Draft Initial Study/Mitigated Negative Declaration
for
Eagle Rim Trail Improvement Project

Prepared by
Marin County Open Space District
August 14, 2018

This document has been prepared pursuant to the
California Environmental Quality Act of 1970, as amended

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Project Title

Eagle Rim Trail Project

Lead Agency Name and Address

Marin County Open Space District (MCOSD)
3501 Civic Center Drive, Suite 260
San Rafael, California 94903

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Project Location

Mount Burdell Open Space Preserve, Novato

Project Sponsor's Name and Address

Marin County Open Space District
3501 Civic Center Drive, Suite 260
San Rafael, California 94903

General Plan Designation

Open Space (OS)

Zoning

APN: 125-180-58
Zoning: Restricted Open Space (OS)

1 Road and Trail Management Plan (RTMP) Overview

On December 16, 2014, the MCOSD Board of Directors approved the Road and Trail Management Plan (RTMP)[1] and certified its program environmental impact report (EIR) (State Clearinghouse Number 2011012080) (MCOSD, 2014a and 2014b). The RTMP is a science-based comprehensive management plan to guide the MCOSD in the: 1) establishment and maintenance of a sustainable system of roads and trails; 2) reduction of environmental impact from roads and trails on natural resources; and 3) improvements to visitor experience and safety.

The RTMP covers six regions (Figure 1) within Marin County, and 34 open space preserves. Region 4, which includes the project site, covers the following open space preserves:

- Deer Island
- Indian Tree
- Little Mountain
- Mount Burdell
- Rush Creek
- Verissimo Hills

The MCOSD developed the RTMP over the course of four years based on extensive outreach and public input. After adoption of the plan and consistent with the RTMP's *Policy SW.2: System Roads and Trails*, the MCOSD initiated a process to designate a system of roads and trails in all existing open space preserves. The roads and trails eligible for consideration must have existed as of November 2011, which is when the MCOSD completed a report on the condition of the existing roads and trails. The designation of a formal road and trail system is proceeding on a regional basis. The road and trail designation for Region 4 occurred in 2017. The MCOSD held the Region 4 Designation Workshop on May 13, 2017. Following the workshop, the public had an opportunity to view and comment on the proposed road and trail system for Region 4 (Figure 2).

The RTMP incorporates existing policies from the Countywide Plan and the MCOSD's Policy Review Initiative. Additionally, it identifies 34 new policies that govern the MCOSD's road and trail system. The intent of these policies is to reduce the environmental impacts from the road and trail system and to improve the recreational experience. In addition to these policies, the RTMP included best management practices (BMPs) that will reduce resource effects from any road and trail projects.

[1] For a copy of the RTMP, go to http://www.marincountyparks.org/~/media/files/departments/pk/projects/open-space/rtmp-eir/rtmp_lowres_3615_bookmarks.pdf?la=en. Printed copies are available from Marin County Parks for a small fee.

Figure 1: MCOSD Preserves by Region

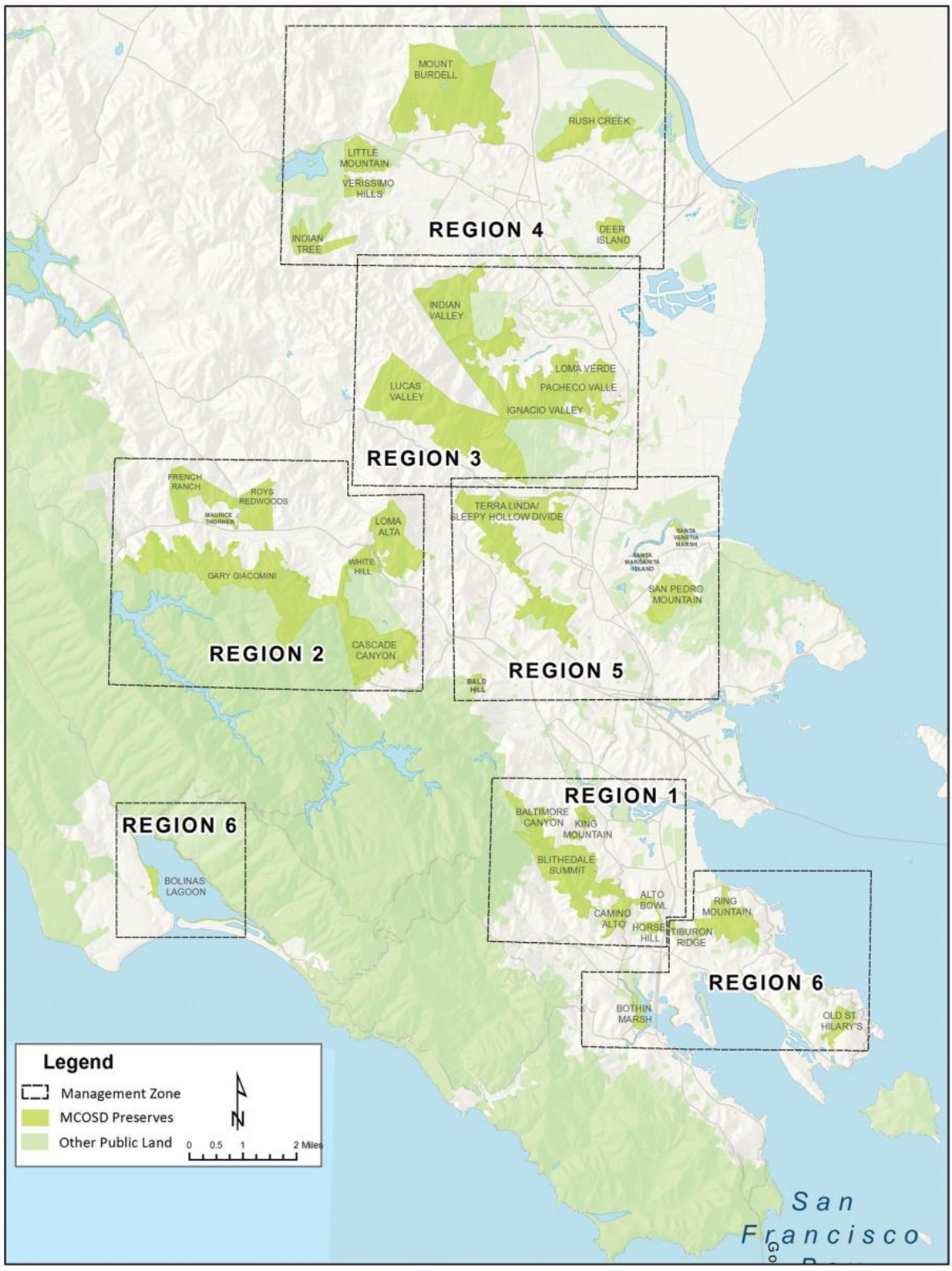
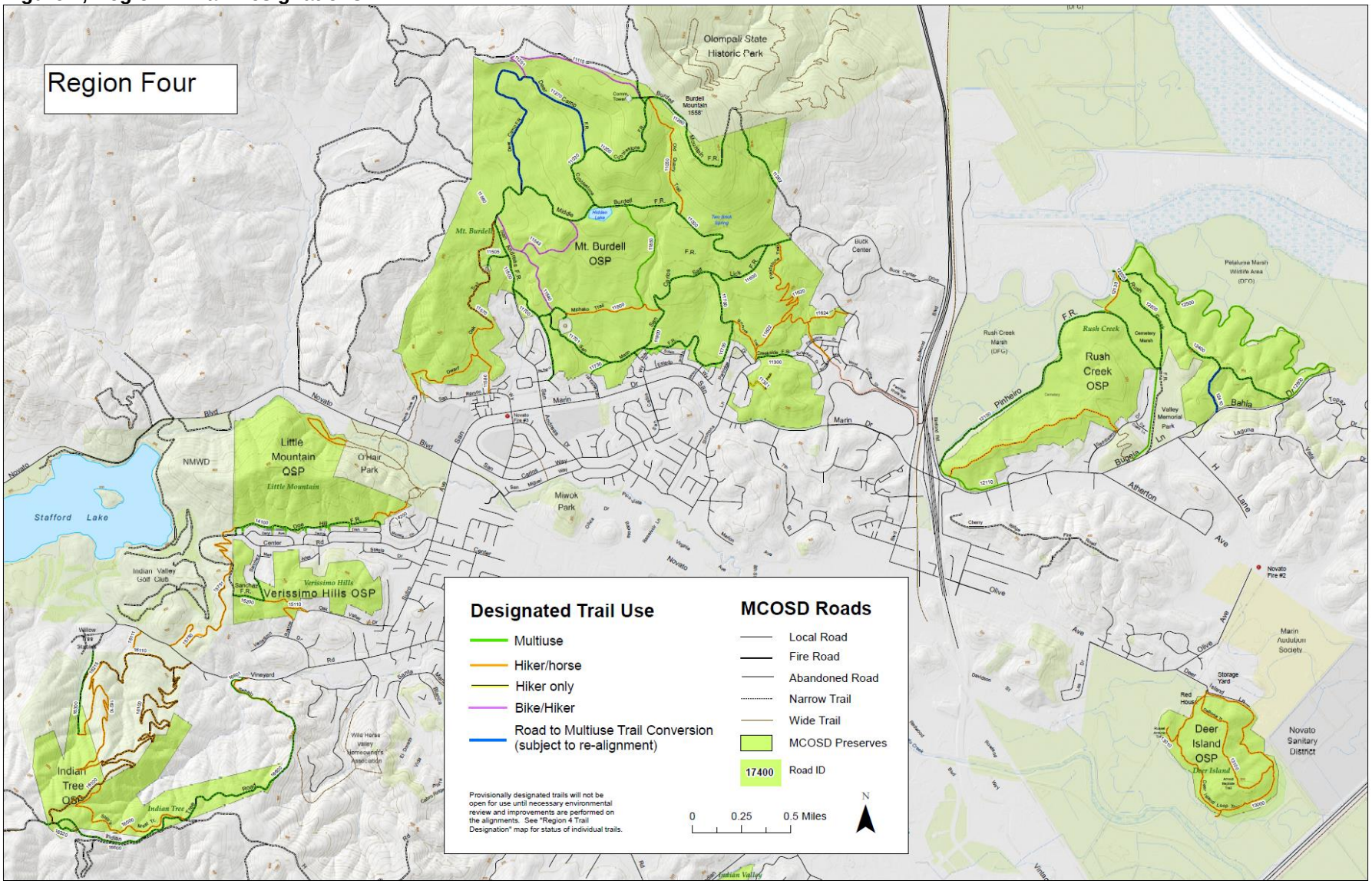


Figure 2, Region 4 Trail Designations



2 Existing Setting

2.1 Project Location

The project is in Region 4, located toward the northern end of Marin County near the City of Novato. It is the northernmost of the six regions. The region consists of six preserves totaling 2,874 acres. It includes the Mount Burdell, Little Mountain, Verissimo Hills, Indian Tree, Rush Creek, and Deer Island Preserves. Mount Burdell is the largest preserve in Region 4 (1,627 acres), followed by Rush Creek (522 acres), Indian Tree (242 acres), and Little Mountain (214 acres). Region 4 contains 59 miles of roads and trails, second only to Region 1. Olompali State Historic Park is located to the north of Mount Burdell Preserve, and U.S. 101 is located east of Mount Burdell Preserve. The Rush Creek Marsh and Petaluma Marsh Wildlife Refuges, managed by the California Department of Fish and Wildlife, are located north of the Rush Creek Preserve. Region 4 is the only region where roads and trails are located near “very rural” residential lands as designated by the Marin Countywide Plan (Figure 1).

2.2 Project Site

The project site is in the Mount Burdell Open Space Preserve, in Novato, California (Figure 2). Mount Burdell was previously part of C Ranch and MCOSD purchased most of it in 1978. The preserve is adjacent to Olompali State Park to the northeast, private agricultural land to the northwest and west, and residential development in the City of Novato to the south and east. Cattle have grazed on the preserve for decades and currently cattle are grazing on the preserve through a lease to a private party. Mount Burdell currently contains 24.06 miles of roads and trails, water tanks and pipelines owned and operated by the North Marin Water District, PG&E lines, and telecommunication facilities.

The project site includes the Eagle Rim Trail, which is a well-established two-foot wide unsanctioned trail. The trail originates next to the communication tower at the summit, and descends along the north ridge, until it intersects with the Deer Camp Fire Road. The existing trail is approximately 4,530 feet long and has an elevation change of 495 feet for an average gradient of 10.9 percent.

Figure 3: Existing Eagle Rim Trail

Figure 4: Existing Eagle Rim Trail

Figure 5: Existing Eagle Rim Trail

Figure 6: Trail 11251

Figure 7. Region 4 Map

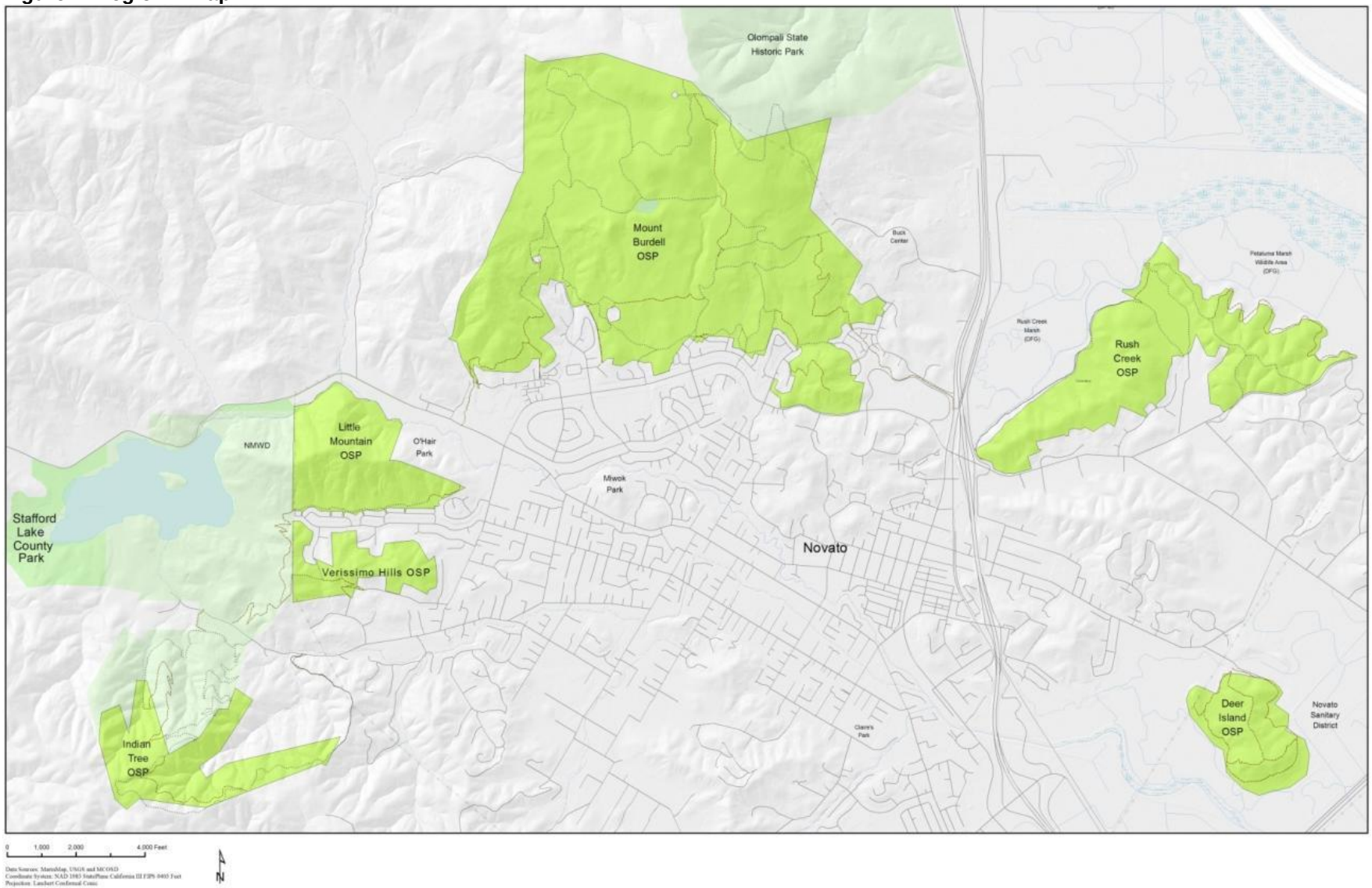
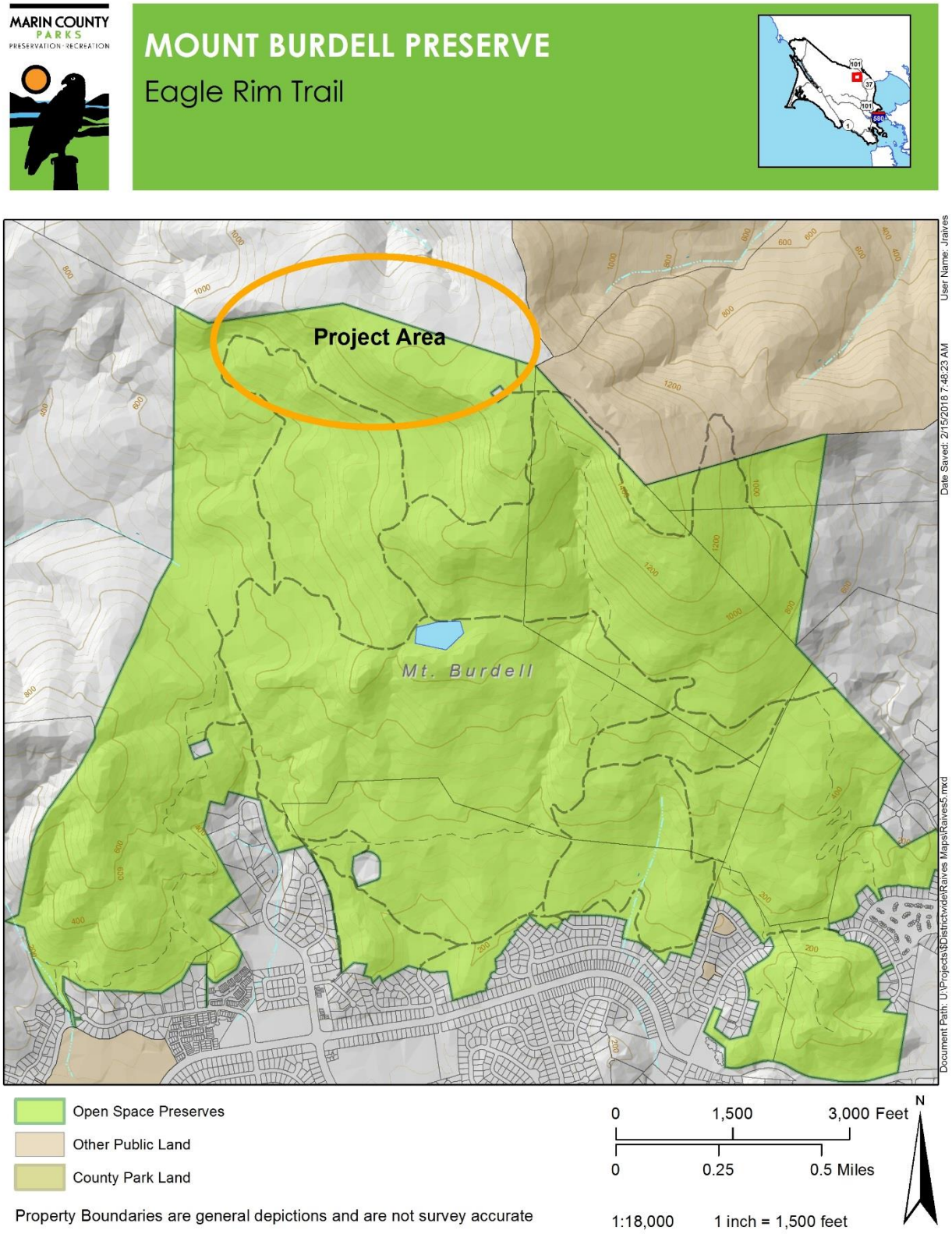


Figure 8: Project Site

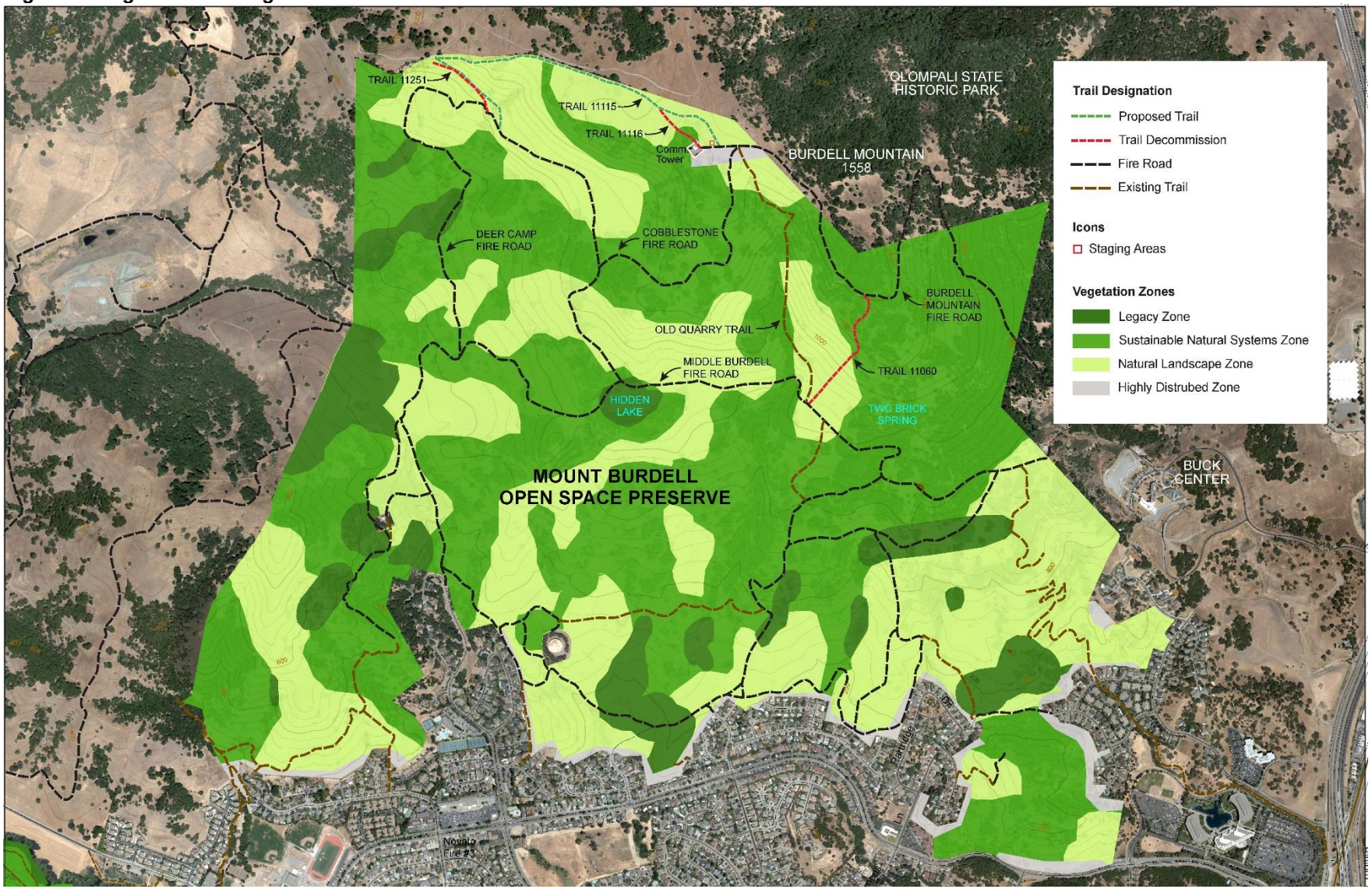


2.3 Vegetation

The MCOSD classified vegetation within the preserves into four management zones, based on the ecological and/or cultural importance of distinctive vegetation types, the condition of resources in particular locations, and the proximity of particular locations to urban or suburban areas. The MCOSD's Vegetation and Biodiversity Management Plan includes a detailed description of these management zones. MCOSD's preserves contain at least one of the following four zones: Legacy Zone, Sustainable Natural Systems Zone, Natural Landscape Zone, and Highly Disturbed Zone. The Mt. Burdell Open Space Preserve is a rich mosaic of grassland, forest, and riparian habitats with rich native flora. The project site occupies an area of the preserve that is primarily in the Natural Landscape Zone, as identified in Vegetation and Biodiversity Management Plan (MCOSD, 2016).

The Natural Landscape Zone includes lands that support native plants and natural vegetation types that are typical of Marin County landscapes. These common vegetation types, while not legally protected or recognized as rare, provide valuable habitat for a diversity of local native species. They contribute to the beauty of Marin County landscapes and add to the ecologically rich natural communities and scenic vistas that define the MCOSD preserves. Vegetation within the natural landscape zone often provides important buffers between the wildland-urban interface and other zones and contains large tracts of grasslands, common oak and other woodland vegetation types, and coastal scrub. While this zone is more infested with invasive plants than the legacy and sustainable natural systems zones, it still provides valuable connectivity and important habitat for common wildlife and plants (MCOSD, 2016). Field observations indicate that the trail primarily traverses the ridgeline, and then continues off the ridgeline through a grassy bowl. Oak and bay trees boarder the trail and occasionally provide shade. The project does not require the removal of any trees or shrubs for implementing the proposed trail adoption and improvements; however, some trimming would occur.

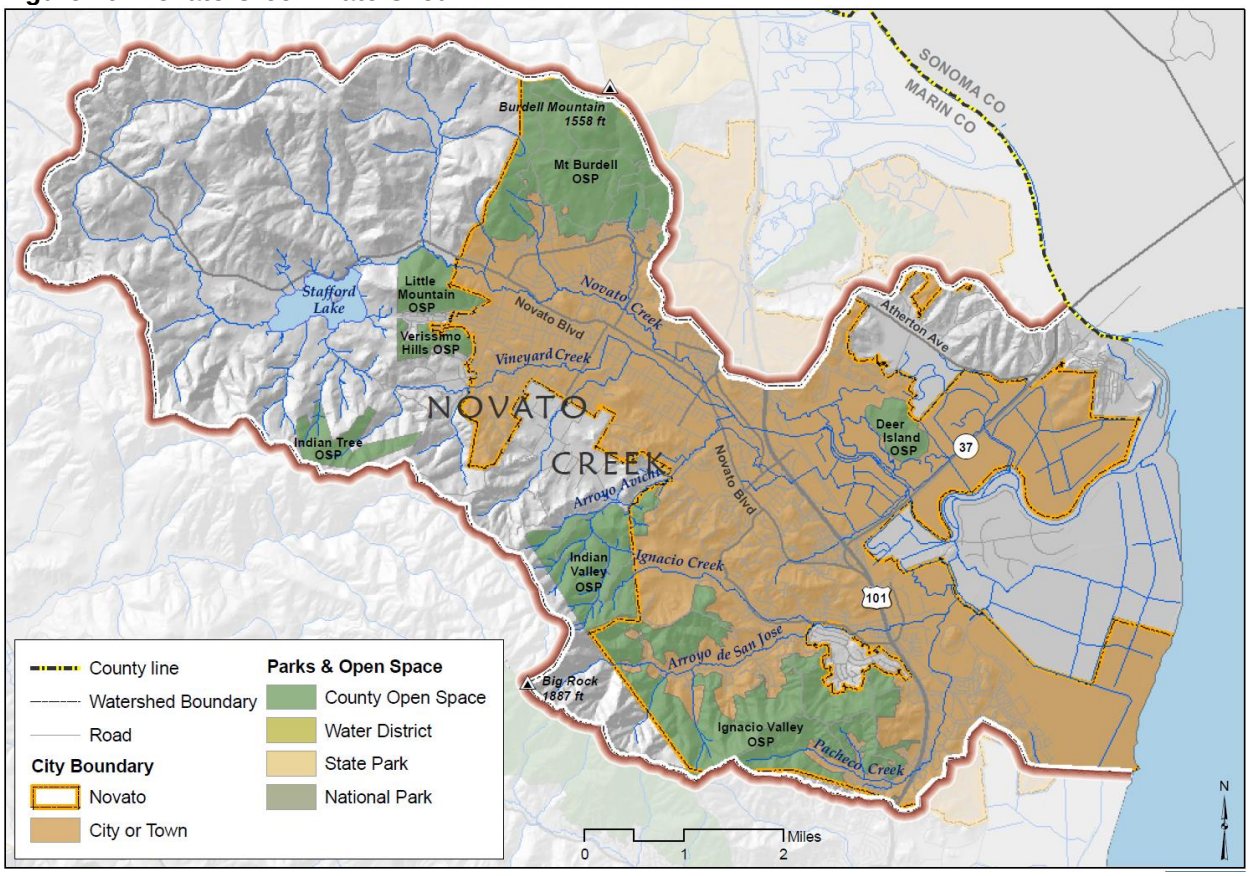
Figure 9: Vegetation Management Zones



2.4 Hydrology

Mount Burdell is mostly located in the Novato Creek watershed, with the eastern edge of preserve in the Rush Creek watershed. Novato Creek is the largest watershed in eastern Marin County and flows eastward through oak and bay forests, grasslands, the City of Novato, and into San Pablo Bay near the mouth of the Petaluma River and encompasses 45 square miles (Marin County Watershed Program, 2018). Hydrologic features in Mount Burdell Open Space Preserve include two small, unnamed creeks run through the preserve and Hidden Lake, one of Marin County's few vernal pools. Substantial proportions of preserve trails exhibit erosion and gullying (MCOSD, 2014b).

Figure 10: Novato Creek Watershed



3 Project Purpose and Need

The purpose of the proposed project is to implement road and trail improvements based on the 2014 Road and Trail Management Plan (RTMP) in the Mount Burdell Open Space Preserve. The primary goals of the RTMP are to:

- Establish and maintain a sustainable system of roads and trails that meet design and management standards.
- Reduce the environmental impact of roads and trails on sensitive resources, habitats, riparian areas, native and special-status plant and animal species.
- Improve the visitor experience and visitor safety for all users, including hikers, mountain bikers, and equestrians.

During the Region 4 designation process in 2017, the MCOSD provisionally designated the Eagle Rim Trail for hikers and bicycle use, pending the implementation of needed improvements and environmental review. The map for Region 4 (Figure 1) includes Eagle Rim Trail as part of the system. The primary purpose of the proposed project is to officially designate the trail as part of the system in a sustainable manner that reduces its ecological footprint. Specific objectives include:

- Improve and adopt the Eagle Rim Trail;
- Improve trail stability;
- Reduce trail gradient;
- Reduce trail density;
- Reduce habitat fragmentation; and
- Improve the visitor experience for hikers and cyclists.

4 Trail Assessment

The design process for the project began field reconnaissance by MCOSD staff, literature review of available data, and site-specific data, including:

- MCOSD, 2014a. Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report, November;
- MCOSD, 2014b. Road and Trail Management Plan, December;
- MCOSD, 2016. Vegetation and Biodiversity Management Plan, October;
- Benson, S, 2017. Grassland Assessment and Rare Plant Survey of Mount Burdell Preserve's Upper Slope. Oct 2, 2017;
- Benson, S, 2015a. Grassland Community Assessment of the Lower Slope of Mount Burdell Preserve, Marin County Parks. Marin County Parks, October 27, 2015, unpublished report.
- Benson, S, 2015b. Survey of Special Status Plants on the Lower Slope of Mount Burdell Preserve, Marin County Parks. Marin County Parks, October 27, 2015, unpublished report.
- United States Department of Agriculture (USDA), 1985. Soil Survey of Marin County; and
- USDA, 2017. Natural Resources Conservation Services.

Site reconnaissance took place in October and December 2017 and included site investigation of topography of project site, soil conditions, trail gradients, and drainage issues. Additionally, MCOSD engaged the community through a series of stakeholder meetings to further facilitate the opportunity for feedback about the proposed project.

5 Project Description

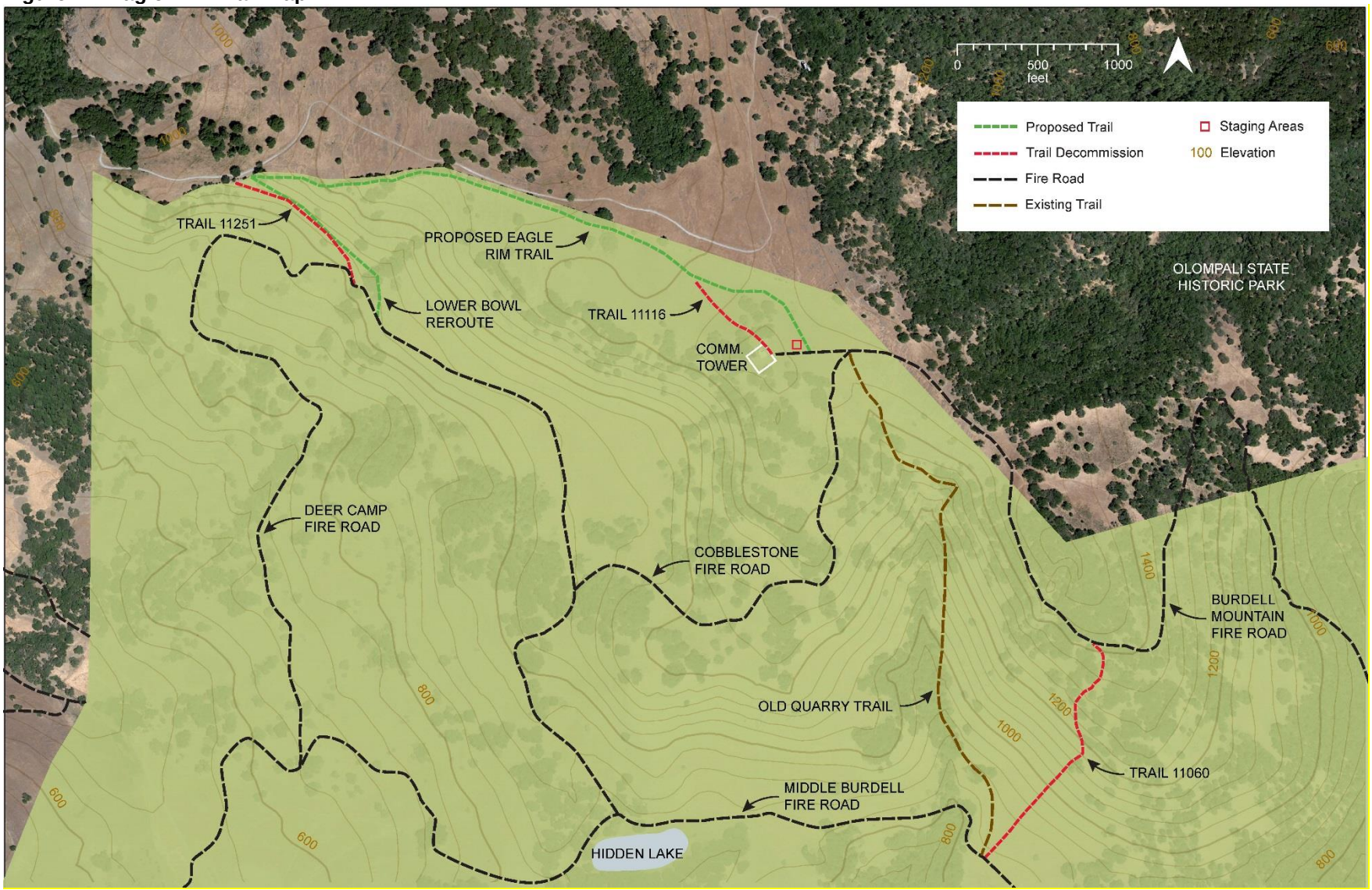
The project would improve the existing Eagle Rim Trail to support its incorporation into the MCOSD trail system as a hiker/biker trail. The proposed Eagle Rim Trail would be a 4,815-foot long single-track trail, with an average grade of 9.34 percent, that predominately meanders along the northwestern corner of the Mount Burdell Open Space Preserve. Proposed improvements would ensure the trail is properly drained, minimize future maintenance, improve sustainability, and improve user safety. To meet the RTMP Policy SW.4: Overall Reduction of Road, Trail and Visitor Impacts, the proposed project includes the decommissioning of three unsanctioned trails: Trail 11251, 1116, and 11060. Trails 11251 and 1116 are two segments of the existing Eagle Rim Trail totaling 1,401

linear feet. Trail 11060 is a 1,621-linear foot unnamed fall line social trail connecting Burdell Mountain Fire Road to Middle Fire Road. These decommissionings would reduce erosion and habitat fragmentation.

The proposed realignments, drainage features, and other actions to protect the environment and improve the user experience would improve the sustainability of the trail consistent with the RTMP policies, applicable BMPs, and trail design standards. These measures would substantially reduce impacts from erosion and runoff into nearby drainages, thereby reducing sedimentation into the Novato Creek Watershed. These improvements would reduce the trail's physical impacts to the preserve and watershed. Based on the recommendations of the feasibility study, adoption, and construction of the 4,815-foot Eagle Rim Trail would require the following (Figure 11):

- Improve existing Eagle Rim Trail to meet trail standards;
- Construct lower bowl reroute;
- Install drainage improvements to produce a more sustainable and hydraulically stable trail;
- Decommission trails 11251, 11116, and 11060, totaling 3,022 linear feet;
- Install fencing and signage, as needed; and
- Designate Eagle Rim Trail as hiker/biker.

Figure 11: Eagle Rim Trail Map



5.1 Eagle Rim Trail

The project would enhance the existing Eagle Rim Trail reducing trail slope to meet standards, constructing more sustainable routes, hardening the tread, and decreasing erosion rates. The MCOSD would adopt in place 3,846 linear feet of the existing Eagle Rim Trail along the ridgeline and improve the existing trail to meet district standards as described in the RTMP. Additionally, the MCOSD would place 38 – 48 tons of base rock mix to approximately 2,400 feet of trail tread in areas where the it is incised. To improve drainage, reduce sedimentation, and make the trail hydrologically invisible, the project includes the construction of rolling dips and outsloping of the trail tread (at approximately five percent) to let water sheet across the trail naturally. The project includes some tree limbing along the trail corridor to improve sightlines and minor modifications of four existing rock outcroppings.

5.2 Lower Bowl Reroute

The existing trail 11251 is a 675-linear-foot trail alignment with an average grade of 18.4 percent and a maximum grade of 26 percent. The project proposes to construct a new alignment that would include a sustainable tread, reduce steep grades, maintain good sightlines, and improve passing zones. The rerouted alignment would total 955 linear feet and have a 10 percent average trail grade. Due to the steep cross slope, the trail would be approximately 30 inches wide, except at designated pull outs on the trail. The new alignment would include dewatering features, reverse grade dips, and knicks[2], at a maximum of 100-foot intervals to ensure stability and longevity.

Figure 12: Lower Bowl Trail Looking Downhill

Figure 13: Lower Bowl Trail Looking Uphill

5.3 Drainage Improvements

Drainage improvements to the trails would include installation of rolling dips and outsloping of the trail. Rolling dips are drainage dips excavated into the trail to convey water off the trail. This is the preferred technique to get water off an existing trail. Outsloped tread is a technique that alters the trail to be lower on the outside or downhill side of the trail than it is on the inside or bank side. Outsloping lets water sheet across the trail naturally. The tread would be outsloped at approximately five percent. The project would entail the construction of approximately 30 rolling dips at various locations, to be determined in the field during construction.

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[2] Knick- Outsloped drain constructed into existing trails to move water off the trail.

5.4 Trail Decommissioning

To meet a critical goal of the RTMP, the proposed project includes the reduction of environmental impacts through the closure and decommissioning of unsanctioned trails to reduce habitat fragmentation. The MCOSD would decommission three segments of unsanctioned trails, identified as trails 11251, 11116, and 11060, because they are either redundant, fragment high value habitat, or excessively steep and erosive.

Trail 11251

This trail extends approximately 726 linear feet from the ridgeline to Deer Camp Fire Road. The trail traverses an open grassland on a steep side slope and is approximately two to three feet wide and well worn. The MCOSD would decommission the entire length of trail with the following techniques:

- Scarification;
- Installing dewatering features;
- Straw application;
- Split rail fencing, if needed; and
- Trail closure signage at top and bottom of both segments.

Trail 11116

This trail extends from its eastern trailhead at the communication tower to its intersection with the proposed Eagle Rim Trail. The unsanctioned trail is approximately 675 linear feet and traverses open grassland and is approximately two to three feet wide and well worn. The MCOSD would decommission the entire length of trail with the following techniques:

- Scarification;
- Installing dewatering features;
- Straw application;
- Split rail fencing if needed; and
- Trail closure signage at top and bottom of both segments.

Trail 11060

This trail is approximately 1,621 linear feet and extends from its northern connection with Burdell Mountain Fire Road to its intersection with the Middle Burdell Fire Road. The trail traverses scattered oak trees and an open grassland on an extremely steep side slope and is approximately two to four feet wide and well worn. The MCOSD would decommission the entire length of trail with the following techniques:

- Scarification;
- Installing dewatering features;
- Straw application;
- Split rail fencing, if needed; and
- Trail closure signage at top and bottom of both segments.

5.5 Fencing and Signage

The MCOSD would install fencing and signage after completion of trail improvements. Signs would specify allowed uses on the trail and to identify the trail from both Deer Camp Fire Road and from the communication tower. Signage would also promote the use of the designated trail, rather than the unsanctioned trails. The MCOSD would also install split-rail fencing as needed to prevent use of decommissioned trails and to direct users to appropriate locations and would monitor the success of the fencing and signage.

5.6 Designation

After implementation of the trail improvements, the MCOSD would designate the Eagle Rim Trail and add to the MCOSD maps of the Mount Burdell Open Space Preserve as a hiker/biker trail. The trail would be open to use consistent with the MCOSD rules and regulations pertaining to the hiker/biker designation.

5.7 Construction

Construction of the project would adhere to the Road and Trail Plan's standards and BMPs outlined in Chapter 6 of the RTMP. Construction would include the following phases:

- Preconstruction biological surveys
- Demarcation and establishment of the final trail alignment
- Equipment mobilization and staging
- Construction
- Restoration
- Long-term monitoring

The construction stage would commence with the completion of preconstruction surveys (BMP Wildlife-2, 3, and 4 and BMP Special-Status Plants-2). After the MCOSD identifies all sensitive plants in the field and clears the site for nesting birds, bats, and other wildlife, it would finalize the trail alignment to avoid all sensitive resources and mark the alignment clearly for construction staff. Construction staging areas would be restricted to existing MCOSD roads and trails or other disturbed areas that would avoid any significant impacts on sensitive natural resources as required by BMPs described in the MCOSD's Road and Trail Management Plan. Access to the project site for construction vehicles and equipment would be from the Buck Center across Buck Center Drive. During construction, the MCOSD would limit trail access for safety purposes and would install signs at preserve entrances to warn trail users.

Construction would begin in fall of 2018 and would require up five MCOSD staff members and volunteers for approximately four weeks. Equipment would include a mini excavator, carriers, generators, ATVs, a jackhammer, skillsaw, sawzall, drum roller, plate compactor, and hand tools (hedge trimmers, chainsaws, etc.). Earthwork involving heavy equipment could extend into November and December depending on rain. Construction would largely take place four days a week, Monday through Thursday, from 7:00 a.m. to 6:00 p.m.

After completion of the project, the MCOSD would continue to monitor the trail for resource protection as well as visitor use. The MCOSD Natural Resource staff would conducted a field assessment of the Eagle Rim Trail in the pre-planning phases to investigate the presence of invasive plant species. The Early Detection, Rapid Response Team would continue to monitor the trail for the presence of invasive species. Additionally, the MCOSD may install visitor use counters to determine the type and frequency of recreational use of the trail.

5.8 Operation and Maintenance

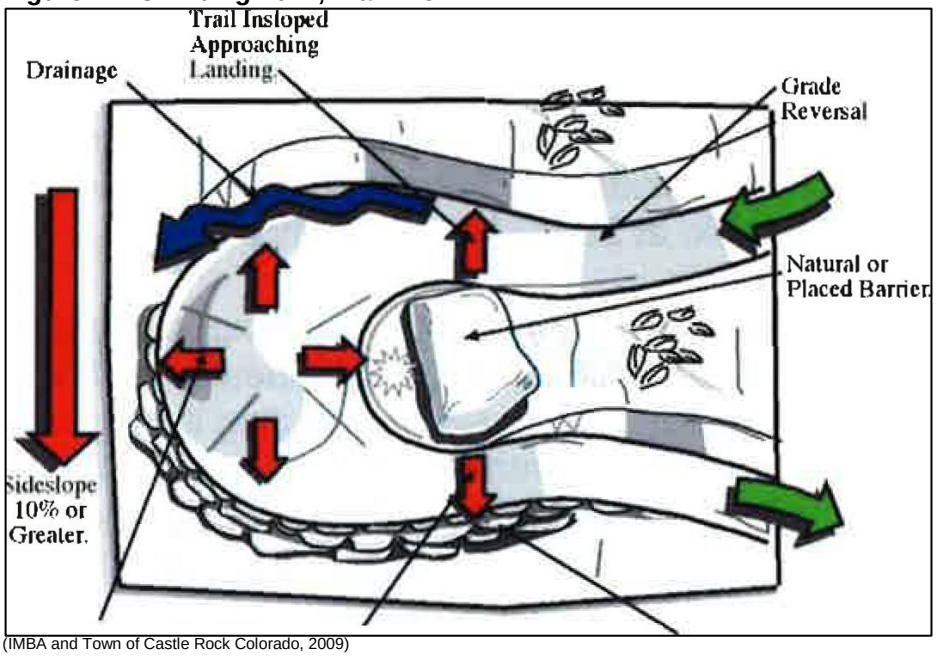
After project construction, use of the trail for public recreation would continue. Based on data received from the Marin County Parks' visitor study, the primary users of the trail will be from the local area (Parks, 2016). After its completion, the MCOSD will incorporate the trail into the designated Region 4 trail system and add it to the departments trail maps, which would increase public knowledge of the Eagle Rim Trail. However, as the project does not include any parking or other amenities to improve access to the trail system, increases in trail use would likely be minor and largely proportional with regional population growth (MCOSD, 2014).

After completion, the MCOSD would assume responsibility for trail maintenance. As the trails are designed to improve existing trail sustainability, this level of maintenance is expected to be manageable. Regular maintenance includes, brushing of the trail corridor, maintaining drainage structures, and clearing fallen trees and trail obstructions and would occur as needed. As part of the project, the MCOSD would monitor the decommissioned trail segments to ensure revegetation is successful and to prevent continued use of the decommissioned trails. Minor work may occur as needed to prevent access to the decommissioned trails.

5.9 Project Design Features

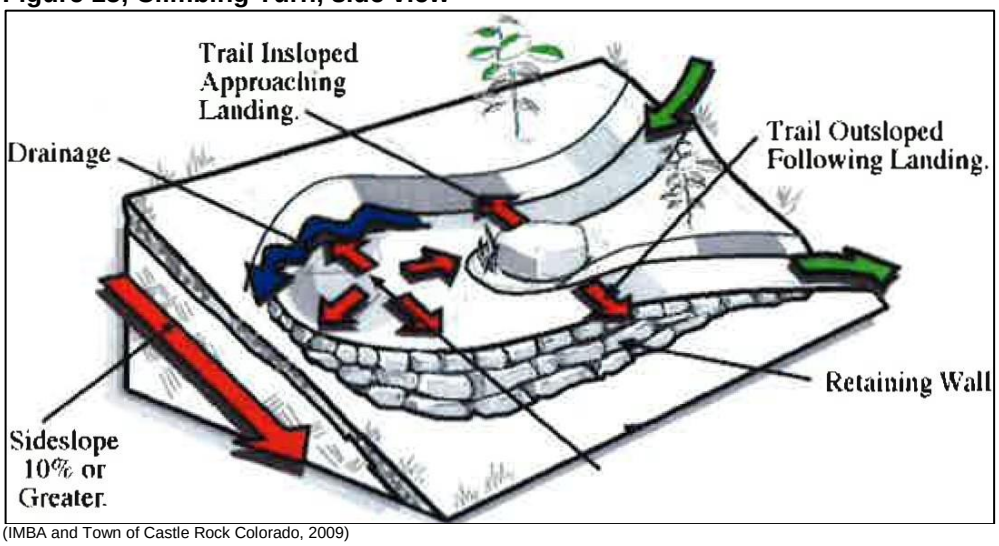
The MCOSD would design the project and plan the construction in compliance with the RTMP. Appendix A of this document contains a list of all BMPs incorporated into the project. The figures below show typical drawings for some of the proposed project features.

Figure 14: Climbing Turn, Plan View



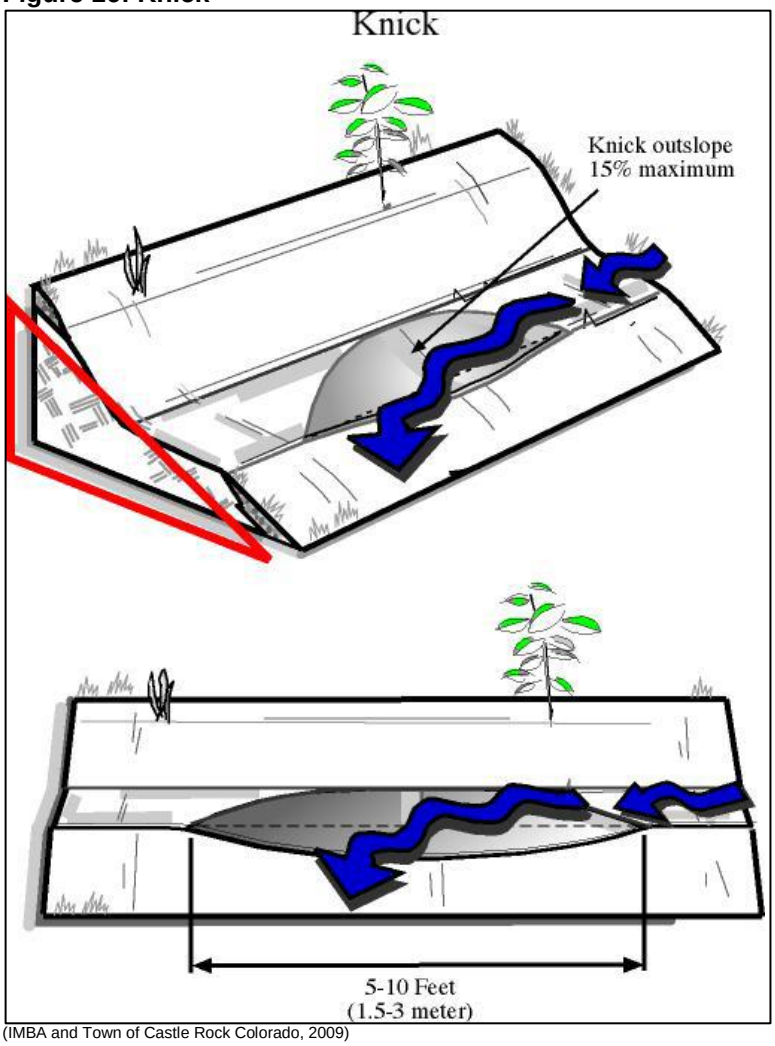
(IMBA and Town of Castle Rock Colorado, 2009)

Figure 15, Climbing Turn, side view



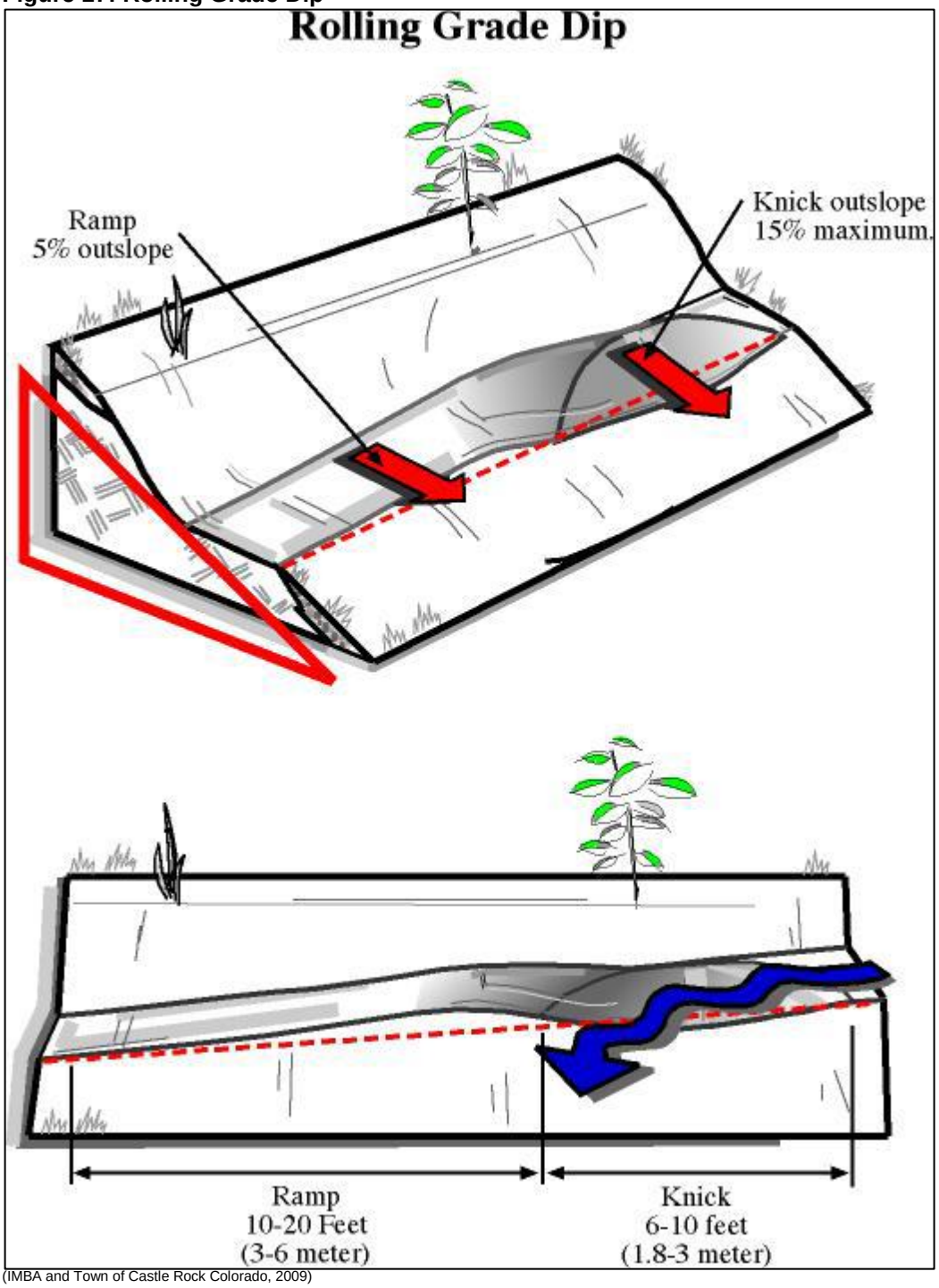
(IMBA and Town of Castle Rock Colorado, 2009)

Figure 16: Knick



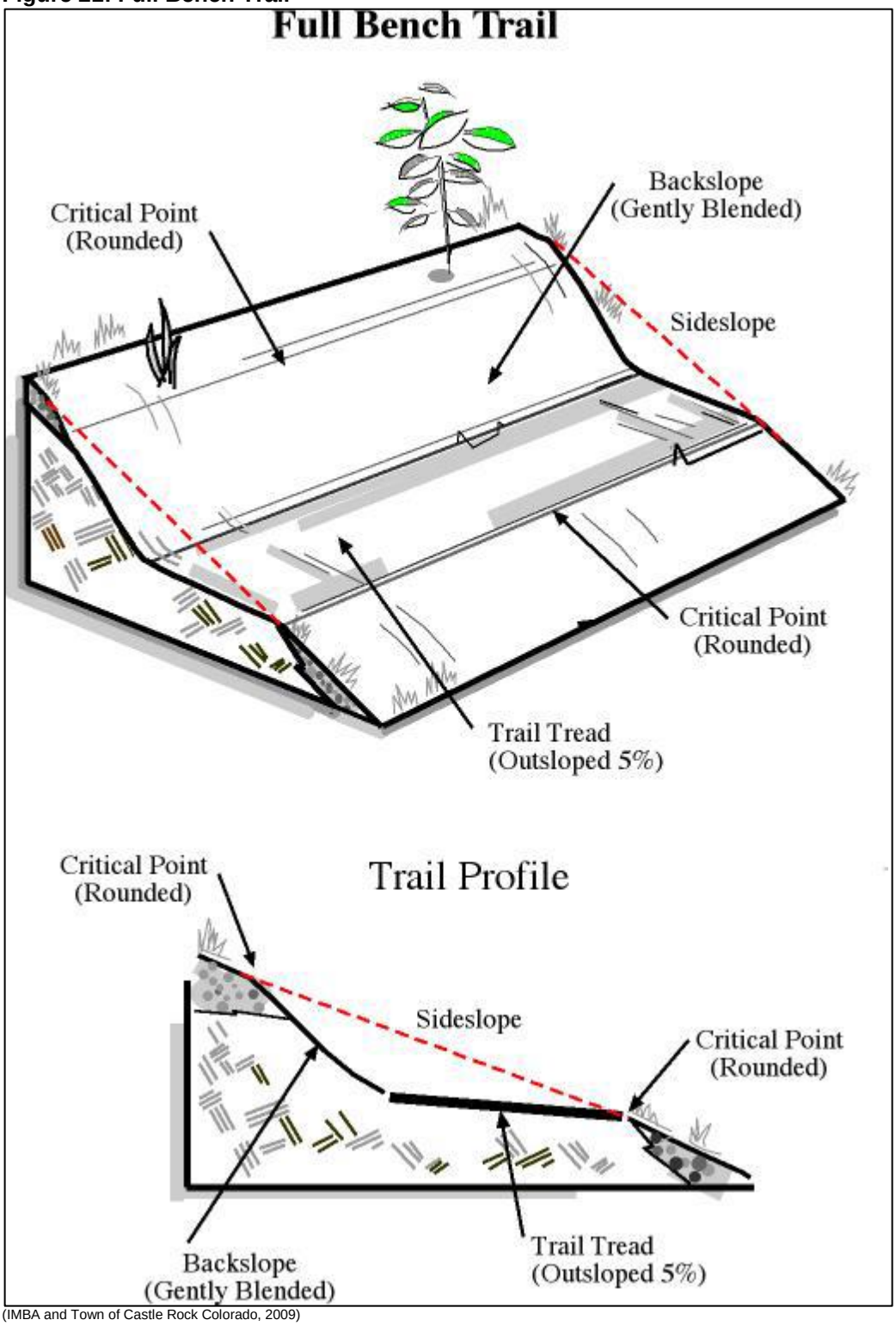
(IMBA and Town of Castle Rock Colorado, 2009)

Figure 17: Rolling Grade Dip



(IMBA and Town of Castle Rock Colorado, 2009)

Figure 21: Full Bench Trail



(IMBA and Town of Castle Rock Colorado, 2009)

5.10 Permits and Approvals

The project does not require any permits or approvals.

6 Determination

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☒ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☐ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature _____ Date _____

7 Environmental Effects of the Project

7.1 Aesthetics

Aesthetics Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Setting

The project site is located within the Mount Burdell Open Space Preserve in the City of Novato. The Preserve is adjacent to Olompali State Park to the northeast, private dairies to the northwest and west, and residential development in the City of Novato to the south and east. Elevations on the Preserve range from 80 feet near the valley floor to 1,558 feet at Mount Burdell's summit. The project site includes Deer Camp Fire Road, Cobblestone Fire Road, and the Eagle Rim Trail, an informal unsanctioned trail running along the top of Mount Burdell, connecting Cobblestone Fire Road and Deer Camp Fire Road near the existing communications tower. The project site is within the Novato Creek Watershed. The trail traverses scattered oak trees at the upper elevations and open annual grassland at the lower elevations. The trail is located on a steep side slope and is approximately two to four feet wide and well worn. The project site is used for public recreation, including hiking, biking, and dog walking. The visual setting of the project site includes steep hillsides, scattered oak trees and open annual grasslands, the Deer Camp Fire Road, Eagle Rim Trail, and the communications tower.

Figure 18: Eagle Rim Trail at ridgeline

Figure 19: Deer Camp Fire Road

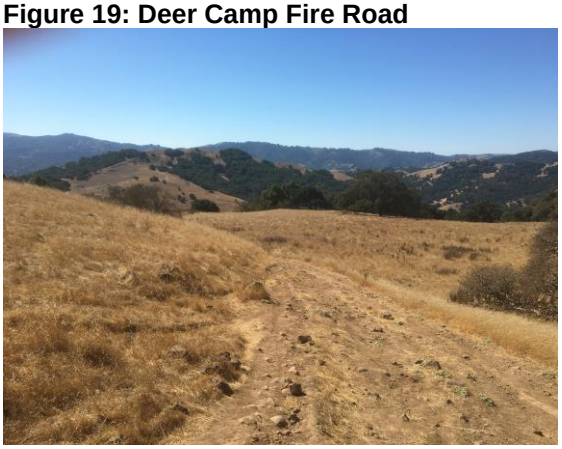


Figure 20: Communication Tower

Figure 21: Eagle Rim Trail

a) Adverse effect on a scenic vista – Less Than Significant

The Novato General Plan and Marin Countywide Plan do not contain any designated scenic vistas in the project area. Therefore, implementation of the project would have no adverse impacts to scenic vistas and this impact would be less than significant.

b) Damage scenic resources within a state scenic highway – Less Than Significant

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program to protect State highways located in areas of outstanding natural beauty. The state legislature created the California's Scenic Highway Program in 1963 to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. There are no designated scenic highways in Marin County and the project contains no structures (historic or otherwise) (Caltrans, 2018). This impact is less than significant.

c) Degrade existing visual character of public views – Less Than Significant

Implementation of the project would result in temporary, small-scale visual impacts during construction in an area affected by existing trails, fire roads, and rural residential development near the trail heads. Construction of the proposed project includes small modifications to the visual environment from the constructing trail improvements and re-routes and decommissioning of trail segments. Changes to the visual environment during construction would include construction equipment staged at the site, disturbed land, and temporary stormwater protection measures such

as waddling and straw. Base rock, construction equipment (a mini excavator, carriers, generators, ATVs, a jackhammer, skillsaw, sawzall, drum roller, plate compactor, and hand tools), and other construction related materials would be temporarily stored on site prior during the construction period. The MCOSD would store this equipment in a designated staging area and away from the creeks. The project does not propose any tree removal. Given the short duration of the changes in the visual setting and the limited scale compared to the entire preserve, this impact would be less than significant.

After construction, the new trail segments and decommissioned areas would be visible, but as new vegetation grows, it would soften the visibility of these changes. Operation of the project would involve use of the trails for recreation, similar to existing conditions, and trail maintenance would occur as needed. Overall, impacts to the visual character of the site would be less than significant as the project would be replacing existing trail alignments with new trail alignments of the same width and approximate length. Designating the Eagle Rim Trail as hiker/biker would have a less than significant impact on the visual environment as it entails formally adopting the trail on MCOSD maps and does not entail any physical changes beyond those discussed aboved) New source of light or glare – Less Than Significant

Light pollution is an unwanted consequence of outdoor lighting and includes such effects as sky glow, light trespass, and glare. Light trespass is light cast where it is not wanted or needed, such as light from a streetlight or a floodlight that illuminates a neighbor's bedroom at night making it difficult to sleep. Glare is an objectionable brightness.

The Mount Burdell Open Space Preserve does not contain any sources of light or glare. However, local area roads adjacent to the preserve may have some lighting and minor amounts of offsite lighting from neighboring residences may affect the preserve at night.

The proposed project does not include any new sources of light or glare and, therefore, the project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

7.2 Agriculture and Forest Resources

Agriculture and Forest Resources Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC §12220(g)), timberland (PRC §4526), or	☐	☐	☒	☐

Agriculture and Forest Resources Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
timberland zoned Timberland Production (Government Code §51104(g))?				
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Setting

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) provides a classification system based on technical soil ratings and current land use. The FMMP is an informational service only and does not have regulatory authority over local land-use decisions. The minimum land use mapping unit is ten acres unless specified; the map incorporates smaller units of land into the surrounding map classifications. Pursuant to CEQA Guidelines Appendix G, the term "Farmland" refers to FMMP map categories Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (hereafter collectively referred to as "Farmland"). Generally, any conversion of land from one of these categories to a lesser quality category or a non-agricultural use would be an adverse impact. These map categories are as follows:

Prime Farmland: Land which has the best combination of physical and chemical characteristics to produce crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.

Unique Farmland: Land of lesser quality soils used to produce specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated but may also include non-irrigated orchards or vineyards as found in some climatic zones in California. Examples of crops include oranges, olives, avocados, rice, grapes, and cut flowers.

Farmland of Statewide Importance: Land that is like Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.

Activities on the Mount Burdell Open Space Preserve include recreation (horseback riding, hiking, dog walking, and biking) and is also used for cattle grazing. Hicks Valley Cattle has a ten-year lease for seasonal grazing on 1,270 acres. Approximately 140 dairy heifers have grazed there each year for the past two decades. Cattle grazing only occurs during part of the year, usually January until June/July. The project site is not within an actively grazed area. The Preserve does not contain any prime, unique, or important farmland. The California Department of Conservation maps this area as "Other" (California Department of Conservation, 2017).

a) Convert Farmland to non-agricultural use – Less Than Significant

As discussed above, the project site does not contain agricultural use and the use of the site would remain the same (open space/recreation) with implementation of the project. As the project would not convert any farmland to a non-agricultural use, this impact would be less than significant.

b) Conflict with existing zoning for agriculture or a Williamson Act contract – Less Than Significant

The City of Novato has zoned the preserve as "Restricted Open Space" (Novato, 2018a) This zoning district recognizes lands that have been acquired or dedicated for open space purposes and that are restricted in their use (Novato, 2018b) and, therefore, this impact would be less than significant.

c) Conflict with existing zoning of forest land or timberland – Less Than Significant

In accordance with the definition provided in California Public Resources Code Section 12220(g), "forest land" is land that can support, under natural conditions, 10 percent native tree cover of any species, including hardwoods, and that allows for the preservation or management of forest-related resources, such as timber, aesthetic value, fish and wildlife, biodiversity, water quality, recreational facilities, and other public benefits.

"Timberland" means land, other than land owned by the federal government and land designated as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees.

As described above, the zoning for the property is "Restricted Open Space." This zoning district recognizes lands that have been acquired or dedicated for open space purposes and that are restricted in their use and, therefore, this impact would be less than significant.

d) Result in the loss or conversion of forest land – Less Than Significant

As described above, the preserve is used for preservation, recreation, and limited grazing, with the project site used primarily for recreational purposes and is not used for any timber related activities. Therefore, the proposed project would not affect timberland areas and would not impact forestland.

e) Cause other changes that result in conversion of Farmland or forest land – Less Than Significant

As discussed above, there is no farmland or forestland at the project site and, therefore, the project would not result in other changes that result in the conversion of farmland or forest land. This impact is less than significant.

7.3 Air Quality

Air Quality Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐

Air Quality Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people? \	☐	☐	☒	☐

Setting

Marin County is part of the nine county San Francisco Bay Air Basin. Air quality in the region is affected by natural factors such as proximity to the b58ay and ocean, topography, and meteorology, as well as proximity to sources of air pollution. The Bay Area is characterized by its Mediterranean type climate with warm dry summers and cool wet winters.

The west coast and southern portions of Marin County are often subject to cool marine air and substantial fog. Temperatures in these areas remain steady through the year because of the nearby ocean. The eastern side of Marin County is warmer and has less fog, due in large part to its distance from the ocean. The extra distance from the ocean allows the marine air to be heated before arriving at eastern Marin cities. Prevailing winds throughout the county are generally from the northwest, with wind speeds highest along the west coast. Annual rainfall in the mountains is generally higher than in most parts of the Bay Area, averaging 37 to 49 inches. The majority of rainfall across the county occurs November through March (BAAQMD, 2016).

The ambient air quality in a region depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, as well as the surrounding topography of the air basin. Air quality is described by the concentration of various pollutants in the atmosphere or the emissions of a pollutant or contaminant. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Emissions are typically expressed as grams per mile, pounds per day, or tons per year.

Air quality studies generally focus on five pollutants that are most commonly measured and regulated: CO, O_3, NO_2, SO_2, and suspended particulate matter, i.e., PM10 and PM2.5. In Marin County, ozone and particulate matter are the pollutants of greatest concern, as measured air pollutant levels exceed these concentrations at times.

Ground level ozone, often referred to as smog, is not emitted directly, but is formed in the atmosphere through complex chemical reactions. Fortunately, ozone is not a pollutant that adversely affects Marin County; however, emissions from motor vehicle use in Marin County contribute to high ozone levels in other parts of the Bay Area. Motor vehicles are the largest source of ozone precursor emissions (i.e., nitrogen oxides [NOx] and reactive organic gases [ROG]) in the Bay Area. The Bay Area is currently classified as a federal and state nonattainment area for ozone.

Particulate matter is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles ten microns or less in diameter are defined as “respirable particulate matter” or “PM10.” Fine particles are 2.5 microns or less in diameter (PM2.5). These particulates can contribute significantly to regional haze and reduction of visibility. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most particulate matter found in the area is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most PM2.5 is comprised of combustion products such as smoke or formed in the atmosphere from regional emissions of NOx. There are many sources of PM10 emissions, including combustion, industrial processes, grading and construction, and motor vehicles. The greatest quantity of PM10 emissions associated with motor vehicle uses is generated by re-suspended road dust. Reductions in motor vehicle miles traveled are necessary to reduce PM10 emissions, rather than changes to motor vehicle technology. Wood burning in fireplaces and stoves is another significant source of particulate matter, primarily PM2.5.

Air quality in Marin County is generally very good and with the exception of PM10 and PM2.5, the San Rafael air quality monitoring station has not reported any exceedances of ambient air quality standards over the past five years. The MCOSD confirmed this conclusion by reviewing current air quality data (BAAQMD, 2016).

Applicable Policies and BMPs

Table 1: Air Quality Policies and BMPs

Policies and BMPs	Description
Policy SW.27: Retrofit or Upgrade Construction Equipment.	Work with the Bay Area Air Quality Management District to implement feasible actions from the 2010 Clean Air Plan MSM C-1 – Construction and Farming Equipment. Pursue funding to retrofit the existing construction equipment engines with diesel particulate filters or upgrade to equipment with electric, Tier III, or Tier IV off-road engines. Seek to rent construction equipment that meets these criteria, if available
BMP Air Quality-1, Implement BAAQMD Measures	As part of the review process required under the California Environmental Quality Act, the MCOSD will use the current Bay Area Air Quality Management District guidelines to evaluate the significance of air quality impacts from road and trail management plans and projects, and to establish appropriate mitigation requirements.
BMP Air Quality-2, Minimize Dust Control Emissions during Construction	The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District control measures for emissions of dust during construction of all road and trail modifications and improvements. The following basic control measures cover routine operation and maintenance and day-to-day upkeep of roads and trails, minor road and trail reconstruction, and minor decommissioning activities, they also cover changes in use, the conversion of a road to a trail, or any proposed action that does not involve construction activities, but an increase or decrease in the level of activity: • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard (vertical space between the top surface of the material and the top of the hauling container).

Policies and BMPs	Description
	• Pave, apply water three times daily, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
BMP Air Quality-3, Enhanced Dust Control during Construction	The following enhanced control measures cover major road and trail reconstruction, rerouting, and decommissioning activities, such as repairing, replacing, or restoring heavily used and wide road and trail segments; they also cover resurfacing, replacing, and restoring trailhead areas and installing new water quality and drainage features: • Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). • Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.). • Limit traffic speeds on unpaved roads to 15 miles per hour. • Install sandbags or other erosion-control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.
BMP Air Quality-4, Dust Control during Construction in Sensitive Resource Areas	The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District optional control measures for emissions of dust during construction of all road and trail modifications and improvements that are large in area, located near sensitive resources, or which for any other reason may warrant additional emission reductions. The following measures cover rerouting road and trail alignments, significant decommissioning or restoration activities, and the construction of a new road and trail alignment on undisturbed land to connect previously unconnected points: • Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. • Install windbreaks, or plant trees/vegetative windbreaks, at windward side(s) of construction areas. • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour. • Limit the area subject to excavation, grading, and other construction activity at any one time.

a) Conflict with or obstruct the applicable air quality plan – Less Than Significant

The most recently adopted air quality plan for the San Francisco Bay Area is the 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 CAP). The 2017 CAP focuses on two closely-related BAAQMD goals: protecting public health and protecting the climate. The consistency of the proposed project with this regional plan is primarily a question of the consistency with the population/employment assumptions utilized in developing the 2017 CAP, which were based on projections from the Association of Bay Area Governments (ABAG). The proposed project is consistent with the CAP and does not support any population growth through the construction of new residences or development. As a result, the project is consistent with the current growth projections in the 2017 CAP. In addition, determining the consistency with the 2017 CAP involves assessing whether applicable control measures contained in the 2017 CAP are implemented. The

2017 CAP includes about 85 control measures, consistent with the state's climate protection goals aimed at reducing Bay Area greenhouse gas (GHG) emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. These control measures are divided into nine control measure categories that include (BAAQMD, 2017):

- Stationary (Industrial) Sources;
- Transportation;
- Energy;
- Agriculture;
- Water;
- Waste;
- Buildings;
- Natural and Working Lands; and
- Super-GHG Pollutants.

BAAQMD recommends that the agency approving a project where an air quality plan consistency determination is required analyze the project with respect to the following questions: 1) does the project support the primary goals of the air quality plan?; 2) does the project include applicable control measures from the air quality plan?; and 3) does the project disrupt or hinder implementation of any 2017 CAP control measures? If all the questions are concluded in the affirmative, BAAQMD considers the project consistent with air quality plans prepared for the Bay Area (BAAQMD, 2012). Any project that would not support the 2017 CAP goals would not be considered consistent with the 2017 CAP, and if approval of the project would not result in significant and unavoidable air quality impacts after the application of mitigation, then the project would be considered consistent with the 2017 CAP.

As presented in the subsequent impact discussions, the proposed project would not result in new long-term operations-related emissions and construction-related emissions would be short-term and less than significant; therefore, the project would support the primary goals of the 2017 CAP. As mentioned above, projects that incorporate all feasible air quality plan control measures are consistent with the 2017 CAP. As described below, the project incorporates RTMP Policy SW.27 (which implements MSM C-1 – Construction and Farming Equipment), and therefore, it would support the primary goals of the 2017 CAP and it would not disrupt or hinder implementation of any 2017 CAP control measures. Therefore, this impact would be less than significant.

b) Result in a net increase of any criteria pollutant – Less Than Significant

The proposed project would result in minor criteria pollutant emissions during both construction and operation of the project. Construction of the project would use heavy equipment to install water-control features, construct re-routes, and decommission abandoned trail segments and social trails. As described in the project description, heavy equipment would operate over a maximum of four weeks, at least four days a week, and approximately ten hours a day. The project would also require employee trips driving to and from the project site during construction. Construction of the project would require up to five MCOSD staff members and volunteers for approximately four weeks. A maximum of 40 trips over the course of four weeks (approximately

two trips per day), would be associated with employees driving to and from the project site[3]. Operation of the project would occur would result in criteria pollutant emissions from trail users driving to and from the preserve and from regular maintenance.

To determine the significance of the project's impact related to its potential to cause or contribute to an air quality standard violation, Marin County uses the screening criteria provided in the 2010 CEQA Air Quality Guidelines. MCOSD has decided that the BAAQMD 2010 CEQA Guidelines are appropriate for the project and that the analysis prepared by BAAQMD (Appendix D of the 2011 CEQA Air Quality Guidelines) provided justification and substantial evidence supporting the thresholds identified. The BAAQMD CEQA Air Quality Guidelines do not have specific screening criteria for a project identical to the proposed project. However, Table 3-1 of those guidelines entitled "Criteria Air Pollutants and Precursors and Greenhouse Gas (GHG) Screening Level Sizes" shows that, for a "city park," the operational criteria for pollutant screening size would be 2,613 acres, the operational GHG screening size would be 600 acres and the construction criteria for pollutant screening size would be 67 acres for particulate matter with particles having a diameter of 10 micrometers or less (PM10).

The proposed project would entail disturbance of approximately 0.06 acres associated with the new trail alignments and 0.2 acres of disturbance associated with the trail decommissionings. Thus, in total, the project would disturb about 0.26 acre. The project would be below the screening criteria identified for work within a city park. Emissions resulting from operation would be less than significant as associated emissions would be similar to baseline conditions. The trail would be patrolled by existing staff and overall maintenance would be low as a result of improved trail sustainability from trail design and construction methods.

MCOSD would implement the RTMP BMPs Air Quality 1-4. With incorporation of these BMPs into the project and the low-impact nature of the proposal, the improvements to the network of trials within the Mount Burdell Open Space Preserve would result in less than significant impacts under this criterion.

Based on BAAQMD guidance, a project's emissions would have a significant cumulative impact if a project would exceed the significance thresholds. As presented in discussion b) above, short-term construction emissions associated with the proposed project would be less than significant with implementation of applicable BMPs and the project would not result in substantial long-term operational emissions. Therefore, neither construction nor operation of the project would be cumulatively considerable, and this impact would be less than significant.

c) Expose sensitive receptors to substantial pollution – Less Than Significant

Construction equipment can produce substantial amounts of diesel particulate matter (DPM), which was identified by the California Air Resources Board as a toxic air contaminate (TAC) in 1998. The dose to which receptors are exposed is the primary factor affecting health risk from exposure to TACs. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects

[3] Assuming MCOSD staff drives to and from the project site separately. Volunteers would arrive by van for a weekend-long event on a Friday and would leave on Sunday.

(OEHHA, 2003). However, such health risk assessments should be limited to the duration of the emission-producing activities associated with the project.

Under current conditions, DPM emissions may result from regular maintenance activities such as mowing and weeding, including from rangers and maintenance staff driving to and from the preserve. The closest sensitive receptors to the proposed project site would be residences adjacent to the southern border of the preserve, over a mile away from the project site.

Construction of the project would generate DPM emissions from the use of heavy equipment. DPM emissions generated in the vicinity of any one sensitive receptor location would be very limited as the project would take place in the interior of the preserve, away from neighboring residences. Further, the project would only span four weeks and the nearest sensitive receptors are located over a mile away (residences adjacent to the southern boundary of the Mount Burdell Open Space Preserve and San Marin High School, located 1.7 miles to the southwest). These receptors would not be affected by DPM emissions. DPM emissions near the residences would be very limited as a result of the small size of equipment used to construct trail projects compared to a typical construction project. Policy SW-27 would requires the use of equipment producing reduced DPM through the use of particulate filters and electric motors and would ensure that emissions are reduced to the maximum extent possible.

Long-term operation of the proposed project would not result in new TAC emissions. Regular operation and maintenance emissions would be similar to existing emissions from Ranger trucks (most of which use gasoline and not diesel fuel) driving to patrol the site and maintenance crews and equipment. The proposed project would not result in any long-term or chronic exposure to substantial pollution concentrations. Therefore, there would be a less than significant exposure of sensitive receptors to substantial pollution.

d) Result in other emissions (e.g., odors, dust) – Less Than Significant

Odors often consist of a mixture or blend of various odorous and/or volatile organic compounds. A human's odor detection sensitivity varies from person to person and also differs between genders and among age groups. Since the detection of odors is widely variable, the odor intensity (the perceived strength of the odor sensation) is also variable among people. Odors are not regulated under the Federal or State Clean Air Acts; however, they are considered under CEQA.

There are currently no sources of odor at the project site, such as wastewater treatment plants or other processing facilities. Minor odors may result from occasional maintenance equipment being used at the site. Diesel equipment used to construct the project may emit objectionable odors associated with combustion of diesel fuel. These emissions may be noticeable from time to time by people using the preserve for recreation; however, the project site is located at the very top of the preserve, which limits the number of nearby residents and other receptors that would notice the odors. The construction duration is limited to four weeks, which further limits exposure. The emissions are not likely to have adverse effects on surrounding uses to such an extent that people would file odor complaints due to the limited extent of construction and small number of equipment required to perform the work. After construction, the project would not include any sources of odors that would cause problems for surrounding uses because operation would only require maintenance with equipment on a limited basis (less than annually). The project's odor impact, therefore, would be less than significant.

In addition to exhaust emissions caused by the use of mobile equipment, earthmoving activities would result in emissions of fugitive dust including PM10, which, given the relatively small amount

of work to be accomplished with small heavy equipment, would not be expected to be significant. BAAQMD's approach to CEQA analyses of construction emissions is to emphasize the implementation of control measures rather than require detailed quantification of emissions. BAAQMD recommends implementation of a set of feasible fugitive PM10 control measures for construction projects of all sizes. MCOSD would implement RTMP BMPs Air Quality 1-4 to reduce fugitive dust impacts during construction of the project. As the project would incorporate the BAAQMD Measures to reduce fugitive dust emissions and given the small scale and construction duration of the project, impacts from fugitive dust emissions would be less-than-significant.

7.4 Biological Resources

Biological Resources Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Setting

This assessment of potential impacts on biological resources relies on a biological report prepared by Prunuske Chatham, Inc (PCI, 2018). This report contains detailed descriptions of existing conditions and conclusions regarding presence or absence of sensitive biological resources and is available for review at the offices of the MCOSD.

Special-status species[4] are plants and animals with legal protection under the state and/or federal Endangered Species Acts[5] or other similar regulations. Also included are other species that the scientific community and trustee agencies considers rare enough to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. Species with legal protection under the state and federal Endangered Species Acts often represent major constraints to development; particularly when they are wide ranging or highly sensitive to habitat disturbance and where proposed development would result in a "take" of these species.

Flora

The project area supports two vegetation communities – wild oat and annual brome grassland (Avena spp.-Bromus spp. Provisional Semi-Natural Alliance) and California bay forest (Umbellularia californica Forest Alliance); California bay forest a sensitive natural community, which the California Department of Fish and Wildlife (CDFW) considers relatively rare at the state level although it is relatively widespread in Marin County.

The biological report identified 9 special-status plant species that could occur within the project area, with 4 of these species being present at the site. These include special-status rosin weed (*Calycadenia truncata*; not formally listed, but considered locally rare), knotted spineflower (*Chorizanthe polygonoides var. polygonoides*; not formally listed, but considered locally rare), Biolett's erigeron (*Erigeron biolettii;* CRPR 3), and downy pincushion plant (*Navarretia pubescens*; not formally listed, but considered locally rare) (PCI, 2018).

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[4] Special-status species include designated rare, threatened, or endangered and candidate species for listing by the CDFW; designated threatened or endangered and candidate species for listing by the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NOAA Fisheries); species considered rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as those plant species identified on lists 1A, 1B, and 2 in the Inventory of Rare and Endangered Plants of California; and possibly other species that are sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on list 3 in the California Native Plant Society Inventory or identified as California Species of Special Concern (SSC) by CDFW.

[5] The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall use their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

Fauna

The project area supports extensive grassland habitats interspersed with California bay and coast live oak woodlands. The preserve is part of a large network of protected lands across Marin County. The ridgeline is perfectly positioned in the landscape so that wildlife can move through it to and from surrounding lands. It provides key habitat for many of Marin County's wildlife species and can support a variety of wildlife through part or all of their life cycles (PCI, 2018).

Annual grasslands dominate the project area. Grasslands provide important habitat for wildlife, but many species also require special habitat features (i.e., rocky outcroppings, woody cover, shrubs) and habitat margins to meet their needs. Grasslands provide foraging opportunities for a number of bird species who are attracted to seeds, other plant material, invertebrates, and small vertebrates. Species such as the western bluebird (*Sialia mexicana*), American goldfinch (*Carduelis tristis*), dark-eyed junco (*Junco hyemalis*), and golden-crowned sparrow (*Zonotrichia atricapilla*) were observed foraging in these open areas. Small vertebrates and invertebrates within the habitat are likely to serve as a food source for these birds and other predatory vertebrates. Evidence of Botta's pocket gopher (*Thomomys bottae*) and broad-footed mole (*Scapanus latimanus*) were observed in the grasslands. American badgers (*Taxidea taxus*) have been documented on the Preserve, but no burrows or hunting holes were documented within the project area by PCI. Rock outcrops and walls provide perches and microhabitats for wildlife; Coast Range fence lizards (*Sceloporus occidentalis bocourtii*) were observed throughout the project site. Eagle Rim Trail and the upper elevations of Trail 11060 support more extensive patches of perennial grasses and forbs as cattle grazing is limited in these areas. The herbaceous understory in these areas add habitat complexity to the grasslands and provide additional foraging and nesting opportunities for wildlife. One special-status bird, savannah sparrow (*Passerculus sandwichensis alaudinus*), was observed in areas with dense thatch; this species occurs year-round in Marin County grasslands. American kestrel (*Falco sparverius*) were observed foraging over the open grasslands. Native butterflies observed included California buckeye (*Junonia coenia*) and Anise swallowtail (*Papilio zelicaon*) (PCI, 2018).

Native bay and oak woodlands are interspersed within the project area. These woodlands provide suitable habitat for a variety of terrestrial birds, mammals, amphibians, and reptiles. Birds represent the most abundant and prominent wildlife species within this habitat. Year-round resident birds observed included Steller's jay (*Cyanocitta stelleri*), northern flicker (*Colaptes auratus*), common raven (*Corvus corax*), black phoebe (*Sayornis nigricans*), and special-status oak titmouse (*Baeolophus inornatus*). Tree-climbing birds such as acorn woodpecker (*Melanerpes formicivorus*) and special-status Nuttall's woodpecker (*Picoides nuttallii*) were also seen. Casual winter residents included ruby-crowned kinglet (*Regulus calendula*) and yellow-rumped warbler (*Setophaga coronate*). Additional migratory species that may breed here but were not seen due to the timing of the field survey, include orange crowned-warbler (*Oreothlypis celata*), ash-throated flycatcher (*Myiarchus cinerascens*), western kingbird (*Tyrannus verticalis*), and tree swallows (*Tachycineta bicolor*). Red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*) were observed soaring over the wooded areas. Small vertebrates within the habitat are likely to serve as a food source for predatory birds. The larger oaks and bays are prime habitat for nesting raptors. Nocturnal avian predators may also be present [e.g., western screech owl (*Megascops kennicottii*), great horned owl (*Bubo virginianus*)]. Due to their nocturnal nature and timing of the field survey, no owls were observed (PCI, 2018).

Typically, woodland habitats support a variety of mammals. Isolated habitats free of human disturbance provide escape, cover, and nesting sites for a number of larger mammals. However, no large mammals or evidence of their presence was documented within the project area by PCI.

Camera monitoring of the Preserve was completed from October 2015 through October 2016 by Townsend (2016). Based on the camera monitoring, a number of mammals have been documented in the project area including western gray squirrel (*Sciurus griseus*), striped skunk (Mephitis mephitis), northern raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and black-tailed deer (*Odocoileus hemionus*). Bat acoustic monitoring of the Preserve has documented the presence of 15 species of bats. Bat species may forage over the grassland and woodland habitats and roost in nearby larger trees (PCI, 2018).

Ten special-status animal species have been documented within the Mount Burdell Preserve by Marin County staff or their consultants. Two additional special-status species have a high to moderate potential to occur within the project area based regional occurrence data. These twelve species include the following:

- Cooper's hawk (Accipiter cooperii, WL6)
- Grasshopper sparrow (Ammodramus savannarum, SSC7)
- Great blue heron (Ardea Herodias, not formally listed, but rookeries are protected)
- Oak titmouse (Baeolophus inornatus, BCC8)
- White-tailed kite (Elanus leucurus, FP9)
- Bryant's savannah sparrow (Passerculus sandwichensis alaudinus, SSC)
- Nuttall's woodpecker (Picoides nuttallii, BCC)
- California red-legged frog (Rana draytonii, FT10, SSC)
- American badger (Taxidea taxus, SSC)
- Pallid bat (Antrozous pallidus, SSC)
- Townsend's big-eared bat (Corynorhinus townsendii, SSC)
- Western red bat (Lasiurus blossevillii, SSC)

The Preserve supports habitat for five year-round resident, special-status bird species – Cooper's hawk, oak titmouse, white-tailed kite, Bryant's savannah sparrow, and Nuttall's woodpecker; breeding habitat for grasshopper sparrow; and year-round foraging habitat for great blue heron.

Since the project may occur during nesting/breeding season, it has the potential to affect these special-status species and common species that may be in the area. The federal Migratory Bird Treaty Act and the California Fish and Game Code protect bird nests that are in active use. Birds could establish nests in advance of construction or could have been located some distance from the trail but still within a close enough distance that tree removal and other construction activities could disturb established nests (PCI, 2018).

[6] Watch List (WL)

[7] Species of Special Concern (SCC)

[8] Birds of Conservation Concern (BCC)

[9] Fully Protected Species (FP)

[10] Federal Threatened Species (FT)

Setting Summary

Special-status species[11] are plants and animals with legal protection under the state and/or federal Endangered Species Acts[12] or other similar regulations. Also included are other species that the scientific community and trustee agencies considers rare enough to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat.

The biological assessment prepared by PCI and with contributions from Benson (2017) included a review of special-status species with potential to occur within the project area. The consultants reviewed records from the California Natural Diversity Database, the California Native Plant Society's electronic database, Calflora, Marin County documents and reports, and other resources and identified nine special-status plant species and 21 special-status animal species for possible occurrence in the general vicinity of the project. Of these, PCI identified four special-status plants and ten special status animal species within the project area. In addition to these documented species, there are two additional species have a high to moderate potential to occur within the project area based regional occurrence data (PCI, 2018).

a) Impacts on special-status species – Less Than Significant

Special-status Plants

Benson (2017) documented the presence of four special-status plant species within the project area. Project-specific surveys documented the occurrence of rosin weed (*Calycadenia truncata*), knotweed spineflower (*Chorizanthe polygonoides* var. *polygonoides*), Biolett's erigeron (*Erigeron biolettii*), and downy pincushion plant (*Navarretia pubescens*). These species were associated with thin soil around outcrops of an andesite lava flow within the annual grasslands.

The CNPS California Rare Plant Ranking system lists Biolett's erigeron as a Rank 3 plant. Rank 3 plants are plants about which more information is needed; the necessary information to assign them to one of the other ranks is lacking. Rosin weed, knotweed spineflower, and downy pincushion plant are locally uncommon species with three or fewer documented occurrences with Marin County.

As described above, the MCOSD is proposing to adopt the existing Eagle Rim Trail as part of its trail system. The physical improvements associated with the project will improve sustainability, reduce trail slopes to meet the MCOSD's standards, construct more sustainable routes, harden the tread, and decrease the erosion rates. This will include modifications to the trail tread in areas dominated by annual grasslands; Benson (2017) documented several special-status plant occurrences directly along the Eagle Rim Trail corridor; see Figure 4. Knotweed spineflower and downy pincushion plants are directly along the Eagle Rim Trail corridor and Biolett's erigeron just

[11] See Definition of Special-status Species

[12] The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall use their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

off the trail. Other species (narrow leaf milkweed and rosin weed) are nearby but are not immediately adjacent to the existing trail or segments identified for decommissioning.

To avoid impacts on special-status plants, MCOSD will avoid areas supporting special-status plant populations. As outlined in BMP Special-status Plants 1 (Avoidance and Protection of Special-status Plant Species near Road and Trail Management Projects), MCOSD will identify and avoid species-status plant populations through the implementation of preconstruction surveys. If special-status plants are found within the proposed trail alignment, MCOSD will reroute or realign the trail to avoid special-status plant populations. To the extent feasible, MCOSD will establish a 100-foot buffer around special-status plants and install temporary construction fencing to protect the plant populations during construction activities.

The RTMP contains additional BMPs and other procedures related to special-status plants species that are applicable to the proposed project. These BMPs require the MCOSD to limit access, conduct a worker training, manage erosion, limit earthwork, manage for invasive nonnative plants (see below for additional discussion specific to invasive plants), complete regular inspections, and monitor following project completion. Implementation of the applicable BMPs from the RTMP would serve to address the potential impacts of the proposed project on special-status plants. Table 2 summarizes BMPs related to special-status plant species that the MCOSD will implement. These measures will keep impacts to a less-than-significant levels and the project does not require additional mitigation measures.

Special-status Wildlife

General Wildlife and Habitat

The biological assessment for the project concluded that the Preserve support habitat for a variety of native wildlife species including a number of birds, reptiles, amphibians, mammals, and invertebrates; a number of these species could occur within the project area. Project activities could modify wildlife habitat, potentially resulting in disturbance, displacement, or mortality of common terrestrial wildlife species. Mobile wildlife species would be displaced as part of the trail construction activities, but these species would likely colonize adjacent habitats and move back into the area after construction. Direct mortality could result to less-mobile species.

Although common wildlife does not have any individual legal protection, as outlined in Table 6.1 General Best Management Practices of the RTMP, MCOSD will implement standard construction practices to ensure the project will minimize impacts to native wildlife and their habitat. BMPs specific to special-status wildlife species are outlined below. Table 2 outlines BMPs related to general wildlife and habitat protection. These measures will keep impacts to less-than-significant levels, and the project does not require additional mitigation measures.

Nesting Birds

The biological assessment concluded that birds could nest within and near the project area. The federal Migratory Bird Treaty Act and the California Fish and Game Code protect active bird nests. Vegetation removal and/or construction activities in areas with suitable nesting habitat during the breeding period, typically February through August in this area, could result in nest abandonment or loss of nests, eggs, or nestlings unless the MCOSD takes appropriate actions (e.g., preconstruction surveys, avoidance, monitoring, etc.; MCOSD 2014, PCI, 2018).

As outlined in BMP Special-Status Wildlife-3 (Seasonal Restrictions During Bird Nesting Season), the MCOSD will avoid construction during the nesting season (February 1 through August 31), or conduct preconstruction surveys and implement appropriate buffers to protect active nests. The MCOSD is planning to construct the proposed project in fall 2018, which may be during the nesting season. If the work commences during the nesting season, the MCOSD will survey the project site for nesting birds and, if present, will implement the appropriate buffers described in the RTMP. This BMP will reduce any potential impact to a less than significant level.

American Badger

The biological assessment concluded that American badgers have the potential to occur within and near the project area. American badgers, a CDFW Species of Special Concern, have used the Preserve in the past, but the biological assessment did not identify any active burrows during recent surveys (2015-2016, 2018) (PCI, 2018). However, badgers have a relatively large home range, can expand their territories in the breeding season and in search of food, and may move into the project area at any time.

As outlined in BMP Special-Status Wildlife-2 (Preconstruction Surveys), the MCOSD will conduct preconstruction surveys for wildlife species, including American badger, and will identify any badger activity along the trail alignment. If the preconstruction survey identifies any active burrows or other evidence of badgers (e.g., hunting holes, scat) within the project area, the MCOSD will avoid the area until it is unoccupied. If evidence of badger activity (past or current) is present in the project area, MCOSD will also implement BMP Special-status Wildlife-9 (Construction Monitoring) to ensure that the project avoids impacts to this species. These measures will reduce the project's impacts to a less-than-significant levels.

Special-status and Common Bats

The biological assessment concluded that bats have the potential to occur within and near the project. There are three bat species that the CDFW has identified as Species of Special Concern within Marin County: pallid bat, Townsend's big-eared bat, and western red bat. All three species occur within the Preserve. A number of trees along the trail corridor could contain cavities and other conditions that could provide suitable roosting habitat for special-status and common bat species. The project does not include removal of any trees or shrubs; however, some tree branches may need to be trimmed to accommodate a safe trail corridor.

As outlined in BMP Special-Status Wildlife-2 (Preconstruction Surveys), MCOSD will conduct preconstruction surveys for bats to determine the potential for possible roost locations along the trail corridor. If the survey identifies any occupied or potential roost trees affected by the project, the MCOSD will avoid these trees to prevent any impacts to bat species. Trees will remain untrimmed or the trail rerouted to avoid the area. If trees need to be trimmed, trimming will occur outside the maternity season to avoid any potential impacts to adults and their young. This measure will reduce any impacts to bat species to a less-than-significant level and the project does not require any additional mitigation measures.

b) Impacts on riparian habitat and sensitive natural communities – Less Than Significant

The CDFW has established a list of natural communities for California that it considers part of the natural heritage conservation triad, along with plants and animals of conservation significance. Since 1999, the CDFW Vegetation Classification and Mapping Program has undertaken the classification and mapping of vegetation throughout the state and has assumed the role of

standardizing vegetation nomenclature for California to comply with the National Vegetation Classification System. One purpose of the vegetation classification is to assist in determining the level of rarity and imperilment of vegetation types. Ranking of alliances according to their degree of imperilment (as measured by rarity, trends, and threats) follows NatureServe's Heritage Methodology, in which list alliances as G (global) and S (state) rank. The CDFW considers all alliances with State ranks of S1-S3, and associations within them, as highly imperiled. The CDFW ranks natural communities based on their rarity and vulnerability to human impacts, and defines communities listed as critically imperiled (Rank 1), imperiled (Rank 2), or vulnerable (Rank 3) as "communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects."

There are two vegetation communities that occur within the project area: wild oat and annual brome grassland (*Avena spp.-Bromus spp.* Provisional Semi-Natural Alliance) and California bay forest (*Umbellularia californica* Forest Alliance). The CDFW does not consider these non-native grassland as sensitive, but identifies California bay forest as a sensitive natural community (G4, S3); The CDFW considers it relatively rare at the state level although it is relatively widespread in Marin County (PCI, 2018).

The project includes adopting the Eagle Rim Trail, which is an existing undesignated trail that has been used by the public for many years. The project also includes decommissioning Trails 11251, 11116, and 11060. Trails 11251 and 1116 are small portions of the existing Eagle Rim Trail. Trail 11060 is a steep section of undesignated trail running from Burdell Mountain Fire Road to its intersection with the Middle Burdell Fire Road. The trail work will occur within grassland habitat with oak and bay trees on the periphery. The proposed project will not result in the removal of any native bay or oak trees. The project may require the removal of a small number of tree limbs along the trail corridor to accommodate a safe trail corridor. Any trimmed trees will remain and continue to grow. Therefore, the project will have less than significant impacts to sensitive California bay forest along the trail corridor and it does not require additional mitigation (PCI, 2018). The project will not affect any riparian habitat (PCI, 2018).

c) Impacts on jurisdictional wetlands or waters – No Impact

Wetlands and other waters include a variety of both permanent and ephemeral aquatic features. Several state and federal agencies have enacted regulations and policies that protect aquatic habitats. Wetlands and waters fall under the jurisdiction of the U.S. Army Corps of Engineers (Corps), and the Regional Water Quality Control Board (RWQCB). Additional, California Department of Fish and Wildlife has authority over any impacts to the bed or bank of a lake or stream. The placement of any fill into wetlands or other water resources will require permits from the Corps and RWQCB. Additionally, the alteration of the bed or bank of a lake or stream or the removal of native riparian vegetation, requires a permit from the CDFW. There are no streams, wetlands, or other jurisdictional areas within the project footprint.

As there are no streams, wetlands, or other areas of potential jurisdiction within the project area, the project will not result in impacts on jurisdictional waters or wetlands.

d) Impacts on the movement of fish or wildlife species – Less Than Significant

Wildlife corridors connect large patches of natural open space and allow for the movement and migration of animals and plants. Corridors are critical for the maintenance of ecological processes and viable populations through several ways, including: (1) the continual exchange of genes between populations, which help maintain genetic diversity; (2) the access to adjacent habitat

areas that represent additional territory for foraging and breeding; (3) allowing for greater carrying capacity; and (4) providing routes for colonization of new habitat lands following location population extinctions or habitat recovery from ecological catastrophes.

Habitat linkages are broader stretches of open space that allow for the movement of multiple species and maintenance of ecological processes. These linkages do not have to provide continuous habitat but can also be patches of suitable areas that support movement from one patch to another to allow dispersal and migration. Habitat linkages reduce the adverse effects of habitat fragmentation that can lead to decreased gene flow for small animals, such as amphibians, reptiles, and rodents.

Native wildlife nursery sites are specific areas where certain species return yearly to breed, birth, and raise juveniles. For example, most salmonids require gravel beds in the upper reaches of a stream. There is a distinction between wildlife nursery sites and other breeding sites that do not have specific habitat conditions. In other words, a tree with a bird nest is not necessarily a wildlife nursery site.

The Eagle Rim Trail project area supports extensive grassland habitats interspersed with California bay and coast live oak woodlands. The Preserve is part of a large network of protected lands across Marin County, including Olompali State Historic Park, other open space preserves, local and regional parks, North Marin Water District watershed lands, and agricultural land, some of which is protected by conservation easements. Wildlife species can move between and through these protected areas These protected areas provide key habitat for many of Marin County's wildlife species and can support a variety of wildlife through part or all their life cycles. The biological report did not identify any wildlife nursery areas within the Preserve (PCI, 2018).

The proposed project would not have any significant adverse impacts on wildlife movement opportunities or adversely affect native wildlife nursery sites. The project area experiences a high level of public use already. Wildlife residing near the project site are likely habituated to human activity along the trail alignment. Construction-related disturbance would not cause significant impacts on wildlife movement activity in the surrounding area. Construction will occur over short duration (less than 4 weeks) and construction related activities will be temporary.

Wildlife may leave the immediate area surrounding the trail during construction activities; however, the impacts will be short-term and only occur during construction. Although the project will result in a slightly wider trail resulting in disturbance to existing grassland habitat, wildlife uses would remain in the project area and any displaced wildlife will return following completion of construction. Additionally, the decommissioned trail segments would provide additional habitat to support wildlife species in the project area. The project will not result in any long-term impact on wildlife movement and use of wildlife nursery locations, and it does not require any additional mitigation.

e) Conflict with local policies or ordinances – Less Than Significant

The City of Novato General Plan has policies to protect natural resources. In addition, the MCOSD's RTMP and Policy Review Initiative (MCOSD, 2005) includes policies to protect sensitive resources. The project site includes steep hillsides, scattered oak trees, and open annual grasslands. There are two vegetation communities that occur within the project area. These are wild oat and annual brome grassland and California bay forest. As described above, the CDFW has not designated the grassland habitat as sensitive and has designated the California bay to be a sensitive natural community (G4 S3); CDFW considers it relatively rare at the state level although it is relatively widespread in Marin County (PCI, 2018).

The proposed project would not conflict with any goals and policies of the City of Novato's General Plan (General Plan; Novato, 1996) or MCOSD's RTMP related to the protection of biological resources. Measures discussed under (a) through (d) above would ensure avoidance of special-status plants and animals and other sensitive resources protected under the General Plan and RTMP. The following provides a review of the conformance of the proposed project with respect to the General Plan's goals to provide access to public open space and protect trees and woodlands, and invasive plant species as detailed in the RTMP.

Access to Public Open Space

The General Plan protects publicly owned open spaces in their natural state and encourages public access in a manner compatible with the preservation and enhancement of the natural environment. The project meets these goals by improving trail sustainability, reducing habitat fragmentation, and improving visitor experience for hikers and cyclists.

Native Tree Protection

The General Plans calls for the protection of trees and woodlands that provide ecological, economic, and aesthetic benefits for Novato by maintaining the age and species diversity of trees and preserving the health of trees and other vegetation wherever feasible. The City of Novato has also established regulations for the preservation and protection of native trees and woodlands on or adjacent to public lands under the Novato Municipal Code (see Chapter XVII and XIX).

The proposed project will not result in the removal of any native trees. The project may require the removal of a small number of tree limbs along the trail corridor to accommodate a safe trail corridor. These trimmed trees will remain in the project area and will continue to grow. Therefore, the project complies with the City's tree and woodland policies and regulations, and it does not require additional mitigation.

Invasive Species Management

Trail construction would involve equipment operation, grading, and other disturbances that could result in the introduction or spread of invasive plant species along the trail corridor. As described above, non-native annual grasses dominate the project site. This community is ubiquitous around Marin County and extensive throughout California (Holland, 1986) and many of the grassland species present within the project site occur throughout the Preserve. However, the MCOSD has identified additional invasive weed species on the Preserve that are more limited in extent and warrant careful management to ensure they do not spread. The biological assessments identified patches of medusahead (*Taeniatherum caput-medusae)* near the communication tower by PCI in February 2018. Benson (2015) also documented the presence of tocalote (*Centaurea melitensis*) and yellow star thistle (*C. solstitialis*) on the lower slopes of the Preserve. Sudden Oak Death also has a foothold within the Preserve (Oak Mapper 2018).

The RTMP contains BMPs and other procedures related to invasive species management that are applicable to the proposed project. These BMPs require MCOSD to include language to control invasive species spread through worker training, equipment inspection, and proper disposal; control the spread of Sudden Oak Death through proper equipment cleaning, disposal, and timing of work; surveying for invasive plant species and controlling their spread through avoidance and inspections; limiting soil disturbance, cleaning and inspecting equipment and vehicles; stabilizing disturbed soils; regular inspections; and monitoring following project completion. Implementation of the applicable BMPs from the RTMP would serve to address the risk of the project contributing

to the spread and establishment of invasive species along the trail alignment or in decommissioned areas. The proposed project complies with the RTMP's requirements for preventing the spread of invasive species and Sudden Oak Death. Table 2 summarizes BMPs related to invasive species management incorporated into the project. After completion of the project, the MCOSD's Early Detection, Rapid Response Team will continue to monitor the trail for invasive species.

f) Conflict with a Habitat Conservation Plan or Natural Community Conservation Plan – No Impact

Habitat conservation plans (HCPs) are planning documents required as part of an application for an incidental take permit. They describe the anticipated effects of the proposed taking; how those impacts would be minimized or mitigated; and how the HCP is to be funded. HCPs can apply to both listed and non-listed species, including those that are candidates or proposed for listing. An HCP can apply to individual project that affect a limited number of species or can be regional plans to address endangered species impacts in the area from otherwise legal development.

A Natural Community Conservation Planning program (NCCP) takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. It is broader in its orientation and objectives than the California and federal Endangered Species Acts, as these laws are designed to identify and protect individual species that have already declined in number significantly. An NCCP identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity.

There are no adopted HCPs or NCCPs in Marin County, and therefore, the project would not impact any of these plans.

7.5 Cultural Resources

Cultural Resources Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historic resource pursuant to §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Setting

Archaeological evidence indicates that human occupation of California began at least 11,000 years ago. Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to be coeval with the development of sedentism and population growth and expansion (Origer, 2018).

Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems.

At the time of European settlement, the study area was within territory controlled by the Coast Miwok. This group lived in rich environments that allowed for dense populations with complex social structures. They settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Primary village sites were occupied throughout the year and other sites were visited to procure particular resources that were especially abundant or available only during certain seasons. Sites often were situated near sources of fresh water and in ecotones where plant life and animal life were diverse and abundant. The Coast Miwok economy focused on marsh resources and was supplemented by hunting and gathering in the North Coast Ranges.

The project area lies is within the bounds of and on the border of the Rancho Novato. The Rancho Novato was granted in 1839 by Governor Alvarado to Fernando Feliz, who was a regidor (town councilman) at the Pueblo de San José. When granted, it comprised 8,871 acres and extended from San Pablo Bay to the east to the Rancho Nicasio to the west, the Rancho Olompali to the north and the Rancho San Jose to the south, and encompasses the city of Novato (Origer, 2018).

In November 1856 Francis DeLong formed a partnership with Joseph Bryant Sweetser and purchased the Rancho Novato. They planted vast orchards, acquired 600 hogs, and over 1,300 head of cattle. They would ship fresh fruit, milk, and butter to San Francisco by boat. In 1858, DeLong and Sweetser built a one-room school and church on their property. By 1875, the population of Portuguese and Italian workers had grown enough to warrant a new schoolhouse on the property. In 1876, Joseph Sweetser's wife died, and three years later he sold his interest in the Novato Rancho to DeLong, only retaining one-square mile that would later become downtown Novato. Shortly after this Francis DeLong retired, leaving his son Frank Coye DeLong to run the Novato Rancho. Francis DeLong passed away in 1885. Several years later, his son Frank sold 6,000 acres of his property for the creation of the new town of Novato. Frank DeLong would later serve as a California State Senator; serving two terms. In 1895, facing financial strains, Frank DeLong mortgaged the Novato Rancho and moved to San Francisco following the auction of the Novato Rancho (Origer, 2018).

Mt. Burdell is named after the Burdell family. Dr. Galen Burdell arrived in California from New York in 1849 and became a prominent San Francisco dentist. In 1863 he married Mary Augustina Black, daughter of James and Maria Augustina Sais Black, who gave them as a wedding present the Olompali ranch (including what became known as Burdell Mountain, previously called Mt. Olompali) Burdell Island, and 800 head of cattle. Their ranch was located north of the study area (Origer, 2018).

Table 2: Cultural Resources Policies and BMPs

Policies and BMPs	Description
Policy SW.27 Protect High-Value Cultural and Historic Resources by Rerouting or Confining Visitor Access	Protect High-Value Cultural and Historic Resources by Rerouting or Confining Visitor Access. Areas of high-value cultural and historic resources will be protected from disturbance and adverse impact. This will be done through the appropriate placement of trails, by erecting barriers, or other methods to discourage access.
Policy SW.28 Remove or Realign Roads and Trails Away from High-Value	Remove or Realign Roads and Trails Away from High-Value Cultural and Historic Resources. As a general policy, designated roads and trails will be rerouted away from high-value cultural and historic resources whenever

Policies and BMPs	Description
Cultural and Historic Resources	possible and feasible. Areas where roads or trails are removed will be restored to natural conditions. The removal or realignment of roads will be done in consultation with Marin County Fire and other local fire agencies.
BMP Cultural Resources-1 Historical and Archaeological Resource Mapping	Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will determine whether or not the project area is located within an area that is mapped as "historically or archaeologically sensitive" according to map 4-1 (Historical Resources) in the Marin Countywide Plan and/or identified as culturally sensitive on other confidential maps on file with the county that list prehistoric or archeological sites. If the project area is identified as sensitive on any of these maps, the site will be field surveyed by a state-qualified archeologist or an archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.
BMP Cultural Resources-2 Consultation with Northwest Information Center	Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will contact the Northwest Information Center of the California Historical Resources Information System and request a records search of known historic and cultural resources within and adjacent to the proposed project area, and seek the determination of the information center coordinator regarding the potential for cultural resources on the site. Should the records request or the recommendation of the coordinator indicate the presence of sensitive resources, the site will be field surveyed by a state-qualified archeologist or archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.
BMP Cultural Resources-3 Tribal Consultation	The following tribal consultations will be conducted prior to any new ground disturbance related to road or trail construction: Send the road and trail project description information to the Native American Heritage Commission and request contact information for tribes with traditional lands or places located within the geographic areas affected by the proposed changes. Contact each tribe identified by the commission in writing and provide them the opportunity to consult about the proposed project. Organize a consultation with tribes that respond to the written notice within 90 days. Refer proposals associated with proposed road and trail modifications to each tribe identified by the commission at least 45 days prior to the proposed action. Provide notice of a public hearing at least 10 days in advance to tribes and any other persons who have requested that such notice be provided.
BMP Cultural Resources-6 Construction Discovery Protocol	If cultural resources are discovered on a site during construction activities, halt all earthmoving activity in the area of impact until a qualified archeological consultant examines the findings, assesses their significance, and develops proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.

Policies and BMPs	Description
BMP Cultural Resources-7 Human Remains	In the event that human skeletal remains are discovered, discontinue work in the area of the discovery and contact the County Coroner. If skeletal remains are found to be prehistoric Native American remains, the coroner will call the Native American Heritage Commission within 24 hours. The commission will identify the person(s) it believes to be the most likely descendant of the deceased Native American. The most likely descendant will be responsible for recommending the disposition and treatment of the remains. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation/grading work for means of treating or disposing of the human remains and any associated grave goods as provided in section 5097.98 of the California Public Resources Code.

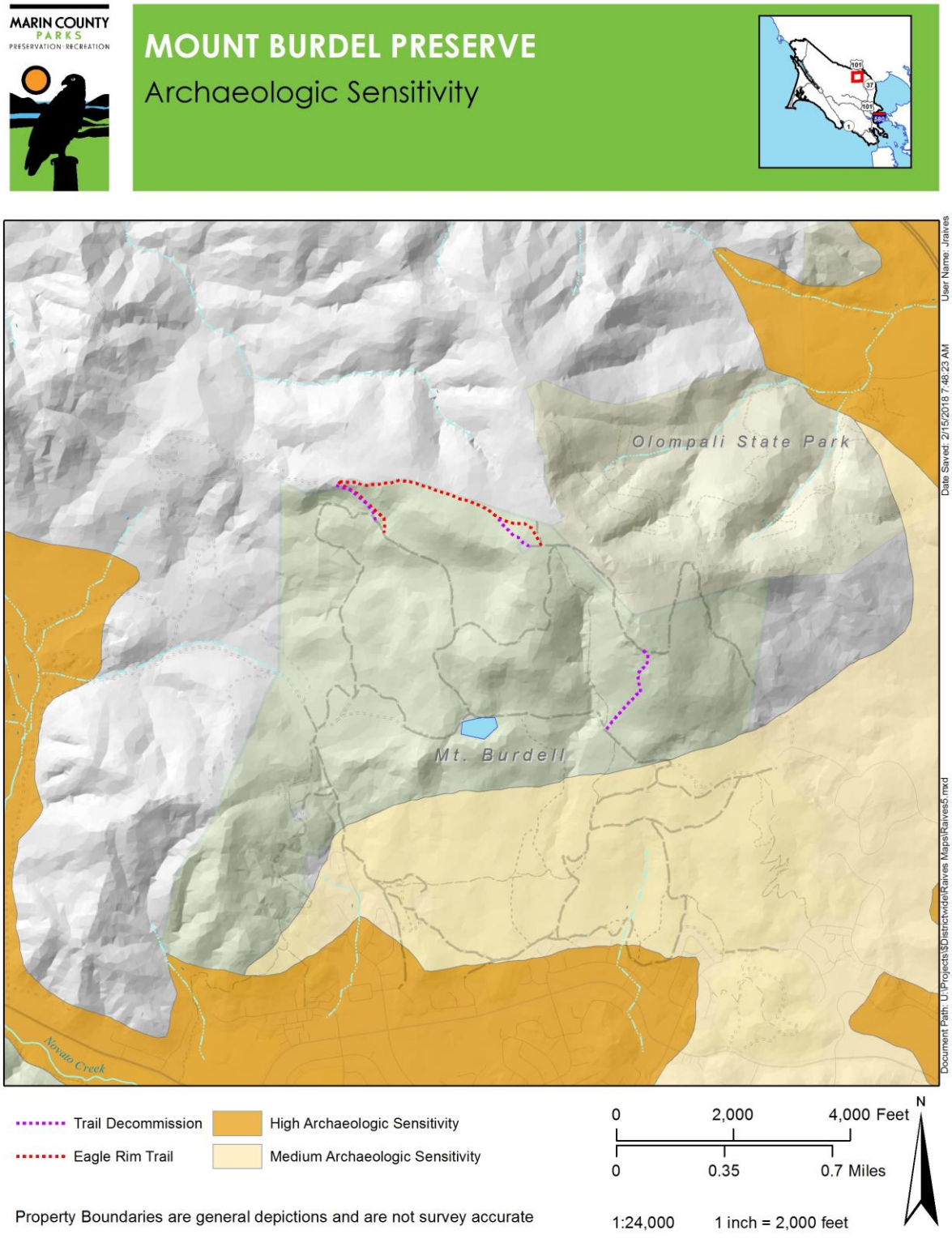
a) Cause a substantial change to historic resources – Less Than Significant

MCOSD contracted with Tom Origer and Associates to evaluate the potential for cultural resources on the sites. A review of historical maps shows several rock quarries within the vicinity of the current and proposed trail segments. The rock quarries were used to harvest the natural basalt outcrops that are prevalent throughout Mt. Burdell. Among them were the DeLong quarry and the Joseph Taylor Quarry, which were both operated on Mt. Burdell. Quarrying on Mt. Burdell, and which were still in operation through the 1960s, and terminated by 1964. A review of aerial photographs of the current and proposed trail segments indicates that there is a stone fence to the north of the Eagle Rim Trail Alignment. The stone fence follows the land grant boundary line and is probably around 200 years old. The proposed project would not impact the stone fence in any way. However, any excavation project runs the risk uncovering previously unknown historic resources. To address this issue, the project includes BMP Cultural Resources-6 and -7 related to discovery of unknown resources during construction, which requires halting the project until a qualified archeologist can examine the area. Implementation of this BMP would ensure that the project would result in a less than significant impact.

b) Cause a substantial change to archaeological resources – Less Than Significant

The cultural study found that based on the area's geologic age, environmental setting, and soil sensitivity for buried sites, there is a very low probability of identifying buried prehistoric archaeological site indicators or soils within the study area. In addition, the County of Marin's archaeological sensitivity data indicates that the area does not have a high or medium sensitivity for archaeological resources (Figure 22; County of Marin, 1968). Therefore, the project is unlikely to have significant impacts on known cultural resources. However, any excavation project runs the risk uncovering previously unknown historic or archaeological resources. To address this issue, the RTMP includes BMP Cultural Resources-6 and -7 related to discovery of unknown cultural resources, including human remains, during construction, which requires halting the project until the area can be examined by a qualified archeologist and notifying the county coroner, in the case of human remains. Implementation of this BMP would ensure that the project would result in a less than significant impact.

Figure 22: Archaeological Sensitivity



c) Disturb any human remains – Less Than Significant

The cultural study for this project did not indicate that the site was likely to contain human remains. In the event that the MCOSD encounters unknown human remains during project construction, the MCOSD would implement BMP Cultural Resources-7 (Table 2), which identifies protocols to follow should the project uncover human remains. With implementation of this BMP, project impacts would be less than significant.

7.6 Energy

Energy Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Setting

CEQA § 21100(b) requires that an EIR discuss and consider mitigation measures for the potential energy impacts of proposed project, with emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the CEQA Guidelines provides guidance for assessing the significance of potential energy impacts. It provides three objectives for achieving the ultimate goal of conserving energy:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on natural gas and oil; and
- Increasing reliance on renewable energy sources.

Current energy use at the project site is very minimal. Recreational users may use small amounts of gasoline to drive to and from the project site. Similarly, MCOSD rangers and maintenance staff drive to and from the preserve and also use petroleum during routine maintenance activities (mowing, weed wacking etc.). There is no electrical use at the project site.

a) Result in environmental impacts due to consumption of energy resources – Less Than Significant

The proposed project would not result in measurable incremental increases in the use of fuel. During construction, the project would require the use diesel-powered heavy equipment and gas-powered vehicles to access the site and bring materials and equipment to the area. The proposed project would result in energy consumption during both construction and operation of the project. Construction of the project would use heavy equipment to install water-control features, construct re-routes, and decommission abandoned trail segments and social trails. As described in the project description, heavy equipment would operate over a maximum of four weeks, at least four

days a week, and approximately eight to 10 hours a day. The project would also require employee trips driving to and from the project site during construction. An estimated five MCOSD staff members would drive to and from the project site each day during construction. Equipment would include a mini excavator, carriers, generators, ATVs, a jackhammer, skillsaw, sawzall, drum roller, plate compactor, and hand tools (hedge trimmers, chainsaws, etc.). Earthwork involving heavy equipment would end by October 15, 2018 (BMP Water -6) to prevent erosion during the rainy season. Construction would largely take place four days a week, Monday through Thursday, from 7:00 a.m. to 6:00 p.m. Operation of the project would occur as described in the project description and would result in energy use from trail users driving to and from the preserve and from regular maintenance. Because of the project's short duration (maximum of 4 weeks), only a small amount fuel used for these activities and this consumption would not have a measurable effect on local and regional energy supplies. Implementation of Policy SW-26 would ensure that MCOSD uses the most efficient equipment available and conducts the project in an energy efficient manner.

The project is not likely to significantly increase vehicle trips for recreational use of these trails. The Eagle Rim Trail is an existing facility that primarily supports neighborhood recreation. The proposed trial improvements are not likely to attract significantly more people to the area as no additional parking is provided at the trailheads; however, the designation of the Eagle Rim Trail to allow hikers and bicyclists may increase use of the trail as it would be published on MCOSD maps. Operation and maintenance activities would be similar to existing conditions and energy use would not increase compared to baseline conditions. Therefore, the project would have a less than significant impact on energy use.

b) Conflict with renewable energy or energy efficiency plans – Less Than Significant

As discussed above, the project would use small amounts of energy during construction of the project, including the use of heavy equipment to install water-control features, construct re-routes, and decommission abandoned trail segments and social trails as well as from truck trips associated with employees driving to and from the site and from material deliveries. Operation and maintenance activities would be similar to existing conditions and energy use would not increase compared to baseline conditions. Implementation of Policy SW-26 would ensure that MCOSD uses the most efficient equipment available and conducts the project in an energy efficient manner. Therefore, the proposed project would not conflict with renewable energy or energy efficiency plans, including goals set forth in AB 32, including the 39 Recommended Actions identified by the California Air Resources Board (CARB) in its Climate Change Scoping Plan. The project would also not conflict with goals and policies contained in the Marin CWP and Climate Action Plan. This impact would be less than significant.

7.7 Geology and Soils

Geology and Soils Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☒	☐
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the	☐	☐	☒	☐

Geology and Soils Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Setting

The MCOSD preserves are within the central portion of the Coast Range Physiographic Province of California, composed of a series of northwest-southeast aligned coastal mountain chains dominated by a similar trending San Andreas Fault Zone (MCOSD, 2014a). Marin County has several faults delineated by the California Division of Mines and Geology, with the San Andreas Fault being the only fault identified by the Alquist-Priolo Earthquake Fault Zoning Act. Additionally, an active portion of the Hayward fault lies near the county. There is a 62 percent likelihood of fault rupture with a magnitude of 6.7 or greater to occur on one of the San Francisco Bay Area active faults, including the San Andreas or the Hayward faults, before the year 2032 (County of Marin, 2007). It is also possible, but with a low probability, that earthquakes may occur on inactive or previously unidentified faults.

Ground shaking is one of the key geologic hazards associated with seismic activity, with some areas more susceptible to strong shaking and potential damage due to their proximity to the fault zone or their underlying soil composition. Soils most susceptible to seismic shaking amplification tend to be younger alluvial deposits, bay mud, and artificial fill found in the lower lying areas around open water including Bolinas, San Pablo, and Richardson Bays.

Road and trail stability is also influenced by the underlying soils—how easily they are compacted and eroded, and how stable they are on slopes. Soils within the preserves are predominantly loam to clay loam, which poses a severe to very severe erosion hazard for earthen roads and trails. According to field observations, the soils are moderately drained with high erosion potential. Erosion is most evident in areas where runoff has been concentrated. The breakdown of soil under heavy trail use often leads to accelerated erosion and trail rutting (MCOSD, 2014a).

The Eagle Rim Trail traverses the Mount Burdell Open Space Preserve predominately through a Saurin-Bonnydoon complex, Saurin (50 percent) and Bonnydoon (40 percent). The Saurin series consists of moderately deep, well drained soils that formed in material weathered from sandstone and shale. Saurin soils are on hills and have slopes of 2 to 75 percent. The Bonnydoon series consists of shallow, somewhat excessively drained soils that formed in material weathered from sandstone and shale. Bonnydoon soils are on uplands and have slopes of 5 to 85 percent (USDA, 2017 and 1985; See Table 1 below).

Table 3. Soil Survey for Project Area

Soil Series	Composition within Saurin-Bonnydoon Complex, 30 to 50 percent slopes (%)	Recreational Development Rating (Paths and Trails)	Rangeland Wildlife Habitat	Building Site Development	Features affecting Drainage
Saurin	50%	Severe: slope	Good	Severe: slope	Slope, Depth to Rock, erodes easily
Bonnydoon	40%	Severe: slope	Fair	Severe: Depth to Rock, Slope	Slope, Depth to Rock
Tocaloma	2%	Severe: slope	Not Rated	Severe: Slope	Slope, Depth to Rock
Los Osos	2%	Moderate: slope	Good	Severe: Slope	Slope, Depth to Rock
Other	4%	N/A	N/A	N/A	

Source: USDA, 2017

Soils in the project area have a rating of Very Limited. Very Limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures and poor performance and high maintenance levels can be expected. They exhibit a numerical rating of Slope (1.00) and Dusty (0.23) for the Saurin and (0.20) for the Bonnydoon. Numerical ratings indicate the severity of individual limitations and are shown as decimal fractions ranging from 0.01

to 1.00. The ratings indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00). The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer. The Saurin series consists of moderately deep, well-drained soils that formed in material weathered from sandstone and shale. Saurin soils are on hills and have slopes of 2 to 75 percent. The Bonnydoon series consists of shallow, somewhat excessively drained soils that formed in material weathered from sandstone and shale. Bonnydoon soils are on uplands and have slopes of 5 to 85 percent. The mean annual precipitation is about 30 inches and the mean annual temperature is about 59 degrees Fahrenheit (USDA, 1985).

The Tocaloma series consists of moderately deep, well-drained soils that formed in material weathered from sandstone and shale. Tocaloma soils are on hills and have slopes of 2 to 75 percent. The Los Osos series consists of moderately deep, well-drained soils that formed in material weathered from sandstone and shale. Los Osos soils are on uplands and have slopes of 5 to 75 percent. The slope rating of 1.00 indicates a very great negative impact. However, the Dusty rating of 0.20 and 0.23 indicate a fair trafficability and erodibility factor. Soil Survey of Marin County, states, “If used for recreational development, the main limitation is steepness of slope. The Bonnydoon soil is also limited by shallow depth to rock. Slope restricts the use of areas of this unit mainly to paths and trails, which should extend across the slope" (USDA, 1985).

The main geologic hazards for the MCOSD’s open space areas and trail infrastructure are landslides and other related slope stability hazards under strong seismic shaking, or more commonly, during intense rainfall events that quickly saturate the soil. Landslides are the downward movement of materials such as rock, soil, or fill. Debris flows are a rapid downslope movement of thick slurry composed of loose soil, rock, and organic material entrained with air and water; a debris avalanche is a more rapid or extreme debris flow.

a) Cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

a.i) Rupture of a known earthquake fault – Less Than Significant

No portion of the Mount Burdell Preserve is located within an Alquist-Priolo Earthquake Fault Zone (Fault Zone) and there are no mapped active faults on the project sites (ABAG, 2018a). The nearest known active earthquake faults are the San Andreas Fault, located approximately 12 miles to the west, and the Hayward Fault, approximately 6 miles east. Therefore, this impact is less than significant.

a.ii) Strong seismic ground shaking – Less Than Significant

As the project site in located in an area that could experience earthquakes and ground shaking. The project entails at grade trail improvements, decomissionings, and adopting the trail into the MCOSD network. The project does not propose the construction of any occupied structures that could pose a safety hazard to trail users. The project would support existing uses at the Mount Burdell Open Space Preserve. The density of people using trails is relatively low in comparison to urban and suburban areas of Marin County and implementation of the project would not alter or introduce substantial adverse effects related to strong seismic ground shaking, including the risk of loss, injury, or death involving. As the project would not substantially alter the existing conditions or introduce new hazards, this impact would be less than significant.

a.iii) Seismic-related ground failure, including liquefaction – Less Than Significant

The risk of liquefaction is relatively low for the project site. ABAG has identified the liquefaction hazard at the project sites as “very low” based on CGS data (ABAG, 2018b). This hazard would not result in significant harm to recreation users, since the project does not include any habitable structures and the density of people using trails is relatively low in comparison to urban and suburban areas of Marin County. This impact would be less than significant.

a.iv) Landslides – Less Than Significant

While the project site may be vulnerable to landslides, mudslides, and slope instability, development of the proposed project would not result in a risk to property or public safety, because of lack of habitable structures and the low density of public use. Most of the project site and preserve is in an area that is identified as “mostly landslides” (ABAG, 2018c). The project site contains moderate to steep terrain with slopes draining to the south of the preserve. The proposed improvements would be designed to be hydrologically invisible, ensuring that water flows over the improved trails without causing rills, gullies, or erosion that could lead to instability and landslides. Landslides would not cause significant harm to trail users as a result of project implementation given the lack of physical structures and the low-intensity ongoing recreation use. The project would not expose recreational users to new hazards. This impact would be less than significant.

b) Result in substantial soil erosion or the loss of topsoil – Less Than Significant

Erosion is a natural process whereby soil and highly weathered rock materials are worn away transported, most commonly by wind or water. Soil erosion can become problematic when human intervention causes rapid soil loss and the development of erosional features (such as incised channels, rills, and gullies) that undermine roads, buildings, or utilities. Vegetation clearing and earth-moving reduces soil structure and cohesion, resulting in abnormally high rates of erosion, referred to as accelerated erosion. Natural rates of erosion can vary depending on slope, soil type, and vegetative cover (regional erosion rates are also dependent on tectonics and changes in relative sea level). Soils containing high amounts of silt are typically more easily eroded, while coarse-grained (sand and gravel) soils are generally less susceptible to erosion.

Soils within the study area consist of the Gilroy-Gilroy Variant-Bonnydoon Variant loams and the Saurin-Bonnydoon Complex. Gilroy and Gilroy Variant soils are deep, well-draining soils that are formed from igneous and metamorphic rocks. Bonnydoon and Saurin soils are formed from sandstone and shale. The native vegetation for Gilroy and Gilroy Variant soils is annual grasses and forbs with scattered oak trees. In a native state, Bonnydoon and Saurin soils supports the growth of annual grasses, forbs, and scattered brush (Origer, 2018).

According to field observations recorded during mapping and assessing the MCOSD’s trail and road network, soils in the vicinity of roads and trails were moderately drained with high erosion potential, which was most evident in areas where runoff was concentrated. The breakdown of soil under heavy trail use often leads to accelerated erosion and trail rutting (MCOSD, 2011). One of the primary purposes of the RTMP was to set up a process to address heavily erosive trails and to reduce sedimentation caused by MCOSD’s roads and trails.

One of the primary purposes of the project is to fix a trail that is overly steep and erosive with a variety of erosion control features, such as outsloping, rolling dips, water bars, and slope control (maintaining a 10 percent running slope where possible). Additionally, the project includes provisions to treat all disturbed areas with erosion control measures. The MCOSD would use silt

fences, erosion control blankets, and mulch to prevent significant erosion during and after construction. Finally, the RTMP's BMP Geologic Hazards-3 and BMP Water Quality-3 require the MCOSD to implement measures to prevent significant erosion during construction and operation of trail project. Overall, the project would improve drainage and reduce erosion of topsoil and this would be considered a beneficial impact.

c) Located on a geologic unit or soil that is unstable, resulting in landslide, lateral spreading, subsidence, liquefaction, or collapse – Less Than Significant

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or dynamic (i.e., earthquake) forces. Slope stability can depend on several complex variables, including the geology, structure, and the amount of groundwater present, as well as external processes such as climate, topography, slope geometry, and human activity. Liquefaction is the rapid loss of shear strength experienced in saturated, predominantly loose granular soils below the groundwater level during strong earthquake ground-shaking and occurs due to an increase in pore water pressure. Earthquake-induced settlement of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume as the soil grains tend to rearrange into a denser state. This decrease in volume and consolidation of soil can result in the settlement of overlying structural improvements.

As discussed above, the Eagle Rim Trail traverses the Mount Burdell Open Space Preserve predominately through a Saurin-Bonnydoon complex, Saurin (50 percent) and Bonnydoon (40 percent). The Saurin series consists of moderately deep, well drained soils that formed in material weathered from sandstone and shale. Saurin soils are on hills and have slopes of 2 to 75 percent. The Bonnydoon series consists of shallow, somewhat excessively drained soils that formed in material weathered from sandstone and shale. Bonnydoon soils are on uplands and have slopes of 5 to 85 percent (USDA, 2017 and 1985).

As described under criterion a) for geologic resources above, much of the MCOSD's land, including the Mount Burdell Preserve, is at risk for landslides. Several shallow landslides have occurred within the MCOSD's preserves in recent years from high intensity and long-duration storm events. The slides usually occur in areas where steep slopes are over-steepened due to bank erosion, or along ravines or swales with higher levels of surface and groundwater.

Roads and trails could contribute to destabilization of slopes or alteration of water flow patterns that could exacerbate landslides and expansive soils hazards. Additionally, roads or trails could be damaged or destroyed by these hazards. These slope and soil stability issues are likely the main geologic hazards for the MCOSD preserves and trail infrastructure. Most of the project site is in an area that is identified as "mostly landslides" (ABAG, 2018c). The project site contains moderate to steep terrain with slopes draining to the south of the preserve. As with other geologic hazards at the site, landslides would not cause significant harm to trail users because the trail improvements would improve the hydrological function of the trail making it hydrologically invisible and would ensure that runoff does not cause geological instability.

Further, even if these hazards damage the trails, the MCOSD's monitoring and maintenance program, as described RTMP BMP General-10, would allow the MCOSD to identify and fix any issues resulting from these hazards. Finally, since the project would improve and realign portions of existing trails, it would not increase the exposure of recreational users to these hazards. This impact would be less than significant.

d) Located on expansive soil – Less Than Significant

Expansive soils expand and contract in response to changes in soil moisture, most notably when near-surface soils change from saturated to dry and back again. Generally, the expansiveness relates to the clay content in the soil. These soils often expand in the winter and shrink in the dry summer months. Many of the earth flows that occur in the hillslopes are due to a thick accumulation of expansive soils, particularly in areas underlain by Franciscan mélange. Many of the soils in Marin County have moderate to high expansion potential. Expansive soils can create enough force to cause major damage to building foundations, slabs, patios, and sidewalks. The proposed trail improvements entail no new structures such as foundations, sidewalks, or slabs and only entail improvements to the existing Eagle Rim Trail, construction of the lower bowl reroute, and the associated decommissionings. None of these improvements would be adversely affected by expansive soils. This impact would be less than significant.

e) Have soils incapable of adequately supporting wastewater disposal systems where sewers are not available – No Impact

The project would not generate any wastewater and would not include the installation or use of any septic tanks or alternative wastewater disposal systems. The project would not impact this issue area.

f) Destroy a unique paleontological resource or site or unique geologic feature – Less Than Significant

Geology within the study area consists of landslide deposits and volcanic rocks of Burdell Mountain, which is comprised of andesite, basalt, rhyolite, and dacite. The landslide deposits date from the Pleistocene to Holocene Epochs (2.5 million years ago to present), and the volcanic rocks of Burdell Mountain date to the Miocene Epoch (23 to 5.3 million years ago) (Origer, 2018). A records search showed that no recorded fossil sites are located within Marin County, although there are multiple records of invertebrate and plant fossils assigned to the Holocene or recent epoch. The Franciscan complex, widespread in coastal California, has produced only small collections of significant fossils, none of which occurred in Marin County (MCOSD, 2014a). As there are no unique paleontological resources or site or unique geologic features at the project site, this impact would be less than significant.

7.8 Greenhouse Gas Emissions

Greenhouse Gas Emissions Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Setting

There is general scientific consensus is that global climate change is occurring and caused by increased emissions of GHGs. The six gases that are the principal contributors to global climate change are: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

In 2012, estimated GHG emissions generated by community activities in Marin County's unincorporated areas were approximately 477,000 $MTCO_2e$ (Metric tons of carbon dioxide equivalent), or per capita emissions of approximately 7.1 $MTCO_2e$ for the 67,000 residents in the unincorporated areas. This amount is equivalent to the annual GHG emissions generated by approximately 100,000 passenger vehicles. Of these total emissions, On-Road transportation and building energy use are the largest sources of emissions (35 percent each). The third largest source is agriculture (23 percent), followed by off-road equipment (4 percent), solid waste treatment (2 percent), wastewater treatment (1 percent), and water conveyance (0.2 percent) (County of Marin, 2014).

For municipal activities from County government operations, estimated GHG emissions in 2012 were approximately 15,000 $MTCO_2e$, or emissions of 7.0 $MTCO_2e$ per County employee. This amount is equivalent to the annual GHG emissions generated by approximately 3,000 passenger vehicles. Of these total emissions, employee commute is the largest source of emissions (43 percent). Building energy use is the second largest source of emissions (36 percent). The third largest source is the vehicle fleet (18 percent), followed by wastewater treatment (1.4 percent), streetlights and traffic signals (0.6 percent), refrigerants (0.4 percent), stationary sources (0.4 percent), solid waste generation (0.3 percent), and water conveyance (0.2 percent) (County of Marin, 2014).

a) Generate greenhouse gas emissions that may have a significant impact on the environment – Less Than Significant

The project would generate GHG emissions during construction and operation. Construction emissions would be primarily generated onsite due to the use of equipment associated with construction of the trail improvements. The MCOSD estimates that construction would take place over a maximum of four weeks and require five MCOSD staff members. Equipment would include a mini excavator, carriers, generators, ATVs, a jackhammer, skillsaw, sawzall, drum roller, plate compactor, and hand tools (hedge trimmers, chainsaws, etc.). Earthwork involving heavy equipment would end by October 15, 2018 (BMP Water -6) to prevent erosion during the rainy season. Construction would largely take place four days a week, Monday through Thursday, from 7:00 a.m. to 6:00 p.m. GHG emissions would be limited because of the small size of the construction equipment used for trail projects and the limited construction period. Minor emissions would be associated with equipment deliveries and employees driving to and from the project site. Construction emissions would be less than significant because of the small scale of the project, short construction timeline, and limited equipment involved.

Operational emissions would result from trail maintenance, patrol by MCOSD staff, and recreational users driving to the trailhead. The proposed modifications to the trail include adoption for use by hikers and cyclists, which could cause an increase in trail use. However, the public already heavily uses the fire roads and trails in the preserve and the adoption of one short trail segment would not substantially increase usage of the preserve. The MCOSD also expects most of the use to be from the local community. The Marin County Parks Visitor Study Report found that three quarters of people surveyed were residents of Marin County and just over half lived within

one mile of the park/preserve/path where surveyed (Parks, 2016). Additionally, the Preserve has a limited amount of parking which restricts the number of visitors to the preserve. As hiking and cycling do not produce GHG emissions, additional GHG emissions would be limited to those additional trail users that drive to and from the site. As a result, emissions from operation of the project would be similar to existing levels within the preserve. Trail improvements are intended to improve the trail's sustainability and regular maintenance would be low. No additional staffing is required to patrol or maintain the trails and maintenance levels would be similar to existing conditions.

To determine the significance of the project's impact related to GHG, Marin County uses the screening criteria provided in the 2010 CEQA Air Quality Guidelines. MCOSD has decided that the BAAQMD 2010 CEQA Guidelines are appropriate for the project and that the analysis prepared by BAAQMD (Appendix D of the 2011 CEQA Air Quality Guidelines) provided justification and substantial evidence supporting the thresholds identified. The BAAQMD CEQA Guidelines do not have specific screening criteria for a project identical to the proposed project. However, Table 3-1 of those guidelines entitled "Criteria Air Pollutants and Precursors and Greenhouse Gas (GHG) Screening Level Sizes" shows that, for a "city park," the operational criteria for pollutant screening size would be 2,613 acres, the operational GHG screening size would be 600 acres, and the construction criteria for pollutant screening size would be 67 acres for particulate matter with particles having a diameter of 10 micrometers or less (PM10). Compared to a city park, an open space preserve has a lower intensity of public use and the screening level size for an open space preserve is likely to be lower than the city park.

The proposed project would entail disturbance of approximately 0.06 acres associated with the new trail alignments and 0.2 acres of disturbance associated with the trail decommissionings. Thus, in total, the project would disturb about 0.26 acre. The project would be below the screening criteria identified for work within a city park.

Overall, the improvements would not significantly increase GHG emissions because of the use of the trail. As described above, most of the use this area would be from local residents and trailhead parking is limited to existing on-street areas that have limited capacity. Therefore, the project would have a less than significant impact regarding GHG emissions.

b) Conflict with an applicable greenhouse gas reduction plan, policy, or regulation – Less Than Significant

In 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006 (Assembly Bill; AB 32). AB 32 focuses on reducing GHG emissions in California and requires the reduction to 1990 levels by the year 2020.

The proposed project would not conflict with GHG reduction goals set forth in AB 32, including the 39 Recommended Actions identified by the California Air Resources Board (CARB) in its Climate Change Scoping Plan. The project would also not conflict with goals and policies contained in the Marin CWP and Climate Action Plan.

7.9 Hazards and Hazardous Materials

Hazards and Hazardous Materials Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐

Hazards and Hazardous Materials Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Setting

Hazardous substances are materials designated in government codes and regulations or that exhibit certain characteristics such as being toxic, corrosive, flammable, reactive, or explosive. A non-hazardous substance can become a hazardous waste if during its normal use it comes to meet the definition of a hazardous material or hazardous substance.

The MCOSD uses a limited amount of hazardous materials at the project site during routine maintenance from the use of motorized equipment for weed and vegetation control, trail maintenance, and routine patrols. The vehicles that the MCOSD use at the project site contain hazardous materials, including gasoline, lubricants, and other solutions. The MCOSD does not store any hazardous materials at the project site.

a) Transport, use, or disposal of hazardous materials – Less Than Significant

During construction, the MCOSD would use small quantities of fuel, lubricants, and other similar construction materials that can be hazardous. There may be a potential for releases to occur during construction that could affect construction workers, recreational users, and the environment. During operation of the project, hazardous materials exposure would not be significant, though maintenance activities involving heavy equipment may have the potential to result in releases of hazardous materials. However, there are laws and regulations that govern the transport, use, storage, handling, and disposal of hazardous materials to reduce the potential hazards associated with these activities. California Occupational Safety and Health Administration (CalOSHA) is responsible for developing and enforcing workplace safety standards, including the handling and use of hazardous materials. The federal Department of Transportation (DOT) and the California DOT (Caltrans) regulate the transportation of hazardous materials. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of accidental release. Therefore, the transport, use, storage, handling, and disposal of hazardous materials for the project would be adequately controlled through existing regulatory requirements and the potential impact during construction would be less than significant. Implementation of BMPs General-6 and Water-4 would ensure that upset from accidents are reduced to a less than significant level.

b) Accidental release of hazardous materials – Less Than Significant

As discussed above, the proposed project would involve construction activities that use limited quantities of hazardous materials, such as gasoline, diesel fuel, oils, and lubricants, and other similar chemicals. The proposed project would be subject to federal, state, and local laws and regulations governing hazardous materials. As a result, the project would not result in a significant impact related to this issue.

c) Emit or handle hazardous materials within one-quarter mile of a school – Less Than Significant

The closest school to the proposed trail improvements is San Marin High School, which is approximately 1.7 miles from project site, well over ¼ mile away. Other schools in the area are much further away, at least several miles. Although unlikely, the project could result in the release of hazardous materials from routine transportation or use of hazardous materials such as oils, lubricants and other fluids required for construction equipment. Releases would be limited to fluids used for construction equipment; which would be onsite in small quantities. Since the proposed project is located more than ¼ mile from a school, there is a very low potential for a spill to affect the school. Implementation of BMPs would control runoff from leaving the project sites and limit the potential spread of contaminate. Furthermore, the erosion control BMPs would reduce the risk of release or exposure of hazardous materials during construction would be low. Therefore, the potential for a hazardous materials release during construction that would result in increased exposure to hazardous materials at the nearby schools is very low and this impact is less than significant.

d) Included on a list of hazardous material sites – Less Than Significant

The Hazardous Waste and Substances Sites (Cortese) List is a planning document used by the state, local agencies, and developers to provide information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Environmental Protection Agency to updated Cortese List annually. A search of the current Cortese Lists identifies one site in Novato near San Marin High School, which is located over 1 mile from the project site (DTSC, 2018). Therefore, this impact would be less than significant.

e) Safety hazard for people residing or working within two miles of an airport – Less Than Significant

The nearest airports are the public Gnoss Field Airport in Novato, which is approximately 2.25 miles east of the project site, and the private San Rafael Airport, located over 9 miles to the southeast. The project site is located just outside the 2-mile Airport Land Use Commission referral area for Gnoss Field. No aviation hazards would result from modifications to trails in the preserve. There are no aviation hazards associated with the proposed project and no airfields in the project area. Therefore, this impact would be less than significant.

f) Interfere with an adopted emergency response/evacuation plan – Less Than Significant

The proposed project would not interfere with established emergency response plans or emergency evacuation plans (City of Novato, 2009). The project site is not currently used for emergency access and would not change or disrupt vehicular or pedestrian traffic in the site vicinity in a way that would have the potential to interfere with emergency response or evacuation. This impact would be less than significant.

g) Expose people or structures to the risk of wildfire – Less Than Significant

In accordance with California Public Resource Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, the Novato Fire Protection District has mapped areas of significant fire hazards because of fuels, terrain, weather, and other relevant factors. Based on this mapping, the project site has as a moderate risk (Novato Fire Protection District, 2018).

Although construction and maintenance equipment could generate sparks and could temporarily increase fire risk, the RTMP contains policies and BMPs to reduce this hazard. RTMP Policy SW.26 allows the MCOSD to temporarily or permanently close preserves or restrict uses in preserves to reduce fire risk during periods of high fire danger. In addition, the MCOSD equips its vehicles with fire extinguishers to address small fires ignited by construction activities before a problem develops. As a result, the project would not expose people or structures to a significant risk and this impact would be less than significant.

7.10 Hydrology and Water Quality

Hydrology and Water Quality: Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐

Hydrology and Water Quality: Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☒	☐	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
f) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
g) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐

Setting

The project site is within the Novato Creek watershed, with the eastern edge of preserve in the Rush Creek watershed. Novato Creek is the largest watershed in eastern Marin County and flows eastward through oak and bay forests, grasslands, the City of Novato, and into San Pablo Bay near the mouth of the Petaluma River and encompasses 45 square miles (Marin County Watershed Program, 2018; Figure 4). Hydrologic features in Mount Burdell Open Space Preserve include two small, unnamed creeks run through the preserve and Hidden Lake, one of Marin County's few vernal pools. Large proportion of preserve trails exhibit erosion and gullying (MCOSD, 2014b).

Table 4: Water Quality Policies and BMPs

Policies and BMPs	General Description
BMP General-3 Minimizing potential for erosion (including limiting work area footprint in sensitive resource areas)	Conduct road and trail activities in a manner that controls and minimizes the potential for soil erosion and contribution of sediment to wetlands. Implement the following as needed: • To minimize erosion and sedimentation, maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit and mark the allowable disturbance footprint with flagging or fencing. Following the end of work, scarify surface soils to retard runoff and promote rapid revegetation. Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
BMP General-6 Preventing or reducing potential for pollution	Ensure that actions are taken during ongoing road and trail project activities to prevent or reduce the potential for pollutants entering the MCOSD preserve. Implement the following as needed: • Prohibit, or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Require placement of fuel storage and refueling sites in safe areas well away from wetlands. Safe areas include paved or cleared roadbeds, within contained areas such as lined truck beds, or other appropriate fuel containment sites. Inspect equipment and vehicles for hydraulic and oil leaks regularly. Do not allow leaking vehicles on the MCOSD preserves and require the use of drip pans below equipment stored onsite. Require that vehicles and construction equipment are in good working condition, and that all necessary onsite servicing of equipment be conducted away from the wetlands. • Require all contractors to possess, and all vehicles to carry, emergency spill containment materials. Absorbent materials should be on hand at all times to absorb any minor leaks and spills.
BMP General-7 Including standard procedures (including Storm Water Pollution	When using contractors to perform vegetation management, related to road and trail project activities, the MCOSD will include some or all of the following standard procedures in those contracts. The contractor will work with the MCOSD natural resource staff to determine the optimal timing of contracted work. Many timing restrictions relate to protecting special-status species. Other types of timing restrictions include

Policies and BMPs	General Description
Prevention Plans and erosion control provisions) in construction contracts	timing to control invasive plants; timing to avoid migration, gestation, or flowering periods for special- status species; or timing work in wetlands to the dry season. • Establish a buffer of 100 feet from wetland and tidally influenced areas (i.e., from the ordinary high-water mark of flowing or standing water in creeks, streams, or ponds). Avoid construction work within this buffer area. o Within the buffer, limit work that may cause erosion to low flow periods. Low flow months for local creeks are typically August to October. For tidal areas, work will not occur within 2 hours of high tide events at construction sites when high tide is greater than 6.5 feet measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php). o If construction work cannot be fully avoided in wetlands and riparian areas, consult with the appropriate state and federal agencies to obtain permits. o Require the contractor to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality for road and trail project work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings. o The contractor will work with the MCOSD natural resource staff to identify any priority invasive plants that occur near the project work area, including the project footprint, access roads, staging areas, and similar work areas. The contractor agrees to comply with requirements to reduce the spread or transport of priority invasive plants related to construction activities. Requirements may include some or all of the following: o Conduct a training program for all field personnel involved with the proposed road and trail project prior to initiating project. The program will consist of a brief presentation by person's knowledgeable in the special-status species, sensitive resource, or invasive plants known from the project area. The program will include the following: a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impacts; and the workers' responsibility under the applicable environmental regulation. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). o Restrict work to periods when invasive plants are not in fruit or flower. o Establish dedicated area for cleaning vehicles, inside and out, of soil or invasive plant seeds or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving preserves. Within the wash areas, the tires and body of equipment will be brushed off or hosed down. o Inspect construction equipment for soil or invasive seeds or plant parts. Require contractors to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving preserves. o Dispose of green waste in a manner that does not spread invasive plants. Methods include onsite disposal in an already infested area;

Policies and BMPs	General Description
	offsite disposal to a cogeneration plant or an approved green waste composting facility).
BMP General-10 Road and trail inspections	Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding sensitive and/or special-status natural resources. Staff will record information pertaining to the status of biophysical resources that could be affected by road or trail use, maintenance, or management activities. These inspections will monitor for the spread of invasive, exotic plants that could affect sensitive and/or special-status native plant or wildlife habitats and any other changes that could create negative impacts to known sensitive and/or special-status native plant or wildlife populations in the immediate vicinity. Staff will report any findings and make recommended corrective actions if appropriate.
BMP Water Quality-1 Modifications to Road and Trail Management Actions to Protect Water Bodies, Wetlands, and Tidally Influenced Areas	Road and trail management activities will be restricted near wetlands and other waters to reduce the potential for sediment or pollutants to enter water bodies or wetlands. If work occurs during the dry season and is greater than 100 feet from creeks and wetlands, erosion control and water quality protection measures will not be necessary. • If possible, avoid work around water bodies, wetlands, and tidally influenced areas, including a buffer area of 100 feet around these areas (i.e., as measured from the top bank of creeks, streams, or ponds). • If construction work in wetlands, riparian areas, or tidally influenced areas cannot be fully avoided, consult with the appropriate state and federal agencies. This consultation may result in wetland delineation, permit applications, and mitigation that meets Countywide Plan and other regulatory requirements. • Within the 100-foot buffer, limit construction activities. Limit activities to least-harmful methods; restrict herbicides to those that are EPA-approved for use near water. Prohibit activities that disturb soil or could cause soil erosion or changes in water quality. • Within the 100-foot buffer, limit work that might cause erosion to low-flow or low-tide periods. Low-flow months for local creeks are typically August to October. For tidal areas, work will not occur within two hours of high-tide events at construction sites when high tide is greater than 6.5 feet as measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/ mtr/sunset.php). Within the 100-foot buffer, minimize erosion and sedimentation by maintaining erosion- and sediment- control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include weed-free straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
BMP Water Quality-2 Temporary	Temporary sediment-control practices will be implemented when new trail construction or existing trail improvements will result in greater than 1 acre of disturbance. Temporary practices may also be required when disturbance is less than 1 acre but close to a sensitive resource or has the potential to

Policies and BMPs	General Description
erosion and sediment control	discharge a significant amount of sediments or pollutants to surface water. Several of the listed temporary practices can also be used as post-construction stabilization measures: Information and standard details for temporary erosion-control BMPs can be found in the California Stormwater BMP Handbook – Construction (CASQA 2009). • Install temporary fencing around staging areas and along limits of construction when work areas are immediately adjacent to sensitive resources. This will limit the disturbance footprint and help protect resources, including native vegetation, wetlands, and streams, during grading operations. • Install linear sediment barriers to slow and filter stormwater runoff from disturbed areas. Fiber or straw roll barriers can also be spaced along the contours of a disturbed area after construction to prevent concentrated flow and stabilize the area until there is sufficient vegetation coverage. • Apply one or more of the following to restore or protect areas disturbed by excavation or grading operations: » tilling (minimum 6-inch depth) and seeding » hydromulch and tackifier » planting » straw or wood mulch » coir (jute) netting » biodegradable erosion-control blankets » plastic sheeting (only as an interim protection during storm events when construction site is still active) • Cover soil and loose material stockpiles with weighted plastic sheeting when inactive or prior to storm events. Active and inactive material stockpiles will be encircled at all times with a linear sediment barrier. • Manage sediment when diverting streamflow. When constructing trail or road stream crossings, a temporary clear-water diversion may be required. The following options will be considered for isolating the work area and protecting resources when diverting streamflow via gravity-fed flexible pipe or active pumping around the work area: sand or gravel bag cofferdam enclosed in plastic sheeting, water-filled dam (e.g., Aquadam), sheet piling, and turbidity curtains. Manage sediment during dewatering operations. The following options will be considered for applying or containing and treating sediment-laden water produced during dewatering operations: sprinkler system to open area (as long as there is no visible surface runoff), temporary constructed sediment basin or trap, rented sedimentation tank (e.g., Baker Tank).
BMP Water Quality-3 Erosion control measures	• Avoid the use of heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. • If no feasible alternative is available and staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit the disturbance footprint and flag or mark the allowable disturbance area in the field. Following the end of work, newly disturbed soils will be scarified to retard runoff and promote rapid revegetation. • Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include

Policies and BMPs	General Description
	decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants. • Leave the roots of target invasive trees and shrubs in place in areas with highly erosive soils or steep slopes. Stumps may be cut or ground down to the ground level. If work occurs during the dry season and is greater than 100 feet from water bodies and wetlands, erosion control and water quality protection measures will not be necessary.
Water Quality-4 Preventing or Reducing the Potential for Pollution	Include spill prevention and clean-up in annual staff training sessions. • Properly use, store, and dispose of chemicals, fuels, and other toxic materials according to manufacturer's specifications and agency regulations. • Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. • Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from the wetlands. • Require all contractors to possess, and all vehicles to carry, emergency spill containment materials. Absorbent materials will be on hand at all times to absorb any minor leaks and spills.
BMP Water Quality-5 Road and trail inspections (to protection water quality or other resources)	• Inspect roads and trails for conditions that might adversely affect water quality or other resources. Road and trail maintenance staff will use road/trail inspection forms to facilitate complete and consistent data capture and reporting of the following conditions: o concentrated flows on roads and trails that cause erosion, rilling, or gullying o runoff and effects to water quality of nearby habitats o the spread of invasive exotic plants near wetlands and waters o the status and quality of any known sensitive resources in the immediate vicinity that could be affected by road or trail use and/or maintenance Staff will report any findings and make recommended corrective actions if appropriate.
BMP Water Quality-6 Grading Windows	Restrict grading activity to the dry months (generally May 15 – October 15), when associated erosion will be reduced to the maximum extent possible.
BMP Water Quality-8 Proper disposal of excess materials	Avoid resource impacts when disposing of materials. Any excess material related to new construction, maintenance, or decommissioning (including soils, debris, trash, or other materials that need to be removed as part of management activities) will be disposed of at an appropriate site where materials could not impact sensitive resources. For example, grading-related excess soils or removed debris will not be placed in or around a water body or

<table>
<tr><th>Policies and BMPs</th><th>General Description</th></tr>
<tr><td></td><td>wetland, where the materials could be subject to erosion that would affect water quality.</td></tr>
<tr><td>BMP Water Quality-9 Sidecasting Construction Material</td><td>• Avoid sidecasting, or at a minimum contain and remove sidecast material when it has the potential to reach surface waters. The following “rules of thumb” based on Fishnet 4C Guidelines (2007) will be used as guidance:
<table>
<tr><th>Slope gradient</th><th>Distance to watercourse</th><th>Sidecast rule</th></tr>
<tr><td>Any slope</td><td>Will likely enter watercourse</td><td>Not allowed</td></tr>
<tr><td>≤20%</td><td>≥150 feet</td><td>Allowed</td></tr>
<tr><td>≤50%</td><td>≥300 feet</td><td>Allowed</td></tr>
<tr><td>> 50%</td><td>Long vegetated slope</td><td>Allowed</td></tr>
<tr><td>>50%</td><td>Shorter sparsely vegetated slope</td><td>Not allowed</td></tr>
</table></td></tr>
</table>

Violate any water quality standards or waste discharge requirements – Less Than Significant with mitigation

Construction along the new and existing trail alignments could be a source of sediment affecting water quality. During construction, the project could affect water quality by erosion from grading and earthmoving operations, a release of fuels or other chemicals used during construction, or a release of materials generated during demolition and construction. Grading and earthmoving would expose soil during construction and could result in erosion, with excess sediments carried in stormwater runoff. The earthwork may occur after October 15 during the rainy season, which is inconsistent with BMP Water Quality-6 Grading Windows, and has the potential result in significant impacts to water quality and violate water quality standards if the MCOSD does not implement appropriate mitigation measures. Additionally, the project could result in violation of water quality standards if the MCOSD does not properly use and storage of vehicles, fuels, wastes, and building materials on site.

The MCOSD designed the proposed trail improvements consistent with the policies, design standards, and BMPs contained in the RTMP. Specifically, the project includes frequent drain dips and other water-control features to minimize concentrated trail surface-water runoff. In addition, the RTMP identifies BMPs that require the installation of temporary erosion control measures during construction, as required by BMP Water Quality-2 and restrictions on the use and storage of vehicles and hazardous materials (e.g. fuel, oils, and other similar materials), as required by BMP General-6.

These BMPs, policies, and design standards would minimize potential water quality impacts from construction and operation of the proposed trails. Except for BMP Water Quality-6 Grading Windows, the proposed project incorporates the policies, BMPs, and design guidelines from the RTMP that addresses potential water quality impacts. As described above, conducting earthmoving activities during the rainy season has the potential to result in significant impacts to water quality and result in violation of water quality standards, unless the project incorporates appropriate mitigation to address this impact. The mitigation measures described below will require the MCOSD to monitor weather for significant storm events and prepare the site before the storm reaches the area by implementing appropriate mitigation measures and monitoring the site during the storm. With these mitigation measures, the project’s impacts would be less than significant.

One of the primary objectives of the project is to reduce trail erosion and sedimentation into nearby waterbodies. The long-term effect of implementation of the project would be to improve water quality over existing conditions. This impact would be less than significant.

Mitigation Measures

Hydrology 1 – Sediment Control Practices: The MCOSD will use a combination of sediment control practices to trap soil eroded by rain, flowing water, and wind. The MCOSD will install sediment control practices in accordance with the project schedule, at the direction of a Qualified SWPPP (Storm Water Pollution Prevention Plan) Practitioner (QSP) or designated representative. Also, the MCOSD shall refer to the California Stormwater Quality Association (CASQA) California Stormwater BMP Handbook, Construction, Fact Sheets SE-1 through SE-14 for additional information on proper installation and uses of Sediment Control Practices (CASQA, 2003).

Hydrology 2 – Practices to Reduce the Tracking of Sediment onto Public and Private Roads: The MCOSD will employ the following control practices to reduce the tracking of sediment onto public and private roads. These practices would help prevent the deposition of sediments into local storm drains. The MCOSD will refer to the CASQA California Stormwater BMP Handbook, Construction, Fact Sheets TC-1 and TC-2 (CASQA, 2003). The MCOSD shall provide an effective means of minimizing the tracking of mud and dirt onto public roads by construction vehicles and limit access for all construction activity traffic to the stabilized construction entrances and exits.

Hydrology 3 - Practices to Minimize Contact with Storm Water: The following BMPs will serve to minimize contact of construction vehicles, equipment, and materials with stormwater. For further information, see also the CASQA California Stormwater BMP Handbook, Construction, Fact Sheets NS-8 through NS-10 (CASQA, 2003):

- To prevent and control leaks from equipment and vehicles and to minimize the possibility of toxic pollutant discharge, the MCOSD will prohibit any major maintenance or repair work on equipment or vehicles within the preserve.
- To minimize the potential of polluted runoff, the MCOSD will implement the following procedures (for further information, see also the CASQA California Stormwater BMP Handbook, Construction, Fact Sheets WM-1 and WM-2 (CASQA, 2003)):
    - Label and store all hazardous materials according to federal and state regulations;
    - Store chemicals in watertight containers (with appropriate secondary containment to prevent any spills or leaks) or in a completely enclosed storage shed;
    - Train construction staff in proper material delivery, handling, and storage practices;
    - Prohibit the application of hazardous chemicals outdoors during wet weather;
    - Cover and berm loose stockpiled materials that the MCOSD is not actively using for 14 days or longer;
    - Minimize exposure of construction materials to precipitation;
    - Place all fertilizers and other landscape materials in containers when the MCOSD is not actively using them for 14 days or longer;
    - Discontinue the application of any erodible landscape material within two days before a forecasted rain event or during periods of precipitation; and
    - Stack erodible landscape material on pallets and cover or store such materials when not in use.

Hydrology 4 – Spill Prevention and Control: This section describes measures to prevent, control and clean-up spills. The MCOSD will cleanup spills immediately with trained staff or a licensed cleaning company, if appropriate.

Minor spills are those which the MCOSD can control with onsite personnel. After contacting local emergency response agencies, the following actions should occur upon discovery of a minor spill:

- Contain the spread of the spill;
- If the spill occurs on paved or impermeable surfaces, cleanup using dry methods (i.e., absorbent materials, cat litter and/or rags);
- If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike and dig up and properly dispose of contaminated soil;
- If the spill occurs during rain, cover the affected area to avoid runoff; and
- Record all steps taken to report, contain, and clean-up the spill.

Major spills are those that on-site personnel are unlikely to control. The MCOSD will not attempt to control major spills until the appropriate and qualified emergency response staff have arrived at the site. In addition to local authorities, the MCOSD will notify the Governor's Office of Emergency Services Warning Center at (800) 852-7550. For spills of federal reportable quantities, the MCOSD will also notify the National Response Center at (800) 424-8802. The MCOSD will also send a written report to all notified authorities.

Hydrology 5 – Inspection and Maintenance: The MCOSD's QSP will conduct inspections of the construction site prior to anticipated storm events and after actual storm events. The QSP shall determine any necessary stormwater pollution prevention measures needed onsite, 48 hours prior to any likely precipitation event. A likely precipitation event is any weather pattern that the National Weather Service forecasts to have a 50% or greater probability of producing precipitation in the project area. During extended storm events, the QSP will make inspections during each 24-hour period. The QSP or his designated representative will conduct a site inspection weekly before each anticipated storm event and after each actual storm event, and at least once every 24 hours during extended storm events. The QSP shall inspect all immediate access roads to the site daily and prior to any rain event.

Pre-storm inspections are to ensure that the MCOSD properly installed and maintained the BMPs. Post-storm inspections are to assure that the BMPs have functioned adequately. Each inspection shall: (1) include all structural and non-structural BMPs installed at the site; (2) evaluate existing BMPs for adequacy and proper implementation; and (3) determine the necessity of additional BMPs to avoid sedimentation of waterways. If the MCOSD implements additional or modified BMPs, it will initiate the improvements beginning within 72 hours of identification and completed as soon as possible. The MCOSD will consider a storm event complete after 48 hours of no rainfall. The goals of these inspections are:

- To identify areas contributing to stormwater discharge;
- To evaluate whether the measures to reduce pollutant loadings are adequate, properly installed, and functioning in accordance with CASQA California Stormwater BMP Handbook, Construction (CASQA, 2002); and
- To determine the necessity of additional control practices or corrective maintenance activities.

The MCOSD will make equipment, materials, and workers available for rapid response to failures and emergencies as described above and will perform all corrective maintenance to BMP's as soon as possible, allowing for appropriate worker safety.

b) Substantially decrease groundwater supply – Less Than Significant

The project site lies within the Novato Valley Groundwater Basin, which is a 32-square mile structural depression north of San Rafael and west of San Pablo Bay. Streams discharging to San Pablo Bay drain the basin and are subject to tidal influences in their lower reaches. Water in the basin occurs primarily in semi-confined alluvial deposits composed of unconsolidated clay, silt, sand, and intermittent gravel lenses. The alluvial deposits range from 60 to 200 feet thick and 25 to 50 feet deep wells yield an average of 50 gallons per minute. Groundwater type is typically calcium bicarbonate with the tidally influenced alluvium showing sodium chloride type. Tidal fluctuations can introduce brackish water into the groundwater reservoir, degrading water quality (MCOSD, 2014a).

The project would improve and enhance the existing, compacted Eagle Rim Trail and would decommission trails 11251, 11116, and 11060, totaling 3,022 linear feet. The MCOSD would not use groundwater during its construction and operation of the trails. The project site does not contain any impervious surfaces and the project would not require the use of any paving. Although the project would slightly decrease the amount of compacted surfaces in the preserve because the project would adopt an existing trail, with only a small amount of new construction, and decommission several other trail segments. Additionally, the MCOSD would improve the existing trail and design the new segments to be hydrologically invisible. Because of the RTMP's measures incorporated into the project, such as outsloping, grade reductions, and other similar measures, the proposed trail improvements would not significantly disturb the flow of water over the project site. This impact would be less than significant.

c) Alter existing drainage in a manner which would:

c.i) Result in erosion or siltation – Less Than Significant

The project site is within the Novato Creek Watershed. Hydrologic features in Mount Burdell Open Space Preserve include two small, unnamed creeks run through the preserve and Hidden Lake, one of Marin County's few vernal pools. Many of the preserve trails exhibit erosion and gullying (MCOSD, 2014b). There are no creeks near the project site with the exception of the decommissioning of Trail 111060, which is located near San Carlos Creek, a tributary of Novato Creek. Drainage at the site sheet flows over land and collects in valleys and dips in the land that eventually lead to Novato Creek and its tributaries.

The proposed project includes improving the existing Eagle Rim Trail to be a 4,815-foot long narrow trail, with an average grade of 9.34 percent, that predominately meanders along the northwestern corner of the Mount Burdell Open Space Preserve. Proposed improvements would ensure the trail is properly drained, minimize future maintenance, improve sustainability, and improve user safety. To meet the RTMP Policy SW.4: Overall Reduction of Road, Trail and Visitor Impacts, the proposed project includes the decommissioning of three unsanctioned trails: Trail 11251, 1116, and 11060. Most of the decommissioning would include scarification of the trail, installing dewatering features, straw application to prevent erosion, installation of split rail fencing if needed, and installation of trail closure signage at top and bottom of both segments. The net result of the proposed project is to decrease the area of compacted surfaces and the project includes installation of drainage features to dewater the trails, including outsloping, water dips, reduced running slope, and other BMPs aimed at making the trails hydrologically invisible. Therefore, the proposed project would not substantially alter existing drainage patterns in a manner that increases erosion and sedimentation and this impact is less than significant.

c.ii) Substantially increase surface runoff causing flooding – Less Than Significant

Drainage improvements to the trails would include installation of rolling dips and outsloping of the trail. Rolling dips are drainage dips excavated into the trail to convey water off the trail. This is the preferred technique to get water off an existing trail. Outsloped tread is a technique that alters the trail to be lower on the outside or downhill side of the trail than it is on the inside or bank side. Outsloping lets water sheet across the trail naturally. The tread would be outsloped at approximately five percent. The project would entail the construction of approximately 30 rolling dips at various locations, to be determined in the field during construction. The net effect of these improvements is to move water off the trail surfaces as quickly as possible and drain them into the adjacent natural landscape. With these improvements, the project would reduce the concentration of runoff and water velocity over what currently occurs on these trails and this impact would be less than significant.

c.iii) Create runoff which would exceed capacity of stormwater drainage systems or provide additional sources of polluted runoff – Less Than Significant

Drainage improvements to the trails would include installation of rolling dips and outsloping of the trail. Rolling dips are drainage dips excavated into the trail to convey water off the trail. This is the preferred technique to get water off an existing trail. Outsloped tread is a technique that alters the trail to be lower on the outside or downhill side of the trail than it is on the inside or bank side. Outsloping lets water sheet across the trail naturally. The tread would be outsloped at approximately five percent. The project would entail the construction of approximately 30 rolling dips at various locations, to be determined in the field during construction. The net effect of these improvements is to move water off the trail surfaces as quickly as possible and drain them into the adjacent natural landscape. With these improvements, the project would reduce the concentration of runoff and water velocity over what currently occurs on these trails and this impact would be less than significant.

c.iv) Impede or redirect flood flows – Less Than Significant

The project would not be located within a 100-year flood hazard zone (Marin Map, 2018). The nearest dam is at Stafford Lake, located approximately three miles west. With the proposed modifications to the trail, the project would not affect flood flows through the site and not affect the risk of flooding. The project would not be located within a 100-year flood hazard zone and would not expose people or structures to flooding hazards; therefore, this impact would be less than significant.

d) Risk release of pollutants due to inundation by seiche, tsunami, or flood – Less Than Significant

The project site is not located near a large body of water that would be subject to seiches or tsunami. Elevations within the Preserve range from about 400 feet to 1,400 feet above sea level, and the site is located several miles away from areas subject to tsunamis.

As a result of the distance from the San Francisco Bay or the Pacific Ocean and the elevation of the project site, it would not be affected by seiche or tsunami. Based on the slope stability analysis described in Geology and Soils Section above, mudflows are not likely to be a problem in the project area and implementation of the trail improvements would be less than significant.

e) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? – No Impact

The project does include the construction or modifications of any housing units. Therefore, the project will have no effect on the placement of housing within a 100-year flood hazard area.

f) Place within a 100-year flood hazard area structures that would impede or redirect flood flows? – No Impact

The proposed trail improvement project is located near the peak of Mount Burdell and not near any drainage courses near the top of the watershed site. Therefore, the project is not located within a 100-year flood hazard area and would not have any impact on the flow of flood waters.

g) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? – Less than Significant

As described above, the project is located near the top of the watershed and water traverses the area in sheet flow. There are no streams, creeks, drainages, ponds, or other water features that are subject to flooding. There are two drainage channels that are between 1,000 and 2,000 from the project site and both channels drain away from the project. The Stafford Lake dam on Novato Creek is approximately three miles from the project site and is the closets dam to the trail. It is also at a much lower elevation that the project. Therefore, the project will have a less than significant impact on exposing people flooding hazards.

7.11 Land Use and Planning

Land Use and Planning Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☒	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Setting

The project site is located within the Mount Burdell Open Space Preserve in the City of Novato. The preserve is surrounded by Olompali State Park to the northeast, private agricultural land to the northwest and west, and residential development in the City of Novato to the south and east. Mount Burdell currently contains 24.06 miles of roads and trails and is used for public recreation including horseback riding, hiking, walking, biking, and dog walking.

a) Physically divide an established community – Less Than Significant

The proposed trail project would not physically divide an established community. The existing trails are in the middle of an existing open space preserve. The proposed modifications to the Eagle Rim trail, designation, and decommissionings would not otherwise divide or change an established community. This impact would be less than significant.

b) Cause a significant environmental impact due to conflict with any land use plans, policies, or regulations – Less Than Significant

The proposed project is located within the Mount Burdell Open Space Preserve, which is designated as Open Space (OS) and zoned as Restricted Open Space (OS) by the City of Novato. The zoning district is intended to support public recreation and the proposed project supports and continues that use. Therefore, this impact would be less than significant.

7.12 Mineral Resources

Mineral Resources Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Setting

The State Mining and Reclamation Act of 1975 requires that counties adopt policies to protect certain state-designated mineral resource sites from land uses that preclude or inhibit mineral extraction needed to satisfy local market demand on a timely basis. The purpose of the act is to ensure that construction materials are available to all areas of the state at a reasonable cost. The California State Department of Conservation Division of Mines and Geology has designated eight sites in Marin County as having significant mineral resources for the North Bay region. Of the eight mineral resource sites designated in Marin County, two no longer meet the minimum threshold requirements and are exempt from application of mineral resource policies. Of the remaining six sites, two sites are located within an MCOSD preserve, including Ring Mountain and Mount Burdell Open Space Preserve.

The Mount Burdell Open Space Preserve, which has been designated as Mineral Resource Zone Class 2. This site contains hard, dense andesite suitable for asphaltic concrete aggregate. It is owned by the MCOSD and located within Novato city limits. It is a management policy of the

MCOSD to prohibit the collection or exploitation of minerals from its lands, as these activities are incompatible with the open space use of the land.

a) Result in the loss of availability of mineral resources – Less Than Significant

The project would improve the existing Eagle Rim Trail to support incorporation of the trail into the MCOSD trail system as a hiker/biker trail. Proposed improvements would ensure the trail is properly drained, minimize future maintenance, improve sustainability, and improve user safety. The project does not include any mineral extraction and, therefore, does not have any potential to affect mineral resources.

b) Result in the loss of availability of a locally important mineral resource recovery site – No Impact

The project site is not identified as a locally important mineral recovery site and, therefore, the project would have no impact under this criterion.

7.13 Noise

Noise Would the project result in:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

Setting

Existing noise levels at most of the MCOSD's preserves are similar to that found in rural areas of Marin County, except where preserves abut developed residential areas or major transportation facilities such as U.S. 101. Near residential areas or roadways, noise levels within preserves would be dominated by those sources. For other areas, noise levels within and adjacent to preserves typically range from 40-60 dBA during daytime, and from 20-40 dBA at night (MCOSD, 2014a). The Mount Burdell Open Space Preserve is in the City of Novato and is surrounded by open space and residential development and is typically very quiet with noise levels in the 35 to 55 dBA range during the daytime.

Table 5: Noise Policies and BMPs

Policies and BMPs	*General Description*
CWP NO-1.2: Minimize Transportation Noise	Ensure that transportation activities do not generate noise beyond acceptable levels, including in open space, wilderness, wildlife habitat, and wetland areas.
CWP NO-1.3: Regulate Noise Generating Activities	Require measures to minimize noise exposure to neighboring properties, open space, and wildlife habitat from construction-related activities, yard maintenance equipment, and other noise sources, such as amplified music.
CWP Implementing Program NO-1.i: Regulate Noise Sources; and Marin County Ordinance 3431	Sections 6.70.030(5) and 6.70.040 of the Marin County Code establish allowable hours of operation for construction-related activities.
PRI Policy T1g	The MCOSD will prohibit the use of motorized vehicles on open space, with authorized exceptions.
RTMP Policy SP-1: Lease/License/Other Form of Approval Required for Land Management or Utility Activities	Consistent with MCOSD's Nonconforming Use Policy, all agencies and service providers requesting access to open space lands will be required to obtain a lease, license, or other form of approval from the MCOSD detailing the purpose and timing of their activities. The MCOSD may impose fees and conditions. Such conditions may include, but will not be limited to, the timing of the activity with respect to seasonal, weather, the protection of natural resources, and the location of the activity. The MCOSD Nonconforming Use Policy provides specific guidance for permitting use of open space by utilities, water districts, and other similar entities.
RTMP Policy SP-2: Permit Required for Organized Recreational Activities or Events	All private parties or other public agencies requesting access to the MCOSD preserves for recreation-related or other special events will be required to complete and obtain a permit detailing the purpose and timing of their activities. The MCOSD may impose fees and conditions. Such conditions may include, but will not be limited to, the timing of the activity with respect to seasonal and weather concerns, the number of participants, the protection of natural resources, and the location of the activity. An administrative fee will be charged by the MCOSD for reviewing and granting any permits. Additional fees may be incurred by the permit applicant for administration and monitoring of the event by the MCOSD staff, or if compliance with the California Environmental Quality Act or any environmental permit is required. The MCOSD insurance and indemnity requirements will also apply.

Policies and BMPs	*General Description*
RTMP BMP General-1: Limit Work Area Footprints in Sensitive Resource Areas	Limit the size of construction-related road and trail management activities to the minimum size needed to meet project objectives. BMPs include: Minimize project footprint. Minimize the size of the work area, including the project area, access roads, and staging areas. Wherever possible, use existing upland roads, trails, and other disturbed areas for project activities in order to reduce unnecessary disturbance, minimize soil and water erosion, and reduce overall project costs. Minimize soil disturbance. Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants
RTMP BMP Invasive Plants-4: Limited Soil Disturbance	Soil disturbance during road and trail projects will be minimized to reduce the potential for introduction or spread of invasive plant species, to protect topsoil resources and to reduce available habitat for new invasive plant species: Plan all road and trail management activities to disturb as little area as possible.
RTMP BMP Construction Contracts-1: Standard Procedures in Construction Contracts	Restrict soil disturbance and import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. This includes the footprint of access roads, staging areas, and areas of temporary disturbance. The contractor and its staff and subcontractors will agree not to drive off road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor will agree that if soil excavation is required, every attempt will be made to have a balanced cut-and-fill project that reuses all native soils on site.
RTMP BMP Noise-1: County Noise Ordinance Requirements	For all maintenance and construction projects using powered or heavy equipment, implement the day and time restrictions for equipment operation and maintenance specified by Marin County Ordinance 3431, Construction Noise.
RTMP BMP Noise-2: Noise Control during Construction within and Adjacent to Sensitive Wildlife Populations	Ensure than equipment and vehicles utilize the best available noise-control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) to prevent disturbance of nearby wildlife populations.

Policies and BMPs	*General Description*
	Except for emergency projects, prohibit nighttime operations or planned operations during breeding season in areas adjacent to sensitive wildlife populations.

a) Increase ambient noise levels in excess of established standards – Less Than Significant

Noise would be generated by the project during construction from the use of equipment for grading and other activities required for the proposed trail upgrades. Construction would begin in fall of 2018 and would require up to five MCOSD staff members and a variety of volunteers for approximately four weeks. Equipment would include a mini excavator, carriers, generators, ATVs, a jackhammer, skillsaw, sawzall, drum roller, plate compactor, and hand tools (hedge trimmers, chainsaws, etc.). Earthwork involving heavy equipment would end by October 15, (BMP Water -6) to prevent erosion during the rainy season. Construction would largely take place four days a week, Monday through Thursday, from 7:00 a.m. to 4:00 p.m.

During ground clearing activities including trail decommissioning, noise levels could reach a maximum of 89 decibels on the A-weighted scale (dBA). Project work would be within the interior of the preserve well away from private property (noise impacts to biological resources is discussed above in *Section E, Biological Resources*. The project could expose these receptors to noise levels of 70 to 85 dBA during construction (FHWA, 2006).

Construction noise impacts would be short-term and would only occur Monday through Friday from 7:00 AM to 4:00 PM, over a period of about four weeks. During this time, the MCOSD would comply with the BMPs found in the RTMP, which include BMP Noise-1 and BMP Noise-2. BMP Noise-1 requires compliance with Marin County Ordinance 3431, Construction Noise. This ordinance adds Sections 6.70.030(5) and 6.70.040 to the Marin County Code related to construction activities and related noise, and penalties for violations. Under this code, construction activities are limited to Monday through Friday from 7:00 AM to 6:00 PM, and Saturday from 9:00 AM to 5:00 PM. The ordinance does not allow construction on Sundays or holidays. The actual work impact would be less than required by the code, in that the MCOSD's trail staff usually works only four days a week, Monday through Thursday.

Over time, use of the trail could increase either with or without the project, depending on the demand for hiking trails in this vicinity. Designating the Eagle Rim Trail would include publishing the trail on maps of the preserve, which could increase use of the trail. Increased use of the trail could also result in increased noise levels. However, this impact is not significant because any noise from hikers and cyclists consists either of the sound a human-powered vehicle or of unamplified voices and further these users are already in the preserve and the use of the preserve would not change as a result of the official designation. These noises would not be significantly loud and are consistent with the sound generated by other recreational users of the preserve, including hikers and equestrians. The project would not result in a substantial permanent increase in ambient noise levels in its vicinity when compared to existing conditions. As stated in the RTMP EIR, Marin County Code and the MCOSD Code prohibit excessive noise generated by recreational users of the open space preserves (MCOSD, 2014a). Therefore, the project would not result in a substantial permanent increase in ambient noise this impact would be less than significant.

b) Generate excessive groundborne vibration or noise levels – Less Than Significant

Groundborne noise is experienced inside a building or structure from vibrations produced outside of the building and transmitted as ground vibration between the source and receiver. Groundborne noise can be a problem in situations where the primary airborne noise path is blocked, such as in the case of a subway tunnel passing near homes or other noise-sensitive structures.

There are no adopted state or local policies or standards for groundborne vibration. The average person is quite sensitive to ground motion, and the human body can detect levels as low as 0.50 millimeters per second (0.02 inch per second), when background noise and vibration levels are low. Vibration intensity is expressed as peak particle velocity (PPV), the maximum speed at which the ground moves while it temporarily shakes. Since groundshaking speeds are very slow, PPV is measured in inches per second. The Federal Railway Administration and the Federal Transit Administration have published guidance relative to vibration impacts. According to the Federal Rail Administration, fragile buildings can be exposed to groundborne vibration PPV levels of 0.5 inch per second without experiencing structural damage. Caltrans recommends that extreme care be taken when sustained pile driving occurs within 25 feet of any building, or within 50 to 100 feet of a historic building or a building in poor condition. Groundborne vibration from construction activities that involve “impact activities,” primarily pile driving and use of a hoe ram to break concrete, could produce detectable or significant vibration at nearby sensitive buildings and sensitive receptors unless the project includes proper mitigation.

The proposed project’s noise and vibration generating construction activities would involve shallow excavation and ground disturbance. The project would not include any pile driving or blasting. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. This analysis applies a significance threshold of cosmetic damage to buildings of 0.5 inch per second (in/sec) PPV. Typical vibration levels from various types of construction equipment at 25 feet are listed below.

Table 6: Groundborne Vibrations

Vibration Source	Peak Particle Velocity (in/sec)a At 25 Feet
Large vibratory compactor (Truck-mounted)	0.210
Large bulldozer/earthmoving equipment	0.089
Loaded trucks	0.076

Source: FTA, 2006.

[a.] Vibration amplitudes for construction equipment assume normal propagation conditions.

[b.] By comparison, pile driving activities result in 1.518 PPV (in/sec) at 25 feet.

As indicated in the table above, project-related construction activities would generate vibration levels well below the 0.5-in/sec PPV vibration threshold for adjacent buildings. This would be true even if two pieces of equipment (e.g., excavator and dozer) were both operating 25 feet from a structure and the closest residence is located approximately 1.6 miles away from the closest construction activities. Therefore, vibration effects on adjacent or nearby offsite buildings or

structures would be less than significant. Following completion of construction, there would be no permanent exposure of persons to or long-term generation of excessive groundborne vibration or groundborne noise levels.

7.14 Population and Housing

Population and Housing Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) Induce unplanned population growth – Less Than Significant

The project site is an open space preserve used for recreation purposes, including horseback riding, hiking, dog walking, and bike riding. The site is undeveloped except for the trails and provides no housing or business opportunities. The project would not affect existing infrastructure, modify the Novato General Plan or zoning designations, or result in the need for new workers. The proposed project would improve and existing trail and incorporate it into the MCOSD trail system for use by hikers and cyclists. With implementation of the associated trail decommissionings, the overall trail network would be decreased because of the project. Therefore, the project would have a less than significant impact on population growth in the area.

b) Displace people or housing – No Impact

As discussed above, the preserve does not contain any housing. The proposed project is in an area that the MCOSD manages as protected open space. There are no residential units within the preserve and, as such, the project would not displace any existing housing or people. Therefore, the project would have no effect on this issue area.

7.15 Public Services

Public Services Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

Setting

The project site is in the City of Novato and is served by the Novato Fire Protection District and City of Novato police department. The project site is an open space preserve owned and maintained by the MCOSD and includes no park facilities (restrooms, playgrounds etc.). The San Andreas, Middle Burdell and Cobblestone fire roads provide emergency access within the preserve.

a) Create adverse physical effects from increased need for government services – Less Than Significant

The project would not generate the need for new or altered fire, police, school, park, library, or other public facilities. Existing emergency response personnel would serve the site, and the project would not increase emergency response demands. Existing emergency access would be maintained during both construction and operation and, therefore, the project would not affect existing public services.

7.16 Recreation

Recreation Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

Setting

The project site is a Marin County Open Space preserve that is used for recreation, including horseback riding, hiking, biking, and dog walking, located in the City of Novato.

a) Increase the use and deterioration of existing parks and facilities – Less Than Significant

The proposed project includes modifications to the existing trails to reduce erosion and sedimentation and to improve recreational experience by reducing the grade of the trail and improving sight lines. These changes would have a net improvement on sustainability and durability of the trail facilities and would not impact other regional or local parks. As stated in the project description, MCOSD expects the level and types of recreational use in the preserve to remain largely the same as existing use patterns upon completion of the project.

The preserve is already used extensively for mountain biking and hiking and the incorporation of the trail into the adopted system would not likely change its use patterns. The 2016 Marin County Parks Visitor Study Report documented that over half of the people recreating in the MCOSD preserves lived within one mile of the preserve and over 76 percent live in Marin County (Marin County Parks, 2016). Adopting the Eagle Rim Trail for use by hikers and cyclists would not likely to significantly change circulation patterns. Implementation of the project would legalize existing use patterns.

The project includes decommissioning of existing unsanctioned trails. The removal of these trails would not result in significant impacts to other trails in a manner that could result in the deterioration of these facilities. Although the project would reduce the actual linear feet of trail within the preserve, the decommissioning would eliminate steep and poor performing trails and improve the Eagle Rim Trail to be more sustainable and, thus, less likely to deteriorate.

The MCOSD manages approximately 250 miles of roads and trails within its 16,000 acres of open space preserves (MCOSD, 2014b), which is some of the highest density of road and trails within a

preserve or park system within the Bay Area. Region 4, which includes the Mount Burdell Open Space Preserve, has 59 miles of roads and trails. The project proposed to decommission three existing unsanctioned trails that represent over 3,000 linear feet of trails. The removal of these trails is necessary to reduce erosion and sedimentation within the watershed and to reduce impacts on plant and wildlife habitat. These decommissionings would not result in significant impacts to other remaining roads and trails. The loss of little over a mile of trails will not significantly change the density of trails within Region 4. Additionally, BMP General-10 requires the MCOSD to conduct regular inspections of its roads and trails, which would happen regardless of whether the district implements this project. If, through this monitoring, the MCOSD identifies any substantial deterioration of existing trails, it will implement appropriate repair and maintenance activities to fix this impact. Therefore, the decommissioning of these trails will not have a significant impact on other existing trail facilities and this impact is less than significant.

b) Create adverse environmental impacts from construction or expansion of recreational facilities – Less Than Significant

The project area includes a network of fire roads and trails (official MCOSD trails and unsanctioned trails) used for ongoing recreation, including horseback riding, hiking, biking, and dog walking. As described above, the proposed project would upgrade existing recreational trails to reduce erosion and sediment impacts, improve user access and safety, and allow hikers and cyclists on the Eagle Rim Trail. As a result, this impact would be less than significant.

7.17 Transportation

Transportation and Traffic Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐

Transportation and Traffic Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☒	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

Setting

The project is within the City of Novato and is subject to the City of Novato General Plan. Access to the project site is via San Andreas Drive, off San Marin Drive. The Transportation Authority of Marin (TAM) is the congestion management agency and the transportation sales tax authority for Marin County. As the congestion management agency, TAM is responsible for managing a variety of transportation projects and programs in Marin County, receiving federal, state, regional, and local funds, working closely with all eleven cities and towns as well as the county. TAM prepares a Congestion Management Plan, monitors levels of service on the county's roadways and works to improve all methods of transportation locally and regionally. The 2015 Congestion Management Plan is the most recent biennial update.

a) Conflict with plans, ordinances, or policies addressing the circulation system – Less Than Significant

The proposed project would not have a significant impact on traffic. The Eagle Rim Trail is an existing trail with decades of established hiking and biking use patterns and history. The project would not include any parking to support increased car or truck trips to and from Eagle Rim Trail. While designating the trail would increase its visibility to the public at large, as the MCOSD would add the trail to its maps, increased use would largely result from the local communities. Since the project would not result in a significant increase in traffic, it would not conflict with Marin County's Congestion Management Program.

The proposed project would not have significant impacts on public roads, as the purpose of the project is to modify existing trails to reduce their environmental impacts, improve safety, and increase opportunities for hiking and cycling in the preserve. Some increased use may occur because of the trail improvements and the change in use designation for the Eagle Rim Trail. However, any increase in use is not likely to be significant because parking capacity in the adjacent neighborhood is limited. This impact would be less than significant.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? – Less than Significant

As described in the section above, the project will have less than significant impact on the congestion management program.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The proposed project is located about two miles from the Marin County Airport at Gnoss Field and approximately ten miles from the San Rafael Airport. The proposed project is to modify an existing unsanctioned trail. The improvements would not include and elevated structures or facilities that would interfere with air traffic. Therefore, the project will not have a less than significant impact on air traffic patterns.

d) Increase hazards due to a geometric design feature or incompatible uses – Less Than Significant

The project site is located within an open space preserve and no project components are located on area roadways. The project does not involve any activities that would affect traffic or transportation hazards on existing streets or roads and, therefore, this impact would be less than significant.

e) Result in inadequate emergency access – Less Than Significant

Emergency access to the project site is via San Andreas Drive and San Andreas Fire Road. The City of Novato Police Department and Fire Protection District provide emergency service. The nearest station is located on San Ramon Way, approximately 1.75 miles south of the project site.

As discussed above, emergency access to the existing trails is available from San Andreas Drive and San Andreas Fire Road. The existing and proposed trails are too narrow to allow access for

emergency vehicles. During construction, access to the project site would be more limited because of construction equipment and personnel; however, the trails would be closed to recreation and emergency access would be maintained during construction. After construction, use of the project site for recreation would continue similar to current conditions. However, the project would improve access for rangers and emergency responders on foot or using all-terrain vehicles. Overall, the project would have a less than significant impact on emergency access.

f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? – Less than Significant

The Marin Countywide Plan and Marin County's Congestion Management Program contain policies to encourage non-vehicle modes of travel and the proposed project would be consistent with these plans. Additionally, the project implements the RTMP, which encourages pedestrian and bicycle modes of travel. Therefore, the project would have a less than significant conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities.

7.18 Tribal Cultural Resources

Tribal Cultural Resources Would the project:	Potentially Significant Impact	Less than significant with Mitigation	Less-than-significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☐	☐	☒	☐

Tribal Cultural Resources Would the project:	Potentially Significant Impact	Less than significant with Mitigation	Less-than-significant Impact	No Impact
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Setting

Assembly Bill (AB) 52 is a recent amendment to CEQA requiring lead agencies to consult with Native American tribes who have provided notice to the public agency of their interest in such a consultation. AB 52 defines tribal cultural resources as either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

The Marin County Open Space District has received two such notices, one from the Federated Indians of Graton Rancheria (Rancheria) and one from the Ione Band of Miwok Indians. On

February 28, 2018, the MCOSD sent a letter to the Rancheria and the Ione Band of Miwok Indians. The MCOSD did not receive a reply from Ione Band of Miwok Indians Tribe and received an email from the Rancheria acknowledging receipt of the County's notice and requesting consultation. On April 24, 2018, MCOSD spoke with representatives from the Rancheria to discuss the project. The Rancheria noted that the tribe considers Mount Burdell to be an important tribal cultural resource within the meaning of CEQA (Public Resources Code Section 21074(a)(1)(A)-(B) and expressed concerns that adoption of the trail may increase use of the mountain and adversely affect the resource.

a) Result in a substantial adverse change in a tribal cultural resource that is:

a.i) Listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources – Less than Significant

Mount Burdell is not listed on the California Register of Historic Resources (CDPR, 2018). However, the adjacent Rancho Olompali is registered as an historic site. Mount Burdell was part of the Novato Rancheria (Origer, 2018) and is not listed as part of the Rancho Olompali historic site. Therefore, the proposed improvements to the Eagle Rim Trail will have a less than significant effect on a cultural landscape listed or eligible for listing on the California Register of Historical Resources.

a.ii) Determined by the lead agency to be significant – Less Than Significant with Mitigation

Although Mount Burdell is not on the California Register of Historic Resources, it is a prominent geographic feature that is visible for miles around Marin and Sonoma Counties that the Rancheria has indicated tribal cultural resource. Based on the information provided by the Rancheria, the District agrees with the Rancheria that Mount Burdell is a tribal cultural resource potentially affected by the proposed project.

During the consultation process, the Rancheria indicated that it was concerned about the project's impacts to this cultural resource. Its primary concern was that the project could increase human recreational use of the area, especially off-trail use. As described above, the project will designate and improve an existing social trail. By accepting this trail into the District's system of roads and trails and placing it on public maps, the project could increase public use of this trail. People who were not previously aware of the trail or others that may be concerned about using an undesignated social trail, would now be able to use the trail. However, it is unlikely that project will cause a significant increase in the use of Mount Burdell. The trail is less than a mile long in the interior of the preserve.

There are several other similar trail projects that the District has implemented in the last several years and monitored public use before and after trail improvements and designation. These include improvements to and designation of a portion of the Hunt Camp and Boulder Springs trail in San Geronimo Valley and the Val Vista Trail in Mill Valley. The District has installed cameras and other devices for monitoring use at these trails and the data has not indicated any significant increase in use (Campo, 2018). This data is consistent with the analysis in the RTMP EIR, which concluded that the any significant increase in use of the trails would be a result of regional population growth and not the improvements and designations described in the RTMP.

Additionally, the project includes the decommissioning of 3,022 linear feet of existing social trails, which will reduce public use of those areas of the preserve. By removing these trails and through signage, if necessary, the project will discourage the public from using these closed trails.

Additionally, the removal of these trails will eliminate a visual feature that would attract people to use the trail.

In describing its concerns, the Rancheria also stated that it is concerned about the District's policy that discourages, but does not prohibit, pedestrians from hiking off-trail. Although the RTMP contains policies that strictly prohibit off-trail mountain biking, equestrian, and dog walking, its policy SW.5 encourages pedestrians to stay on trails but does not prohibit such a use. The Rancheria is concerned that the project will draw more people to hike on the Eagle Rim Trail and that some of those people will hike off trail and that this potential increase in off trail use will result in impact to the cultural resources. To address this concern, the District is proposing a mitigation measure requiring the installation of signs along the Eagle Rim Trail that identifies the area as a tribal cultural resource and encourage people to respect this resource by staying on the trails. Additionally, the District is proposing a mitigation measure that will require it to work with the Rancheria to identify suitable name for the trail that reflects this cultural history. With the inclusion of the mitigation measures described blow, the project will not result in significant impacts to tribal cultural resources.

Mitigation Measures

Tribal Cultural Resources 1 – Cultural Resource Signs: The Marin County Open Space District will consult with the Federated Indians of the Graton Rancheria to develop language for preserve signs that identify Mount Burdell as an important tribal cultural resource and encouraging the hikers to stay on the trail. After developing the language for the signs in consultation with the Rancheria, the District will install these signs at the preserve entrances.

Tribal Cultural Resources 2 – Trail Naming: The Marin County Open Space District will consult with the Federated Indians of the Graton Rancheria to identify a new name for the Eagle Rim Trail that reflects the cultural history of Mount Burdell.

7.19 Utilities and Service Systems

Utilities and Service Systems Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐

Utilities and Service Systems Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Setting

The Mount Burdell Open Space Preserve is a large undeveloped natural area used primarily for preservation of natural resources and for recreational activities consistent with preservation goals of the preserve, such as hiking, mountain biking, horseback riding. The preserve contains trails, unpaved roads for emergency and maintenance access, gates, and signs to manage the public. The District does not provide any parking, restrooms, drinking water or other similar facilities that would require utilities, such as electricity, potable water, or wastewater. The District does place and maintain trash cans at some trailheads to capture trash and pet waste. Within the preserve are several privately-operated communication towers that support cell phone and other similar communications.

a) Require relocation, construction, or expansion of new utility facilities – Less Than Significant

The project entails improvements to an existing trail and decommissioning of other non-system trails. The construction or operation of this trail would not require any new electrical, water, wastewater, or solid waste collection facilities. Additionally, the project will not result in impacts to existing utilities in manner that would require relocation. Construction of the trail improvements will require the District to import water to the site for construction and may have to export construction debris to a solid waste facility. The District would truck recycled wastewater to trail during construction, if it is available. Any construct debris generated by the project would minor in amount and the District would transport any waste to an appropriate landfill. Any construction debris disposed of this manner would be minor in amount and well within the capacity of existing landfills. The project would not directly impact any existing communication towers within the preserve and may have an indirect benefit by decommissioning an existing trail that leads to one of the communication towers. Therefore, this project would have less than significant impacts on the relocation, construction, or expansion of new utility facilities.

b) Have sufficient water supplies available – Less Than Significant

The North Marin Municipal Water District (NMWD) provides water to the Novato area including the project site is. Twenty percent of NMWD water comes from Stafford Lake, in the City of Novato, and 80 percent comes from the Russian River. The proposed project would not create new demands for water supply and would not include or require any drinking fountains, irrigation, or water facilities. During construction, the MCOSD may need some minor amounts of water, which it would bring to the site by truck, as needed. If available, the MCOSD would use recycled wastewater. Therefore, the project would have a less than significant impact on water supplies.

c) Have access to adequate wastewater treatment capacity – No Impact

There are no proposed or existing bathrooms or water facilities available at the project site. Therefore, the project would not require any wastewater treatment facilities and would not include or require any new or expanded wastewater facilities. Therefore, the project would have no impact on wastewater treatment requirements.

d) Generate solid waste in excess of local infrastructure capacity – Less Than Significant

The MCOSD would take waste generated from the project site to the Redwood Landfill, located in Novato. Redwood Landfill is permitted throughput capacity to receive 2,310 tons per day of waste material, has a design capacity of 26,000,000 cy, and is estimated to cease operations in 2024 (Waste Management, 2018; CalRecycle, 2018).

Project construction may generate small amounts of waste, but the volume of this waste would not affect land landfill capacity. In addition, the project would comply with applicable county, state, and federal regulations regarding solid waste disposal. Project construction would involve vegetation clearing and trail maintenance, which would generate very minor amounts of solid waste. Therefore, this impact would be less than significant.

e) Comply with statutes related to solid waste – Less Than Significant

As discussed above, solid waste generated by the project would not result in exceedance of the permitted throughput capacity or long-term capacity of this facility. In addition, the proposed Project

would comply with applicable county, state, and federal regulations regarding solid waste disposal. Therefore, this impact would be less than significant.

7.20 Wildfire

Wildfire	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

Setting

In accordance with California Public Resource Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, the Novato Fire Protection District has mapped areas of

significant fire hazards because of fuels, terrain, weather, and other relevant factors. The project site is mapped as a moderate risk (Novato Fire Protection District, 2018).

a) Impair an emergency response plan or evacuation plan – Less Than Significant

The proposed project would not interfere with established emergency response plans or emergency evacuation plans (City of Novato, 2009). The project site is not currently used for emergency access and would not change or disrupt vehicular or pedestrian traffic in the site vicinity in a way that would have the potential to interfere with emergency response or evacuation. This impact would be less than significant.

b) Exacerbate wildfire risks – Less Than Significant

The proposed project entails improvements to an existing trail, associated decommissionings, and incorporation of the trail into the MCOSD trail system. The overall length of trails in Mount Burdell would decrease because of the project and it would not introduce and new uses into the preserve. Although construction and maintenance equipment could generate sparks and could temporarily increase fire risk, the RTMP contains policies and BMPs to reduce this hazard. RTMP Policy SW.26 allows the MCOSD to temporarily or permanently close preserves or restrict uses in preserves to reduce fire risk during periods of high fire danger. In addition, MCOSD vehicles are equipped with fire extinguishers to address small fires ignited by construction activities before a problem develops. As a result, the project would not exacerbate wildfire risks and this impact would be less than significant.

c) Require infrastructure as a result of wildfire risk – Less Than Significant

As described above, the Eagle Rim Trail is an existing unsanctioned trail that the public has been using for years. The project would improve the trail and the recreation experience and reduce its sedimentation and erosion impacts. The trail improvements do not include any structures or other facilities that would be flammable or otherwise increase the wildfire risk. Additionally, the trail is in a remote wildland area that has no infrastructure to support wildfire protection. Because of the relatively low intensity of use, remote location, and the lack of flammable structures, no additional infrastructure is necessary to reduce the risk of wildfire. The proposed trail improvements will not have any effect on the MCOSD's fuel management activities within the Preserve. Therefore, the project's impact on wildfire risk is less than significant.

d) Expose people or structures to risks as a result of runoff, post-fire slope instability, or drainage changes – Less than Significant

The Eagle Rim Trail is located on the higher elevations of Mount Burdell with very little watershed above the trail. The proposed improvements to the trail will improve the flow of water across it reduce any slope instability over the current situation. Additionally, trail project does not include any structures or other facilities that would be at risk due to post-fire slope instability. The trail itself could be damaged due to post-fire runoff or slope instability, but it is relatively inexpensive to repair any damage, which the MCOSD would easily address. Finally, because of the low intensity of use of the trail and the short duration that people are on the trail, when compared to residential or commercial areas, the risk to people is relatively low. Therefore, the project will have a less than significant impact on the risk to people or structures as a result of runoff, post-fire slope instability, or drainage changes.

8 Mandatory Findings of Significance

Mandatory Findings of Significance	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past, current, and probable future projects.)	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

8.1 Degrade the environment – Less than Significant

The proposed project would modify an existing unsanctioned trail to improve the recreational experience and reduce the trail's impact on the environment. Specifically, the improvements include realigning one section of a trail on a steep slope and installing water-control features, such as outsloping and rolling dips to minimize the trail's effect on the movement of water across the path. The goal of the project is to make the trail hydrologically invisible. Additionally, the project includes decommissioning of three other trail segments, totaling approximately 3,000 linear feet of trail. With the improvements to the trail's hydrology and the other trail decommissionings, the project will reduce the impacts from the existing trails on the Mount Burdell Preserve by reducing hydrologic impacts and the area natural habitat disturbed by trails. Additionally, BMPs described

in RTMP and incorporated into the project will minimize any potential impacts special-status plants and animals. Finally, as described in the cultural resources section above, the project site does not contain any important examples of the major periods of California history or prehistory. Therefore, the project's potential to substantially degrade the environment is less than significant.

8.2 Cause cumulatively considerable impacts – Less than Significant

The proposed project is one of several trail projects that the MCOSD has constructed in the last five years as part of its implementation of the RTMP. These projects include repairs and improvements to the following trails:

- Dawn Falls Trail (Baltimore Canyon Preserve, Larkspur)
- Piedmont Trail (Blithedale Summit Preserve, Larkspur)
- Roy's Redwoods Loop Trail (Roy's Redwoods Preserve, San Geronimo Valley)
- Cascade Canyon Fire Road (Cascade Canyon Preserve, Fairfax)
- Old Railroad Grade Trail (Loma Alta Preserve, Fairfax)
- Val Vista Trail (Camino Alto Preserve, Mill Valley)
- Octopus Trail (Camino Alto Preserve, Mill Valley)
- Contour/Candelero complex trails (Gary Giacomini Preserve, San Geronimo Valley)
- Bob Middagh and Gasline trails (Alto Bowl Preserve, Mill Valley)
- Hunt Camp Trail (Gary Giacomini Preserve, San Geronimo Valley)
- Irving Fire Road (Terra Linda – Sleepy Hollow Divide Preserve, San Anselmo)

During 2018, the MCOSD is proposing to construct improvements and repairs to several roads and trails, including the following:

- Old Railroad Grade (Loma Alta Preserve, Fairfax)
- Eagle Rim Trail (Mount Burdell Preserve, Novato)
- Alto Bowl Fire Road (Alto Bowl Preserve, Mill Valley)
- Bob Middagh Culvert Replacement (Alto Bowl Preserve, Mill Valley)
- Conifer Fire Road (Gary Giacomini Preserve, San Geronimo Valley)
- Middle Burdell Fire Road (Mount Burdell Preserve, Novato)
- Toyon Fire Road (Cascade Canyon Preserve, Fairfax)

Additionally, the MCOSD and Marin County Parks are undergoing a planning process for several road and trail improvement projects, including the following:

- Blue Oak Trail (Rush Creek Preserve, Novato)
- Cascade Fire Road bridges (Cascade Canyon Preserve, Fairfax)
- Ponte Fire Road to Trail Conversion (Pacheco Valle Preserve, Novato)
- Stafford Lake Park Multiple Use Trail (Stafford Lake County Park, Novato)
- Burdell Fire Road Easement (Mount Burdell Preserve, Novato)

All the MCOSD projects would comply with the requirements of the RTMP, including Policy SW.4, which mandates the designation of new roads and trails resulting in a net reduction of environmental impacts from the existing road and trail system. The projects would achieve this policy goal through reducing erosion and sedimentation, improving the environmental impacts from existing stream crossings, redesigning trails to avoid impacts to sensitive habitat and species, and decommissioning of existing non-system trails. In combination, these projects would result in a net improvement to the resources of the preserves.

The proposed trail projects included measures to avoid impacts to special-status species, sensitive habitats, and nesting and breeding animals. These protection measures are BMPs from the RTMP and include requirements for the following: 1) pre-project nesting bird surveys with buffers around any identified nests; 2) decommissioning existing trails that partially offset any impacts from the realignment of the Eagle Rim Trail; and 3) installation of trail features to reduce erosion and sedimentation. With the RTMP's BMPs, these projects would have cumulative benefits to the resources of the preserve by improving its road and trail system and decommissioning undesignated trails within the preserve, as required by the RTMP.

Initial consultation with the Federated Indians of the Graton Rancheria has identified concerns about potential impacts to Mount Burdell as a cultural landscape. Although the proposed project would designate an existing unsanctioned trail as part of the MCOSD's system of roads and trails, the project includes decommissioning of several trail segments totaling over 3,000 linear feet of trail. In other words, the project would increase the number of designated trails within the preserve but would reduce the overall length of trails on the Preserve. Additionally, this initial study identified several mitigation measures to reduce the overall impact of the trail designation on the cultural landscape of Mount Burdell. These mitigation measures include posting signs that acknowledge the cultural value of the area and encourage people to stay on the trail. Additionally, the mitigation measures would require the MCOSD to work with the Rancheria to rename the trail to reflect this cultural history. With these mitigation measures, this initial study concludes that the project would not have significant individual impacts on the cultural landscape.

As for the cumulative effects on the cultural landscape, the MCOSD is proposing several road and trail projects on Mount Burdell, including drainage and tread improvements to the Middle Burdell Fire Road, acceptance of an easement over a portion of the Burdell Fire Road on private land to improve access to the preserve, and the designation of the Eagle Rim Trail. The Middle Burdell Fire Road project would improve an existing fire road to reduce erosion, improve road surface, and otherwise improve the conditions of the road. The Mount Burdell Fire Road easement would provide for public use of an existing paved fire road on private land owned by the Buck Center. The Eagle Rim Trail and the Burdell Fire Road easement are the only projects where there is an increase in the millage of designated trails. However, both projects affect existing non-system trails but do not increase the length of trails on the mountain.

The MCOSD recognizes that existing roads and trails on Mount Burdell affect the cultural landscape. Most, if not all the trails within the Mount Burdell Preserve existed when the MCOSD acquired the land. According to the RTMP, there are 24.6 miles of trails within the Mount Burdell Preserve (MCOSD 2014b). Of these, the MCOSD officially designated 19.77 miles of roads and trails within the preserve (MCOSD, 2017). The proposed project will add 4,815 feet or 0.9 of a mile (4%) to the length of designated trails within the preserve. Additionally, the project includes the decommissioning of approximately 3,000 feet of existing non-system trails within the preserve. the proposed acquisition of an easement along the portion of the Burdell Fire Road that crosses private property would add 0.4 of a mile of designated trail to the preserve. As described above, this easement would affect an existing paved fire road. Cumulatively, these two projects would add less than 8,000 linear feet of newly designated trails, but, because of the decommissioned trail segments, they would result in a net reduction in actual trail millage. Based on these facts, the proposed project would not be a considerable effect on any cumulative impact from trails on the cultural landscape of Mount Burdell.

The project is consistent with the RTMP EIR's assessment of cumulative impacts. Through the implementation of the RTMP's policies, BMPs, and design standards, the project would largely

have a cumulative benefit to the resources of the preserve. The proposed project does not have a cumulatively considerable impact to the cultural landscape of Mount Burdell.

8.3 Have substantial adverse effects on human beings – Less than Significant

The proposed project will not have substantial adverse direct or indirect impacts on human beings. The Mount Burdell Open Space Preserve is a natural area that people use for recreational purposes. The project site is not located near any residential, commercial, or industrial areas and the project would not likely have significant effects on those uses. The only potential impact is on people that come to the preserve for recreational purposes. However, the purpose of the project is in part to improve the recreational experience from use of the trail by reducing the running slope along the realigned sections of the trail, increasing sightlines, and other features to improve the recreational experience. The decommissioning of other trail segments as part of the project will reduce the linear feet of trails on Mount Burdell usable by the public, but this impact is insignificant. There are over 24 miles of roads and trails within the Mount Burdell Preserve (MCOSD, 2014b) (which does not include trails on the adjacent Olompali State Historic Park). The loss of approximately 3,000 feet (a little more than ½ mile) of trail will not have substantial effect on recreational use of the preserve. Therefore, the project will have a less than significant impact on human beings.

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Appendix A
Marin County Open Space District's
Road and Trail Management Plan
Policies and Best Management Practices

10 Policies from the Marin Countywide Plan

BIO-4.14: Reduce Road Impacts in Stream Conservation Areas (SCA). Locate new roads and road fill slopes outside SCAs, except at stream crossings, and consolidate new road crossings wherever possible to minimize disturbance in the SCA. Require spoil from road construction to be deposited outside the SCA and take special care to stabilize soil surfaces.

BIO-5.f: Control Public Access. Design public use areas to be clearly marked, to minimize possible conflicts between public and private uses, to provide continuous walkways from the nearest roads to the shoreline and along the shoreline, to be set back from any proposed structure, and to be buffered from wetlands. Restrict access to environmentally sensitive marshland and adjacent habitat, especially during spawning and nesting seasons.

BIO-4.k: Locate Trails Appropriately. Situate trails at adequate distances from streams to protect riparian and aquatic habitat and wildlife corridors. Trails may occasionally diverge close to the top of the bank to provide visual access and opportunities for interpretive displays on the environmental sensitivity of creek habitats.

GOAL TRL-1: Trail Network Preservation and Expansion. Preserve existing trail routes designated for public use on the Marin Countywide Trails Plan maps and expand the public trail network for all user groups, where appropriate. Facilitate connections that can be used for safe routes to school and work.

TRL-1.1: Protect the Existing Countywide Trail System. Maintain the existing countywide trail system and protect the public's right to access it.

TRL-1.2: Expand the Countywide Trail System. Acquire additional trails to complete the proposed countywide trail system, providing access to or between public lands and enhancing public trail use opportunities for all user groups, including multi-use trails, as appropriate.

TRL-1.4: Coordinate Trail Planning. Promote collaboration among public land management agencies, nongovernmental organizations, and private landowners to implement the Marin Countywide Trails Plan and regional trail systems.

TRL-1.b: Designate Trails Consistent with Agency Missions. Determine public use of trails consistent with each agency's mission and policies.

TRL-1.d: Establish Regional Trail Connections. Strive to complete regional trail systems in Marin County, including the Bay Area Ridge Trail, the San Francisco Bay Trail, and the California State Coastal Trail. The proposed alignment of the Coastal Trail will be considered through process to update Marin County Local Coastal Plan.

TRL-1.e: Explore Funding for Trail Acquisition. Consider developing or supporting legislation to assist trail acquisition. Consider public and private funding sources, including private endowments and bequests.

TRL-1.g: Evaluate Proposed Development for Trail Impacts. Review development proposals for consistency with the Marin Countywide Trails Plan or local community plans.

TRL-2.1: Preserve the Environment. In locating trails, protect sensitive habitat and natural resources by avoiding those areas.

TRL-2.2: Respect the Rights of Private Landowners. Design and manage trails to avoid trespass and trail construction impacts on adjacent private land.

TRL-2.3: Ensure User Safety. Plan and maintain trails to protect the safety of trail users.

TRL-2.5: Provide Access for Persons with Disabilities. Design and develop trails and trail programs to enhance accessibility by persons with disabilities.

TRL-2.6: Provide Multiple Access Points. Design trails with multiple access points to maximize accessibility and minimize concentrating access.

TRL-2.7: Ensure Sustainable Maintenance. Continue to ensure that trails are responsibly maintained.

TRL-2.8: Provide Trail Information. Strive to provide information to users that facilitates visitor orientation, nature interpretation, code compliance, and trail etiquette. Develop a method for signing trails to assist users and emergency personnel.

TRL-2.a: Locate Trails to Protect Habitat. Align or relocate trails to avoid impacting sensitive habitats such as wetlands and areas where endangered species are present. Avoid aligning trails along the boundaries of sensitive habitats.

TRL-2.b: Design, Build, and Manage Trails in a Sustainable Manner. Incorporate design measures that protect vegetation, protect habitats, and minimize erosion.

TRL-2.c: Eliminate Trail Redundancy. Identify, abandon, and restore redundant or otherwise unnecessary trails or trail segments.

TRL-2.d: Protect Private Property. Design and locate trails to avoid trespassing and adverse impacts on adjacent private lands and sensitive land uses.

TRL-2.e: Design Safe Trails. Design trails so that their surfaces, grades, cross gradients, sight distances, width, curve radii, vegetation clearance, and other specifications are consistent with anticipated uses.

TRL-2.f: Acknowledge Historic Trail Users. When acquiring a property for public use, consider trail use that occurred prior to the public acquisition.

TRL-2.g: Promote Harmony Among Trail Users. Provide educational information and consider special programs and events to promote trail etiquette and cooperation among trail user groups. Encourage interagency collaboration on countywide standards for trail etiquette to promote harmony among trail user groups.

TRL-2.h: Identify Access Opportunities for Persons with Disabilities. Review existing access opportunities for persons with disabilities. Identify and pursue new opportunities.

TRL-2.k: Ensure Trail Maintenance. Encourage public agencies to develop trail maintenance plans and enter into cooperative trail maintenance agreements. Encourage volunteer trail stewardship programs.

TRL-2.l: Ensure Trail Maintenance Funding. Strive to identify and secure consistent sources of funding for trail maintenance. Develop a program for funding that explores trail adoption, trail maintenance annuities, jurisdictional cooperation, and other sustainable methodology.

TRL-2.m: Maintain Trails in a Sustainable Manner. Consider and implement as appropriate.

TRL-2.n: Promote Interagency Cooperation. Encourage information sharing and cooperation among public agencies concerning sustainable trail maintenance.

TRL-2.p: Improve Code Compliance. Encourage trail managers to enforce codes, secure consistent funding for code enforcement, monitor the type and frequency of violations, and offer educational materials and programs to reduce code violations. Expand or create volunteer opportunities to monitor trail use.

11 Policies from the MCOSD Policy Review Initiative

Policy P1: The MCOSD will rely primarily on public rights-of-way to provide the parking capacity necessary to serve open space visitors arriving by motorized vehicle.

Policy P2: The MCOSD will strive to provide multiple points of entry to open space, to maximize available parking capacity and to avoid concentrating access.

Policy P3: The MCOSD will encourage open space visitors to walk, bicycle and carpool to open space.

Policy P4: The MCOSD should partner with police and fire departments to enforce lawful parking at entrances to open space.

Policy P5: The MCOSD may seek increased parking capacity on a case-by-case basis, including the development of parking facilities on the MCOSD lands where necessary for public safety, and where resource conditions permit.

Policy T1a: The MCOSD will allow trail-based uses on open space, because the ability of the public to access and enjoy open space enhances the quality of life in Marin.

Policy T1b: The MCOSD will permit use of fire protection roads by open space visitors on foot, on a bicycle, and with a saddle animal, but may limit any or all uses when appropriate.

Policy T1c: The MCOSD will permit use of trails by visitors on foot and with a saddle animal, but may limit any or all uses when appropriate.

Policy T1d: The MCOSD will permit bicycling and saddle animals on trails designated and signed for their use, including (a) existing trails and new trails that the MCOSD builds and designates for shared use; and (b) existing trails on newly acquired lands, when compatible with natural resource protection and the safety of trail users.

Policy T1e: The MCOSD will prohibit trail use conduct and other trail use modes that compromise the protection of natural resources or the safety of open space visitors.

Policy T1f: Deleted by the RTMP

Policy T1g: The MCOSD will prohibit the use of motorized vehicles on open space, with authorized exceptions.

Policy T2a: The MCOSD will use best management practices in the design, construction, and maintenance of trails.

Policy T2b: The MCOSD will strive to coordinate trail design and management with the owners and managers of adjoining lands.

Policy T2c: The MCOSD will strive to provide information, including signs, to trail users that facilitate visitor orientation, nature interpretation, code compliance, and proper trail etiquette.

Policy VA2: The MCOSD may provide visitor amenities such as (a) informational displays and signs; (b) portable restrooms in areas where group use is seasonally frequent; (c) facilities for watering and tying equines; and (d) bicycle racks.

12 RTMP Policies

Policy SW.1: Application of this Road and Trail Management Plan Policies. The policies and requirements of this plan will apply within all open space preserves, and within any new preserves that may be established. These policies will also apply to existing and future trail easements unless they would conflict with the terms of the easement, in which case the easement will prevail.

Policy SW.2: System Roads and Trails. The MCOSD will, following adoption of this plan, designate a system of roads and trails, referred to as "system roads and trails", in all existing and new open space preserves, through a collaborative public process. Those roads and trails eligible for consideration as part of the system must have been constructed as of November 2011. The MCOSD may improve, maintain, convert, or reroute system roads and trails according to the policies and requirements of this plan, as time and resources allow. Nonsystem roads and trails, defined as those roads and trails not designated as system roads and trails, may be decommissioned at any time, as time and resources allow.

Policy SW.3: Social Trails. For the purpose of this policy, social trails are defined as narrow pedestrian footpaths that a) were not constructed; and b) have not been improved, managed, or maintained. This definition extends to wildlife trails used occasionally by pedestrians. This plan recognizes that, for all practical purposes, social trails will continue to exist after the system of roads and trails has been designated. Social trails are not subject to closure or decommissioning unless a) their continued existence compromises public safety; b) results in unacceptable levels of erosion, or damage or disruption to plants and wildlife; c) their volume of use increases; and/or d) they are used by equestrians or bikers.

Policy SW.4: Overall Reduction of Road, Trail, and Visitor Impacts. The designated system of roads and trails will have less overall impact to resources compared to the network of roads and trails existing as of November 2011. Impacts will be reduced by decommissioning nonsystem roads and trails, and by the improvement, conversion, or rerouting of system roads and trails. The MCOSD will maximize the reduction of road, trail, and visitor impacts in Sensitive Resource Areas, compared to Conservation Areas and Impacted Areas. Impacted Areas will exhibit the widest range of acceptable road, trail and visitor impacts.

Policy SW.5: Policy on Pedestrian Activities. Pedestrians are encouraged to stay on system roads and trails.

Policy SW.6: Prohibition on Off-Road or Off-Trail Equestrian Use. Horses and pack animals must stay on system roads and trails, except when watering or resting the animal. Off-trail riding is prohibited. Riding or possession of a horse or pack animal on nonsystem roads and trails is prohibited. Riding or possession of a horse or pack animal on social trails is prohibited.

Policy SW.7: Prohibition on Off-Road or Off-Trail Bicycle Use. Mountain bikers must stay on system roads and trails designated for bicycle use. Off-trail riding is prohibited. Riding or possession of a bicycle on nonsystem roads and trails is prohibited. Riding or possession of a bicycle on social trails is prohibited.

Policy SW.8: Prohibition on Off-Road or Off-Trail Pedestrians with Dogs or Other Domestic Animals. Pedestrians with dogs and other domestic animals must stay on system roads and trails.

Off-trail use by pedestrians with dogs and other domestic animals is prohibited. Use of nonsystem roads and trails, and social trails, by pedestrians with dogs and other domestic animals is prohibited.

Policy SW.9: Prohibition of Dogs within Sensitive Water Resources. Dogs are not allowed to travel, run, walk, hunt, or bathe in streams or any sensitive water bodies, such as marshes, lakes, or ponds, within the preserves.

Policy SW.10: Policy on Leash Only Preserves. Due to the occurrence of sensitive resources, dogs must be leashed on all roads and trails in those preserves currently designated as "leash only" (i.e., Cascade Canyon, Ring Mountain, and Rush Creek Preserves). The MCOSD may designate other "leash only" preserves in the future.

Policy SW.11: Policy on Leash Requirements for Dogs. Dogs must be on leash (no more than 6 feet in length) a) in all designated "leash only" preserves; and b) on all trails. Dogs may be off leash, but under voice control, only on fire roads that are not within leash only preserves. The MCOSD will identify roads passing through leash only preserves with signs. Dogs under voice control must remain on the fire road.

Policy SW.12: Road and Trail Connectivity. The MCOSD will strive to increase road and trail connectivity for all trail users. The MCOSD will strive to provide opportunities for short to medium distance loops and long-distance routes. The MCOSD may consider one-way, uphill-only, time separation, and single-use or priority-use trails to achieve these ends.

Policy SW.13: Prohibition on Dangerous Activities. Activities that exceed the established speed limit, are reckless, or pose a danger to the user or to other road and trail users, are prohibited.

Policy SW.14: Road and Trail Etiquette. All road and trail users will practice good etiquette at all times. Mountain bikers will always yield to both hikers and equestrians. Hikers will yield to equestrians. Mountain bikers must announce their presence by using a bell or calling out when overtaking other trail users.

Policy SW.15: Expectation of Active Cooperation of All Road and Trail Users. Increased trail use opportunities must be coupled with cooperation among all trail users, and with the MCOSD, to promote lawful trail use, reduce violations, reduce impacts to natural resources, prevent displacement of any trail user types, minimize disturbance to existing neighbors, and avoid endangerment of other trail users.

Policy SW.16: Prohibition of Uses. The MCOSD may prohibit certain trail uses or apply increased trail use restrictions within certain areas to enhance safety, minimize conflicts between trail users, and protect natural resources. Examples of areas where this policy may apply include, but are not limited to, those proximate to stables and those traditionally heavily traveled by equestrians, and in Sensitive Resource Areas.

Policy SW.17: Displacement of Existing Trail Users. The MCOSD will strive to prevent displacement of equestrians and pedestrians when accommodating trail access and trail connections for mountain bikers. When considering the designation of existing trails as single-use or priority-use, the MCOSD will take care to maintain connectivity between destinations for user groups historically using those trails.

Policy SW.18: Unauthorized Trail Construction and Maintenance. The MCOSD has no tolerance for unauthorized trail construction and unauthorized reopening of closed or decommissioned roads and trails. The MCOSD will prosecute such violations to the fullest extent of the law. The MCOSD will apply new deterrence methods, including rigorous investigation and increased penalties to stop such damaging and unlawful activities.

Policy SW.19: Redundant Roads and Trails. Redundant roads or trails are defined as those that roughly parallel an existing route serving essentially the same purposes, uses, and user groups. Through designation of the road and trail system, the MCOSD will reduce the overall level of redundancy compared to baseline levels and when doing so will exclude from designation the road or trail segment or segments that have the highest overall maintenance costs and the worst profile of environmental impacts. The MCOSD may strategically retain some redundant roads and trails in the interest of separating user groups and avoiding user conflict. Redundant roads and trails that are not designated as system roads and trails will be decommissioned as time and resources allow. All decommissions of redundant fire road segments will be subject to consultation with Marin County Fire and the relevant local fire agencies.

Policy SW.20: Conversion of System Roads to Trails. The MCOSD may convert system roads to trails to protect natural resources, enhance visitor experience and/or safety, or align maintenance costs with available funds. System roads encumbered by license, lease, or easement for nonrecreational purposes, and roads required for maintenance or emergency access, may not be converted to trails unless encumbrances are removed or roads are no longer necessary for maintenance or emergency use.

Policy SW.21: Roads or Trails Serving Nonrecreational Uses. Roads or trails subject to or encumbered by license, lease, or easement, for nonrecreational purposes, and those roads required for maintenance or emergency access, will become system roads and trails, unless encumbrances are removed or roads are no longer necessary for maintenance or emergency use.

Policy SW.22: Protect High-Value Vegetation Types. As a general policy, visitors will be directed away from areas of high-value vegetation types, as identified in the MCOSD's mapped Legacy Vegetation Management Zones and other more site specific biotic assessments undertaken or commissioned by the MCOSD, to prevent disturbance and adverse impact. This will be done through the appropriate placement of new and rerouted trails, by erecting fencing, or by installing educational signs that provide information about the resource values being protected.

Policy SW.23: Identify High Value Biological Resources. Designation of the road and trail system and evaluation of road and trail project proposals will be based on best available data, including inventories of wildlife, and vegetation resources. The MCOSD will undertake site specific and programmatic efforts to extend and improve upon the biological data underlying its decision-making criteria. System designations, project design, and project implementation are subject to amendment on the basis of new information.

Policy SW.24: Minimize Intrusions into Larger Contiguous Habitat Areas and Wildlife Corridors. In designating the system of roads and trails, the MCOSD will minimize their adverse effects on sensitive vegetation, as well as, habitat connectivity and migration corridors for all native species of wildlife.

Policy SW.25: Helmet Requirement. Per California state law, bicycle riders less than 18 years old are required to wear a helmet when riding on the MCOSD roads and trails.

Policy SW.26: Control or Restrict Access to Ignition Prevention Zones when Red-Flag Conditions Exist. Appropriate actions will be taken to minimize the risk of wildfire ignition when red-flag conditions exist. These actions may include prohibiting vehicle access, closing trails, or closing entire areas to all human activities until red-flag conditions expire. The public will be informed of the reasons why such actions are being taken, and areas will be patrolled to ensure compliance.

Policy SW.27: Protect High-Value Cultural and Historic Resources by Rerouting or Confining Visitor Access. Areas of high- value cultural and historic resources will be protected from disturbance and adverse impact. This will be done through the appropriate placement of trails, by erecting barriers, or other methods to discourage access.

Policy SW.28: Remove or Realign Roads and Trails Away from High-Value Cultural and Historic Resources. As a general policy, designated roads and trails will be rerouted away from high-value cultural and historic resources whenever possible and feasible. Areas where roads or trails are removed will be restored to natural conditions. The removal or realignment of roads will be done in consultation with Marin County Fire and other local fire agencies.

Policy SW.29: Retrofit or Upgrade Construction Equipment. Work with the Bay Area Air Quality Management District to implement feasible actions from the 2010 Clean Air Plan MSM C-1 – Construction and Farming Equipment. Pursue funding to retrofit the existing construction equipment engines with diesel particulate filters or upgrade to equipment with electric, Tier III, or Tier IV off-road engines. Seek to rent construction equipment that meets these criteria, if available.

Policy SW.30: Permeable Paving. For any new parking areas and other large areas of potentially impermeable surfaces, use permeable paving or an equivalent for all paved areas to provide for the infiltration of rainfall.

Policy SW.31: Floodplain Policy for New and Improved Roads and Trails. The MCOSD will review current Federal Emergency Management Agency Flood Insurance Rate Maps and other current flood maps to assess potential flood impacts to any proposed new or improved road, trail, or associated facilities located in the lower elevation bayland or coastal areas (i.e., Santa Margarita Island, Santa Venetia Marsh, Bothin Marsh, Rush Creek, Deer Island, and Bolinas Lagoon). In cases where a flood risk is identified, proposed facilities shall either be relocated outside of the flood prone area or designed and constructed in a manner to protect public safety and not increase base flood elevations. As part of public safety, the MCOSD shall also review the most current Tsunami Inundation Maps as part of the trail improvement planning efforts in those areas in order to identify areas that may require escape plans or proper notification.

Policy T.1: Loop and Long Distance Trail Connections. When designating system roads and trails, the MCOSD will seek to maintain and/or develop new opportunities for loop and long-distance travel, when such opportunities do not conflict with resource protection or visitor safety.

Policy T.2: Visitor Amenities. The MCOSD may provide or permit visitor amenities such as a) facilities to encourage the pickup and disposal of pet waste; b) watering opportunities for horses and other pack animals; c) potable water; and d) small bike repair stations.

Policy T.3: Visitor Safety. The safety of all road and trail users depends in large part on visitor conduct. The MCOSD expects that all users will conduct themselves in a safe manner, to protect their own safety and the safety of other users. The MCOSD shall consider visitor safety in designating the road and trail system.

13 Special Use Policies

In addition to providing public access for recreational uses, the MCOSD preserves also allows uses such as commercial dog walking, recreational events, and access for utility providers such as Verizon and PG&E. There is a need for a consistent and structured approach for the MCOSD to respond to requests for special uses. New policies to accomplish this are described below.

Policy SP-1: Lease/License/Other Form of Approval Required for Land Management or Utility Activities. Consistent with the MCOSD's Nonconforming Use Policy, all agencies and service providers requesting access to open space preserves will be required to obtain a lease, license, or other form of approval from the MCOSD describing the purpose and timing of their activities. The MCOSD may impose fees and conditions. Such conditions may include, but will not be limited to, the timing of the activity with respect to seasonal and weather concerns, the protection of natural resources, and the location of the activity. The MCOSD's Nonconforming Use Policy provides specific guidance for permitting use of open space by utilities, water districts, and other similar entities.

Policy SP-2: Permit Required for Organized Recreational Activities or Events. All private parties or public agencies requesting access to the MCOSD preserves for recreation-related or other special events will be required to complete and obtain a permit detailing the purpose and timing of their activities. The MCOSD may impose fees and conditions. Such conditions may include, but will not be limited to, the timing of the activity with respect to seasonal and weather concerns, the number of participants, the protection of natural resources, and the location of the activity. An administrative fee will be charged by the MCOSD for reviewing and granting any permits. Additional fees may be incurred by the applicant for administration and monitoring of the event by the MCOSD staff, or if compliance with the California Environmental Quality Act or any regulatory permit is required. The MCOSD insurance and indemnity requirements will also apply.

Policy SP-3: Prohibition on Unofficial, Nonsponsored Group Activities. Any unofficial, nonsponsored outdoor recreation event involving more than 15 participants is prohibited.

14 RTMP Best Management Practices

14.1 General-1

Limit Work Area Footprints in Sensitive Resource Areas. Limit the size of construction-related road and trail management activities to the minimum size needed to meet project objectives. BMPs include:

- **Minimize project footprint.** Minimize the size of the work area, including the project area, access roads, and staging areas. Wherever possible, use existing upland roads, trails, and other disturbed areas for project activities in order to reduce unnecessary disturbance, minimize soil and water erosion, and reduce overall project costs.
- **Reduce or relocate footprint during planning and design phase.** Reduce the work area footprint in sensitive resource areas or move the work area to common natural communities and upland areas. Implement further refinements during site preparation and construction to further reduce impacts.
- **Minimize soil disturbance.** Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants.
- **Mark project footprint near sensitive natural resources.** Mark ingress/egress routes, staging areas, and sensitive resources to prevent inadvertent impacts to sensitive resources.
- **Restrict soil disturbance and import of nonnative soil or fill material.** To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. In particular, access roads, staging areas, and areas of temporary disturbance will be minimized in size. The contractor and its staff and subconsultants agree not to drive off-road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor agrees that if soil excavation is required, every attempt will be made to have a balanced cut and fill project that reuses all native soils onsite. No nonnative soil or fill material will be brought onsite or used during the contractor's activities unless approved by the MCOSD natural resource staff.

14.2 General-2

Modify Construction- Related Vegetation Management Methods in and near Wetlands, Riparian Vegetation. Restrict construction-related vegetation management near wetlands in a manner that reduces the potential for sediment or pollutants to enter wetlands. Implement the following BMPs, as needed:

- Establish a buffer of 100 feet from wetland and tidally influenced areas (i.e., from the ordinary high-water mark of flowing or standing water in creeks, streams, or ponds). Avoid construction work within this buffer area.
- If construction work in wetlands and riparian areas cannot be fully avoided, consult with the appropriate state and federal agencies to obtain permits.

- Within the buffer, restrict routine vegetation management activities in creeks, streams, other waterways, and tidally influenced areas. Limit vegetation management work to least-harmful methods; restrict herbicides to those that are EPA-approved for use near water. Prohibit activities that disturb soil or could cause soil erosion or changes in water quality.
- Within the buffer, limit work that may cause erosion to the low flow or low tide periods. Low flow months for local creeks are typically August to October. For tidal areas, work will not occur within 2 hours of high tide events at construction sites when high tide is greater than 6.5 feet measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).
- Within the buffer, minimize erosion and sedimentation; maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include weed-free straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap, and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
- Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality for work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings.

14.3 General-3

Minimize Potential for Erosion. Conduct road and trail activities in a manner that controls and minimizes the potential for soil erosion and contribution of sediment to wetlands. Implement the following as needed:

- To minimize erosion and sedimentation, maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
- Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit and mark the allowable disturbance footprint with flagging or fencing. Following the end of work, scarify surface soils to retard runoff and promote rapid revegetation.
- Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.

14.4 General-4

Control Food-Related Trash. Food-related trash can attract wildlife to road and trail project sites. Store food-related trash in closed containers and remove from the project site daily

14.5 General-5

Modify Construction Methods Relating to Soil Disturbance, Restrict use of Offsite Soil, Aggregate, or Other Construction Materials. Conduct construction-related vegetation management in a manner that restricts the use of offsite materials that could introduce or spread invasive plants. Implement the following as needed:

- Minimize soil disturbance. Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants.
- Do not allow the introduction of incompatible fill. Use only clean, native soils and aggregate materials from projects within the preserve or use fill that is purchased from a certified weed-free source, before allowing the importation of materials from outside the preserves. Fill materials should be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. Treat, as appropriate, to prevent the spread of invasive plants. Treatment may include disposal onsite within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green waste facility.
- Salvage, store, and reuse topsoil. Where activities disturb soil temporarily, require salvage of the top 6 to 12 inches of topsoil (to retain seeds, soil mycorrhizae, and fungi) from all excavation and disturbance areas. Require reapplication of the salvaged topsoil as a topdressing or topcoat over backfill, unless known to contain invasive plant seeds or propagules.
- Establish dedicated areas for cleaning vehicles, inside and out, of soil or invasive plant seeds or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving preserves. Within the wash areas, the tires and body of vehicles and equipment will be brushed off and/or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Require contractors to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving preserves.
- Develop a native seed mix for erosion control. Develop the seed mixture on a project-by-project basis based on the observed mixture of native and naturalized plants in and near the impact area. Where possible, ensure that seeds are collected locally (i.e., within the same watershed or preserve as the impact), or obtained from a reputable native plant nursery specializing in seed that is collected from local sources.
- Maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized to help minimize erosion and

sedimentation. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified as weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and not of plastic monofilaments or other materials that could entrap snakes or amphibians.

- Immediately rehabilitate areas where road and trail project activities have disturbed soil. Areas disturbed by equipment or vehicles should be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.

14.6 General-6

Prevent or Reduce Potential for Pollution

Ensure that actions are taken during ongoing road and trail project activities to prevent or reduce the potential for pollutants entering the MCOSD preserve. Implement the following as needed:

- Prohibit, or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Require placement of fuel storage and refueling sites in safe areas well away from wetlands. Safe areas include paved or cleared roadbeds, within contained areas such as lined truck beds, or other appropriate fuel containment sites. Inspect equipment and vehicles for hydraulic and oil leaks regularly. Do not allow leaking vehicles on the MCOSD preserves and require the use of drip pans below equipment stored onsite. Require that vehicles and construction equipment are in good working condition, and that all necessary onsite servicing of equipment be conducted away from the wetlands.
- Require all contractors to possess, and all vehicles to carry, emergency spill containment materials.

Absorbent materials should be on hand at all times to absorb any minor leaks and spills.

14.7 General-7

Include Standard Procedures in Construction Contracts. When using contractors to perform vegetation management, related to road and trail project activities, the MCOSD will include some or all of the following standard procedures in those contracts.

The contractor will work with the MCOSD natural resource staff to determine the optimal timing of contracted work. Many timing restrictions relate to protecting special-status species. Other types of timing restrictions include timing to control invasive plants; timing to avoid migration, gestation, or flowering periods for special- status species; or timing work in wetlands to the dry season.

- Establish a buffer of 100 feet from wetland and tidally influenced areas (i.e., from the ordinary high-water mark of flowing or standing water in creeks, streams, or ponds). Avoid construction work within this buffer area.

- Within the buffer, limit work that may cause erosion to low flow periods. Low flow months for local creeks are typically August to October. For tidal areas, work will not occur within 2 hours of high tide events at construction sites when high tide is greater than 6.5 feet measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).
- If construction work cannot be fully avoided in wetlands and riparian areas, consult with the appropriate state and federal agencies to obtain permits.
- Require the contractor to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality for road and trail project work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings.
- The contractor will work with the MCOSD natural resource staff to identify any priority invasive plants that occur near the project work area, including the project footprint, access roads, staging areas, and similar work areas. The contractor agrees to comply with requirements to reduce the spread or transport of priority invasive plants related to construction activities. Requirements may include some or all of the following:
- Conduct a training program for all field personnel involved with the proposed road and trail project prior to initiating project. The program will consist of a brief presentation by person's knowledgeable in the special-status species, sensitive resource, or invasive plants known from the project area. The program will include the following: a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impacts; and the workers' responsibility under the applicable environmental regulation. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- Restrict work to periods when invasive plants are not in fruit or flower.
- Establish dedicated area for cleaning vehicles, inside and out, of soil or invasive plant seeds or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving preserves. Within the wash areas, the tires and body of equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Require contractors to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving preserves.
- Dispose of green waste in a manner that does not spread invasive plants. Methods include onsite disposal in an already infested area; offsite disposal to a cogeneration plant or an approved green waste composting facility).
- **Protect environmentally sensitive areas.** The MCOSD natural resource staff will identify any Environmentally Sensitive Areas in or near the road and trail project area prior to the start of work. Environmentally Sensitive Areas may include: special-status plant or wildlife species or their habitats (e.g., woodrat nests, habitat for special-status plant and wildlife species, individuals or populations of listed special-status plant or wildlife species or locally rare species); wetlands including creeks streams and related riparian area; and sensitive vegetation types as described in this report. The

MCOSD staff and contractors will fully avoid and protect such areas during habitat restoration work or will help obtain and comply with necessary permits and regulatory requirements.

- **Use locally collected plant materials for revegetation projects.** Plant materials will be collected onsite at the MCOSD preserves or within the same watershed as the revegetation project. The contractor will work with the MCOSD to identify native plant nurseries that can collect and propagate seed and other plant materials from the local area. No use of commercial grassland mixtures for erosion control unless approved in advance by the MCOSD. The contractor will allow the MCOSD to inspect and approve all plant materials and seed prior to use onsite.
- **Protect special-status species habitat.** For vegetation work in or near special-status species habitat, the contractor is required to comply with requirements of the MCOSD project permits to protect special- status species and their associated habitats before and during construction, and to cooperate with the MCOSD in implementing any state and federal permits and agreements for the project. The special- status species population plus a buffer should be designated as an "Environmentally Sensitive Area" using lath and flagging, pin flags, or temporary fencing (depending on resource sensitivity to work). The contractor will be required to avoid all designated Environmentally Sensitive Areas during construction. For any special-status species or their habitats that cannot be fully avoided, the contractor will work with the MCOSD to obtain and comply with federal and state Endangered Species Acts, the federal Migratory Bird Treaty Act, and the state Fish and Game Code permits and agreements.
- **Restrict soil disturbance, import of nonnative soil or fill material.** To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. In particular, minimize the footprint of access roads, staging areas, and areas of temporary disturbance. The contractor and its staff and subconsultants agree not to drive off-road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor agrees that if soil excavation is required, every attempt will be made to have a balanced cut and fill project that reuses all native soils onsite. Unless pre-approved by the MCOSD natural resource staff, there will be no use of nonnative soil or fill material during the contractor's activities.
- To minimize erosion and sedimentation, maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes.
- Materials will be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials will be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
- Other procedures:

- All entry gates to the project site not used for construction access will be locked at all times and gates used for construction access will be locked during non-construction hours.
- All vehicles will carry a suitable fire extinguisher.
- Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
- Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit and mark the allowable disturbance footprint with flagging or fencing. Following the end of work, scarify surface soils to retard runoff and promote rapid revegetation.

14.8 General-8

Control Noise. To reduce daytime noise and potential disturbance to wildlife species, the MCOSD will require contractors to muffle or control noise from equipment through implementation of the following measures:

- Equipment and vehicles should utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds, and installation of sound blanket around the project site.

14.9 General-9

Conduct Worker Training: The MCOSD will conduct a worker-training program for all field personnel involved with the proposed road and trail management project prior to initiating the project. The program will consist of a brief presentation by persons knowledgeable in the special-status species, sensitive resource, or invasive plants known from the project area. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). The program will include a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; and a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impacts; and the workers' responsibility under the applicable environmental regulation(s).

14.10 General-10

Road and Trail Inspections: Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding sensitive and/or special-status natural resources. Staff will record information pertaining to the status of biophysical resources that could be affected by road or trail use, maintenance, or management activities. These inspections will monitor for the spread of invasive, exotic plants that could affect sensitive and/or special-status native plant or wildlife habitats and any other changes that could create negative impacts to known sensitive and/or special-status native plant or wildlife populations

in the immediate vicinity. Staff will report any findings and make recommended corrective actions if appropriate.

14.11 General-11

Management of Sudden Oak Death: To reduce and control the spread of Sudden Oak Death (SOD) within the MCOSD system, the following practices will be implemented.

The MCOSD staff will educate visitors about preventing the spread of Sudden Oak Death (SOD).

- The MCOSD may use interpretive signs, brochures, ranger talks, and other online and print materials that explain the importance of preventing the spread of pathogens and use of preventative measures.
- The education materials should explain that SOD occurs within the preserve; identify typical symptoms; explain that SOD can be spread by park users, especially during rainy and windy weather; and request that park visitors:
- Use designated parking areas
- Avoid transporting SOD on shoes, bicycles, and the feet of pet dogs and horses through the use of cleaners and disinfectants.

The MCOSD staff shall be trained about SOD host species and disease transmission pathways and, when undertaking road and trail construction and maintenance activities in areas of the preserves affected by SOD, shall implement the following measures.

- Clean equipment, boots, truck tires, and any other exposed material after working in forest and woodland habitats, with a 10% bleach solution or other disinfectant
- Avoid pruning oaks or other affected trees in wet weather.
- Avoid work in forest and woodlands during the wet season when spores are being produced and infections are starting.
- Leave potentially infected downed trees on site instead of transporting the material to an uninfected area.
- Remove potentially infected downed trees from the property only if it is the first infected tree to be detected in the area or if there is a high fire risk.
- Dispose of infected materials at an approved and permitted dump facility within the 14-county infected quarantine zone.
- If necessary to reduce safety or fire hazards or to address aesthetic or recreational impacts, cut, branch, chip, and/or split infected trees in areas where the material would be less likely to be transported to an uninfected location.
- Purchasing nursery stock for restoration plantings at nurseries that follows current BMPs for preventing the spread of SOD (consult the California Oak Mortality Task Force, www.suddenoakdeath.org, for current standards).
- Inspect all plant materials for symptoms of SOD before bringing any plants onto the property.

14.12 Sensitive Natural Resources–1

Modify Management Practices near Sensitive Natural Resources: For construction related activities requiring extensive ground disturbance in and near known sensitive biological resources,

the MCOSD will assess the project or proposed action prior to the start of work to suggest modifications to standard procedures considered necessary to help ensure avoidance of impacts to special- status species and other sensitive biological resources. Actions that many be taken include one or more of the following:

- Mark project footprint near sensitive natural resources. Mark ingress/egress routes, staging areas, and sensitive resources to prevent inadvertent impacts to sensitive resources.
- Inspect ingress/egress routes, escort vehicles, and equipment onto the site if necessary to help prevent impacts on ground nesting and ground dwelling species. Work should be conducted during bird non- breeding season (published California Department of Fish and Wildlife non-breeding season dates are August 15-March 1, but should be adjusted to local conditions).
- Maintain a 15 MPH speed limit in sensitive habitat areas. This will reduce the potential for mortality, dust impacts on vegetation and wildlife. For larger projects, water the roads for dust control near sensitive resources.

14.13 Special-Status Wildlife-1

Literature Reviews: Prior to all road and trail management activities, literature reviews will be conducted to determine if special- status wildlife-species or critical habitats exist within the project area.

The first source reviewed will be the MCOSD's database of special-status wildlife occurrences and sensitive habitats. This database is actively updated and maintained by the MCOSD natural resource staff and contains the most relevant data on sensitive resources on MCOSD land.

In addition to the MCOSD database, the following resources will be reviewed, as necessary, prior to work:

- U.S. Geological Survey topographic maps
- Aerial photographs
- California Department of Fish and Wildlife Natural Diversity Database records
- U.S. Fish and Wildlife Service quadrangle species lists
- University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California
- National Marine Fisheries Service Distribution Maps for California Salmonid Species

Database searches for known occurrences of special-status wildlife species will focus on the vicinity of the project area. Biological communities will be classified as sensitive or nonsensitive as defined by the California Environmental Quality Act and other applicable laws and regulations

14.14 Special-Status Wildlife-2

Preconstruction Surveys: If it is determined that special-status wildlife species may occur in a project area, a qualified biologist will survey the area during the appropriate time window to determine the presence or absence of the species. If the species is located, the MCOSD should conduct the activity to avoid impacts to the species. If avoidance is not possible, the appropriate resource agencies will be contacted to obtain guidance or the necessary permits.

14.15 Special-Status Wildlife-3

Seasonal Restrictions During Bird Nesting Season: The MCOSD will implement the following seasonal restrictions to protect nesting birds. If work will occur outside the nesting bird window of February 1 to August 31, surveys and avoidance measures will not be necessary for nesting birds. However, surveys for special-status species may still be necessary if they are present in the area.

- Identify potential habitat for nesting birds and survey to determine if active nests are present before initiating road and trail management actions. Surveys will include the proposed road and trail management footprint, and a ¼ mile buffer area (for raptors) or a 150 foot buffer area (for other birds). Surveys will be conducted within 14 days of the start of active ground-disturbing activities.
- If any active nests of protected bird species are found, prohibit brushing, mowing and tree removal activities at the nest site and within a buffer area until the young birds have fledged and left the site, and/ or the nest has been abandoned. The buffer area will be 50-250 feet, or as determined through consultation with the California Department of Fish and Wildlife, pursuant to section 2081 of the California Fish and Game Code and the federal Migratory Bird Treaty Act. In general, a line-of-site buffer of at least 150 feet between the nest site and road and trail management activities is recommended. For raptors, buffer distances may be increased to 250 feet or more, depending on the visual distance from the nest to the road and trail management work area, and the sensitivity of the raptor species to road and trail management activities. In addition, a 5 MPH speed limit will be enforced in and near bird nesting habitats and other sensitive habitat areas.
- If impacts to nesting birds cannot be avoided, contact the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities.

14.16 Special-Status Wildlife-4

Avoidance and Protection of Northern Spotted Owl

Northern spotted owls have potential to occur on the MCOSD preserves. The MCOSD will undertake the following actions when construction-related road and trail management actions are planned to occur within or adjacent to potential northern spotted owl habitat:

- Identify potential habitat for the northern spotted owl and survey to determine if it is occupied or if active nests are present before initiating road and trail management activities. Surveys will include the proposed road and trail management footprint and a 150 foot buffer area. Surveys will be conducted within 14 days of the start of active ground-disturbing activities.
- To the greatest extent possible, avoid occupied habitat completely during key northern spotted owl breeding and nesting season (March-September).
- Mark occupied habitat with flagging or temporary fencing.
- Avoid removal of trees with documented northern spotted owl nests. Removal of nest trees typically requires compensatory mitigation.
- Establish a buffer of at least 100 feet around occupied habitats. Within the buffer area, select least harmful road and trail management activities. Within the buffer area,

retain old-growth forest trees and forest canopy, and minimize removal of other vegetation to the fullest extent possible.

- Avoid cutting native trees greater than 10 inches in diameter at breast height within occupied northern spotted owl habitat.
- Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by persons knowledgeable about the northern spotted owl. The program will include the following: a photograph and description of the northern spotted owl, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- If impacts cannot be avoided, contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities.
- Notify the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within 24 hours of finding any injured northern spotted owl or any unanticipated damage to its habitat associated with the proposed action. Notification must include the date, time, and precise location of the specimen/ incident, and any other pertinent information. Dead animals will be sealed in a plastic zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the U.S. Fish and Wildlife Service within seven days to transfer any dead or injured specimens.

14.17 Special-Status Wildlife-5

Avoidance and Protection of Double-Crested Cormorant Nests and Heron and Egret Rookery Sites: There are several known or suspected double-crested cormorant, great blue heron, snowy egret, and black- crowned night heron rookery or nesting sites existing on the MCOSD preserves. These procedures are similar to those described in Special-Status Wildlife Protection-3 for seasonal restrictions during bird nesting season but are more specific to these particular bird species and therefore supersede the more general practices for protecting all nesting birds. The MCOSD will undertake the following procedures when construction-related road and trail management is planned to occur within or adjacent to potential nesting or rookery sites for these species:

- Identify potential habitat for double-crested cormorant, heron, and egret nest and rookery sites and survey to determine if they are occupied or if nests are present before initiating road and trail management actions. Surveys will include the proposed road and trail management footprint and a 150-foot buffer area. Surveys will be conducted within 14 days of the start of active ground-disturbing activities.
- To the greatest extent possible, avoid nests and rookery sites completely during key breeding and nesting periods. Activities in or near known sites will be limited during the known nesting seasons for each species, or until young have fully fledged.
- Establish a buffer of at least 100 feet around rookery and nest sites. Within the buffer area, select least harmful road and trail management activities. Restrict activities

within the buffer to those that will not disturb roosting or nesting behavior (e.g., noise and visual disturbances).

- Mark occupied habitat with flagging or temporary fencing.
- Prohibit the removal of known roost or nest trees. Restrict the removal of other mature riparian trees within the buffer zone.
- Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by persons knowledgeable about the special-status species. The program will include the following: a photograph and description of the special-status species, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- If impacts cannot be avoided during the nesting season (March 1 – August 31), contact the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities.
- Notify the California Department of Fish and Wildlife within 24 hours of finding any injured special-status species or any unanticipated damage to its habitat associated with the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead animals will be sealed in a plastic zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the California Department of Fish and Wildlife within seven days to transfer any dead or injured specimens.
- Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from the wetlands.
- Require all contractors to possess, and all vehicles to carry, emergency spill containment materials.
- Absorbent materials will be on hand at all times to absorb any minor leaks and spills.

14.18 Special-Status Wildlife-6

Avoidance and Protection of California Clapper Rail, California Black Rail, and Salt Marsh Harvest Mouse: The MCOSD preserves encompass some tidal areas that are known to support, or have the potential to support, California clapper rail, California black rail and salt-marsh harvest mouse. In areas where road and trail management activities are planned to occur within or adjacent to salt marsh or brackish marsh habitats, the MCOSD will first consult with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to determine locations where these species could potentially be affected. The MCOSD will obtain and comply with necessary permits

for working in suitable habitat for these species, including, but not limited to the following types of protective actions to prevent harm to these species:

- To the greatest extent possible, avoid occupied California clapper rail and California black rail habitat completely during key breeding and nesting periods. Noise-generating activities, including operating heavy machinery in or near known California clapper or California black rail sites, will be avoided during the nesting season (March 1 – August 31).
- During the California clapper rail and California black rail breeding season, identify potential habitat for California clapper rail and California black rail, and survey to determine if it is occupied before initiating road and trail management activities. Survey will include the proposed road and trail management footprint and a 150-foot buffer area around occupied habitat. Surveys will be conducted within 14 days of the start of active ground- disturbing activities. Occupied habitat will be marked with flagging or temporary fencing.
- Assume presence of salt marsh harvest mouse in appropriate habitats, avoid impacting these areas, and establish a protective buffer. Because the U.S. Fish and Wildlife Service frequently does not allow trapping of the salt marsh harvest mouse to determine its presence, the MCOSD will assume presence in appropriate habitats and avoid disturbing them. If appropriate habitats are present, a 200-foot buffer will be established around the habitat. If work is required within the buffer, activities will be restricted within the buffer to those that will not disturb nesting behavior (e.g., through noise or visual disturbances), and vegetation will be removed by hand under the supervision of a qualified biologist to ensure no impacts to the salt marsh harvest mouse occur.

14.19 Special-Status Wildlife-7

Protection of Fish Habitats: If crossing a stream with the potential to support fish is part of a road or trail project, proper fish passage will be designed:

- Preference will be for a bridge instead of a culvert, and an open-arch culvert instead of a pipe culvert. A bridge that will not affect streamflow will be the preferred option. If a culvert is necessary, an open-arch design that does not affect the bed or flow of the stream will be preferred. If an open arch culvert is not possible, pipe culverts will be installed slightly below grade in an area perpendicular to the crossing where the existing streamflow is linear. Resting pools will be designed above and below culverts to allow fish to rest before and after having to pass through the culvert.

14.20 Special-Status Wildlife-8

Worker Awareness Training: Conduct worker awareness training. Worker training will include the following information: a photograph and description of each special-status species, sensitive, resource, or invasive plant known from the project area; a description of its ecology and habitat needs; potentially confusing resources (e.g., similar species or habitats); an explanation of the measures being taken to avoid or reduce adverse impacts; reporting and necessary actions if sensitive resources are encountered; and workers' responsibility under the applicable environmental regulation.

14.21 Special-Status Wildlife-9

Construction Monitoring: If federal- or state-listed wildlife species are known to be present in the project area or immediate surroundings, a qualified biologist will monitor construction activities to ensure impacts to species will be avoided. If listed wildlife species are present within the immediate vicinity of the project area, a more involved monitoring program might be necessary to ensure that these species do not enter the project area. If a listed species is observed by a worker or construction monitor, work will cease immediately and the appropriate resource regulatory agency will be contacted if necessary. A construction monitoring program will be developed for each project on a project-specific basis.

14.22 Special-Status Wildlife-10

Relocation of Special-Status Species: If federal- or state-listed wildlife species are located on site, the appropriate resource agency will be contacted, and a qualified biologist possessing any necessary permits will relocate individuals to suitable habitat off site as applicable.

14.23 Special-Status Wildlife-11

Noise Control: Utilize the best available noise-control techniques when in proximity to occupied sensitive wildlife habitat. The best available noise-control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will minimize disturbance of nearby wildlife populations.

14.24 Special-Status Wildlife Protection-12

Trash Control: Store food-related trash in closed containers and remove it from the project site daily. Food-related trash can attract wildlife to construction sites, disrupting their normal behavior patterns.

14.25 Special-Status Wildlife-13

Road and Trail Inspections: Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding special-status wildlife species. Staff will record information pertaining to the spread of invasive exotic plants that could affect wildlife habitats and to the status and quality of any known special-status wildlife species in the immediate vicinity that could be affected by road or trail use, maintenance, or management activities. Staff will report any findings to MCOSD natural resource staff and make recommended corrective actions if appropriate.

14.26 Special-Status Plants-1

Literature Reviews: Prior to all management activities, literature reviews will be conducted to determine if special-status plant species, critical habitats, or sensitive communities exist within the project area. In addition to the MCOSD database, the following resources will be reviewed, as necessary, prior to work:

- U.S. Geological Survey topographic maps
- U.S. Fish and Wildlife Service National Wetlands Inventory maps
- Bay Area Aquatic Resource Inventory Database
- Aerial photographs

- California Department of Fish and Wildlife Natural Diversity Database records
- U.S. Fish and Wildlife Service quadrangle species lists
- California Native Plant Society inventory records

Database searches for known occurrences of special-status plant species will focus on the vicinity of the project area. Biological communities present in the project location and surrounding areas will be classified based on existing plant community descriptions described in the Preliminary Descriptions of the Terrestrial Natural Communities of California. Biological communities will be classified as sensitive or nonsensitive as defined by the California Environmental Quality Act and other applicable laws and regulations.

14.27 Special-Status Plants-2

Avoidance and Protection of Special- Status Plant Species near Road and Trail Management Projects: The MCOSD will undertake the following actions when construction-related road and trail management is planned to occur within or adjacent to special-status plant populations:

- Identify potential special-status plant habitat and survey to determine if it is occupied before initiating road and trail management activities. Surveys will include the proposed road and trail management footprint and a 100-foot buffer area around the footprint if potential special-status plant habitat exists. Surveys will be conducted within 14 days of the start of active ground-disturbing activities.
- To the greatest extent possible, avoid occupied special-status plant populations completely.
- If full avoidance is not possible, restrict work to the period when special-status plants have flowered or set seed.
- Establish a buffer of at least 100 feet around special-status plant populations. Within the buffer area, select the least harmful road and trail management activities.
- Mark special-status plant populations with flagging or temporary fencing.
- Prevent unnecessary vehicular and human intrusion into special-status plant species habitat from adjacent construction, maintenance, and decommissioning activities. Where necessary, reroute or sign and fence trails to avoid the special-status plant population.
- Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near special-status plant populations. Activities will be restricted within the buffer to those that will not disturb roosting or nesting behavior (e.g., through noise or visual disturbances). Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from special-status plant populations.
- To minimize downslope erosion and sedimentation near special-status plants, maintain erosion- and sediment-control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and

sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.

- Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by people knowledgeable about the special-status species. The program will include the following: a photograph and description of the special-status species, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- If impacts cannot be avoided, contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities. Permit conditions will likely require presence of a biological monitor, installation of exclusion fencing, surveys to relocate or avoid the species, and/or possibly timed or staged road and trail management activities that avoid the species or reduce potential for take or harm.
- If a special-status plant species is detected during work activities, stop work immediately at that location and contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within two working days. Work will not resume at that location until authorization is obtained from the appropriate agency (unless prior approval has already been granted).
- Notify the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within 24 hours of finding any damaged special-status plant species or any unanticipated damage to plant habitats associated with the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead plants should be sealed in a zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service within two days and transmit the specimen in the appropriate manner.
- If work occurs during the dry season and is greater than 100 feet from special-status plant species habitat, erosion control and water quality protection measures generally will not be necessary.

14.28 Special-Status Plants-3

Ensure Proposed Actions are Consistent with Ongoing Special-Status Plant Management Programs: Some MCOSD preserves (e.g., Ring Mountain and Old Saint Hilary's) have ongoing special-status plant management and monitoring programs. In these locations the MCOSD will ensure that all new proposed road and trail management activities are consistent with the ongoing management of these sites:

- Review existing management plans and analyze proposed actions for consistency against adopted procedures.

- Ensure that new road and trail management projects do not interfere with ongoing management and maintenance activities.

14.29 Special-Status Plants-4

Earthwork near Special-Status Plant Populations, Many special-status plants are closely associated with specific soil types or geologic conditions (e.g., serpentine or ultramafic soils). To protect these species, the MCOSD will implement the following practices:

- Use native soil in all MCOSD road and trail management projects in natural habitat areas.
- Do not allow the introduction of incompatible fill near special-status plant populations. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed-free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Salvage, store, and reuse topsoil. Where activities disturb soil temporarily, the top 6 to 12 inches of topsoil will be salvaged to retain seeds, soil mycorrhizae, and fungi from the excavated or otherwise disturbed area. The salvaged topsoil will be reapplied as a topdressing or topcoat over backfill, unless it is known to contain invasive plant seeds or propagules.

14.30 Special-Status Plants-5

Erosion Potential near Special-Status Plants: The MCOSD will seek to prevent erosion near special-status plants. To protect these species, the MCOSD will:

- Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, the allowable disturbance footprint will be limited and marked with flagging or fencing. Following the end of work, surface soils will be scarified to retard runoff and promote rapid revegetation.
- Maintain a 15 MPH speed limit in sensitive habitat areas. This will reduce the potential for dust impacts on vegetation. For larger projects, roads will be watered for dust control near sensitive resources.
- Immediately rehabilitate areas where project actions have disturbed soil. Areas disturbed by equipment or vehicles will be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices to protect special-status plant populations during ground- disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of

wheat, barley, and other nonnative plant seeds, must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.), and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. If work occurs during the dry season and is more than 100 feet from special- status plant populations, erosion-control and water quality protection measures will not be necessary.

14.31 Special-Status Plants-6

Introduction of Invasive and Nonnative Plants and Plant Material: The MCOSD will prevent the introduction of invasive and other nonnative plant material into special-status plant habitats by implementing the following practices:

- To the extent feasible, use plant seeds, cuttings, and other propagules that are collected from the same area as the project site (usually the same watershed or preserve). Allow collection of no more than 5% of any native plant population to prevent over collecting of wild plant material sources.
- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground- disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Only weed-free materials will be used as erosion- and sediment control devices. Materials must be certified weed- free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and not of plastic monofilaments or other materials that could entrap snakes or amphibians.
- Do not allow the introduction of incompatible fill near special-status plant populations. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed-free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. To prevent the spread of invasive plants, treatment of contaminated soils may include disposal on site within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green-waste facility.
- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and interior and exterior of vehicles and equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.

14.32 Special-Status Plants-7

Revegetation with Native, Geographically Appropriate Plant Species: The MCOSD will revegetate areas where construction and ground disturbance has occurred, to promote a species composition and vegetative structure that integrates with the surrounding natural community, to the maximum extent possible. This will be accomplished by implementing the following:

- Revegetate with annual grasses and forbs. Use of annual grasses and forbs can provide rapid vegetative cover and initial soil stabilization, and erosion control, promote habitat for native species, and provide a more desirable visual cover.
- Prepare a project-specific revegetation plan. The MCOSD natural resource staff will develop a revegetation plan for projects as needed.
- Wherever possible use locally collected native plant materials from the project footprint and surrounding areas. If possible, plant materials should be collected from within the same watershed or preserve. The MCOSD will allow collection of no more than 5% of any native plant population to prevent over collection of wild plant material sources. If sufficient local plant materials are not available for collection prior to project activities, geographically appropriate native plant materials will be purchased from a local nursery or seed supplier.

14.33 Special-Status Plants-8

Worker Awareness Training: The MCOSD will conduct a worker awareness training for all field personnel involved with proposed road and trail management activities prior to initiating the project. The program will include the following:

- a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area
- a description of its ecology and habitat needs
- potentially confusing resources (e.g., similar species or habitats)
- an explanation of the measures being taken to avoid or reduce adverse impacts
- reporting and necessary actions if sensitive resources are encountered
- workers' responsibility under the applicable environmental regulation

14.34 Special-Status Plants-9

Relocation of Special- Status Plants: If special-status species are located in the project area and impacts to these species are unavoidable, plants and/or propagules will be relocated to suitable habitat off site prior to the commencement of construction or management activities. Alternatively, off-site mitigation for impacts could be considered. If special-status wildlife species are located on site, the appropriate resource agency will be contacted, and a qualified biologist possessing any necessary permits will relocate individuals to suitable habitat off site as applicable.

14.35 Special-Status Plants-10

Road and Trail Inspections: Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding special-status plant resources. Staff will record information pertaining to the spread of invasive, exotic plants that could affect special-status plant habitats and to the status and quality of any known special-status

plant populations in the immediate vicinity that could be affected by road or trail use, maintenance, or management activities. Staff will report any findings and make recommended corrective actions if appropriate.

14.36 Special-Status Plants-11

Reuse and Replanting of Native Trees and Shrubs: Where feasible, replant excavated trees and shrubs, removed from unstable fill slopes and cut banks, on graded contours to restore the areas with native vegetation and promote native plant habitat. These plants will represent the most locally appropriate materials for restoration and conform to the vegetation types of the surroundings.

14.37 Special-Status Plants-12

Ripping and Recontouring Roads: Rip and decompact road and trail surfaces where appropriate. Ripping surfaces provides a more suitable substrate for recolonization or revegetation by native plant materials. Decommissioned road and trail surfaces will be recontoured and sloped away from wetlands and water bodies to prevent the potential for erosion into these features. Any shoulders, ditches, or embankments will also be removed, and the area graded to a natural contour.

14.38 Invasive Plants-1

Compliance with Integrated Pest Management Ordinance: All herbicide use will be administered under Marin County's Integrated Pest Management (IPM) Ordinance, and work will only be conducted under the supervision of a certified pest control applicator. All herbicide use for vegetation management actions will be posted and reported consistent with the ordinance.

14.39 Invasive Plants-2

Herbicide Use near Sensitive Natural Resources: Limit herbicide use within 100 feet of sensitive natural resources. Hand control, mechanical control, and cultural control will be used wherever possible to minimize the use of herbicides near sensitive resources.

14.40 Invasive Plants-3

Survey and Control of Invasive Plants in Project Footprint: Before ground-disturbing activities begin, inventory, and prioritize invasive plant infestations for treatment within the project footprint and along access routes. Controlling priority invasive plant infestations at least a year prior to the planned disturbance, if feasible, will minimize invasive plant seeds in the soil.

- Where feasible, survey the road shoulders of access routes for invasive plant species and remove priority invasive plants that could be disturbed by passing vehicles.
- Avoid establishing staging areas in areas dominated by invasive plants. If populations of priority invasive plants occur within or near staging areas, their perimeters will be flagged so that vehicle and foot traffic can avoid them.
- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and the insides and outsides of vehicles and equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the

MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.

14.41 Invasive Plants-4

Limited Soil Disturbance: Soil disturbance during road and trail projects will be minimized to reduce the potential for introduction or spread of invasive plant species, to protect topsoil resources and to reduce available habitat for new invasive plant species:

- Plan all road and trail management activities to disturb as little area as possible.

14.42 Invasive Plants-5

Cleaning of Heavy Equipment, Maintenance Tools, and Fire Management Vehicles: The MCOSD will implement the following procedures when working in or near infested areas:

- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and the insides and outsides of vehicles and equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.

14.43 Invasive Plants-6

Reducing Potential for Establishment of Invasive Plants on Disturbed Soil Surfaces: To minimize the establishment of invasive species in disturbed soil areas, the MCOSD will implement one or more of the following actions:

- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground- disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
- Do not allow the introduction of incompatible fill. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed- free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. To prevent the spread of invasive plants, treatment of contaminated soils may include disposal on site within already infested areas, chipping or pile burning

and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green-waste facility.

14.44 Invasive Plant Management-7

Monitor and Control of Invasive Plants in Road and Trail Management Work Areas

- Periodically monitor areas subject to road and trail management activities for a minimum of three years following project completion for the presence of invasive plant species. If invasive plants threaten to become established or spread as a result of project activities, they will be treated in conformance with the Vegetation and Biodiversity Management Plan.

14.45 Invasive Plant Management-8

Protection of Streambanks and Water Quality During Invasive Plant Removal

- Install approved erosion-control devices following the removal of invasive plants from streambanks to prevent sediment movement into watercourses and to protect bank stability. The MCOSD will obtain and comply with necessary wetland permits and integrated pest management procedures related to work in and near wetlands. Where appropriate, the MCOSD will also seek guidance from a fisheries biologist regarding the amount of material permissible to remove from stream corridors when controlling large patches of invasive plants, so as to prevent changes in water temperature and quality. If work occurs during the dry season near seasonally wet areas, erosion-control and water quality protection measures generally will not be necessary.

14.46 Invasive Plant Management-9

Road and Trail Inspections: Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding sensitive biological resources. Inspectors will record information pertaining to invasive exotic plant populations and new infestations that may be threatening sensitive species and habitats. Inspectors will report any findings and make recommended corrective actions if appropriate.

14.47 Invasive Plant Management-10

Monitoring Decommissioned Areas: Monitor areas of decommissioned roads and trails for the presence of invasive plant species for two years following decommissioning to ensure no infestations develop. If invasive species are detected at this time, corrective actions will be taken as appropriate.

14.48 Construction Contracts -1

Standard Procedures in Construction Contracts: When using contractors to perform road and trail management, the MCOSD will include some or all of the following standard procedures into construction contracts.

Time of work. The contractor will work with the MCOSD natural resource staff to determine the optimal timing of contracted work. Many timing restrictions relate to avoiding migration, gestation, or flowering periods for special-status species. Other types of timing restrictions relate to avoiding the spread of invasive plants or scheduling work in wetlands during the dry season.

Work in and near water bodies and wetlands. To protect water quality, the contractor will be required to prepare and implement a stormwater pollution prevention plan for road and trail management work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings. The following practices will be followed to protect these habitats:

- Avoid construction work within a buffer of 100 feet from the ordinary high-water mark of any water body, wetland, or tidally influenced area. If construction work cannot be fully avoided in water bodies, wetlands and riparian areas, the appropriate state and federal agencies will be consulted and permits obtained.
- Within the buffer, restrict activities to the least-harmful methods. For example, herbicides will be restricted to those that are EPA-approved for use near water. Activities that disturb soil or could cause soil erosion or changes in water quality will be prohibited.
- Within the buffer, limit work that may cause erosion to low-flow periods. Low-flow months for local creeks are typically August to October. For tidal areas, work will not occur within two hours of high-tide events at construction sites when high tide is greater than 6.5 feet as measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).

Work in and near invasive plant infestations. The contractor will work with the MCOSD natural resource staff to identify any priority invasive plants that occur near the project work area, including the project footprint, access roads, staging areas, and similar work areas. The contractor will agree to comply with requirements to reduce the spread or transport of priority invasive plants related to construction activities. Requirements may include some or all of the following:

- Conduct a training program for all field personnel involved with the proposed road and trail management project prior to initiating the project. The program will consist of a brief presentation by persons knowledgeable about the special-status species, sensitive resource, or invasive plants known from the project area. The program will include the following: a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impact; and the workers' responsibility under the applicable environmental regulation. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- Restrict work to periods when invasive plants are not in fruit or flower.
- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and insides and outsides of vehicles and equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.

- Dispose of green waste in a manner that does not spread invasive plants. Disposal practices may include on-site disposal in an already infested area or off-site disposal in a cogeneration plant or an approved green- waste composting facility.

Work in environmentally sensitive areas. The MCOSD natural resource staff will identify any environmentally sensitive areas in or near construction projects prior to the start of the project. The following practices will be followed to protect these resources: Environmentally sensitive areas may include special-status plant or wildlife species or their habitats; wetlands; creeks, streams, and related riparian areas; and sensitive vegetation types as described in this report.

- Avoid work in environmentally sensitive areas. If work cannot be fully avoided, any applicable regulatory agencies will be consulted and the necessary permits obtained.
- Use locally collected plant materials for revegetation projects. Whenever possible, locally collected native plant materials from the project footprint and surrounding area will be used for revegetation. Plant materials should be collected from within the same watershed or the MCOSD preserve if possible. The MCOSD will allow collection of no more than 5% of any native plant population to avoid over collection of wild plant material sources. If sufficient local plant materials are not available for collection prior to project activities, geographically appropriate native plant materials will be purchased from a local nursery or seed supplier. The contractor will allow the MCOSD to inspect and approve all plant materials and seed prior to use on site.
- Comply with requirements of the MCOSD project permits to protect special-status species and their associated habitats. For road and trail management work in or near special-status species habitat, the contractor is required to comply with requirements of the MCOSD project permits to protect special-status species and their associated habitats before and during construction, and to cooperate with the MCOSD in implementing any state and federal permits and agreements for the project. The special-status species population plus a buffer will be designated as an environmentally sensitive area using lath and flagging, pin flags, or temporary fencing (depending on resource sensitivity to work). The contractor will be required to avoid all designated environmentally sensitive areas during construction. For any special-status species or their habitats that cannot be fully avoided, the contractor will work with the MCOSD to obtain and comply with federal and state Endangered Species Acts, the federal Migratory Bird Treaty Act, and the California Fish and Game Code permits and agreements.
- Restrict soil disturbance and import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. This includes the footprint of access roads, staging areas, and areas of temporary disturbance. The contractor and its staff and subcontractors will agree not to drive off road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor will agree that if soil excavation is required, every attempt will be made to have a balanced cut-and-fill project that reuses all native soils on site. Nonnative soil or fill material will not be used unless preapproved by the MCOSD natural resource staff.
- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground- disturbing activities and until all disturbed soils have been

stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials will be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials will be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.

Other procedures:

- Keep all entry gates to the project site locked during non-construction hours or locked at all times if not needed for construction access.
- Equip all vehicles with a suitable fire extinguisher.
- Immediately rehabilitate areas where project actions have disturbed soil. Areas disturbed by equipment or vehicles will be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants.

14.49 Cultural Resources-1

Historical and Archaeological Resource Mapping: Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will determine whether or not the project area is located within an area that is mapped as "historically or archaeologically sensitive" according to map 4-1 (Historical Resources) in the Marin Countywide Plan and/or identified as culturally sensitive on other confidential maps on file with the county that list prehistoric or archeological sites. If the project area is identified as sensitive on any of these maps, the site will be field surveyed by a state-qualified archeologist or an archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.

14.50 Cultural Resources-2

Consultation with Northwest Information Center: Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will contact the Northwest Information Center of the California Historical Resources Information System and request a records search of known historic and cultural resources within and adjacent to the proposed project area, and seek the determination of the information center coordinator regarding the potential for cultural resources on the site. Should the records request or the recommendation of the coordinator indicate the presence of sensitive resources, the site will be field surveyed by a state-qualified archeologist or archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.

14.51 Cultural Resources-3

Tribal Consultation: The following tribal consultations will be conducted prior to any new ground disturbance related to road or trail construction:

- Send the road and trail project description information to the Native American Heritage Commission and request contact information for tribes with traditional lands or places located within the geographic areas affected by the proposed changes.
- Contact each tribe identified by the commission in writing and provide them the opportunity to consult about the proposed project.
- Organize a consultation with tribes that respond to the written notice within 90 days.
- Refer proposals associated with proposed road and trail modifications to each tribe identified by the commission at least 45 days prior to the proposed action.
- Provide notice of a public hearing at least 10 days in advance to tribes and any other persons who have requested that such notice be provided.

14.52 Cultural Resources-4

Alteration of Historic Structures: Limit the modification of ranch structures or other historical features to maintain the aesthetic quality, historical setting, and rural character of the preserves.

14.53 Cultural Resources-5

Permanent Protection: Where road and trail activities cannot avoid sensitive cultural resources, require modifications to the actions to incorporate the resource and include a resource protection plan for its maintenance and future protection.

14.54 Cultural Resources-6

Construction Discovery Protocol: If cultural resources are discovered on a site during construction activities, halt all earthmoving activity in the area of impact until a qualified archeological consultant examines the findings, assesses their significance, and develops proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.

14.55 Cultural Resources-7

Human Remains: In the event that human skeletal remains are discovered, discontinue work in the area of the discovery and contact the County Coroner. If skeletal remains are found to be prehistoric Native American remains, the coroner will call the Native American Heritage Commission within 24 hours. The commission will identify the person(s) it believes to be the most likely descendant of the deceased Native American. The most likely descendant will be responsible for recommending the disposition and treatment of the remains. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation/grading work for means of treating or disposing of the human remains and any associated grave goods as provided in section 5097.98 of the California Public Resources Code.

14.56 Cultural Resources-8

Community Awareness: Increase public awareness of local history and archeology, and the need to protect cultural resources. This may be accomplished by highlighting cultural resources along a

road or trail with interpretive signs and information kiosks, and/or by placing a historical marker along the road or trail segment to inform trail users about the importance of the site and/or event.

14.57 Water Quality-1

Modifications to Road and Trail Management Actions to Protect Water Bodies, Wetlands, and Tidally Influenced Areas: Road and trail management activities will be restricted near wetlands and other waters to reduce the potential for sediment or pollutants to enter water bodies or wetlands. If work occurs during the dry season and is greater than 100 feet from creeks and wetlands, erosion control and water quality protection measures will not be necessary.

- If possible, avoid work around water bodies, wetlands, and tidally influenced areas, including a buffer area of 100 feet around these areas (i.e., as measured from the top bank of creeks, streams, or ponds).
- If construction work in wetlands, riparian areas, or tidally influenced areas cannot be fully avoided, consult with the appropriate state and federal agencies. This consultation may result in wetland delineation, permit applications, and mitigation that meets Countywide Plan and other regulatory requirements.
- Within the 100-foot buffer, limit construction activities. Limit activities to least-harmful methods; restrict herbicides to those that are EPA-approved for use near water. Prohibit activities that disturb soil or could cause soil erosion or changes in water quality.
- Within the 100-foot buffer, limit work that might cause erosion to low-flow or low-tide periods. Low-flow months for local creeks are typically August to October. For tidal areas, work will not occur within two hours of high-tide events at construction sites when high tide is greater than 6.5 feet as measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).
- Within the 100-foot buffer, minimize erosion and sedimentation by maintaining erosion- and sediment- control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include weed-free straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.

14.58 Water Quality-2

Temporary Erosion and Sediment Control: Temporary sediment-control practices will be implemented when new trail construction or existing trail improvements will result in greater than 1 acre of disturbance. Temporary practices may also be required when disturbance is less than 1 acre but close to a sensitive resource or has the potential to discharge a significant amount of sediments or pollutants to surface water. Several of the listed temporary practices can also be used as post-construction stabilization measures: Information and standard details for temporary

erosion-control BMPs can be found in the California Stormwater BMP Handbook – Construction (CASQA 2009).

- Install temporary fencing around staging areas and along limits of construction when work areas are immediately adjacent to sensitive resources. This will limit the disturbance footprint and help protect resources, including native vegetation, wetlands, and streams, during grading operations.
- Install linear sediment barriers to slow and filter stormwater runoff from disturbed areas. Fiber or straw roll barriers can also be spaced along the contours of a disturbed area after construction to prevent concentrated flow and stabilize the area until there is sufficient vegetation coverage.
- Apply one or more of the following to restore or protect areas disturbed by excavation or grading operations:
- tilling (minimum 6-inch depth) and seeding
- hydromulch and tackifier
- planting
- straw or wood mulch
- coir (jute) netting
- biodegradable erosion-control blankets
- plastic sheeting (only as an interim protection during storm events when construction site is still active)
- Cover soil and loose material stockpiles with weighted plastic sheeting when inactive or prior to storm events.
- Active and inactive material stockpiles will be encircled at all times with a linear sediment barrier.
- Manage sediment when diverting streamflow. When constructing trail or road stream crossings, a temporary clear-water diversion may be required. The following options will be considered for isolating the work area and protecting resources when diverting streamflow via gravity-fed flexible pipe or active pumping around the work area: sand or gravel bag coffer dam enclosed in plastic sheeting, water-filled dam (e.g., Aquadam), sheet piling, and turbidity curtains.
- Manage sediment during dewatering operations. The following options will be considered for applying or containing and treating sediment-laden water produced during dewatering operations: sprinkler system to open area (as long as there is no visible surface runoff), temporary constructed sediment basin or trap, rented sedimentation tank (e.g., Baker Tank).

14.59 Water Quality-3

Erosion Control Measures

- Avoid the use of heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction.
- If no feasible alternative is available and staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit the disturbance footprint and flag or mark the

allowable disturbance area in the field. Following the end of work, newly disturbed soils will be scarified to retard runoff and promote rapid revegetation.

- Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
- Leave the roots of target invasive trees and shrubs in place in areas with highly erosive soils or steep slopes. Stumps may be cut or ground down to the ground level.

If work occurs during the dry season and is greater than 100 feet from water bodies and wetlands, erosion control and water quality protection measures will not be necessary.

14.60 Water Quality-4

Preventing or Reducing the Potential for Pollution:

- Include spill prevention and clean-up in annual staff training sessions.
- Properly use, store, and dispose of chemicals, fuels, and other toxic materials according to manufacturer's specifications and agency regulations.
- Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds.
- Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from the wetlands.
- Require all contractors to possess, and all vehicles to carry, emergency spill containment materials.
- Absorbent materials will be on hand at all times to absorb any minor leaks and spills.

14.61 Water Quality-5

Road and Trail Inspections: Inspect roads and trails for conditions that might adversely affect water quality or other resources. Road and trail maintenance staff will use road/trail inspection forms to facilitate complete and consistent data capture and reporting of the following conditions:

- concentrated flows on roads and trails that cause erosion, rilling, or gullying
- runoff and effects to water quality of nearby habitats
- the spread of invasive exotic plants near wetlands and waters
- the status and quality of any known sensitive resources in the immediate vicinity that could be affected by road or trail use and/or maintenance

Staff will report any findings and make recommended corrective actions if appropriate.

14.62 Water Quality-6

Grading Windows: Restrict grading activity to the dry months (generally May 15 – October 15), when associated erosion will be reduced to the maximum extent possible.

14.63 Water Quality-7

Culvert Inspection: Inspect culverts on a regular basis. Inspections will ensure that culverts do not clog with sediment or debris. Blocked culverts may affect water quality, change the water course, increase erosion or sediment runoff, or affect wildlife. Any materials blocking culverts will be removed and disposed of outside of the watercourse in an area not subject to erosion. If a significant blockage or sedimentation exists, the MCOSD will plan and implement corrective actions as necessary. Excavation of sediments within streams may require a maintenance permit from the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and/or the San Francisco Water Quality Control Board.

14.64 Water Quality-8

Proper Disposal of Excess Materials: Avoid resource impacts when disposing of materials. Any excess material related to new construction, maintenance, or decommissioning (including soils, debris, trash, or other materials that need to be removed as part of management activities) will be disposed of at an appropriate site where materials could not impact sensitive resources. For example, grading-related excess soils or removed debris will not be placed in or around a water body or wetland, where the materials could be subject to erosion that would affect water quality.

14.65 Water Quality-9

Sidecasting Construction Material: Avoid sidecasting, or at a minimum contain and remove sidecast material when it has the potential to reach surface waters. The following “rules of thumb” based on Fishnet 4C Guidelines (2007) will be used as guidance:

Slope gradient	Distance to watercourse	Sidecast rule
Any slope	Will likely enter watercourse	Not allowed
≤20%	≥150 feet	Allowed
≤50%	≥300 feet	Allowed
> 50%	Long vegetated slope	Allowed
>50%	Shorter, sparsely vegetated slope	Not allowed

14.66 Geologic Hazards-1

Assessment and Requirements in Areas of Potential Geologic Hazard: Given the unique and potentially high risks associated with geologic hazards, general best management practices for these types of potential impacts are not appropriate. Instead, when new trails or trail improvements are proposed in preserve areas with a propensity for geologic instabilities, including slides or debris flows in the more elevated areas and subsidence or liquefaction in the low-lying areas, a site assessment will be conducted by a certified geologist or geotechnical engineer. If geologic hazards are confirmed in the area, the site assessment will propose adequate avoidance measures or engineering elements to ensure trail and infrastructure stability and maintained public safety.

14.67 Geologic Hazards-2

Construction in Areas of Slides and Debris Flows: In areas of identified slide and debris flow hazards, locate and design new trails, drainage improvements, or irrigation so as not to alter the shape or stability, or change the drainage or groundwater conditions, of an existing slide area. Such alterations would potentially result in reactivation or further destabilization of the slope.

14.68 Geologic Hazards-3

Construction in Areas of Erodible and Expansive Soils: Use avoidance tactics or engineered grading to mitigate adverse geologic conditions and potential hazards. Prior to final road or trail project design, consult with engineering geologists and/or geotechnical engineers to identify and implement mitigating road or trial designs for new facility locations or when improving existing facilities.

14.69 Geologic Hazards-4

Construction in Areas of Collapsible Soils: In any of the lower elevation preserves (i.e., those near sea level) assess soil type and the potential for subsidence to determine optimum trail location and structural foundations necessary to avoid collapsible soils. In consultation with a certified geologist or geotechnical engineer, design roads and trails to avoid or reduce this potential hazard through optimizing location or by implementing appropriate engineering designs.

14.70 Air Quality-1

Implement BAAQMD Measures: As part of the review process required under the California Environmental Quality Act, the MCOSD will use the current Bay Area Air Quality Management District guidelines to evaluate the significance of air quality impacts from road and trail management plans and projects, and to establish appropriate mitigation requirements.

14.71 Air Quality-2

Minimize Dust Control Emissions during Construction: The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District control measures for emissions of dust during construction of all road and trail modifications and improvements. The following basic control measures cover routine operation and maintenance and day-to-day upkeep of roads and trails, minor road and trail reconstruction, and minor decommissioning activities, they also cover changes in use, the conversion of a road to a trail, or any proposed action that does not involve construction activities, but an increase or decrease in the level of activity:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard (vertical space between the top surface of the material and the top of the hauling container).
- Pave, apply water three times daily, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

14.72 Air Quality-3

Enhanced Dust Control during Construction: The following enhanced control measures cover major road and trail reconstruction, rerouting, and decommissioning activities, such as repairing, replacing, or restoring heavily used and wide road and trail segments; they also cover resurfacing, replacing, and restoring trailhead areas and installing new water quality and drainage features:

- Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion-control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

14.73 Air Quality-4

Dust Control during Construction in Sensitive Resource Areas: The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District optional control measures for emissions of dust during construction of all road and trail modifications and improvements that are large in area, located near sensitive resources, or which for any other reason may warrant additional emission reductions. The following measures cover rerouting road and trail alignments, significant decommissioning or restoration activities, and the construction of a new road and trail alignment on undisturbed land to connect previously unconnected points:

- Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install wind breaks, or plant trees/vegetative wind breaks, at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.
- Limit the area subject to excavation, grading, and other construction activity at any one time.

14.74 Noise-1

County Noise Ordinance Requirements: For all maintenance and construction projects using powered or heavy equipment, implement the day and time restrictions for equipment operation and maintenance specified by Marin County Ordinance 3431, Construction Noise.

14.75 Noise-2

Noise Control during Construction within and adjacent to Sensitive Wildlife Populations

- Ensure that equipment and vehicles utilize the best available noise-control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) to prevent disturbance of nearby wildlife populations.

- Except for emergency projects, prohibit nighttime operations or planned operations during breeding season in areas adjacent to sensitive wildlife populations.