ESCONDIDO
City of Choice

PLANNING COMMISSION

Agenda Item No.: G.3
Date: January 26, 2010

CASE NUMBER: PHG 09-0043

APPLICANT: Mark Phillips, M&M Telecom, Inc. (for Sprint/Clearwire)

LOCATION: An approximately 8.6-acre city owned property (A-11 reservoir) generally located south of 11th Avenue, west of Bernardo Ave/Interstate 15, addressed as 1495 W. 11th Avenue (APNs 235-201-03 and -05).

TYPE OF PROJECT: Modification to a Conditional Use Permit

PROJECT DESCRIPTION: A modification to an existing Conditional Use Permit (Case No. 97-37-CUP) to add up to six round directional antennas and two rectangular panel antennas to an existing Sprint/Nextel wireless communication facility. The existing Sprint/Nextel facility consists of six panel antennas mounted on the roof of the existing equipment building. The antenna panels are concealed behind solid screen walls. Clearwire proposes to remove or consolidate several of the existing Sprint/Nextel antennas to accommodate the new antennas. The existing rooftop enclosure is proposed to be enlarged to contain the existing and new antennas for a total of up to twelve antennas. New, associated equipment would be located within the existing equipment building. The equipment building would not be increased in size.

STAFF RECOMMENDATION: Approval

GENERAL PLAN DESIGNATION/TIER: Estate II; Felicita Neighborhood - Tier 2A

ZONING: RE-40 (Residential Estate, 40,000 SF minimum lot size)

BACKGROUND/SUMMARY OF ISSUES:

Clearwire is a subscription based internet service provider, which is 51% owned by Sprint/Nextel. They currently have sites in many states and are proposing a new network in Escondido with approximately 23 sites. Many, but not all of the proposed facilities in Escondido would be co-located or associated with existing Sprint/Nextel sites. Clearwire is proposing to locate on an approximately 8.6-acre city-owned property (known as A-11 Reservoir) and co-locate their new antennas on an exiting Sprint facility. The site currently contains several wireless communication facilities including Sprint/Nextel, Cricket, AT&T and Verizon.

LEGAL REQUIREMENTS: In 1996, the U.S. Congress added a section to the Communications Act of 1934 to promote the expansion of personal wireless communications service, adding section 332(c)(7). This section preserves local zoning authority over the "placement, construction, and modification" of wireless facilities, while imposing certain federal requirements. Specifically, Section 332(c)(7) requires that state or local government decisions regarding wireless service facilities must not: 1) unreasonably discriminate between one cellular provider and another; or 2) prohibit or have the effect of prohibiting the provision of personal wireless services; or 3) be founded on "the environmental effects of radio frequency (RF) emissions ***to the extent that such facilities comply*** with the FCC's regulations" (emphasis added).

In summary, once the Commission is satisfied the project's RF emissions are within the federal thresholds, then the review must be based on otherwise applicable local zoning criteria. A denial of a proposed facility must not run afoul of the federal restrictions set forth as 1), 2) and 3) above.

Staff feels the issues are as follows:

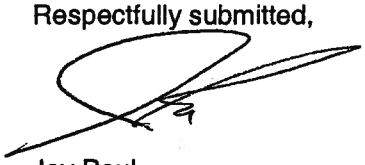
1. Whether the design and location of the proposed facility is appropriate for the site and consistent with the Wireless Facility Guidelines.

REASONS FOR STAFF RECOMMENDATION:

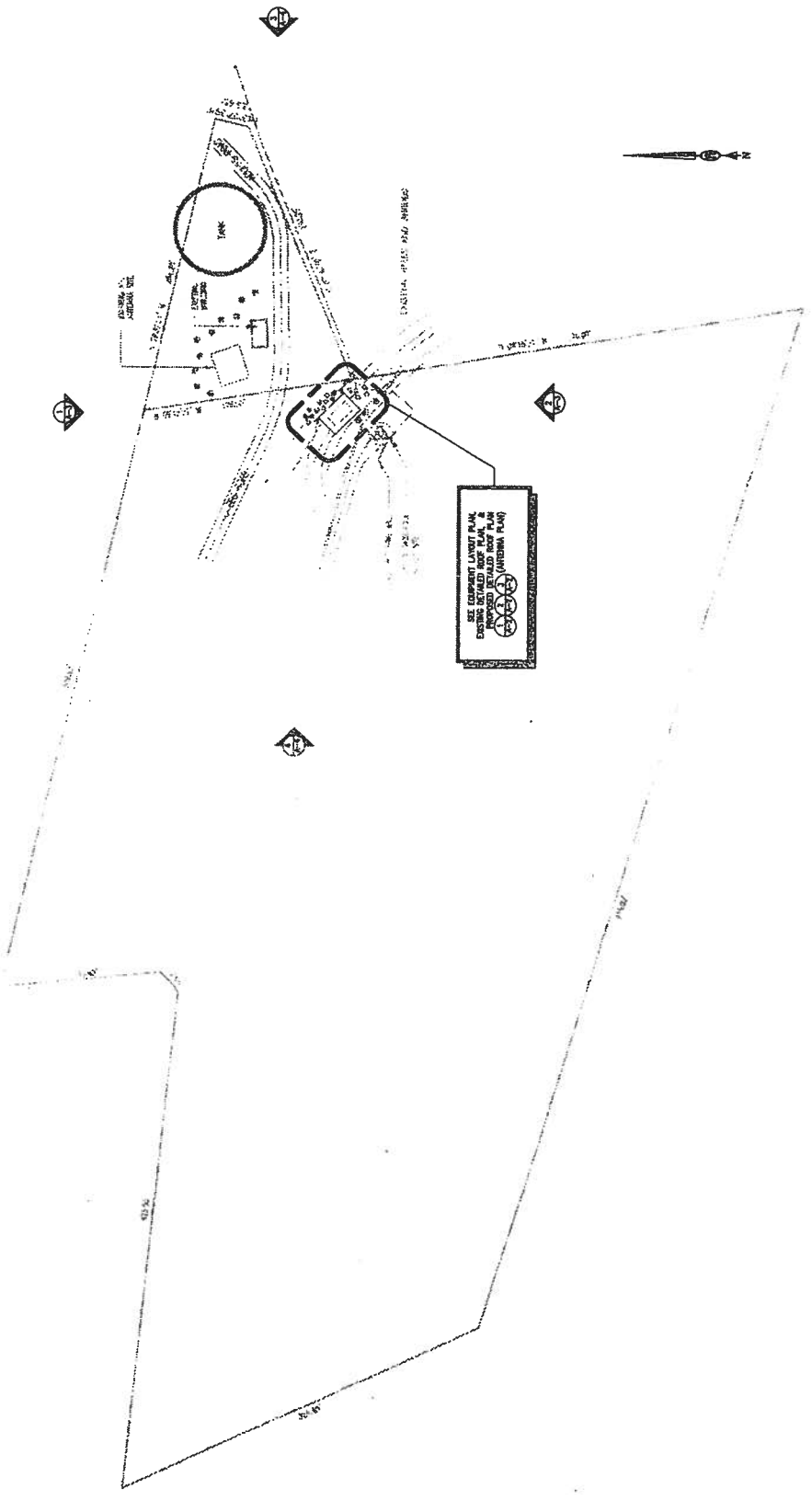
1. The proposed facility would be consistent with the Communication Antennas Ordinance since the facility would co-locate on an existing communications antenna. Existing panel antennas would be removed and the new panels concealed within an existing structure. The proposed equipment cabinets would be placed within an existing enclosure area. The facility (as conditioned) would be consistent with the Wireless Facility Guidelines since it would not result in any adverse visual impacts; is located on a non-residential site in a residential zone; and would use an existing facility to mount the panels rather than construction of an additional structure.

2. Staff feels the proposed facility would not result in a potential health hazards to nearby residents since the Radio Frequency (RF) study prepared for the proposed project indicates the facility would be within maximum permissible exposure (MPE) limits and Federal Communication Commission (FCC) standards. The proposed project also would not result in an increase in RF emissions previously approved for the site.

Respectfully submitted,



Jay Paul
Associate Planner



PROPOSED PROJECT
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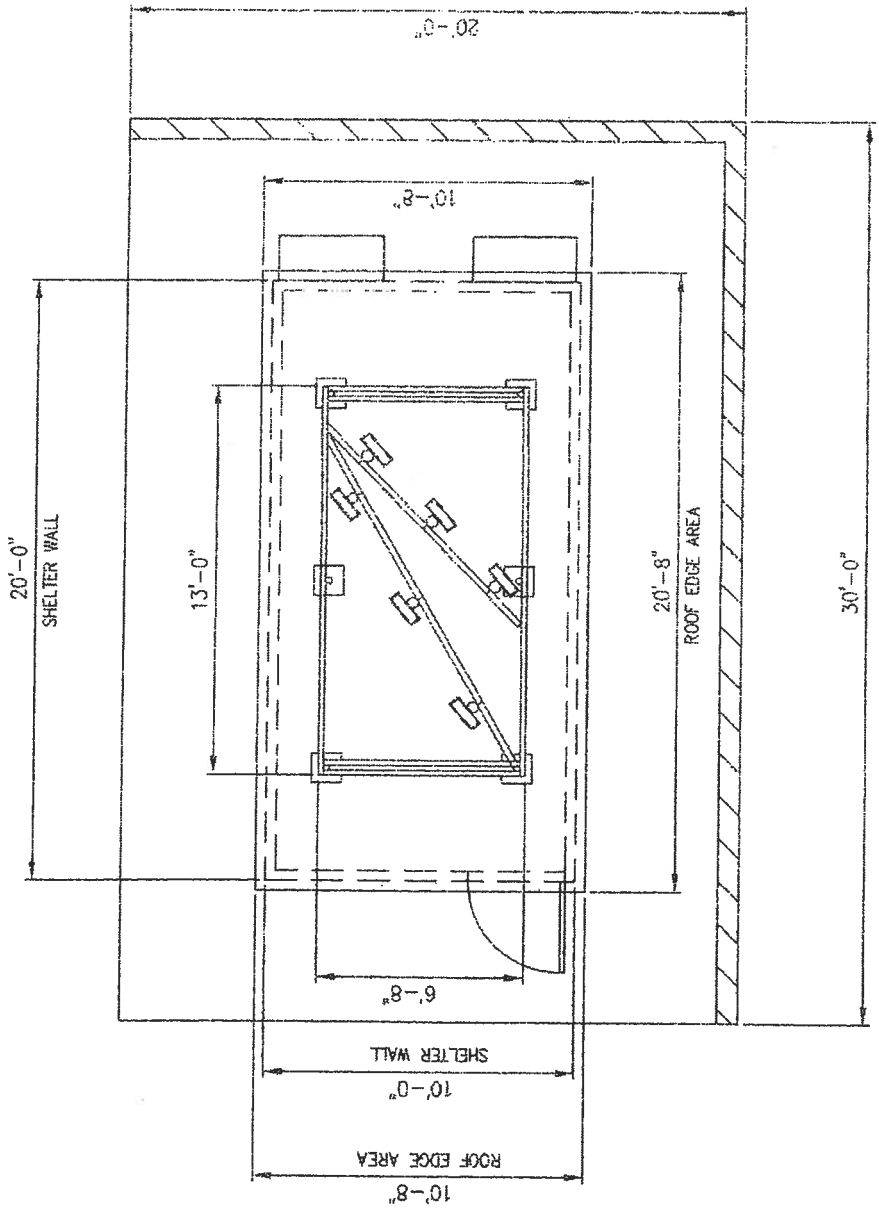
S

SITE PLAN



EXISTING DETAILED ROOF PLAN

PROPOSED PROJECT
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ROOF PLAN

PROPOSED PROJECT
PHG 09-0043

ROOF PLAN

EAST ELEVATION

PROPOSED PROJECT
PHG 09-0043

ELEVATIONS

NORTH ELEVATION

PROPOSED PROJECT
PHG 09-0043

ELEVATIONS

SOUTH ELEVATION

PROPOSED PROJECT
PHG 09-0043

ELEVATIONS

WEST ELEVATION

PROPOSED PROJECT
PHG 09-0043

ELEVATIONS

PROPOSED PROJECT
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DETAILS

PROPOSED PROJECT
PHG 09-0043

DETAILS

PROPOSED PROJECT
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DETAILS

PROPOSED PROJECT
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DETAILS

NOTE:
SCREENED BACK DESIGN AND TEXT CALLOUTS ON THIS SHEET PER ORIGINAL PLAN SET FOR EXISTING TELECOMMUNICATION SITE.

FOR PROPOSED SITE MODIFICATIONS, SEE DARKENED DESIGN AND TEXT CALLOUTS.

EQUIPMENT LAYOUT PLAN

PROPOSED PROJECT
PHG 09-0043

LAYOUT PLAN

ANALYSIS

A. LAND USE COMPATIBILITY/SURROUNDING ZONING

NORTH - RE-40 and PD-R 2.96 zoning (Residential Estate, 20,000 SF min. lot size and Planned Development Residential, 2.96 du/ac) / Single-family residential development is located north and northeast of the project site. The project pad is located on top of a hill with an elevation of approximately 925' and the nearest homes are approximately 500 feet to the northeast at a significantly lower elevation. The upper portions of the structure and antenna screen are visible from views to the north and northeast. A row of pepper trees screens the lower portions of the site.

SOUTH - PD-R 1.43 zoning (Planned Development Residential, 1.43 du/ac) A residential development is located south of the project site at a significantly lower elevation. The nearest residences are located approximately 400 feet to the south. The topography of the site and landscaping generally obscures views of the facility to the south.

EAST - PD-R 4.3 zoning (Planned Development Residential, 4.3 du/ac) / A planned residential development (Escondido Tract 767) and Interstate 15 are located east of the proposed site. The nearest residences are located approximately 400 feet to the east at a significantly lower elevation than the site. The upper portions of the facility generally are visible to the east, but obscured by landscape to the southeast.

WEST - PD-R 1.43 zoning / (Planned Development Residential, 1.43 du/ac) A residential development is located west of the project site at a lower elevation. View of the site from the south generally are obscured by the topography of the area.

B. AVAILABILITY OF PUBLIC SERVICES

1. Effect on Police Service - The Police Department expressed no concern regarding the proposed project and their ability to provide service to the site.

2. Effect on Fire Service - The Fire Department indicated that adequate services can be provided to the site and the proposed project would not impact levels of service.

3. Traffic – The Engineering Department indicated the project would not have any impacts to existing traffic or circulation within the area.

4. Utilities – The Engineering Department indicated the project would not result in a significant impact to public services or utilities. The Rincon del Diablo Municipal Water District is a partial owner of the subject site, and the proposed project would not impact any plans for future utilities on the site.

5. Drainage – The Engineering Department determined the project would not materially degrade the levels of service of the existing drainage facilities.

C. ENVIRONMENTAL STATUS

1. The proposal is exempt from the requirements of the California Environmental Quality Act (CEQA) in conformance with Section 15301, "Existing Facilities" and a Notice of Exemption was prepared for the proposed project. In staff's opinion, the request does not have the potential for causing a significant effect on the environment due to the relatively small size of the facility and the proposed development would be located within a disturbed area. The subject parcel contains several private communication facilities and an underground reservoir. The subject lease area does not contain any sensitive vegetation, nor would the project encroach into native vegetation areas.

2. In staff's opinion, no significant issues remain unresolved through compliance with code requirements and the recommended conditions of approval. Staff feels the proposed facility would not result in a potential health hazards to nearby residents since the Radio Frequency (RF) study prepared for the proposed project indicates the facility would

be within maximum permissible exposure (MPE) limits and Federal Communication Commission (FCC) standards. The property is gated and public access is restricted.

3. The project will have no impact on fish and wildlife resources as no sensitive or protected habitat occurs within the proposed development area or will be directly impacted/removed by the proposed development.

D. GENERAL PLAN ANALYSIS:

General Plan - The requested Conditional Use Permit is consistent with the Estate II designation of the General Plan since communication facilities customarily are permitted when conditioned to observe the underlying zone requirements and any related ordinance restrictions, wireless design requirements, and when compatible with surrounding properties. The project is in substantial compliance with any relevant General Plan criteria and underlying RE-40 zone standards, as detailed in various sections of the staff report. Although the project site is located on a prominent hilltop/ridgeline, the proposed antennas would be fully screened within an existing facility. The existing lease area would not be expanded and would not impact any protected habitat area or is within an area identified for conservation on the Draft MHCP Vegetation Maps; and the facility would not impact any proposed trails within the area.

E. PROJECT ANALYSIS

Appropriateness of the Proposed Design and Whether the Proposed Wireless Facility Would Be In Conformance with the Communication Antennas Ordinance

The A-11 Reservoir site is relatively level area at the top, and contains a variety of private communications facilities, including equipment buildings, a variety of poles and a large tower structure. The majority of the facilities are the older, non-stealthy type designs with visible antenna panels and support poles. Clearwire proposes utilize an existing Sprint facility and would remove the existing older style antenna panels and add a total of eight new Clearwire antennas and install four newer Sprint antennas to replace the existing ones for a total of twelve antenna panels. The existing antennas are located behind a solid screen on top of the Sprint equipment building. The screen is proposed to be enlarged to accommodate the additional antennas, but would maintain the same overall approved height. The supporting equipment cabinet would be located within the existing Sprint/Nextel equipment building along with a small GPS unit attached to the outside of the building. No expansion to the building is proposed. The Design Review Board discussed the appropriateness of the project on December 3, 2009, and recommended approval of the design (vote 6-0). The Boardmembers felt the expansion of the antenna screen would not result in any adverse visual impact due to the relatively small size of the structure and the distance from adjacent residences

Staff feels the proposed facilities would be in conformance with the Wireless Facilities guidelines since Clearwire would co-locate on an existing wireless facility instead of installing an new, high-profile wireless tower or pole; the antennas would be screened by the enclosure; the new equipment would be located within an existing building; and the facility would be in conformance with FCC emission standards.

Conformance with FCC Emission Requirements

Operation of the facility would generate electromagnetic emissions (RF radiation). A RF study was prepared for the project by AIM Wireless Solutions to determine whether the proposed communication facility complies with the FCC Radio Frequency Safety guidelines. The study assumes a worst case scenario at maximum capacity, and compares the figures to existing standards. Due to the existing communication facilities on the site, actual measurements were conducted to establish a baseline for a cumulative analysis. The analysis indicated the anticipated MPE limits on the ground from the proposed Clearwire facility by itself is approximately 1.70% of FCC limits. The cumulative level from all of the carriers and the proposed Clearwire facility is less than 12%, which would be in compliance with applicable FCC's General Population MPE Limits. A copy of the study has been attached with this report.

SUPPLEMENT TO STAFF REPORT/DETAILS OF REQUEST

A. PHYSICAL CHARACTERISTICS

The parcel on which the facilities would be installed (APN 235-201-03) is owned by the City of Escondido and contains an underground water reservoir with access from a partially paved, private road intersecting 11th Avenue to the north. The site is located on an intermediate ridgeline and is steeply sloped with a high point of approximately 940 feet, sloping downwards in all directions. Much of the steeper areas of the site contain undisturbed native habitat. The site also contains five other operational telecommunication facilities. The lease area is located within a disturbed area containing a few scattered native plant species (buckwheat) along with non-native grass and weeds outside of the lease area. No sensitive animal species or significant habitat areas are known to be present on the proposed lease area.

B. SUPPLEMENTAL DETAILS OF REQUEST

1.	Property Size:	8.6-acre City-owned site (A-11 Reservoir)
2.	Building size:	Project footprint include approx. 20' x 30' pad area with an approx. 20'8"L x 10'-8"W x 9'-11"H equipment building.
3.	Panels:	
	Existing:	6 (Sprint/Nextel) Project originally approved for up to 9 panels.
	Proposed:	Total of 12 which includes 6 round directional (Clearwire), 2 rectangular (Clearwire) and 4 remaining Spring/Nextel panels to be replaced with 4 new dualpol-type antennas.
4.	Screening:	
	Existing:	13'L x 6'8"W x 5'H antenna screen on top of equipment building
	Proposed:	Screen to be enlarged to approx. 20'-8"L x 7'-8" W x 5'H to house the additional antennas. The overall height of the facility (equipment cabinet with screening on top is approx. 15 - 16').
5.	Fencing:	Existing chain-link with brown slats secures the equipment building.
6.	Power Density:	Clearwire - 4.6% of the FCC General Public Limit for Maximum Public Exposure (MPE). Cumulative from all carriers – less than 22%
7.	Equipment:	One additional equipment rack to be installed in the existing equipment building.
8.	Hours of Operation Wireless Facility:	24 hours, unmanned
9.	Landscaping:	There is mature trees (generally California Peppers) located along the northern, eastern and southern boundary of the equipment area. No additional landscaping is required for the proposed co-location.

EXHIBIT "A"
FINDINGS OF FACT
PHG 09-0043

Conditional Use Permit

1. General Plan Residential Policy B2.1 (page II-17) states that residential neighborhoods shall be protected from the encroachment of incompatible activities which may have a negative impact on the residential living environment. Granting this Conditional Use Permit to allow a personal wireless communication facility on the subject property would not conflict with this policy and would be based on sound principles of land use since the use is in response to services required by the community and the facility would enhance communication services in the city without posing a health threat to the surrounding area. The proposed panels would be integrated into an existing telecommunication facility and would replace existing antenna panels, which would avoid potential visual impacts in conformance with the Communication Antennas Ordinance. The ground equipment would be located within an existing equipment building. The proposed facility would not result in a substantial alteration of the present or planned land use since the project site is developed with a variety of communication antennas, towers, poles and buildings. The facility also would not result in a potential health hazard to nearby residents since the facility would be within MPE (maximum permissible exposure) limits as indicated in the radio frequency analysis prepared for the project by AIM Wireless Solutions. The proposed facility would be in compliance with the City's Wireless Facility Guidelines, as discussed in the Planning Commission staff report.

2. The proposed personal wireless communication facility would be located within the RE-40 zone. Personal wireless communication facilities are permitted within this residential zone pursuant to approval of a Conditional Use Permit (CUP). The proposed facility would not result in a substantial alteration of the present or planned land use since the new facilities are small in scale and the antennas and support equipment would be appropriately integrated into existing facilities. The proposal would not cause deterioration of bordering land uses since the antennas would be co-located onto an existing wireless facility, and the location, number and size of the panels have been designed to integrate into the design and scale of the existing facility. The proposed facility would be consistent with the Communication Antennas Ordinance since the facility would co-locate on an existing communications antenna/facility and the number of panels limited and installed on an existing array to reduce the bulk of the panels as viewed from adjacent properties; the proposed equipment cabinet(s) would be placed within an existing building; the proposed facility is located on a non-residential site in a residential zone; would use an existing facility to mount the panels rather than construction of an additional structure; and would be in conformance with FCC emission standards.

3. The visual impacts related to the proposed personal wireless communication facility are not considered significant since the antennas would be mounted onto an existing communication facility and would be screened from adjacent views. Therefore, the antennas would be in context with the surrounding built environment. The proposed equipment cabinet(s) would be located within an existing building. The design and location of the proposed facility would be in compliance with the City's Wireless Facility Guidelines, as discussed in the Planning Commission staff report. The City's Design Review Board recommended approval of the project design on December 3, 2009.

4. The proposed personal wireless communication facility would not be hazardous to the health of nearby residents since the radio frequency (RF) analysis prepared for the project concluded the maximum operation levels of radiation for the facility would be within the MPE (Maximum Permissible Exposure) limit established by FCC requirements.

5. The proposed Conditional Use Permit has been considered in relationship to its effect on the community, and the request would be in compliance with the General Plan Policies and the Wireless Facility Guidelines, and would not result in a negative impact to the adjacent neighborhood for the reasons stated above and detailed in the Planning Commission staff report and radio frequency analysis.

EXHIBIT "B"

CONDITIONS OF APPROVAL
PHG 09-0043

General

1. All construction shall comply with all applicable requirements of the Escondido Zoning Code and requirements of the Planning Department, Director of Building, and the Fire Chief.

2. Access for use of heavy fire fighting equipment as required by the Fire Chief shall be provided to the job site at the start of any construction and maintained until all construction is complete. Also, there shall be no stockpiling of combustible materials, and there shall be no foundation inspections given until on-site fire hydrants with adequate fire flow are in service to the satisfaction of the Fire Marshal.

3. Appropriate access shall be provided to the project site, to the satisfaction of the Fire Department.

4. The legal description attached to the application has been provided by the applicant and neither the City of Escondido nor any of its employees assume responsibility for the accuracy of said legal description.

5. All requirements of the Public Partnership Program, Ordinance No. 86-70 shall be satisfied prior to building permit issuance. The ordinance requires that a public art fee be added at the time of the building permit issuance for the purpose of participating in the City Public Art Program

6. Prior to or concurrent with the issuance of building permits, the appropriate development fees and Citywide Facility fees shall be paid in accordance with the prevailing fee schedule in effect at the time of building permit issuance, to the satisfaction of the Director of Planning and Building.

7. Prior to obtaining building permits, the applicant shall demonstrate compliance with the requirements of the Citywide Facilities Plan, to the satisfaction of the Planning Division and Engineering Department.

8. All exterior lighting shall conform to the requirements of Article 1072, Outdoor Lighting (Ordinance No. 86-75).

9. As proposed, the design, color and materials of the proposed facilities shall be in accordance with the staff report, exhibits and the project's Details of Request, including the following to the satisfaction of the Planning Division:

    a. Any visible support poles, brackets, cable runs and other support equipment and screening materials shall be painted to match/blend with the existing colors of the facility. This shall be clearly noted on the building plans.

    b. All new utility runs shall be placed underground, to the satisfaction of the Planning Division and the Engineering Department, unless as specifically approved by this permit.

10. All proposed signage associated with the project must comply with the City of Escondido Sign Ordinance (Ord. 92-47) and the exhibits included in the staff report(s), to the satisfaction of the Planning Division. Appropriate signs providing notice, caution or warning, and other necessary markings, shall be placed at the main site access point(s) and other locations, as may be required, in order to alert maintenance or other workers approaching the antennas to the presence of RF transmissions and to take precautions to avoid exposures in excess of FCC limits. The requirement for the appropriate signage/notice shall be indicated on the building plans.

11. Sprint/Clearwire or any subsequent operator/lease holder of the wireless facility agrees to investigate any complaints related to possible interference with electronic equipment in the surrounding area to determine the cause of the interference. Any interference shall be resolved in a timely manner to the satisfaction of the Director of Community Development. If the facility is determined to be the cause of the electronic interference, Clearwire shall solve the problem in a timely manner to the satisfaction of the complainant and the Director of Community Development. In addition, any interference with public safety communications shall be corrected immediately, to the satisfaction of the City of Escondido.

12. Prior to the issuance of building permits for the proposed facility, Sprint/Clearwire shall obtain the appropriate lease of the subject area from the City of Escondido or any other appropriate agencies, as may be required. Any sublease of

the subject area or co-location of any new facilities not identified by this use permit shall require approval of the City of Escondido.

13. All project generated noise shall conform to the City's Noise Ordinance (Ordinance 90-08).

14. If requested by the City of Escondido, Sprint/Clearwire, or any subsequent operator/lease holder of the facilities shall permit co-location of other wireless providers on its facility (subject to City of Escondido Approval) if it can be demonstrated that there would be no adverse effect on the existing facilities/operations.

15. Sprint/Clearwire shall select an independent third party consultant to conduct actual power density measurements of the facility within 90 days after installation and under full operation of the facility. The results of the study shall be submitted to the Director of Community Development so that the theoretical power density study can be compared to the actual output to ensure compliance with FCC requirements.

16. Sprint/Clearwire Wireless or any subsequent operator/lease holder of the wireless facility shall be responsible for all on-going maintenance of the facility, including the antennas and supporting equipment to ensure the condition of the facility does not appear weathered. Any required landscaping shall be permanently maintained in a flourishing manner. Any required irrigation shall be maintained in fully operational condition.

17. All communication facilities on the site shall be promptly removed upon non use of the facilities, to the satisfaction of the Planning Division and Building Department.

18. Any permanent, temporary or stand-by emergency generators must be in conformance with the City's Ordinance and regulations regarding electric generating facilities.

19. All new utilities and utility runs shall be underground.

20. No additional antennas or expansion of this facility shall be permitted without a modification of the Conditional Use Permit and a public hearing before the Planning Commission. Minor changes within the approved size and design parameters may be permitted by the Director of Community Development after review by the Design Review Board, as may be required.

21. Any proposed private security gates shall provide rapid reliable access by means of a key box to provide immediate access for firefighting purposes, as may be required by the Fire Department.

22. The Conditional Use Permit shall be null and void if not utilized within twelve months of the effective date of approval, as determined by the Planning Division.

23. This Conditional Use Permit only is for the co-location of Sprint/Clearwire equipment on the existing facility located on the site. The number of antennas approved by this Conditional Use Permit shall be used solely for Sprint/Clearwire and not transferred or subleased to any other carriers unless approved by the City. No other additional carriers shall be allowed to be placed on the existing wireless communication facility, unless a new Conditional Use Permit is approved by the City.

24. This item may be referred back to the Planning Commission upon recommendation of the Director of Community Development for review and possible revocation or modification of the Conditional Use Permit upon receipt of nuisance complaints regarding the facility or non-compliance with the Conditions of Approval.

25. A copy of these Conditions of Approval shall be submitted with the submittal of the building plans indicating compliance with all of the Conditions and Details of Request and exhibits contained in the Planning Commission staff report.

26. Prior to final of the building permit and operation of the facility, any graffiti on the existing Sprint/Nextel building, fencing and any support equipment shall be removed or painted over to match the existing structures. Any previously required landscaping of either the Sprint/Nextel facility or other carriers associated with this Spring/Nextel facility shall be repaired and any missing vegetation replaced. This shall be noted on the building plans.

27. An inspection by the Planning Division will be required prior to operation of the project. Everything should be installed prior to calling for an inspection, although preliminary inspections may be requested. Contact the project planner at (760) 839-4671 to arrange a final inspection.

28. The City of Escondido hereby notifies the applicant that the County Clerk's Office requires a documentary handling fee of $50.00 in order to file a Notice of Exemption for the project (environmental determination for the project). The applicant shall remit to the City of Escondido Planning Division, within two working days of the final approval of the project (the final approval being the hearing date of the Planning Commission or City Council, if applicable) a check payable to the "San Diego County Clerk" in the amount of $50.00. In accordance with California Environmental Quality Act (CEQA) section 15062, the filing of a Notice of Exemption and the posting with the County Clerk starts a 35 day statute of limitations period on legal challenges to the agency's decision that the project is exempt from CEQA. Failure to submit the required fee within the specified time noted above will result in the Notice of Exemption not being filed with the County Clerk, and a 180 day statue of limitations will apply.

CITY OF ESCONDIDO
PLANNING DIVISION
201 NORTH BROADWAY
ESCONDIDO, CA 92025-2798
(760) 839-4671

Notice of Exemption

To: San Diego County Recorder's Office
Attn: Linda Kesian
P.O. Box 121750
San Diego, CA 92112-1750

From: City of Escondido
201 North Broadway
Escondido, CA 92025

Project Title/Case No.: PHG 09-0043

Project Location - Specific: Generally located south of 11th Avenue, west of Bernardo Ave/Interstate 15, addressed as 1495 W. 11th Avenue (APNs 235-201-03 and -05). A-11 Reservoir Site.

Project Location - City: Escondido, **Project Location - County:** San Diego

Description of Project: A modification to an existing Conditional Use Permit (Case No. 97-37-CUP) to add up to six round directional antennas and two rectangular panel antennas to an existing Sprint/Nextel wireless communication facility for a total of twelve Sprint/Clearwire antennas. The existing rooftop enclosure is proposed to be enlarged to contain the existing and new antennas. New, associated equipment would be located within the existing equipment building. The equipment building would not be increased in size.

Name of Public Agency Approving Project: City of Escondido

Name of Person or Agency Carrying Out Project:

Name M&M Telecom (Mark Phillips) representing Spring/Clearwire Telephone (619) 379-3473

Address 2014 Granada Ave, San Diego, CA 92104

☒ Private entity ☐ School district ☐ Local public agency ☐ State agency ☐ Other special district

Exempt Status: Categorical Exemption. Section 15301 "Existing Facilities."

Reasons why project is exempt:

1. The project only involves a Modification to a previously approved Conditional Use Permit to co-locate additional antenna panels on an existing Sprint/Nextel wireless communication facility. No physical expansion of the site is proposed.
2. The site is in an area where all public services and facilities are available to allow for the proposed use.
3. The site is within an area that currently is developed with other municipal type facilities and structures, including several private wireless communication facilities and an underground reservoir. The proposed development/lease area is not in an area that is environmentally sensitive and the project would not have any direct impacts to any sensitive or protected resources.
4. The proposed facility would not be hazardous to the health of nearby residents or the general public since the facility would be within maximum permissible exposure (MPE) limits and Federal Communication Commission (FCC) standards.

Lead Agency Contact Person: Jay Paul, Planning Division Area Code/Telephone/Extension (760) 839-4537

Signature: _____ January 11, 2010
Jay Paul, Associate Planner — Date

☒ Signed by Lead Agency Date received for filing at OPR: N/A

MPE Report
Client:Sprint-WIMAX
Site: Reservoir 11, (CA-SDG5214)
Date: Tuesday, December 22, 2009

Contents

1. Objective

This report has been prepared on behalf of Sprint-WIMAX. Sprint-WIMAX is proposing communication equipment at Reservoir 11 located at 1475 W. 11th Avenue, Escondido, CA 92029. The study will evaluate the effect of the base station for compliance with the appropriate limiting human exposure to radio frequency (RF) electromagnetic fields. The study took the following criteria into consideration:

Table 1 Measurements Information

Analysis	Description
Antenna Patterns	Yes
Measured Antenna Isolation Data	No, Empirical data used

2. Introduction

The Federal Communication Commission (FCC) requires the evaluation of RF emissions for possible significant impact on the environment. In 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 Radio frequency Electromagnetic Fields", published in 1986, and in
- OET Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", published in 1997.

Separate limits apply for occupational and public exposure conditions. Generally, the public limits are five times more restrictive than occupational limits. The table below shows the summary for the exposure limits.

Table 2 FCC exposure limits

Band	Frequency (MHz)	Occupation/Controlled (mW/cm^2)	Population/Uncontrolled (mW/cm^2)
Cellular	870	2.9	0.58
SMR	851	2.84	0.567
PCS	1930	5	1
WIMAX	>2400	5	1

3. Evaluation & Computer Modeling

The MPE analysis consists of evaluating the RF transmitter power being emitted from each active antenna at the communications site. Power density calculations are performed based on where a human (observer) would be located at the site. The power density values are then converted to MPE percentages and each antenna's MPE percentages are summed together to provide a composite MPE percentage for each observer location. Refer to Appendix I for detailed calculations.

AIM MPE software was used to predict the limits of exposure. Figure 1 below shows the methodology AIM MPE followed to generate the final output depicts the Occupational or Controlled Environment MPE analysis. The color zones in figures 2 and 3 indicate the maximum permissible exposure percentage a person would experience while in these zones

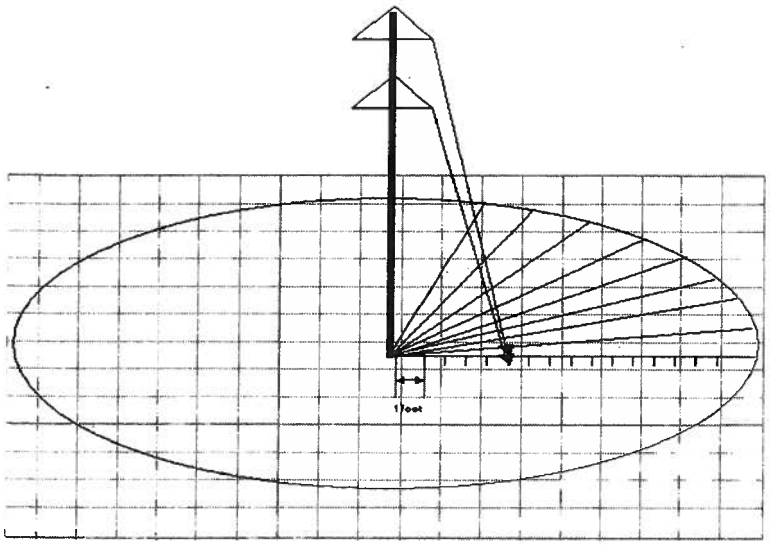


Figure 1. AIM Wireless methodology in calculating MPE

3.1. Site Description

Site name:	Reservoir 11 (CA-SDG5214)
Site description:	Maximum Permissible Emission for a Water Reservoir structure
Address:	1475 W. 11th Avenue, Escondido, CA 92029
Latitude:	33-06-15 N
Longitude:	117-05-45 W

3.2. Antenna System

Table 3 Carriers' details

Carrier	Antenna Manufacturer	Antenna Model	Height-AGL (ft)	Azimuth-TN	Antenna Length (ft)	Power at Antenna (W)
Sprint-WIMAX	Argus	LLPX310R	14 ft	60, 180, 300	3.5 ft	10 W
Sprint-CDMA	Andrew	844G90VTA-SX_0	14 ft	0, 180, 270	4 ft and 6 in	50 W
Sprint-iDEN	Kathrein	741 984	14 ft	30,125,315	6 ft	50 W
Sprint-Microwave	Andrew	VHKP_2	14 ft	0, 120, 240	2 ft	1 W
Verizon	Antel	F-BXA-80063/4 M	30 ft	10,130,260	6 ft	50 W
AT&T	Power Wave	RA 21.7770.00	25 ft	0, 120, 240	6 ft	50 W
Cricket Wireless	Andrew	RR65-17-02DPL2	35 ft	30,125,315	4 ft and 6 in	50 W

3.3. Carrier Frequency Information

Table 4 Frequency Information

Carrier	Frequency Ranges (MHz)
Sprint-WIMAX	2496-2502, 2602-2614, 2618-2673.5
Sprint-CDMA	1930-1945
Sprint-iDEN	851-869

Sprint-Microwave	23 GHz
Verizon	880-890
AT&T	870 - 880, 1945 - 1965
Cricket Wireless	2110 – 2175 MHz

3.4. Site Layout

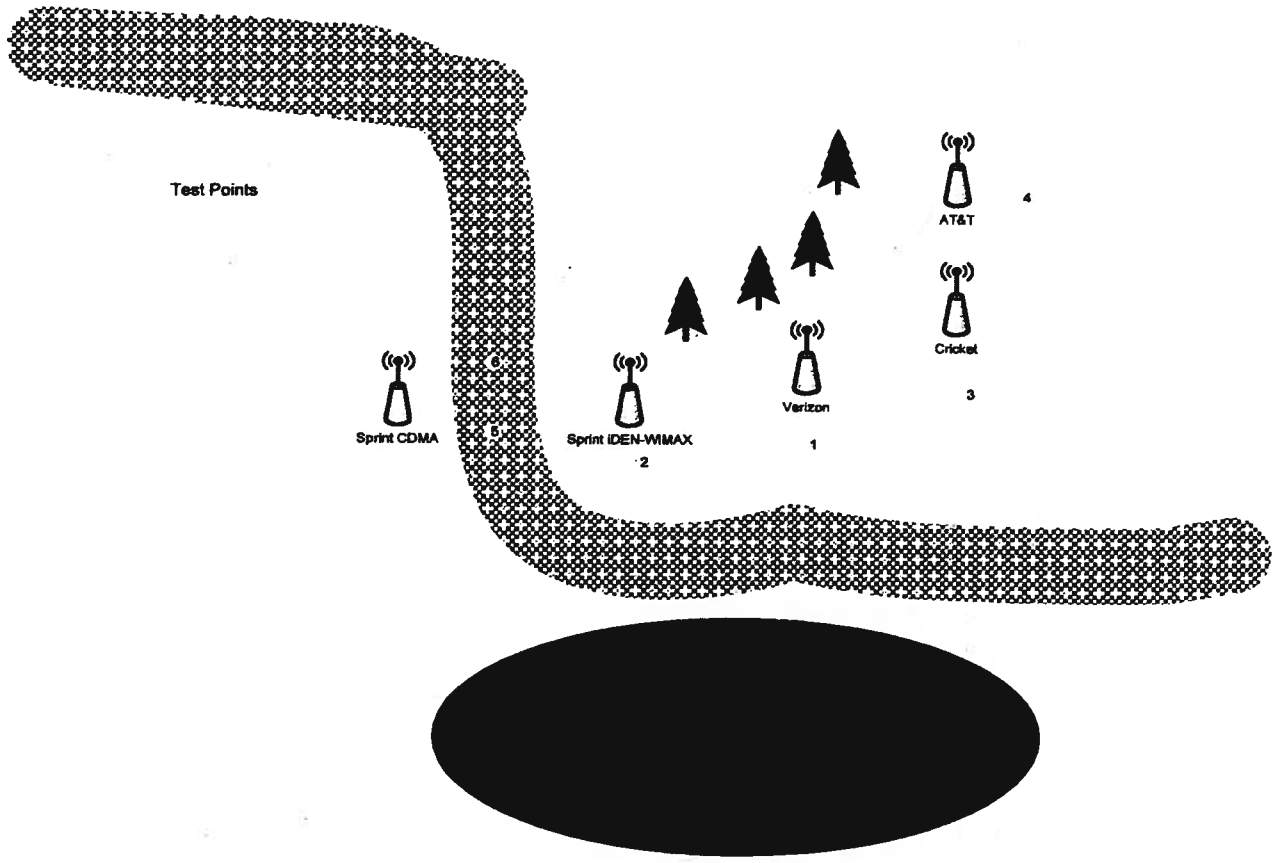


Diagram 1 CA-SDG5214 general test layout

4. Test Methodology & Measurements

Narda (8718B) with matching probe 8721D with frequency range of 300 MHz to 50 GHz was used to collect the data on the rooftop. The NARDA probes used by AIM Wireless have a dynamic range of 30 dB. This dynamic range represents the ratio of the highest to the lowest measurement values. This equipment is typically used industry wide and has an accuracy of 0.3% or 0.6% depending on whether the probe used can read 300% or 600% of the occupational MPE limit respectively.

The table below shows the test results for each test point that was considered. A total of 6 test points were located on the rooftop.

Diagram 1 and table 5 below shows the measurement point locations and their associated values for both General public and Occupational results. Test points were located at 6 different locations. Test points were

selected to be in front and behind each transmitting antenna. For those antenna that are flush mounted or unreachable, points were taken behind the antennas only. Test point 3 measurement shows the maximum level (1.956% and 9.78% for occupational and general public respectively). The measurement at this point was taken in front of the antenna of existing Sprint antennas.

At each test point, the spectrum (300 MHz to 50 GHz) is scanned and stored to a media. Once the data is stored, MPE software is used to calculate the sum of the percentages for each scanned frequency and power. Refer to the Power summation in Appendix I for detailed calculations

Table 5 Measurement points values

Measurement Point	Maximum Occupational %	Maximum General Public %
1	1.95	9.78
2	1.67	8.35
3	0.69	3.45
4	1.05	5.25
5	1.47	7.37
6	0.46	2.31

5. General Population/Uncontrolled Exposure Results:

By adding Sprint-WiMAX equipment to the existing structure, exposure levels are expected to increase. Using the measurements above and AIM's Software, the final results can be predicted. The analysis represents exposure limits to an individual who does not know that there is a potential for RF energy exposure and does not know how to control or limit this exposure. For FCC purposes, this applies to human exposure to RF fields where general public is exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related. Figure 2 below shows the Sprint WiMAX RF exposure levels throughout the rooftop as a percentage of the General Population/Uncontrolled MPE limit. Refer to Appendix I for detailed limit calculations.

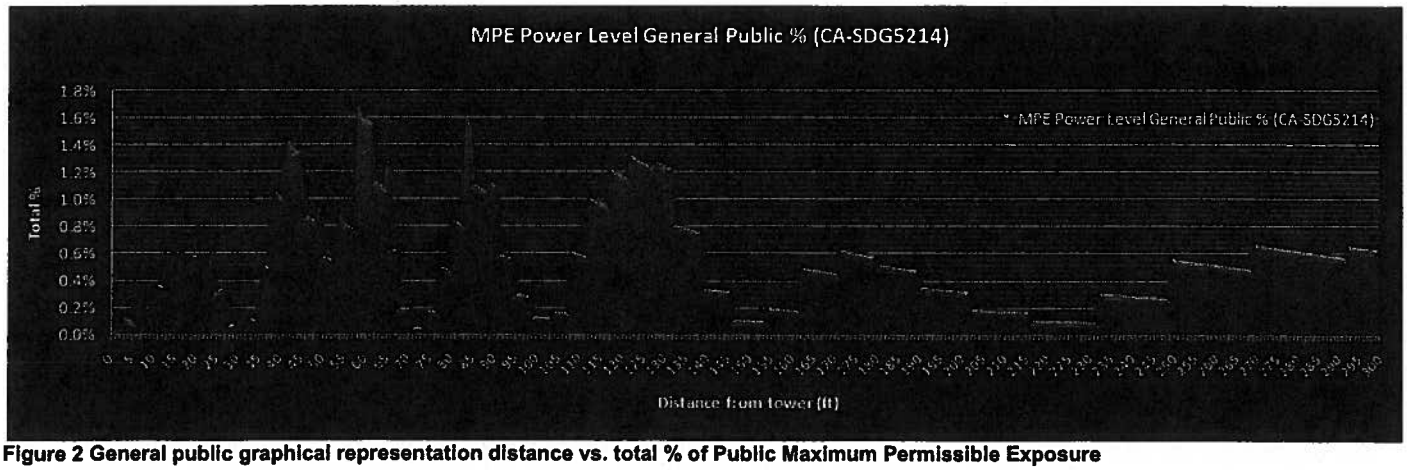


Figure 2 General public graphical representation distance vs. total % of Public Maximum Permissible Exposure

6. Occupational/Controlled Exposure Results:

By adding Sprint-WiMAX antennas to the existing structure, exposure is expected to increase. Using the measurements above and AIM's Software, the final results can be predicted. The analysis represents exposure limits to an individual who should know that there is a potential for RF energy exposure and knows how to control or limit this exposure For FCC purposes, this applies to human exposure to RF fields where person are exposed as a consequence of their employment and in which these person who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/Controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. Figure 4 below shows the Sprint WiMAX RF exposure levels throughout the rooftop as a percentage of the Occupational/Controlled MPE limit. Refer to the Appendix-I for the detailed limits calculations.

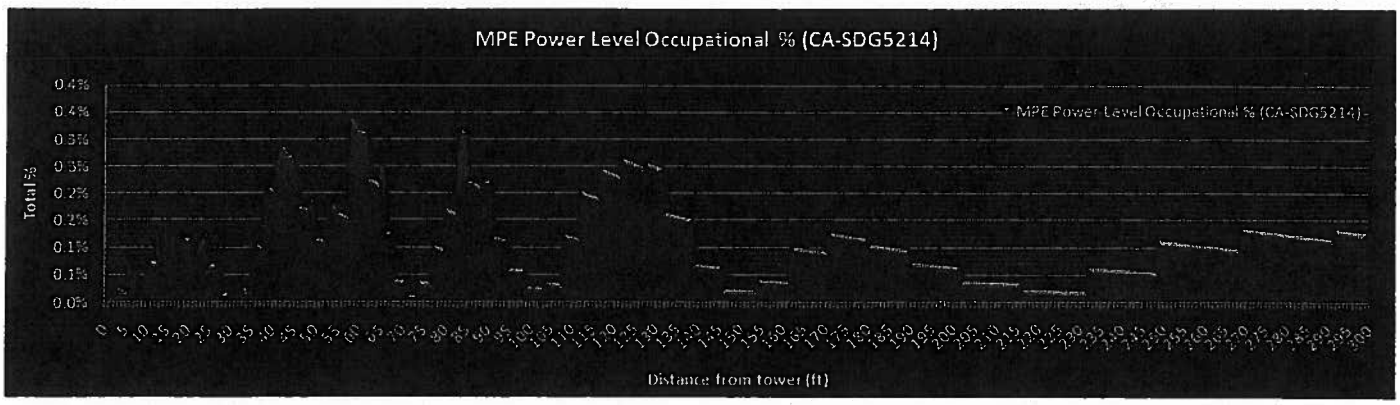


Figure 3 Occupational/controlled graphical representation distance vs. total % of Occupational Maximum Permissible Exposure

7. Study Findings

Assuming a worst case reflection factor of 2.56, the maximum ambient RF level anywhere on the roof level due to the proposed Sprint-WIMAX operation by itself is calculated by AIM MPE Software to be 0.017 mW/cm².

For the **General Population/Uncontrolled** scenario:

Referring to Table 2, the WiMAX Calculated Value equates to (0.015/1)*100 = 1.70% of the limit.

From Table 5, the maximum Measured Value from all existing carriers is 3.40% of the limit

Therefore the Total Realistic Predicted exposure level is the summation:

Calculated value + Measured value = 1.70+9.78 or **11.48% of the General Population/Uncontrolled** limit.

Similarly, for the **Occupational/Controlled** scenario:

Referring to Table 2, the WiMAX Calculated Value equates to (0.017/5)*100 = 0.34% of the limit.

From Table 5, the maximum Measured Value from all existing carriers is 1.95% of the limit

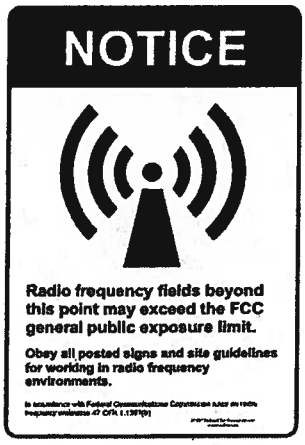
Therefore the Total Realistic Predicted exposure level is the summation:

Calculated value + Measured value = 0.34+1.95 or **2.96% of the Occupational/Controlled** limit.

The total Proposed Sprint WiMAX System exposure level on the rooftop from all carriers, including Sprint WiMAX, is therefore less than 11.48% of the specified safety limit.

7.1. Sign Display

The following signs may be placed at the base of the Monopalm and/or at the site's entrance.



Sign 1 Placement at Site entrance and/or base of Monopalm

8. Conclusion

Based on the information and analysis above, it is our professional opinion that the base station proposed by Sprint-WIMAX at 1475 W. 11th Avenue, Escondido, CA 92029 will comply with the prevailing standards of limiting public exposure to radio frequency energy, and therefore, will not cause an impact on the environment. The highest calculated level in publicly accessible areas does not exceed the prevailing standards allow for exposure of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations.

Appendix I: Methods of calculations based on OET 65 document

Exposure Limits:

Table 2 Limits of Occupational Exposure

Limits of Occupation/Controlled Exposure (mw/cm^2)		
Frequency (f)	Power density (S_{m1})	Time (minutes)
.3-3	100	6
3-30	$900/f^2$	6
30-300	1.0	6
300-1500	F /300	6
1500-100000	5	6

Table 3 Limits of General Public Exposure

Limits of General Population/Uncontrolled Exposure (mw/cm^2)		
Frequency (f)	Power density (S_{m2})	Time (minutes)
.3-1.34	100	30
1.34-30	$180/f^2$	30
30-300	0.2	30
300-1500	F /1500	30
1500-100000	1	30

Power Density Calculations:

1. Towers

Determine if near field, transitional field or far field:

$R < R_{nf} = \frac{D^2}{4\lambda}$

Where: R_{nf} = extent of near-field (ft)
D = maximum dimension of antenna (diameter if circular) in ft
λ = wavelength (ft) = 186,000 x 5280/frequency (MHz)
R = distance from antenna (ft)

$R > Rff = \frac{0.6D^2}{\lambda}$

Where: R_{ff} = extent of far-field (ft)
D = maximum dimension of antenna (diameter if circular) in ft
λ = wavelength (ft)
R = distance from antenna

$R_{nf} < R_{tt} < R_{ff}$

Where: R_{tt} = transitional field
R_{ff} = extent of far-field
R_{nf} = extent of near-field

Near Field:

Equation 1

$$S_{nf} = \left(\frac{180}{\phi_{bw}}\right)\frac{P_{net}}{\pi Rh} \times 1000mw \quad \text{(no reflection factor)}$$

Equation 2

$$S_{nf} = \left(\frac{180}{\phi_{bw}}\right)\frac{P_{net}}{\pi Rh} \times 1000mw \times F1 \qquad \text{(with reflection factor)}$$

Where: S_{nf} = near field power density (mW/cm²)
P_{net} = net power input to the antenna after losses (mW)

$$P_{net} = P \times 10^{\frac{coaxloss}{10}} \times 10^{\frac{insertionloss}{10}}$$

ϕ_{bw} = beam width of the antenna in degrees
R = distance from antenna (ft)
h = aperture height of the antenna (ft)
Rfact = Reflection factor, if indicated it is 2.56. If not indicated, it is 1

Far Field

Equation 3

$$S_{ff} = \frac{P \times 10^{\frac{G}{10}}}{4\pi R^2} \times 1000mw \qquad \text{(no reflection)}$$

Equation 4

$$S_{ff} = \frac{P \times 10^{\frac{G}{10}}}{4\pi R^2} \times F1 \times 1000mw \qquad \text{(with reflection)}$$

Where: S_{ff} = far field power density
P_{net} = net power input to the antenna after losses

$$P_{net} = P \times 10^{\frac{coaxloss}{10}} \times 10^{\frac{insertionloss}{10}}$$

R = distance from antenna (ft)
G = Antenna gain

F1 = reflection factor (2.56)

Transitional Field

Equation 5

$$S_t = \frac{S_{nf} R_{nf}}{R}$$

Where: S_{nf} = Near field power (mW)
S_t = power density (mW/cm²)
R_{nf} = extent of near-field, calculated above (ft)
R = distance to point of interest (ft)

Power Summation

For S1, S2.....Sn

Perform power density excluding the new carrier. If results exceed the maximum by 5% or more, site is not previously in compliance with FCC. If not, then perform the study with the new located carrier and compare the results with the specified limits in the above table.

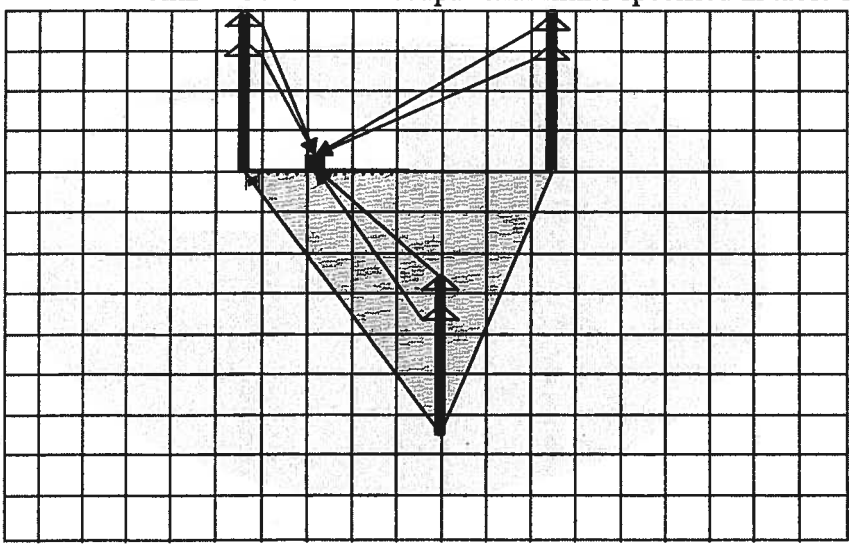
Equation 6

Total Power density Occupational/Controlled = $P_{STC} = \sum(\frac{S_1}{S_{m1}} + \frac{S_2}{S_{m1}} + ... \frac{S_n}{S_{m1}}) \times 100$

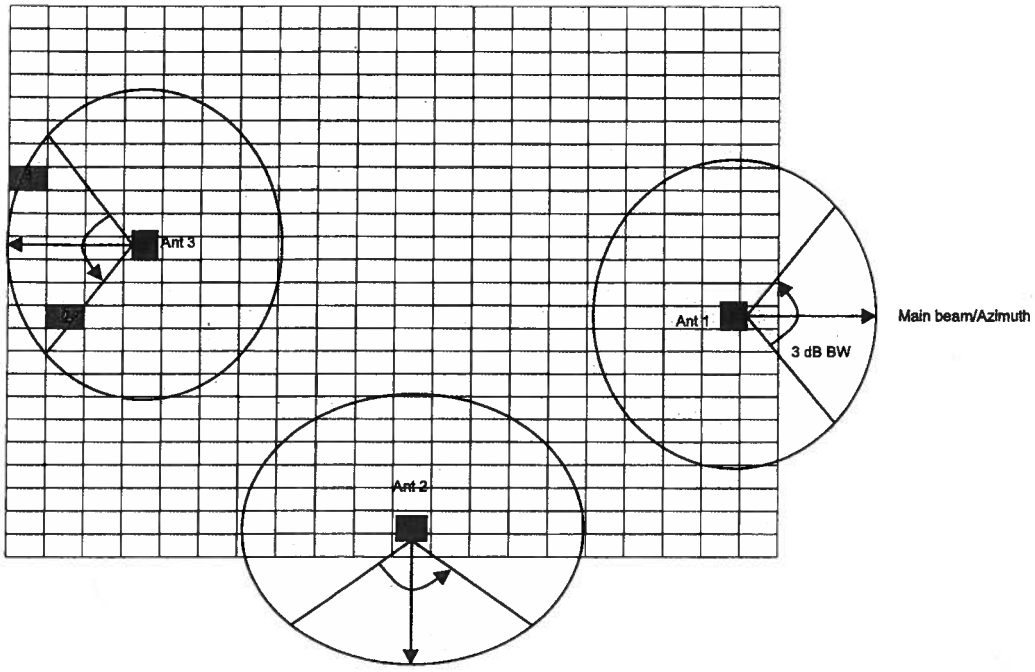
Equation 7

Total Power density General/uncontrolled = $P_{STU} = \sum(\frac{S_1}{S_{m2}} + \frac{S_2}{S_{m2}} + ... \frac{S_n}{S_{m2}}) \times 100$

Where: S1,S2...Sn = calculated power density
Sm1 = Occupational/controlled limits specified in table 2
Sm2 = General/unoccupational limits specified in table 3



2. Roof tops



Determine if near field, transitional field or far field:

$$R < R_{nf} = \frac{D^2}{4\lambda}$$

Where: R_{nf} = extent of near-field
D = maximum dimension of antenna (diameter if circular)
λ = wavelength
R = distance from antenna

$$R > Rff = \frac{0.6D^2}{\lambda}$$

Where: R_{ff} = extent of far-field
D = maximum dimension of antenna (diameter if circular)
λ = wavelength
R = distance from antenna

$R_{nf} < R_{tt} < R_{ff}$

Where: R_{tt} = transitional field
R_{ff} = extent of far-field

Figure 1 Rooftop grid for calculations

R_{nf} = extent of near-field

Near Field:

1) Within the 3dB Beamwidth (BW)

If the bin (square for calculations) is partially within the 3dB BW, then the square is within the 3dB BW.

Equation 8

$$S_{nf} = \left(\frac{180}{\phi_{bw}}\right)\frac{P_{net}}{\pi Rh} \times 1000mw \quad \text{(no reflection factor)}$$

Equation 9

$$S_{nf} = \left(\frac{180}{\phi_{bw}}\right)\frac{P_{net}}{\pi Rh} \times 1000mw \times F1 \qquad \text{(with reflection factor)}$$

Where: S_{nf} = near field power density (mW/cm^2)

P_{net} = net power input to the antenna after losses (dBm)

$$P_{net} = P \times 10^{\frac{coaxloss}{10}} \times 10^{\frac{insertionloss}{10}}$$

ϕ_{bw} = beam width of the antenna in degrees

R = distance from antenna (ft)

h = aperture height of the antenna (ft)

F1 = reflection factor (2.56)

2) Outside the 3dB BW

Equation 10

$$S_{nf} = \left(\frac{180}{\phi_{bw}}\right)\frac{P_{net}}{\pi Rh} \times 1000mw \times CF_{MPE} \times 10^{\frac{G-FTB}{10}} \qquad \text{(no reflection factor)}$$

Equation 11

$$S_{nf} = \left(\frac{180}{\phi_{bw}}\right)\frac{P_{net}}{\pi Rh} \times 1000mw \times CF_{MPE} \times F1 \times 10^{\frac{G-FTB}{10}} \quad \text{(with reflection factor)}$$

Where: S_{nf} = near field power density (mW/cm^2)

P_{net} = net power input to the antenna after losses. (mW)

$$P_{net} = P \times 10^{\frac{coaxloss}{10}} \times 10^{\frac{insertionloss}{10}}$$

ϕ_{bw} = beam width of the antenna in degrees

FTB = Front to back ratio (dB)

R = distance from antenna (ft)

h = aperture height of the antenna (ft)

F1 = reflection factor (2.56)

Far Field

1) Within the 3dB BW:

If the bin (square for calculations) is partially within the 3dB BW, then the square is within the 3dB BW.

Equation 12

$$S_{ff} = \frac{P \times 10^{\frac{G}{10}}}{4\pi R^2} \times 1000mw \times CF_{MPE} \qquad \text{(no reflection)}$$

Equation 13

$$S_{ff} = \frac{P \times 10^{\frac{G}{10}}}{4\pi R^2} \times F1 \times 1000mw \times CF_{MPE} \qquad \text{(with reflection)}$$

Where: S_{ff} = far field power density (mW/cm^2)

P_{net} = net power input to the antenna after losses (mW)

$$P_{net} = P \times 10^{\frac{coaxloss}{10}} \times 10^{\frac{insertionloss}{10}}$$

R = distance from antenna (ft)

G = Maximum antenna gain (dB)

F1 = reflection factor (2.56)

CF_{MPE} = MPE correction factor and set to 0.7

Outside the 3dB BW:

Equation 14

$$S_{ff} = \frac{P \times 10^{\frac{G-FTB}{10}}}{4\pi R^2} \times 1000mw \times CF_{MPE} \qquad \text{(no reflection)}$$

Equation 15

$$S_{ff} = \frac{P \times 10^{\frac{G-FTB}{10}}}{4\pi R^2} \times F1 \times 1000mw \times CF_{MPE} \qquad \text{(with reflection)}$$

Where: S_{ff} = far field power density (mW/cm^2)

P_{net} = net power input to the antenna after losses

$$P_{net} = P \times 10^{\frac{coaxloss}{10}} \times 10^{\frac{insertionloss}{10}}$$

R = distance from antenna (ft)

FTB = Front to back ratio (dB)

G = Maximum antenna gain (dB)

F1 = reflection factor (2.56)

CF_{MPE} = MPE correction factor and set to 0.7

Transitional Field

Equation 16

$$S_t = \frac{S_{nf} R_{nf}}{R}$$

Where: S_{nf} = Near filed power (mW)
S_t = power density (mW/cm^2)
R_{nf} = extent of near-field, calculated above (ft)
R = distance from antenna (ft)

Power Summation

For S1, S2.....Sn

Perform power density excluding the new carrier. If results exceed the maximum by 5% or more, site is not in compliance with FCC, if not, then perform the study with the new located carrier and compare the results with the specified limits in the above table.

Equation 17

Total Power density Occupational/Controlled = $P_{STC} = \sum (\frac{S_1}{S_{m1}} + \frac{S_2}{S_{m1}} + ... \frac{S_n}{S_{m1}}) \times 100$

Equation 18

Total Power density General/uncontrolled = $P_{STU} = \sum (\frac{S_1}{S_{m2}} + \frac{S_2}{S_{m2}} + ... \frac{S_n}{S_{m2}}) \times 100$

Where: S1,S2...Sn = calculated power density (mW/cm^2)
Sm1 = Occupational/controlled limits specified in the above table (mW/cm^2)
Sm2 = General/unoccupational limits specified in the table above (mW/cm^2)

9. Contact Information

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