

NARROW NATURAL SURFACE TRAILS

Managing Multiple Use



NARROW NATURAL SURFACE TRAILS STUDY Managing Multiple Use

A SURVEY OF SAN FRANCISCO BAY AREA
PARK AND OPEN SPACE MANAGEMENT AGENCIES

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Executive Summary

Overview: The purpose of this study was to survey open space managers in the San Francisco Bay Area regarding their management of narrow natural surface trails within their parks and open space. Of particular interest for this effort was determining what uses were allowed on narrow trails, how those uses were determined and regulated, and how successfully they thought their management practices were. General consensus amongst the agencies found that:

- Trails designed with multiple use in mind are more successful in accommodating multiple uses, such as hiking, equestrians and bicycling than trying to adapt existing trails for multiple use
- Designating allowable uses when a trail is initially constructed and opened is more successful in gaining public acceptance than initiating use changes over time, especially in popular parks where existing use patterns are well established
- Providing regulatory information simultaneously multiple ways through park signage, a web site and staff and volunteer presence serve as the most effective way to reach out and inform trail users
- Fewer regulations consistently applied and enforced yields greatest compliance.

Narrow Trails Defined: For purpose of this study, narrow trails are assumed to be six inches up to six feet wide.

Trail Use: All of the agencies surveyed allow some multiple-use (e.g., hike and equestrian or bike and hike) on park trails, but may or may not accommodate the full range of uses (e.g., hikers, dogs, bikes, saddle animals) on all narrow natural surface trails or in all parks within their jurisdiction, with mountain bike access generally being the most restricted. Policies regarding dogs are particularly diverse, ranging from a complete ban to nearly unrestricted access. In making the determination on allowable uses, open space management agencies focused on three key themes: safety, impacts on natural and cultural resources, and public input and responses to proposed use changes. Emerging use patterns adding to management challenges include: geocaching, an increase in dog use overall (and specifically professional dog walkers), and a reduction of equestrian uses with some agencies surveyed providing anecdotal commentary that equestrian use diminishes with increased dog and bike use. Additionally, several new equipment technologies are showing up on trails including: adaptive products such as all terrain wheelchairs, new mountain biking subtypes and Segways.

Vision, Policies and Ordinances: While the vision or mission statement forms the framework identifying the overarching philosophy for the organizations, it is the agencies' policies and/or code regulations that establish allowable trail uses with trends in use policies moving toward accommodating more bicycle and dog use on narrow trails and trends in construction favoring more narrow trails. Several agencies reported recent construction of new narrow natural surface trails, narrowed service road width trails to a narrow trail width and/or use conversions of existing trails. Others are planning to construct new narrow natural surface trails and/or narrow service road width trails to accommodate multiple uses (e.g., hiking, equestrian, mountain biking and dog walking) as dictated by their adopted policies and code regulations and in response to public input.

Assessment Tools: Trail layout and design based on quantitative and qualitative analyses facilitates sustainable trail management practices over the long term, but analyses are complicated by the fact that agencies often inherit properties with a legacy of existing utility service and ranching, farming and forestry

roads. Thus, many managers must first focus on eliminating obstacles created by past practices as a means of working toward a manageable trail network designed for recreational use.

Design and Management Strategies: Design and management strategies that agencies are employing to meet today's narrow natural surface trail design and shared-use challenges are generally directed at user safety and the physical setting with management strategies focused on: staging areas where use is concentrated; minimizing speed differentials; and limiting short cutting and creation of illegal trails. Finding a balance between resource protection, various users' desire for either "challenging" or "tranquil" trail experiences and meeting the intent of ADA is a significant challenge. However, managers surveyed felt that opportunities exist for systems of trails and/or parks and open space to satisfy the agencies' constituents' desires.

Management – Outreach and Enforcement: Managers reported that: volunteer patrol and maintenance, staff patrolling on mountain bikes, and ATV patrol supplement, often in combination, were the most effective allocation of staff resources. Use of radar guns to enforce speed limits was reported by several agencies as effective in controlling speed. Managers reported generally poor compliance with seasonal closures when used to minimize impacts to trails.

CEQA and Permitting Compliance: There was consensus among the managers surveyed that early consideration of the information and data necessary to comply with the CEQA (and NEPA) is a key component of narrow natural trail surface development with managers agreeing on several common themes regarding permitting narrow natural surface trails. These include: practicing avoidance of sensitive habitats and species where possible; that regulatory permitting requirements are site/species specific and strategies that are successful in one sub-region may not be applicable to another; and water quality/sedimentation control solutions need to begin at the planning and design phases and continue to be monitored after completion of construction.

I Introduction

I.1 Purpose

The purpose of this study is to identify and discuss specific narrow natural surface trail management approaches currently used by open space managers in the San Francisco Bay Area and to use this information to inform the East Bay Regional Park District's park planning processes.



I.2 Methodology

In the course of this study, the East Bay Regional Park District (District) contacted 15 park and open space management agencies from throughout the San Francisco Bay Area to gain their collective experience regarding trail management policies, practices and experiences. The map presented in *Figure I.1 Participating Park and Open Space Management Agencies* highlights the agencies surveyed and indicates the general geographic location of some of the park and open space that these agencies manage in the greater San Francisco Bay Area.

The primary research tool was a survey, mailed to all participants, requesting information on their agency's trail use practices, planning policies, environmental review, maintenance activities and enforcement practices. The District then followed-up directly with several management agencies to facilitate an interactive dialogue about how they manage their narrow natural surface trails and conducted field visits to observe design and management practices in the field. The specific locations that District staff toured included:

- El Corte de Madera Creek Open Space Preserve managed by the Midpeninsula Regional Open Space District
- Rockville Hills Regional Park managed by the City of Fairfield
- Santa Teresa County Park managed by Santa Clara County Parks and Recreation Department
- Skyline Wilderness Park managed by the Skyline Park Citizens Association
- China Camp State Park managed by the California Department of Parks and Recreation
- Annadel State Park managed by the California Department of Parks and Recreation.

This study incorporates the results of this narrow natural surface trails management research.

2. Narrow Trail Characteristics

2.1 Narrow Natural Surface Trail Defined

Defining what constitutes a narrow natural surface trail is not a uniform concept. As *Table 2.1 - Agency Definition of Narrow Trails* illustrates, there is a wide variation in the definition of “narrow trail” among the San Francisco Bay Area agencies surveyed. Several San Francisco Bay Area park and open space managers define narrow trails as roughly four to six feet wide; however, some agencies manage narrower trails. For purpose of this study, narrow trails are assumed to be six inches up to six feet wide.

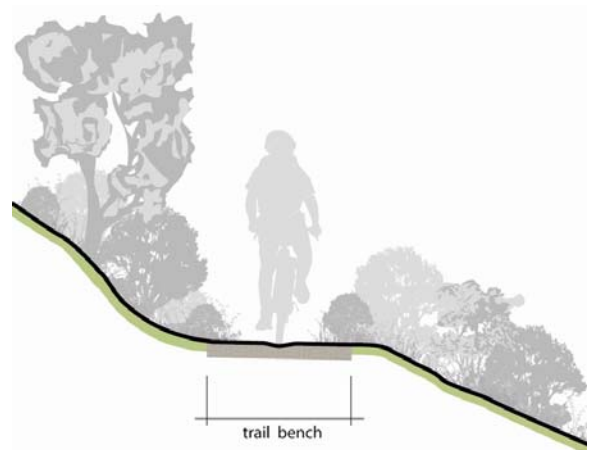


Figure 2.1 – Trail Cross Section

Table 2.1 - Agency Definition of Narrow Trails

Agency	Agency Definition of Narrow Trails
Marin County Open Space District	3 to 3.5 feet wide with 8 feet of lateral clearance
Midpeninsula Regional Open Space District	6 to 10 feet wide (Class A, widest) 4 to 6 feet wide (Class B, intermediate) 2 to 4 feet wide (Class C, narrowest classification)
Santa Clara County Parks and Recreation Department	4 to 6 foot wide (narrow trails limited to mountain areas)
California State Parks	Less than 60 inches wide (Roads are defined as greater than 60 inches)
East Bay Regional Park District	Less than 8 feet wide

2.2 Narrow Natural Surface Trail Use

Typical trail users in the San Francisco Bay Area include hikers, cyclists, nature enthusiasts, birders, equestrians and dog walkers.

At the policy level and/or per code regulation, as summarized in *Appendix I - Narrow Natural Surface Trail Use*, the agencies surveyed allow some multiple-use (e.g., hike and equestrian or bike and hike) on park trails, but may or may not accommodate the full range of uses (e.g., hikers, dogs, bikes, saddle animals) on all narrow natural surface trails or in all parks within their jurisdiction. Most agencies (the primary



exceptions being State Parks and Skyline Park Citizens Association) surveyed allowed dogs on leash on some, but not all narrow, natural surface trails. Mountain bike use is generally the most restricted use on narrow natural surface trails, but not at all park and open space units. Our research indicated that with the exception of hiking, all other uses were both allowed or prohibited by policy or code in certain open spaces and parks. In making the determination on allowable use open space management agencies practices focused on three key themes:

- Safety – addressing the speed differential of different users to minimize user conflicts
- Determining trail location and design to minimize adverse effects on natural and cultural resources
- Providing access for a variety of trail activities within the entity’s open space.

Exceptions to agency policies have resulted from: two primary sources including: (1) a management hierarchy that allows for park supervisors discretion in determining use practices at individual parks (e.g., management strategy at State Parks); and (2) through a planning process that may originate from public user groups or as a trail system planning effort from within the Department (e.g., East Bay Regional Park District, California State Parks) that allows for policy exceptions to be made using a defined trail change check list process (see side bar). Exceptions and trail use change policies are summarized in *Appendix I- Narrow Natural Surface Trail Use*.

California State Parks’ Trail Use Change Process

California State Parks has developed procedures for evaluating trail use change requests that may originate from public user groups or as a trail system planning effort from within the Department. Changes in designated use can include changing existing roads or trails from single use to multi-use, or multi-use to single use. This trail use change process is used to help identify whether a trail or trail network is appropriate for use conversion.

The Trail Use Change Process and Survey is a data-driven attempt to take personal bias out of the process and determine if a trail route is suitable for a trail without consideration of the potential use. The State’s’ Trail Change Use Process (in use since 2009) is adapted from EBRPD’s Trail Use Change Checklist.

Under this process, a request for change is submitted to State Parks. Then a *Trail Use Change Survey* is completed with input from Visitor Services, Technical Services, Natural and Cultural Services, Defensive Planning and Park Management representatives, referred to as the “evaluation team”. The evaluation team makes their recommendation based on potential impacts to circulation, safety, trail sustainability, soils and geologic conditions, impacts to the resources and the park operations identified in the Trail Use Change Survey. The team recommends to: 1) allow the change in use; 2) not allow the change in use; or 3) conditionally approve the change: a) pending modification of the existing trail, b) rerouting of the existing trail; or c) preparation of a Unit Road and Trail Management Plan.

If the evaluation team recommends converting a trail or trail network, the project undergoes environmental evaluation. If a Mitigated Negative Declaration or Environmental Impact Report is required, the project undergoes additional studies. Once the project environmental document has been certified or the project is determined to be categorically exempt, a work log, cost estimate and work plan are prepared. The project is implemented once funding is secured.

3 Planning Strategies

3.1 Purpose

Trail planning is necessary to effectively balance public access and recreational needs or desires with management requirements to ensure appropriate levels of resource protection and public safety.



3.2 The Mission Statement

Mission or vision statements provide the framework for policy and management decisions regarding agency lands and facilities. Most of the San Francisco Bay Area park and open space agencies surveyed operate in accordance with a mission or vision statement. These statements form the organization’s overarching philosophy relating to park use and resource protection, but do not provide specific guidance with regard to specific uses or management of narrow natural surface trails.

A summary of several adopted mission and/or vision statements is shown in *Appendix 2 - Park and Open Space Agencies’ Mission Statements*. This table demonstrates the variation in Bay Area park and open space management philosophies with some agencies placing more emphasis on outdoor recreation while others identify resource protection as their primary mission.

3.3 Planning Policies and Code Regulations

While the vision or mission statement forms the framework identifying the overarching philosophy for the organization, the agency’s policies and/or code regulations establish allowable trail uses for each agency’s parks and open space and often provide guidelines for developing and managing narrow natural surface trails (Also refer to *Appendix 1- Narrow Natural Surface Trail Use*).

Trail use policies and code regulations have fairly consistently allowed hiking and equestrian use on trails of all types with many of the agencies surveyed operating at least a few hiking-only trails. The biggest change over the last three decades has been for policies and regulations pertaining to use of narrow natural surface to become more accommodating of bicycle and dog use. During the 1970s and 1980s many agencies allowed public access to new park and open space properties upon acquisition. However, in most parks of the participating agencies narrow trails were generally closed to mountain bike use and many to dogs. California State Parks was somewhat unique during this period in providing some latitude for local supervisors to set trail use policies with the result that mountain bike use, but not dog use, was allowed at several State Parks. For example, mountain bikes are allowed on selected narrow natural surface trails at China Camp, Annadel and Mt. Diablo by the authority of the Park Supervisor. Mountain bikes are also allowed on narrow natural surface trails at Wilder Ranch, the lower network of Nisene Marks, and at Gavilan State Park, but not within the State Wilderness Area.

Today there is a trend toward preparing new management plans for entire park trail systems prior to allowing any public access at new parks or making changes within existing parks. Examples of this

approach include Coyote Lake Harvey Bear Ranch managed by Santa Clara County Parks and Recreation Department. This approach allows the agency to: fully plan and design facilities for the intended uses; construct or improve new trails of all types specifically for intended uses; and be able to properly dismantle routes recommended for closure or restoration.

In some cases, agency implementation of specific policies requires adaptation to individual parks. Specifically, California State Parks has determined that the increasing use of mountain bikes has created a need to develop management policies to reduce the potential conflicts with other users and the impact on park resources (Policy IV.2). This is being accomplished through the State Trail Use Change Process and Survey (See sidebar page 8) and Statewide Program Environmental Impact Report for Roads and Trails Change-in-Use (PEIR) (See sidebar page 10).

4 Design & Management Approaches

4.1 Approaches to Access

None of the San Francisco Bay Area agencies surveyed are actively considering additional restrictions on trail uses. Moreover, there is a growing recognition that bicyclists are seeking increased access to narrow trails. In an attempt to increase bicyclist's access to narrow trails (and, more specifically to provide sufficient trail mileage to satisfy the bicycle community) agencies are implementing a number of strategies including:



- Allowing mountain bike use on selected narrow natural surface trails at multiple park properties
- Allowing mountain bike use on narrow natural surface trails at some parks or areas of parks within the agency's jurisdiction, while restricting such use at other locations
- Restricting narrow trail access to either hikers and equestrians or hikers and bicyclists, and restricting dog use or requiring dogs on leash to lessen conflicts between of users
- Developing additional miles of narrow trails designed to safely accommodate cyclists.

Where parks (e.g., Annadel State Park near Santa Rosa and China Camp State Park in Marin County) have opened extensive combined service road and single-track trail networks for multiple uses that include mountain bike use, it has been reported to have reasonable management success. Other agencies that have opened narrow multi-use trails to mountain bikes within their parks and preserves without significant reported management impacts include: County of Santa Clara Parks and Recreation Park Department (e.g., Santa Teresa County Park), Midpeninsula Regional Open Space District (e.g., El Corte de Madera Creek Open Space Preserve -), and East Bay Regional Park District (e.g., Crockett Hills Regional Park).

With a growing demand for dog walking, most agencies surveyed allowed dogs on leash on some, but not all narrow, natural surface trails (the primary exceptions are State Parks and Skyline Park Citizens Association). East Bay Regional Park District and Marin County Open Space District also allow dogs off leash under voice control with the EBRPD allowing dogs off leash on all trails including narrow trails and MCOSD permitting dogs off leash on fire roads. Success has been mixed. EBRPD has experienced a large growth in professional dog walkers walking many dogs at one time. EBRPD has responded by requiring a permit for persons walking more than three dogs at a time.

Use of saddle animals as a mode of transport has had a small, but relatively consistent following on many of the original narrow natural surface trails, some of which were designed and built by equestrians. Some agencies surveyed provided anecdotal commentary that equestrian use diminishes with increased dog and bike use, but none of the agencies surveyed had hard data to support this perception. Some agencies surveyed have also noted that while overall equestrian use is down of those using saddle animals on trails there has been an increase in more exotic animals such as llamas.

4.2 Quantitative and Qualitative Tools for Assessing Multiple-Use Narrow Natural Surface Trails

A variety of quantitative and qualitative tools for assessing multiple-use narrow natural surface trails have been developed. The Universal Trail Assessment Process (UTAP), which is an inventory tool that records accessibility and maintenance information about trail routes, is one of the tools that trail managers are using to assess natural surface trail conditions and manage use. The UTAP was designed to meet the information needs of both trail users and land management agencies. The UTAP has been implemented by several agencies to record trail conditions for access and maintenance information, including the California State Parks and EBRPD.

Quantitative and qualitative analyses are complicated by the fact that agencies often inherit properties with a legacy road and trail network associated with past and current ranching operations, former logging activities or the placement of utilities. Frequently these road and trail networks do not fit the park and recreation agency's management goals as the existing network may:

- Be more dense (contain more miles per acres) than is desirable from a management perspective
- Be designed to meet former needs (i.e., ranching, forestry) rather than recreation objectives resulting in trails that may be too steep, too wide or located in inappropriate locations making them unsustainable over the long term.

Thus, despite park and open space agency mission statements, goals, policies and regulations many managers must first focus on eliminating obstacles created by past practices as a means of working toward a manageable trail network designed for recreational use.

Midpeninsula Regional Open Space District Trail Closure and Relocation

Modification of existing, but poorly designed trails presents particularly difficult design challenges often requiring more than simple upgrades or physical improvements with the steepest trails and those closest to streams presenting the greatest challenges relative to erosion and impacts on water quality. With its Draft Watershed Protection Program, MPROSD proposes to close and restore trails with these characteristics and construct new trail segments that provide an equivalent or better trail experience in a less erosion prone location.

MPROSD's physical improvements include installing measures to control erosion by directing storm water runoff off the trail network quickly without creating large concentrations of water; modifying the design of steep trails (over 15 percent) to prevent or reduce erosion created when brakes are locked up; and narrowing road widths to the minimum necessary for patrol, emergency response, and maintenance activities, thus reducing the overall surface area exposed to the weathering and erosive effects of rainfall.

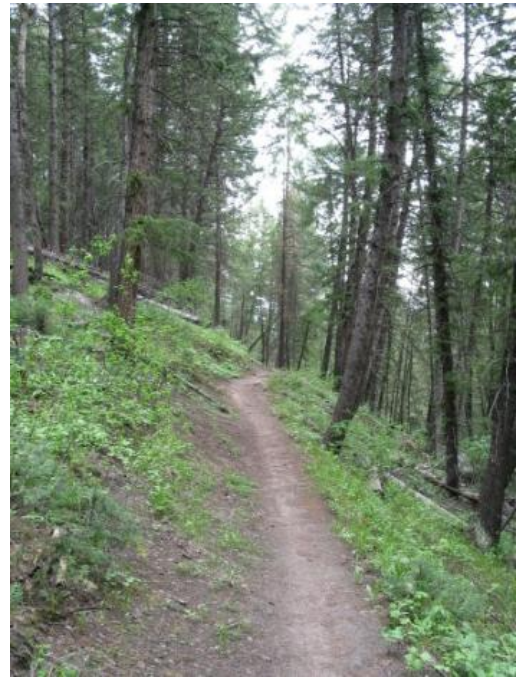
The Giant Salamander Trail project provides one example in keeping with this program. The primary goals of this project (shown below) were to reduce sedimentation by narrowing the trail from road width and restore natural drainages by removing culverts and at the same time preserving the trail experience.

(Source: MPROSD Summary of the Proposed Watershed Protection Program, <http://www.cfses.org/salmonid/html/water/descrip/pdf/sangreg/elcorte.pdf>.)



4.3 Design Strategies for Managing Use

Design and management strategies that agencies are employing to meet today's narrow natural surface trail design and shared-use challenges include: Design and management strategies that agencies are employing to meet today's narrow natural surface trail design and shared-use challenges include managing: use at the staging areas where use is concentrated; speed variables associated with different uses, skill and behavior patterns; speed limits, helmet requirements for cyclists, provision of trail alternatives at major staging areas, and limiting short cutting and creation of illegal trails.



Some agencies in the San Francisco Bay Area are retrofitting old roads and trails and designing new narrow natural surface trails to accommodate multiple-uses and mountain biking in particular. Design concepts are based primarily on a philosophy of heightening the recreation experience while providing adequate visibility and controlling speed (one of the most often cited reasons for conflicts among users). Rancho San Ysidro Trail in Coyote Lake-Harvey Bear Ranch County Park, Santa Clara County provides one such example.

To meet a growing demand for narrow natural surface trails by different user types a wide range of design strategies are being considered to minimize resource impacts associated with new construction. Design strategies for mountain bicyclists are generally being directed to meet the requirements of the cross country rider. Few Bay Area agencies are designing facilities for "downhill" riding or incorporating structures into the trail, though some do (e.g., the Soquel Demonstration Forest and the Santa Cruz/San Mateo Unit of State Parks).

Participating managers surveyed noted that some of the strategies being used, especially those intended to control speed (e.g., pinch points, uneven surfaces), may render the trail less accessible to those with mobility impairments. Finding a balance between resource protection, various users' desire for "challenging" trail experiences and meeting the intent of ADA is a significant challenge; one of the findings being that all trails cannot meet the needs of all who aspire to use the trails. However, managers surveyed felt that while all trails may not be able to accommodate all users, opportunities exist for systems of trails and/or parks and open space to satisfy the agencies' constituents' desires.

Examples of various strategies that participating agencies have employed to create more narrow natural surface trails to the expanding range of user types and skills include:

- Incorporating old road beds into the trail system where appropriate to minimize new construction
- Incorporating multiple trail starts from one staging area
- Converting existing road-width trails to narrow trails

- Incorporating road width starts out of one staging area or trailhead that connect with narrow trail loops where use is more dispersed
- Incorporating two separate narrow trails that accommodate different uses out of one staging area or trailhead
- Providing separate parking lots or trailheads with narrow trails for each type of use
- Setting aside some parks or open spaces areas for hikers and equestrians or hikers and mountain bicyclists only
- Avoiding fall line trails and switchbacks in favor of designing sinuous trails that include rolling, undulating grades (maximum 10 percent for extended lengths) and curves that provide an interesting user experience
- Minimizing gates, which create one of the biggest obstacles to accessible trail design and a continuous trail experience
- Creating pinch points at key points (e.g., where sight lines, obstacles and/or grades increase the probably of conflicts) to slow, but allow through passage prior to actual point of conflict.

4.4 Design Standards

Trail managers surveyed provided a number of common key elements that they considered in developing trail design standards. These include: user safety, physical setting and shared use.

- User Safety – Designing to control speed differentials associated with different types of use and to address a lack of room to pass were the most often cited factors related to user safety.
- Physical Setting - Developing trail alignments to provide a more appealing trail experience taking into account naturally occurring variations in the landscape (e.g., horizontal curvature, vertical and horizontal clearances, and drainage). This also means controlling for problems arising with multi-use when a trail is too steep or too flat.
- Shared Use – Taking a system-wide approach to developing trails and designating uses that provides for shared use within a single park or within a public entity’s system of parks and open space, although the uses that may be appropriate within the system may vary with the setting or agency’s policies and regulations.

Factors that are affecting the evolution of trail design standards and construction techniques include:

- Specialized trainings with California State Parks, the National Trails Training Partnership and other trail educators.
- Trend toward mechanized trail building (e.g., construction with Sweco-type trail building machines typically creates a five foot wide trail bed) and finish with volunteer labor proving to the most efficient use of staff and volunteer time tends to dictate trail width
- Interagency and non-profit publications and forums (e.g., the California Trails and Greenways Conference, Conference of the Professional Trail Building Association) that provide detailed technical guidance and findings from field experimentation.

A summary of some of the participating agencies’ adopted design standards can be found in *Appendix 3 - Design Standards*.

4.5 Management and Regulation

Consensus among participants confirmed that regulation is not effective in overcoming major design or routing problems that lead to user conflict. Adherence to posted trail use rules cannot be achieved without a commitment of resources including clear communication of those rules to trail users and consistent enforcement efforts. More than one agency surveyed found that without frequent trail signage indicating a trails' name and what uses are allowed users cannot be reasonably expected to comply with the park regulations. Finally, respondents reported that complex regulations or rules are not effective in a park and open space setting.



Tools and strategies that management agencies have used in various combined strategies to address trail use compliance include:

- Behavior modification by:
 - Separating education focused trails (e.g., interpretive trails where groups of hikers gather) from mountain bike trails
 - Matching uses between adjacent parks with linking trails
 - Enforcing helmet use
 - Communicating where people can go through improved signage and maps
 - Posting seasonal closures to improve watershed health and avoid wildlife impacts
- Ongoing engagement with public through:
 - Establishment of volunteer trail maintenance and patrol groups
 - Staff patrolling on mountain bikes or horseback
 - ATV patrol supplement
 - Work with clubs to maintain and patrol trails
 - Formation of advisory boards that communicate back to staff and boards and councils
- Policing /Enforcement
 - Warning or citation to address non-compliance with restrictive use policies
 - Focusing enforcement at parking lots, which are seen as the source of most problems
 - Follow up police investigations and warrants to non-compliant actions
- Technology
 - Using cameras to monitor use
 - Using radar guns
 - Using kiosk(s) with electronic pay station(s)
- Maintenance /Management practices that include:
 - Ongoing staff training
 - Consultant agreements with groups for managing parks and or assisting in design and construction (e.g., International Mountain Bike Association)

- Consultant agreements for specialized management needs (e.g., environmental monitoring, open space management, grazing for fuel management oversight).

Managers reported that: volunteer patrol and maintenance, staff patrolling on mountain bikes, (though it is sometimes challenging to get staff on bikes) and ATV patrol supplement, often in combination, were the most effective allocation of staff resources. Use of radar guns (up to 50 hour a week) to enforce speed limits was also seen as effective in controlling speed. Managers reported generally poor compliance with seasonal closures when used to minimize impacts to trails.

4.6 Outreach and Education

Volunteer and educational programs allow management agencies to convey their perspectives and values as recreation and resource managers to the general public.

The success of outreach and educational programs in promoting compliance with trail use policies varies considerably across the region with no obvious factors determining the difference between success and failure. Field staff collaboration with the various segments of the trail user community (e.g., mountain bike, hiker and equestrian associations) has been successful in some parks and open spaces creating a shared sense of resource protection and stewardship between staff and trail enthusiasts. In other areas, renegade trail building and other illegal activities continue unabated despite the best efforts of staff to construct desirable trails and to educate park users. Outreach techniques that were reported to be helpful both in reaching out to trail users and in keeping managers informed with regard to users' perspectives trails include:



- Monitoring blogs and email listserves
- Connecting with park users in the park
- Actively connecting with trail users through organized activities and leagues
- Coordinating with other agencies, non-profit organizations, schools and volunteers.

5 Resource Requirements

5.1 Effects of Development and Use of Narrow Natural Surface Trails

Trail development and use may create impacts on the landscape. The most frequently cited impacts associated with trails that managers reported were to vegetation and sediment release. A summary of the effects and design solutions managers are using to address these environmental factors are summarized below.

Plant Impacts. Habitat can be adversely impacted by trampling or harvesting plants (e.g., possible take of endangered plants such as Tiburon mariposa lily on Ring Mountain MCOSSD). Weeds and other exotic plant species or funguses (e.g., Sudden Oak Death Syndrome) can be introduced through the transfer of seeds or infected plant materials from one park or preserve to another by trail users or park maintenance equipment and/or vehicle tires.



Solutions can include: implementation of an integrated pest management program to control aggressive weeds along trails; and designing trails with proper drainage and comfortable gradients to create an experience that will keep visitors on the trails. Additionally, where trail restoration construction is handled as routine maintenance, retention, protection and enhancement of desired habitat conditions is more likely as there is an ongoing commitment to monitor these sites until desired results are achieved.

Sediment Release. While this study does not include a scientific study of the impacts of dispersed recreation on sediment release, recreation managers (and regulatory agencies) have observed that trails and associated recreation use tend to elevate sediment levels in adjacent waterways. Though the total sediment delivered from narrow trails can be assumed to be generally lower than service road width trails because the total surface area of a narrow trail is less than that of most roads, the sediments that enter into drainages and creeks can have an adverse effect on water quality, thereby endangering plant and animal species in riparian habitats (e.g., federal and /or state listed species such as California red-legged frog, Coho salmon). This release of sediments can result from trail construction, as well as the erosion of the trail surface from ongoing use, especially on steep trails.

With increasingly stringent non-point source water quality regulations and a goal of reducing these trail-related impacts on resources several park and open space management agencies have responded by inventorying the trail networks within their preserves and parks and identifying treatments. Once inventoried, park and open space management agencies are able to systematically implement maintenance and restoration plans that incorporate Best Management Practices to correct drainage issues and address erosion concerns. Generally, management agencies are finding that these efforts lessen maintenance requirements and facilitate compliance with agencies that regulate water quality (e.g., Regional Water

Quality Control Board) and construction within riparian corridors (e.g., California Department of Fish and Game).

Chapter 8 - Suggested Readings offers more detailed assessments pertaining to environmental impacts of trails from a variety of perspectives. Additionally, related studies are listed under the California State Parks Website <http://www.parks.ca.gov> – Trail Managers’ Toolbox.

5.2 CEQA and Narrow Natural Surface Trails

A number of different, but interrelated and often overlapping environmental laws and regulations apply to the planning, construction, and operation of trails. Standard project-level environmental review requirements include the state California Environmental Quality Act (CEQA) - and occasionally the federal National Environmental Policy Act (NEPA). In addition to trail development environmental triggers, the preparation and adoption of a trail plan constitutes a discretionary action undertaken by a governmental agency that requires environmental clearance. The basic purposes of CEQA and NEPA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities
- Identify the ways that environmental damage can be avoided or significantly reduced
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Statewide Program Environmental Impact Report for Roads and Trails Change-in-Use (PEIR)

The California Department of State Parks is one of many agencies that have had challenges to their CEQA documents pertaining to new trail development forcing State to consider more exhaustive CEQA analyses on what had formerly been considered routine trail work.

In response State Parks first developed procedures for evaluating trail use change requests (as discussed in Chapter 2- Narrow Trail Characteristics) and is currently preparing a draft Statewide Program Environmental Impact Report to serve as a first-tier environmental document. This document is meant to address the broad environmental effects that may be associated with existing trail/road change-in-use procedures. Further site-specific environmental review may be required for particular aspects of the program when those aspects or portions of the procedures are proposed for implementation.

There was consensus among the managers surveyed that early consideration of the information and data necessary to comply with the CEQA (and NEPA) is a key component of narrow natural trail surface development. Tools for assessing and managing sensitive resources while accommodating recreational trail use on narrow natural surface trails include:

- Resource Management Plans that take an adaptive management approach
- Habitat Conservation Plans/Natural Community Conservation Plans (HCP/NCCP)
- Master Plan Program Level Environmental Impact Reports
- Project Level Environmental Impact Reports
- Project Level Initial Study/Mitigated Negative Declarations.

For examples of the types of CEQA documents that agencies have prepared to meet the obligation of CEQA (and NEPA) refer to *Appendix 4 - CEQA & Environmental Permitting*.

5.3 Permitting Narrow Natural Surface Trails

In addition to analyzing resource impacts and obtaining necessary CEQA (and NEPA) environmental clearance, land managers are also frequently required to obtain permits from regulatory agencies to proceed with construction and management of trails under various conditions.

Participating agencies are addressing environmental permitting requirements at the regional, program and/or project level through the development of a variety of studies and plans as they work to incorporate new trails into park and open space lands. When working with regulatory agencies on trail permitting, managers surveyed stated the importance of researching the potential impacts of each project and demonstrating how the project will minimize the potential for the project to have a significant adverse environmental effect on parkland resources.

While trail permitting is governed by complex rules, regulations and procedures that go beyond the scope of this study, managers agreed on several common themes regarding permitting narrow natural surface trails. These include:

- Where practicable practice avoidance of sensitive habitats and species when planning and designing new trails, road to trail conversions and trail use conversions.
- Biological regulatory requirements for trail siting and development are highly dependent on specific species of concern, meaning that the permitting lessons learned in one sub-region are not necessarily applicable to another.
- Water quality/sedimentation control solutions require close consultation and collaboration in the field with regulatory staff during the planning and design phases along with careful sampling and monitoring after construction to develop effective design, construction and maintenance techniques.

Specific examples include:

- *Environmental Impacts of Outdoor Recreation in Wildlands and Visitor Impact Monitoring* (Cole) U.S.
- State of California Department of Parks and Recreation - Standardized list of Best Management Practices (BMPs) to accompany the State's "trail check list".

Refer to *Chapter 8 - Suggested Readings* for links to articles and *Appendix 4 – CEQA & Environmental Permitting* for a summary of CEQA, NEPA and permitting requirements for a number of trail planning and construction projects.

6 Summary of Findings

6.1 Trends

A number of trends were described in the responses to the survey and follow up discussions. These include:

Trail Construction and Use Conversions. Several of the participating agencies have reported construction of new narrow natural surface trails, narrowed service road width trails to a narrow trail width and/or use conversions of existing trails in the last five years. Others are planning to construct new narrow natural surface trails and/or narrowed service road width trails to accommodate multiple uses (e.g., hiking, equestrian, mountain biking and dog walking) as dictated by their adopted policies and code regulations in the near term. Examples include:



California State Parks

- Diaz Ridge Trail - 6,300-acre park - Trail connector between Muir Beach, Golden Gate National Recreational Area and Panoramic Highway at the top of Mt Tamalpais State Park - 3.1 miles - multi-use - New Construction and realignment including 1.5 miles of new trail and decommissioning a "social" trail to protect habitat
- Skyline Wilderness Park, Napa - owned by State Parks, leased by the County and managed by Skyline Park Association for 25 years - Incorporates narrow trails in system - New Construction
- Samuel P. Taylor State Park – 2,700-acre park - 4 mile trail (Bill’s Trail)- Trail use change to add mountain biking as a use – focused EIR in progress
- Castle Rock State Park – 3,600-acre park - 32 miles of hiking and horseback riding trails (park currently does not allow mountain bike use) - Skyline Trail, a Bay Area Ridge Trail (BART) route under consideration for use conversion to add mountain bike use.

County of Santa Clara Department of Parks and Recreation

- Sanborn County Park - Multi-use - hike, bike, equestrian - 3,688 acre park - 7-8 miles proposed New Construction
- Coyote Lake-Harvey Bear Ranch County Park - Multi-use - hike, bike, equestrian - 4,595-acre park - 23 miles of trails – Combination of new construction and trail modification to reduce road width to narrow trail width

East Bay Regional Park District

- Brushy Peak Regional Preserve - Multi-use, hike, bike, equestrian - 1,833-acre preserve, 2.5 miles - New Construction
- Crockett Hills Regional Park - Multi-use, hike, bike, equestrian - 1,939 acre park, 4.5 miles - New Construction
- Dublin Hills Regional Park - Multi-use, hike, bike, equestrian - 654 acre park, .5 mile - New Construction

Midpeninsula Regional Open Space District (MROSD)

- El Corte de Madera Creek Open Space Preserve - Multi-use - hike, bike, equestrian (highest use, mountain bikes) - 2,817-acre preserve - 36 miles of trails - Incorporates “volunteer” system and former private motorcycle park trail and logging roads.

Sponsoring Trail Events. A number of agencies have been accommodating organized events on narrow natural surface trails for triathlons, mountain biking, cross country running and even adventure course events that include: kayaking and/or swimming with trail activities.

Often agencies are partnering with youth-oriented organizations as sponsors as a means of reaching out to younger trail users. For example, the Marin County Open Space District has sponsored a short course mountain biking race in the spring/late summer at Nike Hill in McGinis Park and a four mile mountain biking race Stafford Lake (permitted as a one time event). Skyline Wilderness Park Association has also offered a number of trail events including: the Skyline Park Mountain Bike Race (sponsored by the Eagle Cycling Club Racing Team) and the UCI World Cup and the Single Speed World Championships, (designated by USA Cycling as the Northern California State Championship XC race that can qualify riders for the 2010 MTB Nationals). Cal Fire Sonoma, Lake Napa Unit also conducts several mountain bike races every year through a special use permit at Boggs Mountain.

East Bay Regional Park District trails are also used regularly for special events. The Leukemia and Lymphoma Society’s Team in Training utilizes the District’s paved regional trails as well as natural surface trails at Del Valle, Eastshore State Park and Redwood Regional Park for training runs. Several NorCal High School Mountain Bike League teams train in Tilden and Wildcat Canyon Regional Parks. The Bicycle Trails Council of the East Bay often schedules its monthly Gala Rides and Youth Mountain Biking Adventure events on EBRPD trails. Private trail running organizations including Pacific Coast Trail Runs, Coastal Trail Runs, and Brazen Racing schedule events in EBRPD parks. The Tilden Wildcat Horseman’s Association’s annual Five Day Ride/Hike/Bike utilizes east bay parks and open space lands, raising funds for the Ridge Trail and Ivan Dickson Trail Maintenance program. The American Endurance Ride Conference sanctions equestrian events in Harvey Bear, Grant Ranch and Calero Parks in the south bay as well as EBRPD and Mount Diablo State Park lands. And non-profit advocates like the Greenbelt Alliance utilize EBRPD parklands for fundraising and advocacy events.

Trails as Training and Race Venues. The NorCal High School Cycling League offers competition between schools in cross-country mountain biking, with hundreds of riders. Since the league was organized in 2001 for students in grades 9 to 12, the popularity of high school mountain biking has grown steadily with more riders competing every year. Currently over 50 California high school teams offer student athletes organized mountain bike programs executed off-road with bicycles specifically designed for the variety of grades, surfaces and weather conditions. In the San Francisco Bay Area this means that regional parks and open spaces that allow mountain bikes on trails (especially large systems of narrow natural surface trails such as China Camp State Park) serve as major training grounds for the local high school mountain bike teams. Most of the league teams have a four or five event race schedule, held in the Spring or Fall. Current race locations include: Fort Ord, Monterey; Boggs Mountain (near Cobb); Granite Bay, Folsom Lake; and Toro Park, Salinas. Equestrians also use regional and state parks and watershed lands in the San Francisco Bay Area as venues for training as well as recreational use with parks located near boarding stables and pastures often frequented for event training as well as recreational trail use.

New Uses. Several agencies noted the addition of new technologies and activities that are contributing to the use of narrow natural surface trails for access and off trail use to access specific features as well as

changes in use patterns of long-standing activities. New uses include: geocaching. New use patterns relate to dog and equestrian uses.

Geocaching. Geocaching is an outdoor activity for users of hand-held Global Position System (GPS) units that have brought treasure hunting into the 21st century. A geocache may consist of a hidden item or container, a specific location or physical feature. Geocache locations are shared on the Internet through geocaching web sites. Geocachers use the GPS coordinates and written descriptions to find the caches. Finding a cache offers a variety of rewards, encourages exploration, challenges problem solving skills, and creates a goal oriented physical activity for individuals, groups, and families. In response, some agencies are developing new policies and practices to address and manage these uses. For example, East Bay Regional Park District is one of the agencies that have developed a policy to manage geocaching for the protection and preservation of natural and cultural resources, as well as to minimize conflicts between this recreational activity and other park uses.

Dog Use. An emerging issue for several agencies is the advent of professional dog walkers who care for large numbers of dogs and desire to exercise the animals in a park or open space setting. In response, East Bay Regional Park District and other agencies are limiting the number of dogs an individual person can walk and have instituted a permit system for professional walkers wanting to walk more than the maximum limit.

Equestrian Use. Prior to the 1970s many of the narrow natural surface trails in the greater East Bay were developed by equestrians and oriented to that mode of travel. While equestrian use remains well-established in some park and open space areas, several managers noted that there are fewer areas where equestrians ride regularly and generally fewer equestrians than in times past. Where use remains highest is in parks with, or adjacent to, stables that board horses. Some agencies surveyed have also noted that while overall equestrian use is down among those using saddle animals on trails there has been an increase in more exotic animals such as llamas on trails.

New Technologies. Several new equipment technologies are showing up on trails enabling park and open space users to go places they were formerly unable and/or to experience trails in new ways. Examples include: the adaptive products such as all terrain wheelchairs, new mountain biking subtypes and Segways.

Wheel Chair Design - Adaptive products for independent living and recreation are continuing to evolve allowing those with mobility limitations to expand their recreation opportunities. Development of all terrain powered wheelchairs with four wheel drive and flexible chassis and other sports equipment modifications are opening up use opportunities on narrow natural surface trails.

Mountain Biking - Since its introduction to Northern California in the 1970s, many new subtypes of mountain biking have evolved and are in practice in Bay Area parks and open spaces including cross-country (XC) riding, all-day endurance biking, free riding, downhill riding, and a variety of technical obstacle-focused activities. Mountain biking equipment has also evolved over the years to meet the demand for each of these subtypes. Some park agencies are developing specialized trails and/or facilities such as bicycle skills parks, BMX bike tracks



and pump tracks, to meet these needs while other managers are deciding that these trail types are not compatible with their agencies' policies and/or code regulations. Pleasanton BMX Park, Calabazas BMX Park in San Jose, Cummings Family Bike Park in Folsom and a mountain bike park in Fresno that is adjacent to a BMX race track and a freestyle dirt jump area are examples of existing bike parks in the region that are open to the public. Cities with new special use bike parks in the works include: Lafayette (1.8-acres), Elk Grove (2.4-acres) that will be constructed in the summer of 2011 and Novato (14.1-acres) that will be constructed in 2012.

Segway - Interest in the Segway, a self-balancing personal transportation device with two wheels for trail use, is a relatively new trend. Segway use in most parks and trails is currently prohibited or limited to paved trails, although some agencies permit users with handicapped placards on narrow natural surface trails.

New Standards. The Americans with Disabilities Act (ADA) is federally mandated, comprehensive civil rights legislation that has necessitated revision of design standards related to access for individuals with disabilities. In accordance with the provisions of the ADA, all newly-designed pedestrian facilities, including trails, should be accessible wherever feasible. This mandate, along with the new adaptive technologies is placing growing pressure on open space land management agencies to develop narrow natural surface trails to meet new standards; not only in designing trails, but also in conveying accurate information about the trails (refer to UTAP discussion Section 4.2) and scheduling ongoing maintenance to retain the original design intent. For example, the Shoreline Trail at China Camp was designed to meet accessibility standards with a six inch gravel base. However, as users, most notably horses and mountain bikes, have put mechanical wear on trails the soils on the trail surface have worn away. This has altered the configuration and composition of the trail surface to where it no longer meets accessible standards. In response to the legislation agencies surveyed are taking a number of approaches to conform to the ADA including: development of separate trails to meet varying skill and mobility needs and conveying more detailed information about the trails on web sites, on signs along the trail and in park brochures (e.g., trail length, grade, cross slope, width, surface type, obstructions, elevation change). East Bay Regional Park District provides one example of using a website <http://www.ebparks.org/parks/accessibility> to convey trail accessibility information.



6.2 Challenges

Managers reported that maintaining existing uses combined with emerging trends presents new challenges as they work to meet the needs of their constituents while complying with increasingly complex state and federal standards and permit requirements. Some of these challenges include determining how to:

- Permit trails in habitat designated as sensitive (e.g., critical habitat for listed threatened or endangered species)
- Develop trail systems that minimize user conflicts

- Address public comfort levels when adding new trail uses so as to avoid established users from self selecting /avoiding existing trails
- Objectively and systematically analyzing parklands in order identify where to best provide additional multiple-use access on narrow natural surface trails
- Meet the Federal Guidelines for complying with ADA standards both during initial design and development and over the long term as damage due to lack of maintenance or general wear patterns on popular trails can reduce accessibility conformance
- Meet ADA needs and the desire for “challenge obstacle courses” within a park trail system as one design standard will not necessarily meet all desires or needs
- Find opportunities to meet everyone’s needs without increasing trail density beyond a sustainable carrying capacity of the land.

6.3 Conclusion

A number of findings and trends emerged from the responses to the survey and follow up discussions regarding the management of narrow trails as summarized *Table 6.1 – Summary of Managers’ Survey Findings*.

Table 6.1- Summary of Managers’ Survey Findings

Tool	Strategies that have been successful with participating agencies	Strategies that have created management challenges for participating agencies
Design	Moderate grades Good sightlines Bench width Grade reversals Features to minimize conflict	Combining use on trails not designed for multiple use Design that benefits one user can be an obstacle to another Encouraging speed differential with sustained steep grades
Use Distinctions	Multi-use from day one Plan out uses before opening Design for multi-use intent Construct and restore the land before opening Create opportunity for cooperative use Separate users: Separate by park Separate at trailheads Separate by trail	Combining uses on crowded trails More challenging to safely manage many different uses where use is high Every potential conflict is magnified High use areas require user limitations
Signage	Regulatory/wayfinding signage that clearly communicates What is an official trail and what is not? What people need to know in order to comply What people need to know to recreate at a comfortable skill, mobility level	Lack of signage Leads to confusion Lack of information on conditions can create poor or dangerous trail experiences Add to misuse of existing trails, use of bootleg trails
Enforcement	Consistent enforcement Regulatory compliance on trails requires consistent enforcement This does not come for free Communicate/educate through enforcement	Complex regulations Uphill only One way loop Alternate day Inconsistent Enforcement Low commitment equals limited effectiveness People will do what they think they can get away with People are angry with inconsistency Self Regulation Dependent on a small and local user group Ownership is key, fee and membership base Generally not effective in publicly-managed park lands

In conclusion this survey of San Francisco Bay Area park and open space management agencies regarding managing multiple uses on narrow natural surface trails found that:

- Trails designed with multiple use in mind are more successful than trying to adapt existing trails for multiple use
- Allowing multiple use when a trail is opened is more effective than initiating use changes over time, especially in popular parks where use patterns are well established
- Providing information simultaneously multiple ways through park signage, web site and staff and volunteer presence serve as the most effective way to reach out and inform trail users
- Fewer regulations consistently applied and enforced yields greatest compliance.

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- Bay Area Ridge Trail Council
- Bureau of Land Management, Hollister Field Office
- Calfire, State Forest Agency -Sonoma - Lake - Napa Unit - Boggs Mountain
- County of Santa Clara Parks & Recreation Department
- Fairfield, City of
- Marin County Open Space District
- Marin Municipal Water District
- Midpeninsula Regional Open Space District
- Monterey County Parks
- Oakland, City of
- Santa Clara County Open Space Authority
- San Luis Obispo, City of
- Skyline Citizen's Association
- State of California Department of Parks and Recreation

8 Suggested Readings

Bay Conservation and Development Commission, *Study on Public Use Access Impacts on Wildlife*:
http://www.bcdc.ca.gov/pdf/planning/reports/public_access_wildlife.pdf

Birkby, Robert C., Student Conservation Association, Inc., *Lightly on the Land, the SCA Trail Building and Maintenance Manual*, 2nd Edition, 2005

David N. Cole, U.S. Forest Service, Missoula, Montana, *Environmental Impacts of Outdoor Recreation in Wildlands*, <http://leopold.wilderness.net/research/fprojects/docs/ISSRMChapter.pdf>

David N. Cole, U.S. Forest Service, Missoula, Montana, *Visitor Impact Monitoring*,
<http://leopold.wilderness.net/pubs/581.pdf>

International Mountain Bicycling Association, *Managing Mountain Biking*, 2007

International Mountain Bicycling Association, *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*, 2004

Marin Municipal Water District, *Road and Trail Management Plan*, 2005
http://www.marinwater.org/documents/RTMP_plan.pdf

Julie Bondurant, Laura Thompson, et. al., *Trail Planning for California Communities*, 2009

Midpeninsula Regional Open Space District, *Summary of the Proposed Watershed Protection Program*,
<http://www.cfses.org/salmonid/html/water/descrip/pdf/sangreg/elcorte.pdf>.)

State of California Department of Parks and Recreation, *Draft Process for Change in Use: Trail Use Change Process* <http://www.parks.ca.gov>

State of California Department of Parks and Recreation - *Standardized List of Best Management Practices (BMPs) to accompany the State's "Trail Check List"*
<http://www.parks.ca.gov/pages/23071/files/road%20to%20trail.pdf>

State of California Department of Parks and Recreation, *State Parks Policy on Roads and Trails Change in Use: Trails Policy* <http://www.parks.ca.gov>

State of California Department of Parks and Recreation, www.parks.ca.gov – *Trail Manager's Toolbox*

State of California Department of Parks and Recreation, *Trail Use Change Survey* <http://www.parks.ca.gov>

Appendices

Appendix I- Allowed Uses on Narrow Natural Surface Trails

Agency Name	Uses Allowed on Narrow Natural Surfaces Trails
Bureau of Land Management (BLM) Hollister Field Office	<p>POLICY: Hiking, horseback riding and bicycling are allowed uses. Off-leash dogs are permitted.</p> <p>EXCEPTIONS: None</p> <p>USE CHANGE PROCEDURE/POLICY: None</p>
Calfire, State Forest Agency -Sonoma - Lake - Napa Unit - Boggs Mountain	<p>POLICY: Hiking, horseback riding and bicycling are allowed uses throughout. Dogs are permitted.</p> <p>EXCEPTIONS: Trails may be closed due safety concerns from forest management activity in the vicinity, ex. prescribed burning, harvesting, reconstruction activities, erosion control</p> <p>USE CHANGE PROCEDURE/POLICY: None</p>
California State Parks	<p>POLICY: Hiking and horseback riding are allowed uses. Generally, paved and unpaved park roads are open to bicyclists and trails are closed to bicycles. Unpaved park roads are defined as fire roads, dirt roads, and service roads with a width of over 60 inches. In general, dogs are permitted in most state parks, but not on trails and must be on a leash not exceeding six feet in length at all times.</p> <p>EXCEPTIONS: Unpaved roads may be closed and trails opened to bicyclists upon a written determination by the district superintendent that specifically considers criteria as outlined Policy IV.2 Non-Motorized Bike Use.</p> <p>USE CHANGE PROCEDURE/POLICY: Trail Use Change Process and Survey is a data-driven attempt to take personal bias out of the process and determine if a trail route is suitable for a trail without consideration of the potential use. The State's' Trail Change Use Process (in use since 2009) is adapted from EBRPD's Trail Use Change Checklist.</p>
County of Santa Clara Parks and Recreation Department (SCCPRD)	<p>POLICY: Shared-use trails permit equestrians, hikers and bicyclists. Dual –use trails permit hikers and equestrians or hikers and bicyclists. Single-use trails permit hikers. Leashed dogs are permitted on designated trails.</p> <p>EXCEPTIONS: Bicyclists are prohibited in some parks.</p> <p>USE CHANGE PROCEDURE/POLICY: Per the Countywide Trails Master Plan Interjurisdictional Trails Design, Use and Management Guidelines 'Trails Use Restrictions,' temporary change that restricts use is at discretion of the Department if conditions become unsafe or if the result of that use impacts natural resources. Per the Guidelines, when closure (or closure to a type of use) in excess of 90 days occurs, notification of Parks and Recreation Commission and Board of Supervisors is required.</p>
East Bay Regional Park District (EBRPD)	<p>POLICY: Hiking and horseback riding are allowed uses. Mountain biking is generally not an allowed use. Dogs must be leashed (six-foot maximum) and under control at any posted area, parking lot, picnic site, lawn or developed area. Dogs and other animals are not permitted at any beach, wetland or marsh, or designated nature study area. Dogs may be off-leash in open space and undeveloped areas of parklands, including narrow trails, provided they are under control at all times.</p> <p>EXCEPTIONS: Bikes on narrow trails are allowed via an adopted land use plan or Board approved exception to Ordinance 38 (the rules and regulations of the District) via the Trail Use Change Checklist. Any person who walks or exercises a dog or dogs for a fee or who walks more than three (3) personal dogs must obtain and have in their possession a revocable annual permit.</p> <p>USE CHANGE PROCEDURE/POLICY: The Trail Use Change Checklist is a data-driven process used to determine if a trail route is suitable for a change in designated use (generally used to evaluate the addition of mt. biking on narrow trails).</p>
Fairfield, City of	<p>POLICY: Hiking, horseback riding and bicycling are allowed uses. Leashed dogs are permitted.</p> <p>EXCEPTIONS: The City does not currently provide shared biking and equestrian facilities.</p> <p>USE CHANGE PROCEDURE/POLICY: None</p>
Marin County Open Space District (MCOSD)	<p>POLICY: Hiking and riding a saddle animal are allowed uses. Dogs off leash are restricted to fire roads. Bicyclists are allowed on designated trails.</p> <p>EXCEPTIONS: May limit any and all uses when appropriate.</p> <p>USE CHANGE PROCEDURE/POLICY: Current policies permit bicycling on trails designated for their use, including (a) new trails designated for shared use and (b) existing trails on new lands, when compatible with natural resource protection and the safety of trail users (Policy Review Initiative, May 2005, Policy T1 d). All use changes on hold pending completion of a Road and Trail Management Plan scheduled for completion in summer 2012.</p>

Appendix I - Allowed Uses on Narrow Natural Surface Trails (continued)

Agency Name	Uses Allowed on Narrow Natural Surfaces Trails
Marin Municipal Water District (MMWD)	<p>POLICY: Hiking, running, equestrian and bicycling are suitable uses on Class A and B trails. Use shall not be conducted such that it will endanger other users. Class C trails are suitable for hiking and running. Class designations only suggest suitable trail uses. Other factors must be considered to determine a trail use designation (Trail Use Guideline 2.2). Bicyclists and equestrians are allowed on designated trails only (indicated on preserve signs and maps). Dogs are allowed only in designated preserves or areas as posted and must be controlled on a maximum 6-foot leash at all times. (See Appendix 3 for definitions of Class A,B, and C Design Standards) The District has a target guideline of 60% to 65% multiuse trails including bicyclists and 35% to 40% hiking or hiking and equestrian use.</p> <p>EXCEPTIONS: Existing and anticipated low trail use levels may allow for variations of multi-use (i.e., equestrians and/or bicyclists) where, 1) a trail's class designation would indicate multi-use is not suitable or, 2) a trail has been found to be an exception to the three class designations.</p> <p>USE CHANGE PROCEDURE/POLICY: Equal access opportunities for equestrian and bicyclists will be considered when trail conditions will not permit both user groups (Equestrian & Bicycling: Trail Use Guideline 6.2). Environmental impacts and persistent conflicts are critical in determining trail use designations (Resource Protection: Trail Use Guideline 7.1).</p>
Midpeninsula Regional Open Space District (MPROSD)	<p>POLICY: Hiking, running, equestrian and bicycling are allowed uses on Class A and B trails. Use shall not be conducted such that it will endanger other users. On Class C trails use is limited to hiking and running. Bicyclists and equestrians are allowed on designated trails only (indicated on preserve signs and maps). Dogs are allowed only in designated preserves or areas as posted and must be controlled on a maximum 6-foot leash at all times. (See Appendix 3 for definitions of Class A,B, and C Design Standards)</p> <p>EXCEPTIONS: Existing and anticipated low trail use levels may allow for variations of multi-use (i.e., equestrians and/or bicyclists) where, 1) a trail's class designation would indicate multi-use is not suitable or, 2) a trail has been found to be an exception to the three class designations.</p> <p>USE CHANGE PROCEDURE/POLICY: Equal access opportunities for equestrian and bicyclists will be considered when trail conditions will not permit both user groups (Equestrian & Bicycling: Trail Use Guideline 6.2). Environmental impacts and persistent conflicts are critical in determining trail use designations (Resource Protection: Trail Use Guideline 7.1).</p>
Monterey County Parks	<p>POLICY: Hiking, horseback riding and bicycling are allowed uses. Leashed dogs are permitted.</p> <p>EXCEPTIONS: Bicyclists are segregated from other uses.</p> <p>USE CHANGE PROCEDURE/POLICY: None</p>
Oakland, City of	<p>POLICY: Hiking, horseback riding and bicycling are allowed uses. Leashed dogs are permitted in some parks.</p> <p>EXCEPTIONS: There are some exceptions to this policy on a case by case basis</p> <p>USE CHANGE PROCEDURE/POLICY: None</p>
San Luis Obispo, City of	<p>POLICY: Hiking, horseback riding and bicycling are allowed uses. Leashed dogs are permitted.</p> <p>EXCEPTIONS: Equestrians and bicyclists use separate facilities. Bicycling is not allowed on all narrow natural surface trails</p> <p>USE CHANGE PROCEDURE/POLICY: None</p>
Skyline Park Citizens Association	<p>POLICY: Hiking, horseback riding and biking are allowed uses for paying members. Dogs are not permitted.</p> <p>EXCEPTIONS: None</p> <p>USE CHANGE PROCEDURE/POLICY: None</p>

Appendix 2 - Park & Open Space Agencies Mission Statements

Agency Name	Mission or Vision Statement
Bureau of Land Management (BLM) Hollister Field Office	BLM's multiple use mission is to serve the diverse outdoor recreation demands of visitors while helping them to maintain the sustainable conditions needed to conserve their lands and their recreation choices. BLM's vision is to provide the services that will open up new opportunities for people to recreate responsibly in their great outdoors. BLM's goal is to provide opportunities for environmentally responsible recreation (The BLM's Priorities and Goals for Recreation and Visitor Services, 2003).
Calfire, State Forest Agency -Sonoma - Lake - Napa Unit - Boggs Mountain	The Public Resource Code, Division 4, Part 2, Chapter 9 in Sections 4631 through 4656 provide that the State Forest will operate within the laws, existing policies, regulations and operating directives designated in the code. Section 4651, states that forest management practices on State forests shall be designated to promote continuous forest production with due regard to the preservation of soil, watershed, scenic, wildlife, and recreational value. Section 4656 affirms that there shall be no interference with compatible uses such as hunting, fishing, camping or recreational use.
California State Parks	The mission of the California Department of Parks and Recreation is to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation. California State Parks' mission statement and the California Park and Recreation Commission Statement of Policy (2. Opportunities) direct the Department to provide the opportunities for high-quality outdoor recreation. Trails are a primary state park facility that offer health-enhancing recreational opportunities, access to park resources for interpretation and education, and enhance community involvement. (www.parks.ca.gov).
County of Santa Clara Parks and Recreation (SCCPRD)	The Mission of the County of Santa Clara's Parks and Recreation Department: To provide, protect & preserve regional parklands for the enjoyment, education & inspiration of this & future generations. The Vision of the County of Santa Clara's Parks and Recreation Department: To create a growing and diverse system of regional parks, trails and open spaces of Countywide significance that connects people with the natural environment, offers visitor experiences that renew the human spirit, and balances recreation opportunities with resource protection. Agency Website: www.parkhere.org
East Bay Regional Park District	We will acquire, develop, manage, and maintain a high quality, diverse system of interconnected parklands which balances public usage and education programs with protection and preservation of our natural and cultural resources (www.ebparks.org).
Fairfield, City of	The City of Fairfield's overall vision for Rockville Hills Regional Park is to maintain a premier wilderness park rich in biological, geological, scenic, and historic elements, to be used by all citizens and visitors to Fairfield (www.ci.fairfield.ca.us).
Marin County Open Space District (MCOSD)	We are dedicated to educating, inspiring, and engaging the people of Marin in the shared commitment of preserving, protecting, and enriching the natural beauty of Marin's parks and open spaces, and providing recreational opportunities for the enjoyment of all generations (www.co.marin.ca.us).
Marin Municipal Water District (MMWD)	To manage our natural resources in a sustainable manner and to provide our customers with reliable, high-quality water at a reasonable price (www.marinwater.org). Mt. Tamalpais Watershed land management goals are to protect water quality, natural wildlands, scenic open space and ecosystem health. Daytime passive recreational uses are allowed to the extent that they are consistent with the primary goals of potable water production and preservation of natural wildlands (Board Policy No. 7).
Midpeninsula Regional Open Space District (MPROSD)	To acquire and preserve a regional greenbelt of open space land in perpetuity; protect and restore the natural environment; and provide opportunities for ecologically sensitive public enjoyment and education (www.openspace.org).
Monterey County Parks Department	The Monterey County Parks Department maintains stewardship over a system of county parks. These outdoor recreation resources are managed to preserve, promote, and interpret the natural, historical, and cultural values of Monterey County. They are operated to provide opportunities for the public's enjoyment, inspiration, education, personal development and cultural enrichment (www.co.monterey.ca.us).
Oakland, City of	In the year 2015, Oakland will be a safe, healthy, and vital city offering a high quality of life through: Awareness and enjoyment of Oakland's magnificent physical setting – hills, views, water, estuary – in every district and neighborhood (Full mission statement available in the City's General Plan at www.oaklandnet.com)
San Luis Obispo, City of	The City's vision is to continue enhancing our network of trails, located in both open space and developed areas, and to provide pedestrian and bicycle trail links between parks, recreation facilities, recreation activities and open space (Full Parks and Recreation vision statement available at www.ci.san-luis-obispo.ca.us).

Appendix 3 - Design Standards

Agency	Design Standards
Calfire, Forest Agency -Sonoma - Lake - Napa Unit - Boggs Mountain	No formal design standards are in place for forest trails.
California State Parks	Currently the State Parks' Trails Handbook serves as the guidelines for trail design, construction, survey, operations and maintenance standards. However, State Parks is in the process of updating their trail design guidelines. The review process also includes a review of all trail projects to ensure adherence to Accessibility guidelines.
County of Santa Clara Parks and Recreation Department (SCCPRD)	<p>SCCPRD uses design guidelines developed as part of the <i>Santa Clara County Countywide Trails Master Plan Update, 1995, Uniform Interjurisdictional Trail Use, Design and Management, 1999</i> and from the Sanborn Trail Master Plan, 2007. Excerpts include:</p> <ul style="list-style-type: none"> ▪ Holding grades along trail treads to a minimum. Grades of 10% or less are desirable; grades may be as great as but not greater than 12.5% without use of switchbacks. Where grades exceed 10%, long, gradual switchbacks should be used rather than short, steep switchbacks. ▪ Providing clearing widths and trail curvature design to assure an optimum 100-foot (30.4 m) average sight distance where possible. If sight distances on curves, around hills or through densely vegetated areas are less than 100 feet (30.4 m), safety signs and reduced speed limits should be considered. ▪ Diverting surface water from trails by outsloping the trail tread between 2% and 3%, incorporating frequent rolling dips to have about 3 to 5 percent outslope after trail compaction has occurred, and developing the outside bend of a trail at a relative high point to help reduce erosion to naturally slow a bicycle rider reducing the need to brake or skid. ▪ Determining the trail tread width by amount and intensity of trail use and field conditions such as topography, vegetation and sensitivity of environmental resources. Where treads are narrow (5 feet or less), occasional passing areas must be provided at places with gentle slopes. ▪ Designing two-way paths trail treads at an optimum width of 6 feet. ▪ Designing single-purpose trail treads at an optimum of 4 feet wide. ▪ Discouraging fall line trails and switchbacks and providing minimum center line radius for switchbacks of 15 feet where the cross slope is 15 to 25%; 15 feet where the cross slope is greater than 25% where switchbacks cannot be avoided.
Fairfield, City of	Rockville Park is managed primarily as a mountain bike facility with hikers, dog walkers, but no equestrians, allowed. It includes 37 miles of narrow natural surface mountain bike trails 30" wide. The trails accommodate extreme to novice riders. International Mountain Bicycling Association standards and staff assistance were employed to improve an existing unplanned trail system.
Marin County Open Space District (MCOSD)	<p>Narrow trail/single trail definition: tread width -36"-42", clearance 10' high x 8' wide, gradient less than 7% - 10%-12% max for short distances</p> <p>Shared-use standard with a 60" minimum tread width; clearances of 10' high and 8' wide, 10 to 15' wide in some cases for safe sight distance; gradient less than 7%, 10 to 12% maximum for short distances.</p>
Marin Municipal Water District (MMWD)	The MMWD determines the appropriate dimensions for travelway clearance on a case by case basis in the field, taking into account the expected type of user, vegetation, drainage (trails outsloped whenever possible rolling dips in any all-season road reconstruction) and maintenance costs. MMWD looks to standards developed by other open space and recreational organizations, such as the California Department of Parks and Recreation (1991), the National Park Service (1988) and the Equestrian Trails manual (1982), for guidance when determining travelway clearance for rerouted or re-classified recreational routes. (Source: Mt. Tamalpais Watershed Road and Trail Management Plan, 3.2 Road and Trail Design Standards 2005)
Midpeninsula Regional Open Space District (MPROSD)	<p>MPROSD determines trail design based on the trail classification.</p> <p>Class A trails: 6 to 10 feet wide, varying grade, varying side slope, sight lines greater than 75 feet. Represents approximately 60% of District Trails.</p> <p>Class B trails: 4 to 6 feet wide, less than 15% grade, less than 30% side slope, sight lines greater than 100 feet. Represents approximately 10% of District Trails</p> <p>Class C trails: 2 to 4 feet wide, varying grade, more than 30% side slope, sight lines greater than 50 feet. Represents approximately 5% of District Trails.</p> <p>In new trail construction MROSD generally tries to keep trail grades under 12%. However, MROSD also works with a contract geologist to identify and avoid old slump and slide areas and will allow grades up to 16 or 17 percent for short distances to avoid unstable areas or promote drainage.</p>
San Luis Obispo, City of	Generally follow International Mountain Bicycling Association standards to provide trail building guidelines.

Appendix 4 - CEQA (& NEPA) & Environmental Permitting

Agency	Project	Environmental Resource Project Issues/Restrictions	CEQA/NEPA	Permits	Timing	Pre-construction Surveys & Mitigation & Monitoring
Bureau of Land Management (BLM), Hollister Field Office	Trail building & use	Night exclusion for Tiger Salamander		<ul style="list-style-type: none"> ▪ USFWS Concurrence 	2 years	
Calfire, State Forest Agency -Sonoma - Lake - Napa Unit - Boggs Mountain	New trail construction	Avoid impacts to biological and archaeological resources	CEQA – Categorical Exemption			State Archaeologist, State Biologist to review project and conduct surveys if necessary. State Forester to conduct mitigation monitoring
California State Parks	Trail Use Change Process & Survey		CEQA - Statewide Program Environmental Impact Report			
County of Santa Clara Parks & Recreation Department	<i>Calero County Park Trails Master Plan</i> (completion anticipated in 2012)	Introduction of new uses Expanded uses on existing trails Rehabilitation of existing trails Construction of new trails and/or trail infrastructure such as bridges and culverts Mitigation of anticipated trail use conflicts Trails construction and maintenance in or adjacent to sensitive habitat such as Serpentine soils Demonstration of compatibility with conservation goals of the proposed Valley Habitat Plan	Anticipated Mitigated Negative Declaration	Santa Clara Valley Water District Encroachment Permit I601 Stream Alteration Permit Anticipate coverage for Federal and State incidental take permits through participation in Valley Habitat Plan, if approved as proposed	TBD	TBD upon Mitigation Measures identified in certified Mitigated Negative Declaration
County of Santa Clara Parks & Recreation Department	<i>Coyote Lake-Harvey Bear Ranch County Park Master Plan</i> (2003)	Phased implementation of 19 miles of new trails. Construction, includes culverts, bridges, punchons & crossings Construction of two new staging areas	Environmental Impact Report	<ul style="list-style-type: none"> ▪ DFG I603 Streambed Alteration Agreement ▪ Santa Clara Valley Water District Encroachment Permit ▪ 	Phase I complete Phase II in progress Phase III TBD	Mitigation Measures identified for Phase I included - design & layout practices that avoided environmentally sensitive habitat sites, preconstruction surveys for sensitive species, restrictions on season of construction, and best management practices for on-going maintenance, including seasonal closures.

Appendix 4 - CEQA (& NEPA) & Environmental Permitting (continued)

Agency	Project	Environmental Resource Project Issues/Restrictions	CEQA/NEPA	Permits	Timing	Pre-construction Surveys & Mitigation & Monitoring
County of Santa Clara Parks & Recreation Department	Santa Teresa County Park New trail construction	Neighborhood access (& city trail plan) directs access to County historic park/education center – center prohibits mountain bike use through historic site	Initial Study/Mitigated Negative Declaration (2006)			Pre-construction actions/mitigations - cap sensitive cultural soils & build trail around perimeter
East Bay Regional Park District (EBRPD)	Brushy Peak	Endangered species habitat, sensitive cultural resources	CEQA – Initial Study/Mitigated Negative Declaration	<ul style="list-style-type: none"> ▪ ACOE ▪ USFWS 	2 years	<ul style="list-style-type: none"> ▪ Pre-construction surveys required ▪ Mitigation & monitoring required
East Bay Regional Park District (EBRPD)	Crockett Hills	Seasonal use restrictions - bird nesting season, wet weather	CEQA – Initial Study/Mitigated Negative Declaration		1 year	<ul style="list-style-type: none"> ▪ Pre-construction Surveys required ▪ Mitigation & monitoring required
East Bay Regional Park District (EBRPD)	Dublin Hills	Endangered species habitat	CEQA – Initial Study/Mitigated Negative Declaration	<ul style="list-style-type: none"> ▪ USFWS 	6 months	<ul style="list-style-type: none"> ▪ Pre-construction Surveys required ▪ Mitigation & monitoring required
Fairfield, City of	New narrow trail construction		CEQA – Environmental Impact Report			
Marin County Open Space District (MCOSD)	<i>Woodacre Creek Upland Habitat Restoration Project</i>	Purpose: to reduce sediment entering streams inhabited by endangered Coho salmon –addresses 26 sediment-generating sites in Woodacre Creek watershed including 7 on narrow trails				
Marin Municipal Water District (MMWD)	<i>Mt. Tamalpais Watershed Road & Trail Management Plan (2005)</i> Reconstruction Plan – no new construction	Potential impacts resulting from road and trail upgrades, decommissioning, road to trail conversion & re-routes	CEQA – Programmatic Environmental Impact Report	For each season(s) project(s): <ul style="list-style-type: none"> ▪ DFG 1603 Streambed Alteration Agreement (5 yrs), ▪ Regional Water Quality Board Certification ▪ U.S. Army Corps of Engineers Nationwide Permit (2yrs) 	Permit timeline: 6 – 8 months	Pre-project – description of proposed field work for that season(s) project(s) and site specific biological and cultural surveys, mitigation measures & documentation for the site(s).

Appendix 4 - CEQA (&NEPA) & Environmental Permitting (continued)

Agency	Project	Environmental Resource Project Issues/Restrictions	CEQA/NEPA	Permits	Timing	Pre-construction Surveys & Mitigation & Monitoring
Midpeninsula Regional Open Space Preserve (MPROSD)	El Corte de Madera Open Space Preserve Watershed Protection Program Assessment of ex. logging roads for use as trails	Identified trail and road projects to reduce sedimentation in El Corte de Madera Creek which is a steelhead stream.	Mitigated Negative Declaration	<ul style="list-style-type: none"> ▪ Permits required for individual projects. Regional Water Quality Control Board Cal. Fish and Game County Grading and structure permits	Program started in 2004 and implementation is ongoing	Sediment and stream flow monitoring.
Midpeninsula Regional Open Space Preserve (MPROSD)	Mindogo Russian Ridge Open Space Preserve Trail construction	Documented presence of San Francisco garter snake. Condition of acquisition: new public access trail - Bicycle use being considered if trail design can avoid SFGS habitat.	TBD	TBD	2012-13	Probably on site monitor through out work for San Francisco garter snake
Midpeninsula Regional Open Space Preserve (MPROSD)	Monte Bello Open Space Preserve White Oaks Trail construction	Nesting birds, nearby red legged frog pond, and archeological resources.	Initial Study/ Mitigated Negative Declaration	None routed trail to avoid riparian areas, sensitive species and archeological site. Grading minimal enough not to trigger grading permit.	Construction after nesting season	Layout inspected for sensitive species, vegetative screening to be planted for archeological site.
Midpeninsula Regional Open Space Preserve (MPROSD)	<i>Draft La Honda Creek Open Space Preserve Master Plan</i> (March 2009) Plan establishes design guidelines for trails & public access facilities	Consistency with the Coastside Protection Area Service Plan Required wetland setbacks: 50 feet for trails 150 feet from streams for equestrian trails parallel to streams. Can cross stream perpendicularly. Considering what trail uses should be allowed within SF garter snake habitat buffer: 200'	Mitigated Negative declaration	Permits Required for individual projects	30 year plan with approval of plan scheduled for 2011	During implementation MROSD will consult with the resource agencies to establish appropriate mitigation where any trail alignment might affect sensitive biological resources

Appendix 4 - CEQA (&NEPA) & Environmental Permitting (continued)

Agency	Project	Environmental Resource Project Issues/Restrictions	CEQA/NEPA	Permits	Timing	Pre-construction Surveys & Mitigation & Monitoring
<p>Multi-Agency HCP Partnership (Santa Clara County)</p> <p>Local partners:</p> <ul style="list-style-type: none"> ▪ Santa Clara County ▪ Santa Clara Valley Transportation Authority ▪ Santa Clara Valley Water District ▪ San Jose, Gilroy ▪ Morgan Hill 	<p><i>Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP)</i></p>	<p>Provides streamlining of incidental take permits process for planned development and maintenance activities conducted by local partners over next 50 years</p> <p>Identifies covered trail projects</p> <p>Limits to allowable recreation and trail development in areas identified as Habitat Reserves</p> <p>Limits to amount of disturbance of sensitive habitat, including disturbance as a result of recreational trail use</p> <p>Identifies trails restoration and related construction as routine maintenance in areas outside Habitat Reserves</p>	<p>Environmental Impact Report</p> <p>Environmental Assessment (NEPA)</p>	<ul style="list-style-type: none"> ▪ Regional Water Quality Certification <p>The HCP/NCCP will allow the Partners to receive a consolidated incidental take permits for listed species as a result of identified activities and projects they conduct and those under their jurisdiction.</p>	<p>Final HCP/NCCP & certification of environmental review anticipated in 2012</p> <p>HCP/NCCP will cover defined trail projects for the duration of the 50-year “take” permit</p>	<p>TBD</p>
<p>San Luis Obispo, City of</p>	<p>Open Space Conservation Plans:</p> <ul style="list-style-type: none"> ▪ <i>Bishop Peak Natural Reserve</i> ▪ <i>Cerro San Luis Natural Reserve</i> ▪ <i>The Irish Hills Natural Reserve</i> ▪ <i>Johnson Ranch Conservation Plan</i> ▪ <i>South Hills Natural Reserve</i> ▪ <i>Conservation Plan</i> 		<p>CEQA – Initial Study/ Mitigated Negative Declaration for each plan</p>			

Appendix 5 - Trail Demographics – Use, Trends & Projections

Demand for Outdoor Recreation. By 2010, one in five Californians will be older than 60, and by 2020 the senior population will double due to the aging of the baby boomers. In addition, baby boomers will have mobility enhancement issues, and are anticipated to be interested in conservation and heritage programs as well as volunteer activities where they can contribute their knowledge and time. They will have an appetite for adventure and high quality programs and an aversion to slowing down as they age (California State Parks 2005).

At the other end of the spectrum, the most populous age groups of California's youngest citizens are on average two full years younger than the U.S. average due to recent immigration. According to a recent *Outdoor Industry Foundation* national survey (2005-2006) favorite outdoor activities of these youth (ages 6 - 17) by number of outings are:

- Bicycling
- Running/Jogging/Trail Running
- Wildlife Viewing
- Skateboarding
- Fishing

By 2020, it is projected that California's young adult group (ages 18–40) will be the most populous in the state (California Dept. of Finance 2007), and will be more mobile, dependent on technology, and comfortable with change and cultural diversity than their predecessors (California State Parks 2005). Moreover, as technological advances continue, new forms of recreational pursuits will appear and existing activities, such as biking and geocaching (an activity using global positioning systems), will continue in popularity and expand as technology allows for the development of customized equipment to accommodate use in increasingly challenging terrain (California State Parks 2005).

East Bay Regional Park District as a Sample of Trail Use Preferences

The East Bay Regional Park District parklands cover a two county area; Alameda and Contra Costa. Alameda-Contra Costa Counties' population of 2,392,560 (census data 2000), as illustrated in Table A-1, is represented by a wide diversity of ethnicities, races, and ages. The 2000 census data projects that the population of these two counties is expected to increase by 72,970 or 10 percent by 2010. Following is a summary of the findings of two East Bay Regional Park District public surveys; a *2005 Community Survey* and a *2009 Trail User Survey of Five Regional Parks*.

East Bay Regional Park District 2005 Community Survey. On a regional level, the *East Bay Regional Park District 2005 Community Survey* found that the park users ranked picnicking the highest among the reasons they would visit a regional park. The *East Bay Regional Park District 2007-2008 Community Survey* found the greatest amount of trail use was for dog walking, followed by hiking, jogging, biking, and horseback riding (SRI 2004). District's adult residents highly value the regional park system; participate in a regular routine of exercise (84%) consisting of one or more of the following forms of exercise: walking, (58%), hiking (24%), biking (23%), or jogging/running (16%) and frequently travel up to five miles (65%) by personal vehicle to use regional parks/trails (41%) for this purpose.

2009 Trail User Survey of Five Regional Parks. On various spring and summer morning, afternoon and evening weekdays and weekends in 2009, parallel in-park surveys were conducted at five EBRPD regional parks providing a statistical sampling of 2020 responses (Pleasanton Ridge Park = 433, Mission Peak = 919, Del Valle = 272, Sunol = 250, Garin = 146). The on-site survey instrument was designed to determine: primary park uses, park visitation patterns; park visitor demographics, preferences regarding

design trail characteristics and use patterns, satisfaction with existing trail system, trail design preferences, features liked best and least about the park, and additional facilities desired.

The purpose of the survey was to use the results to: gain a better understanding of park user preferences; compare of use patterns at various regional parks with similar physical features; provide planning method transparency – through sharing data results; expand the community contact list (180 added contacts); and solicit public input into the development of a land use planning process on: design criteria, trail concept plan, and future recreation and interpretive opportunities.

Following are summary outcomes reflecting current park use and suggested changes that people would like to see incorporated into the EBRPD parklands.

CURRENT USE. Current use of the parks, favors trail use walking/hiking (91%) mountain biking (17%) (including 7% free riding and 5% downhill biking), walking dog(s) (22%), running/jogging (21%) and horseback riding (2%) Relaxing/escaping the pressures of everyday life was cited as a reason to visit the parks by 32% of those surveyed. Other activities included bird watching, photography, picnicking, educating children, botanic study and geocaching. Among the trail users 28% ranked their skill level as advanced, 44% as intermediate, 29% as beginner/casual, and 5% as competitive/in-training.

VISITATION. Nearly all of the people visiting the park arrive by private motor vehicle (91%) or bicycle/skate, rollerblade, etc. (2%) either by themselves (24%) or with 2-3 companions or family members (54%). A majority of visitors visit the park routinely with 22% using the park a couple times a week and 29% using the park weekly. Many visitors frequent the park on both weekdays and weekends (48%) generally in the morning hours (77%), although many also use the park in the afternoons (30%) and/or evenings (21%). An additional 12% used the park before dawn or after dark. Visitors typically visit the park for 1-4 hours (96%) on a year-round basis traveling on trails from 1-5 miles (58%) and up to 5-10 miles (32%) with an additional 10% traveling more than 10 miles.

TRAIL EXPERIENCE DESIRED. When asked “Which of the following types of trail experience do you prefer,” 40% indicated a preference for narrow trails (<4 feet wide), 38% mid-width trails (6-8 feet wide), 18% service road trails (10-12 feet wide). Seventeen percent stated they were looking for off trail exploration opportunities. Sixteen percent indicated no preference. (Note: Respondents were asked to list all that apply; therefore, the numbers do not add up to 100%). With regard to multi-use acceptance, 73% of the respondents felt all or at least some of the trails in the regional parks should be designed as multi-use; thus, designated for some combination of hiking/ jogging (86%), mountain biking (60%), horseback riding (42%), and dog walking (64%). With regard to the type of trail that should be designated for multi-use 64% felt service road trails should be designated for multi-use, while 46% felt mid-width trails were appropriate for multi-use and 19% felt narrow trails were appropriate. Another 13% were unsure. When queried as to whether the parks adequately address varying skill levels 78% answered affirmatively while 35% indicated that the parks adequately address mobility limitations.

SATISFACTION WITH TRAIL CHARACTERISTICS. Overall satisfaction with the trail systems provided at the five regional parks where the surveys took place was quite high with 87% indicating that the trails meet their overall expectations. More specifically, 86% were satisfied with the physical condition of the trail used; 86% were satisfied with the courtesy shown by other users; 84% felt maintenance of access points to trails meet their needs; 78% felt public safety along the trails was adequate; and 73% felt that there was compliance by other users with rules and regulations. Additionally, 86% responded that they

had not experienced any incidences or conflicts involving other trail users or trail conditions that detracted from their experiences such that they do not use certain trails within the regional park system.

With regard to unsigned “unofficial” or “volunteer” trails respondents provided the following ranking: 85% said that these trails add to their recreation experience; 80% said they provide unique challenges that they were seeking; and 77% said they provide a route to a view/designation they like. Less than 19% indicated that these trails degrade the environment or detract from the park’s beauty.

ADDITIONAL FACILITIES DESIRED. High on the list of priorities for the future were various trail experiences (including: viewpoints and interpretation of heritage features; single track trails that permit mountain bikes), back country camping; preservation of natural areas with no public access; and interpretation of heritage sites. Built features such as bathrooms, water fountains, and picnic shelters also rated high as priorities.

Table A-1 - Area Demographics

	Factor	Alameda Co.	Contra Costa Co.
	Total Population	1,443,741	948,816
Ethnicity	American Indian and Alaska Native	5,306 – 0.4%	5,830 - 0.6%
	Asian persons	292,673 - 20.3%	103,993 - 11.0%
	Black persons	215,598 - 14.9%	88,813 - 9.4%
	Native Hawaiian and Other Pacific Islander	9,142 – 0.6%	3,466 - 0.4%
	Hispanic or Latino origin (of any race)	273,910 - 19.0%	167,776 - 17.7%
	Some other race	129,079 - 8.9%	76,510 - 8.1%
	Two or more races	81,224 - 5.6%	48,714 - 5.1%
	White persons, not Hispanic	704,334 - 48.8%	621,490 - 65.5%
Age	Under 5 years	98,378 - 6.8%	66,128 - 7.0%
	5-17 years	256,194 - 17.7%	185,666 - 19.6%
	18–64 years	941,576 - 65.2%	589,750 - 62.2%
	65 years & over	147,591 - 10.2%	107,272 - 11.3%
Disabilities	An estimated 4,268,000 people in California have a disability, or 13.1% of the population age 5 and over. An estimated 832,000 people, or 2.5% of the population 5 and over, have difficulty performing self-care activities, also known as Activities of Daily Living, such as dressing, bathing, or getting around inside the home. Source: Tabulations by the Center for PAS from the 2005 American Community Survey (ACS).		
	Persons who will have a disability over the course of their lives	1 in 5 or 20 percent of the population	

Marin County Open Space District as a Sample of Trail Use Preferences

The Marin County Open Space District (MCOSD) also conducted community surveys between February 2003 and May 2005 with 531 people responding. The surveys were conducted in conjunction with a review of MCOSD’s trail-related policies. Questions were directed to their constituents’ satisfaction with trail-related policies and involvement in the following outdoor recreation activities: hiking, mountain biking, and horseback riding. Following is a summary of their findings.

USE & VISITATION. Results of the surveys showed that MCOSD’s park visitors favor walking/hiking over mountain biking and horseback riding as a consistent activity with 27% of the respondents always partaking

and 16% never partaking in this activity compared with mountain biking in which 6% always doing this activity and 63% never mountain biking and 1% of users always horseback riding and 87% never horseback riding.

SATISFACTION WITH TRAIL-RELATED POLICIES. Respondents to the survey indicated that they were generally satisfied with the way that the MCOSD's trail-related policies work with 72% agreeing or strongly agreeing with the policies, 21% disagreeing or strongly disagreeing and 7% who were unfamiliar or had no opinion regarding MCOSD's trail-related policies.

SATISFACTION WITH TRAIL OPPORTUNITIES. Hikers indicated the highest level of overall satisfaction with the trail opportunities that MCOSD provides with 84% indicating that there are adequate hiking trails. Mountain bike and equestrian users indicated a lower degree of satisfaction with existing trail opportunities with 55% indicating that there are adequate mountain biking trails and 50% stating that there are adequate equestrian opportunities to meet their overall expectations.

In February 2010, The MCOSD Board of Directors directed staff to begin development of a Road and Trail Management Plan encompassing all 34 of MCOSD's preserves. The purpose of the plan is to address the impact of the road and trail network, and its use, on the natural resources the District is charged with protecting. Another purpose of the plan is to help reduce conflict between trail users. The plan is scheduled for completion in summer 2012.