



## SECTION FIVE CONTENTS

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*This section focuses on trail facility design standards such as typical path construction and layout, wayfinding signing and markings, rail and road crossings, rail-with-trail design standards, on-and off-road bikeways, security and landscape fencing, lighting, bridges and crossings, habitat enhancement, and any operational and management specifics that might be warranted as a result of sensitive biological resources. The design standards are presented in list form and supported with photos, graphic sections, and elevations.*

# SECTION FIVE TRAIL DESIGN STANDARDS

## 5.1 REGULATORY FRAMEWORK

State and federal standards guide and/or dictate the design standards for the Monterey Bay Sanctuary Scenic Trail Network Master Plan. Additionally, professional organizations provide specific design and implementation guidelines and standards to ensure that multi-use paths are constructed to a consistent set of the highest and best standards currently available in the United States. Planning, design, and implementation standards are derived from the following sources:

- Caltrans: Highway Design Manual (Chapter 1000 Bikeway Planning and Design, and other sections)
- American Association of State Highways and Transportation Officials (AASHTO): A Policy on Geometric Design of Highways and Streets
- Manual of Uniform Traffic Control Devices
- United States Department of Transportation (USDOT), Federal Highway Administration (FHWA): Selecting Roadway Design Treatments to Accommodate Bicycles
- Bicycle-Friendly Advocacy: Selecting and Designing Bicycle Routes
- U.S. Department of Transportation/Federal Highway Administration: Conflicts on Multiple-Use Trails
- Institute of Transportation Engineers: Design and Safety of Pedestrian Facilities
- Regional Transportation Commission: Rails-with-Trails, Sharing Corridors for Transportation and Recreation
- California Coastal Trail Accessway Standards
- Local Coastal Program(s)
- National Association of City Transportation Officials (NACTO) - Urban Bikeway Design Guide
- California Department of Parks and Recreation Accessibility Guidelines (2009)
- Iowa Pacific Railroad Design Preferences

It is useful to note that while there are a considerable number of trails on active railroads around the United States, few design guidelines have been developed specifically for this type of facility to date. The sources listed above provide details on many aspects of a rail trail, but: (a) may contain recommendations that disagree with each other, (b) are not, in most cases, officially recognized “requirements,” and (c) may not cover all of the conditions on most rail trails. Except for the Caltrans guidelines, all design guidelines must be considered as simply design resources for the Monterey Bay Sanctuary Scenic Trail Network Master Plan, to be supplemented by the reasonable judgments of professionals.



In addition to the published resources listed above, the Master Plan standards have been drawn from the experiences of active rail trails around California and the United States to establish accepted practices. There are only a few distinct patterns around the country in terms of grade crossings, fencing, setbacks, and other items. However, efforts are currently underway by planning and traffic specialists to establish an official reviewing body in California composed of Caltrans, the Public Utilities Commission, and other agencies and organizations to establish a set of standards for rail trails in the state.

The following table summarizes the breakdown between those design standards which are mandatory versus those which are advisory only. This framework forms the basic foundation for the trail design.

**TABLE 5.1 - Mandatory/Advisory Design Standards**

Mandatory Standards	Advisory Standards
Trail Width	Signing and Striping
Separation of Pathway to Roadway	Intersections and Crossings
Design Speed	Horizontal Alignment
Class I Bike Path	Stopping Sight Distance
Class II Bike Lanes	Lateral Clearance on Horizontal Curves
Class III Bike Routes	Gradients
Bridge and Grate Standards	Structural Section
Signing, Markings, and Traffic Controls	Drainage
Sidewalks	Barrier Posts
	Bikeway and Railroad Intersections
	Trail Setbacks from Railroad Tracks
	Multi-Use Paths

## APPLICATION OF STANDARDS

The Master Plan has been designed in accordance with the basic guidelines set forth by Caltrans. Where there are conditions that are not explicitly covered in the Caltrans or AASHTO guidelines, advisory standards from appropriate resources have been applied. In conjunction with future construction, the final engineered plans for segments of the trail will demonstrate compliance with all applicable mandatory standards. Compliance will be determined by the appropriate jurisdiction in which the trail is located.



## CONTINUOUS THEME

The approximately 50-mile length of the MBSST Network presents a design challenge in terms of maintaining a uniform and cohesive appearance. Since the trail network crosses through several jurisdictions, certain design features become critical to maintaining a continuous theme and trail experience. These key unifying design features are listed below and are illustrated in this section.

- Trail logo
- Directional signs
- Kiosks and information resources
- Landscaping features
- Pavement markings
- Mile markers
- Interpretative exhibit design
- Trail entrance features



Conceptual wayfinding signage for the Coastal Rail Trail



California State Parks logo



Monterey Bay Sanctuary Scenic Trail logo



California Coastal Trail logo



*Multi-use paved path adjacent to railroad tracks*



*Two-way cycle track, separated from the street via bollards  
Planters or other decorative elements may be used in place of bollards (Image from NACTO)*

## 5.2

## TRAIL CLASSIFICATIONS

The trail network travels through a varied landscape for its approximately 50-mile length. The segments within Santa Cruz, Capitola, Aptos, and Watsonville are urban in nature, characterized by the adjacency of residences, businesses, and a greater number of public street crossings. In contrast, the segments north of Santa Cruz and south of Aptos are surrounded by rural lands and, for the most part, working agricultural operations, state parks, or open space. The recommended trail alignment in Section 4 identifies the type of trail to be constructed within each segment. These types of trails include Class I multi-use paved paths (virtually all of the Coastal Rail Trail), Class II-designated bike lanes, Class III on-street bike routes, unpaved trail surfaces, sidewalks, and boardwalks.

### MULTI-USE PAVED PATH (CLASS I)

A multi-use paved path is a derivative of the Caltrans-defined Class I bike path. Unless otherwise noted, the terms “trails” and “paths” in this document are used synonymously to refer to paved bike/pedestrian multi-use facilities defined by Caltrans as a “Class I Bikeways (Bike Paths)” in the Caltrans Highway Design Manual, Chapter 1000, Bicycle Transportation Design, Topic 1003 - Bikeway Design Criteria. A Class I bike path provides bicycle travel on a paved right-of-way, completely separated from any street or highway. A multi-use paved path permits a variety of users, in addition to bicyclists, including walkers, joggers, wheelchair users, and non-motorized scooter users.

Typical design elements may include:

- Paved surface of eight to twelve (8-12') feet wide or wider if right-of-way exists and/or high use is anticipated (concrete, asphalt, or permeable), and a two-foot (2') wide shoulder on each side
- Center lane striping
- Separation from adjacent roadways by at least twelve (12) feet
- Safety fence separating inner trail edge from rail line (e.g., fifty-four- [54-] inch minimum post and wire) as needed
- Lighting fixtures
- Use of noninvasive ornamental barrier plants as a buffer or to help soften fencing
- Provide clearly illustrated and properly located signage with informational, interpretive, and regulatory messages
- Compliance with ADA requirements in trail design where possible
- Minimum 8' 6" setback from railroad centerline

*Where rights-of-ways and easements allow,  
additional trail width should be considered in order  
to separate users.*





*Designated Class II bike lane*

## DESIGNATED BICYCLE LANE (CLASS II)

Designated bicycle lanes are synonymous with Caltrans-defined Class II bike lanes. Often referred to as a “bike lane,” an on-street bike lane provides a striped and stenciled lane for one-way travel on a street or highway.

Typical design elements include:

- Paved surface four to five (4-5) feet wide
- Lane striping
- Street markings indicating bike route or bike lane

Enhanced design elements Include:

- Colored bike lane
- Bike box



*Class II bike lane (Image from NACTO)*



*A bike box, a bright green rectangle painted onto asphalt at intersections, reserved exclusively for bikes is a possible treatment (Image from NACTO)*



*Class II painted bike lane, area in green (Image from NACTO)*



*Class III bike route sharrow pavement markings  
(Image from NACTO)*



*Class III bike route sharrow in Santa Cruz*



*A sharrow reminds drivers to share the road with bicyclists, while also informing bicyclists to make use of the full lane and position themselves away from vehicle doors*



*On-street bike route with sharrows*

## ON-STREET BIKE ROUTE (CLASS III)

On-street bike routes are synonymous with Caltrans-defined Class III bike routes. Generally referred to as a “bike route,” an on-street bike route provides for shared use with motor vehicle traffic and is identified only by signing. Optional shared roadway bicycle marking pavement stencils are also available for use on Class III bike routes.

## SHARED LANE MARKINGS (“SHARROWS,” CLASS III)

It is important to note that bicycles are permitted on all roads in California except where specifically prohibited. In order to optimize vehicle and bicycle user understanding, a marking referred to as a “sharrow” may be used. Sharrows refer to shared lane pavement marking and is considered a Class III facility. This marking is placed in the center of a travel lane to indicate that a bicyclist may use the full lane. The sharrow symbol consists of a bicycle symbol with two chevron markings above the bicycle. The best practice is to use a sharrow in conjunction with a “Bikes May Use Full Lane” sign.

Typical design elements include:

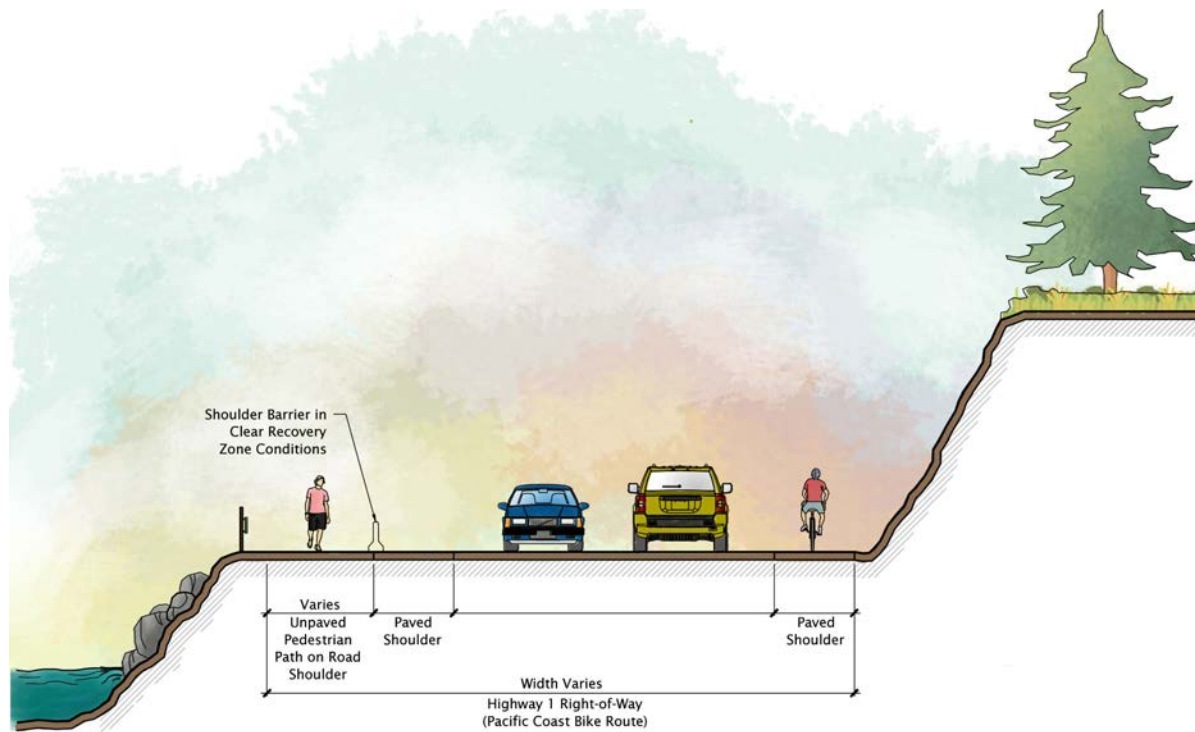
- Shared lane
- Pavement markings indicating route (chevron stencils)
- Pole signage indicating route



## UNPAVED TRAIL SURFACE

Unpaved trail surfaces are located in the remote areas of the corridor, including the northernmost portion of the Northern Reach and the southernmost portion of the Watsonville Reach. Unpaved trails are five to six (5-6) feet wide through steep terrain and sensitive areas. To keep the trail as maintenance-free as possible, these trails are designed to avoid exceeding grades greater than twelve percent (12%) when possible. Unpaved trails may require some hand-tooled segments with drainage crossings that blend with the site character and slope as much as possible.

Unpaved trails may also be provided adjacent to a paved surface where right-of-way permits.



*Unpaved trail on coastal bluff*

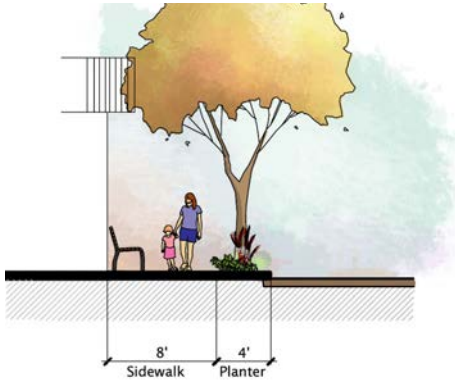


*Improved unpaved trail surface*



*Unpaved trail surface with trail seating*





## SIDEWALKS

Sidewalks and walkways enhance the walkability of an area. Sidewalk design should incorporate an appropriate walkway width, safety lighting, pleasant walking surface texture, benches, and a landscaped separation of pedestrian and vehicular traffic to create a pleasurable walking experience. Sidewalk width is regulated by the implementing entity. Typically, existing sidewalks vary between four (4) feet wide and ten (10) feet wide, depending on available right-of-way and adjacent land use. Sidewalks six (6) feet wide or wider are optimal so that two wheelchair users may travel side-by-side.

## BOARDWALKS

Boardwalks are used to span unavoidable wet areas, sensitive resource areas, or depressions. Boardwalks should be considered for Segment 17 where wetland and sensitive habitat areas are located. They also can be used to provide trail in areas where grading and filling might harm tree roots or create trail surfaces that wildlife such as amphibians will not cross. Footings vary depending on soil conditions. Plastic lumber is more expensive than wood but very long-lasting for deck boards. Its heavier weight can help avoid floating in sites that flood and the pronounced texture can reduce slippery surfaces.

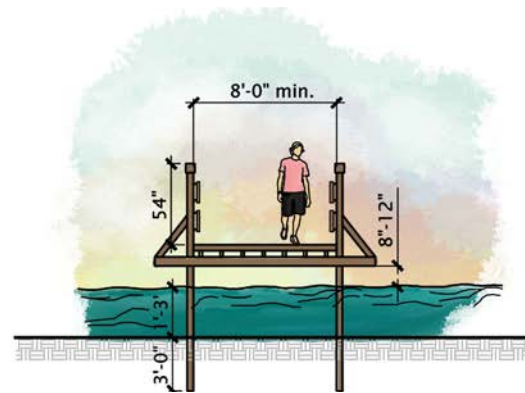
Wood surfaces in shaded or moist sites may become slick or even grow moss. This can be managed by attaching half- (1/2-) inch hardware cloth (wire mesh), especially where boardwalks follow creek grade, and be attached with one-and-a-half- (1 1/2-) inch heavy-duty staples approximately eight to twelve (8-12) inches apart. The upper side of the mesh should have wires perpendicular to the direction of travel. The ends of hardware cloth should be tucked between deck boards or lapped over the sides and stapled every four to six (4-6) inches. Paint with sand texture may also help, depending on site conditions. An annual cleaning (after autumn leaves fall) is recommended. A kick rail is particularly important along accessible trails where it helps people using canes or wheelchairs stay on the structure.



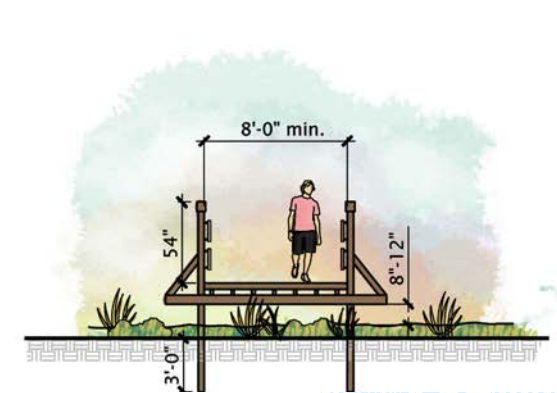
*Boardwalk with bicyclist and fencing*



*Boardwalk without fencing*



*Boardwalk over wetland area*



*Boardwalk over sensitive habitat area*





*Bicycle with surfboard attachment at Pleasure Point*





*Capitola train trestle*



*Pajaro River Bridge crossing*



*Santa Cruz Harbor Bridge*

## 5.3 TRAIL CROSSINGS AND INTERSECTIONS

### 5.3.1 TRESTLE AND BRIDGE CROSSINGS

Trail segments crossing creeks or other streams and drainage may require a bridge or low-water crossing, but these should be kept to a minimum and carefully designed to avoid habitat impacts. Approaches to bridges should be level and straight. Bridge widths should correspond to the trail tread width. On multi-use paths, crossings should be structurally suitable to support pickup truck maintenance vehicles. Bridges should be designed to accommodate all trail user groups. When bridge railings are required, they should meet current Caltrans standards. Bridge footings should be constructed outside of the top of the stream bank.

There are two main types of bridges: truss and beam. Truss bridges have a structure mostly above the deck and are capable of spanning great distances. A beam bridge has a lower profile, for use in areas where the emphasis is on the beauty of the landscape. The superstructure of the bridge (timber or steel beams) is under the deck surface. The most economical means to acquiring a bridge is through a prefabricated bridge manufacturer. Many prefabricated bridges can be customized to fit the architectural preferences of the owner agency. It should be noted that pre-engineered bridges cannot be inserted anywhere as the name implies; rather, a complex design of abutments, foundation systems, and approach work will need to be engineered to support the bridge.

The multitude of rail bridge and trestle crossings along the Coastal Rail Trail alignment will create the greatest physical and budgetary challenges to linking the trail from one end of the county to the other. The rail bridge span distances vary throughout the length of the Master Plan area, with the greatest number of bridge crossings and longest bridge spans occurring primarily in the Central and Watsonville Reaches of the corridor. There are three bridge crossing treatments that will be developed in correlation with the prioritization of trail facility improvements. The sequencing of the planned rail bridge crossings will also be dependent upon alternate bike facility street routes until the various bridge projects are budgeted, designed, and constructed along with the trail segments that connect them to the system. Each bridge crossing will begin with coordination and design collaboration with the RTC as the owner of the rail right-of-way and with input from the operator. The following bridge crossing treatment types describe three possible design concepts for existing railroad bridge and trestle crossings. Section 4 segment maps identify each crossing and the recommended type of bridge.





## RAIL BRIDGE REPLACEMENT - TYPE 1 CROSSING

The Type 1 trail bridge crossing will be integrated into long-term rail bridge replacement efforts. Following the engineering evaluation of each rail bridge throughout the corridor, any rail bridge slated for replacement should be considered for a redesign that includes the addition of multi-use path facilities to the bridge deck. This Master Plan has no proposed trail bridge replacement type 1 crossings. However; one will be needed at Soquel Creek over the long term. The minimum width for the multi-use path should include a minimum eight- (8-) foot-wide paved trail tread with two- (2-) foot-wide shoulders on each side, for a total of twelve (12) feet. However, the Caltrans minimum requirement is a ten- (10-) foot-wide structure. The trail platform could dually serve as bridge maintenance access. Planning for additional width to accommodate rail maintenance vehicles should be considered in the budgetary and design phases.



*Illustration of rail bridge replacement bridge*



## RETROFITTED RAIL BRIDGE - TYPE 2 CROSSING

Existing rail bridges that are considered structurally sound and have been evaluated to potentially accommodate a retrofitted trail bridge attached to the existing superstructure will provide an alternate solution for a trail crossing where there is no room for a new, separate trail bridge. This design alternative can sometimes be the most costly and should be evaluated against bridge crossings Types 1 and 3 for cost, span, scheduling, connectivity efficiency, environmental impacts, and clearances. The possibility of retrofitting a rail bridge is limited to one location for this project. This occurs at the upper crossing on Highway 1 in Segment 12.



*Illustration of proposed improvements to the westerly Highway 1 bridge crossing in Aptos*



## NEW MULTI-USE TRAIL BRIDGE - TYPE 3 CROSSING

It may not be feasible to retrofit some rail bridge structures with a multi-use trail deck; or a rail bridge replacement is not considered for certain rail bridges. In these locations, a more cost-effective solution may be to install a new, separate trail bridge parallel to the existing rail bridge structure. This scenario will include new abutments, a prefabricated bridge, and permitting for the new crossing. This Master Plan includes 23 separated multi-use trail bridge type 3 crossings.



*Illustration of new multi-use trail bridge adjacent to existing bridge*







*Multi-use path bridge in San Clemente, CA*



*Multi-use path bridge in Whittier, CA*

## DRAINAGE WAY CHARACTERISTICS

The drainage way characteristics may dictate the structural design of the bridge. When crossing a channel subject to flooding, the bridge shall be designed to be above the 100-year flood level. When crossing channels not subject to flooding, it may still be desirable to determine whether the bridge's superstructure should be above or below the deck based on clearance underneath.

## BRIDGE LENGTH

Wood bridges that clear spans of over fifty (50) feet are generally difficult without specially fabricated structural members or mid-span piers. Steel beam bridges can span greater distances, but the beam depth will increase in proportion to the span. Steel truss bridges can span up to two hundred (200) feet without additional piers.

## BRIDGE PLACEMENT

Bridges shall be aligned along the path to avoid perpendicular or sharp turns at the bridge approach and maximize sight distance. If the bridge is at the bottom of a grade exceeding four percent (4%), a short, flat transition area is needed to meet the bridge deck grade.

## LIVE LOAD

Bridges which will allow for small vehicles and machinery for maintenance and emergency purposes should be designed to carry a minimum eight- (8-) ton live load.

## BRIDGE AESTHETICS

The proposed bridge materials should reinforce the theme of the local area, and may include steel and wood with stone masonry abutments.

## RAIL TRACK REALIGNMENT/RELOCATION

Realignment/relocation of rail tracks is necessary to complete the preferred alignment of Segment 10 (Live Oak-Jade Street Park). The rail operator (Iowa Pacific, doing business as Santa Cruz and Monterey Bay Railway) is aware of the recommended relocation of the rail tracks and supplied a figure of approximately \$1,000,000



per mile for such a realignment.

### 5.3.2 ROADWAY CROSSINGS

Trails should cross public streets at intersections in the same place a crosswalk would normally be placed. If there is no intersection within two hundred (200) feet of the proposed trail crossing, an at-grade trail crossing, including median break, may be considered. Implementing entity and/or Public Works departments will make the determination as to whether a trail crossing at a roadway can be safely achieved. Traffic volumes, times of day, travel speed, sight lines to and at the intersection, and problems unique to the crossing or intersections will be used in making the determination. In addition, the Public Utilities Commission (PUC) has identified 101 crossings along the corridor. These crossings are heavily restricted/regulated and require additional permits and scrutiny if modified.

If an intersection with pedestrian crossing exists within two hundred (200) feet of where a trail is proposed, pavement, barriers, and landscape features with appropriate signage will be installed to guide trail users to the intersection. In jurisdictions where riding on the sidewalk is prohibited by ordinance, an additional bicycle-crossing facility should be identified and stenciled (see top right image).

A total of eleven (11) types of treatments were developed and considered for the crossing locations along the Coastal Rail Trail corridor. These improvements will be installed at railroad crossings and street intersections or mid-block crossings in the vicinity of each crossing. Recommended crossing treatments are provided in Appendix F. In some locations, a custom treatment will be necessary and may include unusual combinations of the standard treatments, or an altogether unique treatment. Appendix F includes illustrations of custom crossing treatments. The treatment types are listed in a hierarchy of the level of control and are followed by the number of occurrence instances in parenthesis:

- Type A: Railroad signal equipment - new signal or modification of existing (13)
- Type B: Traffic signal modification (1)
- Type C: Hawk traffic signal/pedestrian hybrid beacon (2)
- Type D: Active enhanced mid-block - Pedestrian-activated warning system (4)
- Type E: Passive enhanced mid-block - Additions to the standard mid-block treatment (9)
- Type F: Standard mid-block - Signs and markings (6)
- Type G: Traffic-calming measures - Raised medians, curb extensions, or bulb-outs (3)
- Type H: Connection facilities - Pedestrian walkways, intersection crosswalks, and/or bicycle markings (12)
- Type I: Rail crossing without railroad signal equipment (very low crossing volumes) (2)
- Type J: Standard private crossing - Typical controls include a combination stop sign/private crossing/no trespassing sign (36)



Source: Nick Jackson, Toole Design Group

*Bike and pedestrian mid-block crossing.*

**Right-of-way priority**  
at all roadway crossings shall be determined by the RTC and/or implementing entity, in consultation with private property owners (where appropriate), during the design of individual trail segments. Where feasible, right-of-way preference shall be given to the facility with the higher volume of traffic. Right-of-way shall be indicated with an appropriate stop sign or yield sign that applies to the roadway or multi-use facility cross-traffic.

Type K: No additional improvements or changes (9)

Figures 5.1 through 5.3 detail roadway crossing concepts that illustrate how the trail will interact with existing streets and with the rail tracks.

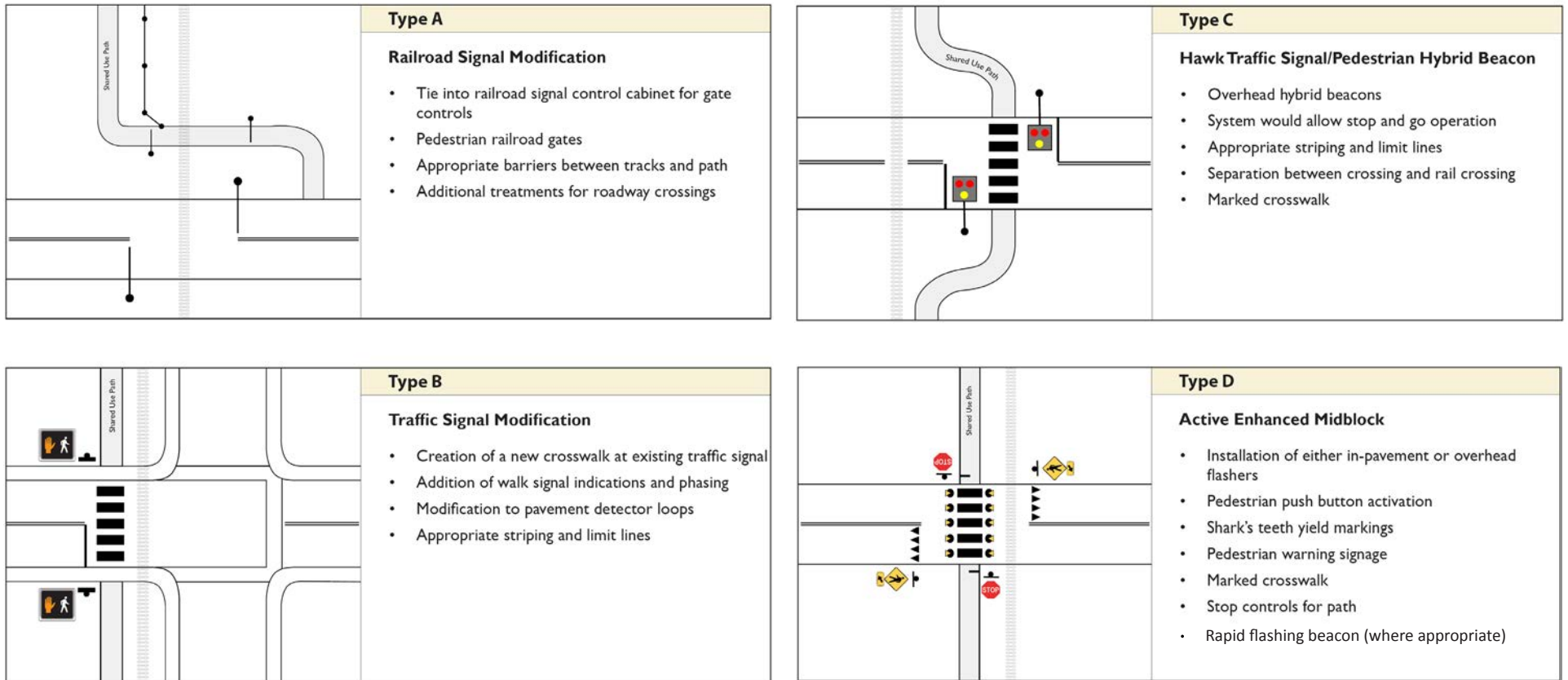


Figure 5-1 Detailed roadway crossing concepts: Types A, B, C, and D





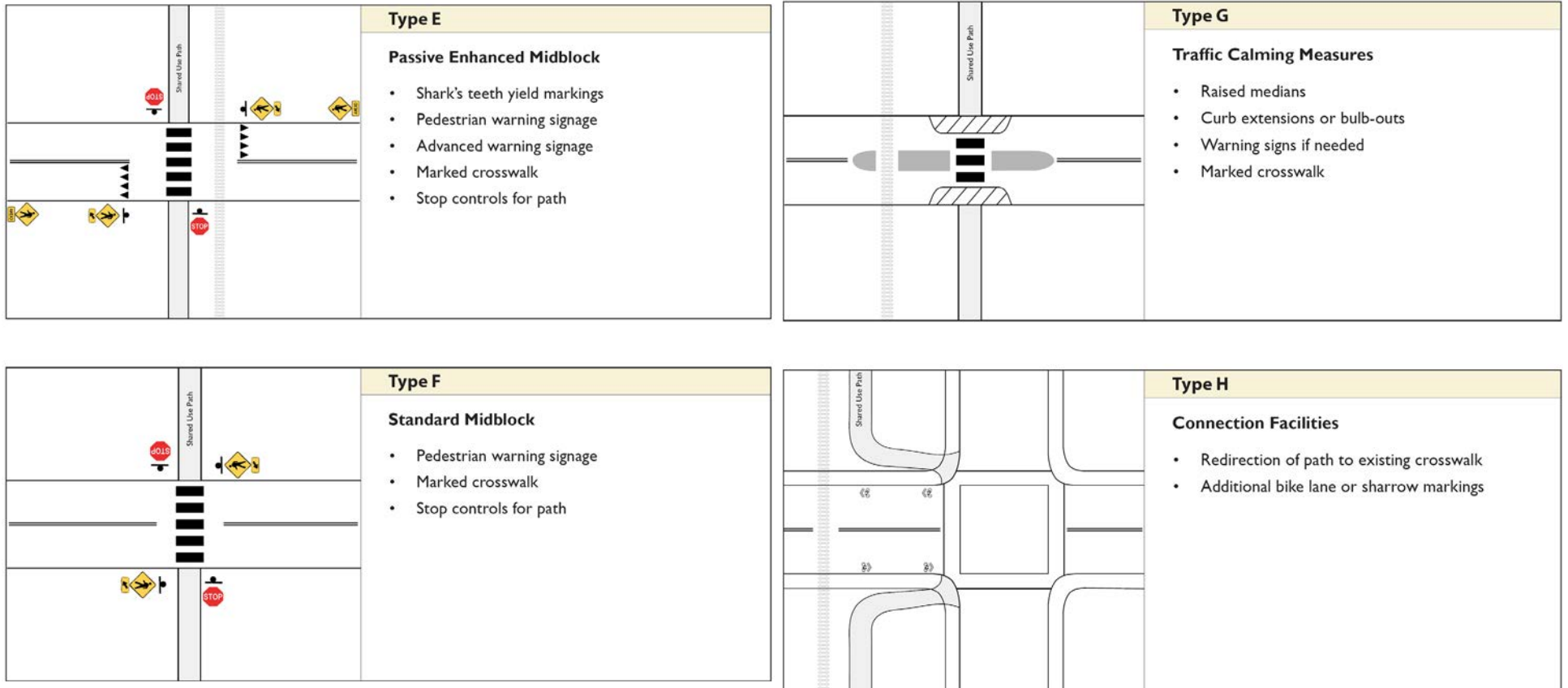


Figure 5-2 Detailed roadway crossing concepts: Types E, F, G, and H



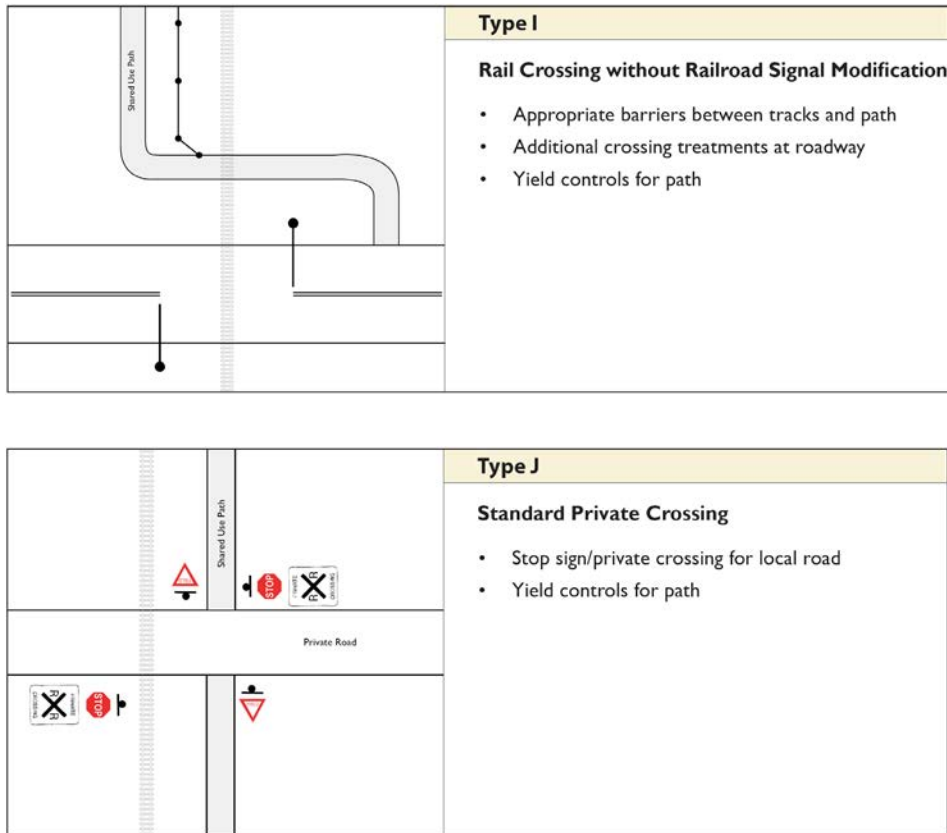


Figure 5-3 Detailed roadway crossing concepts: Types I and J



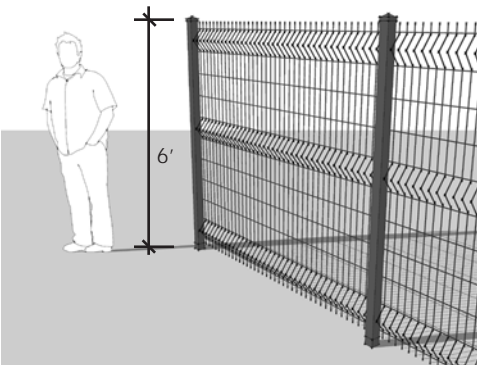
*Natural Bridges State Beach*







*Existing trail fencing and bollards near the Sanctuary Exploration Center*



*Figure 5-4 Wire security fence*

## 5.4 TRAIL AMENITIES AND FEATURES

In addition to user facilities at rest stops and staging areas, trail amenities in the form of benches, shade structures, informational signs, and trash containers will be located along the MBSST Network in strategic locations. The design of these elements is intended to reflect an ocean theme. The use of wood, stone, wire fences, self weathering (rusted) steel, and other rustic materials will reinforce this image.

### 5.4.1 TRAIL FENCING

Fencing along the MBSST Network will vary depending on the location and agreements between adjacent landowners and the RTC. The use of fencing along the Coastal Rail Trail corridor should be used conservatively to maintain the open feel and views of the coastal environment as well as to maintain neighborhood connectivity. Where right-of-way permits, a landscaped buffer should be provided instead of fencing. Fences can be costly if installed unnecessarily and the long-term maintenance adds to long-term budget impacts. The fence designs proposed for the trail corridor are standards that can be applied to several scenarios. Fencing will typically be used for the following reasons: safety, security, trespass prevention, environmental impacts, and privacy. The following narrative describes the types of fencing appropriate for various locations and needs. Not any one type is presumed for use throughout the MBSST Network. Efforts will be made to preserve and encourage neighborhood connectivity.

Fences will be used when required by either RTC or the adjacent landowner. When a fence is required, it will be located at the right-of-way edge or a minimum of two (2) feet from the outermost edge of the trail surface. The specific location of the trail fence will be determined at the time of the preliminary design and finalized in the construction documents for each implementation phase of the project. Where authorized private farm crossings exist or are planned, the implementing entity, with RTC approval, and the adjacent landowner will mutually determine the most appropriate method of a secured gated treatment or open fence segments for farm vehicular access and/or public access to public lands, should they be deemed necessary.

### WIRE SECURITY FENCE

Where the upmost security is necessary, a seventy-two- (72-) inch-high woven-wire fence with metal posts (refer to Figure 5-4) is recommended. This fence type provides a high level of trespass prevention and security. This fence also provides an opportunity for screening with vine plantings to soften the look of the fence and could provide additional protection from train blown dust and debris.

- Urban and industrial areas
- Rail track and trail separator (where high number of illegal crossings are expected)
- Safety and security need
- Agricultural land boundaries



## SMOOTH WIRE FENCE

Smooth wire fencing is fifty-four (54) inches high, includes ten (10) wire strands, and has a concrete or metal post (refer to Figure 5-5). This fence type reduces trespassing and provides open visibility of the surrounding landscape.

- Rural and urban areas
- Agricultural land boundaries
- Rail track and trail separator (where trail is within fifteen [15] feet of rail tracks)
- Scenic areas and open space
- Environmentally sensitive sites

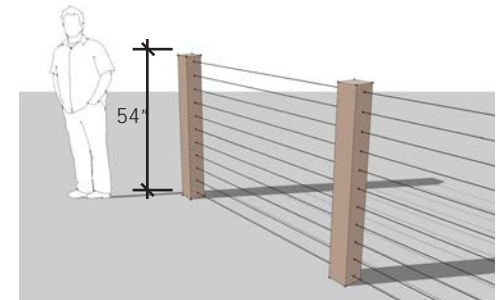


Figure 5-5 Smooth wire fence (between rail and trail or between trail and agricultural land)

## CONCRETE SPLIT-RAIL FENCE

Concrete split-rail fencing is forty-eight (48) inches high and includes three (3) concrete rails (refer to Figure 5-6). Concrete may be stamped/formed and painted to look like wood. This fence type provides a low level of trespass prevention, some open visibility, boundary delineation, and emulates a parkland character.

- Urban areas and rural residential
- Open space and park lands

In urban areas, a fence may be used to separate the trail from adjacent property. The design and use of this fence is subject to the discretion of each implementing entity as approved by RTC. The style of the fence in urban areas shall reflect the design character established by local design plans. Fencing types may include wood, wood substitute, stone and wrought iron, wrought iron or other suitable materials excluding chain link materials.

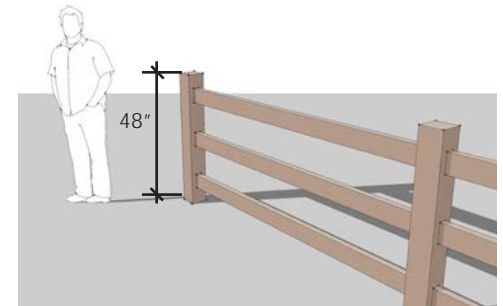


Figure 5-6 Concrete split-rail fence (between trail and rural residential parks, and open space)

## PRIVACY FENCE

A seventy-two- (72-) inch-high concrete privacy fence with metal posts (refer to Figure 5-7) should be provided where enhanced privacy is necessary. This fence type provides some level of trespass prevention, security, and privacy for adjacent landowners. This fence also provides an opportunity for screening with vine plantings. The concrete components increase the life of the fence and reduce the long-term maintenance cost.

- Urban and industrial areas
- Residential areas
- Safety and security need

Other barrier types between the trail and private property may be used such as ditches, berms, and/or vegetation. Recommended vegetation types should be low-water, low-maintenance varieties. Ditch or berm gradients should not exceed two to one (2:1) slopes or be greater than ten (10) feet in depth or height.

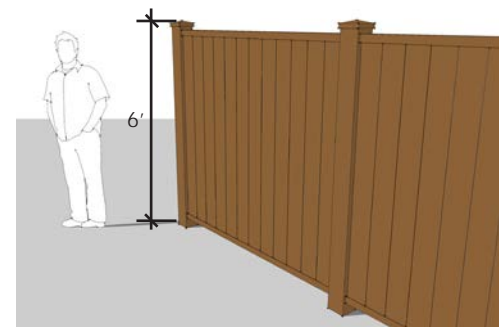


Figure 5-7 Privacy fence

## 5.4.2 TRAIL FURNISHINGS

### BENCHES AND SEATING AREAS

Benches for the trail system should be durable and capable of withstanding both the harsh coastal environment and the remote stretches of trail segments outside of the urban areas. The benches should be secured to their locations to avoid theft and or vandalism. Since the trail will be passing through multiple communities and governing agencies, each with its own character and setting, the bench style for the Coastal Rail Trail should be consistent, rather than trying to conform to the bench standards of each local jurisdiction. Benches should be placed at a minimum every quarter (1/4) to half (1/2) mile to provide convenient and attractive resting places along each segment. Areas where the new trail connects with existing beach trailheads, rest stops, interpretive overlooks, or other existing park facilities may not need new benches. New trail rest areas and trailheads should first be evaluated for conformance with existing adjacent park furnishings before adding new benches. Existing adjacent park furnishings should override the implementation of new facilities if they are already present and in good condition. Each bench placement should be analyzed to avoid redundancy or clutter. Other alternatives to fabricated benches could include the use of large boulders for seating in more rural or natural settings. Benches should be clustered with trash receptacles and other key furnishing elements.



*Concept of concrete bench with MBSST logo*



*Existing concrete bench near the terminus of East Cliff Drive*



*Concrete trash can*

### TRASH AND RECYCLING RECEPTACLES

Trash receptacles should be placed in areas where there are benches and at all major trailhead locations. The trash receptacle unit should include one (1) trash container and one (1) recycling container. The containers shall include animal-proof lids, and the design, color, and style shall stay consistent along the trail segments outside of the existing agency's park and trail segments.

### BIKE RACKS

Bike racks should be located at rest areas, existing and proposed trail heads, near transit stops, picnic sites, park sites, and commercial areas adjacent to the trail. Bike racks should be provided in conjunction with commercial, office, and multi-family residential developments adjacent to the trail corridor, both existing and proposed.

### PICNIC AND SHADE SHELTERS

Shelters should be placed along the trail corridor where existing park facilities are farther than a quarter (1/4) mile in distance. They should be conveniently located at trailhead parking areas, rest areas, scenic overlooks, and remote or exposed segments along the trail corridor. Because the trail passes through multiple community and park agency boundaries, the shelter locations should be carefully selected to work with existing park and trail facilities and avoid redundancy. Picnic and shade shelter design and style should be consistent along the trail corridor. Shelter design exceptions may occur when a proposed shelter location is adjacent to or within an agency jurisdiction that has an existing shelter in that site or within view of the trail corridor's chosen location.



## BOLLARDS

The purpose of bollards is to keep unauthorized motorists off the path. Consideration should be given to whether motor vehicle entry is likely, and thus bollards will enhance safety, or if it is unlikely and thus bollards will present a hazard to trail users. If used, bollards should be removable for emergency and maintenance access, light in color and reflectorized for visibility, lit with solar-powered LED lights (where feasible), and between thirty-six and forty-six (36-46) inches tall. Bollards should be positioned at least five (5) feet apart so as not to restrict width for wheelchair and other trail users, and should include diversion striping on the pavement.

### 5.4.3 UTILITIES AND LIGHTING

Surface and subsurface utilities are located within the railroad right-of-way and may impact the location and construction of the Coastal Rail Trail. Subsurface utilities and infrastructure must be identified during pre-construction activities. Utilities include active and abandoned railroad communications cable, signal, and communication boxes, fiberoptic cable, water and sewer lines, and telephone lines. The Coastal Rail Trail will be designed to avoid having to move most active surface utilities, although utility poles no longer in use may be removed. Installation of underground utility infrastructure to meet existing and potential future utility requirements will be considered to minimize the need to dig up and patch any constructed trail segments. The trail may be located directly over existing subsurface utilities assuming: (a) adequate depth exists between the trail surface and utility to prevent damage, and (b) agreements can be reached with the utility owner regarding access for repairs and potential impact to the trail. The use of solar powered panels will be encouraged to minimize the need for surface and subsurface utility cables.

Portions of the trail may be lighted, especially where there is considerable evening pedestrian and bicycle commuter traffic. There will be some lighting benefit from existing light sources along adjacent roadways and at crossings. Dark sky-compliant lighting should be used to illuminate the trail. Dark sky lighting must project light downward without releasing lighting upwards into the atmosphere or outward past the intended projected path.



*Typical bike rack found throughout Santa Cruz County*



*Trail lighting that is dark sky-compliant due to downward-facing light with shield*



*Metal bollard along multi-use path*



*Seascape Park in Aptos has the potential to incorporate additional staging area amenities*

#### 5.4.4 TRAIL ACCESS/STAGING AREAS

Twenty-two (22) trail access and staging areas exist in close proximity to the trail alignment, for example at Depot Park and at the Wilder Ranch State Park Visitor Center. Features include parking for vehicles and bicycles, drinking water, trash receptacles, kiosks with traveler information, and other amenities. As future usage increases, additional staging areas may be warranted. A concept for future trail access/staging areas is identified on Figure 5-8. All new staging areas and retrofits shall be compliant with ADA standards (handicapped accessibility). Refer to Figure 5-8 for typical features.

#### PURPOSE AND CHARACTER

- Place to park vehicles and unload bikes
- Access from urban areas to trail
- Wide range of services for recreational users
- Tied to shared public used (e.g., train depots, parks, museums, civic uses, etc)



**TABLE 5.2 - Existing/Planned Trailhead/Staging Area Amenities**

	Paved Parking Lot	Accessible Parking	Street Parking	Shelter	Overlook with Benches	Trash Cans	Bike Racks	Accessible Restroom	Drinking Water	Benches	Picnic Area	Other/Notes
Waddell Beach	X	X						X				
Greyhound Rock Beach	X	X					X	X				
Scott Creek Beach			X		X	X	X					
Davenport Beach Landing			X		X	X	X	X				
Davenport												Unpaved parking lot
Capitola Village	X	X	X		X	X	X	X	X	X	X	
Coast Dairies, Bonny Doon Beach	X					X						
Coast Dairies, Yellowbank Beach												Unpaved parking lot
Wilder Ranch State Park, 4 Mile Beach												Unpaved parking lot
Wilder Ranch State Park, Old Cove Landing	X	X	X				X	X	X			Trailer parking
Natural Bridges State Beach	X	X										
Neary Lagoon Park - PLANNED												Existing boardwalk
Depot Park	X	X		X			X	X	X	X	X	Other amenities
Main Beach	X	X					X	X	X	X	X	Other park amenities
Santa Cruz Harbor	X	X					X	X	X	X	X	Other park amenities
Simpkins Swim Center	X	X		X			X	X	X	X	X	Other amenities
Jade Street Park at 47th St.	X	X					X	X	X	X		Other park amenities
New Brighton State Beach	X	X		X			X	X	X	X	X	Other amenities
Aptos Village	X	X					X					
Hidden Beach	X						X			X	X	Lawn area
Seascape Park	X	X			X		X	X	X	X	X	Lawn area, trails
Manresa State Beach	X	X			X		X	X	X	X	X	
Watsonville Slough Trails							X			X	X	Lawn area, trails
Walker St., Watsonville	X											







Figure 5-8 Trail access/staging area design elements

## DESIGN ELEMENTS

- Paved parking (permeable or aggregate base in sensitive areas to filter runoff)
- Information kiosk with a trail directory map/trail information
- Picnic tables, benches
- 911 call boxes (rural areas)
- Drinking fountains
- Trash and recycling cans
- Safety lighting
- Bike racks
- Shade and shelter
- Potential for commercial vending and service (food, bike support, equipment)
- Interpretive signs
- Food kiosk
- Bike shop/station rental
- Charging stations for e-bikes
- Security cameras



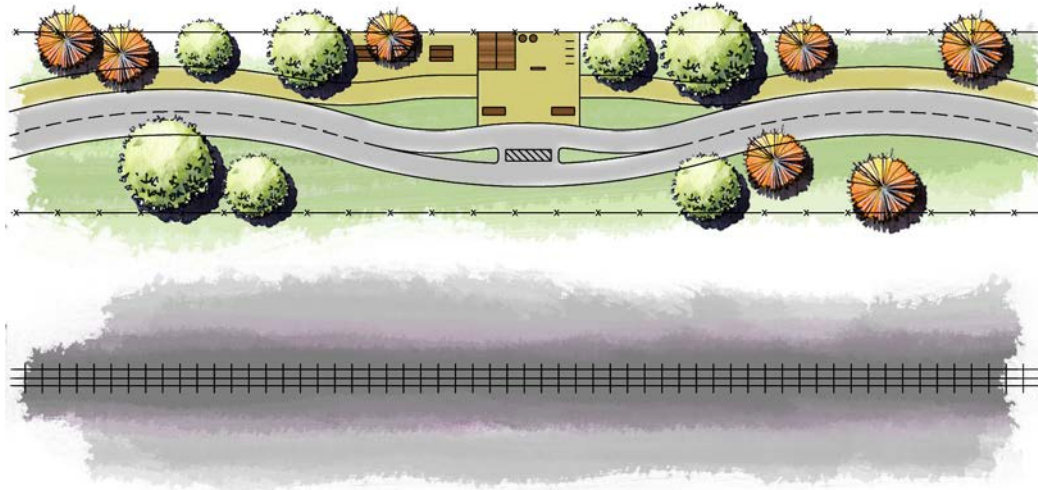


Figure 5-9 Typical rest area design when located adjacent to the railroad corridor

## REST AREAS

Facilities for comfort (benches, trash receptacles, shade, and water), safety (phones and kiosks with traveler information), and interpretative information (historical, cultural, and educational information) should be developed along the trail. Rest areas should be located at places of interest and at regular intervals (approximately two to three [2-3] miles apart).

## DESIGN ELEMENTS:

- Trash cans
- Emergency phone
- Drinking water
- Shade element
- Directional signage/trail information
- Benches with backrests and armrests
- Grades that do not exceed five percent (5%)



Wilder Ranch parking lot, trail access, and staging area



Wilder Ranch restrooms



Depot Park parking lot, trail access, and staging area



#### 5.4.5 UNIFORM TRAIL SIGNING AND MARKING

Uniform sign design and logo theme will be provided along the trail. Signing and marking will unify the trail design and provide functional information. Elements such as bollards to prevent unauthorized trail access, mile post markers to identify specific locations along the trail, directional signs to various places of interest and user services, informational and traffic control signs and a trail logo will all provide necessary information and help to unify the design.

Signs along the trail should be designed to meet all of the required and recommended signing and marking standards developed by Caltrans in Chapter 1000 of the Highway Design Manual. In addition, all signs and markings should conform to the standards developed in the Manual of Uniform Traffic Control Devices (MUTCD).

In general, all signs should be located at least three to four (3-4) feet from the edge of the paved surface, have a minimum vertical clearance of eight-and-a-half (8.5) feet when located above the trail surface, and be a minimum of four (4) feet above the trail surface when located on the side of the trail. All signs should be oriented so as not to confuse motorists. The designs (though not the size) of signs and markings should be the same as used for motor vehicles as per the MUTCD.

Directional signing may be useful for trail users and motorists alike. For motorists, a sign reading “Coastal Rail Trail Xing” along with a trail emblem or logo helps both warn and promote use of the trail itself. For trail users, directional signs and street names at crossings help direct people to their destinations. The RTC will work to ensure trail connectivity to other bike and pedestrian facilities through way-finding and directional signs. Refer to page 5-32 for trail marking and sign examples.



*Bike stop sign*



*Bike route signage on West Cliff Drive*



*Signage at Wilder Ranch*





## 5.4.6 COASTAL RAIL TRAIL SIGNAGE

A customized wayfinding signage program for the Coastal Rail Trail should be further developed to orient users, provide educational opportunities, and to unify the trail corridor. The design should mirror the MBSST sign program in terms of height, scale, and font type. However, the signs should differ from the MBSST in terms of colors and materials used. All trail signage should be identified with the MBSST logo. Conceptual illustrations of compatible signage types are provided below.

In addition, a Coastal Rail Trail logo should be created to enhance the identity of the rail trail. The logo may be a variation of the MBSST logo by keeping the same orientation, font, and use of black. The colors and central design should be modified in order to reflect a rail trail theme.

### HISTORIC AND EDUCATIONAL THEMES

The MBSST Network offers a unique opportunity to physically connect the communities in Santa Cruz County to one another and create ties to its culture and history. In addition to the exhibit locations identified by the previously prepared MBSST Standards Manual, additional historic and educational exhibits (interpretive exhibits) will be placed along the trail at strategic locations offering a variety of information. For example, information concerning the history of railroads, lumber, beaches, and farming in the area can be portrayed. Educational exhibits describing the environment and natural resources should be developed to educate visitors and residents about current issues and stewardship. All of these topics will be presented in a cohesive design to help reinforce the continuity of trail design.



Santa Cruz Public Libraries

Seacliff Beach State Park with the cement ship, the Palo Alto, in the background (1930)

#### Interpretive Design Themes

- Monterey Bay National Marine Sanctuary
- Location specific flora and fauna
- Coastal-dependent industrial history
- Native American presence and culture
- Watershed and underwater geography
- Climate and habitat
- Railroad History
- Rivers, Estuaries, Beaches



Figure 5-10 Conceptual signage for Coastal Rail Trail



Monterey Bay Sanctuary Scenic Trail interpretive signage installation at Lighthouse Point Park

## SANCTUARY SCENIC TRAIL SIGNAGE

The RTC and the Santa Cruz County Interagency Task Force secured funding from a Federal Transportation Enhancement Grant to develop conceptual designs for a trail logo, a wayfinding system to orient trail users, and an interpretation system to showcase distinct habitat areas, and illustrate themes and stories consistent with the conservation and education goals of the Monterey Bay National Marine Sanctuary. Through this process, a series of well-designed wayfinding and interpretive exhibits were designed to be distributed along the original 11-mile alignment of the Monterey Bay Sanctuary Scenic Trail. There are five (5) types of signs and exhibits: trail markers, directional signs, orientation signs, minor interpretive exhibits, and major interpretive exhibits. A handful of these signs have already been installed.

The now-expanded MBSST Network incorporates the Coastal Rail Trail into the earlier multi-year, multi-agency effort to create the original alignment of the MBSST through the Sanctuary Scenic Trail Standards Manual and Draft Long Range Interpretive Plan. Though the documents are not part of the MBSST Network Master Plan, opportunities exist to highlight the original Sanctuary Scenic Trail alignment and the documents' visions of providing opportunities for coastal access and appreciation of the Monterey Bay National Marine Sanctuary through a series of coordinated wayfinding signs and interpretive exhibits. A series of scenic loops or spurs on existing and proposed facilities, identified through directional signage, could be developed to guide trail users at each key juncture of the original Sanctuary Scenic Trail alignment and the Coastal Rail Trail.

The following loops and spur have been identified for consideration once the proposed segments are implemented:

- A West Cliff Scenic Loop that joins the Coastal Rail Trail at Natural Bridges Dr. and at Pacific Ave.
- A Pleasure Point Scenic Loop that joins the Coastal Rail Trail at Lake Ave. and at Opal Cliff Dr.
- A Seacliff Scenic Spur that joins the Coastal Rail Trail at State Park Dr. and continues on State Park Dr. and along Seacliff State Beach, across the bike/pedestrian bridge over Aptos Creek, and along Beach Dr. up to the locked gate.

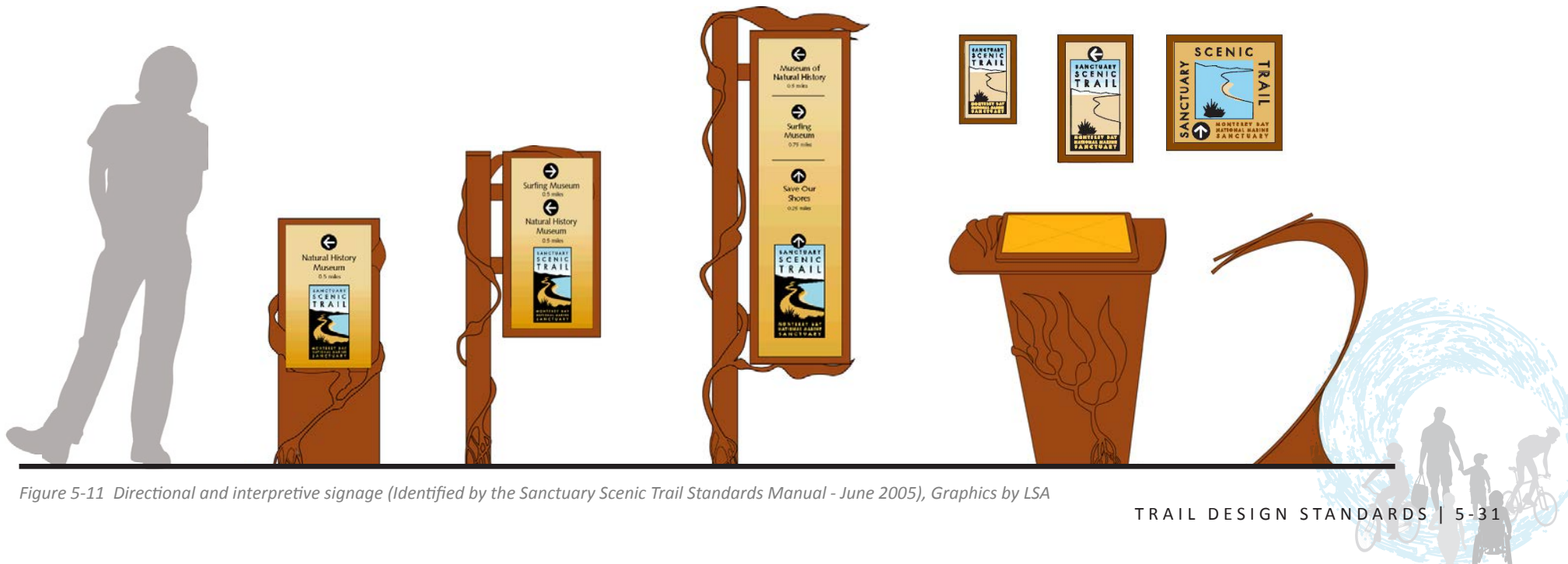


Figure 5-11 Directional and interpretive signage (Identified by the Sanctuary Scenic Trail Standards Manual - June 2005), Graphics by LSA

## COUNTYWIDE BICYCLE ROUTE SIGNAGE

In an effort to further increase bicycle ridership and provide a viable transportation alternative, the RTC is developing a Countywide Bicycle Route Signage Program. Wayfinding signage for the current on-street network is thought to increase the number of bicyclists on the road, as well as improve bicyclists' visibility and safety. The exact sign type has not been agreed upon yet, but the mock-ups proposed (see image below) will fit in with existing signage, will be easily integrated into the proposed sign types, and will be in compliance with the MUTCD.

## MULTIPLE TRAIL DESIGNATIONS

In certain instances, the Coastal Rail Trail will include additional trail network alignments such as the California Coastal Trail and/or the Pacific Coast Bike Route. When this is the case, the application of the proper logo(s) should be applied to trail signage to inform the user of the multiple-route status. A concept of a post with trail logos is illustrated below.



*Possible countywide bicycle route signage*



*Post sign with multiple trail designations*



*Existing trail signage on East Cliff Drive*



*California State Parks logo*



*California Coastal Trail logo*



*Typical Pacific Coast Bike Route sign*



#### 5.4.7 LANDSCAPE DESIGN

The landscaping treatment along the MBSST Network will vary along the corridor as it traverses from one region to another. The landscape treatment will be limited by availability of space in the trail corridor, narrow rights-of-way, railway operational clearance, agricultural operations, sensitive coastal bluffs, maintenance agreements, and other mitigating factors.

Currently there are existing segments of the MBSST Network corridor that follow highly urbanized areas with landscape treatments existing along street corridors, parks, adjacent open space, harbor edges, and beachfront areas. The landscape for new segments of the MBSST Network will vary with the setting and with the agency responsible for the design, implementation, and long-term maintenance. The landscape treatment will also vary by setting. The proposed trail corridor lies along one of the most beautiful coastlines in the world, traversing many different environments ranging from intensely popular urban areas to rural and native coastal edges. Landscape treatment in intensely urbanized areas can include both California native and non-native drought-tolerant plant palettes. These urban areas offer a broader range of choices for plant species to be used in the landscape. However, in areas where the trail is located in and/or adjacent to native landscape settings, or rural and agricultural lands, every effort should be taken to maintain California native and indigenous plant species in the planting and restoration efforts. Plant palettes will be determined as part of the design phase for each segment in coordination with the implementing entity. Planting plans will also comply with environmental studies and recommendations concerning sensitive or critical native plant habitats. Other precautions should consist of the strict avoidance of invasive species.



*Drought-tolerant grasses used in median treatment*



*A combination of flowering shrubs and groundcover should be used at key areas*



*Drought-tolerant succulents thrive in Santa Cruz County*



## 5.4.8 DRAINAGE AND EROSION CONTROL

### DRAINAGE IMPROVEMENTS DURING TRAIL CONSTRUCTION

Drainage improvements to accommodate the trail section will be made in conjunction with trail construction. Trail design will be engineered so as not to increase any historic runoff onto a property. Drainage engineering will be coordinated with any adjacent and regional efforts that may be underway at the time to resolve historical problems to the greatest degree feasible. A combination of culverts, channelization, and improved bridge crossings will occur in conjunction with trail construction. Trail engineering will focus on methods to minimize river deposits that may cause maintenance issues. Construction materials that maintain historic runoff levels and meet water quality standards will be used.

### CULVERTS

Culverts can be used in seasonal drainage ways or seeps along gullies and swales. Culverts should be sized to handle the high flow during seasonal rains. The culverts may consist of plastic or metal corrugated pipe. Trail approaches should be designed at a straight 90-degree angle. Culvert crossing width should match the trail approach width on both sides. Culvert faces should be concealed with native stone and channels downstream of culverts with large rocks.

### SEA LEVEL RISE AND CLIMATE ADAPTATION

Generally, the California Coastal Commission (CCC) requires new development to be set back from bluff edges so that development will be safe from bluff retreat for at least 100 years. However, the CCC does make exceptions to the setback requirements for recreational/trail projects. The 100-year sea rise projection is unlikely to impact on-street trails. However, natural surface trails along coastal bluffs may be impacted and development of new trails should consider sea level rise impacts.

Measures to assure the long-range viability of the MBSST Network will be developed as needed when segments move forward. The potential for shoreline retreat and/or sea level rise should be a consideration in the design of each segment. Where projects or placement of shoreline protective works will impair the continuity of the shoreline public access route, an alternative measure for providing such access will be considered. One such example is a bluff-top bypass routes.



*Sand dune encroaching onto railroad tracks*



*Exposed drainage infrastructure*





*Example of a “universal access” trail (Bonnie Lewkowicz)*



*Pedestrians and bicyclists sharing the trail*



*Bridges should be wide enough to allow for pedestrians and bicyclists to pass with ease*

## 5.5 UNIVERSAL TRAIL DESIGN

“Accessibility” or “universal access” shall be considered a best practice in the decision-making processes, including planning, design, construction, and management of the MBSST Network. Universal access includes design strategies that provide trail access to those with and without disabilities including families, seniors, and people with mobility impairments. At a minimum, current state and federal regulations concerning the Americans with Disabilities Act (ADA) shall be applied to provide access to a wide range of user capabilities as required by law.

While trail designers shall refer to the federally mandated ADA guidelines, the following five (5) design characteristics are typical of the types of challenges to providing a universally accessible trail.

- Trail grade
- Cross slope
- Width
- Surface type
- Obstacles

## 5.6 CALIFORNIA COASTAL COMMISSION AND CONSERVANCY ACCESSIBILITY STANDARDS

The California Coastal Commission and Conservancy Standards and Recommendations for Accessway Location and Development Accessibility Standards provide guidelines for the location, size, and type of accessways along the California coast. The Standards were adopted to ensure that a consistent approach is used for access construction. Since sites and circumstances vary along the coast, the application of these standards is flexible. They apply to all new and existing developments and shall be considered during the MBSST Network implementation and construction process. Appendix G provides the full California Coastal Commission and Conservancy Standards and Recommendations for Accessway Location and Development Accessibility Standards.





## 5.7 USER CONFLICT REDUCTION STRATEGIES

In essence, user conflicts are a result of success: they are indicative of a trail's popularity. Nonetheless, they can lead to safety issues. Trail planners can take preventative measures to anticipate heavy use and preclude user conflict in multiple-use trails permitting use by walkers, runners, bicyclists, etc. Potential trail conflicts are best minimized through design and through setting the proper expectations which, in turn, comes from appropriate width, clear signage, and enforcement of behavior.

General tips for reducing the potential for conflicts include:

1. Involve all potential user groups in the planning process to raise issues and help address them.
2. Design to minimize conflicts with separate trails or shoulders for pedestrian and equestrian use where possible. Provide adequate width and sight lines. Furnish turnouts at stopping points, etc.
3. Use clear signage or pavement markings to define etiquette and yielding protocol.
4. Set expectations for multi-use.
5. Enforce rules by volunteer trail patrols and/or a uniformed presence, especially when a trail is new to establish precedent and expectations.

Spatial management is a system that designates different trails or spaces for particular uses. For instance, trail managers may assign one trail to cyclists and another trail to walkers. In addition, speed controls help curtail speeding cyclists on multi-use trails. A formal speed limit should be established only when all else fails; an effective speed limit requires consistent, ongoing enforcement, and it is unclear whether reducing the speed actually improves the real or perceived safety of the trail. The problem of excess speed might therefore be better addressed through design. For example, a granular stone surface will encourage slower speeds than a paved surface.



*People pushing strollers are commonly found on multi-use trails*



*Trail etiquette sign example*

Trail etiquette should be established at the beginning. Involving trail patrols and volunteer trail ambassadors is a great way to build community support and expectations on the trail. Encourage interaction between user groups with a campaign such as, “Just say hello.” Trail etiquette can be formalized into user rules and regulations. The regulations, developed in conjunction with trail user groups, should spell out the rules governing public conduct on the trail. Unless legally required, use terms such as “trail courtesy” or “visitor responsibilities” instead of “rules and regulations.” Visual and simple displays of expectations are preferred. Consider these courtesy advisories:

- Wheels yield to heels
- Be courteous to all trail users
- Travel at a reasonable speed in a consistent and predictable manner
- Always look ahead and behind before passing
- Pass slower traffic on the left; yield to oncoming traffic when passing
- Give a clear warning signal before passing: use voice signal, not horn or bell, when passing horses
- Keep all pets on a short leash
- Respect the rights of adjacent property owners
- Don’t be a litterbug
- Please clean up after your pets
- Move off the trail when stopped to allow others to pass
- Yield to other users when entering and crossing the trail
- Motorized vehicles are prohibited (except electric wheelchairs)
- Alcoholic beverages and illegal drugs are not permitted on the trail
- Firearms, fireworks, and fires are not permitted on the trail
- All trail users should use a light and reflectors after dusk and before dawn
- Travel no more than two abreast
- Be aware and courteous to others while using a cellular phone



## 5.8 DOGS ON TRAILS

The MBSST Network in Santa Cruz County traverses approximately 50 miles from the banks of the Pajaro River in the south, up north to the San Mateo County line. The MBSST Network will pass through several different city, county, and state properties, all with varying rules and regulations addressing dogs in the park lands and on trails.

One of the most popular trail activities today is people walking their dogs. For many people, a trail walk invariably means a walk with the dog. This has become an important activity for both the owner and the pet to enjoy the outdoors and get some exercise. For some trail users, this is an opportunity to let the dog run free in available open areas. Along multi-use trails, agency managers often post leash laws to help reinforce safety policies and leash requirements.

Wildlife habitat areas are especially sensitive to unleashed dogs. Trails near waterways, shorelines, riparian corridors, and potential nesting areas often include leash laws to prevent dogs from having contact with wildlife. Dogs benefit from wearing a leash by being protected from rattlesnakes, ticks, traffic, trail user conflicts, and various other hazards and distractions.

As the popularity of dog walking continues to grow, so does the need to prevent dog waste from impacting the trail and adjacent uses. Implementing entities should require pet waste removal and provide dog waste bag dispensers at trailheads. More remote sites or neighborhood access areas may include a simple regulation sign requiring pet owners to collect their pet waste both as a courtesy to other users and a management tool for habitat preservation. Dogs may be restricted in trail sections that are adjacent to agricultural lands where sensitivity relating to contamination exists.

The waste removal restrictions do not apply to service animals, as defined by the Federal Americans with Disabilities Act (ADA). The ADA defines a service animal as any guide dog, signal dog, or other animal individually trained to provide assistance to an individual with a disability.

Currently the California State Parks' rules and regulations require dogs on a leash within park boundaries. California State Beach regulations require dogs be on a leash and allowed on paved trails only.

Other regulations for dogs on trails may include requests to have the pet up-to-date with all applicable vaccinations and a current license with the County Department of Animal Services. Some implementing entities may have their own animal care services or licensing.



*Pet waste station*



*Dogs on leashes*



*Trail runner with dog on a leash*



## 5.9 EQUESTRIANS ON TRAILS

Specific design considerations for equestrian use on multi-use paths should be considered due to the lack of equestrian experience near railroads, horses' instinctual flight behavior, and equestrians' general wariness of new and potentially challenging situations. Some equestrian users advocate fences of sufficient height to prevent horses jumping them when startled or frightened; however, this concern must be balanced with the need for visibility of trains for both horses and riders. Horses that cannot see an oncoming or approaching train will experience greater fear and confusion than if they are able to see and identify the source of noise.

Trail width is an overriding design issue when providing equestrian use. Multi-use paths designed to accommodate equestrians should provide a separate unpaved pathway that is at least eight- (8-) feet wide and that has a vertical clearance of at least ten (10) feet. The equestrian trail should be separated a minimum of three (3) feet from the paved multi-use path.

Many horses are frightened by bridges and other elevated environments, particularly lattice or perforated bridges and trestles that allow the animal a view of the ground surface substantially below the bridge deck. Most horses are not accustomed to this environment and will respond unpredictably with potentially negative consequences. In Segment 5.3, the Old Dairy Gulch bridge crossing will require additional consideration when designing bridge improvements to incorporate equestrians.

Equestrian use is limited to an approximately nine- (9-) mile-long stretch (Segments 5 and 6) within the Northern Reach coastal area extending from Wilder Ranch to Davenport. Equestrians will utilize the existing facilities located in Wilder Ranch.

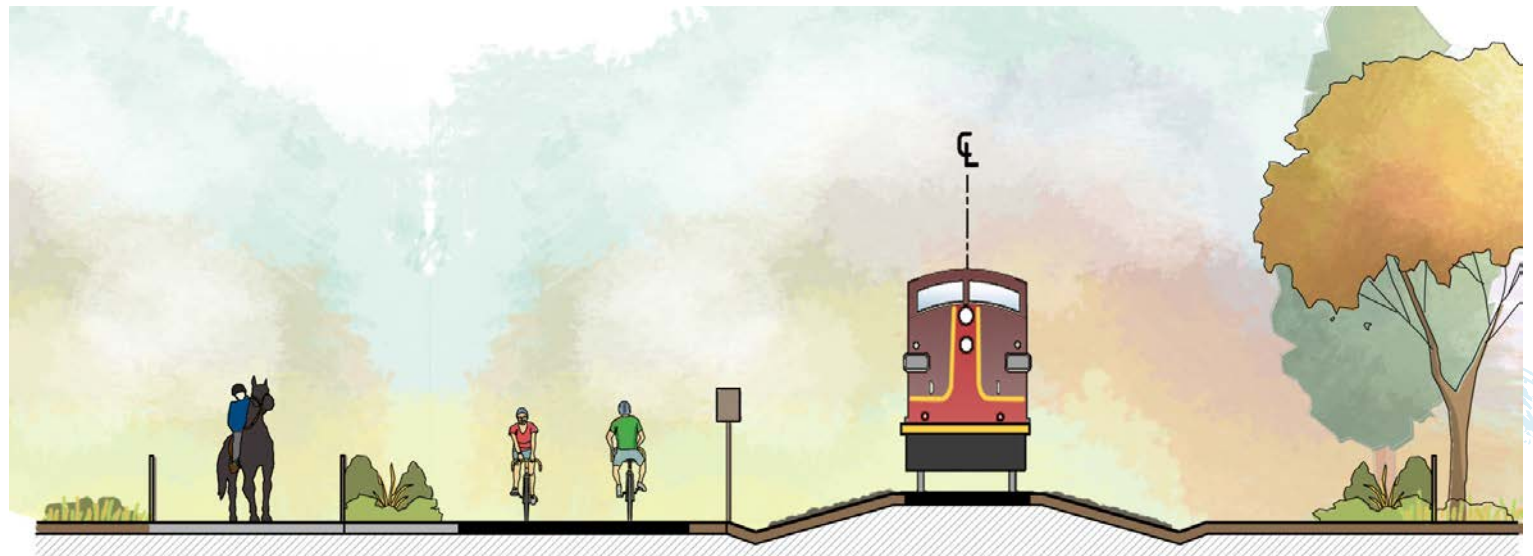


Figure 5-12 Equestrian trail adjacent to the Coastal Rail Trail



*Equestrian trail opportunity north of Wilder Ranch*

