City of San Clemente

Wireless Master Plan

Produced by:

ATS Communications

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Table of Contents

EXECUTIVE SUMMARY

San Clemente and the Wireless Industry

In 1991, the City of San Clemente approved the first cell site location to offer wireless phone service for the predecessor of Sprint PCS in its community. Since then over 30 wireless communications sites and five major wireless service providers ("Carriers") have located their wireless networks in San Clemente.

Over the last few years, three major factors have changed the wireless landscape:

1) More people are using cellular phones as their primary means to communicate;
2) People are expending more minutes on their cell phones as the price of minutes continues to come down; and
3) New services and capabilities, requiring greater bandwidth, are exhausting the capacity of current cell sites (wireless network infrastructure).

Inadequate cellular coverage and dropped calls (due to insufficient capacity) define poor quality of service, resulting in customers changing their wireless service providers ("Carrier") from one service provider to another - know as "consumer churn". Carriers, in an effort to compete for and retain customers, need to build more cell sites to keep up with consumer demand and improve their quality of service.

Cellular and Personal Communications Systems ("PCS") commonly referred to as "cell phones", have become an integral part of our daily lives. As consumers become more dependent on these devices, the need for additional wireless communications facilities or "cell sites", to support the customers who use these services will grow as well. According to the Cellular Telecommunication Industry Association ("CTIA"), in June 1985, when began its semi-annual survey of the industry, the CTIA reported 203,600 domestic cellular subscribers. At the end of 2007, that number had grown to over 255,000,000. The corresponding wireless infrastructure in place, to service the over 200 million subscribers, is estimated at approximately 213,000 cell sites.

Goals

ATS Communications was contracted by the City of San Clemente to accomplish three goals relating to the proliferation of antennas throughout the community:

1) Reduce the number of potential cell site locations through a coordinated co-location process;

2) Mitigate the visual impact of towers and antennas from the view of the community by adopting design standards that employ the best available "stealth" technologies; and
3) Facilitate the development of efficient wireless networks by taking a proactive approach and implementing a Wireless Master Plan.

The primary purpose of the relationship between the City and ATS Communication is to help the City take a pro-active approach to handle the future development of cell sites throughout the City of San Clemente through the development and implementation of a Wireless Master Plan.

Methodology

ATS Communications began the development of this Wireless Master Plan by investigating the current wireless network coverage for each of the major Carriers. By researching the location of all existing wireless communications facilities, or "cell sites", throughout San Clemente, then using radio frequency engineering analysis tools, ATS was able to create a map for each Carrier's existing network infrastructure. From this analysis, ATS was able to determine the likely locations where additional cell sites need to be placed in order for each Carrier to provide robust, seamless wireless coverage throughout the City. As part of this process, ATS Communications reviewed City archives to obtain information pertaining to each permitted cell site development. The information in these files enabled ATS to determine what type of installations were approved, including the site location, type of communications equipment, and the height, number, and direction of the antennas

ATS conducted field verifications for each site to confirm City records and ensure that the cell sites were constructed according to their conditions of approval. After completing the field verification, ATS inputted the corresponding data into a comprehensive radio frequency modeling software program.

This modeling program takes into account the unique topography of the City of San Clemente including hills, mountains, canyons, buildings and other types of physical terrain. In addition, ATS Communications considered ortho-imagery, market densities, census data, and arterial corridors, including major freeways and traffic count data sets. In addition to engineering and geographical information systems the model accounts for major commercial and residential projects in progress and planned projects.

The resulting compilation of information enabled ATS Communications to produce radio frequency signal propagation predictions for each Carrier's existing wireless coverage or "footprint". Thus, the model allows ATS Communications to depict the current coverage and likely capacity capabilities in order to identify the current and future demand on each wireless service provider's network.

Findings

Taking into account the existing facilities (Existing Wireless Infrastructure), and City-owned properties ("Inventory of City Property"), the radio frequency engineering analysis performed by ATS Communications identified twenty nine potential locations throughout the City of San Clemente where various Carriers lack coverage that could be satisfied by cell sites on suitable City-owned property or on City-owned structures in the public right of way.

It should be noted that the entire list of City-owned properties was reviewed to identify possible candidates for meeting the needs of potential wireless service providers. Site location, topography, property size and other factors reduced the number of available properties down to those locations that could meet the needs of the Carriers in the near term, using current technology.

Changes in technology, the inability of a Carrier to find suitable private property candidates, or other factors may result in the shifting of the network infrastructure design predictions. While traffic patterns and population statistics were taken into consideration, customer-purchasing patterns, unavailable to our study, can have an effect on the overall network design, development and implementation as well.

The following chart shows the seven locations on which 28 wireless communications facilities were identified in San Clemente where City-owned properties or the public rights-of-ways could meet the needs of various wireless service providers. Some locations have only one potential candidate while several identify two or more facilities for City properties for a possible cell site, the details can be found in the section Introduction under Findings.

Site ID	Site Description	Site Address
SR2	San Clemente Utilities Division Bldgs.	380 & 390 Avenida Pico
SR3	San Gorgonio Park	2916 Via San Gorgonio
SR4a	Calle Cordillera Water Tank	1001 Calle Cordillera
SR4b	Rancho San Clemente Park	150 Calle Aguila
SR5a	Marblehead Inland Park	2400 Via Turqueza
SR6a	City of San Clemente Negocio Offices	910 Calle Negocio
SR6b	City of San Clemente Negocio Offices	1030 Calle Negocio

While the entire inventory of City-owned property was considered, many cell sites currently exist on private properties throughout the city; therefore, City-owned properties were determined to be redundant and not considered as possible candidates. Detailed information on existing cell sites is included in the "Wireless Infrastructure" Section.

Based on a conservative estimate of sixty percent of the population of the city using cell phones translates to approximately 1,062 potential users per each cell site location. When considering the cell phone users who travels through, works and/or visits the City, there is an even greater potential usage demand on each cell site.

As more people use cell phones and their related services, more cell sites are needed. Understanding why and where cell sites need to be constructed will allow the City to take a proactive approach in planning for the future wireless infrastructure. This study provides a tool to address these issues.

WIRELESS MASTER PLAN INTRODUCTION

Purpose of the Wireless Master Plan

The primary purpose of the relationship between the City and ATS Communication is to enable the City take a pro-active approach to handle the future development of cell sites throughout the City of San Clemente through the development and implementation of a Wireless Master Plan.

Background

The Wireless Master Plan began with a review of all existing wireless communications facilities located throughout the City of San Clemente. Detailed information about each wireless site is collected and field verified. This information is then analyzed, using radio frequency engineering signal propagation and coverage prediction modeling software, to generate existing coverage maps for each of the major Carriers. The resulting maps illustrate where each Carrier has current coverage and where they have inadequate coverage.

All existing cell sites are considered as possible candidates for future co-location. Design recommendations, height requirements and other considerations are discussed for each of City-owned locations. A process will be established to minimize the amount of time required by staff to handle applications for cell sites by creating site-specific design standards and a development process that is acceptable to the City while meeting the needs of the wireless carriers.

This proposed process is expected to reduce much of the time expended by both the City and the Carriers in their application process. Pre-approved locations on City property will create incentives for the wireless companies to enhance their network, utilizing available City-owned properties, thereby reducing the number of sites necessary for each Carrier's network. Lastly, making each of the wireless companies aware of the available locations in the City will further assist in assuring these locations are utilized and co-location of antennas occurs because of efficiency and potential cost savings to the Carriers.

Goals

ATS Communications and the City of San Clemente established four goals to mitigate the proliferation of antenna sites throughout the community:

1) Reduce and consolidate the number of cell site locations needed by Carriers to adequately provide their services throughout the

community, by coordinating the co-location of cell sites on city-owned property;

2) Mitigate the visual impact of towers and antennas from the view of the community by adopting design standards that employ the best available “stealth” technologies;

3) Facilitate the development of efficient wireless networks by taking a proactive approach and implementing a Wireless Master Plan;

4) Generate revenues for the City of San Clemente with incentives for the carriers to develop stealth wireless communications facilities.

While the goal of this Wireless Master Plan is to identify where new cell sites are likely to be needed for future wireless network infrastructure for each Carrier, the focus will be on promoting City-owned properties as potential candidates. The Wireless Master Plan does not include private properties that might satisfy Carrier needs. The reason being to avoid a “gold rush” on private properties by allowing some aggressive companies to take advantage of unknowing private property owners and to reduce the ability of wireless companies to negotiate leases and develop their networks efficiently. The City should recognize that the Wireless Master Plan does not restrict wireless Carriers from satisfying their coverage needs through the siting of antennas on private property.

Methodology

As part of this process, ATS Communications has identified the current locations for each of the major wireless Carriers (AT&T Mobility (previously Cingular)), MetroPCS, Nextel, Sprint, T-Mobile and Verizon Wireless) and their corresponding signal coverage to determine current network deployment. ATS Communications also evaluated population, traffic patterns and the physical terrain of the City of San Clemente to provide a current wireless network landscape for each of the major wireless companies.

ATS Communications cannot determine what the exact near term development objectives of each wireless Carrier will be; this report represents an accurate depiction of what should be needed over a longer term. Determining the near term objectives of each wireless Carrier is difficult because their annual capital budget does not always allow them to build out their complete network. Therefore, each Carrier has their own criteria for prioritizing the enhancement of their wireless network. A build cycle may be six months or two years, it varies based on the size of the capital budget and logistics of what needs to be done.

The goal of this document is to identify each Carrier's long-term needs and, to the extent feasible, get City-owned properties into their future network design. Providing available locations that are easily deliverable allows each wireless company to better plan for future growth thereby greatly increasing the opportunity for City-owned property to be considered for new wireless communications facilities.

Strategy

- Review the San Clemente's current wireless communications networks infrastructure
- Analyze each of the Carrier current wireless coverage
- Identification each Carriers' future infrastructure needs
- Identify City-owned properties corresponding to future infrastructure needs
- Review and evaluate each City-owned property with regard to feasible design
- Approve design concepts, a priori, for each of the identified City-owned properties.
- Adopt a process to expedite the lease and entitlements for identified City-owned sites.

The Wireless Master Plan begins with a review of all existing wireless communications facilities located throughout the City of San Clemente. Detailed information about each wireless site is collected and field verified. This information is then analyzed, using radio frequency engineering signal propagation and coverage prediction modeling software, to generate existing coverage maps for each of the major Carriers. The resulting maps illustrate where each Carrier has current coverage and where they have inadequate coverage.

All existing cell sites are considered as possible candidates for future co-location. Design recommendations, height requirements and other considerations are discussed for each of City-owned locations. A process will be established to minimize the amount of time required by staff to handle applications for cell sites by creating site-specific design standards and a development process that is acceptable to the City while meeting the needs of the wireless carriers.

This proposed process is expected to reduce much of the time expended by both the City and the Carriers in their application process. Pre-approved locations on City property will create incentives for the wireless companies to enhance their network, utilizing available City-owned properties, thereby reducing the number of sites necessary for each Carrier's network. Lastly,

making each of the wireless companies aware of the available locations in the City will further assist in assuring these locations are utilized and co-location of antennas occurs because of efficiency and potential cost savings to the Carriers.

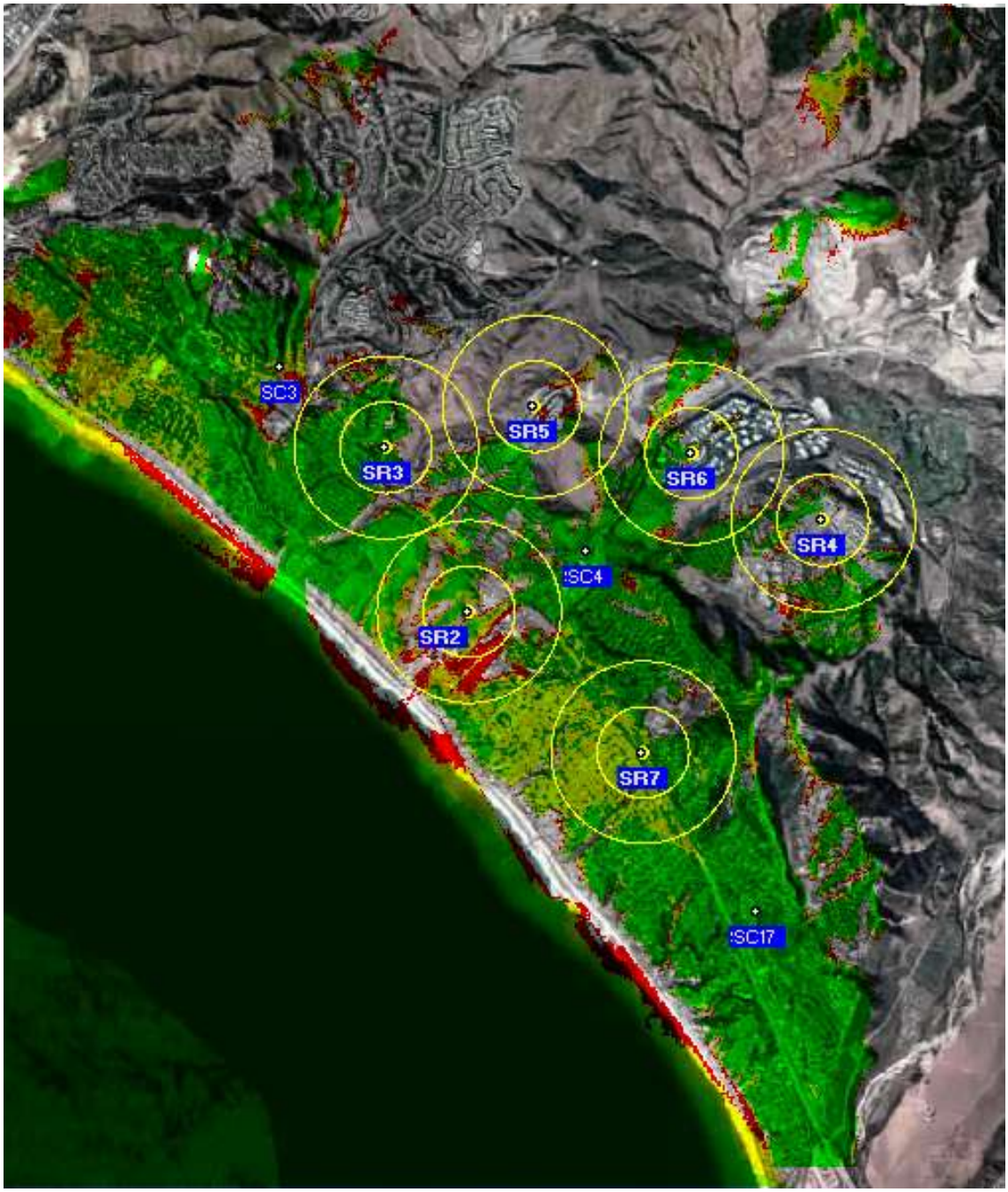
Findings

Taking into account the existing facilities (Appendix "A"), and City-owned properties, the radio frequency engineering analysis performed by ATS Communications identified seven potential locations throughout the City of San Clemente where various wireless communications services providers lack adequate wireless coverage, which could be remedied by establishing new wireless communications facilities on City-owned properties.

It should be noted that the entire list of City-owned properties was reviewed to identify possible candidates for meeting the needs of potential wireless service providers. Site location, topography, property size and other factors reduced the number of suitable properties down to several locations that could meet the current needs of the various Carriers.

Changes in technology or the inability of the Carriers to find suitable private property candidates, and other factors may result in shifting the network design prediction. While traffic patterns and population statistics were imputed, customer-purchasing patterns, unavailable to our study, also influence the overall network design, development and implementation as well.

The following map shows seven locations in San Clemente on which city-owned properties could meet the needs of various Carriers. Some of these locations had two City properties that provide suitable candidates for developing cell sites, while others are limited in size, which limit their viability as suitable candidates. Search Ring 7 (SR7) identified two parking lots where space limitations for base station equipment preclude them from further consideration.


SC3
SR5
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SC4
SR2
SR7
SC17

This list below categorizes locations which wireless services providers will most likely need to develop new cell sites over the next few years:

Search Ring	AT&T	Metro PCS	Nextel	Sprint PCS	T-Mobile	Verizon Wireless
SR1	No City-owned property					
SR2	X	X	X	X	X	X
SR3	X	X	X	X		
SR4	X	X	X		X	X
SR5	X	X	X	X	X	X
SR6		X	X		X	X
SR7		*X*	*X*			*X*

The following is a list of City-owned properties identified as potential candidates for future wireless communications facilities:

Site ID	**Site Description**	**Site Address**	**General Plan Description**	**Zoning Description**
SR2	San Clemente Utilities Division Bldgs.	380 & 390 Avenida Pico	Public	Public
SR3	San Gorgonio Park	2916 Via San Gorgonio	Open Space	Open Space - Coastal
SR4a	Calle Cordillera Water Tank	1001 Calle Cordillera	Public	RSC Specific Plan – Open Space - Public
SR4b	Rancho San Clemente Park	150 Calle Aguila	Public	RSC Specific Plan - Public
SR5a	Marblehead Inland Park	2400 Via Turqueza	Open Space	Open Space – Planned Residential Development
SR6a	San Clemente Negocio Offices	910 Calle Negocio	Light Industrial	RSC Specific Plan - Business Park
SR6b	San Clemente Negocio Offices	1030 Calle Negocio	Light Industrial	RSC Specific Plan - Business Park

Note: No City-owned properties were within the Search Ring 1 area (SR1). Search Ring 7 (SR7) had City-owned properties that were evaluated and determined not suitable for wireless communications facilities due to limited size and surrounding obstructions.

From the list above, ATS Communications identified and proposed several site design options to the San Clemente Design Review Sub-Committee (DRSC). In turn, ATS received feedback from DRSC on the various types of antenna concealment solutions considered for each location. Photographic simulations of

the proposed options are included, under the section Pre-Approved Designs for City Properties, to illustrate the visual impact for each potential installation. The objective of this exercise is to have "pre-approved" design concepts for the antenna "stealthing" solution, including the location for corresponding equipment structures, for each of the identified City-owned sites. This "pre-approved" design approach will help streamline the process of design review and permitting by the City's staff, and shorten the timeframe for site development for the prospective Carrier.

As Carriers move forward with enhancing their networks over the next few years "stealthing" solutions will most likely see further refinement. By adopting a "best practices" approach to new designs and new technologies, the City of San Clemente will benefit by having the "state-of-the-art" wireless infrastructure. ATS's role is to continue to monitor the industry's examples of new wireless site designs and stealth technologies, and relay this information to the City's staff for consideration and possible future implementation.

Implementation Strategy

As part of the implementation strategy, the Wireless Master Plan will be made available to the wireless Carriers upon City Council approval. The City's Zoning Ordinance *Section 17.28.070, Antennas on City property*, will be amended to acknowledge the Wireless Master Plan. This will allow the wireless carriers to take advantage of "pre-approved sites" that may facilitate their future infrastructure needs.

The benefit to the wireless carriers through this process is that it reduces their entitlement time, costs and uncertainty in developing new wireless facilities. By knowing, a priori, that a subject site is "pre-approved" will allow a wireless Carrier to proceed more quickly and confidently when allocating capital resources for the development of the subject site.

ATS will forward the subject properties to each of the major Carrier to incorporate into their respective databases of "landlord friendly" sites. Carriers will be able to designate the subject sites "pre-approved" candidates, as identified in the Wireless Master Plan. In turn, if a Carrier decides to utilize one of the subject sites, the process requires the Carrier to submit their proposals in accordance with the City's *Zoning Ordinance Section 17.28.070, Antennas on City property*, for sites subject to the Wireless Master Plan proposed site design guidelines.

The benefit to the City in implementing the Wireless Master Plan is a more streamlined approach to dealing with the development of wireless networks. This allows the City to implement a more effective and efficient wireless network with better design and site planning standards to preserve the aesthetic character of the community in accordance with the Urban Design element of the City's

General Plan. In addition, it maximizes the revenue potential to the City because it promotes locating future wireless facilities on city-owned property.

The Wireless Master Plan identifies seven current opportunities on City-owned property. In the event that all of these sites are developed at an average initial rental rate of $2,000 per month per site, with yearly escalation of rent at three percent, the City could realize a little over $6.1million. However, future wireless industry additions (new Carriers), new technologies, consolidation and customer demand will determine when and which sites are actually constructed. Therefore, this Wireless Master Plan will require periodic modification to enable the City of San Clemente to adapt to the ever changing wireless technology landscape. ATS Communications is committed to working with the City of San Clemente to implement the Wireless Master Plan and update it, as necessary, to keep current with changes affecting the wireless industry.

WIRELESS INDUSTRY BACKGROUND

Wireless Technology Overview

Wireless telecommunications generally describes those services known to the Federal Communications Commission (FCC) as Commercial Mobile Radio Services (CMRS). Currently, the majority of CMRS is encompassed within the radio telephony segment: Cellular Telephone Services (Cellular), Personal Communications Services (PCS), and Specialized Mobile Radio (SMR). By the end of 2007, 99.8% of U.S. residents (*estimated 280 million people*) have access to one or more providers of these services, and more than 255 million people subscribed to these services. Nationwide, over 80% of the population use CMRS services. The Los Angeles – Riverside – Orange Counties have a penetration rate of 84%. During 2007, radio telephony generated over $138 billion in revenue. As these facts make clear, CMRS, and especially radio telephony, are major factors in the daily lives of a large segment of the community.

Modern radio telephony got its start with analog cellular telephone service. While cellular technology was originally developed by AT&T in 1958, it did not become commercially available until the FCC began licensing Cellular providers in 1982. Cellular licenses are allocated in two bands (A & B) within the 800 MHz area of the radio spectrum. Since 1991, two carriers have been licensed in each of the nation's 734 Cellular Market Areas. During the 1990s, most cellular service was transitioned from analog to digital signal transmission, which greatly improved reception for Cellular users, although Cellular operators must retain the availability of analog services until 2008.

In addition to cellular telephone services, first generation services also include SMR, whose best known provider in Southern California is Nextel. The FCC began licensing SMR in both the 800 MHz and 900 MHz bands in 1979. Since that time, the FCC has also auctioned off spectrum for SMR services. To date, 19 MHz of exclusive spectrum and 7.5 MHz of shared spectrum has been allocated to SMR. SMR can provide for both one-on-one and simultaneous group communications through "dispatch mode" operations, as well as radio telephony through "interconnected mode" operations which connect the radios to the regular land-line telephone network. Because of various interference issues between SMR and public safety radio systems, the federal government is requiring SMR providers to relocate from the 800 MHz band to the 1900 MHz band.

The second generation of radio telephony service was introduced with the advent of Broadband PCS in 1995. PCS integrates the mobile telephony of Cellular with additional services, such as paging and text messaging. All PCS services are delivered through digital signals in the 1850-1990 MHz bands. Unlike Cellular, whose spectrum was allocated by the FCC through traditional regulatory

licensing, Broadband PCS spectrum was allocated through auctions. The A and B blocks of the Broadband PCS spectrum, both of which are 30 MHz wide, were auctioned on the basis of 51 Major Trading Areas (MTA's). The remaining blocks, the 30 MHz C block, and the 10 MHz D, E and F blocks, were auctioned on the basis of 493 Basic Trading Areas (BTA's).

The third generation of radio telephony, commonly called "3G," has generally been implemented an enhancement of Broadband PCS. 3G technology requires high speed digital transmission to support various multimedia applications, including email and internet access. The FCC is also planning to auction an additional 90 MHz of spectrum, in the 1710-1755 MHz and 2110-2155 MHz bands, specifically for advanced wireless services, such as 3G and 4G services.

In addition to radio telephony, CMRS includes two other elements, paging and Narrowband PCS. Licensees in these spectrum bands provide paging and both one-and two-way text messaging services.

Evolution of Wireless Technologies

The underlying technology of cell phones has been in existence since the development of the radio. While television shows like "Get Smart" and "Star Trek" introduced us to the idea of cell phones, they were first developed in the mid-seventies by Motorola.

The current technology of cell phones is beginning to provide users with access to television broadcasts and sending live streaming video. The future of wireless technologies promises to bring us closer to a ubiquitous wireless environment that offers even greater access to high-speed data services for a wide variety of devices all over the globe. The emergence of the 802.16 (WiMAX) standards adds a new opportunity to provide high-speed data access to a new wave of Internet users. The successor to 802.11a/g aimed at consumer applications require very high throughput, like HDTV and streaming video, 802.11n will see a fourfold increase in bandwidth to support increasing demands of high volume data networks over the next few years.

These technologies will continue to evolve and cross-pollinate with both licensed and unlicensed bands including PCS and VoIP (Voice over Internet Protocol) networks that carry voice. That said, there is a common opinion throughout academia, industry and business that the current wireless technology fulfills neither current nor future demands," according to those behind the Wireless Gigabit with Advanced Multimedia (WIGWAM) project. WIGWAM is seen as an early vision of the next generation to 802.11n looking for Gbps speeds, the interactive speed and bandwidth necessary for the next generation of wireless services envisioned.

Over the next few years, the landscape of wireless technology, new devices and the bandwidth necessary to meet the demands of the consumer will be dynamic. As wireless technology evolves, the infrastructure to support those needs will grow as well in order to keep pace. There is no evolution of technology if the infrastructure necessary to support it does not exist.

New Wireless Technology Applications

Watching television commercials provides a glimpse into the changing landscape of wireless communications. Expecting that the largest segment of the population, seniors, will age into cell phones, most of the marketing dollars today are spent on the youth market between the ages of 12 and 24. New technologies and services enticing this age group and adults alike include live television, video broadcasting, and interactive games.

New wireless companies are promoting new cell phones to provide these services such as Helio and Amp'd Mobile. Helio's commercial stating "It's not a phone" is probably the most accurate as far as the direction these devices are going.

Many industry analysts expect that most devices such as PDA's, Ipods, cameras, video cameras, and even our wallets will be replaced by what we call our "cell phone." Unlike Europe, Asia and South America, the United States has been slow to embrace these new technologies and services, but there are a growing number of companies that are betting the American consumer is ready.

DAS Networks – Infrastructure Technology

On the wireless infrastructure side, Carriers are often faced with poor signal quality in areas that are topographically isolated or highly dense urban environments. Moreover, when trying to improve their Quality of Service (QoS) they face opposition from local communities when trying to put up new towers. Couple these issues with the needed bandwidth for today's mobile data communications services, the demand for greater coverage and capacity requires a new approach to efficiently developing network infrastructure.

Distributed Antenna Systems (DAS) Networks is an emerging phenomenon in wireless network deployments. While DAS is not a new technology, it is now seeing a new application with outdoor open networks. Traditionally, DAS Networks have been utilized in indoor environments such as subways, tunnels, sports complexes, airports and convention centers. This technology has been adapted to outdoor networks due to coverage and capacity demands in areas where Carriers have previously been unable to meet their demands with traditional "Macro-cell" sites or even "Micro-cell site installations.

In concept, DAS Networks typically use existing infrastructure, such as telephone poles and streetlights, to expand Carrier networks. They deploy small antennas distributed throughout a geographic area, where the antenna locations, referred to as “nodes”, are interconnected by fiber optic cable to a central hub location. The antenna installations have minimal visual impact and are usually aesthetically acceptable to most local communities and municipalities.

One of the most striking aspects of DAS Networks is that they are designed to support multiple wireless carriers within a defined geographical area using a shared infrastructure. This results in enhanced services while minimizing the impact to the community from the uncoordinated approach Carriers take to developing their respective infrastructure.

DAS Networks deployments are still relatively small, within the overall scheme Carrier deployments nationwide. However, this network solution promises to address many of the coverage and capacity needs of the Carriers as well as minimizing the aesthetic and zoning issues of concern to local governments.

Mergers and Acquisitions and Name Changes

Over the 17 years that wireless companies have been active in San Clemente, a number of mergers, name changes, and partnerships have occurred. The following table sorts out the various players:

Current Wireless Company	**Transactions**
AT&T Mobility	Renamed from Cingular to AT&T Mobility
	Renamed from Pac Bell Wireless to Cingular
	Purchased AT&T Wireless (who had purchased LA Cellular)
	Partnered with T-Mobile
	Sold a portion of its combined network to T-Mobile to dissolve partnership
	Purchased spectrum rights from NextWave Telecom
	Rebranded to AT&T (Completed 2007)
Nextel (Nextel)	Provide Boost Mobile prepaid services through joint venture with an Australian company
	Merged with Sprint PCS, though it appears Nextel may remain active as Sprint's business service
	Being required to relocate their spectrum to eliminate public safety radio system interference issues
Sprint PCS (Sprint)	Renamed from MCI
	Acquired Cox PCS service
	Merged with Nextel
	Partnered with Virgin Group LLC to form Virgin Mobile prepaid services
T-Mobile (Deutsche Telecom)	Partnered with Cingular
	Purchased a portion of Cingular's network and certain spectrum rights as partnership was dissolved.
	Partnered with Western Wireless
Verizon Wireless (Verizon)	Purchased Airtouch Cellular
	Acquired PacTel Cellular

Wireless Technology in the City

In 1991, the first wireless antenna site for providing analog cellular service was approved in the City of San Clemente. A 30-foot monopole with two antenna arrays transmitting service for MCI (now Sprint PCS), marked the introduction of wireless service into the San Clemente community.

While Sprint PCS was the first carrier located in the community, AT&T Wireless (now part of the Cingular network, but previously known as LA Cellular) deployed four sites between 1992 and 1994. While no wireless antenna sites for the major carriers were approved in 1995, Cingular built four sites over the following two years. Airtouch (now Verizon Wireless) entered the City of San Clemente in 1998 with two sites. Between 1999 and 2005, the five carriers enhanced their networks with 17 more sites, indicating an acceleration of wireless facility construction in recent years.

Over the last year, MetroPCS entered into Southern California markets. Metro PCS is a privately held company with a unique business model that offers pre-paid, low-cost wireless services with no contracts and unlimited minutes. This model has allowed MetroPCS to enter into mature wireless markets. Another new wireless service provider Modeo (DVB-H (Digital Video Broadcast)), formally a subsidiary of Crown Castle, has plans to build a wireless networks throughout the Southern California region in order to broadcast television content for cell phone subscribers. The service allows subscribers to access television programming from six channels through their mobile wireless handset.

In the past 17 years, 30 cellular facilities have been built to provide personal communications for residents and visitors throughout the community. The following list shows the dates the wireless communications facilities were put into service:

Wireless Facilities Located in SanClemente

ID#	Street # and Name	Latitude	Longitude	Carrier	Approval
1	2999 calle Andalucia	33.46738	-117.6553	Sprint	1991
2	675 Camino De Los Mares	33.45685	-117.6449	AT&T	1992
3	2441 S. El Camino Real	33.41082	-117.5994	AT&T	1993
4	2001 Calle Frontera	33.44235	-117.6157	AT&T	1994
5	2401 1/2 Del Ave. Presidente	33.41266	-117.6018	AT&T	1994
6	119 Calle De La Estrella	33.42814	-117.6117	T-Mobile	1996
7	2916 Avenida San Gorgonio	33.44906	-117.6417	T-Mobile	1996
8	150 E Ave Magdalena	33.41003	-117.5970	T-Mobile	1996
9	2001 Calle Frontera	33.44235	-117.6157	T-Mobile	1997
10	2001 Calle Frontera	33.44235	-117.6157	Verizon	1998
11	2916 Avenida San Gorgonio	33.44906	-117.6417	Verizon	1998
11a	2961 Avenida San Gorgonio	33.44906	-117.6417	MetroPCS	2007
12	675 Camino De Los Mares	33.45685	-117.6449	Verizon	1999
13	675 Camino De Los Mares	33.45685	-117.6449	Nextel	1999
14	3168 Inclinado	33.47408	-117.6401	T-Mobile	1999
15	1020 Recodo	33.45294	-117.5982	Nextel	1999
16	2001 Calle Frontera	33.44235	-117.6157	Sprint	2000
17	721 Avenida Salvador	33.4305	-117.5986	Nextel	2000
18	721 Avenida Salvador	33.4305	-177.5986	MetroPCS	2007
19	951 Calle Amanecer	33.45142	-117.602	Sprint	2001
20	2001 Calle Frontera	33.44235	-117.6157	Nextel	2001
21	170 Avenida La Pata	33.45271	-117.5922	T-Mobile	2001
22	721 Avenida Salvador	33.4305	-117.5986	Sprint	2001
23	3168 Inclinado	33.47408	-117.6401	AT & T	2002
24	170 Avenida La Pata	33.45271	-117.5922	AT & T	2002
25	3701 S. El Camino Real	33.39933	-117.5938	Nextel	2002
26	247 Avenida La Pata	33.44807	-117.5866	Sprint	2003
27	150 E Ave Magdalena	33.41003	-117.5970	Verizon	2003
28	300 S. El Camino Real	33.42627	-117.6106	AT&T	2004
29	3000 Calle Nuevo	33.46057	-117.6346	Sprint	2004
30	3000 Calle Nuevo	33.46057	-117.6346	Verizon	2005
	City Owned property				
	Private owned property				

While the major personal communications carriers have built a majority of the wireless antenna facilities in the City of San Clemente, other communications companies have developed parts of their network in the City as well. A number of paging companies have placed wireless antennas throughout the City. While the

paging segment of the wireless market has declined, USA Mobility and SkyTel still have a number of sites located in San Clemente.

In addition, Cox Communications has transmission sites in the City, Calvary Chapel use City-owned property to broadcast on its KWVE radio and the INS has a radio communication site on the Salvador Tower facility.

A number of wireless communications companies have built their networks, with some disappearing along the way. The need for antenna sites will continue to grow as the focus of network development shifts from signal coverage to service capacity due to increasing numbers of customers, increasing bandwidth requirements for third generation (3G) services, and increasing call length by users as they talk longer on their cell phones.

Wireless Challenges for the City

For San Clemente, there are several challenges facing the City regarding the development of the wireless network throughout the community. While there are 30 personal communications facilities supporting cellular phones, the demand for these services continue to outpace the capacity.

As more people use cell phones, use all the new services available and spend more time on the phone, more cell sites will be needed. Conservatively, the anticipated number of cell sites that will be developed in the City of San Clemente over the next five to ten years could be as many as 90. This corresponds to approximately three new facilities for every one that is in place now.

New wireless facilities will generally be needed in locations where none exists now. Planning for these new developments will be necessary to balance the aesthetic impact with the demands for wireless services.

Wireless Challenges for the Carriers

There is no doubt that the use of cellular phones will continue to grow. More people are buying cell phones and are using them for longer periods of time. Furthermore, new types of wireless services and handset capabilities make current cell phones models outdated approximately every six months. Yet, while the wireless industry continues to grow subscribers, the infrastructure necessary to support these services cannot keep pace with consumers' demands.

The strain on current wireless infrastructure is evident by dropped calls, receiving new messages when the phone failed to ring and recognizing patterns in your daily routes where you know there is no cell service available. For the wireless companies, this translates to a loss of millions of dollars each year in lost minutes of use, as well as causing a high churn rate among consumers who switch companies looking for better service.

There are several problems facing the wireless companies in deploying their wireless networks. First, as they initially built their networks height allowed them to be more flexible in where they placed their antennas. This also gave them many more choices in finding willing property owners.

As more sites are needed, the “low hanging fruit” of willing property owners is getting exhausted. Many property owners for many reasons do not want to allow antennas on their property. Those who are willing have become more educated on the terms and conditions of the market place.

Specific to the City of San Clemente, one of the challenges facing the wireless carriers is terrain. The City of San Clemente is a difficult area to develop a wireless network because of its varying topographical characteristics.

From the bluffs, overlooking Pacific Coast Highway, to the deep valleys, that create separation between areas of the community, make it difficult for the wireless carriers to develop a contiguous network. This results in the necessity of more cellular antenna locations throughout the community as compared with a community with a relatively flat landscape.

REGULATORY ISSUES

Federal

Through three principal acts, Congress has provided for a comprehensive federal regulatory scheme over wireless telecommunications, thereby occupying the field and preempting state and local regulation. The first act was the Communications Act of 1934. This Act created the Federal Communications Commission (FCC), with regulatory responsibility for interstate communications, both wired and wireless. Second, the Omnibus Budget Reconciliation Act of 1993 eliminated the ability of states to regulate the entry and rates of wireless providers.

Finally, the Telecommunications Act of 1996 was a major overhaul of the 1934 Act, with a focus on creating a competitive telecommunications market through eliminating barriers to entry and "public utility model" monopolies, which were the principal features of the telecommunications industry under the 1934 Act. The one major exception to federal preemption under the 1996 Act is local zoning authority, which the act specifically reserves for state and local governments.

Under the 1934 and 1996 Acts, the FCC exercises regulatory authority over wireless communications providers, including spectrum allocation (through either traditional public interest allocations or auctions), Carrier licensing, and the design, manufacture and operations of equipment. In addition, the FCC has adopted comprehensive radio frequency exposure regulations to protect the public from dangerous levels of radio frequency emissions.

Aside from the 1934 and 1996 Acts, wireless telecommunications providers may fall under a number of additional federal regulations. Wireless facilities must comply with Federal Aviation Administration regulations with regards to height and proximity to airport facilities in order to avoid being hazards to air navigation.

Projects in certain federal priority areas, including federal property, wilderness areas, wildlife preserves, endangered species habitat, historical sites, Indian religious sites, flood plains, and wetlands, may require an Environmental Assessment under the National Environmental Protection Act.

Wireless facilities that contain backup battery and generator systems may also be subject to federal regulations under the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, and the Emergency Planning and Community Right-to-Know Act.

State

Because of federal preemption, the State has a very limited role in wireless telecommunications regulatory issues beyond the normal labor, tax and similar acts applicable to all business enterprises in the state. The zoning exception, however, does provide an opening for State regulation.

Because the State has generally delegated land use authority to local government, State regulation is generally limited to those special cases where the State retains zoning authority, such as the Coastal Zone, where the California Coastal Commission exercises regulatory authority, and hospital sites, where the Office of Statewide Health and Planning Development exercises authority. In addition, wireless facilities must meet the requirements of the California Environmental Quality Act (CEQA).

Local

Because of the exception for zoning regulation under the 1996 Act, local governments have the most direct impact on where wireless facilities are located and how they look through control of the placement, construction, and modification of wireless facilities. This authority, however, is not unlimited. Local governments may not "unreasonably discriminate among providers of functionally equivalent services," enact regulations that prohibit or effectively prohibit wireless facilities, or take radio frequency emissions into account so long as the facility complies with the FCC's radio frequency emission regulations.

In addition, local governments are required to act on a request for permission to place a wireless facility in a timely manner, and if a request is rejected, it must be done in writing and must be supported by substantial evidence in the written record. Applicants who are denied authorization for facility placement are entitled to file an action in court challenging the denial, and are entitled to an expedited hearing by the court. If a denial is based on radio frequency emission, the applicant may appeal that denial to the FCC rather than the courts.

The Telecommunications Act of 1996 (TCA) allows state and local governments to enact ordinances governing the placement of wireless telecommunications facilities [§TCA Section 332 (c)(7)]. However, local governments are increasingly becoming embroiled in lawsuits filed by the common Carriers over the restrictiveness of local ordinances, violating section 253(a) of the TCA [§ 253(a)-(e)(1994 & Supp. II 1996) (hereinafter “removing barriers”)]. Recently, the courts have struck down restrictive ordinances or ordinances that are “so onerous” that they are in effect restricting the development of wireless networks – as in the following case: *Sprint Telephony*

PCS, L.P. v. County of San Diego, Nos. 05-56076, 05-56435 (9th Cir. June 13, 2007).

Local governments can regulate but cannot prohibit the placement of wireless communications facilities on sites such as schools, in residential zones and public rights-of-way. Furthermore, according to the TCA *§ 332 (c)(7)(B) "Limitations (iv) - No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the commission's regulations concerning such emissions."*

Radio Frequency Emissions

Emissions from wireless sites may not be directly regulated by the City of San Clemente. The Telecommunications Act of 1996, 704 Section B states that State or Local Governments may not regulate wireless facilities on the basis of environmental effects of radio frequency emissions if the applicant demonstrates compliance with FCC regulations.

Nevertheless, it is important to understand the guidelines under which such sites are regulated. The government has based the Maximum Permissible Exposure (MPE) levels on National ANSI, IEEE and international standards. These health and radio emission standards were put in place by the FCC. The guidelines created for measuring and analyzing RF Emissions is the FCC's Office of Engineering and Technology (OET) 65. They create a periodic bulletin called "Evaluating Compliance with FCC guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

This bulletin is used to guide Engineers and other qualified persons in making a determination about whether a specific site meets the emission requirements set forth in the document. Because typical cellular tower transmissions are at a relatively low power level the issue of emissions as outlined by the FCC is rarely an issue. The distance from a transmitting antenna to the nearest structure is usually more than enough to fall well below the MPE threshold.

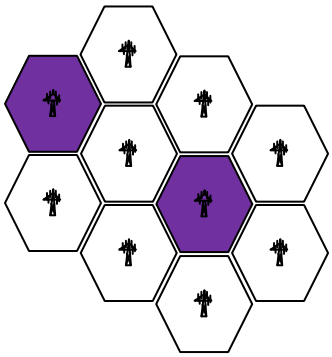
Another excellent document for reference produced by the FCC is entitled "*A Local Governments Official's Guide to RF Emission Antenna Safety"*. Rules, Procedures and Practical Guidance are available on the FCC's RF safety web page at www.fcc.gov/oet/rfsafety.

WIRELESS NETWORKS AND CELL SITES

Cellular Concept

The Federal Communications Commission (FCC) has issued, through public auction, a limited number of licensed frequencies to wireless services providers, e.g. Verizon Wireless, T-Mobile, Sprint / Nextel, AT&T Mobility (previously Cingular), and MetroPCS, ("Carriers"). As part of issuing these frequency licenses, the FCC mandates that the Carriers should provide seamless coverage throughout the licensed market area assigned for those frequencies.

The words "cellular" and "cell site" are derived from the described herein concepts. In the earlier days of mobile wireless communications, it was necessary that in order for the each Carrier to provide coverage to their subscribers they need to reuse their limited frequencies. The reuse of frequency spectrum is accomplished by allocating a set number of frequencies to each wireless communications facility represented as a hexagonal "cell" (shown below), which represents a geographical area. Each cell will utilize a different set of frequencies from each neighboring cells. However, the next cell over (the adjacent shaded cell) can reuse the same frequencies as the original (shaded) cell. This pattern is repeated through the geographical market area, creating a wireless communications network of cells – often referred to as "cell sites" - hence the name "cellular" communications.



Wireless communications networks develop over time with two underlying objectives that govern the placement of cell sites within any given geographical area. The first objective is to provide coverage and the second is to provide capacity. Together, these two objectives contribute to the overall Quality of Service a network provides to its customers.

The first and main objective is to provide coverage throughout the Carrier's licensed market area. This is accomplished by locating new cell sites in areas where existing coverage is not available or is unreliable. These locations can be at the periphery of a market area where new population growth has

occurred; or in newly licensed markets where the Carrier has no existing network infrastructure; or within an existing network where technical issues, such as topographical constraints, cause service interruptions or gaps. These gaps are known as “holes”, which are the areas that cause “dropped calls”.

The other objective, network capacity, is also critical to the viability of a wireless network. Capacity is driven by demand and a cell site can only handle a finite number of calls to meet this demand. More customers using the network place greater demands on the limited frequency capacity or bandwidth of an individual cell site. When a cell site’s bandwidth is maximized, it results in customer call blocking and dropped calls, thus poor quality of service.

A Carrier will attempt to minimize or eliminate issues of insufficient capacity by dividing a cell - effectively introducing a new cell site between existing cells to off-load customer call volume. According to Industry Profile #1 - SOMA Technology Committee report: “The number of subscribers per cell site still averages around 900, and despite technological improvements, the number has actually declined in recent years. “

This phenomenon is a result of subscriber minutes of use (MOU) continually exceeding the capacity these technological improvements have produced. Statistics show that the minutes of use per subscriber has greatly increased in the last several years, which has been driven by the decrease in costs to the wireless consumer on a “per minute basis.”

Cell Site Selection

Virtually all wireless carriers are constantly seeking to improve their quality of service by enhancing their wireless network infrastructure. The process begins with the Radio Frequency (RF) Engineers collecting data on the performance of their networks. RF Engineers are able to determine where their coverage problem areas are by reviewing the recorded number of dropped calls or missed calls over their network. The RF Engineering Team will visit the area of concern to determine the best location for a new cell site from a technical perspective. The RF Engineer will then issue a “search ring”, which is a map of the general area where a new cell site needs to be located. Typically, the focal area is less than a ¼ mile in radius, but may be even smaller depending on environmental constraints, such as terrain.

A site acquisition specialist performs the next step in the process. The site acquisition specialist will use the RF Engineer’s search map to help identify the general location of suitable property candidates for developing a cell site. However, the set of criteria employed at this stage is often contrary to the criteria desired by the RF Engineer. The site acquisition criteria for a property in question must be “leasable”, “zonable”, “buildable”, but it still must be viable from an RF Engineering perspective.

Intuitively, the best locations for cell sites are on properties that have higher elevation than the surrounding area, allowing clear line-of-site for the radio-transmitted signal. Herein lays the crux of siting dilemma. In many instances, especially in established communities, the desired location (to provide the best radio coverage) is within a residential area, at a park, at a school, within a scenic view corridor or at some other controversial location. Carriers typically will exhaust all attempts at locating a cell site on commercial property or on a non-residential use property to avoid or minimize zoning and land use issues. However, as network infrastructure continues to expand – viable options for cell site become increasingly limited. This trend will force carriers to seek sites within residential areas, on or adjacent to school properties, at parks and within the city's public right-of-way.

Siting issues are compounded as Carriers compete not only for customers but for suitable locations for new cell sites. Thus, the onus rests on local governments to manage and coordinate the proliferation of cell sites throughout their community. Local control and coordination is necessary because generally there is no benefit to each of the independent Carriers to work together. In fact, an industry effort to coordinate the co-location of network facilities would be contrary to the spirit of business competition and may give rise to concerns over collusion, monopoly and other regulatory issues.

With this backdrop in mind, developing a tool or a process that will help coordinate and manage the growth of cell sites, to provide the future wireless network infrastructure, is necessary and prudent for any well-planned community. Therefore, the creation of a Wireless Master Plan is meant to provide the means for facilitating the growth of wireless networks anticipated to meet the needs of both the wireless companies and their subscribers who live, work and visit the community.

Cell Site Selection Criteria

Managing or coordinating the future development of cell sites in a city will necessarily require the adoption of particular site design standards. Every property has distinct characteristics that require a different approach to how a cell site should be developed. From the carrier's perspective, the following basic cell site selection criteria are considered:

- Topography
- Coverage Area
- Tower Design or Type
- Antenna Height
- Antenna Array or Antenna Selection
- Antenna Orientation
- Cable Run (Distance from the Base Station Equipment to the Antennas)
- Surrounding Vegetation

- Proximity to Electrical Power and Telephone Services
- Access to the Public Right-of-Way
- Equipment and Tower Space Limitations
- Soils Composition
- Site Development Costs
- Rent

From the local government's perspective, the following criteria are considered:

- Site Location
- Tower Design or Type
- Area Zoning (Residential, Open Space, Commercial, Industrial or Institutional)
- Screening and Integration
- View Impact
- Landscaping
- Access
- Co-location

These two sets of criteria represent objectives with conflicting goals. Wireless services providers seek to build a site that will maximize the cell site's coverage area at the minimum cost. These goals, from the carrier's perspective, correspond to building a tower high enough to overcome the topographical limitations and possible interference due to vegetation (trees), including space for a full array of antennas (typically twelve antennas divided into three arrays or "sectors" and a microwave dish. Furthermore, the carrier will seek locations that offer close proximity to power, telephone and street access, along with adequate space for their equipment shelter including space for a generator. The preceding criteria foster an image of a basic cell tower site that is not aesthetically attractive, and would not be welcome in any suburban setting.

Local jurisdictions, through their land use policies and zoning codes, have the ability to transform the basic cell tower site design to a site that is designed to minimize the visual intrusiveness usually associated with them. In general, however, local wireless planning codes often exacerbated the problem of cell site proliferation by restricting the most crucial elements involved with cell site development, namely location and height. These limitations correspond to a reduction in the efficiency of the site to maximize their intended coverage area.

In general, Carriers are willing to develop cell sites that are "stealth" in design in exchange for a defined and certain process. Anecdotal examples abound where a Carrier have attempted to develop a needed site only to be denied because of public opposition. In some of these cases, the carrier is forced to move to a less optimal location where gaps in coverage remain. In other more recent cases, a Carrier has had to move their sites to the public right-of-way, adjacent to the original candidate. Furthermore, in some of these instances cities can be successfully challenged, as in the example where United States Court of Appeals for the 9th Circuit held that California Public Utilities Code §§

7901 and 7901.1 preempted the City of La Cañada Flintridge from denying a permit for wireless service facilities based on aesthetics. *Sprint PCS Assets, L.L.C. v. City of La Cañada Flintridge, No. 05-55014, 182 Fed. Appx. 688 (9thCir. 2006) (mem.).*

Pre-Approved Designs for City Properties

Site ID	Site Description	Site Address	Design
SR2	San Clemente Utilities Division Bldgs.	380 & 390 Avenida Pico	Flush-mount / Cupola
SR3	San Gorgonio Park	2916 Via San Gorgonio	Light Standard
SR4a	Calle Cordillera Water Tank	1001 Calle Cordillera	Mono-broadleaf Bush
SR4b	Rancho San Clemente Park	150 Calle Aguila	Cupola
SR5a	Marblehead Inland Park	2400 Via Turqueza	Street Light-pole
SR6a	City of San Clemente Negocio Offices	910 Calle Negocio	Façade
SR6b	City of San Clemente Negocio Offices	1030 Calle Negocio	Façade

In identifying pre-approved designs for the City's properties, the concept is to take a proactive approach to designing future cell sites. In the past, the City has reacted to the designs offered by the various wireless carriers and has spent significant staff time analyzing the proposed locations. While the City has been more innovative in its acceptance of design considerations than most other communities, there are locations that the City could have guided Carriers towards better site planning or facility design.

With an understanding that additional sites are needed over the next few years, the following design concepts are considered to be a good fit to blend into the surrounding characteristics of the community and immediate area. As technology evolves, these design concepts may change, and this Wireless Master Plan will be updated accordingly.

There are several companies in the Southern California area that have responded to the desire of communities to develop more realistic trees, clock towers and other structures to better "stealth" wireless facility antennas. While the wireless carriers do not necessarily want to increase their cost to build their infrastructure, they have learned that working with the local jurisdiction to develop community friendly facilities have helped in getting their sites completed quicker.

Site 2. San Clemente Utilities Division Buildings & Property

The subject property is very large and can support multiple design concepts, independently or in combination. For example, a cupola installation on one of the building will not preclude the possibility of a different "stealth" installation at a different location on the property.

Ideally, the best locations on the property will be those that make use of existing structures to the best possible extent.

The following are proposed design options:

- Cupola – Antennas mounted within a cupola addition to one of the facilities existing buildings.

- Flush-Mount – Antennas mounted to one of the facilities the vertical industrial structures.

Flush-mount Design

Site 2. San Clemente Utilities Division Buildings
Cupola Design

Proposed location for a cupola design and accompanying equipment shelter. The Carrier's antennas are concealed inside the structure.

An equipment enclosure, measuring approximately 12'Wx18'Lx7'H, can be constructed to match the color and texture of the surrounding buildings. Equipment enclosure or building should be built at a size that would accommodate a multiple number of carriers.

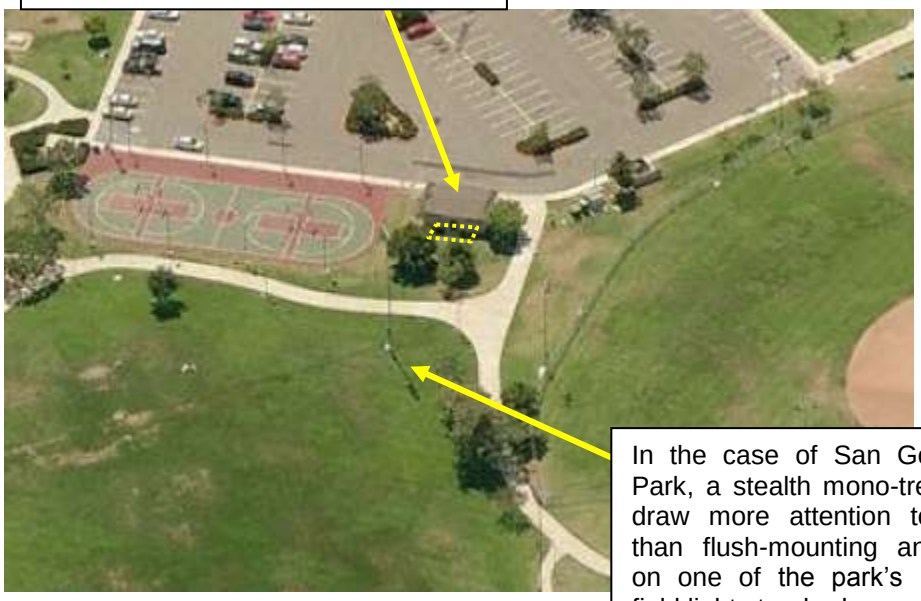
Site 3. San Gorgonio Park

Light Standard Design

Existing Verizon and T-Mobile locations - utilizing ball field light standards.

The accompanying base station equipment can be located in an enclosure (12'Wx18'Lx9'H) adjacent to the park's restroom / storage building and designed to match the color and texture of the existing building's façade. Equipment enclosure or building should be built at a size that would accommodate a multiple number of carriers.

San Gorgonio Park has multiple ball field light poles that can be replaced as a single carrier per pole. The design should minimize the appearance of the antennas to the best possible extent.

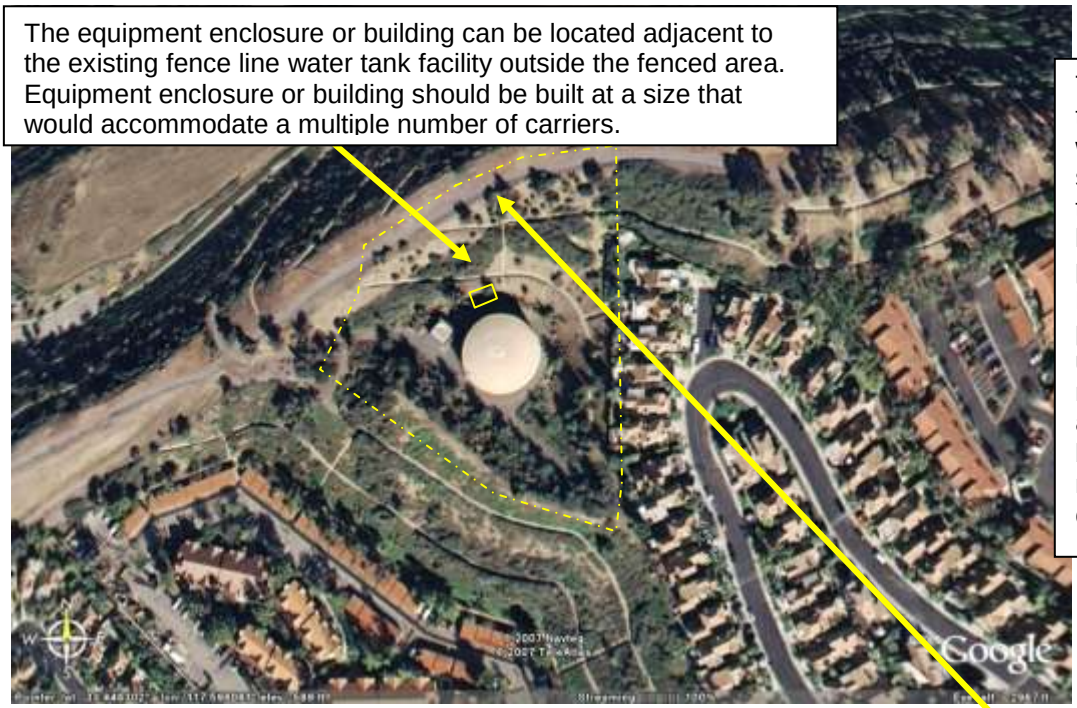


In the case of San Gorgonio Park, a stealth mono-tree may draw more attention to itself than flush-mounting antennas on one of the park's 18 ball field light standard.

Site 4A. Calle Cordillera Water Tank

Mono-broadleaf Bush Design

The equipment enclosure or building can be located adjacent to the existing fence line water tank facility outside the fenced area. Equipment enclosure or building should be built at a size that would accommodate a multiple number of carriers.



The water tank, due to its low elevation with respect to the surrounding topography has limited viability for providing coverage. However, the property line extends up the hillside to the ridge. This location affords significantly better line of site for more effective radio coverage.

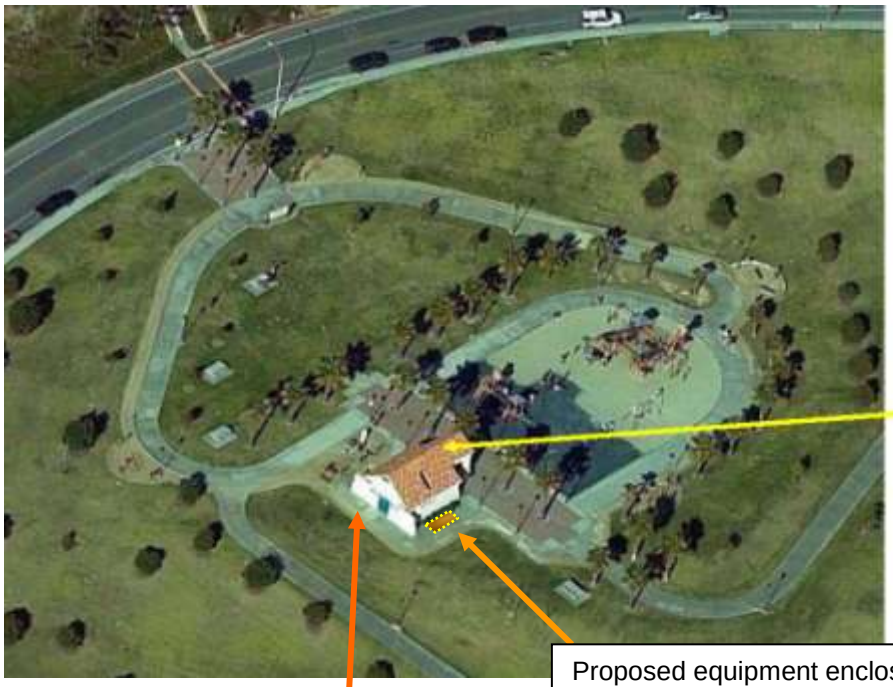
A mono-broadleaf tower will offer the best degree of camouflage by integrating the structure within the existing trees so as not to impact the existing view from adjacent residential properties.

Calle Cordillera Water Tank shown as it exists today and with a mono broadleaf type tree design cell site. Mottling both the leaves and the antennas will result in a realistic looking tree with the antennas hidden.

Monobush (2) – these antenna support structures feature broadleaf type of foliage on a low growing bushes (less than 18' tall). The monobush will offer the greatest degree of antenna "stealthing" by integrating the structure within the existing landscape and will not to impact the existing views from adjacent residential properties.

Site 4B. Rancho San Clemente Park

Cupola Design



A two story structure, such as a tower or rooftop cupola on this building may offer a less intrusive design to facilitate antennas.

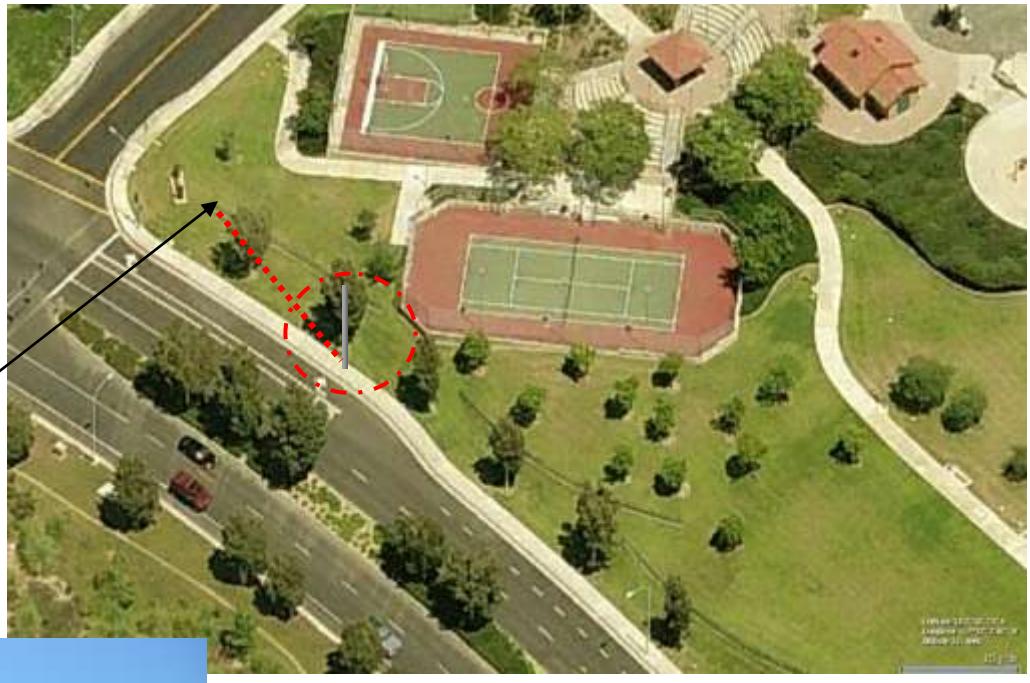
Proposed equipment enclosure or building – to match the color and texture of the existing building's façade – (12W'x18'Lx9 - 12'H). Equipment enclosure or building should be built at a size that would accommodate a multiple number of carriers.

Site 5A. Marblehead Park

Street Light-pole Design

Marblehead Park presents some unique issues. The lack of commercial properties in the area, numerous residential neighborhoods and the undulating landscape make this site key to providing cellular coverage.

Vault w/ block screen wall with Park sign integrated/ recessed into wall.



A sample photo of randome application of a street light.

Accompanying telecommunications equipment can be installed within enclosures or vault located on City property or in the public right-of-way (providing there is sufficient room) and screened with appropriate vegetation. Equipment enclosure, buildings, or vaults should be built at a size that would accommodate a multiple number of carriers.

Site 6A. City of San Clemente Negocio Offices
Façade Design

The City's Public Works building can facilitate wireless carriers. By extending the façade up symmetrically from what exists the installation will blend in with the existing structure.

The City's Public Works building within a parapet extension, matching the façade design.

Site 6B. City Property – City of San Clemente Negocio Offices

Façade Design

Similar with the Public Works building down the street, the City's fire station at 1030 Calle Negocio can be designed with a façade design to hide antennas.

The City's fire station building with a parapet extension, matching the façade.

Telecommunications equipment can be located on the building's rooftop or in an equipment room extension to the building, matching the façade. Equipment enclosure or building should be built at a size that would accommodate a multiple number of carriers.

Implementation Strategy

Regulatory Framework

This Wireless Master Plan is an implementation tool of the General Plan that relates to telecommunications within the City of San Clemente, specifically for City owned properties. The City's Zoning Ordinance is the primary document that implements the Elements of the General Plan. The City's Zoning Ordinance (*Section 17.28.070, Antennas on City Property* and *Section 17.16.130, City Antenna Permits)* are henceforth amended to acknowledge adoption of this Wireless Master Plan. Permit applications submitted for City owned properties identified within the Wireless Master Plan shall be reviewed for consistency with the pre-approved design concepts adopted within this Wireless Master Plan as well as consistency with the City's General Plan and Zoning Ordinance. Projects within the Coastal Zone shall be subject to the permit requirements of the California Coastal Act, the coastal policies of the City's Coastal Element, and Zoning Code Section 17.56.050 Coastal Zone (-CZ) Overlay District.

Application Process

The process for permit applications meeting the pre-approved design concepts for City properties indentified in the City of San Clemente Wireless Master Plan is as follows:

- Applicant consults with Planning Staff for conceptual review of project and determination of appropriate permit application. Refer to *Section 17.28.070, Antennas on City Property,* for additional information regarding permit requirements for antennas on City property.

- Applicant submits required permit application (City Antenna Permit (CAP) or Conditional Use Permit (CUP) as required per *Section 17.28.070, Antennas on City Property*), application fees, and appropriate exhibits to Community Development Department. In lieu of the application fee, the Planning Division may establish a deposit account from the applicant to cover the actual cost of staff time to review and analyze the City Antenna Permit application.

- Application is reviewed for completeness and identification of issues.

- If application is complete, processing begins. Application is then reviewed by all appropriate departments and comments are provided to the applicant. If not complete, application is returned to applicant for resubmission at later date.

- The Planning Commission's Design Review Subcommittee shall consider and provide comments on staffs review, analysis and recommendation.

- CEQA review is performed by Planning Department (once application is complete). Thirty (30) day review period is provided for comments on environmental documentation, if applicable.

- Based upon comments from reviewing departments and Design Review Subcommittee, a recommendation is made to approve with conditions or deny the requested project permit. Refer to *Section 17.28.070, Antennas on City Property,* of the Municipal Code for findings required prior to approval.

- Applications consistent with the pre-approved design concepts for City properties indentified in the City of San Clemente Wireless Master Plan shall be considered by the Zoning Administrator for approval (with conditions) or denial. Project applications not consistent with the pre-approved design concepts for City properties indentified in the City of San Clemente Wireless Master Plan shall be considered by the Planning Commission for approval (with conditions) or denial.

- Once all applicable appeal periods have expired and no appeals have been filed, or the appeals have been resolved, the applicant may apply for other permits or licenses. Projects within the Coastal Zone shall be subject to the permit requirements of the California Coastal Act, the coastal policies of the City's Coastal Element, and Zoning Code Section 17.56.050 Coastal Zone (-CZ) Overlay District.

- Lease agreement for applicant use of City property is drafted by City Staff.

- City Council review and approval/denial of lease agreement.

- Process Ends.

Promotion & Marketing

ATS Communications will take the lead in promoting the City-owned sites depicted within the master plan to the various wireless carriers.

As the Wireless Industry continues to evolve, so will the need to periodically update this Wireless Master Plan. ATS Communications will present this list of City-owned properties to the wireless service providers for their consideration of

potential candidates for their future builds. This Wireless Master Plan will be used as a tool to market these properties to the Carriers.

Each of the Carriers uses subcontractors to continue the development of their networks. Often these subcontractors come and go. Therefore, a continuous marketing effort is needed to ensure this Wireless Master Plan is implemented and additional City-owned properties are considered for future Master Plan updates.

Representatives from the various wireless service providers will use the City's Wireless Master Plan as a guide and submit their proposals in accordance with the City's *Zoning Ordinance Section 17.28.070, Antennas on City property* for projects subject to the Wireless Master Plan.

Expiration of Architectural Elements and Design Standards

Wireless facilities have gone through many changes over the last few years. The size of antennas, height necessary for transmission, concealment and other attributes of the operational aspects of the industry have changed. The design and size of equipment will continue to change over the next few years.

Taking this into consideration, the design standards discussed and recommended in this document are the most recent concepts offered to date. It is anticipated that this document will evolve over time as the wireless industry changes and that new concepts and design standards will be incorporated as well.

In addition, as the demand for more services taking more bandwidth evolves, the design of each wireless carrier's network will change too. The number of cell sites, the height for the antennas, the related equipment and network characteristics will all change.

A review of the current "stealthing" technology occurs on an on-going basis. ATS will provide supplemental updates to the Wireless Master Plan every six months or when sufficient changes in technology warrant a change in the Wireless Master Plan. The radio frequency engineering will be updated every 18-24 months based on the new sites deployed throughout the City and the City's property.

INVENTORY OF CITY PROPERTY

The following is a comprehensive list of all of the available properties owned by the City of San Clemente. Some parcels were removed from consideration if they obviously could not be considered a viable site for the placement of structure to support a wireless antenna. The latitude and longitude for each location was determined along with the ground height of the site. Last a zoning overlay was added to the list.

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-058-081-10	33.427130	-117.613520	257.0	100 Avenida Cabrillo	100 Avenida Cabrillo	San Clemente	CA	92672	Mixed Use
CSC-058-081-12	33.427270	-117.613310	274.0	100 Avenida Cabrillo	100 Avenida Cabrillo	San Clemente	CA	92672	Mixed Use
CSC-058-081-13	33.427350	-117.613210	279.0	100 Avenida Cabrillo	100 Avenida Cabrillo	San Clemente	CA	92672	Mixed Use
CSC-058-081-53	33.427200	-117.613420	262.0	100 Avenida Cabrillo	100 Avenida Cabrillo	San Clemente	CA	92672	Mixed Use
CSC-690-412-22	33.419230	-117.603770	301.0	100 Avenida Verde	100 Avenida Verde	San Clemente	CA	92672	Neighborhood Commercial 3 Story
CSC-692-141-01	33.422730	-117.610710	244.0	100 Trafalgar Ln	100 Trafalgar Ln	San Clemente	CA	92672	Public - Open Space
CSC-692-141-01	33.421080	-117.612760	171.0	100 Trafalgar Ln	100 Trafalgar Ln	San Clemente	CA	92672	Public - Open Space
CSC-058-082-23	33.426970	-117.611400	315.0	102 Avenida Granada	102 Avenida Granada	San Clemente	CA	92672	Mixed Use
CSC-688-142-35	33.454160	-117.600980	370.0	1030 Calle Negocio	1030 Calle Negocio	San Clemente	CA	92673	Rancho San Clemente Specific Plan
CSC-058-082-24	33.426940	-117.611440	313.0	104 Avenida Granada	104 Avenida Granada	San Clemente	CA	92672	Mixed Use
CSC-692-012-32	33.421120	-117.618850	82.0	106 Alameda	106 Alameda	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-393-01	33.431000	-117.620310	164.0	1100 S. Coast Hwy	1100 El Camino Real	San Clemente	CA	92672	Public - Open Space
CSC-692-111-07	33.427250	-117.626930	47.0	1200 Buena Vista	1200 Buena Vista	San Clemente	CA	92672	Community Commercial - 2 story
CSC-058-082-28	33.426690	-117.611790	288.0	122 Avenida Granada	122 Avenida Granada	San Clemente	CA	92672	Mixed Use
CSC-057-160-02	33.433310	-117.623760	142.0	1304 Calle Valle	1304 Calle Valle	San Clemente	CA	92672	Public - Open Space
CSC-057-160-02	33.433670	-117.623490	143.0	1304 Calle Valle	1304 Calle Valle	San Clemente	CA	92672	Public - Open Space
CSC-057-160-02	33.432670	-117.621070	164.0	1304 Calle Valle	1304 Calle Valle	San Clemente	CA	92672	Public - Open Space

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-057-160-02	33.431500	-117.620800	167.0	1304 Calle Valle	1304 Calle Valle	San Clemente	CA	92672	Public - Open Space
CSC-057-053-27	33.432050	-117.612410	371.0	141 Avenida De La Paz	141 Avenida De La Paz	San Clemente	CA	92672	Public
CSC-057-053-27	33.431560	-117.613100	353.0	141 Avenida De La Paz	141 Avenida De La Paz	San Clemente	CA	92672	Public
CSC-057-072-27	33.432670	-117.608060	468.0	151 El Levante	151 El Levante	San Clemente	CA	92672	Public
CSC-692-304-05	33.411710	-117.610750	62.0	1800 Calle De Los Alamos	1800 Calle De Los Alamos	San Clemente	CA	92672	Neighborhood Commercial 2 story
CSC-057-192-04	33.432660	-117.631930	53.0	1832 El Camino Real	1832 El Camino Real	San Clemente	CA	92672	North Beach Study Area
CSC-057-192-04	33.432600	-117.631470	55.0	1832 El Camino Real	1832 El Camino Real	San Clemente	CA	92672	North Beach Study Area
CSC-057-192-04	33.432340	-117.631990	48.0	1832 El Camino Real	1832 El Camino Real	San Clemente	CA	92672	North Beach Study Area
CSC-057-192-04	33.432330	-117.631470	52.0	1832 El Camino Real	1832 El Camino Real	San Clemente	CA	92672	North Beach Study Area
CSC-058-104-19	33.420980	-117.613490	155.0	200 Avenida Madrid	200 Avenida Madrid	San Clemente	CA	92672	Neighborhood Commercial
CSC-692-051-06	33.424750	-117.617890	139.0	200 Avenida Palizada	200 Avenida Palizada	San Clemente	CA	92672	Community Commercial - 2 story
CSC-058-103-17	33.422570	-117.613740	165.0	200 Avenida Santa Barbara	200 Avenida Santa Barbara	San Clemente	CA	92672	Community Commercial - 2 story
CSC-058-103-43	33.422540	-117.613850	163.0	200 Avenida Santa Barbara	200 Avenida Santa Barbara	San Clemente	CA	92672	Community Commercial - 2 story
CSC-692-252-22	33.420400	-117.612730	169.0	200 Trafalgar Ln	200 Trafalgar Ln	San Clemente	CA	92672	Neighborhood Commercial 2 story
CSC-058-132-13	33.425960	-117.618640	138.0	200 W Marquita	200 W Marquita	San Clemente	CA	92672	Community Commercial - 2 story
CSC-679-171-06	33.449650	-117.625880	384.0	2166 Camino Laurel	2166 Camino Laurel	San Clemente	CA	92673	Marblehead Inland Specific Plan
CSC-058-111-60	33.425180	-117.615570	177.0	242 Avenida Del Mar	242 Avenida Del Mar	San Clemente	CA	92672	Public
CSC-690-282-14	33.438090	-117.614020	254.0	301 Calle Escuela	301 Calle Escuela	San Clemente	CA	92672	Public - Open Space
CSC-690-282-14	33.436270	-117.614400	219.0	301 Calle Escuela	301 Calle Escuela	San Clemente	CA	92672	Public - Open Space
CSC-680-521-04	33.478170	-117.632300	313.0	3017 Eminencia Del Norte	3017 Eminencia Del Norte	San Clemente	CA	92673	Neighborhood Commercial 2 story
CSC-060-092-41	33.403250	-117.595790	149.0	3101 El Camino Real	3101 El Camino Real	San Clemente	CA	92672	Mixed Use

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-057-020-51	33.435830	-117.623800	158.0	401 Calle De Los Molinos	401 Calle De Los Molinos	San Clemente	CA	92672	West Pico Corridor Specific Plan
CSC-690-661-20	33.441850	-117.583400	548.0	535 Avenida Fabricante	535 Avenida Fabricante	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-690-392-08	33.421670	-117.590140	537.0	602 Via Promontorio	602 Via Promontorio	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-692-014-01	33.420560	-117.619090	76.0	625 Avenida Del Mar	625 Avenida Del Mar	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-688-031-07	33.450070	-117.606400	301.0	910 Calle Negocio	910 Calle Negocio	San Clemente	CA	92673	Rancho San Clemente Specific Plan
CSC-057-020-47	33.435900	-117.623510	161.0	City Property	City Property	San Clemente	CA	92672	West Pico Corridor Specific Plan
CSC-057-052-10	33.433340	-117.614630	272.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-057-052-10	33.433250	-117.613600	360.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-057-053-01	33.433100	-117.612940	382.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-057-151-25	33.433010	-117.620340	176.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-151-25	33.432630	-117.617630	199.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-151-25	33.432430	-117.619230	187.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-160-03	33.432740	-117.620360	173.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-160-03	33.431850	-117.620760	165.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-160-03	33.432510	-117.621510	158.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-162-81	33.434070	-117.621180	176.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-162-81	33.432880	-117.620700	172.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-162-81	33.433530	-117.621740	159.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-057-192-10	33.432220	-117.630370	62.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-11	33.432170	-117.630530	59.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-12	33.432150	-117.630710	56.0	City Property	City Property	San Clemente	CA	92672	Public

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-057-192-13	33.432130	-117.630900	58.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-14	33.432130	-117.631090	55.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-15	33.432140	-117.631270	53.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-16	33.432150	-117.631460	50.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-17	33.432160	-117.631630	47.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-18	33.432200	-117.631790	50.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-19	33.431860	-117.630990	54.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-20	33.431620	-117.630970	51.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-20	33.432040	-117.630310	60.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-20	33.431180	-117.630310	50.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-192-20	33.431630	-117.629920	62.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-057-232-10	33.432190	-117.600840	798.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-058-073-49	33.427990	-117.612610	296.0	City Property	City Property	San Clemente	CA	92672	Mixed Use
CSC-058-240-19	33.431120	-117.631630	35.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-02	33.431280	-117.631800	38.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-07	33.430790	-117.630310	47.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-07	33.428660	-117.628060	50.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-08	33.428520	-117.627970	49.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-08	33.427950	-117.627540	50.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-10	33.423430	-117.623370	49.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-11	33.422140	-117.621800	55.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-058-240-12	33.421690	-117.621350	52.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-13	33.421310	-117.621000	58.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-14	33.420930	-117.620660	56.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-15	33.420640	-117.620450	62.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-058-240-15	33.417440	-117.617630	59.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-058-240-20	33.431040	-117.631540	35.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-21	33.430940	-117.631450	35.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-21	33.430520	-117.630890	40.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-22	33.430370	-117.630750	34.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-22	33.428350	-117.628770	37.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-23	33.428230	-117.628690	42.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-29	33.427100	-117.626810	47.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-29	33.424910	-117.624730	51.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-30	33.422790	-117.622530	53.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-240-31	33.422950	-117.622740	53.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-060-010-38	33.413720	-117.593500	369.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-060-010-38	33.409250	-117.589570	197.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-060-083-87	33.409190	-117.591430	197.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-060-142-26	33.405390	-117.605250	48.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-060-191-15	33.409170	-117.608890	58.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-060-251-02	33.402920	-117.596730	135.0	City Property	City Property	San Clemente	CA	92672	Public

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-675-072-12	33.456600	-117.645930	194.0	City Property	City Property	San Clemente	CA	92673	Public
CSC-675-321-03	33.467660	-117.653710	596.0	City Property	City Property	San Clemente	CA	92673	No Data
CSC-679-021-07	33.445110	-117.629320	197.0	City Property	City Property	San Clemente	CA	92673	No Data
CSC-679-041-03	33.441900	-117.621700	213.0	City Property	City Property	San Clemente	CA	92673	No Data
CSC-679-191-49	33.451790	-117.620790	397.0	City Property	City Property	San Clemente	CA	92673	No Data
CSC-688-071-02	33.448160	-117.597070	597.0	City Property	City Property	San Clemente	CA	92672	No Data
CSC-688-082-01	33.441540	-117.599120	467.0	City Property	City Property	San Clemente	CA	92672	No Data
CSC-688-161-04	33.452710	-117.592170	403.0	City Property	City Property	San Clemente	CA	92673	No Data
CSC-690-012-01	33.427700	-117.608290	422.0	City Property	City Property	San Clemente	CA	92672	No Data
CSC-690-012-02	33.426840	-117.607020	482.0	City Property	City Property	San Clemente	CA	92672	No Data
CSC-690-031-32	33.423110	-117.605940	402.0	City Property	City Property	San Clemente	CA	92672	No Data
CSC-690-085-14	33.422490	-117.605370	381.0	City Property	City Property	San Clemente	CA	92672	No Data
CSC-690-150-02	33.414920	-117.592360	393.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-690-234-07	33.417140	-117.589850	397.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-690-241-01	33.420390	-117.588040	385.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-690-260-01	33.417210	-117.595290	387.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-690-260-04	33.415620	-117.594440	381.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-690-260-05	33.414660	-117.593840	385.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-690-260-06	33.416030	-117.591010	397.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-690-502-16	33.431040	-117.596250	669.0	City Property	City Property	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-690-531-10	33.434820	-117.592080	614.0	City Property	City Property	San Clemente	CA	92672	Rancho San Clemente Specific Plan

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-690-552-06	33.445970	-117.584270	475.0	City Property	City Property	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-690-552-06	33.445670	-117.580150	349.0	City Property	City Property	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-690-552-06	33.443320	-117.584360	537.0	City Property	City Property	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-690-552-06	33.441020	-117.581180	466.0	City Property	City Property	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-690-661-09	33.441550	-117.583280	493.0	City Property	City Property	San Clemente	CA	92672	Rancho San Clemente Specific Plan
CSC-691-211-04	33.451260	-117.644010	174.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-211-04	33.452440	-117.642820	196.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-211-04	33.449060	-117.641650	181.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-211-04	33.451210	-117.640790	195.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-011-14	33.434680	-117.629220	100.0	City Property	City Property	San Clemente	CA	92672	West Pico Corridor Specific Plan
CSC-691-011-14	33.436560	-117.624250	163.0	City Property	City Property	San Clemente	CA	92672	West Pico Corridor Specific Plan
CSC-691-011-14	33.433340	-117.627160	103.0	City Property	City Property	San Clemente	CA	92672	West Pico Corridor Specific Plan
CSC-691-011-14	33.435090	-117.624700	141.0	City Property	City Property	San Clemente	CA	92672	West Pico Corridor Specific Plan
CSC-691-034-01	33.444980	-117.632910	196.0	City Property	City Property	San Clemente	CA	92672	Marblehead Coastal Specific Plan
CSC-691-044-01	33.443270	-117.634850	156.0	City Property	City Property	San Clemente	CA	92672	Public
CSC-691-044-02	33.444440	-117.633530	184.0	City Property	City Property	San Clemente	CA	92672	Marblehead Coastal Specific Plan
CSC-691-094-01	33.453940	-117.654690	144.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-130-12	33.452970	-117.654750	124.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-211-02	33.450910	-117.640470	195.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-211-02	33.448690	-117.641100	178.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-211-02	33.449130	-117.638160	196.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-691-322-01	33.449830	-117.647270	128.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-691-322-01	33.447140	-117.645800	120.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-011-01	33.423960	-117.619870	100.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-02	33.423930	-117.620010	101.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-03	33.423900	-117.620150	98.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-04	33.423870	-117.620290	96.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-05	33.423830	-117.620430	93.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-06	33.423790	-117.620570	90.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-07	33.423750	-117.620700	87.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-09	33.423710	-117.620830	85.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-10	33.423660	-117.620970	82.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-11	33.423520	-117.621230	75.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-011-12	33.423020	-117.621900	64.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-05	33.423570	-117.620470	87.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-07	33.423500	-117.620720	82.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-08	33.423470	-117.620870	79.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-09	33.423350	-117.621070	75.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-10	33.423230	-117.621240	76.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-11	33.423080	-117.621480	70.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-12	33.422890	-117.621780	63.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-13	33.422790	-117.621930	59.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-692-012-33	33.420790	-117.618550	89.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-012-34	33.420810	-117.618990	83.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-013-01	33.421240	-117.618330	94.0	City Property	City Property	San Clemente	CA	92672	Pier Bowl Specific Plan
CSC-692-095-25	33.423850	-117.621440	78.0	City Property	City Property	San Clemente	CA	92672	Community Commercial - 2 Story
CSC-692-095-32	33.424420	-117.621430	83.0	City Property	City Property	San Clemente	CA	92672	Community Commercial - 2 Story
CSC-692-102-24	33.432800	-117.617610	202.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-212-15	33.416070	-117.605470	197.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-692-212-20	33.416340	-117.605030	206.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-212-20	33.416060	-117.604410	203.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-212-20	33.413920	117.606540	150.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-272-24	33.413960	-117.613760	58.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-692-321-02	33.416930	-117.617300	51.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-321-03	33.415450	-117.615900	52.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-331-01	33.414850	-117.615180	52.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-331-01	33.411610	-117.611900	54.0	City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-332-01	33.412720	-117.612260	61.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-692-341-01	33.413900	-117.613760	56.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-692-341-04	33.409780	-117.609430	63.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-692-342-01	33.411040	-117.611450	48.0	City Property	City Property	San Clemente	CA	92672	Neighborhood Commercial 2 Story
CSC-692-391-01	33.429680	-117.622480	129.0	Plaza Park City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-391-01	33.429010	-117.621470	138.0	Plaza Park City Property	City Property	San Clemente	CA	92672	Public - Open Space

Inventory of City Property

SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address	City	State	Zip Code	Zoning
CSC-692-391-01	33.429190	-117.623080	112.0	Plaza Park City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-692-391-01	33.428500	-117.622130	119.0	Plaza Park City Property	City Property	San Clemente	CA	92672	Public - Open Space
CSC-058-111-55	33.424190	-117.616930	143.0	San Clemente Arts & Crafts Gallerie	100 N Calle Seville	San Clemente	CA	92672	Public
CSC-060-010-05	33.410030	-117.596950	195.0	San Clemente Municipal Golf Club	150 Avenida Magdalena	San Clemente	CA	92672	Public - Open Space
CSC-060-010-05	33.408340	-117.592750	197.0	San Clemente Municipal Golf Club	150 Avenida Magdalena	San Clemente	CA	92672	Public - Open Space
CSC-060-010-05	33.403100	-117.591360	172.0	San Clemente Municipal Golf Club	150 Avenida Magdalena	San Clemente	CA	92672	Public - Open Space
CSC-060-010-08	33.415080	-117.597420	263.0	San Clemente Municipal Golf Club	150 Avenida Magdalena	San Clemente	CA	92672	Public - Open Space
CSC-060-010-08	33.409960	-117.598390	189.0	San Clemente Municipal Golf Club	150 Avenida Magdalena	San Clemente	CA	92672	Public - Open Space
CSC-060-010-08	33.410990	-117.595190	218.0	San Clemente Municipal Golf Club	150 Avenida Magdalena	San Clemente	CA	92672	Public - Open Space
CSC-060-010-05	33.405620	-117.596160	169.0	San Luis Rey Park	109 Ave San Luis Rey	San Clemente	CA	92672	Public - Open Space

* The City water tank locations have not been identified in this list in order to maintain homeland security. The water tank locations were evaluated, geo-coded and presented as site candidates.

Map of City Properties

WIRELESS INFRASTRUCTURE ANALYSIS

APPENDIX 'A' (Inventory of Existing Wireless Facilities)

The following list includes all of the current cellular antenna locations throughout the City of San Clemente that were considered for this study:

Wireless Facilities in San Clemente, CA

Carrier	Address	Property Owner	Approval
AT&T	3168 Inclinado	Bill Carpenter	2002
AT&T	170 Avenida La Pata	Rancho San Clemente Bus Park	2002
AT&T	675 Camino De Los Mares	Ocean View Medical Center	1992
AT&T	2001 Calle Frontera	St. Andrews by the Sea Church	1994
AT&T	2441 S. El Camino Real	Travelodge Hotel	1993
AT&T	300 S. El Camino Real	Jack Selcer Trust	2004
AT&T	2401 1/2 Del Ave Presidente	Public Right of Way	1994
Nextel	675 Camino De Los Mares	Ocean View Medical Center	1999
Nextel	2001 Calle Frontera	St. Andrews by the Sea Church	2001
Nextel	1020 Recodo	2 story business park (facing N-S-E)	1999
Nextel	3701 S. El Camino Real	Comfort Suites/Payal Hotels	2002
Nextel	721 Avenida Salvador	City owned facility	2000
MetroPCS	721 Avenida Salvador	City owned facility	2007
MetroPCS	2916 Via San Gorgonio	San Gorgonio Park City owned	Pending
Sprint	951 Calle Amanecer	Rancho San Clemente Business Park	2001
Sprint	2999 Calle Andalucia	City property	1991
Sprint	2001 Calle Frontera	St. Andrews by the Sea Church	2000
Sprint	247 Avenida La Pata	Steed Park City Owned	2003
Sprint	721 Avenida Salvador	City owned facility	2001
Sprint	3000 Calle Nuevo	Shorecliffs Mobile Home Park	2004
T-Mobile	119 Camino De La Estrella	San Clemente Prebyterian Church	1996
T-Mobile	2001 Calle Frontera	St. Andrews by the Sea Church	1997
T-Mobile	3168 Inclinado	Bill Carpenter	1999
T-Mobile	170 Avenida La Pata	San Clemente Self Storage	2001
T-Mobile	2916 Via San Gorgonio	San Gorgonio Park City owned	1996
T-Mobile	150 E Ave Magdalena	San Clemente City golf course	1996
Verizon	2001 Calle Frontera	St. Andrews by the Sea Church	1998
Verizon	2916 Via San Gorgonio	San Gorgonio Park City owned	1998
Verizon	150 E Ave Magdalena	San Clemente City golf course	2003
Verizon	675 Camino De Los Mares	Ocean View Medical Center	1999
Verizon	3000 Calle Nuevo	Shorecliffs Mobile Home Park	2005

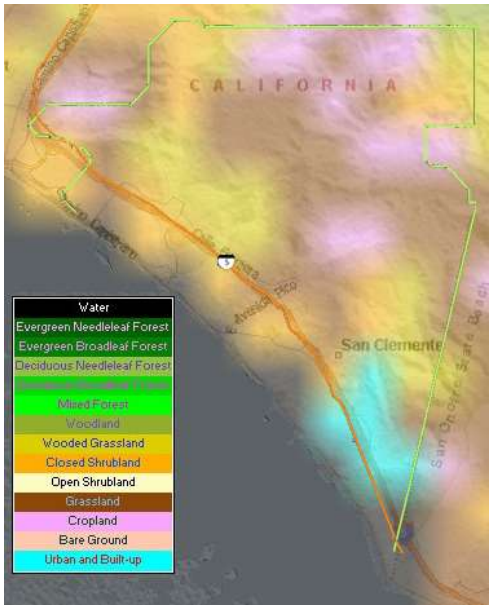
Current Wireless Terrain

Satellite Ortho-imagery with spectral analysis of clutter types demonstrates a diverse landscape within the City of San Clemente. Further challenges are presented by the rapid change in elevations along the coastal foothills.

NLCD Land Cover Class Definitions

The classification system used for NLCD is modified from the Anderson land-use and land-cover classification system. Many of the Anderson classes, especially the Level III classes, are best derived using aerial photography.

It is not appropriate to attempt to derive some of these classes using LandSat TM data due to issues of spatial resolution and interpretability of data. Thus, no attempt was made to derive classes that were extremely difficult or "impractical" to obtain using LandSat TM data, such as the Level III urban classes. In addition, some Anderson Level II classes were consolidated into a single NLCD class.



Water
- 11 Open Water
- 12 Perennial Ice/Snow

Developed
- 21 Low Intensity Residential
- 22 High Intensity Residential
- 23 Commercial/Industrial/Transportation

Barren
- 31 Bare Rock/Sand/Clay
- 32 Quarries/Strip Mines/Gravel Pits
- 33 Transitional

Forested Upland
- 41 Deciduous Forest
- 42 Evergreen Forest
- 43 Mixed Forest

Shrubland
- 51 Shrubland

Non-Natural Woody
- 61 Orchards/Vineyards/Other

Herbaceous Upland Natural/Semi-natural Vegetation
- 71 Grasslands/Herbaceous

Herbaceous Planted/Cultivated
- 81 Pasture/Hay
- 82 Row Crops
- 83 Small Grains
- 84 Fallow
- 85 Urban/Recreational Grasses

Wetlands
- 91 Woody Wetlands
- 92 Emergent Herbaceous Wetlands

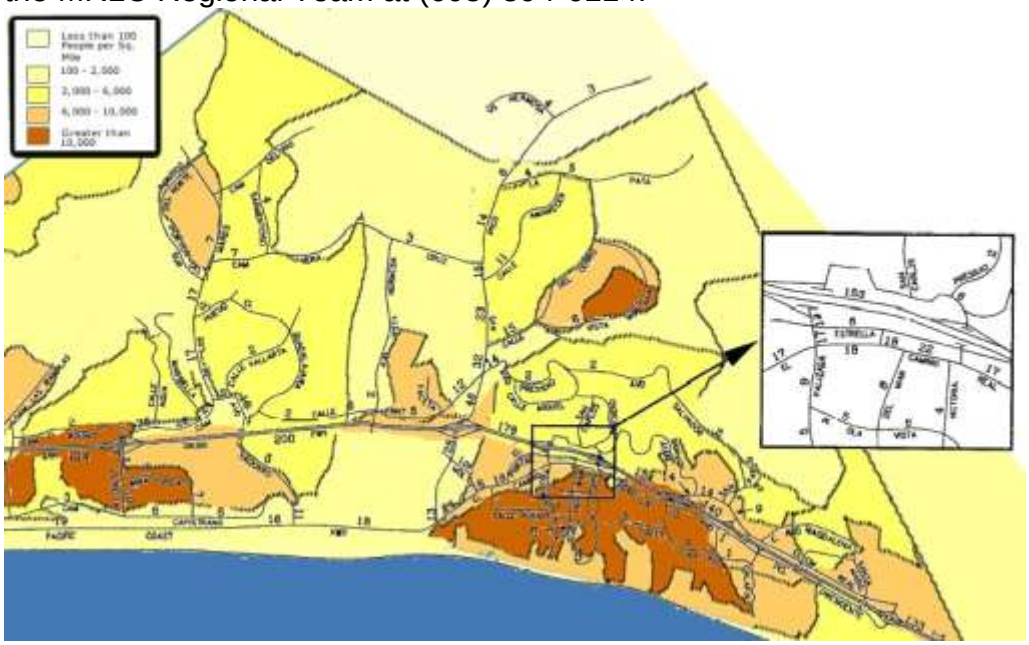
Data sets used in this study were derived from the following:
National Land Cover Data
California - SOUTH
Version 04-28-2000

Land Cover Data

This land cover data set was produced as part of a cooperative project between the U.S. Geological Survey (USGS) and the U.S. Environmental Protection Agency (USEPA) to produce a consistent, land cover data layer for the conterminous U.S. based on 30-meter LandSat Thematic Mapper (TM) data. National Land Cover Data (NLCD) was developed from TM data acquired by the Multi-Resolution Land Characterization (MRLC) Consortium. The MRLC Consortium is a partnership of federal agencies that produce or use land cover data. Partners include the USGS (National Mapping, Biological Resources, and Water Resources Divisions), USEPA, the U.S. Forest Service, and the National Oceanic and Atmospheric Administration.

California - SOUTH

The California-South NLCD set was produced as part of a project area encompassing portions of Federal Region 9, including the states of California, Nevada, and Arizona. This data set was produced under the direction of the MRLC Regional Land Cover Characterization Project of the USGS EROS Data Center (EDC), Sioux Falls, SD. Questions about the data set can be directed to the MRLC Regional Team at (605) 594-6114.



Population density studies and traffic count analysis were conducted in order to confirm where the clustering of wireless sites is most likely to occur. With increased population density and higher traffic counts, site density will increase in number and tend to be lower in height than in less densely populated areas and those with lower traffic counts. In San Clemente the densest area of both traffic and population occurs along the Interstate 5 and El Camino Real corridors.

Traffic counts on Interstate 5 can exceed 200,000 cars per day. Upon closer examination of population densities in areas of interest we find that densities can vary from street to street in the downtown districts surrounding El Camino Real and the ingress, egress areas around Interstate 5.

Network Coverage for Major Wireless Carriers

This footprint describes the potential maximum coverage as utilized by each carrier combined. It does not specifically imply that locating carriers at existing sites will entirely provide for their future needs. An appropriate RF study and analysis as well as a review of data for each application should be performed at the time that each carrier submits application for additional sites.

Carrier locations in adjacent communities were not provided and therefore any assumptions regarding coverage on the borders of San Clemente would be substantially speculative without that data. Each carrier that is currently operating in San Clemente will need additional sites as network growth and demand for improved services fuel expansion of those existing networks.

Fig. 1

Figure 1 shows the existing wireless footprint of the combined coverage of all carriers in San Clemente. Municipal owned properties are labeled in dark blue.

AT&T (Cingular)

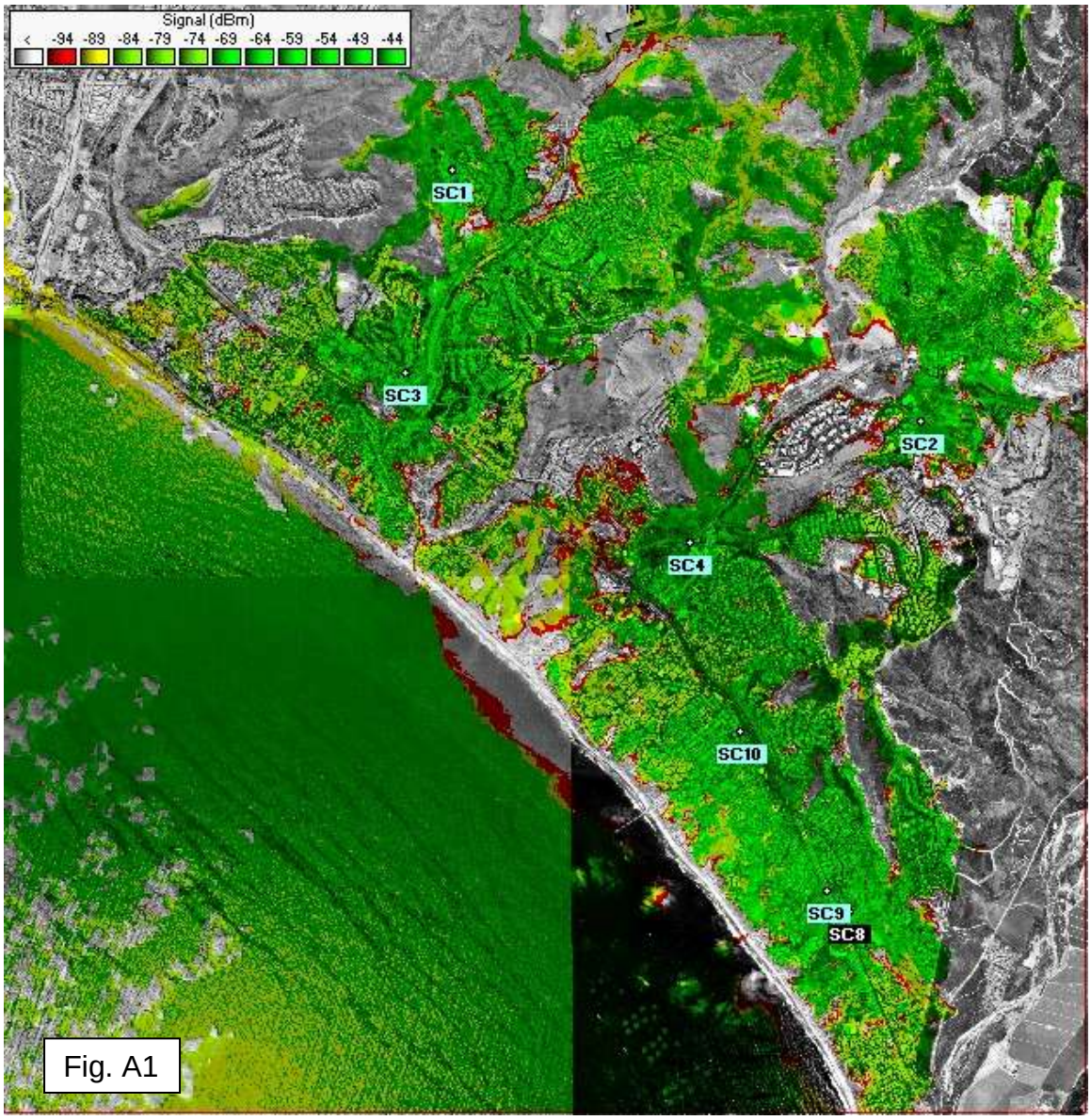


Fig. A1

Figure A1 shows a propagation analysis of sites where AT&T/Cingular is currently located.

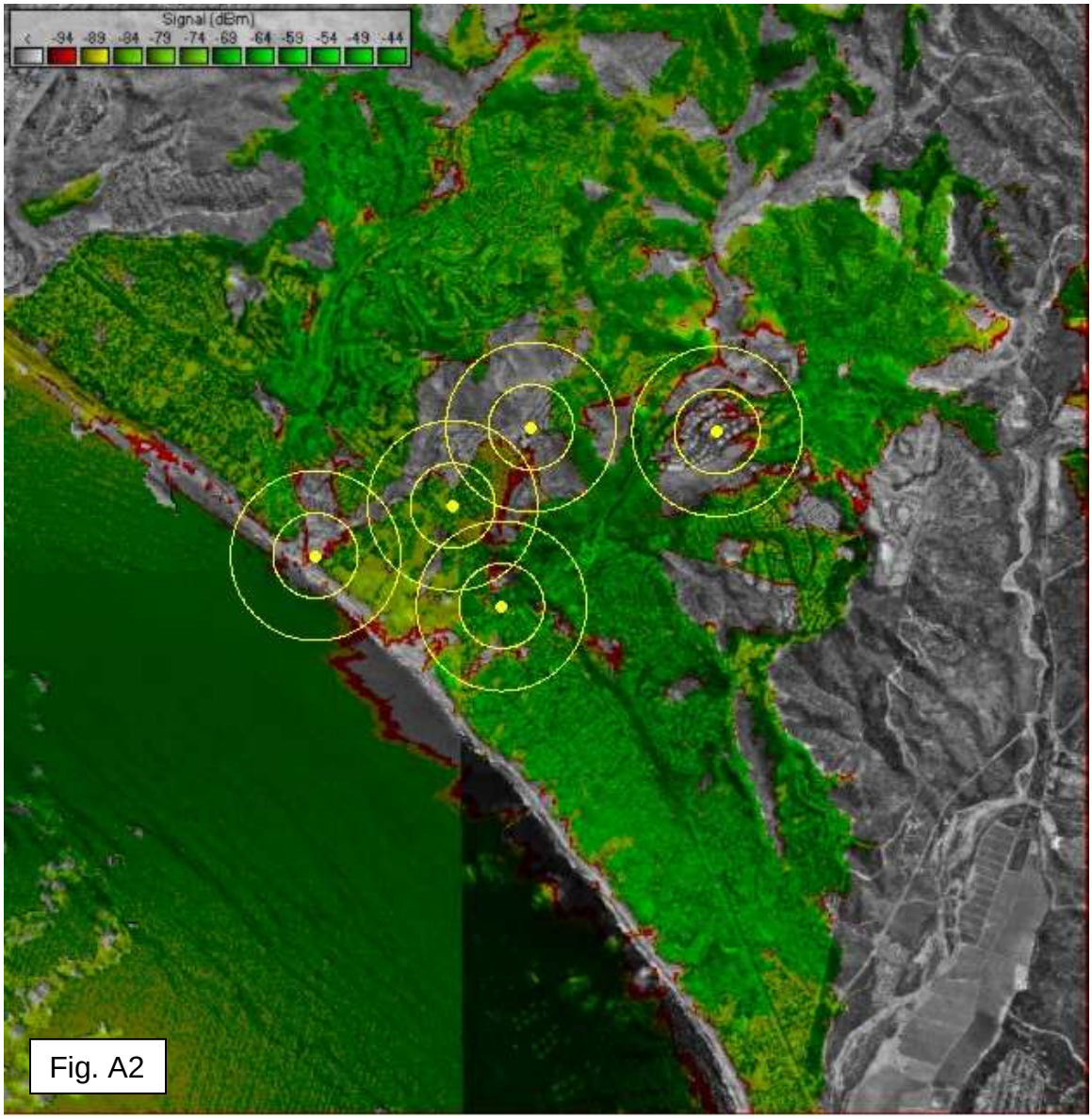


Figure A2 shows AT&T's current network with possible search areas for capacity and coverage.

Five primary areas were viewed in this study. The first being mixed residential with terrain features typical of inland San Clemente and located in the area of the upper right ring in figure A2. The second area is generally described as the Vista Hermosa corridor. The third search area is the Interstate 5 Freeway corridor and Marblehead Costal areas. The forth and fifth search areas combined as the North Beach and El Camino Real north districts.

Figure A3 shows a search ring designed to provide capacity and coverage to AT&T's existing network. Two municipal properties fall within a one-quarter mile range of the search ring. One additional site falls within the half mile ring and may provide acceptable coverage with additional height.

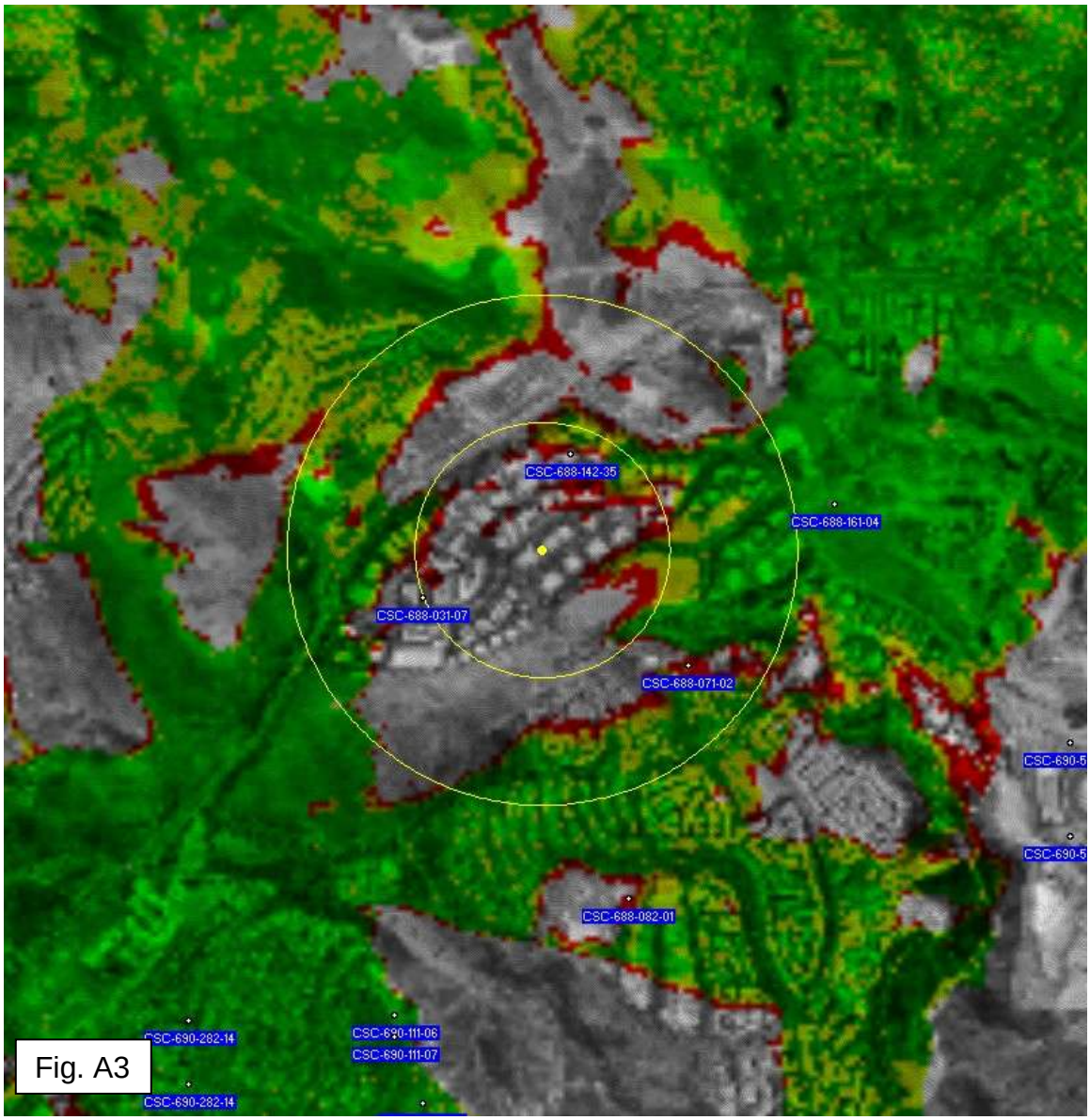


Figure A3 shows a search ring designed to provide capacity and coverage to AT&T's existing network. Two municipal properties fall within a one quarter mile range of the search ring. One additional site falls within the half mile ring and may provide acceptable coverage with additional height.

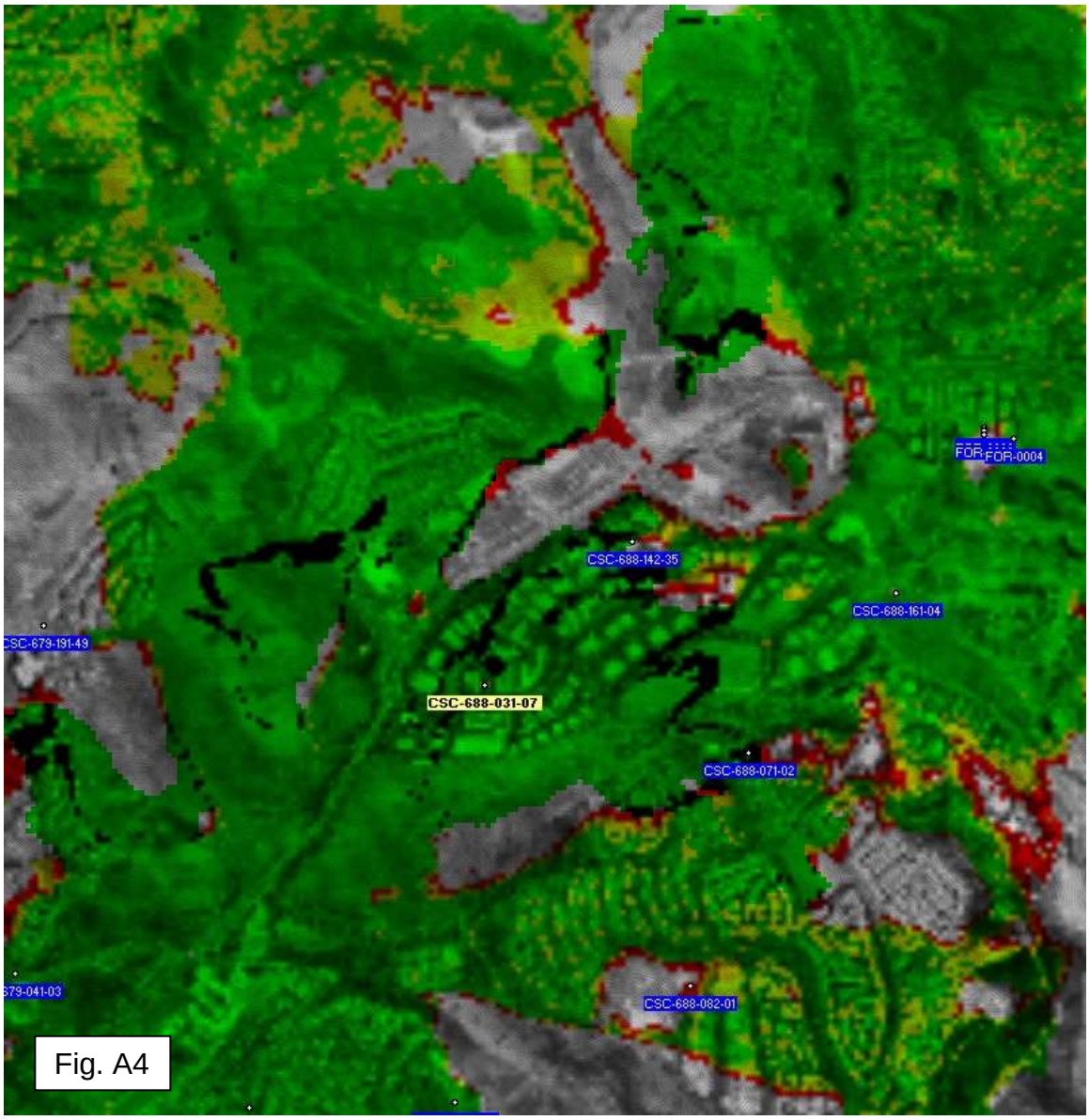


Figure A4 shows the propagation from site CSC 688-031-07 with an antenna center line of 26 feet. At this height the site covers most of the coverage objective and appears to be a possible candidate. More height at this location may provide better coverage to the north depending on line of sight and terrain. Organic clutter for this area is not a substantial factor.

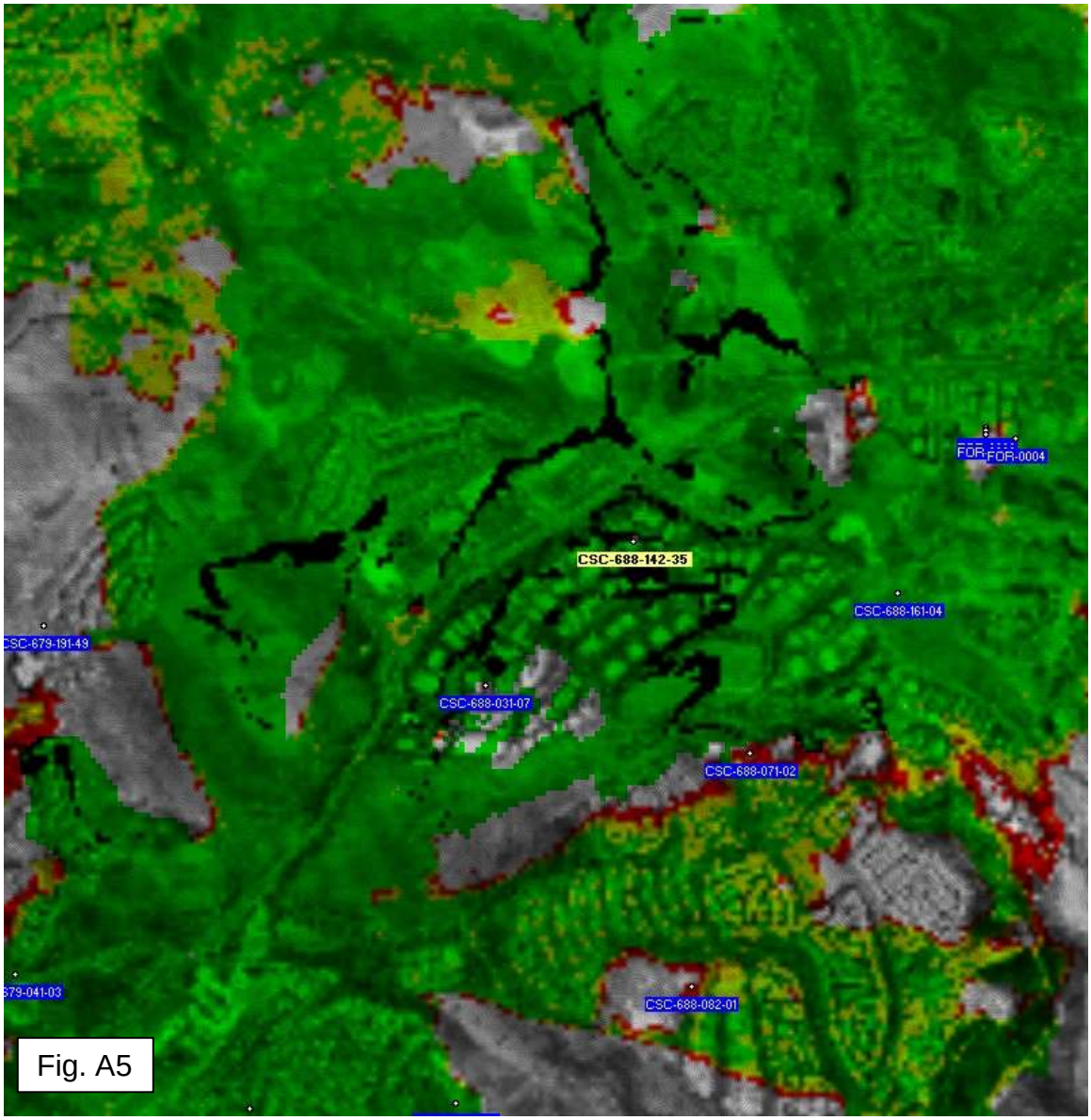


Figure A5 demonstrates a greater area of coverage at the same height due in part of better elevation and a clearer line of site to the north. Building density to the southeast substantially degrades the signal possibly requiring more height to obtain the entire objective. This site also presents an attractive candidate.

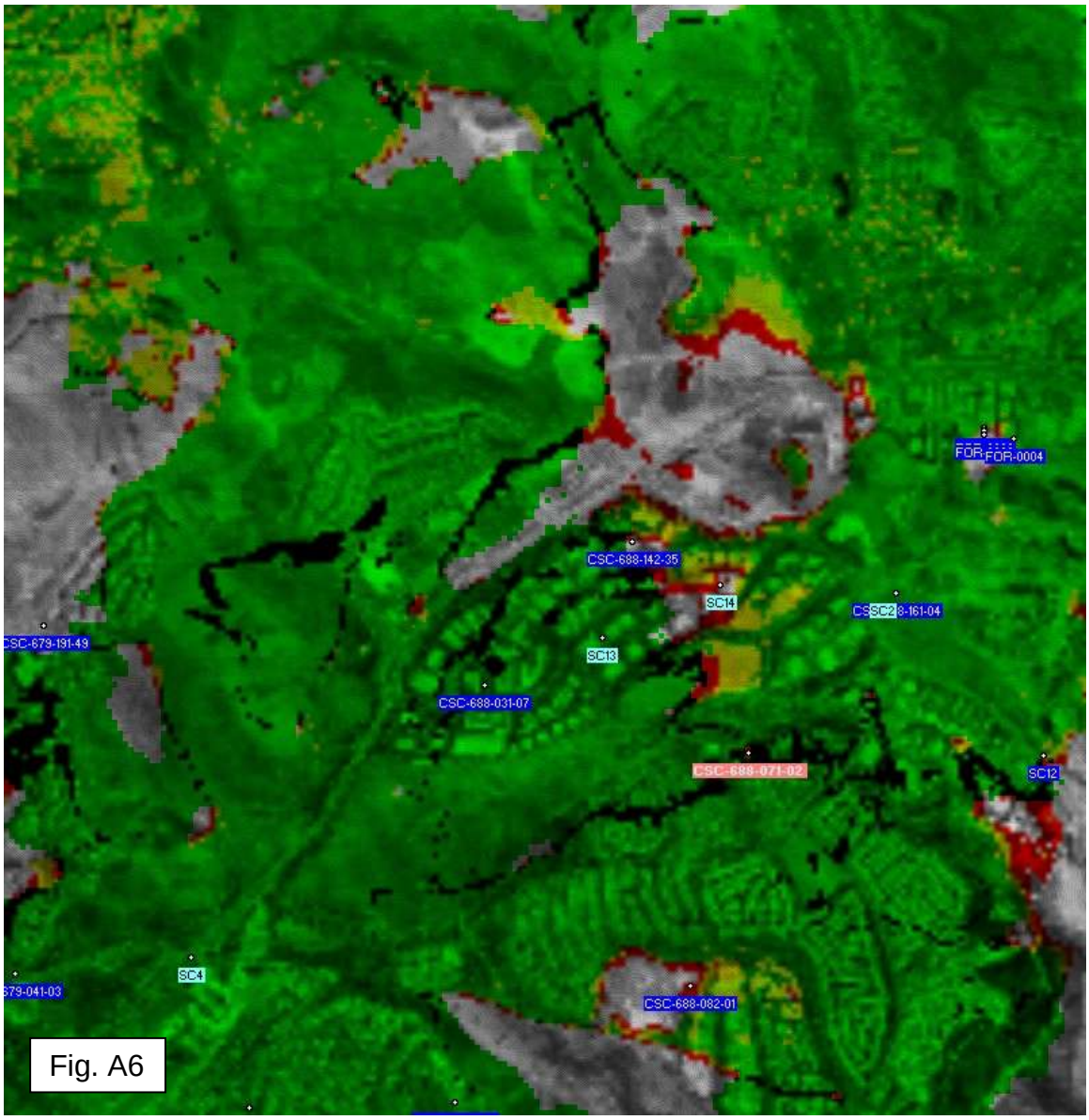


Fig. A6

Figure A6 shows site 688-071-02 at a 36 foot antenna centerline. At this height coverage is obtained adequately for the primary coverage objective but not for the area as shown to the north and west. This site is not likely to meet the overall objective without additional height, which would inhibit the viewscape and therefore is not recommended.

Figure A7 shows the propagation of an existing wireless site that substantially meets both the primary and secondary coverage objective. This site would provide an effective solution if adequate height is available on the existing structure.

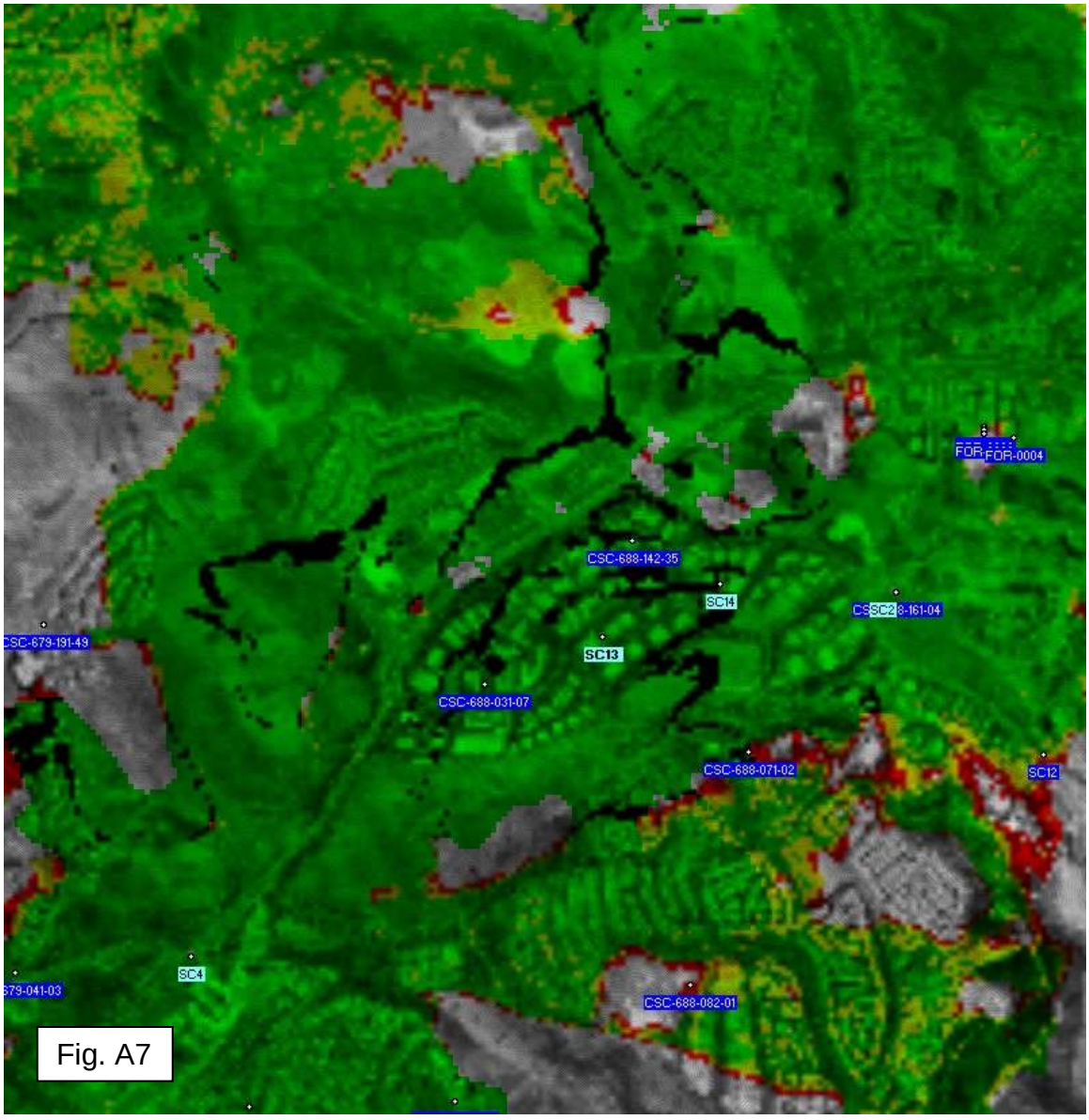


Fig. A7

The area shown in Figure A8 includes 2 of the remaining 4 rings. The first located in the Vista Hermosa corridor and the second in the Interstate 5 freeway corridor. A single available site at the minimized height will not provide coverage for this area without additional engineering studies. Either additional height or microcell coverage will be necessary for this location.

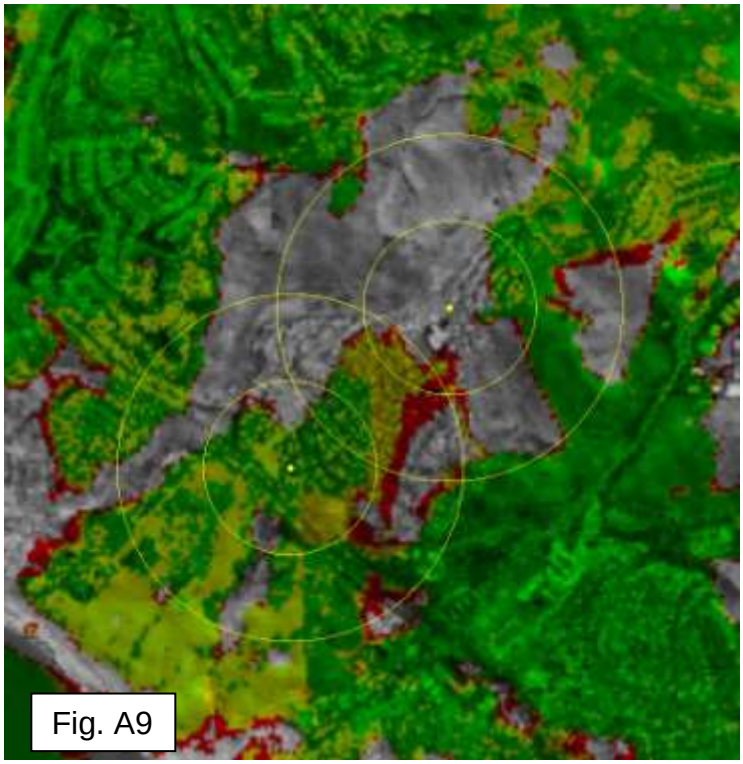


Fig. A9

Combined coverage of the remaining two sites identified as CSC-679-021-07 and CSC-679-191-49 at a height of no less than 26 ft. antenna centerline should provide coverage and traffic offloading from adjacent sites for the third and fourth ring. Additional height may be needed upon further engineering studies to close the small projected gap on the Interstate 5 freeway corridor.

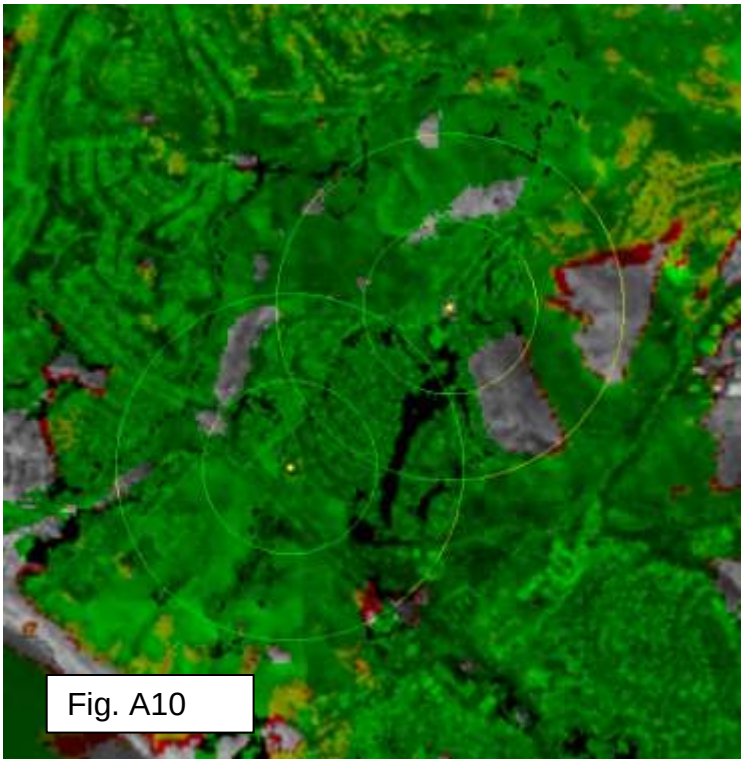


Fig. A10

Figure A11 shows the El Camino Real corridor. Current spotty coverage and future carrier traffic growth will probably mandate the addition of one higher or possibly two lower sites to close gaps and provide offloading for adjacent sites. The two sites depicted have antenna centerlines of 26 feet and should provide acceptable coverage. Drive testing of sites would be recommended to confirm these initial findings as depicted in Figure A12.

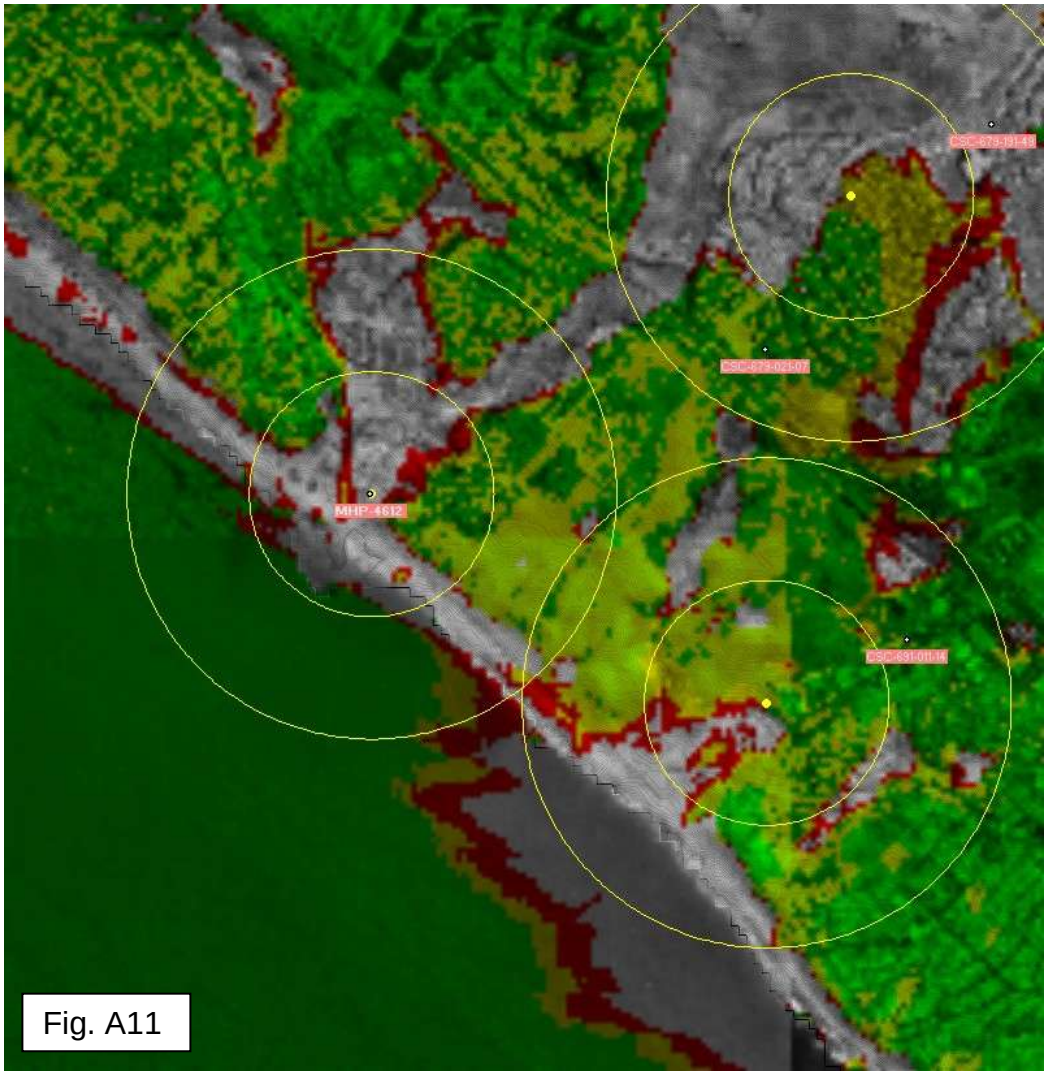


Fig. A11

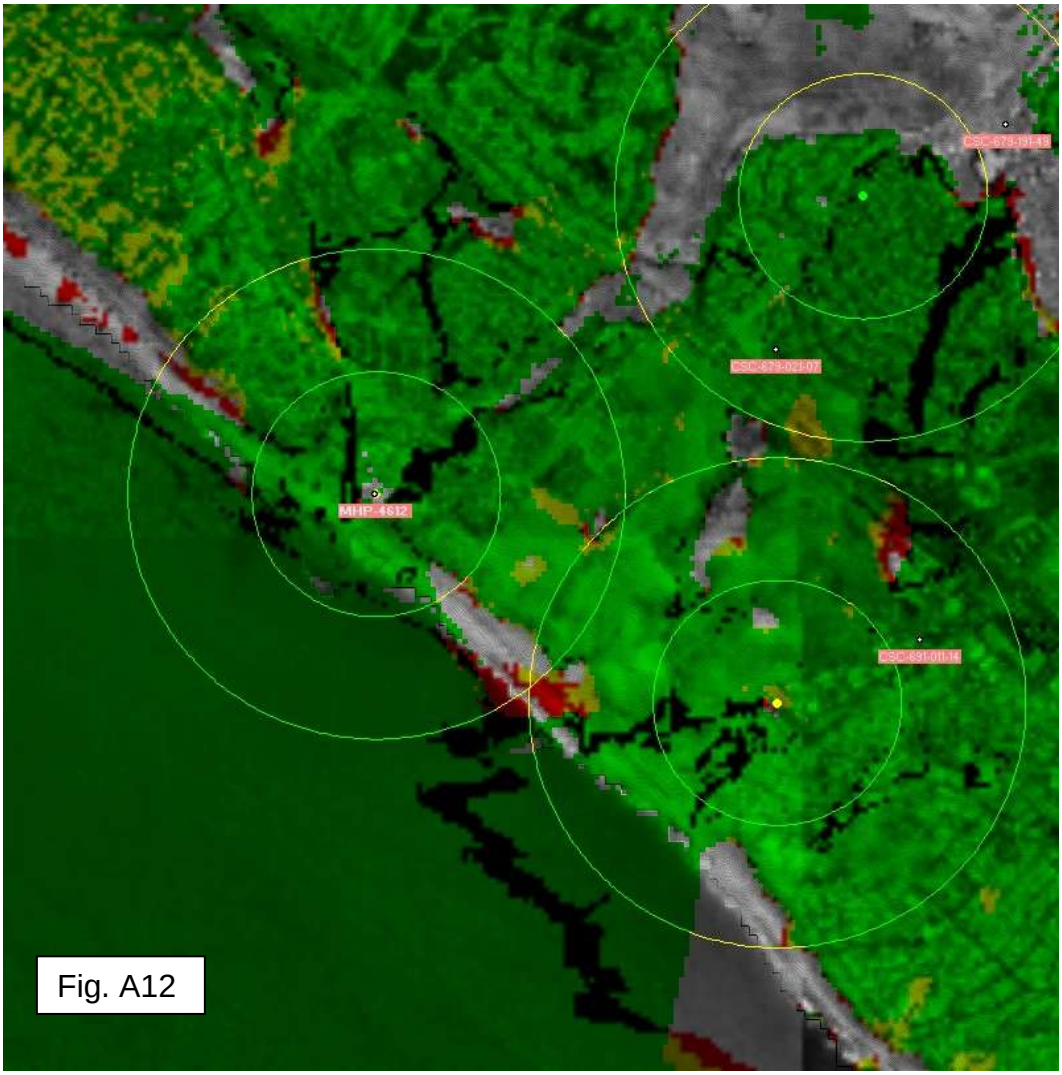


Fig. A12

Figure A12 above shows the current combined coverage of AT&T. This will change should AT&T chooses to include Cingular sites or vice versa. Cingular has sold its infrastructure to T-Mobile. Cingular's customers are expected migrate to the AT&T infrastructure by the end of the year.

Figure A13 below shows the combined coverage of the existing AT&T sites in blue with a possible 5 additional sites.

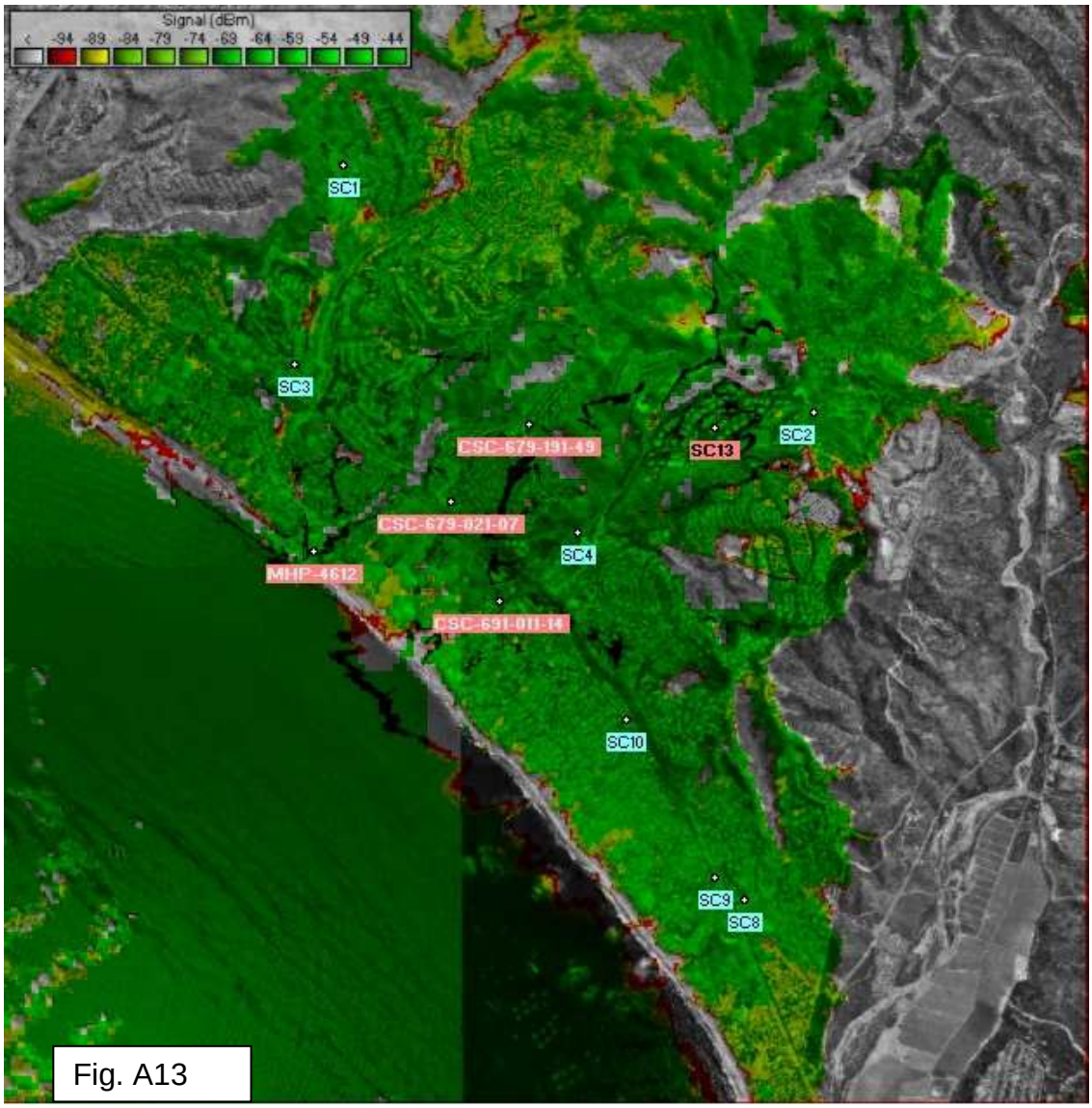


Fig. A13

Metro PCS

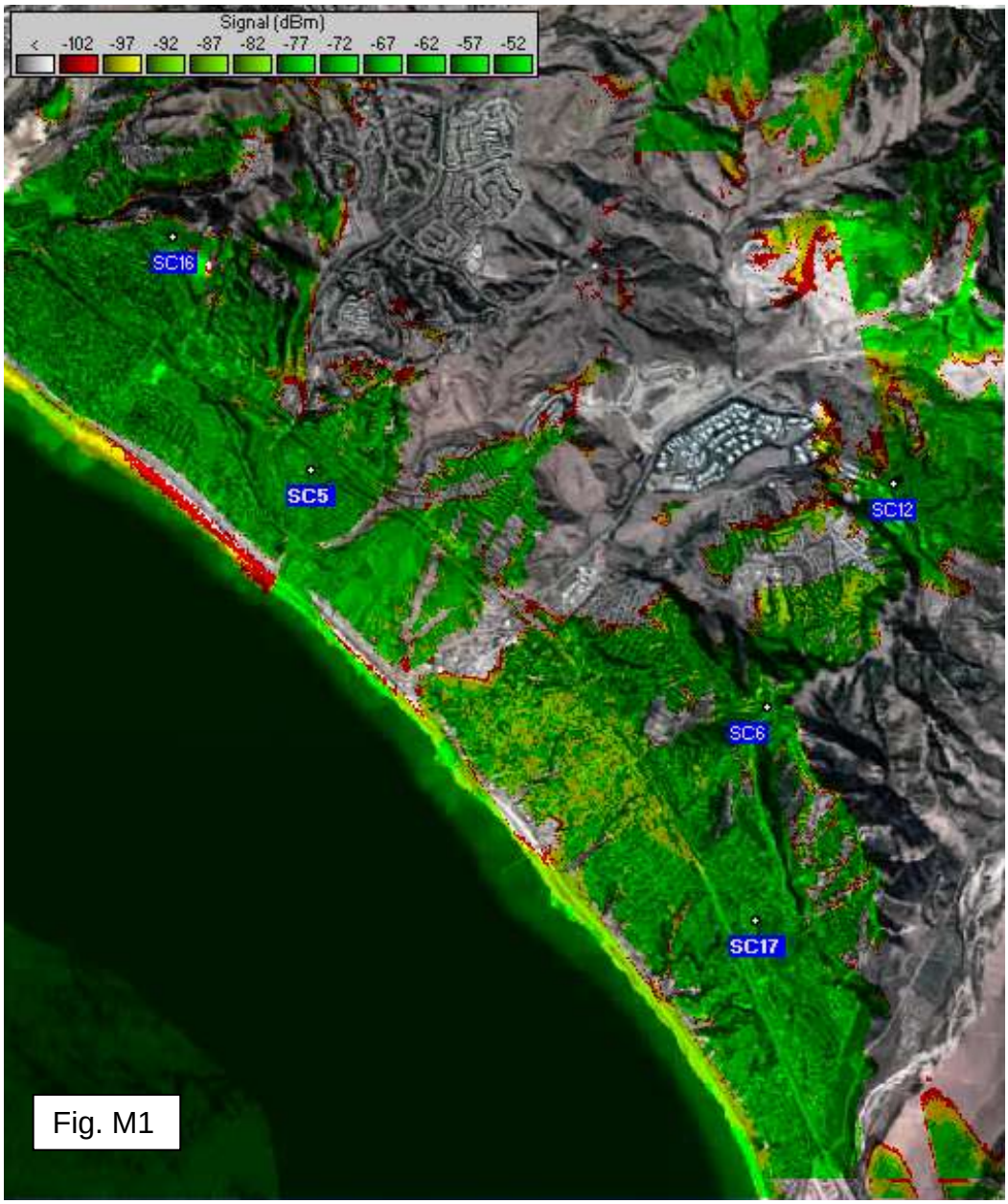


Fig. M1

In Figure M1, existing coverage provided by City owned sites in San Clemente where Metro PCS could locate. These sites provide a core coverage that is comparable to existing coverage of the other carriers in San Clemente. There is however a noticeable gap in central San Clemente including Interstate 5 and El Camino Real.

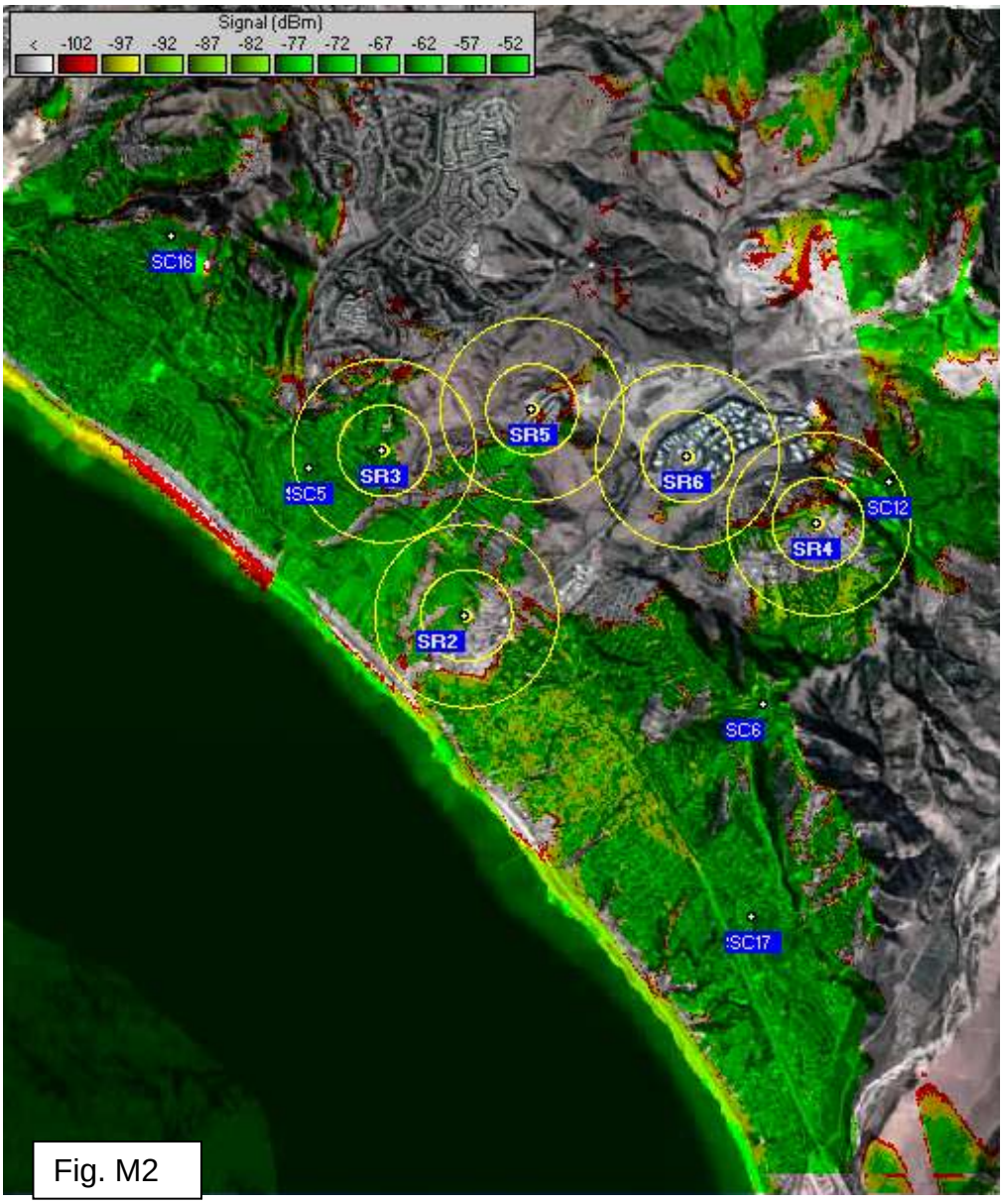


Fig. M2

In Figure M2, this picture represents rings that would be needed in addition to existing city sites in order to provide primary coverage for Metro PCS. This does not however include capacity sites that may be needed as Metro PCS's network reaches its capacity. Since Metro PCS would be developing these first sites to get their network up and running, the additional sites would be pre-planned, designed and developed with City sites as the primary locations.

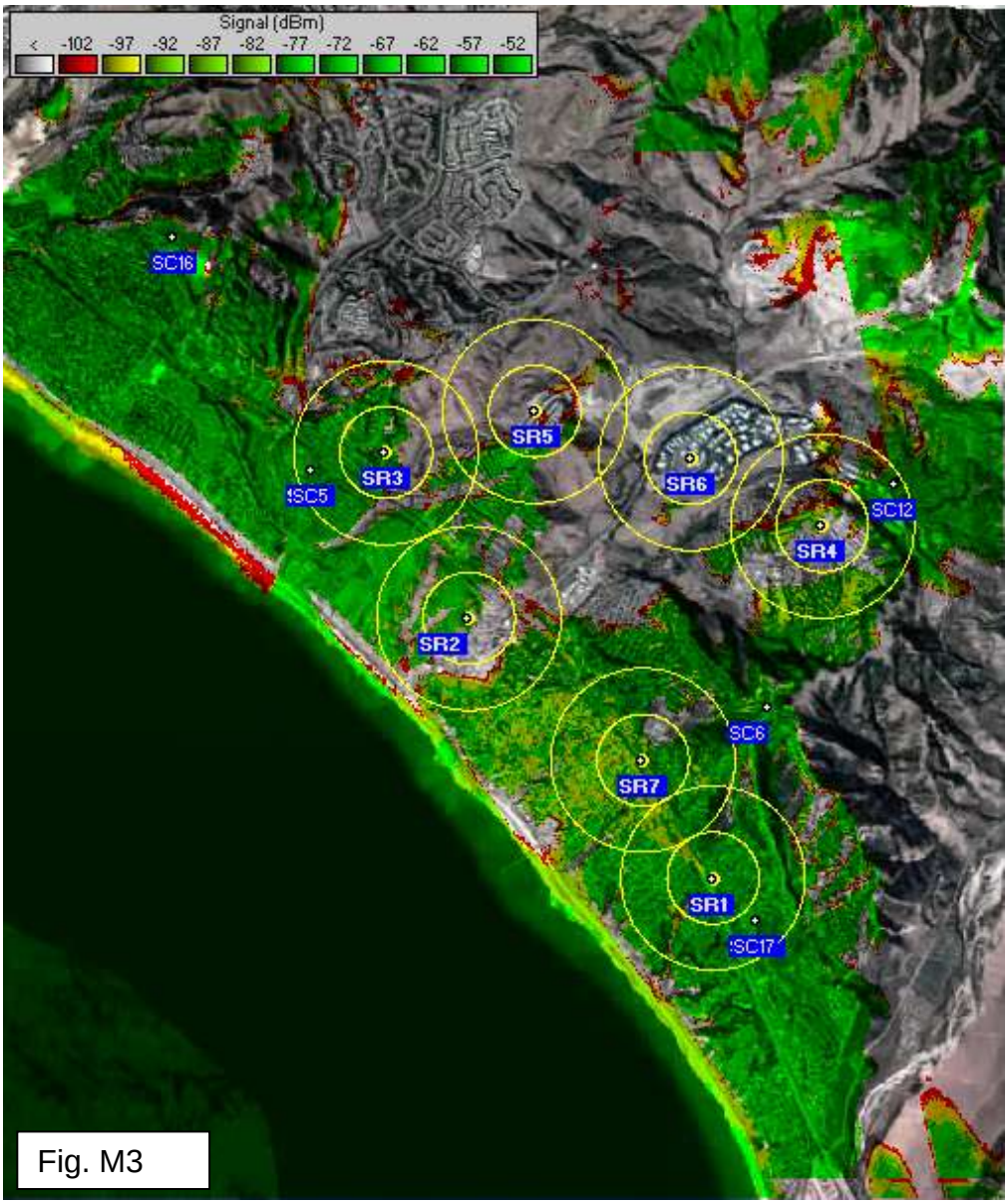


Fig. M3

Two additional rings, the bottom two in Figure M3 shown as SR1 and SR7, may be needed by Metro PCS in order to provide capacity coverage along the southern end of the Interstate 5 Freeway. This would represent primary coverage and capacity coverage.

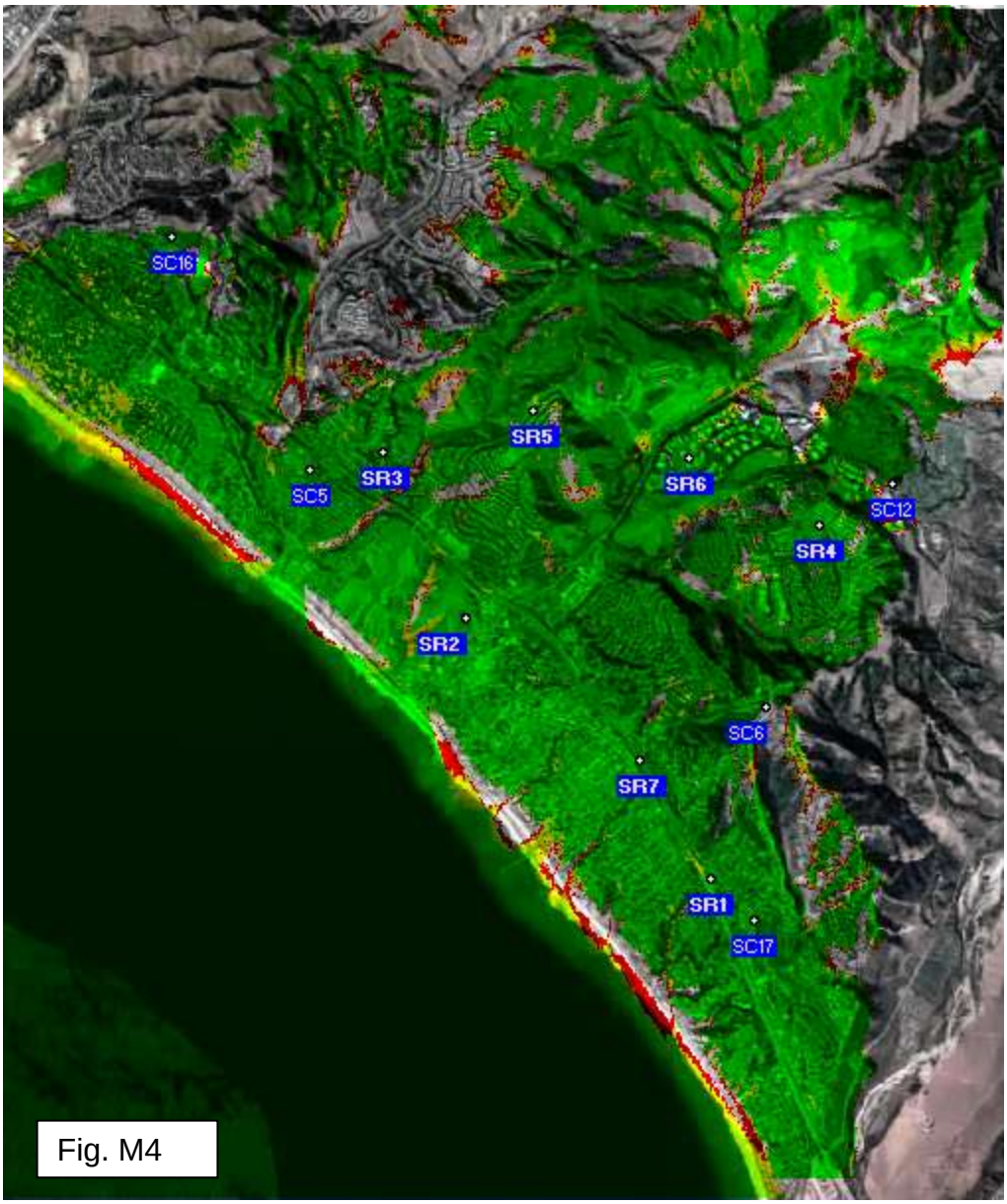


Fig. M4

Figure M4 illustrates the primary coverage that would be attainable with the existing sites, and additional search rings. This coverage would easily allow Metro PCS to effectively provide service in San Clemente and compete with the other carriers already offering service.

Fig. M5

The area outlined above in Figure M5 indicates an area that cannot be covered by city owned sites. The public right-of-way may present some opportunities for locations, but the height requirements necessary to meet carrier objectives will most likely look out of character with anything else. There are, however, existing sites on private property, SC15 for example, that could provide coverage for this area. There are currently applications for sites at the Santa Margarita Water District water tank located above Via Belizze in the Talega Community that will cover this area adequately.

Nextel

Nextel is currently located at the sites depicted in Figure N1. This propagation shows Nextel at PCS frequencies. Nextel currently uses the analog or 850 to 950 MHz range. These frequencies will travel further due to their lower range. Nextel is however phasing out the 850 to 950 MHz bands. Additionally Nextel and Sprint have signed a preliminary agreement to merge. This will obviously affect future siting when the two companies combine locations if the merger is completed.

Five primary areas were viewed in this study. The first being mixed residential with terrain features typical of inland San Clemente and located in the area of the upper right ring in Figure N1. The second area is generally described as the Vista Hermosa corridor. The third search area is described as the Interstate 5 and Marblehead Costal areas. The fourth and fifth search areas combined as the North Beach and El Camino Real North districts.

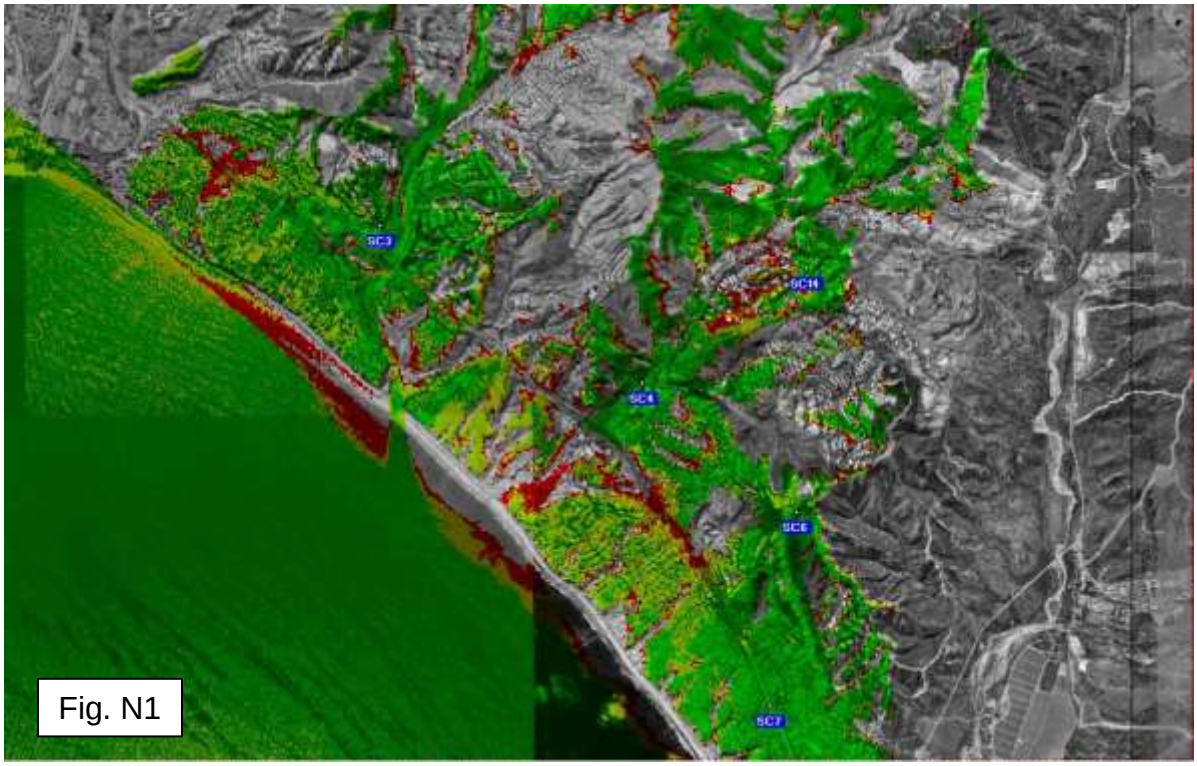


Fig. N1

In Figure N2, the picture shows Nextel at PCS frequencies with current probable coverage with search rings depicted in orange with quarter and half mile circles. The search rings are identified as SR2, SR3, SR4, SR5, SR6 and SR7. If Nextel completes the merger with Sprint and subsequently combines sites it is less likely that this many rings will be needed in the foreseeable future.

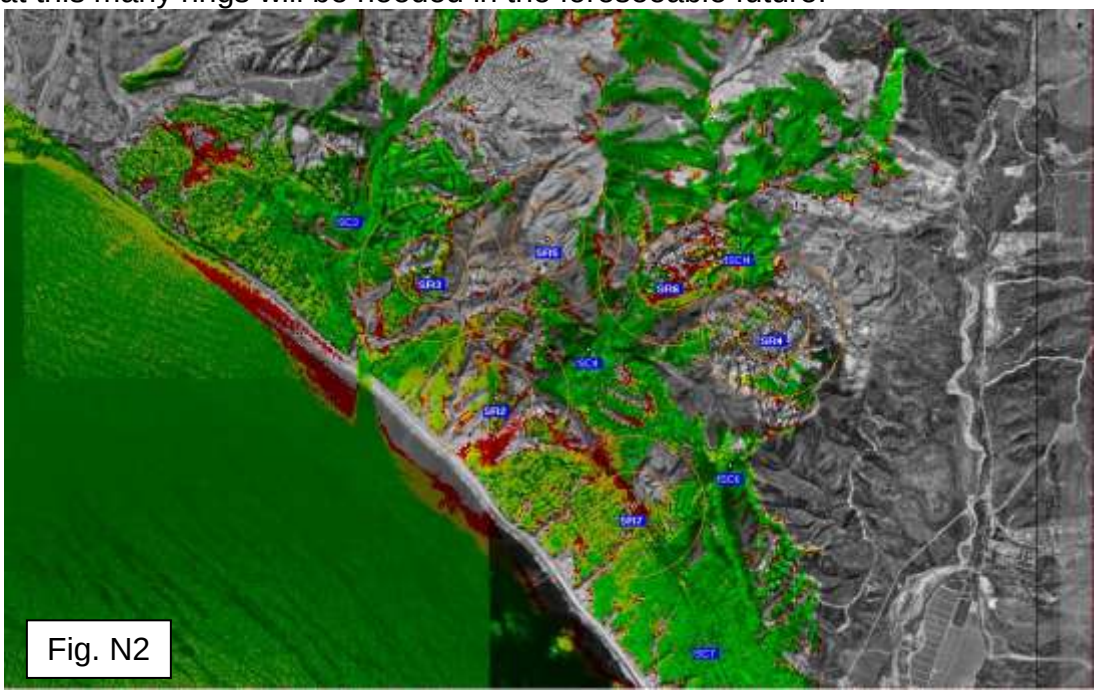


Fig. N2

Figure N3 below shows the coverage that could be had from the combination of existing Nextel PCS site and possible rings depicted in Figure N2.

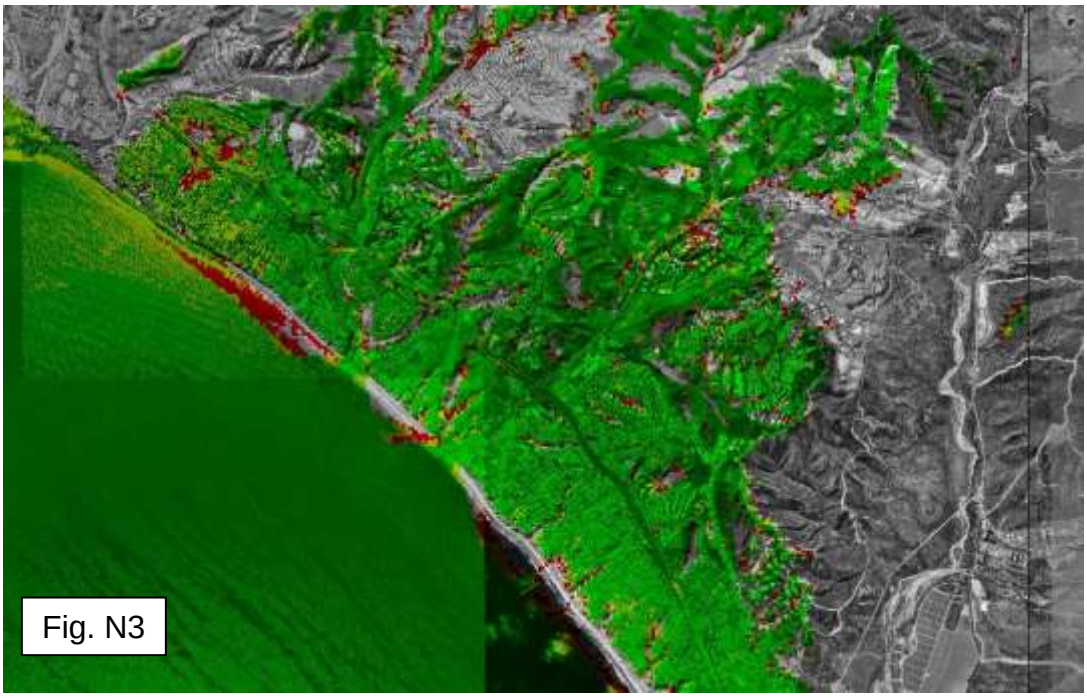


Fig. N3

Figure N4 shows SR2 with four City-owned properties within ¼ of a mile and 17 properties from ¼ to ½ mile from the target area. SR2 would also be a likely ring for Nextel 850 as depicted in Figure N2 above and N11 below.

Fig. N5

SR3 in Figure N5 shows one site within ¼ mile and 7 sites within the ¼ to ½ mile corridor. SR3 is also projected to be needed for the Nextel 850 study as depicted in Figure N11 below.

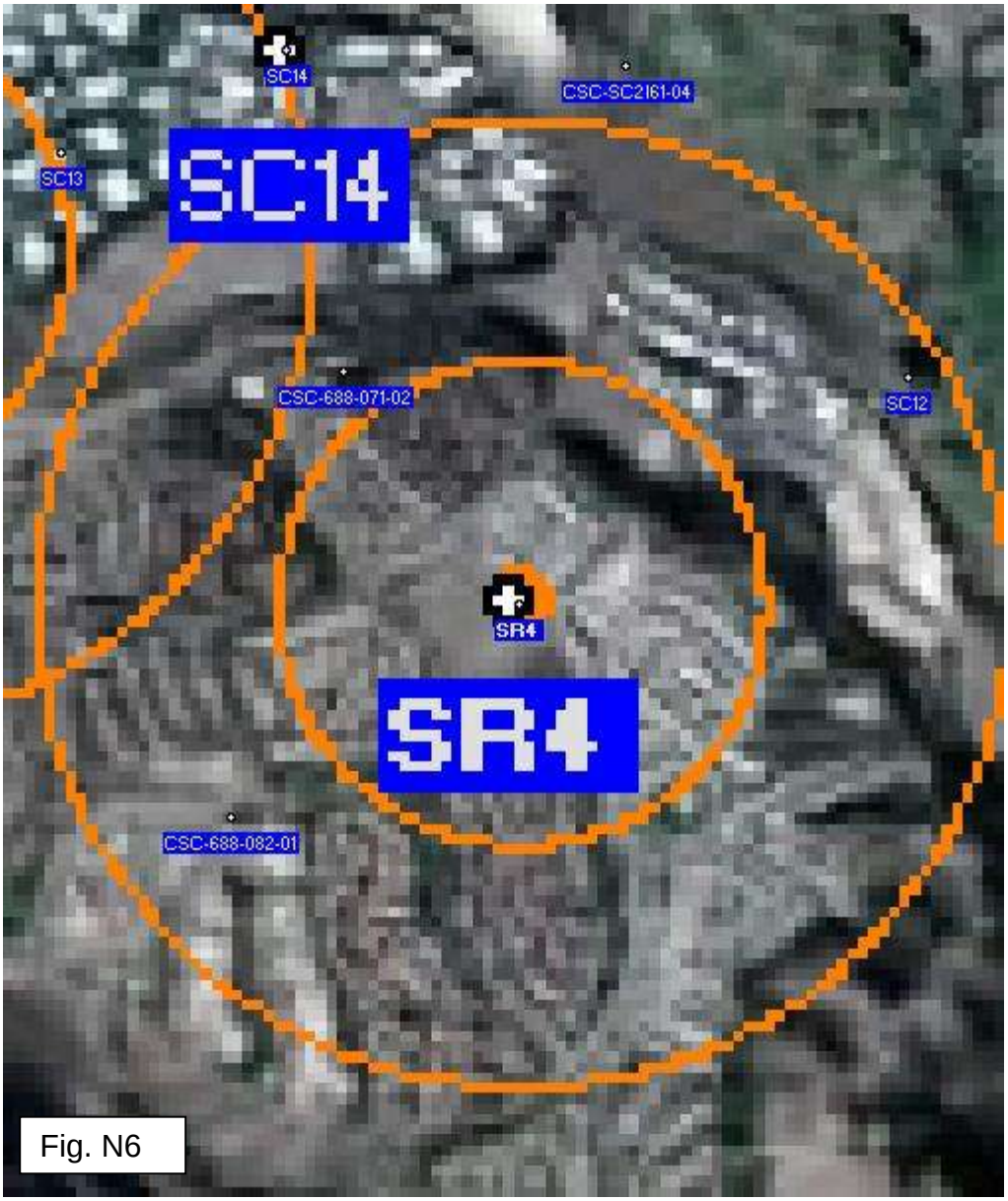
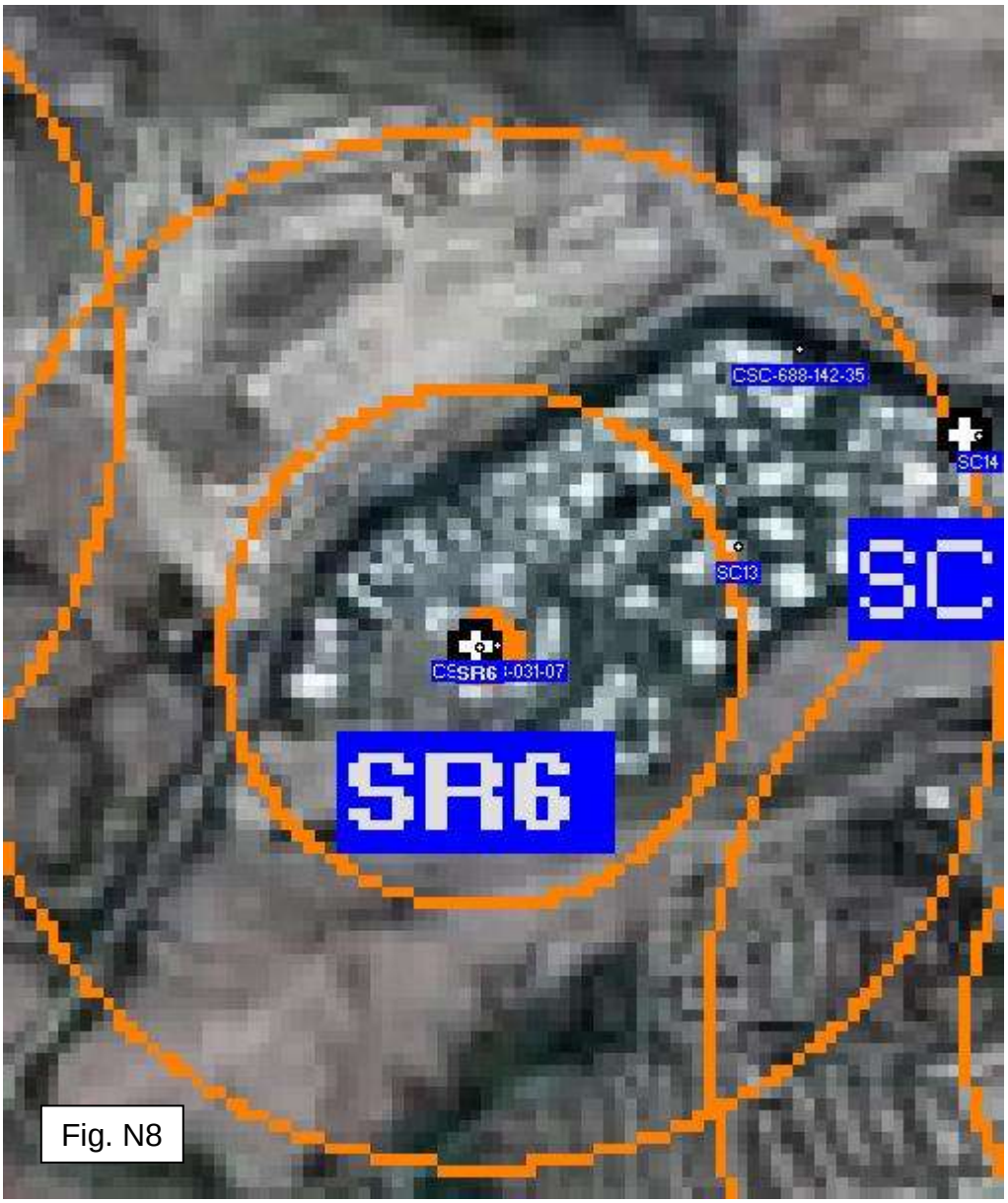


Fig. N6

In Figure N6, SR4 shows no City-owned properties within the ¼ mile search ring and 2 City-owned properties within the ¼ to ½ mile search area as well as the existing site SC12. SR4 overlaps with SR6 to the North East within the ¼ to ½ mile search area. These two rings do not share any City-owned properties in common as potential candidates.

Fig. N7

SR 5 is shared by both the Nextel PCS and Nextel 850 study areas as shown in Figure N7. This ring shows one city-owned property within the ¼ mile search area and one additional site within the ¼ to ½ mile search area. SR5 search area overlaps with SR3 and SR6 within the ¼ to ½ mile ring, but there are no overlapping sites.



In Figure N8, SR 6 hares search areas with SR4 and SR5 with no City-owned properties in common. SR6 shows a City-owned property at the center of the search area and an existing site SC13 within ¼ mile. Either of these locations should meet the coverage objective of SR6. SC14 on the North East line of the ½ mile search area may meet the coverage objective depending on sites that are chosen to the West in SR 5 search area.

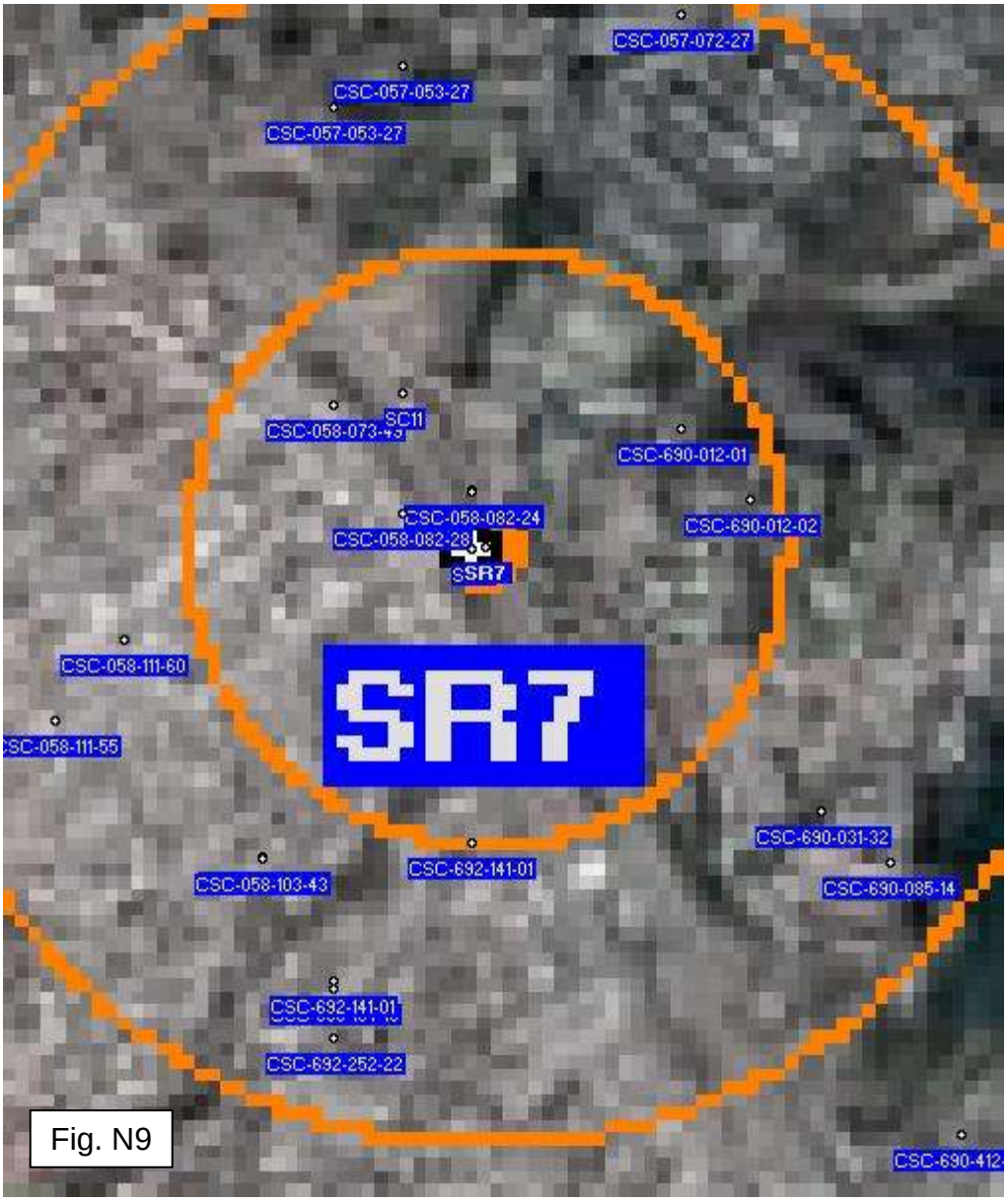


Figure N9 shows that SR 7 has five City-owned properties and two existing sites within the search area, including one at the center of the search area. There are 12 additional city properties within the ¼ to ½ mile search area. An existing site or a City-owned property should meet the needs and requirements for Nextel.

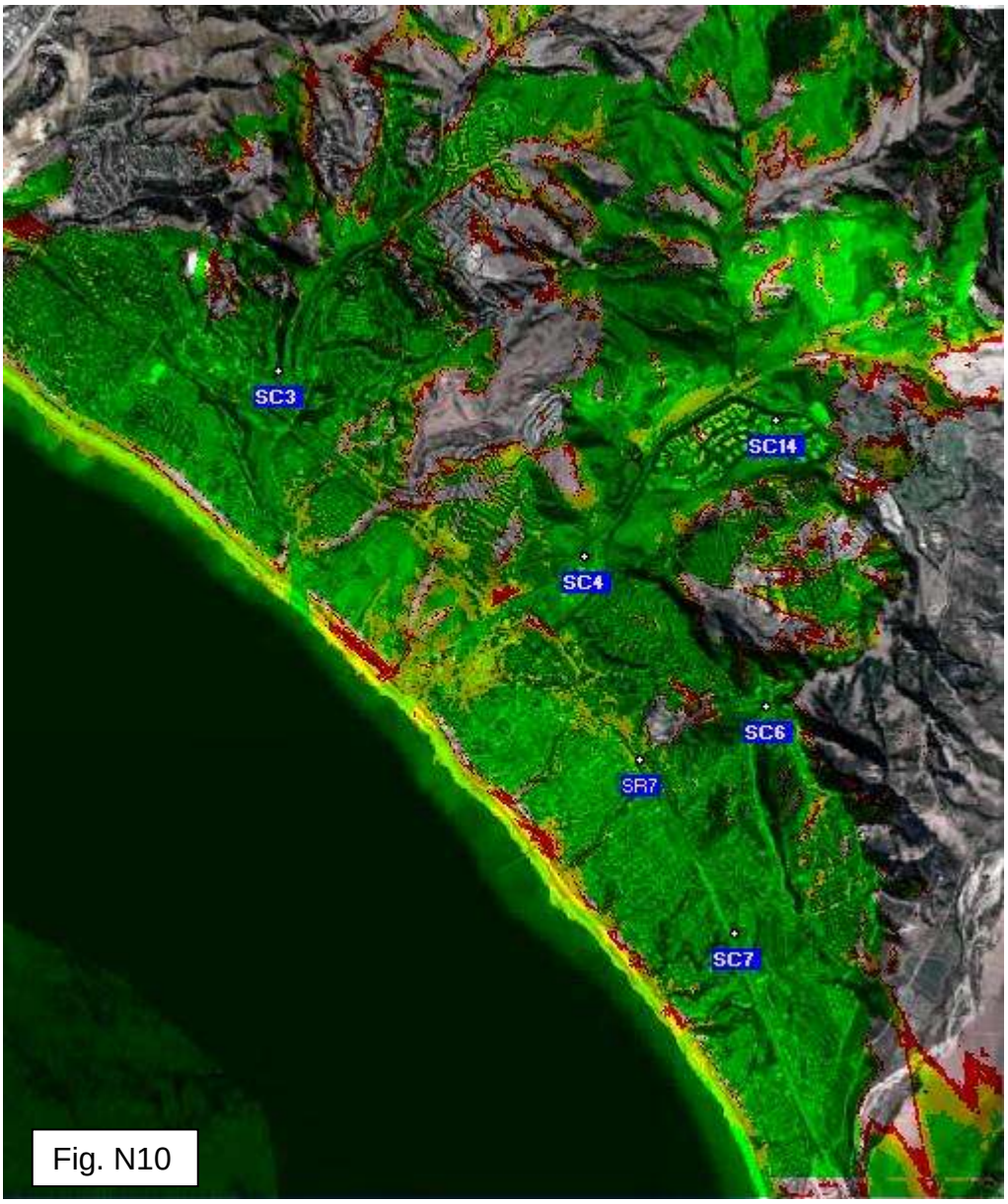


Fig. N10

Figure N10 above shows the coverage generated by Nextel's existing sites in the 859MHz band. Most of the overall coverage objective is met with only two projected future rings for capacity and one for additional coverage fill in.

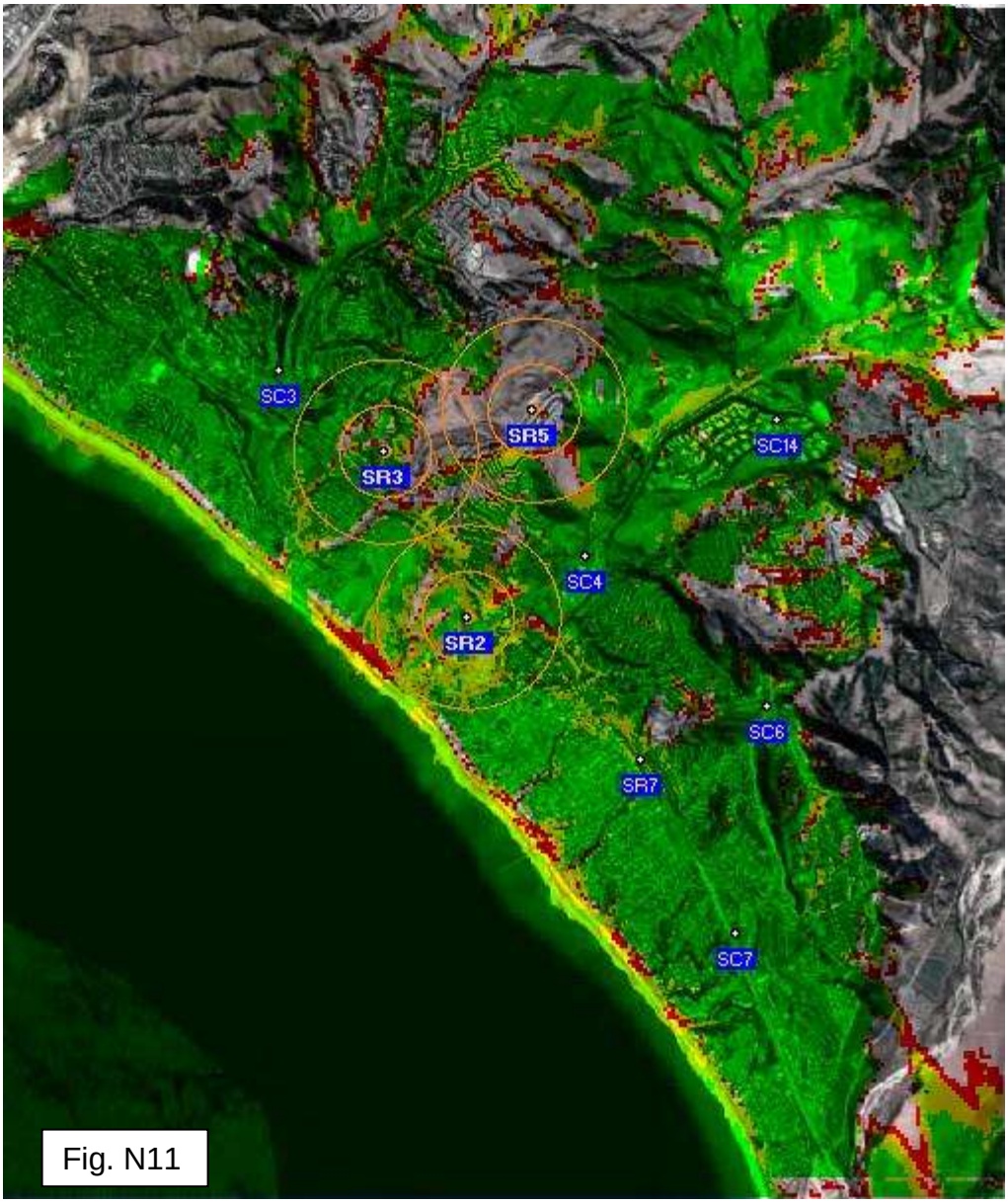


Fig. N11

Figure N5 shows the existing coverage of the Nextel 850 system using the existing Nextel sites. Also shown are the locations of the three projected rings.

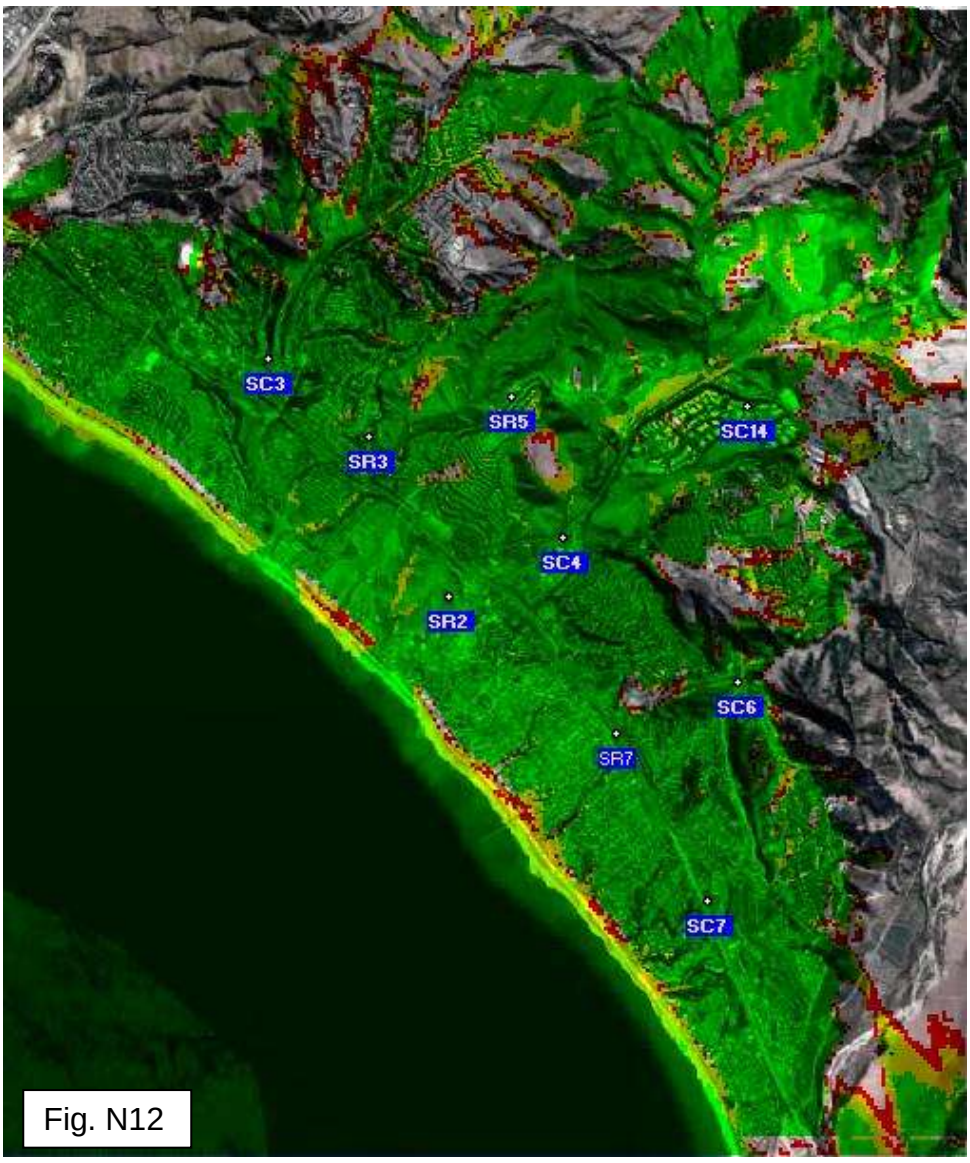


Fig. N12

Figure N12 shows the combined coverage of the Nextel 850 system with the three projected sites as described above. Note: Site SR7 is depicted above but not propagated and should be discounted for the primary study. However it could be used as a future capacity site.

The study of both the Nextel PCS and Nextel 850 systems did not take into account the Sprint sites that are existing or projected in San Clemente as the merger is not complete at this time. The search areas reflect Nextel as an independent carrier not merged with Sprint PCS.

Sprint PCS

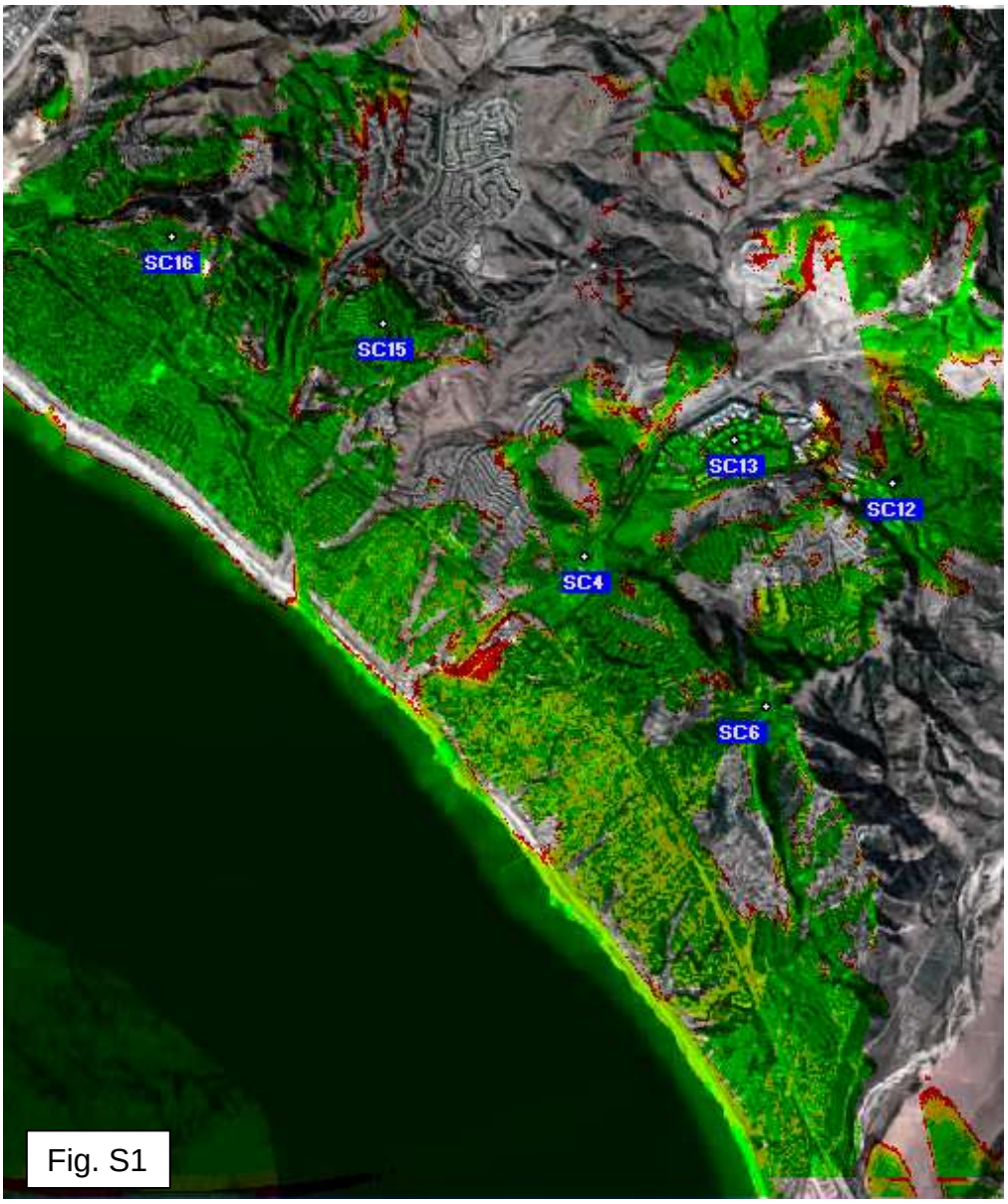


Fig. S1

Figure S1 shows the coverage in place for Sprint throughout the City of San Clemente. The existing coverage is sparse and spindly in certain areas of the City including along Interstate 5 Freeway and the El Camino corridors. The gray areas in land illustrate weak coverage in many areas throughout the City, especially in the Talega Community.

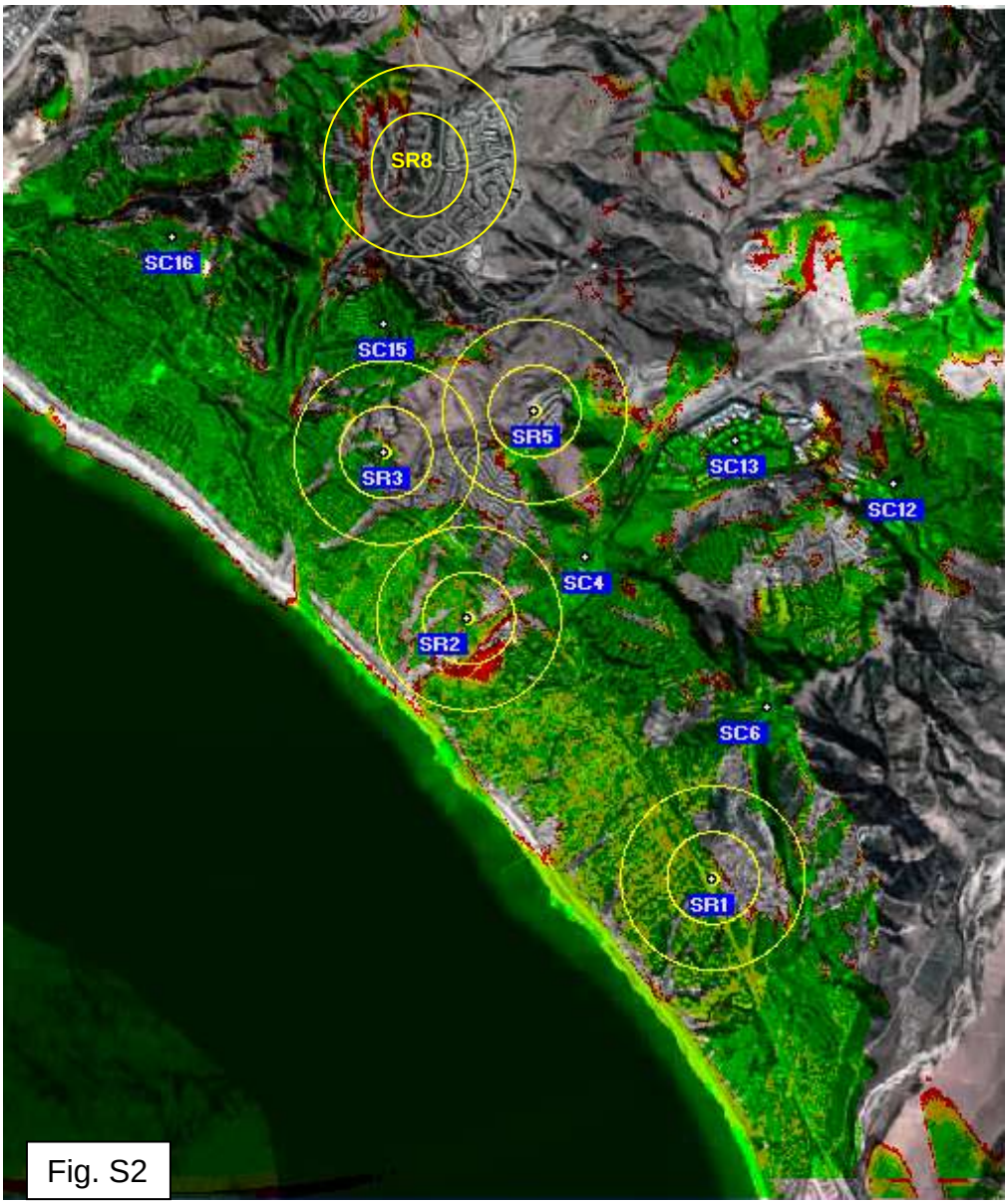


Fig. S2

In Figure S2, the search rings represent a probable minimum coverage necessary to provide contiguous coverage throughout most of San Clemente. Suburban coverage north of site SC15 is not provided by existing sites. In addition, there are no City-owned sites within this area that could facilitate a cell site. Identified as SR8 in the Talega community, the Santa Margarita Water District water tank above Via Belizze would provide an acceptable solution to providing coverage in this area.

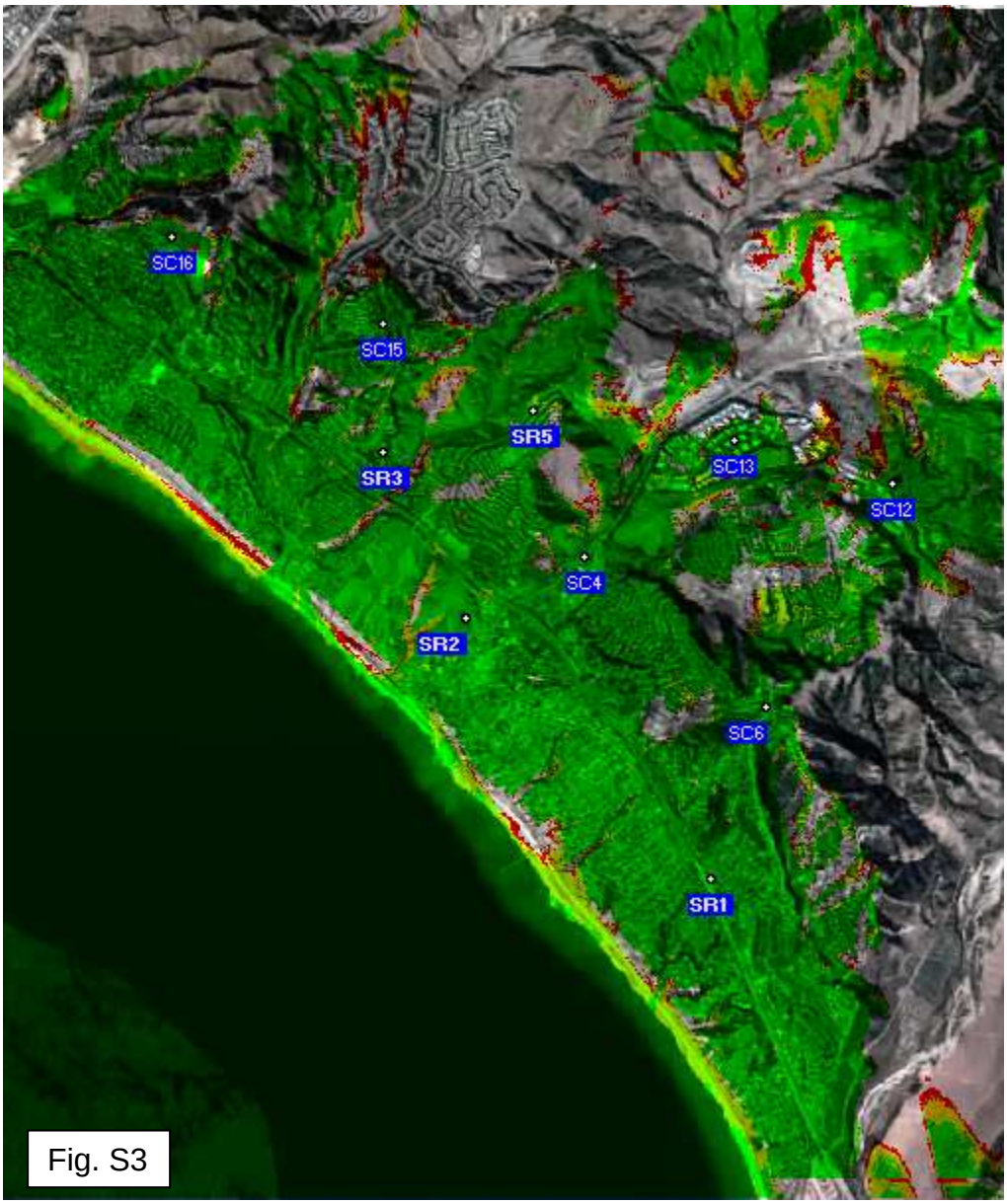


Fig. S3

This plot shows the combined coverage of existing sites with those built on City-owned property. Sprint's coverage throughout the City is greatly enhanced except within the Talega Community, which could be accommodated by the development of a cell site at the water tank above Via Belizze. In addition, a capacity site me be needed at the Interstate 5 Freeway corridor between SC4, SC6 and SR1.

T-Mobile

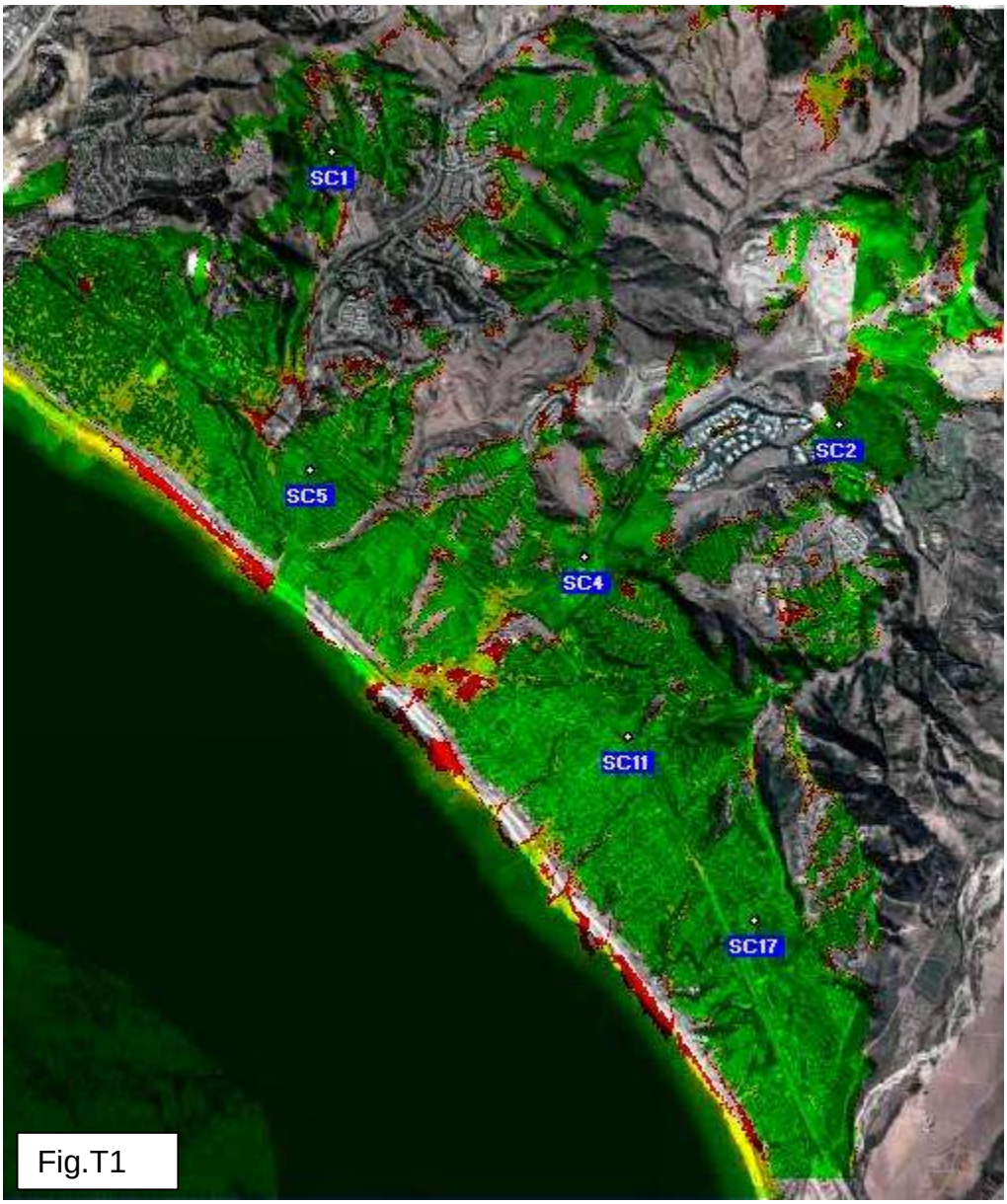


Fig.T1

In Figure T1, this analysis shows the sites located throughout the City and the coverage this network provides. These sites were permitted to Cingular, now operated by T-Mobile. As part of Cingular's merger with AT&T Wireless, Cingular sold its sites to T-Mobile. Cingular has until the end of 2005, unless an extension is negotiated, to transfer its customers from these sites to the AT&T Wireless network. This network offers T-Mobile coverage along Interstate 5 Freeway and El Camino Real corridor with a small gap in central San Clemente. Additionally there are some coverage gaps in the suburban areas around the SC2 site.

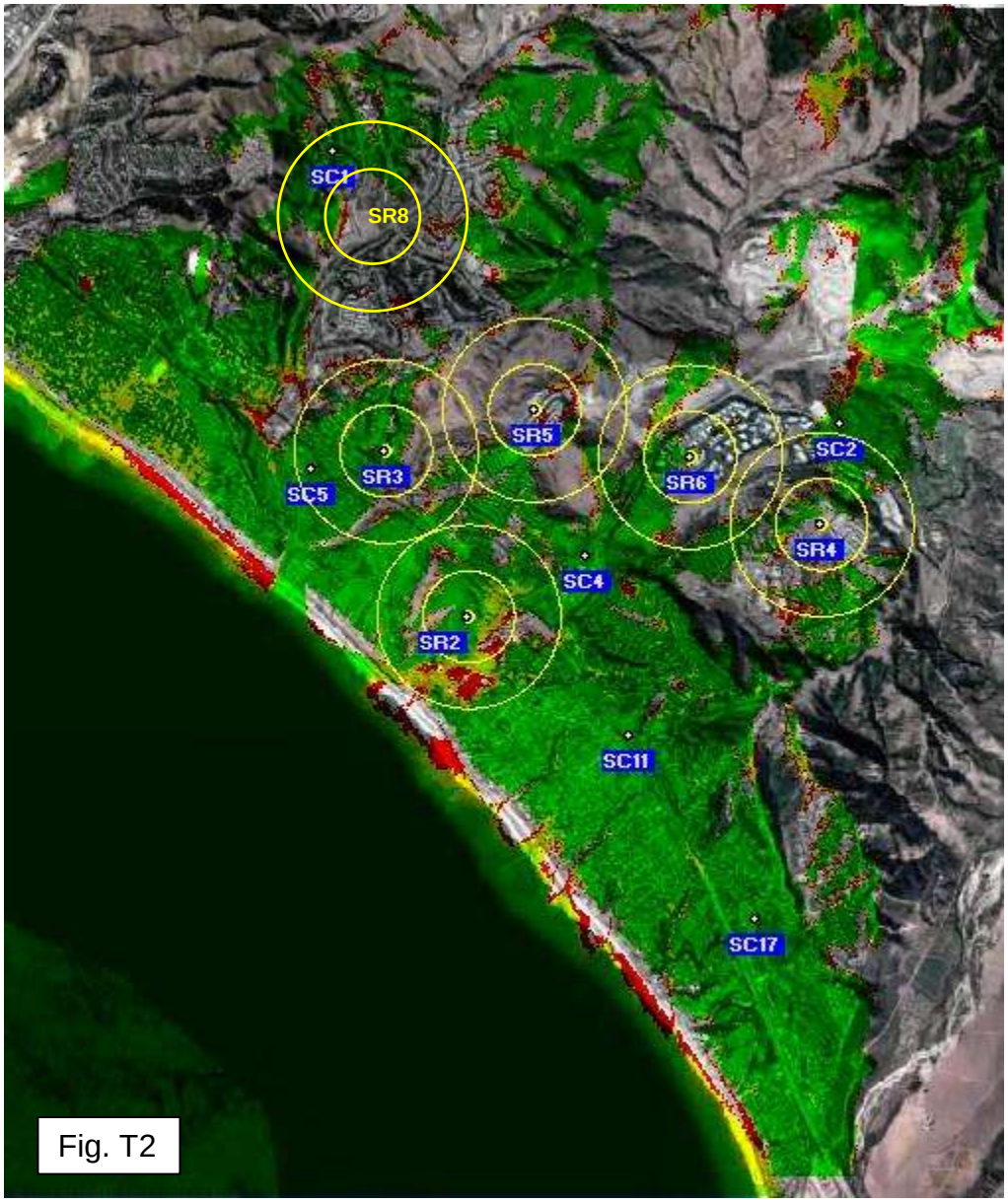


Fig. T2

The additional sites anticipated for San Clemente by T-Mobile are illustrated in Figure T2. These sites should meet most of the coverage objective needed by T-Mobile with SR2 and SR3 offering both coverage and capacity for areas not completely supported by existing sites. Again, up in the Talega area coverage will be necessary with the ideal location being the water tank above Via Belizze.

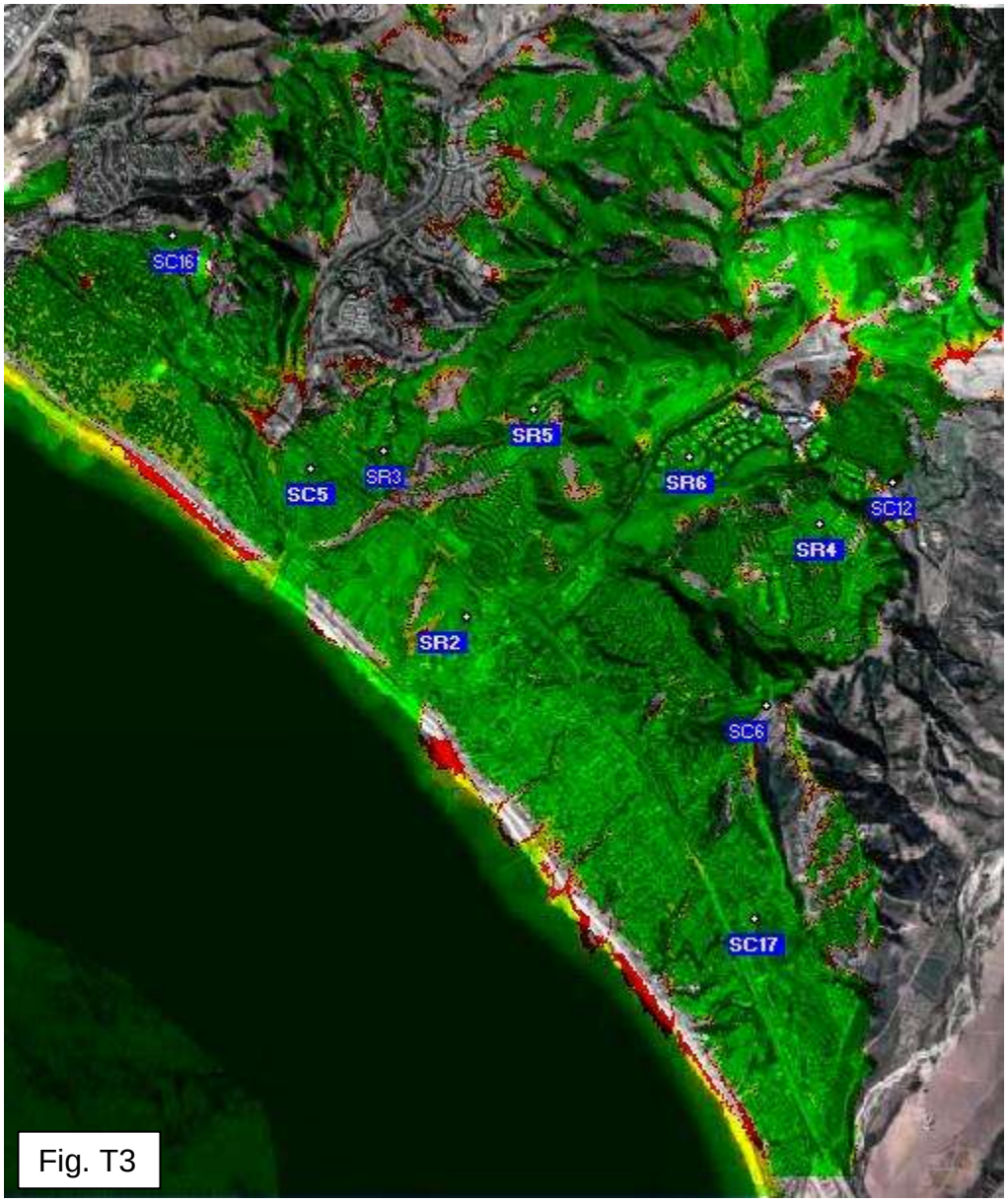


Fig. T3

Figure 3 shows T-Mobile's coverage with the existing sites and proposed rings with the exception of the suburban area within the Talega community. The T-Mobile network also shows some coverage weakness along Interstate 5 Freeway which they will need to address at some point.

Verizon Wireless

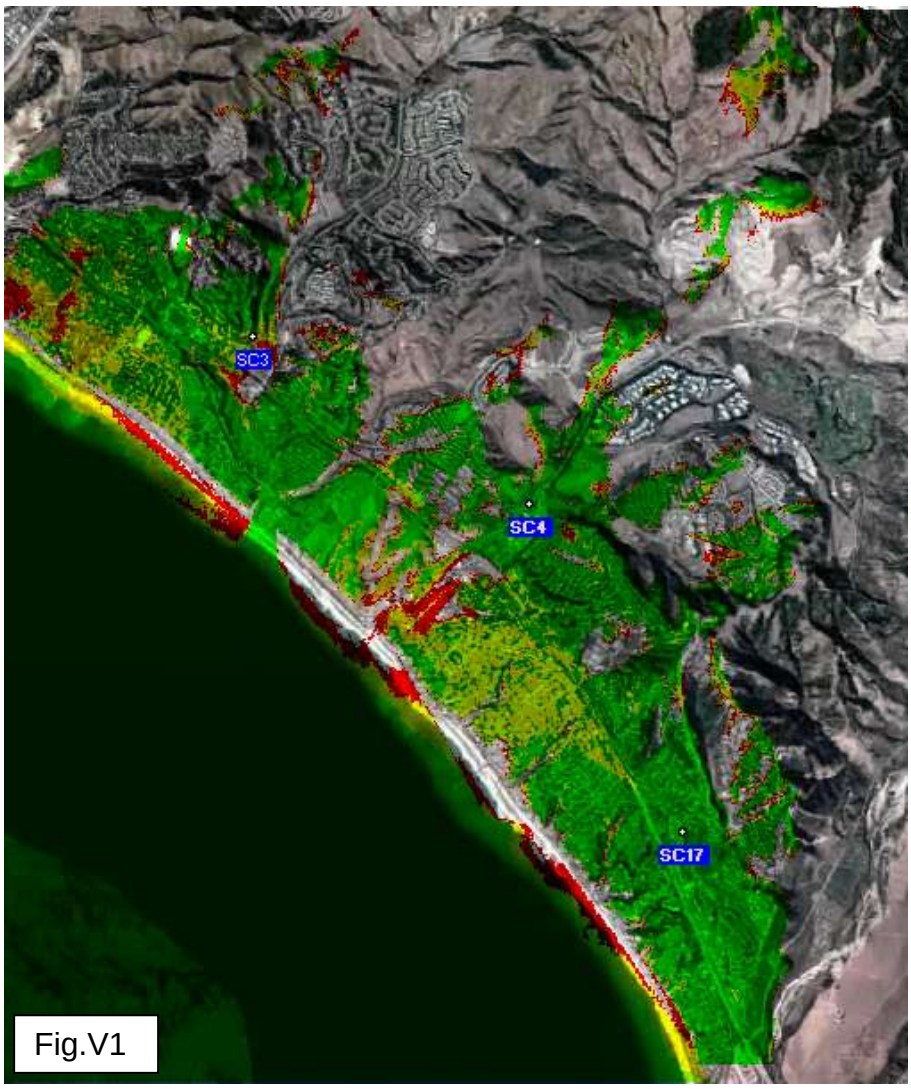


Figure V1 shows a propagation analysis of Verizon Wireless sites currently located in San Clemente. This coverage shows marginal coverage along the Rt. 5 corridor and poor coverage in the residential areas to the north and east of Rt. 5. Verizon has the ability to roam on an existing analog network that, while providing for an additional coverage footprint, will not meet the existing and future needs for a quality data network. Additionally, these sites as designed to cover large areas and therefore Verizon Wireless will require additional locations to offload capacity in the future.

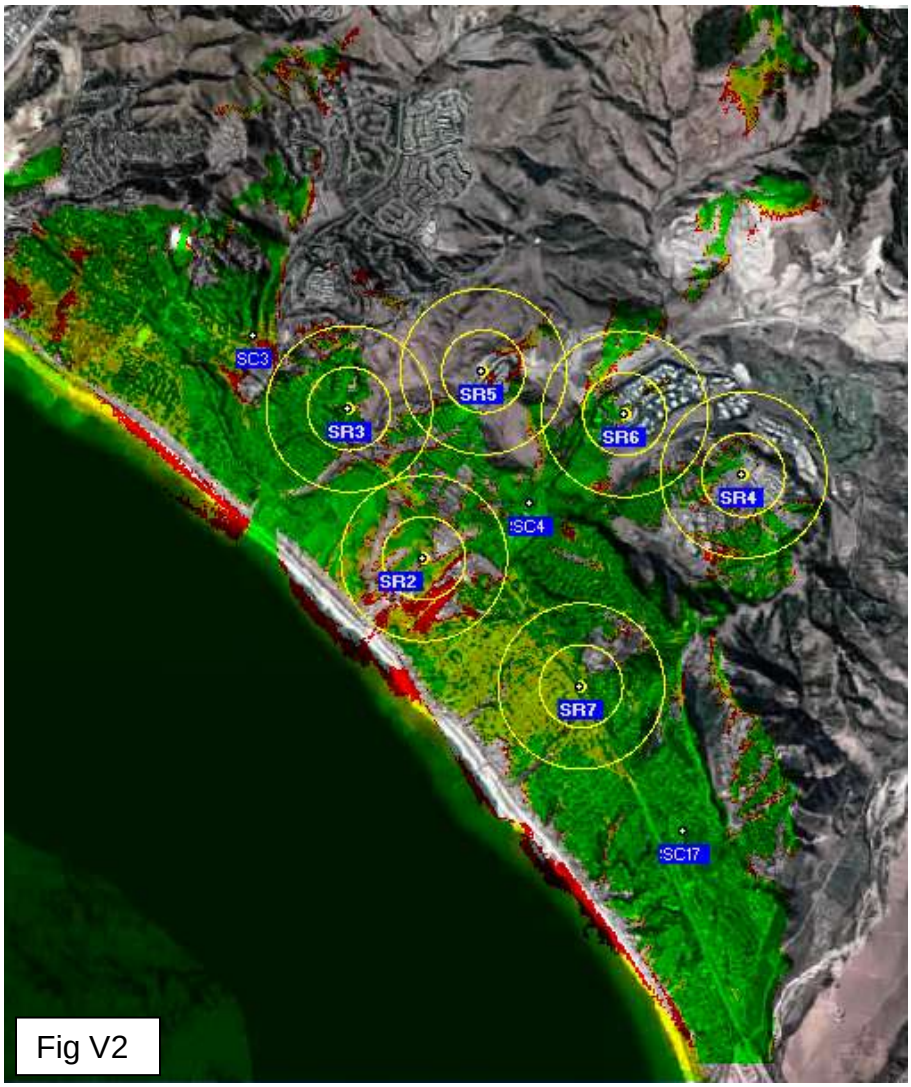


Fig V2

Figure V2 shows Verizon Wireless's current network with possible search areas for capacity and coverage utilizing rings that have thus far been used in the overall master plan study. Figure V2 shows six primary areas that were identified in this study as being future or existing candidates for both coverage and capacity needs. The first two search areas SR6 and SR4 are residential and mixed residential with terrain features typical of inland San Clemente and located in the area of the upper right two rings in Figure V2. The Third area SR5 is generally described as the Vista Hermosa corridor. The forth search area, SR7, is located near Interstate 5 and Marblehead Costal areas. The fifth and sixth search areas SR2 and SR3 are combined as the North Beach and El Camino Real North districts.

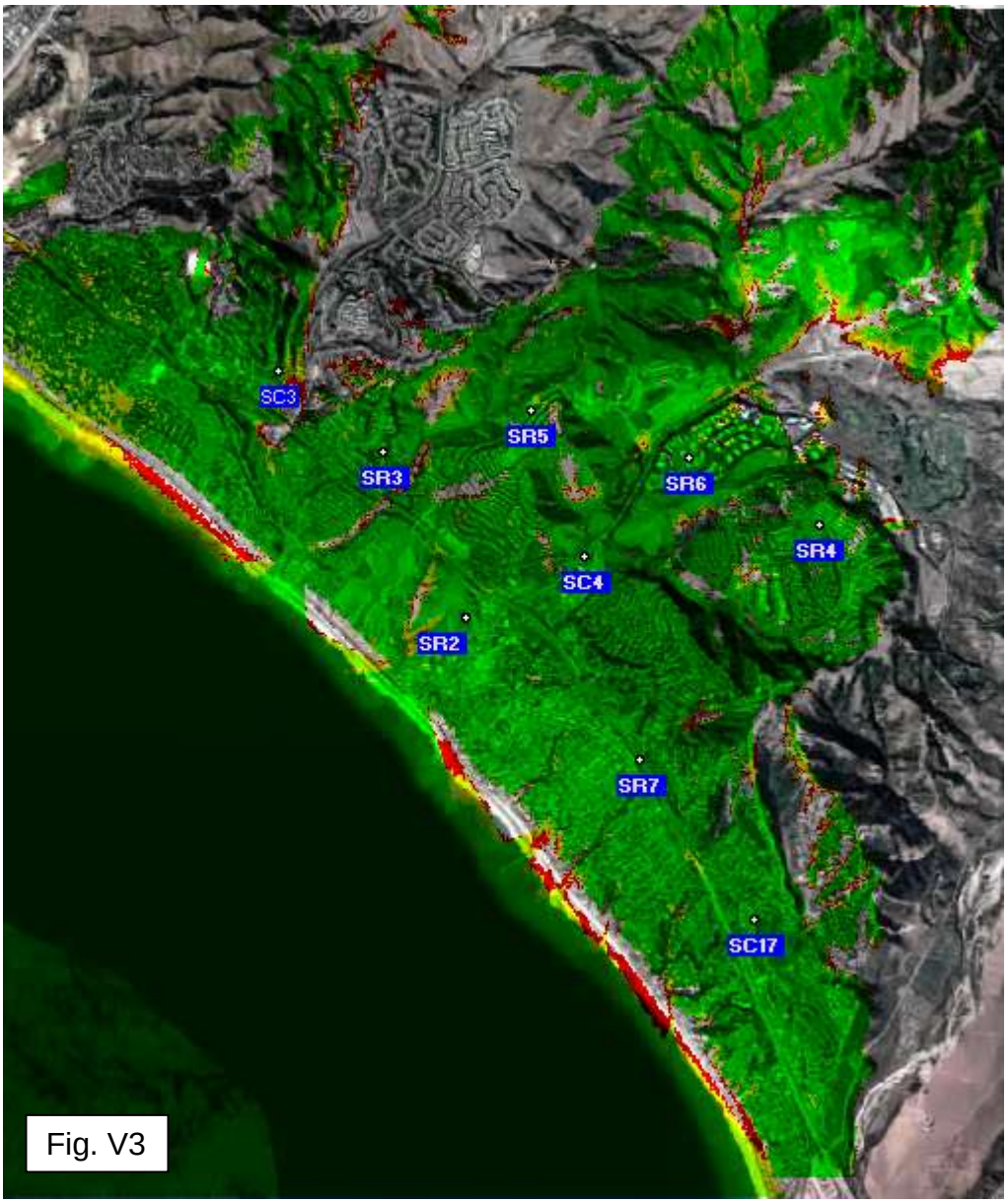


Fig. V3

Figure V3 shows the coverage that could be obtained by utilizing the proposed SR sites to fill in and add capacity to Verizon's existing network. It is possible that two or three additional micro cell sites could be required, as with the other carriers studied, to meet a ubiquitous and contiguous coverage objective.

Figure V4 shows SR2 with 4 City-owned properties within ¼ of a mile and 17 properties from ¼ to ½ mile from the target area. SR2 will primarily provide connectivity coverage along the Interstate 5 Freeway corridor. It will also serve to offload traffic from existing and proposed sites.

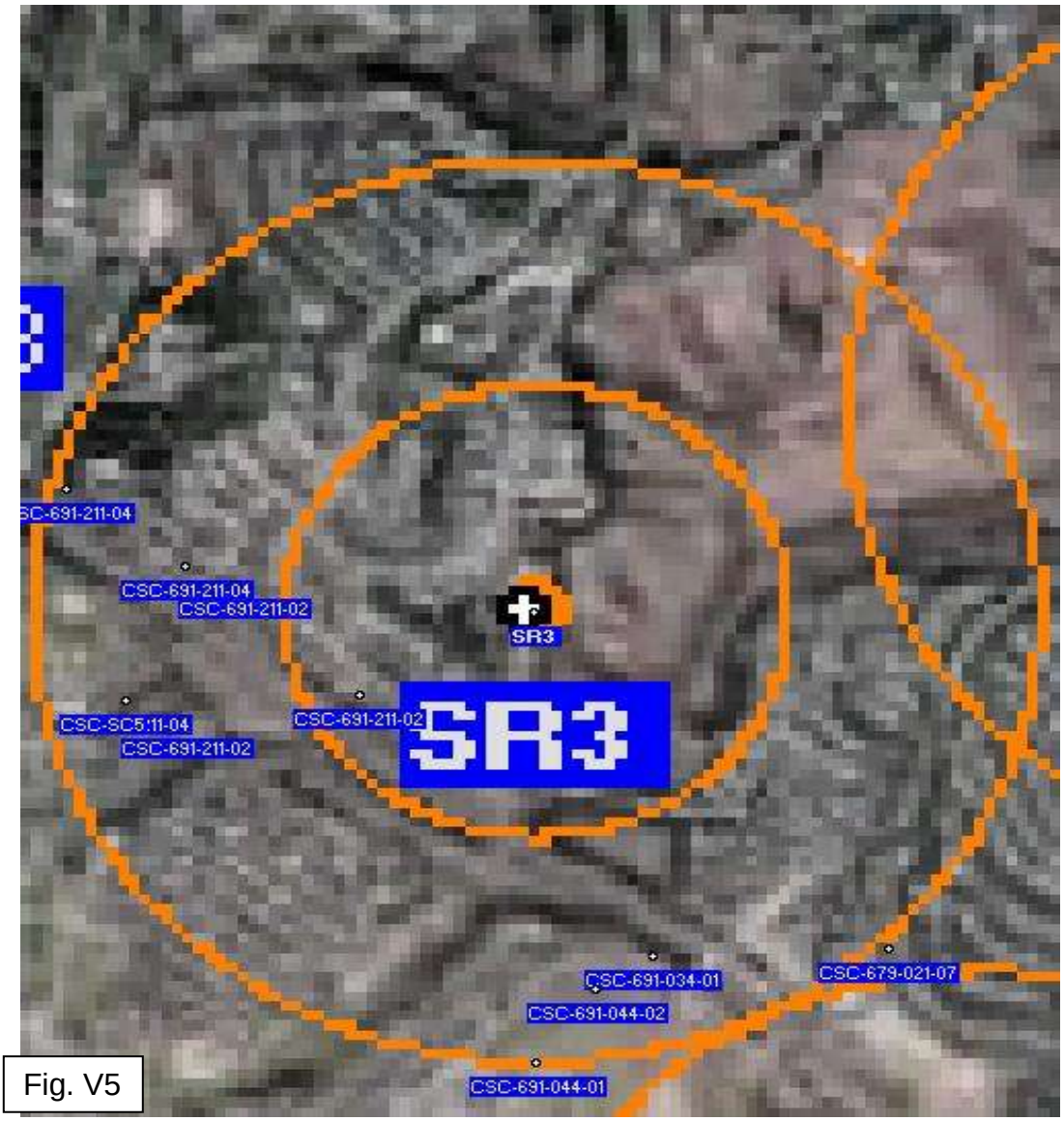


Fig. V5

In Figure V5, SR3 shows one site within ¼ mile and seven sites within the ¼ to ½ mile corridor. SR3 will help fill in coverage where SC 3 fails and also provide offloading of traffic along the Interstate 5 Freeway corridor. In addition, connectivity with the Vista Hermosa corridor and connectivity with proposed sites SR2 and SR5 will be achieved with SR3.

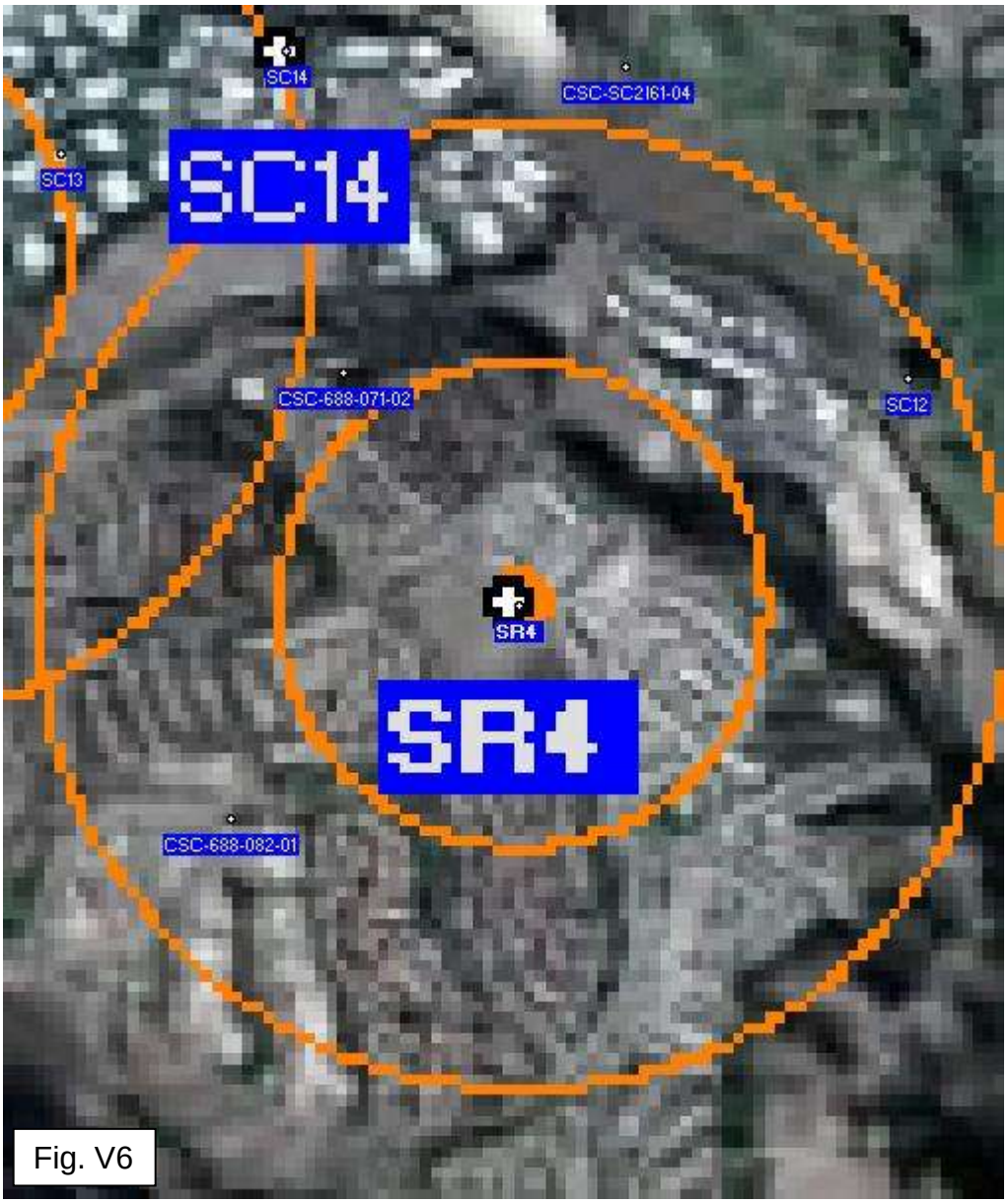


Fig. V6

Reviewing Figure V6, SR4 shows no City-owned properties within the ¼-mile search ring and two City-owned properties within the ¼ to ½ mile search area as well as the existing site SC12. SR4 overlaps with SR6 to the North East within the ¼ to ½ mile search area. These two rings do not share any City-owned properties in common as potential candidates. SR4 will provide coverage where existing coverage is very poor or non-existent.

Fig. V7

SR 5 ring identifies in Figure V7 one City-owned property within the ¼-mile search area and one additional site within the ¼ to ½ mile search area. The SR5 search area overlaps with SR3 and SR6 within the ¼ to ½ mile ring, but there are no overlapping sites. SR5 will be the primary site in the Vista Hermosa corridor.

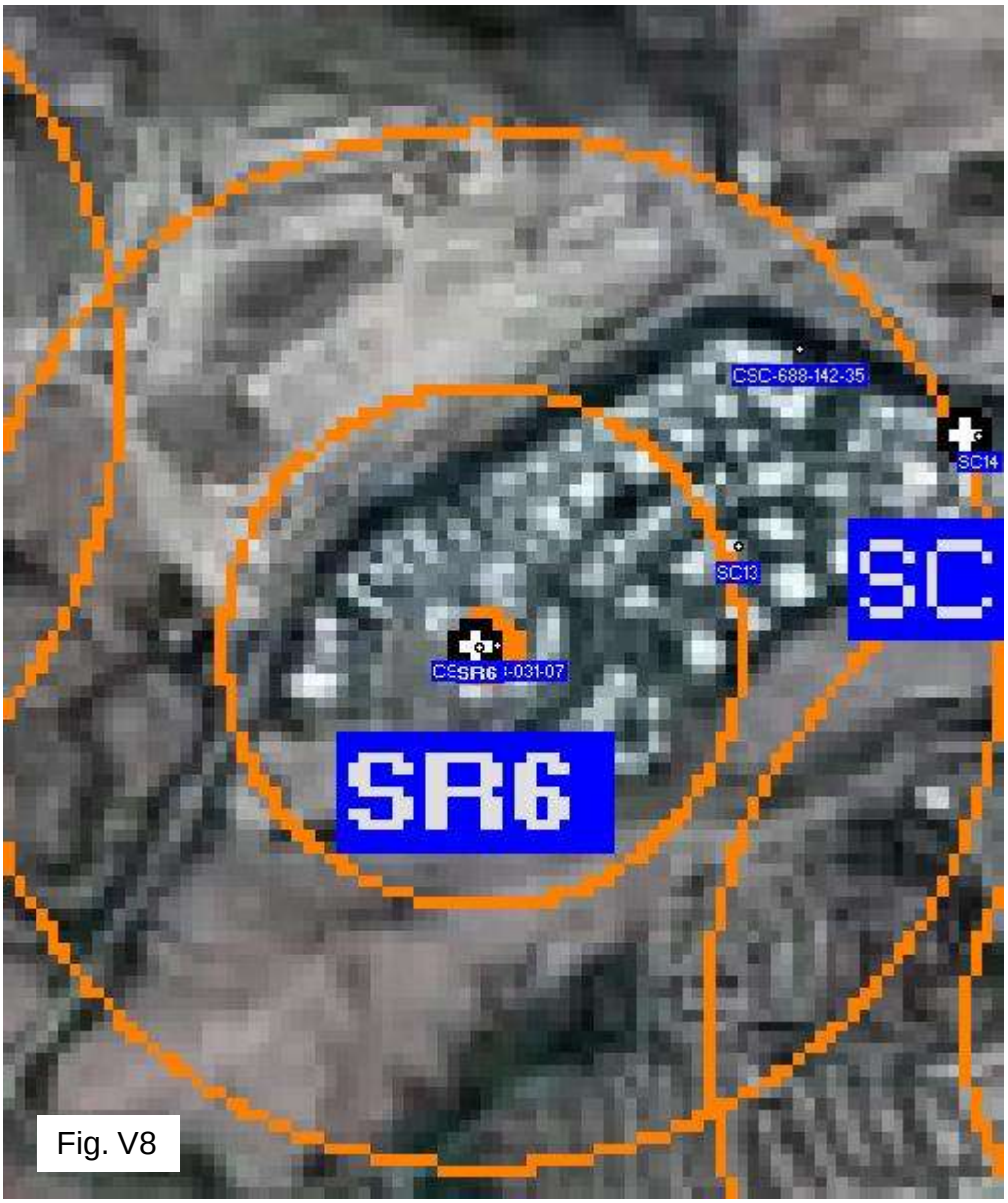


Fig. V8

In Figure V8, SR6 shares search areas with SR4 and SR5 with no City-owned properties in common. SR6 shows a City-owned property at the center of the search area and an existing site SC13 within ¼ mile. Either of these locations should meet the coverage objective of SR6. SC14 on the North East line of the ½-mile search area may meet the coverage objective depending on sites that are chosen to the West in SR 5 search area. SR6 will provide additional coverage for SC6 extending from the Interstate 5 Freeway Corridor. Existing coverage in this area appears to be spotty at best for this carrier.

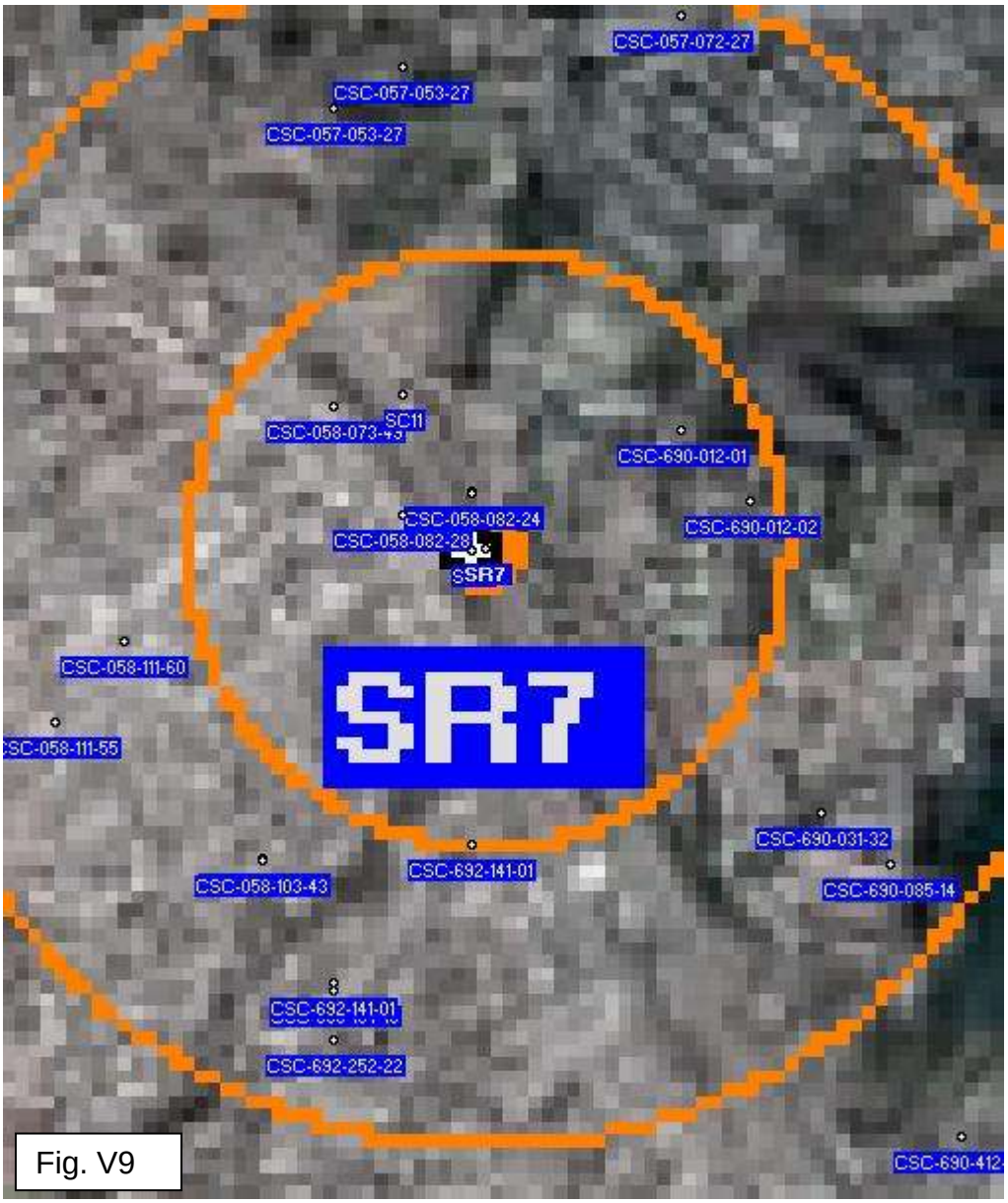
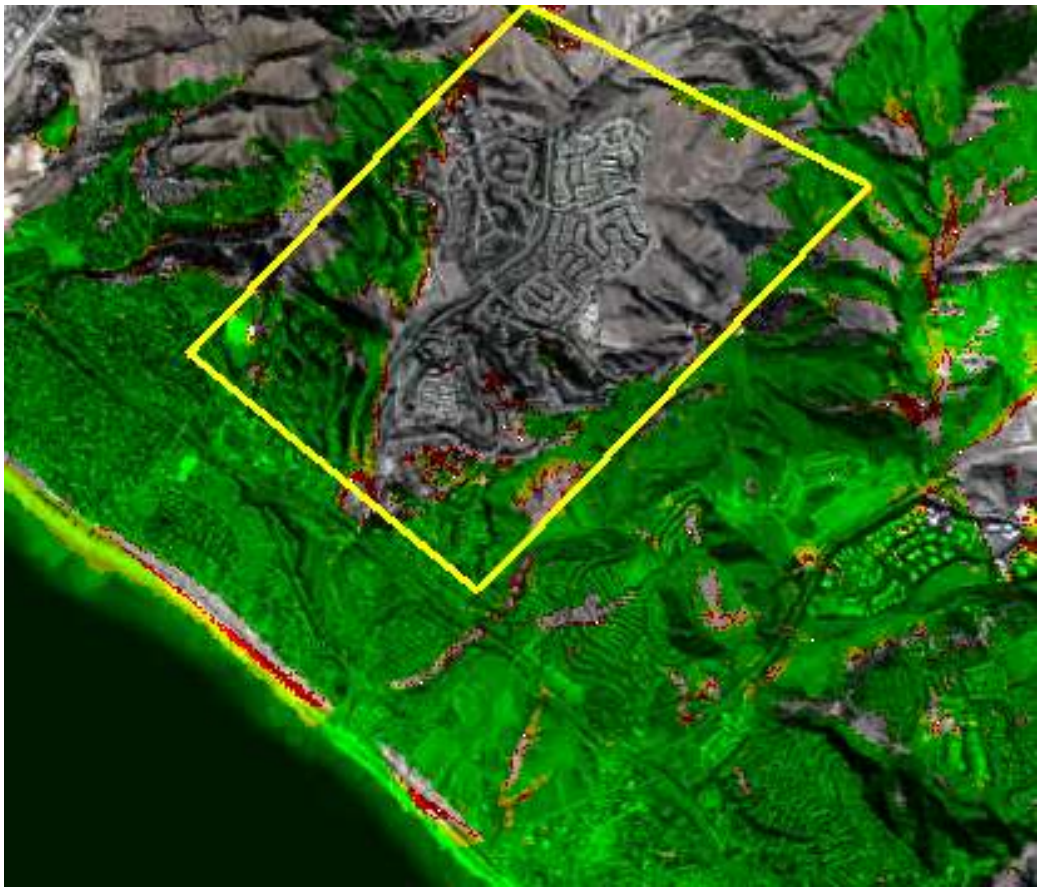


Fig. V9

SR7 identifies in Figure V9 five City-owned properties and two existing sites, including one located at the center of the search area. There are 12 additional city properties within the ¼ to ½ mile search area. An existing site or a City-owned property should meet the needs and requirements for Verizon Wireless. SR7's primary purpose is to provide offloading of existing site SC17. This site has more flexibility in its location than the other rings in the group.

Forster Ranch Community



Typical of the coverage observed by all of the wireless carriers, the Forster Ranch community presents an operational dilemma for all of the companies. As an upscale, affluent area, many of the high end services the wireless carriers offer will be in demand in this area. Yet, the lack of commercial area will make it difficult for the wireless carriers to provide service to this area.

One solution may be a Distributed Antenna System (DAS) network. A DAS network typically uses small antenna nodes placed on streetlights and other existing fixtures in the public right of way. Requiring the carriers to share the network reduces the number of antennas per carrier, though more nodes are needed to support the network.

This concept was recently brought before the Irvine Planning Commission for consideration within the Turtle Rock community. We continue to follow the resolution of the application to see how it could apply to this community, the benefits of the DAS network and any draw backs that may arise.

One of the benefits of the DAS network is that the underlying ground equipment that makes it difficult to find a place to locate these facilities can be placed combined and placed many miles away at another more appropriate facility.

Radio Frequency Engineering Methodologies

The following assumptions and data were used in modeling and calculating existing carrier coverage.

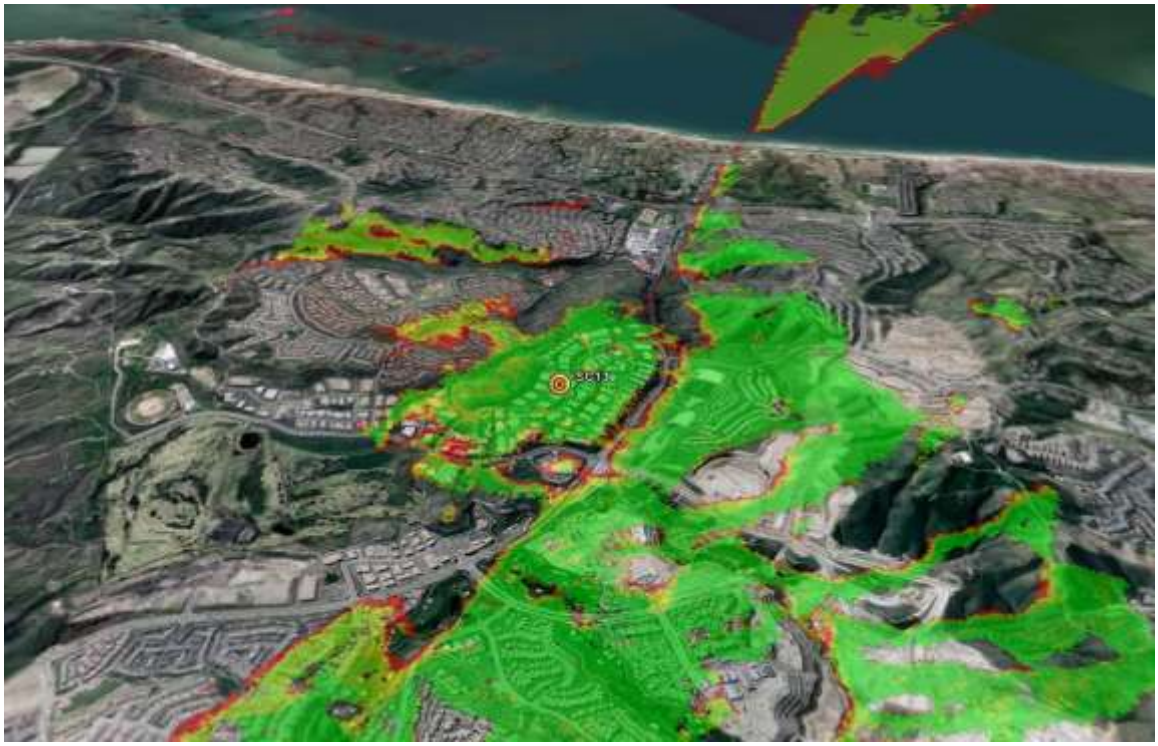
1. Known, recorded or estimated antenna heights.
2. Field verified Latitudes and Longitudes.
3. Carrier antenna orientations are not taken into account for the initial study.
4. A theoretical lobeless 16.8 dBi, 14.65dBd omni antenna is used for all propagations.
5. 1 meter elevation data is used.
6. 1 meter and 2 meter Satellite Ortho-Imagery is used.
7. 1 meter Clutter data was reviewed but not included as part of the propagation or path loss calculations.
8. The Okamura-Hata model is used.
9. Propagations are produced at 1.2 meter resolution.
10. Mitigation through electrical or mechanical down tilt, sectorization, narrow beam width or high gain antennas are not used for this initial.
11. Conservative coverage breakpoints are used at -84dBm Green, -89dBm Yellow and -94dBm Red.
12. Coverage shown should be the minimum attainable coverage for each site at the given height.
13. Receiver threshold is set at -100dBm.
14. Transmit power at 27.5dBm.
15. Cable and connector line loss is set at 2dB.
16. Minimum and maximum frequencies 1859MHz and 1950MHz and 800MHz to 866MHz.
17. Propagations are calculated for a mobile receiver variability of 90%.
18. Surface refractivity, ground conductivity, ground permittivity and climatic conditions are adjusted to tune the model.

Propagations were produced for each of the carriers, each on-air site and each potential fill in site as part of an initial comprehensive cursory analysis. The aim of this study is to not only determine the highest probability of reliable coverage for each network, but to determine in conjunction with this study how those carriers may be focusing on in both the short and long term as part of a growth strategy. Their growth strategy and this propagation should reflect the highest probability of areas where carriers will need to add additional sites to improve the overall footprint coverage and/or address capacity issues.

Assumptions for fill in sites were made based on existing wireless antenna locations and facilities, municipally owned properties and finally known existing commercial structures that may be available where neither of the previous two would meet the coverage criteria with a high degree of probability. Site RAD centers (antenna centerline mounting heights) were chosen to reflect probable availability of structure height to support those antennas with visual mitigation in mind.

Rings were drawn around those existing structures that best meet the coverage objective of filing in coverage for predicted footprint and capacity needs. Those rings reflect both, quarter mile and one-half mile distances. Quarter mile search rings are somewhat standard to design in the industry, however where sites that are located with minimum height availability the likelihood that any site located in that ring at the projected height will meet the coverage objective is greatly reduced. This is particularly true where the objective is relatively small and in the case of San Clemente the surrounding terrain provides a unique challenge to obtaining reasonably optimized coverage.

PROPOSED LOCATIONS FOR WIRELESS FACILITIES

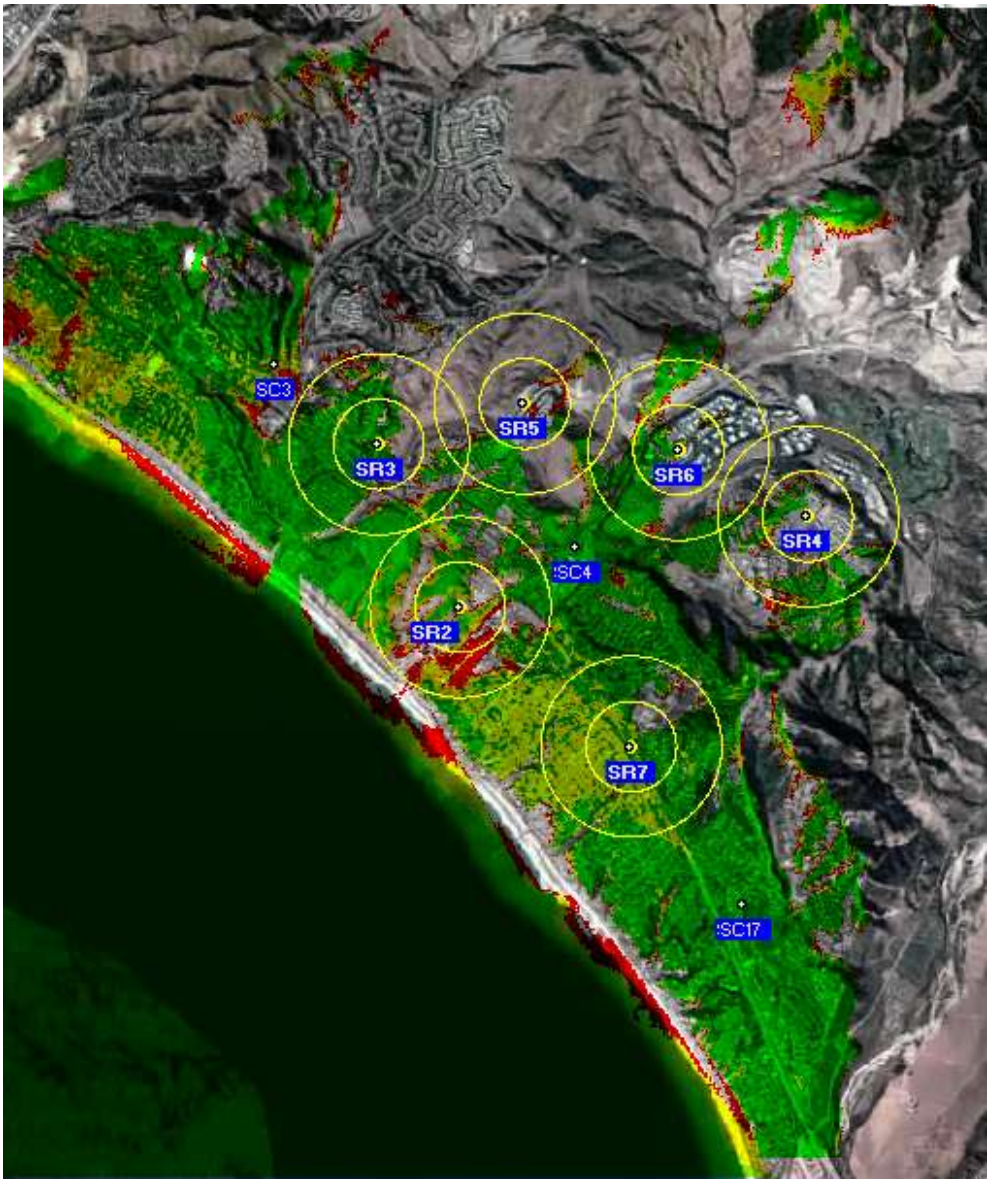


Radio frequencies scatter showing a flowing over the terrain result instead of a filling in result. As the landscape rises and sinks, mixing in varying heights of structures, coverage and lack of coverage occurs at places that do not seem comprehensible at ground level.

In developing the engineering propagation analysis, 8 search ring locations were identified based on coverage needs. Each site matched up with a minimum of 2 wireless carriers and as many as six. This takes into consideration that Sprint PCS and Nextel will keep their networks separate and Metro PCS is entering the Southern California market in 2007.

Considering additional consolidation in the Wireless Industry and other wireless carriers that could enter this market, the cellular landscape will continue to change over the next few years. Add to all of this the new services wireless carriers are offering and the transition of home phones from fixed line to wireless services and the need for antennas is still growing.

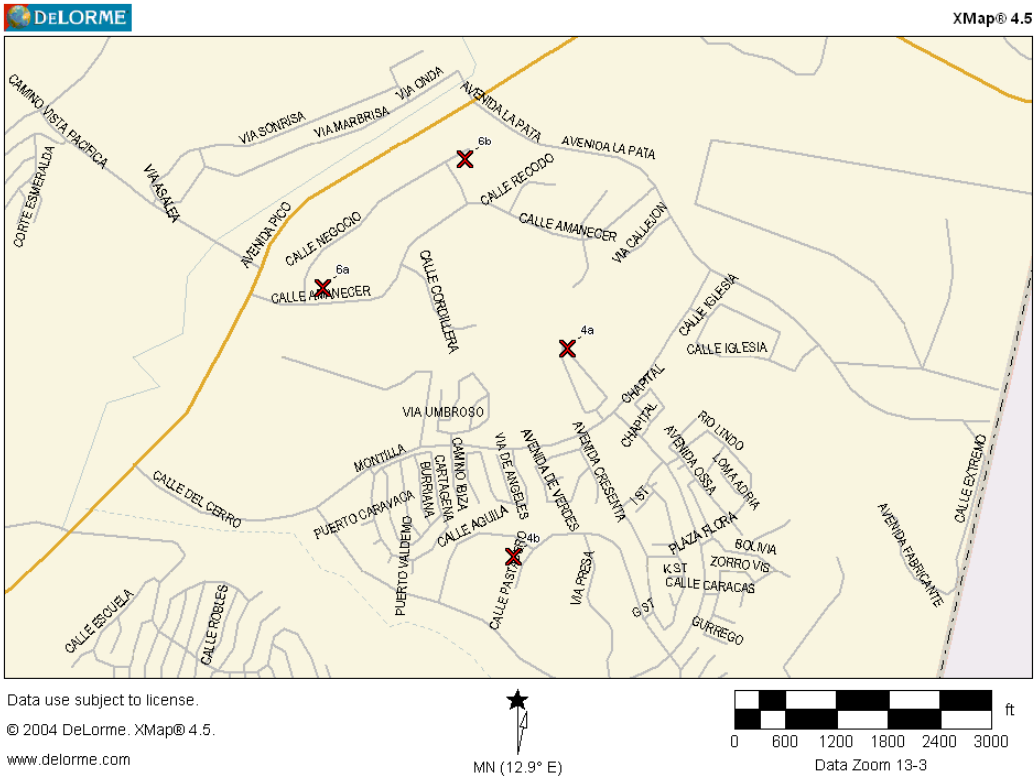
Search Rings & Candidates

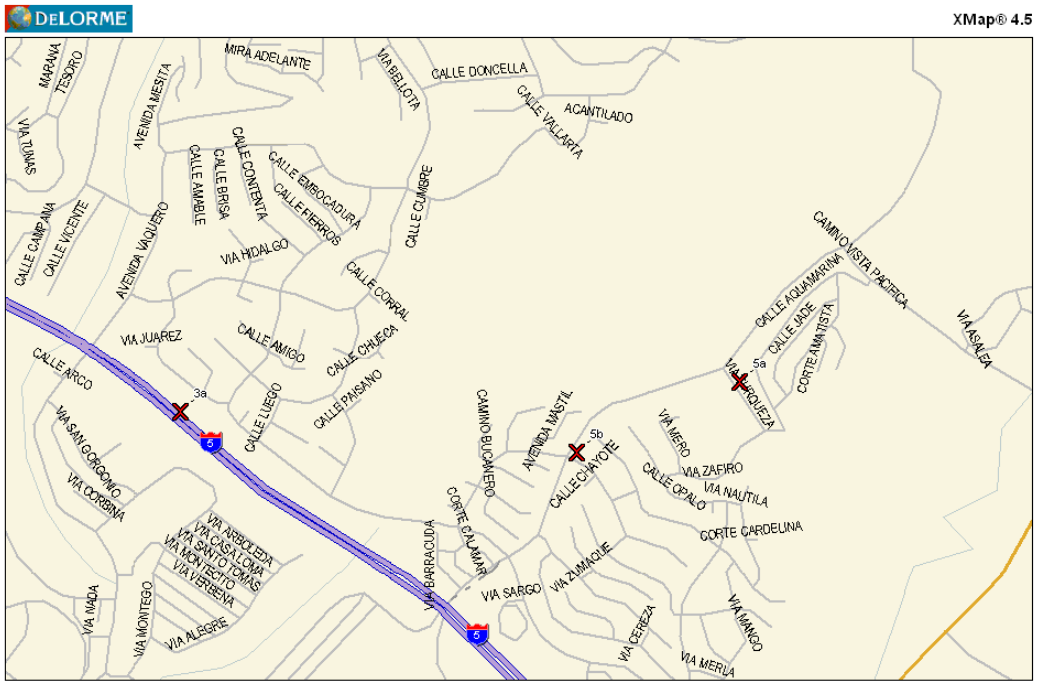


Search Ring	AT&T /Cingular	Metro PCS	Nextel	Sprint PCS	T-Mobile	Verizon Wireless	Primary Candidate	Secondary Candidate
SR1		X		X			No City-owned property	
SR2	X	X	X	X	X	X	CSC-691-011-14	CSC-057-020-51
SR3	X	X	X	X			CSC-691-211-02	
SR4	X	X	X		X	X	CSC-688-071-02	CSC-688-082-01
SR5	X	X	X	X	X	X	CSC-679-191-49	CSC-679-171-06
SR6		X	X		X	X	CSC-688-031-07	CSC-688-142-35
SR7		X	X			X	CSC-058-082-24	CSC-058-082-28
SR8	X	X	X	X	X	X	No City-owned property	

Prospective City Property Candidates

	SiteID	Latitude	Longitude	AMSL	Co Site ID	Site Address
2	CSC-691-011-14	33.43468	-117.629	100	San Clemente Utilities Division	380 & 390 Avenida Pico
3	CSC-691-211-02	33.45091	-117.64	195	San Gorgonio Park	2916 Via San Gorgonio
4a	CSC-688-071-02	33.44816	-117.597	597	Calle Cordillera Water Tank	1001 Calle Cordillera
4b	CSC-688-082-01	33.44154	-117.599	467	Rancho San Clemente Park	150 Calle Aguila
5	CSC-679-191-49	33.45179	-117.621	397	Marblehead Inland Park	2400 Via Turqueza
6a	CSC-688-031-07	33.45007	-117.606	301	City of San Clemente Negocio Offices	910 Calle Negocio
6b	CSC-688-142-35	33.45416	-117.601	370	City of San Clemente Negocio Offices	1030 Calle Negocio

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CALLE FIERROS
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CALLE CUMBRE
VIA HIDALGO
CALLE CORRAL
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VIA NAUTILA
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VIA ARBOLEDA
VIA CASA LOMA
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E CANADA
E ESCALONES
E MARIPOSA
E MARGUITA
E AVENIDA PALIZADA
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Candidate #2

Candidate #3

Candidate 4a

Candidate #4b

Candidate #5

Candidate #6a

Candidate #6b

APPENDIX 'B' - CELL SITE DESIGNS (for reference only)

The following section is provided for reference only and provides visual examples of the various cell site designs that are currently available in the Wireless Industry.

General Types of facility Sites

Antenna Mounting Systems:

- Whip Antenna
- Light Standard – Flush-mounted Antennas
- Flag Pole
- Monopole
- Lattice Tower
- Power Line Towers
- Water Tank
- Monopine
- Monopalm
- Mono-broadleaf
- Mono-broadleaf
- Lollypops (popsicles)
    - Faux Bush
- Building Façade Mounted Antennas
- "Stealth" Installations
    - Monuments
    - Faux Chimney
    - Faux Water Tank
    - Rooftop parapet
    - Rooftop Screen Walls
    - Steeple
    - Clock Tower
    - Cupola

Antenna Mounting Systems:

Parking Lot Light & Street Lights
Light Standards up to 40 feet in height with low profile/flush-mounted antennas, or antennas incorporated into a ray dome with a maximum diameter of 18" may be considered. Antennas should be painted to match the color of the structure. All cables should be concealed within the structure.

Ball Field Light Standards
Ball Field Type Light Standards up to 75 feet in height with either flush-mounted antennas (using low-profile mounting brackets) or screened antennas may be considered. Antennas should be painted to match the Light Standard and cables should be concealed inside the structure.

Flag Poles
Flag Pole(s) with antennas and cables may be mounted inside the structure and the ray-dome does (antenna covering) not exceed 18 inches in diameter may be considered. Pole must be able to fly a flag. A grouping of up to three Flag Poles may be allowed. Flag poles should not exceed the maximum height limit of the zone.

Monopoles
Monopoles – shall not be allowed. Co-location on existing monopoles should require that the monopole be replaced with a monotree type structure – subject to SB1627.

Lattice Towers
Lattice Towers – No new lattice tower type structures should be allowed. Co-location on an existing lattice type tower may be allowed providing the antennas are painted to match the structure and coaxial cables are run on the inside legs of the structure.

Power Line Towers
Power Line Towers – collocation on existing power line towers may be allowed, providing the antennas are mounted to the vertical structure when possible, using low-profile mounting brackets and coaxial cables are run inside the structure if possible, and the tower does not need to be altered in any other way structurally. If the tower structure cannot accommodate interior cables then the cables should be painted to match the color of the tower structure.

Water Tanks
Antennas mounted on existing water tanks that are flush-mounted with low-profile mounting brackets may be allowed. Antennas should be painted to match the color of the tank structure and mounting brackets should not be visible. Coaxial cables should be painted to match the color of the structure.

Antennas mounted on the top of the water tank structure should not be allowed.
Western Style Water Tanks (Water tank suspended above the ground on a lattice type support structure). Faux western style water tank structures should be allowed in appropriate settings. For example, on a golf course, adjacent to a facilities building.

Monopine (Wireless facility disguised as a pine tree)
Monopine structures should be designed for a minimum of two carriers.
The monopine should have at a minimum 3.1 branches per foot for full density coverage with limited spacing between the branches. 70 percent of the branches should be 8 feet or longer.
The height of a monopine structure should be comparable to the heights of existing or proposed natural pine trees in the vicinity of the installation.
Branch disbursement should be random so that longer branches and shorter branches are intermingled to give a natural appearance.
Branches should horizontally exceed all antennas by a minimum of 12 inches.
Branches should start at 15 feet above the ground.
There should be a minimum space of approximately five feet between the top of the antenna and the top of the faux tree. Actual space will be determined on the number and size of proposed antennas.
Branches should have an upward sweep similar to that of actual Canary Island Pines.
Branch foliage color should be an olive green with some brown "needles" to match an actual Canary Island Pine. The foliage should be extruded in the color instead of painted. A sample should be submitted for approval prior to fabrication.
A sample of bark cladding with a custom color should be submitted for approval prior to fabrication.
All antennas should be covered with "pine antenna socks" that match the approved foliage color.
Antennas are to be mounted using 'stand-off mounts" (horizontal, frame-type mounts are unacceptable). Support pipe mounts shall be concealed behind antennas and painted a darker shade or green (or black) with a "flat" paint finish to reduce reflection and visibility of the mounting.

All coaxial cables should be concealed within the pole structure and should access the structure through the base (caisson). Raised ice bridge or cable trays are unacceptable.

Monopalm (Wireless facility disguised as a palm tree)
The monopalm structure should be designed for two carriers (if possible). Typically, collocating a second wireless carrier requires monopalm designs where one set of antennas are mounted within the palm fronds and the second set of antennas are mounted within the pineapple (growth pod).
The height of a monopalm structure should be reasonably comparable to the heights of existing or proposed natural palm trees in the vicinity of the installation.
The monopalm structure should have a sufficient number of palm fronds to simulate a natural tree.
The antennas should be hidden in the growth pod and or the trunk of the monopalm.
There should be a minimum space of five feet between the top of the antennas and the top of the faux tree.
Branch foliage color should be an olive green with varying color "fronds" to match an actual palm type of tree. A sample should be submitted for approval prior to fabrication.
A sample of bark cladding with a custom color should be submitted for approval prior to fabrication.
All coaxial cables should be concealed within the "trunk" and should access the structure through the base. Raised ice bridge or cable trays are unacceptable.

Monobroadleaf (wireless facility disguised as a broadleaf tree)
The monobroadleaf structure should be designed for a minimum of two carriers.
The height of the mono-broadleaf structure should be comparable to the height of existing or proposed natural broadleaf vegetation within the vicinity of the installation.
The mono-broadleaf structure should have a sufficient branch count to conceal the presence of antennas.

Branch disbursement should be random so that longer branches and shorter branches are intermingled to give a natural appearance.
Branches should exceed all antennas by a minimum of 12 inches. Branches should start at 15 feet above the ground.
There should be a minimum space of five feet between the top of the antenna and the top of the faux tree.
Branch foliage color should be an olive green with varying color "leaves" to match an actual broadleaf type of tree. The foliage should be extruded in the color instead of painted. A sample should be submitted for approval prior to fabrication.
A sample of bark cladding with a custom color should be submitted for approval prior to fabrication.
All antennas should be covered with "leafed antenna socks" that match the approved foliage color.
Antennas are to be mounted using stand-off mounts (horizontal, frame-type mounts are unacceptable). Support pipe mounts shall be concealed behind antennas and painted a darker shade or green (or black) with a "flat" paint finish to reduce reflection and visibility of the mounting.
All coaxial cables should be concealed within the "trunk" and should access the structure through the base. Raised ice bridge or cable trays are unacceptable.

Lollipops (single antenna mounted on a single pole usually in a set of three or four antennas)
Lollipop type antenna installations should only be approved in instances where other types of "stealth" installations would be more intrusive by attracting more attention.
Lollipops should be installed below ridgelines to the best possible extent to reduce the profile of the antennas appearing above the top of a slope.
Cross braces between individual antenna poles add additional bulk to the installation and should be discouraged.
Antennas and their support poles should be painted with appropriate colors to match the surrounding environment.

Vegetation camouflage In cases where irrigation is available, natural shrubs or other vegetation should be planted behind the lollypop antennas to soften their appearance
Faux Bush (Modified Lollypop) In cases where irrigation is not available or impractical, faux foliage can be added to the lollypop to conceal the antennas while integrating the installation with the natural landscape.
All coaxial cables should be run underground from the supporting telecommunications equipment to the lollipop structures.
The height of the antennas from the natural grade should not exceed 15 feet for lollypops or 18 feet for faux bushes (allows for crown above the antenna).

Building Façade Mount Antenna
Patch antennas and antennas less than 1.5 square feet in surface area mounted to the façade of a building shall match the color and texture of the existing façade and shall be mounted flush to the building or mounted with low-profile brackets and skirted. The profile of the antennas shall not exceed 12".
Antennas measuring greater than 1.5 square feet in surface area mounted to the façade of any commercial building should be fully screened using materials that match the color and texture of the existing façade.
The antenna screening systems must be architecturally integrated to the best possible extent.
Antenna screens must be fully enclosed to prevent birds from nesting in the screen structures.
Façade mounted antennas and the screening should not exceed 18" from the face of the existing building and should be designed to the minimum depth technically feasible.
All coaxial cables must be concealed inside the structures walls or within conduits, chases or concealment type devises that are integrated into the architecture of the building to the best possible extent. No conduits or other concealment type devises shall be allowed on the façade of the building.

Stealth antenna installations

Monuments
Monument antenna installations must be an appropriate design for the environmental setting and the location.
The height of a monument installation should be sufficient to allow for two carriers if technically feasible and shall not exceed the maximum height limit of the zone.
Examples of monument type of installations include: • Obelisk • Arch • Cross • Marquee Tower

Faux Chimney
Wireless installations utilizing a faux chimney design should be allowed subject to the appropriateness of the application based on integration with the architecture of the existing building. The number, width, and depth of a faux chimney should balance the bulk and scale of the existing structure.
Faux Chimneys shall not exceed two feet above the maximum height limit of the zone.

Rooftop Parapets Antennas mounted inside parapet walls or parapet wall extensions should be allowed subject to the following:
Antennas installed within an existing parapet must be screened such that the screening material matches the color and texture of the existing parapet.
The height of any parapet extension shall not exceed the maximum height limit of the zone and shall not exceed five feet above the existing parapet.
The design of the parapet extension shall be such that it is architecturally integrated with the design of the existing building.
Parapet extensions shall be designed such that the antennas are screened on the back side.

Rooftop screening devices
Rooftop screen walls shall not exceed the maximum height limit of the zone.
Rooftop screen walls shall be screened on all sides.

Rooftop screen walls shall be set back from the edge of the roof a minimum of three feet.
Rooftop screen walls should be constructed to match or complement the color and texture the building's façade or decorative features.

Steeples
Antennas mounted inside existing steeples should be allowed, providing the antennas inside the steeple and are fully screened by materials that match the color and texture of the existing structure.
Any modification to the outward appearance to the steeple should require any modification to be architecturally integrated with the overall design of the structure.
New steeple construction on an existing structure shall not exceed the maximum height limit of the zone without a variance.

Clock Towers
Clock tower installations should be appropriate for the location and consistent with the environmental setting.
Clock tower installations should be designed for a minimum of two carriers.
The height of a clock tower installation shall not exceed the maximum height limit of the zone without a variance.

Cupolas
Cupolas shall not exceed the maximum height limit of the zone without a variance.
The design of the cupola shall be consistent with the architecture, texture and color of the existing structure.
Antennas shall be mounted within the cupola structure and completely concealed from view.
Cables connect the antennas to the accompanying radio transceiver equipment shall be concealed within the building.

Equipment Location & Screening systems:
All types of equipment installations should require all coaxial, telephone and electrical cables/wires to be concealed.

Equipment Vault
Should be encouraged for all wireless installations at park facilities, and parking lots. Equipment vaults should be required for all right-of-way installations, with the exception in areas where there is sufficient right of way space to accommodate an enclosure with appropriate landscaping or other screening materials.

Tenant Improvement
Should be encouraged for all wireless installations on existing buildings where sufficient space is available. If sufficient space is not available within the existing building structure, equipment room additions should be allowed subject to standard building codes and the design of the equipment room addition is consistent with the architecture of the existing building.

Prefabricated Equipment Shelters
Should be discouraged for most wireless installations applications. Prefabricated equipment shelters are sometimes utilized in commercial areas where the shelter is not visible from any public view.

Site Constructed Equipment Shelters
Should be encouraged providing the equipment shelter is architecturally integrated into the surrounding environment. The height of the equipment shelter should not exceed 10 feet for flat roofs and 14 feet for installations with peaked roofs. Air conditioning condensing units (A/C units) should be located on the ground adjacent to the structure or mounted in the roof. A/C units should be fully screened. A/C units should be selected that meet or exceed any noise ordinance requirements. Landscape standards should apply.

Outdoor Telecommunications Equipment Cabinets
Should be located within an equipment enclosure that has walls with sufficient height to completely conceal the equipment cabinets from any public view. Equipment enclosures should have lattice type covering to prevent unauthorized access. Landscape standards should apply.

Rooftop Equipment Platforms
Should be fully screened and, if possible integrated with a rooftop antenna installation. The height of the equipment screening shall not exceed 10 feet above the height limit for the underlying zone.

Examples of "Stealth" Cell Site Designs

Monopalm

The typical monopalm (left) has antennas positioned within the palm fronds painted green to reduce their visibility. The appearance of the antennas is greatly reduced but they are not fully concealed.

The Monopalm was conceived from a meeting of staff, a manufacturer of stealth cellular materials and ATS Communications to meet the design standards of the City. The Monopalm is designed to conceal the antennas in the growth pod that exists below the palm fronds. Another set of antennas can be hidden as a slim line design just below the growth pod. The palm fronds will be mottled in color to look realistic and the bark will be textured and colored to look realistic.

Monopalm

Monopine

A mono-tree design can be either a thin-needle mono-pine facility or a broad-leaf type of tree. The branches shall continue above the antennas and extend beyond the location of the antennas. In addition, the antennas themselves should be sleeved in covering of the leaf or needle material. The leaves or needles should be mottled in color.

Slim-line

Flag Pole

Cupola

Cupola

Façade

Watch Tower / Clock Tower

Slim line

Other designs

Ball Field Light Standards

30' LIGHT POLE WITH RADOME AND LIGHT ABOVE

60' LIGHT POLE WITH RADOME USING EXISTING POLE DIAMETER

Equipment Designs

Faux Bolder Equipment enclosure

Equipment Enclosure incorporated into a setting with a covered picnic area. **Equipment enclosure, buildings, or vaults should be built at a size that would accommodate a multiple number of carriers.**

APPENDIX 'C' Detailed Inventory of Cell Sites

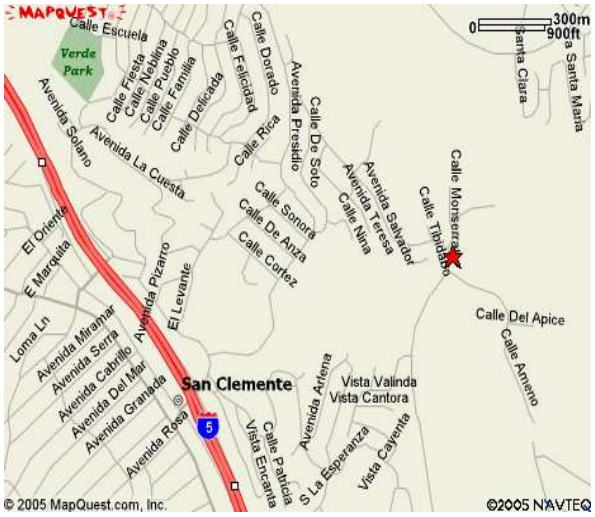
Wireless Facilities in San Clemente, CA

Page	Ownership	Address in San Clemente	Carrier	Property Name	Approval
135	Public	721 Avenida Salvador	Nextel	San Clemente Salvador Tower	2000
135	Public	721 Avenida Salvador	Sprint	San Clemente Salvador Tower	2001
135	Public	721 Avenida Salvador	MetroPCS	San Clemente Salvador Tower	2007
136	Private	119 Avenida De La Estrella	T-Mobile	San Clemente Presby. Church	1996
137	Private	675 Camino De Los Mares	AT&T/Cing	Ocean View Medical Center	1992
137	Private	675 Camino De Los Mares	Verizon	Ocean View Medical Center	1999
137	Private	675 Camino De Los Mares	Nextel	Ocean View Medical Center	1999
138	Private	2001 Calle Frontera	AT&T/Cing	St. Andrews by the Sea Church	1994
138	Private	2001 Calle Frontera	T-Mobile	St. Andrews by the Sea Church	1997
138	Private	2001 Calle Frontera	Verizon	St. Andrews by the Sea Church	1998
138	Private	2001 Calle Frontera	Sprint	St. Andrews by the Sea Church	2000
138	Private	2001 Calle Frontera	Nextel	St. Andrews by the Sea Church	2001
139	Private	170 Avenida La Pata	T-Mobile	San Clemente Self Storage	2001
139	Private	170 Avenida La Pata	AT&T/Cing	Rancho San Clemente BP	2002
140	Private	2441 S. El Camino Real	AT&T/Cing	Travelodge Hotel	1993
141	Private	3701 S. El Camino Real	Nextel	Comfort Suites	2002
142	Public	150 E Avenida Magdalena	T-Mobile	San Clemente City Golf Course	1996
142	Public	150 E Avenida Magdalena	Verizon	San Clemente City Golf Course	2003
143	Public	247 Avenida La Pata	Sprint	Steed Park	2003
144	Public	2916 Via San Gorgonio	T-Mobile	San Gorgonio Park	1996
144	Public	2916 Via San Gorgonio	MetroPCS	San Gorgonio Park	pending
144	Public	2916 Via San Gorgonio	Verizon	San Gorgonio Park	1998
145	Public	2999 Calle Andalucia	Sprint	City Water Tank	1991
146	Private	1020 Calle Recodo	Nextel	Don Roberto Building	1999
147	Private	300 S. El Camino Real	AT&T/Cing	Jack Selcer Trust	2004
148	Private	3168 Inclinado	T-Mobile	Bill Carpenter	1999
148	Private	3168 Inclinado	AT&T/Cing	Bill Carpenter	2002
149	Private	951 Calle Amancer	Sprint	ICU Medical Center	2001
150	Private	3000 Calle Nuevo	Sprint	Shorecliff Mobile Home Park	2004
150	Private	3000 Calle Nuevo	Verizon	Shorecliff Mobile Home Park	2004
151	Public	2401 1/2 Del Ave Presidente	AT&T/Cing	Public Right of Way	1994

San Clemente Tower @ 721 Avenida Salvador

Site View

Area Map



Last Update: March 2005
Site Name: San Clemente Tower

Site Number: CSC-057-232-10

Coordinates: Lat: 33.43219
Long: -117.60084

Coord. System: ■ NAD27

Site Address: 721 Avenida Salvador
San Clemente, CA 92672

Site County: Orange

Built: 1995

Property Type: Raw Land

Elevation: 804 feet (AMSL)

Tower Ht.: 72 feet (AGL)

Tower Type: Self Supporting Lattice

Tower Load: 30% availability

Line of Sight: Yes – 220 degrees

Connectivity: Telco – Pac Bell

Existing Carriers: Nextel, Sprint, MetroPCS

FAA File No.: Available on request

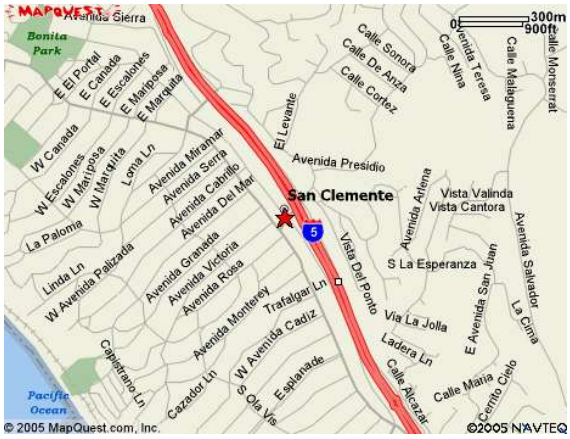
FCC Reg. No.: Available on request

P.O.C. ATS Communications

San Clemente Presbyterian Church

Site View

Area Map

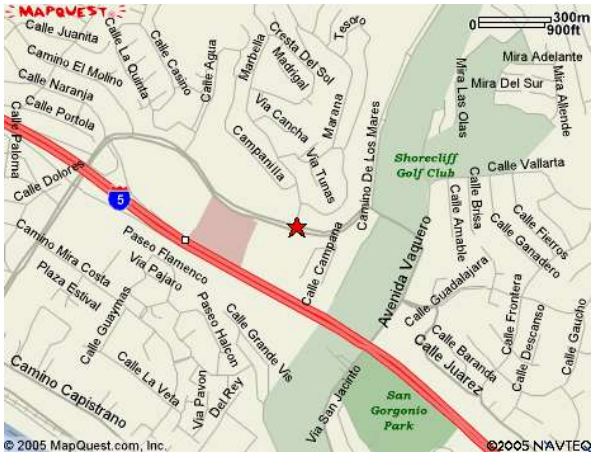


Last Update:	**March 2005**
Site Name: Church	**San Clemente Presbyterian**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.42814** **Long: -117.61169**
Coord. System:	**■ NAD27**
Site Address:	**119 Avenida De La Estrella** **San Clemente, CA 92672**
Site County:	**Orange**
Built:	**1996**
Property Type:	**Church Bell Tower**
Elevation:	**322 feet (AMSL)**
Roof Ht.:	**75 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 360 degrees**
Connectivity:	**Telco – Pac Bell**
Existing Carriers:	**Nextel and T- Mobile**
FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**San Clemente Presbyterian Church**

Ocean View Medical Center

Site View

Area Map



Last Update:	**March 2005**
Site Name:	**Ocean View Medical Center**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.45660** **Long: -117.64593**
Coord. System:	**■ NAD27**
Site Address:	**675 Camino De Los Mares** **San Clemente, CA 92673**
Site County:	**Orange**
Built:	**1992**
Property Type: **Improvement**	**Roof Top – Tenant**
Elevation:	**194' feet (AMSL)**
Roof Ht.:	**80 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 220 degrees**
Connectivity:	**Telco – Pac Bell**

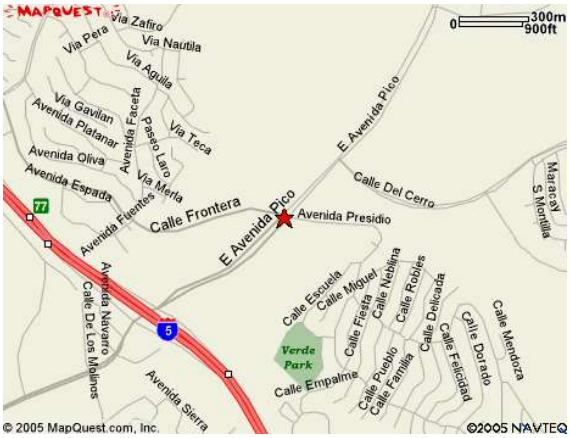
Existing Carriers: Nextel - 6 Ant. (active) – Indoor TI Penthouse Metricom (inactive) - Removed AT&T -4 Ant. (active) – Indoor 3rd Floor TI Cox -2 Ant. (active) – Outdoor Rooftop 3 Cabinets Lodestar – (inactive) – 1 omni antenna

FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**American Tower**

St. Andrews
By The Sea Church

Site View

Area Map



Last Update:	**April 2005**
Site Name: Chruch	**St. Andrews by the Sea**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.44154** **Long: -117.62093**
Coord. System:	**■ NAD27**
Site Address:	**2001 Calle Frontera** **San Clemente, CA 92673**
Site County:	**Orange**
Built:	**1994**
Property Type:	**Stealth design within cross**
Elevation:	**192 feet (AMSL)**
Structure Ht.:	**35 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 220 degrees**
Connectivity:	**Telco – Pac Bell**

Existing Carriers: AT&T/Cingular, Nextel, Sprint PCS, T-Mobile and Verizon Wireless.

FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**St. Andrews By The Sea Church**

San Clemente Self Storage

Site View

Area Map

Last Update:	**April 2005**
Site Name:	**San Clemente Self Storage**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.45349** **Long: -117.59279**
Coord. System:	**■ NAD27**
Site Address:	**170 Avenida La Pata** **San Clemente, CA 92673**
Site County:	**Orange**
Built:	**2002**
Property Type:	**Cupola**
Elevation:	**402 feet (AMSL)**
Roof Ht.:	**35 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 220 degrees**
Connectivity:	**Telco – Pac Bell**
Existing Carriers:	**AT&T(Cingular)**
FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**On-site property management**

Travelodge Hotel

Site View

Area Map

Last Update:	**January 2005**
Site Name:	**Travelodge Hotel**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.41080** **Long: -117.59944**
Coord. System:	**■ NAD27**
Site Address:	**2441 S. El Camino Real** **San Clemente, CA 92672**
Site County:	**Orange**
Built:	**1993**
Property Type:	**Roof top installation**
Elevation:	**179 feet (AMSL)**
Roof Ht.:	**50 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 220 degrees**
Connectivity:	**Telco – Pac Bell**
Existing Carriers:	**AT&T/Cingular**
FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**On-site property management**

Comfort Suites

Site View

Area Map

Last Update:	**April 2005**
Site Name:	**Comfort Suites**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.39936** **Long: -117.59377**
Coord. System:	**■ NAD27**
Site Address:	**3701 S. El Camino Real** **San Clemente, CA 92672**
Site County:	**Orange**
Built:	**2002**
Property Type:	**Roof top installation**
Elevation:	**133 feet (AMSL)**
Roof Ht.:	**50 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 180 degrees**
Connectivity:	**Telco – Pac Bell**
Existing Carriers:	**Nextel**
FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**On-site property management**

San Clemente Municipal Golf Course

Site View

Area Map

Last Update:	**May 2005**
Site Name:	**San Clemente Golf Course**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.41003** **Long: -117.59695**
Coord. System:	**■ NAD27**
Site Address:	**150 E. Avenida Magdalena** **San Clemente, CA 92672**
Site County:	**Orange**
Built:	**1996**
Property Type:	**Monopole**
Elevation:	**195 feet (AMSL)**
Structure Ht.:	**65 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 360 degrees**
Connectivity:	**Telco – Pac Bell**
Existing Carriers:	**T-Mobile and Verizon Wireless**
FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**ATS Communications**

Steed Municipal Park

Site View

Area Map

Last Update: April 2005

Site Name: Steed Municipal Park

Site Number: Not applicable

Coordinates: Lat: 33.44460
Long: -117.58204

Coord. System: ■ NAD27

Site Address: 247 Avenida La Pata
San Clemente, CA 92673

Site County: Orange

Built: 2003

Property Type: Monopole (Ball Filed Light Standard)

Elevation: 441 feet (AMSL)

Structure Ht.: 54 feet (AGL)

Tower Type: NA

Tower Load: NA

Line of Sight: Yes – 360 degrees

Connectivity: Telco – Pac Bell

Existing Carriers: Sprint PCS

FAA File No.: Available on request

FCC Reg. No.: Available on request

P.O.C. ATS Communications

San Gorgonio Municipal Park

Site View

Area Map

Last Update:	**April 2005**
Site Name:	**San Gorgonio Municipal Park**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.45061** **Long: -117.64197**
Coord. System:	**■ NAD27**
Site Address:	**2916 Via San Gorgonio** **San Clemente, CA 92672**
Site County:	**Orange**
Built:	**1998**
Property Type:	**Monopole (Ball Field Light Standard)**
Elevation:	**186 feet (AMSL)**
Structure Ht.:	**50 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 360 degrees**
Connectivity:	**Telco – Pac Bell**

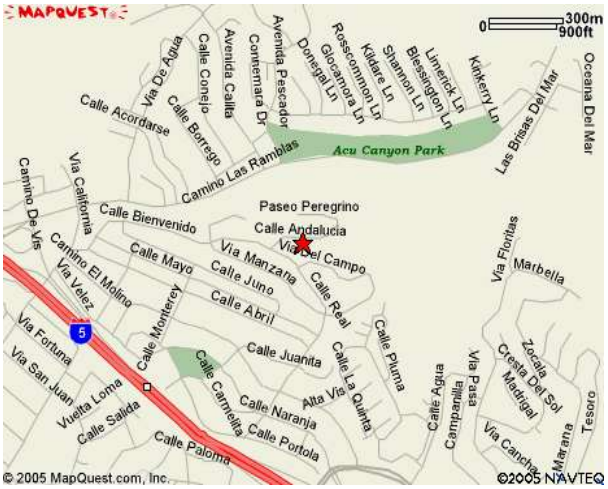
Existing Carriers: T-Mobile, Verizon Wireless, MetroPCS (pending)

FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**ATS Communications**

Andalucia Municipal Water Tank

Site View

Area Map



Last Update: April 2005

Site Name: Andalucia Municipal Water Tank

Site Number: Not applicable

Coordinates: Lat: 33.46766
Long: -117.65371

Coord. System: ■ NAD27

Site Address: 2999 Calle Andalucia
San Clemente, CA 92673

Site County: Orange

Built: 1991

Property Type: Monopalm

Elevation: 596 feet (AMSL)

Structure Ht.: 30 feet (AGL)

Tower Type: NA

Tower Load: NA

Line of Sight: Yes – 360 degrees

Connectivity: Telco – Pac Bell

Existing Carriers: Sprint

FAA File No.: Available on request

FCC Reg. No.: Available on request

P.O.C. ATS Communications

Don Roberto Building

Site View

Area Map

Last Update:	**April 2005**
Site Name:	**Don Roberto Building**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.45293** **Long: -117.59826**
Coord. System:	**■ NAD27**
Site Address:	**1020 Calle Recodo** **San Clemente, CA 92673**
Site County:	**Orange**
Built:	**1999**
Property Type:	**Façade Installation**
Elevation:	**436 feet (AMSL)**
Roof Ht.:	**40 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 270 degrees**
Connectivity:	**Telco – Pac Bell**
Existing Carriers:	**Nextel**
FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**On-site property management**

300 S. El Camino Building

Site View

Area Map

Last Update:	**May 2005**
Site Name:	**300 S. El Camino Building**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.42629** **Long: -117.61063**
Coord. System:	**■ NAD27**
Site Address:	**300 S. El Camino Real** **San Clemente, CA 92672**
Site County:	**Orange**
Built:	**2004**
Property Type:	**Roof top installation**
Elevation:	**344 feet (AMSL)**
Roof Ht.:	**40 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 360 degrees**
Connectivity:	**Telco – Pac Bell**

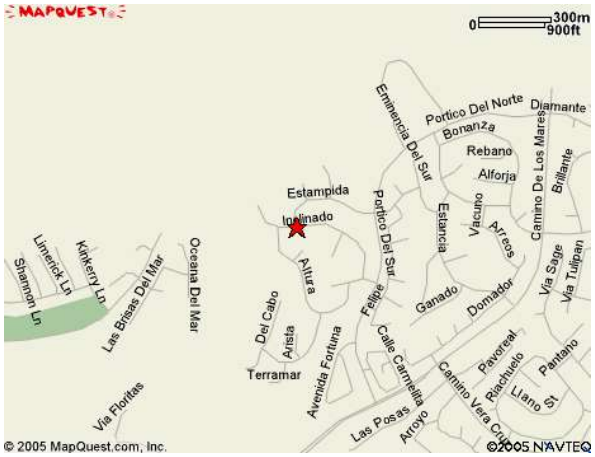
Existing Carriers: AT&T (Cingular)

FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**Selcer & Selcer**

3168 Inclinado Residence

Site View

Area Map



Last Update: April 2005

Site Name: Property

Site Number: Not applicable

Coordinates: Lat: 33.41080
Long: -117.59944

Coord. System: ■ NAD27

Site Address: 3168 Inclinado
San Clemente, CA 92673

Site County: Orange

Built: 1999

Property Type: Poll-mount (Lollipop)

Elevation: 277 feet (AMSL)

Structure Ht.: 10 feet (AGL)

Tower Type: NA

Tower Load: NA

Line of Sight: Yes – 270 degrees

Connectivity: Telco – Pac Bell

Existing Carriers: AT&T(Cingular) and T-Mobile

FAA File No.: Available on request

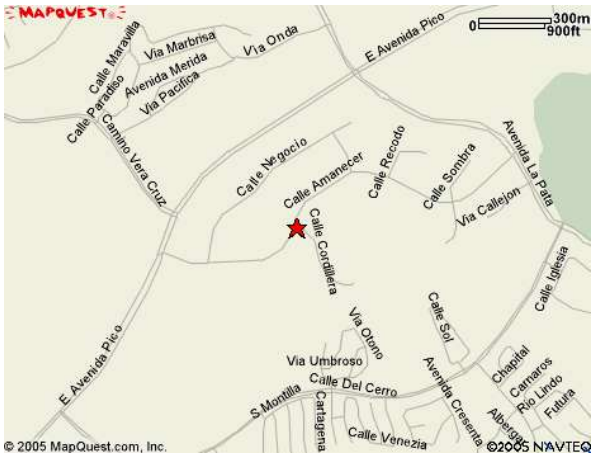
FCC Reg. No.: Available on request

P.O.C. Bill Carpenter

ICU Medical Building

Site View

Area Map



Last Update:	**April 2005**
Site Name:	**ICU Medical Building**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.45093** **Long: -117.60220**
Coord. System:	**■ NAD27**
Site Address:	**951 Calle Amancer** **San Clemente, CA 92673**
Site County:	**Orange**
Built:	**2001**
Property Type:	**Façade installation**
Elevation:	**413 feet (AMSL)**
Roof Ht.:	**40 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes – 270 degrees**
Connectivity:	**Telco – Pac Bell**

Existing Carriers: Sprint PCS

FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**San Clemente Business Park**

Shorecliff Mobile Home Park

Site View

Area Map

Last Update:	**May 2005**
Site Name:	**Shorecliff Mobile Home Park**
Site Number:	**Not applicable**
Coordinates:	**Lat: 33.46183** **Long: -117.63582**
Coord. System:	**■ NAD27**
Site Address:	**3000 Calle Nuevo** **San Clemente, CA 92673**
Site County:	**Orange**
Built:	**2004**
Property Type:	**Monopine installation**
Elevation:	**352 feet (AMSL)**
Structure Ht.:	**40 feet (AGL)**
Tower Type:	**NA**
Tower Load:	**NA**
Line of Sight:	**Yes –360 degrees**
Connectivity:	**Telco – Pac Bell**

Existing Carriers: Sprint and Verizon Wireless

FAA File No.:	**Available on request**
FCC Reg. No.:	**Available on request**
P.O.C.	**Shorecliff Mobile Home Park**

Del Presidente Public Right-of-Way site

Site View

Area Map

Last Update: September 2005

Site Name: Del Presidente Public Right of Way

Site Number: Not applicable

Coordinates: Lat: 33.
Long: -117.

Coord. System: ■ NAD27

Site Address: 2401 ½ Del Ave Presidente
San Clemente, CA 92673

Site County: Orange

Built: 1994

Property Type: Public right-of-way installation on power pole.

Elevation: 160 feet (AMSL)

Structure Ht.: 35 feet (AGL)

Tower Type: NA

Tower Load: NA

Line of Sight: Yes –360 degrees

Connectivity:

Existing Carriers: AT&T (Cingular)

FAA File No.: Available on request

FCC Reg. No.: Available on request

P.O.C. ATS Communications

REFERENCE

NLCD Land Cover Class Definitions

NOTE - All Classes May NOT Be Represented in a specific state data set.
The class number represents the digital value of the class in the data set.

NLCD Land Cover Classification System Key - Rev. July 20, 1999

Water
- 11 Open Water
- 12 Perennial Ice/Snow

Developed
- 21 Low Intensity Residential
- 22 High Intensity Residential
- 23 Commercial/Industrial/Transportation

Barren
- 31 Bare Rock/Sand/Clay
- 32 Quarries/Strip Mines/Gravel Pits
- 33 Transitional

Forested Upland
- 41 Deciduous Forest
- 42 Evergreen Forest
- 43 Mixed Forest

Shrubland
- 51 Shrubland

Non-natural Woody
- 61 Orchards/Vineyards/Other

Herbaceous Upland
- 71 Grasslands/Herbaceous

Herbaceous Planted/Cultivated
- 81 Pasture/Hay
- 82 Row Crops
- 83 Small Grains
- 84 Fallow
- 85 Urban/Recreational Grasses

Wetlands
- 91 Woody Wetlands
- 92 Emergent Herbaceous Wetlands

NLCD Land Cover Classification System Land Cover Class Definitions

Water - All areas of open water or permanent ice/snow cover.

11. Open Water - All areas of open water; typically 25 percent or greater cover of water (per pixel).

12. Perennial Ice/Snow - All areas characterized by year-long cover of ice and/or snow.

Developed - Areas characterized by a high percentage (30 percent or greater) of constructed materials (e.g. asphalt, concrete, buildings, etc).

21. Low Intensity Residential - Includes areas with a mixture of constructed materials and vegetation. Constructed materials account for 30-80 percent of the cover. Vegetation may account for 20 to 70 percent of the cover. These areas most commonly include single-family housing units. Population densities will be lower than in high intensity residential areas.

22. High Intensity Residential - Includes highly developed areas where people reside in high numbers. Examples include apartment complexes and row houses. Vegetation accounts for less than 20 percent of the cover.
Constructed materials account for 80 to100 percent of the cover.

23. Commercial/Industrial/Transportation - Includes infrastructure (e.g. roads, railroads, etc.) and all highly developed areas not classified as High Intensity Residential.

Barren - Areas characterized by bare rock, gravel, sand, silt, clay, or other earthen material, with little or no "green" vegetation present regardless of its inherent ability to support life. Vegetation, if present, is more widely spaced and scrubby than that in the "green" vegetated categories; lichen cover may be extensive.

31. Bare Rock/Sand/Clay - Prennially barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, beaches, and other accumulations of earthen material.

32. Quarries/Strip Mines/Gravel Pits - Areas of extractive mining activities with significant surface expression.

33. Transitional - Areas of sparse vegetative cover (less than 25 percent of cover) that are dynamically changing from one land cover to another, often because of land use activities. Examples include forest clearcuts, a transition phase between forest and agricultural land, the temporary clearing of vegetation, and changes due to natural causes (e.g. fire, flood, etc.).

Forested Upland - Areas characterized by tree cover (natural or semi-natural woody vegetation, generally greater than 6 meters tall); tree canopy accounts for 25-100 percent of the cover.

41. Deciduous Forest - Areas dominated by trees where 75 percent or more of the tree species shed foliage simultaneously in response to seasonal change.

42. Evergreen Forest - Areas dominated by trees where 75 percent or more of the tree species maintain their leaves all year. Canopy is never without green foliage.

43. Mixed Forest - Areas dominated by trees where neither deciduous nor evergreen species represent more than 75 percent of the cover present.

Shrubland - Areas characterized by natural or semi-natural woody vegetation with aerial stems, generally less than 6 meters tall, with individuals or clumps not touching to interlocking. Both evergreen and deciduous species of true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions are included.

51. Shrubland - Areas dominated by shrubs; shrub canopy accounts for 25-100 percent of the cover. Shrub cover is generally greater than 25 percent when tree cover is less than 25 percent. Shrub cover may be less than 25 percent in cases when the cover of other life forms (e.g. herbaceous or tree) is less than 25 percent and shrubs cover exceeds the cover of the other life forms.

Non-natural Woody - Areas dominated by non-natural woody vegetation; non-natural woody vegetative canopy accounts for 25-100 percent of the cover. The non-natural woody classification is subject to the availability of sufficient ancillary data to differentiate non-natural woody vegetation from natural woody vegetation.

61. Orchards/Vineyards/Other - Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Herbaceous Upland - Upland areas characterized by natural or semi-natural herbaceous vegetation; herbaceous vegetation accounts for 75-100 percent of the cover.

71. Grasslands/Herbaceous - Areas dominated by upland grasses and forbs. In rare cases, herbaceous cover is less than 25 percent, but exceeds the combined cover of the woody species present. These areas are not subject to intensive management, but they are often utilized for grazing.

Planted/Cultivated - Areas characterized by herbaceous vegetation that has been planted or is intensively managed for the production of food, feed, or fiber; or is maintained in developed settings for specific purposes.
Herbaceous vegetation accounts for 75-100 percent of the cover.

81. Pasture/Hay - Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops.

82. Row Crops - Areas used for the production of crops, such as corn, soybeans, vegetables, tobacco, and cotton.

83. Small Grains - Areas used for the production of graminoid crops such as wheat, barley, oats, and rice.

84. Fallow - Areas used for the production of crops that are temporarily barren or with sarse vegetative cover as a result of being tilled in a management practice that incorporates prescribed alternation between cropping and tillage.

85. Urban/Recreational Grasses - Vegetation (primarily grasses) planted in developed settings for recreation, erosion control, or aesthetic purposes.
Examples include parks, lawns, golf courses, airport grasses, and industrial site grasses.

90. Wetlands - Areas where the soil or substrate is periodically saturated with or covered with water as defined by Cowardin et al.

Woody Wetlands - Areas where forest or shrubland vegetation accounts for 25-100 percent of the cover and the soil or substrate is periodically saturated with or covered with water.

92. Emergent Herbaceous Wetlands - Areas where perennial herbaceous vegetation accounts for 75-100 percent of the cover and the soil or substrate is periodically saturated with or covered with water.

Reference

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitat of the United States, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C.