

# TOWN OF FAIRFAX

## STAFF REPORT

### December 12, 2016

**TO:** Mayor and Town Council

**FROM:** Garrett Toy, Town Manager *GT*

**SUBJECT:** Adoption of a resolution consenting to the construction of two bridges in the Elliott Nature Preserve within the Cascade Canyon Open Space Preserve

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CONTINUED FROM THE DECEMBER 7<sup>TH</sup> MEETING

#### **RECOMMENDATION**

*Due to the short turnaround between Council meetings, staff is recommending this item be pulled from the Agenda and continued to the Council's January meeting to allow sufficient time for staff and Vice-Mayor Lacques to meet with the MCOSD as well as provide more opportunity for residents to submit comments on the project.*

#### **DISCUSSION**

At its December 7, 2016 meeting, the Council considered a request from the Marin County Open Space District (MCOSD) for the construction of two new bridges in the Elliott Nature Preserve. Attached is the December 7<sup>th</sup> staff report which details the proposal and request from MCOSD.

After much consideration of public comment and the MCOSD's report, the Council assigned Vice Mayor Lacques to work the County and Town staff to develop a project that would address the Council's concerns regarding such issues as bike racks, trash, pedestrian and bicyclist safety, and the environment. The Council requested this item be continued to this meeting.

#### **FISCAL IMPACT**

None

#### **ATTACHMENTS**

December 7, 2016 staff report

AGENDA ITEM # 5




# TOWN OF FAIRFAX

## STAFF REPORT

### December 7, 2016

**TO:** Mayor and Town Council

**FROM:** Garrett Toy, Town Manager 

**SUBJECT:** Adoption of a resolution consenting to the construction of two bridges in the Elliott Nature Preserve within the Cascade Canyon Open Space Preserve

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#### **RECOMMENDATION**

Adopt resolution consenting to the construction of two bridges in the Elliott Nature Preserve within Cascade Canyon Open Space Preserve.

#### **DISCUSSION**

The County of Marin purchased property at the end of Cascade Drive in the Town of Fairfax (also known as the "Elliott Nature Preserve" in 1976 and transferred it to the Town. The Town transferred property to the Marin County Open Space District (MCOSD) in 1987 through a grant deed. The Elliott Nature Preserve is located within Cascade Canyon Open Space Preserve. The grant deed contains a clause that states that the MCOSD "will not sell, trade or exchange said property or construct any improvements thereon without the express consent of the grantor."

MCOSD has received a proposal from the Friends of the Corte Madera Creek Watershed and the Marin Bicycle Coalition to construct two non-vehicular bridges across San Anselmo Creek along the Cascade Fire Road, designate a portion of the Canyon Trail for multiple use, and decommission the High Water Trail. Attached for your reference are the County of Marin staff memo and the proposal. Per the deed restriction, MCOSD is required to seek Town approval of the proposed improvements.

MCOSD is supportive of the proposal as the bridges will provide safe access across the stream for all users including people with disabilities and the decommissioned high water trail will reduce harmful sediment in San Anselmo Creek and improve fish habitat. MCOSD and Town staff agree that at least one of the bridges is within the Elliott Nature Preserve. Rather than trying to delineate the property boundaries for the bridges, the Town is being asked to approve the construction of both bridges. MCOSD also would like the Town's approval to replace the bridge across Carey Camp Creek, if needed, in the future.

#### **FISCAL IMPACT**

None: MCOSD is responsible for all costs of the proposed improvements.

#### **ATTACHMENT**

1. Resolution
2. County memo with proposal from the Friends of the Corte Madera Creek Watershed and the Marin Bicycle Coalition

RESOLUTION 16- \_\_\_\_

RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF FAIRFAX  
CONSENTING TO THE CONSTRUCTION OF TWO BRIDGES IN THE ELLIOTT NATURE  
PRESERVE WITHIN CASCADE CANYON OPEN SPACE PRESERVE

WHEREAS, the County of Marin purchased property at the end of Cascade Drive in the Town of Fairfax (also known as the "Elliott Nature Preserve" or APN 197-100-05) in 1976 and transferred it to the Town of Fairfax, grant deeds 1976-0000068 and 1976-0000069; and

WHEREAS, the Town of Fairfax transferred property to the Marin County Open Space District (MCOSD) in 1987 through a grant deed 1987-17275; and

WHEREAS, deed 1987-17275 contains a clause that states that the MCOSD "will not sell, trade or exchange said property or construct any improvements thereon without the express consent of the grantor"; and

WHEREAS, the MCOSD manages the property for open space purposes including the protection of natural resources and enhancement of public recreational opportunities; and

WHEREAS, the MCOSD's adopted Road and Trail Management Plan (RTMP) provides for a process for the public to submit proposals for road and trail improvements; and

WHEREAS, the MCOSD received a proposal from the Friends of the Corte Madera Creek Watershed and the Marin Bicycle Coalition to construct two non-vehicular bridges across San Anselmo Creek along the Cascade Fire Road, designate a portion of the Canyon Trail for multiple use, and decommission the High Water Trail; and

WHEREAS, the MCOSD determined that the proposal to construct two bridges will provide safe access across the stream for all users including people with disabilities; and

WHEREAS, the MCOSD determined that the decommissioning of the High Water Trail will reduce harmful sediment in San Anselmo Creek, improve habitat for salmonids, including federally listed steelhead, residing in Cascade Canyon Open Space preserve and elsewhere in the Corte Madera Creek watershed consistent with the National Marine Fishery Service's Coastal Multispecies Recovery Plan, and remove an unsafe and unsustainable path; and

WHEREAS, at least one of the bridges is within the Elliott Nature Preserve; and

WHEREAS, MCOSD may want to replace the Carey Camp Creek bridge in the future;

NOW, THEREFORE, BE IT HEREBY RESOLVED that the Town Council of the Town of Fairfax expressly consents to the proposal to construct up to two non-vehicular bridges crossing San Anselmo Creek within the Cascade Canyon Open Space Preserve and replacement of the Carey Camp Creek Bridge.

The foregoing resolution was adopted at a regular meeting of the Town Council of the Town of Fairfax, County of Marin, State of California, on the 7<sup>th</sup> day of December 2016, by the following vote:

AYES:  
NOES:  
ABSENT:

\_\_\_\_\_  
Mayor

Attest: \_\_\_\_\_  
Michele Gardner, Town Clerk

**ATTACHMENT**   1

**DATE:** November 23, 2016  
**FROM:** Carl Somers, Chief of Planning and Acquisition  
**SUBJECT:** Proposed Projects for the Cascade Canyon Open Space Preserve

**UPDATE REGARDING PENDING PROPOSED PROJECTS IN THE CASCADE CANYON OPEN SPACE PRESERVE**

**Background**

The Marin County Open Space District (MCOSD) road and trail projects are part of a science-based, public inclusive, comprehensive plan (RTMP) which addresses the complex challenges of the MCOSD roads and trails. The plan was developed over the course of four years on the basis of extensive outreach and public input.

The MCOSD road and trail projects are designed and implemented to reduce the environmental impact of the road and trail network and enhance visitor experience and safety. The RTMP establishes a process whereby members of the public, working alone or in coordination with others, can submit proposals for projects that will advance the goals of the plan. Proposed projects must demonstrate familiarity and compliance with the RTMP's adopted standards and procedures.

On September 8, 2016, Marin County Parks hosted a community workshop in Fairfax on current proposed projects in the Cascade Canyon Open Space Preserve. Staff opened with a presentation about the Road and Trail Management Plan and its implementation. With the participation of the National Oceanic and Atmospheric Administration Fisheries Biologist, Dan Logan, who presented to the public on salmonid biology and current conditions in the Corte Madera Creek watershed, staff introduced two proposed projects and made recommendations for their implementation.

1. A proposed project to decommission the undesignated High Water Trail, construct two multiuse (pedestrian/equestrian/bicyclists) bridges over San Anselmo Creek, and redesignate the use of a portion of the Canyon Trail from pedestrian/equestrian to full multiuse. This combination of actions would allow for safe year round access through the canyon, remove all recreational traffic from the creek, and eliminate a significant source of harmful sediment into the creek through the elimination and restoration of the High Water Trail.
2. A proposed project to decommission the undesignated Happersberger Trail. The Happersberger Trail is highly erosive and steep, with grades up to 35% and areas of degraded native vegetation. A portion of the Happersberger Trail is located on adjacent Marin Municipal Water District (MMWD) lands. This adjacent portion of the trail was left undesignated by the MMWD in its 2005 systemwide trails plan, and it remains a priority for closure and decommission by the MMWD. Consistent with the designation established in fall 2015, the portion of the trail located within the Cascade Canyon Preserve will not be maintained and is subject to decommission as time and resources permit. Under the current proposal, the MCOSD would decommission the portion of the trail located within this preserve in summer 2017 as a stand-alone project.

San Anselmo Creek is a tributary of Corte Madera Creek. Both Corte Madera Creek and San Anselmo Creek are habitat for federally listed steelhead and native rainbow trout. Both projects would benefit

water quality and the native fisheries supported by these streams, as well as allow for the restoration of sensitive native vegetation. Staff recommended implementation of both projects as proposed. The meeting was followed by a 30 day formal comment period on both proposed projects. This comment period closed October 8, 2016.

**SAN ANSELMO CREEK AND THE HIGH WATER TRAIL: PROPOSED PROJECT TO CONSTRUCT TWO MULTIUSE BRIDGES OVER SAN ANSELMO CREEK, REDESIGNATE A PORTION OF THE CANYON TRAIL AS MULTIUSE, AND DECOMMISSION THE HIGH WATER TRAIL**

The MCOSD received a public proposal from the Friends of Corte Madera Creek Watershed and the Marin County Bicycle Coalition to explore the implementation of 2 multiuse recreational bridges spanning San Anselmo Creek and a change in use on a portion of the Canyon Trail to include Bicycles in Cascade Canyon Preserve. The goals of the proposal are to provide safe recreational access to Cascade Canyon Preserve as well as improve the health of the watershed by reducing sedimentation into the creek by removing recreation from the creek banks and channel. The proposal was evaluated and found to be consistent with the standards established for public submitted proposals by the RTMP.

The majority of the comment letters submitted to the MCOSD following the September 8 meeting, supported the project. Other commenters raised concerns about increased use and posed questions about the efficacy of the project. Specifically, these comments included the following stated concerns:

- The proposed bridges will improve access for senior citizens and young kids.
- The proposed bridges will protect habitat for steelhead by reducing erosion.
- The projects will improve the ecology and accessibility of the area.
- The grant deed between the Town of Fairfax and the MCOSD for the Elliott Nature Preserve requires town approval before constructing any improvements.
- The bridges will encourage more people to visit the Cascade Canyon Preserve, which will adversely affect the neighborhood and the quality of the recreational experience.
- The project will cause increased use of Cascade Fire Road during the wet season, which will cause rutting of trails and sedimentation into San Anselmo Creek.
- Allowing bicycles to use a portion of the Canyon Trail will increase sedimentation into the creek because it is adjacent and uphill from the stream
- The impacts from increased wet weather use of the Cascade Fire Road and Canyon Trail will offset the sediment reduction benefits from the decommissioning of the High Water Trail.
- There is not enough parking on Cascade Drive to support the increase in use.
- The project will cause increased traffic on Cascade Drive.
- The project will increase bicycle use of the preserve.
- The use of mountain bikes on the preserve are damaging natural resources and causing erosion.
- The increase in bicycle use will alter the experience of hiking in the pristine environment.
- The project should include bike racks at the trailhead.

Factors considered in the project evaluation included the following technical and policy considerations:

- Effects to trail circulation patterns within the park unit
- Effects to trail safety
- Effects to trail sustainability
- Effects or impacts to natural and/or cultural resources
- Effects or impacts to maintenance and operational costs
- Compatibility with RTMP policies and goals

## ***Technical Analysis***

### **Effects to Trail Circulation Patterns**

The MCOSD expects the level and types of recreational use in Cascade Canyon Preserve will not undergo a categorical change upon completion of the recreational bridges. The 2016 Marin County Parks Visitor Study Report illustrated that over half of the people recreating in the MCOSD preserves lived within one mile of the preserve. Implementation of the bridges spanning San Anselmo Creek would provide safer access to the interior of Cascade Canyon Preserve without fundamentally changing the access points or destinations. The implementation of bridges would however remove recreational use from the banks and channel of San Anselmo Creek.

The addition of bicycle use on the segment of the Canyon Trail between bridge #1 and #3 is not expected to significantly change circulation patterns.

### **Effects to Trail Safety**

The current access to the interior of the Cascade Canyon preserve is either crossing San Anselmo Creek or via the High Water Trail. The High Water Trail is a steep, actively eroding trail which is substandard in design and safety. Conversely, crossing the San Anselmo Creek during the rainy season can be extremely dangerous due to swift water flows. The implementation of bridges will greatly improve the visitor access by avoiding hazardous routes and providing consistent year round safe passage to equestrians, bicyclists, and hikers.

The Canyon Trail currently receives low to moderate use and the addition of bicycle use on the segment of the Canyon Trail between bridge #1 and #3 is not expected to create unsafe trail conditions. The trail segment has very good sight lines as well as a flat wide bench and very low running grade

### **Effects on Trail Sustainability**

Construction of the San Anselmo Creek bridges will allow the MCOSD the opportunity to decommission the High Water Trail which does not meet trail standards as it is a steep and erosive trail which is substandard in design and safety. The trail has an unstable and severely outsloped tread surface creating an extremely challenging walking surface. In recent years the trail has actively eroded and degraded beyond maintenance repairs.

The addition of bicycle use on the segment of the Canyon Trail between bridge #1 and #3 is not expected to create any adverse sustainability issues. This segment of the Canyon Trail is flat with a compacted stable soil surface.

### **Effects to Natural and Cultural Resources**

The bridges will provide recreational access to Cascade Canyon OSP while removing the habitat disturbance of park visitors traversing through the creek. Additionally, implementation of the 2 bridges will afford the MCOSD the opportunity to decommission the erosive High Water Trail. Both of these actions will result in a reduction of sediment discharge into the watershed. Excess amounts of fine sediment (silt and clay) can adversely affect water quality by diffusing light, retaining heat and increasing water temperature. In addition, negative impacts to the fish habitat result when excessive amounts of sediment clog the spaces between gravel, cobble, and boulders. The reduction of these fine sediments into the creek will improve the overall health of the watershed as well as the spawning habitat for federally listed Steelhead trout. Implementation of the project as proposed is consistent with and advances the goals of the National Marine Fishery Service's Coastal Multispecies Recovery Plan.

A complete bio assessment of the flora and fauna of the site will guide construction to minimize the impacts to the natural resources.

Other agency permits (Regional Water Quality Control Board, Army Corps, and California Department of Fish and Wildlife) will be required for the bridge design and implementation. Plant surveys will also be required as part of project development and implementation. Identified sensitive plant locations, as determined by surveys, will be avoided and/or construction techniques will be modified for minimization of potential impacts. Plant surveys will also be required as part of project development and implementation. Identified sensitive plant locations, as determined by surveys, will be avoided and/or construction techniques will be modified for minimization of potential impacts.

Initial evaluations indicate there should be no significant impacts to natural or cultural resources associated with the change in use on the Canyon Trail.

### **Effects to Maintenance and Operations Costs**

It is estimated that the construction cost to implement two bridges spanning San Anselmo Creek and replace the existing Carey Camp Bridge will be \$377,000. While this represents a significant cost, it also represents the most feasible approach to meet the goals of the RTMP. This option was encouraged by the regulatory agencies as the most fish friendly option to provide safe and consistent access to the preserve.

### **POLICY ANALYSIS**

As part of the RTMP, the MCOSD adopted goals and policies that direct the designation of, improvements to, and use of its road and trail system. In determining whether to move forward with a project, the MCOSD evaluates it for consistency with these goals and policies. In the case of the proposed improvements to the Cascade Fire Road and the decommissioning of the High Water Trail, the staff has determined that the project is consistent with and implements these goals and policies.

#### **Goal 1: Establish and Maintain a Sustainable System of Roads and Trails that Meet Design and Management Standards**

The proposed upgrades to the Cascade Fire Road and the decommissioning of the High Water Trails are consistent with this goal. The MCOSD is proposing to construct two bridges across San Anselmo Creek to allow recreational users (hikers, bikers, and equestrians) to cross the stream without entering or disturbing the banks of the creek. The proposed project will allow the MCOSD to decommission the unsustainable, unsafe, and highly erosive High Water Trail. The new bridges will improve the sustainability of the fire road by eliminating the need for recreational users to ford the creek, and will be consistent with the design standards and best management practices contained in the RTMP. The project also includes a redesignation of the portion of the Canyon Trail spanning the two bridges to allow bicycles. This redesignation reduces the number of bridges necessary to get users out of the stream. Without the change in use, the project would require four new bridges. The lowest portion of the Canyon Trail providing an outlet to Canyon Road will remain closed to bicycles.

Implementing this goal are policies SW.4, SW. 31, TRL-2.1, TRL-2.b, and T2a1<sup>1</sup>, which direct the MCOSD to design and build a sustainable trail system that protects natural resources and reduces the overall environmental impact from current conditions. The existing fire road crosses San Anselmo Creek four times. Along with the change in designation for the Canyon Trail, the project will replace these wet crossings with two bridges. The project also includes decommissioning the High Water Trail, which is a social trail adjacent to the creek and a significant source of sediment discharge. By eliminating instream crossings on a creek that supports federally listed steelhead and by removing the High Water Trail, the project will improve the overall condition of the Cascade Canyon Preserve.

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<sup>1</sup> A full copy of the text of these policies is in the RTMP, starting at page 4-11

Goal 2: Reduce the Environmental Impact of Roads and Trails on Sensitive Resources, Habitats, Riparian Areas, and Special Status Plant and Animal Species

The proposed project is also consistent with this goal. One of the primary purposes of the proposed bridges is to eliminate recreational impacts to San Anselmo Creek and reduce sedimentation into the stream. San Anselmo Creek supports the threatened steelhead trout. Additionally, the decommissioning of the High Water Trail will eliminate a significant source of sediment discharges into the stream. The proposed projects will reduce the environmental impact of the road and trail system in Cascade Canyon.

Implementing this goal are policies BIO 4.14, BIO 4-k, SW.22, SW.24, SW.23, SW.27, SW.28, and TRL-2.a, which direct the MCOSD to protect rare and sensitive biological and cultural resources. The Cascade Fire Road is located in an area that provides habitat to a number of plants and animals, including rare and sensitive resources. The MCOSD's Vegetation and Biodiversity Management Plan (VBMP) zones the project sites as "Sustainable Natural Systems Zone" and "Legacy Zone," which are most biologically sensitive zones identified in the plan. The new bridges and the elimination of the High Water Trail will reduce impacts to special status species by reducing sedimentation and eliminating direct impacts to the stream from recreational activities. The project will also allow the MCOSD to restore natural resources of the area damaged by the High Water Trail.

Goal 3: Improve the Visitor Experience and Visitor Safety for All Users, Including Hikers, Mountain Bikers, and Equestrians

The third goal of the plan is to improve visitor experience and safety. The proposed improvements to the Cascade Fire Road create a safe way to cross the creek at all times of the year and eliminate a steep and dangerous bypass trail. The change in use will allow bicyclists to use the route to connect to upper portions of the Cascade Fire Road and to the MMWD lands. Additionally, the bridges will improve access for younger children, the elderly, and people with disabilities by providing a route into the canyon without wet crossings or a steep narrow bypass. Therefore, the proposal will improve visitor experience and safety.

Implementing this goal are policies SW.12, T1d, T.1, T.3, TRL-2.3, TRL-2.5, and TRL-2.e, which direct the MCOSD to: (1) increase trail connectivity; (2) provide opportunities for loop and long distance travel; (3) improve public safety; (4) provide access for people with disabilities; and (5) provide opportunities for long distance connections. The proposed project will decommission the High Water Trail, which is a narrow steep trail in the banks of San Anselmo Creek. The construction of two new bridges will allow safe all year access to Cascade Canyon Preserve and the adjacent public watershed lands. Additionally, the improvements will facilitate for long distance travel on Cascade Fire Road through the MMWD's property consistent with policy T.1.

### ***Recommendations Summary***

The MCOSD evaluated the proposal from the Friends of Corte Madera Creek Watershed and the Marin County Bicycle Coalition as well as other options to provide safe access while minimizing the environmental disturbance to the Cascade Canyon OSP. Upon careful review, the submitted proposal to construct two recreational multiuse bridges and adopt a change in use on a segment of the Canyon Trail in Cascade Canyon Preserve was approved.

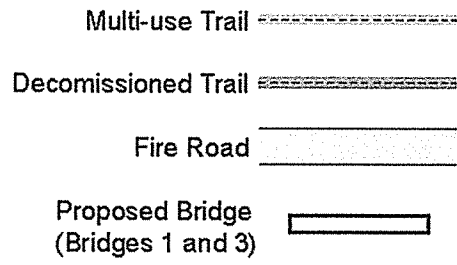
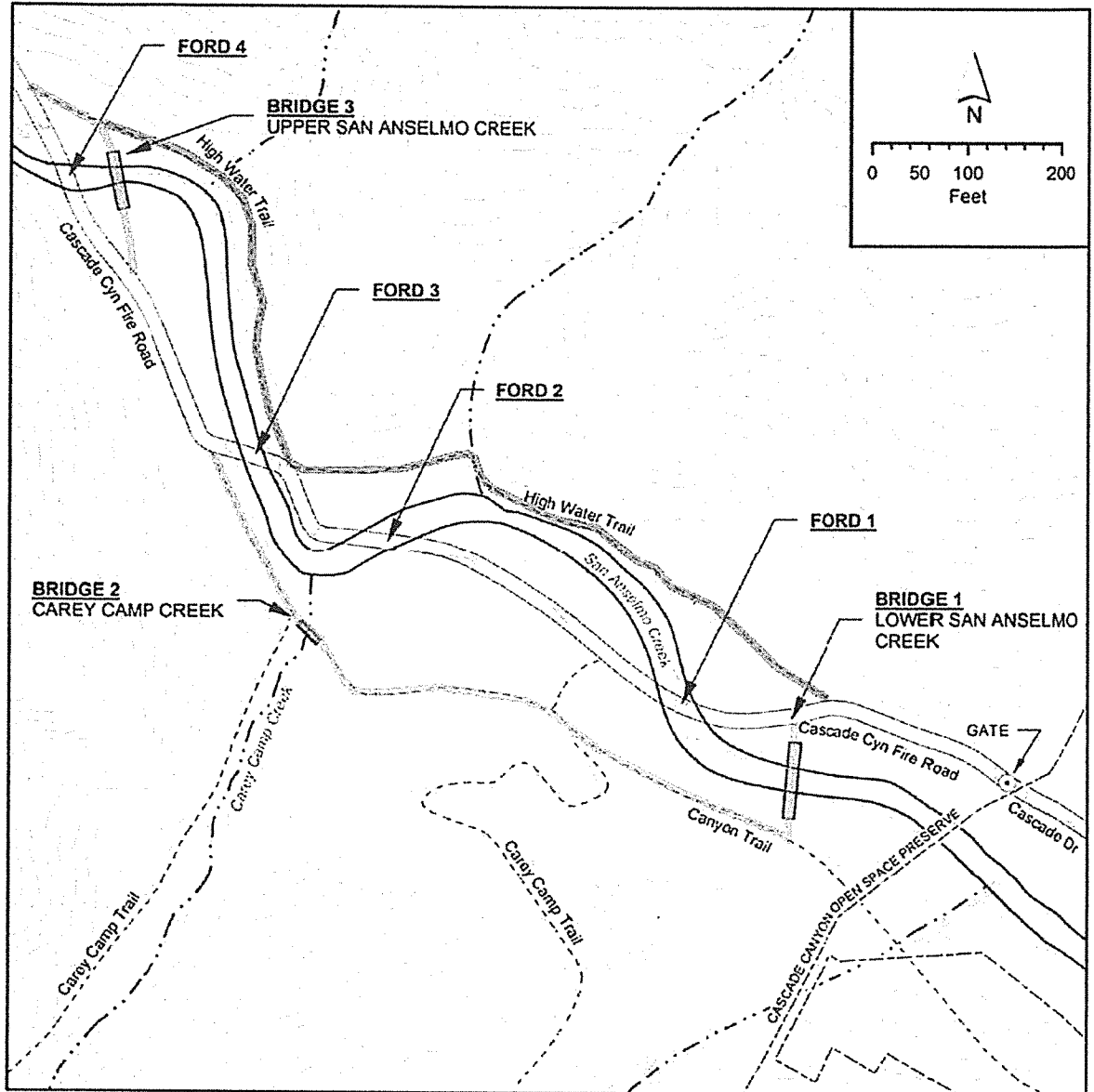
The current access to the interior of the Cascade Canyon Preserve is either fording San Anselmo Creek or via the High Water Trail. The High Water Trail is a steep, actively eroding trail which is substandard in design and safety. The MCOSD evaluated the current trail alignment and the surrounding open space to propose an alternate route that would meet the trail standards for a multiuse



trail removing the need to ford the creek. Unfortunately, due to the canyon topography and steep side slopes, no suitable alternate route was identified. Furthermore, traveling along the Cascade Fire Road to crossing the San Anselmo Creek is a route which is often used safely during the dry season. Although, during the rainy season this crossing can become extremely dangerous if not completely impassable due to swift water flows.

The implementation of the multiuse bridges greatly improve the visitor access by avoiding hazardous routes and providing consistent year round safe passage to equestrians, bicyclists, and hikers. Furthermore, this approach will remove recreational use from the creek banks and channel of San Anselmo Creek, removing fine sediments and improving the overall health of the watershed.

Additional design details, resources surveys, environmental compliance and permitting would be required prior to the implementation of design modifications.



### ***Next Steps***

It is anticipated that the MCOSD will begin construction of the Cascade Canyon Bridges beginning in the summer of 2017. The next steps for these projects are outlined below

- Budget Approval
- Site Bioassessment
- Final trail Design Refinement
- Environmental Review and Regulatory Permitting
- Nesting Surveys
- Construction

### **HAPPERSBERGER TRAIL: PROPOSED PROJECT TO DECOMMISSION THE HAPPERSBERGER TRAIL**

The MCOSD received a public proposal from the FootPeople, California Native Plant Society, and Marin Audubon Society to decommission the Happersberger Trail. The proposal was evaluated and found to be consistent with the standards established for public submitted proposals by the RTMP.

The Happersberger trail was originally proposed for decommission in the 2015 Region 2 public workshop. The trail is a fall line trail with linear grades up to 35% and does not meet the MCOSD sustainability standards. The current condition of the trail has several sections which are deeply rutted and continue to erode fine sediments into the watershed. Furthermore, the trail leads park visitors to MMWD property and continues through their watershed for recreational use. The MMWD has formally communicated its intention to close the portion of the Happersberger Trail alignment on MMWD lands.

The MCOSD received several comments relevant to the proposed decommissioning of the Happersberger Trail following the September 8 meeting. These comments included the following issues and stated concerns:

- The Happersberger Trail is not an erosive trail and is not a source of sediment into the watershed.
- The Happersberger Trail provides the only trail access to San Geronimo ridge and many users cherish it.
- The Happersberger Trail provides a steep and rugged experience for those looking for an extreme challenge.
- The MCOSD does not have adequate enforcement to prevent reuse of the Happersberger Trail after it is decommissioned.
- The reuse of the decommissioned Happersberger Trail will damage resources.
- The main source of erosion on the Happersberger Trail is from illegal mountain bike use.

### **POLICY ANALYSIS**

As part of the RTMP, the MCOSD adopted goals and policies that direct the designation of, improvements to, and use of its road and trail system. In determining whether to move forward with a project, the MCOSD evaluates it for consistency with these goals and policies.

**Goal 1: Establish and Maintain a Sustainable System of Roads and Trails that Meet Design and Management Standards**

In designating the trails in Cascade Canyon Preserve, the MCOSD did not identify the Happersberger Trail as a system trail. The trail is on an unsustainable alignment and is a potential source of sedimentation into the watershed. As such, the project would substantially reduce impacts from erosion and runoff. Therefore, decommissioning the trail would be consistent with the first goal of the RTMP.

Implementing this goal are policies SW.4, SW. 31, TRL-2.1, TRL-2.b, and T2a, which direct the MCOSD to design and build a sustainable trail system that protects natural resources and reduces the overall environmental impact from current conditions. Decommissioning the Happersberger Trail would eliminate an unsustainable trail that has the potential to discharge sediment into the watershed.

**Goal 2: Reduce the Environmental Impact of Roads and Trails on Sensitive Resources, Habitats, Riparian Areas, and Special Status Plant and Animal Species**

The proposed project is also consistent with this goal. The decommissioning of the Happersberger Trail will eliminate a potential source of sediment and will allow for habitat restoration.

Implementing this goal are policies BIO 4.14, BIO 4-k, SW.22, SW.24, SW.23, SW.27, SW.28, and TRL-2.a, which direct the MCOSD to protect rare and sensitive biological and cultural resources. The MCOSD's Vegetation and Biodiversity Management Plan (VBMP) zones the project site as "Natural Landscape Zone," "Sustainable Natural Systems Zone," and "Legacy Zone," with the latter two zones being most biologically sensitive zones identified in the plan. The decommissioning of the Happersberger Trail will allow the MCOSD to restore habitat in the biologically sensitive zones. This trail also intrudes into a large contiguous habitat made up of land owned by the MCOSD and the MMWD. The proposed project would implement RTMP policy SW.24 by eliminating an encroachment into this habitat.

**Goal 3: Improve the Visitor Experience and Visitor Safety for All Users, Including Hikers, Mountain Bikers, and Equestrians**

The third goal of the plan is to improve visitor experience. With respect to the Happersberger Trail, the proposed decommissioning will eliminate a route that the MCOSD had previously included in its public trail maps, signed for public use by pedestrians, and maintained. The decommissioning of this trail at this time could modestly diminish visitor experience of the established trail system, at least at the very local level, by eliminating a path that, though unsustainable, was part of the MCOSD's managed roads and trails as of the date the Region 2 designation was established in the fall of 2015.

### ***Recommendations Summary***

The MCOSD agrees with merit of the public proposal, but has decided to delay implementation until it can be implemented in association with a project that will provide a broadly similar recreational experience in the general vicinity of the Cascade Canyon Preserve. This decision is made mostly in light of the public input received during the comment period but also partly in light of the unusual circumstance that this trail had been part of the signed and mapped network of trail facilities maintained by the MCOSD as of the date of the Region 2 designation.

The proposal will be reevaluated with future projects in the environs of Cascade Canyon Preserve as the RTMP planning evolves in the region. In the meantime, the trail remains undesignated and, as such, is closed to bicycling, horses, and dogs.

For MCP Only	
Proposal No.	Region
Project Score	

## Road and Trails Management Plan (RTMP) Trail Proposal Form

Project Name: Cascade Canyon OSP Fish Protection Project

Applicant Name: Friends of Corte Madera Creek Watershed and Marin County Bicycle Coalition

Organization Name: same as applicant

Mailing Address: c/o Friends of Corte Madera Creek, PO Box 415

City: Larkspur State: CA Zip: 94977

Telephone Number: 415-456-5052 Email Address: info@friendsofcortemaderacreek.org

Organization Type:  Nonprofit Organization •  Individual  Other \_\_\_\_\_

### Section 1: Project Objectives

1. Short summary of project (800 characters or less). What does the proposal attempt to accomplish?

Cascade Canyon OSP is a popular recreational corridor for pedestrians, cyclists, and equestrians traveling in between residential areas of Fairfax, Pam's Blue Ridge, Camp Tamarancho, and Pine Mountain. San Anselmo Creek through Cascade Canyon OSP contains sensitive aquatic habitats that support federally- and state-listed steelhead and other native species. Recreational traffic through four at-grade creek crossings along Cascade Canyon Fire Road mobilizes fine sediment that could negatively impact downstream steelhead redds and the upstream passage of young fish into summer rearing habitat, and puts visitors at risk of being swept away by high creek flows during the winter rainy season. The goals of this proposal are to eliminate the need for the at-grade crossings, improve creek habitats, and improve visitor safety by:

- Replacing Ford #1 and Ford #4 with multi-use bridges (Bridge #1 and Bridge #3) (numbering from Best 2013),
- Constructing short segments of new multi-use trail to connect the bridges to Cascade Canyon Fire Road and Canyon Trail,
- Changing the use of Canyon Trail from dual-use to multi-use in between Bridges #1 and #3,
- Decommissioning High Water Trail along the north side of the canyon and
- Addressing inadequate drainage along an approximately 100-ft-long reach of Canyon Trail east of Carey Camp Creek that is contributing to erosion of sediment into San Anselmo Creek.

The goals of the RTMP are as follows:

- 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, and special status plant and animal species.
- Improve the visitor experience and visitor safety for all users, including hikers, mountain bikers, and equestrians.

2. Describe how the project will meet each goal (2000 characters or less).

**Sustainable roads and trails:** The new bridges would create a more environmentally sustainable route for pedestrians, equestrians, and cyclists traveling through the canyon. Currently, in order to move between the main trailhead at Cascade Drive and the popular destinations of Cascade Canyon Fire Road and Cascade Falls, users must utilize anywhere from one to four at-grade crossings (depending on their pedestrian/cyclist/equestrian status), or travel along the narrow, occasionally steep High Water Trail perched immediately above the creek. During and after heavy rains, wading through the creek can be very unsafe, and the highly exposed nature of High Water Trail makes it a risky option for many users, including children, the elderly and those with mobility challenges. With this proposal, visitors would instead have year-round access through the canyon starting at the Cascade Dr. trailhead, across Bridge #1, up Canyon Trail, and over Bridge #3. The roads and trails along this route meet modern design standards, with sustainable grades, minimal exposure, and appropriate widths and sight lines to support multi-use.

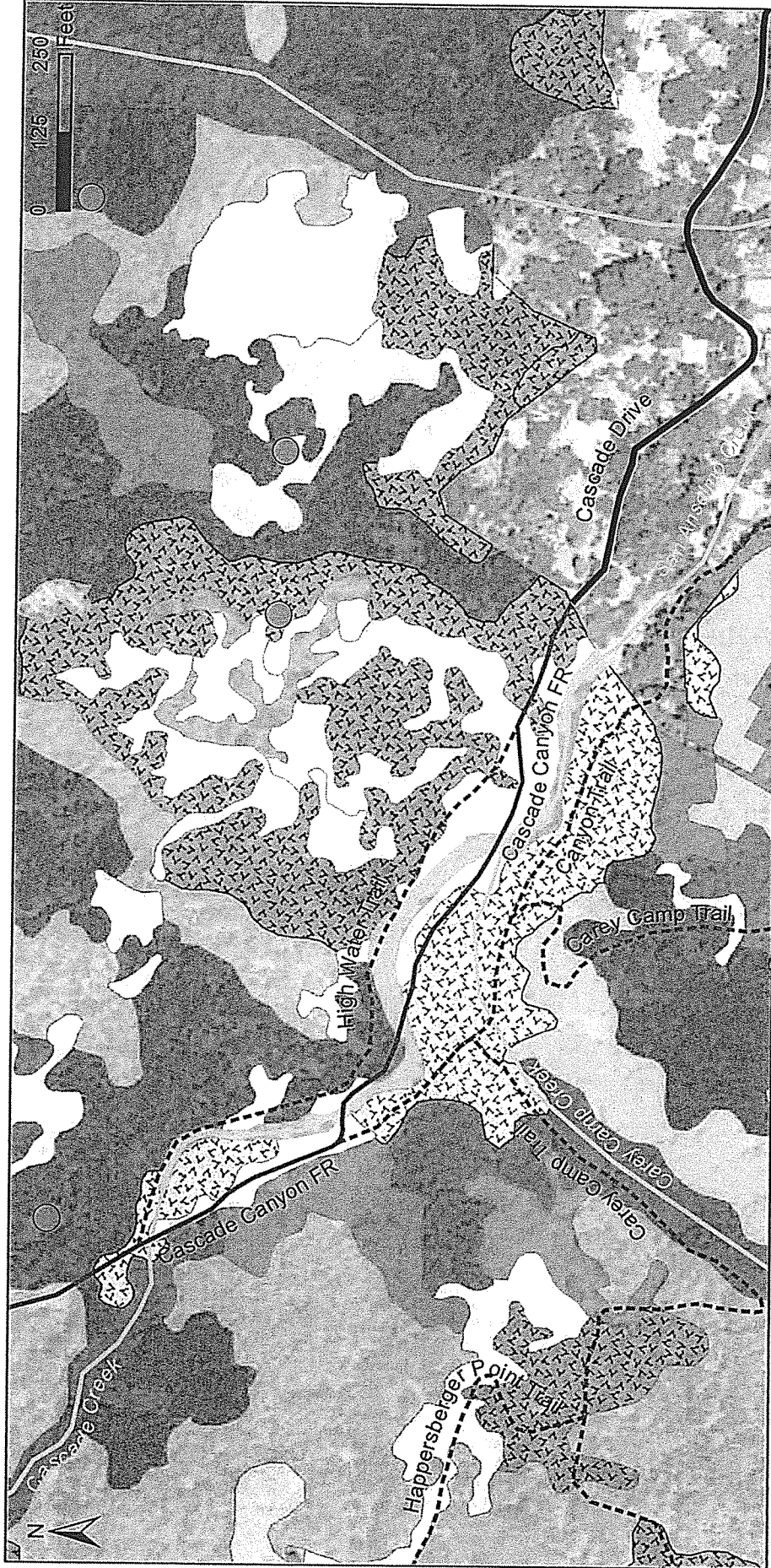
**Environmental impacts:** By eliminating 4 at-grade crossings through Cascade Canyon and removing High Water Trail, the proposal will dramatically reduce direct and indirect impacts to aquatic and riparian habitats within Cascade Canyon. The proposal will reduce trampling within San Anselmo Creek, which erodes sediment from the stream bed and banks that can smother salmon redds in downstream spawning habitat, and impedes the establishment of riparian vegetation that provides shade and support for the aquatic food web. The proposal will also reduce the erosion of sediment from steep and poorly drained portions of High Water Trail immediately adjacent to San Anselmo Creek. Finally, by consolidating public access through one corridor along the canyon floor, the proposal will likely reduce indirect impacts to vegetation and wildlife from human disturbance.

**Visitor experience/safety.** The proposal improves the visitor experience by providing a safe, scenic, year-round accessible route for hikers, cyclists, and equestrians between the main Cascade Road trailhead and destinations farther up-canyon. It improves safety by eliminating the need for visitors to choose between fording an active creek or utilizing a narrow, exposed path in order to move through the canyon. The new route over the bridges and along Canyon Trail is located on a nearly flat floodplain bench, with appropriate widths and sight lines to facilitate safe trail sharing by all users. Finally, consistent with the District's in-progress Inclusive Access Plan, the proposal improves user access by providing a safe, easily accessible route for parents with strollers, small children, the elderly, and users with mobility challenges. Such a route is currently absent in the canyon, particularly during the winter rainy season.

3. Describe how the project and its objectives are consistent with the policies, standards, and guidelines/BMPs listed in Chapter 5 of the RTMP (2000 characters or less).

#### **Environmental Criteria**

**Vegetation Management Zone:** Canyon Trail and Cascade Canyon FR are mostly in the Sustainable Natural Systems Zone. Adjacent to the fords of San Anselmo Creek, they are in or near Highly Disturbed Zones. The entire length of the High Water Trail is in the Sustainable Natural Systems Zone (MCOSD 2015a). Dominant vegetation communities along the subject portions of Cascade Canyon FR and Canyon Trail include valley oak/California bay riparian, lower elevation mixed broadleaf forest (coast live oak, madrone, black oak), valley oak/grass, coast live oak alliance, and annual/perennial grassland (MCOSD 2008). See Figure 1 for a map of local vegetation communities.



**Vegetation Communities**

- Lower Elevation Mixed Broadleaf
- Mixed Riparian Forest
- Madrone – California Bay – Tanoak
- California Bay (pure)
- California Bay – Coast Live Oak
- Madrone Alliance
- Canyon Oak Alliance
- Redwood / California Bay

**Existing Hardwoods**

- Douglas-fir - Mixed Hardwoods
- Black Oak Alliance
- Coast Live Oak Alliance
- Valley Oak Riparian Forest
- Valley Oak/ grass
- (French) Broom Alliance
- Coyote Brush
- Grasslands
- Rocky Serpentine grasses

**Existing Features**

- Fire Road, Multi-Use
- Trail, Hiker/Equestrian Use
- Northern Spotted Owl Observations

*Friends of Corte Madera Creek*



**Friends of Corte Madera Creek & Marin County Bicycle Coalition  
RTMP Region 2 Proposal:  
Figure 1, Biological Resources**

**Stream Conservation Area:** The SCA Ordinance is being litigated; if it were enacted, the bridges would be in an SCA with a 100-foot setback. However, a bridge must inevitably be in the setback. Because one of the goals of the proposal is to reduce fords of the creek during wet weather, the net benefit would be substantial. The High Water Trail would also be within an SCA; elimination of this trail would benefit the water quality, riparian habitat, and salmonids that the SCAs are meant to protect.

**Stream Crossings:** The new bridges would cross San Anselmo Creek twice and be designed to pass the 100-year flow, including debris and sediment loads. High Water Trail crosses three small (ephemeral) tributaries to San Anselmo Creek; the two somewhat *ad hoc* bridges over these crossings are narrow and do not include handrails. The portion of Canyon Trail proposed for conversion from dual-use to multi-use includes one bridge over Carey Camp Creek. This wooden bridge is slightly less than 6 ft wide (68 inches), consistent with newer multi-use bridges on District lands, and has handrails and extensive lines of sight at each end. The proposal will reduce the negative impacts of stream crossings on aquatic/riparian habitats and water quality.

**Stream Adjacency on Special Fish-bearing Streams:** This portion of San Anselmo Creek contains the highest quality summer rearing habitat in the entire Corte Madera Creek watershed (Rich 2000). The proposal would improve salmonid habitat within the stream by reducing trampling and erosion impacts to the channel bed and banks.

**Northern Spotted Owl Habitat:** All of Cascade Canyon, including Cascade Canyon FR, Canyon Trail, and High Water Trail, is within the final Critical Habitat designation for Northern Spotted Owl (USFWS 2012). The CDFW Spotted Owl Observations dataset indicates at least three recorded observations within 1,000 ft of the proposed bridge locations; it is not clear if these observations are current or historic (Figure 1). Regardless, NSO are known from the area, and redwood-Douglas fir communities within the canyon potentially support NSO nests. Given that the proposed bridges are for multi-use and not vehicular traffic, their construction could likely be scheduled outside the NSO breeding season of February – August, so that disturbance to NSOs would be avoided.

**Rare Plant and Wildlife Areas:** Site-specific surveys are necessary to assess the potential for special-status plant and wildlife species to be present within proposed work areas; such surveys are outside the scope of this proposal. Aside from steelhead, special-status species with the potential to be present in San Anselmo Creek and the floor of Cascade Canyon include California red-legged frog (*Rana draytonii*), western pond turtle (*Emmys marmorata*), and California giant salamander (*Dicamptodon ensatus*).

**Serpentine Soils:** Serpentine soils are not present in the canyon floor.

**Wetlands:** Site-specific surveys are necessary to determine jurisdictional wetlands and waters of the state and federal governments. Bridge construction over San Anselmo Creek would likely occur outside of federal jurisdictional waters (above Ordinary High Water, Rivers and Harbors Act Section 10), but could potentially include work in federally jurisdictional wetlands (Clean Water Act Section 404). The state will likely claim waters/wetland jurisdiction over the bridge sites through CDFW (Streambed Alteration Agreement) and the Regional Water Quality Control Board (Clean Water Act Section 401 Water Quality Certification). Removal of the two small bridges within High Water Trail could also potentially trigger jurisdiction by state, though the plank crossing and the bridge could be removed (if the # piers were left in place at either end) without working in the creek.



**Noxious Weeds:** Noxious weeds including French broom (*Genista monspessulana*) are common in the canyon floor and along Canyon Trail. Construction activities and post-construction maintenance would be managed consistent with the VBMP (MCOSD 2015b) to prevent the further spread of weeds.

**Preserve Trail Density:** The RTMP does not specify a metric for how trail density will be measured. Decommissioning the High Water Trail, in conjunction with building Bridges #1 and #3 and opening Canyon Trail to bicycle use, would reduce trail redundancy while providing all-weather access to Cascade Canyon OSP.

### Physical Criteria

**Hydrological Slope:** The lower portion of Cascade Canyon FR and Canyon Trail are located on relatively flat land in the valley floor. Most of the High Water Trail is relatively flat, but two sections in the middle are on rocky, exposed ledges cut into a steep slope. If the flatter ends of the trail were closed and revegetated with plants appropriate to the broad-leaved evergreen forest that dominates the area, access to the steep sections would be discouraged.

**Trail Gradient:** The maximum grade on Canyon Trail and the subject portion of Cascade Canyon FR is 5%. The High Water Trail is relatively flat on both ends and at a central point where it is tangent to a ford on San Anselmo Creek; its average grade is gentle to moderate, with a maximum grade around 40% in short, rocky sections.

**Trail Width:** The Canyon Trail width would remain unchanged at 6 feet. The new bridges would meet MCOSD standards for a multi-use bridge (4 to 5 feet wide with guardrails approximately 4 feet high). In flat, open areas, the High Water Trail is 6 to 8 feet wide; in the central rockier sections, it's ~2 ft wide.

**Revised Universal Soil Loss Equation (RUSLE) Erosion Factor:** The RUSLE tool is used to calculate erosion due to sheet flow across broad areas of a particular land use; it is not typically applied to the assessment of narrow linear features such as roads and trails within a wildland environment.

Most of the proposed work areas are relatively flat and would be unlikely to make a significant contribution to local erosion. Calculation of estimated soil loss through the RUSLE method is outside the scope of this proposal.

**Amount of Excavated Soil Volume:** The foundations for the new bridges would require excavation of native soils. Estimation of the necessary volumes of soil excavation for bridge/foundation construction is outside the scope of this proposal, and requires input from qualified structural and geotechnical engineers. If the two retaining walls on High Water Trail were removed, it would require the excavation of supported soil which could potentially be used to reestablish hillside slopes. The treatment of the High Water Trail retaining walls (and potentially excavated soils) also requires further consultation with qualified engineers, and is outside the scope of this proposal.

### Social Criteria

**Road/Trail Length:** The reach of Canyon Trail to be opened to year-round multi-use would be approximately 1,490 feet, from about 100 feet inside the OSP to the intersection of Canyon Trail and Cascade Canyon FR. The High Water Trail is 1,242 feet long.

**Distance From Development and Distance Between Intersections:** Cascade Canyon FR is the main thoroughfare for users through lower Cascade Canyon, and begins at the western end of the residential area of Cascade Road. Canyon Trail begins at the end of Canyon Road, also a residential street (the portion of Canyon Trail in between Canyon Road and the vicinity of Bridge #1 will remain dual-use), and ends where it joins the Cascade Canyon FR, just upstream of Ford #3. The High Water Trail is entirely within the Cascade Canyon OSP; it begins about 200 feet west of the Cascade Canyon FR trailhead.

**Terrain Quality:** Cascade Canyon is a highly scenic area with impressive views; the proposal would increase the range of users who are able to access and appreciate this gem of the District. The bridges would provide excellent views of the creek, especially during high-flow periods when steelhead could be migrating upstream.

**Connectivity to Regional Trail or Road/Trail on Adjacent Public Land and Connectivity to Destination Points or Attractions:** Cascade Canyon is a popular destination in its own right, and serves as a gateway to adjacent public lands on MMWD property. This proposal will provide a year-round accessible route for hikers, cyclists, and equestrians through the canyon that improves local and regional recreational connectivity while enhancing protect of sensitive aquatic habitats. To avoid neighborhood controversy, bicycles would continue to be barred from using the section of the Canyon Trail between the Canyon Road trailhead and the vicinity of Bridge #1, and would instead use the Cascade Road trailhead.

**Vegetation Community Variety:** As discussed above under "Environmental Criteria", the canyon supports a variety of vegetation communities including broadleaf hardwood forest, redwood glades, riparian oaks, and annual/perennial grasslands. While moving through the canyon, visitors will be able to appreciate the canyon's impressive variety of vegetation, while enjoying scenic views of serpentine scrub and chaparral on the ridgelines above.

4. Does the project affect trails that connect to a sanctioned trail on adjacent public or private property?  
 Yes ● No ○
5. Will this proposed project require coordination with adjacent public or private landowners? If so, please explain.

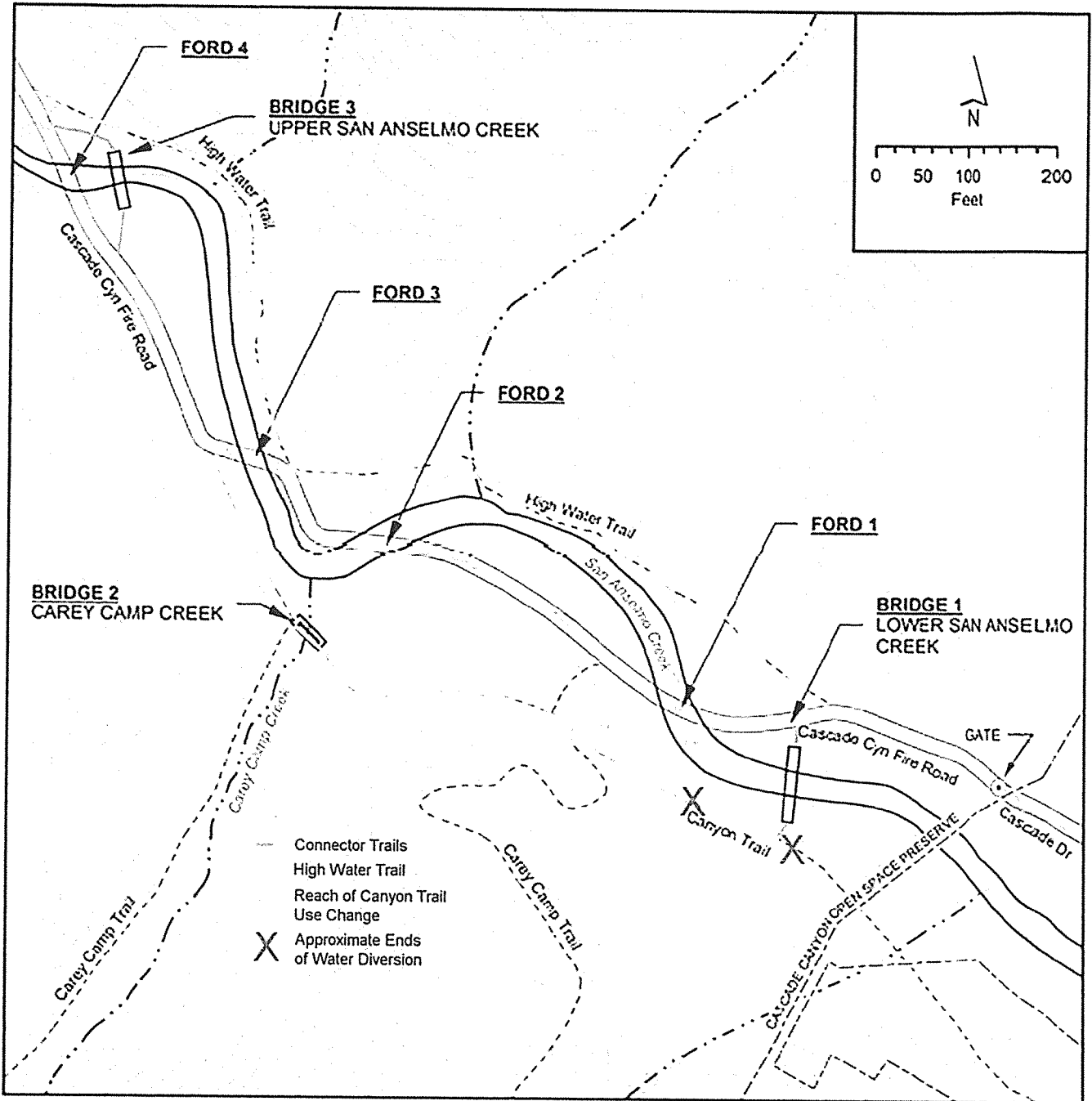
Canyon Road residents may request reassurance that bicycle use of Canyon Road will not increase, since bicycle traffic will continue to be limited to the Cascade Road trailhead.

**Project actions (by segment):**

All project components are shown on Figure 2.

<b>Segment Name</b>	<b>Proposed Action</b>
a) New Bridge #1 and Bridge #3	Build two new bridges
b) Trail connectors to new bridges	Build short new trail segments
c) Open a portion of Canyon Trail to bicycles	Use change
d) Decommission High Water Trail	Decommissioning

Figure 2: Project components (Base map from Best 2013)



Segment a) Bridge #1 and Bridge #3

**Section 2: Action Summary and Metrics**

1. Action title: New #1s

2. Action type:    New Trail         Decommission         Reroute         Change in Use   
                    Road to Trail Conversion         Reconstruction   
                    Other Two new bridges across San Anselmo Creek

3. Action summary (800 character or less)

Two new multi-use bridges would be constructed across San Anselmo Creek to provide year-round access to Cascade Canyon OSP, shown on Figure 2, modified from Best (2013). Design and permitting would be required. During construction, BMPs would be implemented. A barrier structure would be installed to deter bicycle traffic continuing on the Canyon Trail east of Bridge #1.

4. Trails affected: Cascade Canyon FR, Canyon Trail

5. Time frame for action (relative to the sequence of other proposed actions).

Bridges would be constructed first, then new connector trails completed, and finally the High Water Trail decommissioned. The Canyon Trail use change would occur after the bridges and connecting trails were constructed.

6. Will action involve volunteers?        Yes         No

Action type:

- Increase recreational access (new trail, change in use)
- More enjoyable trail (existing trail conditions, problem areas)
- Unsustainable trail reduction (rerouting, trail closures)
- Redundant trail reduction (rerouting, trail closures)
- Sediment reduction (rerouting, trail closures)
- Wildlife/botanical benefit  Removes hazards

Length of proposed trail to be built, rerouted, reconstructed, converted, or decommissioned:

Bridge #1 = up to 60 feet

Bridge #3 = up to 80 feet

Desired trail width (average) = 5 to 6 feet (bridge width)

**Section 3: Action Location Information**

1. Latitude, longitude (in decimal degrees, NAD83):

Center of Bridge #1: 37.978126, -122.614840; Center of Bridge #3: 37.979803, -122.617302

These are taken from the approximate locations on Google Maps, which uses datum WGS84. The uncertainty in the location of the points on the map almost certainly overwhelms the discrepancies between NAD83 and WGS84.

2. Location description (including the affected preserve or park and all connecting trails):

Cascade Canyon OSP, Cascade Canyon FR, Canyon Trail

3. Location map (please attaché on USGS topographic base map or send the .kml file to [msagues@marincountty.org](mailto:msagues@marincountty.org) with the project name in subjectline):

Base map is in Best 2013, cited above; Figure 2 shows the locations of connector trails. The trail at the north end of Bridge 3 could join the end of the High Water Trail approximately 60 feet from its northern end and reduce the new trail length to approximately 50feet.

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4. Road IDs of relevant segments (if known) trails:

Cascade FR 27100; Canyon Trail 27200

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#### **Section 4: Environmental Impacts and Implementation Details**

Marin County Parks recognizes that applicants may not have access to the information requested in this section. Enter "don't know" where applicable.

- a) Number of streams to be crossed or stream crossing decommissioned: Two
- b) Vegetation types impacted or restored: Depends on precise bridge design/location details unavailable at this time. Vegetation in the bridge vicinities includes mixed hardwood, oak riparian, and ruderal grasses.
- c) Anticipated wildlife issues: Seasonal constraints on construction to protect salmonids and nesting birds
- d) Number of trees to be removed: Bridge #1, unknown; Bridge #3, none
- e) Other environmental impacts or benefits: Water quality and salmonid habitat improvements by removing recreational traffic from the wetted stream.
-

Segment b) Connector Trails to Bridge #1 and Bridge #3

**Section 2: Action Summary and Metrics**

- 1. Action title: Trails to connect new bridges to the existing system
- 2. Action type:    New Trail     Decommission     Reroute     Change in Use   
                         Road to Trail Conversion     Reconstruction     Other \_\_\_\_\_

3. Action summary (800 character or less)

The two new bridges will require short new trail segments to connect to the Canyon Trail and the Cascade Canyon FR. Part of the High Water Trail at its northern end could be used as part of the connection from Bridge 3 to Cascade Canyon FR. After the bridges are completed, the new trails would be constructed and areas disturbed during construction repaired.

- 4. Trails affected: Canyon Trail, Cascade Canyon FR, High Water Trail
- 5. Time frame for action (relative to the sequence of other proposed actions).

Bridges would be constructed first, then new connector trails completed, and finally the High Water Trail decommissioned. The Canyon Trail use change would occur after the bridges and connecting trails are constructed.

6. Will action involve volunteers?    Yes ● (revegetation, trail building)    No ○

7. Action type:

- Increase recreational access (new trail, change in use)
- More enjoyable trail (existing trail conditions, problem areas)
- Unsustainable trail reduction (rerouting, trail closures)
- Redundant trail reduction (rerouting, trail closures)
- Sediment reduction (rerouting, trail closures)
- Wildlife/botanical benefit     Removes hazards

Length of proposed trail to be built, rerouted, reconstructed, converted, or decommissioned

Trails to Bridge #1 = ±40 feet

Trails to Bridge #3 = ±100 feet

Desired trail width (average) = 6 feet

**Section 3: Action Location Information**

- 1. Latitude, longitude (in decimal degrees, NAD83):  
North end of trail to Bridge #1: 37.978238, -122.614791; North end of trail to Bridge #3: 37.979919, -122.617499. These coordinates use datum WCS84.
- 2. Location description (including the affected preserve or park and all connecting trails):  
Cascade Canyon OSP: Cascade Canyon FR, Canyon Trail, maybe part of High Water Trail
- 3. Location map (please attaché on USGS topographic base map or send the .kml file to [msagues@marincounty.org](mailto:msagues@marincounty.org) with the project name in subjectline):  
Map in Figure 2 is based on Figure 1 in Best 2013, cited above.
- 4. Road IDs of relevant segments (if known) trails:  
Cascade FR 27100; Canyon Trail 27200; High Water Trail 27110

#### Section 4: Environmental Impacts and Implementation Details

Marin County Parks recognizes that applicants may not have access to the information requested in this section. Enter "don't know" where applicable.

- a) Number of streams to be crossed or stream crossing decommissioned: None
- b) Vegetation types impacted or restored: Depends on precise trail design/location details unavailable at this time. Vegetation in the trail vicinities includes mixed hardwood, oak riparian, & ruderal grasses.
- c) Anticipated wildlife issues: Seasonal constraints on construction to protect salmonids and nesting birds
- d) Number of trees to be removed: Number for approaches to Bridge #1 has yet to be determined; none for Bridge #3
- e) Other environmental impacts or benefits: Water quality and salmonid habitat improvements by removing bicycle and foot traffic from the stream.

Segment c) Change the Use of Canyon Trail

**Section 2: Action Summary and Metrics**

1. Action title: Canyon Trail Use Change

2. Action type:    New Trail     Decommission     Reroute     Change in Use   
                    Road to Trail Conversion     Reconstruction   
                    Other \_\_\_\_\_

3. Action summary (800 character or less)

To keep traffic out of San Anselmo Creek, the use designation of the Canyon Trail between Bridge 1 and Bridge 3 would be changed from dual-use to multi-use. This action includes trail reconstruction where Canyon Trail diverts and channels water flowing off the uphill slope, delivering sediment to SanAnselmo Creek. This would be repaired to prevent water diversion by the trail.

4. Trails affected: Canyon Trail

5. Time frame for action (relative to the sequence of other proposed actions).

Bridges would be constructed first, then new connector trails completed, and finally the High Water Trail decommissioned. The Canyon Trail use change would occur during the first wet season after the bridges and connecting trails are constructed.

6. Will action involve volunteers?    Yes     No

7. Action type:

- Increase recreational access (new trail, change in use)
- More enjoyable trail (existing trail conditions, problem areas)
- Unsustainable trail reduction (rerouting, trail closures)
- Redundant trail reduction (rerouting, trail closures)
- Sediment reduction (rerouting, trail closures)
- Wildlife/botanical benefit     Removes hazards

Length of proposed trail to be built, rerouted, reconstructed, converted, or decommissioned  
Canyon Trail = ±1,490 feet, depending on precise location of connector to Bridge #1  
Repair (rolling dips, out-sloping, or similar) to prevent water diversion = 100 – 110 feet  
Desired trail width (average) = 6 feet

**Section 3: Action Location Information**

1. Latitude, longitude (in decimal degrees, NAD83):

Junction of southern connector to Bridge #1 and Canyon Trail: 37.978007, -122.614833; Junction of Canyon Trail and Cascade Canyon FR: 37.978997, -122.616907; downstream end of reach that diverts water: 37.97778, -122.61450. These coordinates use datum WCS84.

2. Location description (including the affected preserve or park and all connecting trails:  
Cascade Canyon OSP, Canyon Trail

3. Location map (please attaché on USGS topographic base map or send the .kml file to [msagues@marincounty.org](mailto:msagues@marincounty.org) with the project name in subjectline):

Base map in Figure 2 uses in Figure 1 in Best 2013, cited above.

4. Road IDs of relevant segments (if known) trails:

Canyon Trail 27200



#### Section 4: Environmental Impacts and Implementation Details

Marin County Parks recognizes that applicants may not have access to the information requested in this section. Enter "don't know" where applicable.

- a) Number of streams to be crossed or stream crossing decommissioned: One
- b) Vegetation types impacted or restored: None
- c) Anticipated wildlife issues: None
- d) Number of trees to be removed: None (the trail may need to split to go around one tree)
- e) Other environmental impacts or benefits: This use change would keep recreational traffic out of the salmonid stream.

Segment d) Decommission High Water Trail

**Section 2: Action Summary and Metrics**

1. Action title: High Water Trail Decommissioning

2. Action type:    New Trail       Decommission       Reroute       Change in Use   
                    Road to Trail Conversion       Reconstruction   
                    Other \_\_\_\_\_

3. Action summary (800 character or less)

The relatively flat ends of the High Water Trail would be planted with shrubs and trees to discourage continued use. The small bridge and the plank that cross two of the three stream crossings would be removed pending further consultation with engineers. It is possible that if use persists, it would be

4. Trails affected: High Water Trail

5. Time frame for action (relative to the sequence of other proposed actions).

Bridges would be constructed first, then new connector trails completed, and finally the High Water Trail decommissioned. The Canyon Trail use change would occur during the first wet season after the bridges and connecting trails were constructed.

6. Will action involve volunteers?                      Yes • (trail work)    No ○

7. Action type:

- Increase recreational access (new trail, change in use)
- More enjoyable trail (existing trail conditions, problem areas)
- Unsustainable trail reduction (rerouting, trail closures)
- Redundant trail reduction (rerouting, trail closures)
- Sediment reduction (rerouting, trail closures)
- Wildlife/botanical benefit                       Removes hazards

Length of proposed trail to be built, rerouted, reconstructed, converted, or decommissioned:

High Water Trail =1,242 feet. The western ~50 feet may be retained as part of the connector from the new Bridge #3 to the Cascade Canyon FR.

Desired trail width (average) = n/a

**Section 3: Action Location Information**

1. Latitude, longitude (in decimal degrees, NAD83):

Beginning of trail: 37.978373, -122.614607; end of trail: 37.980010, -122.617548. These coordinates use datum WCS84.

2. Location description (including the affected preserve or park and all connecting trails):

Cascade Canyon OSP, High Water Trail, Cascade Canyon FR

3. Location map (please attaché on USGS topographic base map or send the .kml file to [msagues@marincounty.org](mailto:msagues@marincounty.org) with the project name in subjectline):

Base map Figure 2 uses Figure 1 in Best 2013, cited above.

4. Road IDs of relevant segments (if known) trails:

High Water Trail 27110; Cascade Canyon FR 27100.

## Section 4: Environmental Impacts and Implementation Details

Marin County Parks recognizes that applicants may not have access to the information requested in this section. Enter "don't know" where applicable.

- a) Number of streams to be crossed or stream crossing decommissioned: Three
- b) Vegetation types impacted or restored: Mixed hardwood, oak riparian, annual/perennial grassland
- c) Anticipated wildlife issues: Seasonal constraints on construction to protect salmonids and nesting birds
- d) Number of trees to be removed: None
- e) Other environmental impacts or benefits: Improved water quality and salmonid habitat

## References

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