Alternatives Analysis

Green Valley Road

1495 Malcolm Dixon Road
El Dorado County

March 27, 2024

Summary of Site Evaluations
Conducted by Verizon Wireless

TABLE OF CONTENTS

I. Executive Summary

Verizon Wireless must fill and significant gap in service in the west Green Valley Road area of El Dorado County, east of El Dorado Hills. Based on the review of 21 alternatives set forth in the following analysis, Verizon Wireless believes that placing antennas on a tower camouflaged as a pine tree (the "Proposed Facility") constitutes the least intrusive feasible alternative to serve the identified gap in network service based on the values expressed in the El Dorado County Ordinance Code (the "Code").

II. Significant Gap

There is a significant gap in Verizon Wireless network service in the west Green Valley Road area, including the north Highland Hills neighborhood and south Arroyo Vista neighborhood. Due to the distance from existing Verizon Wireless facilities, there is a lack of reliable in-building service coverage in these areas, with many roadways lacking reliable in-vehicle service, notably Green Valley Road. Additionally, existing Verizon Wireless facilities serving much of the gap area are reaching data capacity exhaustion.

To remedy the Significant Gap, Verizon Wireless must place a new facility to ensure reliable network service. Ideally located near the center of the gap, the Proposed Facility will provide new reliable in-building and in-vehicle coverage to surrounding residential areas, heavily-trafficked Green Valley Road, and other roadways. A detailed description of the Significant Gap and the improved service to be provided by the Proposed Facility is found in the *Statement of Verizon Wireless Radio Frequency Design Engineer Ericson Malana.*

III. Methodology

Once a significant gap has been determined, Verizon Wireless seeks to identify a location and design that will provide required 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 available height, elevation, local terrain, radio frequency propagation, proximity to end users, equipment space, access, and other factors such as a willing landlord in completing its site analysis.

Code Requirements

The Code encourages co-location on an existing site if feasible, or multi-carrier sites that facilitate future co-location. Code § 130.40.130(A)(1)(b).

Permit requirements are specified according to facility type.

An administrative permit may be approved for the following, provided they meet certain standards. Code §§ 130.40.130(B)(2), (3), (5).

- Co-located antennas on existing monopoles or towers
- Facade-mounted antennas in all zones
- Roof-mounted antennas in commercial, industrial and research/development zones, not exceeding 15 feet above the roof or the maximum zone height, whichever less

A minor use permit may be approved by the Zoning Administrator for the following, if they meet certain standards: (Code §§ 130.40.130(B)(4), (6)(a))

- Co-location on existing structures such as signs, water tanks, utility towers and light standards
- New towers in commercial, industrial and research/development zones over 500 feet from a residential zone

A conditional use permit is required for all other facilities, including new towers within 500 feet of a residential zone, and facilities that do not meet the standards to qualify for an administrative or minor use permit. Code § 130.40.130(B)(7).

Facilities must be designed to blend with the surrounding area, either painted or constructed with stealth technology to blend with the architecture or natural features of the site. Code § 130.40.130(D)(1). Where co-location on an existing site is not feasible, new facilities should be designed to facilitate future co-location to reduce the total number of sites countywide. Code § 130.40.130(A)(1)(b).

Coverage Map Explanation

Coverage maps are provided to illustrate why certain alternatives cannot serve the Significant Gap. Coverage maps depict the anticipated level of signal, and therefore the projected LTE coverage provided by a wireless facility at a given location. The coverage maps in this analysis have been prepared using the low-band 700 MHz frequency band, which provides the broadest coverage.

Referenced signal receive power (RSRP) is a measurement of signal level in decibel milliwatts (dBm), which is a negative number that decreases due to distance and other factors. The RSRP coverage thresholds are as follows.

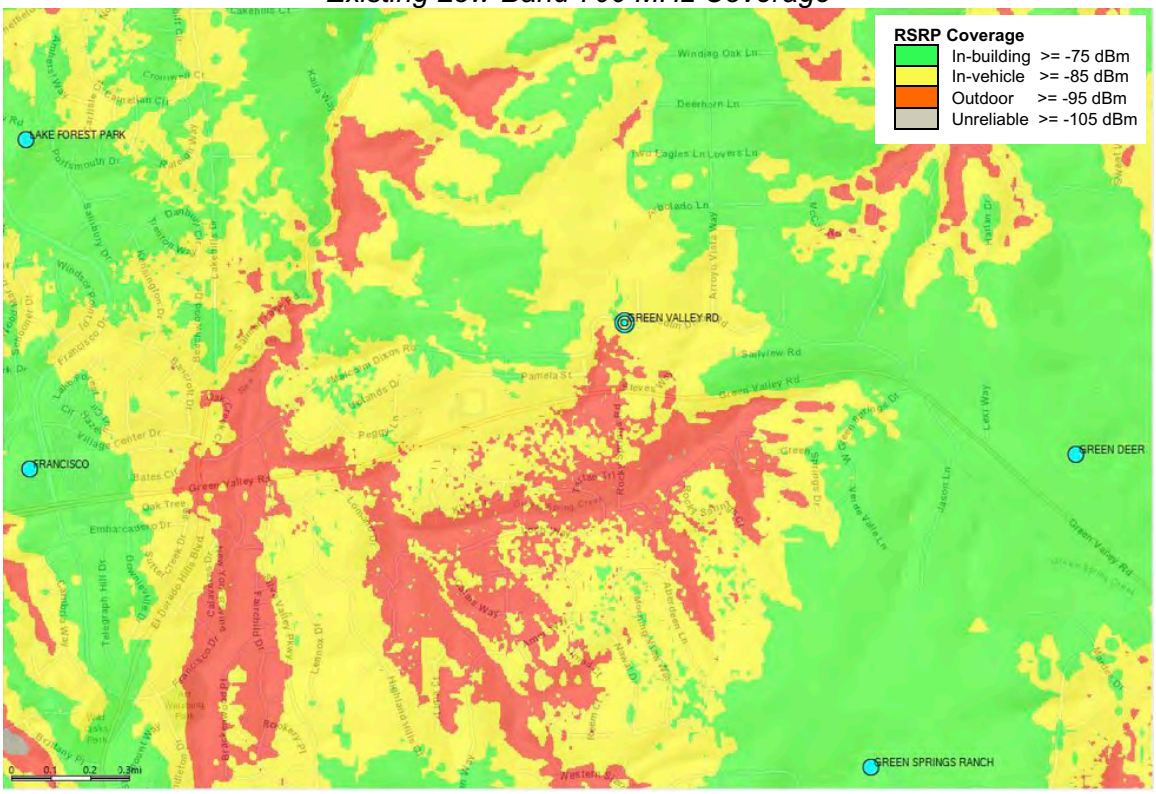
In-building >= -75 dBm. Green depicts good coverage that meets or exceeds thresholds for reliable network coverage in homes and vehicles.

In-vehicle >= -85 dBm. Yellow depicts reliable in-vehicle coverage only.

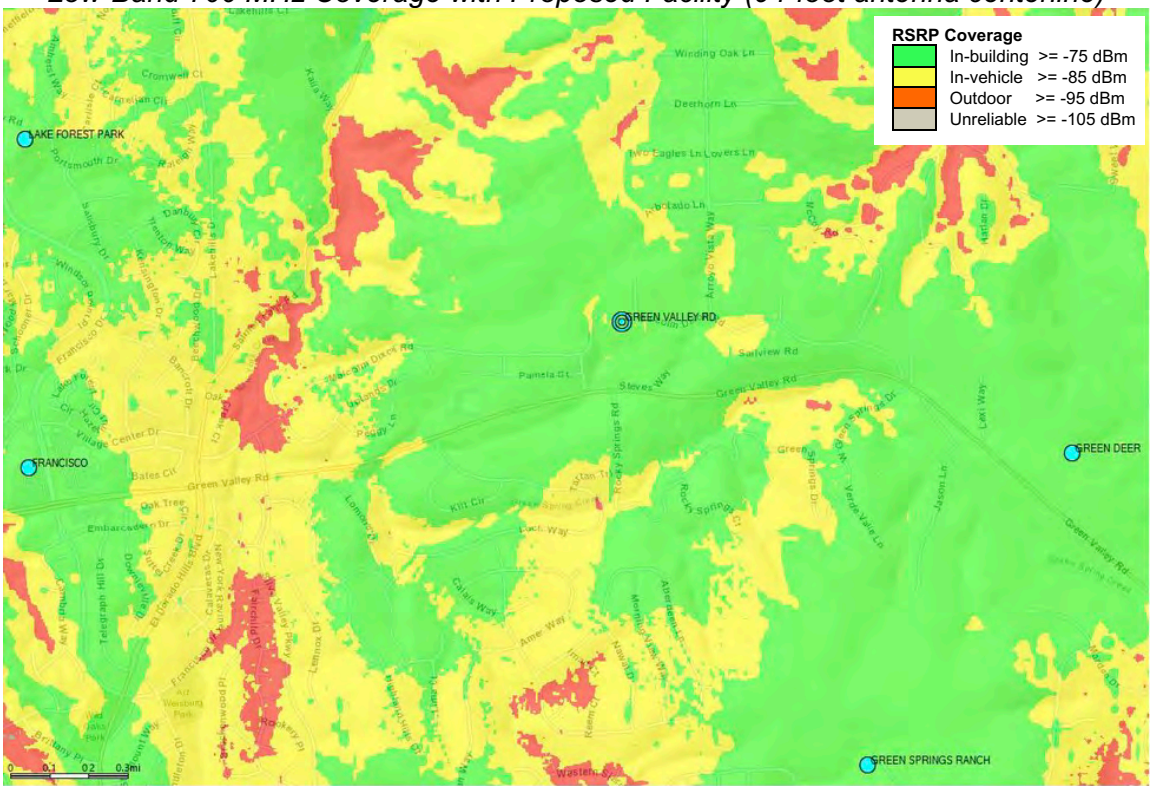
Outdoor >= -95 dBm. Red depicts reliable outdoor service only.

Unreliable >= -105 dBm. Gray depicts unreliable service levels.

Existing Low-Band 700 MHz Coverage



Low-Band 700 MHz Coverage with Proposed Facility (94-foot antenna centerline)



Summary

Verizon Wireless first sought opportunities to collocate with existing wireless towers in the vicinity of the Significant Gap, but identified none nearby.

Next, Verizon Wireless investigated non-residential buildings in the gap area on which to place façade- or roof-mounted antennas, identifying a local church, which is not a willing landlord (Alternative 1).

Verizon Wireless then reviewed the gap area for existing utility structures, and identified a water tank northwest of gap area, where a facility could not serve the Significant Gap. (Alternative 2).

Verizon Wireless did not consider a new tower over 500 feet from residential zones, because the closest non-residential zone is over 1.0 mile northwest of the Proposed Facility, beyond the gap area.

Verizon Wireless next reviewed placement of a new tower within the gap area, readily identifying the Proposed Facility location (Alternative 3) near the center of the Significant Gap. Verizon Wireless also reviewed 18 other locations that were discounted because a new tower facility could not serve the gap, there is insufficient ground space, a taller more intrusive tower would be required, the property is owned by opponents of the Proposed Facility, or there is not direct access to a public right-of-way.

Collocation Review

Verizon Wireless investigated the Significant Gap for existing commercial wireless towers on which to collocate, but found none.

The closest commercial wireless towers are beyond the gap area and already support Verizon Wireless facilities. These include the Salmon Falls Road facility on a monopine tower 1.0 mile north of the Proposed Facility at 1521 Lake Vista Lane. (The American Tower Corporation monpine tower 1,000 feet northeast of the Salmon Falls Road facility at 1668 Arroyo Vista Way supports other carriers and is even more distant, 1.15 miles north of the Proposed Facility.)

Verizon Wireless's Green Deer facility is on a monopine tower 1.15 miles east of the Proposed Facility at 1937 Green Valley Road. The Green Springs Ranch facility is on a PG&E lattice transmission tower 1.3 miles southeast at 2367 East Green Springs Court.

As explained in the RF Engineer's Statement, the existing Verizon Wireless facilities cannot serve the Significant Gap due to distance and terrain. Collocation is not a feasible alternative.

All four of the above-mentioned facilities are in the RE–Residential Estates zone, as is the Proposed Facility.

Façade- or Roof-Mounted Facilities

With no feasible collocation opportunity, Verizon Wireless next considered placement of a facility on existing buildings in the area of the Significant Gap, examining the following non-residential building.

1. Church of Jesus Christ of Latter-day Saints
Address: 1275 Green Valley Road
Zoning: R1A–Residential
Elevation: 745 Feet

Verizon Wireless considered this church building 0.45 miles southwest of the Proposed Facility and 120 feet lower in elevation. The Church of Jesus Christ of Latter-day Saints does not allow leases for wireless facilities on its properties. Lacking landlord interest, this is not a feasible alternative.

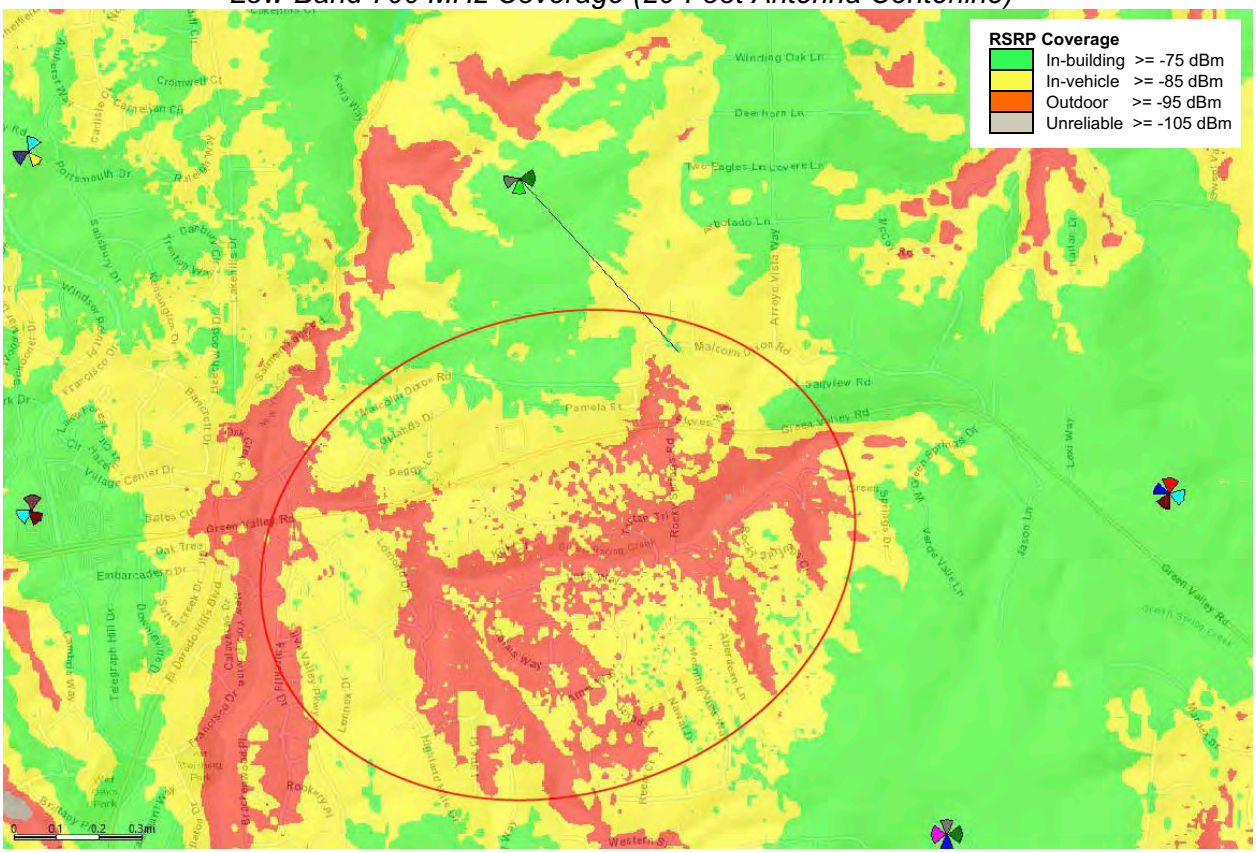
Existing Structures

Verizon Wireless next considered placement of a facility on an existing utility structure, which could be allowed with a minor use permit, but did not identify any suitable elevated structures within the Significant Gap area. Verizon Wireless did consider the following location northwest of the gap area.

2. EID Water Tank
Address: 7976 Rancho Cerros Drive (west of Via Veritas)
Zoning: RE-5–Residential Estates
Elevation: 790 Feet

Verizon Wireless examined the water tank on this El Dorado Irrigation District property, 0.55 miles northwest of the Proposed Facility and 75 feet lower in elevation. Verizon Wireless RF engineers determined that antennas mounted to the water tank cannot serve the Significant Gap. As shown on the following coverage map, low-band in-building coverage would be lacking in a broad area north and south of Green Valley Road, with much of the area also lacking in-vehicle service, including stretches of Green Valley Road. This is not a feasible alternative.

EID Water Tank
Low-Band 700 MHz Coverage (20-Foot Antenna Centerline)



New Tower over 500 Feet from Residential Zones

Verizon Wireless next considered placement of a new tower in non-residential zones, but did not identify any within one mile of the Proposed Facility. All zones within one mile are residential or residential estates zones of varying densities. The closest non-residential zone is an RF-L–Recreational Facility zone near New York Creek Cove along Salmon Falls Road, 1.0 mile northwest of the Proposed Facility and over 200 feet lower in elevation, beyond Alternative 2. A facility there would provide even less coverage than that alternative, which cannot serve the gap.

New Tower within 500 Feet of Residential Zones

Verizon Wireless next considered placement of a new tower within 500 feet of residential zones, which would require a conditional use permit. As described above, there are already four commercial wireless facilities in nearby RE–Residential Estates zones, three of them monopine towers.

3. Proposed Facility

Address: 1495 Malcolm Dixon Road
Zoning: RE–Residential Estates
Elevation: 865 Feet

The Proposed Facility has been thoughtfully designed to minimize any impact on the surrounding area. Verizon Wireless proposes to conceal its antennas within a 108-foot tower facility camouflaged as a pine tree. The antennas will be concealed within faux foliage and branches, and branches will extend beyond and above the antennas, providing a realistic tapered crown. The treepole will be placed within a 1,600-square foot lease area, surrounded by a six-foot wood fence. The equipment area will also contain radio cabinets and a diesel generator to provide continued service during power outages and emergencies. Utilities serving the proposed facility will be routed underground to a nearby electric utility pole along the property line and a fiber vault along Malcolm Dixon Road.

There will be space on the tower and in the equipment area for future collocation of antennas and equipment by additional wireless carriers, minimizing the need for future towers in the vicinity, as required by the Code.

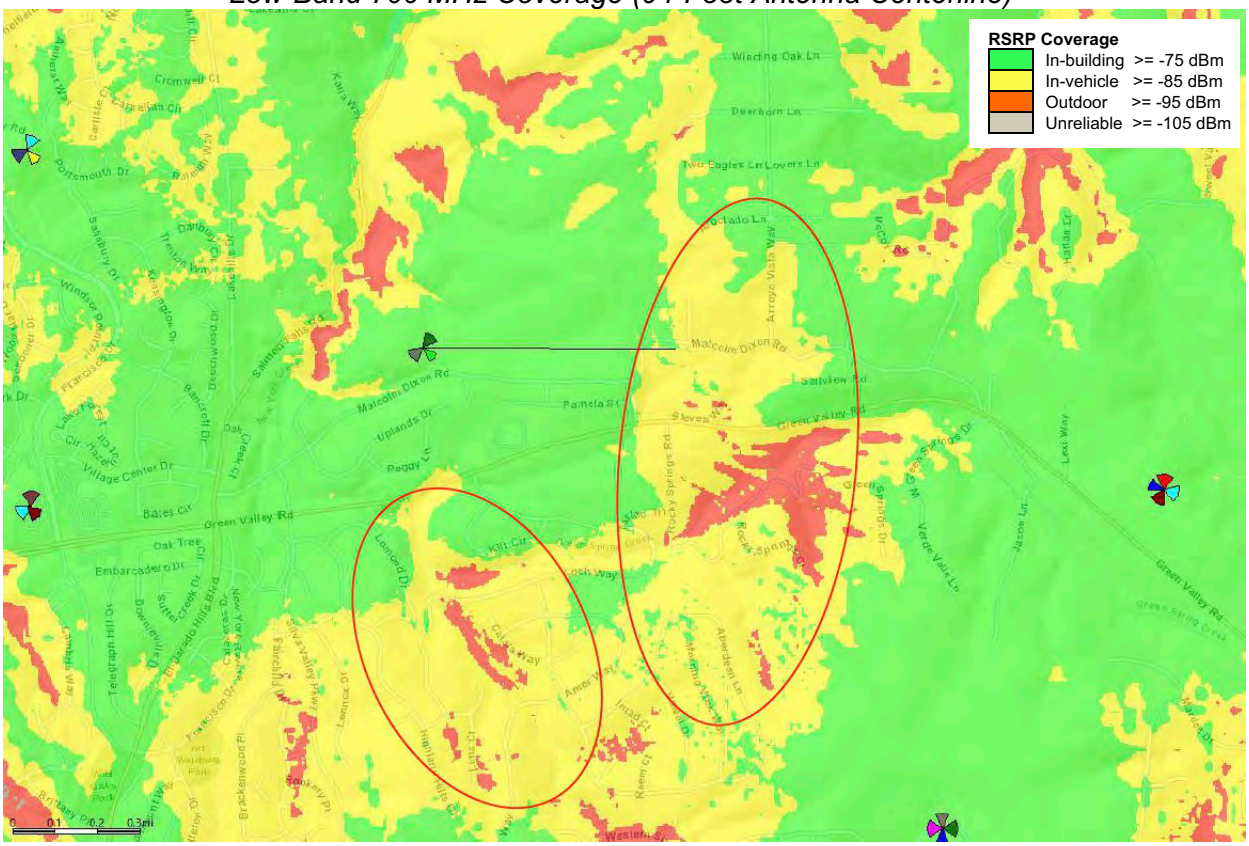
With panel antennas elevated at a 94-foot centerline at this optimal location near the center of the Significant Gap, the Proposed Facility will provide new, reliable Verizon Wireless service to the west Green Valley Road area, as shown on the coverage maps on Page 5. This is Verizon Wireless's preferred location and design for the Proposed Facility.

4. Campbell

Address: 1257-1265 Malcolm Dixon Road
Zoning: RE-5–Residential Estates
Elevation: 740 Feet

Verizon Wireless examined this property located 0.6 miles west of the Proposed Facility and at least 125 feet lower in elevation. Verizon Wireless RF engineers determined that a facility at this location cannot serve the Significant Gap. As shown on the following coverage map, low-band in-building coverage would be lacking in the Highland Hills area and residential areas to the east, north and south of Green Valley Road, with areas also lacking in-vehicle service. This is not a feasible alternative.

Campbell
Low-Band 700 MHz Coverage (94-Foot Antenna Centerline)



Areas of deficient coverage

5. Wilson Estates Common Area 1

Address: Green Valley Road, APN 126-650-030
Zoning: RE-5–Residential Estates
Elevation: 805 Feet

Verizon Wireless examined this property located 0.2 miles southwest of the Proposed Facility and at least 60 feet lower in elevation. The parcel is owned by a homeowners association. This narrow parcel adjacent to Green Valley Road is steeply sloped. Construction of a wireless facility foundation, equipment area and fire-safe access road would require substantial grading, cuts and fills below the residential property due north, posing considerable environmental impacts, if feasible at all given the lack of an access point along Green Valley Road. This is not a feasible alternative.

6. Wilson Estates Common Area 2

Address: Malcolm Dixon Cutoff, APN 126-650-031
Zoning: RE-5–Residential Estates
Elevation: 845 Feet

Verizon Wireless examined this property located 0.1 miles southwest of the Proposed Facility and at least 20 feet lower in elevation. Accordingly, a tower at least 20 feet taller would be required to elevate antennas to the height required to serve the Significant Gap. The parcel is owned by a homeowners association, conditioned to be used for open space, drainage, and oak tree planting, with no residential development. The only elevated location on the parcel is small and steeply sloped. Construction of a wireless facility foundation, equipment area and fire-safe access road would require substantial grading, cuts and fills, posing considerable environmental impacts, if feasible at all. This cannot be considered a less intrusive alternative.

7. Nayeb/Payravi

Address: 1460 Malcolm Dixon Road
Zoning: RE-5–Residential Estates
Elevation: 850 Feet

Verizon Wireless examined this property located 0.1 miles west of the Proposed Facility and at least 15 feet lower in elevation. Accordingly, a tower 15 feet taller would be required to elevate antennas to the height required to serve the Significant Gap. This cannot be considered a less intrusive alternative.

8. Vineyards at El Dorado Hills Estates

Address: Via Veritas and Malcolm Dixon Road
Zoning: RE-5–Residential Estates/Planned Development
Elevation: 865 feet

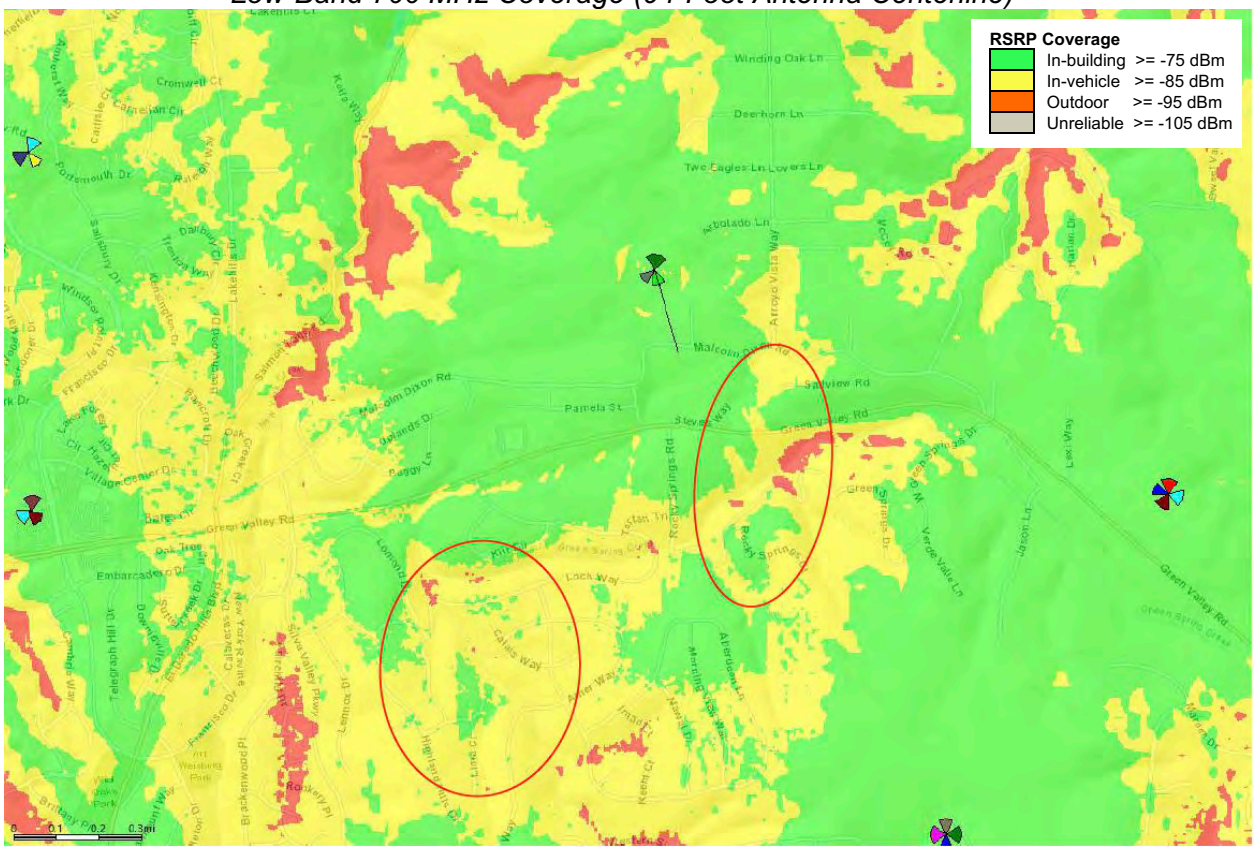
Verizon Wireless examined this development in progress located 0.1 miles northwest of the Proposed Facility with a varying elevation similar to the Proposed Facility at its closest point, then sloping down to the west. The subdivision has been divided into large lots, with common area parcels and residential parcels to be further divided into individual lots. The common area parcel on the east side of the development, due north of Malcolm Dixon Road, reaches an elevation similar to the Proposed Facility, but is designated for vineyards, oak trees, several existing wetlands each with a 50-foot setback, and an ephemeral drainage, leaving insufficient space for a wireless facility equipment area and access road. This is not a feasible alternative.

9. Diamante Development

Address: Via Veritas
Zoning: RE-5–Residential Estates/Planned Development
Elevation: 890 feet

Verizon Wireless examined this incomplete development located 0.2 miles northwest of the Proposed Facility with a varying elevation, 35 feet greater than the Proposed Facility at the southern property line closest to the gap area. The subdivision has not been completed, and only one of eight proposed parcels was split and developed, with the remaining in uncertain status. Verizon Wireless RF engineers determined that a facility at this location cannot serve the Significant Gap. As shown on the following coverage map, low-band in-building coverage would be lacking in portions of the Highland Hills neighborhood and residential areas to the east, north and south of Green Valley Road. This is not a feasible alternative.

Diamante Development
Low-Band 700 MHz Coverage (94-Foot Antenna Centerline)



Areas of deficient coverage

10. Miller

Address: 2040 Casa Robles Road
Zoning: RE-5–Residential Estates
Elevation: 920 Feet

Verizon Wireless examined this property 0.1 miles northeast of the Proposed Facility, and up to 55 feet greater in elevation. The property owner Miller wrote to the County expressing opposition to the Proposed Facility. At it is unlikely that Verizon Wireless could secure landlord interest, this is not a feasible alternative.

11. Barranti

Address: 2101 Casa Robles Road
Zoning: RE-5–Residential Estates
Elevation: 950 Feet

Verizon Wireless examined this property 0.1 miles northeast of the Proposed Facility property, and up to 85 feet greater in elevation. The property owner Barranti wrote to the County expressing opposition to the Proposed Facility. At it is unlikely that Verizon Wireless could secure landlord interest, this is not a feasible alternative.

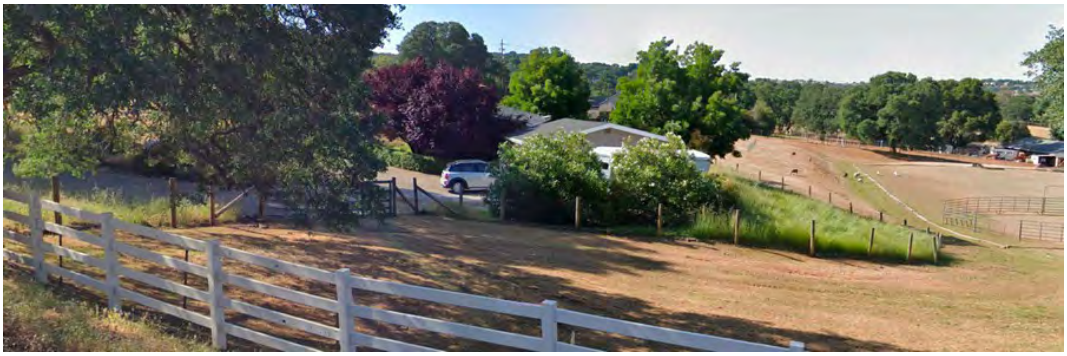
12. Mette

Address: 2080 Arroyo Vista Way
Zoning: RE-5–Residential Estates
Elevation: 965 Feet

Verizon Wireless examined this property 0.1 miles northeast of the Proposed Facility property, and up to 100 feet greater in elevation. The property owner Mette wrote to the County expressing opposition to the Proposed Facility. At it is unlikely that Verizon Wireless could secure landlord interest, this is not a feasible alternative.

13. Blake

Address: 1519 Malcolm Dixon Road
Zoning: RE-5–Residential Estates
Elevation: 920 Feet



Verizon Wireless examined this property due east of the Proposed Facility property, and up to 55 feet greater in elevation, bisected by Malcolm Dixon Road. The property owner Blake wrote to the County expressing opposition to the Proposed Facility. At it is unlikely that Verizon Wireless could secure landlord interest, this is not a feasible alternative.

14. Pierman

Address: 5120 Steves Way
Zoning: RE-5–Residential Estates
Elevation: 865 Feet

Verizon Wireless examined this property due south of the Proposed Facility property at a similar elevation. The property owner Pierman wrote to the County expressing opposition to the Proposed Facility. At it is unlikely that Verizon Wireless could secure landlord interest, this is not a feasible alternative.

15. Ulrich

Address: 5150 Steves Way
Zoning: RE-5–Residential Estates
Elevation: 890 Feet

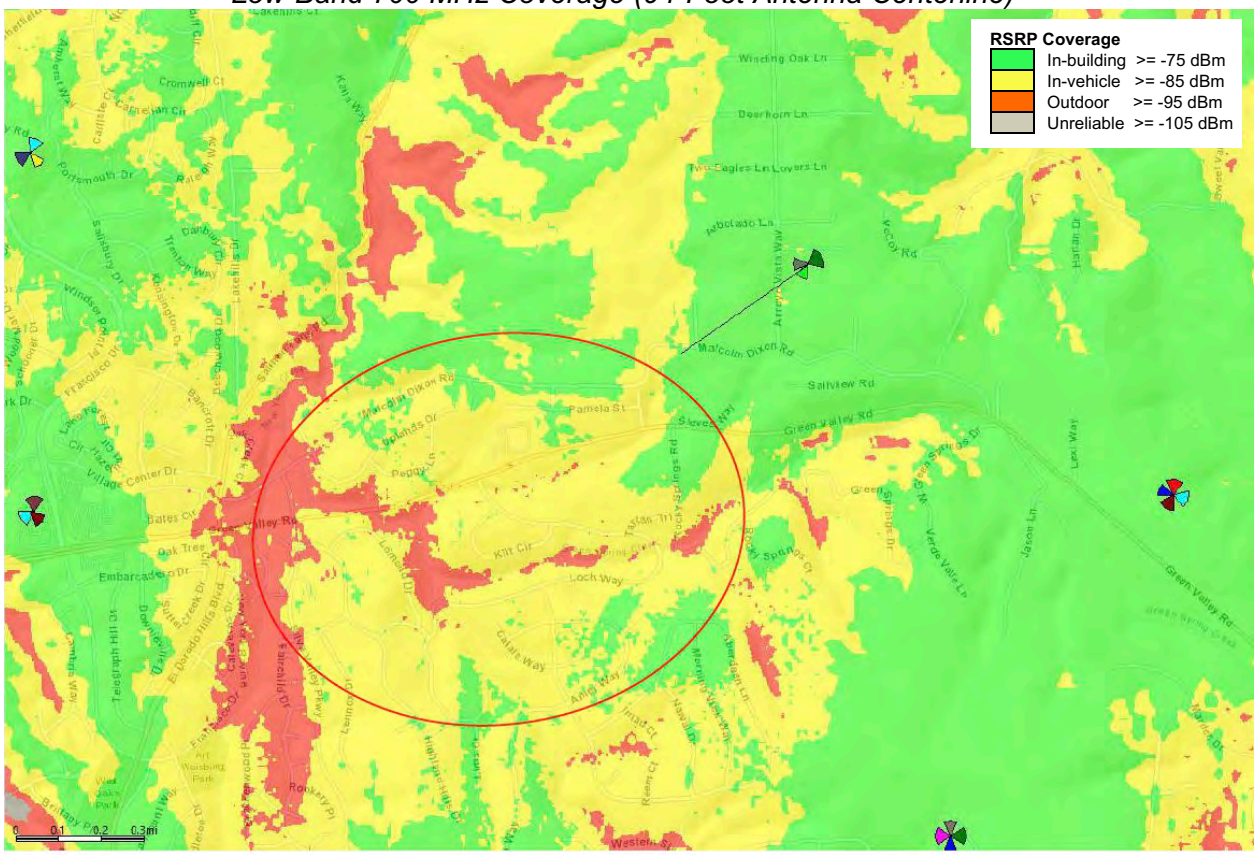
Verizon Wireless examined this property 0.1 miles southeast of the Proposed Facility property and up to 35 feet greater in elevation. The property owner Ulrich wrote to the County expressing opposition to the Proposed Facility. At it is unlikely that Verizon Wireless could secure landlord interest, this is not a feasible alternative.

16. Spencer

Address: 2025 Arroyo Vista Way
Zoning: RE-5–Residential Estates
Elevation: 995 Feet

Verizon Wireless examined this property located 0.35 miles northeast of the Proposed Facility and up to 130 feet greater in elevation. Verizon Wireless RF engineers determined that a facility at this location cannot serve the Significant Gap. As shown on the following coverage map, in-building coverage would be lacking in a broad area north and south of Green Valley Road, with much of the area also lacking in-vehicle service, including stretches of Green Valley Road. This is not a feasible alternative.

Spencer
Low-Band 700 MHz Coverage (94-Foot Antenna Centerline)



Areas of deficient coverage

17. Diel

Address: 1681 Lovers Lane
Zoning: RE-5–Residential Estates
Elevation: 1,010 Feet

Verizon Wireless examined this property located 0.6 miles northeast of the Proposed Facility and up to 145 feet greater in elevation. Verizon Wireless RF engineers determined that a facility at this location cannot serve the Significant Gap. This location is farther north than the Spencer property (Alternative 16), so would provide even less coverage to the gap area. This is not a feasible alternative.

18. Mueller

Address: 1731 Malcolm Dixon Road
Zoning: RE-5–Residential Estates
Elevation: 1,060 Feet

Verizon Wireless examined this property located 0.5 miles east of the Proposed Facility and up to 195 feet greater in elevation. Verizon Wireless sent a letter of interest to the property owner inquiring about a lease for this property, but received no reply. Lacking landlord interest, this is not a feasible alternative.

19. Shupe

Address: 1732 Malcolm Dixon Road
Zoning: RE-5–Residential Estates
Elevation: 1,000 Feet

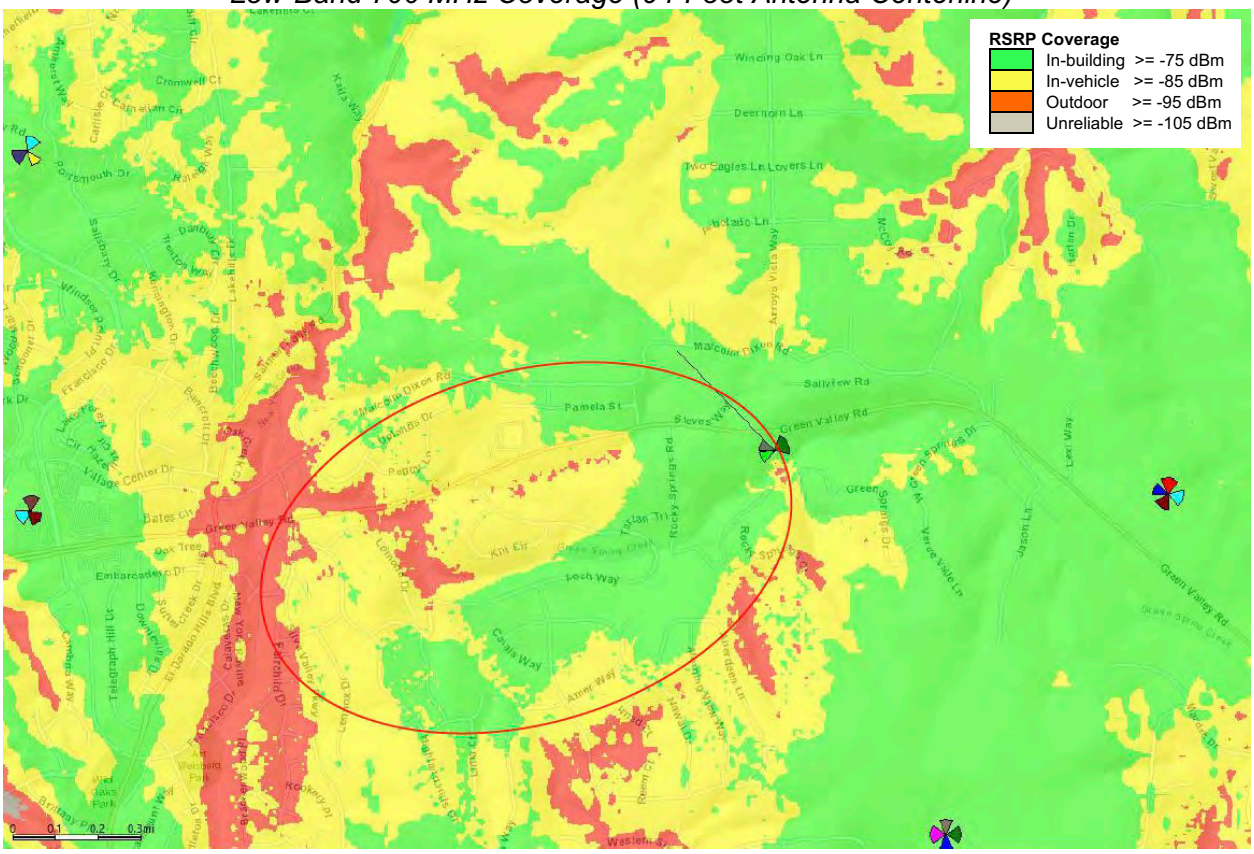
Verizon Wireless examined this property located 0.5 miles east of the Proposed Facility and up to 135 feet greater in elevation. Verizon Wireless sent a letter of interest to the property owner inquiring about a lease for this property, but received no reply. Lacking landlord interest, this is not a feasible alternative.

20. Osborne

Address: 1540 Green Valley Road
Zoning: RE-5–Residential Estates
Elevation: 830 Feet

Verizon Wireless examined this property located 0.35 miles southeast of the Proposed Facility. The property slopes steeply south from the north property line along Green Valley Road, and the buildable area is at an elevation of approximately 830 feet, 35 feet lower in elevation than the Proposed Facility. Verizon Wireless RF engineers determined that a facility at this location cannot serve the Significant Gap. As shown on the following coverage map, in-building coverage would be lacking in a broad area north and south of Green Valley Road, with much of the area also lacking in-vehicle service, including stretches of Green Valley Road. This is not a feasible alternative.

Osborne
Low-Band 700 MHz Coverage (94-Foot Antenna Centerline)



Areas of deficient coverage

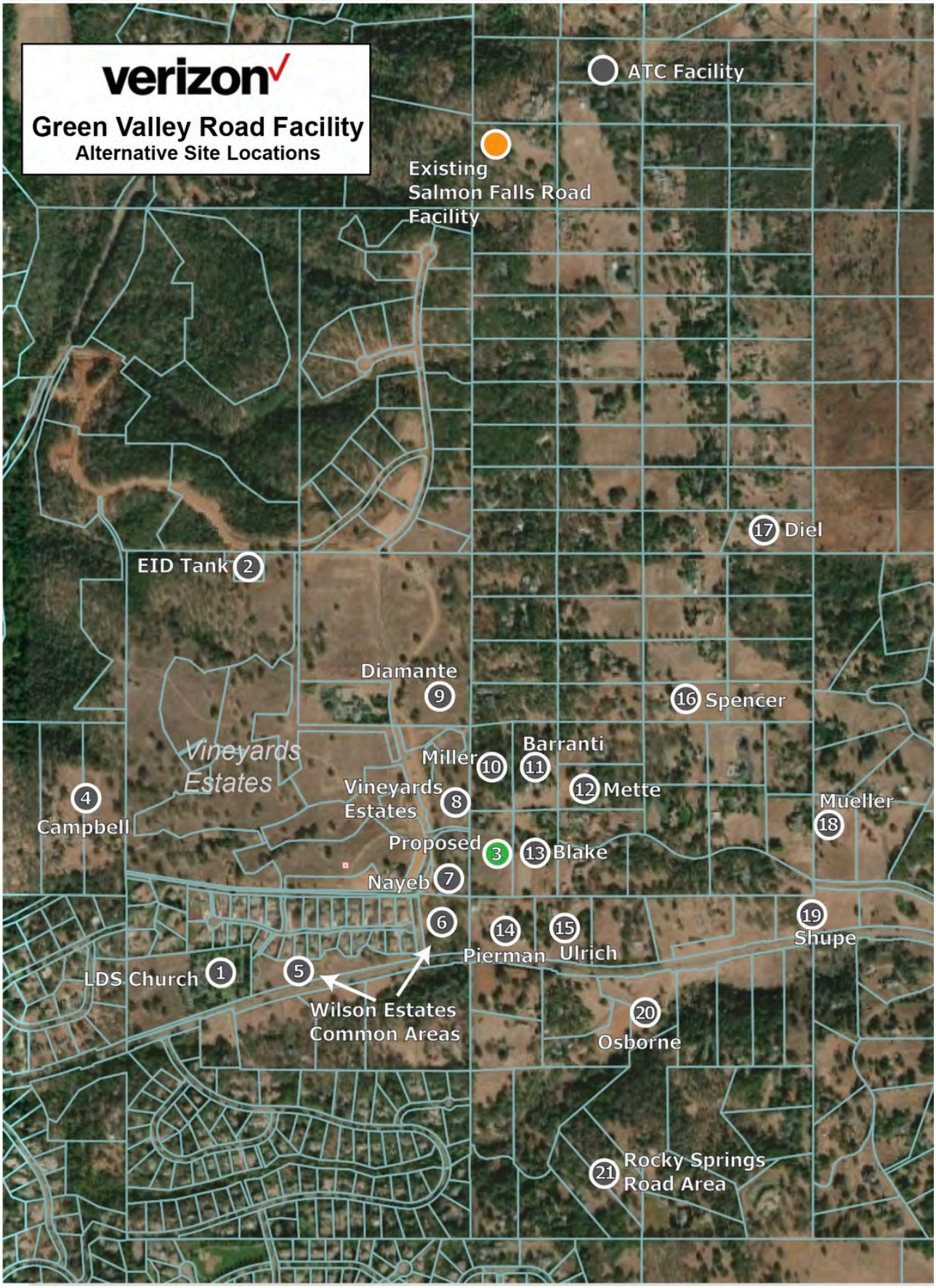
21. Rocky Springs Road/West Green Springs Road

Address: Elevated Parcels, Rocky Springs Road/West Green Springs Road
Zoning: RE-5–Residential Estates
Elevation: 935-1,100 Feet

Verizon Wireless examined several large, elevated parcels along these roadways located approximately 0.5 miles southeast of the Proposed Facility. The parcels do not have direct access to a public right-of-way, and their access roads cross several other private properties along the route connecting to Green Valley Road to the north. Verizon Wireless would be required to obtain easements from multiple property owners, each of whom may be able to veto the project by denying access. This is not a feasible alternative.

V. Conclusion

Verizon Wireless has considered 21 specific alternatives to fill the Significant Gap in service in the west Green Valley Road area, east of El Dorado Hills. Based upon the values expressed in the El Dorado County Ordinance Code, the Proposed Facility clearly constitutes the least intrusive feasible location for Verizon Wireless's new facility.


verizon
Green Valley Road Facility
Alternative Site Locations
ATC Facility
Existing
Salmon Falls Road
Facility
17 Diel
EID Tank 2
Diamante
9
16 Spencer
Vineyards
Estates
Miller 10
Barranti 11
12 Mette
Vineyards
Estates 8
Mueller
18
4
Campbell
Proposed 3
13 Blake
Nayeb 7
6
14 Pierman
15 Ulrich
19
Shupe
LDS Church 1
5
Wilson Estates
Common Areas
20
Osborne
21 Rocky Springs
Road Area