



# Alternatives Analysis

## South Petaluma

611 Western Avenue, Petaluma



January 6, 2020

Summary of Site Evaluations  
Conducted by Verizon Wireless

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### Map of Alternatives

## **I. Executive Summary**

Verizon Wireless must fill a significant gap in service in the south Petaluma area, west of downtown. Based on the review of eight alternative sites set forth in the following analysis, Verizon Wireless believes that placing a concealed facility on the roof of an industrial building (the “Proposed Facility”) constitutes the least intrusive feasible alternative to serve the identified gap in network service based on the values expressed in the Petaluma Municipal Code (the “Code”).

## **II. Significant Gap**

There is a significant gap in Verizon Wireless network service in the south Petaluma area, west of downtown. Reliable LTE in-building coverage is lacking in the area, which includes residential neighborhoods. Additionally, there is a lack of strong dominant signal from distant Verizon Wireless facilities, and significant demand on network capacity in the gap area. (Collectively, the “Significant Gap”) The Significant Gap is described in detail in the *Statement of Verizon Wireless Radio Frequency Design Engineer Snehil Tiwari* (the “RF Engineer’s Statement”). To remedy the Significant Gap, Verizon Wireless must place a new facility to ensure sufficient reliable network service.

## **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 potential for use of existing structures, the available height and equipment space, radio frequency propagation, proximity to end users, access, elevation, slope, terrain, environmental impacts and other critical factors such as a willing landlord in completing its site analysis.

### ***Code Requirements***

Under the Code, minor telecommunications facilities include building-mounted antennas in commercial or industrial zones that are “unobtrusive or undetectable.” Major facilities are those that do not qualify as minor facilities or other types of facilities. Code § 14.44.020(S).

Of the zones in the gap area, minor and major facilities are allowed with a use permit in the C1–Commercial, I–Industrial and CF–Civic Facility zones. They are not allowed in the MU1C–Mixed-Use zone or any R-Residential zone. Code § 7.090(B).

In the allowed zones, minor facilities require a minor conditional use permit, and major facilities require a major conditional use permit. *Ibid.* A minor facility on a designated landmark requires a major conditional use permit. Code § 7.090(C)(3). The Planning Director may refer minor facilities to the Planning Commission for approval. Code § 14.44.100.

For minor facilities, new structures and control panels must be effectively screened from off-site views. Code § 14.44.090(T).<sup>1</sup>

In general, wireless facilities must be designed and screened to blend with surroundings, to reduce visual impact to the extent feasible, considering technological requirements. Code § 14.44.280(A). In particular, facilities must blend with any existing support structure, without substantially altering the character of the structure or local area. Code § 14.44.280(B). Facilities should be located to minimize visibility and the number of distinct facilities present. Code § 14.44.190. Facilities shall not be installed on exposed ridgelines or at locations readily visible from public trails, parks or outdoor recreation areas, unless they blend with the surrounding built or manmade environment, and no other location is technically feasible. Code § 14.44.190(C).

The Code requires an alternatives analysis to evaluate any collocation opportunity and the potential to locate as close as possible to the intended service area, requiring that the proposal results in fewer or less severe environmental impacts than alternatives. Code § 14.44.210(A).

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<sup>1</sup> Code Section 14.44.090(B) limiting the effective radiated power of minor facilities to 1,500 watts is preempted by the federal Telecommunications Act, which bars cities from regulating a wireless facility based on the environmental effects of radio frequency emissions if the facility meets FCC exposure guidelines. 47 U.S.C. § 332(c)(7)(B)(iv). This Code section cannot be a factor for review of the application.

## **IV. Analysis**

Verizon Wireless first looked for opportunities to collocate with wireless carrier facilities on existing structures, but found no feasible option in the gap area. A collocation on a City-owned property southwest of the gap area is reviewed in Alternative 1, but it was determined to be infeasible and more intrusive than the Proposed Facility.

Next, Verizon Wireless looked in the gap area for existing multi-story structures to support its antennas in the allowed I–Industrial, C1–Commercial and CF–Civic Facility zones. Placement on an existing structure minimizes visual impact compared to a new tower. The existing structures are reviewed as Alternatives 2 through 7. Verizon Wireless readily identified the Petaluma Creamery because it has the tallest structures in the gap area, aside from the High School field lights. Only the Petaluma Creamery tower would allow for full concealment of rooftop antennas, in a manner consistent with the building’s industrial appearance. Verizon Wireless did not consider single-story buildings in the gap area’s allowed zones, such as City Hall.

While a new tower would pose more visual impacts than an existing structure, Verizon Wireless considered placement of a new tower on parcels without suitable existing structures, reviewed in Alternatives 1 and 8.

Verizon Wireless did not search farther east than Howard Street, because a facility beyond would be too close to the existing Verizon Wireless small cell on Kentucky Street and the Downtown Petaluma facility. A new facility east of Howard Street would duplicate too much coverage of the existing facilities, while reducing proposed service to the west and south.

## ***Collocation Review***

Verizon Wireless first reviewed the area of the Significant Gap for existing wireless carrier facilities on which to collocate its antennas. However, Verizon Wireless did not identify any existing wireless carrier facilities within the gap area. The closest identified are on buildings, and they already support Verizon Wireless antennas. These are the Verizon Wireless small cell facility on Kentucky Street 0.35 miles east, and the Downtown Petaluma facility 0.6 miles northeast. As explained in the RF Engineer's Statement, these facilities do not provide adequate coverage to serve the Significant Gap.

Verizon Wireless examined one collocation site beyond the gap area to the southwest, as follows.

### **1. City Water Tank Property**

Address: Hayes Lane / La Cresta Drive

Zoning: CF-Civic Facility

Elevation: 375 Feet



Verizon Wireless reviewed this 0.6-acre property that supports two City of Petaluma water tanks, located 0.7 miles southwest of the Proposed Facility on top of ridge 325 feet greater in ground elevation. This small property supports the wireless facilities of several other carriers. Rather than a single tower, those carriers have placed their antennas on several short masts approximately 20-25 feet tall on various corners of the property.

The Code defines a collocated facility as a single tower or building supporting antennas used by more than one entity. Code § 14.44.020(S)(5). Because the existing facilities on this property are on short, slender masts inadequate to support the additional panel antennas required for service, Verizon Wireless would need to place its own new support structure, which would not be collocation as defined.

During a site visit February 17, 2016, City public works representatives Kent Carothers, Pat Dirrane and Scott Brodhun informed Verizon Wireless that no new ground equipment may interfere with the circular access roads surrounding the water tanks. Given the existing wireless equipment, tanks, and roadways on this very small property, there would be inadequate room for additional wireless masts and associated ground-mounted equipment.

As this property is beyond the gap area, only antennas facing generally northeast could serve the Significant Gap. (Antennas facing other directions would serve different coverage areas.) Northeast-facing antennas would quickly become exhausted by covering all users in the gap area, with some users relatively distant. By comparison, the Proposed Facility, located near the center of the gap, easily can reach users in the surrounding gap area with four antenna sectors providing 360-degree service. Also, because of the high elevation at the water tank site, new Verizon Wireless antennas would cause signal interference with existing Verizon Wireless facilities in Petaluma, compromising network performance.

An additional wireless facility at this location would be inconsistent with several Code requirements satisfied by the Proposed Facility. At the height required, one or more new masts with panel antennas would exacerbate the visual impacts of the multiple existing facilities. On this exposed ridgeline near a trail, new masts would increase visibility, as well as the number of distinct facilities present. The Code allows facilities on ridgelines or visible from trails only if there is no technically feasible alternative.

In contrast, the Proposed Facility would be fully concealed on an existing industrial building that does not currently support other wireless facilities, and it would blend with the industrial character of the subject zone and property.

This water tank property is beyond the gap area, which would defeat the Code's encouragement to locate as close as possible to the intended service area, whereas the Proposed Facility is near the center of the gap.

This neither a feasible nor less intrusive alternative to the Proposed Facility.

## *Existing Structures*

Lacking a feasible collocation opportunity, Verizon Wireless next looked for tall existing structures in the gap area that could support a new wireless facility, readily identifying the following industrial site, optimally located near the center of the gap.

### **2. Proposed Facility – Petaluma Creamery**

Address: 611 Western Avenue

Zoning: I-Industrial

Elevation: 50 Feet



The Proposed Facility has been thoughtfully designed to minimize any impact to the adjacent community. Verizon Wireless proposes to place 16 panel antennas, in four groups of four, on the roof of a 61-foot industrial building. Each group of antennas will be concealed within a cylindrical radome 9 feet tall and 7 feet in diameter, treated to resemble the existing metal siding of building. Small radio units and surge suppressors also will be concealed within the radomes. The top of the radomes will be at 70.1 feet, nine feet above the roof.

All four antenna radomes will be set back 6 feet 10 inches from the northwest and southeast edges of the roof, and 11 feet from the northeast and southwest edges, with an 11-foot setback from the front edge of the roof along Baker Street to the southwest. Verizon Wireless will place a one-foot parapet extension around the entire roof to screen the base of the radomes.

Associated network cabinets and other gear will be placed near the center of the roof, mostly screened from off-site views by the parapet. Conduit connections will be placed flush to the southwest side of the building, painted to match.



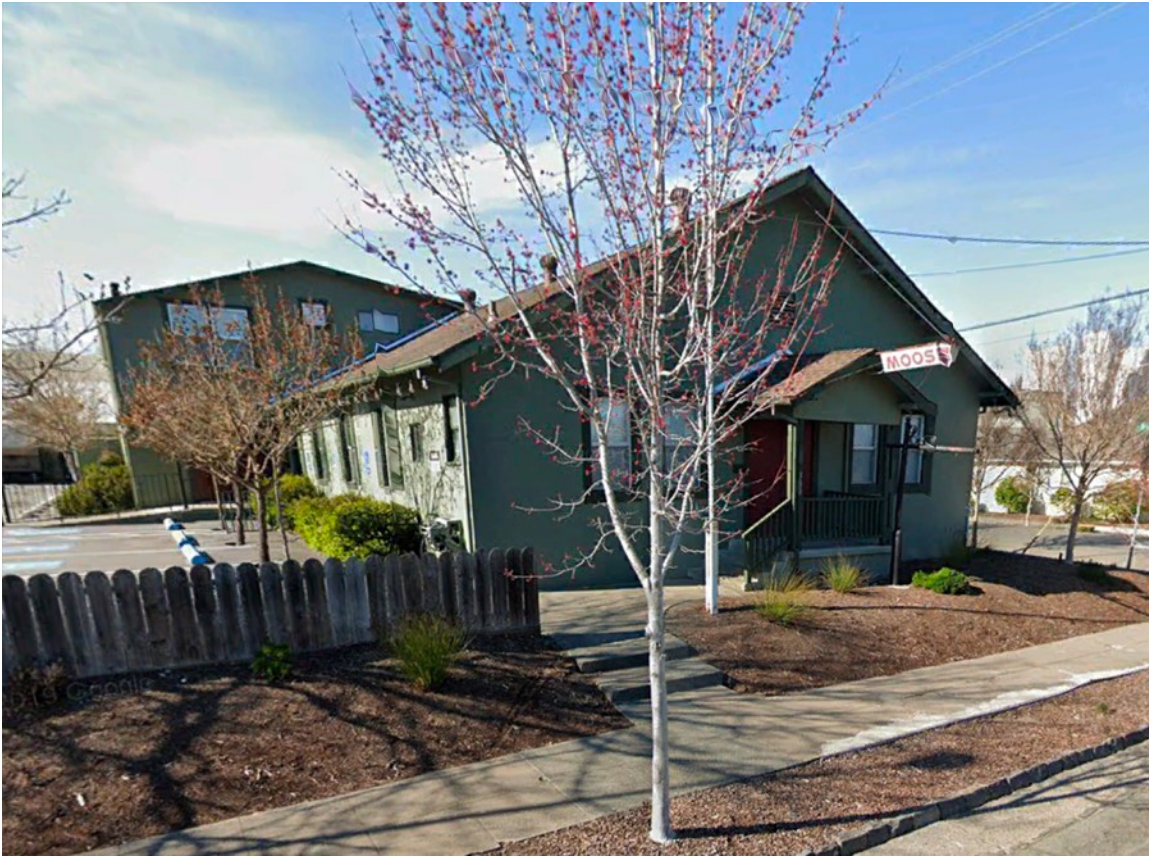
With antennas elevated to a centerline of 66.6 feet at this optimal location, the Proposed Facility will provide new reliable Verizon Wireless LTE service to the Significant Gap. As described in the RF Engineer's Statement, the Proposed Facility will provide new reliable in-building LTE coverage to the vicinity, including residential neighborhoods. It also will provide strong, new dominant signal and network capacity to relieve the existing network that is experiencing high demand. An analysis and coverage maps comparing existing and proposed service are found in the RF Engineer's Statement. This is Verizon Wireless's preferred location and design for the Proposed Facility.

### **3. Loyal Order of Moose Lodge**

Address: 300 English Street

Zoning: CF–Civic Facility

Elevation: 55 Feet



Verizon Wireless considered placement of antennas on this building due south and across the street from the Proposed Facility, and five feet greater in ground elevation. The building would require substantial structural modification to elevate antennas to the height required to serve the gap, and to increase structural integrity to support the weight of 16 panel antennas and other network gear. Such a tall structure would be out-of-scale with the existing building, where only one portion is two stories, and it would pose considerable visual impact. This is not a less intrusive alternative to the Proposed Facility.

#### **4. Elim Lutheran Church**

Address: 504 Baker Street  
Zoning: CF–Civic Facility  
Elevation: 65 Feet



Verizon Wireless considered placement of antennas on this church 0.1 miles northwest of the Proposed Facility and 15 feet greater in ground elevation. The church or bell tower would require substantial structural modification to elevate antennas to the height required to serve the gap, and to increase structural integrity to support the weight of 16 panel antennas and other network gear. Such modifications would be a major alteration of the unique church architecture, resulting a structure out-of-scale with the existing building that would pose considerable visual impact. This is not a less intrusive alternative to the Proposed Facility.

## 5. Petaluma High School Football Field

Address: 504 Baker Street  
Zoning: CF–Civic Facility  
Elevation: 70 Feet



Verizon Wireless considered placement of antennas at the Petaluma High School property, where the tallest structures are the field lights at Steve Ellison field, 0.35 miles south of the Proposed Facility and 20 feet greater in ground elevation. Verizon Wireless has placed antennas on field lights in other cities. As shown in the following correspondence, on December 15, 2020, Verizon Wireless’s representative Rocky Cordova of Complete Wireless Consulting emailed Petaluma City Schools Superintendent Gary Callahan regarding placement of a Verizon Wireless facility at Petaluma High School. Mr. Callahan responded the same day that the school district is not looking for any wireless expansion at this time. Verizon Wireless had originally contacted Mr. Callahan in 2015 and 2016, receiving the same response. Lacking a willing landlord, this is not a feasible alternative for Verizon Wireless’s facility.

From: Gary Callahan <gcallahan@petk12.org>  
Sent: Tuesday, December 15, 2020 2:10 PM  
To: Rocky Cordova <RCordova@completewireless.net>  
Subject: Re: Proposed Project VZW 2018 - Petaluma HS

Hi Rocky-

We are not looking at any wireless expansion at this time.

Thanks,

Gary

On Tue, Dec 15, 2020 at 2:07 PM Rocky Cordova <RCordova@completewireless.net> wrote:

Hello Mr. Callahan,

My name is Rocky Cordova. I am reaching out on behalf of VZW. A former colleague of mine Eric Groen had reached out in 2018 in regards to a possible project with VZW at Petaluma High School. He noted that at that time you refused the proposal due to your belief that the nearby residents nor the parents of the students would approve.

We currently do have another active project. However, the jurisdiction has requested your written approval/rejection in order to complete their alternative analysis.

Please provide your written confirmation whether or not the school district would be interested in a project. Please give me a call if you have any questions.

Thank you,

--

Gary Callahan  
Superintendent  
Petaluma City Schools  
200 Douglas Street  
Petaluma, CA 94952  
(707) 778-4604

Notice to Recipient:

Information contained in this message may be privileged, confidential and protected from disclosure. If you are not an intended recipient, it is strictly prohibited to use, disseminate or copy this communication. If you have received this in error, please reply to the sender and then delete the message.

Thank you.



## **6. First Presbyterian Church**

Address: 939 B Street  
Zoning: CF–Civic Facility  
Elevation: 70 Feet



Verizon Wireless considered placement of antennas on this church 0.5 miles southeast of the Proposed Facility and 20 feet greater in ground elevation. The building would require substantial structural modification to elevate antennas to the height required to serve the gap, and to increase structural integrity to support the weight of 16 panel antennas and other network gear. Such modifications would be out-of-scale with the main church building, where only the central portion is two stories, and would result in a structure out-of-scale with the existing building that would pose considerable visual impact. This is not a less intrusive alternative to the Proposed Facility.

## **7. Petaluma Junior High School**

Address: 700 Bantam Way

Zoning: CF–Civic Facility

Elevation: 150 Feet



Verizon Wireless considered placement of antennas on the multi-purpose building at this school near the western fringe of the gap area, 0.6 miles west of the Proposed Facility and 100 feet greater in elevation. As discussed under Alternative 6, Petaluma City Schools is not considering requests for wireless facilities. Lacking a willing landlord, this is not a feasible alternative to the Proposed Facility.

### *New Tower Location*

Verizon Wireless identified an isolated CF zone near the southwestern fringe of the gap area, with one undeveloped property where a new tower would be required, as follows.

#### **8. Dana Street Property**

Address: 415 Dana Street  
Zoning: CF–Civic Facility  
Elevation: 280 Feet



Verizon Wireless reviewed this City-owned parcel located 0.5 miles southwest of the Proposed Facility and up to 230 feet greater in elevation. The parcel is designated for municipal utilities, but vacant. A new tower structure would be required on this property, located on the east side at the crest of a ridge, because the property otherwise slopes steeply down to the west, away from the gap area.

At this location near the southwestern fringe of the gap area, only antennas facing northeast could provide service to the Significant Gap, which quickly would become exhausted by covering all users in the gap area, with some relatively distant. By comparison, the Proposed Facility, located near the center of the gap, can reach users in the surrounding area with four antenna sectors providing 360 degree service. Also, because of the high elevation at this parcel, new Verizon Wireless antennas would cause signal interference with existing Verizon Wireless facilities in Petaluma, compromising network performance.

On this exposed ridgeline, a new tower would pose substantial visual impact. Construction of a new all-weather paved access road, tower foundation and equipment area would pose considerable environmental impact on sloped terrain. In contrast, the Proposed Facility would be fully concealed on an existing industrial building. The Code allows facilities on ridgelines only if there is no technically feasible alternative.

This neither a feasible nor less intrusive alternative to the Proposed Facility.



## **V. Conclusion**

Verizon Wireless has reviewed eight alternative locations to fill the Significant Gap in service in the south Petaluma area. Based upon the values expressed in the Petaluma Municipal Code, the Proposed Facility clearly constitutes the least intrusive feasible location for Verizon Wireless's new facility.



South Petaluma  
Alternative Site Locations

