

North Basin Strip Shoreline Park Improvement Project

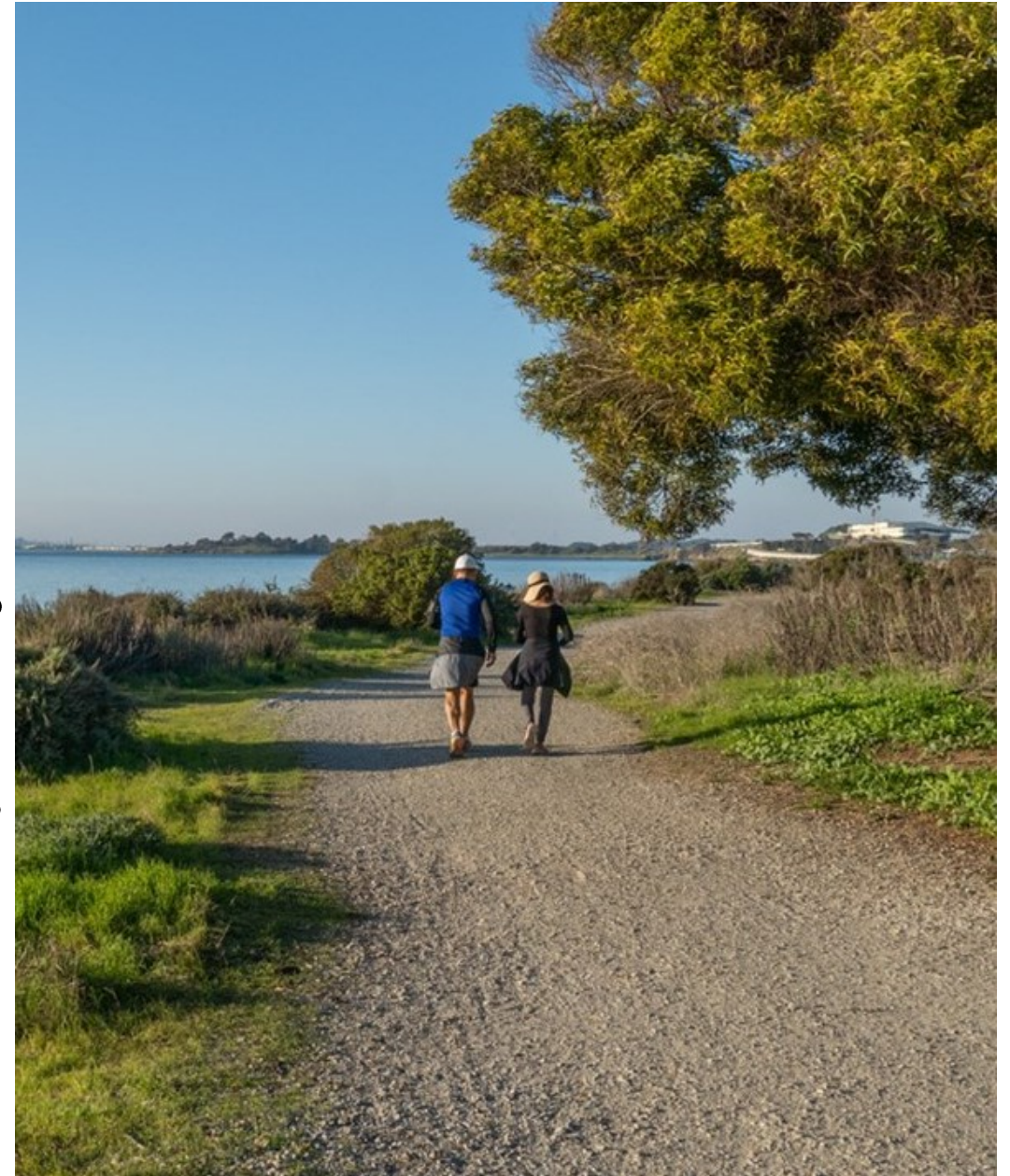


Feasibility Design Report
5/12/2025



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I.0 INTRODUCTION

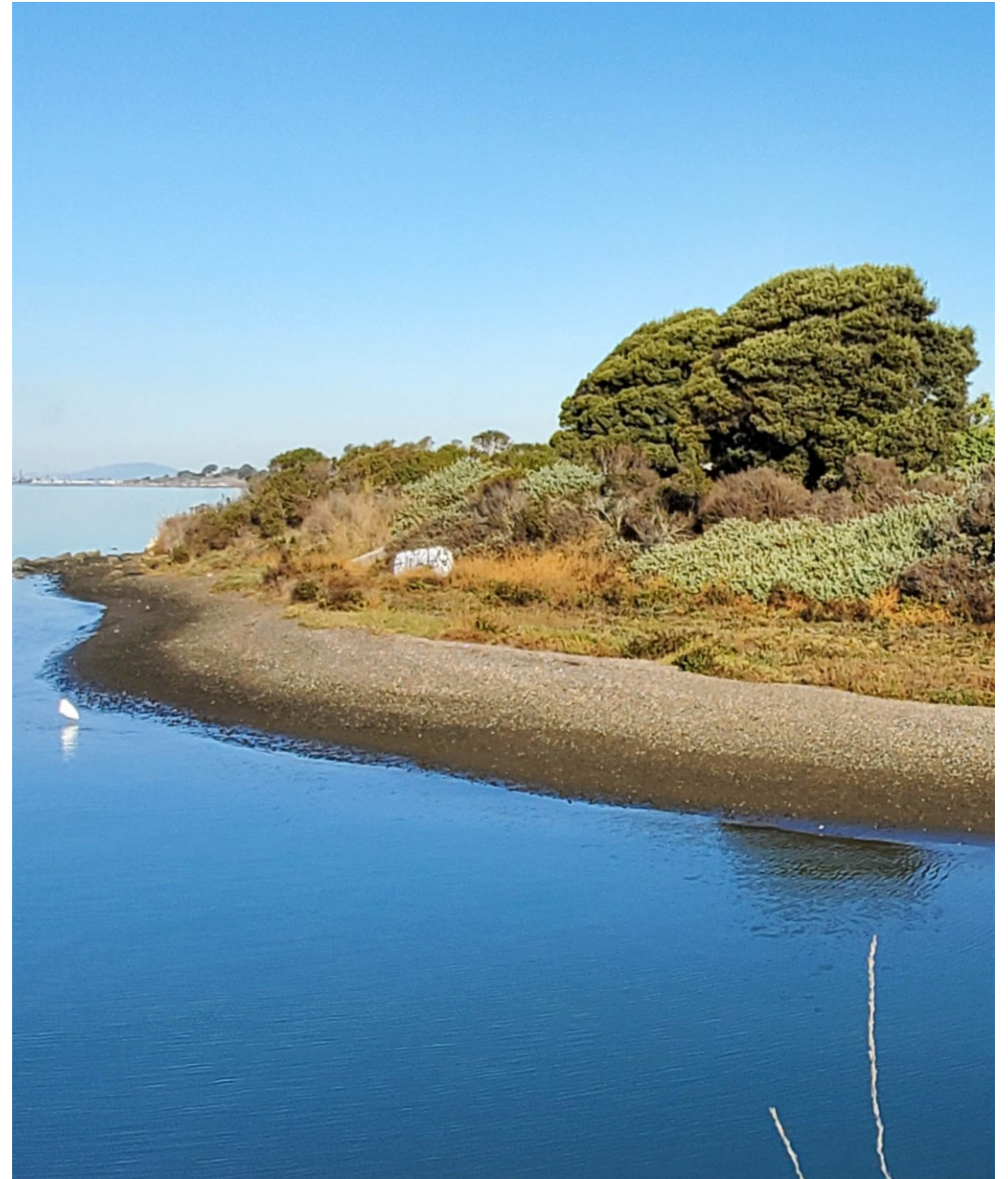
I.0 – Project Introduction

I.1 - Project Site

I.2 - Project Goals



Leopard Shark



I.0 INTRODUCTION

The North Basin Strip is a 20-acre parcel located south of the Tom Bates Regional Sports Complex in Berkeley. It includes approximately 2,800 linear feet of shoreline and is part of the McLaughlin Eastshore State Park (MESP) - a 2,200-acre regional shoreline park spanning the cities of Emeryville, Berkeley, Albany, Richmond, and Oakland. Managed by the East Bay Regional Park District, MESP includes a diverse system of open space and ecological areas such as Emeryville Crescent, Brickyard Cove, Berkeley Meadow, and Albany Beach. The North Basin Strip plays a unique role within this larger system, offering opportunities to enhance both ecological function and public access along the East Bay waterfront.

The preliminary design for the park seeks to enhance ecological habitats, improve public access, and ensure climate resilience while maintaining the site's natural character. The ecological assessment highlights

opportunities for habitat restoration by replacing non-native vegetation with native species to support wildlife, including burrowing owls and shorebirds. Geotechnical evaluations identify challenges related to soil settlement, requiring strategic foundation solutions for infrastructure. Additionally, as North Basin Strip was created by filling tidal marshland within in the bay, soil contaminants are a concern requiring further investigation, and precautions will be taken per regulatory standards during design and construction phase. Finally, sea level rise projections indicate limited near-term flooding impacts that present near-term adaptation opportunities and suggest the need for long-term planning measures to address potential inundation risks.

These findings, in conjunction with the project's public outreach and the Park District's public review, guide the preliminary design, ensuring the park balances ecological

conservation with recreational and educational opportunities. The project goals are to enhance habitat and public access through creating a shared community vision which is resilient to climate change and actionable by the District. By fostering partnerships with environmental, recreation and stewardship groups, the plan aims to support long-term restoration efforts and park development. The project falls under the jurisdiction of BCDC and Army Core of Engineers – Waters of the U.S., and would require review, permitting, and approval.

LAND ACKNOWLEDGEMENT

The North Basin Strip Park Improvement Project and the East Bay Regional Park District recognize that the North Basin Strip lies within the ancestral lands of the East Bay Ohlone, Bay Miwok, and Northern Valley Yokut peoples, who are politically represented by a number of tribes today.

I.1 Project Site

North Basin Strip is a relatively level, approximately 20-acre area that was created by filling open water and tidal marsh areas. North Basin Strip is bounded by Gilman Street to the north, Virginia Street to the south, and West Frontage Road and I-80 to the east. North Basin, a semi-protected basin open on one side to San Francisco Bay, averaging 3 feet deep, lies to the west. The North Basin shoreline is defined by a steep riprap and, along its eastern edge, a gravel beach. Schoolhouse Creek enters North Basin through a large culvert at the southern end of the basin.

I.2 Project Goals

Habitat and Public Access

Improve habitat and develop public access facilities, consistent with the Eastshore State Park General Plan

Climate Resiliency

Design for climate resiliency

Actionable

Ensure improvements are within operational and budgetary constraints of the Park District

Green Infrastructure

Use nature-based design solutions where appropriate



2.0 – SITE FINDINGS

2.1 - History

2.2 - A Changing Waterfront

2.3 - General Plan

2.4 - Waterfront Context

2.5 - Existing Recreation

2.6 - Site Visitors

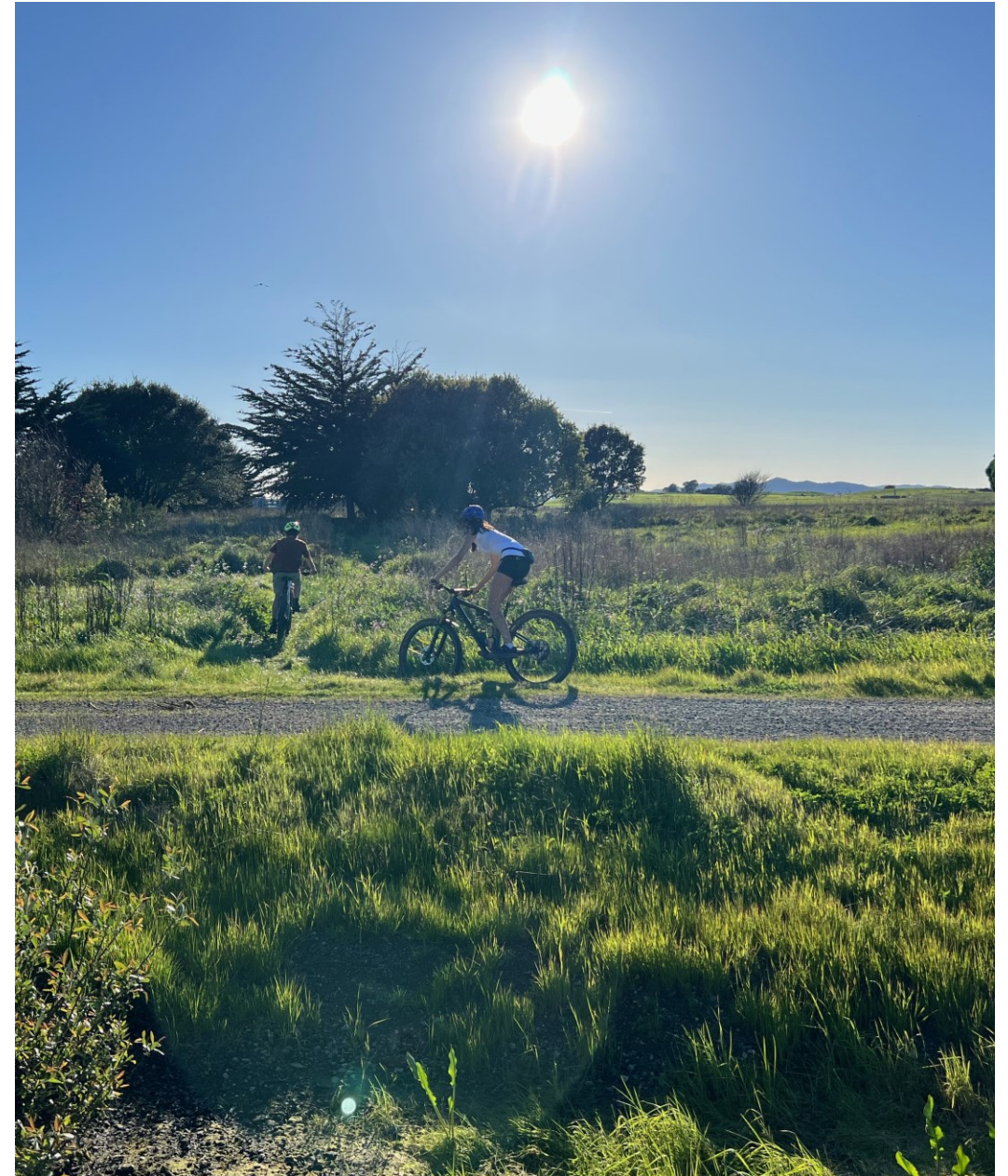
2.7 - Site Trails

2.7A – Site Trail Usage

2.8 - Cultural Resources



Creeping Wildrye



2.1 Site Findings **History-Filling the Marsh**

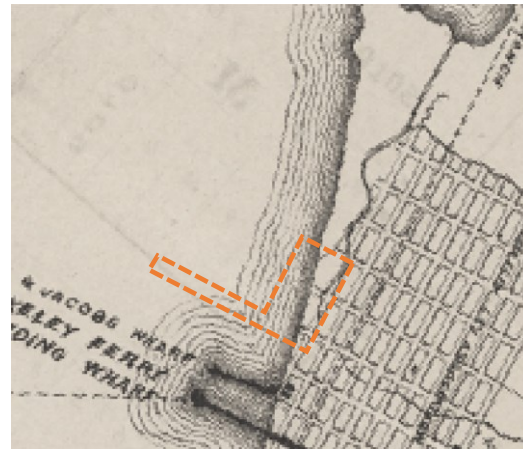
The North Basin Strip experienced several distinct phases of fill. Initial filling activities began in the late 19th century, primarily to support rail infrastructure and early shoreline development. Major additional fill events occurred in the early to mid-20th century as industrial and municipal uses expanded along the shoreline. Subsequent smaller fills continued through the post-war period, reshaping the area into its current form.

Before filling and development, Schoolhouse Creek emptied into the bay (circa 1850) north of our site through a tidal marsh in present-day Albany. Filling operations at various time intervals between the early 1900's to the mid 1950's have since channelized the Schoolhouse Creek to its current exit point near the southwest corner of the North Basin Strip along the northern boundary of the Berkeley Meadow. The fill material placed in the North Basin Strip consisted largely of unconsolidated soils, construction debris, dredged bay mud, and miscellaneous refuse. Much of the early fill lacked compaction and engineering standards, resulting in variable subsurface conditions. Later fills incorporated more controlled materials but still included heterogeneous and poorly sorted deposits. San Francisco Regional Water Quality Control Board (Water Board) issued Order No. 98-072 stated that soil, groundwater, and sediment were adequately investigated and adopted Site Cleanup Requirements implemented to protect human health and the environment for park use. Any development causing soil disturbance will be conducted along with risk management measures. (Appendix B5). See Section 3.2 on further information regarding historic fill.

Today, over 90% of shoreline wetlands are eliminated and Sea Level Rise will result in further loss of wetlands. (SFEI)



Circa 1850 - Historic coarse beach along tidal marsh and slough



1876 – Map



1974 - North Basin Strip Fill

----- Current Outline of North Basin Strip Project Area

- See Appendix A6 – Resource Inventory – 2002
- See Appendix A2 – Eastshore State Park General Plan

2.2 Site Findings A Changing Waterfront

The McLaughlin Eastshore State Park (MESP) sits within a rapidly evolving shoreline, where a combination of restoration projects, redevelopment plans, and new transportation infrastructure is reshaping the waterfront. The Albany Shoreline, just to the north, is a filled peninsula that includes Albany Beach, recently restored by the East Bay Regional Park District to improve habitat and public access. At Golden Gate Fields, the closure of the horseracing track in 2024 creates a major redevelopment opportunity on 140 acres of bayfront land, which could bring new activity and connections to the North Basin Strip. Planning for the future Berkeley Ferry Service, a joint effort between the City of Berkeley and WETA, is underway, with a new ferry pier, increasing use pressures near the shoreline. In 2025, Caltrans completed improvements to the I80/Gilman Street interchange and is in the planning stage for improvements to the I80/University Avenue interchange. South of the project site, Brickyard Cove was recently renovated by the Park District to provide picnicking, local trails, and access to the Bay Trail. Further along the shoreline, Emeryville Crescent stands as a preserved tidal marsh, highlighting the importance of safeguarding natural habitat along an increasingly urbanized edge. Together, these projects are examples of how the East Bay Regional Park District and its partners are adapting the shoreline. The design for the North Basin Strip builds upon these efforts, recognizing the need to respond to a changing waterfront while advancing opportunities to improve access, while protecting and restoring habitat.



Albany Bulb



Brickyard Cove

- 1 - Albany Shoreline
- 2 - Golden gate Fields
- 3 - Berkeley ferry Service
- 4 - Brickyard Cove
- 5 - Emeryville Crescent

2.3 Site Findings **General Plan - 2002**

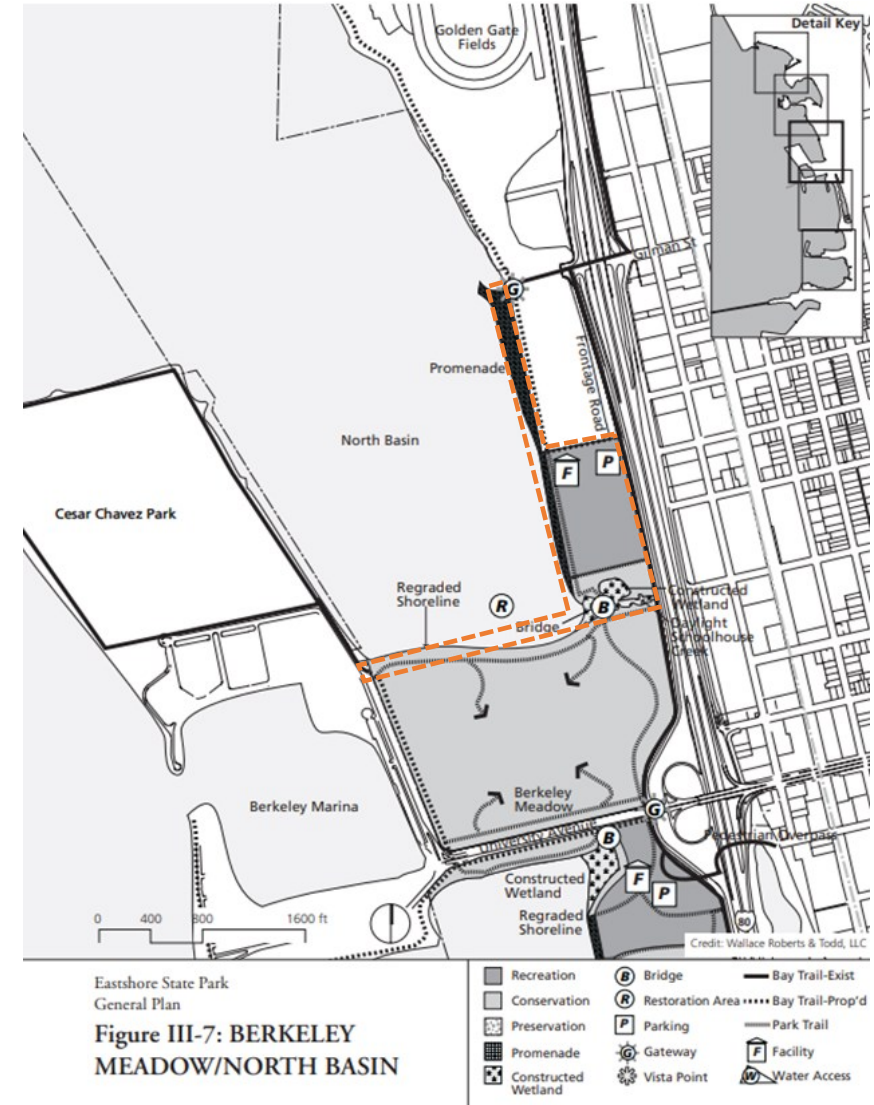
The Eastshore State Park General Plan is the primary planning document providing conceptual parameters and guidelines for the long-term management, development, and operations of the park.

McLaughlin Eastshore State Park is designated as a ‘State Recreation Area’, key concepts in this definition include:

“...consisting of areas selected and developed to provide multiple recreational opportunities to meet other than purely local needs. The areas shall be selected for their having terrain capable of withstanding extensive human impact and for their proximity to large population centers, major routes of travel, or proven recreational resources such as manmade or natural bodies of water.” (PRC § 5019.56 a)

“In the planning of improvements...consideration shall be given to compatibility of design with the surrounding scenic and environmental characteristics.” (PRC § 5019.56)

The North Basin Strip lies just north of the Berkeley Meadow, which is a 75 acre site designated as a ‘Conservation Area’ (Figure III-7)



----- Current Outline of North Basin Strip Project Area

- See Appendix A2 – Eastshore State Park General Plan

2.3 Site Findings **General Plan - 2002**

The Eastshore State Park General Plan provides a framework for the development of recreation and visitor-serving facilities including:

“Prepare a Specific Project Plan for each management zone in order to establish the nature, scale, and location of new visitor facilities and associated services, including facilities related to recreation, interpretation and education, visitor services, and operations. Such facilities and associated services must reflect the intent of the land use designations of the park project with respect to resource protection, permitted uses, intensity of uses, and access... (VISIT-1)

“Provide visitor-serving and operations facilities within the park project as needed to facilitate the public's enjoyment of the natural setting.” (VISIT-2)

“Larger visitor-serving facilities should generally be located in areas that have convenient access and are suitable for higher intensities of use.” (VISIT-3)

“The primary location for major visitor-serving facilities such as a park headquarters, interpretive center(s), a hostel, boathouse, café/restaurant, market, and recreational equipment rentals will be the recreational zones in the Brickyard and North Basin Strip.” (VISIT-5)

- See Appendix A2 – Eastshore State Park General Plan

2.3 Site Findings **General Plan - 2002**

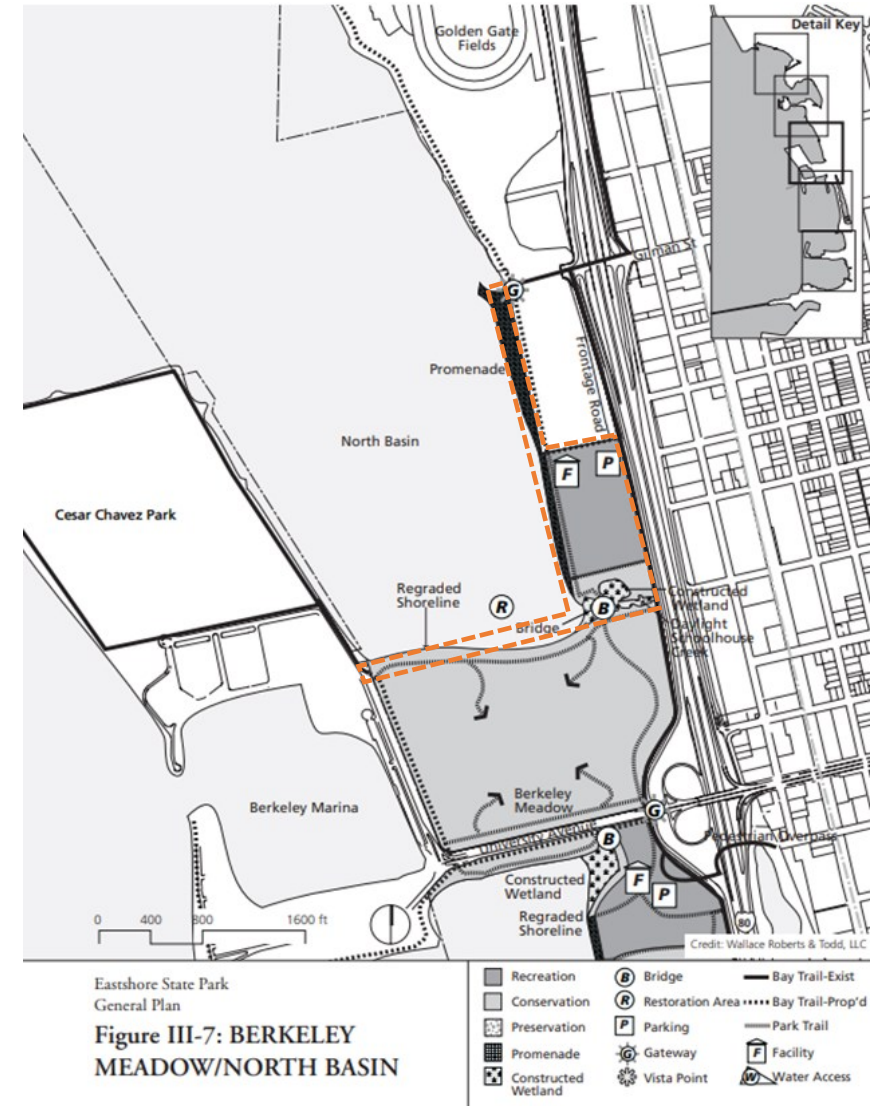
“Until facility concept plans are prepared for the... North Basin Strip, the precise facilities and their distribution will remain flexible. Preliminarily, facilities that are recommended for the North Basin Strip include, but are not restricted to...

- Interpretive Center
- Hostel with 20-40 beds
- Boathouse
- Recreation concessions
- Turf area for informal recreation
- Picnic facilities
- Restroom facilities
- Benches and seating areas
- Waterfront promenade
- Water access facility (ramp, dock, etc.)
- Boating support facilities and aquatic recreation concessions
- Multi-use trail system
- Parking for 350 cars, phased

While the General Plan provides a foundation for planning and design at North Basin Strip, several developments have occurred since the implementation of the plan in 2002. Some of these include the development of Tom Bates Sports complex into a regional active recreation facility, the completion of Albany Beach, and the development of Brickyard Cove and Berkeley Meadow.

----- Current Outline of North Basin Strip Project Area

- See Appendix A2 – Eastshore State Park General Plan



2.4 Site Findings Waterfront Context

The South Sailing Basin is the most actively used aquatic area within the Eastshore State Park. It is popular for sailing, windsurfing, wing boarding, kayaking, standup paddleboarding, and swimming. Water access infrastructure does not currently exist in the North Basin or Brickyard Cove. They are not as suitable for sail and wing-based sports because they are protected from the wind. Several aquatic recreation opportunities exist in the area, as shown in the diagram to the right. Due to the average water depth of 3', large boats such as sailboats are not feasible at the North Basin. The North Basin is somewhat sheltered from wind by Cesar Chavez Park making it feasible for small watercraft such as kayaks and paddle boards to recreate in this area. Access may be restricted during minus tides and winter months, when migratory birds can be found rafting on the southern end of the North Basin.



Cal Sailing



CSC Cal Sailing Club

The Cal Sailing Club is a non-profit club open to the community with low-cost memberships and modest volunteer work requirements. Members get access to lessons and unlimited use of the club's dinghies, keelboats, windsurf gear, and kayaks. The club does not rent boats to non-members.

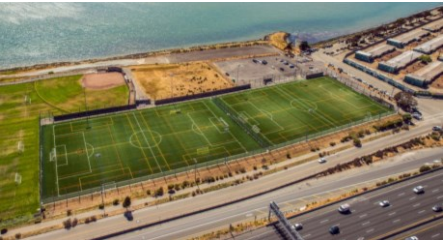
UCAC UC Aquatic Center

Also known as Cal Adventures, this UC Berkeley facility offers classes, camps and rentals to the public during its operating months.

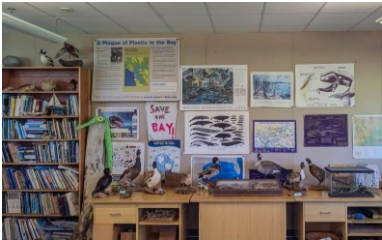
-  Sailing
The Berkeley Marina rents slips to privately-owned boats.
-  Cruise/Ferry
-  Water Recreation
-  Water Skiing
-  Bay Trail
-  Trails

2.5 Site Findings Existing Recreation

Existing recreational amenities around the North Basin Strip provide important context for how the site fits within the larger Eastshore park system. The map highlights nearby destinations including Cesar Chavez Park, Berkeley Meadow, Brickyard Cove, the Shorebird Nature Center, and Gilman Fields, each offering a mix of active and passive recreation opportunities. Cesar Chavez Park is a major regional destination known for its open space, kite flying, dog park, and trails that draw visitors year-round. Berkeley Meadow, a restored coastal prairie habitat, provides seasonal wetlands and wildlife habitat while limiting access to protect sensitive areas. Brickyard Cove showcases recent East Bay Regional Park District restoration efforts and new trails. The Shorebird Nature Center offers outdoor educational programs to school groups and visitors and includes the first municipal strawbale building in the United States, promoting green building and marine ecology education. Tom Bates Regional Sports Complex, contains the most highly used athletic fields in the region, serving approximately 19,000 youth and adults annually. Understanding the range of existing recreation spaces helps inform future planning for the North Basin Strip, ensuring new improvements complement nearby amenities, address gaps, and strengthen connections across the waterfront.



Tom Bates Regional Sports Complex



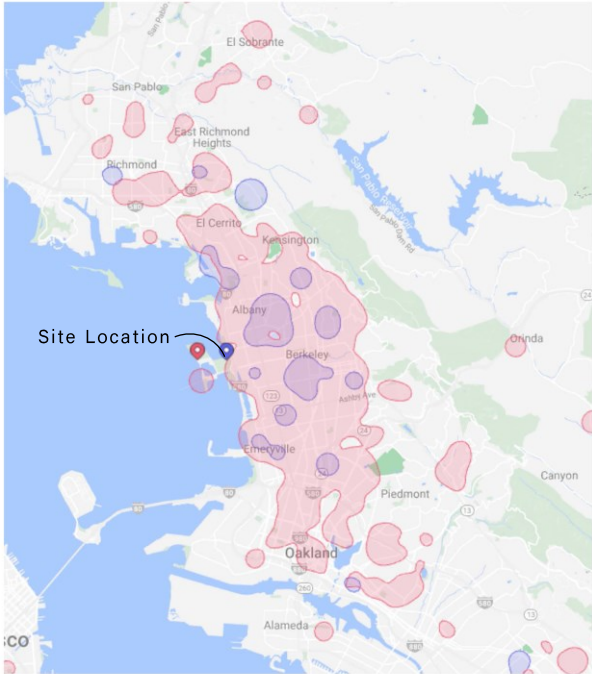
Shorebird Nature Center

2.6 Site Findings **Site Visitors**

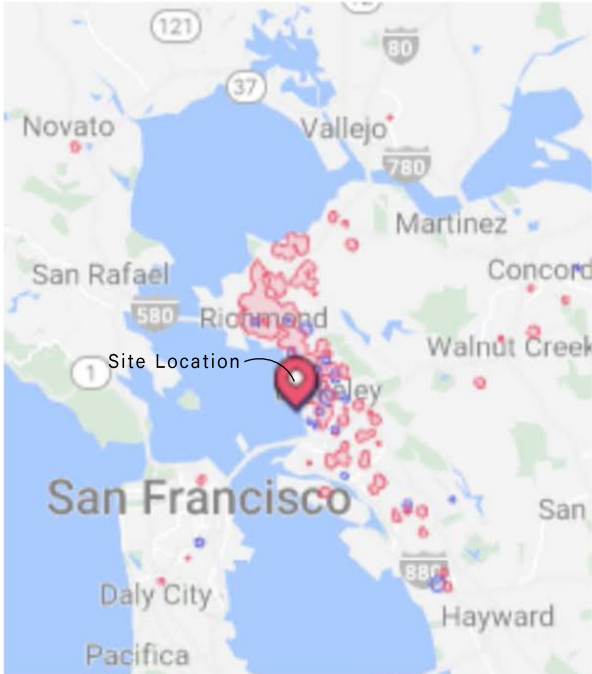
The North Basin Strip has strong potential to become a regional amenity due to its proximity to the waterfront and adjacency to high-traffic areas like the Tom Bates Regional Sports Complex, the Berkeley Waterfront and the Bay Trail. See figures to the right which show the catchment area for adjacent Cesar Chavez Park and Tom Bates Regional Sports Complex based on Placer.ai. The shaded areas represent where park visitors originate: red and pink tones indicate higher concentrations of visitors, while blue tones represent lower concentrations. This visualization highlights the strong regional draw of these parks, particularly from areas such as Berkeley, Oakland, and Richmond.

Eastshore State Park is the second most visited park in the East Bay Regional Park District system, attracting approximately 500,000 visitors annually. Neighboring communities like North Oakland, West Oakland, and Richmond have a lack of access to waterfront recreation. This site could serve a critical need in providing waterfront access for communities traditionally underserved.

Future development at Golden Gate Fields and the pending development of a Ferry Terminal may further increase the need for the site to serve more users. Additionally, the planning process was initiated to ensure that this park serves communities' needs for healthy and accessible outdoor spaces.



Cesar Chavez Park



Tom Bates Regional Sports Complex

- See Appendix A2 – Eastshore State Park General Plan
- See Appendix A20 – Placer.ai Data

2.7 Site Findings **Site Trails**

The Bay Trail runs along the site's eastern edge, by the west frontage road and I-80, offering a paved route for pedestrians and cyclists. Primary Paths include EBRPD-maintained dirt trails that wraps the site with bay views, and user-created informal social trails weave through the site. To the south, the site is bordered by the Virginia Street right-of-way, which connects to trails leading into Berkeley meadow, with an informal parking nearby. At the northern end, near Tom Bates Regional Sports Complex (Gilman Fields), there is a more formalized parking area.

Parking is currently served by a small district parking lot at Gilman Street and a large parking lot at Brickyard Cove. Per the General Plan, a parking lot of up to 350 cars may be envisioned for the North Basin Strip Site. Parking access improvements to the North Basin Strip Site would require close coordination with City of Berkeley and Cal Trans.



Gilman Pedestrian Bridge – recently completed expanding access to West Berkeley and Albany Residents. The completion of the pedestrian/bicycle bridge over the freeway at Gilman Street provides attractive access to the North Basin Strip as a central destination, especially when combined with the University Ave. ped/bike bridge. The loop is appealing to both cyclists and pedestrians.

- See Appendix A19- EBRPD ROW, A3 – North Basin Strip Site Survey



- Project Limit
- Parcel Lines
- SF Bay Trail
- - - Future Bay Trail
- Primary Paths (Strava Data)
- ◀ Pedestrian Entry
- ◀ Vehicular Entry
- P Parking
- - - Schoolhouse Creek
- Culvert mouth
- Fence
- Power Lines
- Utility Pole
- Lighting
- Water Pipe
- Sewer Line
- Storm Drain
- Mudflats

0 100 500'

2.7A Site Findings Site Trail Usage

Online platforms such as fitness apps like Strava offer additional methods to collect user data.

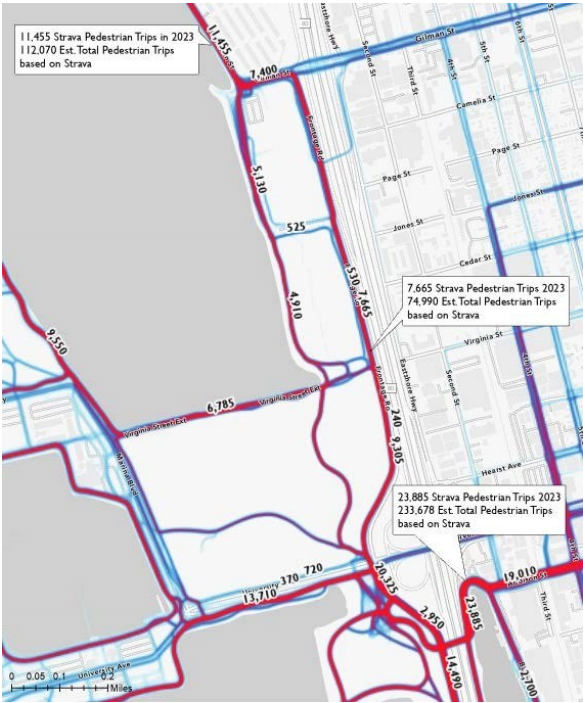
Strava is a fitness tracking app and social network that is primarily used by runners and cyclists. Users can record their workouts, track performance metrics and share their activities. The data collected provides a window into approximately how many runners and cyclists go through or around the site. This data was then compared with trail counters by the Park District to apply a multiplier to more accurately understand the total quantity of trail users.

The Strava runner data shows that around 7,600 people used the Bay Trail just east of the site and around 5,000 people used the informal trail along the shoreline of the site in 2023.

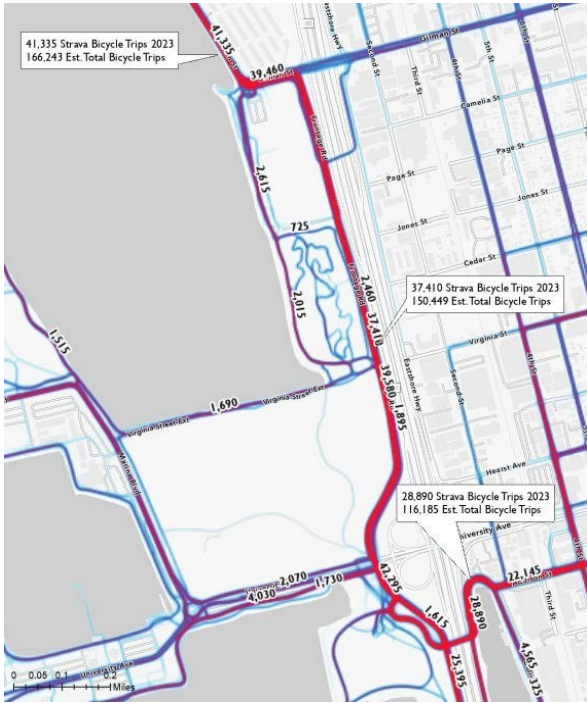
Based on Strava the total estimated pedestrian trips along the bay trail were ~75,000.

The Strava cyclist data shows that around 37,000 cyclists used the Bay Trail just east of the site and around 2,000 cyclists used the trail just west of the site in 2023. Based on Strava the total estimated bicycle trips along the bay trail were ~150,000.

This number is expected to increase with the start of ferry service from Berkeley Marina and the redevelopment of Golden Gate Fields.



Strava Runner Data (2023)



Strava Cyclist Data (2023)

2.8 Site Findings Cultural Resources

North Basin Strip was once a combination of open bay water and marsh until the filling in the 1900's. There are no documented cultural resources present on the site, though areas nearby do have cultural significance.

Among the most prominent nearby cultural resources is the West Berkeley Shellmound, located at the mouth of Strawberry Creek. Dating back nearly 5,700 years, the shellmound is recognized as the earliest known habitation site in the Bay Area. A sacred site of the Ohlone people it served as a central village and ceremonial ground for the Ohlone.

In 2024, the City of Berkeley, in collaboration with the Sogorea Te' Land Trust, facilitated the return of a 2.2-acre portion of this sacred site to Indigenous stewardship. This effort aims to restore the land as a space for cultural education, ecological restoration, and ceremonial use.

While there are no known documented cultural resources on our site, the proximity of the North Basin Strip to such a significant cultural landmark underscores the importance of integrating Indigenous perspectives and stewardship practices into its planning and design. Recognizing and honoring these cultural resources not only preserves the rich history of the area but also fosters a more inclusive and respectful approach to land use and community engagement.



Berkeley Shellmound Site, one of the most prominent cultural resources located near the 4th Street parking lot above Strawberry Creek.

- See Appendix B2 – Cultural Assessment

3.0 – ENVIRONMENTAL CONDITIONS

- 3.1 - Habitat and Ecology
- 3.2 - Soils and Geotechnical
- 3.3 - Sea Level Rise and Erosion
 - 3.3A - Shoreline Sections
 - 3.3B - Shoreline Sections
 - 3.3C - Shoreline Sections
 - 3.3D - Shoreline Sections

The North Basin Strip's environmental conditions reflect its history as a filled bayland shoreline within the San Francisco Bay. The area includes a mix of subtidal, intertidal, and upland habitats that support a range of plant and wildlife species. Soils consist of inert fill and construction debris overlying former marshland. Multiple soil and groundwater investigations have been conducted since the 1980s. Based on these investigations, remedial actions were conducted to comply with Regional Water Quality Control Board site clean up requirements. Most areas either did not require further action or were excavated and backfilled with clean soil to meet health and ecological safety standards. See section 3.2 for considerations around soil contamination.

The site is subject to ongoing erosion and faces long-term risks from sea-level rise, both of which will influence the future design. Shoreline types vary from armored riprap and concrete debris to actively eroding bluffs and a gravel beach. The following sections summarize habitat and ecology, soils and geotechnical conditions, sea-level rise vulnerability, and the range of shoreline types found throughout the project area.



3.1 Environmental Conditions **Habitat & Ecology**

The North Basin Strip and surrounding shoreline support a range of habitat types shaped by the site's history as filled bayland. Within the North Basin itself, subtidal habitat includes areas of soft sediment and harder rocky substrate. These habitats support typical Central Bay marine species and attract fish such as Chinook salmon, sturgeon, and Pacific staghorn sculpin, which in turn support fish-eating birds like pelicans, cormorants, and herons observed using the area.

The intertidal zone along the shoreline is highly varied, consisting of gravel beaches, concrete debris, rocky riprap, and small marsh areas near the Schoolhouse Creek outfall. Some parts of the shoreline, especially along the south and west sides, provide artificial rocky shore habitat supporting marine algae and invertebrates. The gravel spit along the east side shelters a small back barrier salt marsh and supports foraging by shorebirds during low tide.

Vegetated areas inland from the shoreline include a mix of native and non-native plantings. Along the western edge of the North Basin Strip, native grasses like creeping wild rye and shrubs such as coyote brush provide habitat for pollinators and nectar-feeding birds. Overwintering burrowing owls have been documented using the rocky riprap areas along the shoreline of Cesar Chavez Park in recent years.

Much of the North Basin Strip itself is dominated by ruderal grassland made up of non-native grasses and invasive plants like wild oats, ryegrass, fennel, and black mustard. Pockets of native plants such as yarrow, California poppy, and coast live oak are scattered throughout. These areas provide limited habitat but can serve as corridors for wildlife moving between higher-quality habitats.

Nearby, the restored Berkeley Meadow offers a more intact coastal prairie environment, supporting seasonal wetlands and native grasslands designed to benefit wildlife. Although separated from the main project area, it contributes to the broader habitat mosaic of the Berkeley shoreline.



Intertidal Zone – Gravel Beach



Native trees like Coast Live Oak are scattered on site

- See Appendix BI – Biological Resources Assessment
- See Appendix CI – Letters from Project Advisors

3.1 Environmental Conditions Habitat & Ecology



--- Project Limit

--- Parcel Lines

1 Northern Panhandle *2

This section is a mix of concrete debris and sections of native vegetation in this section including Saltgrass (*Distichlis spicata*), Pickleweed (*Salicornia pacifica*), Gumweed (*Grindelia stricta*).

2 Scarp Reach *2

The shoreline is home to a variety of species like Saltgrass (*Distichlis spicata*), Pickleweed (*Salicornia pacifica*), Gumweed (*Grindelia stricta*), Pacific cordgrass (*Spartina foliosa*). Many native plants adjacent to the scarp have been planted and maintained by volunteers. The scarp reach shoreline is eroding at a rate of up to one foot per year, protective measures necessary to prevent further upland erosion.

3 Gravel Beach with back beach wetland near outfall *2



The gravel spit shelters a small back barrier salt marsh and marsh pool including Pickleweed (*Salicornia pacifica*), and serves as a habitat for wildlife, as well as a recreational spot.

Leopard Shark and Bat Rays have been spotted here by citizens

4 Virginia Street Extension *2

shelters intertidal boulders with barnacles, rockweed, sea-lettuce and plant species like Saltgrass (*Distichlis spicata*), Pickleweed (*Salicornia pacifica*), Gumweed (*Grindelia stricta*).

5 Grasslands *2



Dominated by invasive grasses, this area has a mix of native and non-native perennial grasslands. Creeping wildrye (*Elymus triticoides*) is a dominant native grass in the area. California mugwort (*Artemisia douglasiana*) and Harding grass (*Phalaris aquatica*) is a widespread non-native species. Northern harrier (2002) and White-Tailed Kite (1994) spotted here.

6 Woodland and Scrub *2



The area supports native species like Coast live oak (*Quercus agrifolia*), Monterey cypress (*Hesperocyparis macrocarpa*), Arroyo willows (*Salix lasiolepis*), toyon, and coyote brush, along with non-native acacia.

7 Burrowing Owl



Overwintering Owls observed in 2013, 2014, 2021, and 2023 (Riprap areas of Cesar Chavez Park)

The CA Fish and Game Commission recently voted to upgrade burrowing owl to a candidate species under the California Endangered Species Act. While burrowing owl breeding is not expected at this site based on past records and level of disturbance, overwintering owls have been observed in the years noted above. Any construction activities on the site will require coordination with the CA Department of Fish and Wildlife to protect burrowing owls and their habitats.

8 Marble Butterfly



Lay eggs on tall mustards; black mustard (*Brassica nigra*) is present in the North Basin Strip. Mustards grow profusely, hinder native plants through allelopathy, and increase fire frequency, risking habitat conversion. Retention of some black mustard in the North Basin Strip, while controlling its spread, should be considered

9 Restored Coastal Prairie

10 Mudflats



Patches of Creeping wildrye (*Elymus triticoides*), California mugwort (*Artemisia douglasiana*), California Sagebrush (*Artemisia californica*), Quail Bush (*Atriplex lentiformis*), Alkali Heath (*Frankenia salina*) Coyote Brush (*Baccharis pilularis*)

Invasives

- Red-sepal evening primrose (*Oenothera glazioviana*) – moist coastal areas
- Hybrid cordgrass (*Spartina foliosa* x *alterniflora*) – altering local ecology
- Perez' sea-lavender (*Limonium perezii*) – shoreline and saltmarsh habitat

*See Appendix BI – Biological Resources Assessment

*2 See Appendix CI – Letters from Project Advisors

3.2 Environmental Conditions **Soils & Geotechnical**

The North Basin Strip was created through the filling of tidal marshland within San Francisco Bay. Between 1927 and 1953, approximately 5 to 10 feet of inert fill material - including silty sand, gravel, and clay - was placed over varying amounts of refuse. This refuse included soil, gravel, serpentine gravel, concrete, asphalt, bricks, and miscellaneous debris such as grass fragments, wood, shingles, newspaper, ash, and tar. Today, the North Basin Strip is relatively flat, with elevations ranging from approximately 5 to 16 feet above mean sea level, based on NAVD88. Groundwater is typically found 5 to 10 feet below the surface.

Based on the data available, contamination risks typical to shoreline fill in the region were documented, including the presence of heavy metals (such as arsenic, lead, chromium, cobalt, nickel, and zinc) and Polychlorinated Biphenyls (PCBs).

Based on the Regional Board Court Order 098-072, remediation activities were conducted in 1998. In 1998, a Remediation and Risk Management Plan (RRMP) was developed to guide environmental risk management at the site. Remediation occurred in localized areas identified in the RRMP, with measures adopted to protect the health for maintenance workers and park visitors. The RRMP concluded that contamination was primarily limited to isolated upland areas, with no significant connection between

contaminated soils and submerged sediments. Therefore, no action levels were developed for submerged lands.

If soil disturbing activities occur on site, a Soil Management Plan (SMP) is required. The SMP must include site-specific background information, protocols for worker notification, procedures for soil excavation and handling, field screening, chemical testing of soils, dust control, stormwater runoff management, and requirements for the transport and offsite disposal of soils if necessary. It should also provide procedures for addressing unanticipated conditions and for groundwater management during excavation activities. Marine sediment would also require further testing and poses a contamination risk.

Further investigation and precautions will be required per regulatory standards prior to the future development of the park. In addition, the District has advised the consultant team to explore opportunities that minimize excavation into the site to comply with the closure order. Portions of the Sandy and Asphalt Shore are currently experiencing erosion at a rate of up to 1' per year, resulting in a scarp and upland plantings falling into the Bay. Addressing this ongoing erosion will be an important component of future site planning and risk management.



Concrete Debris Shore



Textured Urbanite Shore



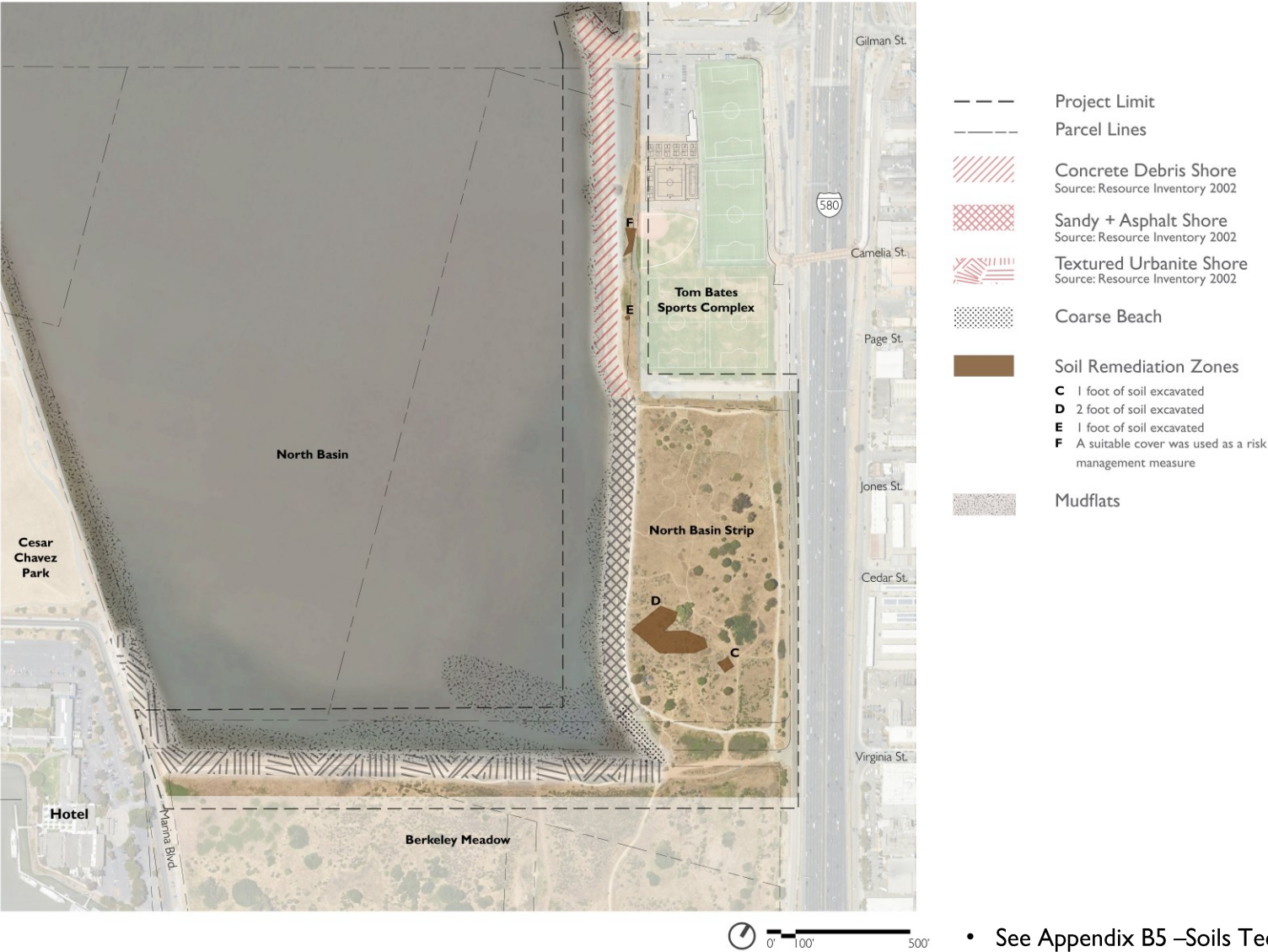
Sandy Asphalt Shore



Coarse Beach

- See Appendix A5 – Soil Remediation Closure - 1998
- See Appendix A9 – Water Board Order #98-072
- See Appendix A10 – Remediation and Risk Management Plan - 1998
- See Appendix B5 – Soils Technical Memo
- See Appendix B6 – Shoreline Erosion Memo

3.2 Environmental Conditions **Soils & Geotechnical**



- See Appendix B5 –Soils Technical Memo
- See Appendix B6 – Shoreline Erosion Memo

3.3 Environmental Conditions **Sea level Rise**

The project offers an opportunity to restore shoreline habitats and enhance public access while prioritizing resilience to flooding hazards, with a focus on addressing the threat of sea-level rise. Based on current State of California guidance, it is recommended that the project plan for 5 feet of sea-level rise by 2100.

The typical shoreline profile features a narrow mudflat fronting a coarse beach. Along the North Basin Strip, the beach is backed by a low scarp* and unarmored backshore. In contrast, the shoreline near the Tom Bates Regional Sports Complex and Virginia Street extension is heavily armored with concrete debris and riprap. Schoolhouse Creek empties into the basin at the southeast corner, where the North Basin Strip meets the Berkeley Meadow.

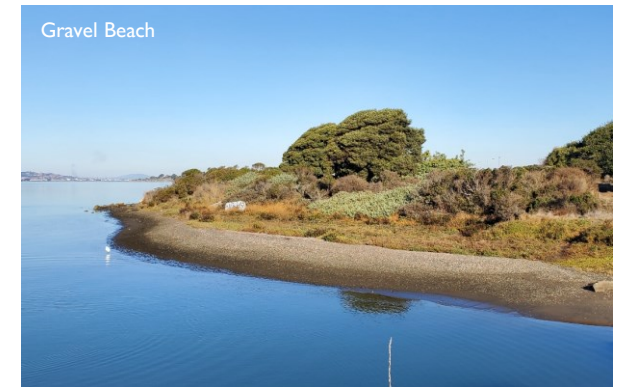
Based on a review of relevant guidance (including the OPC 2018 and 2024 projections) and site conditions, 5 feet of sea-level rise by 2100 is considered an appropriate planning target. Key findings include:

- New sea-level rise projections are consistent with earlier estimates, estimating approximately 5 feet of rise by 2100 under the intermediate-high risk scenario.

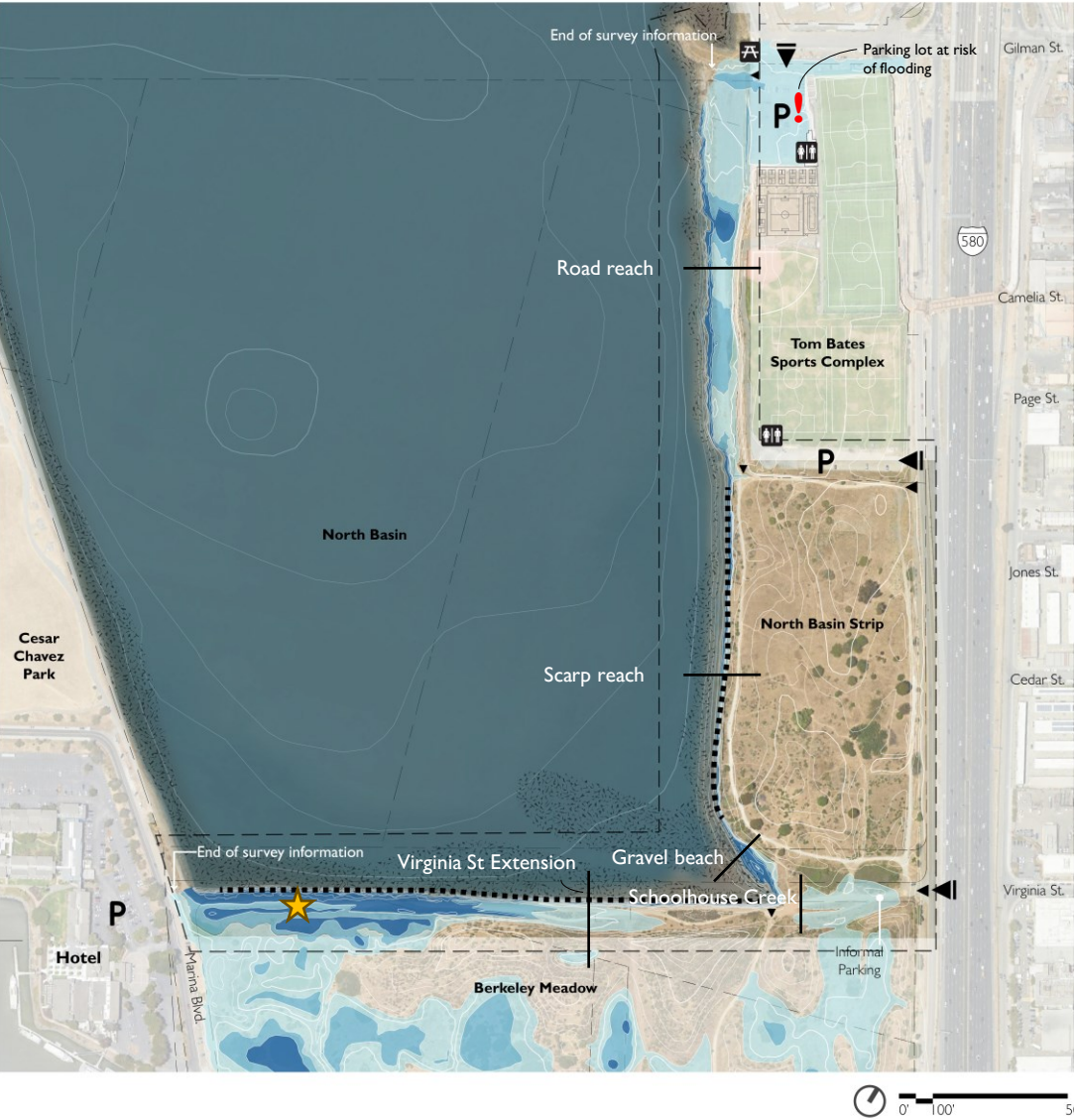
- Present-day flooding during 1- and 100-year events is limited, primarily affecting the paved path near the sports complex and the northwest corner of Berkeley Meadow.
- The eastern shore of the North Basin is mapped by FEMA into the VE zone, indicating 100-year flood risk with high-velocity waves. However, inland flooding remains limited.
- Future sea-level rise is expected to expand the extent of inundation, particularly affecting the Berkeley Meadow, although wave-related impacts to the VE zone are expected to remain relatively unchanged.
- The final design elevations will be selected during subsequent project phases to account for FEMA flood elevations, wave runup, and other considerations.

* *Scarp* - a very steep bank or slope

- See Appendix B4 – Sea Level Rise Report



3.3 Environmental Conditions **Sea level Rise**



Existing Flooding Occurring at King Tide

- See Appendix B4 – Sea Level Rise Report

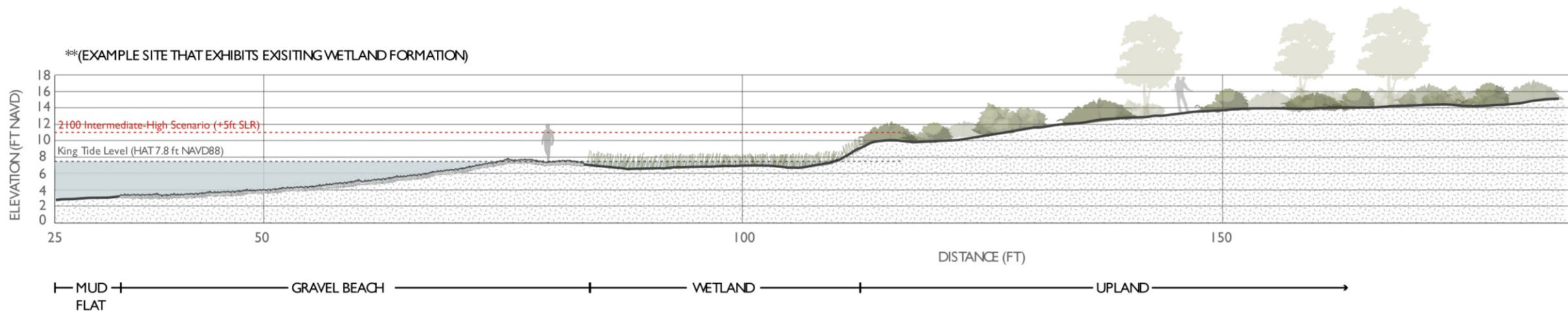
3.3A Environmental Conditions Shoreline Sections

GRAVEL BEACH

At the south end of the North Basin Strip near the Schoolhouse Creek outfall, a gravel spit has formed over time. It is made up of gravel, brick, ceramic, and glass debris that eroded from the bluff farther north and drifted south with the prevailing northwest winds.

Even with ongoing erosion north of the spit, this gravel beach has stayed relatively stable over the years. The spit has helped create a small back barrier salt marsh and pool, adding habitat value to the shoreline. It's also become a spot for recreational uses like fishing and seaglass collecting. The bluff behind it is partly stabilized by patches of saltgrass and wetland vegetation, fed by groundwater seeps.

The Gravel Beach section has served as a reference site for resilient coarse beach that can migrate landward with sea level rise elsewhere on the site.



HAT – Highest Astronomical Tide
NAVD – North American Vertical Datum

• See Appendix BI – Biological Resources Assessment

3.3B Environmental Conditions Shoreline Sections

SCARP REACH

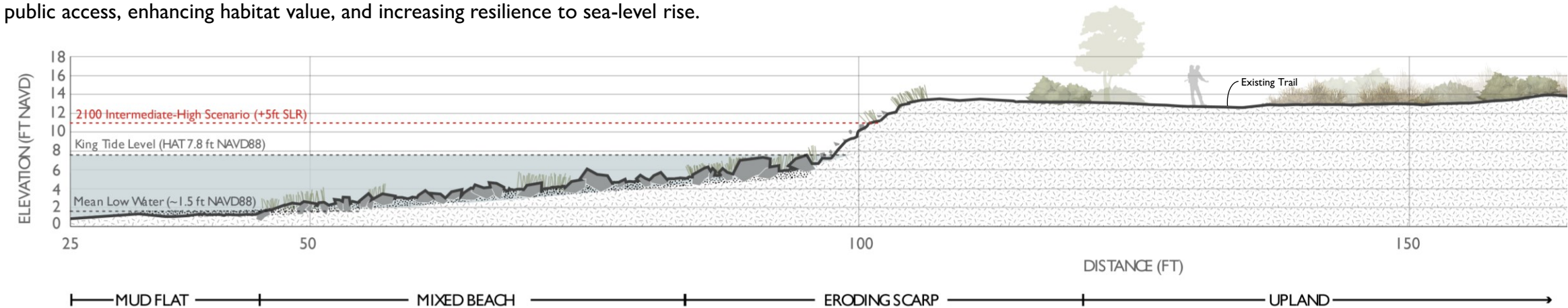
The middle section of the east shore, often referred to as the scarp (a very steep bank or slope) reach, is a wave-cut bench backed by an actively eroding bluff.

This part of the shoreline is mostly old fill — a mix of soil, concrete, brick, ceramics, and glass debris. What used to be a narrow gravel beach has eroded away in most places, leaving behind a hazardous shoreline made up of sharp debris and broken concrete.

Vertical scarps, some reaching up to 6’ or 7’ high, are common here, and slope failures are happening throughout the reach. There are some patches of saltgrass and hybrid cordgrass, but otherwise vegetation is limited.

Ongoing erosion and unstable slopes make this one of the more challenging areas of the shoreline.

The key goals for this shoreline include stabilizing ongoing erosion, improving public access, enhancing habitat value, and increasing resilience to sea-level rise.



HAT – Highest Astronomical Tide
NAVD – North American Vertical Datum

• See Appendix BI – Biological Resources Assessment

3.3C Environmental Conditions Shoreline Sections

VIRGINIA STREET EXTENSION

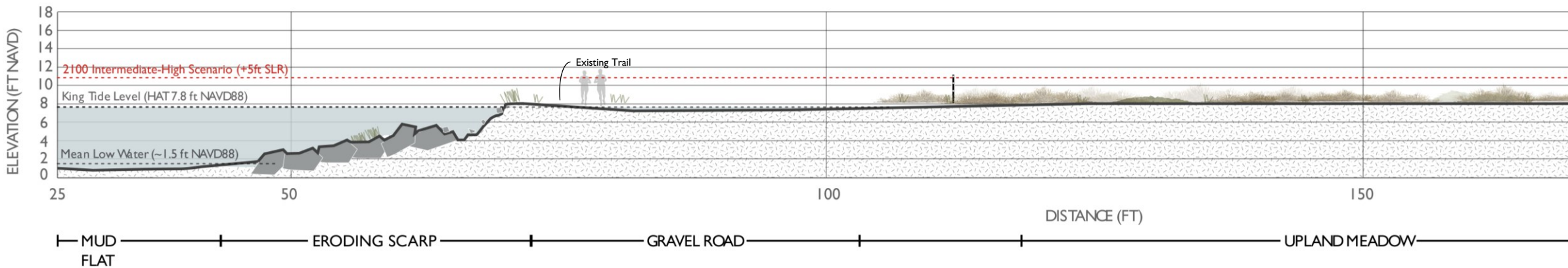
The shoreline along the Virginia Street extension is heavily armored with riprap — mostly concrete debris and large rocks.

This section has held up better against erosion than the unarmored parts of the site, but it has a steep profile that limits easy access for people or wildlife.

Although it's a little more sheltered than the open south-facing shore, the area is still exposed during large storm events.

Overall, this reach is relatively stable because of the heavy armoring, but it also leaves little opportunity for natural shoreline processes.

The key goals for this shoreline include stabilizing ongoing erosion, improving public access, enhancing habitat value, and increasing resilience to sea-level rise.



HAT – Highest Astronomical Tide
NAVD – North American Vertical Datum

• See Appendix BI – Biological Resources Assessment

3.3D Environmental Conditions Shoreline Sections

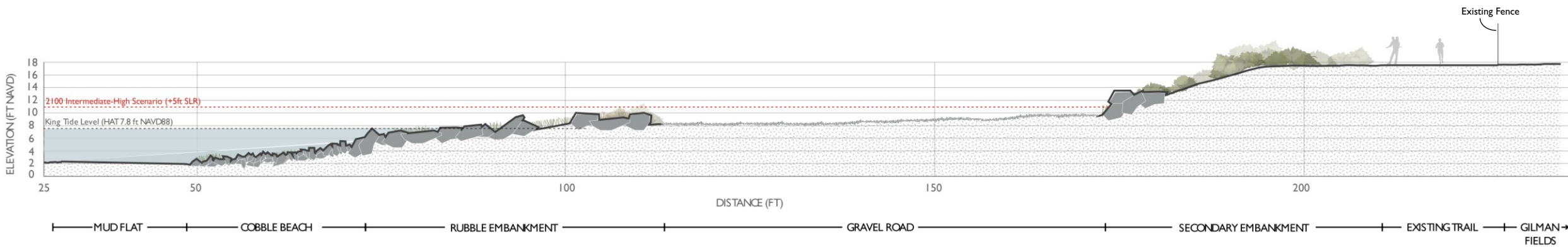
ROAD REACH

The west side of the Tom Bates Regional Sports Complex is edged by a steep, rocky shoreline made up of concrete slabs, boulders, bricks, and asphalt debris. Much of this material came from fill activities. While the armor protects parts of the shoreline, wave action during high tides continues to erode the fill material behind it, creating a retreating low scarp.

This stretch acts as an artificial rocky habitat, supporting barnacles, rockweed, green algae, Olympia oysters, and shore crabs. The habitat is the kind that could support species like oystercatchers, herons, and egrets.

The south-facing shoreline here is more exposed to wave energy compared to the east-facing side, which is a little more sheltered.

The key goals for this shoreline improving public access, enhancing habitat value, and increasing resilience to sea-level rise.



HAT – Highest Astronomical Tide
NAVD – North American Vertical Datum

• See Appendix BI – Biological Resources Assessment

4.0 – PROJECT FEASIBILITY OUTCOMES

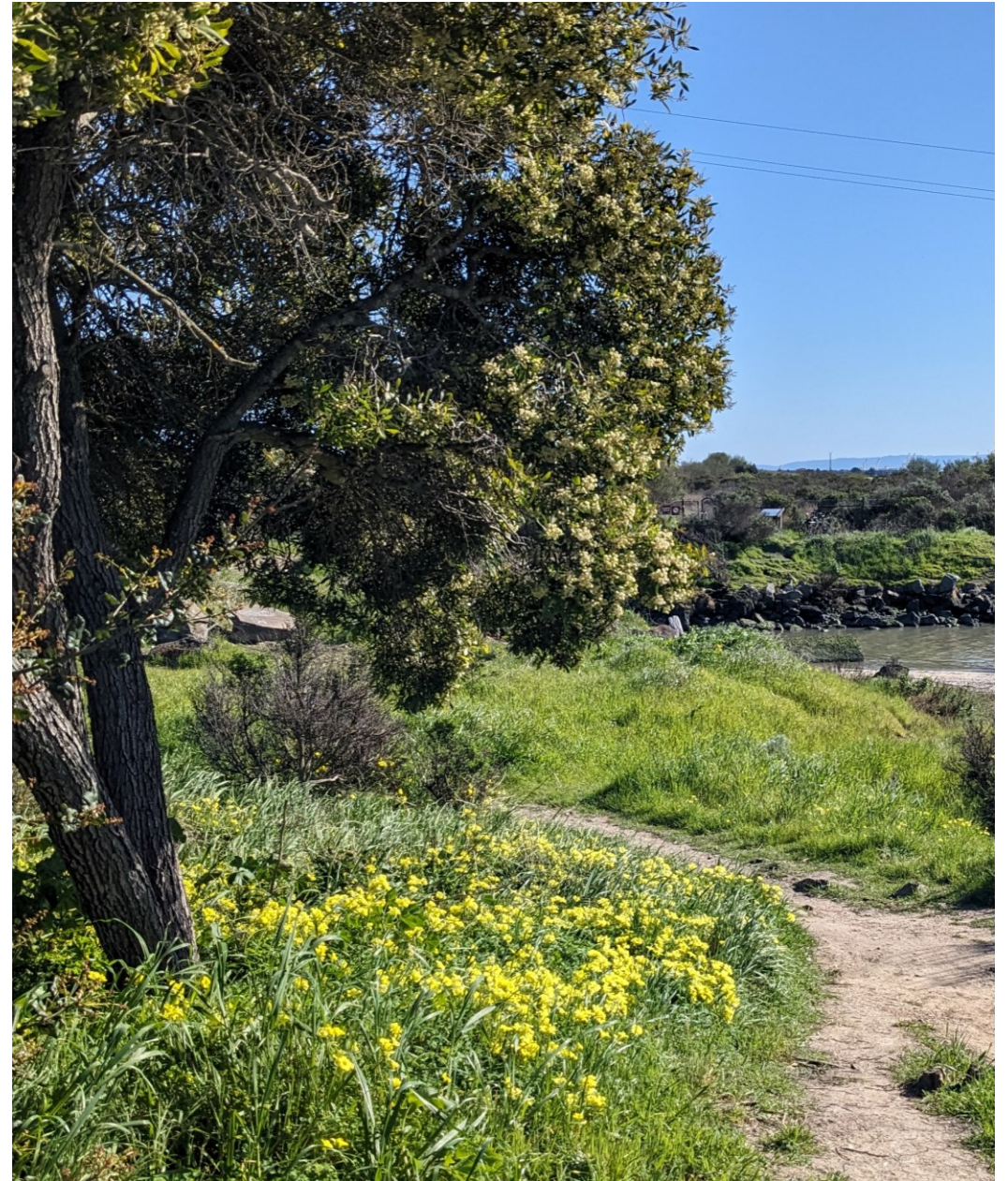
4.1 - Constraints

4.2 – Opportunities - Access

4.2 – Opportunities - Recreation

4.2 – Opportunities - Habitat/Ecology

Upon the distillation of the project data, site observation, and a charrette with the District, key opportunities and constraints have been defined for the project that will help serve as the foundation for initial community engagement and set the stage for the design phase of the project. The following section has been broken into Constraints (4.1), and Opportunities relating to Access (4.2), Recreation (4.3), and Habitat/Ecology (4.4).



4.1 - Constraints

Soil & Water Conditions

While prior testing and site data do not raise significant concerns around the site's development into park use, further testing, permitting, and possible mitigation measures would be required in areas where excavation is called for. Plans for improvements, such as constructing structures with footings or undertaking substantial cuts, will require careful consideration and will incur additional costs and delays. Daylighting of Schoolhouse Creek would require extensive soil testing to assess the feasibility of cutting and removing fill. Additionally, marine sediments were not previously tested and present a risk to the project. See Appendix B3 Geotechnical Report and B5 – Soils Technical Memo. Water quality is uncertain for the North Basin and would require further testing to determine if types of water recreation would be suitable along the shoreline.

Permitting Fill into the Bay

Since cutting into the site to expand the marsh habitat has constraints relating to soil conditions, the project may look at placing beneficial fill into the bay for nature-based solutions for shoreline protection and enhancing intertidal habitat. This would be subject to significant statutory and administrative scrutiny by regulatory agencies. Permitting would be a substantial hurdle for the project, which could affect both budget and schedule and influence the final design of the project.

Utility & Infrastructure Connections

Utility connections for water, sewer, electrical, and stormwater present additional layers of complexity. Currently, existing sewage system connections are limited to the Tom Bates Sports Complex. While there may be potential to integrate flush restrooms into the promenade, the remaining areas of the site may only be able to support vault toilets. Moreover, electrical connections might be restricted to the promenade, though there is an opportunity to explore solar-powered options for minimal lighting at strategic trailhead locations. See B8 – Utility Assessment Memo. Integration with the Bay Trail and added parking would require coordination with City of Berkeley and Caltrans.

District Operational Capacity

Operational capacity is also a vital consideration for the Park District, which faces management and maintenance resources limitations. A successful concession lease could be beneficial to effectively program the space, but this would necessitate dedicated management and oversight to ensure smooth operation.

Funding/Phasing

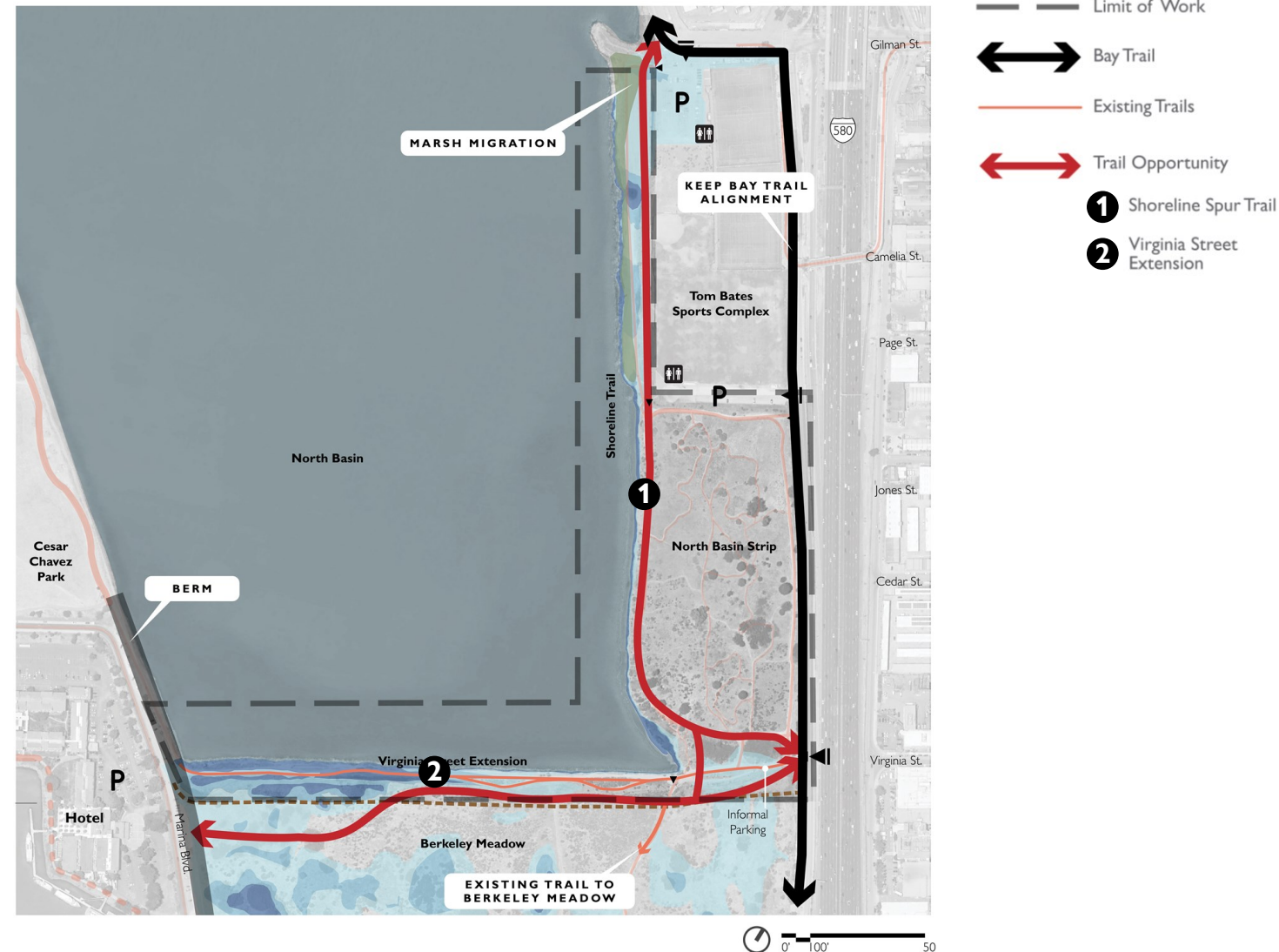
Currently, the financing for implementation would rely primarily on grants for support. Given the coastal conditions, the project may qualify for certain resiliency funding to address the impacts of sea level rise. Additionally, there is the possibility of phasing the project to allow for temporary activation, especially along the northern promenade, which features a recently paved surface and convenient access to parking associated with the Tom Bates Sports Complex. This phased approach could facilitate initial progress while more comprehensive funding solutions are sought. Funding future phases of project design and construction would rely heavily on grant funding. Providing water access, expanding the Bay Trail, and shoreline restoration and resilience are all attractive for grant support. However, the funding landscape is expected to be very competitive.

4.2 - Opportunities Access

Formalizing a ‘spur-trail’ (1) from the Bay Trail would increase access directly along the waterfront, in contrast to the Bay Trail’s alignment along the frontage road. This trail would be more immersive and provide expansive views of the waterfront and interior of the site. Fast-moving traffic could be directed to the current Bay Trail alignment, allowing the spur trail to prioritize a more passive experience.

Currently, the Virginia Street Extension (2) informal trail already floods during king tide events. This will only continue to increase in frequency until access along the current route is completely inundated. This access route goes over potential and future wetland migration zones in which access will either need to discontinue or be formalized with the construction of a boardwalk

Expanding a network of smooth, level surfacing will better accommodate those with mobility constraints and provide greater access to site amenities. Along with formalized access, certain informal trails may be decommissioned to prioritize habitat.



- See Appendix B7 – Opportunity Precedents

4.3 - Opportunities Recreation

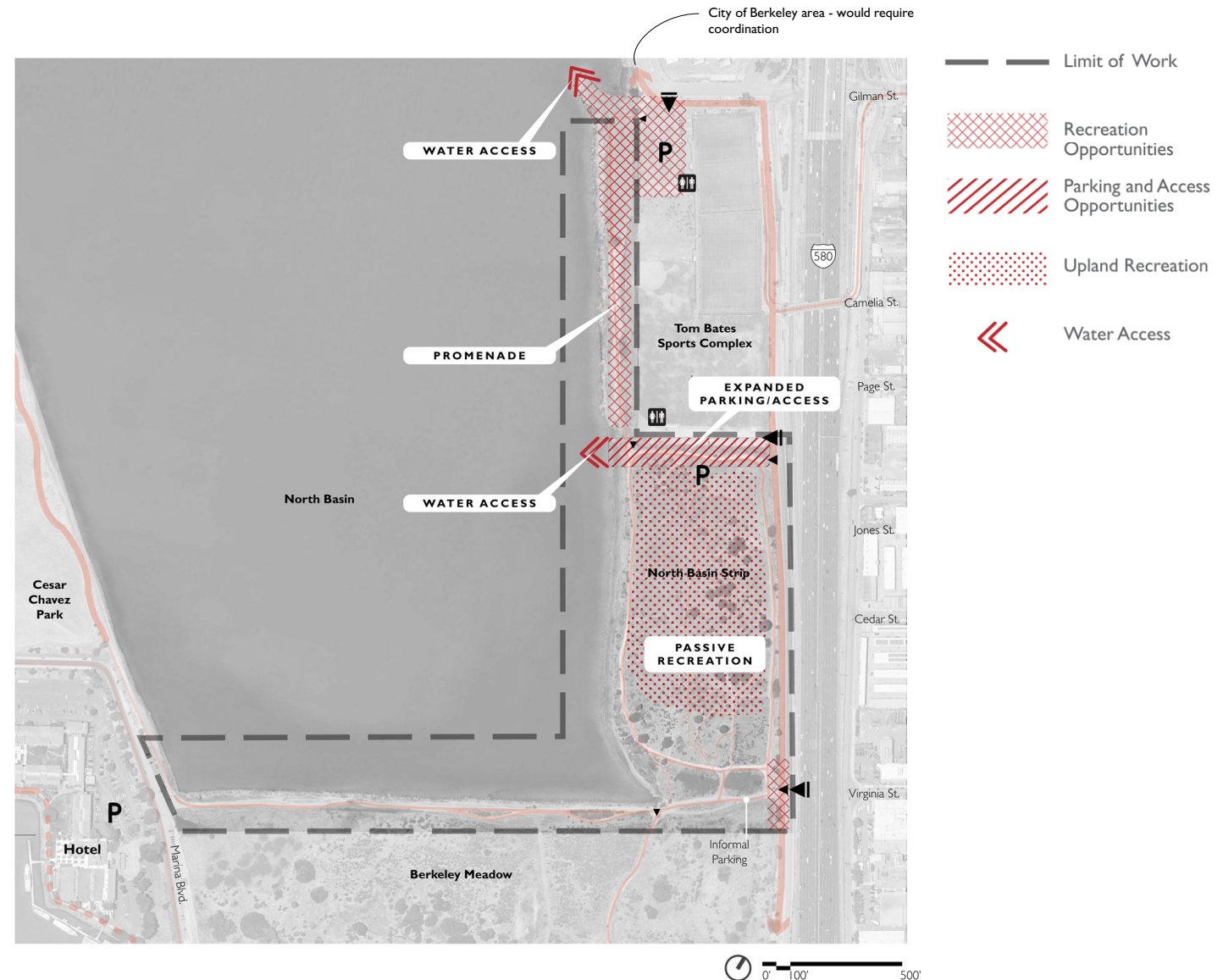
Based on General Plan recommendations and site impressions, recreation opportunities seemed appropriate along the northern promenade. Within the center of the site, passive recreation seemed appropriate in the north portion. Water access opportunities exist on the northern end of the site but would require coordination with the City of Berkeley. Additionally, water access could be considered at the center of the site and aligned with an expanded parking lot south of the Tom Bates Sports Complex. See the Appendix for a complete list of proposed recreation opportunities.



Bike Park



Promenade



- See Appendix B7 – Opportunity Precedents

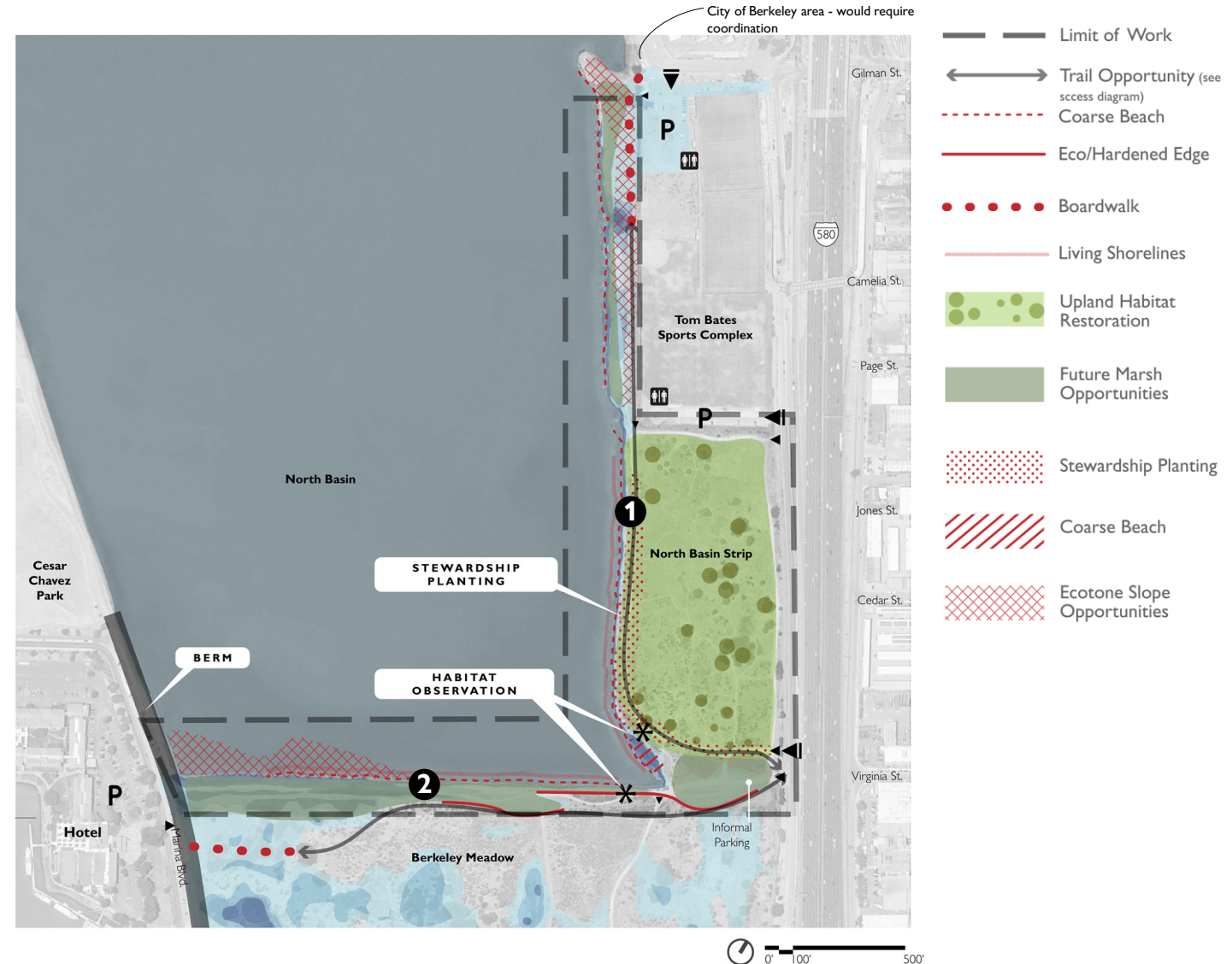
4.4 - Opportunities Habitat / Ecology

To enhance existing habitats, several opportunities have been proposed to support the ecosystem and its wildlife. In the upland areas, non-native species like Harding grass could be replaced with native plants such as creeping wild rye. This change could restore ecological balance and create a more welcoming landscape for local wildlife. Additionally, trees and shrubs could be planted to provide nesting and foraging opportunities for birds, along with dedicated plantings for pollinators.

Shoreline enhancements include creating and improving gravel beaches to benefit shorebirds and establishing overwintering refuges for burrowing owls. In intertidal and subtidal zones, important improvements could involve planting rockweeds, barnacles, eelgrass, and oysters while eradicating invasive species that threaten biodiversity.

Boardwalk access along the northern shoreline trail may support future marsh migration, balancing habitat preservation with human use. Similarly, a boardwalk at the eastern end of Virginia Street Extension could facilitate the natural migration of marshes into the Berkeley Meadow, while allowing passive observation of this succession.

The District has an opportunity to leverage the existing stewardship for the planting and maintenance of key habitat zones.



- See Appendix B7 – Opportunity Precedents

5.0 APPENDIX

A: Site Data

- A1 – North Basin Strip Project Area - 2023
- A2 – Eastshore State Park General Plan - 2002
- A3 – North Basin Strip Site Survey - 2024
- A4 – Environmental Impact Report - 2002
- A5 – Soil Remediation Closure - 1998
- A6 – Resource Inventory - 2002
- A7 – North Basin Waterbird Study - 2009
- A8 – Schoolhouse Feasibility Study - 2004
- A9 – Water Board Order 98-072
- A10 – Remediation and Risk Management Plan - 1998
- A11 – Berkeley Waterfront Specific Plan - 2024
- A12 – Berkeley Waterfront Improvements, Marina Blvd - 2024
- A13 – Berkeley Waterfront Improvements, Project Concept Plan- 2024
- A14 – Tom Bates 90% Plans - 2024
- A15 – Special Status Species - 2024
- A16 – Stauffer Chemical Landfill Correspondence – (2011-2024)
- A17 – Berkeley Landfill Letter - 2024
- A18 – Brickyard Dol Sample Reports - 2004
- A19 – EBRPD ROW - (1998-2023)
- A20 – Placer.ai Data – 2024

B: Feasibility Studies

- B1 – Biological Resources Assessment – ESA 2024
- B2 – Cultural Assessment – ESA 2024
- B3 – Geotechnical Report – A3GEO - 2024
- B4 – Sea Level Rise Report – ESA 2025
- B5 – Soils Technical Memo – TRC 2025
- B6 – Shoreline Erosion Memo – ESA 2024
- B7 – Opportunity Precedents
- B8 – Utility Assessment Memo – CSW 2025

CONSULTANT TEAM

WRT – Landscape Architect, Adaptation Planning
ESA – Restoration Design, Coastal Engineering, CEQA
CSW – Civil Engineering
A3GEO – Geotechnical
TRC – Hazardous Materials
Susan Moffat – New Voices Community Partnership



Burrowing Owl