

FORT ORD REGIONAL TRAIL AND GREENWAY CONCEPTUAL DESIGN REPORT

SEPTEMBER 2020

TRANSPORTATION AGENCY FOR MONTEREY COUNTY



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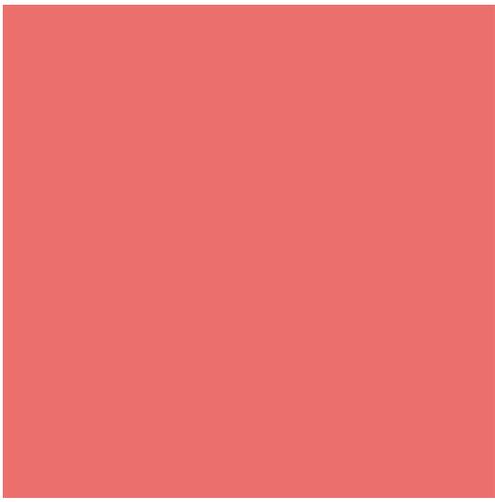
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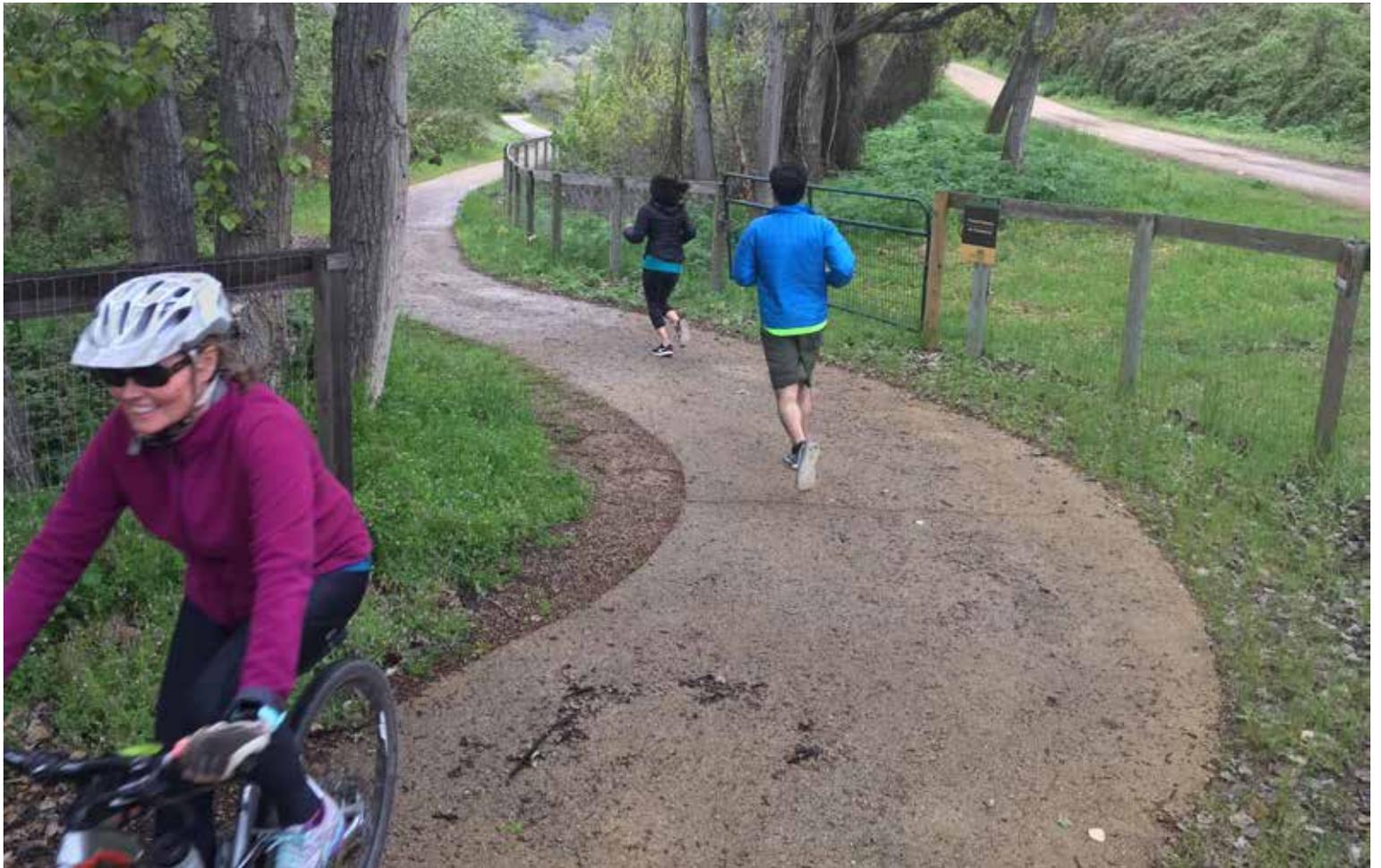


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01 **PROJECT OVERVIEW**



FORTAG will become both a regional transportation corridor as well as a recreational attraction, allowing trail users of all ages and abilities safe, continuous access to open space and major destinations.

OVERVIEW

FORTAG will be a multi-use trail in northwestern Monterey County, generally surrounding the cities of Seaside, Monterey, Del Rey Oaks, Marina and the California State University Monterey Bay (CSUMB) campus. The project is led by the Transportation Agency of Monterey County (TAMC).

FORTAG includes approximately 27 miles of new paved trail, primarily on the inland side of State Route 1 (SR 1). The trail will be built for ADA compliance to accommodate pedestrians and bicyclists of all abilities. It will also accommodate equestrians within select areas. Dogs will be allowed on-leash throughout the system.

In order for FORTAG to serve as many users as possible, it will need to not only be a functional, safe, and accessible facility, but will also need to convey a strong design intent, that highlights the surrounding landscape, presents a coherent identity, and helps convey to users that this is a world-class facility.

The majority of the trail will be 12 feet wide with a 2 feet wide unpaved shoulder on both sides. A small portion of the trail (approximately 2,000 feet or one percent) will be developed on existing paved roadways in two locations: in Del Rey Oaks on Angelus Way, between Rosita Road and Del Rey Gardens; and in Marina on Beach Road, between Del Monte Boulevard and De Forest Road. Where space allows, the trail will be surrounded by an open space greenway buffer on both sides. Portions of the greenway will include unpaved paths for use by hikers, mountain bikers, equestrians, and naturalists.

The vision of Fort Ord Regional Trail and Greenway (FORTAG) has been carried on several fronts by many people. Founded as a grassroots effort and supported by voters in Measure X, the trail began with the Open Space Link in the Base Reuse Plan, then named the Beach to BLM trail, and was later expanded and charted by Fred Watson and Scott Waltz with over 360 meetings with over 200 individuals and organizations.

For the purposes of phased development and conceptual design treatments, FORTAG has been divided into seven major segments.

This document provides design concepts and guidance for FORTAG as a whole, as well as recommendations for specific segments and contexts throughout the overall corridor.



Fred Watson and Scott Waltz, Professors, California State University Monterey Bay, and FORTAG advocates.

PROJECT LOCATION

FORTAG will be located in northwestern Monterey County, traversing sections of the cities of Monterey, Del Rey Oaks, Seaside, and Marina, as well as unincorporated Monterey County. The trail travels through several city parks. Portions of the alignment are within or adjacent to areas managed by CSUMB, the U.S. Army, the California Department of Transportation (Caltrans), the University of California Santa Cruz, Pacific Gas & Electric (PG&E), and the Monterey Peninsula Regional Park District. Portions of the alignment are within the California Coastal Zone.

The Trail will connect to the existing Coastal Recreation Trail, portions of which are under the jurisdiction of California State Parks, and the North Fremont Bicycle and Pedestrian Project in Monterey. The FORTAG system's connections to the existing Coastal Rec Trail will form continuous trail circuits, but the FORTAG project will not involve any direct modifications to the Coastal Rec Trail.

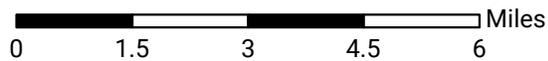
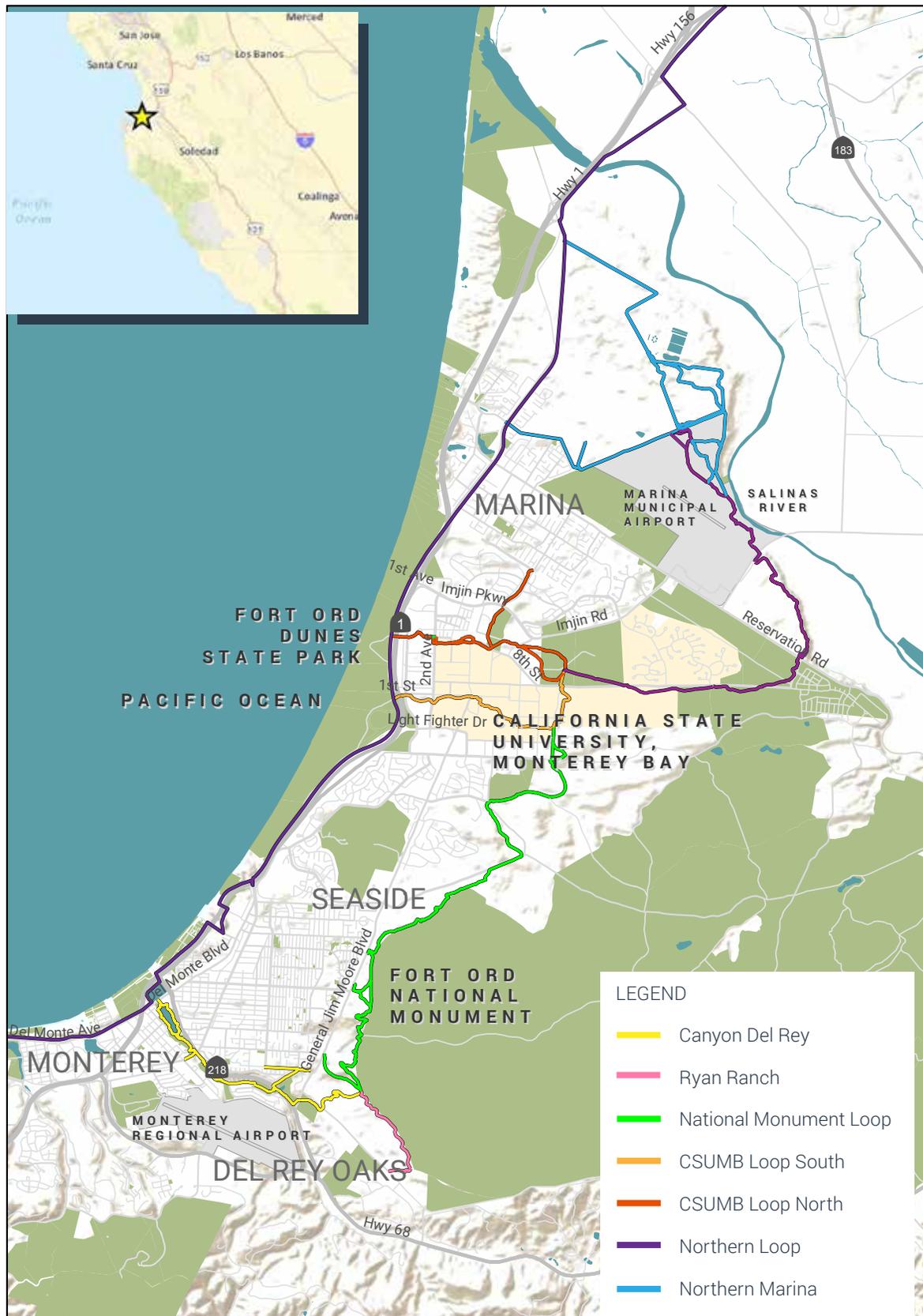
The proposed alignment, when combined with Coastal Rec Trail, will generally form three loops that encircle the City of Marina, the CSUMB campus, and the City of Seaside, respectively (see map on the following page).

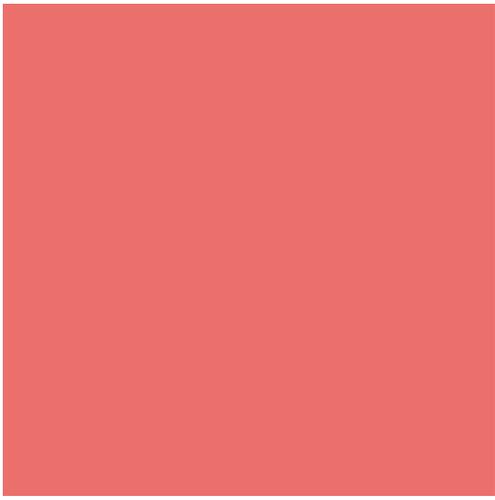
PROJECT PURPOSE AND OBJECTIVES

The purpose of FORTAG is to provide an accessible multi-use path for recreation and active transportation for residents and visitors.

FORTAG supports the following objectives:

1. Function as an active transportation artery for commuting and recreation, providing a safe, accessible, and separated alternative to motorized travel that reduces vehicle trips and associated emissions.
2. Connect people to open space and recreational activities from their homes, workplaces, and hospitality bases.
3. Enhance connections between Fort Ord, Monterey Peninsula, and Salinas Valley communities, and provide additional opportunities for physical exercise and stress reduction for residents and visitors.
4. Utilize built trails and roadways where possible to minimize impact to the natural environment while maintaining gentle grades and providing access to viewpoints.
5. Provide interpretative and educational opportunities for trail users to experience and learn about the historic military use of the former Fort Ord, biological and other natural resources, and the Monterey Bay coast.
6. Utilize public lands where possible and encourage the incorporation of the Trail into planning and future development.
7. Create economic benefits from associated retail, hospitality, and competitive events.





02 **SEGMENT
IDENTITY**



Divided into seven segments, FORTAG contains a spectrum of contexts with individual habitats, land uses, trail use needs, and opportunities for tailored design.

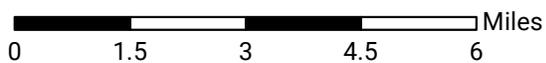
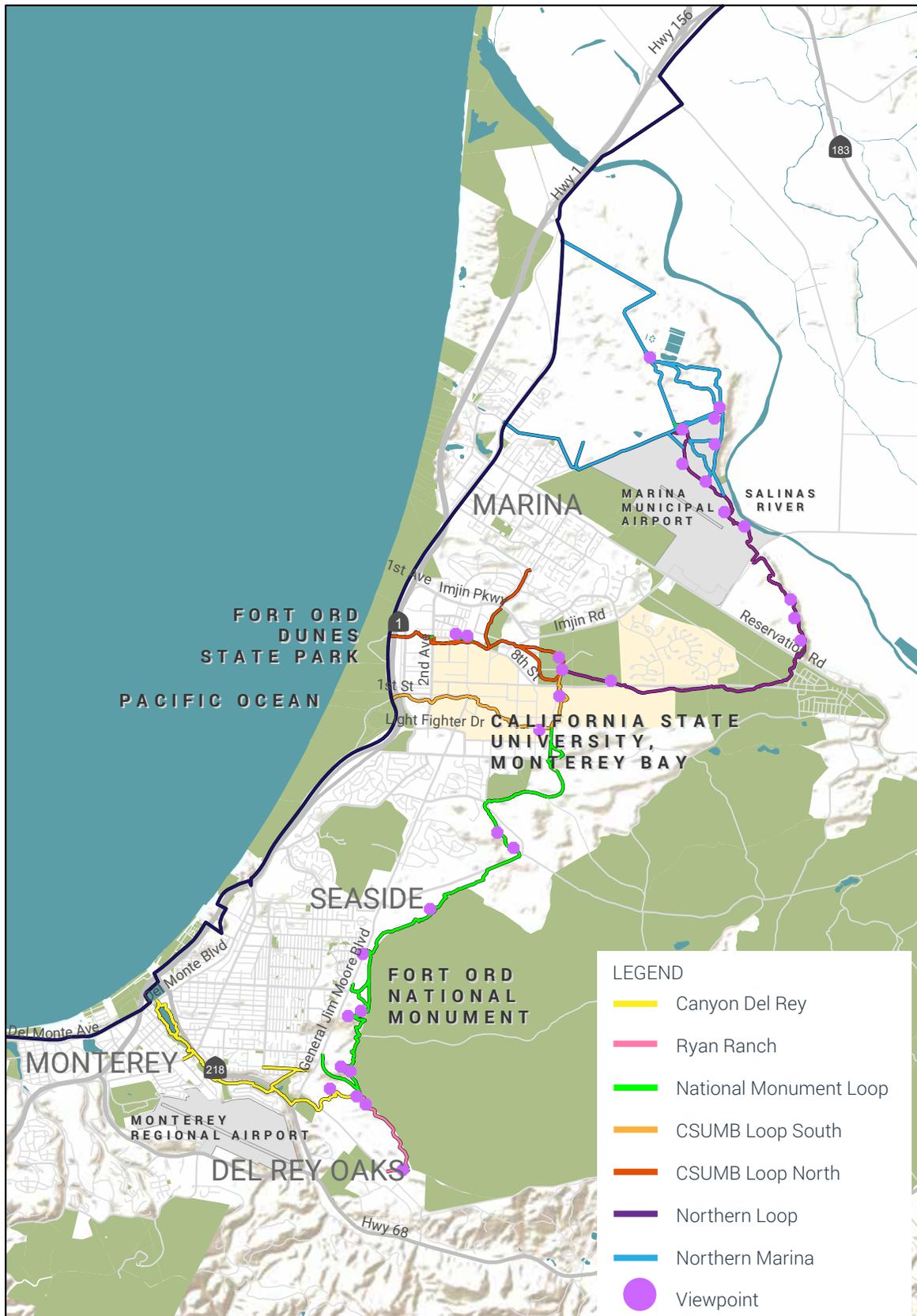
OVERVIEW

While FORTAG should display a unified design language, it must also respond to the greatly varied contexts through which it passes. These include new commercial and townhouse developments adjacent to CSUMB, dunes in the National Monument Loop, woodlands with equestrian and mountain bike users, coastal access, campus traffic, and airports.

This section catalogues the key design challenges, design cues, types of use, and signature features that will inform FORTAG's response to changing conditions.



Map 1. Trail Segments



Segment	Length (Miles)	Jurisdictions
 Canyon Del Rey	3.97	Seaside, Monterey, Del Rey Oaks, Monterey County
 Ryan Ranch	1.43	Del Rey Oaks, Monterey County, Coastal Commission
 National Monument Loop	7.97	Seaside, Monterey County
 CSUMB Loop South	2.68	Seaside, Monterey County, CSUMB
 CSUMB Loop North	3.03	Marina, CSUMB
 Northern Loop	6.40	Marina, Monterey County, FORA
 Northern Marina	2.29	Marina, Monterey County

Note: Segment lengths are for primary alignments, not design options

TRAIL SEGMENTS

The FORTAG trail corridor is organized into seven segments, illustrated on the previous page.

These segments have been defined jurisdictionally, as well as by environmental context. Each contains the unique potential for user experience and presents a set of challenges, opportunities, and history to inform trail design.

VIEWPOINTS

Throughout FORTAG, key viewpoints have been identified that provide coastal and inland views. These viewpoints will be a key aspect of the FORTAG experience, and should feature a FORTAG-specific design language that is also compatible with the contextual identity of a given segment. These viewpoints are shown on the preceding map.

SEGMENT IDENTITIES

The following pages include a brief description of the environmental context for each segment, design vision including use of materials, Design Considerations, and depiction of existing site conditions through illustrative cross sections.



Work Memorial Park, Del Rey Oaks, CA



Laguna Grande Park, Seaside & Monterey, CA



Utility Easement on Plumas Ave, Del Rey Oaks, CA



Frog Pond Wetland Preserve, Del Rey Oaks, CA

Example images of existing context found along the Canyon Del Rey Segment.

CANYON DEL REY SEGMENT

3.97 MILES

“A riparian connection between Fort Ord National Monument and the Coastal Trail”

The Canyon Del Rey Segment jumps between existing municipal parkland (beginning at the existing coastal trail at Roberts Lake and crossing Del Monte Blvd. before traversing Laguna Grande Park, Work Memorial Park and Del Rey Park) and suburbs characterized by mixed architectural and landscape styles. It generally follows a riparian corridor studded with a mix of native oak trees and shrubs before entering the Frog Pond Wetland Preserve and continuing on to meet the National Monument Loop segment near the Fort Ord National Monument.



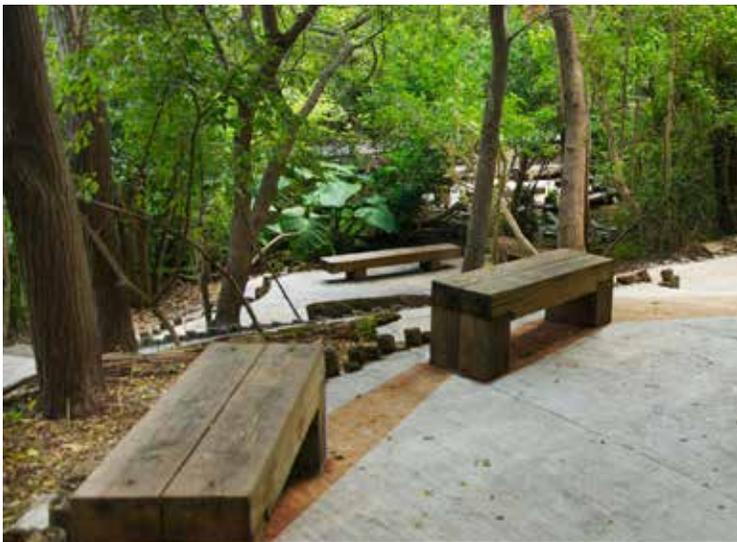
Freshwater Marsh and Riparian Corridor, Playa Vista, CA

PHOTO: [HTTPS://PLAYAVISTA.COM/COMMUNITY-UPDATE-FRESHWATER-MARSH-AND-RIPARIAN-CORRIDOR/](https://playavista.com/community-update-freshwater-marsh-and-riparian-corridor/)



Upper Sandusky, Ohio

PHOTO: VIC FAZIO, [HTTPS://BIRDING-IN-OHIO.COM/WYANDOT-COUNTY/UPPER-SANDUSKY-BIKE-TRAIL-RIPARIAN-CORRIDOR/](https://birding-in-ohio.com/wyandot-county/upper-sandusky-bike-trail-riparian-corridor/)



LA PASTORA Linear Park, Guadalupe, NL Mexico

PHOTO: JORGE TABOADA, [HTTPS://WWW.FLOORNATURE.COM/BLOG/LA-PASTORA-LINEAR-PARK-DI-HARARI-LANDSCAPE-ARCHITECTURE-UN-P-14143/](https://www.floornature.com/blog/la-pastora-linear-park-di-harari-landscape-architecture-un-p-14143/)



Streamside Trail, Northern California

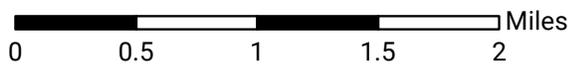
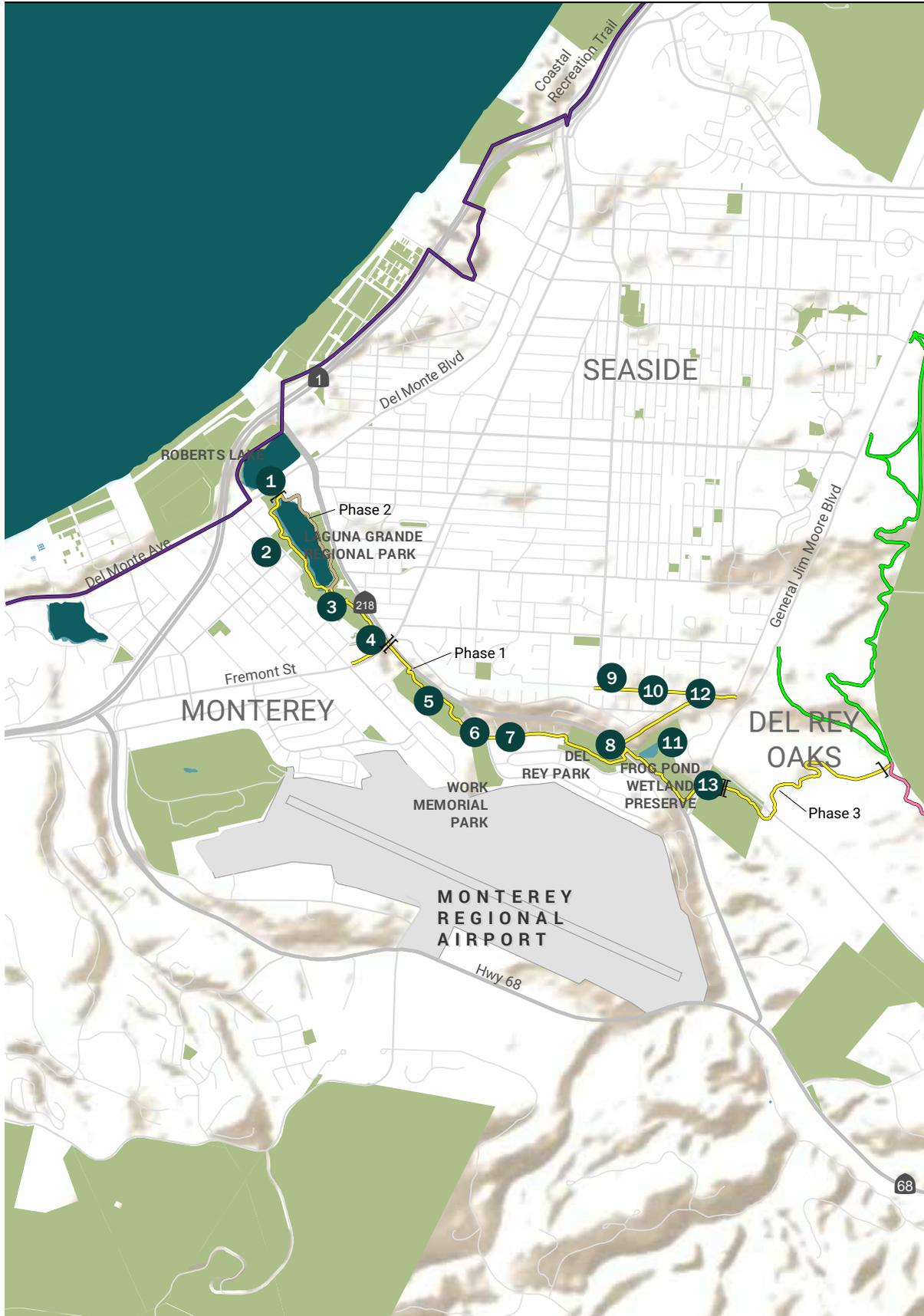
PHOTO: MICHAEL THILGEN WWW.FOURDIMENSIONSLANDSCAPE.COM/GALLERY.HTML

Design Ideas: examples of paths through riparian settings, interpretive signs, and shaded rest areas

Design Vision

- Oaks (*Quercus agrifolia* and *douglasii*)
- Wood
- Stone (boulders)
- Native woodland and riparian species
- Greens (color/furnishings)
- Green metal
- Native riparian species

Map 2. Canyon Del Rey: Design Considerations



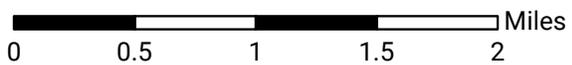


View across Laguna Grande Regional Park

Design Considerations

1. This segment connects to the 18-mile regional Monterey Bay Coastal recreational trail at Roberts Lake Park; potential mid-block crossing at Del Monte Boulevard will need design considerations.
2. Trails through Laguna Grande Regional Park provide direct access to recreational and leisure opportunities including a volleyball court, soccer field, several picnic areas, a children's playground, and viewing areas of the lake.
3. The heavily forested area between the park and residential neighborhood provides habitat and could provide shade and visual interest for trail users. This location has also been used by people experiencing homelessness.
4. There are challenging conditions for an ADA accessible ramp up a steep slope at the corner of Fremont and Canyon Del Rey Blvds.
5. The trail will cross open space currently used as a nursery.
6. On-street parking is available across from Work Memorial Park and the Church of Oaks Congregational.
7. The trail will transition to Class III route along the quiet, neighborhood street of Angelus Way towards Del Rey Oaks Park.
8. Del Rey Oaks Park is home to Del Rey Oaks City Hall and Parks Department as well as several athletic courts and passive recreational space.
9. The Del Rey Woods Elementary School has an existing safe route to school connection along Plumas Avenue.
10. The trail follows the utility corridor on the south side of Plumas Avenue.
11. Frog Pond Wetland Preserve will be a central piece of this segment experience with elevated trails and an underpass to help navigate the ecologically sensitive area.
12. The National Monument Loop trail segment and the Fort Ord National Monument are linked via the Del Rey Oaks neighborhood connection.
13. The underpass at General Jim Moore Boulevard provides a safe crossing and the first real pedestrian access/connection to trails in the eastern area of Frog Pond Wetland Preserve. It will also create a seamless natural experience for trail users and function as a wildlife corridor.

Map 3. Canyon Del Rey: Conceptual Design Locations



Conceptual Design Location

- A** Conceptual rendering of mid-block crossing at Del Monte Boulevard



- B** Conceptual rendering of trail in Laguna Grande Regional Park



B Conceptual renderings of trail in Laguna Grande Regional Park



C Conceptual rendering of FORTAG gateway at Fremont Blvd. and Canyon Del Rey Blvd at Laguna Grande Park



D Conceptual rendering of FORTAG gateway at Work Memorial Park viewed from SR 218



E

Conceptual rendering of Highway 218 undercrossing from Del Rey Park to Frog Pond Wetland Preserve



Conceptual rendering of Highway 218 undercrossing entering Frog Pond Wetland Preserve



F Conceptual rendering of Frog Pond Preserve Boardwalk Pathway alternative



Conceptual rendering of Frog Pond Preserve Boardwalk Pathway alternative



F Conceptual rendering of Frog Pond Preserve Retaining Wall alternative



G Conceptual rendering of trail alignment on Plumas Avenue at Del Rey Woods School



H

Conceptual rendering of underpass/bridge at General Jim Moore Boulevard with potential for wildlife crossing and stream restoration



Conceptual rendering of underpass/bridge at General Jim Moore Boulevard with potential for wildlife crossing and stream restoration





Above: views from within Ryan Ranch

RYAN RANCH SEGMENT

1.43 MILES

"Connecting the monument to Ryan Ranch"

This spur is the shortest segment of the alignment, moving southeasterly from the convergence of the National Monument Loop and Del Rey Oaks segments. There is little tree cover through this segment, which is criss-crossed by dirt roads that were part of the former Fort Ord base. It intersects Boundary Road, which connects to a commercial/medical plaza via Class II bike lanes on Rancho Saucito Road. Further south on Boundary Road is York School, which has property on either side of Boundary Road (athletic fields on the north side, and the main school campus on the south side). Warehouses and offices are tucked into the area, generally screened from surrounding roads through elevation or trees.



Atlanta Beltline, Atlanta, GA



Raised intersection and creative crossing, Palo Alto, CA

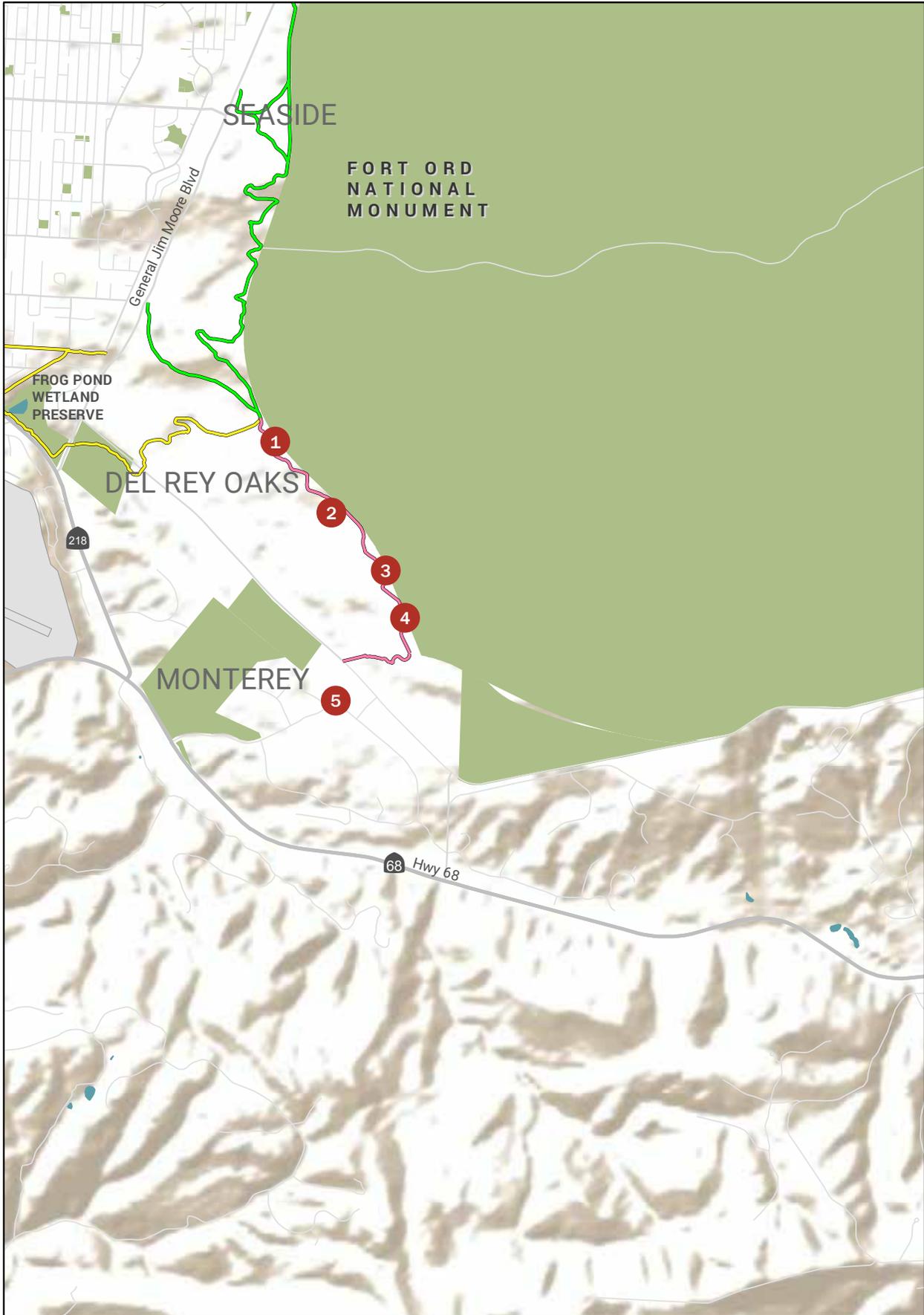
PHOTOS: ALTA PLANNING + DESIGN

Design Ideas: commuter pathways that are connected to destinations and integrated into existing topography; enhanced crosswalks to minimize conflicts between commuters of varying transportation modes.

Design Vision

- Monument access for area workforce
- Direct connections to business park and Laguna Seca
- Educational/interpretive signage
- Highlight oak woodlands, particularly toward western end

Map 4. Ryan Ranch: Design Considerations



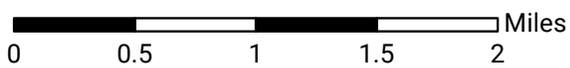
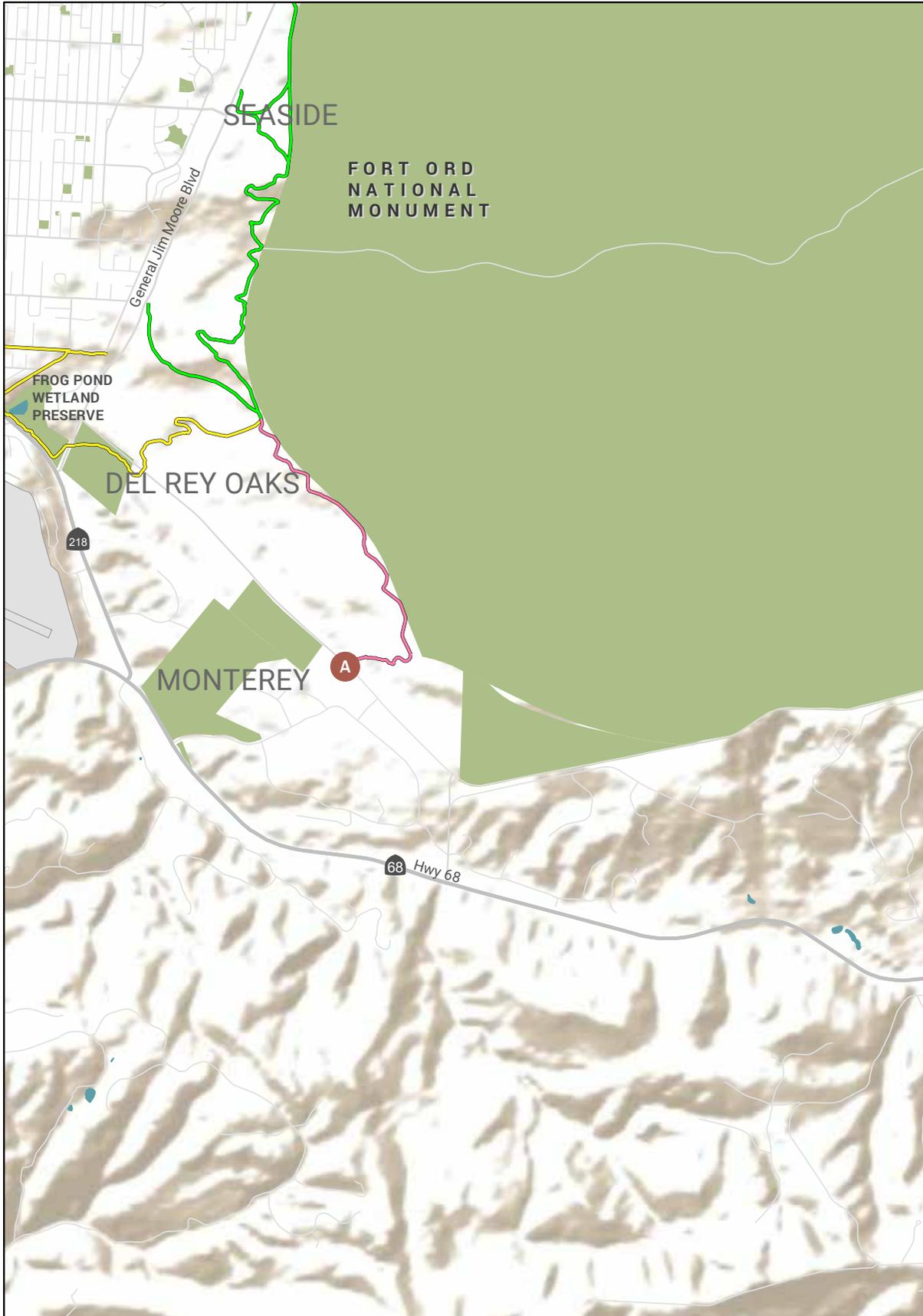


Ryan Ranch includes a mix of high-speed business commuter traffic and oak woodlands.

Design Considerations

1. There is a wayfinding opportunity at the junction of several existing dirt roads, some leading to the rest of the network, another leading to Boundary Road.
2. There is potential to create a small trailside rest area in the existing disturbed area.
3. Should this area open up in the future, there is a wayfinding opportunity along the existing road that leads directly into the Fort Ord National Monument area.
4. There is a potential future connection via an existing dirt road with athletic fields of York School (private).
5. The trail connects to South Boundary Road and facilitates access for people working at the wide array of health facilities and offices in the area.

Map 5. Ryan Ranch: Conceptual Design Locations



Conceptual Design Location

A

Conceptual rendering of trail gateway at intersection of South Boundary Road and Rancho Saucito



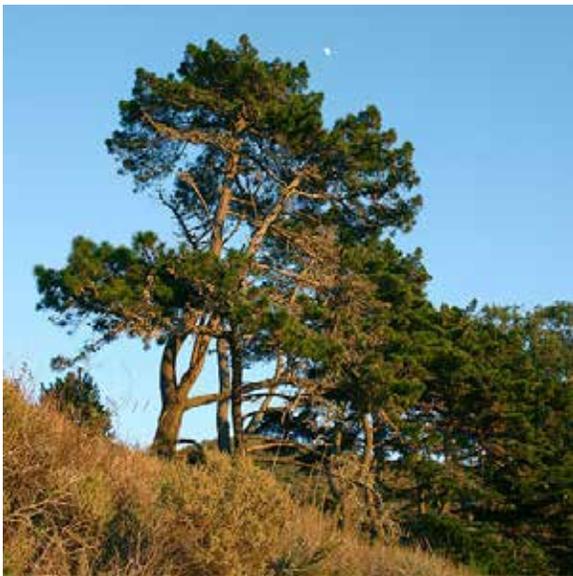
PHOTO: JEPSON EFLORA [HTTP://UCJEPS.BERKELEY.EDU/EFLORA/](http://ucjeps.berkeley.edu/eflora/)PHOTO: [HTTPS://CALIFORNIATHROUGHMYLENS.COM/FORT-ORD-NATIONAL-MONUMENT-CREEKSIDE](https://californiathroughmylens.com/fort-ord-national-monument-creekside)

PHOTO: DALVENJAH ON FLICKR

PHOTO: [HTTPS://CALIFORNIATHROUGHMYLENS.COM/FORT-ORD-NATIONAL-MONUMENT-CREEKSIDE](https://californiathroughmylens.com/fort-ord-national-monument-creekside)

Example images of existing context found along the National Monument Loop Segment

NATIONAL MONUMENT LOOP SEGMENT

7.97 MILES

“A tour through the natural and cultural history of the former Fort Ord”

This segment traverses the Western edge of Fort Ord National monument and offers people a chance to self tour through the natural and cultural history of the former Fort Ord. It offers sweeping views over the communities to the west and the Monterey Bay. The character of the site is comprised of rolling hills and dunes with a mix of oak woodland, maritime chaparral, and grassland plant communities. It also presents an opportunity for users to connect with and learn about the military history of Fort Ord. A number of potential trail spurs provide connection with neighborhoods on the east side of Seaside, offering ample recreation opportunities for residents.



Mountain Biking Under Oaks

PHOTO:FORTAG.ORG



Flamingo Arroyo Trail, Las Vegas, NV

PHOTO:BUSTER SIMPSON, HTTP://WWW.BUSTERSIMPSON.NET/FLAMINGOARROYOTRAILHEAD/



Owens Lake Land Art, Inyo County, CA



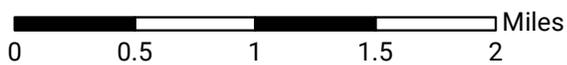
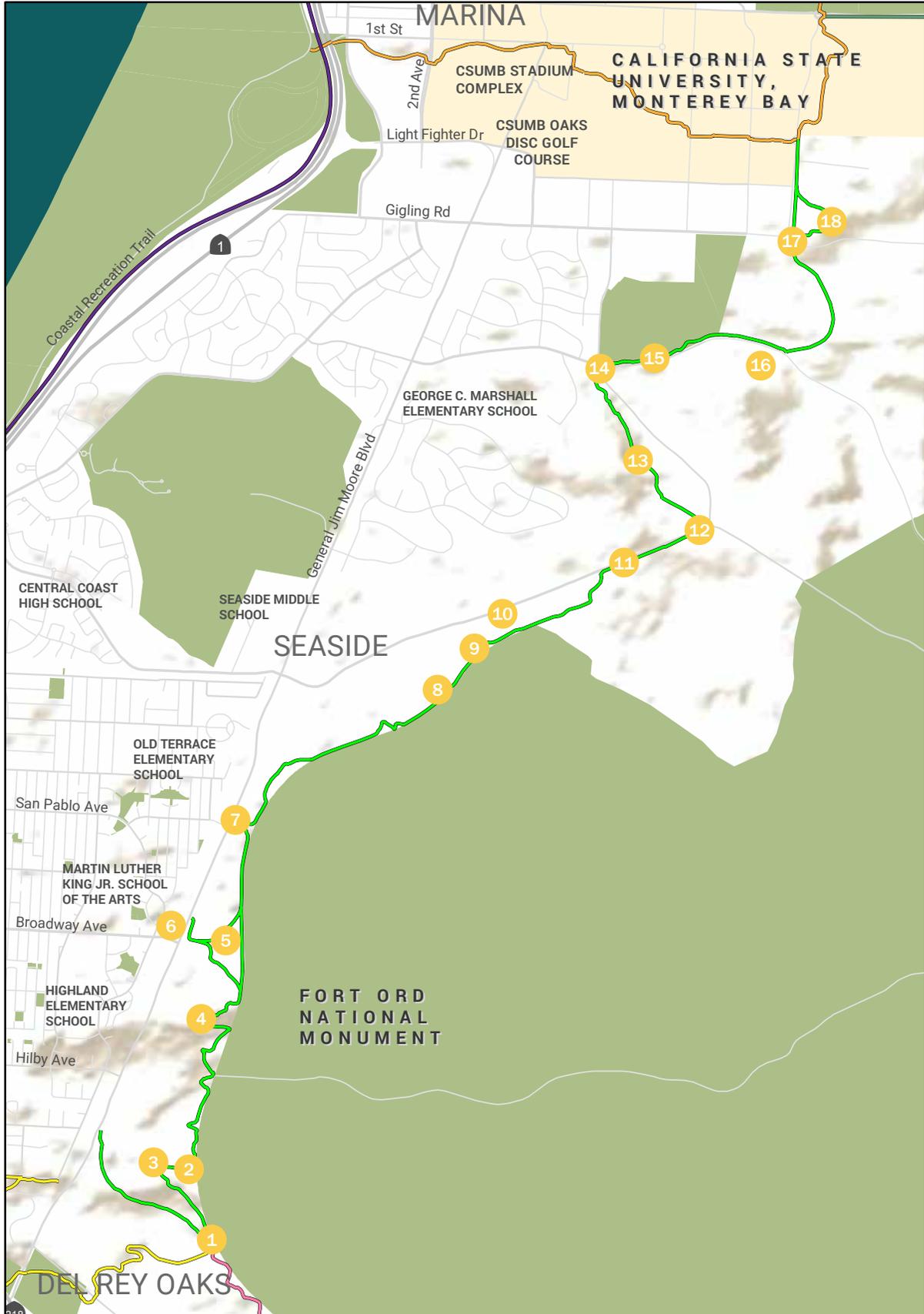
Moss Landing State Beach, CA

Design Ideas: rest areas enhanced with art, custom informational kiosks, interpretive panels, and historical / educational installations

Design Vision

- Pinus radiata (Monterey Pine)
- Oak woodland (Oaks and supporting shrubs)
- Maritime chaparral
- Military inspired colors/furnishings (metal in gray, olive, khaki)
- Decomposed Granite (sand dune inspired)
- Interpretive Signs
- Vista Overlook Points
- Trailheads

Map 6. National Monument Loop: Design Considerations



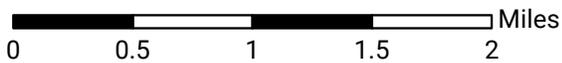
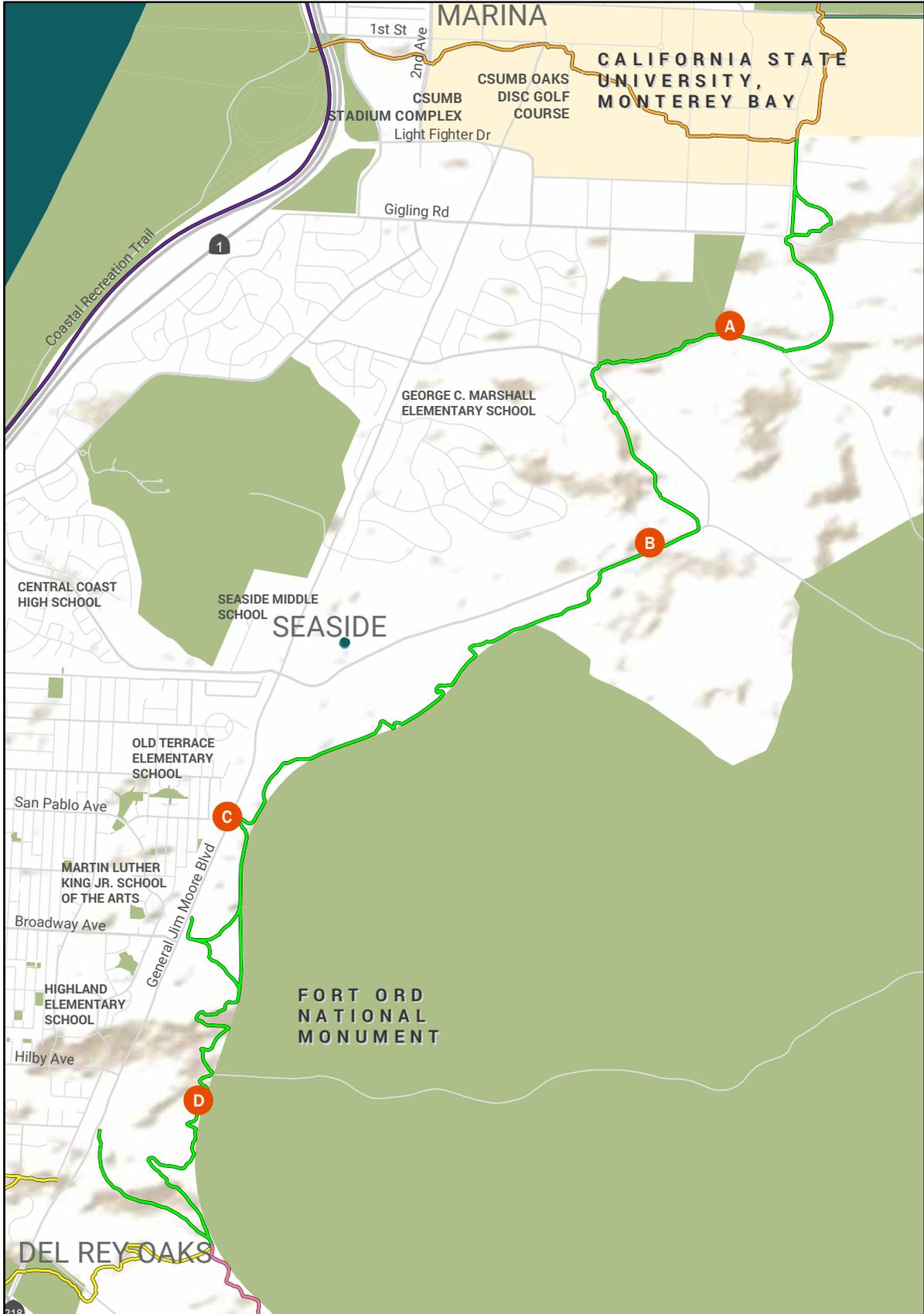


Informal trail, vegetation, and view point

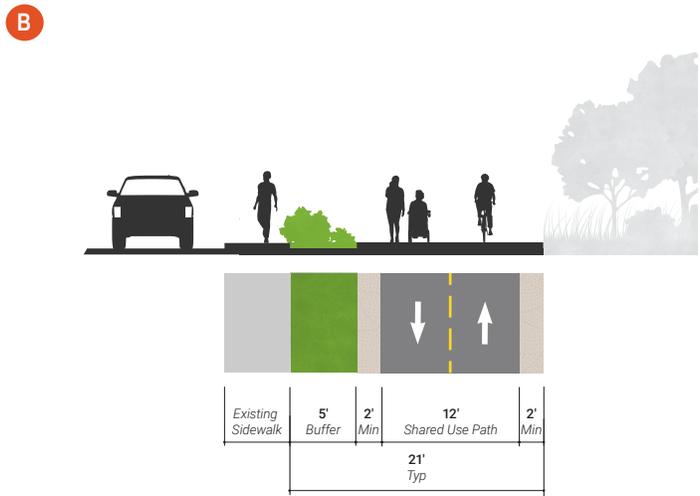
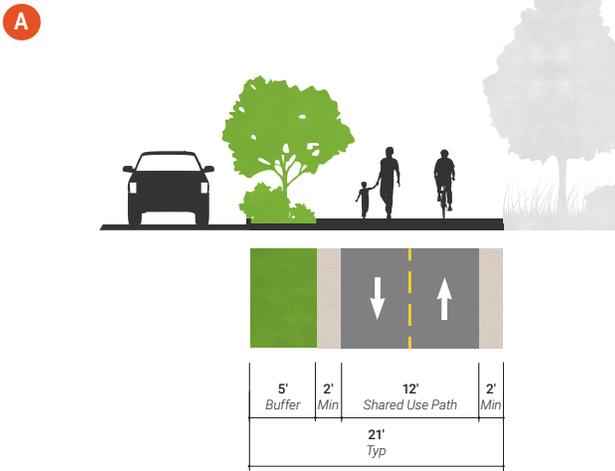
Design Considerations

1. The trail junction with Ryan Ranch and Canyon Del Rey segments will require wayfinding and signage for trail users.
2. There is a placemaking opportunity where the trail intersects with the existing dirt road network.
3. This is a potential viewpoint location with views toward the ocean where the trail crests a ridge.
4. There is an opportunity to create a viewing plaza at an existing flat-topped dune ridge adjacent to the trail alignment.
5. A seasonal wetland is located here. The trail alignment goes around the wetland and provides opportunity for educational interpretive signage.
6. This is a potential gateway entrance and trailhead opportunity on General Jim Boulevard. It creates a connection between neighborhoods on the eastern side of Seaside and FORTAG.
7. The historic firing range area adjacent to the trail alignment offers an opportunity for interpretive elements highlighting Fort Ord history.
8. This is a potential viewpoint location to the ocean from one of the highest points on the trail.
9. This is another viewpoint on the trail to the ocean from one of the highest points on the trail.
10. This is a possible future connection to Eucalyptus Road via established informal trails, and informal trail network across the roadway.
11. Where this part of the trail alignment is adjacent to the roadway landscape buffer planting is recommended between the road and trail.
12. This is a potential for a gateway or small trailhead rest area at Eucalyptus Road Crossing, as it is a junction point of existing roads.
13. There is a mature oak stand in this area creating an opportunity for the trail to traverse down the slope through the trees. Care should be taken to minimize the removal of any oak trees during construction.
14. There is potential to put a trailhead and neighborhood entrance in this location, and an opportunity for wayfinding signage at the cross roads of Parker Flats Cut Off Road and Normandy Road. However, the Central Coast Veterans Cemetery entrance could limit the ability of this area to be used as a trailhead.
15. There is an opportunity for the trail to weave through a dense stand of oak trees in this area that will create a pleasant, shaded experience for trail users.
16. FORTAG will create a way to reach mountain biking trails in this area for users living to the South and West.
17. 8th Avenue and Gigling Road have gates closing the streets here to non-maintenance vehicles allowing for a comfortable trail experience on the roadway. A small parking lot here can provide formalized access to the trail system.
18. This is a viewpoint via a side loop that travels up a hillside overlooking CSUMB campus.

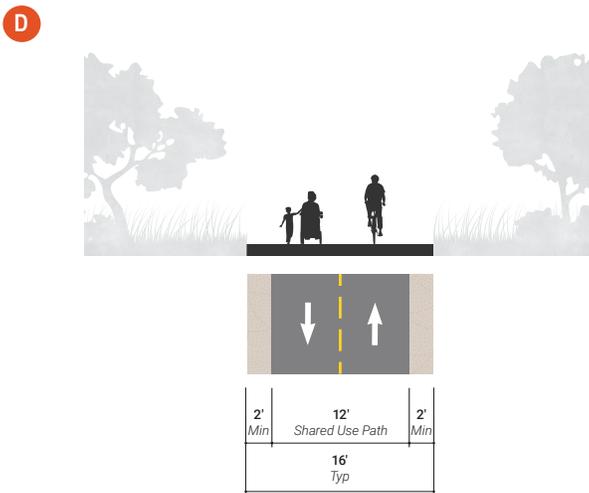
Map 7. National Monument Loop: Conceptual Design Locations



Conceptual Design Location



C Conceptual rendering of potential trail gateway at intersection of General Jim Moore Boulevard and San Pablo Avenue





Example images of existing context found along the CSUMB Loop South Segment

CSUMB LOOP SOUTH SEGMENT

2.68 MILES

“Bringing an active transportation connection to CSUMB”

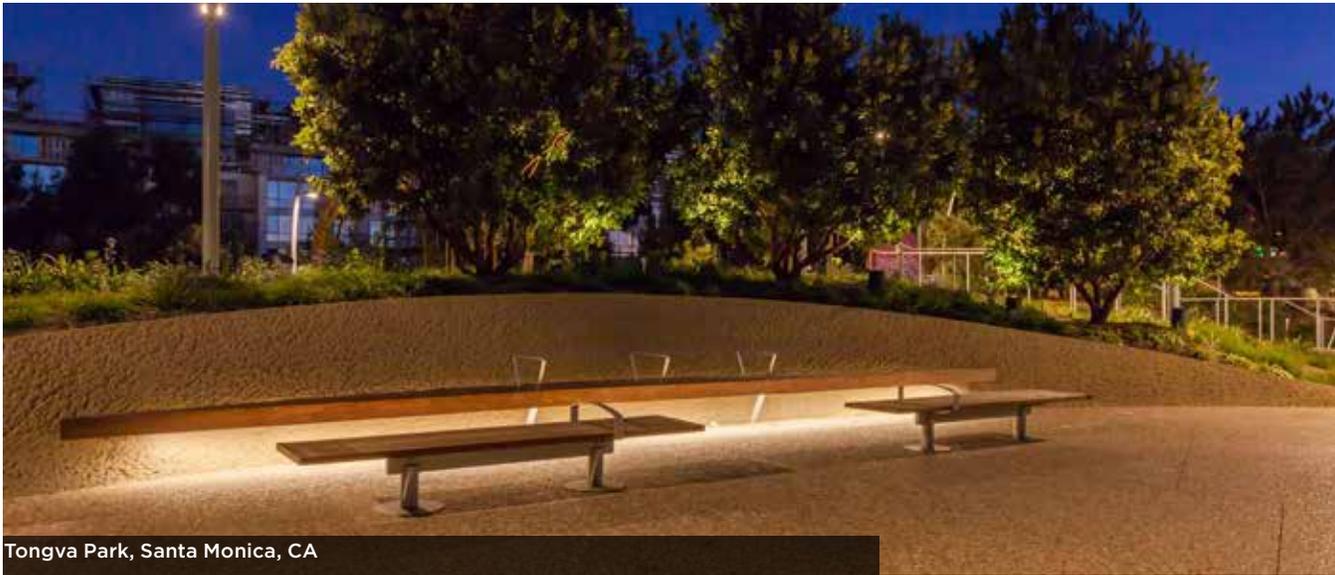
The two CSUMB segments are similar in character and run throughout the CSUMB campus with numerous opportunities to connect to on-street bike facilities and attract users to explore the natural areas surrounding the campus. A spur in the northern segment connects to an existing trail along Patton Parkway, which connects to the central neighborhoods of the City of Marina. The context alternates between an institutional setting and a naturalistic setting with Oak Woodland and sand dune successional plant communities. As the CSUMB campus is rapidly transforming, care will be taken to integrate the future trail segment into the planned campus projects from a connectivity and aesthetic standpoint.



Public Art - Sculpture, CSUMB

PHOTO: [HTTPS://THELUTRINAE.COM/2019/03/ART-TREASURES-AT-CSUMB/](https://thelutrinae.com/2019/03/art-treasures-at-csumb/)

Public Art - Sculpture, CSUMB Master Plan

PHOTO: [HTTPS://CSUMB MASTER PLAN](https://csumb-master-plan.com/)

Tongva Park, Santa Monica, CA

PHOTO: [HTTPS://HLBLIGHTING.COM/PROJECT/TONGVA-PARK/](https://hlblighting.com/project/tongva-park/)

Design Ideas: A modern landscape aesthetic and natural materials, combined with public art, could inform the design of feature areas along the trail through the CSUMB campus

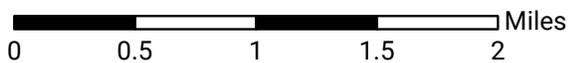
Design Vision

Create a visual and physical connection between the trail and CSUMB by providing strategic trail spurs aligning with major campus bicycle and pedestrian nodes, and visually referencing campus landmark architecture from the trail. Reference CSUMB vernacular and enhance naturalistic plantings with a focus on Oak Woodland community. The feel of trail amenities will be modern, simple, and should utilize natural materials, stone, concrete, D.G. wood.

CSUMB Design Guidelines

- Natural stone
- Expand on existing natural landscape, particularly native Oak Woodlands (use Coast Live Oak, Monterey Pine, Monterey Cypress)
- Integrate art in public spaces
- Incorporate wayfinding and interpretive signage
- Provide windbreaks where necessary utilizing land-forming, berms, structures, tree planting etc.
- Focus on natural and re-purposed materials: stone, recycled concrete, special accent paving, wood, and decomposed granite

Map 8. CSUMB Loop South: Design Considerations



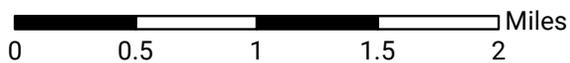


Example of vacant barracks found throughout this segment

Design Considerations

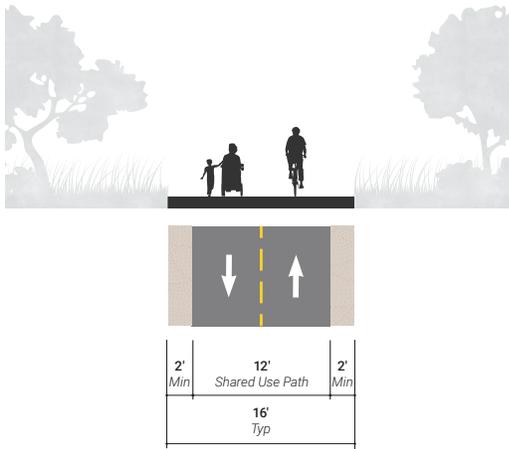
1. The western terminus of this segment offers a connection to Beach Range Road, Monterey Bay Coastal Recreation Trail and the south end of Fort Ord Dunes State Park.
2. There is an opportunity to fully integrate the trail into the future retail center and dense residential neighborhood planned in the City of Seaside.
3. This area is planned as a major expansion of CSUMB's Athletic facilities, possibly including public access to major amenities like a 50m pool. FORTAG will create an excellent opportunity for a bike/ped connection directly to and through this facility for users who could be coming from any of the peninsula cities.
4. The CSUMB campus' stadiums are located in this area with large fields for football, track, baseball, softball, and soccer as well as an aquatic center.
5. Construction in this area is underway. Modern student buildings are expected in the near future.
6. This is a pedestrian-only section on 6th Avenue across from the University Center featuring decorative paving.
7. FORTAG will connect to the College Crescent, a campus open-space that accommodates a variety of uses such as large gatherings, student organization promotion, graduation, socializing, performances, and studying.
8. The modern Tanimura & Antle Family Memorial Library is a resource for students and the surrounding community.
9. Recently demolished buildings along Butler Street should be replaced with new development that integrates FORTAG into the design.
10. Butler St and 8th Ave Y-intersection will become a T-intersection with enhanced crosswalks and wayfinding signage.
11. There is opportunity for a trailhead, amenities, and an additional gateway to CSUMB campus.

Map 9. CSUMB Loop South: Conceptual Design Locations



Conceptual Design Location

A

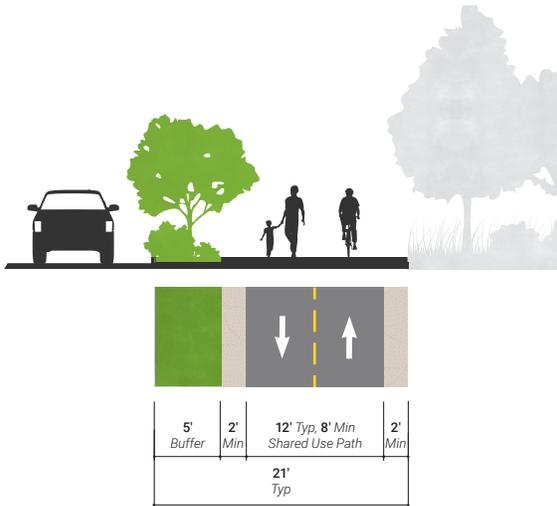


B

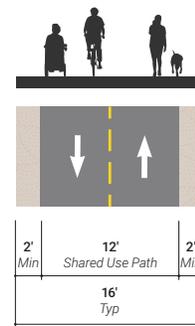
Conceptual rendering shows how FORTAG will highlight and blend into the existing landscape of CSUMB, with potential for rest areas under existing mature trees.



C



D





CSUMB LOOP NORTH SEGMENT

2.07 MILES

The CSUMB Loop North segment picks up at the intersection of the trail network and Engineering Equipment Road. The trail moves quickly off the road into more vegetated landscape to the north before crossing over Imjin Road via a pedestrian and bicycle bridge.

The southern fork connects to the CSUMB Loop South segment and should be used to enter the campus by entering on Inter-Garrison Road or one of the north-south collector streets identified in the CSUMB master plan as campus entry points.

Example images of existing context found along the CSUMB Loop North Segment

To the north, following 5th Avenue through California Drive a trail spur runs adjacent to the street past a series of historic military buildings and the Marina Equestrian Center Park. The trail spur continues north up California Avenue eventually connecting to a Class I bike path running north-west along Patton Parkway. This provides an easy connection from the residential neighborhoods of southern Marina to CSUMB..

The trail passes the Student Recreation Fields and follows 8th Street across Highway 1 to Beach Range Road. This provides connections to the Monterey Peninsula Recreational Trail, Beach Range Road Class I bike path, and Fort Ord Dunes State Park.

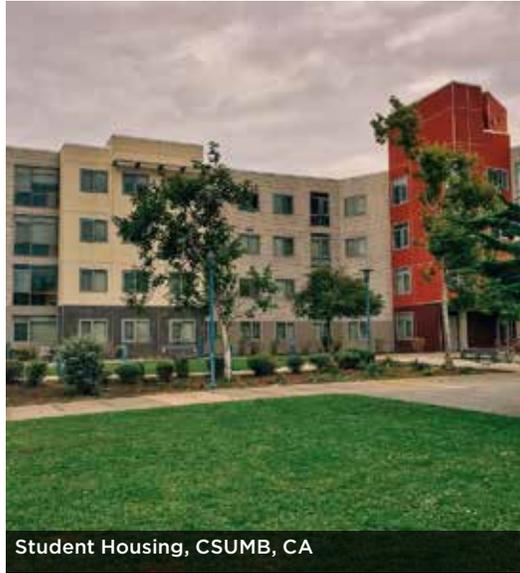


Trailside Interpretive Signage, Morro Bay, CA



Millennium Trail, IL

PHOTO: [HTTPS://WWW.LCFPD.ORG/PHOTOS/MILLENNIUM-TRAIL/](https://www.lcfpd.org/photos/millennium-trail/)



Student Housing, CSUMB, CA

PHOTO: [HTTPS://CSUMB.EDU/HOUSING/NORTH-QUAD](https://csumb.edu/housing/north-quad)



Fort Sheridan Forest Preserve, IL

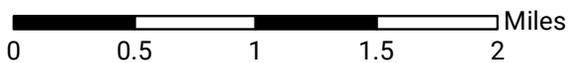
PHOTO: [HTTPS://WWW.TRIPADVISOR.COM/ATTRACTION_REVIEW-G36233-D8260293-REVIEWS-FORT_SHERIDAN_FOREST_PRESERVE-LAKE_FOREST_LAKE_COUNTY_ILINOIS.HTML](https://www.tripadvisor.com/Attraction_Review-g36233-d8260293-reviews-Fort_Sheridan_Forest_Preserve-Lake_Forest_Lake_County_Illinois.html)

Design Ideas: New student housing building vernacular, trailside interpretive elements, and interpretation of military history

Design Vision

- Coast live oak woodland, grassland
- Celebrate natural plant communities and park-like setting of this trail segment, minimal furnishings and amenities for those seeking a longer trail experience
- Interpretive sign program about different plant communities and species, like Sand Gilia and Sandmat Manzanita, at scenic overlook points, encouraging environmental stewardship
- Potential to connect with and enhance the equestrian activity around Marina Equestrian Center through providing equestrian-related amenities and design features to this segment where space permits
- Historical elements and interpretive signage related to military history

Map 10. CSUMB Loop North: Design Considerations



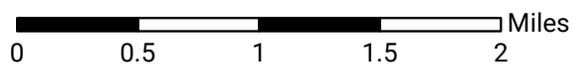


New roundabout on 8th/9th Street, between 1st and 2nd Avenues, that will be incorporated into trail network

Design Considerations

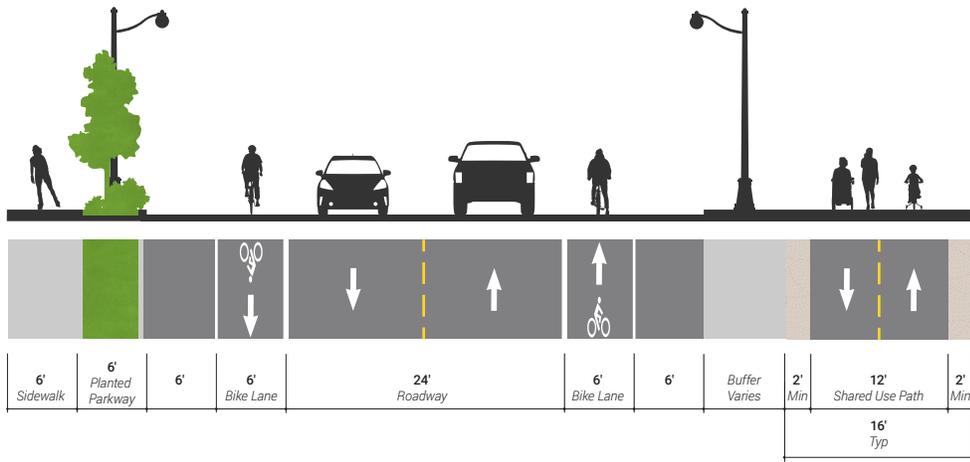
1. A connection to Beach Range Road, Monterey Bay Coastal Recreation Trail and the north end of Fort Ord Dunes State Park is found in this location.
2. This area should tie into the existing Class I cycle path along 2nd Avenue on east side of the street towards the center of campus.
3. The project proposes a tunnel or interim roundabout crossing at 2nd Ave. and 8th St.
4. Along this corridor, there is an interesting parkway design that utilizes different color ground cover material to create an artistic pattern in the landscape.
5. This is a potential future area of substantial campus development, which will greatly benefit from the presence of a regional trail.
6. The trail connects to the future planned Hilltop Park, which will provide opportunities for sunset views over the ocean.
7. The trail directly connects to a large soccer field. It is very close to student housing and along the entrance into the campus from the north via 5th Avenue.
8. The 5th Avenue trail spur runs directly adjacent to the Marina Equestrian Center Park and will create a community corridor for residents of Marina to access the CSUMB campus through active transportation.
9. A north-south spur along California Avenue terminates into the east-west Class I West Patton Parkway bike path and also provides connections for people coming from Marina via California Ave and from Sea Haven.
10. A new development is planned for this location.
11. The northern fork is the preferred alignment of the trail as it offers excellent views, staying consistently along the same ridge line, and is more direct than the southern fork.
12. A trail junction is a good place for wayfinding, placemaking, bike amenities as well as a potential equestrian specific parklet for riders in the area.

Map 11. CSUMB Loop North: Conceptual Design Locations

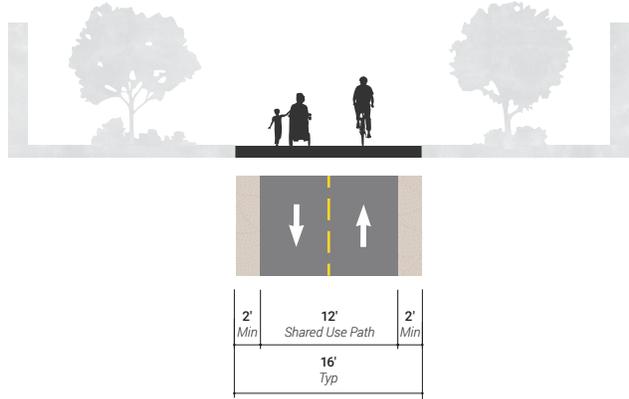


Conceptual Design Location

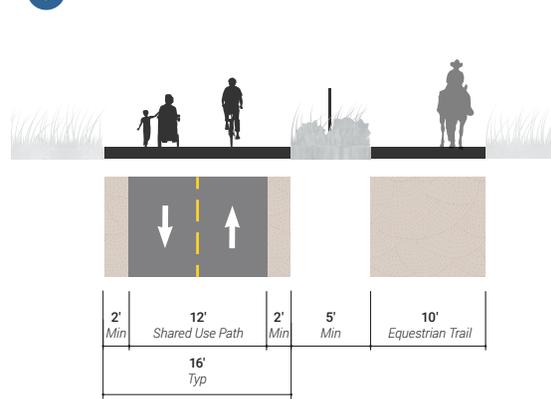
A



B



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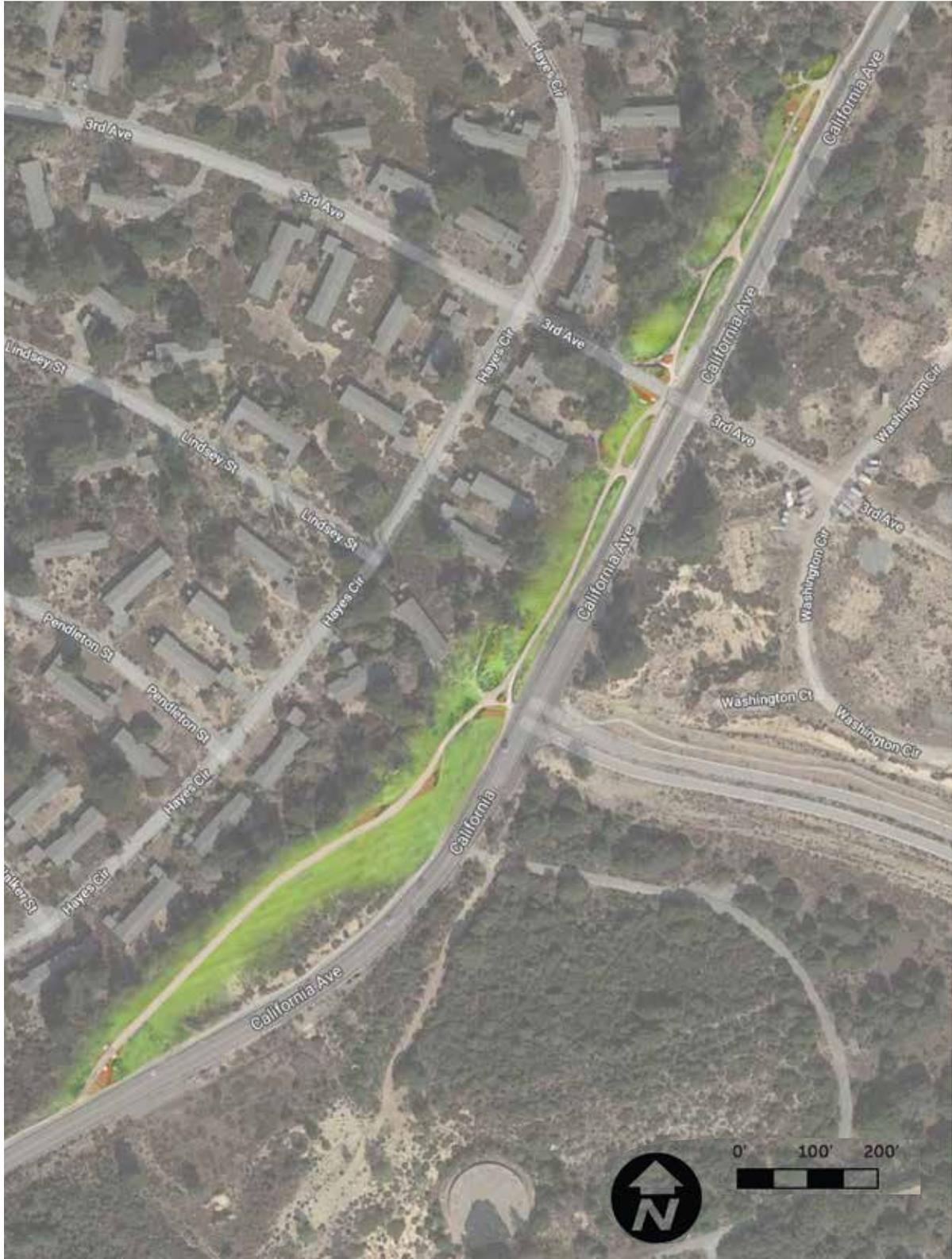


D

Conceptual rendering of FORTAG trail alignment on 5th Avenue adjacent to historical structures. Trail construction should avoid disturbing structures.



- E Conceptual rendering of potential linear park element with FORTAG trail alignment adjacent to California Avenue.



- F Conceptual renderings of bridge over Imjin Road which allows seamless trail use while also providing an iconic gateway to the CSUMB campus.

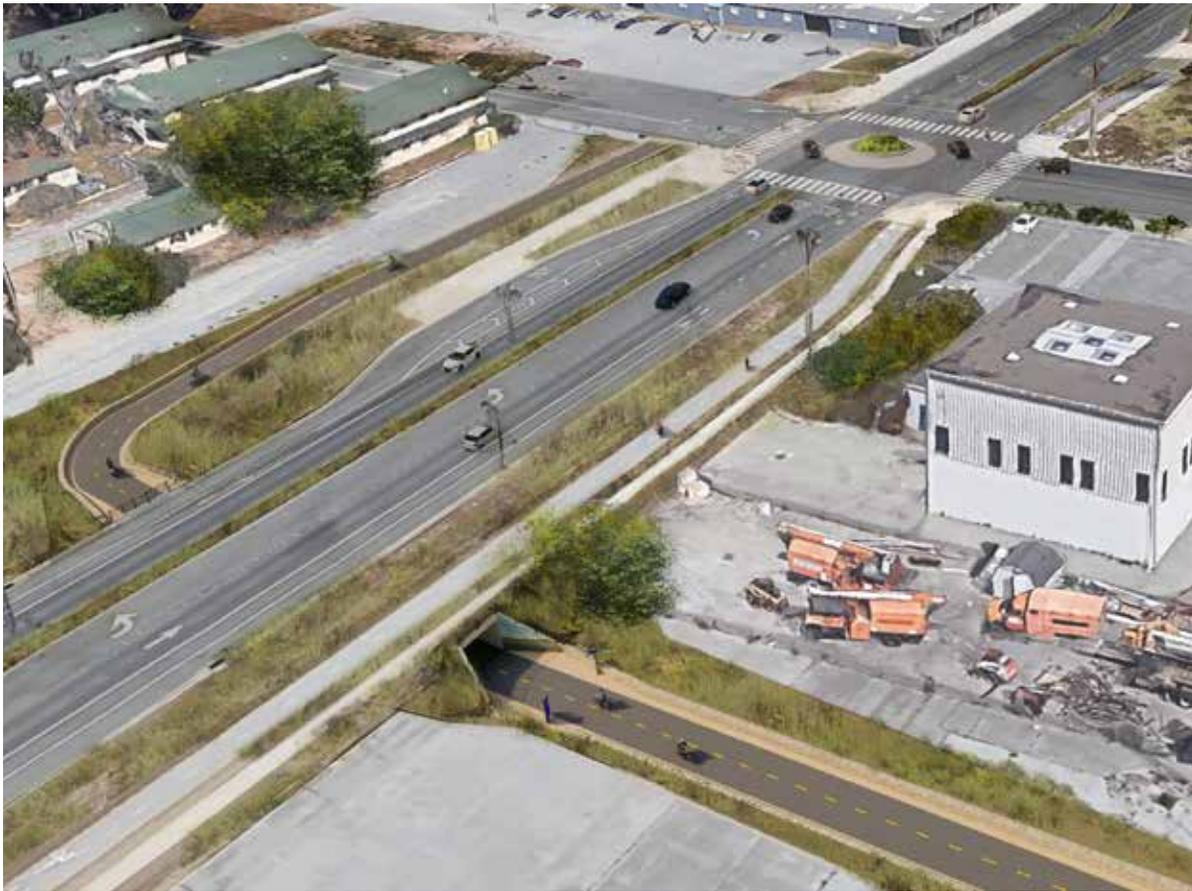


- G Conceptual renderings of boardwalk which can help protect sensitive plant species, like the federally endangered Sand Gilia, while enhancing trail user experience.



H

Conceptual rendering of trail underpass below 2nd Avenue. An interim roundabout is proposed at the intersection of 2nd Avenue and 8th Street.





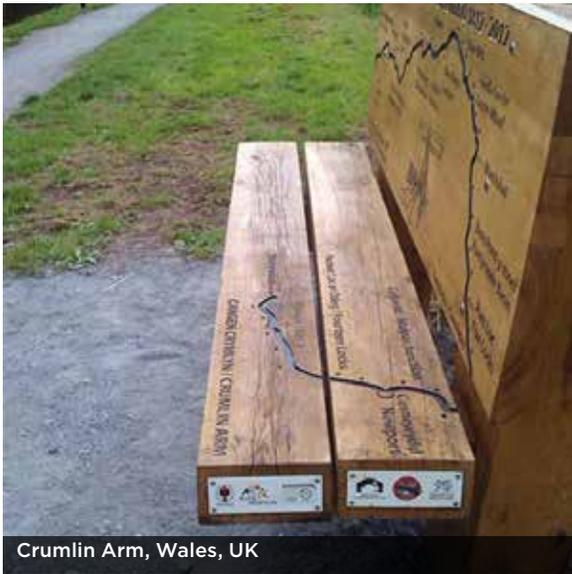
NORTHERN LOOP SEGMENT

6.40 MILES

This segment runs through grasslands, oak woodlands, and coastal scrub with the potential for views and overlook points to the Salinas River below and mountains beyond. It provides a connection to the Salinas River from both Marina to the west, and East Garrison to the east, and well as connecting these communities to each other. As the trail bends away from the Salinas River Corridor it crosses Reservation Road, which has segments of Class II bike lanes, at

Example images of existing context found along the Northern Loop Segment

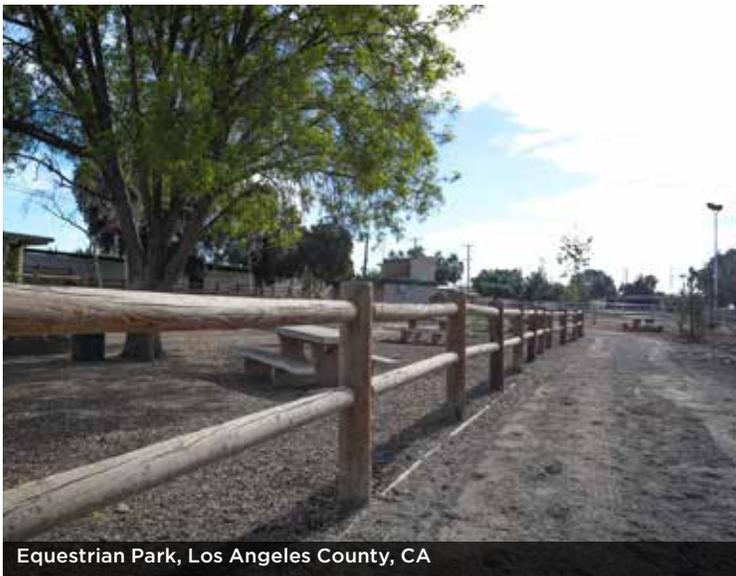
a traffic signal at Inter-Garrison Road. The alignment loops east after that crossing, running through mature oak stands that are criss-crossed by dirt roads, then crosses Inter-Garrison Road and passes a residential community of single-family homes. There are two alternatives for the alignment through this segment: one on the north side of Inter-Garrison, which has potential for equestrian amenities, and the other is on the south side of Inter-Garrison. This segment terminates at CSUMB Campus, acting as a portal to nature for the campus community and visitors.



Crumlin Arm, Wales, UK

PHOTO: [HTTPS://WWW.FWDP.CO.UK/PROJECTS/](https://www.fwdp.co.uk/projects/)

Upper Delaware Scenic Byway - Port Jervis to Hancock, NY

PHOTO: DAVID SOETE, [HTTPS://SCENICWILDELAWARIVER.COM/ENTRIES/UPPER-DELAWARE-SCENIC-BYWAY-PORT-JERVIS-TO-HANCOCK-NY/5690E91F-7D82-4409-AE7C-4E9D4ED441E2](https://scenicwilddelawariver.com/entries/upper-delaware-scenic-byway-port-jervis-to-hancock-ny/5690e91f-7d82-4409-ae7c-4e9d4ed441e2)

Equestrian Park, Los Angeles County, CA

PHOTO: [HTTPS://PARKS.LACOUNTY.GOV/72ND-STREET-EQUESTRIAN-PARK/](https://parks.lacounty.gov/72nd-street-equestrian-park/)

River Bluff, Real County, TX

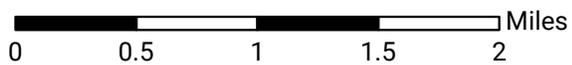
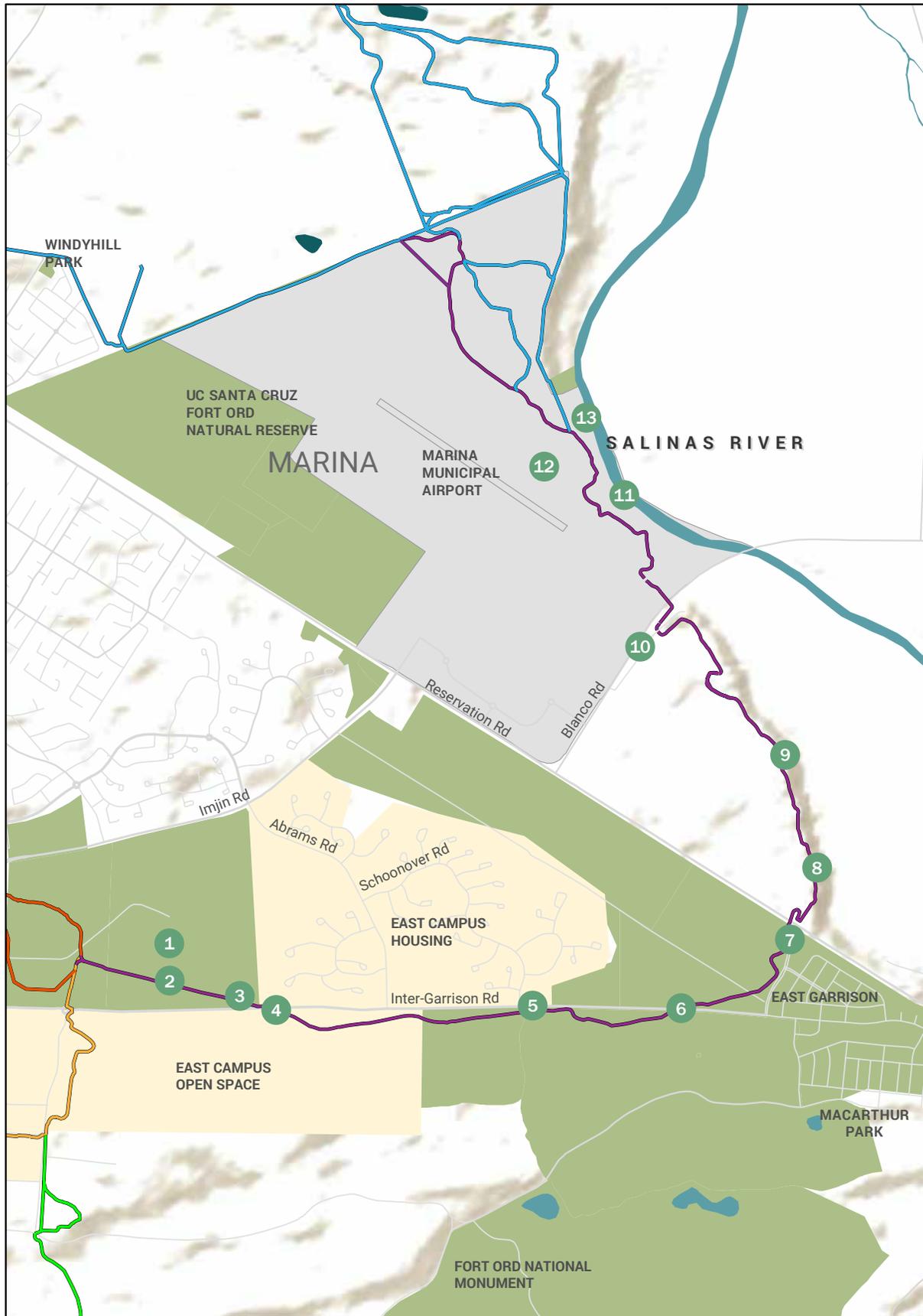
PHOTO: [HTTPS://WWW.ALTOFRIO.COM/RIVER-BLUFF.HTML](https://www.altofrio.com/river-bluff.html)

Design Ideas: elemental forms and natural materials that frame views without competing for attention

Design Vision

- Riparian forest, grassland, oak/scrub forest
- Celebrate natural plant communities and park-like setting of this trail segment, minimal furnishings and amenities for those seeking a longer trail experience
- Interpretative sign program about different plant communities at scenic overlook points, encouraging environmental stewardship and appreciation of the Salinas Valley agriculture.
- Potential for equestrian elements along this segment

Map 12. Northern Loop: Design Considerations



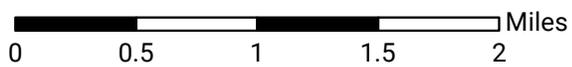
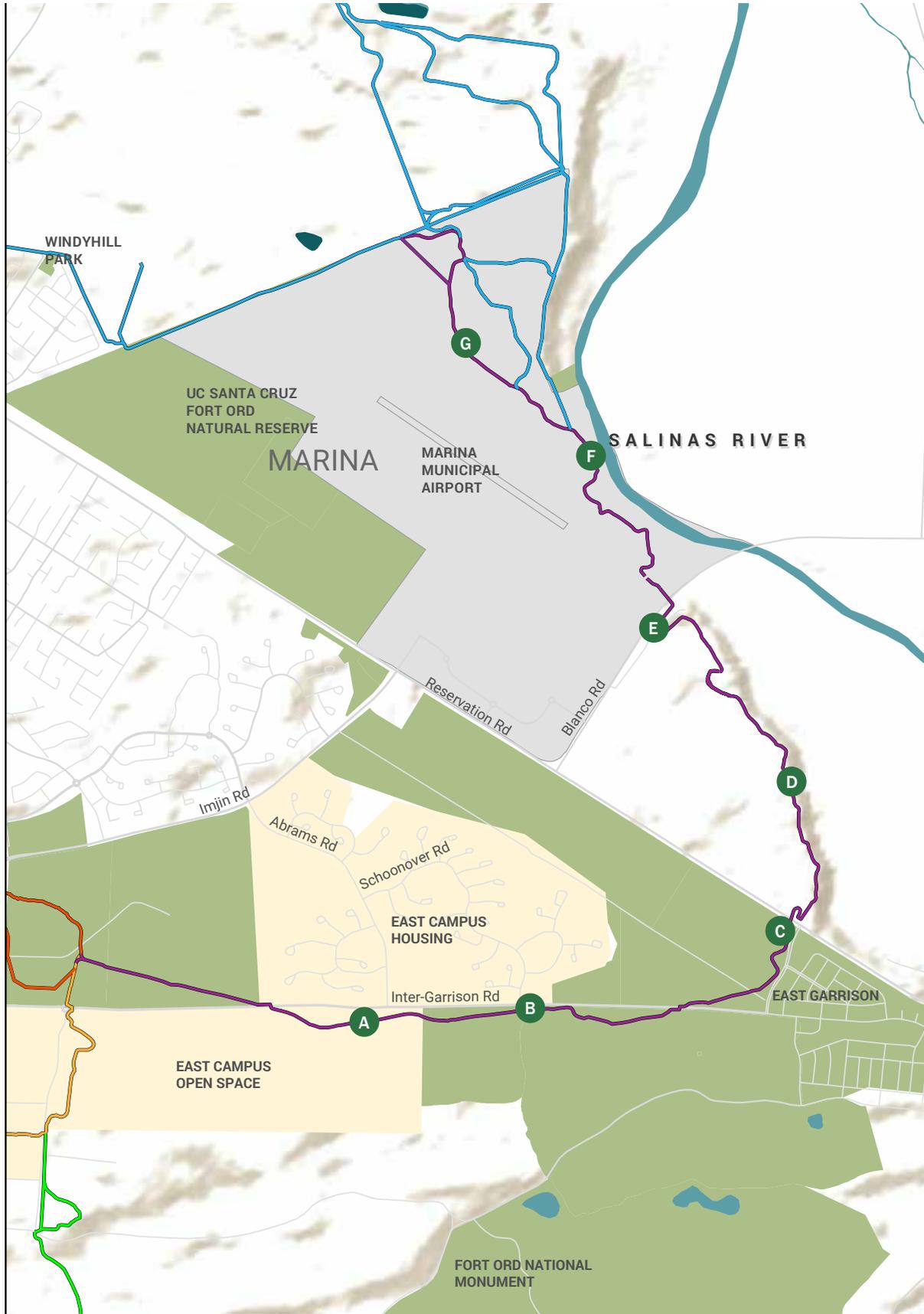


This segment provides sweeping views of farmland and the Salinas River

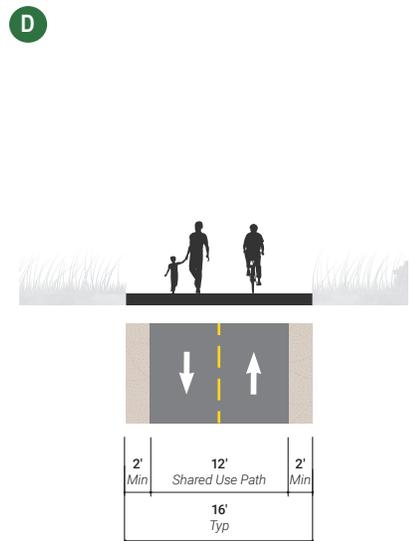
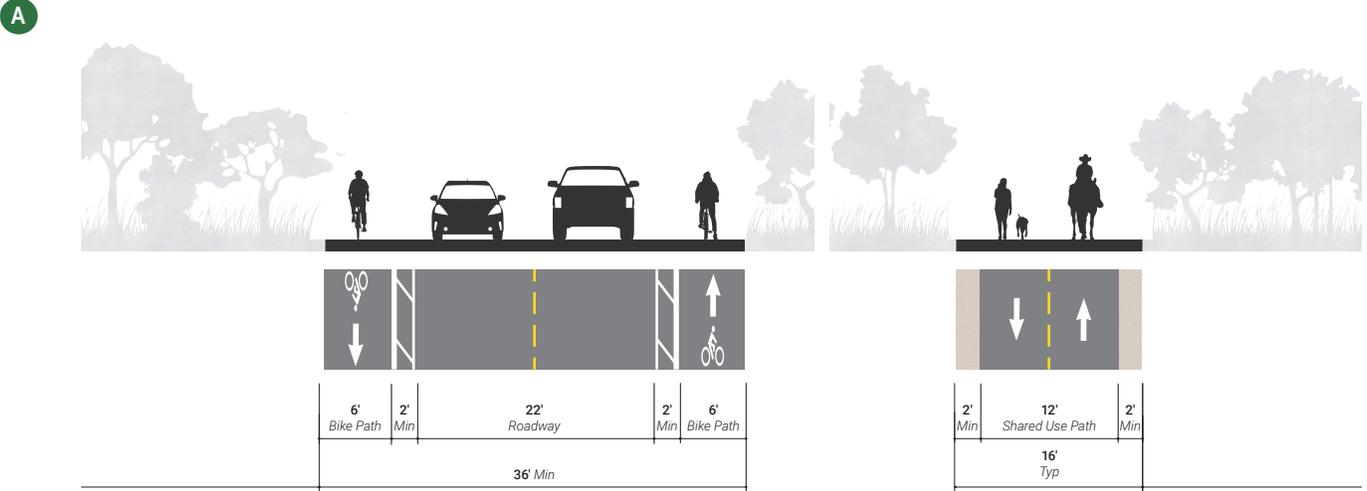
Design Considerations

1. There is a landfill with an un-vegetated and mounded surface at this location.
2. This area serves as a connection to informal neighborhood trails that run directly into the adjacent community.
3. There is an option for a trail on both sides of Inter-Garrison Road in this location, one for bicyclists and pedestrians and the other for equestrians and pedestrians.
4. A Rectangular Rapid Flashing Beacon (RRFB) is recommended at median to allow for a safer mid-block crossing of Inter-Garrison Road.
5. There is potential for a trailhead location at the existing Jerry Smith access point and parking area with connection to East Campus Housing.
6. Where the trail reconnects with Inter-Garrison Road, there is potential for trailhead at the existing dirt parking area, with placemaking and other amenities. An RRFB crossing treatment should be explored here.
7. A tunnel will provide safe crossing under Reservation Road and link users with sweeping views of the Salinas Valley agriculture, and a more direct, alternate connection through the forested area.
8. A grand view with a steep change in elevation overlooking farmland is found in this location.
9. This area provides a view of the surrounding mountains.
10. A bridge is proposed over Blanco Rd to provide a safe crossing and pleasant riding experience overlooking the Salinas Valley farmland.
11. The overlook features views of Salinas River.
12. Marina Municipal Airport has associated design restrictions.
13. The trail is closest to the Salinas River along this stretch, and could eventually have access to the river via sidepaths.

Map 13. Northern Loop: Conceptual Design Locations



Conceptual Design Location



NORTHERN LOOP SEGMENT

- E Conceptual rendering showing existing trail parking along Inter-Garrison Road formalized with parking bumpers and map kiosks.



F Conceptual renderings of underpass below Reservation Road at Inter-Garrison Road



- G** Conceptual renderings of trail bridge across Blanco Road set into the hillsides to maximize compatibility with nearby Marina Municipal Airport while creating a continuous experience for users without a grade change.





NORTHERN LOOP SEGMENT



PHOTO:GOOGLE EARTH



PHOTO:GOOGLE EARTH



Segment context

NORTHERN MARINA SEGMENT

2.29 MILES

"Grasslands, agriculture, and neighborhoods"

This segment includes a range of alignment alternatives that will ultimately provide vastly different user experiences. Final alignments will be determined by negotiating access with adjacent landowners and operators. The southern alternative would cross Marina Station and include an on-street portion on Beach Road. The northern alternative follows access roads to waste management and water treatment facilities along Charles Benson Road. In either case, this segment will provide a connection to the existing Monterey Bay Coastal Recreational Trail. This segment traverses a variety of conditions: agricultural fields, the Marina Municipal Airport, and, depending on the final alignment, water treatment facilities, waste management facilities, undeveloped grasslands, and a residential community.



Monterey Bay Coastal Trail, Monterey, CA

PHOTO: KATKOZ, [HTTPS://WWW.TRAILLINK.COM/TRAIL-GALLERY/MONTEREY-BAY-COASTAL-RECREATION-TRAIL/](https://www.traillink.com/trail-gallery/monterey-bay-coastal-recreation-trail/)



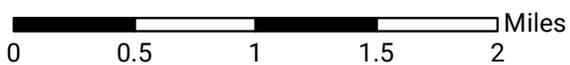
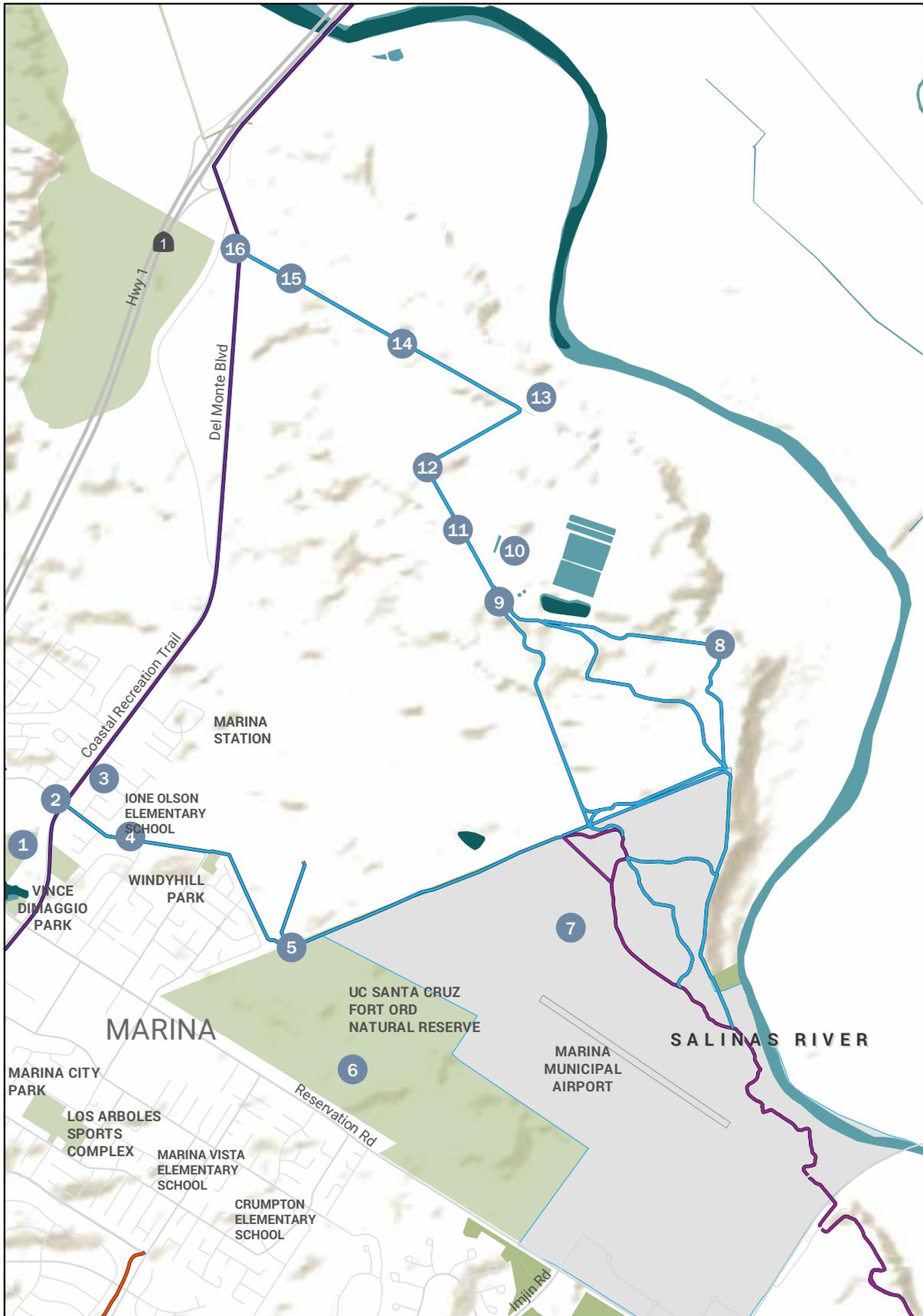
Trail and Agriculture, Monterey, CA

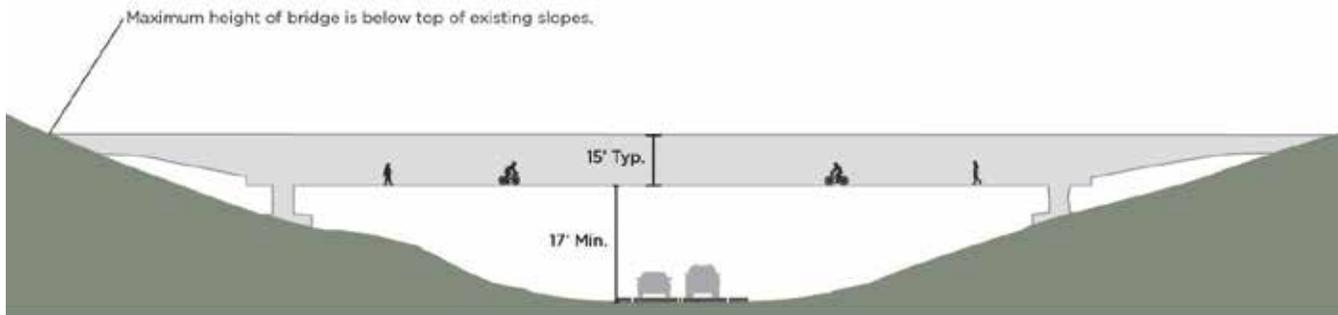
Design Ideas: A rustic landscape aesthetic utilizing materials with a nod to the area's agricultural heritage

Design Vision

- Open fields, wide views
- Wood/metal/steel to play off of simple agricultural fencing materials

Map 14. Northern Marina: Design Considerations



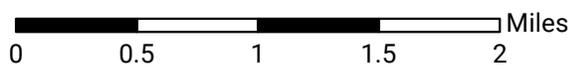
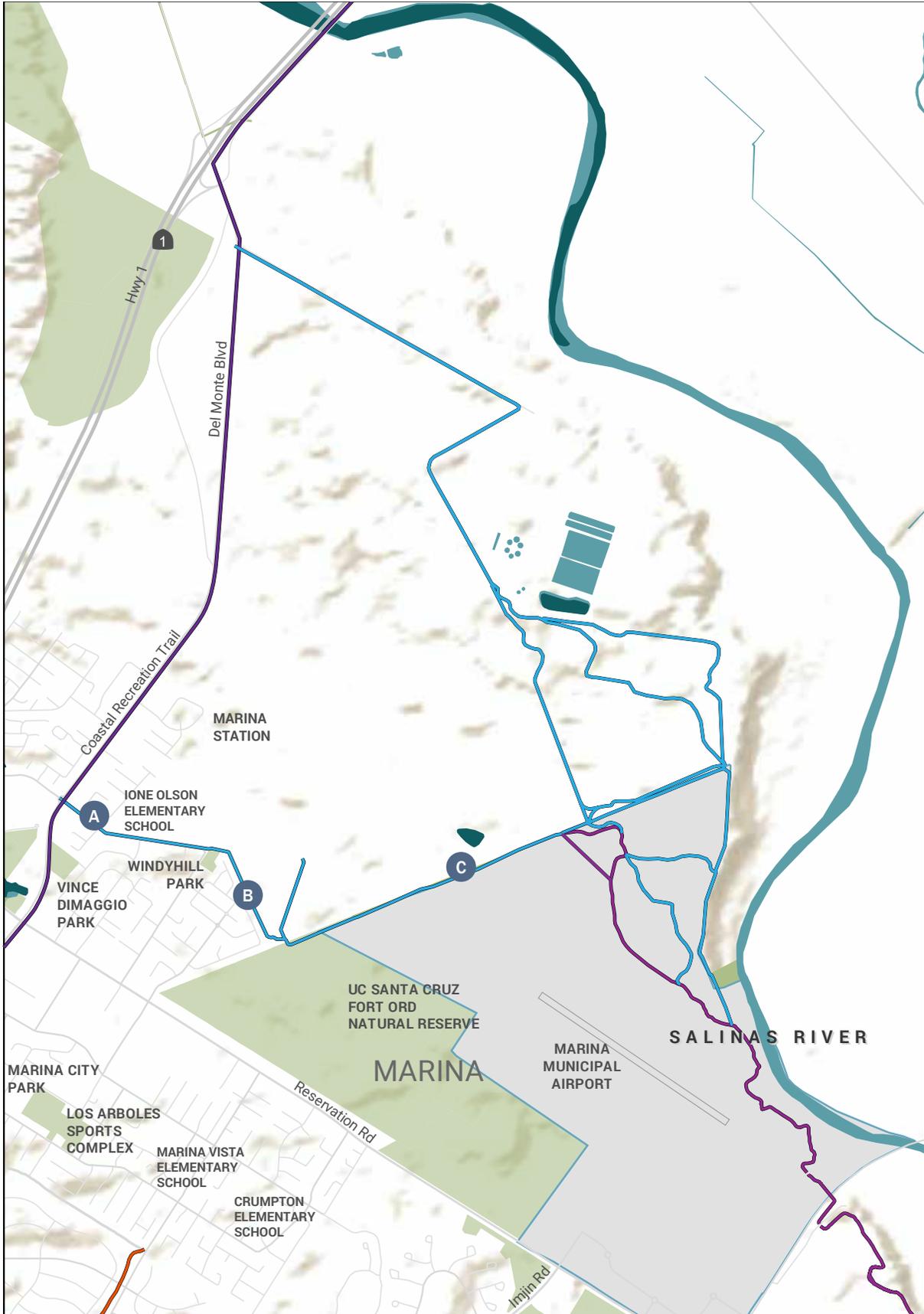


The proposed bridge across Blanco Road would be at or below existing slope heights to comply with airport development regulations.

Design Considerations

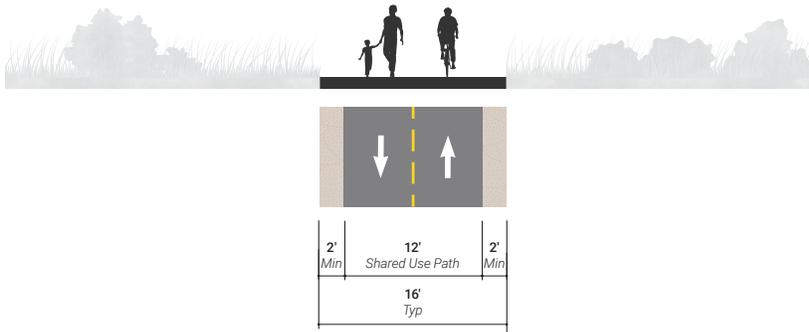
1. The Trail connects to the Coastal Recreation Trail, Marina State Beach, and Gloria Jean Tate Park.
2. Local parks can extend the trail network into their own circulation flows and provide destinations for trail users.
3. Residential zoning dominates this segment, with a major new development (Marina Station) already fully entitled on the adjacent and formerly zoned agricultural land.
4. The lone Olson Elementary School safe routes to school connection is located along Beach Road.
5. No access is permissible to the UC Santa Cruz Fort Ord Natural Reserve from the north side of FORTAG.
6. Marina Municipal Airport includes runway protection zones that limit the height of structures and light fixtures through this area.
7. There is potential to reoccupy historic unpaved trails on public land that provide access to the Salinas River.
8. This road is a utility corridor with a row of cypress trees on the west side. There is opportunity for placemaking at this corner.
9. Monterey One Water Treatment plant recycles water from the Salinas River and re-purposes much of the water to be used in the surrounding agriculture.
10. This industrial use street, while not heavy with traffic, would likely exhibit trucking operations that might affect the segment experience.
11. There is opportunity for placemaking at this corner.
12. The recycling facility occupies a significant amount of space next to the river, preventing direct public access in this location.
13. Charles Benson Road is a quiet street with low activity levels and a beautiful street tree colonnade of Monterey Cypresses along the entire last stretch.
14. This area provides connection to Del Monte Boulevard and Monterey Bay Coastal Recreation Trail.

Map 15. Northern Marina: Conceptual Design Locations

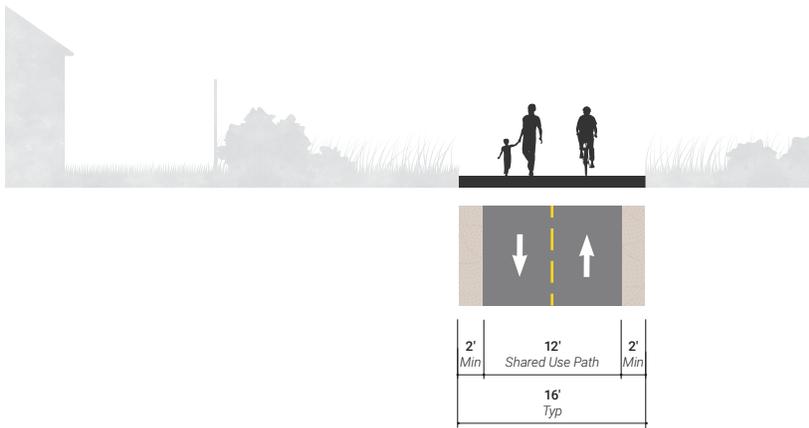


Conceptual Design Location

A



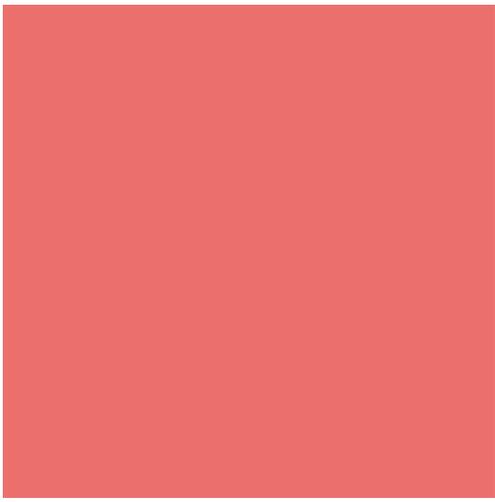
B



C

Conceptual rendering of on-street portion of alignment on Beach Road at Lone Elementary School





03 FORTAG LOGO AND SIGNAGE CONCEPTS



LOGO AND COLOR PALETTES

The logo presented here emerged from client and stakeholder engagement, and are inspired by the site's natural context. For additional information about the branding design process, see Appendix B.

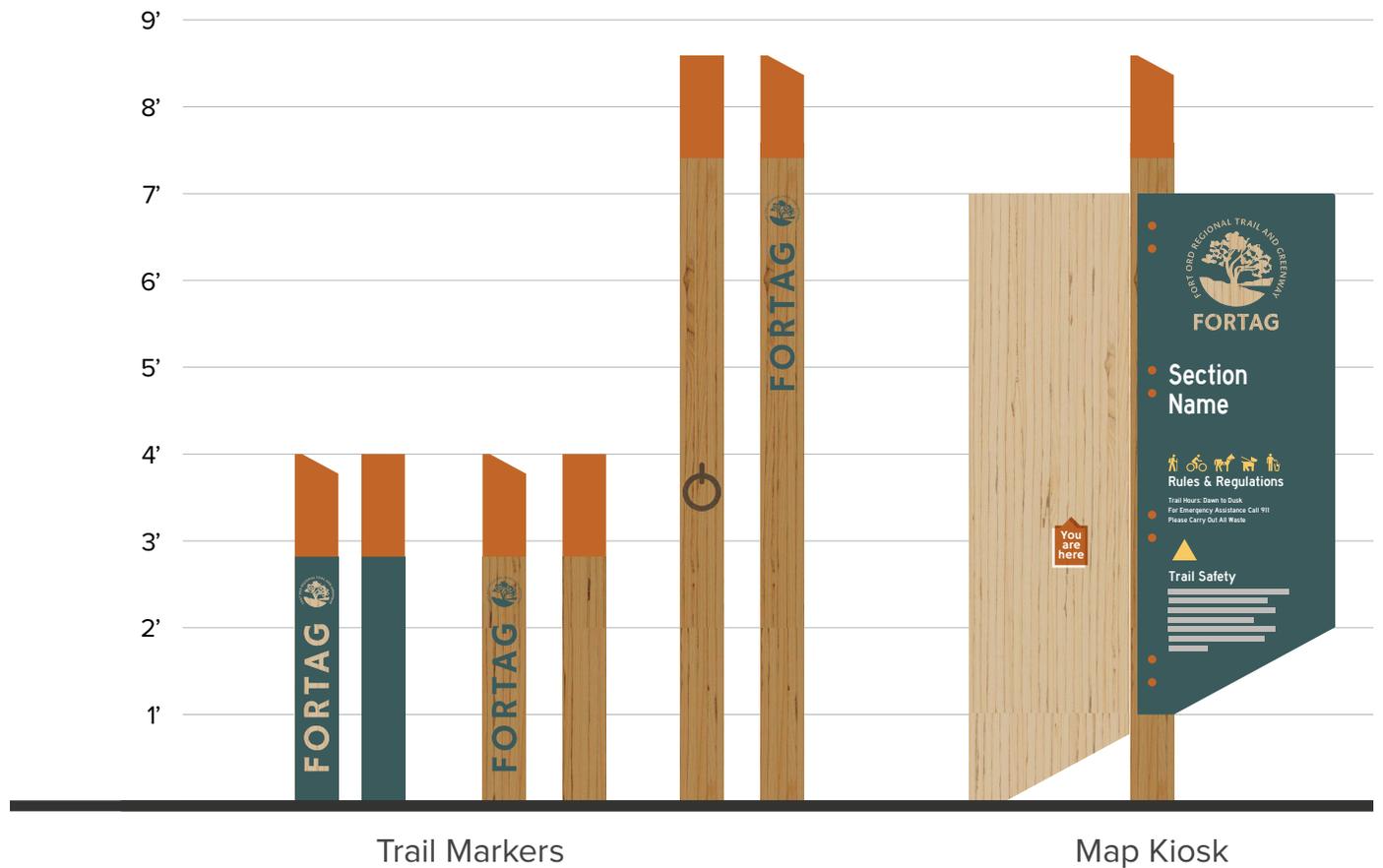


Natural Elements

Featuring the iconic Live Oak tree arcing protectively over the suggestion of a trail, in a style inspired by the silhouette illustration featured in the historic / original FORTAG logo.

SIGNAGE FAMILY

For additional detail about wayfinding signage types and applications, see Appendix B.



Natural Elements

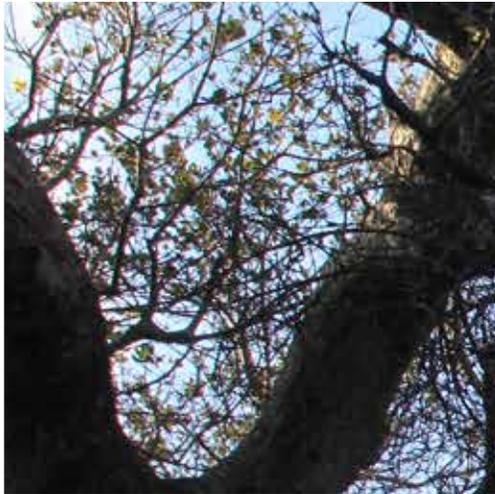
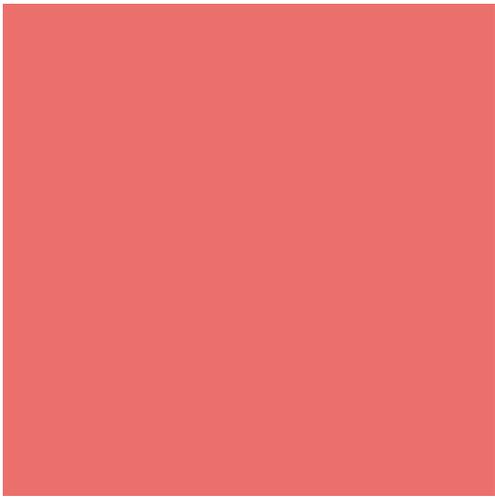
Simple, bold, repeating forms in natural materials and colors define this wayfinding concept, inspired by the hand-drawn quality of the Natural Elements logo and color palette.



Informational Kiosk

Trailhead Marker

On-street Turn, Confirmation



04 DESIGN THEMES



Design themes reflect the unique site context—the dichotomies inherent in the wild undulating coastal chaparral and riparian woodland versus the more formal and orderly language created by the structures of CSUMB’s campus, industrial operations, and remnants of Fort Ord itself.

DESIGN THEME: SUCCESSION

Ecosystems—the assemblage of elements that define natural habitats and built environments—are constantly changing and evolving over time. In ecology this process is known as succession and is comprised of distinct phases, each of which lays the foundation for the next.

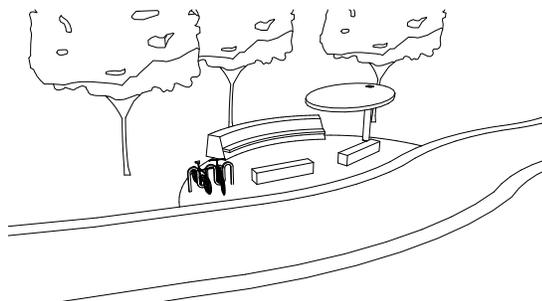
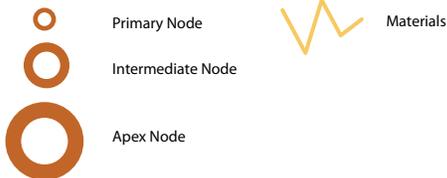
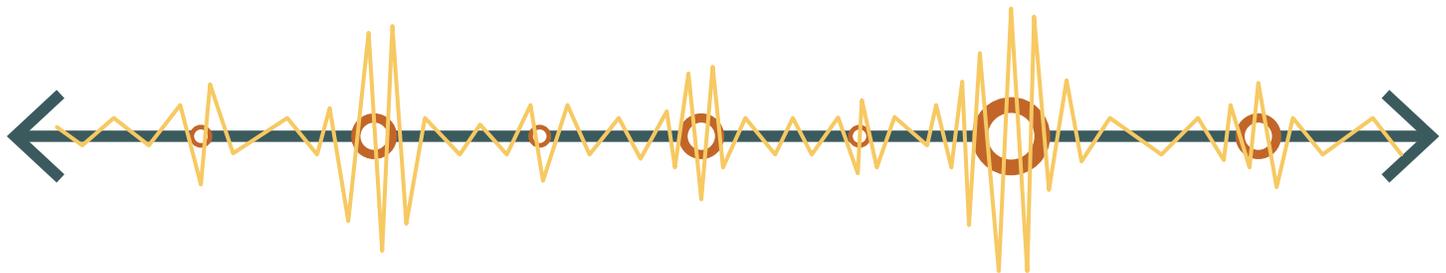
The land through which the Fort Ord Regional Trail winds began, as all land does, as open space. Later it became an Army base. In the years since Fort Ord has been decommissioned, parts have been transformed by nature: lichen, grasses, and shrubs have re-habitated former barracks and neatly maintained lawns, breaking down and growing between cracks in roads that once carried tanks, softening their appearance. Other parts have been transformed into new uses by human hands: landscapes and buildings adaptively re-imagined and re-used to serve new functions as integral parts of CSUMB’s campus. The development of FORTAG is the next step in this land’s evolution.

This concept of succession—slow but constant change and adaptation—informs both the placemaking typologies as well as the textures, finishes, and types of materials used to create trail and programmed nodes. Elements from the branding process are carried through, celebrating materials that are evocative of an endemic to the site, from plant communities to local stone, to the re-use of extant structures and materials in a way that celebrates the interplay between the wild undulating coastal chaparral and riparian woodland versus the more formal and orderly language created by the structures of CSUMB’s campus, industrial operations, and remnants of Fort Ord itself. This opportunity to reuse materials, such as concrete and stone, metals and weathered woods, will result in a site-specific project that is uniquely linked to its context. The design approach uses a light touch to allow the context of the site itself to define the user experience. The asphalt trail will be minimally accentuated by periodic headers to provide visual confirmation to users they are on the trail, and those same materials will grow in intensity, density, and detail as they approach trail nodes.

PLACEMAKING TYPOLOGIES

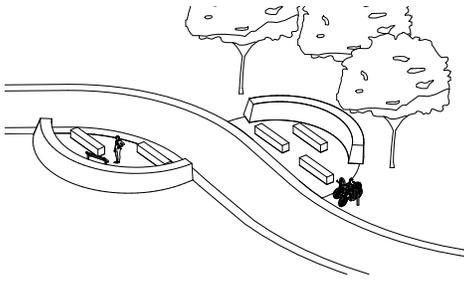
Ecological succession is comprised of different phases, which will provide an organizing structure for the placemaking typologies and application of materials for FORTAG:

1. **Primary** - In this first phase, small plant species and microorganisms enrich the earth with nutrients that later support larger life forms. This term applies to smaller program nodes designed for 2-4 people, at least 144 sf. Only minimal site furnishings or program elements, such as wayfinding or small-scale interpretive elements are associated with this typology. Grasses and shrubs dominate the planting palette, built form is relied upon for shade.
2. **Intermediate** - Once primary species have established themselves, the environment becomes enriched and starts to welcome an increased diversity and scale of plant and animal life. Used to describe medium nodes designed for 4-8 people, at least 288 sf, that can support mid-sized programming, such as more intensive interpretive elements, art or sculptural pieces, or small play or fitness areas. Evergreen trees are a defining species within the planting palette, with some but few deciduous trees, grasses, and shrubs.
3. **Apex** - The intermediate phase gives way to the climax community, in which the greatest level of species diversity and richness is realized, resulting in an ideal biome. Used to describe large nodes for 8 or more people, of 288 sf or more. These spaces are opportunities for small parks or plazas with major programmatic elements like playgrounds, fitness circuits, sculpture gardens, or nature walks guided by more intensive interpretive signage. This plant palette is a celebration of canopy trees and diverse plant communities.



Primary CUTOUT

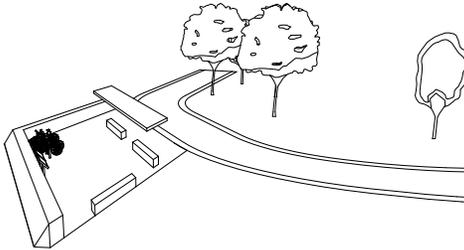
This intimately scaled-space is ideal for tight spaces or minor rest nodes that are needed in between more major nodes to provide trail users with essentials, seating, bike rack, and shade, for a quick place to rest and recharge.



Intermediate

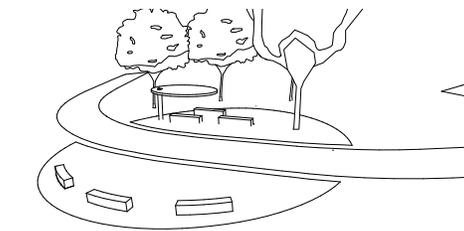
SLIP

Here programming semi-circular spaces are by the trail shifted in opposing directions. Spaces are framed by low walls, creating opportunity for different viewing experiences, uses, and variations in scale. Planting can be used to heighten the experiential differences between these two areas, creating a sense of enclosure in one, and open to views and coupled with interpretive signage on the other.



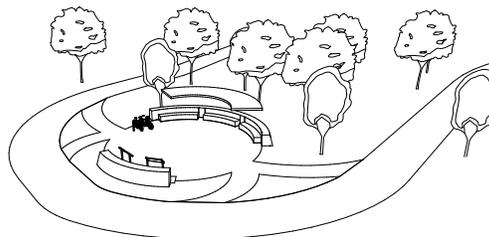
PERCH

This rectilinear typology, which can be at-grade or cantilevered, is purposefully simple and spare to showcase the view. The space is defined by intersecting low walls and a shade structure.



RETREAT AND ADVANCE

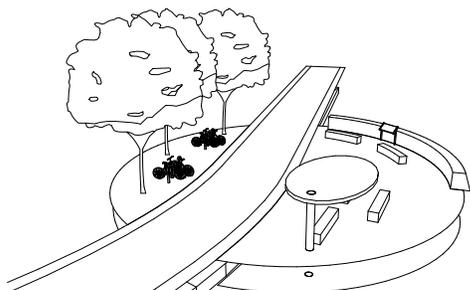
This configuration creates two distinct spaces bisected by the trail. One is located on the inside of a curve, creating a dense shaded refuge with trees, dense plantings, and shade structures. The area on the outside of the curve allows users to enjoy an uninterrupted 180-degree view and bask in the sun.



Apex

GATHER

There are several locations along the trail that are appropriate for large activity nodes. These can function like small plazas or parks with their own minor path networks. This typology carves out space for gathering and active programming that requires more space. Canopy trees and denser plantings frame the space and can direct visitors' views and reinforce connections to the trail's rich natural context.



IMMERSE

This typology is all about separating functional site elements, like bike racks or trail maps, from elements that allow you to immerse yourself in the view and the landscape. The path divides the node in two, the smaller portion for those functional elements, the larger for seating, interpretive signage, and a view framed by a retaining wall on the other.



RE-USE + ADAPTATION: MATERIALS + CONSTRUCTION APPROACH

The use of reclaimed materials from Fort Ord can help to unify design language and integrate a historical component into FORTAG. However, the opportunities for widespread re-use of old base materials is likely limited due to the possible presence of toxic materials such as lead, asbestos, and fuel oil, and it is more likely for old base materials to be used intermittently as interpretive or art elements at specific locations along the trail. The re-use of asphalt from historic Fort Ord roads in trail construction represents the best case scenario of potential re-use for FORTAG.

Construction practices and materials can help reduce the climate impact of this project while celebrating the context of the site itself. From innovations in demolition and best practices in on-site construction recycling, such as cold-in-place asphalt recycling, to new materials that have a high recycled material content, there are many ways in which this project can cut costs and environmental impact. Similar thinking about the plant material can reflect plant communities endemic to the area, as well as those that are future-ready in terms of pest and climate adaptability.



The following practices are encouraged:

- Materials must be analyzed for the presence of toxic substances and used where safe
- Incentivize the use of local construction contractors, suppliers, and manufacturers to be located within a certain radius of the site.
- Establish requirements regarding the use of recycled materials in new construction practices.
- Encourage the use of green infrastructure to capture and clean stormwater.
- Encourage the use of pest and disease resistant plant material and climate-appropriate plantings.
- Encourage the expansion of the tree canopy.
- Use innovative materials and design practices to lessen carbon-intensive design practices.



PHOTO: RECYCLING-MAGAZINE.COM

RECYCLED ASPHALT

Recycled asphalt from roadway demolition or reconstruction can be easily re-processed for use in new roadway or trail construction. An existing asphalt recycling facility is present on Fort Ord.

PHOTO: [HTTPS://WINNERSCLUB.COM/TAG/BUILDING-AND-CONSTRUCTION/](https://winnersclub.com/tag/building-and-construction/)

RECYCLED CONCRETE

Also known as "urbanite," demolished concrete can be used for dry-stack walls, gabions, and surface treatment. There is a great deal of urbanite on the former base and surrounding CSUMB, and future development projects will create more.

Fort Ord is an EPA Superfund site and was placed on the agency's priority list in 1990. Over the last three decades, much work has been done to remediate and restore the land through efforts by the U.S. Army, EPA, and the Fort Ord Reuse Authority (FORA). As portions of the base have been remediated and deemed safe for public use and development, land has been transferred to California State Parks (Fort Ord Dunes State Park) and California State University (to establish CSU Monterey Bay).



WOOD

Abandoned barracks throughout the base provide an potential source for reclaimed wood, which can be integrated into furniture, signage, and interpretive elements.



PHOTO: BLYTHEWALTRIP ON FLICKR

METAL

Demolished signs, corrugated doors and roofs, chimneys, fencing, and other metal can be reused for new signage, interpretive elements, and decorative highlights around key points of interest.



STONE

Stone walls are a recurring theme throughout the former base. These walls remain around portions of new development around CSUMB. This can be carried forward in the creation of new walls and paving treatments.

CASE STUDIES

The following case studies illustrate successful projects that incorporate adaptive reuse as a core design strategy and defining characteristic of each project. These projects are examples of how this reuse can ground a project in its unique context and save money in design, construction, and maintenance.

There are great examples of adaptive reuse of historic structures and remnants in these two portions of Fort Ord:



PHOTO:GOOGLE EARTH

CSUMB Visual & Public Art Center

Former structures associated with Fort Ord have been adaptively re-used. This includes the Visual & Public Art Center, which re-uses buildings and unites them with ribbed steel shade structures



[HTTPS://WWW.PARKS.CA.GOV/?PAGE_ID=28340](https://www.parks.ca.gov/?page_id=28340)

Fort Ord Dunes State Park

A campground project slated to begin construction in 2020 includes plans convert the interior and exterior of Bunker 12 into an interpretive display, and a second bunker will be used for on-site storage for the campground.



PHOTO: [HTTPS://WWW.LANDSCAPEPERFORMANCE.ORG/CASE-STUDY-BRIEFS/WEST-POINT-FOUNDRY-PRESERVE-PHASE-1](https://www.landscapeperformance.org/case-study-briefs/west-point-foundry-preserve-phase-1)

West Point Foundry Preserve

This project, located on the Cold Spring, NY in the tidal marshes of the Hudson River, includes 87 acres of forested land on the site of a former Civil War artillery foundry and ironworks on a tidal marsh in Cold Spring, New York. The Scenic Hudson Land Trust collaborated with university-affiliated archaeologists that led to a plan to preserve that celebrate the site's industrial and ecological legacy, while allowing public access to the heart of the site. A network of paths follow historic routes and rail lines to connect visitors to remnant industrial complexes and other structures, celebrating the site's archaeological history and supporting ecological renewal. The project recycled 40 tons of material on site, saving \$9,000 in transportation costs. And 15 abandoned structures and important sites, and refurbishing 5 industrial relics, were restored as part of the project, saving the cost of clearing and removing materials from the site.

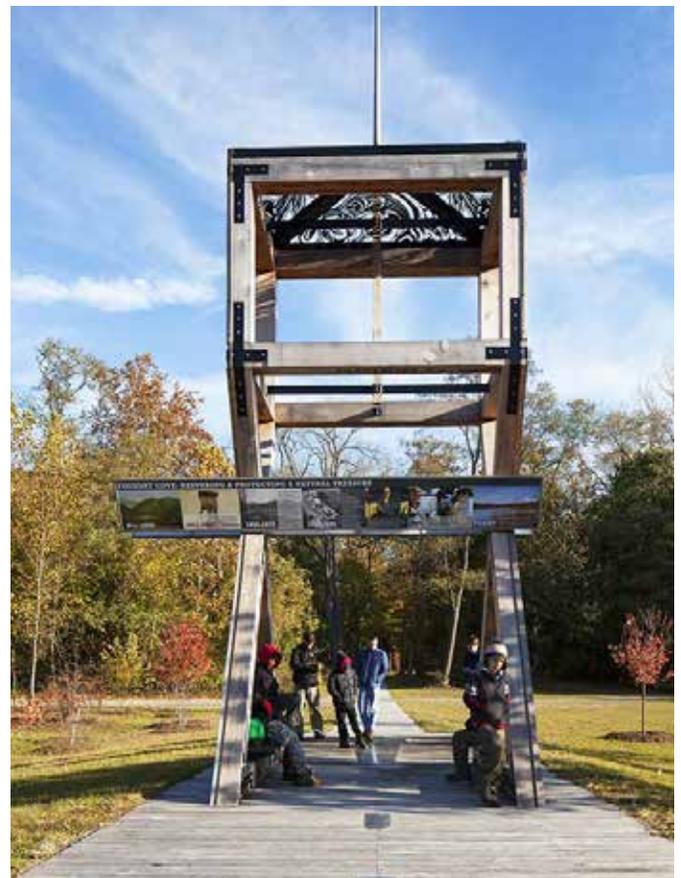


PHOTO: [HTTPS://WWW.LANDSCAPEPERFORMANCE.ORG/CASE-STUDY-BRIEFS/WEST-POINT-FOUNDRY-PRESERVE-PHASE-1](https://www.landscapeperformance.org/case-study-briefs/west-point-foundry-preserve-phase-1)



PHOTO: [HTTPS://WWW.LANDSCAPEPERFORMANCE.ORG/CASE-STUDY-BRIEFS/BALLAST-POINT](https://www.landscapeperformance.org/case-study-briefs/ballast-point)

Ballast Point Park

Ballast Point Park is a waterfront park located in Sydney's inner harbor. This project celebrates the site's layered historical past – from original indigenous habitation, colonial use as a ballast quarry for ships, a home for early settlers, and finally to use as an oil terminal from the 1920s until 2002 – through 11 interpretive locations and in the site design itself. Sustainable design principles ground the project, which included developing an endemic plant palette, on-site material recycling, reducing transportation and waste, and managing stormwater runoff before discharge into the harbor.

"A truly sustainable cradle-to-cradle approach was in practice more expensive to implement than certain conventional processes. For example, the on-site processing of waste was more expensive, so site demolition materials that were to be reused were sent off-site to a processor, with other recycled materials being sent back to the site." – Landscape Architecture Foundation.



PHOTO: [HTTPS://WWW.LANDSCAPEPERFORMANCE.ORG/CASE-STUDY-BRIEFS/BALLAST-POINT](https://www.landscapeperformance.org/case-study-briefs/ballast-point)

- Re-purposed 22,000 tons of waste into gabion retaining walls.
- Used 582 tons of coal power plant waste into a concrete mix which also consisted of waste fly ash, slag, aggregate and ground slag.
- Recycled Australian Jarrah hardwood was used throughout the project, saving 30,620 linear feet of "virgin timber."
- Recycled seat belt straps were used as shade structures.

Brooklyn Bridge Park

Brooklyn Bridge Park, which stretches 1.3 miles along New York's East River, is a former cargo shipping and storage facility given new life as an 85-acre park. The park incorporates elements of its industrial past and includes extensive reuse of existing structures and salvaged materials. The park introduces a range of aquatic and terrestrial plant communities and habitats to the formerly desolate site and incorporates stormwater management techniques that capture runoff for irrigation.

As new material was continually discovered during construction, the design adapted and changed to respond to available materials, such as fill, granite, and longleaf yellow pine beams, each re-purposed into site elements including furniture, topography, and infrastructure. The project used 90,000 cubic yards of landfill for the construction of Pier 1 and sound berm topography. Saved \$2.88 million vs. traditional means of fill.



PHOTO: [HTTPS://WWW.LANDSCAPEPERFORMANCE.ORG/CASE-STUDY-BRIEFS/BROOKLYN-BRIDGE-PARK](https://www.landscapeperformance.org/case-study-briefs/brooklyn-bridge-park)



PHOTO: [HTTPS://WWW.LANDSCAPEPERFORMANCE.ORG/CASE-STUDY-BRIEFS/BROOKLYN-BRIDGE-PARK](https://www.landscapeperformance.org/case-study-briefs/brooklyn-bridge-park)

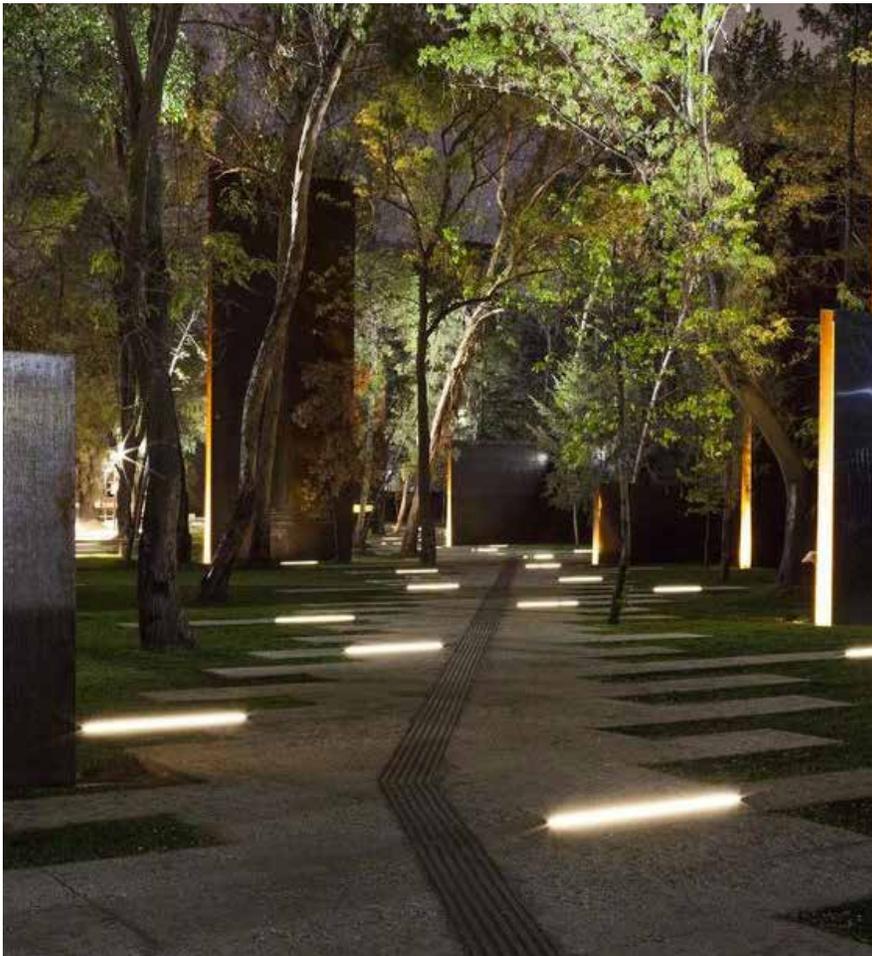


PHOTO:SOSA.TISTORY.COM



PHOTO:HTTPS://ACOCHRAN.COM/WORK/PERRY-RESIDENCE-LANDSCAPE-ARCHITECTURE/

Ordered Re-Use

Inspired by the orderly barracks and formal composition of the college campus, softened by time and wear like the remnant structures of Fort Ord. Concrete and steel are dominant materials. Colors draw inspiration from CSUMB and Fort Ord military history (olive, khaki, navy blue). Recycled materials that are plentiful and relatively consistent in appearance are incorporated into gabions, concrete, and other site furnishings. Ornamentation is minimal, with visual richness provided by the impacts of time on reused materials. This theme appears primarily in the CSUMB segments, and portions of Canyon Del Rey and Ryan Ranch.

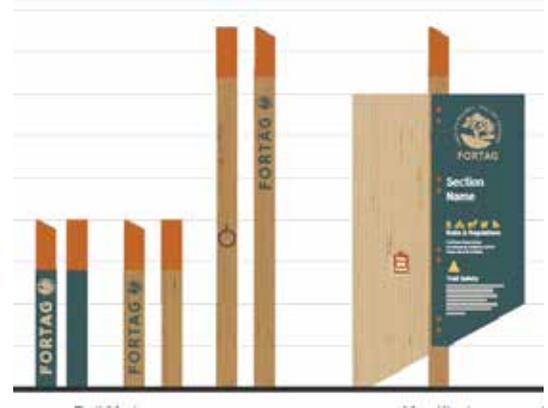
- Metal banding embedded in and along the path to delineate nodes along the trail.
- Laser cut steel posts are used for shade structures, interpretive signage mounts, bike racks, and other site furnishings to tie into branding.
- Concrete and gabion structures combine new and re-used materials.
- Planting leans toward formal patterns.
- Lighting is embedded into site materials (the path itself, benches, walls, etc.).



PHOTO: [HTTPS://WWW.PAVINGEXPERT.COM/GABIONS_01](https://www.pavingexpert.com/gabions_01)



PHOTO: <https://www.designboom.com/technology/daan-roosegaarde-solar-powered-van-gogh-cycle-path-netherlands-11-13-2014/>



Naturalistic Adaptation

This is a celebration of plant communities, varied ecologies, and topographies of the region. Emphasis is placed on rough edges and textures, and natural materials like wood, stone, and decomposed granite. Colors include brighter greens, dull reds, and browns with pops of color. There is room for variation within this theme to respond to the unique plant communities the trail passes through. Unique remnant materials, such as warped metals or weathered woods are celebrated and preserved by encasing in epoxy, embedding into concrete, or celebrated as standalone art objects. This theme appears primarily in the National Monument Loop, Northern Loop, and Northern Marina segments, with portions of Canyon Del Rey and Ryan Ranch.

- Exposed aggregate ribbons and stone trail headers delineate nodes along the trail.
- Wooden posts that hearken to the siding of the barracks and connect to the branding are used as posts for shade structures. Stone slab benches and cobbled walls with embedded interpretive signage define nodes.
- Planting is denser around nodes to create a sense of enclosure and to celebrate unique plant communities along the trail.
- Lighting is subtly integrated into site elements or integrated into the asphalt of the path itself to create naturalistic patterning.



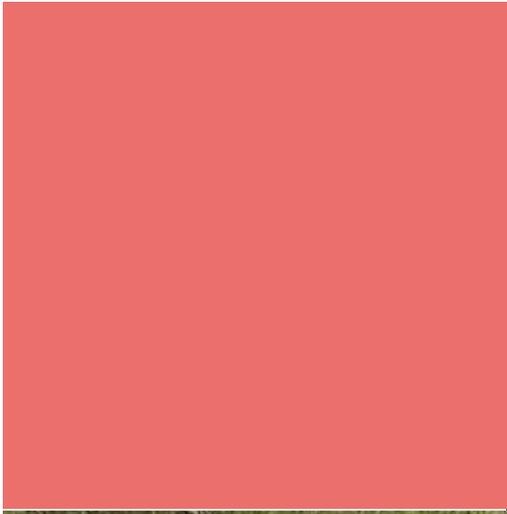
PHOTO: [HTTPS://LONDONIST.COM/LONDON/GREAT-OUTDOORS/SEE-PART-OF-THE-TWIN-TOWERS-IN-THE-OLYMPIC-PARK](https://londonist.com/london/great-outdoors/see-part-of-the-twin-towers-in-the-olympic-park)



PHOTO: [HTTP://WWW.SUSTAINABLESITES.ORG/LUCI-AND-IAN-FAMILY-GARDEN-LADY-BIRD-JOHNSON-WILDFLOWER-CENTER](http://www.sustainablesites.org/luci-and-ian-family-garden-lady-bird-johnson-wildflower-center)



Thoughtful consideration of trail amenities, viewpoints, and rest areas will encourage people to visit FORTAG repeatedly. These features will allow the trail to go beyond just helping people get from here to there, and become a destination unto itself.



05 **APPENDIX A:
DESIGN
ELEMENTS**



Trails will be designed with an appreciation for what makes the region and each trail segment distinctive historically, ecologically, and experientially.

INTRODUCTION

FORTAG showcases some of the world's most uniquely beautiful landscapes. Its trails are the means by which intimate experiences in this wondrous environment are made possible.

The overall concept approach will be:

- To engage in human-scale design to create intuitive, and comfortable experiences.
- To extend the reach of well-loved and notable native, endemic plant communities across the trail.
- To create both a consistent regional trail brand as well as a trail language for unique segments.
- To embrace the many aesthetic features of the area, and extend them through the materials.

DESIGN OBJECTIVES

Goal 1: Provide year round safe active transportation and recreation opportunities for hikers, bicyclists, equestrians, skiers, and other non-motorized uses.

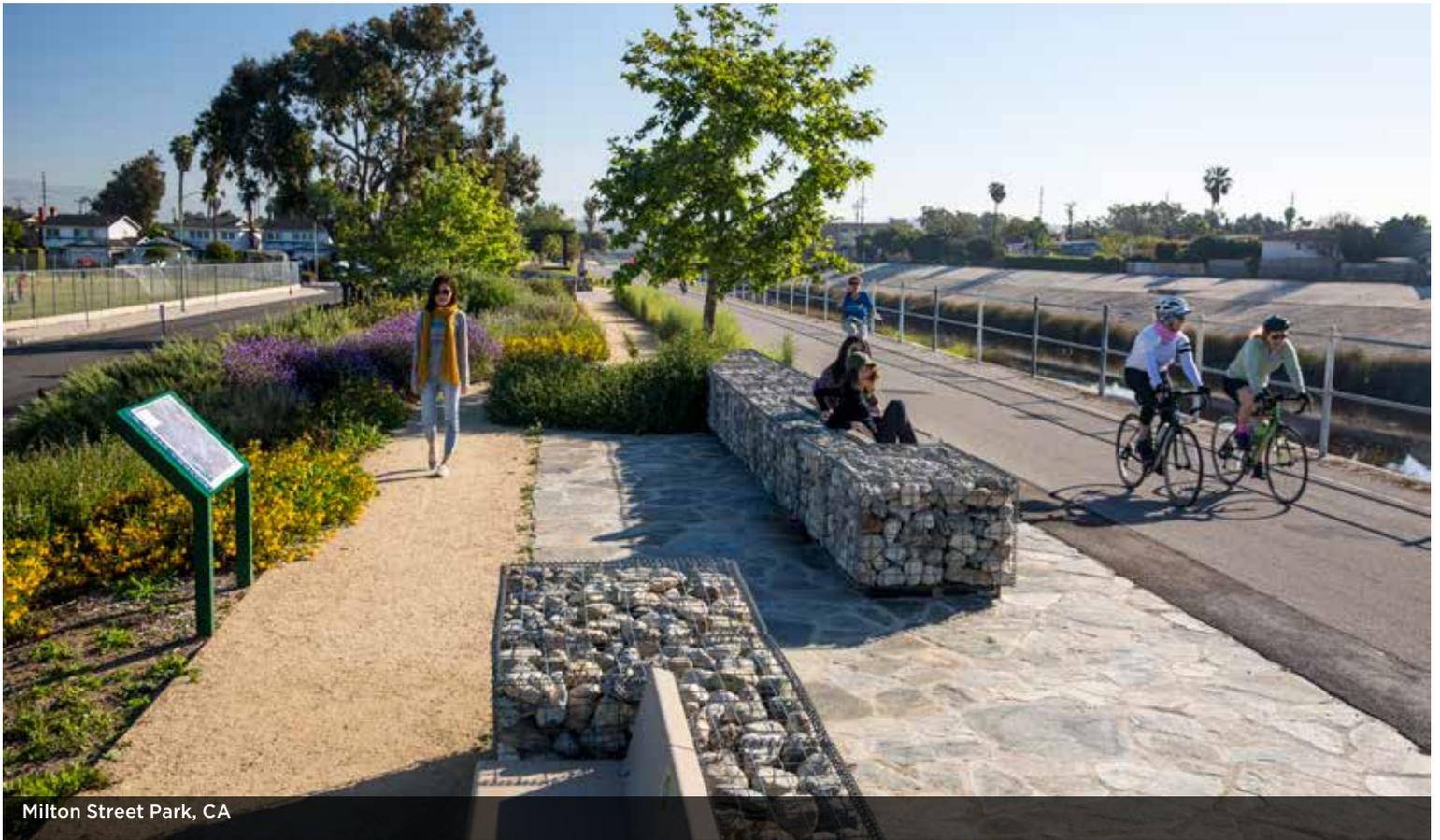
Goal 2: Promote user awareness, appreciation, and protection of natural, scenic, cultural, and historic resources and promote community involvement in their protection and care.

Goal 3: Incorporate trail designs that mimic the natural, historic, and cultural environment along the trail.

Goal 4: Provide a safe and continuous travel experience that incorporates safe and easy access from local communities and connections to nearby major recreation areas on adjacent public land.

Goal 6: Promote healthy lifestyles through exercise, interpretation and education, and trail stewardship activities.

Goal 7: Stimulate local active transportation and recreation that can boost economic opportunities linked to the uniqueness of the area — its environment, culture, heritage, people, and history.



Milton Street Park, CA

PHOTO: MOUNTAINS RECREATION AND CONSERVATION AUTHORITY

PLACEMAKING

Placemaking features like architectural gateways and custom paved surfaces help to welcome trail users and create a visual identity for the trail system. These features are important as they can serve as signature elements for the FORTAG trail network. Trail amenities will primarily serve to provide areas where visitors can enjoy views without trampling areas off-trail, and help draw attention to the trail from adjacent streets and trails.

Visual interest is enhanced through native plantings, newly created interpretive elements, seating, art, wayfinding, and shade structures.



Fall River Heritage Park, MA

PHOTO:FRIENDS OF THE QUEQUECHAN RAIL TRAIL

Gateways

Gateways are significant entryways that reflect local culture and emphasize the connection to other neighboring trail systems. Gateways provide access from existing public roads or easements and typically include the following features: automobile parking,

bicycle parking, picnic tables, drinking fountains, trash receptacles, dog waste stations, bicycle repair stations, and trail wayfinding and informational signage.



Craven Street Trailhead, Asheville, North Carolina

PHOTO:MEG REILLEY PHOTOGRAPHY, WWW.MEGREILLEY.COM

Trailheads

Trailheads provide essential access to the trail system and can include similar amenities to gateways.

Trailhead should be context sensitive, responding to adjacent land uses and environmental context. Scale varies based on site availability.



Many Parks Curve Outlook, Larimer County, CO

PHOTO: [HTTPS://INSPIREDIMPERFECTION.COM/ADVENTURES/MANY-PARKS-CURVE-OVERLOOK/](https://inspiredimperfection.com/adventures/many-parks-curve-overlook/)

Observation Points

Areas designated for scenic overlooks, which may include a trail, small interpretive display, and a bench or small seating area. These areas allow users to take in views and rest without disturbing surrounding habitat.



Big Horn Trail, Las Vegas, NV

PHOTO: JIM BOONE. [HTTPS://WWW.BIRDANDHIKE.COM/HIKE/DNWR/CC_BIGHORN/_CC_BIGHORN.HTM](https://www.birdandhike.com/hike/dnwr/cc_bighorn/_cc_bighorn.htm)



Trapezio by Urbidermis

PHOTO: DAVID LEVIN



Quequechan River Rail Trail - Fall River, MA

PHOTO: GREGG SHUPE, [HTTPS://WWW.SHUPESTUDIOS.COM/](https://www.shupestudios.com/)

Trailside Rest Stop

A designated seating area which may include benches or a limited number of picnic tables, and trash receptacles.



PLANTING

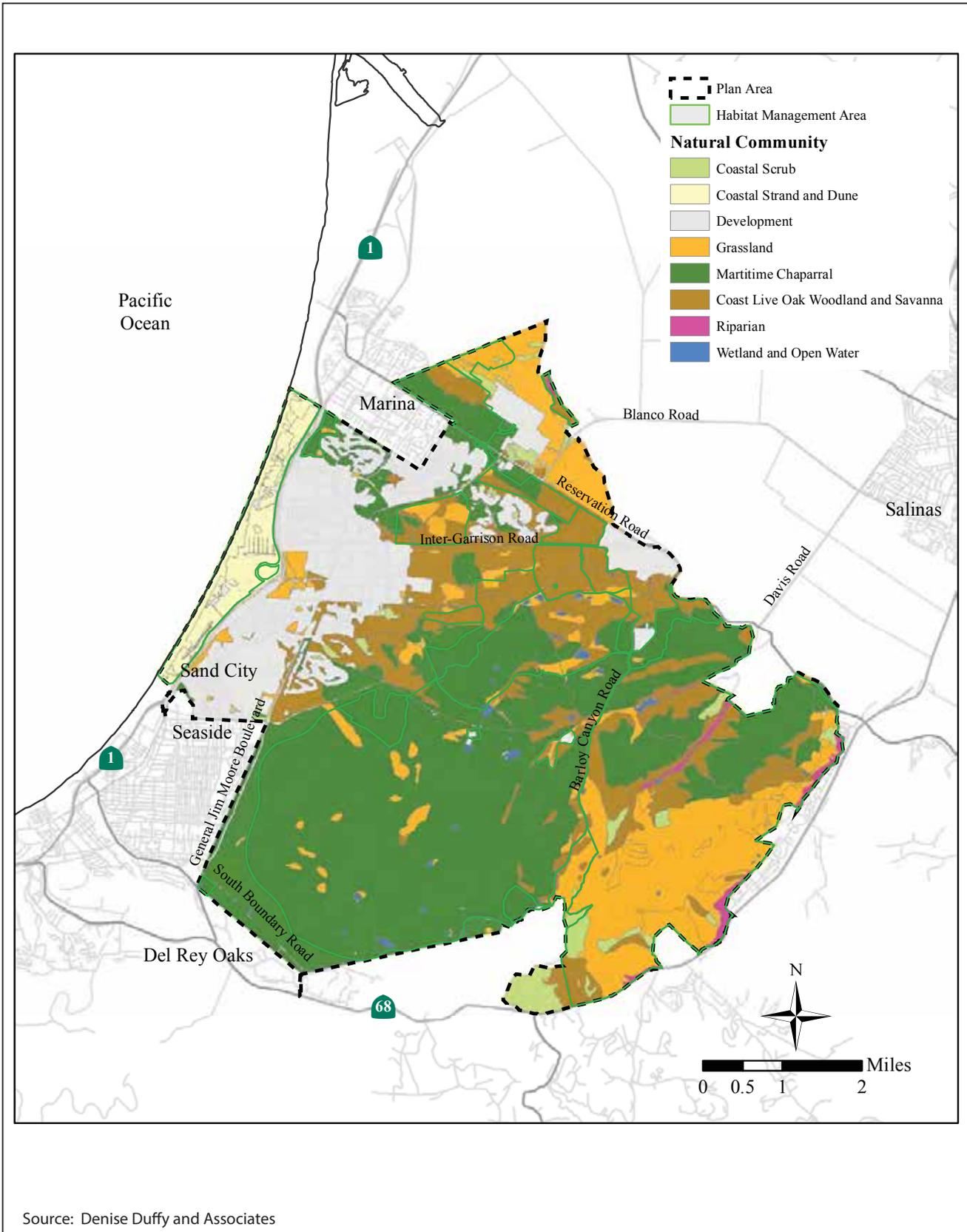
The FORTAG project area has a dynamic history of development and habitation, transitioning through periods of heavy use and relative abandonment. The barracks style buildings that surround the CSUMB campus are uninhabited and nature has begun reclaiming the space.

FORTAG, being predominantly inland from the immediate coastal zone, provides exposure to plant communities typically not associated with the popular idea of the Monterey area. Instead of being defined by the Monterey Cypress, FORTAG showcases oak woodlands and maritime chaparral.

While nearer the coast, Monterey Pine forest and Monterey Cypress forest plant communities are present, a mix of northern coastal scrub, maritime chaparral, and coast live oak woodland are visible through the inland portions of the trail.

These native plant communities have thrived since the closure of Fort Ord, and FORTAG provides an opportunity to help preserve these communities as development continues throughout the former base.

The plant species shown on the following pages are organized by the dominant plant communities that make up the project area. They are all native plants and many are available from nurseries in the region specializing in California Native species. In areas along the trail to receive landscape planting, care must take place in determining what plant community is represented at that location, and the appropriate plants chosen from a plant palette reflecting that particular community. Figure 2-2 from the Fort Ord Multi-Species Habitat Conservation Plan to the right shows the rough distribution of the various plant communities present at Fort Ord.



Graphics ... 06533.07 HCP 4/18/2017/TG

Source: Denise Duffy and Associates



Figure 2-2
Natural Communities in the Plan Area

Coast Live Oak Woodland

Coast Live Oak Woodland is characterized by an open to nearly closed-canopy community with a sparsely scattered shrub or grass understory. The dominant tree species is *Quercus agrifolia* however there may be small pockets of *Pinus radiata* and *Pinus muricata* within the fog bank influenced portion of the Oak Woodlands. Oak Woodland habitats are important to a variety of plant and animal species, including HCP species. They provide nesting sites, cover, forage, and habitat connectivity. Some oak woodland plants are commercially grown in regional nurseries specializing in California native plants, and are useful and recommended for trailside planting installations. They can help define trail edges, provide shade, or used to enhance important nodes or connections. Care should be taken when planting pine species to ensure that nursery grown stock does not out compete existing wild stock.



PHOTO: [HTTPS://CALSCAPE.ORG/QUERCUS-AGRIFOLIA-\(COAST-LIVE-OAK\)?SRCHCR=SC5F1FC1E92C18B](https://calscape.org/quercus-agrifolia-(coast-live-oak)?srchcr=sc5f1fc1e92c18b)

QUERCUS AGRIFOLIA

Coast Live Oak
25'-80' tall and 15'-35' wide
Nursery availability - Yes



PHOTO: [HTTPS://SELECTTREE.CALPOLY.EDU/TREE-DETAIL/PINUS-MURICATA](https://selecttree.calpoly.edu/tree-detail/pinus-muricata)

PINUS MURICATA

Bishop Pine
50'-70' tall and 20'-40' wide
Nursery availability - Sparse



PHOTO: [HTTPS://SEQUOIA TREES.COM/PRODUCTS/MONTEREY-PINE-SMALL-TREE-SEEDLING](https://sequoiatrees.com/products/monterey-pine-small-tree-seedling)

PINUS RADIATA

Monterey Pine
50'-100' tall and 25'-35' wide
Nursery availability - Yes



PHOTO: [HTTPS://CALSCAPE.ORG/ARTEMISIA-CALIFORNICA-\(CALIFORNIA-SAGEBRUSH\)?SRCHCR=SC5F74E9B1D9893](https://calscape.org/artemisia-californica-(california-sagebrush)?srchcr=sc5f74e9b1d9893)

ARTEMISIA CALIFORNICA

California Sagebrush
1'-8' tall and 4' wide
Native

HCP species associated with Oak Woodland and Oak Savannah at Fort Ord primarily occur in natural clearings and include Sand Gilia, Seaside Bird's Beak, and Monterey Spineflower.



PHOTO: [HTTPS://CALSCAPE.ORG/BACCHARIS-PILULARIS-\(COYOTE-BUSH\)?SRCHCR=SC5F74EA03B3A8B](https://calscape.org/baccharis-pilularis-(coyote-bush)?srchcr=SC5F74EA03B3A8B)

BACCHARIS PILULARIS

Coyote Bush
2'-10' tall and 12' wide
Nursery availability - Yes



PHOTO: [HTTPS://WWW.LASPILITAS.COM/NATURE-OF-CALIFORNIA/PLANTS/612--SALVIA-MELLIFERA](https://www.laspilitas.com/nature-of-california/plants/612--salvia-mellifera)

SALVIA MELLIFERA

Black Sage
3'-6' tall and 10' wide
Nursery availability - Yes



PHOTO: DEAN WM. TAYLOR [HTTPS://CALSCAPE.ORG/GILIA-TENUIFLORA-SSP.-ARENARIA-\(MONTEREY-GILIA\)?SRCHCR=SC5F74EB92129A4](https://calscape.org/gilia-tenuiflora-ssp.-arenaria-(monterey-gilia)?srchcr=SC5F74EB92129A4)

GILIA TENUIFLORA SSP. ARENARIA

Monterey Sand Gilia
.5' tall and .5' wide
Nursery availability - No



PHOTO: JOHN DOYEN [HTTPS://CALSCAPE.ORG/PHOTOS/66649?SRCHCR=SC5F74EB2ACADE1](https://calscape.org/photos/66649?srchcr=SC5F74EB2ACADE1)

CHORIZANTHE PUNGENS VAR. PUNGENS

Monterey Spineflower
.5' tall and .5' wide
Nursery availability - No



PHOTO: [HTTP://WWW.ELKHORN-SLOUGHCTP.ORG/FACTSHEET/FACTSHEET.PHP?SPECIES_ID=42](http://www.elkhornsloughctp.org/factsheet/factsheet.php?species_id=42)

CORDYLANTHUS RIGIDUS SSP. LITTORALIS

Seaside Bird's Beak
.5' tall and .5' wide
Nursery availability - No

Maritime Chaparral

Maritime chaparral is the most dominant plant community within Ford Ord. It is represented by a variety of hard-leaved, evergreen shrubs occurring in moderate to high-density, and is generally limited to the summer fog zone. It supports a variety of bird and small mammal species along with HCP plant species.

Some Maritime chaparral plants are commercially grown in regional nurseries specializing in California native plants, and are useful and recommended for trailside planting installations. They can be used to help define trail edges, stabilize slopes, or as ornamental planting in focus areas along the trail.



PHOTO: [HTTPS://CALSCAPE.ORG/PHOTOS/70?SRCHCR=SC5F74ED63E45B3](https://calscape.org/photos/70?srchcr=sc5f74ed63e45b3)

ADENOSTOMA FASCICULATUM

Chamise

3'-12' tall and 1'-8' wide

Nursery availability - Yes



PHOTO: AARON E. SIMS [HTTPS://CALSCAPE.ORG/PHOTOS/70?SRCHCR=SC5F74ED63E45B3](https://calscape.org/photos/70?srchcr=sc5f74ed63e45b3)

ARCTOSTAPHYLOS TOMENTOSA

Woollyleaf Manzanita

3'-10' tall and 10' wide

Nursery availability - Sparse



PHOTO: [HTTPS://CALSCAPE.ORG/ARCTOSTAPHYLOS-PAJAROENSIS-\(PAJARO-MANZANITA\)?SRCHCR=SC5F74EDF8B2BF0](https://calscape.org/arctostaphylos-pajaroensis-(pajaro-manzanita)?srchcr=sc5f74edf8b2bf0)

ARCTOSTAPHYLOS PAJAROENSIS

Pajaro Manzanita

3.5'-15' tall and 10' wide

Nursery availability - Yes



PHOTO: [HTTPS://CALSCAPE.ORG/ARCTOSTAPHYLOS-PAJAROENSIS-\(PAJARO-MANZANITA\)?SRCHCR=SC5F74EDF8B2BF0](https://calscape.org/arctostaphylos-pajaroensis-(pajaro-manzanita)?srchcr=sc5f74edf8b2bf0)

CEANOTHUS THYRSIFLORUS

Creeping Blueblossom

2'-3' tall and 15' wide

Nursery availability - Yes

HCP species associated with Maritime Chaparral include Seaside Bird's Beak, Sand Gilia, Monterey Spineflower, and Yodon's piperia.



PHOTO:SUSAN MCDUGALL [HTTPS://WWW.CALFLORA.ORG/CGI-BIN/SPECIES_QUERY.CGI?WHERE-TAXON=Ceanothus+rigidus](https://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Ceanothus+rigidus)

CEANOTHUS RIGIDUS

Monterey Ceanothus
1'-8' tall and 4' wide
Nursery availability - As cultivars



PHOTO:HTTPS://CALSCAPE.ORG/HETEROMELES-ARBUTIFOLIA-(TOYON)?SRCHCR=SC5F74EB6E22C

HETEROMELES ARBUTIFOLIA

Toyon
6'-30' tall and 10'-15' wide
Nursery Availability - Yes



PHOTO:DEAN WM. TAYLOR [HTTPS://CALSCAPE.ORG/GILIA-TENUIFLORA-SSP-ARENARIA-\(MONTEREY-GILIA\)?SRCHCR=SC5F74EB92129A4](https://calscape.org/gilia-tenuiflora-ssp-arenaria-(monterey-gilia)?srchcr=sc5f74eb92129a4)

GILIA TENUIFLORA SSP. ARENARIA

Monterey Sand Gilia
.5' tall and .5' wide
Nursery availability - No



PHOTO:JOHN DOYEN [HTTPS://CALSCAPE.ORG/PHOTOS/66649?SRCHCR=SC5F74EB2ACADE1](https://calscape.org/photos/66649?srchcr=sc5f74eb2acade1)

CHORIZANTHE PUNGENS VAR. PUNGENS

Monterey Spineflower
.5' tall and .5' wide
Nursery availability - No



PHOTO:HTTP://WWW.ELKHORNSLOUGHCTP.ORG/FACTSHEET/FACTSHEET.PHP?SPECIES_ID=42

CORDYLANTHUS RIGIDUS SSP. LITTORALIS

Seaside Bird's Beak
.5' tall and .5' wide
Nursery availability - No



PHOTO:HTTPS://CALPHOTOS.BERKELEY.EDU/CGI/IMG_QUERY?ENLARGE=0000+0000+0905+0016

PIPERIA YADONII

Yadon's Rein-orchid
.5' tall and .5' wide
Nursery availability - No

Coastal Scrub

The Coastal scrub plant community is integrated with grassland, maritime chaparral, oak woodland, and dune scrub within Fort Ord. It is characterized by sparse to dense occurrences of primarily soft-leaved, low-stature shrubs such as coyote brush, California sagebrush, and black sage. It is considered an important plant community because it provides a protective habitat for HCP plant species, forage for wildlife, and helps stabilize sandy soils and steep slopes. Some of the plants associated with the Coastal Scrub community have nursery availability and can be used in trailside landscape planting.



PHOTO: [HTTPS://CALSCAPE.ORG/ARCTOSTAPHYLOS-PUMILA-\(DUNE-MANZANITA\)?SRCHCR=SC5F74EF8FE916C](https://calscape.org/arctostaphylos-pumila-(dune-manzanita)?srchcr=sc5f74ef8fe916c)

ARCTOSTAPHYLOS PUMILA

Dune Manzanita
1.'-5' tall and 5' wide
Nursery availability - Sparse



PHOTO: [HTTPS://CALSCAPE.ORG/BACCHARIS-PILULARIS-\(COYOTE-BUSH\)?SRCHCR=SC5F74EA03B3A8B](https://calscape.org/baccharis-pilularis-(coyote-bush)?srchcr=sc5f74ea03b3a8b)

BACCHARIS PILULARIS

Coyote Bush
2'-10' tall and 12' wide
Nursery availability - Yes



PHOTO: [HTTPS://CALSCAPE.ORG/ARTEMISIA-CALIFORNICA-\(CALIFORNIA-SAGEBRUSH\)?SRCHCR=SC5F74E9BID9893](https://calscape.org/artemisia-californica-(california-sagebrush)?srchcr=sc5f74e9bid9893)

ARTEMISIA CALIFORNICA

California Sagebrush
1'-8' tall and 4' wide
Nursery availability - Yes



PHOTO: STEVE MATSON [HTTPS://CALSCAPE.ORG/PHOTOS/1517?SRCHCR=SC5F74EFD56FA58](https://calscape.org/photos/1517?srchcr=sc5f74efd56fa58)

ERIOGONUM LATIFOLIUM

Coast Buckwheat
1'-2' tall and 3' wide
Nursery availability - Yes



PHOTO: [HTTPS://WWW.LASPILITAS.COM/NATURE-OF-CALIFORNIA/PLANTS/291--ERIGONUM-PARVIFOLIUM](https://www.laspilitas.com/nature-of-california/plants/291--erigonum-parvifolium)

ERIGONUM PARVIFOLIUM

Seacliff Buckwheat
1'-3' tall and 2'-3' wide
Nursery availability - Yes



PHOTO: [HTTPS://WWW.LASPILITAS.COM/NATURE-OF-CALIFORNIA/PLANTS/612--SALVIA-MELLIFERA](https://www.laspilitas.com/nature-of-california/plants/612--salvia-mellifera)

SALVIA MELLIFERA

Black Sage
3'-6' tall and 10' wide
Nursery availability - Yes

HCP species associated with Coastal Scrub include Seaside Bird's Beak, Sand Gilia, Monterey Spineflower, and Yodon's piperia.



PHOTO: DEAN WM. TAYLOR [HTTPS://CALSCAPE.ORG/GILIA-TENUIFLORA-SSP-ARENARIA-\(MONTEREY-GILIA\)?SRCHCR=SC5F74EB92129A4](https://calscape.org/gilia-tenuiflora-ssp-arenaria-(monterey-gilia)?srchcr=SC5F74EB92129A4)

GILIA TENUIFLORA SSP. ARENARIA

Monterey Sand Gilia
.5' tall and .5' wide
Nursery availability - No



PHOTO: JOHN DOYEN [HTTPS://CALSCAPE.ORG/PHOTOS/66649?SRCHCR=SC5F74EB2ACADE1](https://calscape.org/photos/66649?srchcr=SC5F74EB2ACADE1)

CHORIZANTHE PUNGENS VAR. PUNGENS

Monterey Spineflower
.5' tall and .5' wide
Nursery availability - No



PHOTO: [HTTP://WWW.ELKHORN-SLOUGHCTP.ORG/FACTSHEET/FACTSHEET.PHP?SPECIES_ID=42](http://www.elkhornsloughhctp.org/factsheet/factsheet.php?species_id=42)

CORDYLANTHUS RIGIDUS SSP. LITTORALIS

Seaside Bird's Beak
.5' tall and .5' wide
Nursery availability - No



PHOTO: [HTTPS://CALPHOTOS.BERKELEY.EDU/CGI/IMG_QUERY?ENLARGE=0000+0000+0905+0016](https://calphotos.berkeley.edu/cgi/img_query?enlarge=0000+0000+0905+0016)

PIPERIA YADONII

Yadon's Rein-orchid
.5' tall and .5' wide
Nursery availability - No

Grassland

Much of the grassland present at Fort Ord consists of non-native annual grasses. Some native perennial bunch grass stands exist, however, primarily inland and scattered as small meadows amongst coast live oak woodland and maritime chaparral. Grasslands are important nesting and forage habitat for many animal species, and also protect the soil against erosion. Some native, perennial grasses are available in nurseries and are mixed with trailside landscape plantings to provide texture, increase habitat value, and stabilize the soil.



PHOTO: STEVE MATSON [HTTPS://CALSCAPE.ORG/DANTHONIA-CALIFORNICA-\(CALIFORNIA-OATGRASS\)?SRCHCR=SC5F74F0A67697F](https://calscape.org/danthonia-californica-(california-oatgrass)?srchcr=sc5f74f0a67697f)

DANTHONIA CALIFORNICA

California Oat Grass
2'-3' tall and 1'-2' wide
Nursery availability - Sparse



PHOTO: JEAN PAWEK [HTTPS://CALSCAPE.ORG/ELYMUS-GLAUCUS-\(BLUE-WILDRYE\)?SRCHCR=SC5F74F0D737FD9](https://calscape.org/elymus-glaucus-(blue-wildrye)?srchcr=sc5f74f0d737fd9)

ELYMUS GLAUCUS

Blue Wild Rye
1'-5' tall and 1'-2' wide
Nursery availability - Yes



PHOTO: NEAL KRAMER [HTTPS://CALSCAPE.ORG/LUPINUS-NANUS-\(SKY-LUPINE\)?SRCHCR=SC5F74F26474C39](https://calscape.org/lupinus-nanus-(sky-lupine)?srchcr=sc5f74f26474c39)

LUPINUS NANUS

Sky Lupine
2'-3' tall and 1'-2' wide
Nursery availability - Sparse



PHOTO: JEAN PAWEK [HTTPS://CALSCAPE.ORG/STIPA-PULCHRA-\(PURPLE-NEEDLEGRASS\)?SRCHCR=SC5F74F236DFCFF](https://calscape.org/stipa-pulchra-(purple-needlegrass)?srchcr=sc5f74f236dfcff)

STIPA PULCHRA

Blue Wild Rye
1'-5' tall and 1'-2' wide
Nursery availability - Yes

HCP supported to a limited extent in grasslands include Seaside Bird's Beak, Sand Gilia, Monterey Spineflower, and Yodon's piperia.



PHOTO: [HTTPS://WWW.SMGROWERS.COM/PRODUCTS/PLANTS/PLANTDISPLAY.ASP?PLANT_ID=1505](https://www.smgrowers.com/products/plants/plantdisplay.asp?plant_id=1505)

SISYRINCHIUM BELLUM

Blue Eyed Grass

1' tall and 1'-2' wide

Nursery availability - Yes



PHOTO: DEAN WM. TAYLOR [HTTPS://CALSCAPE.ORG/GILIA-TENUIFLORA-SSP-ARENARIA-\(MONTEREY-GILIA\)?SRCHCR=SC5F74EB92129A4](https://calscape.org/gilia-tenuiflora-ssp-arenaria-(monterey-gilia)?srchcr=SC5F74EB92129A4)

GILIA TENUIFLORA SSP. ARENARIA

Monterey Sand Gilia

.5' tall and .5' wide

Nursery availability - No



PHOTO: JOHN DOYEN [HTTPS://CALSCAPE.ORG/PHOTOS/66649?SRCHCR=SC5F74EB2ACADE1](https://calscape.org/photos/66649?srchcr=SC5F74EB2ACADE1)

CHORIZANTHE PUNGENS VAR. PUNGENS

Monterey Spineflower

.5' tall and .5' wide

Nursery availability - No



PHOTO: [HTTP://WWW.ELKHORN-SLOUGHCTP.ORG/FACTSHEET/FACTSHEET.PHP?SPECIES_ID=42](http://www.elkhornsloughhctp.org/factsheet/factsheet.php?species_id=42)

CORDYLANTHUS RIGIDUS SSP. LITTORALIS

Seaside Bird's Beak

.5' tall and .5' wide

Nursery availability - No



PHOTO: [HTTPS://CALPHOTOS.BERKELEY.EDU/CGI/IMG_QUERY?ENLARGE=0000+0000+0905+0016](https://calphotos.berkeley.edu/cgi/img_query?enlarge=0000+0000+0905+0016)

PIPERIA YADONII

Yadon's Rein-orchid

.5' tall and .5' wide

Nursery availability - No

Coastal Strand and Dune

Comprised of a dynamic plant community adapted to a moving sand substrate and changing dune and beach configurations. Much of the coastal area supports a stabilized dune community dominated by non-native ice plant. In areas with healthy coastal strand and dune communities, native perennial herbs, shrubs, and subshrubs are supported including wild buckwheats, lupines, and deerweed. Nursery available coastal stand and dune plants can be used in trailside landscape planting in the coastal zone to provide enhance habitat and help stabilize sandy soils.



PHOTO:JOHN DOYEN [HTTPS://CALSCAPE.ORG/ABRONIA-LATIFOLIA-\(SAND-VERBENA\)?SRCHCR=SC5F74F3DE75B16](https://CALSCAPE.ORG/ABRONIA-LATIFOLIA-(SAND-VERBENA)?SRCHCR=SC5F74F3DE75B16)

ABRONIA LATIFOLIA

Sand Verbena
2'-3' tall and 1'-2' wide
Nursery availability - No



PHOTO:JOHN DOYEN [HTTPS://CALSCAPE.ORG/ACMISPON-GLABER-\(DEER-WEED\)?SRCHCR=SC5F74F4084C4E2](https://CALSCAPE.ORG/ACMISPON-GLABER-(DEER-WEED)?SRCHCR=SC5F74F4084C4E2)

ACMISPON GLABER

Common Deerweed
1'-3' tall and 3' wide
Nursery availability - Sparse



PHOTO:NPS EMPLOYEE [HTTPS://CALSCAPE.ORG/CAMISSONIOPSIS-CHEIRANTHIFOLIA-SSP-CHEIRANTHIFOLIA-\(BEACH-EVENING-PRIMROSE\)?SRCHCR=SC5F74F4575D31C](https://CALSCAPE.ORG/CAMISSONIOPSIS-CHEIRANTHIFOLIA-SSP-CHEIRANTHIFOLIA-(BEACH-EVENING-PRIMROSE)?SRCHCR=SC5F74F4575D31C)

CAMISSONIA CHEIRANTHIFOLIA

SSP. CHEIRANTHIFOLIA

Beach Evening Primrose
.5' tall and .5'-3' wide
Nursery availability - Sparse



PHOTO:STEVE MATSON [HTTPS://CALSCAPE.ORG/PHOTOS/1517?SRCHCR=SC5F74EFD56FA58](https://CALSCAPE.ORG/PHOTOS/1517?SRCHCR=SC5F74EFD56FA58)

ERIOGONUM LATIFOLIUM

Coast Buckwheat
1'-2' tall and 3' wide
Nursery availability - Yes

HCP supported by coastal strand and dune include Sand Gilia and Monterey Spineflower.



PHOTO: [HTTPS://WWW.LASPILITAS.COM/NATURE-OF-CALIFORNIA/PLANTS/291--ERIOGONUM-PARVIFOLIUM](https://www.laspilitas.com/nature-of-california/plants/291--erogonum-parvifolium)

ERIOGONUM PARVIFOLIUM

Seacliff Buckwheat
1'-3' tall and 2'-3' wide
Nursery availability - Yes



PHOTO: [HTTPS://WWW.SMGROWERS.COM/PRODUCTS/PLANTS/PLANTDISPLAY.ASP?PLANT_ID=3963](https://www.smgrowers.com/products/plants/plantdisplay.asp?plant_id=3963)

LUPINUS ALBIFRONS

Bush Lupine
1' tall and 1'-2' wide
Nursery availability - Yes



PHOTO: DEAN WM. TAYLOR [HTTPS://CALSCAPE.ORG/GILIA-TENUIFLORA-SSP.-ARENARIA-\(MONTEREY-GILIA\)?SRCHCR=SC5F74EB92129A4](https://calscape.org/gilia-tenuiflora-ssp.-arenaria-(monterey-gilia)?srchcr=sc5f74eb92129a4)

GILIA TENUIFLORA SSP. ARENARIA

Monterey Sand Gilia
.5' tall and .5' wide
Nursery availability - No



PHOTO: JOHN DOYEN [HTTPS://CALSCAPE.ORG/PHOTOS/66649?SRCHCR=SC5F74EB2ACADE1](https://calscape.org/photos/66649?srchcr=sc5f74eb2acade1)

CHORIZANTHE PUNGENS VAR. PUNGENS

Monterey Spineflower
.5' tall and .5' wide
Nursery availability - No



Lewis MacAdams Riverfront Park, Los Angeles, CA

PHOTO:LYDIA KENSELAAR

SITE FURNISHINGS

Furniture will be used in the project to strengthen design concepts through materiality, form, and intention. Furnishings will appear at trailheads, viewpoints, and rest areas.

These physical elements will create places of respite along the extensive trail network, and are opportunities to define the design language of FORTAG, and create spaces that encourage repeated use of the trail.



Info-Point, Bolzano, Italy

PHOTO:NOA WWW.DESIGNBOOM.COM/ARCHITECTURE/NOA-SWINGING-FRAMES-INSTALLATION-ITALY-06-04-2016/



Armitage Education Center Pavilion, Lawrence, KS

PHOTO:KANSAS BIOLOGICAL SURVEY



Asbury Woods Nature Center, Erie, PA

PHOTO:ASBURY WOODS NATURE CENTER FACEBOOK PAGE



Sensory Pavilion, KS

PHOTO:DIRT WORK STUDIO WWW.DIRTWORKSSTUDIO.KU.EDU/#SENSORY-PAVILION/99



Student Project

PHOTO:HTTPS://WWW.SOHU.COM/A/315552036_200550

Structures

Shade structures, seat walls, and other physical enhancements can have design qualities that reinforce the design theme. All structures built within the FORTAG will utilize a consistent architectural style and use materials that blend with the landscape character to minimize visual impacts.



Wilson Underline, Chicago, IL

PHOTO: WILSON UNDERLINE [HTTPS://WILSONUNDERLINE.COM/VERSION/](https://wilsonunderline.com/version/)

Pico Pebble Seat by Barrell Sculpture

PHOTO: [HTTPS://WWW.EXTERNALWORKSINDEX.CO.UK/ENTRY/140908/BARRELL-SCULPTURE/PICO-PEBBLE-SEAT/#](https://www.externalworksindex.co.uk/entry/140908/barrell-sculpture/pico-pebble-seat/#)

Milton Street Park

PHOTO: SWA [HTTPS://SWABALSLEY.COM/PROJECTS/MILTON-STREET-PARK-2/](https://swabalsley.com/projects/milton-street-park-2/)

Los Angeles State Historic Park, Los Angeles, CA

PHOTO: SEAN CARTER



Bucharest, Romania

PHOTO: [HTTPS://WWW.MMCITE.COM/US/NEWS/BUCHAREST-COMES-TO-LIFE-THANKS-TO-MMCITE](https://www.mmcite.com/us/news/bucharest-comes-to-life-thanks-to-mmcite)

Vistula Boulevard, Warsaw, Poland

PHOTO: RS ARCHITEKTURA KRAJOBRAZU
[HTTP://LANDEZINE.COM/INDEX.PHP/2018/02/VISTULA-BOULEVARDS-BY-RS-ARCHITEKTURA-KRAJOBRAZU/](http://landezine.com/index.php/2018/02/vistula-boulevards-by-rs-architektura-krajobrazu/)

Seating

Seating contributes to the user experience by inviting users to rest, congregate, or contemplate. Seating opportunities along the trail provide a short relief and also promote added enjoyment of the scenic environment. Seating areas are designed to create identity along the trail.



Strasse des Friedens, 2017, Eschdorf, Luxembourg

PHOTO: [HTTPS://WWW.JHEMP-BASTIN.COM/COPIE-DE-TREES-RECONSTRUCTED-1](https://www.jhemp-bastin.com/coapie-de-trees-reconstructed-1)



High Trestle Trail, Woodward, Iowa

PHOTO: JAKE BOYD



Centennial Center Park, Centennial, CO

PHOTO: DCLA [HTTPS://WWW.DCLA.NET/HOME-SLIDESHOW](https://www.dcla.net/home-slideshow)

Public Art

Art installations can encourage play, function as interpretive aids, or serve as a trail's primary attraction. Innovative trail design includes developing site plans with art features as well as more common amenities such as seating and signage.



Simple Park Benches and Tables

PHOTO: JAAK NILSON. [HTTPS://FINEARTAMERICA.COM/FEATURED/SIMPLE-PARK-BENCHES-AND-TABLES-JAAK-NILSON.HTML](https://fineartamerica.com/featured/simple-park-benches-and-tables-jaak-nilson.html)



PHOTO: [HTTPS://WWW.ARTFORMURBAN.CO.UK/BULL-PICNIC-TABLE.HTML](https://www.artformurban.co.uk/bull-picnic-table.html)

Picnic Tables

Picnic tables should have a sturdy construction and placed either individually or clustered in groups. Picnic tables provide places for trail users to congregate for meals, relax, or have informal events.



PHOTO: REGINA ARNOLD
[HTTPS://FINEARTAMERICA.COM/FEATURED/BICYCLE-RACK-REGINA-ARNOLD.HTML](https://fineartamerica.com/featured/bicycle-rack-regina-arnold.html)



Bicycle Parking

Bicycle racks provide opportunities for trail users to use the trail as transportation, where users can engage in other activities without the worry of losing their bicycles. Racks will be placed at all trailhead areas, and throughout CSUMB.



PHOTO: [HTTPS://WWW.ARTFORMURBAN.CO.UK/CORTE-LITTER-BIN.HTML](https://www.artformurban.co.uk/corte-litter-bin.html)

Trash Receptacles

Trash receptacles are installed at trail entry points and as-needed for user convenience. While requiring dedicated maintenance, they will help prevent the spread of refuse throughout the trail corridor and onto surrounding areas. The appearance should match other trail amenities.



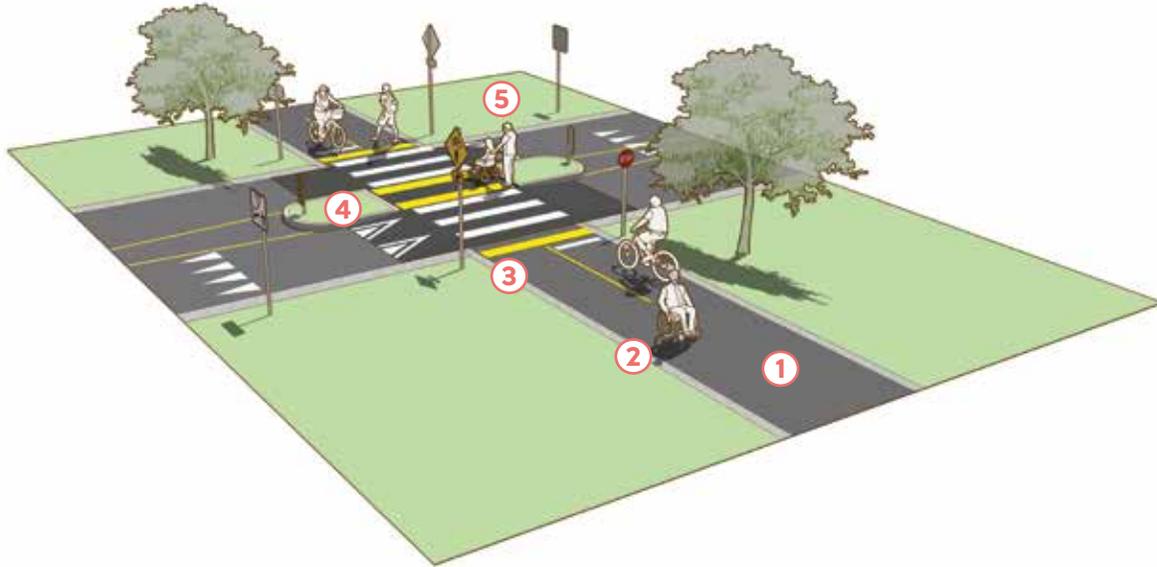
PHOTO: [HTTP://WWW.BELSON.COM/HAWS-BARRIER-FREE-POWDER-COATED-HI-LO-WITH-PET-BOWL-PEDESTAL-DRINKING-FOUNTAIN](http://www.belson.com/haws-barrier-free-powder-coated-hi-lo-with-pet-bowl-pedestal-drinking-fountain)



PHOTO: [HTTPS://WWW.ARTFORMURBAN.CO.UK/FUENTE-FOUNTAIN.HTML](https://www.artformurban.co.uk/fuente-fountain.html)

Water Fountains

Drinking fountains are spaced at regular intervals that correspond with key gateways and landmarks. Locating fountains with multiple heights will help accommodate a range of user ages and physical abilities, as well as pets.



SOURCE: ALTA PLANNING + DESIGN
STAR GUIDE

STREET INTERSECTIONS AND CROSSINGS

Well-designed crossings are essential for trail safety, convenience, and support continuous travel experiences. Developing and selecting the proper treatments for each unique location is important whether it requires a grade-separated crossing, traffic calming, or an actuated signal.

The proposed FORTAG alignment will cross public roadways in several locations. Most of these crossings will be at-grade, requiring improvements and modifications such as: roadway and lane modifications; construction of medians, curb extensions, warning devices, and traffic control devices; and changes to signing and striping to enhance bike and pedestrian crossing safety.

FORTAG will also include several undercrossings, pedestrian/bicycle bridges, and roundabouts.

DESIGN FEATURES

- ① **Shared Use Path.** The single path combines bicyclists and pedestrians in both directions.
- ② **Network Connection Opportunities.** When constructed outside of a roadway corridor, a shared use path offers a low-stress experience away from motor vehicles.
- ③ **Roadway Crossings.** Where paths intersect roads, enhancements should improve conditions for path users.
- ④ **Intersection Crossings.** Enhancements such as median crossing islands or raised crossings can increase comfort and safety for path users.
- ⑤ **Route Markings.** Markings identify proper positioning within the roadway and alert all users to bicyclist presence.



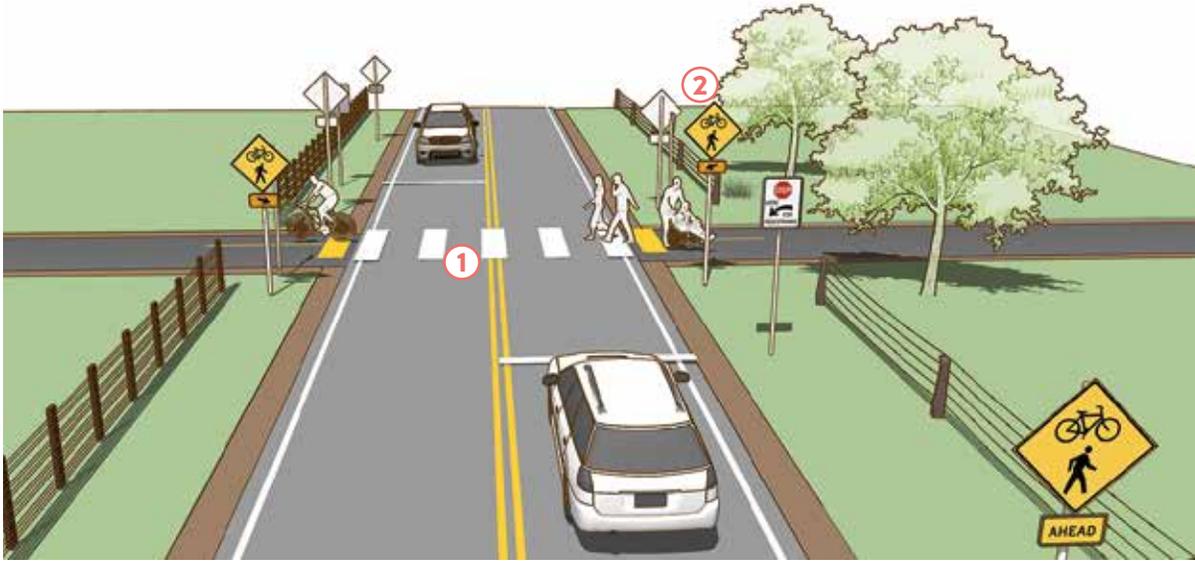
PHOTO: [HTTP://WWW.LONGBEACH.GOV/GOACTIVE/LB/MOBILITY-TOOLKIT/BICYCLE-TREATMENTS/BICYCLE-BOULEVARDS/](http://WWW.LONGBEACH.GOV/GOACTIVE/LB/MOBILITY-TOOLKIT/BICYCLE-TREATMENTS/BICYCLE-BOULEVARDS/)

Roundabouts

Mini roundabouts and neighborhood traffic circles are a popular design solution for intersections because they lower speeds at minor intersection crossings and are an ideal treatment for continuous flow of traffic. They may be installed using simple markings or raised islands, but are best applied in conjunction with plantings that beautify the street and the surrounding neighborhood. Careful attention should be paid to the available lane width and turning radius used with traffic circles.

At a roundabout, drivers yield to cars circling the center island and exit at their desired street. Cyclists similarly follow the curve to their destination.

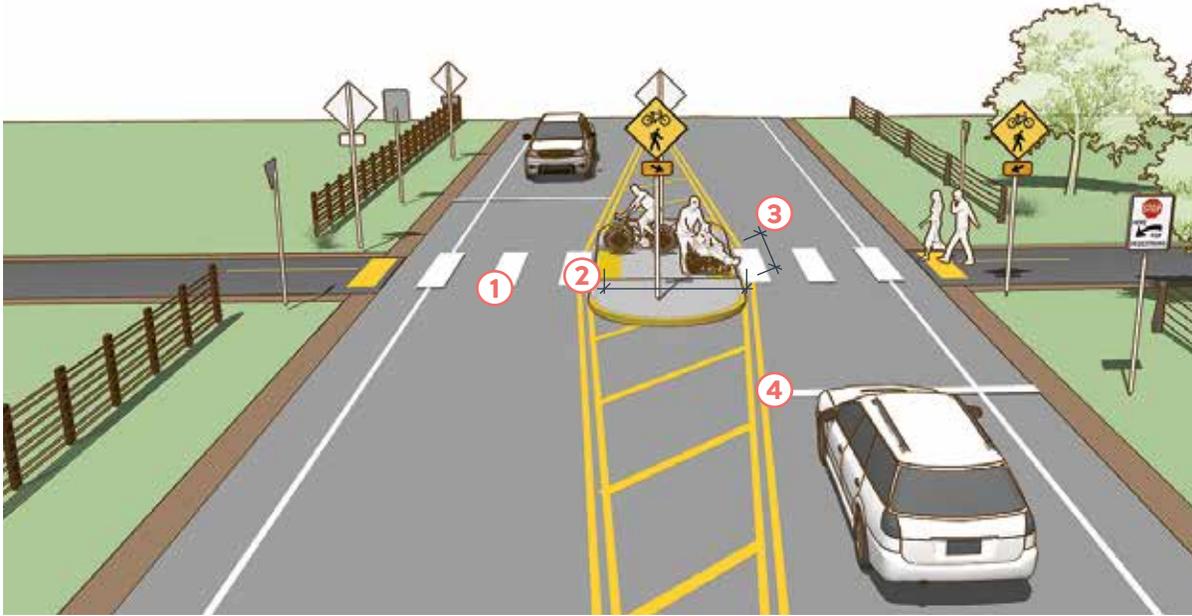




Mid-Block Trail Crossing

DESIGN FEATURES

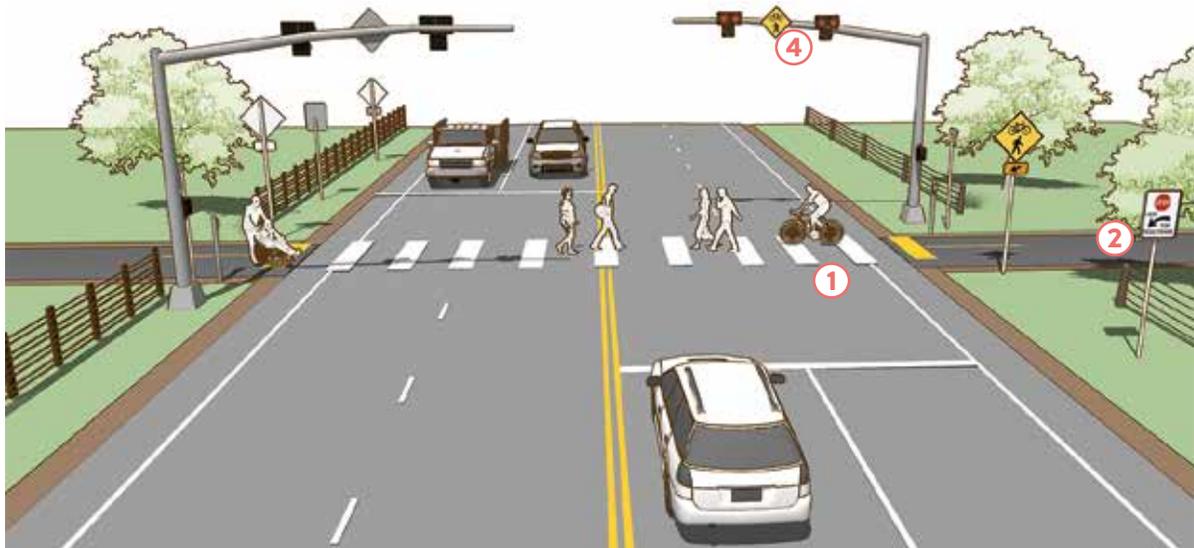
- 1 Crosswalk.** Appropriate high visibility crosswalk markings should be installed.
- 2 Warning Signs.** A Bicycle/Pedestrian warning sign (W11-15) with Downward Arrow plaque (W16-7P) at the crossing, on both sides. Signs are used to warn users of the crossing location.



Mid-Block Trail Crossing with Refuge Island

DESIGN FEATURES

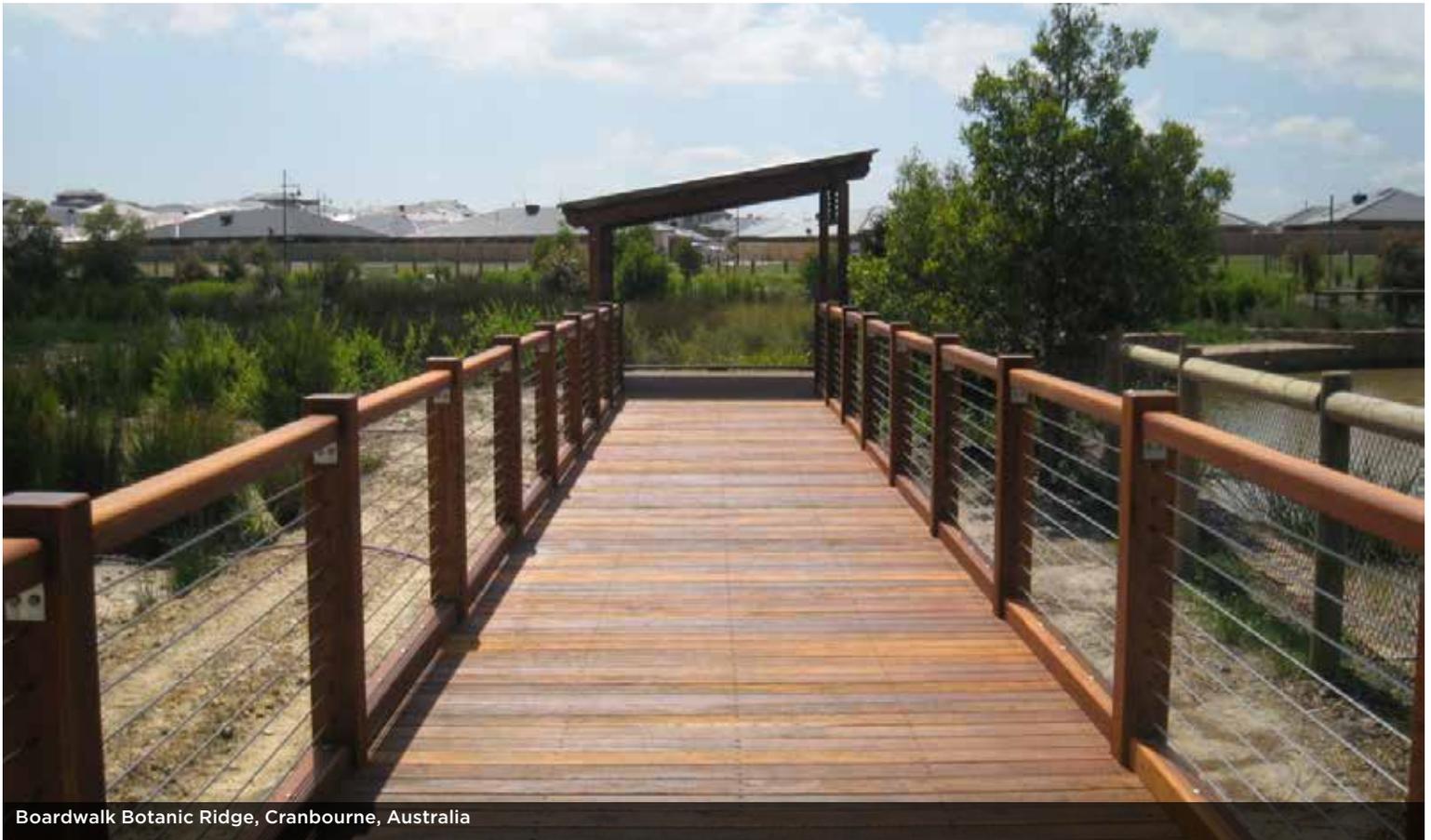
- 1 Crosswalk.** Median islands should be paired with a Marked Crosswalk and Advanced Yield Line crossing treatment package.
- 2 Refuge Area.** The bicycle waiting area should be at least 8 ft deep to allow for a variety of bicycle types.
- 3 Safety Island.** A median safety island should allow path users to cross one lane of traffic at a time. It should be the same width as the crosswalk.
- 4 Horizontal Deflection.** To promote yielding to bicyclists the median safety island should be designed to require horizontal deflection of the motor vehicle travel lanes.



Flashing Beacons and Hybrid Beacons

DESIGN FEATURES

- ① **Crosswalk.** A marked Crosswalk and Advance Stop Bar crossing treatment package should be paired with the full traffic signal.
- ② **Stop Sign.** A stop line and STOP HERE ON RED sign should be used.
- ③ **Rectangular Rapid Flash Beacons (RRFB).** Where yield compliance is low, rectangular rapid flash beacons can be used to draw attention to crossing path users and signal their intent to cross.
- ④ **Pedestrian Hybrid Beacon (PHB).** On multi-lane streets with high volumes and few gaps for crossing, a pedestrian hybrid beacon may be used to increase yielding rates.



Boardwalk Botanic Ridge, Cranbourne, Australia

PHOTO: [HTTPS://WWW.GRDESIGNANDCONSTRUCT.COM.AU/GALLERY/PORTFOLIO/BOARDWALK-BOTANIC-RIDGE/](https://www.grdesignandconstruct.com.au/gallery/portfolio/boardwalk-botanic-ridge/)

Boardwalks

Boardwalks are typically required when crossing sensitive areas such as wetlands, sand dunes, or poorly drained areas. They can also be used to provide trail access in areas where grading may harm established vegetation or create trail surfaces that wildlife will not cross. Boardwalks should be considered in relation to environmental impacts. They can be constructed of concrete, wooden planks or recycled material planks that form the top layer of the boardwalk.



Tahoe East Shore Trail, Lake Tahoe

PHOTO: JASON BEAN/RGJ WWW.RGJ.COM/PICTURE-GALLERY/NEWS/2019/11/14/PHOTOS-RECENT-WORK-RGJ-PHOTOGRAPHER-JASON-BEAN/4192444002/



New Smyrna Beach, FL

PHOTO: [HTTPS://WWW.NEWSDAYTONABEACH.COM/STORIES/SMYRNA-DUNES-BOARDWALK-PROJECT-CONTINUES-DESPITE-BEING-STALLED-BY-IRMA.3128](https://www.newsdaytonabeach.com/stories/smyrna-dunes-boardwalk-project-continues-despite-being-stalled-by-irma.3128)



PHOTO SIMULATION:ALTA PLANNING + DESIGN



PHOTO SIMULATION:ALTA PLANNING + DESIGN

Bridges

Bicycle/pedestrian bridges provide trail continuity and access to areas separated by barriers such as deep canyons, waterways, or major transportation corridors. Bridges offer an opportunity to create a focal point that enhances the trail experience and

supports community identity. When creating high-quality and comfortable facilities for people walking and cycling it is important to note that the type and size of bridges can vary depending on the trail type and specific site requirements.



Gwynns Falls Trails, Lochearn, MD

PHOTO:GWYNNS FALLS TRAILS
[HTTP://WWW.GWYNNSFALLSTRAIL.ORG/TRAIL_INFORMATION.CFM](http://www.gwynnsfallstrail.org/trail_information.cfm)



Merritt Parkway, CT

PHOTO:BRIAN A. POUNDS / HEARST CONNECTICUT MEDIA
[HTTPS://WWW.CTPOST.COM/LOCAL/ARTICLE/BIKE-TRAIN-STRETCHES-FROM-BRIDGEPORT-TO-NEWTOWN-13056868.PHP](https://www.ctpost.com/local/article/bike-train-stretches-from-bridgeport-to-newtown-13056868.php)



McCaslin Boulevard Underpass - City of Louisville, CO

PHOTO:LORIS. [HTTP://LORISANDASSOCIATES.COM/SERVICES/PED-BRIDGES/MCCASLIN-BOULEVARD-UNDERPASS-CITY-OF-LOUISVILLE-CO](http://lorisandassociates.com/services/ped-bridges/mccaslin-boulevard-underpass-city-of-louisville-co)



PHOTO SIMULATION:ALTA PLANNING + DESIGN

Undercrossing

An alternative to bridges, where topography or roadway design permits, undercrossings should be constructed within the most direct path of travel, providing trail continuity beneath roadways and other locations where trails meet or cross significant public infrastructure or grade changes.

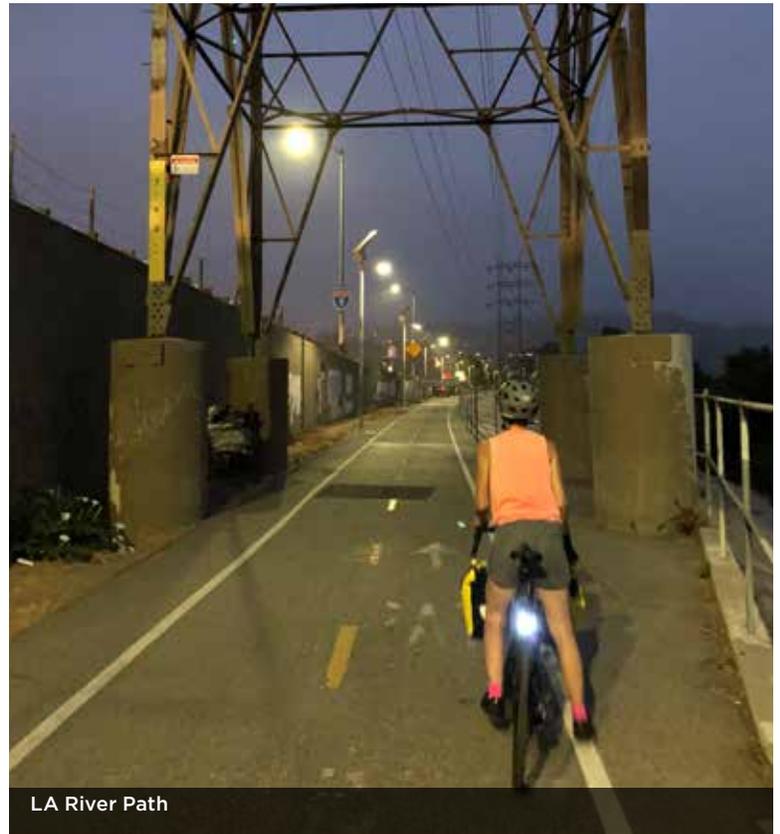
LIGHTING

Lighting for built trails are analyzed per segment context with full consideration for safety needs, wildlife habitat, trail function, cost benefit, and maintenance commitments. In general, lighting is not used for trails in remote areas, trails with low use, or where there is little to no development. However, trails that function as transportation corridors must balance these considerations with commuter comfort and safety. Lighting improves the visibility of roadways at crossings and trails. Lighting may also be necessary for day-time use in trail tunnels and underpasses.

Trail lighting that is properly designed can improve visibility and natural surveillance, increase trail access and use, provide a sense of safety and security, and extend operating hours during shorter days. In addition, properly lit trails reduce bicycle and pedestrian collisions during night time hours.

Guidelines for Lighting on Trails

- Lighting should be at pedestrian scale. Placement, spacing, and other finish specifications depend on the fixture and optics.
- Good lighting improves natural surveillance and visibility.
- Lighting should minimize energy usage, operating costs, light trespass, light pollution and glare.
- Place lighting at decision points and areas of interest, such as street crossings, intersections with other trails, trail spurs, and near commercial and mixed-use developments.
- Illuminate only the intended targeted areas and use cut-off fixtures that aim lights down instead of above or behind the fixture, which causes light pollution.
- Consider Crime Prevention Through Environmental Design (CPTED) principles whenever lighting is introduced, such as color rendering, areas of concealment, and abstracted illumination.
- Use energy efficient lamps that comply with environmental guidelines, and that provide adequate color rendering.
- Consider timers, sensors, and remote-control technology which can enhance the sense of security and conserve energy.
- Lighting should avoid trees and be placed outside of the canopy edge.
- Solar powered lighting is available where utility connection is not feasible or when alternative energy sources are desired. Daylight hours should be analyzed per season prior to specifying solar lighting.
- Avoid light fixtures at eye level that could cause glare and impair visibility.



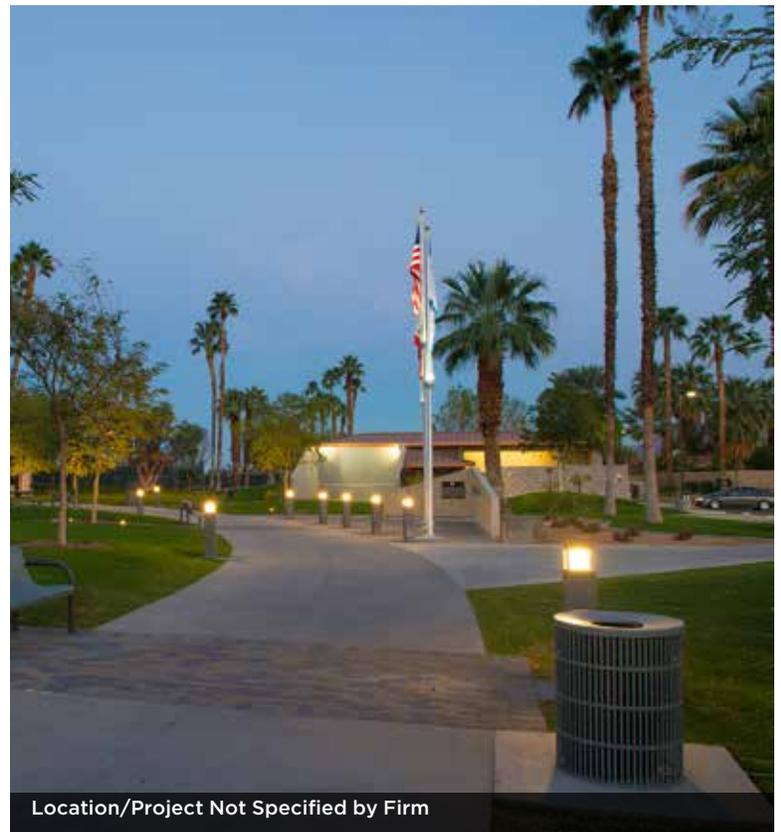
LA River Path

PHOTO: LYDIA KENSELAAR

Lighting Fixture Types

BOLLARD LIGHTS

Bollard lights are low level lights that provide illumination or wayfinding at trail entrances or intersections where pavement surface or accent lighting is desired. Bollard lights are not considered to be security and safety features as they do not provide good color rendering nor do they illuminate near eye levels. However, when used in combination with pole lighting, they can be effective in the lighting network.



Location/Project Not Specified by Firm

PHOTO:HERMANN DESIGN GROUP [HTTP://HERMANNDESIGNGROUP.COM/PORTFOLIO/PARK-DESIGN/](http://hermanndesigngroup.com/portfolio/park-design/)



LA River Path

PHOTO:LYDIA KENSELAAR



PHOTO:[HTTP://WWW.OTIMSAN.COM/TAG/AYAKLI-YONLENDIRME](http://www.otimsan.com/tag/ayakli-yonlendirme)

POLE LIGHTS

Pole lights are commonly used along trails, streetscapes, and parks. Pole lights provide a uniform light that increases visibility for trail users. Pole lights come in a wide variety of styles and finishes, and can be solar powered or wired. Many pole lights have cut-off features that can eliminate light pollution above and behind the bulbs and reduce glare for trail users. This feature is a significant benefit for lighting in residential areas where there are concerns about light pollution for neighboring homes.

INTEGRATED LIGHTING

Lighting can be integrated into furnishings, art, architectural and wayfinding elements, planting beds, handrails, and other trail features.

Solar Lighting Fixtures

BENEFITS OF SOLAR LIGHTING

Many cities and organizations are choosing solar power to light their outdoor public spaces because of the many advantages it offers over traditional wired lighting. Solar lighting companies have also adopted Light Emitting Diode (LED) bulb technology, which requires little to no maintenance over their life cycle. The benefits of solar lighting include:

- **No Electrical Grid Connection Cost**
Solar fixtures are ideal for projects that are expensive to build a connection to the electrical grid. These costs can vary depending on distance or other local engineering challenges.
- **Avoid Trenching Costs**
Trenching and installing electrical connections for a pathway can quickly become expensive. Solar lighting avoids the need to trench for wires.
- **Reduce Site Disruption and Restoration**
With trenching for wires also comes the disruption of the site, closing of the trail during construction and the cost of site restoration afterwards. Solar products only require the footing for the poles to be installed, greatly reducing the overall disruption and restoration of surface grade.
- **Faster Installation**
With less work required for site preparation and with self-contained fixtures, installation time of most solar fixtures is reduced.
- **No Power Outages**
Solar fixtures are designed with the capacity to stay on regardless of variations in weather or power outages.
- **Sustainable Light**
Solar lights generate all of the power they need, eliminating the need for power from the grid. Solar light fixtures prevent greenhouse gas emissions.

- **Remove Risk of Theft and Corrosion**

Electrical wires can be vulnerable to theft and corrosion, especially in more acidic soil conditions. Solar lights eliminate the risk and have features to make them vandal resistant. Many solar fixtures have been designed to match the aesthetic of wired lights but with the advantages of solar power.

CONSTRAINTS OF SOLAR LIGHTING

- **Upfront Investment**
The upfront investment for solar LED lighting is higher than for conventional wired lighting. However, long term servicing and maintenance is very low. A financial analysis is recommended to determine the cost benefit of using solar lighting for FORTAG. Also, it is very important when working with the solar lighting manufacturer to understand what parts of the fixture and product are guaranteed as well as life cycle and durability.
- **Solar Battery Lifespan**
Solar lights include batteries that need periodic replacement.
- **Indirect or Variable Sunlight Conditions**
Solar lighting fixtures typically require 2–5 hours of direct sunlight per day. However, some lighting companies have developed controllers that adapt to surroundings and save power. Additionally, companies are developing software for remote management to help optimize the lighting system or predict lower energy periods.
- **Limited Aesthetic**
Most solar lighting fixtures serve a very practical purpose. The primary design program is to house or host the photovoltaic panel and prevent theft and vandalism. As a result, their finishes can be limited and tend toward the more modern simple aesthetic. Selection is improving as the industry expands.



Noordboulevard, Den Haag, Netherlands

PHOTO: PITCH POWER, [HTTPS://PITCH-POWER.NL/FOTO-VIDEO/](https://pitch-power.nl/foto-video/)

Conventional Lighting Fixtures

BENEFITS OF CONVENTIONAL LIGHTING

- **Market Availability/Competitiveness**
Conventional electrical lighting is typically more affordable than solar lighting due to the basic technology of the fixtures, wide availability and competitive pricing across North America.
- **Wider Range of Fixture Styles and Finishes**
The current market for electrical lighting styles spans a wide range from traditional to modern. The color, finish, and form of both pole and bollard lights have many options which can be matched to current lighting in and around FORTAG.
- **Flexibility in Color Temperature**
Color temperature of lighting refers to the light appearance of a light bulb and is measured in degrees Kelvin. Electrical lighting offers more flexibility with color temperature.

CONSTRAINTS OF CONVENTIONAL LIGHTING

- **Trenching Requirement**
Electrical wiring for lighting requires trenching by machine, which is disruptive to the site and existing improvements. Trails may need to be closed during the installation of electrical wiring to accommodate the equipment and laborers.
- **Availability of Power Source**
Conventional electrical lighting requires connection to the electrical grid, and available sources for the connections can be limited or require additional trenching outside the trail corridor. Specific power connections were not assessed during the physical assessment and should be completed by an electrical engineer if a wired lighting system is selected.
- **Operating Cost**
Conventional fixtures require a steady supply of electricity.



**06 APPENDIX B:
BRANDING AND
WAYFINDING**



INTRODUCTION

How can we create a connected and user-friendly experience for visitors and residents? What are the colors, typefaces, visual elements, forms, materials, and design features that will define FORTAG? In addition to the physical design of the trail, this project is considering how to identify and brand the trail. Bold and consistent branding will draw attention, build familiarity and inspiration, and maximize the trail's potential for supporting economic development. Branding will provide a consistent voice to the project, with a visual identity that is distinct, harmonious, and memorable, reflecting the unique character of the Fort Ord area.

Branding and visual identity components may include: logos, color palette, typography, iconography, and wayfinding system signage.

A unified brand and visual identity system for FORTAG will:

- Create a sense of place
- Provide a memorable, clear, and distinctive voice
- Build recognition and visibility for FORTAG
- Provide consistency for familiarity
- Increase accessibility
- Prioritize clarity and legibility to help visitors and residents navigate
- Coordinate with existing landscape features and materials

Major themes that emerged from the collaborative branding process included:

Emblem-type logos are strongly preferred, with moderate support for lettermarks.

Palettes that reflect a natural, wooded environment are strongly preferred.



There is a strong preference for clear, modern typefaces and clean silhouette-style illustration (with some support for geometric, line-drawing, and icon-type illustrations).

Natural materials, and adaptive-reuse building styles, are strongly preferred. The brand should respect the history, natural environment, and existing "character of place" of Fort Ord and its surroundings.

"Coastal", imagery, or symbols that are associated with existing local brands (including the Monterey Cypress and the CSUMB otter) should be avoided.

When asked which celebrities might embody FORTAG, suggestions included Doris Day—a local hero and natural beauty—or it might be the youthful, social-media savvy Ariana Grande. The project should serve people of all backgrounds and walks of life.

History of a logo:

The initial FORTAG logo was developed by the those first involved in planning the trail. It represents the history and idea of FORTAG, and was the featured branding at countless meetings, presentations, and on associated business cards. FORTAG as we know it today was defined by the existing logo.



Above, clockwise from top left: FORTAG, Monterey, CA; FORTAG, Monterey, CA; Stone texture; Rammed earth wall

PHOTO CREDITS, CLOCKWISE FROM TOP LEFT: [HTTP://WWW.FORTAG.ORG/GALLERY.HTM](http://www.fortag.org/gallery.htm); [HTTP://WWW.FORTAG.ORG/GALLERY.HTM](http://www.fortag.org/gallery.htm); UNCREDITED; [HTTPS://MEDIUM.COM/@H4EAFY/THOUGH-THE-EARTH-BUILDING-TECHNIQUE-WAS-PRACTICED-THOUSANDS-OF-YEARS-AGO-AS-REVEALED-BY-2683225E4329](https://medium.com/@H4EAFY/THOUGH-THE-EARTH-BUILDING-TECHNIQUE-WAS-PRACTICED-THOUSANDS-OF-YEARS-AGO-AS-REVEALED-BY-2683225E4329)

ALTERNATIVE LOGO AND COLOR PALETTE

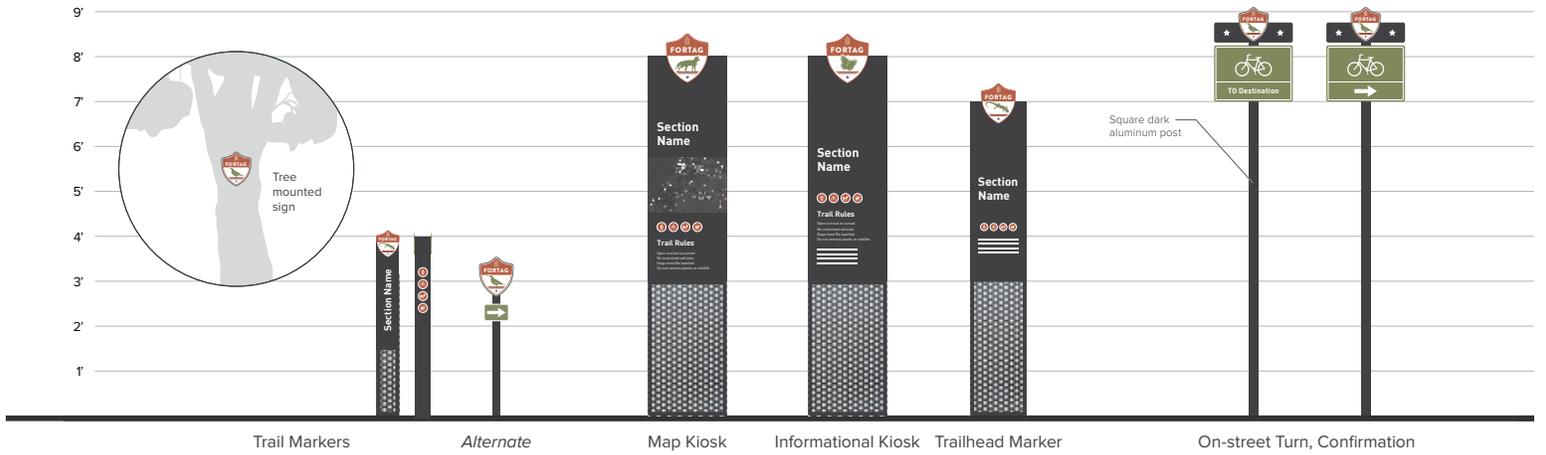
The additional branding concept presented here emerged from an initial round of design based on the direction outlined above, and with further guidance from the stakeholder group.



Symbolic Duality

Combining classic military style with imagery from the natural landscape.

The various featured animals could stand alone, or together they could become elements in a modular suite of logos. (e.g. a series of different animals that can be swapped out on the badges: quail, fox, salamander, or other).



Symbolic Duality

The wayfinding concepts draw inspiration from monolithic military signage. Made out of metal, the classic form is juxtaposed with perforated metal to give the structures a sense of levity and lightness.

WAYFINDING BEST PRACTICES

Universal Design

The path should be rewarding, safe, and comfortable for all users, *including those with mobility, vision, or other physical, sensory, or cognitive functional limitations*. A universal design approach prioritizes non-segregated accessibility and enjoyment for people of all skills and abilities.

Intuitive Wayfinding

Well-crafted wayfinding systems encourage people walking and bicycling to go that extra mile, explore new areas, and foster a sense of place. Wayfinding systems can also encourage increased rates of active transportation by creating a clear and attractive network that is easy to understand and navigate.

Places that are arranged intuitively so that we can see obvious destinations from a distance, determine pathways, and recognize areas of different character are more legible. The “legibility” of a place describes how easy it is to understand.

Legible wayfinding systems enable individuals to:

- Easily and successfully find their destination
- Understand where they are with respect to other key locations
- Orient themselves in an appropriate direction with little misunderstanding or stress
- Discover new places and services
- Feel safe (enhance the sense of safety)

Wayfinding for Trails

The following six core principles aim to guide the placement and design of a wayfinding system in order to create a clear wayfinding experience and achieve a more navigable pathway.



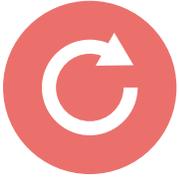
1. CONNECT PLACES

Effective wayfinding information should enable local residents as well as visitors to travel between destinations and discover new destinations and services. Wayfinding should help improve local economic well-being by encouraging people to utilize services along FORTAG. Wayfinding should enhance connections within the region and to neighboring communities and expand the active transportation network.



2. PROMOTE ACTIVE TRAVEL

Wayfinding should encourage increased walking and rolling by revealing a clear and attractive system that is easy to understand and navigate. The presence of wayfinding signs should validate walking and rolling as transportation options, as well as reduce fear amongst those interested in making more trips by walking or rolling. Wayfinding should expand the awareness and use of active transportation facilities



3. MAINTAIN MOTION

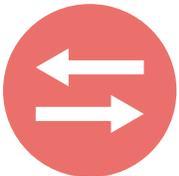
Walking and rolling require physical effort, and frequent stopping and starting to check directions may lead to frustration and discouragement. Consistent, clear, and visible wayfinding elements allow people walking and rolling to navigate while maintaining their state of motion. To help users maintain motion, wayfinding information also needs to be presented so that it can be quickly read and easily comprehended.



5. KEEP INFORMATION SIMPLE

For a wayfinding network to be effective, information needs to be presented clearly and logically. It is important to provide information in manageable amounts. Too much information can be difficult to understand; too little and decision-making becomes difficult.

The placement of signs and the information provided at each placement are also critical. Information should be provided in advance of where major changes in direction occur and confirmed when the maneuver is complete.



4. BE PREDICTABLE

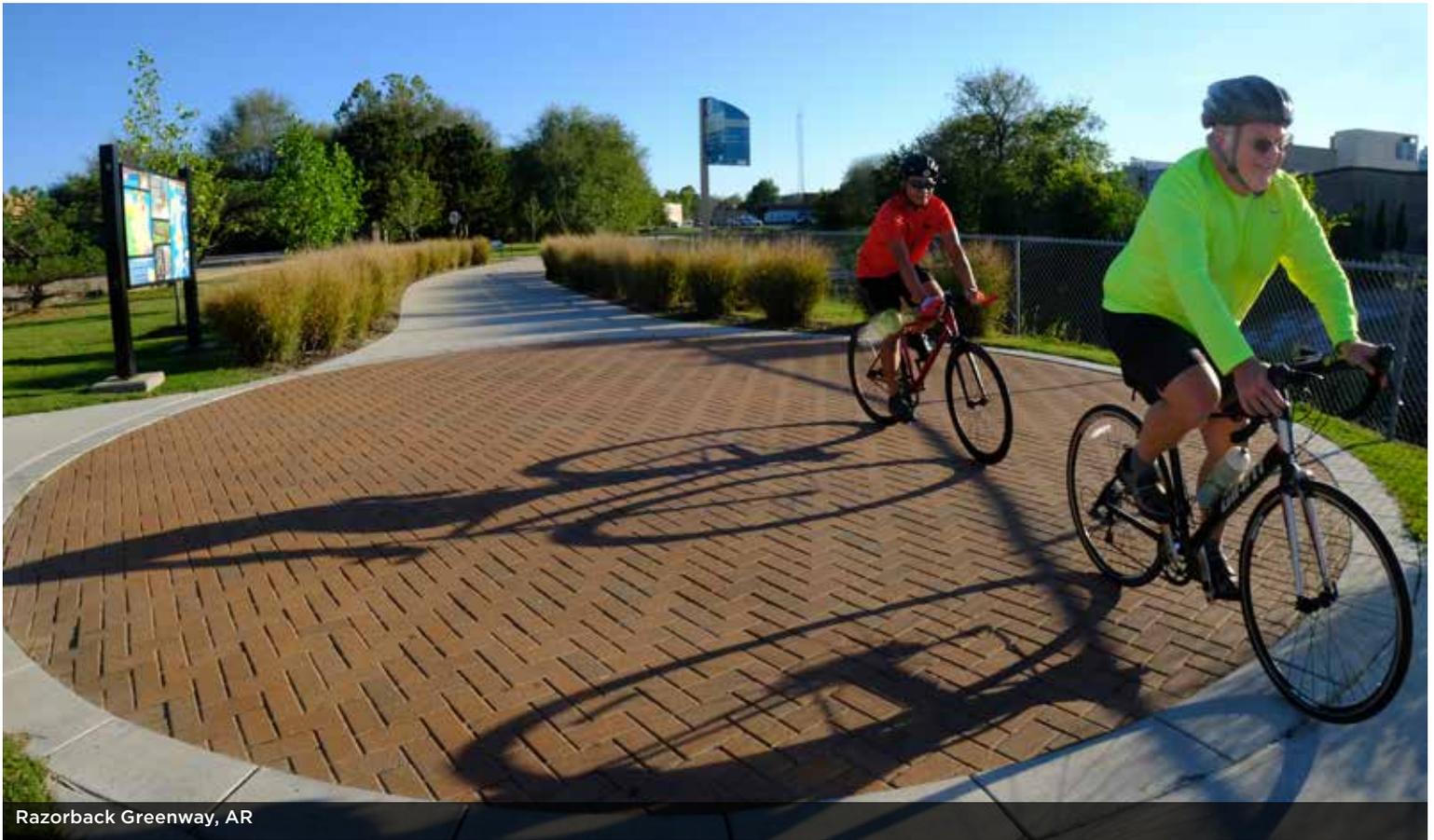
Effective wayfinding systems are predictable. When information is predictable, patterns emerge, and users of the network will be able to rely on the system to provide information when they expect it. Predictability also helps users to understand new situations quickly, whether it be navigating a new intersection or traveling to a destination for the first time.

Predictability should relate to all aspects of wayfinding placement and design (i.e., sign materials, dimensions, colors, forms, and placement). Similarly, maps should employ consistent symbology, fonts, colors, and style. The system should be designed in accordance with local, state, and federal guidelines, ensuring that it can be funded through state and federal sources.



6. MAKE IT ACCESSIBLE

Wayfinding signage should be accessible and be designed to be comprehensible by a wide range of users, including people of all ages and ability levels. As wayfinding systems often relate to accessible routes or pedestrian circulation, it is important to consider technical guidance from the Americans with Disabilities Act (ADA) to implement wayfinding signs and other elements that do not impede travel or create unsafe situations for pedestrians, bicyclists, and/or those with disabilities.



Razorback Greenway, AR

PHOTO: ALTA PLANNING + DESIGN [HTTPS://ALTA PLANNING.COM/SERVICES/TRAILS-GREENWAYS/](https://altaplanning.com/services/trails-greenways/)

Wayfinding Elements

The goal of a wayfinding system is to simplify navigation in urban environments. This section describes the spectrum of elements that may be used in the Billings Wayfinding Signage Plan. These elements are listed below and outlined in further detail on subsequent pages.

ACCESS ELEMENTS

- Gateway monuments
- Information kiosks
- Secondary access signage

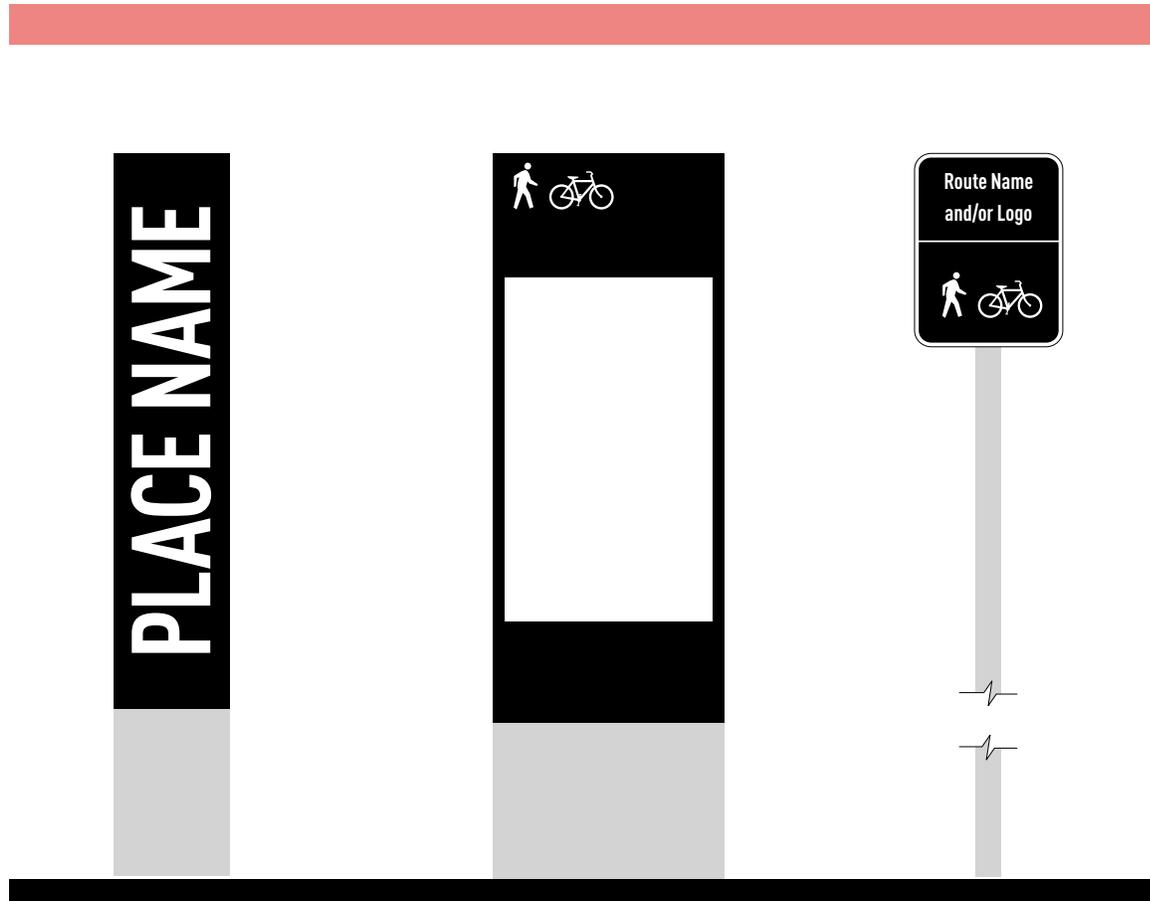
FUNDAMENTAL NAVIGATIONAL ELEMENTS

- Decision signs
- Confirmation signs
- Turn signs

ENHANCED NAVIGATIONAL ELEMENTS

- Pavement markings
- Mile markers
- Street/trail intersection signs
- Fingerboard signs

ACCESS ELEMENTS



Gateway Monument

Define the entry into a distinct neighborhood, or mark trailheads, access points, and landmarks. Opportunity for community-directed placemaking and integrated artwork.

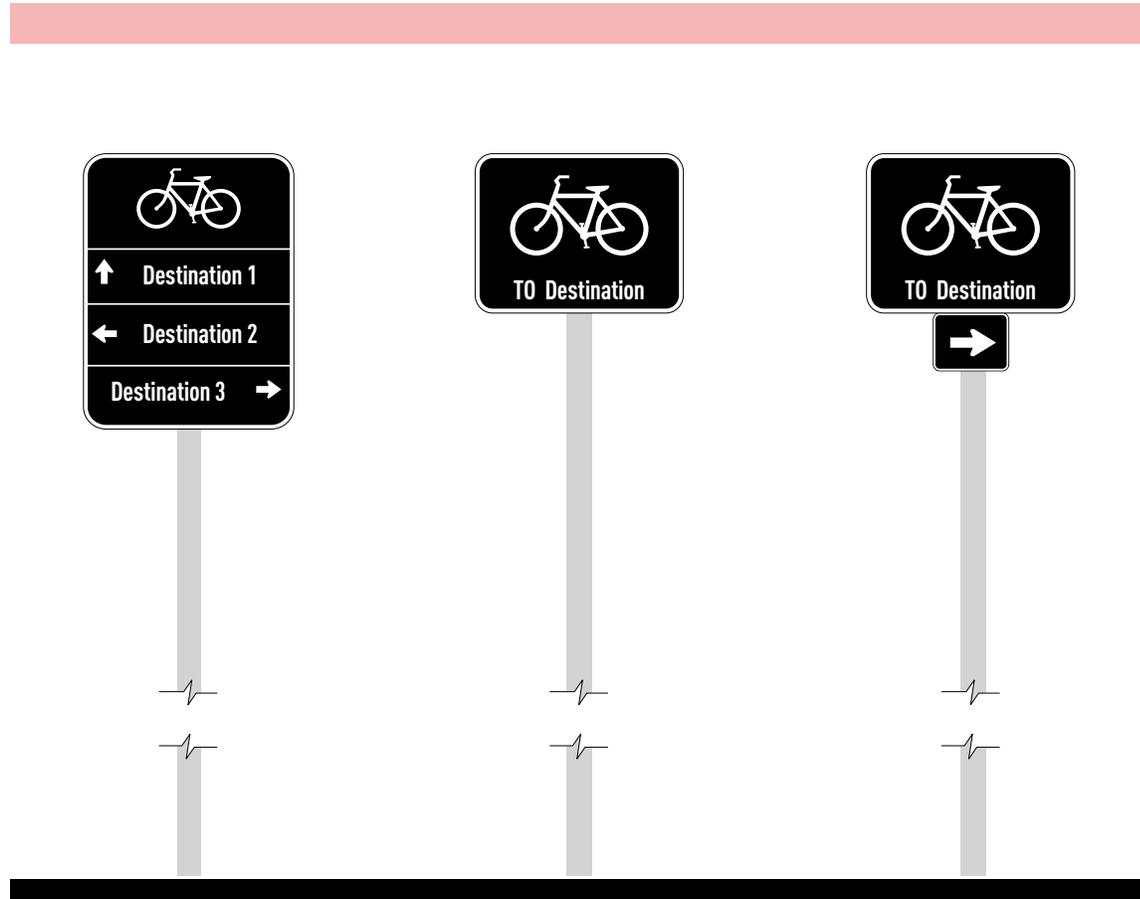
Information Kiosk

Provide system map and navigational information; most effective when placed in plazas, rest areas, or other locations where users may congregate, rest, or enter a trail or path.

Secondary Access

Mark entry to trails or paths at locations where limited user traffic may not necessitate as much information as information kiosks.

FUNDAMENTAL NAVIGATIONAL ELEMENTS



Decision

Clarify route options where two or more routes converge, or at complex intersections.

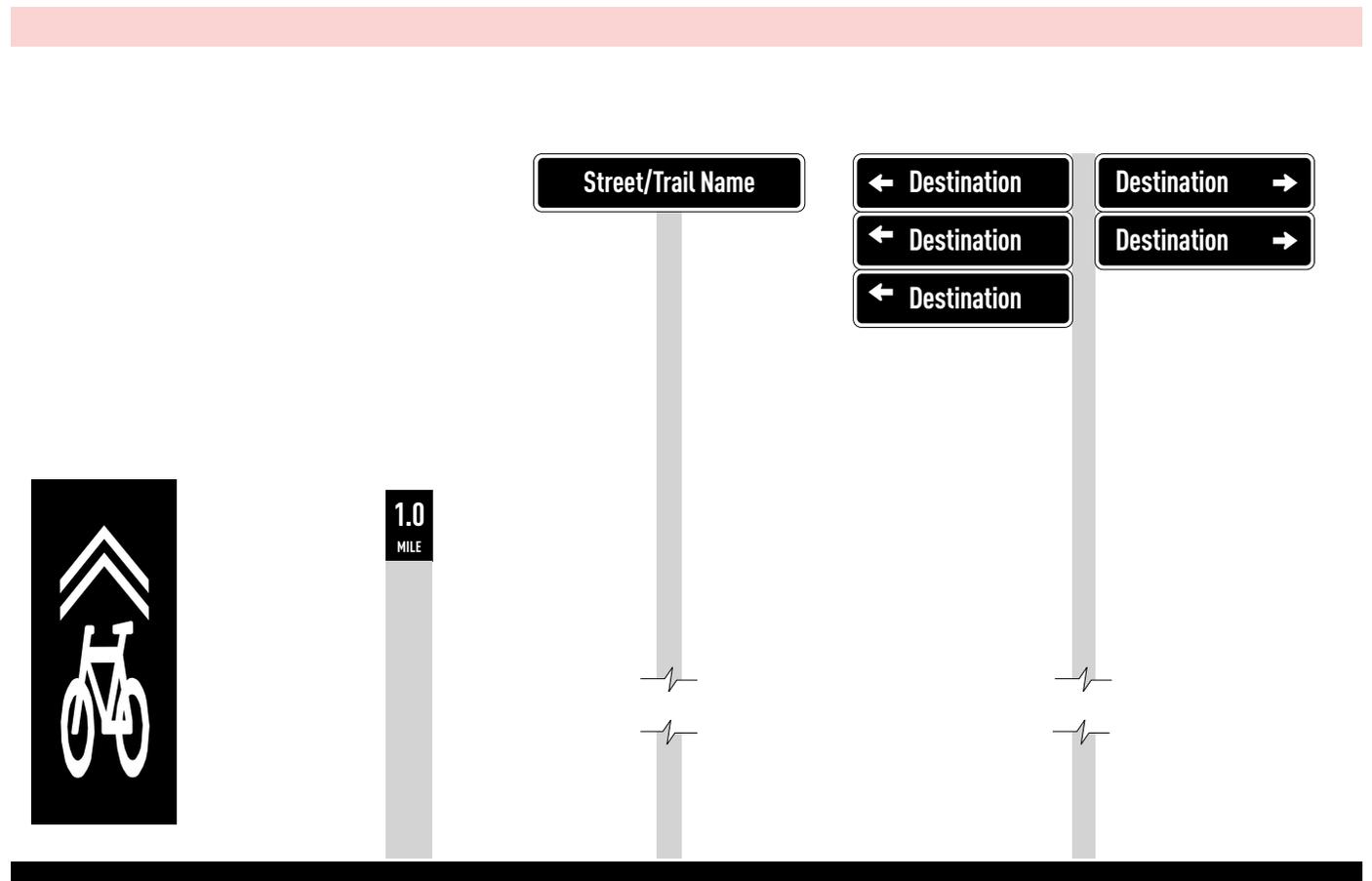
Confirmation

Placed after a turn or intersection to reassure path users that they are on the correct route.

Turn

Placed before a turn or intersection to help users stay on the designated path.

ENHANCED NAVIGATIONAL ELEMENTS



Pavement Marker

Reinforce route direction, bicyclist positioning, intermodal cooperation, and/or system branding.

Mile Marker

Reinforce system branding and orient users along off-street trails or paths.

Street/Trail Intersection

Orient off-street trail users at street crossings and inform vehicular traffic of trail crossing.

Fingerboard

Clarify route options where two or more routes converge, or at complex intersections.

INTERPRETIVE ELEMENTS

Interpretive elements can enrich the trail with a "sense of place" and support the Fort Ord Reuse Authority's education mission along the trail.

Themes

Historical and ecological inspiration is an abundant, and a creative educational approach that is tied into site amenities and placemaking will highlight the beauty, ecology, and rich history of the area. Buildings and other structures remnant from the base remain throughout the site, and while many will be removed through future development efforts, opportunities will be identified to reuse and incorporate historical features into the trail's design. Potential exists to bring other historical interpretive moments to the trail, such as the portion in Del Rey Oaks that overlaps two legs of the Juan Bautista De Anza expedition corridor.

Additional potential themes for exploration include:

HISTORY OF FORT ORD

Since the early 20th century, the FORTAG area has a history of significant use by the American military. Periods of rapid development have left their mark on the landscape and culture.

NATIVE WILDLIFE

The Fort Ord area, with its combination of climactic factors and relatively undeveloped swaths of land, creates a productive niche environment which supports a biologically diverse array of animal species from coast to woodlands.

PLANT COMMUNITIES

Boasting some of the world's most treasured endemic plant species, the FORTAG project area is home to an iconic mixture of rare native plant communities that will be celebrated and respected.

NATIVE PEOPLE

The rich history of the native people of the Monterey Bay region should provide themes to the design as appropriate. Specifically, the narratives of the Ohlone and Costanoan-Esselen native peoples may provide elements to inform design and interpretive opportunities. Tribal representatives should be consulted throughout design processes that discuss the native history in the area.

*Facing Page, Top Row, Left to Right: CSUMB Facilities and Campus Planning, Monterey, CA; Fort Ord Soldiers Club; Fort Ord 149th Armored Regiment
Second Row: Untitled, Untitled, California Tiger Salamander
Third Row: Live Oak, CA; Ford Ord National Monument, Monterey, CA; Fort Ord Dunes State Park, Monterey, CA
Fourth Row: Untitled, Muwekma Today, Untitled*

PHOTO CREDITS.
TOP ROW: CSU MONTEREY BAY [HTTPS://POCKETSIGHTS.COM/TOURS/TOUR/SEASIDE-CSU-MONTEREY-BAY-3287#LG=1&SLIDE=28](https://pocketsights.com/tours/tour/seaside-csu-monterey-bay-3287#lg=1&slide=28); HABSH [HTTPS://WWW.ALAMY.COM/FORT-ORD-SOLDIERS-CLUB-HABS-IMAGE342875790.HTML](https://www.alamy.com/fort-ord-soldiers-club-habs-image342875790.html); [HTTPS://MILITARY.WIKIA.ORG/WIKI/FORT_ORD?FILE=SECRETSOFFORTORDTOUR1.JPG](https://military.wikia.org/wiki/Fort_Ord?file=Secretsoffortordtour1.jpg)
SECOND ROW: PHOTO: BILL LEIKAM / THE FOX GUY [HTTPS://WWW.SFGATE.COM/PETS/ARTICLE/GRAY-FOX-SIGHTINGS-BAY-AREA-CALIF-MATING-SEASON-12958102.PHP](https://www.sfgate.com/pets/article/gray-fox-sightings-bay-area-calif-mating-season-12958102.php); UNCREDITED; [HTTPS://WWW.COURTHOUSENEWS.COM/CALIFORNIA-TIGER-SALAMANDER-FINALLY-RECOVERY-PLAN/](https://www.courthousenews.com/california-tiger-salamander-finally-recovery-plan/)
THIRD ROW: [HTTPS://EN.WIKIPEDIA.ORG/WIKI/LIVE_OAK,_SANTA_CRUZ_COUNTY,_CALIFORNIA#/MEDIA/FILE:LIVEOAKLIVEOAK.JPG](https://en.wikipedia.org/wiki/Live_oak,_Santa_Cruz_County,_California#/media/File:Liveoakliveoak.jpg); PHOTO: U.S. BUREAU OF LAND MANAGEMENT [HTTPS://WWW.MYNSPR.ORG/POST/ROAD-SUMMER-VACATION-2-MAKE-YOURSELF-USEFUL#STREAM/0](https://www.mynspr.org/post/road-summer-vacation-2-make-yourself-useful#stream/0); [HTTPS://EN.WIKIPEDIA.ORG/WIKI/FORT_ORD_DUNES_STATE_PARK#/MEDIA/FILE:FORT_ORD_DUNES_2013.JPG](https://en.wikipedia.org/wiki/Fort_Ord_Dunes_State_Park#/media/File:Fort_Ord_Dunes_2013.jpg)
FOURTH ROW: CALIFORNIA STATE LIBRARY [HTTPS://WWW.SANTACRUZ.ORG/BLOG/THE-OHLONE-PEOPLE-OF-SANTA-CRUZ-COUNTY/](https://www.santacruz.org/blog/the-ohlone-people-of-santa-cruz-county/); MUWEKMA TRIBE: [HTTPS://CEJCE.BERKELEY.EDU/OHLONELAND](https://cejce.berkeley.edu/ohloneland)





Discovery Halts, Montreal, Canada

PHOTO: ADRIEN WILLIAMS, [HTTP://WWW.CIVILITI.COM/PROJETS/ESCALES-DECOUVERTES-SITE-PATRIMONIAL-DU-MONT-ROYAL-111](http://www.civiliti.com/projects/escalas-decouvertes-site-patrimonial-du-mont-royal-111)

Discovery Halts, Montreal, Canada

PHOTO: ADRIEN WILLIAMS, [HTTPS://LANDEZONE-AWARD.COM/DISCOVERY-HALTS-ESCALES-DECOUVERTES/](https://landezone-award.com/discovery-halts-escalas-decouvertes/)

Discovery Halts, Montreal, Canada

PHOTO: ADRIEN WILLIAMS, [HTTP://WWW.CIVILITI.COM/PROJETS/ESCALES-DECOUVERTES-SITE-PATRIMONIAL-DU-MONT-ROYAL-111](http://www.civiliti.com/projets/escalas-decouvertes-site-patrimonial-du-mont-royal-111)

Discovery Halts, Montreal, Canada

PHOTO: ADRIEN WILLIAMS, [HTTP://WWW.CIVILITI.COM/PROJETS/ESCALES-DECOUVERTES-SITE-PATRIMONIAL-DU-MONT-ROYAL-111](http://www.civiliti.com/projets/escalas-decouvertes-site-patrimonial-du-mont-royal-111)

Interpretive Signage

Interpretive elements can take many forms, from descriptive plaques to creatively re-purposed historic architectural features. Interpretive signs should be designed to harmonize with the character of the trail, including branding, material considerations, and wayfinding elements.

Ideas from other trails/places above: Escales Découvertes (Discovery Halts)

The goal of Escales découvertes was to make the Mont-Royal mountain and the larger Mont-Royal Heritage Site more accessible physically and in terms of awareness of its rich architectural and landscape history. The project was to further the public cognizance of the important natural and cultural characteristics of the territory, which includes three summits, five cemeteries, two university campuses, several hospitals and significant urban and architectural neighborhoods. Photos this page from SEGD.com, Photo: Adrien Williams, Frédérique Ménard-Aubin, Manya Margot



Integrated into Landscape



Integrated with Wayfinding



Integrated into Furniture



Tactile

Top Left: Dandenong Bush Land Reserves, Victoria, Australia

PHOTO CREDIT: HEINE JONES. WWW.HEINEJONES.COM.AU/ENVIRONMENTAL/CITY-OF-DANDENONG-BUSH-LAND-RESERVES

Top Right:

PHOTO CREDIT: [HTTPS://I.PINIMG.COM/564X/B8/ED/93/B8ED9311F0AB2BC8EAFED43298C86C76.JPG](https://i.pinimg.com/564x/b8/ed/93/b8ed9311f0ab2bc8eafed43298c86c76.jpg)

Lower Left:

PHOTO CREDIT: [HTTPS://WWW.FWDP.CO.UK/PROJECTS/](https://www.fwdp.co.uk/projects/)

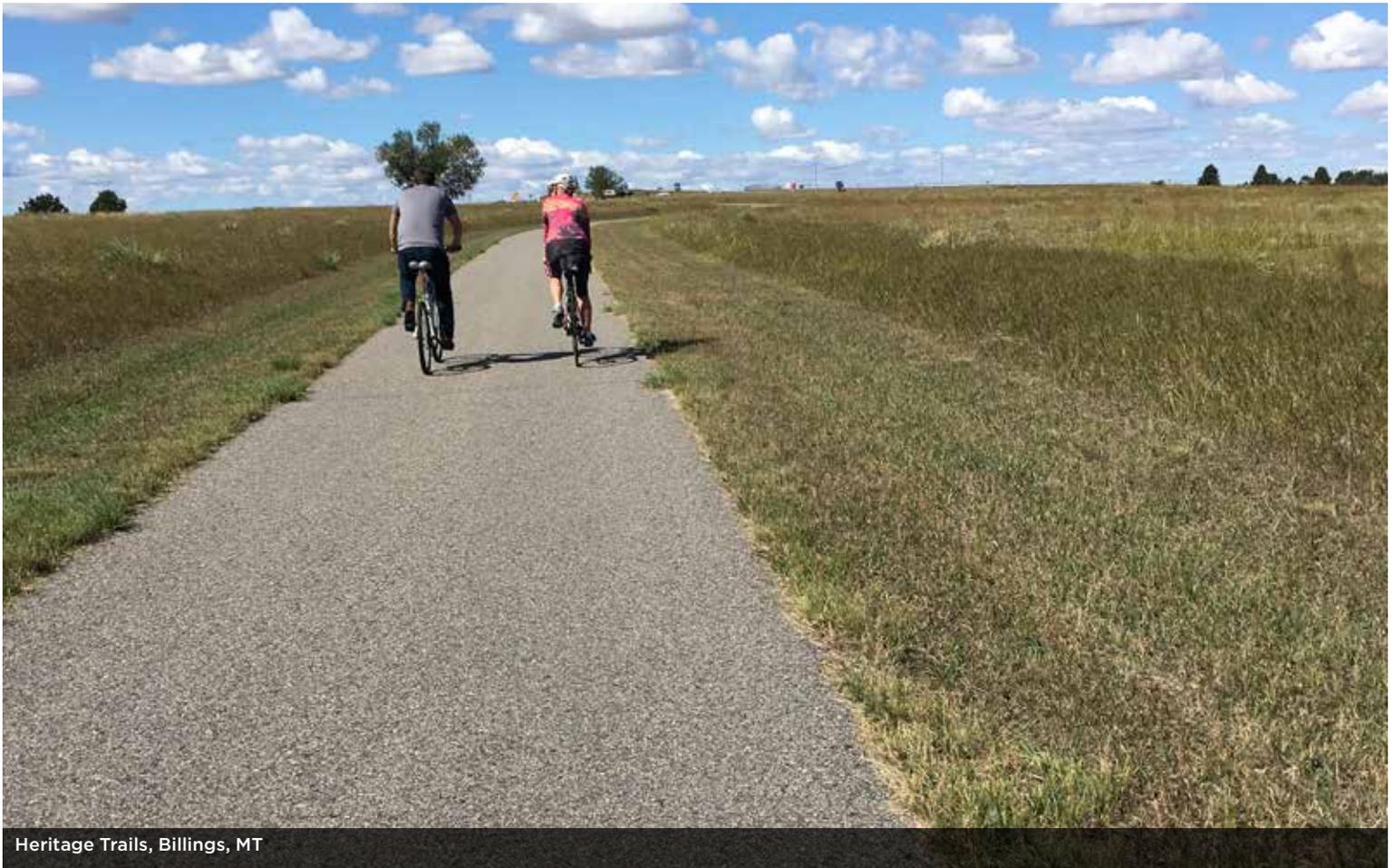
Lower Right: Yosemite, CA

PHOTO CREDIT: YOSEMITE CONSERVANCY/KEITH WALKLET, YOSEMITE.ORG/PRESS-ROOM-GALLERY/SCENIC-OVERLOOKS/



**07 APPENDIX C:
SAFETY AND
SECURITY**





Heritage Trails, Billings, MT

PHOTO: ELIZABETH BISEGNA

The Heritage Trail system in Billings, MT includes highly visible facilities with long sightlines and wide lateral clearance.

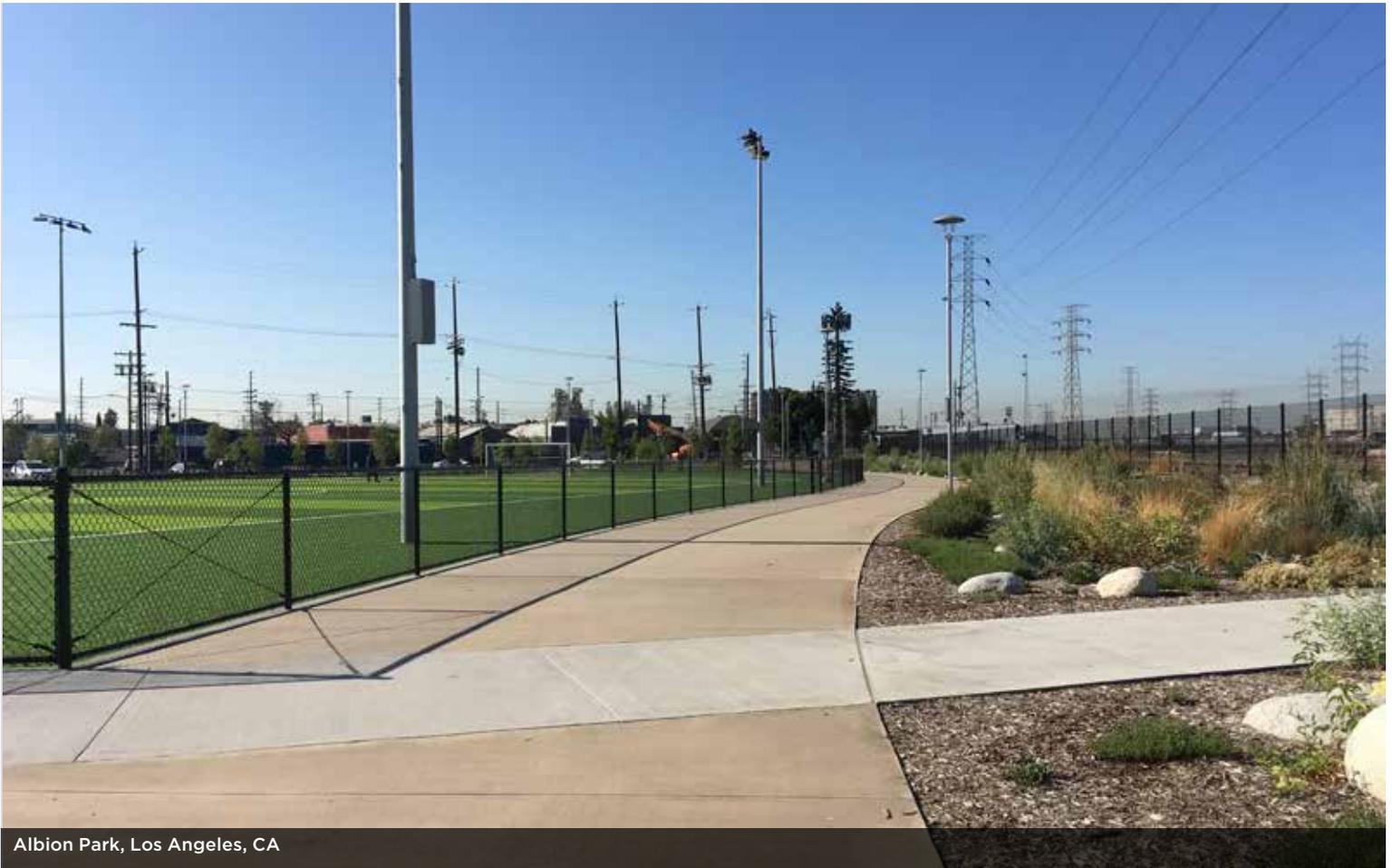
CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

Crime Prevention Through Environmental Design (CPTED) is a proactive practice in which the design and effective use of the built environment can lead to a reduction in the fear of and incidents of crime and a social behavior, and an improvement in the quality of life. In contrast to the approach of addressing crime concerns by implementing visually affronting security or target-hardening measures such as locks, hard barriers, security gates, and security patrols, CPTED promotes high quality and visually pleasing solutions as first responses that aim to enhance the legitimate use of space. Crime Prevention Through Environmental Design (CPTED) can be applied without interfering with the normal use of the space. It is easy to apply and can be economical to implement, especially if it is done early at the planning and design stages

of a project. It is very important to realize CPTED principles only reduce the opportunity for crime; crime prevention and social programs should be implemented to tackle the underlying cause of crime in communities. These steps work in conjunction to create a safe environment to work, live, or play.

Natural Surveillance

Increasing visibility by occupants, neighbors and casual observers increases the detection of unwanted behavior. For instance, if a high opaque fence blocks the view of a trail, the lack of visibility may invite behavior that impacts trail users negatively. Conversely, the use of transparent fencing that allows an unobstructed view of the area by users or passers-by may discourage unwanted



Albion Park, Los Angeles, CA

PHOTO:ELIZABETH BISEGNA

At Albion Park in Los Angeles, fences and vegetation help to define the path and limit access to the adjacent rail without obstructing sight lines.

behavior. Positive natural surveillance along trails includes maintaining open sightlines both laterally and longitudinally, using transparent fencing where fencing is desired, keeping vegetation maintained, and working with adjacent businesses, residents, and other uses to provide unobstructed views to the trail (“eyes on the trail”). Trail lighting, used in combination with other Crime Prevention Through Environmental Design (CPTED) principles, can be a successful strategy for improving natural surveillance by other users and adjacent uses.

Natural Access Control

Natural access control employs both real and symbolic barriers—including fences, berms, and vegetation—to define and limit access to an adjacent building or other use along trails. For example, if there are adjacent apartments along a trail, a low berm or vegetated buffer could be planted that still allows natural surveillance from the buildings onto the trail but provides user access control between the apartments and the trail, delineating the two uses.



Hudson River Greenway, New York City

PHOTO: ELIZABETH BISEGNA

Manhattan's Hudson River Greenway uses distinctive surface treatment, inviting amenities, wayfinding, and public art to reinforce the sense of public space.

Territorial Reinforcement

This is the process of establishing a sense of ownership, responsibility, and accountability for the public trail, and to impress upon visitors that a space is cherished by its neighbors. Users pay more attention to and defend a particular space if they feel psychological ownership of it. Territorial reinforcement measures, which may be physical or symbolic, tell people they are in a defined public space. Territorial reinforcement along trails can use color, texture, and hardscape variations to signify that the trail is public. Branding techniques used by the City are also successful strategies, such as signage and wayfinding systems. Public art on trails is also a positive method of territorial reinforcement, as it provides a message of public or civic space to users.

Maintenance

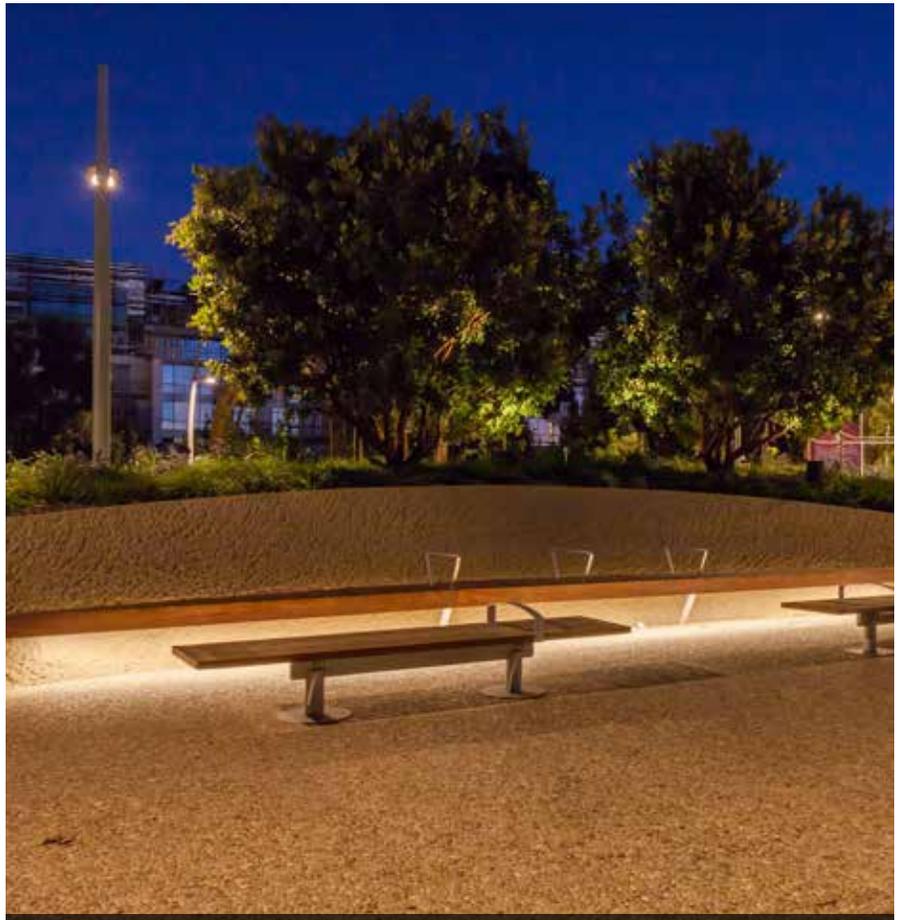
Neglected property can encourage mistreatment, while the well-maintained property will elicit proper treatment. This strategy directly impacts the fear of crime in a community due to residents' perceptions of responsibility and caring in the neighborhood. Examples of proper maintenance include the immediate removal of graffiti or repair of vandalism, keeping landscape regularly maintained to limit areas of concealment, weed abatement, tread repair and painting worn adjacent buildings.



Tongva Park, Santa Monica, CA

PHOTO:HLB LIGHTING [HTTPS://HLBLIGHTING.COM/PROJECT/TONGVA-PARK/](https://hlblighting.com/project/tongva-park/)

Tongva Park, Santa Monica, CA

PHOTO:[HTTPS://WWW.CALIFORNIABEACHES.COM/ATTRACTION/TONGVA-PARK/](https://www.californiabeaches.com/attraction/tongva-park/)

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PHOTO:HLB LIGHTING [HTTPS://HLBLIGHTING.COM/PROJECT/TONGVA-PARK/](https://hlblighting.com/project/tongva-park/)

Tongva Park in Santa Monica, CA is well-lit and inviting after dark.

Security Lighting on Trails

When used in combination with other CPTED principles, lighting can be an effective tactic for improving security and reducing the likelihood of unwanted behavior. Lighting provides a choice for how to use trails during non-daylight hours. The goal of lighting trails for security is to make a place unattractive or uncomfortable to offenders while also providing a sense of security and attracting the intended use of trails. Properly lit trails should be easy to observe, eliminate potential hazards at intersections or access points, attract use and enhance other environmental design techniques.

When considering lighting on trails, the appropriate quality and quantity of lighting must be used. Artistic or low-level landscape lighting, while attractive, is not security lighting. Security lighting must be able to aid in the identification or detection of potential unwanted behavior. Contrast, glare, illumination, lighting controls and color rendering will provide the best opportunity to reduce unwanted behavior and welcome the intended use of the trail.

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