

**MACKENZIE & ALBRITTON LLP**

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June 14, 2016

**VIA EMAIL AND FEDEX**

Chair Rob Brown  
Vice Chair Jeff Smith  
Supervisors Jim Steele,  
Jim Comstock and Anthony Farrington  
Board of Supervisors  
Lake County  
255 North Forbes Street  
Lakeport, California 95453

Re: Verizon Wireless Appeal of Denial of Application UP15-10  
Telecommunications Facility, 5660 Staheli Drive, Kelseyville  
Board of Supervisors Agenda, June 28, 2016

Dear Chair Brown, Vice Chair Smith and Supervisors:

We write on behalf of Verizon Wireless to ask that you grant its appeal of the Planning Commission's denial of a camouflaged wireless telecommunication facility in the Kelseyville area (the "Proposed Facility"). The Planning Commission's denial was not supported by substantial evidence and is contrary to Staff's original recommendation of approval. The Proposed Facility meets all requirements of the Lake County Code of Ordinances (the "Code"), General Plan and Kelseyville Area Plan, and it satisfies all required findings for issuance of a major use permit. Further, as the Proposed Facility will fill a significant gap in Verizon Wireless service and there is no less intrusive feasible alternative, denial of the application would violate the federal Telecommunications Act. We strongly urge you to grant Verizon Wireless's appeal and approve the Proposed Facility.

**I. The Project**

The Proposed Facility has been thoughtfully designed and redesigned to minimize any impact on the adjacent community. Verizon Wireless proposes to place its antennas on a 64 foot tower disguised as a pine tree placed among established pine and oak trees that are approximately 40 feet in height. Antennas will be concealed within faux foliage and branches, and branches will extend beyond and above the antennas, providing a realistic tapered crown. Antennas will be covered with pine needle socks for further concealment. The treepole will be placed within a 1,200 square foot equipment area that

will also contain radio cabinets and a generator to provide continued service in case of emergency. The equipment area will be secured by chain link fence topped with barbed wire.

To demonstrate its insignificant visual impact, we have attached photosimulations of the Proposed Facility as Exhibit A. A report prepared by Hammett & Edison, Inc., Consulting Engineers, attached as Exhibit B (the "H&E RF Study"), confirms that the Proposed Facility will operate within Federal Communications Commission ("FCC") radio-frequency ("RF") exposure guidelines.

**II. The Proposed Facility Complies with All Requirements of the Code, General Plan and Kelseyville Area Plan and Meets All Findings for Issuance of a Major Use Permit.**

As confirmed in the Staff Report to the Planning Commission, the Proposed Facility complies with all applicable requirements of the Code, General Plan and Kelseyville Area Plan and meets all findings for issuance of a major use permit. Verizon Wireless has redesigned the Proposed Facility to lower the height from 75 feet to 64 feet, the minimum height required for antennas to serve the significant gap in service. This is well below the maximum wireless facility height of 150 feet under Code §21-71.8(a)(16). Verizon Wireless chose to disguise the Proposed Facility as a pine tree to visually blend with adjacent established pine and oak trees which provide screening in compliance with Code §§21-71.8(a)(1) and 21-71.8(a)(5). The tapered crown incorporated into the Proposed Facility treepole further reduces visual impact as directed under Code §21-71.8(a)(3).

In its report to the Planning Commission, staff concluded that placing the camouflaged treepole among existing trees on a 17-acre parcel will integrate the facility into the site and minimize visual impacts to the greatest extent possible, consistent with General Plan Policy PFS-7.3. The Proposed Facility is also consistent with relevant Kelseyville Area Plan criteria. As staff confirmed, the Proposed Facility will be constructed on non-prime agricultural soils and, notably, will provide an important benefit in more reliable communications for residents, travelers, and emergency response personnel in the area.

Staff also confirmed that the Proposed Facility poses no detriment to peace, health, safety, comfort or general welfare and is not detrimental to nearby property, consistent with the major use permit finding of Code §21-51.4(a)(1). As the subject property is 17 acres, it is adequate in size and shape to accommodate the Proposed Facility which occupies only 1,200 square feet and meets all setback requirements, satisfying the finding of Code §21-51.4(a)(2). The Proposed Facility will generate no traffic other than infrequent maintenance visits, meeting the finding of Code §21-51.4(a)(3). Necessary public services including fire protection are adequate in the Kelseyville area as required by the finding of Code §21-51.4(a)(4). As noted above, Staff concluded that the Proposed Facility complies with all relevant Code, General Plan and Kelseyville Area Plan requirements, meeting the finding of Code §21-51.4(a)(5). Lastly,

Staff confirmed there are no violations on the subject property as required by the finding of Code §41-51.4(a)(6). Because the Proposed Facility meets all findings for approval of a major use permit, the Board should grant Verizon Wireless's appeal and approve the Proposed Facility.

### **III. Federal Law Compels Approval of the Application.**

Verizon Wireless is licensed by the FCC to provide wireless telecommunications services throughout the United States, including Lake County. The siting of wireless communications facilities ("WCFs"), including the one at issue here, is governed by the federal Telecommunications Act (the "TCA"). While the TCA reserves to local governments traditional land use control over the siting, placement and modification of WCFs, it places certain restrictions on such local regulation. The following restrictions are relevant here:

- Any denial of an application must be in writing and supported by substantial evidence contained in a written record (47 U.S.C. §332(c)(7)(B)(iii));
- The local government cannot regulate the placement, construction, or modification of WCFs based on the environmental effects of their RF emissions, provided those emissions are below the limits set by the FCC (47 U.S.C. §332(c)(7)(B)(iv)); and
- Local regulation or decisions must not "prohibit or have the effect of prohibiting the provision of personal wireless services" (47 U.S.C. §332(c)(7)(B)(i)(II)).

With this legal framework in mind, we address below the specific federal law issues before the Board with respect to this application.

### **IV. There is No Substantial Evidence for Denial.**

As interpreted under controlling federal court decisions, the "substantial evidence" requirement means that a local government's decision to deny a WCF application must be based on requirements set forth in the local code and supported by evidence in the record. (*See Metro PCS, Inc. v. City and County of San Francisco*, 400 F.3d 715, 725 (9th Cir. 2005) [denial of application must be "authorized by applicable local regulations and supported by a reasonable amount of evidence"].)

While a local government may regulate the placement of WCFs based on aesthetics, mere generalized concerns or opinions about aesthetics or compatibility with a neighborhood do not constitute substantial evidence upon which a local government could deny a permit. *See City of Rancho Palos Verdes v. Abrams*, 101 Cal. App. 4th 367, 381 (2002).

As set forth above, Verizon Wireless has provided substantial evidence to show that the Proposed Facility complies with all requirements for approval under County

regulations. Among other evidence, photosimulations demonstrate the minimal visual impacts of the camouflaged treepole that blends with adjacent established screening trees on the property. The H&E RF Study confirms that emissions from the Proposed Facility will comply with FCC guidelines.

In contrast, the Planning Commission's denial was not based on substantial evidence. The County's letter informing Verizon Wireless of the denial dated January 14, 2016, offered no findings or evidence to justify denial. The Minutes of the Planning Commission meeting indicate that the motion to deny was based only on a finding that the "property does not meet the requirements of Section 51.4 of the Lake County Zoning Ordinance."<sup>1</sup> The Commission apparently ignored the staff report, which had provided findings for approval of a major use permit under Section 51.4 including consistency with the General Plan. Lacking any facts or elaboration, the Planning Commission provided no evidence – let alone the substantial evidence required under federal law – to justify its rejection of the Proposed Facility. Because there is no substantial evidence for denial, the Board should reverse the denial and grant Verizon Wireless's appeal.

**V. Radio Frequency Emissions Comply with FCC Standards and Are Not a Local Zoning Issue.**

Local governments are preempted under federal statute from considering any alleged health or environmental effects of RF emissions of proposed WCFs "to the extent such facilities comply with the FCC's regulations concerning such emissions." 47 U.S.C. §332(c)(7)(B)(iv). As described in the H&E RF Study referenced above, exposure levels at ground level from the Proposed Facility will be only 2.4% – or 41 times below – the FCC public exposure limit.

Moreover, federal preemption goes beyond decisions that are explicitly based on RF emissions. It also bars efforts to circumvent such preemption through some proxy such as aesthetics or property values. *See, e.g., AT&T Wireless Services of Cal. LLC v. City of Carlsbad*, 308 F. Supp. 2d 1148, 1159 (S.D. Cal. 2003) (in light of federal preemption, "concern over the decrease in property values may not be considered as substantial evidence if the fear of property value depreciation is based on concern over the health effects caused by RF emissions"). Where, as here, a WCF has been shown to fully comply with FCC guidelines, health concerns, or any proxy for health concerns, cannot justify rejection of the Proposed Facility.

**VI. Approval is Required in Order to Avoid Unlawful Prohibition of Service.**

A local government's denial of a permit for a wireless facility violates the "effective prohibition" clause of the TCA if the wireless provider can show two things: (1) that it has a "significant gap" in service; and (2) that the proposed facility is the "least intrusive means," in relation to the land use values embodied in local regulations, to

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<sup>1</sup> Minutes, Planning Commission, January 14, 2016, p. 3.

address the gap. *See T-Mobile USA, Inc. v. City of Anacortes*, 572 F.3d 987 (9<sup>th</sup> Cir. 2009).

If a provider proves both elements, the local government *must* approve the facility, even if there is substantial evidence to deny the permit under local land use provisions. This is because the provider has met the requirements for federal preemption; i.e., denial of the permit would “have the effect of prohibiting the provision of personal wireless services.” 47 U.S.C. §332(c)(7)(B)(1)(ii); *T-Mobile v. Anacortes*, 572 F.3d at 999. To avoid such preemption, the local government must show that another alternative is available, technologically feasible, and less intrusive than the proposed facility. *T-Mobile v. Anacortes*, 572 F.3d at 998-999.

**A. Verizon Wireless Has Demonstrated a Significant Gap in Service.**

Verizon Wireless has identified a significant gap in service in the Kelseyville area. The significant gap is described in the *Statement of Verizon Wireless Radio Frequency Engineer Benjamin Santa Maria* attached as Exhibit C (the “RF Engineer’s Statement”). As shown through coverage maps included in the RF Engineer’s Statement, there is a significant gap in Verizon Wireless coverage in the Kelseyville area. This affects local residents and visitors as well as communication with emergency response personnel. As further evidence of the need for the Proposed Facility, a letter from a Verizon Wireless Marketing Director regarding text messages of support received from 337 local residents is attached as Exhibit D.

**B. The Proposed Facility is the Least Intrusive Means to Fill the Significant Gap in Service.**

In an effort to address the significant gap, Verizon Wireless evaluated local zoning districts and six specific alternatives as shown in the comprehensive Alternatives Analysis attached as Exhibit E. Verizon Wireless discounted locations that were not feasible, do not meet requirements of local regulation or cannot serve the significant gap. The Alternatives Analysis confirms that the Proposed Facility is the least intrusive means of providing wireless service to the significant gap.

In short, Verizon Wireless has identified a significant gap in coverage and has shown that the Proposed Facility is the least intrusive means to address it, based on the values expressed in the Code. Under these circumstances, Verizon Wireless has established that denial of the permit would constitute an unlawful prohibition of service.

**Conclusion**

Verizon Wireless has worked diligently to identify the ideal location and design for a camouflaged wireless facility to serve the Kelseyville area. The Proposed Facility is consistent with all requirements of the Code, and it meets all required findings for issuance of a major use permit. It also represents the least intrusive means to address a significant gap in Verizon Wireless coverage. Bringing improved Verizon Wireless

service to this area is essential to the health, safety, and welfare of residents, visitors and emergency services providers in the surrounding community, as demonstrated by the 337 text messages of support received from local residents. We strongly encourage you to grant Verizon Wireless's appeal and approve the Proposed Facility.

Very truly yours,

A handwritten signature in black ink, appearing to read "Paul Albritton", with a stylized flourish at the end.

Paul B. Albritton

cc: Anita Grant, Esq.  
Keith Gronendyke

**Schedule of Exhibits**

Exhibit A: Photosimulations

Exhibit B: H&E RF Study

Exhibit C: RF Engineer's Statement

Exhibit D: Letter from Verizon Wireless Marketing Director Regarding 337 Text  
Messages of Support Received

Exhibit E: Alternatives Analysis

**Location:** Hwy 29/Live Oak Drive 5660 Staheli Dr, Kelseyville, CA 95451 (Revision 1)



**Planned Work:** Add 64 Foot Monotree with 5' of branches



**Exhibit A**

**View One:** looking from the north



**Location:** Hwy29/Live Oak Dr 5660 Staheli Dr, Kelseyville, CA 95451 (Revision 1)

**Planned Equipment:** Place 64 Foot monotree



**Planned Work:** Add 64 Foot Monotree



**View Two:** looking from the east



Location: Hwy29/Live Oak Dr 5660 Staheli Dr, Kelseyville, CA 95451 (Revision 1)



Planned Work: Add 64 Foot Monotree



View Three: looking from the northeast



**Location:** Hwy29/Live Oak Dr 5660 Staheli Dr, Kelseyville, CA 95451 (Revision 1)



**Planned Work:** Add 64 Foot Monotree



**View Four:** looking from the west

**Statement of Hammett & Edison, Inc., Consulting Engineers**

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate the base station (Site No. 297519 “Hwy 29/Live Oak Drive”) proposed to be located at 5660 Staheli Drive in Kelseyville, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

**Executive Summary**

Verizon proposes to install directional panel antennas on a tall pole, configured to resemble a tree, to be located at 5660 Staheli Drive in Kelseyville. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

**Prevailing Exposure Standards**

The U.S. Congress requires that the Federal Communications Commission (“FCC”) evaluate its actions for possible significant impact on the environment. A summary of the FCC’s exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive FCC limit for exposures of unlimited duration to radio frequency energy for several personal wireless services are as follows:

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5–80 GHz	5.00 mW/cm <sup>2</sup>	1.00 mW/cm <sup>2</sup>
WiFi (and unlicensed uses)	2–6	5.00	1.00
BRS (Broadband Radio)	2,600 MHz	5.00	1.00
WCS (Wireless Communication)	2,300	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

**General Facility Requirements**

Base stations typically consist of two distinct parts: the electronic transceivers (also called “radios” or “channels”) that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A small antenna for reception of GPS signals is also required, mounted with a clear view of the sky.

**Verizon Wireless • Proposed Base Station (Site No. 297519 “Hwy 29/Live Oak Drive”)  
5660 Staheli Drive • Kelseyville, California**

Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

**Computer Modeling Method**

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, “Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation,” dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna’s radiation pattern is not fully formed at locations very close by (the “near-field” effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the “inverse square law”). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

**Site and Facility Description**

Based upon information provided by Verizon, including zoning drawings by ATM Engineering, dated March 12, 2015, it is proposed to install twelve Andrew Model SBNHH-1D65C directional panel antennas on a new 70-foot steel pole, configured to resemble a tree, to be located at 5660 Staheli Drive in Kelseyville. The antennas would employ no downtilt, would be mounted at an effective height of about 62 feet above ground, and would be oriented in groups of four toward 40°T, 160°T, and 290°T, to provide service in all directions. The maximum effective radiated power in any direction would be 11,070 watts, representing simultaneous operation at 4,160 watts for AWS, 4,160 watts for PCS, and 2,750 watts for 700 MHz service; no operation on cellular frequencies is presently proposed from this site. Also proposed to be located on the pole are two microwave “dish” antennas, for interconnection of this site with others in the Verizon network. There are reported no other wireless telecommunications base stations at the site or nearby.

**Study Results**

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation, including the contribution of the microwave antennas, is calculated to be 0.023 mW/cm<sup>2</sup>, which is 2.4% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby residence\* is 0.73% of the public exposure limit. It should be noted that

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\* Located at least 100 feet away, based on photographs from Google Maps.



**Verizon Wireless • Proposed Base Station (Site No. 297519 “Hwy 29/Live Oak Drive”)  
5660 Staheli Drive • Kelseyville, California**

these results include several “worst-case” assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

**No Recommended Mitigation Measures**

Due to their mounting locations and height, the Verizon antennas would not be accessible to unauthorized persons, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. It is presumed that Verizon will, as an FCC licensee, take adequate steps to ensure that its employees or contractors receive appropriate training and comply with FCC occupational exposure guidelines whenever work is required near the antennas themselves.

**Conclusion**

Based on the information and analysis above, it is the undersigned’s professional opinion that operation of the base station proposed by Verizon Wireless at 5660 Staheli Drive in Kelseyville, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations.

**Authorship**

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-20309, which expires on March 31, 2017. This work has been carried out under her direction, and all statements are true and correct of her own knowledge except, where noted, when data has been supplied by others, which data she believes to be correct.



*Andrea L. Bright*  
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Andrea L. Bright, P.E.  
707/996-5200

June 25, 2015

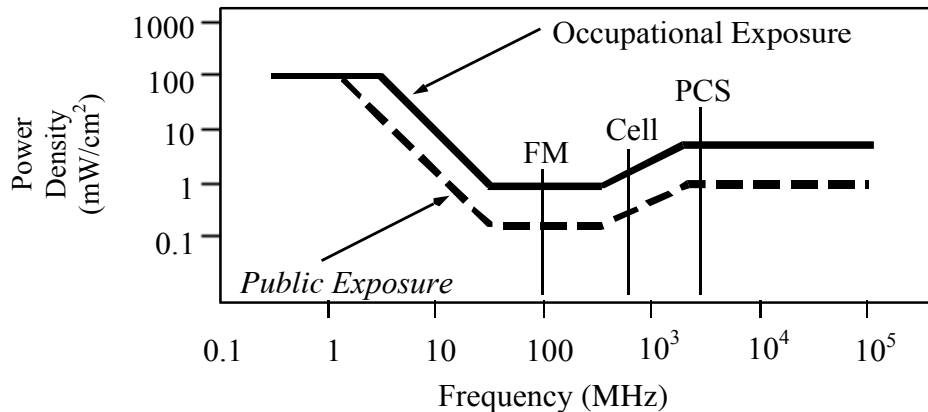


## FCC Radio Frequency Protection Guide

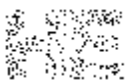
The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements (“NCRP”). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, “Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency Applicable Range (MHz)	Electromagnetic Fields (f is frequency of emission in MHz)					
	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm <sup>2</sup> )	
0.3 – 1.34	614	<i>614</i>	1.63	<i>1.63</i>	100	<i>100</i>
1.34 – 3.0	614	<i>823.8/f</i>	1.63	<i>2.19/f</i>	100	<i>180/f<sup>2</sup></i>
3.0 – 30	1842/f	<i>823.8/f</i>	4.89/f	<i>2.19/f</i>	900/f <sup>2</sup>	<i>180/f<sup>2</sup></i>
30 – 300	61.4	<i>27.5</i>	0.163	<i>0.0729</i>	1.0	<i>0.2</i>
300 – 1,500	3.54√f	<i>1.59√f</i>	√f/106	<i>√f/238</i>	f/300	<i>f/1500</i>
1,500 – 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has built those formulas into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radio sources. The program allows for the description of buildings and uneven terrain, if required to obtain more accurate projections.



## RFR.CALC™ Calculation Methodology

### Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

#### Near Field.

Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density  $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$ , in mW/cm<sup>2</sup>,

and for an aperture antenna, maximum power density  $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$ , in mW/cm<sup>2</sup>,

where  $\theta_{BW}$  = half-power beamwidth of the antenna, in degrees, and  
 $P_{net}$  = net power input to the antenna, in watts,  
 $D$  = distance from antenna, in meters,  
 $h$  = aperture height of the antenna, in meters, and  
 $\eta$  = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

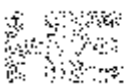
#### Far Field.

OET-65 gives this formula for calculating power density in the far field of an individual RF source:

power density  $S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$ , in mW/cm<sup>2</sup>,

where ERP = total ERP (all polarizations), in kilowatts,  
RFF = relative field factor at the direction to the actual point of calculation, and  
D = distance from the center of radiation to the point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radiation sources. The program also allows for the description of uneven terrain in the vicinity, to obtain more accurate projections.



**verizon**  
2785 Mitchell Drive  
Walnut Creek, CA 94598

June 9, 2016

**To: Lake County Board of Supervisors**

**From: Benjamin Santa Maria, Radio Frequency Design Engineer  
Verizon Wireless Network Engineering Department**

**Subject: Statement in Support of Verizon Wireless's Proposed  
Telecommunications Facility, 5660 Staheli Drive**

### **Executive Summary**

Verizon Wireless seeks to fill a significant gap in its wireless services in the Kelseyville area of Lake County. This area currently receives inadequate service from the existing Verizon Wireless Lakeport facility located nearly eight miles northwest of the proposed facility and the Middletown facility located nine miles southeast. There are no facilities to the north, east or south providing reliable service levels in the area.

As a result of the distance of the existing facilities, there is an absence of LTE service coverage in the Kelseyville area. The coverage gap described below constitutes the "significant gap" Verizon Wireless seeks to serve (the "Significant Gap"). To provide new reliable LTE coverage to the Kelseyville area, the Significant Gap must be remedied through construction of new infrastructure, in this case, a facility disguised as a tree at 5660 Stahile Drive (the "Proposed Facility").

### **Coverage Gap**

Verizon Wireless is experiencing a broad gap in LTE coverage in the Kelseyville area. The only Verizon Wireless service available is marginal LTE coverage in scattered areas west of Kelseyville and a few isolated pockets to the east; otherwise, the area lacks reliable LTE service. In particular, the downtown Kelseyville area lacks reliable LTE service as do surrounding residential areas and working agricultural establishments. Important roadways experiencing unreliable LTE in-vehicle service include Highway 29 with 22,300 vehicle trips per day.<sup>1</sup> (Collectively, the "Coverage Gap.")

A graphic description of the current Coverage Gap is shown in the map below. The Proposed Facility will provide new reliable LTE service to an area of approximately 19 square miles and a population of 3,700 residents. The Proposed Facility will also provide new reliable LTE in-vehicle service to a three-

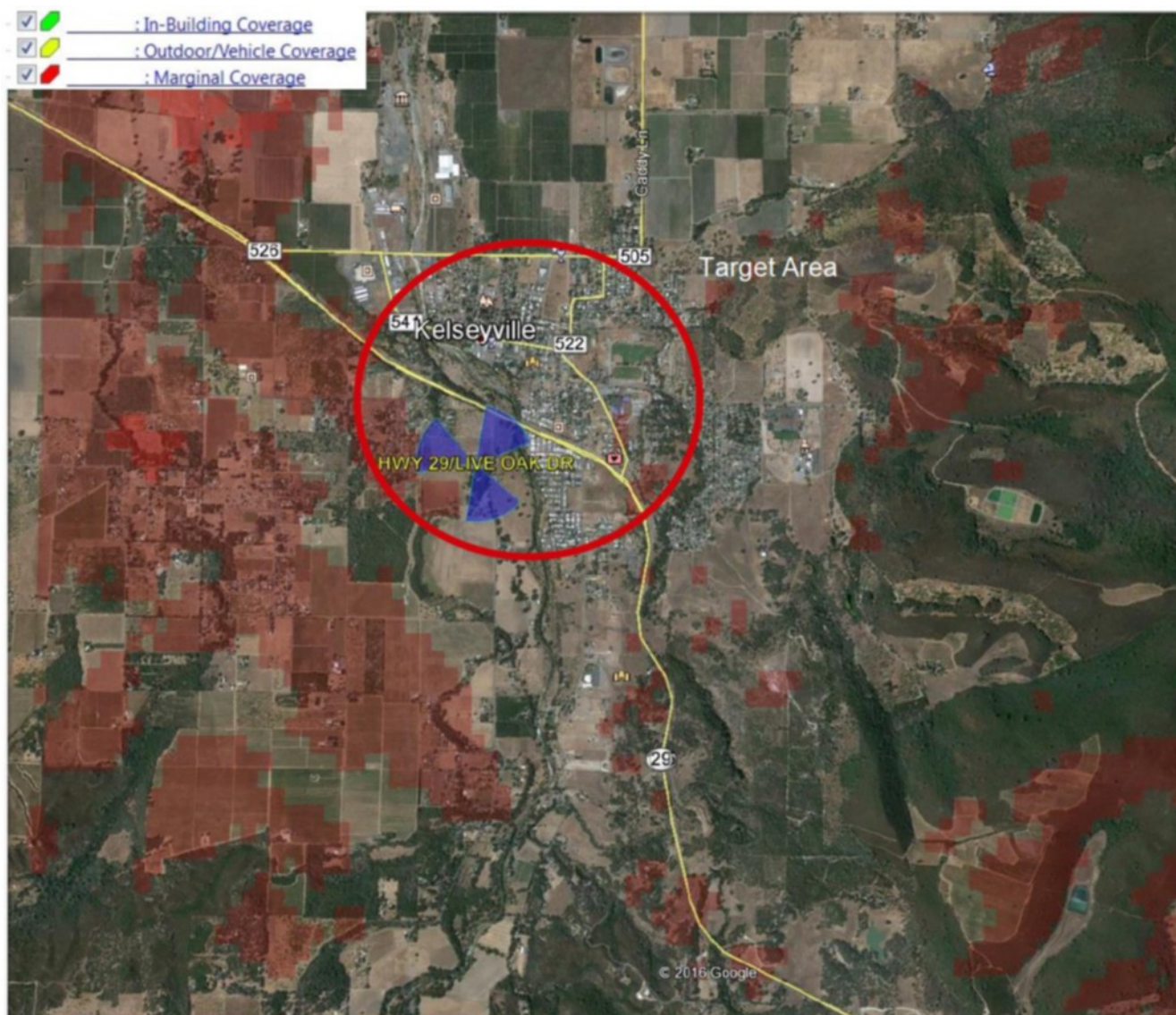
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<sup>1</sup> CalTrans 2014 Traffic Volumes Book.

mile stretch of Highway 29, including the stretch between Merritt Road and Bruce Drive

Coverage plot maps like that below provide important information regarding the anticipated level of LTE signal, and therefore the projected coverage provided by a site at a given location. As reflected in the map legend, green reflects good coverage that meets or exceeds thresholds to provide consistent and reliable in-building coverage. Yellow and red depict decreasing levels of coverage, respectively, with yellow generally representing reliable outdoor and in-vehicle coverage and red depicting poor service areas with marginal coverage unsuitable for in-vehicle use. Uncolored areas experience unreliable service levels or a lack of service. Note that there are no green (in-building) or yellow (in-vehicle) coverage areas shown on the coverage map.

*Current LTE Coverage Map*



## Conclusion

The lack of reliable Verizon Wireless LTE 4G service in the Kelseyville area constitutes a Significant Gap in Verizon Wireless service. LTE 4G service is necessary to provide 4G data and voice services which are currently unavailable to Verizon Wireless customers in the area. Verizon Wireless must deploy the Proposed Facility to provide needed LTE 4G services required by the growing number of customers using current 4G cell phones and wireless devices.

Please feel free to contact me with any questions or comments regarding Verizon Wireless's proposed facility.

Respectfully submitted,

Benjamin

Santa Maria

Benjamin Santa Maria

RF Design Engineer

Digitally signed by Benjamin Santa Maria  
DN: cn=Benjamin Santa Maria, o=Verizon  
Wireless, ou=RF Engineering,  
email=benjamin.santamaria@verizonwireless.c  
om, c=US  
Date: 2016.06.13 17:03:27 -0700





**Verizon Wireless**

15505 Sand Canyon Ave, Bldg. D  
Irvine, CA 92618

June 14, 2016

Board of Supervisors  
Lake County  
255 North Forbes Street  
Lakeport, California 95453

Re: 337 Supporters for Verizon Wireless Facility  
5660 Staheli Drive

Dear Supervisors:

I am the Verizon Wireless Marketing Director over the team that maintains and manages all data and information messages that are sent to Verizon Wireless customers in California. In connection with the application referred to above, Verizon Wireless arranged for a text message to be sent to customers with billing addresses within the ZIP code 95451 in the Kelseyville area. The entire text message sent reads as follows:

Free VZW Message: Reply YES to this text message to show your support for improved Verizon Wireless service in the Kelseyville area. Add a message to tell the County that you support a faux pine tree wireless facility at 5660 Staheli Drive. Include your email address for meeting updates.

The text message above was sent on June 6, 2016. As of June 13, 2016, we have received 337 affirmative text message responses indicating support for the proposed facility and six respondents opposed. Text messages received confirmed the need to provide improved Verizon Wireless service in the Kelseyville area. Samples of the text messages of support received from Verizon Wireless customers appear on the attached pages.

I am available to verify the above information as you may require.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeremy McCarty", written over a horizontal line.

Jeremy McCarty  
Director

Customer Relationship Management

Attachment

**Sample Text Messages of Support  
for Verizon Wireless Facility  
5660 Staheli Drive**

We support!!! 7790 Brower Lane Kelseyville CA

Would love to have additional Verizon wireless service in our county. We can certainly use it. Thanks, Jan Bell

Yes support version wireless in kelseyville. Faux pine tree facility.

Yes i am in support of the expanded coverage in Kelseyville. A faux tree on Staheli dr. Is an environmentally safe idea that will blend and not take upkeep.

Yes I support a facility at 5660 Staheli Dr.

YES I support a faux pine tree wireless facility on Stahelli. We badly need better service in Kelseyville.

YES i support a faux pine tree wireless facility. We need it bad in Kelseyville.

Yes I support better service

Yes I support improved service in the KELSEYVILLE area

Yes i support improvement

YES I support this

Yes I would love improved service in my area.

Yes I would love that. Would improve safety for all by making 911 easier to use.

Yes JulieRichardson

Yes Kelseyville area needs better service from Verizon

YES please allow a faux tree antenna to improve cell signals

Yes please give me opportunity for cell service in kelseyville.

Yes service in kelseyville is horrible can't even use my phone at my house

YES This will most certainly improve wireless phone service!!

YES We need better coverage in the Kelseyville area.

Yes We need better coverage on Cobb too.

Yes we need better service 8789 wight way kelseyville

Yes we need better service here

Yes We support improved service in Kelseyville California RC Tracey Mitchell

Yes we support this wireless better in Kelseyville

Yes Yes! Yes! Yes!

Yes! Do the faux pine!

YES! I support a faux pine tree wireless facility at 5660 Staheli Drive!

Yes! Put it up!

Yes! We need better service!

Yes!!

Yes!!! Bring me into the real world of phone and internet services. I'm about ready for another carrier.

Yes!!!!!!! I support putting up a faux pine tree wireless tower.

Yes, 7556 wight way

Yes, I live on staheli and my family has maybe 1 bar in our home. it really sucks to have to tell people they can only reach us on the house phone.

Yes, Lake County should act quickly to allow actions to improve cell service in Kelseyville Vic

YES, please give us better coverage!!!

Yes, support faux pine tree wireless @Staheli dr

Yes, support improved service

YES, we support improved Kelseyville Verizon service with a staheli drive faux pine tree!!

Yes. We definately need it.

Yes. I support a faux pine tree wireless facility at 5660 Staheli Drive.

YES. It is so important to have good cell coverage in all areas.

YES. Please add this tower. This will help many many people.

Yes. Support faux pine.

Yes. We need additional service in Kelseyville. I support the wireless facility.

Yes. We need coverage on that area.

Yes...I support the tower.

Yes..yes and YES!!!!

Yes.we need it!! Service sucks in Lake County Calif.



# **Verizon Wireless Alternatives Analysis**

**Highway 29 & Live Oak  
5660 Staheli Drive, Kelseyville**



**June 13, 2016**

**Summary of Site Evaluations  
Conducted by Epic Wireless Group Inc.  
Compiled by Mackenzie & Albritton LLP**



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### **Map of Alternatives**

## **I. Executive Summary**

Verizon Wireless seeks to fill a significant gap in its coverage in the Kelseyville area of Lake County. Based on a review of alternatives as set forth in the following analysis, Verizon Wireless believes that placing antennas on a wireless tower camouflaged to resemble a pine tree next to a grove of established trees on a large parcel (the “Proposed Facility”) constitutes the least intrusive alternative to provide service to the identified gap based on the values expressed in Lake County Code of Ordinances (the “Code”).

## **II. Significant Gap**

There is a significant gap in Verizon Wireless coverage in the Kelseyville area. Due to distance and intervening topography, existing Verizon Wireless facilities provide inadequate service to the Kelseyville area, and Verizon Wireless must place a new facility in the vicinity of the Proposed Facility to provide service coverage for residents, visitors and emergency communications. The identified “significant gap” in network coverage is more fully described in the *Statement of Verizon Wireless Radio Frequency Engineer Benjamin Santa Maria* (the “Significant Gap”).

## **III. Methodology**

Once a significant gap has been determined, Verizon Wireless seeks to identify a location and design that will provide required coverage 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, elevation, grading requirements, height of any existing structures, available electrical and telephone utilities, access, available ground space, zoning and other critical factors such as a willing landlord in completing its site analysis.

The Code encourages co-location of facilities where a facility exists on a proposed site. Code §21-71.3(e). Co-location on facilities approved with an environmental document pursuant to Government Code §65850.6 is allowed with issuance of a minor use permit. Code §21-71.6. New wireless facilities require a major use permit. Code §21-71.7. Wireless facilities should be designed to minimize their appearance and visually blend with surroundings, sited so as not to negatively affect views and screened from public viewing areas to the maximum extent feasible. Code §§21-71.8(a)(1), 21-71.8(a)(3), 21-71.8(a)(5).

## **IV. Analysis**

### ***Collocation Review***

Per the Code's encouragement, Verizon Wireless first sought opportunities to co-locate on existing wireless facilities, but no existing wireless facilities were identified in the vicinity of Kelseyville. The closest existing wireless carrier facilities identified by Verizon Wireless are a US Cellular facility east of Highway 175 4.5 miles southeast of the Proposed Facility which cannot serve the Significant Gap due to distance and substantial intervening terrain and the Lake County Courthouse in Lakeport 6.5 miles northwest of the Proposed Facility which cannot serve the Significant Gap due to distance. Lacking any collocation opportunities that can serve the Significant Gap, Verizon Wireless sought to place a new wireless facility.

### ***Locations Discounted Due to Zoning***

Under Code §27.11 Table B, new wireless facilities are not allowed in the following zones comprising most of the downtown Kelseyville area: R1, R2, R3, C1, C2, PDR and PDC. Verizon Wireless initially considered several locations in downtown Kelseyville:

- **5560 Live Oak Drive**
- **5570 Live Oak Drive**
- **5620 Live Oak Drive**
- **5642 Live Oak Drive**
- **5660 Live Oak Drive**
- **5575 7<sup>th</sup> Street**

Verizon Wireless did not pursue these locations after discovering that they are situated in the C2 zone where new wireless facilities are not allowed. Similarly, Verizon Wireless did not pursue other locations within zones that do not allow new wireless facilities.

### ***Locations Discounted Due to Lack of Willing Landlord***

Parcels zoned O (open space) allow wireless facilities with a use permit. Verizon Wireless approached the Kelseyville School District regarding its properties in O zones in Kelseyville, but the School District responded indicating a lack of interest in a wireless facility at the the District headquarters property at 4410 Konocti Road and did not respond regarding a facility at Kelseyville High School. Lacking a willing landlord, these Kelseyville School District properties are not feasible alternatives.

### ***Elevated Locations***

Verizon Wireless next sought locations near the center of the Significant Gap where antennas can be elevated to a sufficient height to serve the gap while allowing for a facility height that minimizes visual impacts. Verizon Wireless RF engineers sought locations in proximity to Highway 29 as such proximity allows engineers to optimize the

network to serve this busy roadway and adjacent commercial and residential areas. RF engineers identified the topographic rise south of Highway 29 and west of Staheli Drive as an ideal location for a new wireless facility to serve the Significant Gap, and Verizon Wireless reviewed the following three parcels that comprise this topographic rise.

### **1. Proposed Facility**

Address: 5660 Staheli Drive

Elevation: 1,435 feet

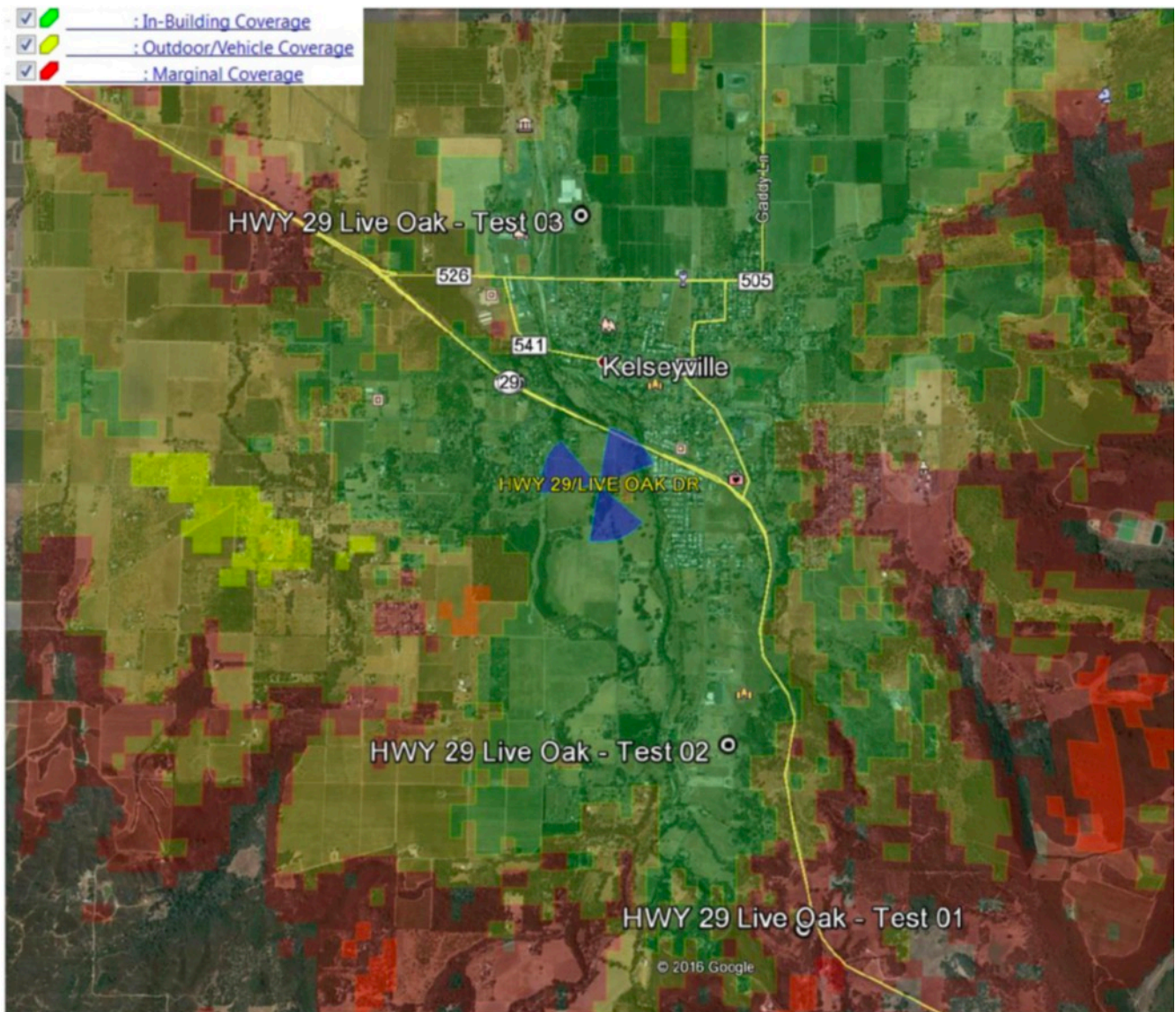
Zoning: RR



Verizon Wireless proposes to place its antennas on a 64 foot tower disguised as a pine tree near a grove of established trees on this 17 acre parcel. Antennas will be concealed within faux foliage and branches, and branches will extend an additional five feet above the tower, providing a realistic tapered appearance. Antennas will be covered with pine needle socks for further concealment. The treepole will be placed in a 1,200 square foot fenced area which will also contain radio cabinets and a generator that will provide continued power in case of emergencies. The facility will be reached by an existing access road.

As shown in the following propagation map, a 64-foot facility on this elevated parcel with antennas placed at a centerline of 55 feet will provide new coverage to the Kelseyville area, providing service to the Highway 29 corridor and surrounding commercial and residential areas. This is Verizon Wireless's preferred location for the Proposed Facility.

*Coverage Provided by Proposed Facility  
5660 Staheli Drive*





**2. 5700 Staheli Drive**

Address: 5700 Staheli Drive

Elevation: 1,395-1,440 feet

Zoning: A



Verizon Wireless reviewed this 37 acre parcel immediately south of the Proposed Facility parcel at a varying overall lower elevation. Verizon Wireless contacted the property owner regarding placement of a wireless facility at this location, but received no reply. Lacking a willing landlord, this is not a feasible alternative for Verizon Wireless's facility.

### **3. 5880 Staheli Drive**

Address: 5880 Staheli Drive

Elevation: 1,410-1,440 feet

Zoning: A



Verizon Wireless reviewed this 2.4 acre parcel located 0.2 miles south of the Proposed Facility parcel. The elevation of this parcel varies from 10 feet higher to 20 feet lower in elevation than the Proposed Facility. Due to the 50 foot setback for wireless facilities required under Code § 21-71.8(a)(17), a wireless facility on this parcel would be limited to a south-facing slope with abundant trees, several of which would need to be removed to construct a wireless facility equipment area and 10-foot wide access road. Tree removal conflicts with the requirement that any trees providing screening be protected from any damage under Code § 21-71.8(a)(18). Additionally, grading for a new 10-foot wide access road would present environmental impacts at this sloped location. Due to required tree removal and environmental impacts from grading, this is not a less intrusive alternative to the Proposed Facility.

### ***Locations Suggested by Staff or Community***

Verizon Wireless reviewed the following three locations which were suggested by County Staff or the Kelseyville Business Association.

#### **4. 4695 Cole Creek Road**

Address: 4695 Cole Creek Road

Elevation: 1,630 feet

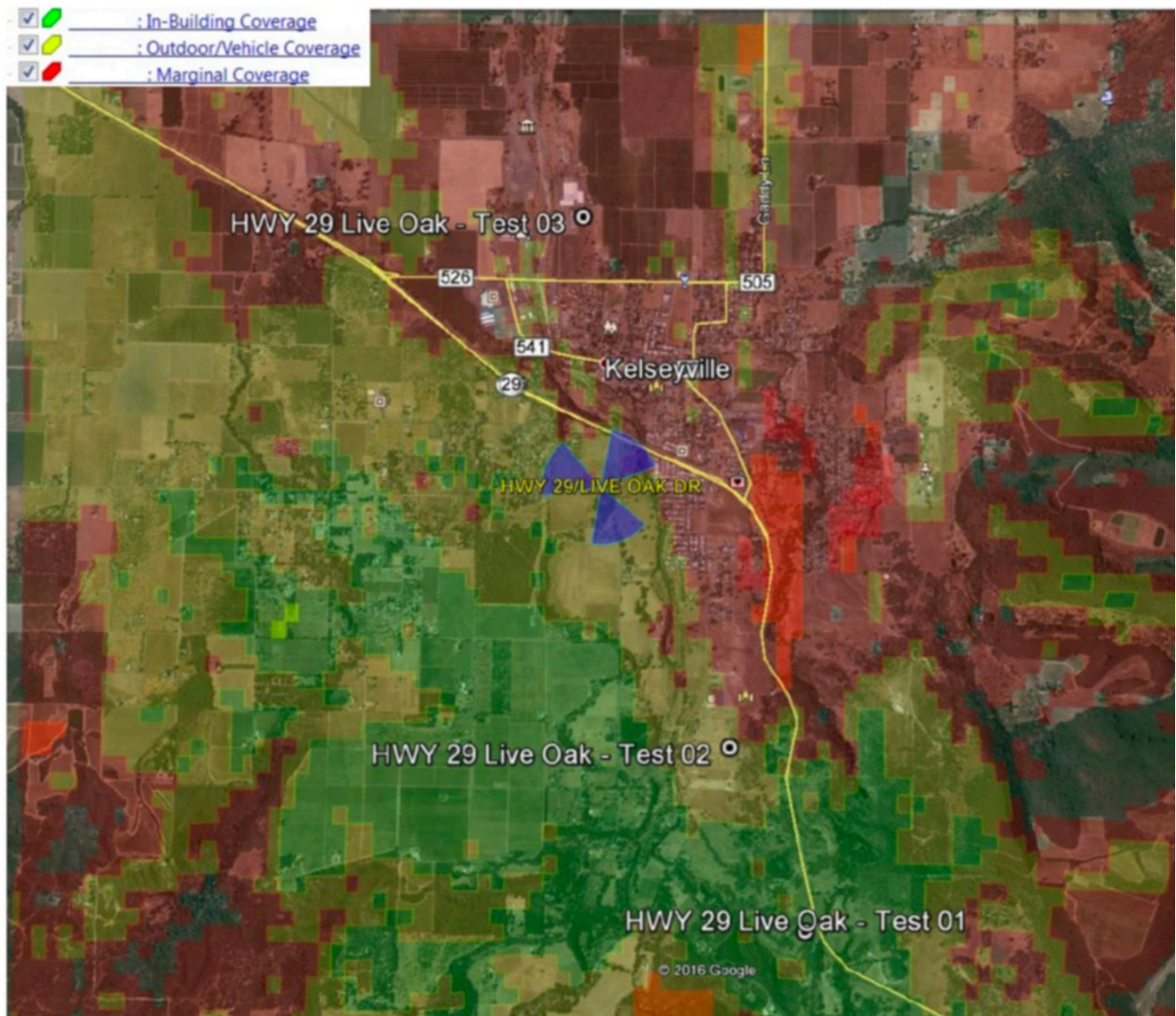
Zoning: RR



At the request of Planning Staff, Verizon Wireless reviewed this location 1.6 miles southeast of the Proposed Facility and approximately 200 feet greater in elevation. Verizon Wireless RF engineers determined that due to distance and intervening topography, a facility at this location of the same height as the Proposed Facility cannot serve the Significant Gap. As shown in the following coverage map, on which this location is marked Test 1, there would remain a broad gap in coverage in the northern portion of the Significant Gap, with a lack of in-building coverage in a wide area including downtown Kelseyville as well as areas lacking in-vehicle coverage including Highway 29. Due to inability to serve the Significant Gap, this is not a viable alternative for Verizon Wireless's facility.



*Coverage Provided by Alternative Facility  
4695 Cole Creek Road*



**5. 6738 Live Oak Drive**

Address: 6738 Live Oak Drive

Elevation: 1,525 feet

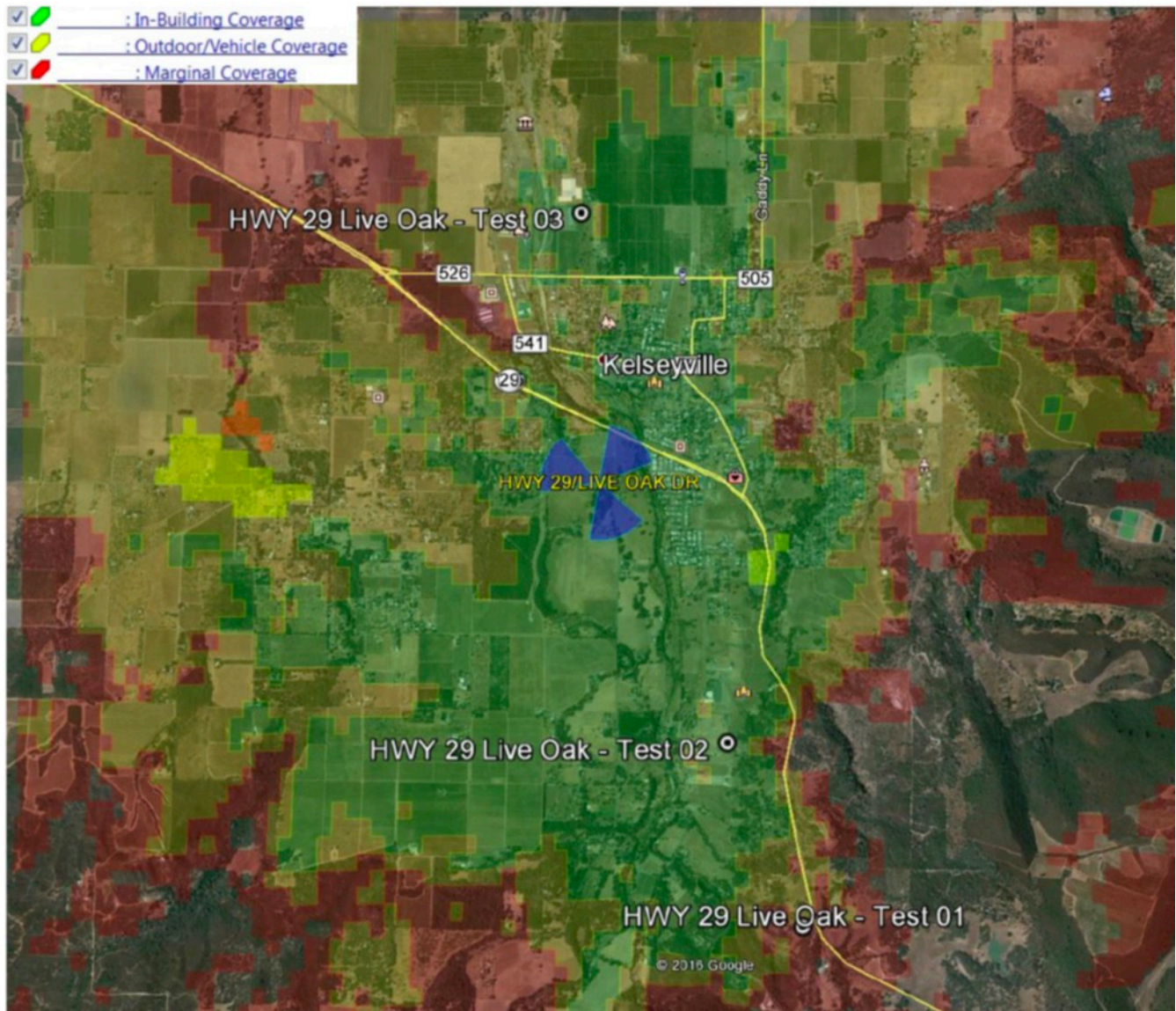
Zoning: RR



Verizon Wireless reviewed this location proposed by the Kelseyville Business Association one mile southeast of the Proposed Facility and approximately 190 feet greater in elevation. Due to hilly terrain immediately east of the developed portion of this property, a new wireless facility would need to be located on a higher-elevation area to serve Highway 29 further east, requiring construction of a new access road that would pose environmental impacts due to grading. Verizon Wireless RF engineers determined that due to distance and intervening topography, a facility at this location of the same height as the Proposed Facility cannot serve the Significant Gap. As shown in the following coverage map, on which this location is marked Test 2, there would remain a broad gap in coverage in the northern portion of the Significant Gap, with a lack of in-building coverage including certain residential areas of downtown Kelseyville as well as areas near downtown Kelseyville lacking in-vehicle coverage. Due to inability to serve the Significant Gap, this is not a viable alternative for Verizon Wireless's facility.



*Coverage Provided by Alternative Facility  
6738 Live Oak Drive*





**6. 4820 Loasa Road**

Address: 4820 Loasa Road

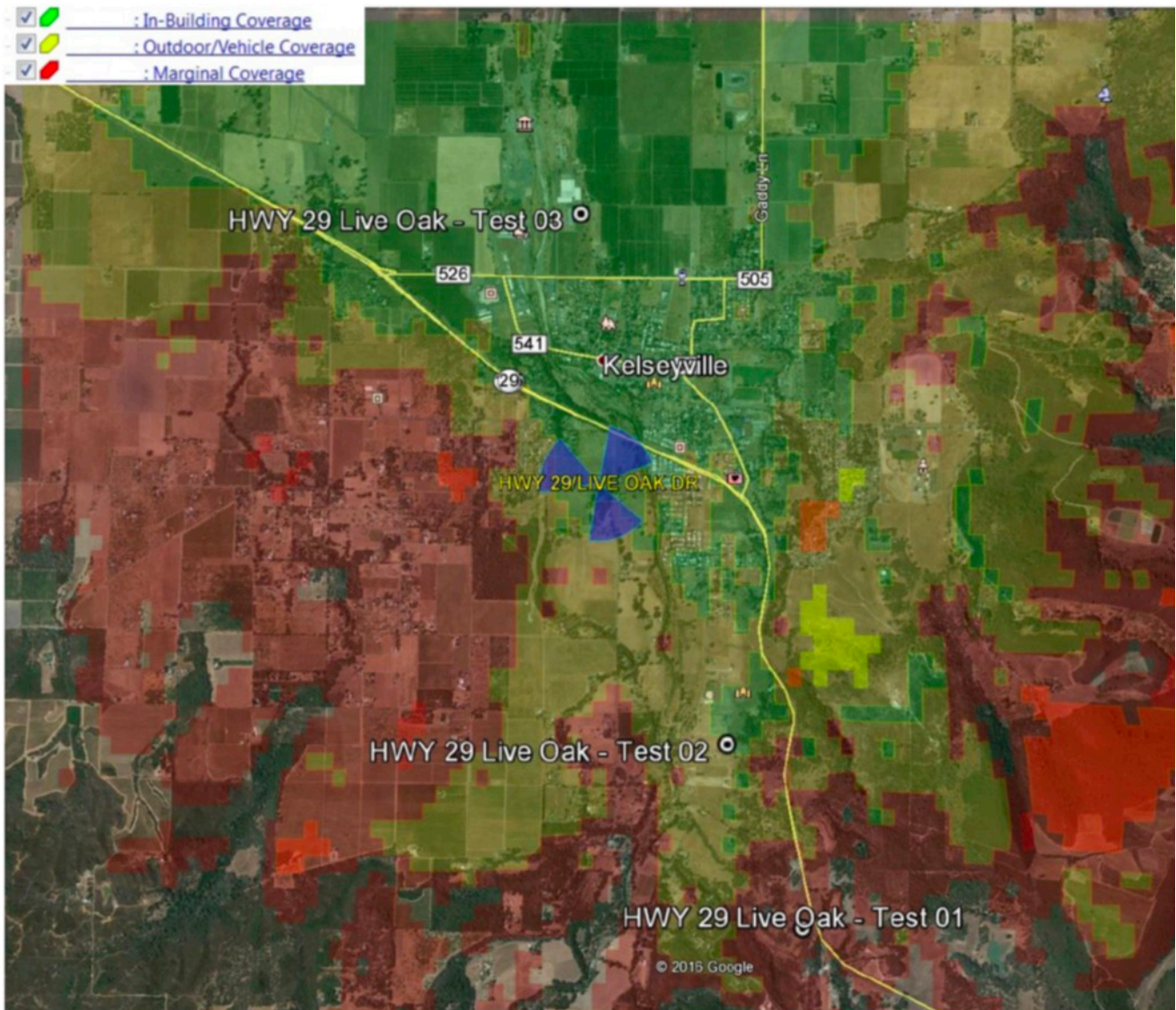
Elevation: 1,370 feet

Zoning: A



At the request of Planning Staff, Verizon Wireless reviewed this location 0.9 miles north of the Proposed Facility and approximately 60 feet lower in elevation. Verizon Wireless RF engineers determined that due to distance and intervening topography, a facility at this location of the same height as the Proposed Facility cannot serve the Significant Gap. As shown in the following coverage map, on which this location is marked Test 3, there would remain a broad gap in coverage in the southern portion of the Significant Gap, with a lack of in-building coverage in residential areas south of Highway 29. Due to inability to serve the Significant Gap, this is not a viable alternative for Verizon Wireless's facility.

*Coverage Provided by Alternative Facility  
4820 Loasa Road*



## **Conclusion**

Verizon Wireless has reviewed local zoning districts and six specific locations as alternatives to serve a Significant Gap in the Kelseyville area. Based upon the standards identified in the Lake County Code of Ordinances, the Proposed Facility – with antennas placed on a wireless tower camouflaged as a pine tree placed next to a grove of established trees – clearly constitutes the least intrusive location for Verizon Wireless's facility under the values expressed in Lake County regulations.





## Highway 29 & Live Oak

Lake County  
Alternative Locations

