



Staff Report to the Zoning Administrator

Application Number: **06-0336**

Applicant: Ryan Crowley, Sutro Consulting
LLC for T-Mobile

Owner: Green Valley Medical Office
Condominiums

APN's: 048-321-01, -02, -03
048-331-01, -02, -03, -04

Agenda Date: December 15, 2006

Agenda Item #: 2 ...

Time: After 10:00 a.m.

Project Description: Proposal to co-locate a wireless communications facility with three antennas camouflaged in a false chimney, a GPS antenna, and associated equipment cabinets screened behind an existing parapet wall.

Location: Property located on the west side of Green Valley Road, about 900 feet south of the intersection with Airport Boulevard, at 243 Green Valley Road in Freedom CA 95019. Latitude 36.93856, Longitude 121.77085.

Supervisory District: Fourth District (District Supervisor: Campos)

Permits Required: Amendment to Commercial Development Permit 05-0006

Staff Recommendation:

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- Approval of Application 06-0336, based on the attached findings and conditions.

Exhibits

- | | | | |
|----|--|----|---|
| A. | Project plans | G. | Comments & Correspondence |
| B. | Findings | H. | T-Mobile Project <i>Summary</i> |
| C. | Conditions | I. | Photo simulation |
| D. | Categorical Exemption (CEQA determination) | J. | NIER Radio Frequency Emissions Study, Hammett & Edison, Inc., June 12, 2006 |
| E. | Assessor's parcel map, Location map | | |
| F. | Zoning map, General Plan map | | |

Parcel Information

Parcel Size: 14,984.6 square feet

County of Santa Cruz Planning Department
701 Ocean Street, 4th Floor, Santa Cruz CA 95060

Existing Land Use - Parcel: Medical offices
Existing Land Use - Surrounding: Offices, residential
Project Access: Green Valley Road
Planning Area: Pajaro Valley
Land Use Designation: C-0 (Office)
Zone District: PA (Professional & Administrative Offices)
Coastal Zone: Inside X Outside

Environmental Information

Geologic Hazards: Not mapped/no physical evidence on site
Soils: Pinto loam
Fire Hazard: Not a mapped constraint
Slopes: 2-9 percent slopes
Env. Sen. Habitat: Not mapped/no physical evidence on site
Grading: No grading proposed
Tree Removal: No trees proposed to be removed
Scenic: Not a mapped resource
Drainage: Existing drainage adequate
Archaeology: Not mapped/no physical evidence on site

Services Information

Urban/Rural Services Line: X Inside Outside
Water Supply: City of Watsonville
Sewage Disposal: Freedom Sanitation District
Fire District: Pajaro valley Fire Protection District
Drainage District: Zone 7 Flood Control/Water Conservation District

History

The project site is developed with an existing medical office building. A wireless communications facility consisting of a 3-panel antenna at an effective height of 39 feet 4 inches, boxed in a 10-foot false chimney on the rooftop and an 116 square foot equipment enclosure was approved as Commercial Development Permit #05-0006 on May 20,2005.

Analysis and Discussion

The current proposal consists of a co-location to install three 6-port panel antenna, one GPS antenna and two equipment cabinets on site with an existing wireless communications facility. The development would be camouflaged as a false chimney on a second story **rooftop** of an existing office building.

Zoning & General Plan Consistency

The subject property is a 14,987 square foot lot, located in the PA (Professional & Administrative

Offices) zone district, a designation which allows commercial uses. The proposed wireless communications facility is a permitted use within the zone district and the project is consistent with the site's (C-0) Office General Plan designation.

Design Review

The proposed wireless communications apparatus complies with the requirements of the County Design Review ordinance, in that the proposed project will incorporate site and architectural design features utilizing consistent materials and colors of the existing structure to enclose the communications equipment. Although the project is visible from Green Valley Road, stealth techniques are utilized to disguise the equipment as a second chimney above **the** existing two-story office building for an effective height of approximately 39 feet 4 inches (Exhibit A). A 10-foot tall, boxed-in, false chimney above the second story encloses the wireless communications 3-panel directional antenna. **The** proposed 15.5 square foot equipment enclosure and GPS antenna would be mounted on the roof and concealed behind a 4-foot tall parapet wall, thereby reducing the visual impact of the proposed development on surrounding land uses and the natural landscape.

Alternative Sites Analysis

An alternative site analysis is not required for the proposed project, since placing the proposed antennas at the proposed site would significantly reduce environmental impacts. By collocating adjacent to an existing Metro PCS facility on the rooftop, the project makes use of existing access and utilities. The rooftop mounting behind a faux chimney and parapet wall will minimize visibility of the project to the public.

Radio Frequency Emissions

A Radio Frequency (RF) report has been prepared for this project (Exhibit J). The Communications facilities on the project site at ground level will not exceed 1.3% of **the** allowed Federal Communications Commission (FCC) of the applicable public exposure limit. The maximum calculated cumulative level at ground for the simultaneous operation of both carriers is 1.4% of the public exposure limit. **The** maximum calculated cumulative level at **the** second floor elevation of any nearby building, located at least 20 feet away, is 2.7% of the public exposure limit.

Environmental Review

Environmental review has not been required for the proposed project per the requirements of the California Environmental Quality Act (CEQA) as the project qualifies for a Categorical Exemption as per Section 15303, New Construction or Conversion of Small Structures.

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.

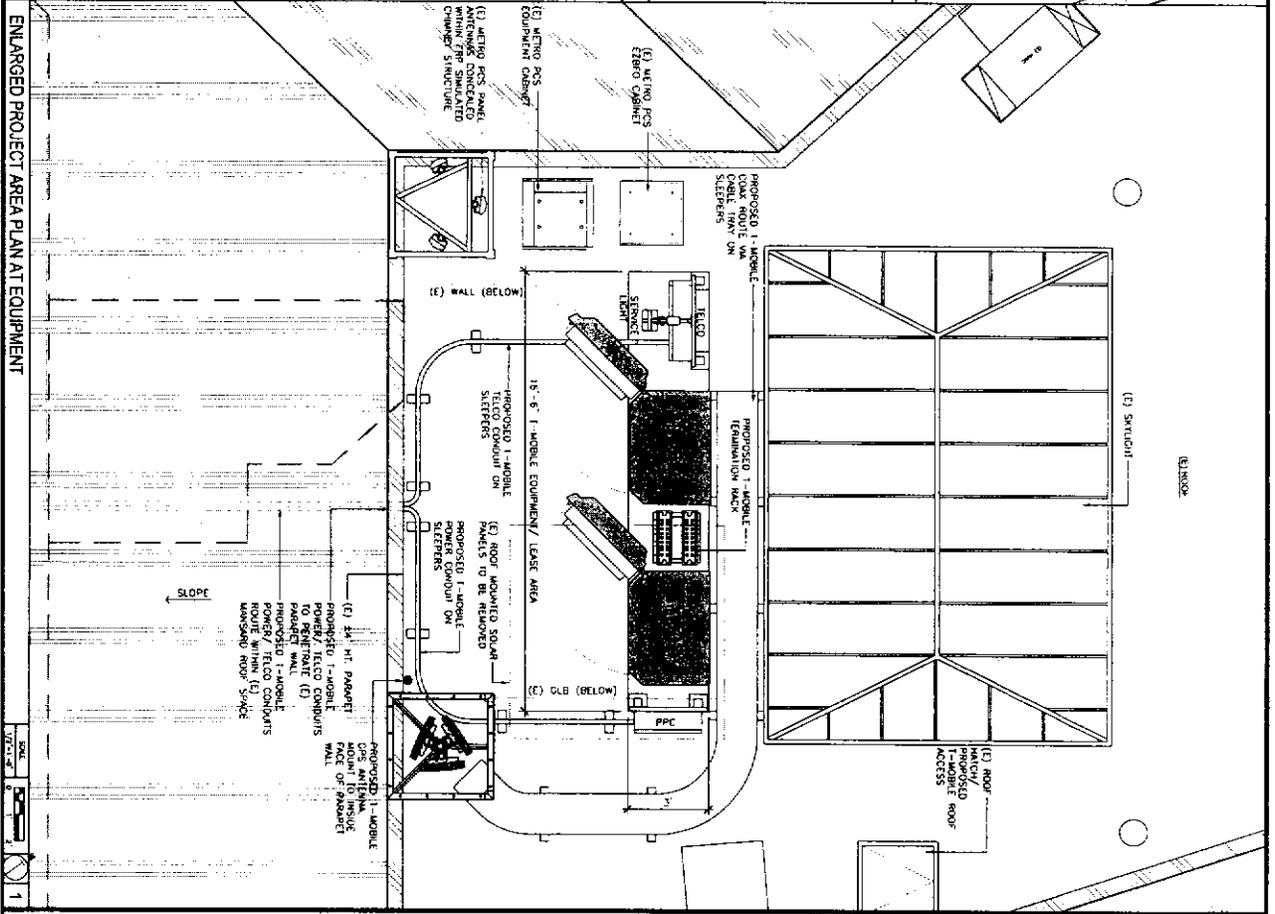
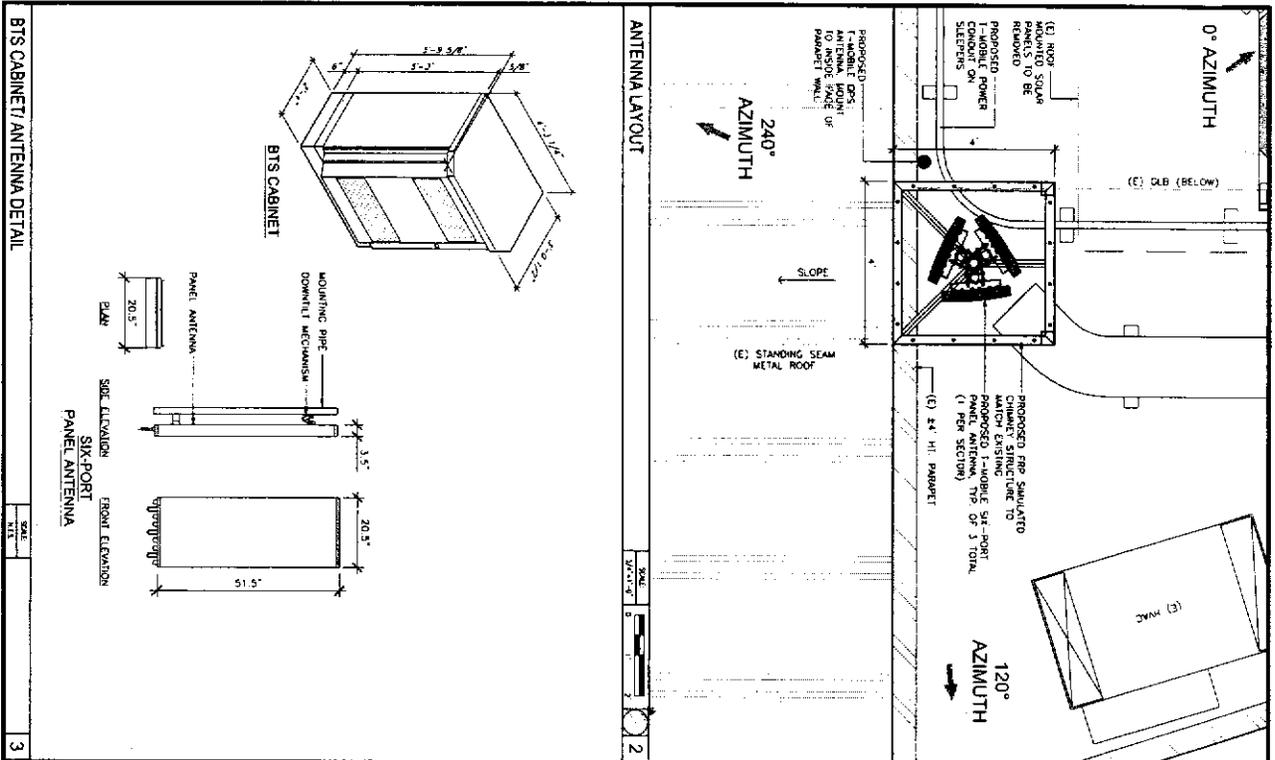
Staff Recommendation

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- APPROVAL of Application Number **06-0336**, based on the attached findings and conditions.

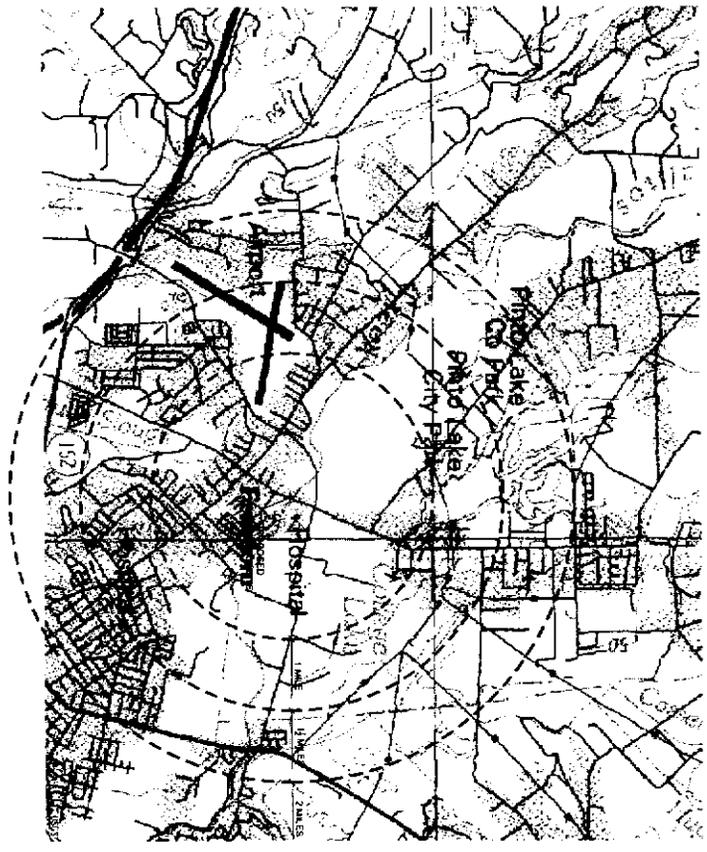
Suppplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.

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

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Santa Cruz CA 95060
Phone Number: (831)454-5174
E-mail: pln140@co.santa-cruz.ca.us



<p>Mixed Wk. Architecture 222 State Street, Suite 400 San Francisco, CA 94108 Tel: 415.983.9520 Fax: 415.362.8911</p>		<p>1355 GATEWAY BLVD, 9TH FLOOR CONCORD, CA 94520</p>	
<p>T-Mobile 243 GREENVALLEY ROAD FREEDOM, CA 95019</p>		<p>CMNIPONT SF15006 ENDOSCOPY</p>	
<p>PROJECT NO: 317006 DRAWN BY: SH CHECKED BY: MOHAMED WAK DATE: 10/26/09 30% ZONING</p>		<p>SCALE: 1/8" = 1'-0" SHEET: A-2</p>	



SCALE: 1" = 100' 0"



2-1

TOPOGRAPHIC/
AREA MAP

SHEET TITLE	
NO.	DATE
106/02/00	505 ZONING
DESIGNED BY	MICHAEL WILK
DRAWN BY	SN
PROJECT NO.	SF15006

SF15006
ENDOSCOPY
243 GREEN VALLEY ROAD
FREEDOM, CA 95019

CMNIPONT

 1855 GATEWAY BLVD 9TH FLOOR
 CONCORD, CA 94520

Michael Wilk Architecture
 222 Sutter Street, Suite 400
 San Francisco, CA 94108
 TEL: 415.983.9520
 FAX: 415.392.8911

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 condition and/or project design to minimize and mitigate its visual and other resource impacts.

This finding can be made, in that the proposed project has been designed to be camouflaged as a second chimney, 10 feet in height on the second story of an existing building with the equipment located behind a 4-foot high parapet wall, out of sight from any designated scenic road. With the proposed antennas and ancillary equipment cabinet screened from adjacent properties, the project is designed and conditioned to mitigate potential significant visual impacts. The proposed facility will be located on an existing building and is designed to appear as part of the existing development. The proposed painting scheme, matching the new chimney on the existing office building, will result in minimal visual impact to the surrounding properties.

The proposed project complies with General Plan Policy 5.10.3 (Protection of Public Vistas), in that the project, by locating on the rooftop of existing 2-story building, will result in minimal disruption of landform and aesthetic character.

2. 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.

As discussed in Wireless Communication Finding #1, the finding that the proposed project site is the environmentally superior site can be made, in that the proposed location on an existing second story rooftop avoids any site disturbance that might be required for a monopole design. The project avoids the erection of a new monopole that would be visible to adjacent properties, therefore proposing the least visually intrusive alternative and minimizing adverse visual impacts.

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 and that all zoning violation abatement costs, if any, have been paid.

This finding can be made, in that the proposed location of the wireless communication facility and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the PF (Public and Community Facilities) zone

Application #: 06-0336

APN: 048-321-01

Owner: Green Valley Medical Office Condominiums

district in that the primary use of the property will continue to be a public administrative/office center that meets all current site standards for the zone district.

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

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

This finding can be made, in that the proposed wireless communications facility will be located at about 39 feet 4 inches in height on an existing building, which is too low to interfere with an aircraft in flight. The site is not within the airport clear zone.

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, 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 2.7 percent at the second floor level and 1.3 percent at ground level of the most restrictive applicable limit.

The applicant is required to obtain all necessary approvals from the California Public Utilities Commission and the Federal Communications Commission prior to construction.

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, in that the proposed collocation of three wireless communication antennas and associated equipment will be required to comply with all applicable Building Codes, and the County Building ordinance to insure the optimum in safety and the conservation of energy and resources, 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 wireless communication facilities in site will not exceed 1.4% of the public exposure limit. The proposed wireless communications facility will not deprive adjacent properties or the neighborhood of light, air, or open space, in that the structure meets all current setbacks that ensure access to light, air, and open space in the neighborhood.

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 collocation of wireless communications facilities are permitted within the PA (Professional & Administrative Office) zone district where the visual impacts of adding new antennas are less than constructing a new facility on another parcel nearby. The proposed collocation of three antennas, a GPS antenna, and associated equipment cabinets complies with all applicable provisions of the County's Wireless Communication Facility ordinance (Sections 13.10.660 through 13.10.668) as the project is a collocation on an existing facility with a negligible increase in visual impacts. The proposed location of the wireless communications facility and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the **PA** zone district in that the wireless communications facility meets all current site standards for the zone district.

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 commercial use is consistent with the use and density requirements specified for the Office (C-O) land use designation in the County General **Plan**.

The proposed collocation of the wireless communications facility will not adversely impact the light, solar opportunities, air, and/or open space available to other structures or properties, and meets all current site and development standards for **the** zone district as specified in Policy 8.1.3 (Residential Site and Development Standards Ordinance), in that the wireless communications facility will not adversely shade adjacent properties, and will meet current setbacks for the zone district that ensure access to light, air, and open space in the neighborhood.

The proposed wireless communications facility will not be improperly proportioned to the parcel

size **or** the character of the neighborhood as specified in General Plan Policy 8.6.1 (Maintaining a Relationship Between Structure and Parcel Sizes), in that the proposed wireless communications facility is consistent with the site standards for the PA zone district. 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, in that the proposed wireless communications facility will not require the **use of** public services such as water or sewer, but will require electric power and telephone connections, which are already available on the site. The facility will require inspection by maintenance personnel at least once per month, and this level of traffic will not adversely impact existing roads and intersections in the surrounding area of Green Valley Road.

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 camouflaged chimney and parapet wall on the existing two-story office structure is located in a mixed neighborhood containing a variety **of** architectural styles. The proposed wireless communications equipment is adequately screened to be consistent with the land use intensity and 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 communications equipment shall be screened and will be **of** an appropriate scale and type of design that will enhance the aesthetic qualities **of** the surrounding properties and will not reduce **or** visually impact available open space in the surrounding area.

Conditions of Approval

Exhibit A: Project Plans, 6 Sheets by Michael Wilk Architecture dated 6-06-2006

1. This permit authorizes the installation of a 3-panel wireless communications facility, GPS antenna and 2 equipment cabinets. 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. Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder) within 30 days of the approval date on this permit.

- II. Prior to issuance of a Building Permit the applicant/owner shall:
 - A. 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. 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 of exterior materials and color of roof covering for Planning Department approval. Any color boards must be in 8.5" x 11" format. Exterior materials and colors shall be consistent with the existing exterior of the office building.
 2. Indicate on the building plans that any proposed lighting shall have a manual on/off switch or have an automatic timer, and that no continuous lighting shall be used.
 3. Provide fencing and warning sign details in both English and Spanish languages. Include sign location, fence location, height and materials for review and approval by the County.
 - B. 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.
 - C. Meet all requirements of and pay Zone 7 drainage fees to the County Department

of Public Works, Drainage. Drainage fees will be assessed on the net increase in impervious area.

- D. Meet all requirements and pay any applicable plan check fee of the Pajaro Valley Fire Protection District.

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:

- A. All site improvements shown on the final approved Building Permit plans shall be installed.
- B. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.

IV. Operational Conditions

- A. 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.
- B. The applicant shall agree in writing that where future technological advances would allow for reduced visual impacts resulting from the proposed telecommunication facility, the applicant agrees to make those modifications which would allow for reduced visual impact 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 reestablish the area consistent with the character of the surrounding landscaping.
- C. 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 conditions of this permit.
- D. Outdoor noise producing construction activities shall only take place on non-holiday weekdays between the hours of 8 a.m. and 6 p.m.
- E. All noise created by the new development shall be contained on the property. A maximum exterior noise level at the property line is 60 dB L_{dn} (day/night average noise level).

- F. Backup generators shall only be operated during power outages and for testing and maintenance purposes. Noise attenuation measures shall be included to reduce noise levels at the facility to a maximum exterior noise level of 60Ldn at the property line and a maximum interior noise level of 45 Ldn within nearby habitable structures.
 - G. The applicant shall meet all requirements of County Code 13.10.664 pertaining to initial post-construction non-ionizing electromagnetic radiation (NIER) monitoring requirements. A report documenting the measurements and findings with respect to compliance with the established FCC NIER exposure standard shall be submitted to the Planning Director within ninety (90) days of commencement of operation.
 - H. The antennas and ancillary equipment cabinet screening must be repainted and maintained as necessary to ensure the continued mitigation of the visual impact of the facility as integrated with the existing office building.
 - I. All exterior lighting shall be manually operated and used only during night maintenance checks **or** in emergencies. The lighting shall be directed onto the lease site and away from adjacent properties. Building and security lighting shall be integrated into the building design.
 - J. Transfer of ownership. In the event that the original permittee sells its interest in a wireless communication facility, the succeeding carrier shall assume all responsibility concerning the project and shall be held responsible to the County for maintaining consistency with all project conditions of approval, including proof of liability insurance. A new contact name for the project shall be provided by the succeeding carrier to the Planning Department within thirty (30) days of transfer of interest of the facility.
- 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, its 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.
- 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's fees and costs; and
 2. COUNTY defends the action in good faith
- C. Settlement. 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. Successors Bound. "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 on the expiration date listed below unless you obtain the required permits and commence construction.

Approval Date: 12-15-2006

Effective Date: 12-30-2006

Expiration Date: 12-30-2008

Don Bussey
Deputy Zoning Administrator

Joan Van der Hoeven
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: 06-0336

Assessor Parcel Number: 048-321-01

Project Location: 243 Green Valley Road, Watsonville CA 95076

Project Description: Proposal to collocated a wireless communications facility

Person or Agency Proposing Project: Ryan Crowley, Sutro Consulting LLC for TMobile

Contact Phone Number: (415) 341-5301

- 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. **Statutory Exemption** other than a Ministerial Project (CEQA Guidelines Section 15260 to 15285).

Specify type:

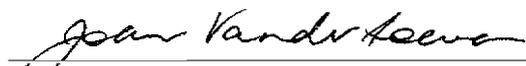
- E. **Categorical Exemption**

Specify type: Class 3 - Small Structure (Section 15303)

F. Reasons why the project is exempt:

Proposal to construct a small structure - wireless communications facility

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


Joan Van der Hoeven, Project Planner

Date: December 15, 2006

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PDR. RANCHO DEL LOS CORRALITOS
SEC. 29, T.11S., R.2E. M.D.B. & M.

Tax Area Code
69-255

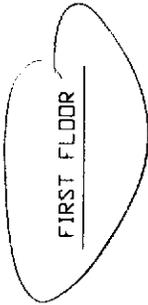
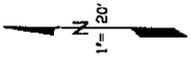
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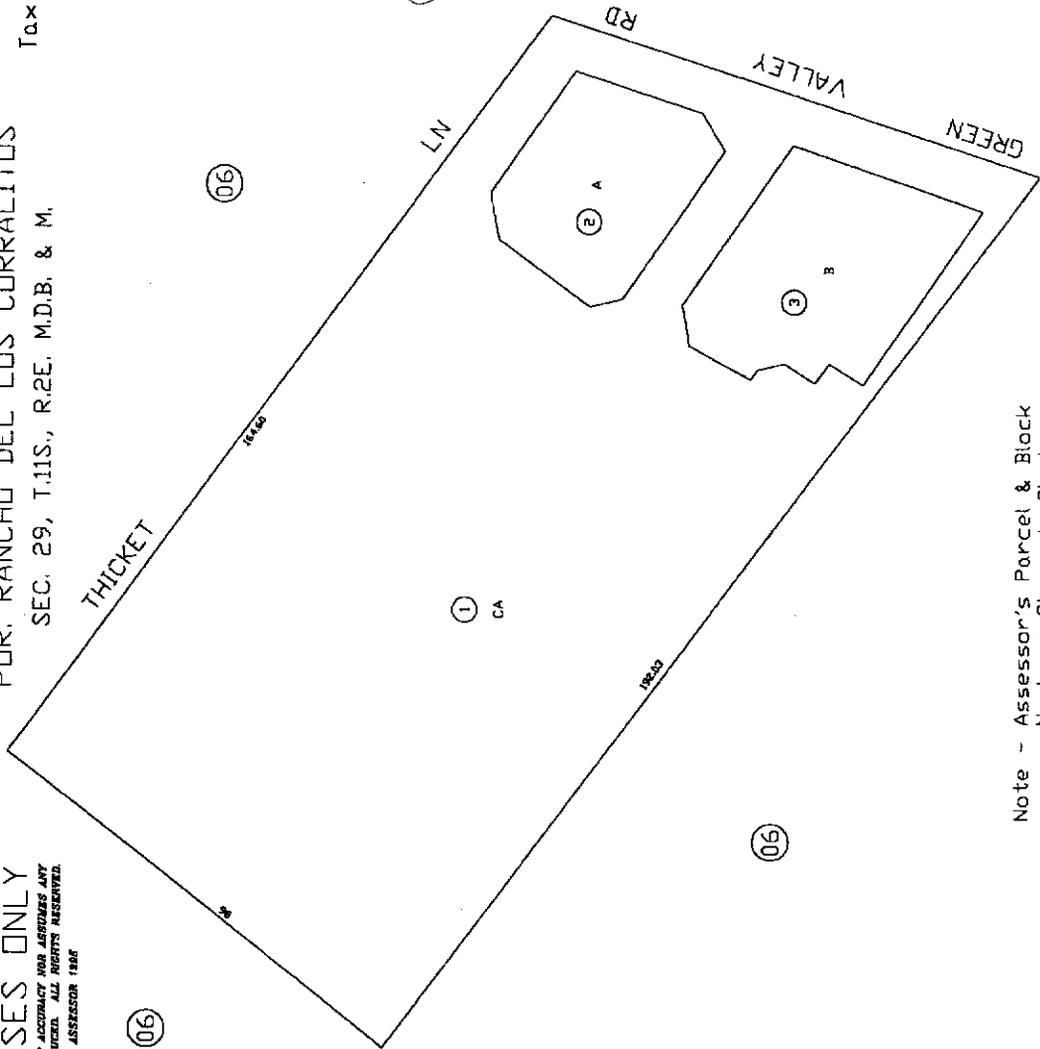
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06

Bk.19
86



41PM62 10/26/82
3702/222 4/17/84



Note - Assessor's Parcel & Block
Numbers Shown in Circles.

Assessor's Map No. 48-32
County of Santa Cruz, Calif.
Sept. 1995

EXHIBIT

E

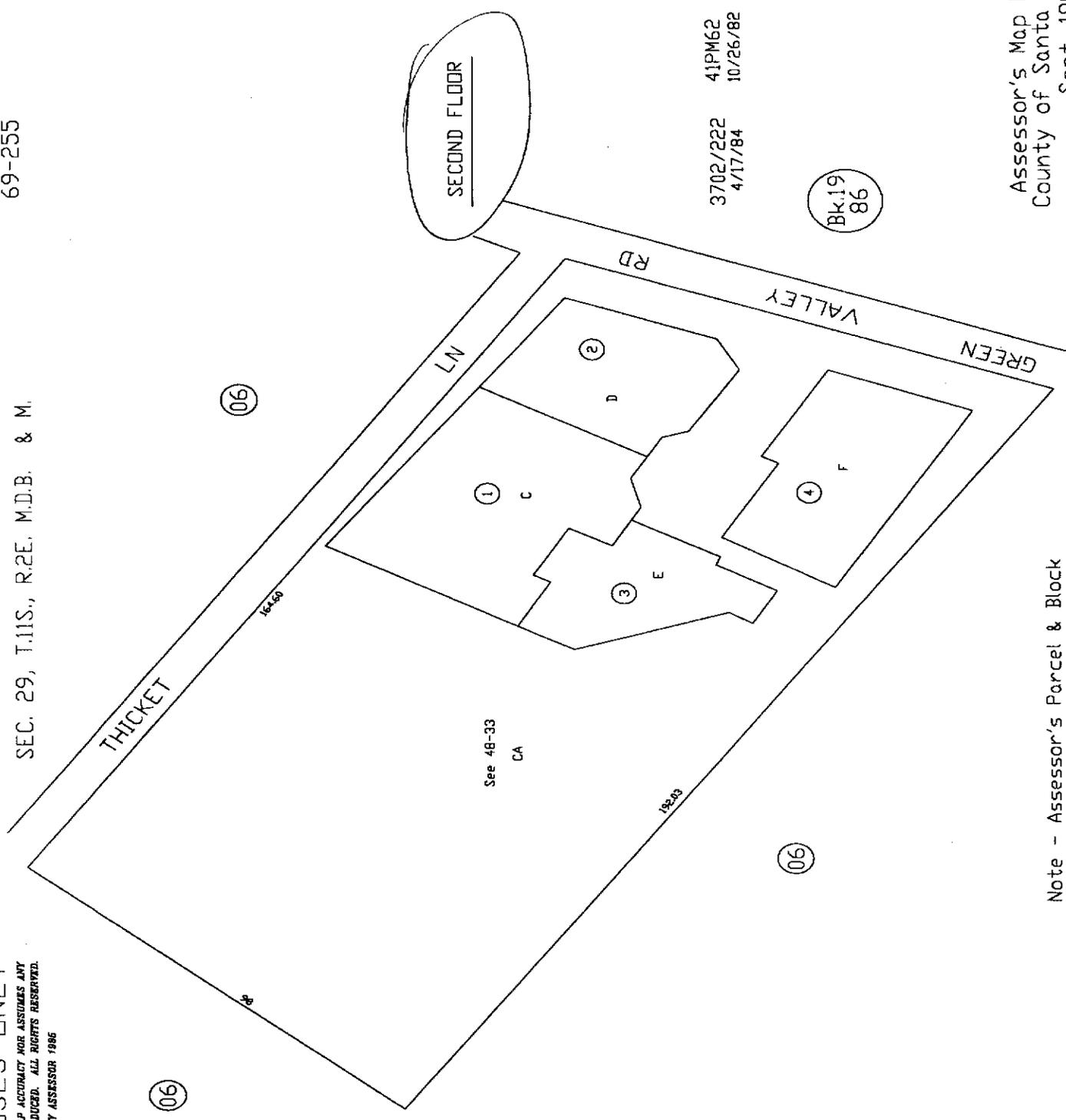
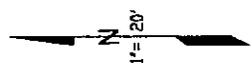
Revised from 9/13/95 KSA
BY: 6/21/98 CTA CONSULTANTS, INC.
REV. 5/21/98 CTA CONSULTANTS, INC.

48-33

Max Area Code
69-255

POR. RANCHO DEL LOS CURRALTIUS
SEC. 29, T.11S., R.2E, M.D.B. & M.

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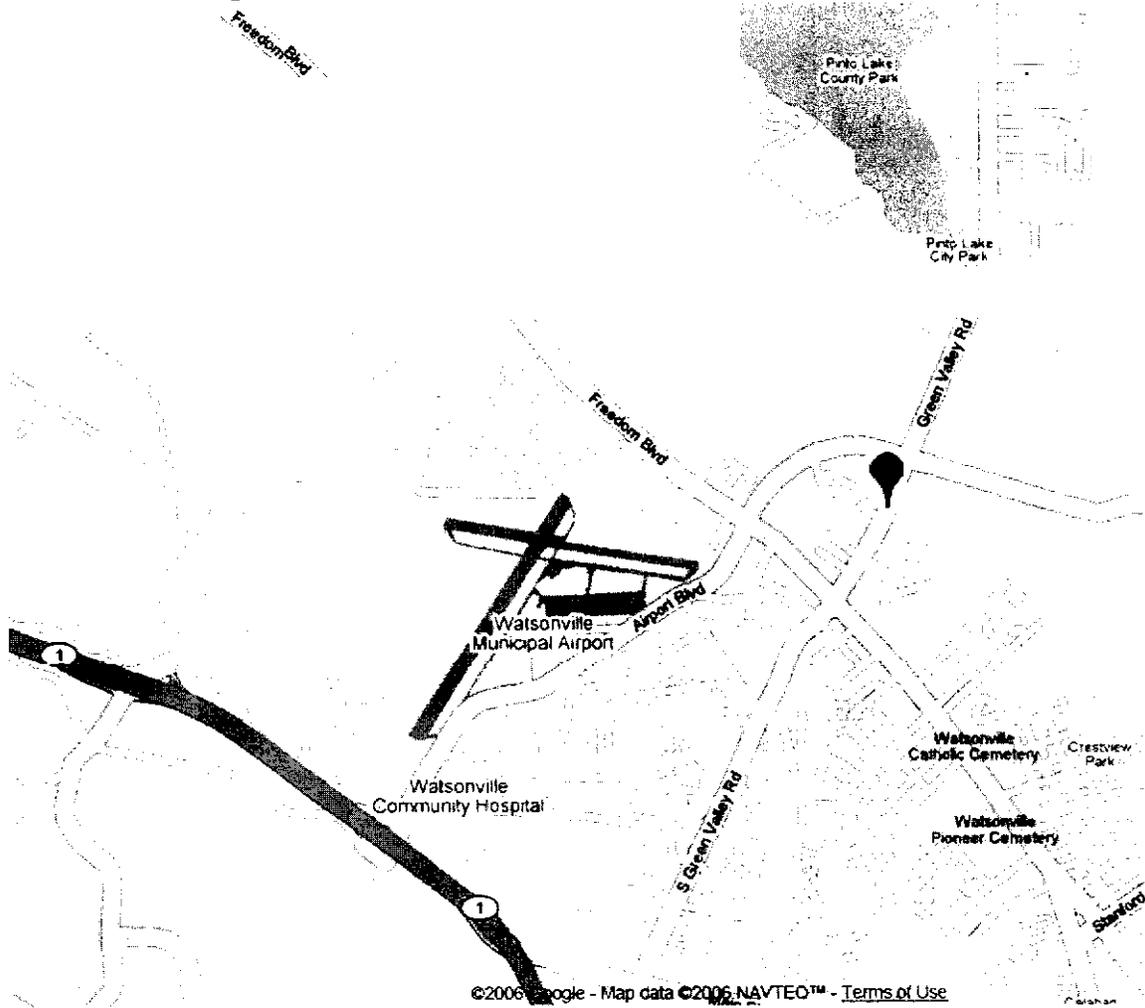
Assessor's Map No. 48-33
County of Santa Cruz, Calif.
Sept 1985

Note - Assessor's Parcel & Block

EXHIBIT E

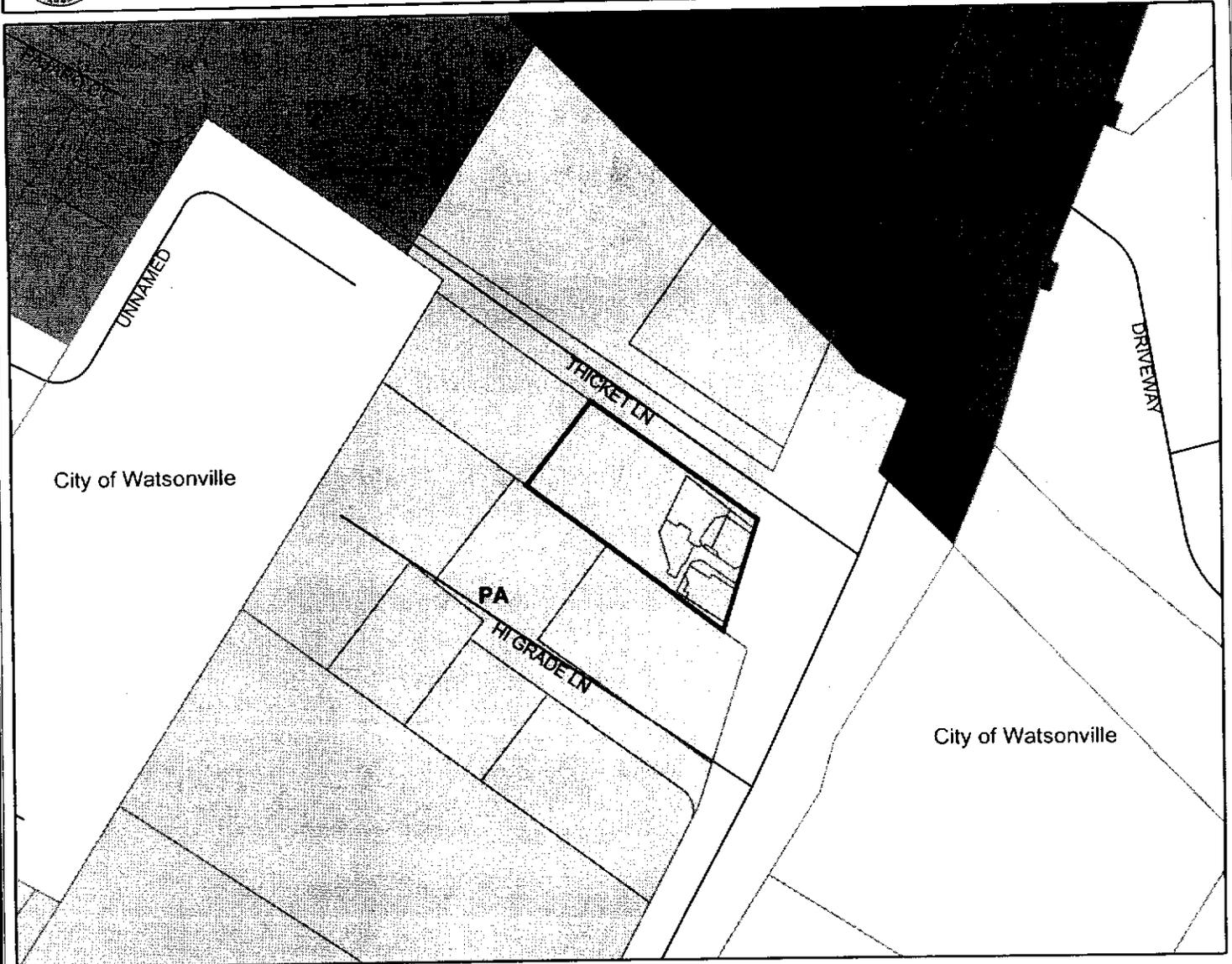
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6/23/01 own changed page refs)

-Site Location Map



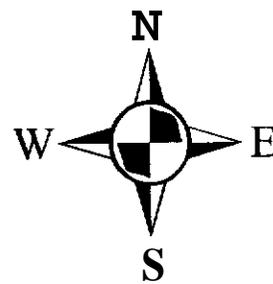


Zoning Map



Legend

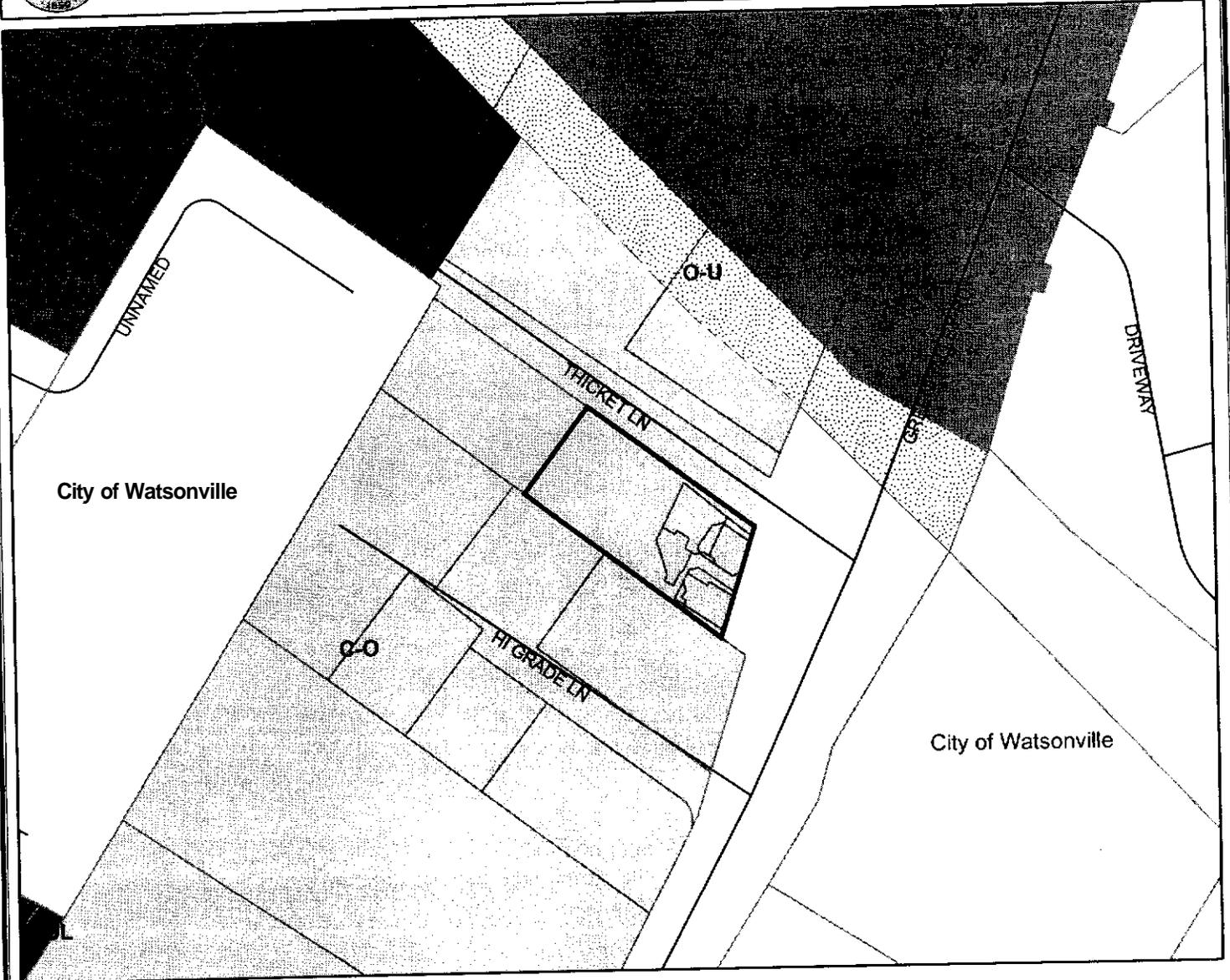
-  APN 048-321-01
-  Assessors Parcels
-  Streets
-  COMMERCIAL-PROF OFFICE (PA)
-  AGRICULTURE COMMERCIAL (CA)
-  RESIDENTIAL-MULTI FAMILY (RM)
-  PUBLIC FACILITY (PF)
-  CITY PROPERTY



Map Created by
 County of Santa Cruz
 Planning Department
 July 2006

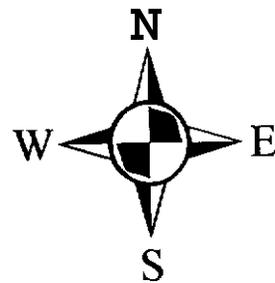


General Plan Designation Map



Legend

- APN 048-321-01
- Assessors Parcels
- Streets
- Commercial-Office (C-O)
- Agriculture (AG)
- Urban Open Space (O-U)
- Residential - Urban Medium Density (R-UM)
- Residential - Urban Low Density (R-UL)



Map Created by
 County of Santa Cruz
 Planning Department
 July 2006

INTEROFFICE MEMO

APPLICATION NO: **06-0336**

Date: **June 30, 2006**

To: **Joan Vanderhoeven, Project Planner**

From: **Larry Kasparowitz, Urban Designer**

Re: **Design Review for wireless communication facility at 243 Green Valley Road, Watsonville**

GENERAL PLAN/ZONING CODE ISSUES

Design Review Authority

13.10.663 General development performance standards for wireless communication facilities.

Evaluation Criteria	Meets criteria in code (✓)	Does not meet criteria (✓)	Urban Designer's Evaluation
	✓		
	✓		
appropriate.	✓		
Support facilities shall be integrated to the existing characteristics of the site, so as to minimize visual impact.	✓		

Co-location is generally encouraged in situations where it is the least visually obtrusive option, such as when increasing the height/bulk of an existing tower would result in less visual impact than constructing a new separate tower in a nearby location.	✓		
for visually prominent ridgeline, hillside or hilltop locations shall be sited and designed to be as visually unobtrusive as possible. Consistent with General Plan/LCP Policy 8.6.6, wireless communication facilities should be sited so the top of the proposed tower/facility is below any ridgeline when viewed from public roads in the vicinity.			NIA
If the tower must extend above a ridgeline the applicant must camouflage the tower by utilizing stealth techniques and hiding it among surrounding vegetation.			N/A
Site Disturbance			
Disturbance of existing topography and on-site vegetation shall be minimized, unless such disturbance would substantially reduce	✓		
New wireless communication facilities in any portion of the Coastal Zone shall be consistent with applicable policies of the County Local Coastal Program (LCP) and the California Coastal Act.			NIA
No portion of a wireless communication facility shall extend onto or impede access to			N/A
Power and telecommunication lines servicing wireless communication facilities in the Coastal Zone shall be required to be placed underground.			NIA
Consistency with Other Regulations			
All proposed wireless communication facilities shall comply with the policies of the County General Plan/Local Coastal Plan and all applicable development standards for the zoning district in which the facility is to be located, particularly policies for protection of visual resources (i.e., General Plan/LCP Section 5.10). Public vistas from scenic roads, as designated in General Plan Section 5.10.10, shall be afforded the highest level of protection.	✓		

Visual Impacts to Neighboring Parcels			
To minimize visual impacts to surrounding residential uses, the base of any new freestanding telecommunications tower shall be set back from any residentially zoned parcel a distance equal to five times the height of the tower, or a minimum of three hundred (300) feet, whichever is greater.			N/A
This requirement may be <i>waived</i> by the decision making body if the applicant can prove that the tower will not be readily visible from neighboring residential structures, or if the applicant can prove that a significant area proposed to be served would otherwise not be provided personal wireless services by the subject carrier, including proving that there are no viable, technically feasible, environmentally equivalent or superior alternative sites outside the prohibited and restricted areas designated in Section 13.10.661(h) and 13.10.661(c).			N/A

Evaluation Criteria	Meets criteria In code (✓)	Does not meet criteria (✓)	Urban Designer's Evaluation
DESIGN REVIEW CRITERIA			
Non-flammable Materials			
All wireless communication facilities shall be constructed of non-flammable material, unless specifically approved and conditioned by the County to be otherwise (e.g., when a wooden structure may be necessary to minimize visual impact).	✓		
Tower Type			
All telecommunication towers shall be set supporting monopoles except where satisfactory evidence is submitted to the appropriate decision-making body that a non-monopole (such as a guyed or lattice tower) is required or environmentally superior.			N/A
All guy wires must be sheathed for their entire length with a plastic or other suitable covering.			N/A
The County strongly encourages all support facilities, such as equipment shelters, to be placed in underground vaults, so as to minimize visual impacts.		✓	

Any support facilities not placed underground shall be located and designed to minimize their visibility and, if appropriate, disguise their purpose to make them less prominent. These structures should be no taller than twelve (12) feet in height, and shall be designed to blend with existing architecture and/or the natural surroundings in the area or shall be screened from sight by mature landscaping.			<i>No landscape screening is proposed</i>
Exterior Finish			
All support facilities, poles , towers, antenna supports, antennas, and other components of communication facilities shall be of a color approved by the decision making body.	✓		
Components of a wireless communication facility which will be viewed against soils, trees , or grasslands, shall be of a color or colors consistent with these landscapes.			N/A
All proposed stealth tree poles (e.g., 'monopines") must use bark screening that approximates natural bark for the entire height and circumference of the monopole visible to the public, as technically feasible.			N/A
Visual Impact Mitigation			
Special design of wireless communication facilities may be required to mitigate potentially significant adverse visual impacts, including appropriate camouflaging or utilization of stealth techniques.		✓	<i>See comments below.</i>
Use of less visually obtrusive design alternatives, such as "microcell" facility-types that can be mounted upon existing utility poles, is encouraged.		✓	
Telecommunication towers designed to look like trees (e.g., 'monopines") may be favored on wooded sites with existing similar looking trees where they can be designed to adequately blend with and/or mimic the existing trees . In other cases, stealth-type structures that mimic structures typically found in the built environment where the facility is located may be appropriate (e.g., small Scale water towers, barns, and other typical farm-related structures on or near agricultural areas).			N/A
Rooftop or other building mounted antennas designed to blend in with the building's existing architecture shall be encouraged.		✓	<i>See comments below.</i>
Co-location of a new wireless communication facility onto an existing telecommunication tower shall generally be favored over construction of a new tower.			N/A

Owners/operators of wireless communication towers/facilities are required to maintain the appearance of the tower/facility, as approved, throughout its operational life.			<i>Suggest as Condition of Approval</i>
Public vistas from scenic roads, as designated in General Plan/LCP Section 5 10.10, shall be afforded the highest level of protection.	✓		
Height			
All towers shall be designed to be the shortest height possible so as to minimize visual impact.	✓		
Any applications for towers of a height more than the allowed height for structures in the zoning district must include a written justification proving the need for a tower of that height and the absence of viable alternatives that would have less visual impact, and shall, in addition to any other required findings and/or requirements, require a variance approval pursuant to County Code Section 13.10.230.			N/A
Lighting			
Except for as provided for under Section 13.10.663(a)(5), all wireless communication facilities shall be unlit except when authorized personnel are present at night.	✓		
Roads and Parking			
All wireless communication facilities shall be served by the minimum sized roads and parking areas feasible.	✓		
Vegetation Protection and Facility Screening			
In addition to stealth structural designs, vegetative screening may be necessary to minimize wireless communication facility visibility within public viewsheds.			N/A
All new vegetation to be used for screening shall be compatible with existing surrounding vegetation.			N/A
Vegetation used for screening purposes shall be capable of providing the required screening upon completion of the permitted facility (i.e., an applicant cannot rely on the expected future screening capabilities of the vegetation at maturity to provide the required immediate screening).			N/A

<p>All telecommunications facilities to be located in areas of extensive natural vegetation shall be installed in such a manner so as to maintain the existing native vegetation. Where necessary, appropriate mature landscaping can be used to screen the facility. However, so as to not pose an invasive or genetic contamination threat to local gene pools, all vegetation proposed and/or required to be planted that is associated with a wireless communication facility shall be non-invasive species native to Santa Cruz County, and specifically native to the project location.</p>			<p>NIA</p>
<p>Non-native and/or invasive species shall be prohibited (such as any species listed on the California Exotic Pest Plant Council "Pest Plant List" in the categories "A", "B" or "Red Alert"). Cultivars of native plants that may cause genetic pollution (such as all manzanita, inkberry, lupin, and clover species) shall be prohibited in relatively pristine areas.</p>			<p>NIA</p>
<p>All wireless communication facility approval in such areas shall be conditioned on the removal of non-native invasive plants (e.g., inkberry) in the area to be cleared by the facility and replanting with appropriate non-invasive native species or planting similar or better natural screening and/or visual enhancement of the facility unless the decision making body determines that such removal and replanting would be environmentally damaging than leaving the existing plant material in place (e.g., a native tree that is an overwintering habitat for Monarch butterflies may be retained).</p>			<p>NIA</p>
<p>All applicants shall provide detailed landscape/vegetation plans specifying the non-invasive plant species to be used, including identification of sources to be used to supply seeds and/or plants for the project.</p>			<p>NIA</p>
<p>Any such landscape/vegetation plan shall be prepared by a qualified landscape architect with the types of plants associated with the facility. For purposes of this section, "mature landscaping" shall mean trees, shrubs or other vegetation that will provide the appropriate level of visual screening immediately upon installation.</p>			<p>N/A</p>

All nursery stock, construction materials and machinery, and personnel shall be free of soil, seeds, insects, or microorganisms that could pose a hazard to the native species or the natural biological processes of the areas surrounding the site (e.g., Argentine ants or microorganisms causing Sudden Oak Death or Pine Pitch Canker Disease).			NIA
Underground lines shall be routed outside of plant drip lines to avoid damage to tree and large shrub root systems to the maximum extent feasible.			NIA

Urban Designer's Comments

- *The addition of another chimney like structure is not appropriate. Other applications have added a parapet wall above the sloped upper roof and mounted the antennae immediately behind that. This technique makes more architectural sense.*

T-Mobile

TMobile Proposed Wireless Communications Facility
SF15006 Endoscopy
243 Green Valley Road, Freedom, CA 95019
APN - 048-321-01

Project Summary

Site Selection Analysis

Wireless systems are expanded or introduced in a given area to improve service to customers. There are several reasons to add a new facility. It may extend the coverage to new areas, increase the capacity of the system within the current service area, or improve quality. Some wireless facilities accomplish **all three** improvements.

This location was also selected because of its position relative to existing sites, providing favorable site geometry for federally mandated E911 location accuracy requirements and efficient frequency reuse. Since 40 percent of 911 calls are **from** mobile phones, effective site geometry **within** the overall network is needed to achieve accurate location information of mobile users, **through** triangulation with active wireless facilities.

Coverage:

Coverage **can** be defined **as** having a certain minimum level of signal strength in a particular area. T-Mobile's target is to provide -76dBm of signal strength to our customers' areas across the network. **This level of** service guarantees reliable signal strength inside buildings to provide excellent voice quality in residential neighborhoods and commercial areas. In today's competitive marketplace, T-Mobile requires **high** quality coverage to be competitive and to fulfill our responsibilities under our FCC license, and comply with CPUC mandates

Capacity:

Capacity is the number of calls that can be handled by a particular wireless facility. When we make phone calls, our mobile phones communicate with a nearby antenna site that can handle a **limited** number of calls. It then connects to land based phone lines. When a particular site is handling a sufficient number of calls, the available RF channels assigned to that site are at maximum capacity. **When this occurs**, the wireless phone **user** will hear a busy **signal** on his or her phone. For T-Mobile's specific GSM technology, typical sites with **3** antennas can handle a maximum of approximately 150 calls at any given time. The call **traffic** at the facility **is** continually monitored and analyzed so that overloading **of**

sites is prevented. The objective for a capacity site is to handle increased call volume rather than expand a coverage area.

Safety and Compliance

The proposed wireless communications facility will not create any nuisance or be detrimental to the health, **safety** or general welfare, of persons residing or working in the neighborhood. T-Mobile technology does not interfere with any other forms of private or public communications systems, operating under FCC regulations

After construction of the facility, the site will be serviced once a month, during a routine scheduled maintenance window by a service technician. The site is unmanned and is a self-monitored facility. There will be no impact on parking or traffic in the area.

Conclusion

T-Mobile has identified *this* location for a proposed wireless telecomm facility for several reasons. The property provides an *it location from which wireless coverage can be enhanced in the County of Santa Cruz.* T-Mobile has proposed to locate the radio equipment cabinets on the roof of the existing building and to screen them from public view. The proposed antennas will be mounted in a faux chimney to match the existing building. Metro PCS was previously approved by the County of Santa Cruz and their antennas and equipment cabinets are located on the roof of the building.

Community Benefits

Since its inception, wireless communications have provided services to communities far beyond mere convenience. Many businesses and Public Safety Agencies rely on these services in order to conduct important civic and commercial duties on a daily basis. Schools rely on an ability to reach parents quickly. Commercial Wireless companies have been at the forefront of critical communications services in recent events, such as earthquakes and fires in California. Traffic issues, weather and community events, are a few of the many services now available over these same communications devices. Wireless communications are an integral part of our national telecommunications infrastructure, and each community deserves the benefit of the best and most competitive service available.

T-Mobile Company Information

Based in Bellevue, Washington, the U.S. operations of T-Mobile International AG & Co. K.G., consists of T-Mobile USA, Inc. (formerly VoiceStream Wireless) and Powertel,

Inc. (together "T-Mobile"). T-Mobile is one of the fastest growing nationwide wireless service providers, offering all digital voice, messaging and high-speed wireless data services to more than 20 million customers in the United States. A cornerstone of T-Mobile's strong consumer appeal **has** been its Get More@business strategy to provide customers with the best overall value in their wireless service **so** they can enjoy the benefits of mobile communications to Get More From Life®. T-Mobile has more than 24,000 employees across the country dedicated to delivering on its Get More® promise to provide customers with more minutes, more features and more service. **The** T-Mobile global brand name made its debut in the United States in July 2002, choosing California and Nevada **as** the first markets in the country to launch its wireless voice and data services. Here in the Bay **Area**, T-Mobile has purchased and taken control **of** the former PacBell Wireless/ Cingular System on January 5, 2005.

T-Mobile holds license in the California Market **as** follows: 1950.2-1964.8, 1965.2-1969.8 MHz **and** 1870.2-1884.8, 1885.2-1889.8 MHz.

T-Mobile offers consumers and business customers the most advanced mobile communications services available today, including voice, text messaging, and **high**-speed wireless data services. T-Mobile operates an all-digital, national wireless network based exclusively on GSM technology.

Enhanced Messaging Services - SMS, Instant Messaging & MMS

T-Mobile offers its customers a variety **of** options for using Short Messaging Service (SMS) or text messaging and Multimedia Messaging Service (MMS).

SMS: Every T-Mobile customer, regardless of device **or** rate plan, can send text messages via their handset to friends and family, no matter which wireless service provider they use. In addition, customers and their colleagues can **use** the Internet to send and receive text messages between wireless phones, devices and personal computers.

IM: T-Mobile customers can use Yahoo!® Messenger, MSN® Messenger and AOL® Instant Messenger Software to interact with millions of instant messaging **users** worldwide.

MMS: T-Mobile **has** upgraded its entire national network to provide MMS services. MMS enables customers to complement their text messages **with** sound, animation and melodies to send to e-mail addresses and compatible handsets. **As** part **of** this rich visual communications offering, T-Mobile offers handsets that let customers take a picture and send it to any e-mail address or other MMS-capable phone and then talk about it — all **from** a single device. Additionally, MMS enables customers to send short video clips to e-mail or other MMS-capable phones, giving T-Mobile customers a whole new way to communicate.

2.5G GPRS High Speed Wireless Data

T-Mobile leverages its national, standards-based GSM network to provide customers with the latest in mobile communications including wireless data **access through** its T-Mobile Internet service. This allows customers to remotely access the Internet; get their corporate and personal e-mail; keep contacts and calendar information updated on the go; and get popular games, news and information services such **as** sports scores, **stock** quotes, horoscopes and games delivered automatically or on demand to their wireless handset or device.

T-Mobile HotSpotSM - Wi-Fi (802.11b) Wireless Broadband Internet Service

T-Mobile complements its existing national GSM/GPRS wireless voice and high-speed data network by providing Wi-Fi (**802.11b**) **wireless** broadband Internet access in more than 5,000 convenient public locations in the United States where people already go when they're away **from** their home or office. By combining the benefits **of** these networks, T-Mobile offers customers coverage where they want it and **speed** when they need it. T-Mobile is uniquely able to provide a comprehensive wireless service offering that meets customers' needs for wireless connectivity. Backed by T-1 circuits, T-Mobile HotSpot service is reliable and fast **enough** to accommodate a broad spectrum of applications from checking e-mail to multimedia videoconferencing.

Photosimulation of the proposed telecommunication facility as seen looking west from Green Valley and Thicket

Existing

T-Mobile

SF15006

Endoscopy

243 Green Valley Rd.
Freedom, CA 95019

Proposed

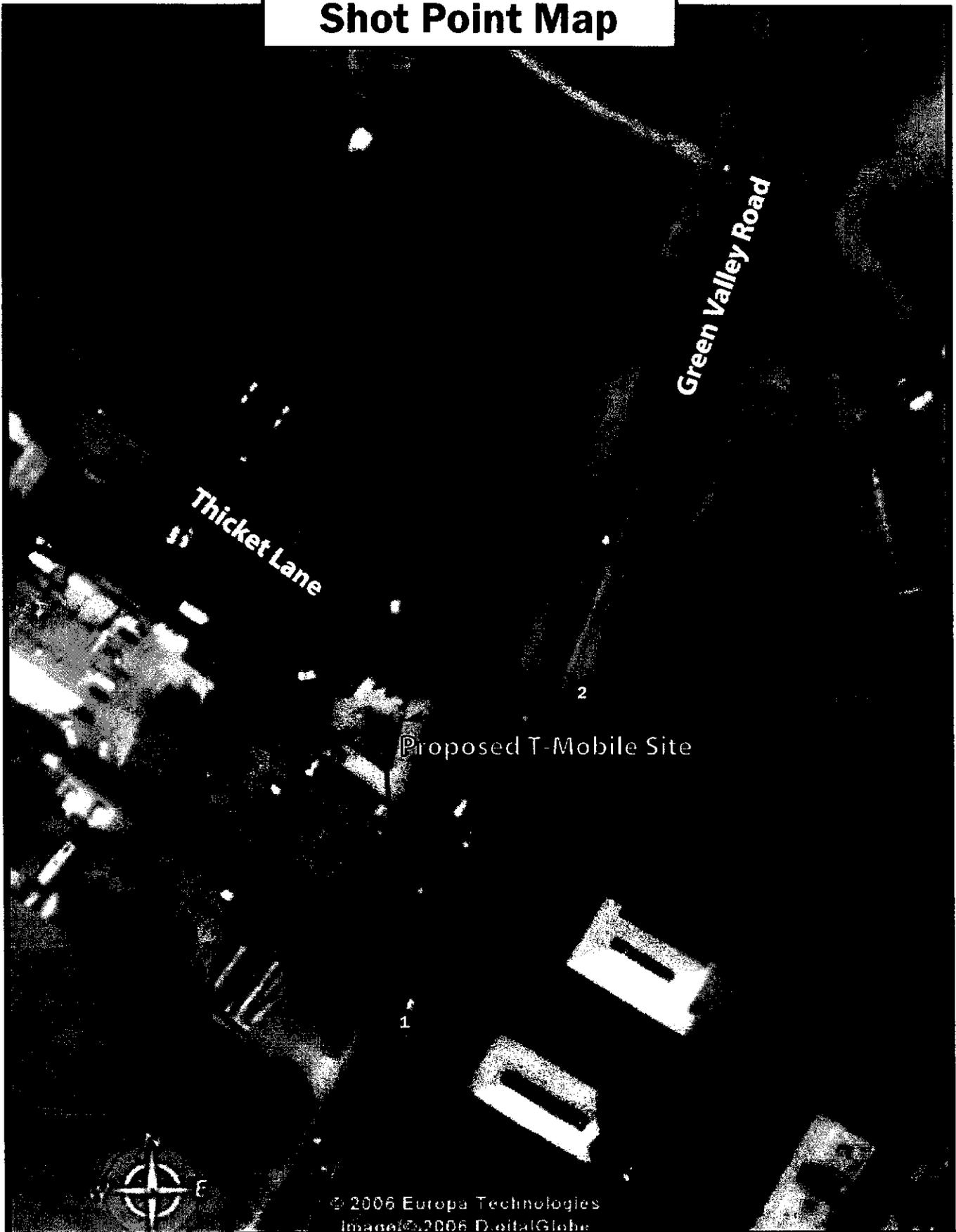
Photosimulation of the proposed telecommunication facility as seen looking north from Green Valley Road



T-Mobile SF15006 Endoscopy 243 Green Valley Rd. Freedom, CA 95019



Shot Point Map



T-Mobile

SF15006

Endoscopy

243 Green Valley Rd.
Freedom, CA 95019

**T-Mobile • Proposed Base Station (Site No. SF15006)
243 Green Valley Road • Freedom, California**

Statement of Hammett & Edison, Inc., Consulting Engineers

The **firm** of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of T-Mobile, a personal wireless telecommunications **carrier**, to evaluate the base station (Site No. SF15006) proposed to be located at 243 Green Valley Road in Freedom, 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 (“NCRF”). 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:

<u>Personal Wireless Service</u>	<u>Approx. Frequency</u>	<u>Occupational Limit</u>	<u>Public Limit</u>
Personal Communication (“PCS”)	1,950 MHz	5.00 mW/cm ²	1.00 mW/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 “channels”) that are connected to the traditional wired telephone lines, and the passive antennas that send **the** wireless **signals** created by the radios out to be received by individual subscriber units. The **transceivers are** often located at ground level and **are** connected to the antennas by *coaxial* cables 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 **the**

**T-Mobile • Proposed Base Station (Site No. SF15006)
243 Green Valley Road • Freedom, California**

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 T-Mobile, including zoning drawings by Michael Wilk Architecture, dated June 2, 2006, it is proposed to mount three Andrew Model 932DG65-VTEM directional panel PCS antennas within a new 10-foot enclosure, configured to resemble a chimney, to be installed above the roof of the two-story Freedom Endoscopy Center, located at 243 Green Valley Road in Freedom. The antennas would be mounted at an effective height of about 37 feet above ground, 11½ feet above the roof, and would be oriented toward 30°T, 160°T, and 250°T. The maximum effective radiated power in any direction would be 2,400 watts, representing six channels operating simultaneously at 400 watts each.

Presently installed inside a separate rooftop enclosure are similar antennas for use by MetroPCS, another wireless communications carrier. Metro reports that it has installed EMS Model RR6518-000DPL directional panel PCS antennas at an effective height of about 37 feet above ground and operates at a maximum effective radiated power in any direction of 1,890 watts, representing six channels operating simultaneously at 315 watts each.

Study Results

For a person anywhere at ground, the maximum ambient RF exposure level due to the proposed T-Mobile operation by itself is calculated to be 0.013 mW/cm², which is 1.3% of the applicable public exposure limit. The maximum calculated cumulative level at ground for the simultaneous operation of both carriers is 1.4% of the public exposure limit; the maximum calculated cumulative level at the second-floor elevation of any nearby building is 2.7% of the public exposure limit. **The maximum**

* Located at least 20 feet away, based on the drawings.



**T-Mobile • Proposed Base Station (Site No. SF15006)
243 Green Valley Road • Freedom, California**

calculated cumulative level at the roof of the subject building is 51% 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.

Recommended Mitigation Measures

Due to their mounting locations, the T-Mobile 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 5 feet directly in front of the T-Mobile antennas themselves, such **as** might occur during building maintenance activities, should be 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 the roof access hatch 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. Similar measures should already be in place for the other carrier at the site; applicable keep-back distances have not been determined **as part** of this study.

Conclusion

Based on the information and analysis above, it is the undersigned’s professional opinion that the base station proposed by T-Mobile at 243 Green Valley Road in Freedom, 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. Posting of explanatory signs is recommended to establish compliance with occupational exposure limitations.

[†] 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 to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.

T-Mobile • Proposed Base Station (Site No. SF15006)
243 Green Valley Road • Freedom, California

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.

June 12,2006



William F. Hammett
William F. Hammett, P.E.



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

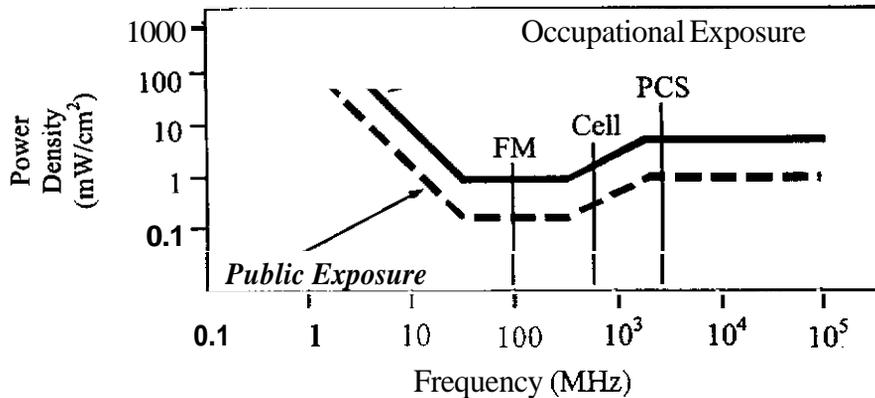
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Page 4 of 4

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:

Frequency Applicable Range (MHz)	Electromagnetic Fields (f is frequency of emission in MHz)					
	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm ²)	
0.3– 1.34	614	<i>614</i>	1.63	<i>1.63</i>	100	<i>100</i>
1.34– 3.0	614	<i>823.8/f</i>	1.63	<i>2.19/f</i>	100	<i>180/f²</i>
3.0– 30	18421 f	<i>823.8/f</i>	4.89/ f	<i>2.19/f</i>	900/ f ²	<i>180/f²</i>
30– 300	61.4	<i>27.5</i>	0.163	<i>0.0729</i>	1.0	<i>0.2</i>
300– 1,500	3.54√f	<i>1.59√f</i>	√f/106	<i>√f/238</i>	0300	<i>f/1500</i>
1,500– 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



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.

RFR.CALC™ 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:

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

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:

$$\text{power density } S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}, \text{ in mW/cm}^2,$$

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:

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

where ERP = total ERP (all polarizations), in kilowatts,
 RFF = relative field factor at **the** direction to the actual point of calculation, and
D = distance from the center of radiation to the point of calculation, in meters.

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



HAMMETT & EDISON, INC.
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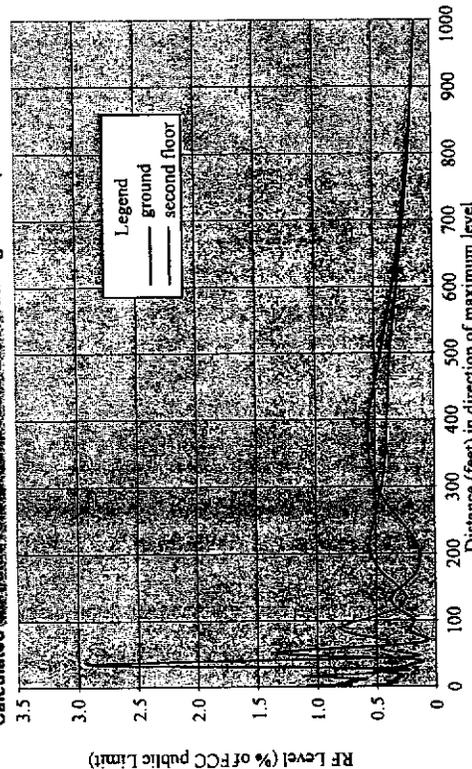
Methodology
Figure 2

**T-Mobile - Proposed Base Station (Site No. SF15006)
243 Green Valley Road • Freedom, California**

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 taking into account all existing and proposed sources from the proposed source in combination with all other existing and proposed sources from any NIER transmission source associated with the proposed wireless communication facility, consistent with the NIER standards of the FCC, or any potential future superseding standards."

Calculated NIER 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.

Effective antenna height above ground - 37 feet
Other sources nearby - MetroPCS

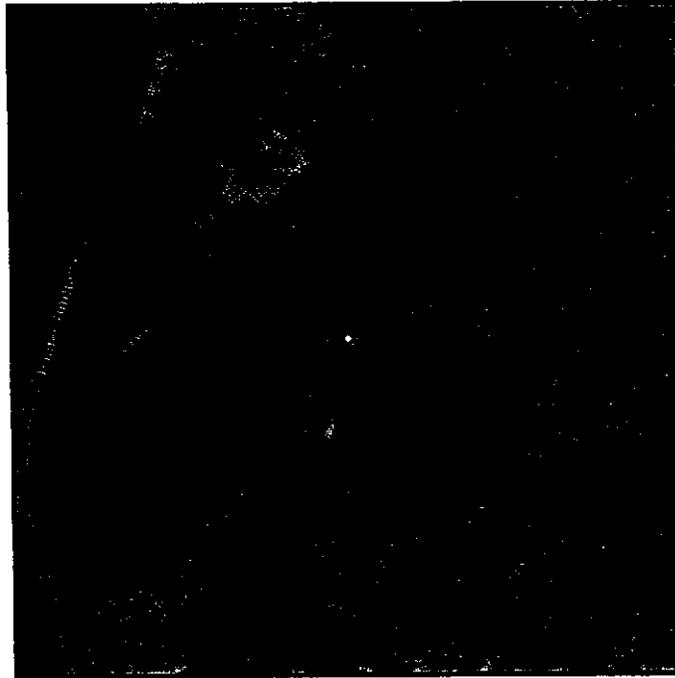
- 2,400 watts for T-Mobile
- 1,890 watts for MetroPCS
- No AM, FM, or TV broadcast stations
- No two-way stations close enough to affect compliance
- Antennas are mounted above the roof of a two-story building

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Figure 3A

**T-Mobile - Proposed Base Station (Site No. SF15006)
243 Green Valley Road • Freedom, California**

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



Aerial photo from Maps a la Carte, Inc.

- Legend**
- blank - less than 1.0% of FCC public limit (i.e., more than 100 times below)
 - ▒ - 1.0% and above near ground level (highest level is 1.4%)
 - ▓ - 1.0% and above at 2nd floor level (highest level is 2.9%)

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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Figure 3B