



# **Alternatives Analysis**

## **South Carmel Small Cell Network**

**Public Right-of-Way, City of Carmel**

**July 19, 2019**

**Summary of Site Evaluations  
Compiled by Mackenzie & Albritton LLP**

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### **Map of Alternatives**

## I. Executive Summary

Verizon Wireless has a significant gap in service in the residential neighborhood of south Carmel. Based on a review of alternative designs and locations as set forth in the following analysis, Verizon Wireless believes that placing five small cells on existing or replacement utility poles in the public right-of-way (the “Proposed Small Cells”) constitutes the least intrusive feasible alternative to provide service to the identified gap in network service based on the values expressed in the Carmel-by-the-Sea Municipal Code (the “Code”).

## II. Significant Gap

There is a significant gap in Verizon Wireless network service in the South Carmel area. Residential areas lack reliable LTE in-building service, and some local roads lack reliable LTE in-vehicle service. Further, the existing Verizon Wireless Lobos Ridge facility serving the area from three miles south has reached capacity exhaustion. This compromises communications for residents and visitors as well as emergency service personnel. (Collectively, the “Significant Gap”) The Significant Gap is described in detail in the *Statement of Verizon Wireless Radio Frequency Design Engineer Dewayne Bonham* (the “RF Engineer’s Statement”). To remedy the Significant Gap, Verizon Wireless must place new infrastructure to ensure reliable network service.

## III. Methodology

Once a significant gap has been determined, Verizon Wireless seeks to identify a location and design that will provide reliable network service through the “least intrusive means” based upon the values expressed by local regulations. In addition to seeking the least intrusive alternative, sites proposed by Verizon Wireless must be feasible. In this regard, Verizon Wireless reviews the radio frequency propagation, proximity to end users, available equipment space, access, topography and other critical factors in completing its site analysis. Wherever feasible, Verizon Wireless seeks to use existing infrastructure to minimize visual impacts.

### City of Carmel

***Private Property and Right-of-Way.*** In the City of Carmel-by-the-Sea (the “City”), the zoning code applies to wireless facilities both on private property and in the right-of-way.

Under the City’s Zoning Code, a conditional use permit and design review approval are required for any new wireless facility. Code § 17.46.020(B-C). Wireless facilities are prohibited in the R-1 residential zone, and discouraged in open space areas, areas of extraordinary scenic quality and the R-4 residential zone. Code § 17.46.020(A). Wireless facilities are also discouraged in the right-of-way. Code § 17.46.040(C). Co-location is encouraged if it decreases visual impact. Code § 17.46.040(B).

Facilities should be located to preserve visual character and community aesthetic values, with screening from public view to the maximum extent feasible, while avoiding

visual clutter or important public and private views. Code §§ 17.46.040(A), 17.46.040(C), 17.46.040(D).

## **Monterey County**

***Private Property.*** In the County, wireless facilities on private property are regulated under the zoning code. Of the County zoning districts south and east of Carmel in the vicinity of the gap, a use permit is required for new wireless facilities.

Under the Monterey County Code of Ordinances (the “County Code”), the Planning Commission reviews applications for facilities in visually sensitive areas, critical viewsheds, scenic corridors and historic resource zoning districts. The Zoning Administrator reviews applications for facilities placed on structures and that exceed zone height limits, as well as co-located facilities and facilities with no significant adverse visual impact on public viewing areas. County Code § 21.64.310(I)(1). Review by the local land use advisory committee may be required.

Co-location is encouraged unless it increases visual impact. County Code § 21.64.310(H)(1)(b). Wireless facilities should be sited in the least visually obtrusive location possible, preserving visual characteristics and aesthetics of surroundings. Mitigation measures are required where visible from public viewing areas, and facilities must be integrated into existing site characteristics as feasible. County Code §§ 21.64.310(C)(4), 21.64.310(H)(1)(a). Facilities should be screened from public view as feasible, with special design required to mitigate potential visual impacts. Code §§ 21.64.310(H)(1)(e), 21.64.310(H)(2)(d). Facilities must have no significant affect on public viewsheds, scenic corridors or environmentally sensitive resources. County Code § 21.64.310(J)(1).

***Right-of-Way.*** In the unincorporated County area, wireless facilities on existing utility poles in the right-of-way have been allowed by the County.

## IV. Analysis

### *Collocation Facilities*

To serve the south Carmel area, Verizon Wireless first sought opportunities to collocate with existing wireless carrier facilities, identifying two facilities as follows.

#### **1. Carmel Rancho Collocation**

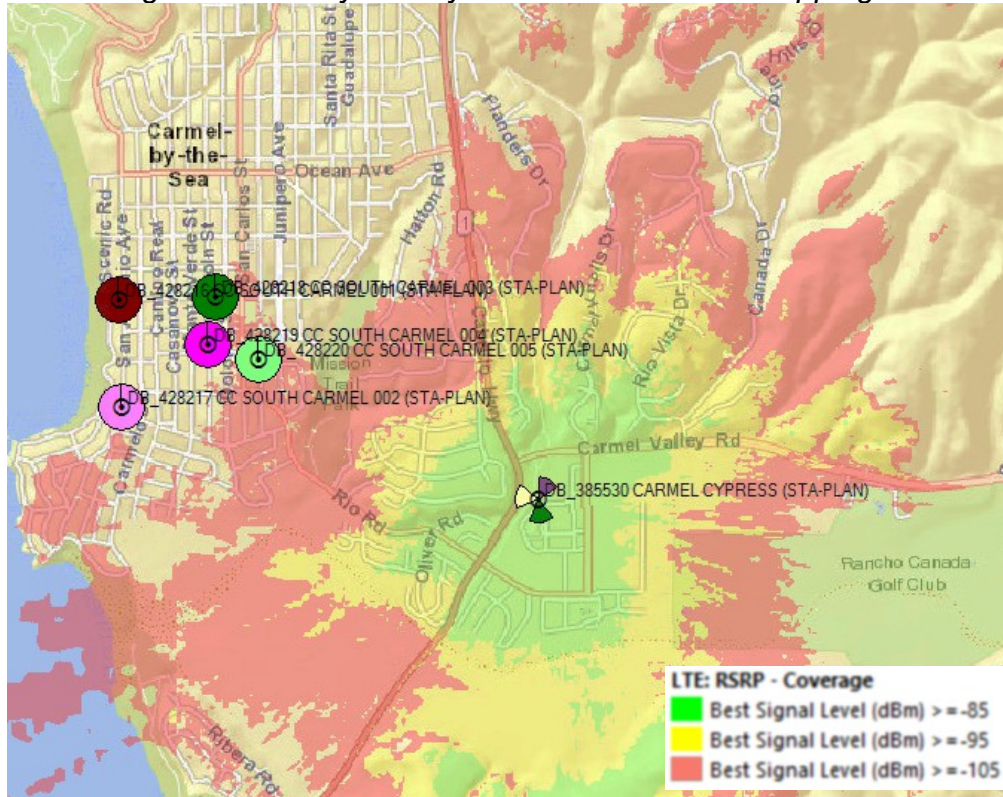
Address: Carmel Rancho Boulevard/Rio Road

Elevation: 30-50 Feet

Zoning: LC and VO (Light Commercial/Visitor Serving-Office, Monterey County)

Verizon Wireless identified two existing wireless carriers facilities at the Carmel Rancho Shopping Center southeast of the City, east of Highway 1: a T-Mobile rooftop facility at 26080 Carmel Rancho Boulevard and, nearby, a Sprint facility on a monopole owned by SBA Towers at 3775 Rio Road. These are near the location of a planned Verizon Wireless facility that would serve that area. However, Verizon Wireless engineers determined that a facility at this location with an antenna centerline of 50 feet could not serve the south Carmel area due to distance and intervening terrain rising over 100 feet. As shown in the following coverage map, a facility at the Carmel Rancho Shopping Center could not provide in-building or in-vehicle service to the south Carmel area, and in fact much of the Significant Gap would not be served. Due to inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.

### Coverage Provided by Facility at Carmel Rancho Shopping Center



Coverage plot maps depict the anticipated level of signal, and therefore the projected coverage provided by a site at a given location. The areas in green reflect good coverage that meets or exceeds thresholds to provide consistent and reliable network coverage in homes and in vehicles. The areas in yellow and red depict decreasing levels of coverage, respectively, with yellow areas generally representing reliable in-vehicle coverage only, and red areas depicting poor service areas with marginal coverage unsuitable for in-vehicle use. Unshaded areas do not receive reliable Verizon Wireless service.

### ***Macro Facility in South Carmel***

To avoid the prohibited R-1 residential zone that encompasses south Carmel, as well as the discouraged R-4 residential zone, Verizon Wireless considered a new, full-size or “macro” facility in downtown zones south of Ocean Avenue: the CC-central commercial zone, the SC-service commercial zone, the RC-residential/limited commercial zone, and the A-2 community/cultural zone. However, these zones are all within 0.3 miles of Verizon Wireless’s existing Downtown Carmel facility on a building rooftop at 7222 Ocean Avenue.

A new macro facility placed in such close proximity would duplicate coverage of the existing facility, constituting inefficient network design. Also, two macro facilities in close proximity, with their higher wattage, would cause signal interference with one other, compromising network performance. Verizon Wireless did not pursue this option. A facility further north beyond Ocean Avenue could not serve the Significant Gap in south Carmel.

## ***Macro Facility in Monterey County***

Because of discouraging Code requirements in the City, including the prohibition of wireless facilities in the R-1 zone, Verizon Wireless reviewed the possibility of placing a macro facility on a non-residential parcel in the unincorporated Monterey County area south of Carmel, and identified the following three options.

### **2. Carmel River School**

Address: 2770 15<sup>th</sup> Avenue

Elevation: 25 Feet

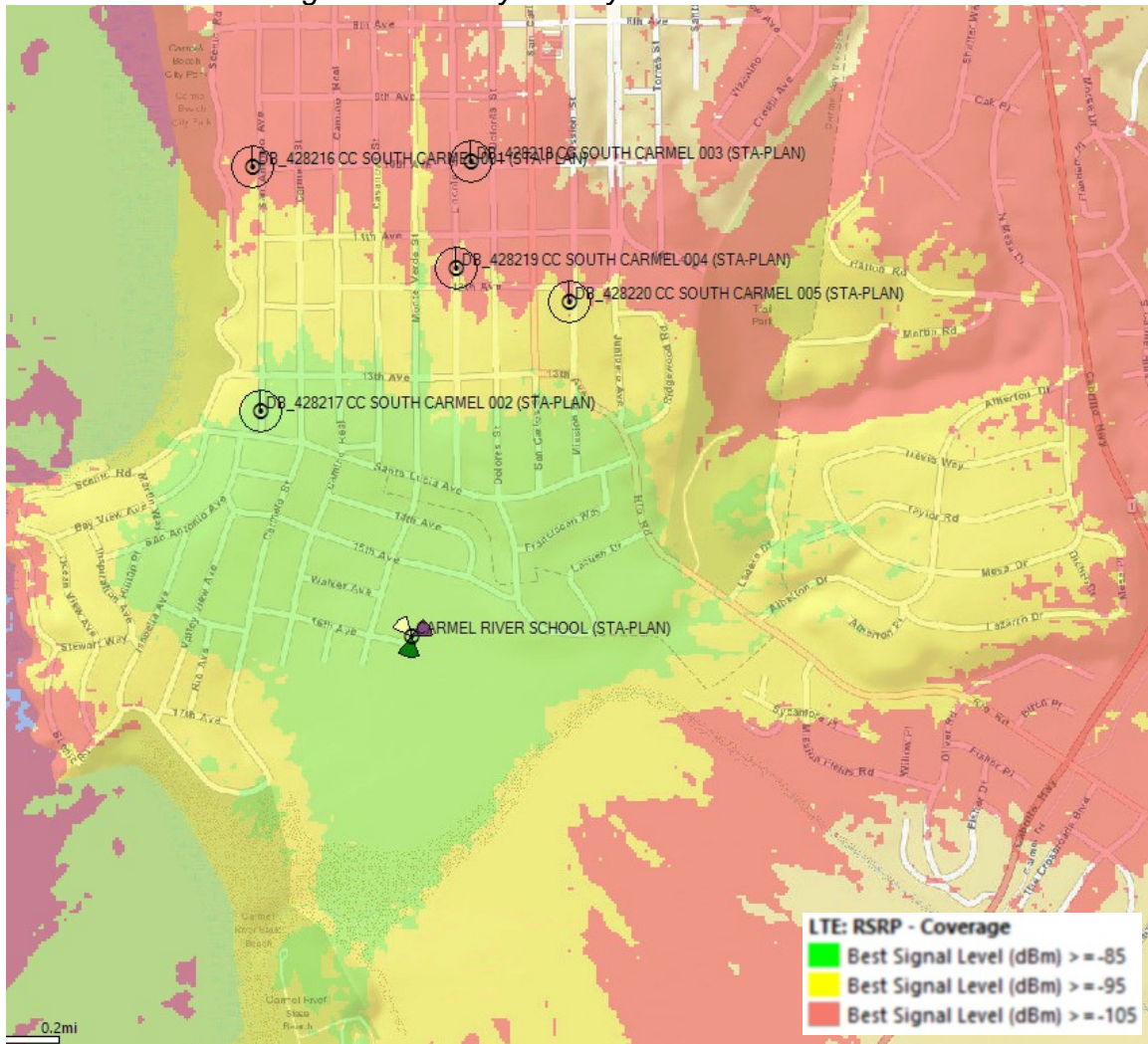
Zoning: PQP (Public/Quasi-Public, Monterey County)



Verizon Wireless evaluated placement of a facility on this school parcel south of the Significant Gap at a generally lower elevation. A new tower would be required at this location. Verizon Wireless engineers determined that a facility at this location with an antenna centerline of 50 feet could not serve the south Carmel area due to distance and low elevation. As shown in the following coverage map, a facility at the Carmel River School could not provide in-building service north of 13<sup>th</sup> Avenue. Much of the south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.



## Coverage Provided by Facility at Carmel River School



### **3. Mission Ranch Hotel**

Address: 26270 Dolores Street

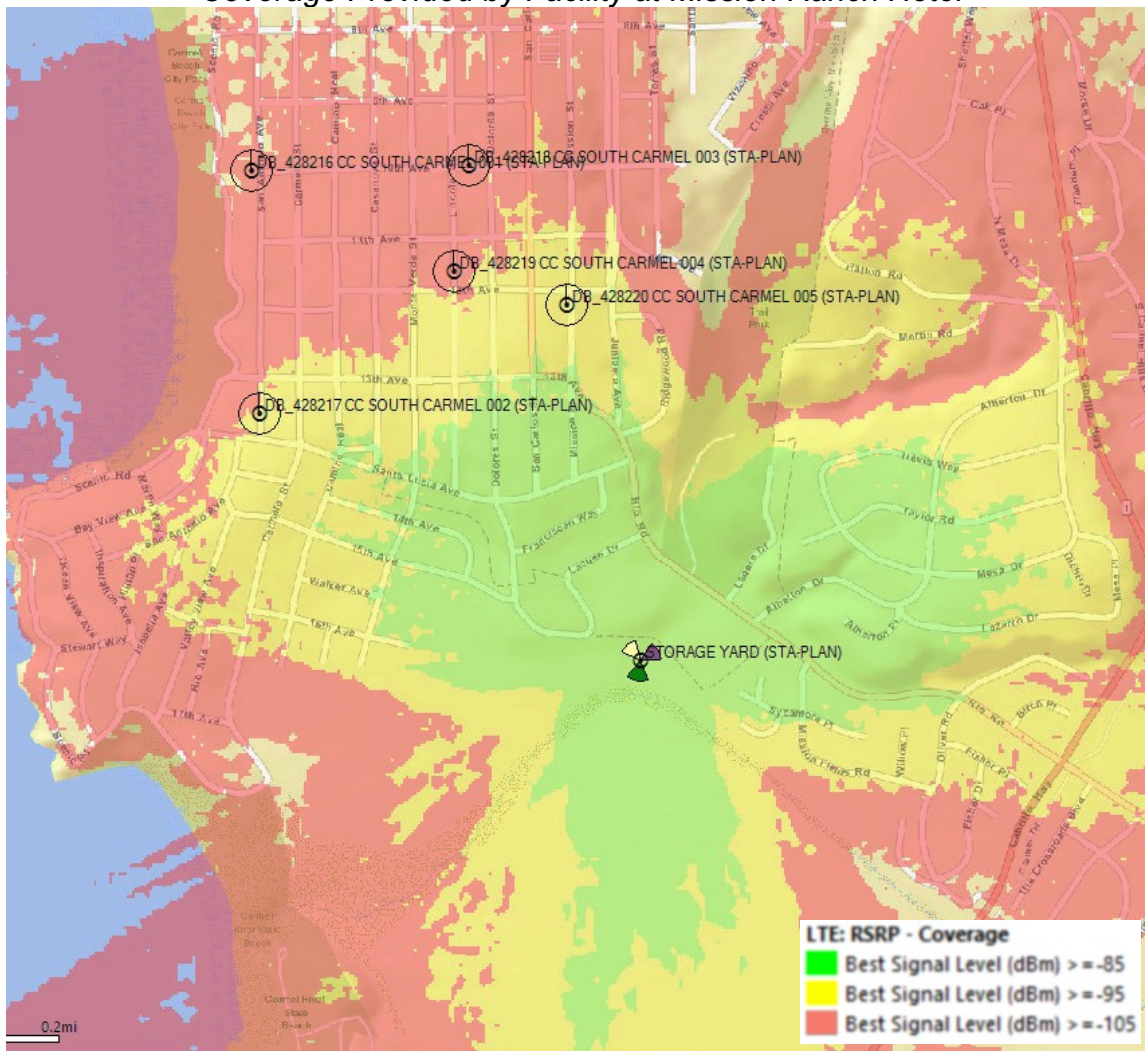
Elevation: 15-30 Feet

Zoning: MDR/RC (Medium-Density Residential/Resource Conservation, Monterey County)



Verizon Wireless evaluated placement of a facility on this hotel property that includes tennis courts in a lower-elevation area and is adjacent to a City of Carmel storage yard. A new tower would be required at this location. Verizon Wireless engineers determined that a facility at this location with an antenna centerline of 50 feet could not serve the south Carmel area due to distance and low elevation. As shown in the following coverage map, a facility at the hotel property or storage yard could not provide in-building service north of 13<sup>th</sup> Avenue or west of Monte Verde Street. Much of the south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.

## Coverage Provided by Facility at Mission Ranch Hotel





#### **4. Carmel Area Wastewater District Treatment Facility**

Address: 26900 Highway 1

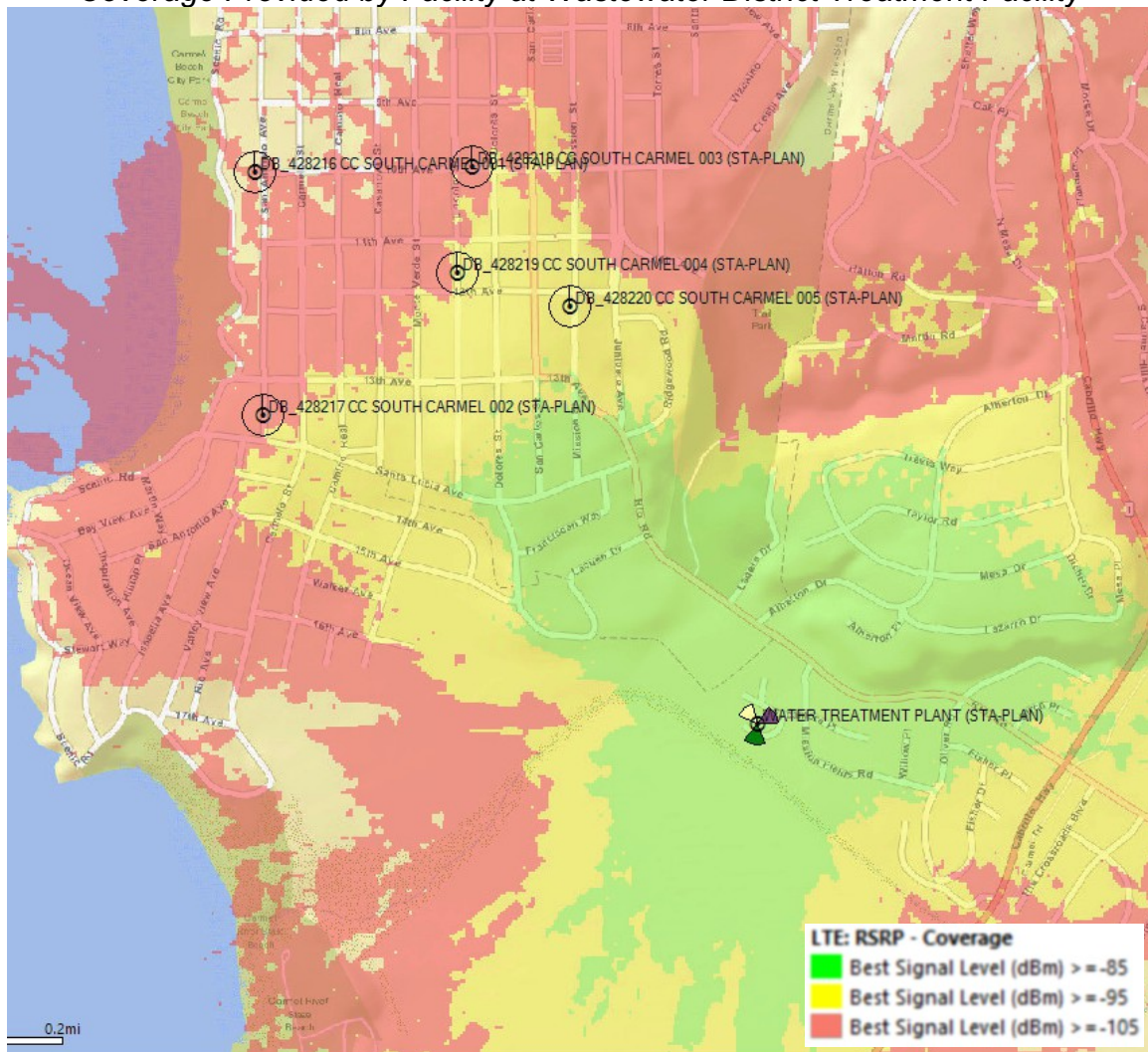
Elevation: 15 Feet

Zoning: PQP (Public/Quasi-Public, Monterey County)



Verizon Wireless evaluated placement of a facility on this wastewater treatment plant property. A new tower would be required at this location. Verizon Wireless engineers determined that a facility at this location with an antenna centerline of 50 feet could not serve the south Carmel area due to distance and low elevation. As shown in the following coverage map, a facility at the treatment plant could not provide in-building service north of 13<sup>th</sup> Avenue or west of Dolores Street. Much of the south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.

## Coverage Provided by Facility at Wastewater District Treatment Facility



Verizon Wireless also considered placement of a macro facility in the unincorporated County area due east of the City limits on a crest overlooking south Carmel. However, Verizon Wireless determined that a facility in this residential area could not serve the Significant Gap, as illustrated in review of the following alternative.

#### **5. Martin Road Property**

Address: 3265 Martin road

Elevation: 135 Feet

Zoning: MDR (Medium-Density Residential, Monterey County)

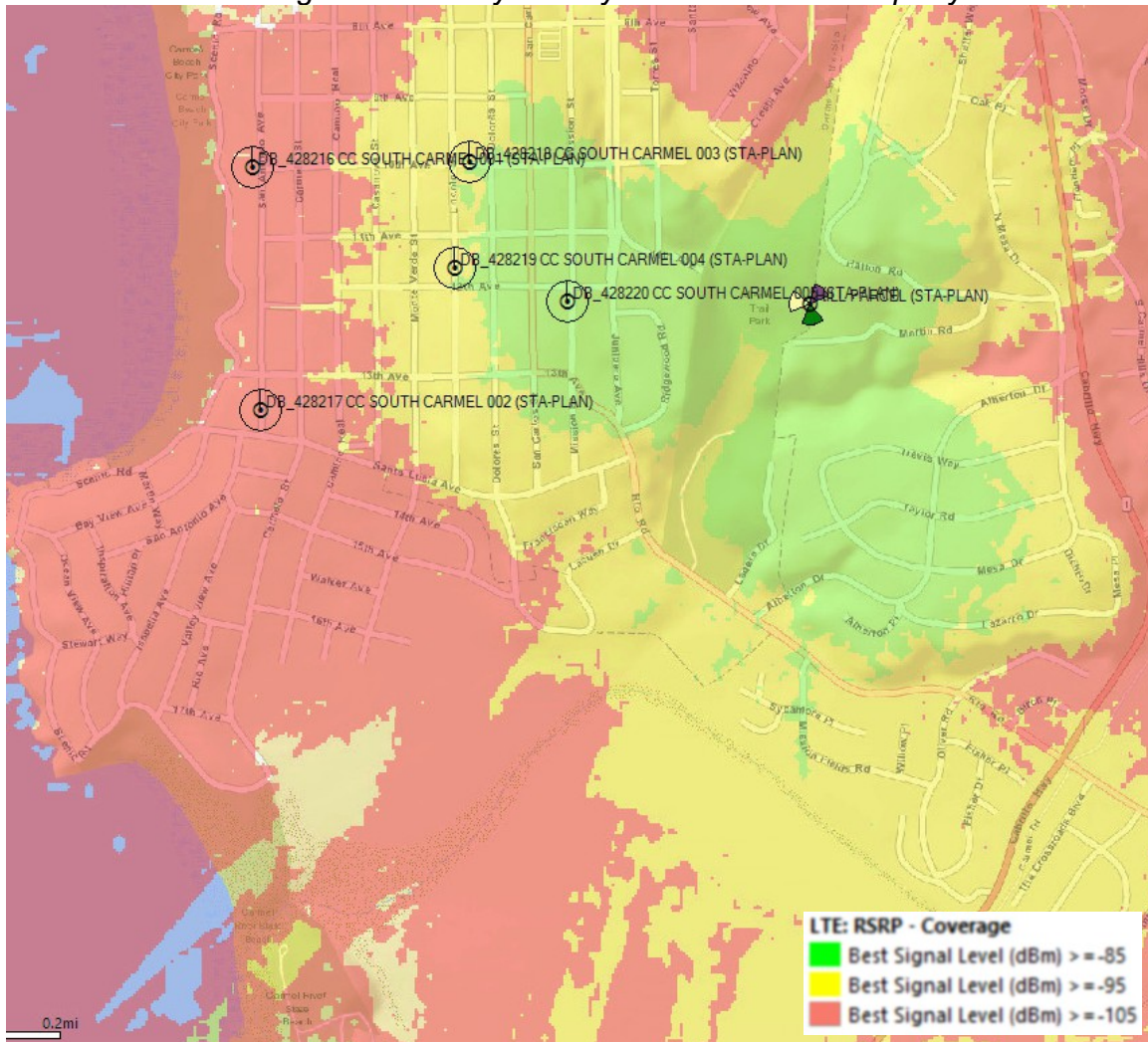


Verizon Wireless reviewed this property due east of the City limits which, like all other County properties along the City limits, is in residential use. A new tower would be required at this location, posing impacts to nearby residences. This presents a challenge to gain approval of a use permit by Monterey County, given factors in the County Code encouraging preservation of visual characteristics and aesthetics of surroundings, and discouraging effects on public viewsheds.

Further, Verizon Wireless engineers determined that a facility at this location with an antenna centerline of 50 feet could not serve most of the south Carmel area due to distance. As shown in the following coverage map, a facility on this residential parcel could not provide in-building service west of Mission Street. At most, a facility on this parcel could serve only the eastern portion of the Significant Gap to be served by Node 005 of the Proposed Small Cells. However, much of the south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to difficulty securing County approval and inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.



## Coverage Provided by Facility at Martin Road Property



### *Small Cell Facilities in Monterey County*

Lacking a feasible macro facility opportunity, Verizon Wireless explored placement of small cells in the County. California Public Utilities Code Section 7901 grants telephone corporations the right to place their telephone equipment in the public right-of-way, where existing utility poles offer ideal sites for small cells. In the County residential area South of Carmel, many rights-of-way lack utility poles or other vertical infrastructure as shown in the area shaded blue in the map below. Small cells on existing infrastructure would be confined to an area to the west.

*Monterey County Rights-of-Way Lacking Existing Poles, Shown in Blue  
(Carmel City Limits Shown in Red)*



Verizon Wireless evaluated placement of small cells on existing utility poles in the County, one immediately south of the City limits and one immediately east, as follows.



## **6. Carmello Street Right-of-Way Small Cell**

Address: Right-of-Way near 26095 Carmello Street

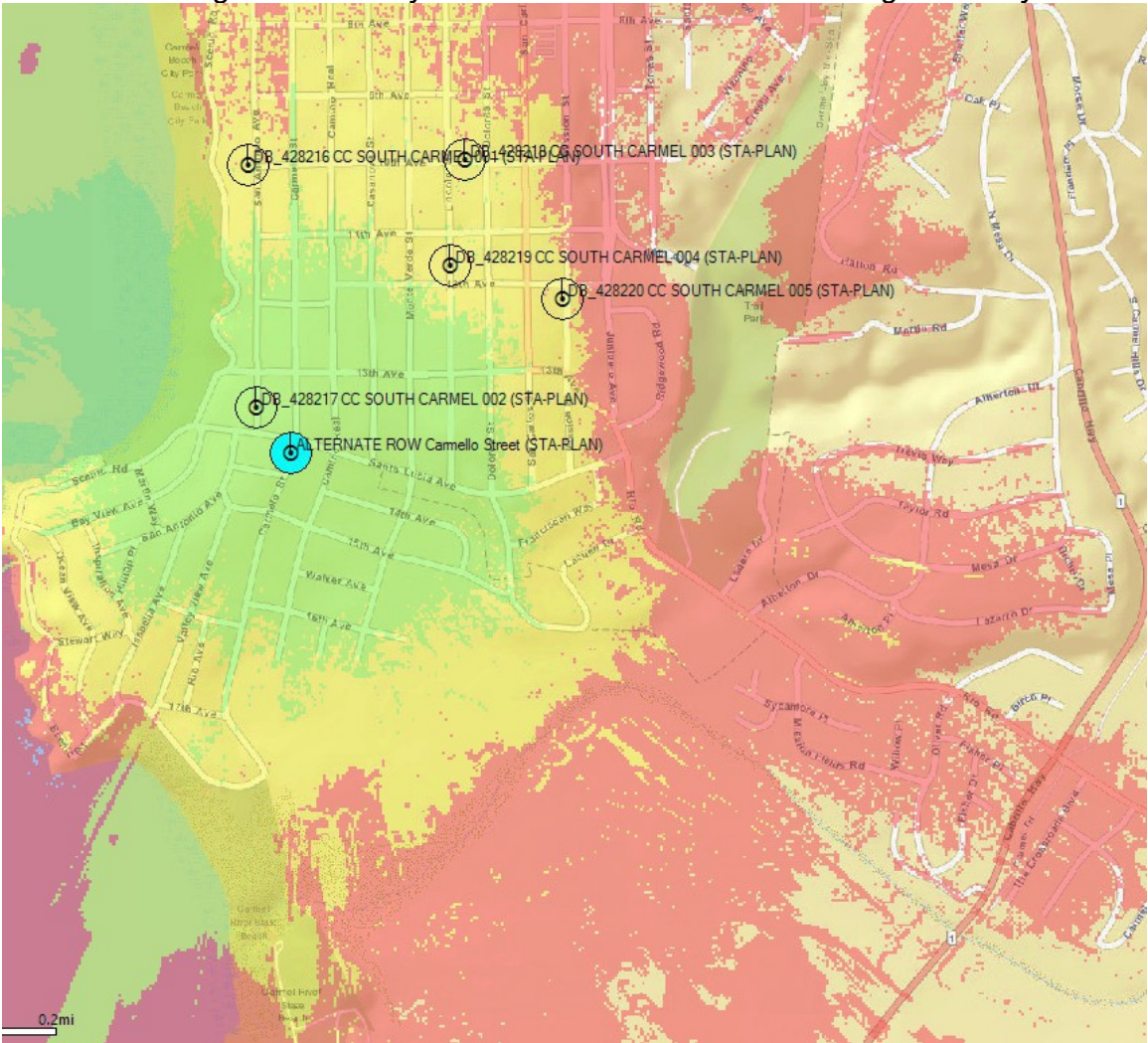
Elevation: 65 Feet

Zoning: MDR (Medium-Density Residential, Monterey County)



Verizon Wireless reviewed placement of a small cell on this existing utility pole immediately south of the City limits. The utility pole would require replacement to increase its height and structural capacity. The feasibility of the pole may be compromised by PG&E rules, and evaluation by PG&E field representatives may be required to confirm feasibility. Verizon Wireless engineers determined that a small cell at this location with an antenna centerline of 50 feet could not serve most of the south Carmel area due to distance, low elevation and the low power of a small cell. At most, it could serve only the southwestern portion of the gap to be served by Node 002 of the Proposed Small Cells, as shown on the following coverage map. However, much of the south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.

Coverage Provided by Small Cell on Carmello Road Right-of-Way





### **7. Martin Road Right-of-Way Small Cell**

Address: Right-of-Way near 3200 Martin Road

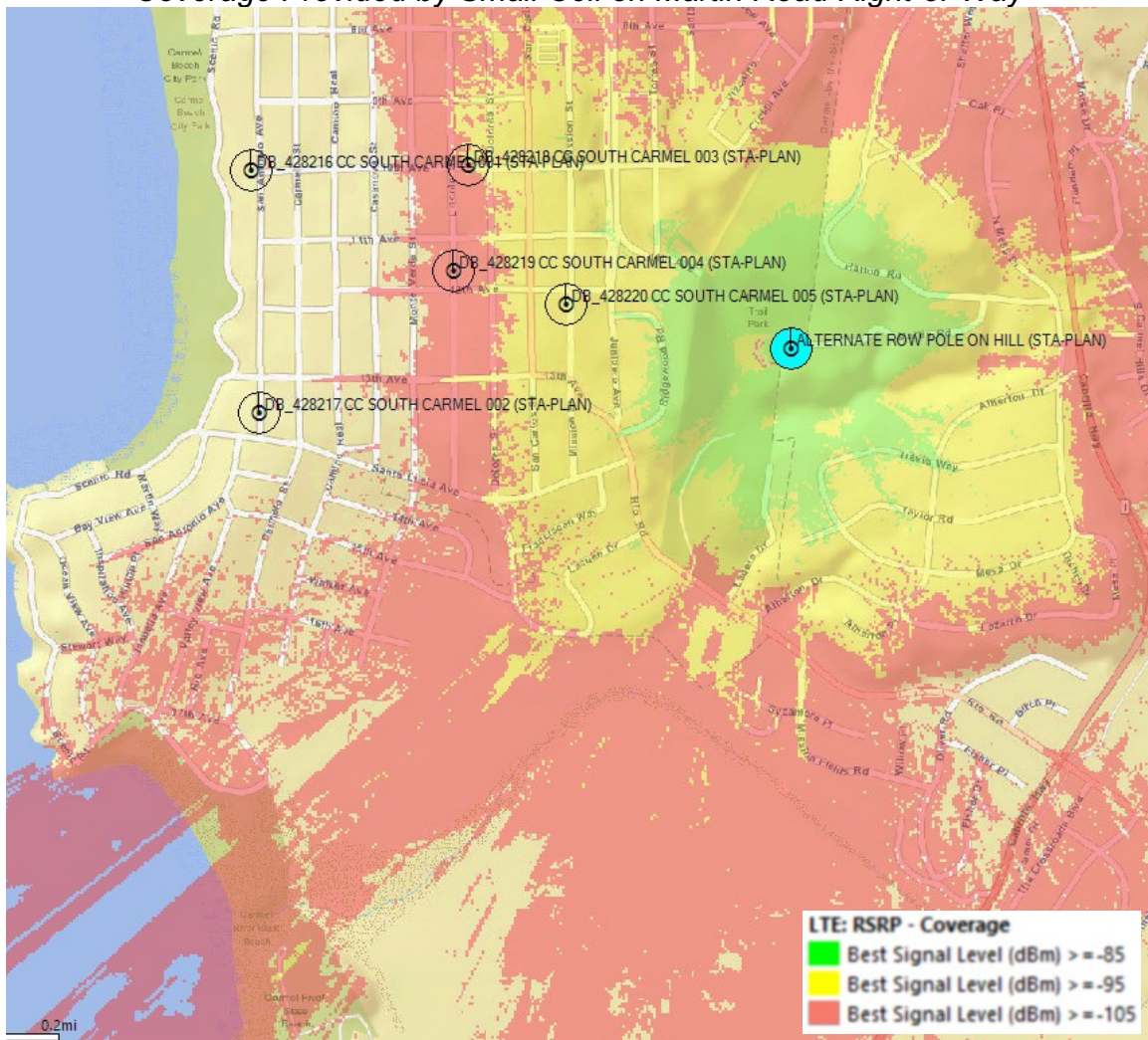
Elevation: 125 Feet

Zoning: MDR (Medium-Density Residential, Monterey County)



Verizon Wireless reviewed placement of a small cell on this existing utility pole immediately east of the City limits, near the parcel reviewed as Alternative 5. The utility pole would require replacement to increase its height and structural capacity. Verizon Wireless engineers determined that a small cell at this location with an antenna centerline of 50 feet could not serve the south Carmel area due to distance and the low power of a small cell. As shown in the following coverage map, it could not provide in-building service west of Torres Street and Ridgewood Road which are both east of the gap area. The south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to inability to serve the Significant Gap, this is not a feasible alternative to any of the Proposed Small Cells.

## Coverage Provided by Small Cell on Martin Road Right-of-Way





### ***Small Cells in South Carmel Outside R-1 Zone***

While considering small cells in the City in the south Carmel area, Verizon Wireless also reviewed several locations on the fringe of the Significant Gap in the few zones other than the prohibited R-1 zone, as follows.

#### **8. San Carlos Street Right-of-Way Small Cell**

Address: San Carlos Street at 9<sup>th</sup> Avenue

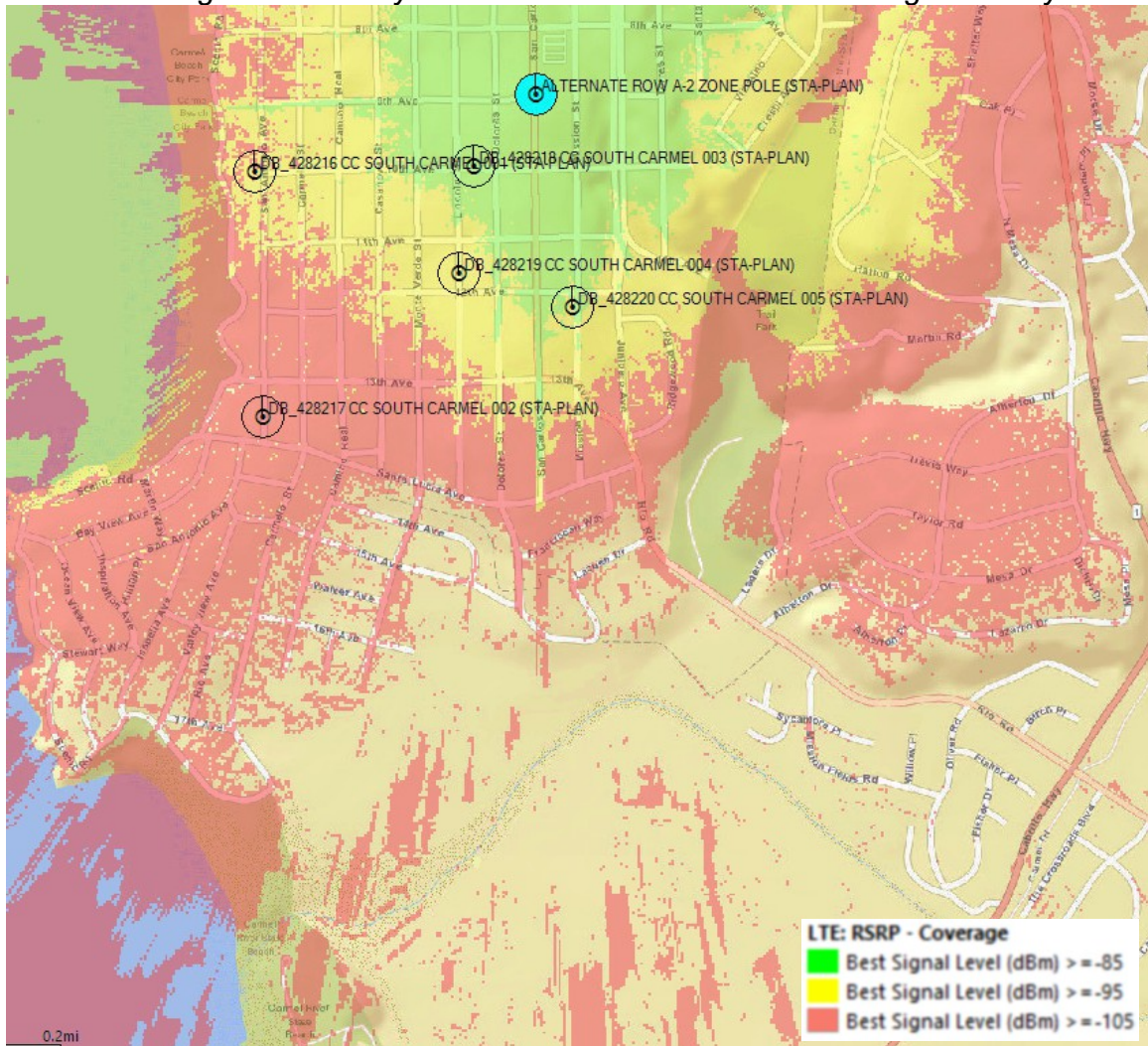
Elevation: 200 Feet

Zoning: A-2 (Community/Cultural)



Verizon Wireless reviewed placement of a small cell on this existing utility pole adjacent to the Sunset Center in the A-2 zone. The utility pole would require replacement to increase its height and structural capacity. The feasibility of the pole may be compromised by PG&E rules, and evaluation by PG&E field representatives may be required to confirm feasibility. Verizon Wireless engineers determined that a facility at this location with an antenna centerline of 50 feet could not serve most of the south Carmel area due to distance and the low power of a small cell. At most, a small cell at this location would serve only the northeastern portion of the gap to be served by Node 003 of the Proposed Small Cells, as shown on the following coverage map. However, much of the south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.

## Coverage Provided by Small Cell on San Carlos Street Right-of-Way





### **9. 8<sup>th</sup> and Carmello Right-of-Way Small Cell**

Address: 8<sup>th</sup> Avenue and Carmello Street

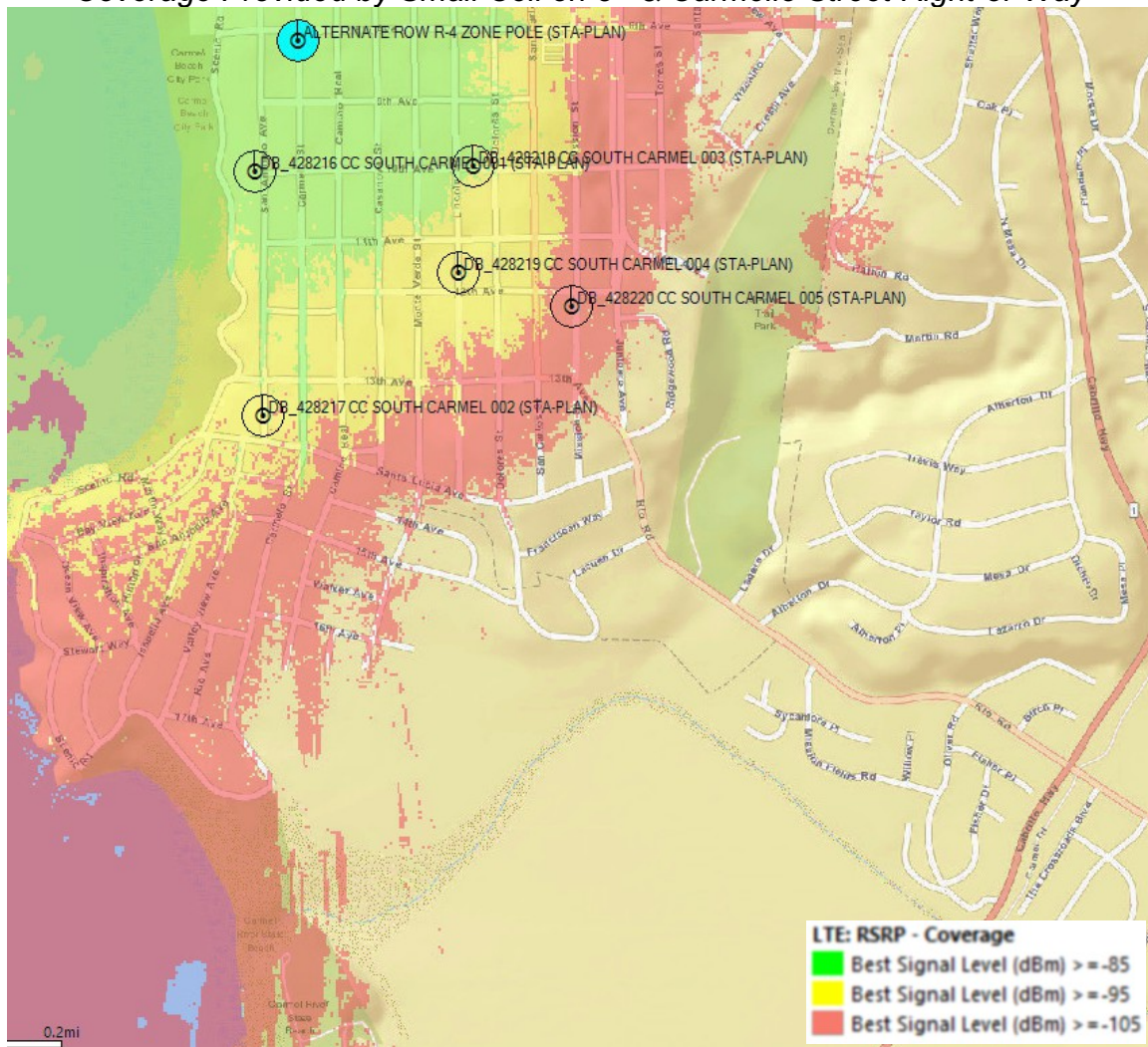
Elevation: 95 Feet

Zoning: R-4 (Multi-Family Residential)



Verizon Wireless reviewed placement of a small cell on this existing utility pole immediately south of 8<sup>th</sup> Avenue and adjacent to the R-4 zone, which is discouraged but not prohibited. The utility pole would require replacement to increase its height and structural capacity. The feasibility of the pole may be compromised by PG&E rules, and evaluation by PG&E field representatives may be required to confirm feasibility. Verizon Wireless engineers determined a facility at this location with an antenna centerline of 50 feet could not serve most of the south Carmel area due to distance and the low power of a small cell. At most, a small cell at this location would serve only the northwestern portion of the gap to be served by Node 001 of the Proposed Small Cells, as shown on the following coverage map. However, much of the south Carmel residential area would continue to be served by the distant Lobos Ridge facility which has reached capacity exhaustion. Due to inability to serve the Significant Gap, this is not a feasible alternative to the Proposed Small Cells.

## Coverage Provided by Small Cell on 8<sup>th</sup> & Carmello Street Right-of-Way





### ***Small Cell Network in South Carmel R-1 Zone (Proposed)***

As no macro facility alternative in either the City or the County can serve the Significant Gap, nor can a small cell within the County area or outside the City R-1 zone, Verizon Wireless evaluated placement of small cells in the south Carmel right-of-way. While the Code prohibits facilities in the R-1 zone, and discourages right-of-way facilities, these restrictions would be preempted by state and federal law. A ban on right-of-way facilities in a broad area would be preempted by Public Utilities Code Section 7901 that grants telephone corporations the right to use any right-of-way. Such a ban also constitutes an unlawful prohibition of service and would be preempted under the federal Telecommunications Act and a recent Federal Communications Commission order. *See* 47 U.S.C. §§ 253(a), 332(c)(7)(B)(i)(II); *In Re: Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment*, Declaratory Ruling and Third Report and Order, FCC 18-133 (September 27, 2018). Given the infeasibility of alternatives reviewed above, right-of-way facilities in the R-1 zone are required to serve the Significant Gap.

Verizon Wireless RF engineers determined that the Significant Gap can be served with only five small cells within the gap area. As low-powered facilities, small cells do not pose an issue with duplicating coverage or creating interference with the Downtown Carmel macro facility.

For each small cell node, Verizon Wireless proposes to place a single narrow 3-cubic foot canister antenna above an existing or replacement wood utility pole. The antenna must be elevated at least six feet above pole-top electrical conductors to meet safety clearances required by Public Utilities Commission General Order 95 Rule 94. The following associated equipment will be stacked vertically on the side of each pole between 8 and 17 feet (or, for Node 1, 15 feet 8 inches): an electric meter, a disconnect switch, two remote radio units (“RRUs”), power supply units, a small fiber demarcation box, and two very small diplexers. The RRUs and other network gear will be concealed within a narrow, vertical shroud six feet in height. The small wireless electric meter and electric disconnect switch cannot be covered.

In each case, Verizon Wireless evaluated multiple utility poles near the proposed node, and eliminated poles that were infeasible. Verizon Wireless also conducted a site walk of the vicinity with Community Planning & Building Director Marc Wiener on April 26, 2018, to determine optimal locations and designs for each new small cell within the right-of-way.

The Proposed Small Cells are Verizon Wireless’s preferred means of serving the Significant Gap.

**Node 001**

Address: Right-of-Way, A2 Lot 11 San Antonio Avenue

Elevation: 65 Feet

Zoning: R-1 (Residential)



Node 001 is proposed for an existing 29-foot, 3-inch utility pole, with an antenna elevated on a pole-top extension for a total facility height of 40 feet, 7 inches.

**Node 002**

Address: Right-of-Way, San Antonio Avenue, 3SE 13<sup>th</sup> Avenue

Elevation: 55 Feet

Zoning: R-1 (Residential)



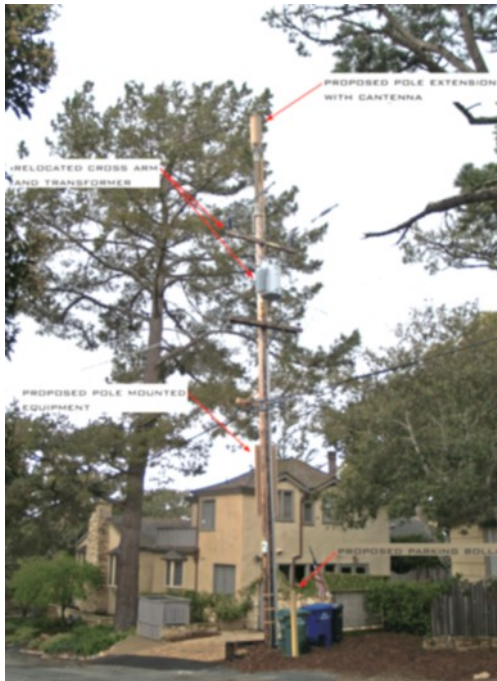
Node 002 is proposed for a utility pole replacing an existing utility pole, for a total facility height of 46 feet, 11 inches.

**Node 003**

Address: Right-of-Way, 10th Avenue, 1NW Dolores Street

Elevation: 170 Feet

Zoning: R-1 (Residential)



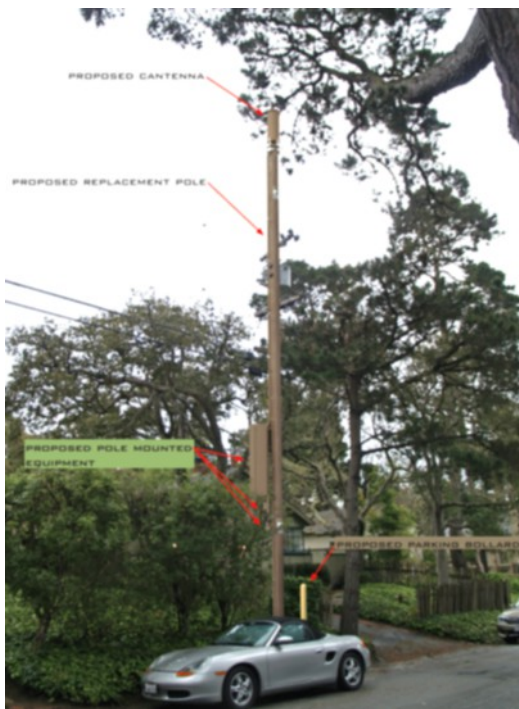
Node 003 is proposed for an existing 39-foot, 8-inch utility pole, with an antenna elevated on a pole-top extension for a total facility height of 49 feet, 5 inches.

**Node 004**

Address: Right-of-Way, Lincoln Street, 3NE 12th Avenue

Elevation: 135 Feet

Zoning: R-1 (Residential)



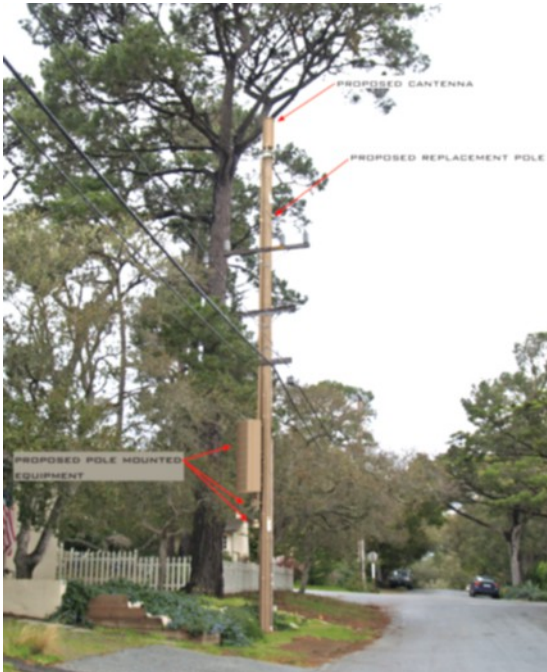
Node 004 is proposed for a utility pole replacing an existing utility pole, for a total facility height of 46 feet, 11 inches.

**Node 005**

Address: Right-of-Way, Mission Street, 2SW 12th Avenue

Elevation: 155 Feet

Zoning: R-1 (Residential)



Node 005 is proposed for a utility pole replacing an existing utility pole, for a total facility height of 46 feet, 11 inches.

## V. Conclusion

Verizon Wireless has reviewed nine alternatives to fill the Significant Gap in service in the south Carmel area. Based upon the preferences identified in the Carmel-by-the-Sea Municipal Code, the Proposed Small Cells, by collocating antennas on five existing or replacement utility poles in the right-of-way, clearly constitute the least intrusive locations and designs for Verizon Wireless's new infrastructure.