Recommendations Report

Change-in-Use Requests

Camel Rock Trail
Juniper Trail
Oak Knoll Trail
Secret Trail
Summit Trail

Mount Diablo State Park

Prepared By
California State Parks
Bay area District and
Roads and Trails Program
Facility Management Division

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Introduction

This report was prepared in response to public requests to allow bicycle use on five trails in Mount Diablo State Park. The requests resulted from public input received during development of the park's Road and Trail Management Plan from 2008 to 2014. To facilitate the evaluation process, the California Department of Parks and Recreation (DPR) has developed a process to objectively review and evaluate all proposed changes-in-use. The process begins with a change-in-use request from staff, the public, or other stakeholders; an on-site trail inspection by a team of staff with expertise in public safety, natural and cultural resource management, maintenance, engineering, and visitor services; evaluation of the trail; and a final recommendation.

Criteria used in the evaluation of change-in-use proposals include:

- Existing trail conditions
- Compatibility with existing trail uses
- 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

Evaluation Team

Between March and August 2014, a team met to evaluate each change-in-use request against the criteria established by DPR. The review team consisted of:

- Roy Martin, Environmental Scientist
- Dionne Gruver, Associate State Archeologist
- Mark Sinclair, Park Maintenance Worker
- Monte Rowan, Park Maintenance Chief
- Cyndy Shafer, Senior Environmental Scientist
- Scott Poole, State Parks Peace Officer
- Jason Hart, Park Maintenance Chief
- Carl Nielson, State Parks Peace Officer
- Ryen Goering, State Parks Superintendent

Recommendations Summary

Of the five requests, three were approved with design modifications and/or management options: Juniper, Oak Knoll, and Summit Trails. The proposed changes-in-use to the Camel Rock and Secret Trails were denied due to the extensive reroute and realignment that would be necessary to make the trails sustainable and safe for multiuse. Approved requests would require design and management modifications to be implemented prior to allowing bicycle use on the trail. Additional design details, resources surveys, environmental compliance and permitting would be required prior to the implementation of design modifications. In addition, necessary funding for project modification would need to be secured.

Recommendations by Trail

Camel Rock Trail Segment 1 (Not Approved)

Requested Change-In-Use: Add mountain bikes to this pedestrian and equestrian trail.

Existing Conditions
This Class II trail is primarily located within an old road cut except at the lower end of the trail where it diverts from the historic road using a single track trail alignment. Although it is a low-use trail, there are significant resource impacts where the trail traverses through drainages. Soil erosion and associated drainage sedimentation result from steep descents and ascents in and out of the drainages. There is very little evidence of unauthorized (illegal) use currently happening, but some illegal bike riding is known to occur. Overall, the change-in-use would be compatible with current uses.

Effects to Trail Circulation Patterns
Approving the change-in-use could relieve mountain bike traffic that would normally be on North Gate Road where accidents are known to occur. However, seasonal closures may still be desired to mitigate potential resource impacts resulting from bicycle use when the soil is wet, which would place mountain bike use back on North Gate Road under these conditions. Overall, the change-in-use would not enhance circulation in terms of providing linkages to other mountain biking trails or loops.

Effects to Trail Safety
There is inadequate tread width for safe passage in the lower 750 feet of the trail. The majority of the trail has safe downhill retreat options but there are exceptions. Management actions, such as alternating days of use, may be implemented to improve trail safety but would likely be difficult to manage. One special concern plant species has been identified in the trail corridor that may be impacted by necessary trail modifications, but its presence is not a major concern among DPR scientists. Overall, the change-in-use would likely only increase use levels slightly and would not significantly decrease trail safety.

Effects on Trail Sustainability
Tread is primarily firm and stable but wet soil does exist in landslide scarps and can be persistent during the wet season. Abrupt changes in trail grade are most common in the drainages but also exist in other areas. The back slope/cut bank is mostly stable with the exception of landslide scarps. Overall, the trail does not currently have a sustainable alignment or design, mainly at the drainage crossings.

While it may be possible to reroute the drainage crossings to have more sustainable grades, these reroutes would be significant and affect the entire alignment of the trail. It would be very difficult to reroute the entire trail to achieve sustainable grades due to the limited DPR land base in the area. The elevation change between the start and end of the trail is significant. Any major reroute of the trail would require multiple switchbacks and/or climbing turns to obtain sustainable grades. These switchbacks and climbing

turns would not meet DPR's trail standards and would contribute to resource impacts and safety concerns due to switchback cutting and poor drainage. Therefore, design modifications necessary to achieve a sustainable trail with the added use would be extremely difficult.

Effects to Natural and Cultural Resources

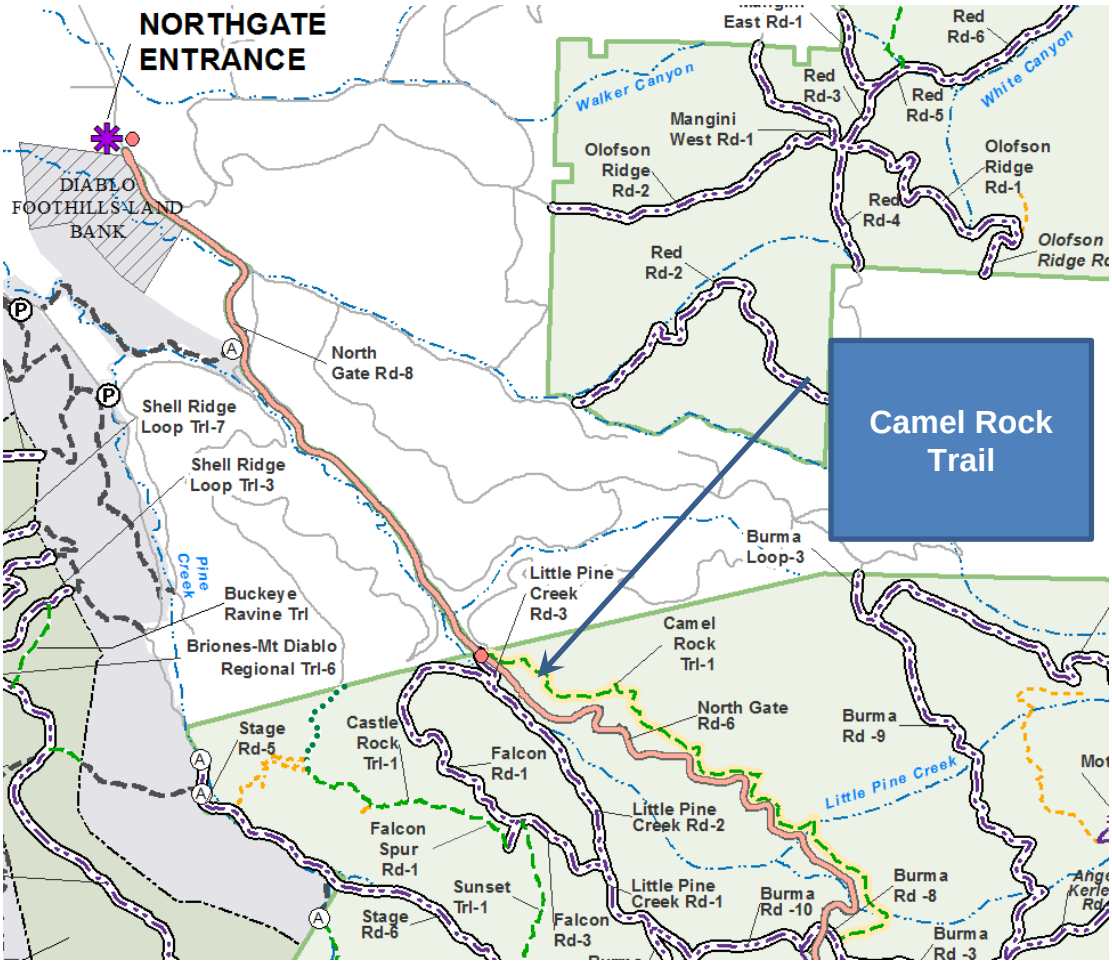
Based on the necessary design and layout modifications, which could be significant as described above, necessary to meet DPR standards for this change-in-use, there is the potential for negative impacts to the trail tread, sensitive wildlife habitat (Alameda striped racer), historical and Native American sites, and the historic road bed itself.

Effects to Maintenance and Operations Costs

The proposed change-in-use would require significant investment in the redesign and realignment of portions of the trail. Additional signage, patrols, and enforcement would likely be necessary to manage the change-in-use. Without trail modifications, drainage crossings would require additional cyclical maintenance. Thus, the total increase in cost would be dependent on the management practices and trail modifications implemented as part of the change-in-use.

Summary

If mountain bikes are allowed, the trail would be extremely difficult to sustain with regular cyclical maintenance unless portions of the trail were rerouted, particularly in and out of drainages. The steepness and number of drainage crossings with grade issues would require that almost the entire trail be rerouted to maintain overall sustainable grades and minimize resource impacts. Because this trail is on a portion of the park bordered to the northwest by private property and to the southeast by North Gate Road, there is not adequate space to create a sustainable trail that would use the same trailheads as the existing trail. The major reroutes and modifications required for sustainability and safety could have significant impacts to park resources. Any trail constructed as a replacement for the Camel Rock Trail would be a new trail built under the requirements of new trail construction and, thus, would not be considered a trail change-in-use.



Juniper Trail Segments 3, 4, 5, 6, 7 (Approved with Modifications)

Requested Change-In-Use: Add mountain bikes to this pedestrian and equestrian trail.

Existing Conditions
This Class I native surfaced trail currently allows pedestrians and equestrians. A trailhead exists at the Juniper Campground.

Effects to Trail Circulation
The addition of bicycles would create a continuous mountain bike route that circles the upper mountain similar to the hiker route known as The Grand Loop, and would therefore enhance circulation for mountain bikers.

Effects to Trail Safety
Approximately 10% to 20% of the trail lacks adequate passing width, space to retreat, or is too steep to safely accommodate the change-in-use. In addition, response time to incidents on single-track trails is often delayed due to limited access and gathering equipment and personnel required to extricate injured park visitors. The majority of the

trail alignment provides a curvilinear alignment with sufficient curves to provide sinuosity that would slow mountain bikes. Additional vegetation removal may be necessary to maintain sight distances necessary to avoid potentially unsafe visitor encounters. It may be possible to avoid or minimize safety impacts through the installation of speed control devices such as pinch points or by widening the trail where possible.

Effects on Trail Sustainability

Most of the trail was found to be sustainable. However, the section from Summit Trail to the Old Burn Pile Landing should be considered for reroute because it contains multiple switchbacks and abrupt grade changes, which limit sight distances and increase mechanical wear on the trail. It may be possible to minimize these impacts with vegetation clearing and trail reconstruction, however a reroute of this section is preferred. Current drainage crossings show minimal erosion and unauthorized use.

Effects to Natural/Cultural Resources

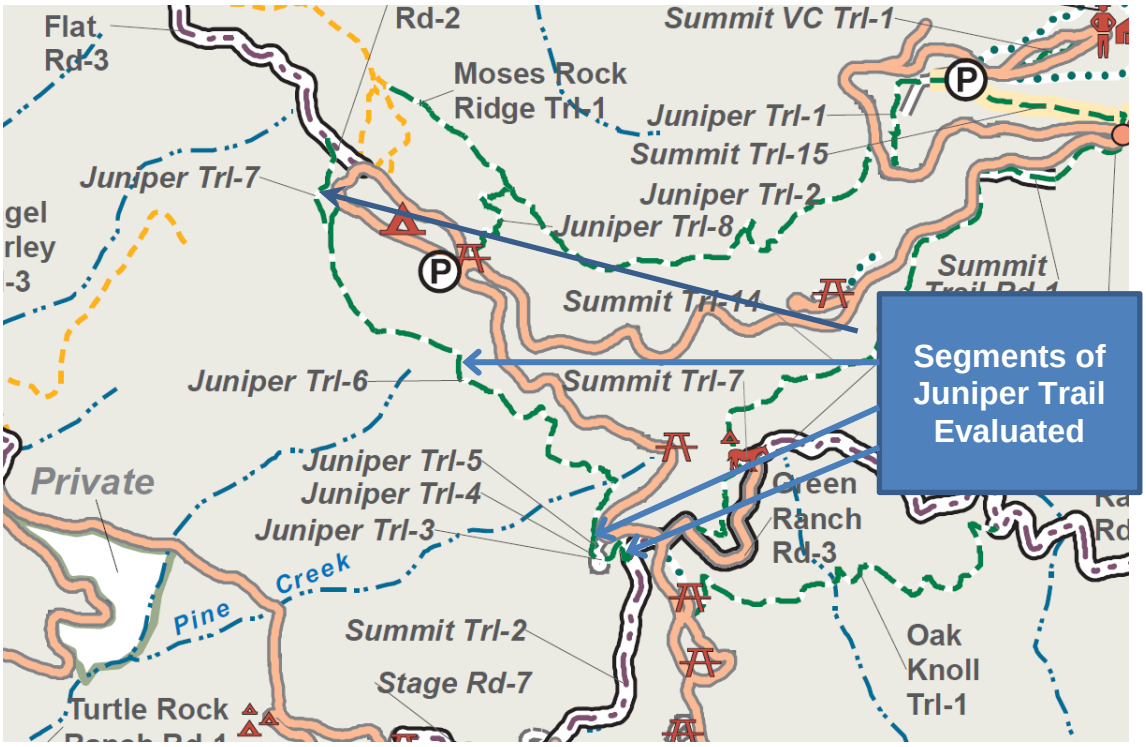
Modifications, such as bridges, puncheons, and armored crossings, are necessary to improve conditions in riparian zones along the trail. Overall, the proposed change-in-use could negatively impact natural and cultural resources due to the need for potential reroutes required for safety and sustainability.

Effects on Maintenance and Operational Costs

Increased maintenance and operational costs are not anticipated. Required design modifications to address change-in-use should provide an overall more sustainable trail requiring less maintenance.

Summary

Overall, the proposed change-in-use could be accommodated with design modifications, which could include pinch point installation, trail and drainage crossing reconstruction/re-engineering, tread texturing, trail widening, and a major reroute of the section from the Summit Trail intersection to the Old Burn Pile Landing to address safety and sustainability concerns. These design modifications would improve passing space, reduce abrupt grade changes, improve sight distances, and provide more sustainable drainage crossings. Although design modifications could negatively impact natural and cultural resources, it is anticipated that these impacts could be avoided, minimized, or mitigated during project development. Management actions, such as one- way travel, alternating days of use, improved signage, increased patrols, and seasonal closures, should be considered.



Oak Knoll Trail Segment 1 (Approved with Modifications)

Requested Change-In-Use: Add mountain bikes to this pedestrian and equestrian trail.

Existing Conditions
This Class I trail currently allows pedestrians and equestrians. A trailhead is available at the Oak Knoll day use parking area.

Effects to Trail Circulation
Green Ranch Road, which allows bikes, currently provides connections to additional unpaved road biking opportunities located in the southeast portion of the park. The allowed use of bikes on the Oak Knoll trail would be a repetition of this access. Although no new connections to other mountain bike riding locations would not be enhanced, Oak Knoll would provide an additional loop riding experience for mountain bikers (e.g. Oak Knoll trailhead to Green Ranch Road to Summit Road back to Oak Knoll Trailhead).

Effects to Trail Safety
The trail is not wide enough for multi-use in some locations but could be widened where needed. Much of the existing trail has narrowed due to lack of maintenance and could be widened back to its original construction standards. Although the trail does have sinuosity, providing curves and minimal straight runs, it lacks sufficient sinuosity to effectively slow bikers. Overall the Evaluation Team found that the proposed change-in-use would not decrease trail safety as sight distances are sufficient and trail widths for

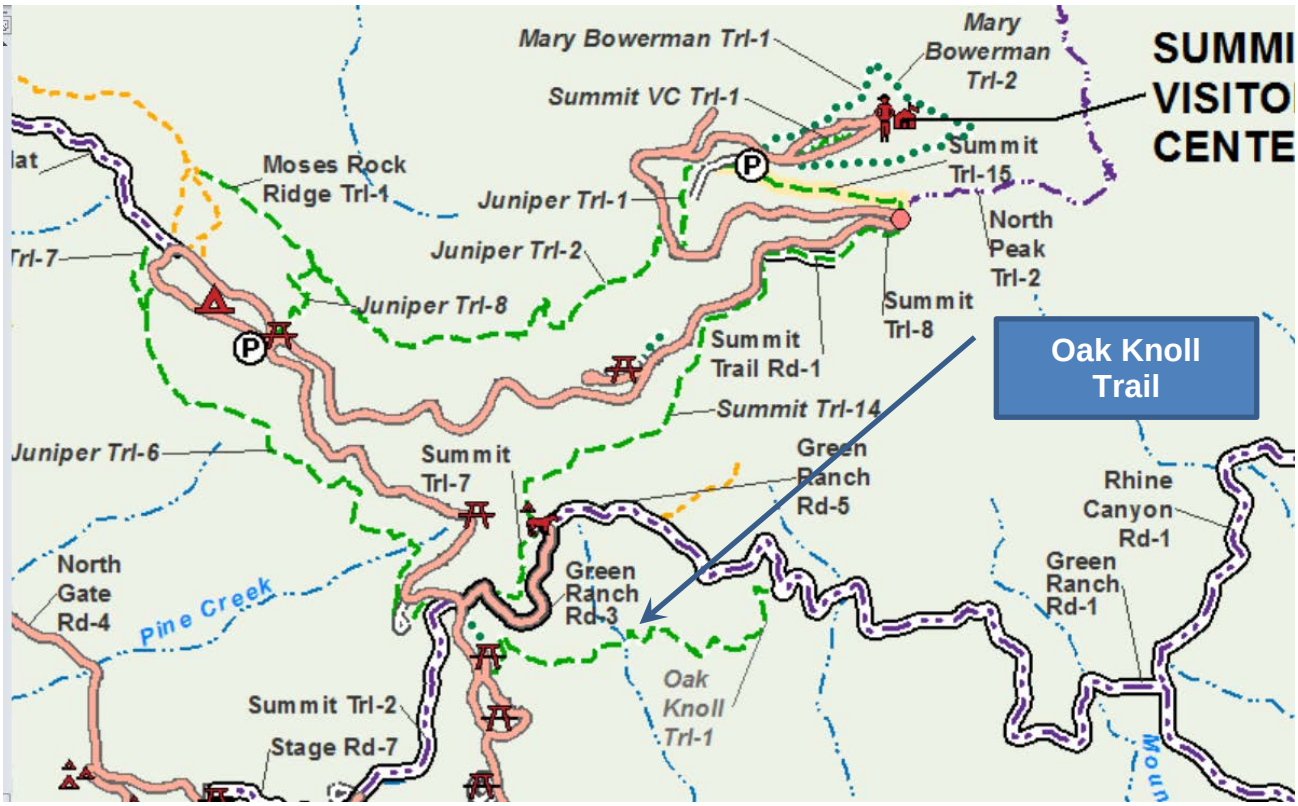
safe passage exist or could be provided.

Effects on Trail Sustainability
The trail has a few significant abrupt grade changes but not many. Overall, the trail could be made sustainable for the proposed change-in-use with only minor modifications, which could include trail and drainage crossing reconstruction/re-engineering and minor trail reroutes.

Effects to Natural/Cultural Resources
The trail could impact habitat of the endangered Alameda striped racer and there is one stream crossing that may require additional evaluation, but overall the proposed change-in-use would not negatively impact natural or cultural resources due to the minimum modifications required to address trail sustainability and safety associated with the change-in-use.

Effects on Maintenance and Operational Costs
Additional maintenance workload is projected to be minimal but there will be a cost for management associated with environmental compliance that may be connected to the project such as mitigation and monitoring.

Summary
Overall the Oak Knoll Trail currently follows a sustainable alignment that could also sustain the proposed change-in-use with minimal modifications and cyclical maintenance. Only minor trail reroutes, trail reconstruction/re-engineering, and drainage crossing improvements would be required for sustainability. Sight distances are either adequate or could be improved with little effort. Adequate passing spaces either exist or could be provided through trail reconstruction and minor trail re-engineering. Modifications necessary for change-in-use would likely add additional sustainable design to this already moderately sustainable trail alignment and would thus reduce future maintenance costs.



Secret Trail Segment 1 (Not Approved)

Requested Change-In-Use: Add mountain bikes to this pedestrian and equestrian trail.

Existing Conditions
This Class II native soil surfaced trail is on an old road cut that has been overgrown. Currently designated uses are pedestrian and equestrian. There is evidence of unauthorized bike use in the form of tire tracks and staff and volunteer sightings.

Effects to Trail Circulation Patterns
Opening the trail to bicyclists would improve circulation for mountain bikers by creating additional loop opportunities in this area of the park. The area is not a high visitor use location, so no congestion relief would be anticipated through the change-in-use.

Effects to Trail Safety
The trail does not have sinuosity to help control bicycle speed nor can sinuosity be easily designed into the existing trail. In addition, sensitive plant species anticipated to be located in the project area may be difficult to remove to create the required sight distances for safety. This trail receives a fair amount of equestrian use and given the limited visibility, lack of width, lack of retreat options, and steep sections where bicycles can attain high speeds, the proposed change-in-use would likely decrease trail safety. The use of pinch points and other speed control devices, within the existing trail alignment, would be needed in numerous locations to reduce bike speeds. Given the

steepness of the trail, pinch points may become a safety issue to the bikers themselves.

Effects on Trail Sustainability

The exiting trail alignment is steep causing drainage and erosion issues. The addition of mountain bikes to the trail is expected to exacerbate this issue. Major realignment and/or reconstruction would be necessary to reduce bike speed and associated mechanical wear to the trail surface. There does not appear to be a reroute alignment that would significantly improve trail sustainability while retaining the current trailhead and trail intersection locations. In addition, a reroute would fundamentally change the user experience by relocating the trail from a riparian area to open grassland.

Effects on the Natural/Cultural Resources

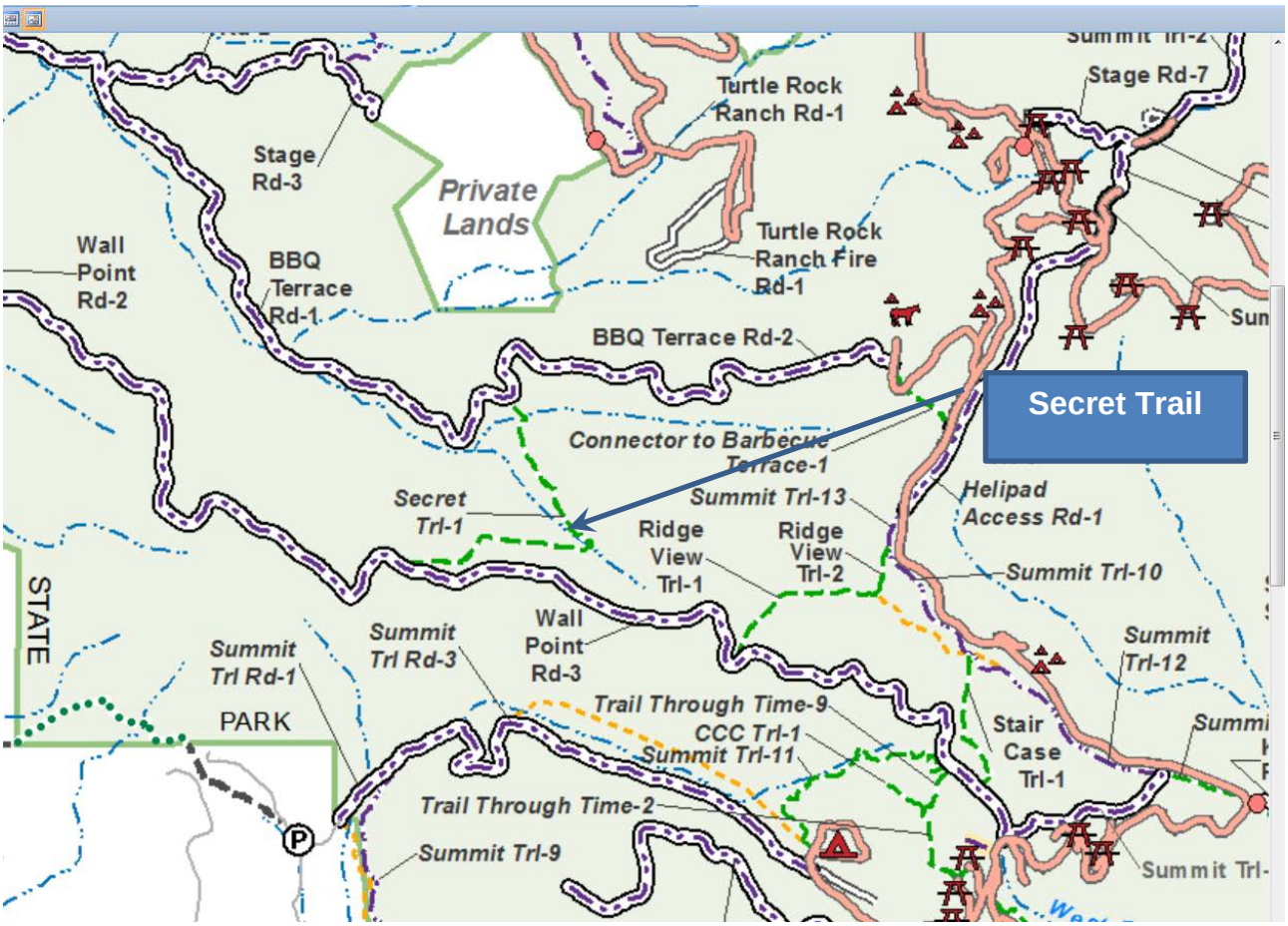
Major trail realignment necessary to accommodate the proposed change-in-use could significantly impact geologic conditions, sensitive wildlife and vegetative habitat, and sensitive historic features.

Effects to Maintenance and Operational Costs

Increased maintenance and operational costs would be anticipated since a viable reroute to provide more sustainable grades was not determined to be feasible. Although additional drainage structures could provide sustainability along the existing route they would require additional long term maintenance and operational funding.

Summary

The Evaluation Team determined that the modifications and alterations necessary to make this trail useable by bicycles would alter the trail to the point that it is no longer the same trail. Therefore, a new trail would be needed to create a bike route in this vicinity. If a new trail is constructed, there are significant concerns about the sustainability of such a trail due to moist soil conditions from runoff and groundwater and soil stability issues on the slopes where the trail would be constructed. There are also concerns that the necessary trail modifications would greatly alter the natural setting of the current trail. Any trail constructed as a replacement or addition to this trail would be a new trail built under the requirements of new trail construction and, thus, would not be considered a trail change-in-use.



Summit Trail Segments 5, 7, 8, 14 and Summit Trail Road Segment 1 (Approved with Modifications)

Requested Change-In-Use: Add mountain bikes to this pedestrian and equestrian trail.

Existing Conditions
This Class I native surfaced trail currently allows pedestrians and equestrians. An existing trailhead is located at the lower summit parking area. This trail is located in a high use area that already experiences some illegal use and user conflict.

Effects to Trail Circulation Patterns
The proposed change-in-use would provide additional non-paved route options for mountain bike access to and from the summit area, as well as provide increased loop trail options.

Effects to Trail Safety
Once this area recovers from the 2013 wildfire, it is likely that there will be inadequate sight distances, inadequate tread width, and inadequate space for passing due to

vegetation regrowth. In addition, the trail lacks sinuosity to slow bikers and additional sinuosity could not be easily incorporated into the trail alignment due to limited space. The relatively high use of the trail by hikers combined with potential high speeds of downhill bikes could be a concern if not addressed through management or design modifications. There are plant species of special concern in some locations that may be difficult to remove to create adequate sight distances. Therefore, the proposed change-in-use was determined to decrease safety on the trail.

Effects on Trail Sustainability

Small abrupt grade changes can be eliminated but large abrupt grade changes cannot without reroutes that would move the trail from its current alignment. Those steep sections that cannot be rerouted could be reconstructed and re-engineered to improve sustainability. The section of Summit Trail between Green Ranch Road and Pioneer Water Tank should not be used as a bike route due to loose gravel, deep entrenchment, and fall line alignment in some areas. Green Ranch Road can be used as a detour around this section.

Effects to Natural/Cultural Resources

The proposed change-in-use has the potential to significantly impact sensitive wildlife and vegetation habitat as well as historic features if design modifications are required to address change-in-use. Future animal, plant, and cultural surveys would need to be conducted during project development to determine actual resource impacts.

Effects to Maintenance and Operational Costs

The additional maintenance workload is minimal but there is a cost for active management associated with environmental compliance that may be connected to the project such as mitigation and monitoring.

Summary

There are concerns that portions of this trail would have safety issues associated with the change-in-use if design and management modifications were not implemented. Design modifications could include pinch points, vegetation clearing, drainage crossing reconstruction/re-engineering, tread texturing, trail widening, and reroutes. Although design modifications could negatively impact natural and cultural resources, it is anticipate that these impacts could be avoided, minimized, or mitigated during project development. It was determined that the importance of this route as a critical non-paved multi-use route to and from the summit area could be achieved through the implementation of design and management options necessary to address safety and sustainability concerns. Overall, the change-in-use request was approved with design modifications and management options to address safety and sustainability concerns. Management actions, such as one way travel, alternating days of use, improved signage, increased patrols, and seasonal closures, should be considered.

Segments of Summit Trail Evaluated
SUMMIT VISITOR CENTER
Mary Bowerman Trl-1
Summit VC Trl-1
Moses Rock Ridge Trl-1
Juniper Trl-1
Summit Trl-15
Juniper Trl-2
Juniper Trl-8
Juniper Trl-7
Summit Trl-14
Summit Trail Rd-1
Green Ranch Rd-5
Summit Trl-8
North Peak Trl-2
Juniper Trl-6
Summit Trl-7
Juniper Trl-5
Juniper Trl-4
Juniper Trl-3
Green Ranch Rd-3
Green Ranch Rd-1
Creek