



**CITY OF SUNNYVALE  
REPORT  
Planning Commission**

**June 23, 2008**

**SUBJECT:**           **2008-0405 - T-Mobile** [Applicant] **Pastoria Land and Building Corp.** [Owner]: Application located at **375 N Pastoria Avenue** (near Hermosa Dr.) in an M-S (Industrial & Service) Zoning District. (Negative Declaration) APN: 165-30-119) AM

Motion                   Use Permit to allow 3 additional antennas for a total of 6 antennas to an existing wireless telecom site that has 6 carriers on a 99' tall monopole.

**REPORT IN BRIEF**

**Existing Site Conditions**           Existing telecommunications site at the existing Elks Lodge property

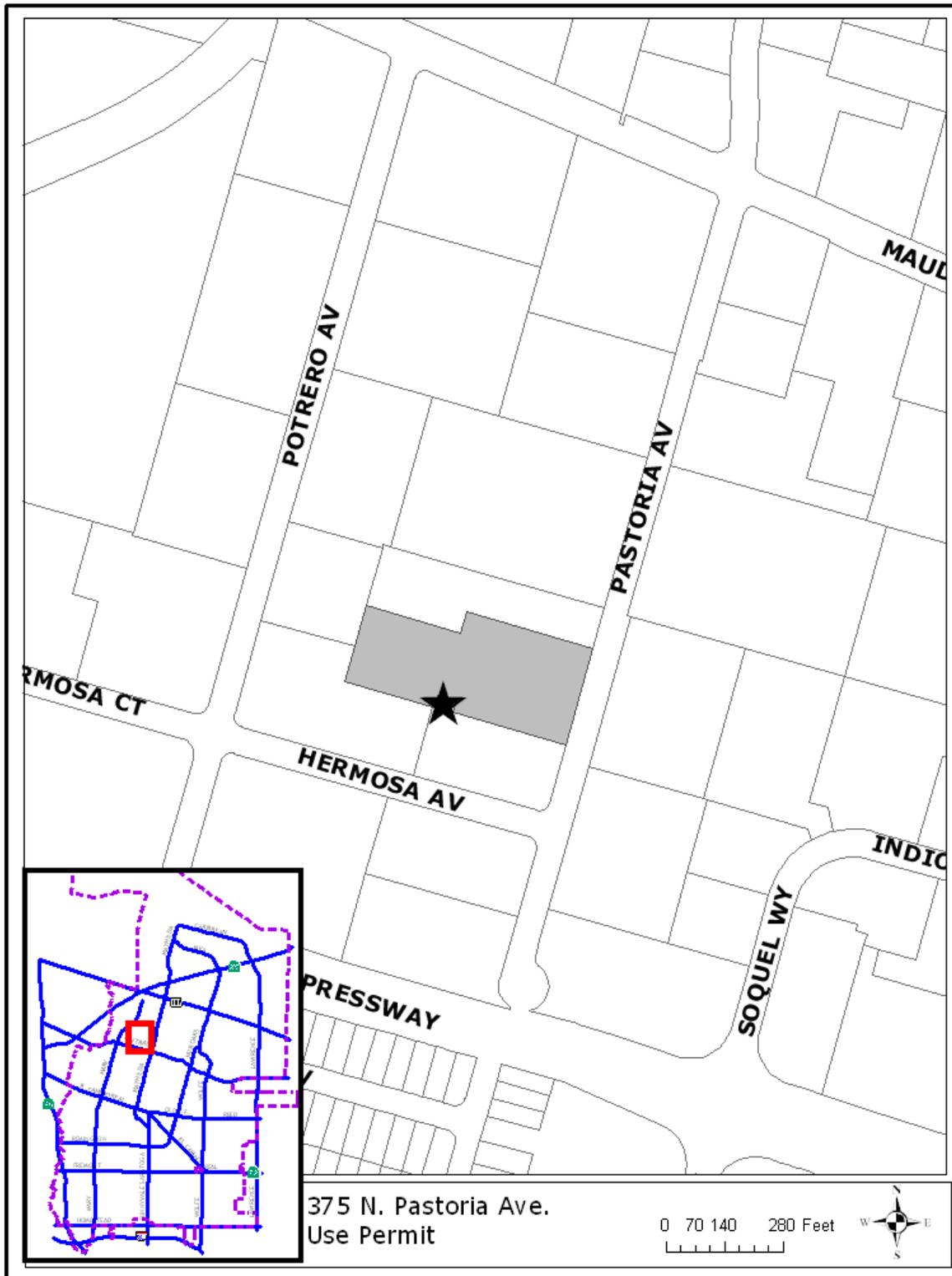
**Surrounding Land Uses**

North	Industrial
South	Industrial
East	Industrial
West	Industrial

**Issues**                               Visual impacts

**Environmental Status**           A Negative Declaration has been prepared in compliance with California Environmental Quality Act provisions and City Guidelines.

**Staff Recommendation**           Approve with conditions



**PROJECT DATA TABLE**

	<b>EXISTING</b>	<b>PROPOSED</b>	<b>REQUIRED/ PERMITTED</b>
<b>General Plan</b>	Industrial	Same	Same
<b>Zoning District</b>	MS, Industrial and Service	Same	Same
<b>Lot Size (s.f.)</b>	127,306	Same	22,500 min.
<b>Height of Monopole</b>	99'	99'	100'
<b>Centerline of Proposed Antennas</b>	68'	68'	N/A
<b>Setbacks</b>			
<b>Front</b>	309'	Same	25' min.
<b>Left Side</b>	20'	Same	20' min.
<b>Right Side</b>	320'	Same	20' min.
<b>Rear</b>	240'	Same	No min.

★ Starred items indicate deviations from Sunnyvale Municipal Code requirements.

**ANALYSIS****Description of Proposed Project**

The applicant proposes to add 3 new antennas at 68' on an existing multi-carrier wireless telecommunications monopole (Attachment F). The proposal also includes replacing 3 existing antennas and mounting the entire antenna array on a structure 3' from the pole. This will change the installation from 3 existing antennas flush mounted on the pole to 9 antennas offset from the pole. The purpose of the offset is to allow 3 antennas per sector (three sectors total) with proper distance between each antenna.

This wireless telecommunication facility is located adjacent to the Elk's Lodge in the Peery Park industrial area of the City. The facility is a good example of a co-location facility, with all wireless carriers located on one pole. This reduces the need for separate structures for each carrier.

The new and replaced antennas will have coax cable that will run inside the pole, so the visual impact will be reduced. Three new small amplifiers (10" by 12"), known as TMA's, will be mounted behind the antenna (one per sector).

Also included in this proposal is the replacement of an equipment cabinet inside the ground compound, which will not result in additional visual impacts.

### **Background**

**Previous Actions on the Site:** The following table summarizes previous planning applications related to the subject site. In 2003, the Planning Commission approved an application to allow AT&T to extend the top of the monopole from 90' to 100', with new antennas mounted at the top of the pole. As part of this condition, the Commission required that the pole be camouflaged. AT&T appealed that decision to the City Council, who granted the appeal and had the camouflage condition removed. Subsequent to that decision, Nextel applied for a new installation on the pole in 2004, and the condition to camouflage the pole was not used in order to be consistent with prior Council direction.

The following table summarizes previous planning applications related to the subject site.

<b>File Number</b>	<b>Brief Description</b>	<b>Hearing/Decision</b>	<b>Date</b>
2003-0753	Use Permit to allow the co-location of 12 antennas on existing pole	Planning Commission/ Approved	1/26/04
2003-0493	Appeal of a decision by the Planning Commission approving a Use Permit to allow the co-location of 6 antennas subject to a condition to camouflage the pole and antennas	City Council/Granted appeal to remove camouflage requirement	12/16/03
2003-0493	Use Permit to allow the co-location of 6 antennas	Planning Commission/ Approved	9/22/03
2001-0322	Use Permit to allow the co-location of 3 antennas	Planning Commission/ Approved	9/24/01
2001-0234	Use Permit to allow the co-location of 3 antennas	Planning Commission/ Approved	6/25/01

<b>File Number</b>	<b>Brief Description</b>	<b>Hearing/Decision</b>	<b>Date</b>
2000-0588	Use Permit to allow construction of a new ledge and an industrial office building	Planning Commission/ Approved	1/08/01
2000-0066	Use Permit to allow the co-location of 9 antennas	Planning Commission/ Approved	4/10/00
1998-0206	MPP- To allow an addition to an existing monopole	Staff/Approved	3/16/98
1994-0039	Use Permit to allow a new monopole on an industrially-zoned site	Planning Commission/ Approved	9/26/94

### **Environmental Review**

A Negative Declaration has been prepared in compliance with the California Environmental Quality Act provisions and City Guidelines. An initial study has determined that the proposed project would not create any significant environmental impacts (see Attachment C, Initial Study).

### **Use Permit**

**Use:** The proposed T-Mobile telecommunications facility is intended to serve wireless customers in the surrounding neighborhood and to improve overall coverage and infrastructure in the City.

Monopoles and other towers greater than 90' in height and co-locations resulting in three or more carriers may be considered with a Major Use Permit.

**Site Layout:** The existing 99' monopole would continue to exist at the location, with the new antenna and structure being added to the existing pole. The entire telecommunications facility is owned by Crown Castle USA, who has a master lease from the Elk's Lodge. Crown Castle leases other antenna placements on the pole and inside the equipment compound for equipment. This facility is leased by six wireless carriers. The monopole is located inside the compound area that Crown Castle leases from the Elk's Lodge. This compound is located along the southern edge of the Elk's property behind the lodge (Attachment C, Site and Architectural Plans).

**Design:** The existing monopole is a steel pole, 99' tall. Attachment F shows all carriers located on the pole, with the height of each antenna array. All carrier equipment is located inside the leased compound below the pole.

The pole was originally approved in 1994, as a 90' monopole. In 2003, AT&T received approval from the City Council (on appeal from the Planning Commission) to add antennas to the pole by extending it to 99' in height and to remove a Planning Commission requirement to camouflage the pole. Subsequently, Nextel received approval from the Planning Commission to add an antenna array at 62' without the requirement to camouflage the pole.

**Radio Frequency (RF) Emissions Exposure:** The FCC is the final authority on safety of telecommunications facilities. If the FCC has determined the facility to be in compliance with federal standards, the City is not permitted to make additional judgments on health and safety issues. The application can be reviewed for compliance with design and location criteria only.

The attached RF Emissions report (Attachment G) provides information about the proposed RF emissions of the facility. According to the report, prepared by Hammett & Edison, Inc., the maximum ambient RF level at ground level for the T-mobile facility by itself is calculated to be 0.47% of the applicable FCC standards. The maximum level for the simultaneous operation of all carriers at the location is 1.2% of the FCC standards. These results indicate the RF emissions at the site for the applicant and all other carriers combined are considered safe for inhabited areas.

**Compliance with Development Standards/Guidelines:** SMC Section 19.54.140 (a) states that:

Telecommunication facilities are encouraged to co-locate in order to reduce adverse visual impacts provided the site is determined to be suitable based on its visibility to residentially-zoned property or the right-of-way of a freeway, expressway or other major arterial street.

Although the monopole is partially visible from Central Expressway and is visible to nearby industrial properties, co-locating antennas on one pole in an industrial area provides better protection from the possibility of adding new wireless facilities in other, more visible, locations. The additional antennas will be an insignificant increase to the visibility of the facility.

**Expected Impact on the Surroundings:** The impacts to the surrounding area of adding six antennas to the existing wireless facility are minimal. Adding six antennas to a monopole that has 39 existing antennas is insignificant, although it can be argued that adding any more equipment to a well-used facility such as this one does add visual impacts. These impacts are balanced by the industrial location and reduced need for additional wireless telecommunications sites to serve the area.

As previously discussed, ancillary equipment will be screened from view and possible RF emissions will meet applicable standards and no further impact is expected.

**Fiscal Impact**

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No fiscal impacts other than normal fees and taxes are expected.

**Public Contact**

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<b>Notice of Negative Declaration and Public Hearing</b>	<b>Staff Report</b>	<b>Agenda</b>
<ul style="list-style-type: none"> <li>• Published in the <i>Sun</i> newspaper</li> <li>• Posted on the site</li> <li>• 21 notices mailed to the property owners and residents within 300 ft. of the project site</li> </ul>	<ul style="list-style-type: none"> <li>• Posted on the City of Sunnyvale's Website</li> <li>• Provided at the Reference Section of the City of Sunnyvale's Public Library</li> </ul>	<ul style="list-style-type: none"> <li>• Posted on the City's official notice bulletin board</li> <li>• City of Sunnyvale's Website</li> </ul>

**Conclusion**

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**Findings and General Plan Goals:** Staff was able to make the required Findings based on the justifications for the Use Permit. Findings and General Plan Goals are located in Attachment A.

**Conditions of Approval:** Conditions of Approval are located in Attachment B.

**Alternatives**

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1. Adopt the Negative Declaration and approve the Use Permit with attached conditions.
2. Adopt the Negative Declaration and approve the Use Permit with modified conditions.
3. Adopt the Negative Declaration and deny the Use Permit.
4. Do not adopt the Mitigated Negative Declaration and direct staff as to where additional environmental analysis is required.

**Recommendation**

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Alternative 1

Prepared by:

Andrew Miner  
Project Planner

Reviewed by:

Trudi Ryan  
Planning Officer

Attachments:

- A. Recommended Findings
- B. Recommended Conditions of Approval
- C. Negative Declaration
- D. Site and Architectural Plans
- E. Letter from the Applicant
- F. Picture of All Carriers on Monopole
- G. RF Emission Report

## **Recommended Findings - Use Permit**

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### **Telecommunications Policy**

Goal B: Promote universal access to telecommunications services for all Sunnyvale citizens.

Action Statement A.1.e- Support retention of local zoning authority for cellular towers, satellite dish antennas, and other telecommunications equipment, facilities and structures.

- *The zoning code requires that the location of telecommunication facilities be designed with sensitivity to the surrounding areas. The proposed antennas will be attached to an existing monopole, which has been located in an area which minimizes visual impacts on residential properties. The proposed facility will provide increased cell phone coverage for the given area of the City.*

### **Land Use and Transportation Sub-Element**

N1.3. Promote an attractive and functional commercial environment.

N1.5 Establish and monitor standards for community appearance and property maintenance.

- *The project proposal uses existing infrastructure to add additional telecommunications service in the city. The location of the equipment enclosure and the design of the proposed antennas mitigate visual impacts in order to maintain community appearance.*

1. The proposed use attains the objectives and purposes of the General Plan of the City of Sunnyvale (*Finding met*).

The project provides access to telecommunication services while designing the facility to blend in with the character of the surrounding neighborhood. The Wireless Telecommunications Policy promotes retention of local zoning authority when reviewing telecommunications facilities. The zoning code requires that the location of telecommunication facilities be designed with sensitivity to the surrounding areas. The proposed facility is in compliance with all wireless telecommunication development standards:

- *The project meets all FCC RF emissions standards.*
- *Adding 6 new antennas to an existing wireless facility will provide adequate coverage and capacity to an area that the applicant has*

*identified as needing coverage without the need to add a new structure..*

- *The proposed ground equipment will be located inside a chain link enclosure and will be screened from view. The equipment enclosure will be designed to match the appearance of the existing fence.*
2. Ensure that the general appearance of the proposed structures, or the uses to be made to the property to which the application refers, will not impair either the orderly development of, or the existing uses being made of, adjacent properties (Finding met).

The monopole, as conditioned, will not negatively impact nearby properties and RF emissions will be substantially lower than FCC regulations permit.

**Recommended Conditions of Approval - Use Permit**

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In addition to complying with all applicable City, County, State and Federal Statutes, Codes, Ordinances, Resolutions and Regulations, Permittee expressly accepts and agrees to comply with the following conditions of approval of this Permit:

Unless otherwise noted, all conditions shall be subject to the review of approval of the Director of Community Development.

**1. GENERAL CONDITIONS**

- A. Execute a Use Permit document prior to issuance of the building permit.
- B. Project shall be in conformance with the plans approved at the public hearing(s). Minor changes may be approved by the Director of Community Development, major changes may be approved at a public hearing.
- C. Any major site and architectural plan modifications shall be treated as an amendment of the original approval and shall be subject to approval at a public hearing except that minor changes of the approved plans may be approved by staff level by the Director of Community Development.
- D. The Conditions of Approval shall be reproduced on a page of the plans submitted for a Building permit for this project.
- E. The Use Permit for the use shall expire if the use is discontinued for a period of one year or more.
- F. The Use Permit shall be null and void two years from the date of approval by the final review authority at a public hearing if the approval is not exercised, unless a written request for an extension is received prior to expiration date.
- G. Any expansion or modification of the approved use shall be approved by separate application at a public hearing by the Commission.
- H. Comply with all requirements of previously approved Use Permit approvals.
- I. Every owner or operator of a wireless telecommunications facility shall renew the facility permit at least every five (5) years from the date of initial approval.
- J. Each facility must comply with any and all applicable regulations and standards promulgated or imposed by any state or federal agency,

- including but not limited to, the Federal Communications Commission and Federal Aviation Agency.
- K. The owner or operator of any facility shall submit and maintain current at all times basic contact and site information on a form to be supplied by the city. Applicant shall notify city of any changes to the information submitted within thirty (30) days of any change, including change of the name or legal status of the owner or operator. This information shall include, but is not limited to the following:
1. Identity, including name, address and telephone number, and legal status of the owner of the facility including official identification numbers and FCC certification, and if different from the owner, the identity and legal status of the person or entity responsible for operating the facility.
  2. Name, address and telephone number of a local contact person for emergencies.
  3. Type of service provided.
- L. The owner or operator shall maintain, at all times, a sign mounted on site showing the operator name, site number and emergency contact telephone number.
- M. The owner or operator of any facility shall obtain and maintain current at all times a business license as issued by the City.
- N. All facilities and related equipment, including lighting, fences, shields, cabinets, and poles, shall be maintained in good repair, free from trash, debris, litter and graffiti and other forms of vandalism, and any damage from any cause shall be repaired as soon as reasonably possible so as to minimize occurrences of dangerous conditions or visual blight. Graffiti shall be removed from any facility or equipment as soon as practicable, and in no instance more than forty-eight (48) hours from the time of notification by the city.
- O. Each owner or operator of a facility shall routinely and regularly inspect each site to ensure compliance with the standards set forth in the Telecommunications Ordinance.
- P. The wireless telecommunication facility provider shall defend, indemnify, and hold harmless the city or any of its boards, commissions, agents, officers, and employees from any claim, action or proceeding against the city, its boards, commission, agents, officers, or employees to attack, set aside, void, or annul, the approval of the project when such claim or action is brought within the time period provided for in applicable state and/or local statutes. The city shall promptly notify the provider(s) of any such claim, action or proceeding. The city shall have the option of coordinating in the

- defense. Nothing contained in this stipulation shall prohibit the city from participating in a defense of any claim, action, or proceeding if the city bears its own attorney's fees and costs, and the city defends the action in good faith.
- Q. Facility lessors shall be strictly liable for any and all sudden and accidental pollution and gradual pollution resulting from their use within the city. This liability shall include cleanup, intentional injury or damage to persons or property. Additionally, lessors shall be responsible for any sanctions, fines, or other monetary costs imposed as a result of the release of pollutants from their operations. Pollutants mean any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalis, chemicals, electromagnetic waves and waste. Waste includes materials to be recycled, reconditioned or reclaimed.
- R. Wireless telecommunication facility operators shall be strictly liable for interference caused by their facilities with city communication systems. The operator shall be responsible for all labor and equipment costs for determining the source of the interference, all costs associated with eliminating the interference, (including but not limited to filtering, installing cavities, installing directional antennas, powering down systems, and engineering analysis), and all costs arising from third party claims against the city attributable to the interference.
- S. No wireless telecommunication facility shall be sited or operated in such a manner that is poses, either by itself or in combination with other such facilities, a potential threat to public health. To that end no facility or combination of faculties shall produce at any time power densities in any inhabited area that exceed the FCC's Maximum Permissible Exposure (MPE) limits for electric and magnetic field strength and power density for transmitters or any more restrictive standard subsequently adopted or promulgated by the city, county, the state of California, or the federal government.
- T. Each facility shall be operated in such a manner so as to minimize any possible disruption caused by noise. At no time shall equipment noise from any source exceed an exterior noise level of 60 dB during daytime hours or 50 dB during nighttime hours as measured at the property line. Backup generators shall be allowed only during emergencies, and shall not be tested on weekends or holidays, or between the hours of 10:00 p.m. and 7:00 a.m. on weekday nights.
- U. All new signs shall be in conformance with Sunnyvale Municipal Code.

File Number: 2008-0405  
No. 08-09PLANNING DIVISION  
CITY OF SUNNYVALE  
P.O. BOX 3707  
SUNNYVALE, CALIFORNIA 94088-3707**NOTICE OF INTENT TO ADOPT  
NEGATIVE DECLARATION**

This form is provided as a notification of an intent to adopt a Negative Declaration which has been prepared in compliance with the provisions of the California Environmental Quality Act of 1970, as amended, and Resolution #193-86.

**PROJECT TITLE:**

Application for a Use Permit by T-Mobile.

**PROJECT DESCRIPTION AND LOCATION (APN):**

2008-0405 – T-Mobile [Applicant] **Pastoria Land And Building Corp.** [Owner]: Application for a Use Permit to allow 3 additional antennas for a total of 6 antennas to an existing wireless telecom site that has 6 carriers on a 99' tall monopole. The property is located at **375 N Pastoria Avenue** (near Hermosa Dr.) in an M-S (Industrial & Service) Zoning District. APN: 165-30-119)

**WHERE TO VIEW THIS DOCUMENT:**

The **Negative Declaration**, its supporting documentation and details relating to the project are on file and available for review and comment in the Office of the Secretary of the Planning Commission, City Hall, 456 West Olive Avenue, Sunnyvale.

This **Negative Declaration** may be protested in writing by any person prior to 5:00 p.m. on **Monday, June 23, 2008**. Protest shall be filed in the Department of Community Development, 456 W. Olive Avenue, Sunnyvale and shall include a written statement specifying anticipated environmental effects which may be significant. A protest of a **Negative Declaration** will be considered by the adopting authority, whose action on the protest may be appealed.

**HEARING INFORMATION:**

A public hearing on the project is scheduled for:

**Monday, June 23, 2008** at 8:00 p.m. in the Council Chambers, City Hall, 456 West Olive Avenue, Sunnyvale.

**TOXIC SITE INFORMATION:**

(No) listed toxic sites are present at the project location.

Circulated On May 22, 2008Signed:   
Gerry Caruso, Principal Planner

Project Title	Use Permit
Lead Agency Name and Address	City of Sunnyvale PO Box 3707 Sunnyvale, CA 94088-3707
Contact Person	Andrew Miner
Phone Number	408-730-7707
Project Location	375 N. Pastoria Ave.
Project Sponsor's Name	Leah Hernikl, T-Mobile USA
Address	410 Clubhouse Blvd. Aptos, CA 95003
Zoning	MS (Industrial and Service)
General Plan	Industrial
Other Public Agencies whose approval is required	None

**Description of the Project:** The applicant proposes to add 3 new antennas and replace 3 existing antennas to an existing wireless installation on an existing 99' monopole. The application also includes replacing an existing radio equipment cabinet in the same location as existing. The applicant has submitted a radio frequency emissions report indicating compliance with FCC standards. The applicant will be required to obtain a building permit subsequent to planning approval of the project.

**Surrounding Uses and Setting:** The project is located at 375 N. Pastoria Avenue. The Elks Lodge is located on the same site. Surrounding the property are R&D office/industrial uses.

**EVALUATION OF ENVIRONMENTAL IMPACTS**

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
3. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
4. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
5. "Negative Declaration: Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section 17, "Earlier Analysis," may be cross-referenced).
6. Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c) (3) (d). In this case, a brief discussion should identify the following:
  7. Earlier Analysis Used. Identify and state where they are available for review.
  8. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  9. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project
10. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

**ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:**

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Aesthetics             | <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Public Services                    |
| <input type="checkbox"/> Agricultural Resources | <input type="checkbox"/> Hydrology/Water Quality       | <input type="checkbox"/> Recreation                         |
| <input type="checkbox"/> Air Quality            | <input type="checkbox"/> Land Use/Planning             | <input type="checkbox"/> Transportation/Traffic             |
| <input type="checkbox"/> Biological Resources   | <input type="checkbox"/> Mineral Resources             | <input type="checkbox"/> Utilities/Service Systems          |
| <input type="checkbox"/> Cultural Resources     | <input type="checkbox"/> Noise                         | <input type="checkbox"/> Mandatory Findings of Significance |
| <input type="checkbox"/> Geology/Soils          | <input type="checkbox"/> Population/Housing            |   |

**DETERMINATION: (To be completed by the Lead Agency)**

On the basis of this initial evaluation:

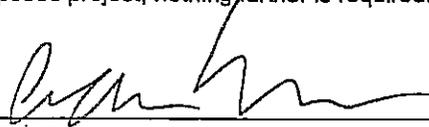
I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have a "potential significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



May 21, 2008

Signature  
Andrew Miner  
Printed Name

Date  
City of Sunnyvale  
For (Lead Agency)

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
<b>1. AESTHETICS. Would the project:</b>					
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94
b. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Disc.
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94
<b>2. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:</b>					
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3, 94, 100, 111
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3, 94, 100, 111
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3, 96, 97, 100, 111
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	62, 63, 111, 112
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	111, 112
<b>3. BIOLOGICAL RESOURCES:</b>					
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U. S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94, 111, 112, 109

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
b. Have a substantially adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94, 111, 112, 109
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94, 111, 112, 109
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94, 111, 112, 109
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94, 111, 112, 109
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	41, 94, 111, 112
<b>4. CULTURAL RESOURCES. Would the project:</b>					
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10, 42, 60, 61, 94, 111
b. Cause a substantial adverse change in the significance of an archaeological resources pursuant to Section 15064.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10, 42, 94
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	10, 42, 94, 111
d. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 111, 112
<b>5. LAND USE AND PLANNING. Would the project:</b>					
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 11, 12, 21, 28

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
b. Conflict with an applicable land use plan, policy or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 11, 12, 28
c. Conflict with any applicable habitat conservation plan or natural communities conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 41, 94, 111
<b>6. MINERAL RESOURCES. Would the project:</b>					
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94
<b>7. NOISE. Would the project result in:</b>					
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Disc.
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 16, 26, 94, 111, 112
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 16, 26, 94, 111, 112
d. A substantially temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 16, 26, 94, 111, 112
<b>8. POPULATION AND HOUSING. Would the project:</b>					
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 94

Environmental Checklist Form

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 11, 111, 112
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 11, 111, 112
<b>9. PUBLIC SERVICES.</b> Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 111, 112
b. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	26, 65, 66, 103, 104
c. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	26, 65, 66, 103, 104
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 111, 112
e. Other services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 111, 112
<b>10. MANDATORY FINDINGS OF SIGNIFICANCE</b>					
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 10, 26, 42, 59, 60, 61, 111, 112

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1, 2, 111, 112
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	111, 112
<b>11. GEOLOGY AND SOILS. Would the project:</b>					
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UBC, UPC, UMC, NEC
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"
b. Result in substantial soil erosion or the loss of topsoil?					"
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
d. Be located on expansive soil, as defined in Table 18-a-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	"
<b>12. UTILITIES AND SERVICE SYSTEMS. Would the project:</b>					
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 20, 24, 87, 88, 89, 90, 111, 112
b. Require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 20, 24, 25, 87, 88, 89, 111, 112
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 20, 24, 25, 87, 88, 89, 111, 112
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 20, 24, 25, 87, 88, 89, 111, 112
e. Result in a determination by the wastewater treatment provider which services or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 20, 24, 25, 87, 88, 89, 111, 112
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 22, 90, 111, 112
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 22, 90, 111, 112

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
<b>13. TRANSPORTATION/TRAFFIC.</b> Would the project:					
a. Cause an increase in the traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 12, 75-77, 111, 112
b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 12, 71, 75-77, 80, 84, 111, 112
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 111, 112, 113
d. Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 12, 71, 75-77, 80, 84, 111, 112
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	76
f. Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	37
g. Conflict with adopted policies or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 12, 81, 111, 112
<b>14. HAZARDS AND HAZARDOUS MATERIALS.</b> Would the project?					
a. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC
g. Impair Implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UFC, UBC, SVMC
<b>15. RECREATION</b>					
a. Would the project increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 18, 111, 112
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 18, 111, 112
<b>16. AGRICULTURE RESOURCES:</b> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:					

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
a. Convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	94
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	94
c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	94
<b>17. HYDROLOGY AND WATER QUALITY. Would the project:</b>					
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
b. Substantially degrade groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or surface runoff in a manner which would result in flooding on- or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
e. Create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112

	Potentially Significant Impact	Less than Sig. With Mitigation	Less Than Significant	No Impact	Source
f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
g. Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112
j) Inundation by selche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 24, 25, 111, 112

**Discussion of Impacts:**

**1.c. Aesthetics:** The existing monopole is visible from surrounding properties; however, the addition of 3 new antennas on a 6-carrier pole will be insignificant.

**RF Emissions:** The facility is subject to Federal Communication Commission (FCC) limits of emission standards for human exposure. The applicant has submitted a RF (radio frequency) exposure study, conducted by Hammitt & Edison, Inc., indicating compliance with these Federal requirements.

Andrew Miner  
 Completed By

5/21/2008  
 Date

**City of Sunnyvale General Plan:**

2. Map
3. Air Quality Sub-Element
4. Community Design Sub-Element
5. Community Participation Sub-Element
6. Cultural Arts Sub-Element
7. Executive Summary
8. Fire Services Sub-Element
9. Fiscal Sub-Element
10. Heritage Preservation Sub-Element
11. Housing & Community Revitalization Sub-Element
12. Land Use & Transportation Sub-Element
13. Law Enforcement Sub-Element
14. Legislative Management Sub-Element
15. Library Sub-Element
16. Noise Sub-Element
17. Open Space Sub-Element
18. Recreation Sub-Element
19. Safety & Seismic Safety Sub-Element
20. Sanitary Sewer System Sub-Element
21. Socio-Economic Sub-Element
22. Solid Waste Management Sub-Element
23. Support Services Sub-Element
24. Surface Run-off Sub-Element
25. Water Resources Sub-Element

**City of Sunnyvale Municipal Code:**

27. Chapter 10
28. Zoning Map
29. Chapter 19.42. Operating Standards
30. Chapter 19.28. Downtown Specific Plan District
31. Chapter 19.18. Residential Zoning Districts
32. Chapter 19.20. Commercial Zoning Districts
33. Chapter 19.22. Industrial Zoning Districts
34. Chapter 19.24. Office Zoning Districts
35. Chapter 19.26. Combining Zoning Districts
36. Chapter 19.28. Downtown Specific Plan
37. Chapter 19.46. Off-Street Parking & Loading
38. Chapter 19.56. Solar Access
39. Chapter 19.66. Affordable Housing
40. Chapter 19.72. Conversion of Mobile Home Parks to Other Uses
41. Chapter 19.94. Tree Preservation
42. Chapter 19.96. Heritage Preservation

**Specific Plans**

43. El Camino Real Precise Plan
44. Lockheed Site Master Use Permit
45. Moffett Field Comprehensive Use Plan
46. 101 & Lawrence Site Specific Plan
47. Southern Pacific Corridor Plan

**Environmental Impact Reports**

48. Futures Study Environmental Impact Report
49. Lockheed Site Master Use Permit Environmental Impact Report
50. Tasman Corridor LRT Environmental Impact Study (supplemental)
51. Kaiser Permanente Medical Center Replacement

**Center Environmental Impact Report (City of Santa Clara)**

52. Downtown Development Program Environmental Impact Report
53. Caribbean-Moffett Park Environmental Impact Report
54. Southern Pacific Corridor Plan Environmental Impact Report

**Maps**

55. City of Sunnyvale Aerial Maps
56. Flood Insurance Rate Maps (FEMA)
57. Santa Clara County Assessors Parcel
58. Utility Maps (50 scale)

**Lists/Inventories**

59. Sunnyvale Cultural Resources Inventory List
60. Heritage Landmark Designation List
61. Santa Clara County Heritage Resource Inventory
62. Hazardous Waste & Substances Sites List (State of California)
63. List of Known Contaminants in Sunnyvale

**Legislation/Acts/Bills/Codes**

64. Subdivision Map Act
65. Uniform Fire Code, including amendments per SMC adoption
66. National Fire Code (National Fire Protection Association)
67. Title 19 California Administrative Code
68. California Assembly Bill 2185/2187 (Waters Bill)
69. California Assembly Bill 3777 (La Follette Bill)
70. Superfund Amendments & Reauthorization Act (SARA) Title III

**Transportation**

71. California Department of Transportation Highway Design Manual
72. California Department of Transportation Traffic Manual
73. California Department of Transportation Standard Plan
74. California Department of Transportation Standard Specification
75. Institute of Transportation Engineers - Trip Generation
76. Institute of Transportation Engineers Transportation and Traffic Engineering Handbook
77. U.S. Dept. of Transportation Federal Highway Admin. Manual on Uniform Traffic Control Devices for Street and Highways
78. California Vehicle Code
79. Traffic Engineering Theory & Practice by L. J. Pegnataro
80. Santa Clara County Congestion Management Program and Technical Guidelines
81. Santa Clara County Transportation Agency Short Range Transit Plan

- 82. Santa Clara County Transportation Plan
- 83. Traffic Volume Studies, City of Sunnyvale Public works Department of Traffic Engineering Division
- 84. Santa Clara County Sub-Regional Deficiency Plan
- 85. Bicycle Plan

**Public Works**

- 86. Standard Specifications and Details of the Department of Public Works
- 87. Storm Drain Master Plan
- 88. Sanitary Sewer Master Plan
- 89. Water Master Plan
- 90. Solid Waste Management Plan of Santa Clara County
- 91. Geotechnical Investigation Reports
- 92. Engineering Division Project Files
- 93. Subdivision and Parcel Map Files

**Miscellaneous**

- 94. Field Inspection
- 95. Environmental Information Form
- 96. Annual Summary of Containment Excesses (BAAQMD)
- 97. Current Air Quality Data
- 98. Chemical Emergency Preparedness Program (EPA Interim Document in 1985?)

- 99. Association of Bay Area Governments (ABAG) Population Projections
- 100. Bay Area Clean Air Plan
- 101. City-wide Design Guidelines
- 102. Industrial Design Guidelines

**Building Safety**

- 103. Uniform Building Code, Volume 1, (Including the California Building Code, Volume 1)
- 104. Uniform Building Code, Volume 2, (Including the California Building Code, Volume 2)
- 105. Uniform Plumbing Code, (Including the California Plumbing Code)
- 106. Uniform Mechanical Code, (Including the California Mechanical Code)
- 107. National Electrical Code (Including California Electrical Code)
- 108. Title 16 of the Sunnyvale Municipal Code

**Additional References**

- 109. USFWS/CA Dept. F&G Special Status Lists
- 110. Project Traffic Impact Analysis
- 111. Project Description
- 112. Project Development Plans
- 113. Santa Clara County Airport Land Use Plan
- 114. Federal Aviation Administration

**DRAWING INDEX**

REV. NO.	DWG. NO.	DESCRIPTION
0	T-1	COVER SHEET
0	G-1	SPECIFICATIONS
0	A-1	SITE PLAN
0	A-2	COMPOUND LAYOUT
0	A-3	ELEVATIONS
0	A-4	EQUIPMENT DETAILS
0	S-1	STRUCTURAL DETAILS
0	E-1	SINGLE LINE DIAGRAM AND ELECTRICAL SPECIFICATION
0	E-2	ELECTRICAL LAYOUT

**CROWN CASTLE SITE INFORMATION**

SITE NAME: CENTRAL EXPRESSWAY BLP 514316

**PROPERTY SPECIALIST:**  
CONTACT: VICTORIA PETERS  
PHONE: (425) 751-1005

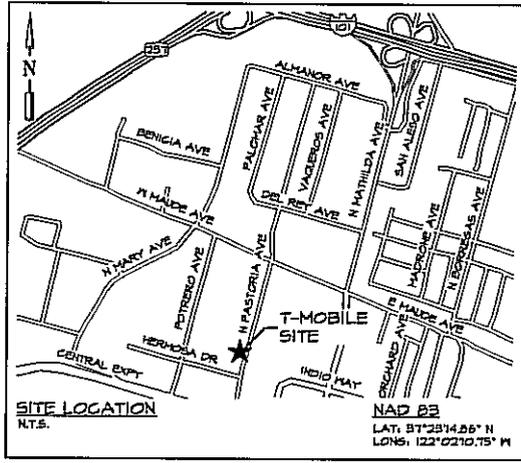


**SUNNYVALE ELKS CLUB**

SF04403A

**DIRECTIONS FROM T-MOBILE OFFICE (CONCORD):**

DEPART T-MOBILE OFFICE ON GATEWAY BLVD (EAST). TURN RIGHT (WEST) ONTO CLAYTON RD. TAKE RAMP (RIGHT) ONTO SR-742 TOWARDS CA-742/DAKLAND. TURN OFF ONTO RAMP. TAKE RAMP (LEFT) ONTO I-680 (SINCLAIR Fwy) FOR 31.4 MILES TOWARDS I-680/OAKLAND/SAN JOSE. TAKE RAMP (RIGHT) ONTO SR-262 (MISSION BLVD) FOR 11 MILES TOWARDS MISSION BLVD (WEST)-BROADWAY SPRINGS DISTRICT/EXTENSION. TURN LEFT ONTO RAMP. TAKE RAMP (LEFT) ONTO I-680 (MITZ Fwy) FOR 3.6 MILES TOWARDS I-680/SAN JOSE. TURN RIGHT ONTO RAMP TOWARDS CA-237/CALAVERAS BLVD/MILPITAS. TURN RIGHT (WEST) ONTO SR-237 (ALVISO-MILPITAS RD) FOR 6.0 MILES. TURN RIGHT ONTO RAMP TOWARDS MATILDA AVENUE/101/SUNNYVALE. TURN LEFT (SOUTH) ONTO N MATILDA AVE FOR 1.0 MILES. TURN RIGHT (WEST) ONTO W MAUDE AVE. TURN LEFT (SOUTH) ONTO N PASTORIA AVE. ARRIVE AT 375 N PASTORIA AVE, SUNNYVALE, CA.



**PROJECT ADDRESS:**

375 N PASTORIA AVE  
SUNNYVALE, CA 94085

**APN:**

165-30-018

**DESCRIPTION OF WORK:**

THE PROJECT CONSISTS OF THE REPLACEMENT OF (1) EXISTING T-MOBILE EQUIPMENT CABINET WITH (1) PROPOSED T-MOBILE EQUIPMENT CABINET, THE REPLACEMENT OF (2) EXISTING PANEL ANTENNAS WITH (2) 4'-5" DUAL-POL PANEL ANTENNAS AND THE ADDITION OF (2) 4'-5" DUAL-POL PANEL ANTENNAS ON AN EXISTING 41'-0" MONOPOLE.

**APPLICANT:**

T-MOBILE BY: TOMN CONSULTING  
2248 5RD STREET  
SAN FRANCISCO, CA 94107  
CONTACT: LEAH HERNIKL  
PHONE: (408) 794-1182

**STRUCTURE OWNER:**

CROWN CASTLE USA  
CONTACT: TED CONSER  
PHONE: (425) 480-0048

**CODE INFORMATION:**

ZONING CLASSIFICATION: M-5 INDUSTRIAL  
PROPOSED USE: TELECOMMUNICATION FACILITY  
BUILDING CODE: 2001 CALIFORNIA BUILDINGS CODE  
ELECTRICAL CODE: 2004 CALIFORNIA ELECTRICAL CODE  
OCCUPANCY GROUP: U  
CONSTRUCTION TYPE: NON-COMBUSTIBLE  
PROJECT AREA: 56.8' x 50. FT.  
STRUCTURE HEIGHT: 41'-0" (T.O. EXISTING MONOPOLE)

**PROJECT ENGINEER:**

TRK ENGINEERING LTD.  
1201 - 11625 66TH AVE  
SURREY, BC V5S 1X1 CANADA  
CONTACT: RICK PARSONS  
TEL: (604) 574-6432  
FAX: (604) 574-6431  
TOLL FREE: 1-877-245-4045  
EMAIL: rick@trkeng.com  
WEB: www.trkeng.com

**CONSTRUCTION MANAGER:**

CONTACT: TED CONSER  
PHONE: (425) 480-0048

**GENERAL CONTRACTOR:**

METROPOLITAN ELECTRIC  
CONTACT: JOE DAMICO  
PHONE: (415) 642-2043

**ZONING CONTACT:**

TOMN CONSULTING  
2248 5RD STREET  
SAN FRANCISCO, CA 94107  
CONTACT: LEAH HERNIKL  
PHONE: (408) 794-1182

**JURISDICTION:**

CITY OF SUNNYVALE

**SURVEYOR:**

N/A

**ACCESSIBILITY:**

INSTALLATION IS UNARMED AND NOT FOR HUMAN HABITATION / PUBLIC ACCESS. A.D.A. ACCESSIBILITY IS NOT REQUIRED.

**APPROVAL LIST**

	SIGNATURE	DATE
CONSTRUCTION MANAGER		
SITE ACQUISITION		
ZONING MANAGER		
RF MANAGER		
OWNER		

RFDS VERSION 14

10/01/2007

WINDPOINT  
**T-Mobile**  
1855 GATEWAY BLVD  
SUITE 100  
CONCORD, CA 94529



100 - 11625 66TH AVE  
SURREY, BC V5S 1X1 CANADA  
TEL: (604) 574-6432  
FAX: (604) 574-6431  
TOLL FREE: 1-877-245-4045  
EMAIL: rick@trkeng.com  
WEB: www.trkeng.com

PROJECT NO: 0008-018

DRAWN BY: AD

CHECKED BY: PH

CAD FILE: 0808-0811

**SUBMITTALS**

ATTACHED  
Page 1 of 9

DATE REVISION  
A HAN DESIGN  
B SALED FOR REVIEW

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SUNNYVALE ELKS CLUB  
(SF04403A)  
375 N PASTORIA AVE  
SUNNYVALE, CA 94085

SHEET TITLE  
**COVER SHEET**

SHEET NUMBER  
**T-1**

**GENERAL NOTES:**

1. THESE NOTES SHALL APPLY TO ALL DRAWINGS HEREIN THEY ARE REFERENCED UNLESS SPECIFIC NOTES ON DRAWINGS SHALL TAKE PRECEDENCE OVER THESE NOTES.
2. ALL CONSTRUCTION TO CONFORM TO CBC 2007, LOCAL ORDINANCES AND ALL APPLICABLE STANDARDS.
3. THESE DRAWINGS SHOW THE COMPLETED PROJECT ONLY AND DO NOT INCLUDE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY.
4. THE GENERAL CONTRACTOR SHALL ENSURE THE STABILITY OF THE STRUCTURAL COMPONENTS AND THE STRUCTURE AS A WHOLE DURING ALL STAGES BY TEMPORARILY SUPPORTING AND BRACING AS NECESSARY UNTIL COMPLETION OF THE PROJECT.
5. THE USE OF THESE DRAWINGS IS STRICTLY LIMITED TO THE EXTENT NOTED IN THE REVISION BLOCK OF THESE DRAWINGS AND SHALL BE USED FOR CONSTRUCTION ONLY WHEN THE DRAWINGS HAS BEEN ISSUED FOR CONSTRUCTION.
6. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE PORTABLE WATER OR POWER SERVICE.
7. THE PROPOSED FACILITY IS UNMANNED AND IS NOT FOR HUMAN HABITATION/PUBLIC ACCESS. ADA ACCESSIBILITY IS NOT REQUIRED.
8. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND REPAIRS APPROXIMATELY 2 TIMES PER MONTH BY T-MOBILE TECHNICIANS.
9. NO NOISE, SHOCK, DUST OR ODOR SHALL RESULT FROM THIS PROPOSAL.
10. OUTDOOR STORAGE AND SOLID WASTE CONTAINERS ARE NOT PROPOSED.
11. ALL REFERENCES TO SPECIFIC STANDARDS FOR THIS PROPOSAL ARE UNDERSTOOD TO BE THE LATEST VERSION.
12. THE TENDER MUST UNDERTAKE A SITE VISIT TO CAREFULLY EXAMINE AND UNDERSTAND THE SCOPE OF THE WORK REQUIRED BEFORE BID SUBMISSION. NO COMPENSATION IN ANY FORM SHALL BE PAID FOR DEFERRED RESULTS FROM FAILURE TO DO SO.
13. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED.
14. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE ENGINEERING LTD.
15. CONTRACTOR IS RESPONSIBLE FOR FIELD MEASUREMENTS TO CONFIRM LENGTHS OF CABLE TRAYS, ELECTRICAL LINES, AND ANTENNA CABLES.
16. ROUTING OF ALL CABLES, CABLE TRAYS, CABLE TRAY, ETC. IS INDICATED AS PROPOSED LOCATIONS ONLY. CONFIRM THE EXACT ROUTING WITH THE ON-SITE CONSTRUCTION MANAGER PRIOR TO THE START OF WORK.
17. ALL DAMAGE OR OBTAINING UP OF THE EXISTING STRUCTURE MUST BE MADE GOOD TO THE PRE-CONSTRUCTION CONDITION OR BETTER.
18. INSPECTION OF COMPLETED WORK IS REQUIRED BEFORE COVERING UP. PROVIDE MINIMUM 24 HOURS NOTICE.
19. REMOVE AND CLEAN UP ANY DEBRIS OR MATERIAL FROM THE SITE THROUGHOUT THE DURATION OF THE CONTRACT ON A DAILY BASIS AND UPON COMPLETION OF THE WORK AS DIRECTED BY CONSTRUCTION MANAGER.
20. OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTIONS REQUIRED FOR COMPLETION OF WORK AND ACCEPTANCE. PROVIDE CERTIFICATES TO THE CONSTRUCTION MANAGER VERIFYING THAT THE WORK CONFORMS TO THE REQUIREMENTS OF ALL CODES AND AUTHORITIES HAVING JURISDICTION.
21. NO DEVIATIONS FROM DESIGN SHOWN ON THESE DRAWINGS IS ALLOWED WITHOUT WRITTEN APPROVAL FROM THE ENGINEERING LTD. FAILURE TO OBSERVE THIS RULE MAY RESULT IN CONTRACTOR CORRECTING THE INSTALLATION AT THEIR EXPENSE.
22. ALL ITEMS NOT LISTED AS "EXISTING" OR "PROVIDED BY OTHERS" ARE TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
23. STRUCTURAL ANALYSIS TO VERIFY THAT THE EXISTING MONOPOLE HAS CAPACITY TO SUPPORT THE PROPOSED ANTENNA AND LOADS. ANALYSIS IS TO BE DONE BY OTHERS (A PROFESSIONAL ENGINEER) PRIOR TO CONSTRUCTION. PRIOR TO CONSTRUCTION CONTRACTOR TO OBTAIN A COPY OF THE ANALYSIS AND CORRESPONDING ANALYSIS MATCHES PROPOSED LOADINGS IN DRAWINGS. REPORT ANY DISCREPANCIES TO DRAWING.

**DESIGN CRITERIA:**

1. THE STRUCTURAL DESIGN OF THIS INSTALLATION IS IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE 2007.
2. **DESIGN LOADS:**  
DESIGN DATA FOR SUNNYVALE, CA
  - ROOF SNOW LOAD \_\_\_\_\_ W/A
  - BASIC WIND SPEED @ 33M (105FT) \_\_\_\_\_ 63 mph
  - WIND EXPOSURE \_\_\_\_\_ C
  - WANTED SPECTRAL ACCELERATIONS FOR SHORT PERIODS \_\_\_\_\_ S<sub>s</sub> = 1300g
  - WANTED SPECTRAL ACCELERATIONS FOR A 1 SECOND PERIOD \_\_\_\_\_ S<sub>1</sub> = 645g

**CONCRETE NOTES:**

1. ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 308.
2. CONCRETE SHALL BE MIXED PROPORTIONS, COMPACTED AND PLACED IN ACCORDANCE WITH 2007 CBC SECTION 1905 AND ACI 308. STRENGTHS AT 28 DAYS AND MIX CRITERIA SHALL BE AS FOLLOWS:
 

TYPE OF CONCR.	28 DAY STRENGTH (PSI)	MIX PROPORTION	CONCRETE CONTROL PER (CBSG) T/D
A. SLABS ON GRADE	2300 PSI	≤ 4.5	3 1/2 BAGS
B. ALL STRUCTURAL CONCRETE	4000 PSI	≤ 4.5	4 1/2 BAGS
3. THE GENERAL CONTRACTOR SHALL SUPERVISE AND BE RESPONSIBLE FOR THE METHODS AND PROCEDURES OF CONCRETE PLACEMENT.
4. ALL CONCRETE WITH SURFACES EXPOSED TO STAINING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINER ADJUST CONFORMS TO ASTM C260, C244, C245, C246 AND C247. TOTAL AIR CONTENT SHALL BE IN ACCORDANCE WITH TABLE 19.04.2.1 OF THE 2007 CBC.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A618 (INCLUDING SUPPLEMENT S1), GRADE 60, 60,000 PSI. RECEPTIONS, ANY BARS SPECIFICALLY SO NOTED ON THE DRAWINGS SHALL BE GRADE 40, 60,000 PSI. GRADE 40 REINFORCING BARS INDICATED ON DRAWINGS TO BE HELDED SHALL CONFORM TO ASTM A706. REINFORCING COMPLIES WITH ASTM A955. HELD BARS SHALL BE HELDED ONLY IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH HELDING PROCEDURES SPECIFIED IN A706, D11 ARE SUBMITTED.
6. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 308 AND 318. LAP ALL CONTIGUOUS REINFORCEMENT AT LEAST 30 BAR DIAMETERS OR A MINIMUM OF 2'-0". PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS AT LEAST 30 BAR DIAMETERS OR A MINIMUM OF 2'-0". LAP ADJACENT MATS OF HELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND BENDS.
7. HELDED WIRE FABRIC SHALL CONFORM TO ASTM A462.
8. METAL REINFORCEMENT SHALL BE PLAN WIRE CONFORMS TO ASTM A618, GRADE 60, 60,000 PSI.
9. NO BARS PARTIALLY ENCASED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE CONSULTANT.
10. CONCRETE PROTECTION COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
 

• FOOTINGS AND OTHER UNFINISHED SURFACES, EXTERIOR FACE	5"
• FORMED SURFACES EXPOSED TO BARTH OR WEATHER	(#4 BARS OR LARGER) 2" (#3 BARS OR SMALLER) 1 1/2"
• SLABS AND WALLS (INTERIOR FACE)	3/4"
11. BARS SHALL BE SUPPORTED ON CHAIRS OR DOBE BRUCKS.
12. ANCHOR BOLTS TO CONFORM TO ASTM A307.
13. NON-SHOCK BOLT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURERS FURNISHED RECOMMENDATIONS. SHOCK STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (3000 PSI MINIMUM).

**STRUCTURAL STEEL NOTES:**

1. SHOP DRAWINGS FOR STRUCTURAL STEEL SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW PRIOR TO FABRICATION.
2. STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION (INCLUDING FIELD WELDING, HIGH STRENGTH FIELD BOLTING, EXPANSION BOLTS, AND THREADED EXPANSION ANCHORS) SHALL BE BASED ON THE AISC. SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS' LATEST EDITION. SUPERVISION SHALL BE IN ACCORDANCE OF THE SECTION 1701 CBC 2007, BY A QUALIFIED PERSON SUBJECT DESIGNATED BY THE CONSULTANT. THE CONSULTANT SHALL BE FURNISHED WITH A COPY OF ALL INSPECTION REPORTS AND TEST RESULTS.
3. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
 

TYPE OF MEMBER

A. PLATED SHAPES, ANGLES, AND RODS	ASTM A572, Fy 50 KSI
B. SPECIAL SHAPES AND PLATES	ASTM A572, Fy 60 KSI
C. PIPE COLUMNS	ASTM A572, Fy 60 KSI
D. STRUCTURAL TUBES	ASTM A500, Fy 48 KSI
E. ANCHOR BOLTS	ASTM A307
F. CONNECTION BOLTS	ASTM A572 THIST-OFF TYPE
4. ALL MATERIAL TO BE HOT DIPPED GALVANIZED AFTER FABRICATION PER A153/A153M-00.
5. ALL WELDS SHALL BE IN CONFORMANCE WITH AISC, AND AISC STANDARDS AND SHALL BE PERFORMED BY FIELD CERTIFIED WELDERS USING E70 XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY AWS) SHALL BE USED. WELDS OF GRADE 60 REINFORCING BARS (IF REQUIRED) SHALL BE PERFORMED USING LOW HYDROGEN ELECTRODES. WELDS OF GRADE 40 REINFORCING BARS (IF REQUIRED) SHALL BE PERFORMED USING E70 XX ELECTRODES. WELDS WITHIN 4" OF GILD BOLDS IN REINFORCING STEEL IS NOT PERMITTED. SEE REINFORCEMENT NOTE FOR MATERIAL REQUIREMENTS OF WELDED BARS.
6. COLD-FORMED STEEL FRAMING MEMBERS SHALL BE OF THE SHAPES, SIZE, AND WEIGHT SHOWN ON THE PLANS. PROVIDE MINIMUM SECTION PROPERTIES REPEATED. ALL COLD-FORMED STEEL FRAMING SHALL CONFORM TO THE AISC. SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
7. BOLTED CONNECTIONS SHALL USE BEARERS TYPE ASTM A325 BOLTS (3/4" DIA) AND SHALL HAVE A MINIMUM OF 10 BOLTS UNLESS NOTED OTHERWISE. ALL ASSEMBLY ARE TO BE TIGHTENED IN ACCORDANCE WITH SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A325C BOLTS (USE 30, 3000'). FOR BEARERS-TYPE CONNECTIONS, AS A MINIMUM THE BOLTS SHALL BE TIGHTENED TO A "TIGHT" CONDITION AS DEFINED IN THE ABOVE REFERENCED CODE.
8. NON-STRUCTURAL CONNECTIONS FOR STEEL BRACING MAY USE 3/8" DIA. ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
9. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE DESIGN & CONSTRUCTION SPECIFICATION AND IN ACCORDANCE WITH ASTM A56 UNLESS NOTED OTHERWISE.
10. ALL HELDS TO BE 1/4" FILLER UNLESS NOTED OTHERWISE.
11. TOUCH UP ALL FIELD DRILLING AND WELDING WITH 2 COATS OF GALVACHG (ZINC RICH PAINT) OR APPROVED EQUAL.

**SPECIAL INSPECTIONS:**

- SPECIAL INSPECTIONS IN ACCORDANCE WITH SECTION 1704 OF THE CBC 2007.
- SOILS/GEOTECHNICAL**
- OBSERVE INSTALLATION AND MONITORING
  - OBSERVE AND MONITOR EXCAVATION
  - VERIFY SOIL BEARINGS
  - OBSERVE/VERIFY DRILLING PLACEMENT
  - VERIFY FILL MATERIAL AND COMPACTON
  - VERIFY CONDITIONS AS ANTICIPATED
  - FILE PLACEMENT (UNDER EASTP/ST/07 FILE)
  - OTHER \_\_\_\_\_
- REINFORCED CONCRETE**
- REINFORCING STEEL AND CONCRETE PLACEMENT
  - PRESTRESSED/PRECAST CONCRETE FABRICATION AND ERECTION
  - BATCH/PLANT INSPECTION
  - BRICKWORK
  - MASONRY
  - OTHER \_\_\_\_\_
- STRUCTURAL STEEL**
- FABRICATION AND SHOP WELDS
  - ERECTION AND FIELD WELDS AND BOLTING
  - OTHER \_\_\_\_\_
- STRUCTURAL ALUMINUM**
- FABRICATION AND SHOP DRAWINGS
  - ERECTION, FIELD WELDS AND BOLTING
  - OTHER \_\_\_\_\_
- STRUCTURAL MASONRY**
- CONCRETE
  - BRICKWORK
  - OTHER \_\_\_\_\_
- OTHER**
- \_\_\_\_\_
- ANCHORS TO CONCRETE**
- BOLTS INSTALLED IN CONCRETE
  - POST-INSTALLATION ADHESIVE ANCHORS
  - POST-INSTALLATION MECHANICAL ANCHORS

WORKPOINT  
**T-Mobile**  
 1833 GATEWAY BLVD  
 SUITE 100  
 CONCORD, CA 94520

**TRK ENGINEERING**  
 1021 - 7TH ST. 8TH FLOOR  
 SUITE 100  
 TEL: (925) 875-4000  
 FAX: (925) 875-4000  
 TOLL FREE: 1-877-8-1010  
 EMAIL: trk@trkeng.com  
 WEB: www.trkeng.com

PROJECT NO: 0806-002  
 DRAWN BY: AD  
 CHECKED BY: PH  
 CAD FILE: 0806-002.dwg

SUBMITTALS  
 ATTACHED  
 Page 22

DATE: \_\_\_\_\_  
 TIME: \_\_\_\_\_  
 OF \_\_\_\_\_

DATE: \_\_\_\_\_  
 TIME: \_\_\_\_\_  
 OF \_\_\_\_\_

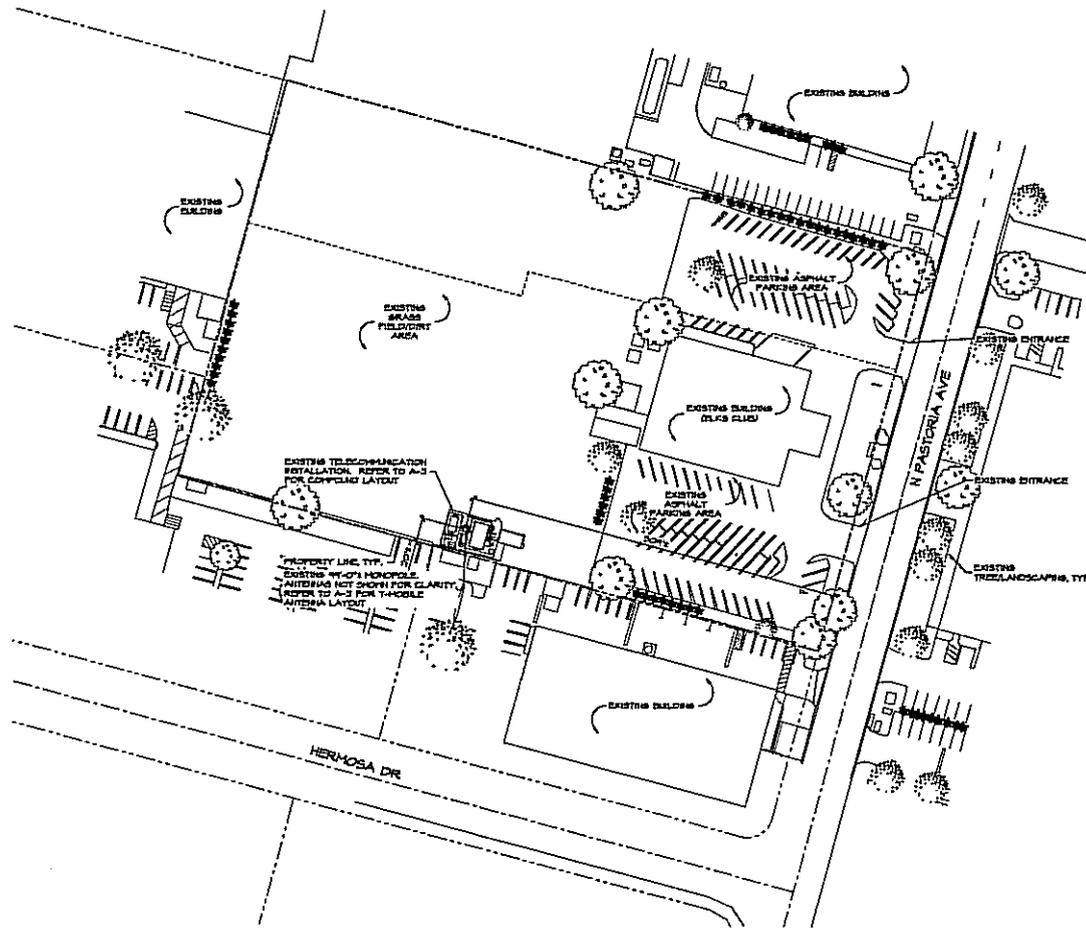
SUNNYVALE ELKS CLUB  
 (SFO4402A)  
 375 N PASTORIA AVE  
 SUNNYVALE, CA 94085

SHEET TITLE  
 SPECIFICATIONS

SHEET NUMBER  
**G-1**



TRUE NORTH ARROW SHOWN ON THIS DRAWING IS APPROXIMATE ONLY AND MUST BE VERIFIED BY CONTRACTOR



**SITE PLAN**  
1"=100'-0"  
0 25 50 100'

**NOTES:**

1. SITE PLAN INFORMATION WAS OBTAINED FROM A DRAWING PREPARED BY VELODITE, ARCHITECTURE AND ENGINEERING DIVISION, DATED MARCH 23, 2004 AND AERIAL PHOTOGRAPHY. THIS DRAWING DOES NOT REPRESENT A SURVEY. ALL DIMENSIONS TO PROPERTY LINES ARE APPROXIMATE ONLY.

**MOBILEPOINT**  
**T-Mobile**  
1855 GATEWAY BLVD  
SUITE 300  
C.O. GARD, CA 94520



1021 - 17808 86TH AVE  
SUNNYVALE, BC V2S 2X1 CANADA  
TEL: (604) 874-8452  
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PROJECT NO. 0806-03  
DRAWN BY: AD  
CHECKED BY: PH  
CAD FILE: 0806-03A1

SUBMITTALS  
DATE DRAWN: 08/02 FOR 0806  
DATE CHECKED: 08/02 FOR 0806

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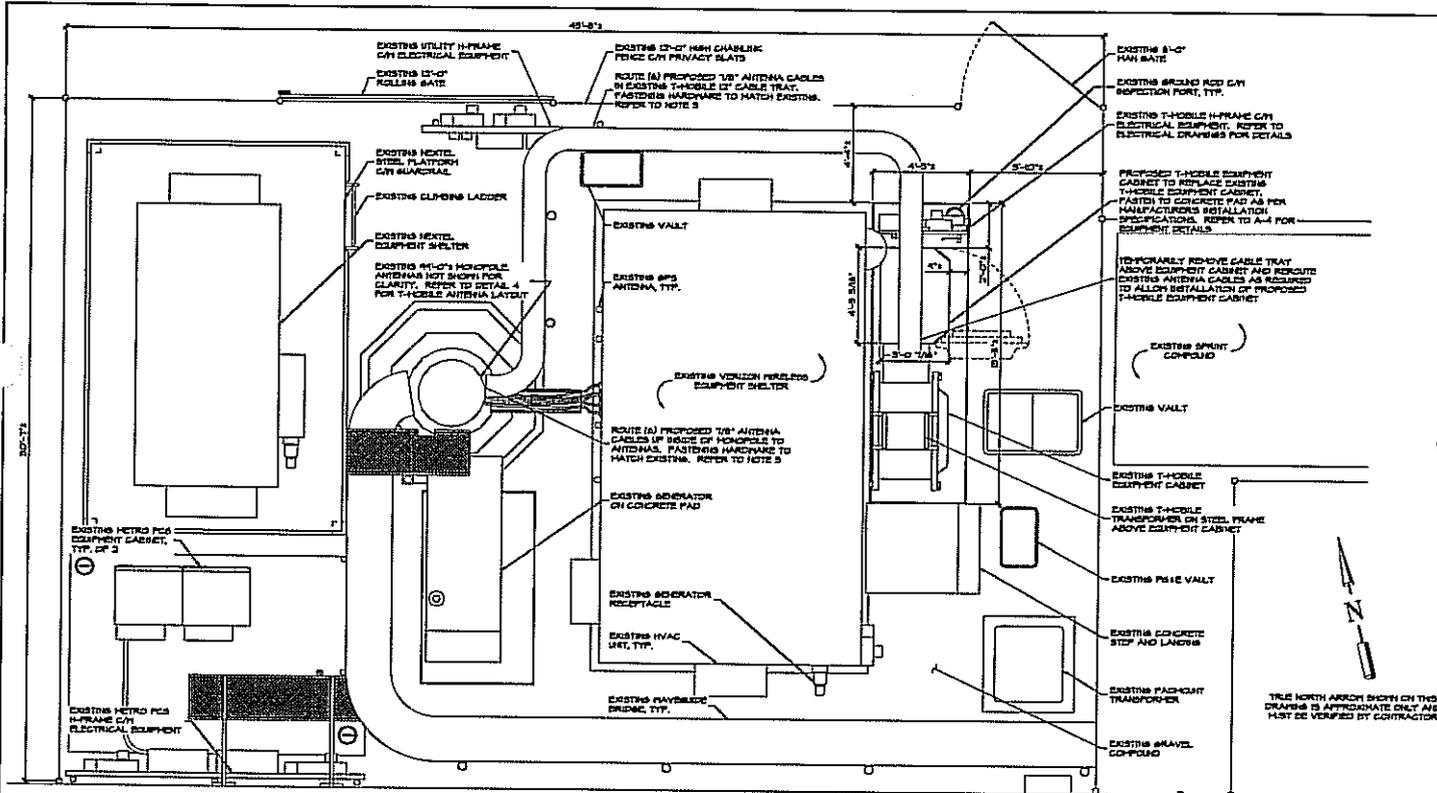
DATE: 08/02/06

PROJECT: SUNNYVALE ELKS CLUB (SFO4805A)  
375 N PASTORIA AVE  
SUNNYVALE, CA 94085

SHEET TITLE: SITE PLAN

SHEET NUMBER: A-1

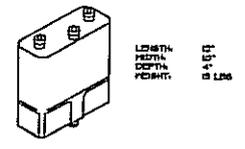
ATTACHMENT D  
Page 3 of 9



- NOTES:**
- CONTRACTOR TO PROVIDE ALL REQUIRED HARDWARE NECESSARY TO FACILITATE ANTENNA CABLE ROUTING FROM EQUIPMENT CABINETS TO TOWER.
  - CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTERPRETED AS UNLESS NOTED OTHERWISE AND MUST BE VERIFIED.
  - FRAME TO PROVIDE ALL ANTENNA AND ANTENNA CABLE HARDWARE REQUIRED FOR PROPOSED T-MOBILE ANTENNA INSTALLATION ON THE PANE TOPS. INSTALLATION OF T-MOBILE ANTENNAS, ANTENNA CABLES, JUMPER CABLES, TOWER MOUNT AMPLIFIERS (TMA) AND ALL ASSOCIATED EQUIPMENT IS TO BE IN ACCORDANCE WITH LATEST T-MOBILE RF DATA SHEETS.

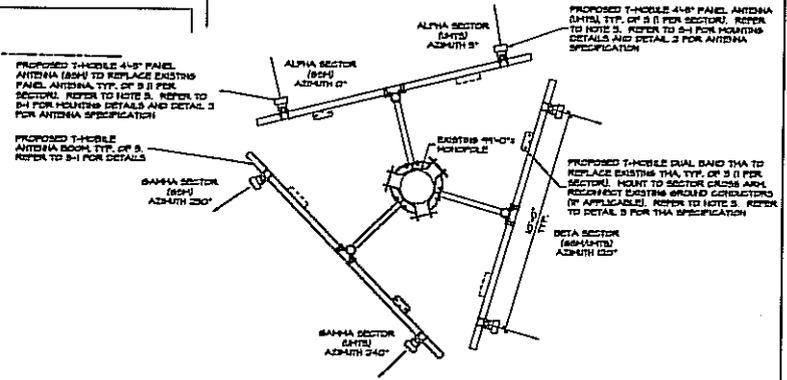


2 ANTENNA DETAILS  
K.T.S.



3 TMA DETAILS  
K.T.S.

1 COMPOUND LAYOUT  
3/16\"/>



4 T-MOBILE ANTENNA LAYOUT  
K.T.S.

WORKPOINT  
**T-Mobile**  
1655 GATEWAY BLVD  
SUITE 900  
CONCORD, CA 94520

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PROJECT NO: 0808-015  
DRAWN BY: A.D.  
CHECKED BY: P.J.K.  
CAD FILE: 0808-020A2

SUBMITTALS  
ATTN: Page 4 of 9  
DATE: 08/08/08  
BY: A.D.  
REVISIONS:  
NO. DESCRIPTION  
1. ISSUED FOR REVIEW  
2. ISSUED FOR REVIEW

SENT of 9  
DATE: 08/08/08  
BY: A.D.

SUNNYVALE ELKS CLUB  
(SFO4080A)  
315 N PASTORIA AVE  
SUNNYVALE, CA 94085

SHEET TITLE  
COMPOUND LAYOUT

SHEET NUMBER  
A-2



EQUIPMENT CABINET DIMENSIONS	
	WIDTH x DEPTH x HEIGHT
CABINET	31 5/8" x 28 1/4" x 41 3/8"
FOOTPRINT	31 5/8" x 27 5/8"

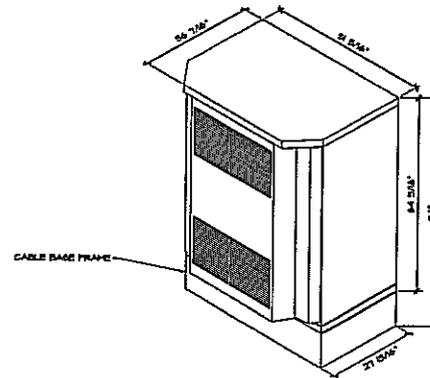
EQUIPMENT CABINET HEIGHT AND WEIGHT	
TOTAL HEIGHT = 41" (INCLUDING BASE FRAME)	TOTAL WEIGHT (INCLUDING 4 BATTERIES) = 155# SH.

EQUIPMENT CABINET CLEARANCES	
DIRECTION	MINIMUM CLEARANCE
CABINET REAR AND WALL	0"
CABINET RIGHT SIDE AND WALL	0"
CABINET LEFT SIDE AND WALL	0" - REFER TO NOTE
ABOVE THE CABINET	0"
IN FRONT OF THE CABINET	31 5/8"

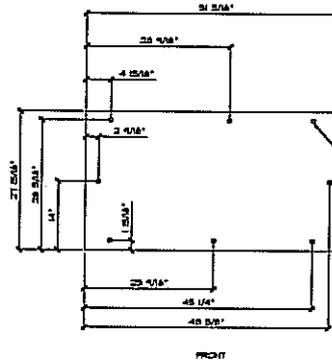
NOTE: IF THE EQUIPMENT CABINET IS LOCATED NEXT TO ANOTHER CABINET OF THE SAME DEPTH, NO ADJACENT SPACE IS REQUIRED. IF THE EQUIPMENT CABINET IS PLACED NEXT TO A WALL OR ANY OBJECT PROTRUDING ON THE LEFT SIDE, THEN 0" CLEARANCE IS REQUIRED TO THE LEFT OF THE CABINET.

BATTERY INFORMATION		
QUANTITY	WEIGHT	ELECTROLYTE
4	38.5 LBS PER BATTERY	12M BALLBAG FOR BATTERY

NOTE: BATTERIES ARE TOTALLY SEALED LEAD ACID BATTERIES

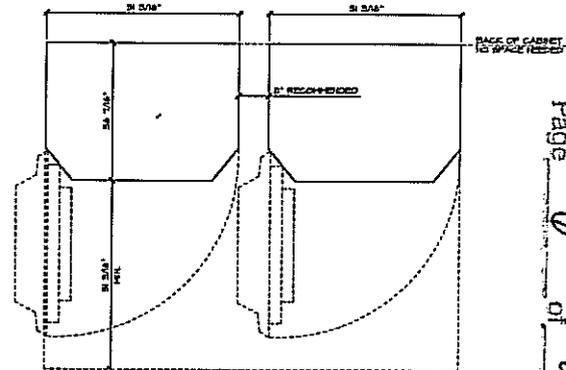


EQUIPMENT CABINET ISOMETRIC



3/4\"/>

EQUIPMENT CABINET BOLT DOWN PATTERN



TYPICAL EQUIPMENT CABINET GROWTH CONFIGURATION

WOMHPROFIT  
**T-Mobile**  
 1855 GATEWAY BLVD  
 SUITE 903  
 CONCORD, CA 94520

**TRK**  
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PROJECT NO: 0806-013

DRAWN BY: AD

CHECKED BY: PJL

CAD FILE: 0806-013.dwg

SUBMITTALS

DATE SUBMITTED: 08/06/06  
 DATE REVISION: 08/06/06

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DATE: 08/06/06

BY: SUNNYVALE ELKS CLUB  
 (SFO4403A)  
 375 N PASTORIA AVE  
 SUNNYVALE, CA 94085

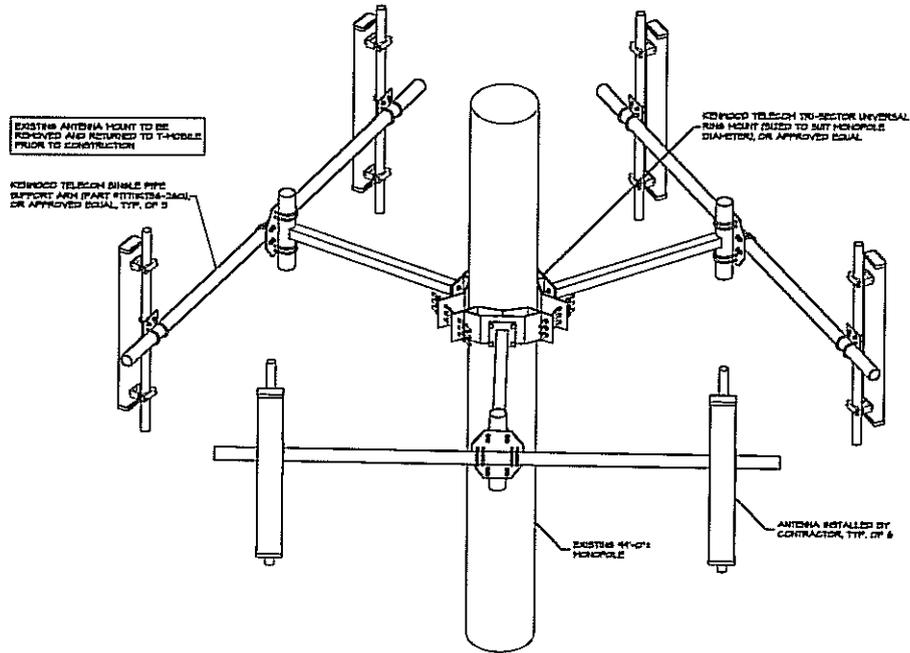
SHEET TITLE: EQUIPMENT DETAILS

SHEET NUMBER: A-4

ATTACHMENT D  
 Page 6 of 9

**NOTES:**

1. REFER TO NOTE 23 ON 8-1.



① ANTENNA BOOM ISOMETRIC  
3/01/11-G



**WINDPOINT**  
**T-Mobile**  
1855 GATEWAY BLVD  
SUITE 920  
CONCORD, CA 94520

**TRK**  
ENGINEERING

1221 - 17880 88TH AVE  
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WEB: [www.trkeng.com](http://www.trkeng.com)

PROJECT NO. 0808-018

DRAWN BY: A.D.

CHECKED BY: P.H.

CAD FILE: 0808-0281

**SUBMITTALS**

DATE SUBMITTED: ISSUED FOR REVIEW  
DATE SUBMITTED: ISSUED FOR REVIEW

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DATE: 3/1/11

SUNNYVALE ELKS CLUB  
SF04908A  
375 N PASTORIA AVE  
SUNNYVALE, CA 94085

DATE: 3/1/11

STRUCTURAL DETAILS

DATE: 3/1/11

**S-1**

ATTACHMENT D  
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**T-MOBILE SITE SF04903**

**SUNNYVALE ELKS CLUB, 375 N. PASTORIA AVENUE  
APN: 165-30-018**

Project Explanation

The subject application is for improvements to an existing cell phone antenna site, co-location monopole. T-Mobile proposes to replace one existing equipment cabinet, replace three existing antennas, and add three antennas for a total of six.

There will be no visual change with the replacement of the equipment cabinet, and a nominal change with the addition of the antennas.

These improvements are part of T-Mobile's upgraded UMTS (Universal Mobile Telecommunications System). This is sometimes also referred to as "third-generation" or "3G". UMTS systems include traditional phone services like voice calls, voice mail and text messaging. In addition, they offer uses like Internet access, video and music. The advantages of UMTS are better speech quality, greater user capacity per site, and higher data rates supporting the Internet applications.

T-Mobile personnel typically visit the site about once a month for routine maintenance and inspection. This will remain the same.

Project Justifications

1. General Plan Consistency: The use of an existing structure with minimal visual impacts is consistent with the Community Development Element. Operation of the site provides enhanced, and alternative means of communication, consistent with the Public Safety Element.

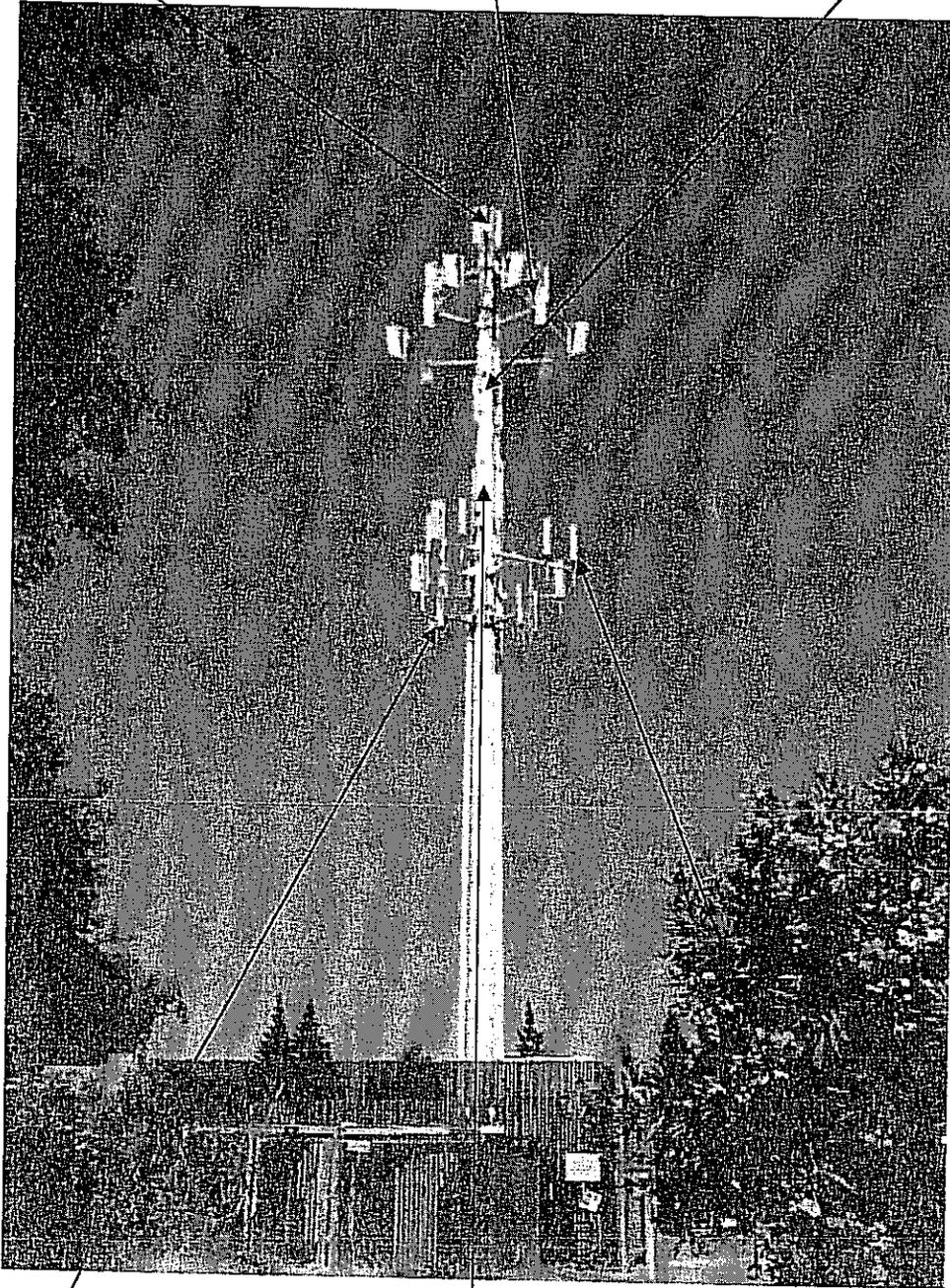
2. The project is a modification to an existing use, on an existing structure. It has only minimal visual changes, and no noise, traffic or glare impacts. It therefore will not impair the orderly development of adjacent properties, or existing uses of adjacent properties.

T-Mobile 2008-0405- Add Antennas to Existing Location

AT&T 95'

Verizon 89'

MetroPCS 78'



Sprint 55'

T-Mobile 68'  
(Proposed Location)

Nextel 62'



existing T-Mobile antennas  
to be removed/replaced

**T-Mobile**

SF04903A

Sunnyvale Elks Club

375 N Pastoria Ave.  
Sunnyvale, CA 94085



proposed new T-Mobile  
replacement antennas

Photosimulation of the proposed telecommunication facility as seen looking north from Hermosa Drive

**T-Mobile • Base Station No. SF04903A  
 375 North Pastoria Avenue • Sunnyvale, 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 proposed modifications to its existing base station (Site No. SF04903A) located at 375 North Pastoria Avenue in Sunnyvale, 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 standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, “Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” includes similar 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 FCC 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>
Advanced Wireless (“AWS”)	2,100 MHz	5.00 mW/cm <sup>2</sup>	1.00 mW/cm <sup>2</sup>
Personal Communication (“PCS”)	1,950	5.00	1.00
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



**T-Mobile • Base Station No. SF04903A  
 375 North Pastoria Avenue • Sunnyvale, California**

wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. 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 at greater distances the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

**Site and Facility Description**

Based upon information provided by T-Mobile, including zoning drawings by TRK Engineering, dated September 14, 2007, that carrier presently has installed several directional antennas on an existing 99-foot steel pole located at 375 North Pastoria Avenue in Sunnyvale. T-Mobile proposes to replace the existing antennas with six RFS Model APXV18-206516S directional panel antennas. The antennas would be mounted at an effective height of about 68 feet above ground and would be oriented in pairs with up to 7° downtilt at about 120° spacing, to provide service in all directions. The maximum effective radiated power in any direction would be 2,960 watts, representing the simultaneous operation of four PCS channels operating simultaneously at 480 watts each and two AWS channels at 385 watts each.

Presently located or proposed to be located on the same pole are similar antennas for use by AT&T Wireless, Verizon Wireless, MetroPCS, and Sprint Nextel, other wireless telecommunications carriers. Transmitting facilities of those carriers are assumed to be as follows:

Carrier	Antenna Model	Service	Height	Maximum ERP
AT&T	Kathrein 742-265	cellular	95 feet	1,500 watts
		PCS	95 feet	1,500 watts
Verizon	Andrew 731DG65	cellular	89	1,500
		PCS	89	1,500
Metro	Powerwave 7721.02	PCS	78	1,890
Sprint Nextel	Andrew 844G65	SMR	62	1,500
	Andrew RR90-17-02	PCS	55	1,500

### Study Results

The maximum ambient RF level anywhere at ground level due to the proposed T-Mobile operation by itself is calculated to be 0.0047 mW/cm<sup>2</sup>, which is 0.47% of the applicable public exposure limit. The maximum calculated cumulative level at ground for the simultaneous operation of all five carriers is 1.2% of the public exposure limit; the maximum cumulative level at the second-floor elevation of any nearby building would be 1.7% 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.

### No 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. 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 T-Mobile base station located at 375 North Pastoria Avenue in Sunnyvale, 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.

### Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-18063, which expires on June 30, 2009. 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.



*Rajat Mathur*  
Rajat Mathur, P.E.

March 21, 2008

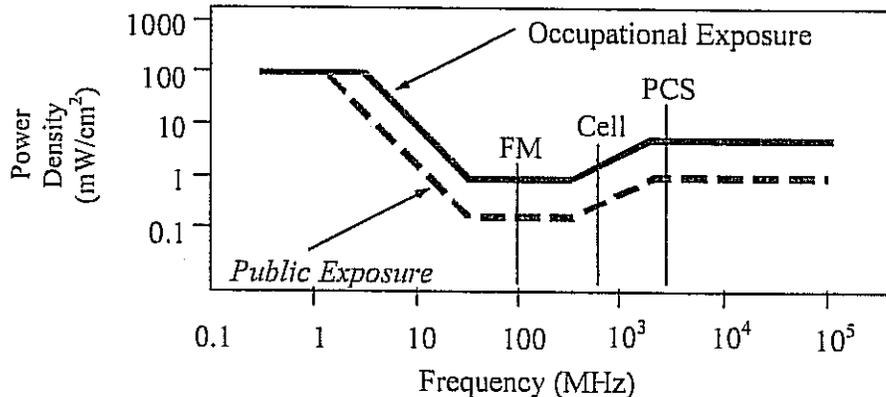


HAMMETT & EDISON, INC.  
CONSULTING ENGINEERS  
SAN FRANCISCO

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

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

Frequency Applicable Range (MHz)	Electromagnetic Fields ( <i>f</i> is frequency of emission in MHz)					
	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm <sup>2</sup> )	
0.3 – 1.34	614	<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/f<sup>2</sup></i>
3.0 – 30	1842/f	<i>823.8/f</i>	4.89/f	<i>2.19/f</i>	900/f <sup>2</sup>	<i>180/f<sup>2</sup></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√ <i>f</i>	<i>1.59√f</i>	√ <i>f</i> /106	<i>√f/238</i>	<i>f/300</i>	<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.



**Assessment by Calculation of Compliance with FCC Exposure Guidelines**

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

**Near Field.**

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

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

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

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

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

**Far Field.**

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

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

- 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 x 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.

