



SECTION SEVEN CONTENTS

7.1 Operations and Maintenance Plan	7-2
7.2 Trail Operation and Management	7-5
7.3 Trail and Rail Operation Interface	7-9
7.4 Trail and Agricultural Operation Interface	7-10
7.5 Trail Adjacent to Private Property Owners	7-11
7.6 Operating Responsibilities and Procedures	7-12
7.7 Trail Maintenance Plan	7-14
7.8 Administration and Cost	7-15
7.9 Implementation Memoranda of Understanding	7-17

This section addresses the strategies the Santa Cruz County Regional Transportation Commission could employ to manage, operate, and maintain portions of the project over time, working towards the completion of the Monterey Bay Sanctuary Scenic Trail Network.

SECTION SEVEN OPERATION AND MAINTENANCE

7.1 OPERATIONS AND MAINTENANCE PLAN

The overall goal of the Operations and Maintenance (O&M) Plan is to ensure that the Monterey Bay Sanctuary Scenic Trail Network (MBSST Network) is operated in an efficient and safe manner for trail users and adjacent uses. As such, this O&M Plan identifies the responsibilities, tasks, procedures, estimated operation and trail maintenance costs, and other aspects related to the management of the MBSST Network. The Santa Cruz County Regional Transportation Commission (RTC) may adopt modified or additional policies as future conditions warrant.

The O&M Plan for the MBSST Network is an important component that will help ensure that safe and productive public facilities are retained over the next several decades. The O&M Plan is intended to provide key considerations required to operate and maintain the trail facilities and help minimize potential liability considerations associated with the multi-use path facilities. The O&M Plan program addresses specific strategies to guide the implementing entities to ensure that adequate standards are accounted for to protect the RTC's investment for the MBSST Network, as well as the users of the trail system.

7.1.1 OPERATIONS

Operational activities associated with the MBSST Network facilities will consist primarily of developing regulatory information to define the rules and regulations of the facilities, identifying methods for documenting and monitoring trail accidents, and establishing security measures aimed at reducing any negative activities along the trail facilities.

Developing specific rules and regulations for the multi-use MBSST Network facilities is an important consideration in reducing potential conflicts along the trail. In addition, the following must be the responsibility of the implementing entities: monitoring of collisions (including identifying the type and primary cause[s] of collisions), and following through and rectifying any physical deficiencies associated with conflict points. Law enforcement and/or fire departments should be responsible for collecting collision information and identifying causes that may have contributed to the collision, and documenting this information appropriately.

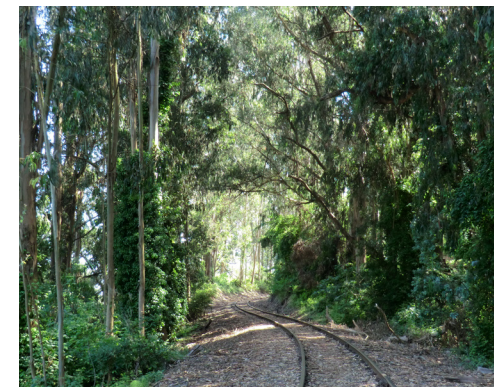
Implementing entities should be given responsibility for identifying and improving physical or operational conditions that may have contributed to any conflict along the MBSST Network. In addition, the implementing entity typically should be responsible for warning users of any problems and obstructions, as well as closing the trail when conditions warrant. Educational materials, trailhead kiosks, signage, and educational events should also be considered as tools to inform trail users and reduce the potential for collisions.



Pavement markings will need to be reapplied on a periodic basis



Signs should be kept clear of stickers and graffiti



Vegetation will need to be pruned to a minimum vertical clearance of ten (10) feet





Trail maintenance will include removing sand from paved surfaces



Litter receptacles should be emptied on a regular basis



Example of root intrusion on paved trail surface

7.1.2 MAINTENANCE

A comprehensive maintenance program for the MBSST Network should be considered an ongoing and long-term investment designed to protect the MBSST Network's integrity and functionality. There are several maintenance activities that should be considered. As defined in the O&M Plan, each activity has an estimated frequency schedule that should be initiated and refined, and a primary agency that is charged with leading the maintenance activity. Many of the maintenance activities defined in the O&M Plan are dependent on the final design and implementation of the trail amenities, materials, degree of landscape improvements, and amount of support infrastructure that is developed along the MBSST Network. The level of maintenance may be subject to funding availability.

The following list indicates general maintenance activities anticipated for the MBSST Network:

- Shoulder and grass mowing
- Tree pruning and fallen tree removal
- Weed control
- Tree, shrub, and grass trimming and fertilization
- Plant irrigation
- Irrigation line maintenance and sprinkler replacement
- Drainage system cleaning
- Pavement sealing, repaving, and pothole repair
- Pavement sweeping and marking replacement
- Bollard replacement
- Graffiti removal
- Trash disposal
- Fountain and restroom cleaning/repair
- Sign replacement and repair
- Fence and barrier repair/replacement
- Lighting replacement and repair
- Furniture maintenance
- Emergency telephone maintenance
- Bridge inspection



7.1.3 SAFETY

MBSST Network user safety is considered a significant element in the O&M Plan. The MBSST Network can expect trail user conflicts to occur even though the MBSST Network is a well-designed and constructed corridor with a pre-existing defined rail right-of-way, a limited number of street intersection crossings (many of which are low-traffic volume neighborhood streets), and adequate easement width to ensure open and visual connectivity. The fact that the trail will include a two-way multi-use pathway designed to separate trail users from vehicular traffic is exceptional. Specific safety concerns are addressed in various sections throughout the Master Plan.

MBSST NETWORK PATROLS

Either professional or volunteer trail patrols may be used to augment police patrol for the MBSST Network. As a rule of thumb, a multi-use trail should employ one dedicated person-hour per day for every five miles of actively used trail, and 0.5 person-hours per day for every five miles of low-use trail. This figure is likely to vary seasonally and by day of week.

SIGNAGE

Installing key regulatory signs at regular intervals along the trail will help users internalize the rules. This will include “Bicyclists Yield to Pedestrians,” “Pass on the Left,” “Slower Traffic Stay Right,” yield or stop signs, as well as preferred speed indicators. Enforcement by repetition may be the most inexpensive and effective kind. Refer to other sections of the MBSST Master Plan and Manual of Uniform Traffic Control Devices (MUTCD) for appropriate signage, markings, and locations.

FENCING FOR SECURITY

- Fencing will be provided as shown in Section 5.4.1.
- To mitigate negative aesthetic impacts of the fence, plant material such as vines and/or climbing ivy and other plants may be used. Any proposed plant material along the trail will be selected in collaboration with adjacent property owners on a case-by-case basis.
- Without a specific request by an adjacent property owner, fencing will be evaluated for each segment of the trail. Property owners may request to omit fencing along their frontage, but the trail manager may deny a request if it is deemed that fencing is necessary. Refer to fencing design in Section 5.

EMERGENCY CALL BOXES

- Solar-powered emergency phones will be installed on an as-needed basis.



Security patrol on bikes



Emergency call station



While the implementing entities are primarily responsible for the management of the trail facilities, there should be one point-of-contact (the trail manager) who will be made available to the general public ...

... identify the agency most appropriate to house a Trail Management Program and how to fund a trail manager, trail ranger, and/or an adopt-a-trail coordinator position.

7.2 TRAIL OPERATION AND MANAGEMENT

While the implementing entities are primarily responsible for the management of the trail facilities, there should be one point-of-contact (the trail manager) who will be made available to the general public within each jurisdictions for general inquiries and management. The RTC board should work to identify the agency most appropriate to house a Trail Management Program and how to fund a trail manager, trail ranger, and/or an adopt-a-trail coordinator position. The trail manager will ensure that each element described in the O&M Plan is completed.

7.2.1 TRAIL MANAGER RESPONSIBILITIES

The following list represents the major tasks that may be the responsibility of the trail manager:

- Coordinate development of the MBSST
- Organize and coordinate O&M Plan
- Implement O&M Plan and seek adequate funding
- Obtain bids and manage contracts for maintenance and improvements
- Monitor security and safety of the trail
- Oversee maintenance and rehabilitation efforts
- Manage and respond to issues and incidents
- Act as the local trail spokesperson with the public, including elected officials, and respond to the issues and concerns raised by trail users
- Develop and manage an emergency response plan in coordination with local fire and police
- Maintain records
- Manage an operation and maintenance budget
- Pursue outside funding sources

7.2.2 TRAIL RANGER RESPONSIBILITIES

The following list represents the major tasks that may be the responsibility of the trail ranger:

- Trail patrol
- Ensure temporary trail closures gates are open or closed, should they be needed
- Ensure temporary trail closure signage is in place
- Ensure maintenance needs are addressed



7.2.3 LIABILITY AND INDEMNIFICATION

In general, liability risks for neighbors of multi-use paths are probably reduced from current levels by the recreational use statute and other statutes described below. However, there is always the potential condition of liability for implementing entities that own and operate public use facilities such as a multi-use pathway system. To minimize this risk, the implementing agency should adhere to the risk management strategies identified in Section 7.2.7. Implementing entities could consider obtaining insurance to provide the necessary liability protection.

7.2.4 INSURANCE

It is assumed that the trail will be covered under existing insurance policies of implementing entities or the RTC. This will be verified for each segment as implementation arrangements are made. However, while insurance may cover costs associated with lawsuits, it neither prevents suits nor minimizes the risk of court judgments that can cost the implementing entity a considerable sum of money.

7.2.5 GOVERNMENTAL TORT CLAIMS ACT

Government Code Section 831.4 addresses claims made against public entities for injury on trails. It states:

“A public entity, public employee, or a grantor of a public easement to a public entity for any of the following purposes, is not liable for an injury caused by the conditions of:

- (a) Any unpaved road which provides access to fishing, hunting, camping, hiking, riding, including animal and all types of vehicular riding, water sports, recreational or scenic areas and which is not (1) a street or highway, or (2) a county, state or federal highway, or (3) a public street or highway of a joint highway district, boulevard district, bridge and highway district or similar district formed for the improvement or building of public streets or highways.
- (b) Any trail used for the above purposes.
- (c) Any paved trail, walkway or sidewalk on an easement of way which has been granted to a public entity, so long as such public entity shall reasonably attempt to provide adequate warnings of the existence of any condition of the paved trail, walkway, path or sidewalk which constitutes a hazard to health or safety. Warnings required by this subdivision shall only be required where pathways are paved, and such requirement shall not be construed to be a standard of care for any unpaved pathway or roads.”





Trail/road surveillance camera



Automated information kiosk concept

7.2.6 CALIFORNIA CIVIL CODE SECTION 846

Government Civil Code Section 846 addresses claims made against property owners. It is summarized as follows:

“An owner of any estate or any other interest in real property, whether possessory or nonpossessory, **owes no duty of care to keep the premises safe for entry or use by others for any recreational purpose** or to give any warning of hazardous conditions, uses of, structures, or activities on such premises to persons entering for such purpose...

A “recreational purpose,” as used in this section, includes such activities as ... hiking... riding, including animal riding, ... and all other types of vehicular riding...sightseeing, picnicking, nature study, nature contacting ... and viewing or enjoying historical, archaeological, scenic, natural, or scientific sites.”

7.2.7 RISK MANAGEMENT STRATEGIES

To minimize liability, it is important to adhere to all applicable laws and regulations. The design standards for the MBSST Network should be consistent with the Caltrans Highway Design Manual and the AASHTO Guide for the Development of Bicycle Facilities. Other practical measures include the following:

- Post and enforce trail regulations
- Post warning signs for known hazards that are not easily identified
- Prepare a trail maintenance plan and keep accurate maintenance records
- Inspect the trail for hazards
- Evaluate hazards and maintenance problems reported by trail users and address with appropriate measures
- Ensure the provision of adequate emergency access points to the trail
- Accommodate emergency vehicles when the trail is more than 500 feet from public roads
- Illuminate entry points and street-grade crossings
- Trim vegetation to maximize visibility and utility
- Provide bicycle racks at key destination points that allow for both frame and wheels to be locked; consider bicycle lockers at key intermodal locations and/or destination sites
- Provide the County Fire Department and law enforcement with a map of the MBSST Network, along with access points and keys or combinations to gates and bollards
- Enforce speed limits and other rules of the road



- Plant or modify landscaping so as to reduce the possibility of “hiding” places for illegal activities
- Incorporate screen landscaping such as climbing vines adjacent to private fencing.
- Choose trees that avoid excessive leaf litter, minimize root invasion, are of an evergreen variety, and are planted a minimum of ten (10) feet from residential property lines where possible
- Maintain shrubs below three (3) feet in height where law enforcement requires visual access adjacent to public streets

7.2.8 PRIVATE PARTY PROTECTION

While the Coastal Rail Trail will be located along an existing, publicly owned right-of-way corridor, a number of private properties are located directly adjacent to the proposed MBSST Network right-of-way. Neighbor concerns regarding path location near their properties typically include a loss of visual privacy and concerns about crime, vandalism, noise, and fire. Criminal activity is diminished along a path that is well-planned, -designed, -operated, -maintained, and as a result, well-used.

Project planning and design should consider measures addressed in Section 7.2.7 to mitigate impacts to private properties.

7.2.9 EMERGENCY VEHICLE ACCESS

The MBSST Network should be designed to ensure it can accommodate all emergency (police and fire) vehicles that might need to get on the trail. If removable bollards are installed, all appropriate emergency response agencies should have direct access. The MBSST Network itself is generally accessible from adjacent public rights-of-way. However, where it is not, a minimum ten (10) feet of pathway clearance and twelve (12) feet of vertical clearance should be provided.

Fencing and other measures may be incorporated into the trail to screen or separate private property from users of the right-of-way.



Constructing a trail along an active railroad doubles the value a community derives from the rail corridor and provides citizens with greater transportation choices.

7.3 TRAIL AND RAIL OPERATION INTERFACE

7.3.1 DESIGN

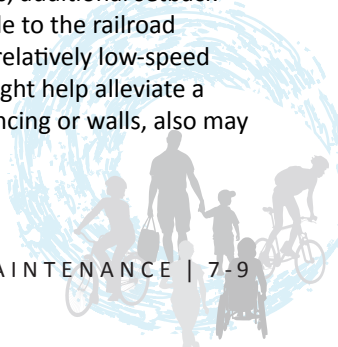
There are few universally accepted national standards or guidelines to dictate trail facility design adjacent to active railroad tracks. This presents trail designers with many design opportunities. However, they should work closely with the railroad operator and maintenance staff to achieve a suitable design. Well-designed trails can meet the operational requirements of railroads, often providing benefits in the form of reduced trespassing and dumping. Additional benefits to the railroad from a trail include increased rider access to stations, the potential for increased ridership, as well as channelization of crossings by using fencing to direct users to appropriate crossing locations. Appendix H includes the California Rails-with-Trails Survey Along Active Rail Lines, and the U.S. Department of Transportation Rails-to-Trails Lesson Learned documents, which discuss in detail the design and benefits of rail trails.

7.3.2 SETBACK DISTANCE

The term “setback” refers to the distance between the edge of a paved multi-use path and the centerline of the closest active railroad track. Although paved multi-use paths are currently operating throughout the United States along train corridors of varying types, speeds, and frequencies, there is no consensus on an appropriate setback recommendation. Therefore, it is up to the rail operator and trail designer to come to an agreement based on the following factors:

- Type, speed, and frequency of trains in the corridor
- Separation technique
- Topography
- Sight distance
- Maintenance needs
- Historical challenges

Based on discussions with Santa Cruz and Monterey Bay Railway (a subsidiary of Iowa Pacific Holdings) and the understanding that every trail segment is different, the setback distance should be determined on a case-by-case basis. The minimum setback distance ranges from eight feet six inches (8' 6") to twenty-five feet (25'), depending on the circumstances. In many cases, additional setback distance may be recommended. The lower setback distances may be acceptable to the railroad operator or agency and design team in such cases as constrained areas, along relatively low-speed and -frequency lines, and in areas with a history of trespassing where a trail might help alleviate a current problem. The presence of vertical separation, or techniques such as fencing or walls, also may allow for a narrower setback.



7.4 TRAIL AND AGRICULTURAL OPERATION INTERFACE

From the onset of the MBSST Network planning process, a key focus was to accurately identify and resolve agricultural land use compatibility issues. Several methods of information collection and issue resolution relating to agricultural operations were employed during the trail planning process. Adjacency issues faced by the agricultural community may be addressed through preventative design measures presented below. Some of the proposed measures are design-related and others are operational in nature (a function of the ongoing management of the trail). Potential benefits to adjacent agricultural operations include new fencing, signage restricting access, and decreased maintenance responsibilities. Dogs may be prohibited in sections where agricultural operations may be compromised. It should be noted that the trail is considered a transient (i.e., for persons passing through) recreational use, similar to a public road or sidewalk, and is not subject to setback buffers.

7.4.1 PESTICIDE SPRAYING AND BURN ACTIVITY

Notices Posted:

- Trail entrances will be posted with notices of ongoing agricultural activities stating that the trail user agrees to using the trail at his/her own risk.
- Trail users will be advised that agricultural operations will be occurring and may include pesticide spraying, agricultural dust and debris, and burning activities in accordance with state and local laws and ordinances.
- Notices will state that the trail may be subject to closure without notice to accommodate such activities.
- Signage will direct trail users to nearby restroom facilities.

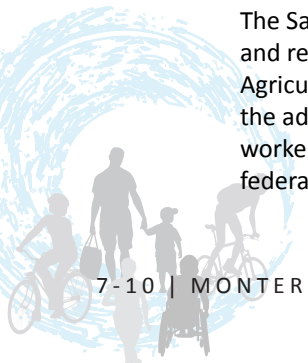
Ability for Trail Closures:

- The trail will be designed with the ability for its physical closure (of isolated segments) in the event it becomes necessary to facilitate permitted spraying.
- Agricultural operators are responsible for notifying the Agricultural Commissioner of any impending spraying activity.
- The trail manager will work the Agricultural Commissioner and operators to close trails or place “Use at Your Own Risk” advisory signage, as needed.

The Santa Cruz County Agricultural Commissioner’s office is responsible for issuing pesticide spraying permits and regulating the use of pesticides and other agricultural chemicals. The implementing entity will work with the Agricultural Commission’s office to minimize impacts to agricultural operators because of the development of the adjacent trail as long as pesticides and other agricultural chemicals are applied in compliance with the label, worker safety requirements, weather conditions, drift restrictions, and all other safety requirements as required by federal, state, and local laws.

Potential benefits to adjacent agricultural operations include new fencing, signage restricting access, and decreased maintenance responsibilities.

Trail entrances will be posted with notices of ongoing agricultural activities ...



7.5 TRAIL ADJACENT TO PRIVATE PROPERTY OWNERS

7.5.1 FACILITATE COMMUNICATION WITH ADJACENT PROPERTY OWNERS

The trail manager will provide adjacent property owners with contact information for each jurisdiction and the departments that handle routine trail maintenance. Adjacent property owners will also be informed of any changes in trail operations and any major trail rehabilitation or expansion projects.

7.5.2 RESPOND TO ADJACENT PROPERTY OWNER CONCERNS

Adjacent property owners should be treated like clients. Responding effectively to problems they identify lets them know that they are important to the successful operation of the MBSST Network.

7.5.3 KEEP THE TRAIL WELL-MAINTAINED

Keeping a well-maintained trail is probably the best thing an agency can do to satisfy adjacent property owners. The local agency shall consider the operation of driveways that cross the trail to access property and should keep landscaping in those areas well-trimmed to prevent any problems from developing. Graffiti should be removed as quickly as possible.

7.5.4 DEVELOPMENTS ON ADJACENT PROPERTIES

Changes in land use adjacent to the MBSST Network can have a significant impact on the quality of the trail experience. Incompatible uses can create hazards, complicate operations, and affect the aesthetic and recreational appeal of a trail. Land use can be controlled so long as it is consistent with existing zoning laws. The key is to:

- Ensure that the County and City Planning Departments keep the trail manager informed of land use and building permit applications.
- Work with developers early in the planning process to make sure the interface between development and the trail is appropriately designed.



7.6 OPERATING RESPONSIBILITIES AND PROCEDURES

The trail manager should coordinate with each department, organization, or person who will be responsible for activities involved in operating and maintaining the MBSST Network. This includes documents for landscape maintenance and scheduling, sweeping crews for routine trail surface cleaning, traffic operations division for sign replacement and intersection traffic control, and the police and fire departments for developing emergency response procedures. The following topics address specific operating procedures and responsibilities.

7.6.1 DEVELOPING TRAIL USE REGULATIONS

The purpose of trail regulations is to promote user safety and enhance the enjoyment of all users. The trail should include posted trail use regulations at trailheads and key access points before it is opened. Trail maps and informational materials should include these regulations. It should be established that the trail facility is a regulated environment like other public parks and rights-of-way.

Below are recommended trail regulations for adoption and enforcement by the implementing entity:

- Hours of use: dawn to dusk where lighting cannot be installed. However, every attempt should be made to keep the trail open 24 hours a day
- Motor vehicles, except service or emergency vehicles, are prohibited
- Power-assisted mobility impairment-devices, such as wheelchairs are allowed
- Electric bikes and Segways are permitted, unless prohibited by local ordinance
- Skateboards are allowed
- In-line skates and roller skates are allowed
- Horses are only permitted on Segments 5 and 6, and on state park property (where expressly allowed)
- Keep to the right, except when passing
- Yield to on-coming traffic when passing
- Bicycles always yield to pedestrians
- Give a vocal warning or use a bell when passing
- Pets must always be on a leash no more than six feet in length
- Dog owners must clean up after their dogs
- Travel no more than two abreast
- Littering is prohibited



- No amplified sound, e.g., portable “boom boxes” (except with permit for special events)
- Alcoholic beverages are not permitted on the trail
- Do not wander off the trail onto adjacent properties
- Do not stand in the middle of the trail when stopped
- 15 mph speed limit
- 10 mph speed limit in special zones of convergence, e.g., bridge crossings and staging areas
- Maintenance vehicles should yield to trail users
- Trail regulations should conform to existing implementing entity and state regulations, ordinances, and laws
- Be alert and attentive

7.6.2 MBSST TRAIL CLOSURES

The MBSST Network, or sections of the trail, may be closed from time to time such as during periodic maintenance of the trail. Users should be warned of impending trail closures, and given adequate detour information to bypass the closed or unfinished section of trail.

Recommended procedures that should be followed prior to the trail closing, including a variety of means to inform the public, are listed below:

- The trail manager will make every effort to provide at least 48 hours advance notice to the affected agencies to post signs at all trail entrances on the impacted segments to be closed indicating the duration of the closure, do everything possible to keep the public informed, and to keep the closure period as short as possible.
- The local agency will physically close off the trail that is being closed with barriers, and post “Trail Closed” signs.
- The local agency will provide “Detour” signs where trail users can reasonably be rerouted to other routes. If no reasonable alternate routes are available, the trail should have an “End Trail” sign and provide access to the street and sidewalk system.
- Where re-paving is not 100% complete, provide warning signs for bicyclists to slow down or dismount where needed.



7.7 TRAIL MAINTENANCE PLAN

Proper maintenance of the trail is important for the productive use of the facility and the protection of the financial investment the RTC, implementing entities, and the public have made in the MBSST Network. The following is a list of recommended trail maintenance activities that may supplement existing local practices:

TABLE 7.1 - Trail Maintenance Activities and Frequencies

Item	Estimated Frequency
Shoulder and grass mowing	As needed
Tree pruning and fallen tree removal	As needed
Weed control	Monthly - as needed
Tree, shrub, and grass trimming/fertilization	5 months - 1 year
Plant irrigation/watering*	Weekly - monthly, as needed
Irrigation line maintenance/sprinkler replacement	1 year
Drainage system cleaning	1 year
Pavement sealing/repaving	30-40 years
Pavement sweeping	As needed
Bollard replacement	As needed
Graffiti removal	As needed
Trash disposal	Weekly
Fountain/restroom cleaning/repair	Monthly, repairs as needed
Sign replacement and repair	1-3 years
Fence/barrier repair/replacement	Immediate, repairs as needed
Lighting repair/replacement	As needed
Furniture maintenance	1 year
Emergency telephone maintenance	As needed
Pothole filling	As needed

*If feasible, low-water use and low-maintenance plant materials should be used for the MBSST Network.

Many of these maintenance items are dependent on the type and amount of landscaping and supporting infrastructure that is developed along the MBSST Network. It is recommended that the trail manager coordinate maintenance activities so as to minimize impacts to trail users and to maximize cost efficiencies.



Funding for operating and maintenance of the MBSST Network, including related administrative costs, will most likely need to be programmed annually through local jurisdictions' or implementing agencies' general fund.

7.8 ADMINISTRATION AND COST

The MBSST Network will have specific administrative, legal, operations, and management costs associated with ongoing maintenance and operation. Funding for operating and maintenance of the MBSST Network, including related administrative costs, will most likely need to be programmed annually through local jurisdictions' or implementing agencies' general fund. Additional sources of operation and maintenance funding may be provided through lease agreements for communications infrastructure, vendors, etc.

7.8.1 ADMINISTRATIVE COSTS

The trail management responsibility should be placed with a staff person in the agency identified by the RTC. This trail manager will have widespread responsibility, ranging from managing and monitoring maintenance activities, coordinating with adjacent property owners, responding to and monitoring reported problems, maintaining records, managing a budget, pursuing outside funding sources, and coordinating with other cities along the trail (full range of trail manager responsibilities is identified in Section 7.2.1). Initially, it is projected that this responsibility will take up to 10% to 30% of a full-time employee's time at a fee of \$20,000 to \$50,000 annually. Funding for this proposition will need to be identified. As additional trail miles are built and the geographic reach expands, a full-time trail manager may need to be employed.

7.8.2 DESIGN, ENGINEERING, AND CONSTRUCTION MANAGEMENT COSTS

When seeking segment funding, the implementing agency must incorporate design, engineering, and permitting fees into the overall cost estimate. These fees, which are generally determined as a percentage of the project construction cost, are a necessary component of an accurate cost estimate. Fees typically are around 15% of the total project hard costs (the cost of construction materials and labor). Of the total project hard costs (the cost of construction labor and materials), fees typically in the range of 15% are needed for design and engineering, 10% for environmental permitting, and 15% for construction management. Typically, an additional 20% contingency is set aside for construction overruns. Construction administration costs are typically budgeted on a per-month basis ranging from \$2,000-\$3,000 per month depending on the scale of the construction project.



7.8.3 MAINTENANCE COSTS

The estimated annual cost for maintenance of the MBSST Network as described in Table 7.1 will be approximately \$6,000-\$10,000 per mile per year. This depends on the intensity of design amenities and frequency of operation and maintenance that is provided. There are likely to be economies of scale as more trails are completed, and based on the length of the facility.

Implementing agencies will be responsible for any structure, culvert, or natural condition within its easement, regardless of whether it is a pre-existing condition or not. Existing bridge structures along the trail shall be modified to provide safe access for trail users, yet care should be taken to minimize impacts to the historic integrity of the bridges as defined.

7.8.4 OPERATIONS AND MAINTENANCE COST-SAVING OPTIONS

- Share maintenance equipment with local jurisdictions and other city, county, and state parks.
- Create an adopt-a-trail program.
- Involve local non-profit groups in a volunteer patrol program or fundraising efforts to support operation and maintenance.

7.8.5 LEGAL COSTS

While liability is not expected to be a significant problem based on research of existing similar trails, there may be additional legal costs in the form of insurance premiums, litigation, and settlements. For the purposes of this trail, it is recommended that the implementing agencies use the same legal cost factor that it uses for any new facility, such as a park or school, either on an acreage basis or user-day basis.



The RTC may implement and maintain the trail, but it may also do so through arrangements with entities interested in implementing the trail. The arrangements could be formalized through memoranda of understanding (MOUs).

7.9

IMPLEMENTATION MEMORANDA OF UNDERSTANDING

RTC acquired the title to the railroad right-of-way corridor from the Union Pacific Railroad. RTC's primary obligation and responsibility, as the property owner, through the use of state funds, is to maintain a right-of-way for existing and future rail service. Because there is wide community interest in also using the railroad right-of-way for a bicycle and pedestrian trail, the RTC will also use the right-of-way to provide a multi-use trail. The RTC may implement and maintain the MBSST Network, but it may also do so through arrangements with entities interested in implementing the trail. The arrangements could be formalized through memoranda of understanding (MOUs). The MOUs should identify a bicycle and pedestrian path as a future use of the right-of-way, and also address issues such as finances, administrative structure, maintenance, encroachment permits, leases, licenses, and easements, and other appropriate items. The MOUs will serve as the underlying legal framework to help guide the development and management of the bicycle and pedestrian trail along the railroad right-of-way.





Seacliff Beach Pier and the Palo Alto Cement Ship in Aptos

This two-mile, sandy beach includes camping, swimming, fishing, bicycling, rollerblading, and many other recreational activities

