

View of the wetlands in East Palo Alto looking out from the San Francisco Bay Trail. Photo by Jaclyn Mandoske, BCDC.

Local Assessments Section J: SAN FRANCISQUITO Operational Landscape Unit

JURISDICTIONS WITHIN THIS SECTION

Santa Clara County

San Mateo County

Palo Alto Alameda East Palo Alto Menlo Park



HOW TO USE THE LOCAL ASSESSMENTS



WHO IS THIS FOR?

Anyone interested in understanding their local shared vulnerabilities to flooding and sea level rise.

Local jurisdictions

- Cities
- Counties
 - Special Districts
 - Utilities Providers •

Stakeholder Groups

- Non-profits/NGOs
- For-profits/Private
- Poi-pronts/Private
- Associations
 - Interested Parties

General Public

- Residents
- State/Regional
- Caltrans
 - MTC/ABAG

HOW IS IT ORGANIZED?



Local assessments are organized by four regional systems assessed: Transportation, Vulnerable Communities, Priority Development Areas (PDAs), and Priority Conservation Areas (PCAs).

Each part of the local assessment provides varying levels of details at three scales: 1) Operational Landscape Unit (OLU), 2) Individual Descriptions, and 3) Shared Stories of Vulnerabilities in Focus Areas/Areas of Impact. This assessment can be reviewed in whole, or individual parts can be reviewed separately depending on interest and level of detail desired.



WHAT'S IN THIS ASSESSMENT?

WHERE ARE WE IN THE REGION?	3
WHAT REGIONAL SYSTEMS ARE HERE?	5
WHAT WAS ASSESSED?	6
Transportation	6
Vulnerable Communities	8
Priority Development Areas (PDAs)	20
Priority Conservation Areas (PCAs)	.24
FOCUS AREAS AND AREAS OF IMPACT	
Focus Area A: East Palo Alto Community	.30
Area Of Impact B: South San Francisquito	42
ENDNOTES	52

Where are we in the region?

This OLU is located primarily in San Mateo County, with the southeastern part of the OLU in Santa Clara county. Almost the entirety of the City of East Palo Alto is contained within this OLU. The majority of East Palo Alto has been characterized as socially vulnerable or disadvantaged by numerous screening methods. This OLU is bounded by SR-84 Dumbarton Bridge to its north and includes the Palo Alto Airport to its south. The San Francisquito Creek, for which this OLU is named, forms the boundary of San Mateo and Santa Clara Counties. To the north of the creek lies East Palo Alto and Menlo Park, while the City of Palo Alto lies to its south. Uses within this OLU include single-family residential housing, multi-family housing, commercial, public/institutional, industrial and parks/open space.

The characteristics of the shoreline include tidal wetlands at the Don Edwards San Francisco Bay National Wildlife Refuge, Ravenswood Open Space Preserve, Cooley Landing Park, Faber-Laumeister Marsh, embankments of San Francisquito Creek and additional tidal wetlands at the Baylands Nature Preserve. These wetlands are among the last remaining intact wetlands in the San Francisco Bay and home to a variety of threatened and endangered species. This area also contains a large number of contaminated lands largely concentrated in the East Palo Alto community.





What regional systems are here?

Operational Landscape Unit (OLU) boundaries were used to organize and help identify regionally significant assets that were co-located together (Methodology can be found in ART Bay Area Section 3.0 Local Assessments).

The map on page 4 shows the entire OLU, including all the regional systems present. Colors are used throughout this document to help navigate across these four regional systems. Individual assets that were assessed as part of this local vulnerability assessment are listed in the bullets below and can also be found on the labels on the map (Figure 1j).

Figure 1j. MAP OF REGIONAL SYSTEMS AND LIST OF INDIVIDUAL ASSETS ASSESSED WITHIN BELOW:



TRANSPORTATION

- SR-84
- US-101
- Palo Alto Airport
- Local Roads



VULNERABLE COMMUNITIES

• East Palo Alto Community



PRIORITY DEVELOPMENT AREAS (PDAs)

Ravenswood PDA



PRIORITY CONSERVATION AREAS (PCAs)

- Menlo Park and East Palo Alto Baylands PCA
- San Francisco Bay Trail PCA
- San Francisco Bay Water Trail PCA

What was assessed?

TRANSPORTATION



US-101 • The US-101 is the primary north-south transportation artery through the San Francisco Peninsula, providing important access to the East Bay via connections to State Routes 92 and 84. The US-101 provides important commuter transportation service in this area for local, regional and inter-regional automobile and truck traffic, averaging 199,000 vehicles¹ and 8,745 trucks² per day. It is also a designated emergency route for the Bay Area.³ Within this OLU, the US-101 is an 8-lane freeway and is first exposed to flooding at 36" of TWL at the intersection of Embarcadero Road to Rengstorff Avenue, which is roughly 2.5 miles of highway.

SR-84 (Dumbarton Bridge Touchdown) • Traversing the Dumbarton Bridge, SR-84 is an east-west highway and in this OLU provides connections from areas in the East Bay to SR-109 (University Avenue) and SR-114 (Willow Road). In addition to personal vehicles and bicycle traffic, the Dumbarton Bridge carries buses that transport commuters between Alameda County and East Palo Alto, Menlo Park, Palo Alto, and Stanford University. The Dumbarton Bridge also carries private employer shuttles, which play an important role in reducing highway congestion in the Bay Area. It is an important route connecting commuters and residents from cities in the Peninsula and across the Bay, averaging 72,500 vehicles⁴ and 2,620 trucks⁵ per day.





This OLU also includes the now defunct Dumbarton Rail Corridor that has not been in use since the 1980s but crosses the San Francisco Bay in this location.⁶ A Dumbarton Transportation Corridor was completed in 2017 to identify improvements to enhance mobility in the Dumbarton Corridor and evaluated transportation alternatives on the Dumbarton Bridge and its approaches.⁷ The SR-84 becomes exposed to flooding at the Dumbarton Bridge touchdown area beginning at 24" TWL.

Palo Alto Airport • The Palo Alto Airport, owned and operated by the City of Palo Alto, is located in the southern most section of this OLU. General Aviation airports are public-use airports that do not have scheduled service or have less than 2,500 annual passenger boardings. It is the tenth busiest single runway airport in California⁸ and is located within a half-mile to the US-101, an important connector to the airport. The airport is surrounded by the San Francisco Bay Trail and there are opportunities for birdwatching as part of the Palo Alto Baylands Nature Preserve.⁹ The Airport is within a low-lying area at 24" TWL and is completely flooded at 36" TWL.

Local Roads • SR-19 (University Avenue, exposed at 24" TWL) and SR-114 (Willow Road, exposed at 36" TWL) serve as main arterials through this OLU and are exposed to flooding.



VULNERABLE COMMUNITIES



East Palo Alto Community • For the

can be referenced in the Appendix. This is a placeholder designation for a set of block groups that have a moderate, high, or highest

purposes of this report, 14 block groups were assigned to a functional community called "East

Palo Alto." The block groups that were assessed

social vulnerability ranking within the East Palo

Alto area. We have provided some history and

context for these areas, primarily gathered via desktop research, and in the case for East Palo

considered a starting point. Before this is used

be further ground-truthed and vetted with the

communities considered. Similarly, block groups

or communities with a similar vulnerability rank could and likely will have very different needs, considerations, and capacities that are critical to

Alto, there was also limited stakeholder and community vetting. However, this should still be

for any planning purposes, this data should

bring into the planning process.



SOCIAL VULNERABILITY **RANK:**



*In block groups considered, this ranking occurred most frequently.

Data Source: ART Bay Area Regional Community Vulnerability Indicators, BCDC (2018).

J - 8 • ADAPTING TO RISING TIDES: BAY AREA

In the following description, we acknowledge that we are not members of the community and thus we cannot speak on behalf of the lived experiences of its residents. Our intent is to elevate this community as part of the region's interconnected systems and use this description to help set a sense of place.

East Palo Alto, which make up approximately 14,000 people, contains five "neighborhoods" known as The Flooda, The Midtown (Mid), The Village (Ville), The Gardens, and Over the Ramp (OTR), according to community members. The Ravenswood area in East Palo Alto was one of the first planned communities and located on what would become unincorporated San Mateo County. The area historically considered East Palo Alto was much larger than the city's current 2.5 square miles, as large tracts of land were annexed from Menlo Park and Palo Alto in the 1940s through 1960s.

SOCIAL VULNERABILITY PERCENTILES IN EAST PALO ALTO



Characteristics: In block groups considered, 9 characteristics are within the 90th percentile and 3 are within the 70th percentile in the region.

GENTRIFICATION AND DISPLACEMENT RISK:



Ongoing Gentrification and/or Displacement *

*In block groups considered, this ranking occurred most frequently.

Data Source: ART Bay Area Regional Community Vulnerability Indicators, BCDC (2018).



Low income
 Not U.S. citizens
 People with disability
 Communities of color
 Limited English proficiency
 Without a high school degree
 Under 5
 Severely housing cost burdened
 Renters

Without a vehicle
 Single parent households
 65 and over living alone



In 1983, the City of East Palo Alto was incorporated. The demographics of East Palo Alto have shifted over the years, and today, the city is a thriving multilingual and multi-ethnic community, with a large number of Hispanic and Pacific Islander populations. The community is undergoing a period of rapid economic transformation as new technology companies and employment centers are being developed. East Palo Alto rests between Menlo Park, home to Facebook, and Palo Alto, home to Stanford University and many affluent tech company founders, raising concerns of ongoing gentrification and displacement.¹⁰

Residential households in this community begin getting impacted by flooding at 24" of TWL in the northwest corner of the community. A flooding threshold occurs at 36" TWL when overtopping of embankments leads to widespread flooding of the community. Flooding extent occurs up to 108" of TWL, where nearly the entire community is flooded. There are eight block groups that make up the East Palo Alto community, with the US-101 cutting through portions of the community. All block groups within the East Palo Alto community are considered high or highest social vulnerability. Residents within the East Palo Alto community block groups have slightly different characteristics, however, the following twelve (all) social vulnerability characteristics are exhibited in at least one block group in the 70th percentile, with eight characteristics in the 90th percentile (Figure 2j).

The area also has a history of contaminated lands in soil and groundwater from former and current industrial uses near the shoreline.¹¹ The East Palo Alto community overlaps with the Ravenswood PDA in this OLU. It is in this Ravenswood PDA area of East Palo Alto that contains the greatest concentrations of affected sites, which occur near Bay Road and Cooley Landing, and contain harmful materials such as PCBs and petrochemicals.¹² Additionally, residents within the East Palo Alto community have expressed concerns with water sources and water quality during two community forums held in partnership with Nuestra Casa, a community-based organization, as part of the Community Engagement work for ART Bay Area. While it is known that there is groundwater contamination in some areas,¹³ it is unclear how current or future flooding from sea level rise and storms may exacerbate existing contamination issues and/or impact groundwater levels or freshwater supply to residents and businesses.

A majority of block groups in the East Palo Alto community have high and moderate contamination vulnerability, with some block groups having lower contamination vulnerability. Within at least one block group in East Palo Alto the following sources are in the 70th percentile, with three in the 90th percentile (Figure 3j).

*Note: This community spans the border between the San Francisquito OLU and Belmont-Redwood OLU. The community descriptions are the same in both Local Assessments, even though block groups cross OLU boundaries. The Focus Area in this Local Assessment will discuss impacts where flooding occurs from overtopping in this OLU. Please see the Belmont-Redwood OLU for details on flooding and overtopping that occur from the Belmont-Redwood OLU.

CONTAMINATION BURDEN PERCENTILES IN EAST PALO ALTO



CONTAMINATION BURDEN RANK:

Χ	Low *
Χ	Moderate
Χ	High *
	Highest

*In block groups considered, this ranking occurred most frequently.



Impaired water bodies Groundwater threats burden

Solid waste facilities
 Hazardous waste facilities
 Hazardous cleanup activities

Data Source: ART Bay Area Regional Community Vulnerability Indicators, BCDC (2018).

Community Engagement Mapping Exercise in East Palo Alto with Nuestra Casa

The ART Bay Area project worked in partnership with the Bay Area Health Inequities Initiative (BARHII), a nonprofit coalition of public health agencies and Nuestra Casa, a community-based organization in East Palo Alto, to conduct two community engagement meetings on flooding and resilience. Two community forums, one in English and one in Spanish, were held in March 2019 and included a total of 42 community participants. The meetings served to provide a baseline education on sea level rise issues in East Palo Alto and improve capacity of community members and local government staff around the risk and sea level rise and the intersection of seal level rise with urgent local issues such as housing, water quality, language access, immigration, and other concerns.

In addition to sharing information with community members on the impacts of current and future flooding in East Palo Alto, community members were asked to engage in an exercise called, "Show Us Your Shoreline," to help us understand and capture the locations of things they cared about, utilized, or knew to be important to the community at large. This was a mapping exercise where community members were provided a map of their city and the locations of relevant assets were captured on the maps. This mapping exercise resulted in a total of seven maps where participants placed over 180 points to identify places where they live, work, access job, schools, places of recreation, or any other critical services they felt was important.

An analysis was conducted to identify the points mapped by community members and compare it against the data layers used to evaluate exposure of critical services and facilities in the community. These mapped points were reviewed and those that were in areas exposed up to 108" TWL were recorded. Not all of the community points identified were exposed to flooding and thus were not included in further analysis. Community data points exposed to flooding were noted as either new assets mapped in the community or identified as confirming existing assets. While some community data points were able to be identified to a specific place and incorporated into the "Exposure of Critical Services and Facilities within East Palo Alto" table below, others were not identifiable due to their placement on the map or inability to determine a specific point of interest. In Table 1j, new community-identified assets have been incorporated, and an asterisk (*) denotes whether the asset was new to our assessment and added into our dataset.

adaptation. Bottom photo: BCDC and Nuestra Casa conducted community engagement mapping exercises with community members in East Palo Alto. Photos by Jaclyn Mandoske, BCDC. Top photo: Nuestra Casa's Jullio Garcia presents to community members in Spanish during a community forum about flooding impacts that could occur in East Palo Alto in the absence of



EXPOSURE OF CRITICAL SERVICES AND FACILITIES IN EAST PALO ALTO

	Critical Facilities/Services Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
Police and	Menlo Park Fire Protection District Station 2 (University Avenue, East Palo Alto)										
Fire Stations	East Palo Alto Police Department (Demeter Street, East Palo Alto)										
	East Palo Alto Charter School (Runnymead Street, East Palo Alto)										
	Eastside College Preparatory (Pulgas Avenue, East Palo Alto)										
	Ronald McNair Middle School (Pulgas Avenue, East Palo Alto)										
	Mid-Peninsula High School (Willow Road, Menlo Park)										
	KIPP Valiant Community Prep (Pulgas Ave, East Palo Alto)*										
	East Palo Alto Academy (Myrtle St, East Palo Alto)*										
Schools G	Costano Elementary School (Fordham Street, East Palo Alto)										
	Green Oaks Elementary School (Ralmar Avenue, East Palo Alto)										
	Ravenswood City School District (Clarke Ave, East Palo Alto)										
	The Primary School (O' Connor St, East Palo Alto)*										
	Brentwood Elementary School (Clarke Ave, East Palo Alto)*										
	Aspire Public School Offices (Bay Road, East Palo Alto)										
	Cesar Chavez Elementary School (Ralmar Ave, East Palo Alto)*										
	Au P'tit Monde de la Péninsule (Clarke Ave, East Palo Alto)*										
	Laevngamalid Christian Academy (Green Street, East Palo Alto)										
Health	Ravenswood Family Health Center (Bay Rd, East Palo Alto)					0					
Clinics	Ravenswood Family Dentistry (Bay Road, East Palo Alto)								0		

Table 1j. Critical Services and Facilities

	Critical Facilities/Services Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
	Mount Olive Missionary Baptist Church (Pulgas Avenue, East Palo Alto)										
	24HR Prayer Center (Garden St, East Palo Alto)*										
	Seventh-Day Adventist Church (Beech St, East Palo Alto)*										
	Church of the Living God (Pulgas Ave, East Palo Alto)*										
Places of	Open Doors Church of God (O'Connor St, East Palo Alto)*										
Faith	Eternal Life Church (O'Brien Dr, Menlo Park)*										
	Laurel Avenue Church of Chirst (Laurel Ave, East Palo Alto)*										
	Grace Temple Church of God (Clarke Ave, East Palo Alto)*										
	Asambleas de Dios (East Palo Alto)*										
	New Sweet Home (Capitol Ave, East Palo Alto)*										
	My Little Prince Childcare (Baines St, East Palo Alto)*				*						
	Youth United For Community Action (Clarke Ave, East Palo Alto)*						8				
Civic Centers & Services	Boys & Girls Club-Peninsula (Ivy Dr, Menlo Park)*						*				
	College Track East Palo Alto (Bay Rd, East Palo Alto)*						8				
	Ecumenical Hunger Program (Pulgas Ave, East Palo Alto)*						*				

Table 1j (cont.). Critical Services and Facilities: First exposure of critical services and facilities. (*): An asterisk denotes whether the asset was new to our assessment and added into our dataset from new community-identified assets.

Note: The data in this table reflects the information gathered from community members during the Community Engagement Mapping Exercise in East Palo Alto with Nuestra Casa. This table includes both data layers used for the initial assessment with the integration of community data layers that either confirm existing data or adds new data (marked with *). The table includes only data layers from the initial assessment for communities across the focus area.



PRIORITY DEVELOPMENT AREAS (PDAS)



Ravenswood PDA • Located within the City of East Palo Alto, the Ravenswood PDA is a 275-acre area designated as a transit town center,¹⁴ with its development being guided by the Ravenswood/4 Corners Transit Oriented Development Specific Plan.¹⁵. It extends from the SamTrans rail line in the north to Weeks Street in the south, and from Ravenswood Open Space Preserve in the east to University Avenue in the west. The Ravenswood PDA is directly adjacent to the Menlo Park and the East Palo Alto Baylands PCA at Cooley Landing. It is served by both SamTrans and AC Transit buses.

Current land uses include a mix of industrial and vacant parcels adjacent to Ravenswood Open Space Preserve and single-family residential in the western portion. The Ravenswood/4 Corners Specific Plan envisions transforming the intersection of University Avenue and Bay Road into a new "downtown" for East Palo Alto, where it can accommodate employment-generating uses, housing, and public spaces.¹⁶ A history of contamination is present and acknowledged in the plans, with future development restricting land use based on contaminant history¹⁷. Critical facilities within this PDA include the East Palo Alto Police Department. It also contains utilities including the PG&E Cooley Landing Substation and electrical transmission lines.

Flooding of vacant parcels adjacent to Ravenswood Open Space Preserve begins at 12" TWL. At 24" TWL, flooding of residential neighborhoods begins from the north boundary of the PDA, and flooding becomes extensive at 52" TWL.



CURRENT AND FUTURE HOUSING AND JOBS IN THE RAVENSWOOD PDA

Critical facilities that provide emergency services and utilities may be impacted by flooding. Table 2g provides details on what critical facilities may be at risk. First impacts begin at 36" TWL and increase through 108" TWL. (Table 3j).

Note: This PDA spans the border between this OLU and the Belmont-Redwood OLU. The majority of the PDA is within the San Francisquito OLU; however, significant overtopping occurs in the portion within the Belmont-Redwood OLU.

EXPOSURE OF CRITICAL FACILITIES IN THE RAVENSWOOD PDA

• Housi	ng Units
Existing in 2010:	818
Projections for 2040:	1,577

Rocidontial

Percent Growth: 93%



Existing in 2010:	858
Projections for 2040:	1,371
Percent Growth:	60%

Data Source: Plan Bay Area 2040, MTC/ABAG (2017).

The Cooley Landing substation, within the Ravenswood PDA, can be seen in the image above, taken on Bay Road in East Palo Alto in March 2019. Photo by BCDC.

	Critical Facilities/Services Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
Utilities	Cooley Landing Substation (Bay Rd, East Palo Alto)			•							
Police	East Palo Alto Police Station (Demeter Street)										

 Table 3j. Critical Services and Facilities: First exposure of critical services and facilities. Blue bars represent when asset is first exposed to flooding.

During the ART Bay Area Regional Working Group meetings, regional working group members reviewed Local Assessment findings and requested that other assets that were connected to and/or critical to the continued functioning of the assets being assessed be included in these descriptions. The following descriptions include assets that were included at the request of our working group members to ensure critical assets located near the regional systems assessed were incorporated to the extent feasible into vulnerability assessment results.

Palo Alto Regional Water Quality Control Plant • The Palo Alto Regional Water Quality Control Plant is owned and operated by the City of Palo Alto and treats wastewater for the following communities: Los Altos, Los Altos Hills, Mountain View, Palo Alto, Stanford University and the East Palo Alto Sanitary District. Wastewater treatment plants are critical infrastructure in the region, serving residents, business and industry, schools and receive of household hazardous and medicine waste. The City of Palo Alto Wastewater Engineering Section is responsible for planning, design and construction of major capital improvement projects to the wastewater collection system. It is exposed to flooding at 36" TWL from overtopping of transportation structures and creek embankments.

Closed City of Palo Alto Landfill • The City of Palo Alto operated a Class III refuse disposal site with a permitted footprint of 137 acres, of which 126 acres were used for refuse disposal operations from the 1930's until 2011. The landfill is subject to requirements specified in Final Closure and Post-Closure Maintenance Plan. The landfill was closed in phases and the entire area was slated for reuse as parkland as part of the Byxbee Landfill Park Master Plan in 1989. The park has been developed and opened to the public in phases. Byxbee Park was opened in 2011, and the remaining portions of the landfill were capped by 2015, with the opening of the remaining closed landfill areas for recreational purposes in 2016. Ten acres of the closed landfill have been set aside for a potential compost processing facility to convert yard trimmings, food waste, and other organic waste and sewage sludge from the regional wastewater treatment plant. All access roads to the facility are exposed to flooding at 36" TWL, with water overtopping embankments to the site beginning at 36" TWL.

Table 4j provides details on when these critical facilities may be at risk. First impacts begin at 36" TWL and increase through 108" TWL.

EXPOSURE OF CRITICAL FACILITIES OUTSIDE, BUT CONNECTED TO, THE RAVENSWOOD PDA

	Critical Facilities/Services Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
	Palo Alto Regional Water Quality Control Plant										
otinties	Closed City of Palo Alto Landfill										

 Table 4j. Critical Services and Facilities: First exposure of critical services and facilities. Blue bars represent when asset is first exposed to flooding.



PRIORITY DEVELOPMENT AREA

OLU: SAN FRANCISQUITO

LOCAL ASSESSMENT

PRIORITY CONSERVATION AREAS (PCAS)





San Francisco Bay Water Trail PCA

•The San Francisco Bay Area Water Trail is a network of launching and landings sites for non-motorized watercrafts (e.g. kayaks, stand-up paddleboards, wind and kite surf, etc.) around the San Francisco Bay and its major tributaries, including the San Joaquin River, Napa River, and Petaluma River.¹⁸ Within this OLU, there is one Water Trail site, the Baylands Sailing Station, providing opportunities for non-motorized small boaters to enjoy and access natural areas such as the Baylands Nature Preserve and the open water of the San Francisco Bay.¹⁹

The Baylands Sailing Station is an officially designated Water Trail Trailhead. The shoreline and tidal flats at the sailing station begin to see inundation at 12" TWL with much of the slough inundated at higher water levels. Because the dock moves up and down with the water level, it is unclear how problematic 12" TWL would be. However, by 36" TWL, access roads leading to the Water Trail are impacted, disrupting the ability to access this Water Trail site.

PCA DESIGNATION:



FUNCTIONS/BENEFITS:

- Recreation
- Economic Development
- Wildlife Habitat

Data Source: MTC/ABAG Priority Conservation Areas Program (2017).

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San Francisco Bay Trail • The San Francisco Bay Trail is a 500-mile regional trail that, upon completion, will circumnavigate the bay. The trail connects people and communities to each other, to parks and open space, to home, work and recreation, and to countless areas of cultural and historic interest. It provides opportunities for health and fitness, increase transportation options, opportunities to observe, learn about, and care for the environment, and provides economic benefits to the region through increased tourism.²⁰

In this OLU, the Bay Trail passes through, or is immediately adjacent to, the SR-84 Dumbarton Bridge, Ravenswood PDA and City of East Palo Alto. It connects visitors and residents to important recreational sites in the area, including the Ravenswood Open Space Preserve, Cooley Landing Park, and Don Edwards San Francisco Bay National Wildlife Refuge SF2 Trail. These trail segments provide the only access to the Bay for East Palo Alto residents.

PCA DESIGNATION:



Recreation

Community Health

Economic Development

Data Source: MTC/ABAG Priority

Conservation Areas Program (2017).

Environmental Stewardship

Transportation

FUNCTIONS/BENEFITS:

Entrance to the San Francisco Bay Trail in East Palo Alto. Photo by Jaclyn Mandoske, BCDC.

Additionally, in this area the Midpeninsula Open Space District is constructing a new section of the Bay Trail that will close a critical gap between the Ravenswood Open Space Preserve and University Avenue.²¹ The new segment will become an elevated boardwalk ranging between 9.7 to 14 feet above sea level and planned to be completed by 2020. There are also plans to pave the currently unpaved portions of the San Francisco Bay Trail along Ravenswood Open Space Preserve. There are 10.7 total miles of existing (9.9 miles) and proposed (0.8 miles) split into 20 segments. First exposure occurs at 12" of TWL affecting 9 segments and around a half mile of trail. At 36" of TWL, 5.5 miles of trail and portions of all 20 segments are exposed. Every segment of Bay Trail is flooded to some capacity at 36" of TWL.

Proposed Menio Park/East Palo Alto Baylands PCA • Providing

important ecosystem services such as flood risk management, carbon sequestration, and wildlife support, among others, as well as recreation opportunities, this proposed PCA reflects a variety of partnerships among the City of Menlo Park, City of East Palo Alto, Midpeninsula Regional Open Space District and US Fish and Wildlife Service. The proposed boundary area covers Bedwell Bayfront Park, Don Edwards San Francisco Bay National Wildlife Refuge, Ravenswood Open Space Preserve, and Cooley Landing Park. These areas are largely connected to one another via the San Francisco Bay Trail. There are multiple uses, assets, and management objectives for this PCA: the wetlands are protected and managed for endangered species and migratory water bird habitat, as well as for general recreation.

The Don Edwards San Francisco Bay Wildlife Refuge's Ravenswood Pond complex is part of the South Bay Salt Pond Restoration Project, which involves restoring salt ponds to tidal marsh, mudflat, and other wetland habitats for species including the endangered California Ridgway's Rail, Salt Marsh Harvest Mouse, and Western

Snowy Plover. The priority of the refuge is to address conservation, management, and restoration of fish, wildlife, and plants and their habitats that take precedent over other purposes in the management and administration of a refuge.²² Additionally, the Ravenswood Open Space Preserve and Cooley Landing Park provide the only access point to the Bay for East Palo Alto residents.

This area also includes a number of critical facilities, including transportation, utilities, and flood control infrastructure serving the region. This PCA is exposed to flooding at 12" TWL and by 24" TWL, a significant amount of the PCA is flooded, including nearly all of the Ravenswood Open Space Preserve.

There are many ecosystem services of the PCA including providing habitat, recreation, stormwater services of runoff retention, groundwater recharge, and flood water retention, and carbon storage (Figure 6j).

PCA DESIGNATION:



FUNCTIONS/BENEFITS:

- Recreation
- Wildlife Habitat
- Water Supply & Quality

Data Source: MTC/ABAG Priority Conservation Areas Program (2017).





Figure 6j. Ecosystem Services of the PCA. Statistics on habitats, recreation, carbon storage and stormwater retention in PCAs. Data by the ART Bay Area Natural Capital Project (2019).

OTHER IMPORTANT NATURAL AREAS ASSESSED

During ART Bay Area Regional Working Groups where we asked regional working group members to review of the findings of the Local Assessment results, we were encouraged to incorporate other assets that were connected to, and critical to the continued functioning of the assets being assessed. The following descriptions include assets that were included at the request of our working group members to ensure critical assets located near the systems assessed were incorporated to the extent feasible into the vulnerability assessment results.

Palo Alto Baylands Nature Preserve • The Palo Alto Baylands Nature Preserve, located between San Francisquito Creek and Charleston Slough, is one of the largest tracts of undisturbed marshes remaining in the San Francisco Bay, encompassing 1,940 acres in both Palo Alto and East Palo Alto. It is owned and managed by the city of Palo Alto and provides important critical habitat for wetland species, including for the endangered salt marsh harvest mouse and Ridgway's Rail, as well as for migratory birds. It is exposed at 12" TWL.

Faber-Laumeister Marsh • The Faber-Laumeister Marsh, located bayside of East Palo Alto, is one of the oldest wetlands restoration projects in the San Francisco Bay, which began in 1971. It is owned and managed by Don Edwards San Francisco Bay National Wildlife Refuge and provides important critical habitat for wetland species, including for the endangered salt marsh harvest mouse and Ridgway's Rail, as well as for migratory birds. It is exposed at 12" TWL.

Palo Alto Flood Retention Basin • The Palo Alto Flood Retention Basin, located between Mayfield Slough and Charleston Slough, was designed and engineered by the City of Palo Alto in the 1950s as the Palo Alto Wetlands Preserve and maintained by the Santa Clara Valley Water District. Its primary use is as a flood control facility, but it is also used as wetland and wildlife habitat. The aging infrastructure of the flood retention basin has been raised as a concern by stakeholders and there is a need to ensure it can continue to provide flood protection services as sea level rises. It is exposed at 36" TWL.

Emily Renzel Marsh and Pond • The Emily Renzel freshwater marsh and 15acre pond were built in 1992 as a requirement of the RWQCB to increase beneficial reuse of treated wastewater effluent. The site is designed to receive one million gallons of treated effluent daily.



Focus Area A: East Palo Alto Community



Location

This Focus Area includes the areas surrounding the SR-84 Dumbarton Bridge touchdown, stretching along the shoreline south of the SR-84 bridge from the City of East Palo Alto to San Francisquito Creek. (Figure 7j).



Figure 7j. Top: Identification of where Focus Area is within OLU. Bottom: Map of Focus Area containing regional systems. Individual assets assessed in this Focus Area are labeled on the map and listed on the following page.

Map data ©2019 by Google.



Why shared stories of vulnerability?

This Focus Area was selected because it contains a variety of regional systems, including numerous transportation routes, a PDA, multiple PCAs, and the East Palo Alto community. Due to overlap and dependencies among these regional systems in this area, the vulnerabilities of these systems to flooding and sea level rise are discussed together in shared stories of the shoreline, overtopping, and exposure to flooding as water levels rise. By communicating shared vulnerabilities and consequences, our goal is to encourage multi-benefit solutions that help people, ecosystems, and economies.

Figure 7j. MAP OF REGIONAL SYSTEMS AND LIST OF INDIVIDUAL ASSETS ASSESSED WITHIN THIS FOCUS AREA LISTED BELOW:



TRANSPORTATION

- SR-84
- Local Roads: University and Willow Ave



VULNERABLE COMMUNITIES

• East Palo Alto Community



PRIORITY DEVELOPMENT AREAS (PDAs)

 Ravenswood PDA

PRIORITY CONSERVATION AREAS (PCAs)

- Menlo Park/East Palo Alto Baylands PCA
- San Francisco Bay Trail PCA

Shoreline today and into the future

SHORELINE **TYPE STORY**

What is the shoreline made up of now?

The shoreline in this Focus Area is predominately wetlands at the Menlo Park/East Palo Alto Baylands PCA, which includes the Ravenswood Open Space Preserve, Don Edwards San Francisco Bay National Wildlife Refuge, and Faber-Laumeister Marsh. There are also various berms and embankments that line the shoreline.²³

DEVELOPMENT *future*? STORY

SHORELINE How will the shoreline change in the

This area is actively undergoing significant planning and/or development activities, particularly in areas near the Dumbarton Bridge Touchdown, within the Menlo Park/East Palo Alto Baylands

PCA, and along the shoreline of East Palo Alto to San Francisquito Creek. In January 2018, the ART Program conducted a Dumbarton Bridge Focus Area Study to address flooding and four concept level flood management strategies were identified along the shoreline.²⁴ Depending on future actions taken, this would likely affect shoreline flooding and vulnerability. Additionally, there are a number of potential development projects in the Ravenswood PDA being planned for increased commercial development. These include activities that have recently been permitted by BCDC or are ongoing discussions in progress at the time of this publication. These major potential shoreline changes include:

- Mid-Peninsula Space District San Francisco Bay Trail Connector at Menlo Park/ East Palo Alto (Permitted by BCDC 8/2019)
- SB1 East Palo Alto and Dumbarton Bridge Resiliency Project (Consultant work on alternative adaptation strategies to address flooding impacts at the Dumbarton Bridge touchdown and East Palo Alto community, ongoing at the time of publication)
- SAFER Bay Project (Plans to construct and/or raise approximately 2 miles of levee from San Francisquito Creek southeast of the U.S. 101 and along East Palo Alto shoreline, ongoing at the time of publication)²⁵



Ariel perspective of the City of East Palo Alto, including the SR-84 Dumbarton Bridge touchdown, proposed Menlo Park/East Palo Alto Baylands PCA, Ravenswood PDA, and part of the community of East Palo Alto. Photo by Jaclyn Mandoske, BCDC.



J - 29 • ADAPTING TO RISING TIDES: BAY AREA

Current and future flooding risk

OVERTOPPING STORY

Where is water coming over the shoreline?

Shoreline overtopping that impacts this OLU at 12" TWL originates in the Belmont-Redwood (25) OLU from berms and wetland embankments in the Menlo Park/East Palo Alto Baylands PCA north of the SR-84 Dumbarton Bridge, and in this OLU over wetlands in front of the East Palo Alto community.

At 24" TWL, overtopping continues over berms and wetland embankments in the Menlo Park/East Palo Alto Baylands PCA south of the SR-84 Dumbarton Bridge, specifically at the SF2 Ravenswood Ponds. Overtopping also occurs over the defunct railroad tracks, leading to flooding impacts in the East Palo Alto Community and Ravenswood PDA at 24" TWL.

By 36" TWL, there are multiple points of overtopping from berms at the Ravenswood Open Space preserve and along the length of embankments landward of wetlands. By 48" TWL, nearly the entire length of the shoreline is overtopped (Figure 8j).

FLOODING EXPOSURE STORY

Where does flooding occur?

At 12" TWL, tidal wetlands of the Ravenswood Open Space preserve are flooded. At 24" TWL, residential households in the northwestern corner of the Ravenswood PDA and East Palo Community within the Belmont-Redwood (25) OLU are exposed through overtopping that occurs from wetlands and transportation structures in that OLU.

At 36" TWL, flooding occurs from overtopping from the San Francisco Bay, impacting commercial and industrial areas in the East Palo Alto community and Ravenswood PDA. By 48" TWL, more residential households are exposed to flooding and flood exposure increases significantly through 108" TWL (Figure 9j).





24" TWL

OVERTOPPING AND FLOODING

Figure 8j. Two total water levels selected that demonstrate first overtopping and/or significant flooding thresholds. Visit the Bay Shoreline Flood Explorer (explorer.adaptingtorisingtides.org) to see more TWLs.



FIRST FLOODING OF REGIONAL SYSTEMS ASSESSED

Regional Systems Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
San Francisco Bay Trail PCA	Ť									
Menlo Park/East Palo Alto Baylands PCA	ž									
SR-84										
Local Roads: University Ave										
Local Roads: Willow Ave										
East Palo Alto Community		titi								
Ravenswood PDA										

Figure 9j. First exposure of regional systems. Individual assets within the four regional systems in this area are shown and colored bars represent when each asset is first exposed to flooding impacts.

Shared vulnerabilities to flooding

SHARED VULNERABILITY STORIES

L L Vulnerability assessments were conducted on individual assets and then shared vulnerabilities were identified for regional systems within each focus area. The vulnerability statements below reflect shared stories of vulnerability. Our goal is to emphasize the interconnections among and across local systems, and encourage shared multi-benefits adaptation solutions.

1. East Palo Alto Community

The city of East Palo Alto provides housing, jobs and critical community services to vulnerable populations in the area. The City is within a low-lying area that is located below sea level and has inadequate stormwater drainage systems that already lead to surface flooding during large storms, making it difficult for community members to access jobs, schools, and other critical services. Due to their low-lying elevation and lack of information on groundwater levels, they may also be at greater risk of rising groundwater that could lead to inland flooding. Additionally, much of the housing stock is aging, making it more vulnerable to flooding impacts, and a lack of affordable housing has led to increased displacement of current residents, increased homelessness and the establishment of temporary mobile homes. This area also has a history of contaminated lands from industrial land uses, which may mobilize in the event of flooding or earthquake, leading to public and environmental health hazards. These vulnerabilities will exacerbate existing social and economic challenges.



J - 32 • ADAPTING TO RISING TIDES: BAY AREA



2. Ecosystem and Recreational Services

The Ravenswood Open Space Preserve and Faber-Laumeister Marsh provide important recreation opportunities to residents of East Palo Alto through the Bay Trail as well as critical habitat for endangered species. These marshes have been identified as being able to keep up with sea level rise, given that they continue to receive a high amount of sediment. In the event that sediment supply becomes lower, these marshes will be unable to migrate as they are constrained by development behind them, including Cooley Landing Substation, residential homes, schools, and other infrastructure. Additionally, sea level rise is likely to change the composition of habitat types in the marsh, impacting marsh-dependent species. Sea level rise will also impact the limited recreational opportunities available to residents of East Palo Alto as there are currently only limited access points to visit the open spaces and marshes. Flooding of the Bay Trail, which is gravel and therefore susceptible to erosion, would limit the use of these trails for recreation. A complex arrangement of owners and managers of the marshes exacerbates these vulnerabilities.

Birds at the Palo Alto Baylands park. Photo by Stanislav Sedov is licensed under CC BY 2.0





Shared consequences to flooding

SHARED CONSEQUENCE STORIES

This section translates shared vulnerability statements into stories of shared consequences. The ART program considers consequences through frames of sustainability: Society and Equity, the Economy and the Environment.



Society and Equity • The Bay Trail provides free shoreline recreation and transportation to all residents of the Bay area. If the Bay Trail that connects to the East Palo Alto community and Ravenswood PDA is disrupted or permanently damaged, residents will lose recreation and non-motorized travel and commute opportunities. Since flooding will sever connectivity along the Bay Trail, these negative effects would extend to neighboring Bay Trail segments as well. The Bay Trail also allows limited-mobility residents to access the shoreline.

This area contains the East Palo Alto community, considered to be among the most socially vulnerable populations in the region. This community has a large proportion of residents with characteristics that may make them less able to respond to or adapt to flooding, including having children under 5, being low-income and severely housing cost burdened, having people with a disability, high population of renters, and a large population that are non-US citizens, among others. The presence of multiple schools, the Ravenswood Health clinic, and many faith-based organizations that are exposed to flooding will impact resident's ability to access important community and public health services.

Due to the presence and history of contaminated sites within and immediately adjacent to East Palo Alto community, flooding could cause mobilization of hazardous waste and toxic materials leading to disproportionate health impacts to vulnerable populations. Natural areas adjacent to the East Palo Alto community buffer developed areas from flooding and major storms and loss of marshes would mean a loss of shoreline recreational opportunities since people enjoy views of marshes and the species that live in them.



Economy • As proposed San Francisco Bay Trail segments continue to become active, they will provide vital pedestrian and bicycle transportation alternatives to and from planned redevelopment job, business, and housing centers in the East Palo Alto community and Ravenswood PDA area. While a new segment of the San Francisco Bay trail with an elevated boardwalk is planned to be completed in the near-term, disruptions to any other segment of the trail due to flooding would reduce these benefits of recreation and commuting for visitors and nearby residents.

Additionally, the focus on job growth in the Ravenswood PDA could be severely limited if future plans do not take sea level rise into consideration. The Ravenswood PDA is considered one of the last remaining places to accommodate job growth and income-generating uses to help address the City of East Palo Alto's high unemployment rate. Job growth and opportunity in this area is important for the wellbeing of the residents in this community. Additionally, disruptions to the PG&E Cooley Landing substation could reduce electrical service and potentially cause recurring blackouts for communities and businesses, including critical services such as fire and police stations.

Environment • The many different areas of tidal marshes within the Menlo Park/East Palo Alto Baylands PCA and tidal marshes outside the PCA, including the Faber-Laumeister Marsh, provide critical habitat for endangered species including the California Ridgway's Rail, salt mouse harvest mouse, and Western Snowy Plover, among a huge variety of other species including shorebirds, fishes, and other wildlife. Because different species utilize marsh habitats differently, sea level rise impacts are likely to have different consequences to different species.

Marsh-dependent species, including the California Ridgway's Rail and salt mouse harvest mouse rely on high marsh habitat to provide shelter during high tides. Sea level rise on marshes is likely to decrease the amount of this habitat available and may further endanger these endangered species. These differences across impacts to species highlight the need to consider different adaptation strategies for different habitats and species, as well as identify how to preserve ecosystem biodiversity into the future. Flooding from large storm events can make these species more vulnerable to predation and reduce reproductive success if nests are flooded. Downshifting habitat means marshes will be flooded more often, exacerbating these population stresses, until conversion of marsh to mudflat results in complete loss of tidal marsh species at this marsh.

Additionally, these habitats serve as the first line of defense against coastal flooding of adjacent development and transportation assets, and loss of this naturebased flood protection would increase the height and cost of structural shoreline protection.



Advancing adaptation solutions

STORY

FITTING INTO How are local areas contributing to Regional **REGIONAL** Hot Spots?

The regional scale analysis of ART Bay Area identified clusters of highest consequences around the region, called "Regional Hot Spots." These areas include places that contain the top five highest consequences

in the region for 1) any transportation asset and 2) either a PDA or PCA, and 3) the presence of a vulnerable community block group at any given water level.

Datasets were identified for each regional system to provide a measure of consequence to quantify impacts in the event of flooding. A full list of consequences used for each regional system can be found in Chapter 2.1 Regional Hot Spots.

Regional Hot Spot at 48" TWL



The East Palo Alto Focus Area is a Regional Hot Spot, meaning it contains a cluster of assets that have among the highest consequences of flooding in the region.

The East Palo Alto cluster is driven by depressional wetlands, lagoons, and snowy plover habitat in the Menlo Park and East Palo Alto Baylands PCA, a Regional Bicycle Segment network, and socially vulnerable and contaminated block groups.

It becomes a Regional Hot Spot starting at 36" TWL, and continues to higher total water levels (Figure 10j).

Chapter 4 Regional Adaptation provides adaptation responses for regional issues.

Figure 10j. East Palo Alto Hot Spot: From 36" TWL to 108" TWL, this Focus Area contains clusters of assets that have among the highest consequences of flooding in the region.

There is a diversity of wildlife that utilize the intact tidal wetlands in East Palo Alto, which is located adjacent to communities and businesses, as well as extensive bicycle network trails. Photo by Jaclyn Mandoske, BCDC.



Area of Impact B: *South San Francisquito*



Location

This Area of Impact is located in the southernmost portion of the San Francisquito OLU, bordered by the San Francisquito Creek to the northwest and Baylands Nature Preserve to the southeast. It is approximately 1.8 square miles (Figure 11j).



Figure 11j. Top: Identification of where Area of Impact is within OLU. Bottom: Map of Area of Impact containing regional systems. Individual assets assessed in this Area of Impact are labeled on the map and listed on the following page.

Map data ©2019 by Google.



Why shared stories of vulnerability?

This Area of Impact was selected because it contains a few regional systems, including the Palo Alto Airport and US-101, as well as the San Francisco Bay Trail and Water Trail. This area also includes mention of a variety of other entities not assessed within ART Bay Area, but critical facilities connected to other assets. Due to overlap and dependencies among these regional systems in this area, the vulnerabilities of these systems to flooding and sea level rise are discussed together in shared stories of the shoreline, overtopping, and exposure to flooding as water levels rise. By communicating shared vulnerabilities and consequences, our goal is to encourage multi-benefit solutions that help people, ecosystems, and economies

Figure 11j. MAP OF REGIONAL SYSTEMS AND LIST OF INDIVIDUAL ASSETS ASSESSED WITHIN THIS AREA OF IMPACT LISTED BELOW:



TRANSPORTATION



VULNERABLE COMMUNITIES

Palo Alto Airport

- N/A
- US-101



PRIORITY DEVELOPMENT AREAS (PDAs)

• N/A



PRIORITY CONSERVATION AREAS (PCAs)

- San Francisco Bay Trail PCA
- San Francisco Bay Water Trail PCA

Shoreline today and into the future

SHORELINE TYPE STORY

What is the shoreline made up of now?

The shoreline in this Area of Impact consists of tidal wetlands within the Baylands Nature Preserve and berms inland of the wetlands and along the creek channels of the San Francisquito Creek.²⁶

SHORELINE DEVELOPMENT STORY

How will the shoreline change in the future?

This area is actively undergoing significant planning activities, particularly along the shoreline around San Francisquito Creek. These include activities that have recently been permitted by BCDC or are ongoing discussions in progress at the time of this publication.

These major potential shoreline changes include:

- **Palo Alto Water Quality Control Plant**²⁷ (Plans for horizontal levee, ongoing at the time of publication)
- Flood Protection Project: Bay to US-101²⁸ (Work being coordinated by the San Francisquito Creek Joint Powers Authority (SFCJPA) on flood control projects to protect the communities of East Palo Alto and Palo Alto from flooding, including sea level rise, create marsh habitat and recreational opportunities. The ongoing work is for areas from the Bay to (east) US-101, with a second phase of the project to start flood protection upstream (west) of US-101, ongoing at time of publication).

OVERTOPPING STORY

Where is water coming over the shoreline?

From 12" to 24" TWL, overtopping of wetlands occurs in the Baylands Nature Preserve. The Bay Trail is overtopped starting at 12" TWL. By 36" TWL, overtopping of berms northeast of the airport lead to significant flooding of the entire airport facilities (Figure 12j).

FLOODING EXPOSURE STORY

Where does flooding occur?

The Palo Alto Airport is completely flooded at 36" TWL, including parking lots, buildings and airport runways, as well as large sections of the Bay Trail that surround this area. Additionally, the Water Trail begins being impacted from 12" to 24" TWL, and access road to the launch site are disrupted at 36" TWL (Figure 13j).

Current and future flooding risk





Figure 12j. Two total water levels selected that demonstrate first overtopping and/or significant flooding thresholds. Visit the Bay Shoreline Flood Explorer (explorer.adaptingtorisingtides.org) to see more TWLs.



FIRST FLOODING OF REGIONAL SYSTEMS ASSESSED

Regional Systems Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
Oakland Priority Creeks PCA	Ť									
Palo Alto Baylands Nature Preserve	Ť									
San Francisco Bay Water Trail PCA			Ť							
Palo Alto Airport										
US-101										

Figure 13j. First exposure of regional systems. Individual assets within the four regional systems in this area are shown and colored bars represent when each asset is first exposed to flooding impacts.

Shared vulnerabilities to flooding

SHARED VULNERABILITY STORIES

Vulnerability assessments were conducted on individual assets and then shared vulnerabilities were identified for regional systems within each focus area. The vulnerability statements below reflect shared stories of vulnerability. Our goal is to emphasize the interconnections among and across local systems, and encourage shared multi-benefits adaptation solutions.

1. Regional Airport and US-101 Transportation Connections



L

The Palo Alto Airport serves businesses and communities in the area and is among the busiest single-airport runways in the United States. It relies on connections to the US-101, which provides critical access to the airport and also serves as a main transportation artery on the peninsula. The airport is vulnerable to sea level rise impacts because it is bordered by non-engineered berms, which were not designed for flood protection and contains salt-water sensitive equipment. There is a lack of redundancy of airports and main arterial freeways, and flooding impacts to these assets will result in lack of these services being available locally and regionally. However, there are various ongoing projects in this area to address flooding issues, including a planned horizontal levee and the construction of improved flood control on the San Francisquito creek.

2. Critical Infrastructure Including Regional Wastewater Treatment Plant







This area contains critical infrastructure that serve important waste management and flood control functions, including the Palo Alto Regional Water Treatment Control Plan, Closed City of Palo Alto Landfill, and Palo Alto Flood Retention Basin, among others. The wastewater treatment plant provides critical wastewater service to thousands of residents in the surrounding cities and is located along the Bay and near other critical facilities. There is a lack of redundancy of wastewater treatments plants in the San Francisco Bay Area and limited capacity for other treatments plants to accommodate the wastewater treatments needs in the event of disruptions from flooding. However, there are various ongoing projects in this area to address flooding issues, including a planned horizontal levee and the construction of improved flood control on the San Francisquito creek.

Shared consequences to flooding

SHARED CONSEQUENCE STORIES

This section translates shared vulnerability statements into stories of shared consequences. The ART program considers consequences through frames of sustainability: Society and Equity, the Economy and the Environment.



Society and Equity • The Bay Trail provides free shoreline recreation and transportation to all residents of the Bay area. If the Bay Trail through this area is disrupted or permanently damaged, residents will lose recreation and non-motorized travel opportunities as well as opportunities to reach other recreation sites, such as the Water Trail. Additionally, flooding impacts to the Palo Alto Regional Water Quality Control Plant will impact the many communities in which this wastewater treatment plant serves. The potential mobilization of contaminants from the City of Palo Alto Refuse Disposal Site could also affect nearby communities. The consequences of flooding at the Palo Alto Airport to the community depend on how often the community uses this transportation service.



Economy • Disruption of the Palo Alto Airport is likely to have economic impacts by disrupting business or leisure travel for nearby communities or in other parts of the peninsula, such as nearby East Palo Alto, Palo Alto, Menlo Park and Stanford University. As the tenth busiest single-runway airport in the United States, flooding is likely to cause significant delays as airports are specialized transportation services and there is limited redundancy of airports in the region. Flooding of the Palo Alto Regional Water Quality Control Plant would also disrupt residents and businesses, impacting the economy as wastewater treatment plants have limited redundancy and are limited by their capacity.



Environment • This Area of Impact includes the Palo Alto Baylands Nature Preserve marshes, one of the largest intact areas of wetlands in the San Francisco Bay and provides critical habitat for threatened and endangered species such as the California Ridgway's Rail and salt mouse harvest mouse. These ecosystems also provide benefit and value to the public as recreational opportunities for bird and wildlife watching for residents and visitors.

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