
VII. ALTERNATIVES TO THE PROPOSED PROJECT

A. INTRODUCTION

The State CEQA Guidelines mandate that an EIR for a proposed project (such as the Next Gen System) describe a range of reasonable alternatives to the project or to the location of the project. These alternatives must be able to feasibly attain most of the basic objectives of the project while avoiding or substantially lessening any significant effects. The CEQA process requires an evaluation of the comparative merits and environmental impacts of the alternatives (Aesthetics, Biological Resources, Cultural Resources, Radio Frequency (RF) Exposure, etc.), including the differences in radio coverage between the alternatives and the proposed project.

More specifically, Section 15126.6(a) of the CEQA Guidelines states: *“An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparable merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.”*

This chapter lists the necessary project objectives that any project alternative must achieve (first noted in Section III Project Description) and describes the methodology by which alternatives were formulated. Five rejected potential alternatives are initially described, along with the reasons for their elimination, and then four potentially feasible project alternatives are evaluated with more detailed discussion.

The anticipated means for implementation of the alternatives can influence the assessment and/or probability of impacts for those alternatives. For example, a project may have the potential to generate significant impacts, but considerations in project design may also afford the opportunity to avoid or reduce such impacts. The alternatives analysis is presented as a comparative analysis to the proposed project and assumes that all applicable mitigation measures proposed for the project would apply to each alternative. The following alternatives analysis compares the potential significant environmental impacts of four alternatives with those of the proposed project for the environmental topics analyzed in detail in Chapters IV.A – IV.E and Chapters V.A – V.B of the SEIR.

B. PROJECT OBJECTIVES

As discussed in Chapter III Project Description, MERA defined six project objectives for the Next Gen System:

1. Install a new radio communications system as approved in Measure A by a vote of the public in November 2014.
2. Modify the existing aging MERA System with new 700 MHz equipment to meet revised FCC requirements by 2023.
3. Improve Marin County communications coverage to reduce emergency response times and ensure reliable communications among first responders during all major events, and everyday operations.
4. Provide MERA Next Gen System communications coverage to meet 97% reliability within the Motorola Solutions contracted radio coverage area with delivered audio quality of 3.4 or better as measured by TSB-88 testing methods.
5. Relocate the radio system's Network Core and Prime Site from the Marin County Civic Center to the Emergency Operations Facility (EOF).
6. Maintain compliance with all applicable land use, permitting, and CEQA requirements.

C. METHODOLOGY

For any alternative to be viable, the entire MERA system must meet the project objectives, including reliable performance over 97% within the contracted radio coverage area (generally the County). In developing alternatives, adjustment of individual components (i.e., tower placement, tower height, power, antenna design) affects other distant components and the ability of the system to meet overall project objectives.

This chapter describes multiple alternatives that were considered during design development for the Next Gen System. Design development began in 2010 with an assessment of the existing system, and subsequent design proposals have since been refined, leading to MERA's approval of the proposed Project Description, as detailed in Chapter III of this SEIR. This chapter begins with an introductory evaluation of various preliminary alternatives that were proposed early in the design development process. Next are five alternatives that were initially considered feasible, but were ultimately rejected because they did not meet the project objectives or would result in greater impacts compared to the proposed project. What follows are the detailed evaluations of four Next Gen Project specific alternatives, including a comparison of the impacts of each alternative to those of the proposed project (Table VII-2, at the end of this chapter). Table VII-2 summarizes the comparative impacts for each alternative when compared to the proposed project and shows whether the impacts anticipated under each alternative would be less than, similar to, or greater than the proposed project. These four alternatives have the strongest potential to attain project objectives while attempting to reduce or avoid the proposed project's significant environmental impacts. Last is the identification of the "environmentally superior alternative" as required by Section 15126.6 of the CEQA Guidelines.

D. 2010 LONG-TERM STUDY

MERA commissioned a study to consider various high-level, forward-looking plans to modernize the existing MERA system and address Marin County's long-term wireless voice needs. The resulting *System Design Report* (AECOM, April 2010) assessed the emergency radio environment of 2010, considering existing equipment, capacity and coverage and compared that to projected future needs and radio frequency availability. The 700 MHz frequency band was considered at the time, but now is a requirement.

The *System Design Report* evaluated strengths and weaknesses of four preliminary approaches to upgrade the existing MERA system into a Next Gen System:

1. Use the existing MERA system, with a 700 MHz overlay. This alternative does not address gaps in radio coverage nor long-term conversion needs.
2. Upgrade the existing system to a single simulcast system. This alternative addresses capacity issues with future implementation of P25 technology (allows multiple system interoperability), but does not address radio coverage issues.
3. Upgrades to a single simulcast system, with P25 technology incorporated and adds additional sites to address coverage issues. The frequency band used, however was the existing UHF-T Band which now does not meet the FCC's 700 MHz requirement.
4. Countywide 700 MHz System with 11 sites and four fill-in sites. This alternative addresses radio coverage gaps, and has long-term benefits, but it also has extensive conversion costs and requires two systems to briefly operate simultaneously. This preliminary alternative was the seed for the Next Gen System.

Because it was exploratory the *System Design Report* did not evaluate or compare the potential environmental impacts of the preliminary alternatives as required by CEQA.

E. FIVE ALTERNATIVES CONSIDERED BUT REJECTED

Section 15126.6(c) of the CEQA Guidelines requires EIRs to identify any alternatives that were considered by the lead agency but were rejected as infeasible for detailed study, and briefly explain the reasons underlying the lead agency's determination. Furthermore, Section 15126.6(f)(1) states that “[a]mong the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries . . . and whether the proponent can reasonably acquire or control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.”

After the 2010 system study, additional alternatives were examined. The following five alternatives were rejected because they did not meet the Project Objectives identified above and in some instances would result in greater impacts compared to the proposed project.

Lower Tower Heights

The lower tower heights alternative attempts to reduce the potential adverse visual impacts of the

proposed project by limiting tower heights to a maximum of 40 feet. This would result in a visual improvement, but this solution would not meet Project Objectives 3 or 4, since the desired increase in coverage and reliability requires higher towers or more towers, each with their own environmental impacts. Lower tower heights also increase the risk of RF exposure to workers and the public because the radio transmit antennas would be closer to the ground.

Cellular Based Communication System

The cellular based system alternative would utilize cell phone networks for emergency and public service communications, rather than a County-owned radio system. This option also requires many more towers be built for the same or lesser coverage, thus increasing visual impacts in the County. This option also presents greater risk for mission-critical communications, as cellular communication networks are less reliable during a disaster and more time-consuming to restore to service. Additionally, radio communications provide features such as Push to Talk (PTT) and group modes in a more straightforward, emergency-ready way than cellular communication technologies. Cellular and user equipment is also typically less durable, and therefore costlier over time. A cellular based communications system would not ensure reliable communications among first responders during major events, and everyday operations.

Satellite Communication System

The satellite system alternative requires leasing voice capacity on existing satellites with appropriate technology and acquiring the associated satellite end user equipment. There are delays in signal transmission to and from the satellite, which are “repeated” back to radio receivers on earth over a wide geographic area. This could cause weak signals based on satellite position, poor radio coverage in buildings, and a decrease in some local and specific-area communication abilities. Therefore a satellite communications system would not ensure reliable communications among first responders during major events and everyday operations.

FirstNet Communications System

FirstNet is a nationwide broadband network that is currently being deployed. The US Congress allotted \$7 billion and 20 MHz of valuable radio spectrum to develop, build, operate, and maintain an interoperable public safety broadband network. This resulted in a public-private partnership between AT&T and the First Responder Network Authority (FirstNet Authority) to accomplish these tasks. When fully built, FirstNet is intended to deliver broadband communications for first responders using special smartphones, tablets, and in-vehicle devices, providing usable coverage across most of the US. However, the construction and rollout of the FirstNet infrastructure is in its early stages, making this solution unsuitable at this time for use by Marin County agencies for a number of reasons:

- The coverage footprint of the FirstNet system does not currently extend to rural areas of Marin County. While FirstNet may eventually reach these locations, the coverage of the existing and planned MERA systems will include most areas of the County.
- The FirstNet system has not yet been certified for mission-critical voice applications. First responders require reliable and robust voice transmission capabilities that FirstNet is not currently able to provide.

- Basic features that are now available in the MERA system and planned for the proposed system do not yet exist in the FirstNet system. These include Group Communications (one-to-many calls) and Direct Mode (one-to-one calls without relaying through cell towers).

Because of these deficiencies, the FirstNet system does not meet the objectives of the proposed project, and this alternative is not feasible at present.

Multiple Non-Integrated Radio System

This alternative would be a reversion back to the disparate radio communications network that existed prior to the original MERA System. Each agency comprising MERA would be expected to operate its own emergency communications network within its area of responsibility. The radio systems utilized by each agency would not be integrated, and upgrades to the previous non-integrated system would be necessary, although it is not possible to predict to what degree upgrades would be needed for each agency. This would not meet Project Objectives 3 or 4, as it would decrease system coverage, reliability and interoperability.

F. FOUR ALTERNATIVES TO THE PROPOSED PROJECT

The analysis below expands the evaluation of the alternatives described in the 2010 design report to consider other variations that could potentially lessen or avoid the environmental impacts of MERA's proposed project. As required by CEQA, the evaluation of alternatives includes the No Project Alternative – Alternative 1.

Alternative 1: No Project Alternative - 16 Sites, Two Zone Simulcast System (400 MHz)

The No Project Alternative (Alternative 1) assumes that the proposed Next Gen Project would not proceed and that MERA would continue to operate under its current network of communication sites using 400 MHz frequencies (Figure VII-1). Under this alternative, the proposed project would not be constructed or implemented, and the project sites would remain in their current condition. The analysis of the No Project Alternative assumes the continuation of existing physical conditions on the project sites, as well as the cumulative development described in Chapter VI. The No Project Alternative and its potential environmental impacts is described and compared to the impacts associated with the proposed project.



Sources: National Geographic Basemap, WRA | Prepared By: njander, 11/13/2018

Figure VII-1: Alternative 1, No Project Alternative, Existing Condition at 400 Mhz



This SEIR incorporates the analyses of the current MERA system's 1999 Draft and 2000 Final EIRs by reference for all existing MERA sites and discusses only the topic areas where these previous CEQA documents determined potentially significant impacts may occur (Aesthetics, Biological Resources) and topic areas for which new information, public concern, or changes in the regulatory setting require further analysis (Tribal and Cultural Resources, Radio Frequency Exposure). These environmental topic areas as relevant to Alternative 1 are discussed below and in Table VII-2.

Aesthetics

Significant visual impacts related to the obstruction of scenic vistas or views were identified in the 1999 Draft EIR for four sites: Dollar Hill, Forbes Hill, Bolinas Ridge, and Bolinas Fire Station. Less-than-significant visual impacts were identified on the remaining 13 sites. For the four sites with significant impacts, mitigation measures recommended in the 1999 Draft EIR reduced visual impacts to less-than-significant at Bolinas Ridge, but they could not reduce impacts to less-than-significant at the other three sites. As a result, a Statement of Overriding Considerations was adopted by MERA for these sites, outlining the rationale for finding the significant, unavoidable aesthetic impacts acceptable in balancing the region-wide economic, legal, social, technological, and other benefits of the MERA communications system.

The Bolinas Fire Station and Bolinas Ridge Sites were dropped from the original system and never constructed, so significant, unavoidable impacts currently apply only to the Forbes Hill and Dollar Hill Sites. Alternative 1 would not alter the currently-operating site locations, number of sites or towers, tower heights, or existing equipment in any way. Therefore, Alternative 1 would not result in any additional aesthetics impacts beyond those of the existing MERA system. Because no impacts to aesthetic resources would occur under Alternative 1, the impacts would be less than the proposed project.

Biological Resources

The 1999 Draft EIR found that 27 special-status plants on the California Native Plant Society's (CNPS) 1-B List (considered rare or endangered in California and elsewhere) had potential to occur in the vicinity of the project sites. The majority of these plants had little or no potential to occur at the project sites due to a lack of suitable habitat, but a few had potential to occur at Point Reyes Hill and Bolinas Ridge. Individual oak trees and oak woodland are also considered sensitive resources by the County of Marin and the City of San Rafael and must be protected in accordance with local policies. Numerous oaks occur adjacent to facilities at Dollar Hill and Forbes Hill.

The Bolinas Ridge Site was dropped from the original system and never constructed, so potential impacts currently only apply to the Point Reyes Hill, Forbes Hill, and Dollar Hill Sites. Mitigation measures were recommended to bring all impacts to biological resources during development of the current MERA system to a less-than-significant level. Because Alternative 1 would not alter the existing site locations, number of sites or towers, tower heights, or existing equipment in any way, there would be no additional biological resources impacts beyond those of the existing

system. Because no impacts to biological resources would occur under Alternative 1, the impacts would be less than the proposed project.

Cultural Resources

The Initial Study for the current MERA system (MERA 1999) did not identify any significant impacts to cultural resources at any of the sites analyzed and therefore this topic area was not discussed in the 1999 Draft EIR or 2000 Final EIR.

A Cultural Resources Inventory Report was completed for the proposed Next Gen System in October, 2018 that included an analysis of all currently operating MERA sites, the only sites relevant for Alternative 1. The report found that only two previously recorded cultural resources exist within the Area of Direct Impacts (the area where ground disturbance would occur) for Next Gen work at existing MERA sites: 1) a historic road segment near the Mt. Barnabe Site and 2) the Civic Center building, which is listed on the National Register of Historic Places (NRHP). Alternative 1 would not require any ground disturbance and would not alter the site locations, number of sites or towers, tower heights, or existing equipment in any way. Therefore, Alternative 1 would have no impact on cultural resources, and the impacts would be less than the proposed project.

Tribal Cultural Resources

Tribal Cultural Resources (TCRs) were not considered in the 1999 Draft EIR, but an evaluation of the project's impacts to TCRs is now required under California Assembly Bill (AB) 52. In 2018, MERA participated in consultations with the Federated Indians of Graton Rancheria (FIGR) to identify impacts, if any, at existing sites and any future potential impacts to TCR's as a result of the Next Gen project.

On February 1, 2019, FIGR described the potential for impacts to TCRs at 13 Next Gen sites. Nine sites of the 13 sites that were identified are existing sites, including: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Point Reyes Hill, Dollar Hill, San Pedro Ridge, Mt. Tiburon, Sonoma Mountain, and Stewart Point. However, Alternative 1 would not require any ground disturbance and would not alter the site locations, number of sites or towers, tower heights, or existing equipment in any way. Therefore, Alternative 1 would have no impact on TCRs, and the impacts would be less than the proposed project.

Radio Frequency Exposure

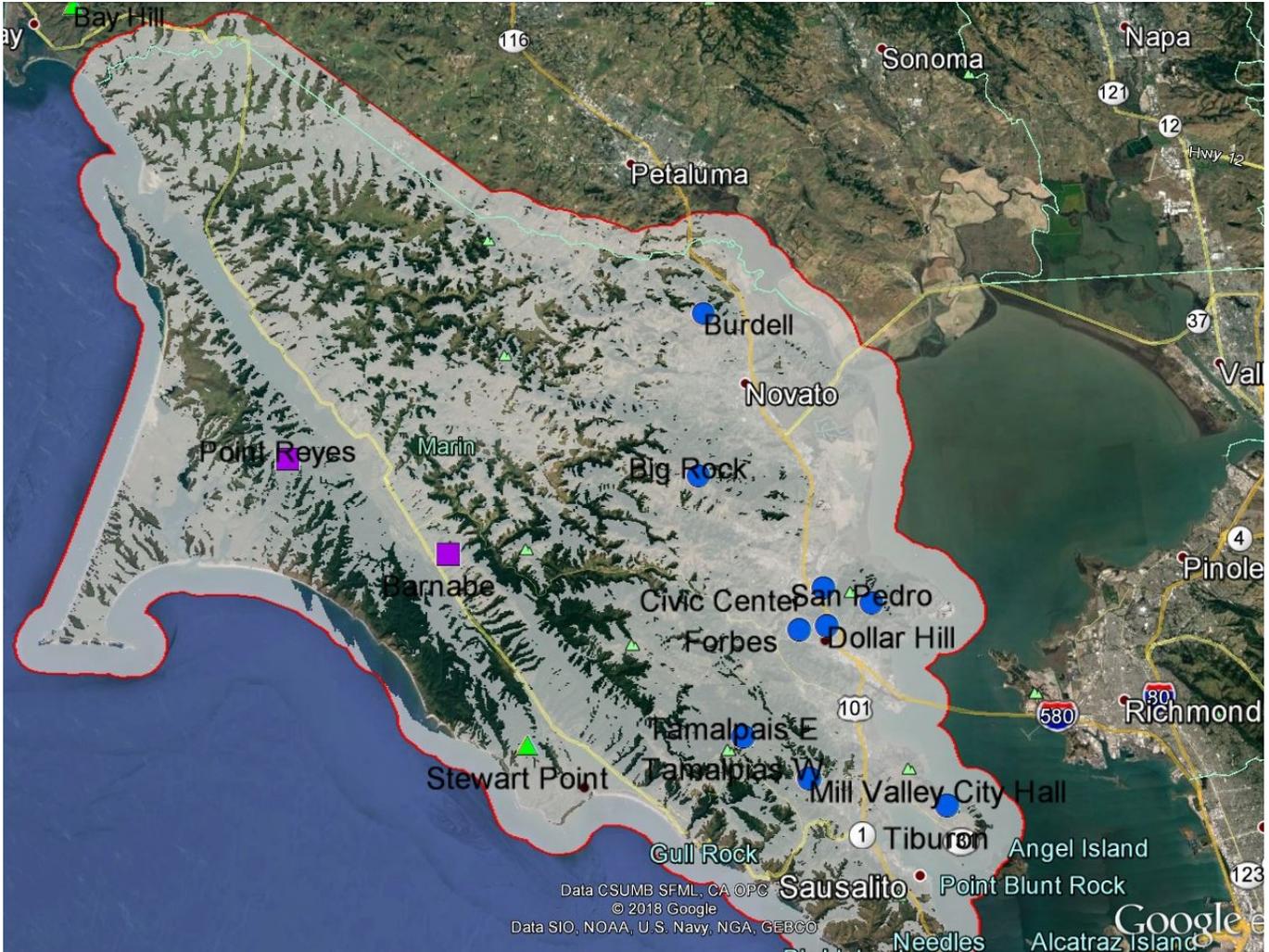
According to the 1999 Draft EIR for the current MERA system, the calculated effect of implementing the original MERA project would exceed the FCC's public (uncontrolled) maximum permissible RF exposure levels at only one site (Point Reyes Hill), while 14 of the sites would comply with the FCC's public maximum permissible exposure requirements. No RF impacts were found at two sites (the Prime Site EOF and Novato Police Department Site). The RF exposure analysis in the 1999 Draft EIR found that 12 sites had the potential to exceed the FCC's maximum permissible occupational RF exposure standard. The sites identified were: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Bolinas Fire Station, Point Reyes Hill, Forbes Hill, Dollar Hill, San Pedro Ridge, Mt. Burdell OTA, Mt Tiburon Tank, Bay Hill Road, and Sonoma Mountain.

MERA mitigated these potential effects in the final design and during construction of the current MERA system by extending the fencing to control public access to the Point Reyes Hill Site, implementing RF safety Best Management Procedures (BMPs), establishing training protocols, and adding signage indicating potential RF exposure hazards at all entry points to controlled site areas. These mitigation measures ensured that potentially significant public and occupational RF exposure levels were diminished to a less-than-significant level.

Alternative 1 would not alter the existing site locations, number of sites or towers, tower heights, or existing equipment in any way. Therefore, there would be no impacts related to RF exposure beyond those of the existing system, and RF impacts would be less than under the proposed project.

Conclusion

Alternative 1, the No Project Alternative, would not create any additional environmental impacts beyond those of the existing system, and would have fewer impacts as compared to the proposed project. However, with the exception of Project Objective 6 (Maintain compliance with all applicable land use, permitting, and CEQA requirements), this alternative does not meet any of the project objectives. It would not install a new system as approved in Measure A, upgrade the system with new 700 MHz equipment to meet revised FCC requirements, increase reliability, improve radio coverage, or relocate the system's Network Core and Prime Site EOF from the Marin County Civic Center to the EOF. Existing coverage is shown below in Figure VII-2. It has been determined that Marin County requires a more reliable communications network for emergency situations, to provide first responders the resources they need to keep the citizens of Marin County safe. Maintaining the 20-year-old network would be difficult due to lack of replacement parts and the difficulty or inability to incorporate new technologies. Keeping the MERA network as-is would leave coverage and reliability gaps in the system.



Grey - Coverage provided by existing MERA System without improvements.

Sources: MERA, Motorola, Google 2018

Figure VII-2: Alternative 1, Coverage by Existing 400 MHz System

Alternative 2: Upgrade Existing Sites – 16 Sites, Two Zone Simulcast System (700 MHz)

Alternative 2 assumes that there would be no change in the location or number of existing MERA sites, but modifications would be made at each of the 16 sites to provide 700 MHz communication channels (Figure VII-3).

This SEIR incorporates the analyses of the current MERA system's 1999 Draft EIR and 2000 Final EIR by reference for all existing MERA sites and discusses only the topic areas where these previous CEQA documents determined potentially significant impacts may occur (Aesthetics, Biological Resources) and topic areas for which new information, public concern, or changes in the regulatory setting require further analysis (Cultural Resources, Tribal Cultural Resources, Radio Frequency Exposure). These environmental topics as relevant to Alternative 2 are discussed below and in Table VII-2.

Aesthetics

As summarized in Alternative 1, the 1999 Draft EIR for the current MERA system found that despite implementation of recommended mitigation measures, there were significant and unavoidable impacts to visual resources at two of the currently operating sites (Dollar Hill and Forbes Hill). A Statement of Overriding Considerations was adopted in the MERA resolution certifying the 1999 Draft EIR for the existing system. Alternative 2 would not alter the site locations, number of towers or sites, or tower heights of the existing system in any way, but might require installation of some additional equipment (antennas and radios) in order to upgrade the system to 700 MHz. There would be no significant change to visual impacts identified in the 1999 Draft EIR under Alternative 2. aesthetics impacts under this alternative would be less than significant and, because it would involve fewer sites, impacts would be less than under the proposed project.

Biological Resources

As summarized in Alternative 1, the 1999 Draft EIR found that special-status plant species had potential to occur at Point Reyes Hill and Bolinas Ridge and that numerous protected oaks occur adjacent to facilities at Dollar Hill and Forbes Hill. The Bolinas Ridge Site was removed from the original system design and never constructed. Therefore, the potential for impacts to biological resources would only apply to the Point Reyes Hill, Forbes Hill, and Dollar Hill Sites. Mitigation Measures recommended in the 1999 Draft EIR to reduce all impacts to biological resources to a less-than-significant level were incorporated into the final design for the original MERA project.



Sources: National Geographic Basemap, WRA | Prepared By: njander, 11/13/2018

Figure VII-3: Alternative 2, Upgrade Existing Sites To 700 MHz Frequencies



Alternative 2 would not alter existing MERA site locations, number of towers or sites, or tower heights in any way. As previously noted, some additional equipment may be necessary to upgrade to 700 MHz, but these modifications would not result in any new or more significant impacts to biological resources as compared to those identified for the existing MERA system in the 1999 Draft EIR. As detailed in Table VII-2 at the end of this chapter, biological resources impacts under this alternative would range depending on the site from no impact, to less-than-significant impact, to less-than-significant impact with mitigation. Overall, impacts would be less than under the proposed project, as this alternative involves fewer sites.

Cultural Resources

The Initial Study for the current MERA system (MERA 1999) did not identify any significant impacts to cultural resources at any of the sites analyzed and therefore did not discuss this topic in the 1999 Draft EIR or 2000 Final EIR.

A Cultural Resources Inventory Report was completed for the proposed Next Gen System in October, 2018 that included an analysis of all currently operating MERA sites, the only sites relevant to Alternative 2. The report found that only two previously recorded cultural resources exist within the Area of Direct Impacts (the area where ground disturbance would occur) for Next Gen work at existing MERA sites: 1) a historic road segment near the Mt. Barnabe Site and 2) the Civic Center building, which is listed on the NRHP. Alternative 2 would not require any ground disturbance and would not alter the site locations, number of sites or towers, or tower heights in any way; thus, there would be no impact to cultural resources. Impacts would be less than under the proposed project, as this alternative involves fewer sites.

Tribal Cultural Resources

TCRs were not considered in the 1999 Draft EIR but an evaluation of the project's impacts to TCRs is now required under AB 52. In 2018, MERA participated in consultations with FIGR to identify impacts, if any, at existing MERA sites and any future potential impacts to TCR's as a result of the Next Gen project.

On February 1, 2019, FIGR described the potential for impacts to TCRs at 13 Next Gen sites. Nine sites of the 13 identified are existing sites, including: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Point Reyes Hill, Dollar Hill, San Pedro Ridge, Mt. Tiburon, Sonoma Mountain, and Stewart Point. However, Alternative 2 would not require any ground disturbance and would not alter the site locations, number of sites or towers, or tower heights. Thus, Alternative 2 would have no impact on TCRs. Impacts would be less than under the proposed project, as this alternative involves fewer sites.

Radio Frequency Exposure

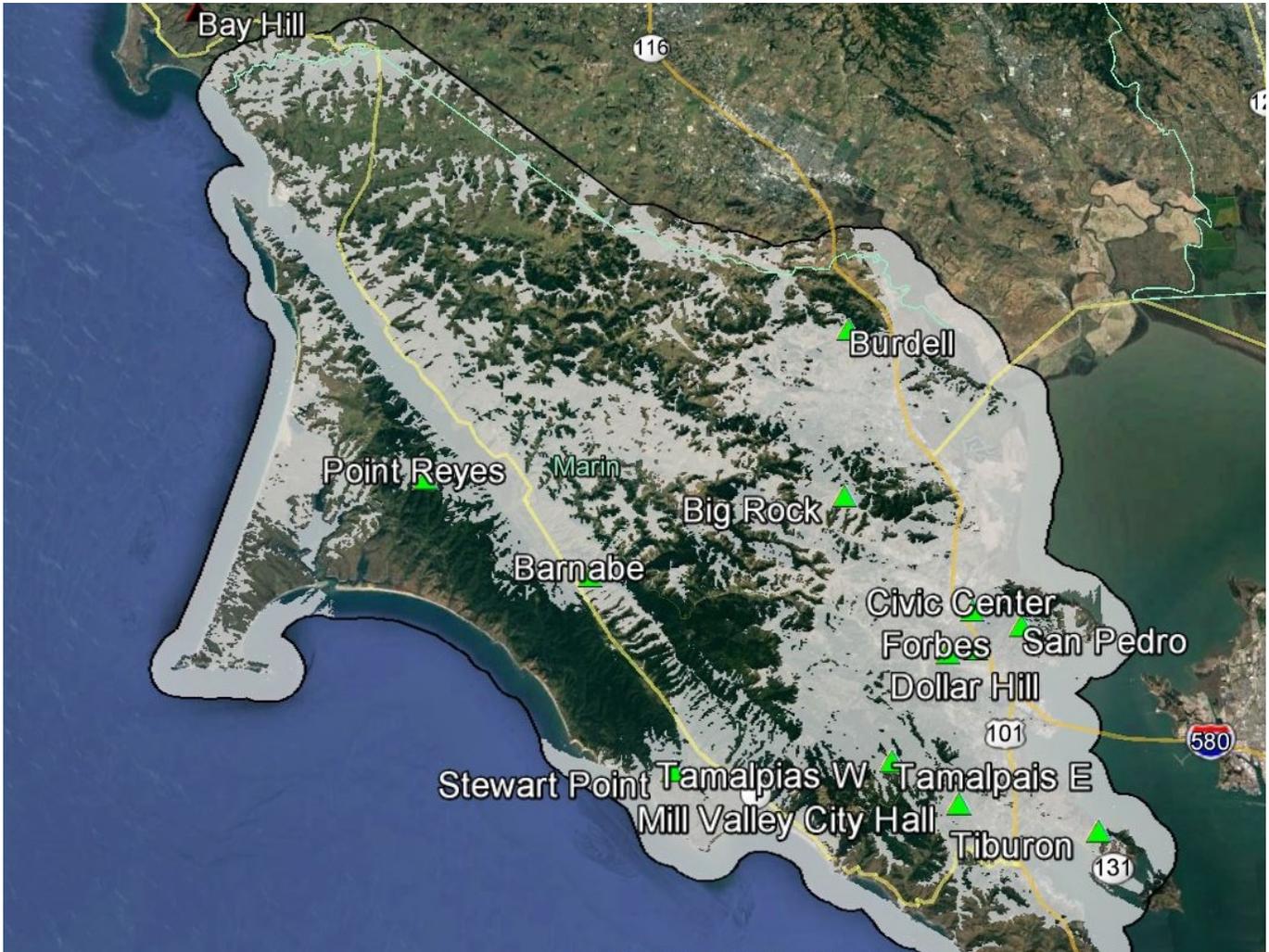
As summarized in Alternative 1, the calculated effect of implementing the current MERA system exceeded the FCC's public (uncontrolled) maximum permissible RF exposure levels at only one site (Point Reyes Hill). The RF exposure analysis in the 1999 Draft EIR found that the FCC's maximum permissible occupational RF exposure levels were exceeded at 12 sites: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Bolinas Fire Station, Point Reyes Hill, Forbes Hill, Dollar Hill,

San Pedro Ridge, Mt. Burdell OTA, Mt Tiburon Tank, Bay Hill Road, and Sonoma Mountain. MERA mitigated for these potential effects in the development of the current MERA system with fencing, safety BMPs, training protocols, and signage indicating potential RF exposure hazards at all entry points to controlled site areas. These measures ensured that all identified impacts were reduced to a less-than-significant level.

Alternative 2 would require some additional equipment (antennas and radios) in order to change the system to 700 MHz frequencies. However, as with the proposed Next Gen project, Alternative 2 would be required to implement Mitigation Measures RF-1, RF-2, and RF-3 and the safety BMPs and training protocols included in Chapter III (Project Description), in order to comply with exposure standards and regulations. Given these requirements and the minor equipment modifications to the existing system, there would be no significant change to radio frequency exposure under Alternative 2. RF exposure impacts under Alternative 2 would be less than significant with mitigation. Overall, RF impacts would be less than the proposed project, as this alternative involves fewer sites.

Conclusion

Alternative 2 would have lesser impacts as compared to the proposed project, but it would not meet four out of six of MERA's Next Gen project objectives. This alternative would allow MERA to modify the existing system with new 700 MHz equipment to meet the revised FCC requirements, but it would not improve Marin County communications coverage to reduce emergency response times and ensure reliable communications among first responders during major events and everyday operations. In fact, rather than achieving the project objective of increasing coverage to meet 97% reliability within the coverage area, the coverage area would be diminished as compared to the existing system as a result of shifting to the 700 MHz frequency band, as shown in Figure VII-4. Finally, Alternative 2 would not relocate the existing system's Network Core and Prime Site EOF from the Marin County Civic Center to the EOF.



Grey - Coverage provided by existing facilities converted to 700 MHz.

Sources: MERA, Motorola, Google 2018

Figure VII-4: Alternative 2, Coverage by Existing Facilities at 700 MHz

Alternative 3: Original Motorola Solutions Proposal - 15 Sites, Two Zone Simulcast System (700 MHz)

Alternative 3 was submitted by Motorola Solutions on February 14, 2017 in response to MERA's Request for Proposals issued on May 6, 2016. Motorola's proposed system (Figure VII-5) would utilize eight of MERA's existing telecommunication sites (with existing towers), decommission eight existing sites, and add seven new sites (with towers of similar height as the proposed project). In contrast, the proposed project adds eight new sites and decommissions five existing sites.

The proposed Motorola Solutions network would include 12 radio communication sites:

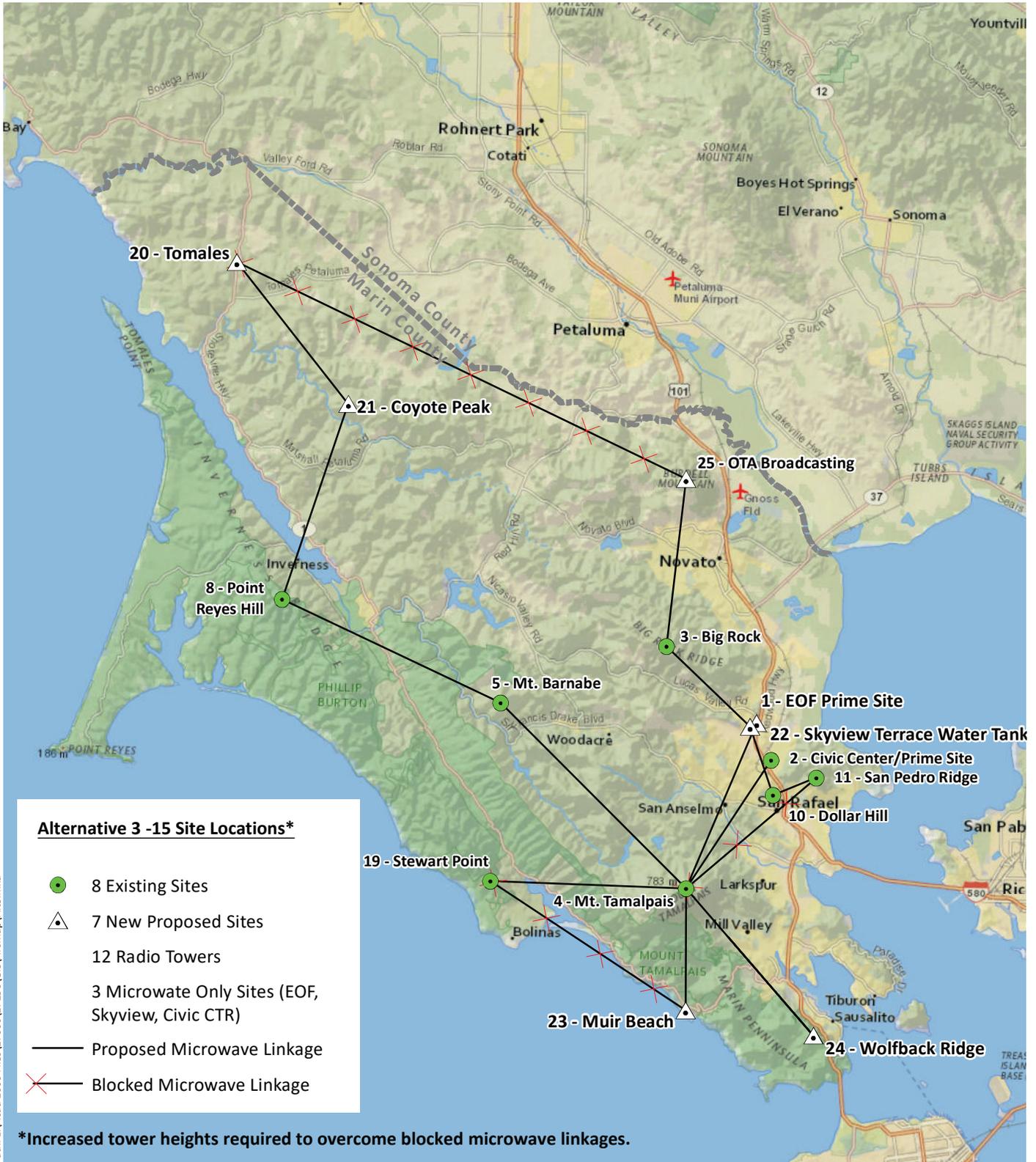
- Big Rock Ridge
- Dollar Hill
- Marshall - Coyote Peak (New Site)
- Mt. Barnabe
- Mt. Tamalpais
- Muir Beach Water Tank (New Site)
- Mt. Burdell OTA (Existing Site, New to MERA)
- Point Reyes Hill
- San Pedro Ridge
- Stewart Point
- Tomales - Parks Ranch (New Site)
- Wolfback Ridge (Existing Site, New to MERA)

And three microwave-only sites:

- Prime Site EOF (Existing Site, New to MERA)
- Marin County Civic Center
- Skyview Terrace Water Tank (New Site)

Eight existing MERA sites are not included in Motorola's proposed radio communication system and would be decommissioned: Sonoma Mountain, Bay Hill Road, Mt. Burdell OTA, Forbes Hill, Mt. Tiburon Water Tank, Mill Valley City Hall, Mill Valley Public Safety Building, and the current Prime Site EOF at the Marin County Civic Center.

This SEIR incorporates the analyses of the current MERA system's 1999 Draft EIR and 2000 Final EIR by reference for all existing MERA sites and discusses only the topic areas where these previous CEQA documents determined potentially significant impacts may occur (Aesthetics, Biological Resources) and topic areas for which new information, public concern, or changes in the regulatory setting require further analysis (Cultural Resources, Tribal Cultural Resources, Radio Frequency Exposure). These environmental topic areas as relevant to Alternative 3 are discussed below and in Table VII-2.



Sources: National Geographic Basemap, WRA | Prepared By: njander, 11/13/2018

Figure VII-5: Alternative 3, Original Motorola Solutions Proposal



Aesthetics

As summarized in Alternative 1, the current system's 1999 Draft EIR found that despite implementation of recommended mitigation measures there were significant and unavoidable impacts to visual resources at two of the currently operating sites (Dollar Hill and Forbes Hill). Alternative 3 would decommission the Forbes Hill Site, just as in the proposed project, thus avoiding an existing significant aesthetic impact that could not be mitigated to a less-than-significant level in the original project. The significant visual impact at Dollar Hill identified in the 1999 Draft EIR would remain under this alternative. In addition, Alternative 3 could possibly result in visual impacts at seven new sites: the Prime Site EOF, Coyote Peak, Muir Beach, Mt. Burdell OTA, Tomales, Wolfback Ridge, and Skyview Terrace. A brief analysis of potential aesthetic impacts from Alternative 3 at each of these sites is below:

Dollar Hill: The analysis of the Dollar Hill Site from the 1999 Draft EIR found significant and unavoidable impacts to visual resources with the development of the current system, as a 60-foot tower was installed where none previously existed. A Statement of Overriding Considerations was adopted for these impacts. Infrastructure at the site currently includes a 60-foot tall tower with antennas that bring it to a maximum height of 75 feet, a water tank and pump, and two buildings. Given the current state of development and type of equipment already in place at Dollar Hill, the Alternative 3 equipment modifications would not cause new significant aesthetic impacts or substantially increase the severity of existing impacts. Chapter V of the SEIR concludes that project impacts related to scenic vistas and public views at the Dollar Hill Site would be less than significant, and that the project would result in no impact related to scenic resources within a state scenic highway. Given the improvements at the Dollar Hill Site under Alternative 3 would be similar to the proposed project, aesthetics impacts under this alternative at the Dollar Hill Site would also be similar to the proposed project.

Prime Site EOF: The site is proposed for the roof of the Marin County Emergency Operations Facility (EOF), which is an existing communications site with 19 existing antennas. Modifications to remove or install additional communications equipment on the existing lattice structure would not be obvious on the existing tower, which is designed to carry such features, but would be detectable upon closer inspection. Chapter V of the SEIR concludes that project improvements at the Prime Site EOF would result in no impact related to scenic vistas and scenic resources within a state scenic highway, and that impacts related to public views would be less than significant. Given the improvements at the Prime Site EOF under Alternative 3 would be similar to the proposed project, aesthetics impacts under this alternative at the Prime Site EOF would also be similar to the proposed project.

Coyote Peak: The Coyote Peak Site is located atop a remote hilltop at roughly 970 feet of elevation, with access via a narrow dirt road. The site currently contains two water well pump heads, which have limited visibility off-site. Development of Coyote Peak into a MERA communications site would require the installation of a new, approximately 60-foot tower, an equipment shelter, and other related equipment, along with site modifications to provide underground power and access. For the Coyote Peak Site, Chapter V of the SEIR concludes that the project would result in less-than-significant impacts related to scenic vistas and no impact to

scenic resources within a state scenic highway. Given the improvements at the Coyote Peak Site under Alternative 3 would be similar to the proposed project, scenic vista and scenic highway impacts under this alternative at the Coyote Peak Site would also be similar to the proposed project.

However, improvements at this site under either the proposed project or Alternative 3 would change the visual character of the site, and would be noticeable from a number of distant vantage points. When combined with the close proximity and use of the Walker Creek Ranch as an outdoor education facility (owned by the Marin County Office of Education), the addition of a new communications tower and related infrastructure in an area that otherwise appears to be minimally disturbed would be a significant and unavoidable visual impact under both the proposed project and Alternative 3.

Muir Beach: The Muir Beach Site is already developed with a water tank, concrete pad left over from a previous water tank, and some communications equipment. The existing water tank is highly visible from the scenic overlook parking area and some nearby residences. Existing infrastructure improvements at this location are behind the scenic overlook restrooms and, while visible, do not obstruct or deter from the views towards the ocean from the overlook. Similar to the proposed project, Alternative 3's development of this site as a communication facility would require the installation of a new tower, equipment shelter, and antennas, along with other related equipment and site modifications to provide power. These facilities would be collocated with the existing infrastructure, adjacent to the existing Muir Beach Water Tank and the GGNRA Muir Beach Overlook parking lot, and would not alter or affect views toward the ocean. For the Muir Beach Site, Chapter V of the SEIR concludes that the project would result in less-than-significant impacts related to scenic vistas and no impact to scenic resources within a state scenic highway. Given the improvements at the Muir Beach Site under Alternative 3 would be similar to the proposed project, scenic vista and scenic highway impacts under this alternative at the Muir Beach Site would also be similar to the proposed project.

The addition of a monopole tower, equipment shelter, microwave dishes and antennas to the site under either the proposed project or Alternative 3 would significantly change the existing character of the site. The monopole tower would intrude into the existing view of Mt. Tamalpais from the GGNRA overlook, and would be visible to the residents of the existing homes across the street from the project site. Therefore, the impacts to public views of installing communications equipment at this site under the proposed project and Alternative 3 would be similar and significant and unavoidable.

Mt. Burdell OTA: The site is currently developed as a radio communications site and is located among dense vegetation, so existing infrastructure is well-hidden from view. Similar to the proposed project, the modifications called for in Alternative 3 would likely require alterations to equipment on the existing tower but would not change the screening of this site. Chapter V of the SEIR concludes that project impacts related to scenic vistas and public views at the Mt. Burdell OTA Site would be less than significant, and that the project would result in no impact related to scenic resources within a state scenic highway. Given the improvements at the Mt. Burdell OTA

Site under Alternative 3 would be similar to the proposed project, aesthetics impacts under this alternative at the Mt. Burdell OTA Site would also be similar to the proposed project.

Tomales: The Tomales Site is situated just north of the Town of Tomales on a small hilltop surrounded by grassy, rolling hills and open space. The site currently has two existing, though relatively short cell towers, and an equipment shelter which is generally out of view from Highway 1, except for a few distant vantage points to the north. Similar to the proposed project, development of the Tomales Site as a radio communications site as provided in Alternative 3 would include installation of a new 75-foot tall monopole tower, a new equipment shelter, and modest site modifications for underground power. The proposed equipment shelter would be just as visible as the existing shelter from the same distant vantage points to the north. In addition, the proposed monopole tower would be more visible from Highway 1 than the existing facilities on the site. Travelers along Highway 1 would see various portions of the top of the monopole from different locations along the roadway, and the complete monopole from about 0.6 mile away to the north, as well as from Whitaker Bluff Road about a mile to the north. Highway 1 is eligible for designation as a State Scenic Highway and is treated as such in this analysis. Because of the visibility of new MERA equipment from Highway 1, both the proposed project and Alternative 3 would result in similar significant and unavoidable impacts related to scenic resources within a state scenic highway and public views. As there are no designated scenic vistas in the area, Alternative 3 would also result in no impact to scenic vistas, similar to the proposed project.

Wolfback Ridge: The Wolfback Ridge Site is located on a ridge above Highway 1/101, west of Sausalito. The site is large and contains a number of communication and broadcast facilities. The site is entirely fenced and contains several 100-foot towers with multiple antennas. Similar modifications would be made to the existing communications site under Alternative 3 as under the proposed project.

The stretch of Highway 1/101 below the Wolfback Ridge Site is not an officially designated State Scenic Highway, but is eligible for designation. This part of the highway provides a conduit for motorists crossing the Golden Gate Bridge, an important aesthetic and cultural resource of Marin County. The area's topography and vegetation block the project site from view along nearly all points on the highway. Although motorists can view the site from Wolfback Ridge Road, the impacts from this vantage point is limited by the City of Sausalito's assertion that Wolfback Ridge Road is a private thoroughfare and may only be used by residents who own property in the area. The site's location atop a peak is also visible to recreationists using nearby trails, but the modifications that would be made to the existing highly developed communications site under either Alternative 3 or the proposed project would not create significant changes to scenic vistas, scenic highways, or visual character of the site or surroundings. Under both Alternative 3 and the proposed project, and therefore these impacts would be and less than significant.

Skyview Terrace: The Skyview Terrace Site is adjacent to an existing MMWD water tank. The tank is generally sheltered from view by an earthen berm constructed around the tank. No other infrastructure is currently present on the hilltop. The southern half of the hill is wooded while the northern half, where the Skyview Terrace Site would be located, is relatively open and grassy. The site is visible from nearby neighborhoods along Las Gallinas Road about 0.2 mile to the west,

from commercial areas about 0.3 to 0.5 mile east across Highway 101, and by motorists on Smith Ranch Road headed west from about 0.8 to 0.5 mile away. The site is also briefly visible, though perpendicular to the line of travel, by a high volume of motorists on Highway 101. Improvements to this site under Alternative 3 would be the same as the proposed project. Given the lack of existing radio tower infrastructure and the visibility of the ridgeline within designated open space, development of Skyview Terrace into a microwave relay site, with a new 35-foot tall monopole tower, two microwave dishes, and an equipment shelter, would result in similar significant and unavoidable impacts to scenic vistas, scenic highways, and visual character under both Alternative 3 and the proposed project.

In summary, impacts to aesthetic resources under Alternative 3 would be similar to the impacts of the proposed project. However, as discussed in more detail below, it is possible that tower heights for the Alternative 3 sites would need to be increased in order to meet the project's coverage objectives while maintaining RF emissions at safe levels. If tower heights were increased, Alternative 3 would have a greater impact on aesthetic resources than the proposed project.

Biological Resources

As summarized in Alternative 1, the original 1999 Draft EIR found that special-status plant species had potential to occur at Point Reyes Hill and Bolinas Ridge and that numerous protected oaks occur adjacent to facilities at Dollar Hill and Forbes Hill. The Bolinas Ridge Site was removed from the original system and never constructed. Therefore, the potential for biological resources impacts still apply to the Point Reyes Hill, Forbes Hill, and Dollar Hill Sites. Mitigation Measures adopted in the 1999 Draft EIR reduced all impacts to biological resources from the current MERA system to a less-than-significant level.

Alternative 3 includes seven new communications sites not analyzed in the 1999 Draft EIR. Three of the sites (Wolfback Ridge, Mt. Burdell OTA and the Prime Site EOF) are already developed communication sites. Chapter V of the SEIR concludes that the proposed project would result in no impact to biological resources at each of these sites. Given the improvements under Alternative 3 at these sites would be similar to the proposed project, Alternative 3 would result in no impact to biological resources at these sites, similar to the proposed project.

The other four sites (Coyote Peak, Muir Beach, Tomales, and Skyview Terrace) were previously developed with water tanks, water well heads, or cell towers, but are not existing telecommunication sites and would require development of new radio tower infrastructure. All four sites were surveyed for the Next Gen Project without finding candidate, sensitive, or special-status species that might occur in the areas. Muir Beach, Tomales, and Skyview Terrace also do not include wetlands or riparian areas.

For Tomales and Skyview Terrace, Chapter V of the SEIR concludes that the proposed project would have no impact to wetlands or candidate, sensitive, or special-status species. Project impacts to wetlands at the Coyote Peak Site would be less than significant after mitigation. For Muir Beach, Chapter V of the SEIR concludes that the proposed project would result in less-than-significant impacts after mitigation relative to possible nesting birds during construction. As

Alternative 3 involves the same improvements as the proposed project at these sites, this alternative would result in similar biological resources impacts as the proposed project at these sites (with the exception of the Coyote Peak Site). Overall, Alternative 3 would result in less impacts to biological resources than the proposed project as this alternative involves fewer sites.

Cultural Resources

The Initial Study for the current MERA system (MERA 1999) did not identify any significant impacts to cultural resources at any of the sites analyzed, and therefore did not discuss this topic in the 1999 Draft EIR or 2000 Final EIR.

A Cultural Resources Inventory Report was completed for the proposed Next Gen System in October, 2018 that included an analysis of all currently operating MERA sites, as well as all new sites proposed under Alternative 3. The report found that a total of three previously recorded resources exist within the Area of Direct Impacts (the area where ground disturbance would occur) at sites proposed for work under Alternative 3: 1) a historic road segment near the Mt. Barnabe Site, 2) the Civic Center building, which is listed on the NRHP, and 3) a rock wall feature associated with Rancho Olompali near the Mt. Burdell OTA Site.

The Mt. Barnabe, Civic Center, and Mt. Burdell OTA Sites are existing developed radio communications sites. Modifications under Alternative 3 would be similar to those in the Proposed Next Gen Project, requiring relatively minor equipment alterations on existing towers and limited ground disturbance to improve tower foundations. Protection and avoidance of the cultural features at Mt. Barnabe and Mt. Burdell OTA would avoid impacts there, and incorporation of mitigation measures at the Civic Center, as recommended in the 1999 Draft EIR, would reduce overall impacts from Alternative 3 to a less-than-significant level. Therefore, cultural resources impacts under Alternative 3 would be similar to the proposed project for sites that are included in both scenarios (i.e., project and alternative), but overall impacts would be less under Alternative 3 as this alternative involves fewer sites compared to the proposed project.

Tribal Cultural Resources

TCRs were not considered in the 1999 Draft EIR but an evaluation of the project's impacts to them is now required under California Assembly Bill AB-52. In 2018, MERA participated in consultations with FIGR to identify if there are existing impacts and any future potential impacts to TCR's as a result of the Next Gen project.

On February 1, 2019, FIGR described the potential for impacts to TCRs at 13 sites. Eleven of the sites identified by FIGR are components of Alternative 3: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Point Reyes Hill, Dollar Hill, San Pedro Ridge, Stewart Point, Tomales, Coyote Peak, Skyview Terrace, and Muir Beach.

Eight of these eleven sites are existing MERA sites, where existing towers would be used and equipment would simply be changed out. Some sites would not require any ground disturbance, in which case project activities would have no impact to TCRs. The sites in Alternative 3 that are new sites or are existing sites needing tower foundation reinforcement include the following: Tomales, which requires a new monopole; Coyote Peak, which requires a new monopole, road

grading, and minor road cuts to a maximum depth of eight feet in one place; and Skyview Terrace and Muir Beach, which both require a new monopole and an underground power line. . These improvements at each site are the same for Alternative 3 and the proposed project. As with the proposed project, the implementation of Mitigation Measures TRIBE-1, TRIBE-2, and TRIBE-3 would be required under Alternative 3 at these sites to ensure that impacts to TCRs would be less than significant. Therefore, TCR impacts under Alternative 3 would be similar to the proposed project for sites that are included in both scenarios (i.e., project and alternative), but overall would be less under Alternative 3 as this alternative involves fewer sites compared to the proposed project.

Radio Frequency Exposure

The potential RF exposure associated with the existing MERA system was evaluated in the 1999 Draft EIR and mitigated with the realignment of a fence to prevent public access into an area with elevated RF levels at one site, Point Reyes Hill. Within controlled areas of all the sites (areas that only knowledgeable workers can access), MERA mitigated potentially elevated RF levels by instituting safety procedures, establishing training protocols, and adding signage indicating potential RF exposure hazards at all entry points to controlled site areas, all of which are consistent with FCC regulations to ensure impacts were diminished to a less-than-significant level.

Alternative 3 proposes to utilize eight existing sites and seven new sites. Like the proposed project, it would incorporate the RF safety BMPs described in Chapter III. Because the Alternative 3 system has fewer sites than the proposed project, the system requires more power output at each site to achieve similar signal penetration and area coverage (Motorola Solutions 2018). With the increase in power required for the Alternative 3 system to meet the project's coverage objectives, radio communications would radiate beyond the three-mile buffer surrounding Marin County established by the Regional Planning Committee (RPC) to limit penetration of the 700 MHz emissions into adjacent jurisdictions. This potential condition would not be approved by the RPC, and therefore the system resulting from Alternative 3 could not be licensed by the FCC (which requires RPC approval).

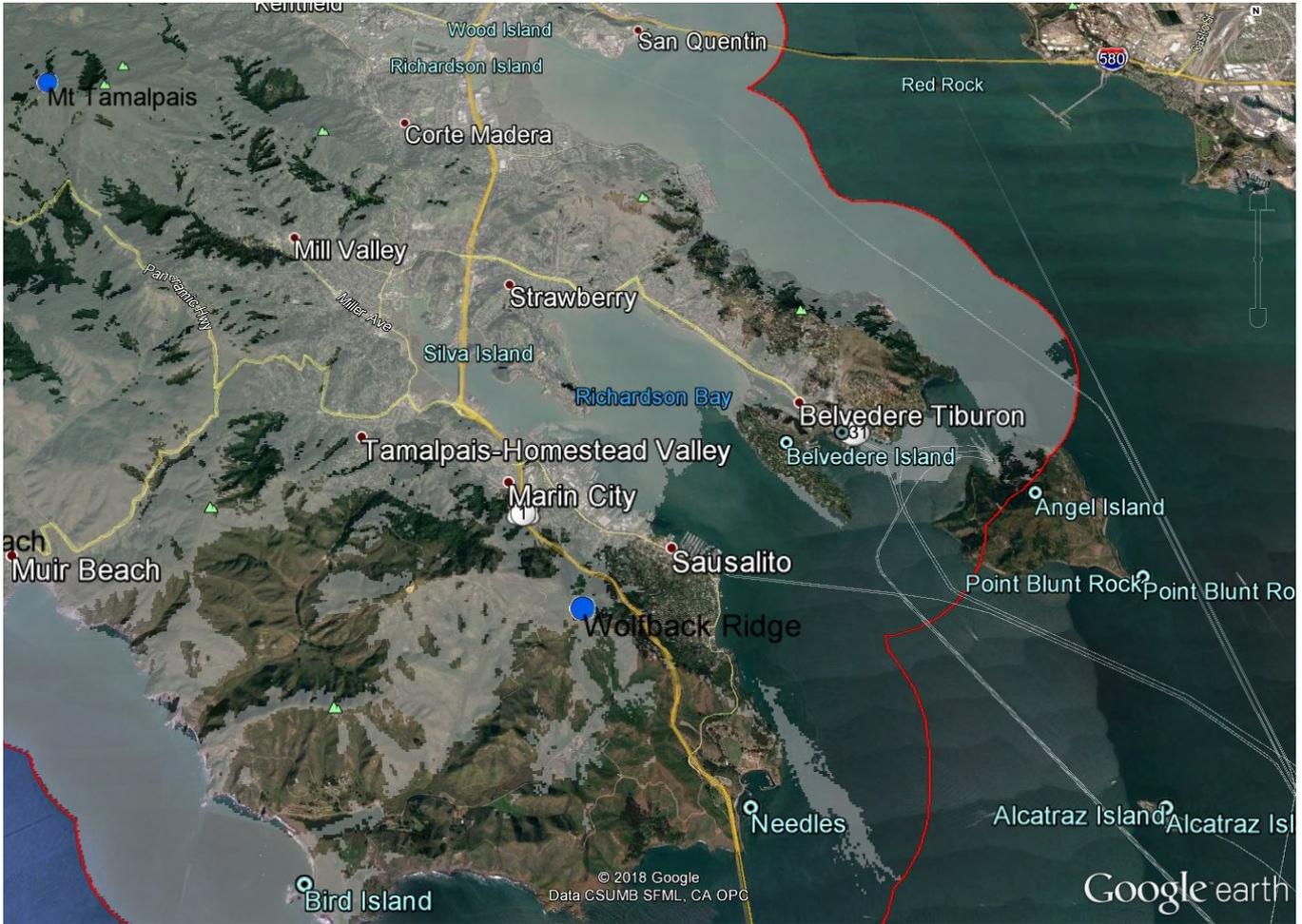
Further, an increase in power output would increase the level of RF emissions at each site. To maintain safe RF exposure levels on the ground and within work spaces near the towers, Alternative 3 would require either increased tower heights or reduced power output, which would in turn increase the impacts to aesthetic resources or impair system coverage. Because of the limitations in system coverage at acceptable power levels, as shown in Figure VII-6, this alternative could not meet MERA's objectives for the Next Gen project. For comparison, Figure VII-7 shows improved coverage in the same area provided by the Next Gen System.

Motorola Solutions also considered an alternative with the Alternative 3 configuration, using 800 MHz frequencies since that frequency range is not coordinated by the RPC. This too did not meet MERA's project objectives because the 800 MHz frequency range is not protected or guaranteed by the FCC to be available over the long-term for public safety use. Similar to the proposed project, RF exposure impacts under Alternative 3 would be less than significant after implementation Mitigation Measures RF-1, RF-2, and RF-3.

Conclusion

Alternative 3 has a reduced physical footprint, with less potential for environmental impacts than the proposed project because it has one fewer new site. However, the power required to boost radio signals in order to compensate for the smaller number of tower sites would cause the MERA system signal to extend beyond the geographic boundaries established to limit conflicts with radio systems in surrounding areas.

MERA's review of the proposed Motorola Solutions 15-site communications network (Alternative 3) found that it did not meet all the radio coverage and reliability objectives set forth in MERA's May 2016 RFP and in Section VII.B above. Therefore, in September/October 2017, MERA and Motorola Solutions conducted a workshop with the objective of designing a system that met all of MERA's coverage and reliability objectives. The result of that workshop is the proposed project.



Grey - Coverage by Motorola Proposal.

Sources: MERA, Motorola, Google 2018

Figure VII-6: Alternative 3, Southern Marin Coverage with Motorola Proposal



Grey - Coverage provided Next Gen System.

Sources: MERA, Motorola, Google 2018

Figure VII-7: Next Gen System, Southern Marin Coverage with Tiburon at 700 MHz

Alternative 4: Revised Project Design – 16 Sites, Two Zone Simulcast System (700 MHz)

Alternative 4 (Figure VII-8) is similar to the proposed project (Figure VII-9), but analyzes alternate tower locations for three of the proposed sites in an effort to reduce significant project-related aesthetics impacts. As such, Alternative 4 considers the following modifications to the proposed project, as analyzed below as 4A, 4B, and 4C (Table VII-1):

Table VII-1. Alternative 4 Revised Project Design

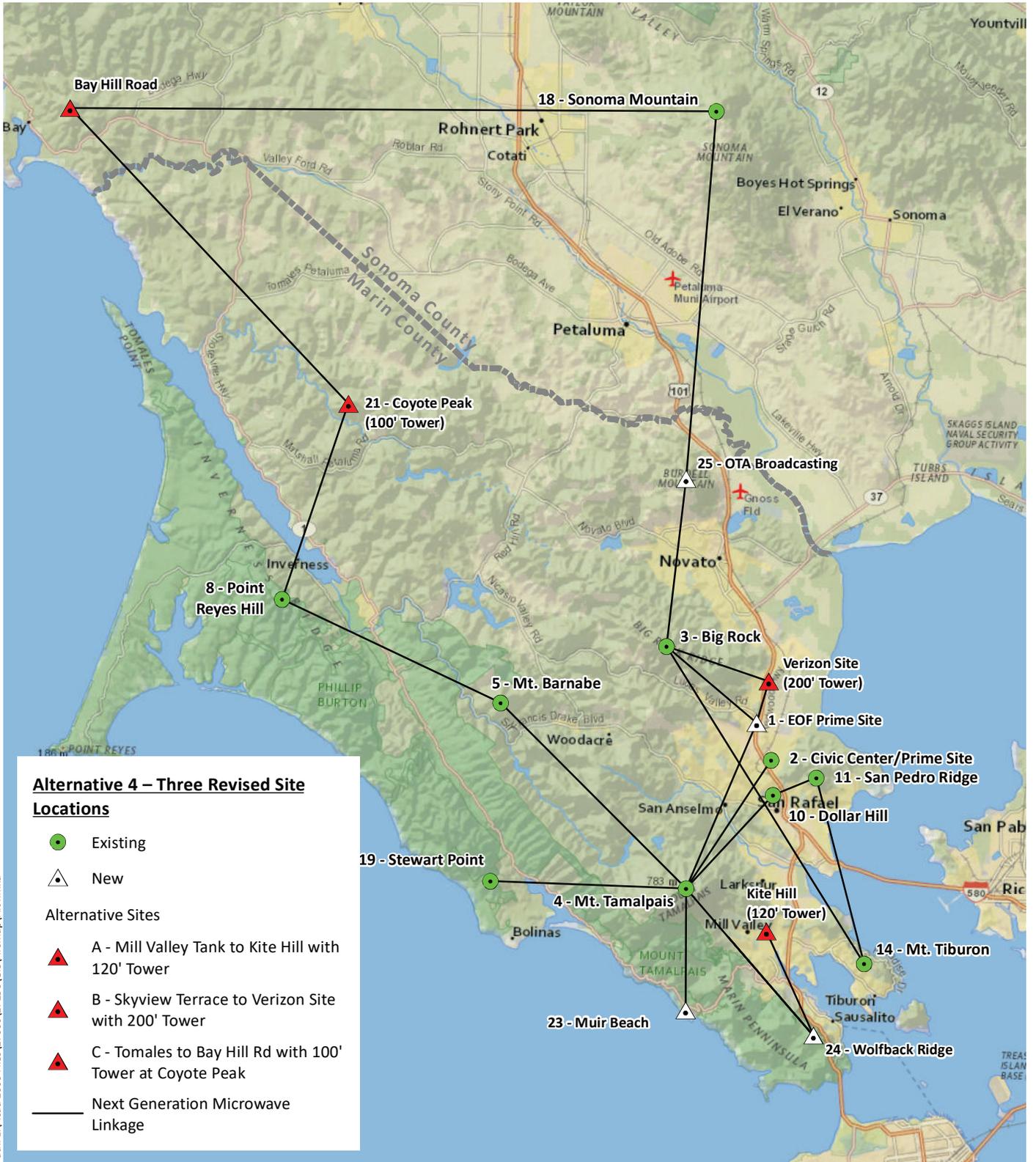
Next Gen Proposed Project Site	Alternative 4 Site	Alternative Tower Height
Mill Valley Water Tank	A. Kite Hill (Northeast of Mill Valley)	~120' - 300'
Skyview Terrace	B. Verizon Alternative (Highway 101 North of Skyview Terrace)	~300+'
Tomales	C. Bay Hill Road with Coyote Peak modified.	~100'

A. Kite Hill Water Tank as an alternative for Mill Valley Water Tank

The Kite Hill Site is presented as an alternative location for the Mill Valley Water Tank Site at Edgewood Avenue because it is a high elevation site that could serve the Mill Valley area and it is owned and operated by a MERA member agency, MMWD. In order to function as part of the radio system, the Kite Hill Water Tank Site would require a line-of-sight path to the Mt. Tamalpais Site and to the Wolfback Ridge Site for microwave radio connectivity. A microwave path analysis was completed using Google Earth satellite imagery and Digital Elevation Models (DEMs) of terrain to evaluate the site's usability (Figure VII-10).

The line-of-sight microwave path between Mt. Tamalpais and Kite Hill is blocked by existing terrain (Figure VII-11). This terrain rises to approximately 2,300 feet, and the calculated line-of-sight path crosses that terrain at about 2,200 feet. Overcoming this obstacle would require installation of a tower that is nearly 300 feet tall at the Kite Hill Site.

Alternatively, the microwave dishes at Mt. Tamalpais could be mounted at a higher elevation on the existing 75-foot towers to reduce the overall tower height requirements at Kite Hill. Even if the microwave were mounted at higher elevations, however, a relatively tall tower (greater than 120 feet) would be required at the Kite Hill Site, and/or additional equipment would need to be installed on the tower at Mt. Tamalpais, which would increase overall visual impacts associated with this alternative. The microwave path between Kite Hill and Wolfback Ridge (Figure VII-12), however, does not have terrain restrictions and is feasible without increased tower height at Kite Hill.



Sources: National Geographic Basemap, WRA | Prepared By: njander, 11/13/2018

Figure VII-8: Alternative 4: Revised Project Design



Sources: National Geographic Basemap, WRA | Prepared By: njander, 11/13/2018

Figure VII-9: Proposed Project, MERA Next Generation System Configuration



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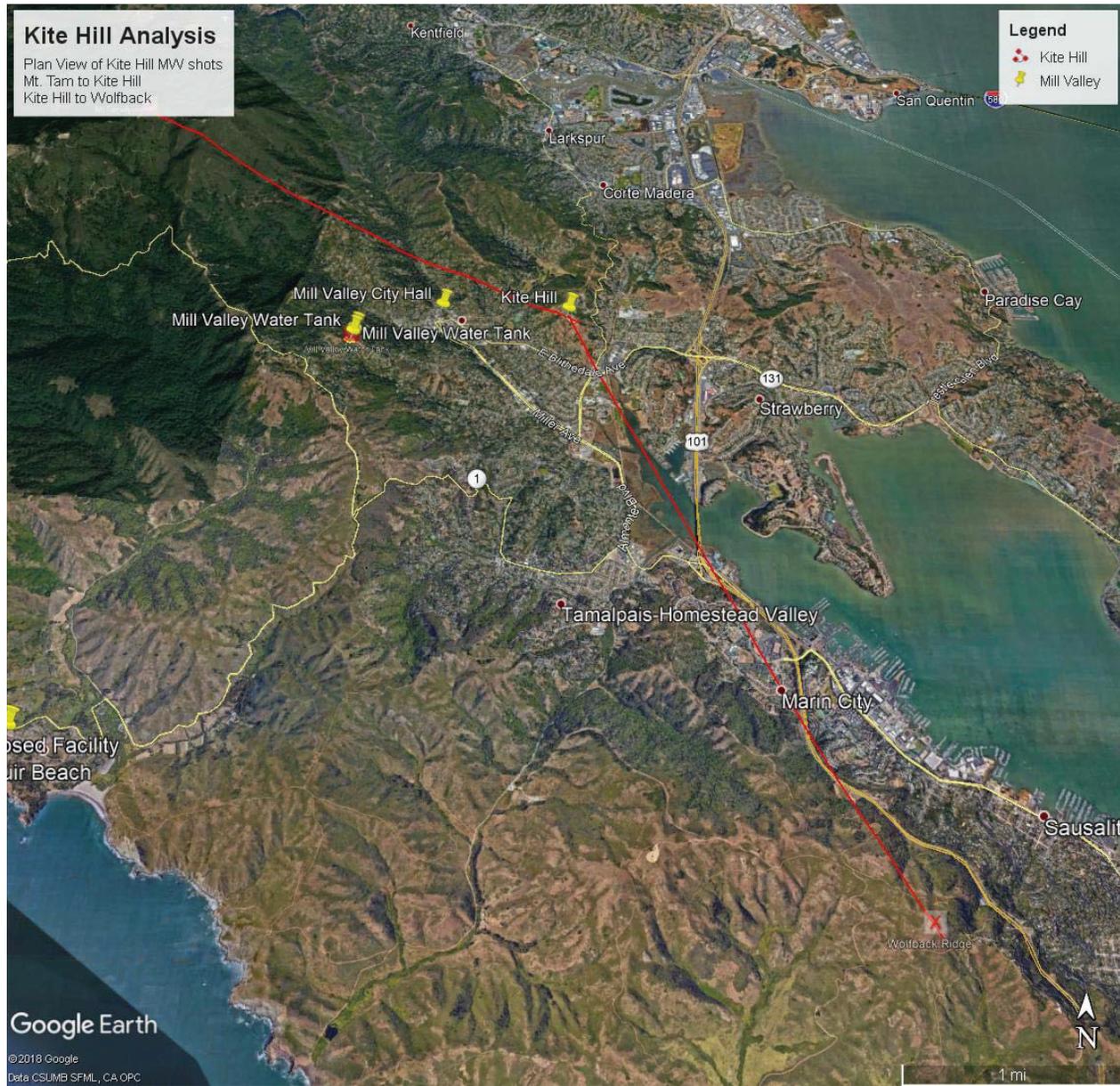
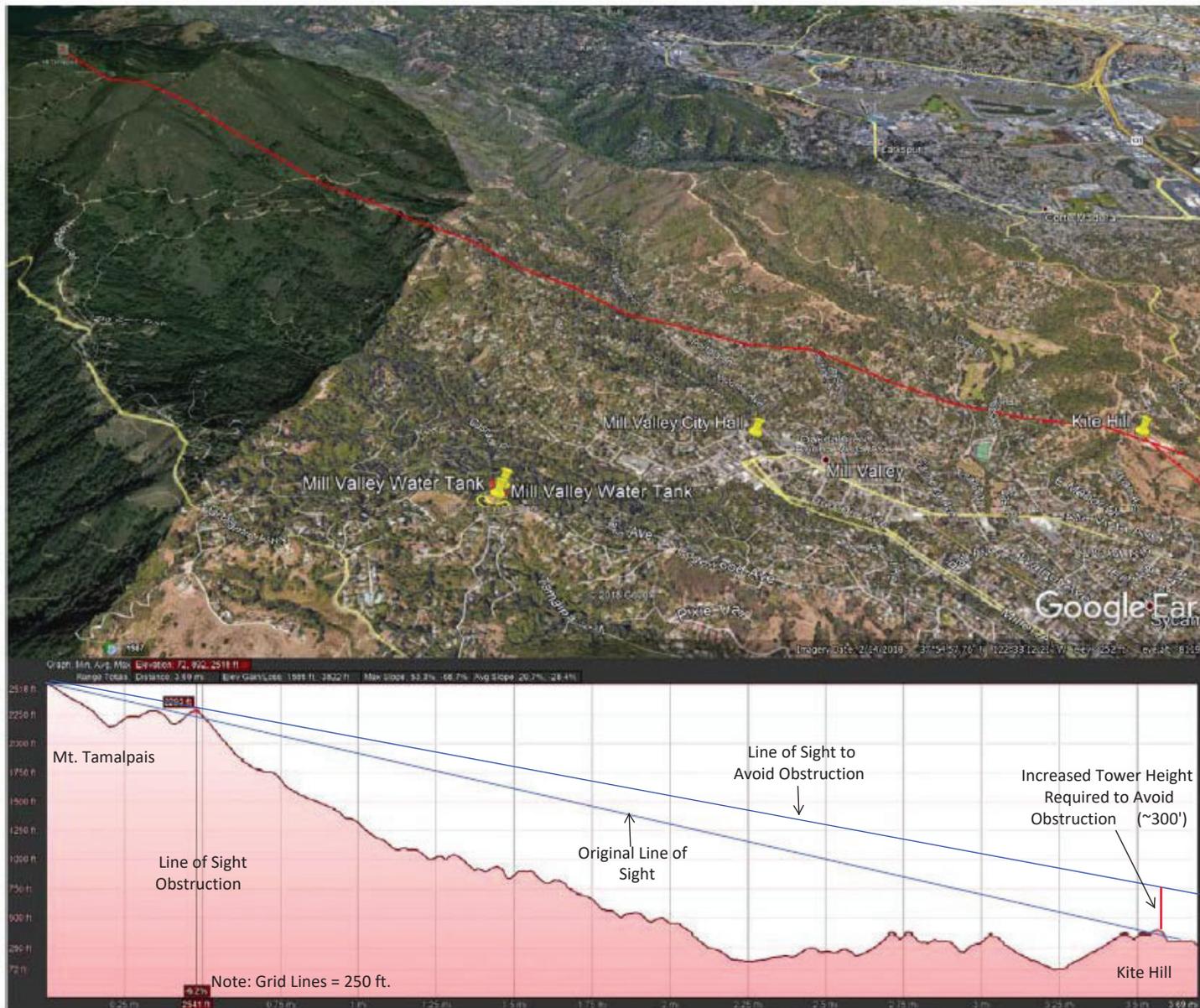


Figure VII-10: Mill Valley Water Tank Alternative 4, Kite Hill Water Tank Site Microwave Radio Path



**Figure VII-11: Mill Valley Water Tank Alternative 4,
Microwave Radio Path Between Mt. Tamalpais and Kite Hill**



Figure VII-12: Mill Valley Water Tank Alternative 4, Microwave Radio Path Between Kite Hill and Wolfback Ridge

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Radio coverage comparisons of the Mill Valley Water Tank Site and the Kite Hill Site are shown in Figure VII-13. The Mill Valley Water Tank Site provides superior coverage in the densely populated areas of Mill Valley (in dark red and mustard colors).

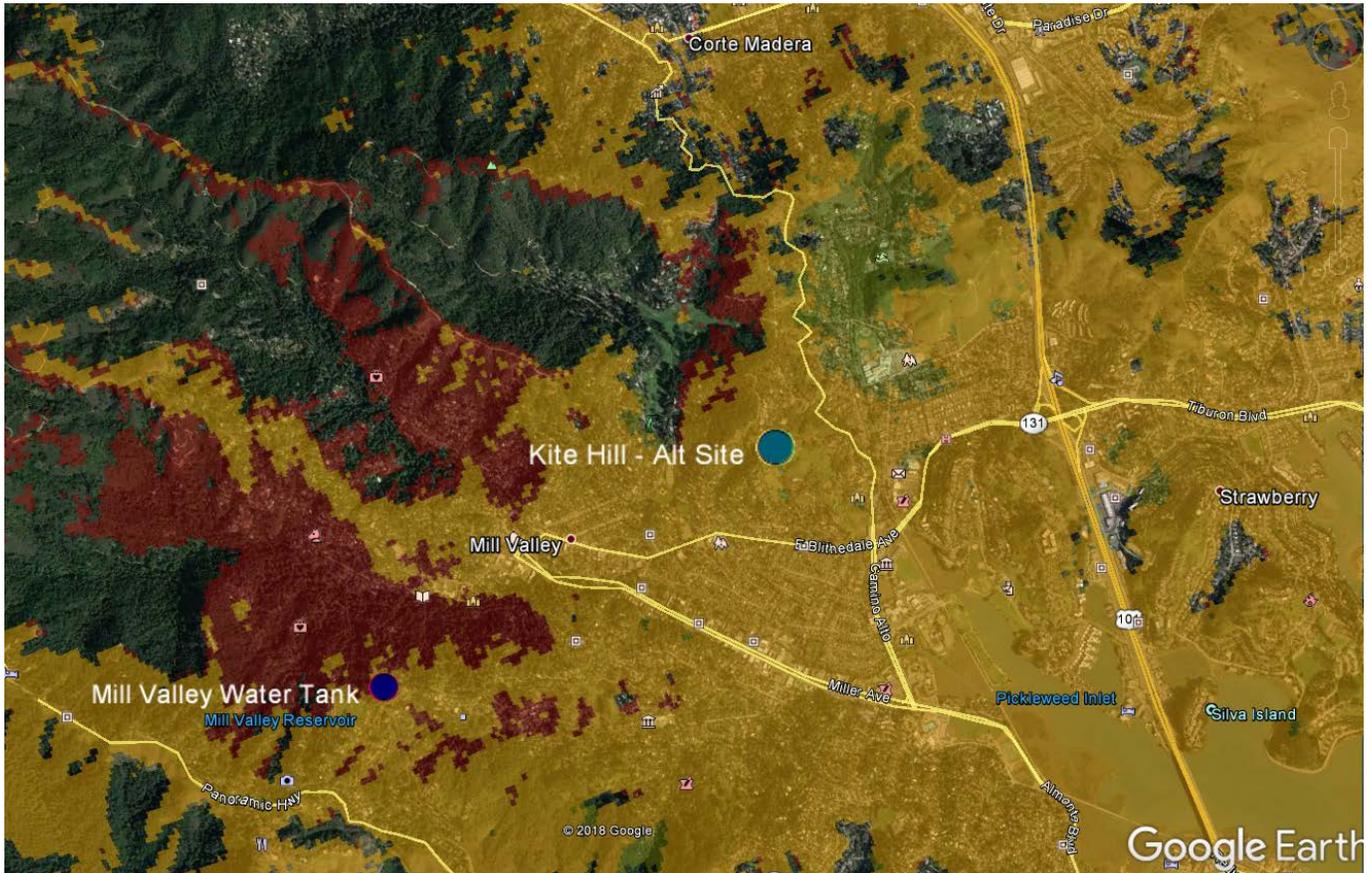
B. Verizon Site as an alternative for Skyview Terrace

The Verizon Site is an existing cell tower site located just east of Highway 101, on the rise separating Marinwood and Miller Creek from the Pacheco Valley and Novato. This site was suggested by a resident-neighbor as an alternative to the proposed Skyview Terrace Site, and would provide a microwave radio link between the Prime Site EOF and the Big Rock Ridge Site. A microwave path analysis was completed using Google Earth satellite imagery and Digital Elevation Models (DEMs) of terrain to evaluate the site's feasibility (Figure VII-14).

There are two terrain blockages preventing the Verizon Site from being a viable alternative to the Skyview Terrace Site. There is a visible terrain restriction between Big Rock Ridge and the Verizon Site (Figure VII-15), as well as smaller terrain obstructions between the Verizon Site and the top of the Prime Site EOF building (Figure VII-16). A tower at the Verizon Site would need to be nearly 300 feet tall to overcome the terrain obstacle to Big Rock Ridge, and therefore is not a desirable (although potentially feasible) alternative when compared to the proposed 35-foot monopole tower near the Skyview Terrace Water Tank. Radio coverage analyses comparisons were not performed for the Verizon Site because it is a microwave-link-only alternative.

C. Bay Hill Road in Sonoma and a taller tower at Coyote Peak as an alternative for Tomales

Areas of northern Marin County currently experience zones of reduced radio coverage. The proposed project would improve radio coverage by constructing a new communications site in the Tomales area. Rather than develop the new Tomales Site, Alternative 4 examined the use of the existing Bay Hill Road Site and increasing the proposed height of the tower at the Coyote Peak Site. However, as these two sites are still several miles from Tomales, this configuration does not allow saturation of the RF signal into the deep valleys surrounding Tomales. A reduced or weakened signal from more distant tower sites would isolate the Tomales area and the State Highway 1 corridor, similar to existing conditions. This isolation is portrayed in Figure VII-17 which compares Alternative 4 to the radio coverage provided by the Tomales Site. To compensate, the proposed tower height at the Coyote Peak Site would need to increase to over 100 feet tall, creating adverse visual impacts in that location. Based upon the lack of coverage that would still exist where people are concentrated in the valley floors and along State Highway 1, Alternative 4 does not meet the project objectives for this region.



Mustard - Radio coverage by both Kite Hill and Mill Valley Water Tank (MVWT). Dark Red - Upper Mill Valley radio coverage by MVWT only. Light Green - Radio coverage east of Camino Alto by Kite Hill only. Very Dark Green - No radio Coverage, high elevation forests.

Sources: MERA, Motorola, Google 2018

Figure VII-13: Next Gen Alternative 4A, Radio Coverage: Mill Valley Water Tank Compared to Kite Hill





Figure VII-14: Skyview Terrace Water Tank Alternative 4, Verizon Site Microwave Radio Paths

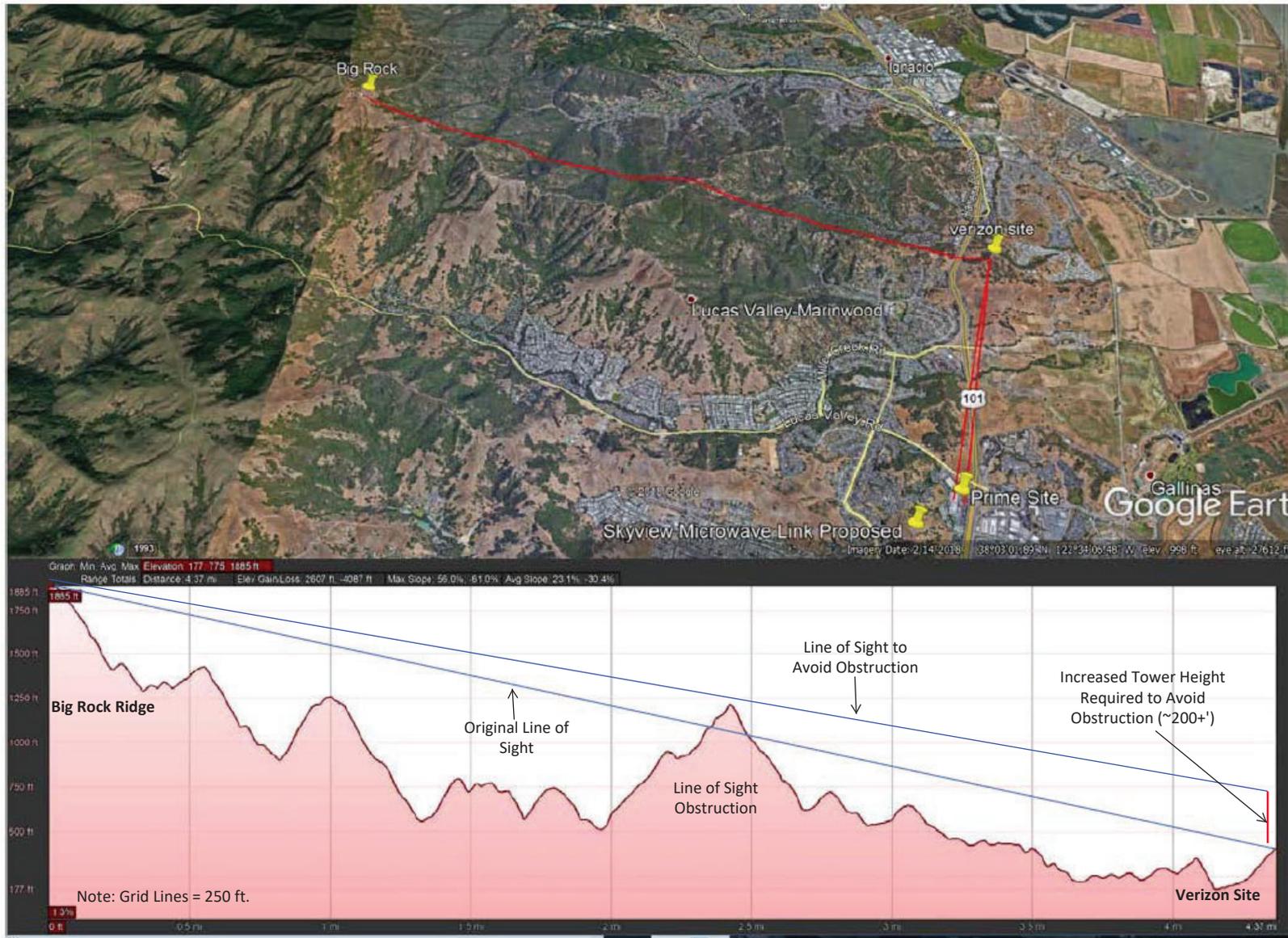


Figure VII-15: Skyview Terrace Water Tank Alternative 4, Microwave Radio Path Between Big Rock Ridge and Verizon Site

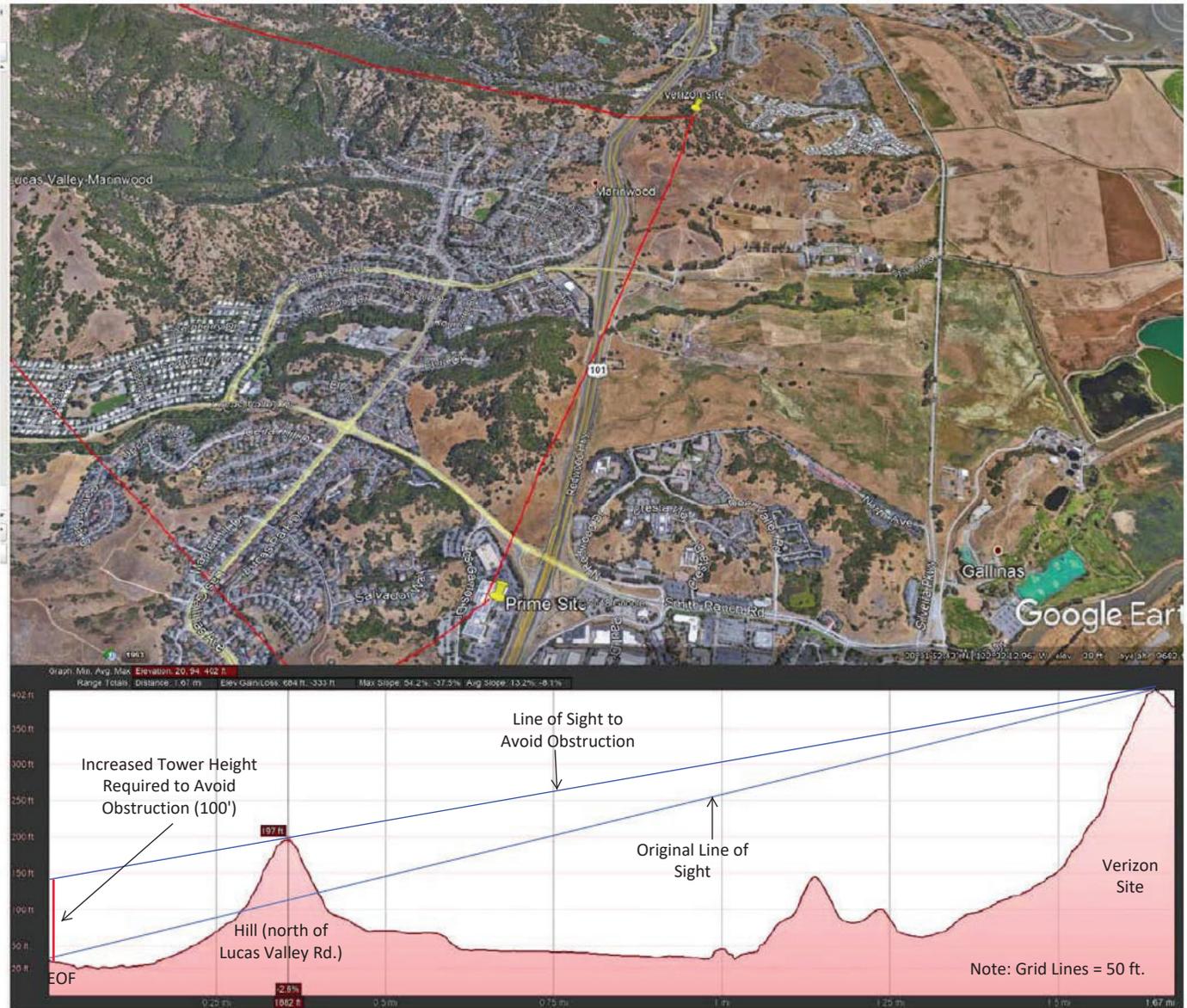


Figure VII-16: Skyview Terrace Water Tank Alternative 4, Microwave Radio Path Between Prime Site EOF and Verizon Site

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Light Green- Coverage provided by Coyote Peak and Bay Hill sites. Grey - Improved coverage area provided by Tomales site only. Dark Green - No coverage, high elevation forests. **Source:** MERA, Motorola, Google 2018

Figure VII-17: Next Gen Alternative 4C, Radio Coverage: Tomales Compared to Coyote Peak/ Bay Hill

This SEIR incorporates the analyses of the current MERA system's 1999 Draft EIR by reference for all existing MERA sites and discusses only the topic areas where these previous CEQA documents determined potentially significant impacts may occur (Aesthetics, Biological Resources) and topic areas for which new information, public concern, or changes in the regulatory setting require further analysis (Cultural Resources, Radio Frequency Exposure). These environmental topic areas as relevant to Alternatives 4A – 4C are discussed below and in Table VII-2.

Aesthetics

As summarized in Alternative 1, the current system's 1999 Draft EIR found that there were significant and unavoidable significant impacts to visual resources at two of the currently operating sites (Dollar Hill and Forbes Hill) despite implementation of recommended mitigation measures.

Like the proposed project, Alternative 4 would decommission the Forbes Hill Site. It would also eliminate the proposed project's Tomales Site, thus avoiding any possible contribution to aesthetic impacts at these locations. However, Alternative 4 has the potential to cause aesthetic impacts at seven newly proposed sites (the Prime Site EOF, Coyote Peak, Muir Beach, Mt. Burdell OTA, Wolfback Ridge, Kite Hill, and the Verizon Site) and at the existing Dollar Hill Site.

The potential for aesthetic impacts at Dollar Hill, the Prime Site EOF, Muir Beach, Mt. Burdell OTA, and Wolfback Ridge are the same as are discussed in the preceding Alternative 3 analysis. Below are brief discussions of the possible aesthetic impacts resulting from Alternative 4's use of alternative locations at the Kite Hill and Verizon Site and a taller tower at Coyote Peak.

A. Kite Hill (alternative for Mill Valley Water Tank): Alternative 4 proposes the Kite Hill Site to avoid the significant aesthetics (public views) impacts associated with constructing the Mill Valley Water Tank Site. The proposed project requires a 55-foot monopole tower at the Mill Valley Water Tank Site, which would reach a maximum height of 70 feet with the antennas. The Mill Valley Water Tank Site is located in a residential neighborhood, buffered by a band of trees that screen the existing water tank from the road and surrounding residences. The new monopole would reach above the water tank and the surrounding trees, thus allowing the top portions of the antennas to be potentially visible from some vantage points in the nearby neighborhoods and from the Dipsea Trail. Specifically, the water tank is slightly over 30-feet tall, and the trees surrounding the site are nearly 60-feet tall; meaning that antennas would rise above the tree line by approximately ten to 15 feet and would be partially visible from various vantage points in the area.

The Kite Hill Site alternative is a hilltop currently developed with two large MMWD water tanks, which are partially screened by vegetation and topography. Due to terrain obstructions, a tower at Kite Hill would need to be in the range of 120 to 300 feet tall to provide the necessary line-of-sight microwave links to the Mt. Tamalpais Site and the Wolfback Ridge Site. The tower could extend as much as 200 feet above tree line. Given the height of the tower and the fact that Kite Hill is a prominent ridge above Mill Valley, this option would have greater visual impacts than the proposed project.

B. Verizon Site (alternative for Skyview Terrace): Alternative 4 proposes to use the Verizon Site to avoid significant aesthetics (scenic vista and public views) impacts associated with constructing

the Skyview Terrace Site. The proposed project would require a new 35-foot monopole tower, equipment shelter, fence, generator, and fuel tank on an open grassy hilltop. Skyview Terrace is currently undeveloped as a communications site and these changes would be visible to San Rafael residents, recreationists using the surrounding open space, and motorists along Highway 101 and other area roadways. The closest residential uses to the Skyview Terrace site are approximately 550 feet away.

The Verizon Site alternative is a vegetated hilltop location already developed as a cell tower site, which includes one building and one cell tower. It is directly visible from both Northbound and Southbound Highway 101 and is in close proximity to residential neighborhoods to the east (0.18 mile), west (0.29 mile) and north (0.25 mile). Due to terrain obstructions, a tower at the Verizon Site would need to be nearly 300 feet tall to provide the necessary line-of-sight microwave links to the Prime Site EOF and the Big Rock Ridge Site. The tower could extend more than 200 feet above tree line. Given the height of this tower, the views from Highway 101, and the proximity to residential neighborhoods, this option would have greater visual impacts than the proposed project.

C. Taller tower at Coyote Peak (alternative for the Tomales Site): Alternative 4 proposes to use the existing Bay Hill Road Site in conjunction with the proposed Coyote Peak Site, in order to avoid the aesthetic impacts associated with constructing the Tomales Site included in the proposed Next Gen Project. The Tomales Site is visible from Highway 1, which is eligible for designation as a State Scenic Highway. The site currently houses two small existing cell towers and an equipment shelter that are generally screened from close up views by surrounding topography. The proposed project requires the development of a new equipment shelter, perimeter fence, generator, water tank, 60-foot monopole tower, and underground power cable. The proposed monopole would have an antenna on top that would bring its maximum height to 70-feet. Elimination of the Tomales Site would prevent impacts to views from Highway 1 at various locations where portions of the top of the monopole would be visible and at specific locations where the complete monopole would be visible, including from about 0.6 mile away to the north, and from Whitaker Bluff Road about a mile to the north.

To compensate for the distance from Tomales to the Bay Hill Road Site and Coyote Peak Site, and to allow RF saturation into the valleys in the area where Tomales and Highway 1 are located, the tower at Coyote Peak would need to be approximately 100 feet tall. The taller tower at Coyote Peak would increase visibility of the site, with no potential for screening. There are no designated scenic roadways impacted by the visual effects of the Coyote Peak Site, but there are numerous rural roadways in the vicinity that would be directly affected. Coyote Peak is within Walker Creek Ranch, which is the outdoor recreation education center for the Marin County Office of Education. The location's scenic quality is an important feature of the outdoor education experience offered to nearly every fifth-grader in the County. Because of this, the 60-foot tower proposed Coyote Peak by the proposed project was already found to be significant and unavoidable. A taller tower in the same location there worsen this condition. In effect, Alternative 4 would shift visual impacts from the communities that benefit from improved radio coverage (Tomales and the traveling public on Highway 1) to Walker Creek Ranch. Overall, aesthetics impacts related to public views under

this alternative would be significant and unavoidable, and would be greater than under the proposed project.

Biological Resources

As summarized in Alternative 1, the 1999 Draft EIR found that special-status plant species had potential to occur only at Point Reyes Hill and Bolinas Ridge, and that numerous protected oaks occur adjacent to facilities at Dollar Hill and Forbes Hill. The Bolinas Ridge Site was eliminated from the original system and never constructed. Therefore, the potential for biological resources impacts currently applies to the Point Reyes Hill, Forbes Hill, and Dollar Hill Sites. Mitigation measures were recommended in the 1999 Draft EIR and implemented during the construction of the existing MERA system reduced impacts to biological resources to a less-than-significant level.

Alternative 4 would decommission Forbes Hill, thus avoiding any further impact to biological resources at that location. Alternative 4 would also require the use of seven new sites, only four of which (Coyote Peak, Muir Beach, Verizon as an alternative for Skyview Terrace, and Kite Hill as an alternative for Mill Valley Water Tank) would require new development of radio tower infrastructure. The Coyote Peak, Muir Beach, Verizon, and Kite Hill Sites have been previously developed with water tanks, water well heads, or cell towers. All four sites have been surveyed for the Next Gen Project without finding any wetlands, with the exception of the Coyote Peak Site. Impacts to wetlands at the Coyote Peak Site under this alternative would be less than significant after mitigation, similar to the proposed project. Chapter V of the SEIR concludes that nesting bird impacts at the Muir Beach Site would be less than significant after mitigation. Alternative 4 would result in similar less than significant after mitigation impacts to nesting birds at the Muir Beach Site, similar to the proposed project. Alternative 4 would avoid any project-related biological resources impacts to the Tomales Site, as that site is eliminated under this alternative. Overall, biological resources impacts under Alternative 4 would be less than the proposed project given the removal of the Tomales Site from this alternative.

Cultural Resources

The Initial Study for the current MERA system (MERA 1999) did not identify any significant impacts to cultural resources at any of the sites analyzed and therefore did not discuss this topic in the 1999 Draft EIR or 2000 Final EIR.

A Cultural Resources Inventory Report was completed for the proposed Next Gen project in October, 2018 that included an analysis of all currently operating MERA sites, as well as all new sites proposed under Alternative 4, except for Verizon and Kite Hill. The report found that a total of three previously recorded cultural resources exist within the Area of Direct Impacts (the area where ground disturbance would occur) at non-alternate sites proposed for work under Alternative 4: 1) a historic road segment near the Mt. Barnabe Site, 2) the Civic Center building, which is listed on the NRHP, and 3) a rock wall feature associated with Rancho Olompali near the Mt. Burdell OTA Site.

The Mt. Barnabe, Civic Center, and Mt. Burdell OTA Sites are existing developed radio communications sites. Alternative 4 proposes the same modifications at these sites as the proposed project, requiring minor equipment alterations on existing towers and tower foundation

reinforcements with very localized ground disturbance near the base of existing towers. As discussed in Chapters IV and V of this SEIR, cultural resources impacts of the proposed project would be less than significant with the implementation of Mitigation Measure CULT-1. The impacts of Alternative 4 would be the same for all sites excepting the Kite Hill and Verizon Sites.

The new towers required by Alternative 4 at the Kite Hill and Verizon Sites pose a greater risk of adverse impacts to cultural resources, as they would require taller towers and larger areas of ground disturbance. These sites were not included in the Cultural Resources Inventory Report. In the event Alternative 4 is formally considered for approval, MERA shall complete a Cultural Resources Inventory Report for the Kite Hill and Verizon Sites to determine whether additional measures may be necessary to mitigate the potential impacts on cultural resources. However, cultural resource impacts under Alternative 4 may be greater than under the proposed project.

Tribal Cultural Resources

Alternative 4 is very similar to the proposed project, involving the same sites and improvements with the exception of the Mill Valley Tank Site and Skyview Terrace Site, which are moved to alternative locations in an attempt to minimize potential aesthetic impacts. The proposed project's infrastructure for the Mill Valley Tank Site and Skyview Terrace would be moved to new locations nearby, the Kite Hill Site and Verizon Site. As Alternative 4 does not involve use of the Tomales Site, there would be no potential for impacts to TCRs at that site, whereas the project's TCR impacts at this site were found to be less than significant with mitigation incorporated.

On February 1, 2019, FIGR described the potential for impacts to TCRs at 13 sites. Eleven of the 13 sites FIGR identified are components of Alternative 4, and have the potential for adverse impacts to TCRs to occur: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Point Reyes Hill, Dollar Hill, San Pedro Ridge, Mt. Tiburon, Sonoma Mountain, Stewart Point, Coyote Peak, and Muir Beach.

Nine of the 13 sites identified by FIGR are existing sites, and eight of them require reinforcement of the existing tower foundation (all but Sonoma Mountain). Tower foundation reinforcement work would require ground disturbance up to four-feet deep and would therefore create the potential for impacts to TCRs at these eight sites. Alternative 4 also uses two sites that would be new to MERA: Coyote Peak and Muir Beach. These sites were also identified by FIGR as having potential for impacts to TCRs. Coyote Peak requires a new monopole and road grading with minor road cuts to a maximum depth of eight feet in one place. Muir Beach requires a new monopole and underground power line.

These improvements create the potential for TCR impacts under Alternative 4. As with the proposed project, Mitigation Measures TRIBE-1, TRIBE-2, and TRIBE-3 would be required under Alternative 4, and would mitigate impacts to TCRs to less-than-significant levels for the eight sites that are also components of the proposed project. In the event Alternative 4 is formally considered for approval, MERA shall initiate consultation with FIGR with respect to the Kite Hill and Verizon Sites to determine whether additional measures may be necessary to mitigate the potential impacts on TCRs. However, TCR impacts under Alternative 4 may be greater than under the proposed project.

Radio Frequency Exposure

As summarized in Alternative 1, the effect of implementing the existing MERA system had the potential to exceed the FCC's public (uncontrolled) maximum permissible RF exposure levels at one site (Point Reyes Hill), and the potential to exceed the FCC's required occupational (controlled) maximum permissible RF exposure levels at 12 other sites: Big Rock Ridge, Mt. Tamalpais, Mt. Barnabe, Bolinas Fire Station (never constructed), Point Reyes Hill, Forbes Hill, Dollar Hill, San Pedro Ridge, Mt. Burdell OTA, Mt. Tiburon Tank, Bay Hill Road, and Sonoma Mountain. In response to the analysis provided in the 1999 Draft EIR, MERA mitigated the potential impacts in the development of the current MERA system with fencing, safety BMPs, training protocols, and signage indicating potential RF exposure hazards at all entry points to controlled site areas, thus ensuring that impacts were reduced to a less-than-significant level.

With the development of seven new sites, Alternative 4 has the potential to increase impacts related to RF exposure. However, in addition to compliance with Mitigation Measures RF-1 through RF-3, Alternative 4 would incorporate the safety BMPs and training protocols described in Chapter III (Project Description) and would comply with applicable standards and regulations. By removing the Tomales Site, this alternative would eliminate the project's RF hazards from this site which were found to be less than significant after mitigation for the proposed project. The Kite Hill Site is located further away (approximately 75 feet) from nearby residential uses compared to the Mill Valley Tank Site. Similarly, the Verizon Site is located further away (approximately 875 feet) from existing residential uses compared to the Skyview Terrace Site (approximately 550 feet). Finally, because equipment at the Kite Hill, Verizon, and Coyote Peak Sites would be mounted on higher towers, Alternative 4 may expose the public and workers to reduced RF emissions as compared to the proposed project.

Conclusion

Alternative 4 has a reduced physical footprint, with less potential for environmental impacts than the proposed project due to the elimination of the Tomales Site. This alternative would also reduce aesthetics impacts by removing the Tomales Site and by finding alternative locations for the Mill Valley Water Tank and Skyview Terrace Sites. However, these benefits to aesthetics in some areas are achieved only by creating more significant visual impacts at the Kite Hill, Verizon, and Coyote Peak Sites, potentially affecting nearby residences. In addition to the aesthetic impacts of the taller towers, these alternative locations would also cause logistical and feasibility problems based on the extreme tower heights necessary to overcome terrain obstructions.

Overall, Alternative 4 is very similar to the proposed project but includes one less tower in the coastal zone (a benefit) and two alternative sites with significantly increased tower heights (up to 300 feet taller) near the populated Highway 101 corridor. A third tower with increased height at Coyote Peak in the Walker Creek Ranch outdoor education center would also increase that facility's visibility in a particularly sensitive outdoor educational environment. With three towers that are significantly taller than those under the proposed project, Alternative 4 increases overall project impacts to visual resources. Alternative 4 also reduces radio coverage in portions of Mill

Valley, Tomales and along Highway 1 in northwest Marin County. Accordingly, Alternative 4 does not meet the project's coverage objectives.

G. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of the proposed project and the alternatives, Section 15126.6 of the CEQA Guidelines requires that an "environmentally superior" alternative be selected and the reasons for such a selection disclosed. In general, the environmentally superior alternative is the alternative that would be expected to generate the least amount of significant impacts. Identification of the environmentally superior alternative is an informational procedure and the alternative selected may not be the alternative that best achieves the goals or needs of the project applicant.

Based on the analysis presented in this section, Alternative 1, the No Project Alternative, would result in the greatest reduction in project impacts and would be the environmentally superior alternative. However, where the environmentally superior alternative is the "no project" alternative, CEQA requires that the EIR shall also identify an environmentally superior alternative from among the other alternatives (*CEQA Guidelines*, Section 15126.6[e][2]). Based on the analysis provided above and the Alternatives Comparison table below (Table VII-2), and because Alternatives 1-4 do not meet the basic objectives of the proposed project, it has been determined that the proposed project would be the environmentally superior alternative.

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Table VII-2. Alternatives Comparison

IMPACT AREA	PROPOSED PROJECT	ALTERNATIVE 1 No Project	ALTERNATIVE 2 Upgrade Existing Sites	ALTERNATIVE 3 Original Motorola Solutions Proposal	ALTERNATIVE 4 Revised Project Design
Alternative Summary	18 Sites (700 MHz)	16 Sites (400 MHz)	16 Sites (700 MHz)	15 Sites (700 MHz)	16 Sites (700 MHz)
Aesthetics					
Scenic Vistas	<i>S&U</i>	<i>Less</i>	<i>Less</i>	<i>Similar</i>	<i>Greater</i>
Scenic Highways	<i>S&U</i>	<i>Less</i>	<i>Less</i>	<i>Similar</i>	<i>Greater</i>
Public Views	<i>S&U</i>	<i>Less</i>	<i>Less</i>	<i>Similar</i>	<i>Greater</i>
Light and Glare	<i>LTS</i>	<i>Less</i>	<i>Less</i>	<i>Similar</i>	<i>Greater</i>
Biological Resources					
Special-Status Species	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>
Sensitive Natural Communities and Wetlands	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>
Policies Protecting Biological Resources	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>
Cultural and Tribal Cultural Resources					
Historical Resources	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Greater</i>
Archaeological Resources	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Greater</i>
Paleo. Resources & Geologic Features	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Greater</i>
Human Remains	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Greater</i>

IMPACT AREA	PROPOSED PROJECT	ALTERNATIVE 1 No Project	ALTERNATIVE 2 Upgrade Existing Sites	ALTERNATIVE 3 Original Motorola Solutions Proposal	ALTERNATIVE 4 Revised Project Design
Listed Tribal Resources	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Greater</i>
Significant Tribal Resources	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Less</i>	<i>Greater</i>
RF Hazards					
RF Exposure	<i>LTS w M</i>	<i>Less</i>	<i>Less</i>	<i>Similar</i>	<i>Less</i>
<i>Environmental Impact Classification: S&U = Significant and Unavoidable, LTS w M = Less than Significant with Mitigation, LTS = Less-than-Significant Impact</i>					