submission, at the time of application for the necessary permit or entitlement. of NIER calculations specifying NIER levels in the area surrounding the proposed facility. Calculations shall be made of expected NIER exposure levels during peak operation periods at a range of distancesfrom fifty (50) to one thousand (1,000) feel, 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 a plan to ansure that the public would be kept at a safe distance from any NIER transmission source associated with the proposed wireless communication facility, consistent with the NIER standards of the FCC, or any potential future superceding standards."



#### Calculated Cumulative NIER Exposure Levels during Peak Operation Periods

|                 | )     |       |        |        |        |         |        |
|-----------------|-------|-------|--------|--------|--------|---------|--------|
| Distance (feet) | 50    | 100   | 200    | 300    | 500    | 750     | 1,000  |
| ground          | 0.47% | 0.44% | 0.15%  | 0.042% | 0.025% | 0.012 ‰ | 0.036% |
| second floor    | 2.1%  | 0.14% | 0.097% | 0.051% | 0.022% | 0.015%  | 0.043% |

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) - 1,000 watts

Effective Sprint antenna height above ground - 70 feet

Other sources nearby - T-Mobile, Verizon Wireless, Cingular, and Nextel

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 tall pole



SP835A595 Figure 3A

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# 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: 05-0424 Assessor Parcel Number: 071-081-03 Project Location: 6961 Rose Acres Lane

#### Project Description: Installation of 3 panel antennas onto an existing monopole, a microwave dish, ground equipment shelter, a GPS unit, expand an existing 6-foot tall fence, and construct a 344 square foot concrete pad. Requires an Amendment to Commercial Development Permit 94-0044, 94-0097, 98-0436, 03-0006, and 04-0071.

#### Person or Agency Proposing Project: Elizabeth Aron

#### Contact Phone Number: (415) 962-1630

| 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 |
|    | personaljudgment.   |
| D  | Statutory Exemption other than a Ministerial Project (CEQA Guidelines Section 15260 to          |
|    | 15285).   |
|    |   |

Specify type:

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

Specify type: Class 5 - Minor Alterations in Land Use Limitations (Section 15302)

**F. Reasons why the project is exempt:** This project involves mounting **3** additional antennae on an existing 82-foot high telecommunicationsmonopole at the 70-foot elevation, adding a new 344 square foot equipment shed and concrete pad, a microwave dish, a GPS unit and expanding an existing 6-foot chain link fence. Two existing telecommunications towers exist currently as well as associated equipment sheds and fencing. The parcel is zoned Timber Production with a Mountain Residential General Plan designation. Telecommunications towers are a conditionally allowed use in this zone district and General Plan designation. The proposed project meets all zoning and General Plan requirements, is **minor** in nature, and therefore qualifies for the CEQA exemption.

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

Date:

Robin Bolster-Grant, Project Planner

#### Calculated NIER Exposure Levels Within 1,000 Feet of Proposed Site for Simultaneous Operation of Sprint, T-Mobile, Verizon, Cingular, and Nextel



Aerial photo from Terraserver

Legend blank - less than 0.5% of FCC **public** limit (*i.e.*, more than 200 limes below) - 0.5% and above near ground level (highest level is 1.2%) - 0.5% and above at 2nd theor 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.



SP835A595 Figure 3B











#### COUNTY OF SANTA CRUZ DISCRETIONARY APPLICATION COMMENTS

Project Planner: Robin Bolster Application No. : 05-0424 APN: 071-081-03 Date: May 3, 2006 Time:, 09:22:00 Page: 1

#### **Environmental Planning Completeness Comments**

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

#### Environmental Planning Miscellaneous Comments

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

Provide an erosion and sediment control plan at building permit stage

#### Felton Fire Department Completeness Comments

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

NO COMMENT

#### Felton Fire Department Miscellaneous Comments

LATEST COMMENTS HAVE NOT YET BEEN SENT TO PLANNER FOR THIS AGENCY

NO COMMENT