

Date: 12/5/08

**Subject:**     **Executive Summary:** Alternative site study for purposes of settlement discussion between Sprint/Nextel (“Sprint”) and County of San Mateo with respect to a denied Use Permit renewal for operation of an existing cellular communications facility consisting of two (2) 13-foot tall monopoles and one (1) equipment enclosure measuring 18 feet by 15 feet located in the rear yard of the residential property located at 1175 Palomar Drive in the unincorporated Palomar Park area of San Mateo County (“Cell Site”).

County File No.: PLN2000-00497 (Sprint/Nextel)

## **OVERVIEW**

As part of the parties’ ongoing confidential settlement negotiations, the County has requested that Sprint provide an additional alternative site study for the Cell Site highlighting the potential impacts that removal or relocation of the Cell Site would have on coverage and public safety. On October 30 2008, Sprint RF Engineer Chris Cubanske and Sprint Project Manager Greg Altomare re-evaluated the search area for possible additional alternative candidates. To facilitate this evaluation, additional data was collected to augment the initial report provided by Sprint’s site acquisition staff from NSA Wireless, Inc., dated October 9, 2007. Sprint also conducted field evaluations in search of alternative candidates that would provide the same level of service as currently existing. The investigation resulted in the following alternatives analysis.

## **BACKGROUND**

The Cell Site is an existing on-air site located on residential property at 1175 Palomar Drive, Redwood City, California, atop a hill overlooking Edgewood Road to the west, and Cordilleras Road to the east. The Cell Site was constructed and landscaped so as to have little to no visual impact on the surrounding properties or neighborhood. The existing Cell Site cannot be seen from Edgewood Road or the residential development at the Edgewood Drive/Crestview Drive intersection, including Fleetwood Drive and Edmond Drive (see Photos 1 and 2). Sprint’s wireless CDMA service currently exists to the west via a wireless facility located at #17 PG&E tower, located north of Edgewood Road at Highway 280, and to the east via a Sprint telecommunication site located at 170 Alameda de Las Pulgas. The Cell Site is positioned directly in-between these two sites and provides for successful call completion and hand-off.

The Cell Site provides coverage for three specific geographic areas: Sector A, Sector B, and Sector C. Sector A provides coverage to the residential areas directly to the north of the site, bordered by Brittan Avenue and Crestview Drive. Currently, Sector A routes, on average, 264 successfully completed calls (“SCC”) per day and 680 minutes of usage (“MOU”) per day through the Cell Site. Sector B provides contiguous coverage from the PG&E tower on Edgewood Road to the west, covering Highway 280 (see Photo 3). Sector B routes, on average, 203 SCC and 625 MOU per day through the Cell Site. Sector C provides contiguous coverage along Edgewood Road to Cordilleras Road and beyond (see Photo 4). Sector C usage averages 2,215 SCC and 5,462 MOU per day. This high level of usage underscores the significant negative impacts that would result if the Cell Site were removed, a fact also illustrated by the coverage maps that Sprint submitted to the County during the zoning appeals process which depicts Sprint’s coverage both with and without the Cell Site, thereby outlining the poor coverage that would result if the existing Cell Site were removed. In addition to the impact on daily usage, removing the existing Cell Site would preclude access to necessary emergency services. The Cell Site averages four (4) E-911 calls per month; if the Cell Site were removed, these critical calls could not be completed. Thus, there are significant coverage and public safety implications associated with the removal of the Cell Site.

## **ALTERNATIVES ANALYSIS**

### **Candidate One: The Mormon Church Located at 1475 Edgewood Road**

This site is at the entrance to Palomar Park at Scenic Drive. The site is approximately 500 feet below the existing Cell Site and would not be a viable candidate to replace the existing Cell Site.

In terms of coverage, this candidate would provide less than 25% of the coverage currently provided by the existing Cell Site. The candidate sits at a substantially lower elevation than the current Cell Site. As a result of this lower elevation, the candidate could not replace coverage for Sectors A and B. Further, because of the easterly location and lower elevation, the candidate could not provide coverage along the entire length of Edgewood Drive. Even if Sprint constructed a 75 foot tower at the candidate location, coverage would drop around Crestview Drive, leaving a coverage gap between Crestwood Drive and Highway 280. Thus, at best, this candidate could merely serve as a partial replacement for Sector C.

In terms of visual impacts, a 75 foot pole or tower would provide a much more visible impact than the existing Cell Site, especially to the surrounding residential communities. This is not, however, the only visual drawback that would arise from using this location: because of the candidate’s inability to replace coverage for Sectors A and C, Sprint would have to place additional antennae to compensate for the lost coverage, which would result in additional visual impacts.

Finally, in terms of cost, this alternative is significantly inferior to the existing Cell Site. While the candidate does have existing vehicular access for construction and maintenance, to operate at this location Sprint would have to construct a new structure and locate new equipment, all of which typically costs between \$100,000 and \$150,000. In addition, because multiple sites would be needed to approximate the existing coverage, the final costs could ultimately be double or triple the amounts estimated above.

### **Candidate Two: The Medical Building Located on Edmonds Drive**

This site is next to the Cal Fire County Engine House #18 (previously known as the California Department of Forestry). This site is also approximately 500 feet below the existing Cell Site and would not be a viable candidate to replace the existing Cell Site.

In terms of coverage, this candidate would also provide less than 25% of the coverage of the existing Cell Site. While the candidate location does have a flagpole at the top of the Engine House, the pole would need to be replaced and raised to a total height of approximately 150 feet. Even with the increased pole height, however, like Candidate One, the lower elevation prevents this candidate from replacing coverage for much of Sectors A and C. Thus, this candidate location could merely serve as a potential replacement for Sector B. However, because of the close proximity of this candidate to the existing facility at the PG&E tower #17 located next to Highway 280 and Edgewood Road, even the coverage benefits with respect to Sector B would be severely diminished.

In terms of visual impacts, a pole or tower extending to a height of 150 feet would have obvious visual impacts to the residential communities around and above the site, as well as to vehicles traveling along Edgewood Road. As with Candidate One, this candidate's inability to replace coverage for Sectors A and C would force Sprint to construct multiple sites, thereby increasing the visual impact of using this location.

Finally, in terms of cost, this alternative is also markedly inferior to the existing Cell Site. While the candidate does have existing vehicular access for construction and maintenance, to operate at this location Sprint would have to construct a new structure and locate new equipment, all of which typically costs between \$100,000 and \$150,000. In addition, because multiple sites would be needed to approximate the existing coverage, the final costs could ultimately be double or triple the amounts estimated above.

### **Candidate Three: The Clifford K-8 School Located at Scenic Drive**

This is a single story building located at approximately the same elevation as Edgewood Road. Like the other Candidates, this site is also approximately 500 feet below the existing Cell Site and would not be a viable candidate to replace the existing Cell Site.

Even if Sprint installed a pole or tower to a height of 100 to 150 feet, this location would provide replacement coverage for less than 25% of Sector A, and only a portion of Sector C. Further, the easterly location prevents this site from providing replacement coverage for the entirety of Sector B. Thus, in terms of coverage, assuming the installation of a 100 to 150 foot tower, this candidate would still provide only a very small percentage of the coverage that the existing Cell Site provides.

Visual impacts and costs would be similar to those of Candidate One. However, it is worth noting that a 100 to 150 foot pole or tower at the elementary school would have obvious visual impacts to the school students, employees, and surrounding neighborhood.

### **Candidate Four: The Palomar Park Open Space Location**

This location is a public open space park area, consisting of undeveloped, raw land. Like the other Candidates, this site would not be a viable candidate to replace the existing Cell Site.

In terms of coverage, by placing a monopole of approximately 50 feet on top of the hill above the public parking lot off of Edgewood Road, this candidate could potentially replace a substantial percentage of Sprint's current coverage. Specifically, with a 50 foot monopole, this site could provide replacement coverage for much of Sectors B and C, and at least a portion of Sector A.

While coverage would be superior to the first three Candidate sites, in terms of visual impacts and costs, this site is extremely impractical. Unlike the other candidates, this site has no vehicular access or utilities to the proposed pole location. Accordingly, all utilities would have to be brought in from Edgewood Road via an underground trench, and a vehicular access road would have to be built from Edgewood Road. The roadway would need to be approximately 1,000 feet long. Typical construction costs for utility trenching can be \$35 a foot, and a paved road with switchbacks, erosion control and fire engine turnaround could cost \$50 a foot. Thus, in addition to the typical cell site construction costs (approximately \$100,000 – \$150,000), this location would cost Sprint an additional \$85 - \$100,000. Looking beyond the substantial cost issues, the paved road, utility trenching and communications tower would have a significant visual impact on the public open space park area. And, unlike the current Cell Site, the visual impacts associated with this location would be seen by all the surrounding residential communities.

## CONCLUSION

The Sprint site at 1175 Palomar Drive provides important wireless voice and data service and critical E-911 emergency calling capabilities to a major San Mateo County thoroughfare, Edgewood Road. This site also provides “good” in-building coverage to the Palomar Park and Crestview neighborhood. The nature of wireless technology is constantly evolving from mobile phone applications to data service; mobile phones provide internet connections, air cards for laptop and home computers, and a replacement for landline phone service. The average completed call volume for just two of the three sectors in which the Cell Site provides coverage (A and C) exceeds 14,000 per month. The average completed call volume for the east facing sector servicing Edgewood Road exceeds 80,000 calls per month. While it is feasible to provide some level of replacement coverage along Edgewood Road with one or more of the alternative sites, no alternate could provide the same service coverage currently available in the residential areas or along the commuter corridor. In addition, the visual and financial impacts of constructing one or more replacement sites make removal of the existing Cell Site extremely infeasible. The existing Cell Site is the only feasible alternative with respect to coverage, visual and environmental impacts, and financial costs.

**Photo 1(close): From Residential Homes at Bottom of Hill  
(Edgewood Road/Crestview Drive)**

[The Sprint monopoles cannot be seen in this picture.  
The utility pole seen provides power and landline service.]



**Photo 2 (Far): From Residential Homes at Bottom of Hill  
(Edgewood Road/Crestview Drive)**

[The Sprint monopoles cannot be seen in this picture.  
The utility pole seen provides power and landline service.]



**Photo 3: Sector B Existing Coverage Edgewood Road to HWY 280**





**Photo 4: Sector C Existing Coverage Edgewood Road to Cordilleras Road**

