



Highway SR-37 and Sonoma Baylands. Photo by SF Baykeeper, Cole Burchiel, and LightHawk.

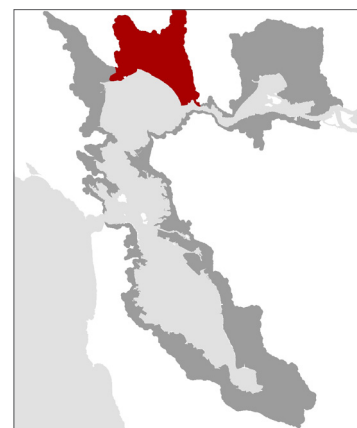
Local Assessments Section C: **NAPA-SONOMA** *Operational Landscape Unit*

JURISDICTIONS WITHIN THIS SECTION

Napa County

Solano County

*Napa
American Canyon
Vallejo*



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
- 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?



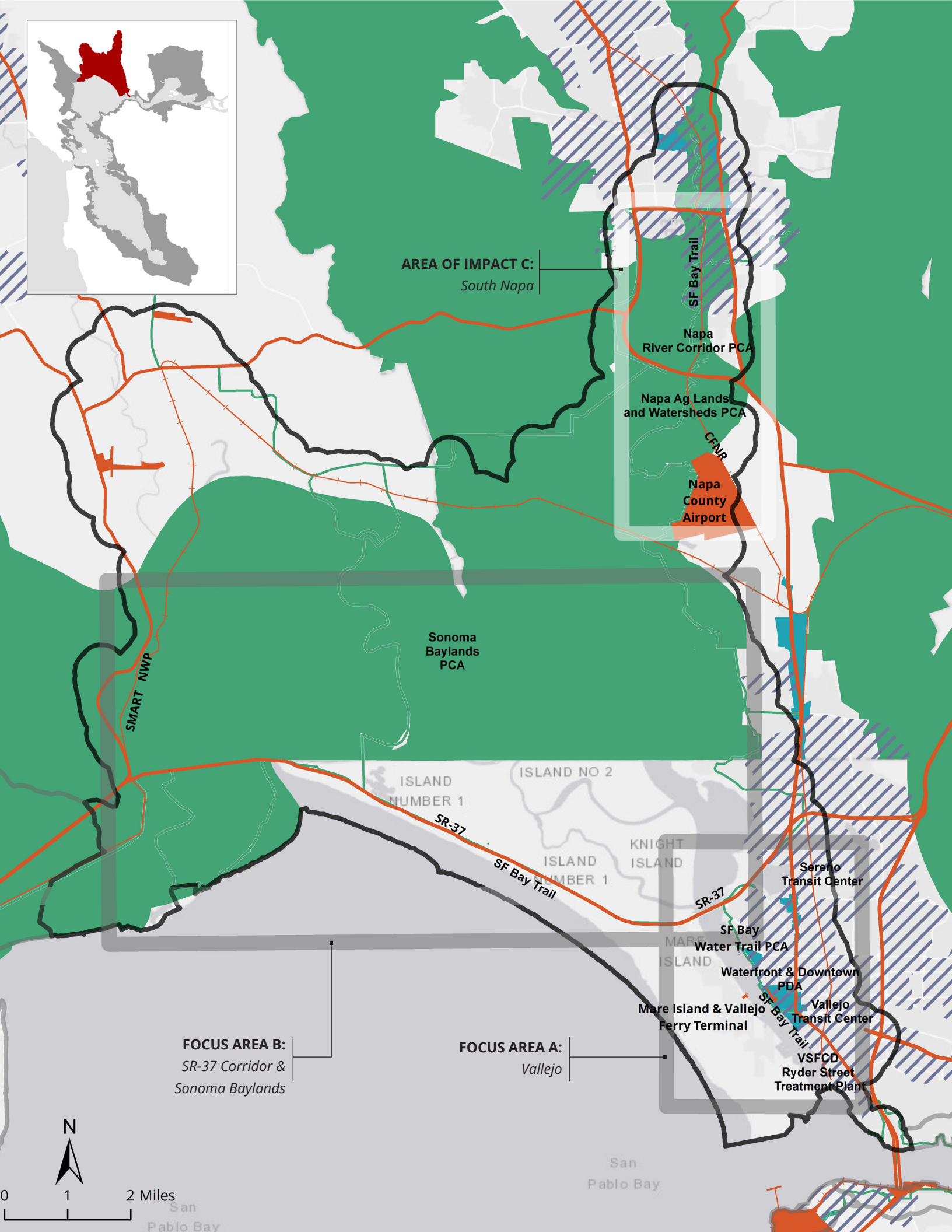
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Where are we in the region?

The Napa-Sonoma OLU stretches from approximately Tolay Creek in the west, the Napa River in the east, and north to downtown Napa. The dominant feature of the Napa-Sonoma OLU are the Sonoma Baylands (San Pablo Baylands) fringing San Pablo Bay, one of the largest expanses of wetlands remaining in San Francisco Bay and providing important habitat for fish, bird, and other wildlife.¹ The Baylands drain one of the largest tributaries in the San Francisco Bay, including the Petaluma and Napa Rivers. The Baylands include thousands of acres of restored habitat resulting from large, multi-decade restoration projects including Sears Point, Cullinan Ranch, Napa-Sonoma Marsh Wildlife Area Ponds 3-5, the Green Island Unit (former Napa Plant Site), Ponds 6-8, and Haire Ranch, as well as large planned projects at Skaggs Island and Lower Sonoma Creek.² Much of the Baylands are part of either the San Pablo Bay National Wildlife Refuge or the Napa-Sonoma Marshes Wildlife Area. State Route 37 is an important east-west regional corridor, cutting through the Baylands and connecting Marin County to the west with the City of Vallejo and Solano County to the east. Vallejo, located on the Mare Island Strait and Carquinez Strait, is a city with a maritime history that is currently undergoing revitalization of its downtown and waterfront.



Approximate area of the Napa-Sonoma OLU. Map data © 2020 by Google.



AREA OF IMPACT C:
South Napa

SF Bay Trail

Napa River Corridor PCA

Napa Ag Lands and Watersheds PCA

CFNR

Napa County Airport

Sonoma Baylands PCA

SMART NWP

ISLAND NUMBER 1

ISLAND NO 2

ISLAND NUMBER 1

KNIGHT ISLAND

MADE ISLAND

SR-37

SF Bay Trail

SR-37

Sereno Transit Center

SF Bay Water Trail PCA

Waterfront & Downtown PDA

Mare Island & Vallejo Ferry Terminal

Vallejo Transit Center

VSCFD Ryder Street Treatment Plant

FOCUS AREA B:
SR-37 Corridor & Sonoma Baylands

FOCUS AREA A:
Vallejo



0 1 2 Miles

San Pablo Bay

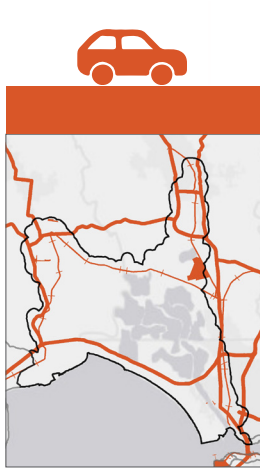
San Pablo Bay

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).

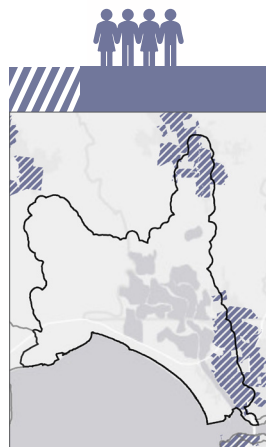
The map on page 4 shows the entire OLU, including all the regional systems present. Colors are used throughout this document to help navigate across these four regional systems. Individual assets that were assessed as part of this local vulnerability assessment are listed in the bullets below and can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

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



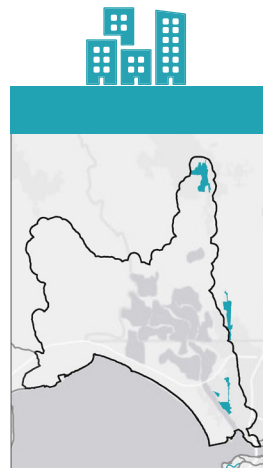
TRANSPORTATION

- SR-37
- Mare Island/Vallejo Ferry Terminals
- Vallejo Transit Center
- Sereno Transit Center
- Northwestern Pacific Railroad
- California Northern Railroad
- Napa County Airport
- Local Roads



VULNERABLE COMMUNITIES

- Vallejo & American Canyon Community
- Napa Community



PRIORITY DEVELOPMENT AREAS (PDAs)

- Vallejo Waterfront & Downtown PDA



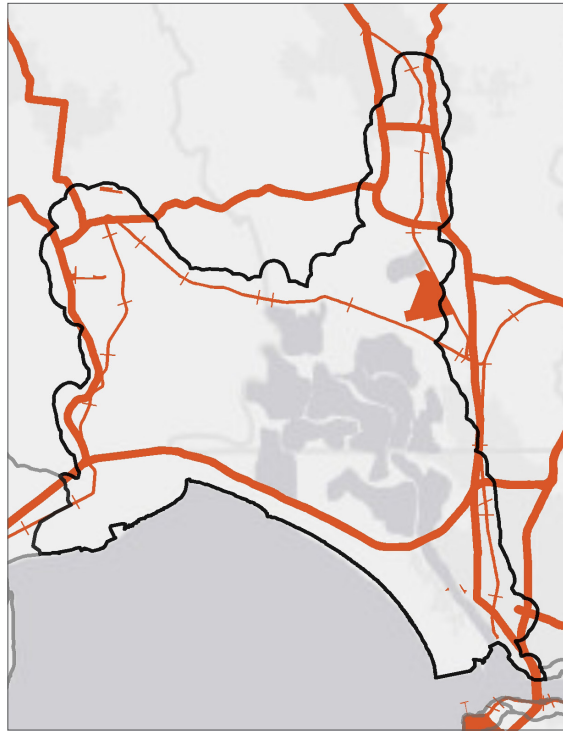
PRIORITY CONSERVATION AREAS (PCAs)

- Napa Valley - Napa River Corridor PCA
- San Francisco Water Trail (1) PCA
- San Francisco Bay Trail PCA
- Napa County Agricultural Lands and Watersheds PCA
- Sonoma Baylands PCA



What was assessed?

TRANSPORTATION



SR-37. Map data © 2019 by Google.

SR-37 • State Route 37 is a 21-mile, two-lane highway along the northern shore of San Pablo Bay linking Novato in Marin County and Vallejo in Solano County.³ The SR-37 corridor passes through sensitive tidal marsh. This important regional connector links the north, east and west San Francisco Bay Area sub-regions. It serves as one of the few connections between US-101 and I-80 as it passes through the Sonoma Baylands. In particular, it connects job markets and housing within Marin, Sonoma, Napa, and Solano Counties and moves commuters, freight, and recreational traffic⁴ averaging 40,750 vehicles⁵ and 1,506 trucks⁶ per day. Average vehicles on this roadway are projected to increase to 58,000 by 2040.⁷ SR-37 is also designated as a state lifeline emergency route.⁸ Ownership of levees protecting SR-37 is complex, including the US Fish and Wildlife Service, Sonoma-Marín Area Rail Transit, the City of Vallejo, and several private landowners. Within this OLU, SR-37 is first exposed to flooding at 24" TWL; however, off-ramps to Mare Island and Vallejo are exposed to flooding at 12" TWL. At 36" TWL, significant segments of SR-37 near Tolay Creek and SR-121 are flooded. Outside of this OLU, significant west bound flooding issues occur between Atherton and US-101, and eastbound flooding issues occur between US-101 and Novato Creek.

Mare Island/Vallejo Ferry Terminals • The Vallejo Ferry Terminal is located along Vallejo's waterfront and is critical to regional commuter movement between San Francisco, Mare Island, and Vallejo. Between 2012 and 2017, the Vallejo/San Francisco route ridership has increased 66.8% to over 1 million riders in 2017 and is now operated at capacity during peak times.⁹ It also provides connections to the Vallejo Transit Center, Solano County Transit (SolTrans) and Napa's Valley Intercity Neighborhood Express (VINE) buses as well as the Bay Trail. Managed by the Water Emergency Transportation Authority (WETA), the Mare Island/Vallejo Ferry is intended to provide emergency transport in the event of catastrophic bridge failure. The Vallejo Ferry Terminal is part of the Vallejo Intermodal Transit Station. The Terminal is not directly exposed to flooding, but local road access and parking are impacted at 52" TWL, with the majority of the Vallejo Waterfront flooded at 66" TWL. The Mare Island Ferry Terminal is impacted at 77" TWL.

Vallejo Transit Center • Providing connections to SolTrans (Walnut Creek, Benicia, Fairfield, Mare Island connections) and VINE (Town of Napa connections), the Vallejo Transit Center serves as the main transfer point for bus passengers in downtown Vallejo with transit connections for Napa and Solano County employees working in San Francisco and other Bay Area communities. Facilities include a 12-bay bus shelter for transit riders, public parking, and an administration building to house the newly formed SolTrans merger of the Vallejo and Benicia transit services. Bus passengers will also have closer proximity to the Vallejo Ferry Terminal. The Vallejo Transit Center is planned to help the City continue to grow transit usage in the North Bay. The Vallejo Transit Center (along with the Vallejo Ferry Terminal and parking garage) are part of the Vallejo Intermodal Transit station. The Transit Center is not directly exposed, though local roads that provide access to the transit center are exposed beginning at 52" TWL.

Sereno Transit Center • Located between Sonoma Boulevard and Broadway Street on the north side of Sereno, the Sereno Transit Center accommodates six bus bays and was constructed in 2004. No parking facilities are provided at Sereno. There are several bus connections to VINE and SolTrans. Sereno Transit Center is first exposed at 66" TWL.



Northwestern Pacific Railroad (Brazos Branch) • This regional railroad serves the North Coast of California. The rail line is primarily used for freight trips carrying lumber, grain, and other materials between the American Canyon area and Sonoma County. The track rights are owned by the Sonoma-Marin Area Rail Transit (SMART) and are being considered for future passenger service from the existing service in Marin to Napa and Solano counties.¹⁰ West of Tolay Creek, it runs bayside of SR-37. Two levees, the 2.5-mile-long Eliot Trail levee and the 1.6-mile-long Sonoma Baylands levee, both in the San Pablo Bay National Wildlife Refuge, provide protection for both SR-37 and the rail from the junction of SR-121 west to Port Sonoma. Stretches of line south and west of Port Sonoma just before crossing the Petaluma River may be exposed at less than 12" TWL with larger segments of the tracks exposed at 24" TWL.

California Northern Railroad (Napa Subdivision & Schellville line) • This railroad transports mainly food and agricultural commodities, stone products, and fuel tanker cars. It moved around 26,000 carloads of goods in 2008.¹¹ The line runs east-west across the top of the Sonoma Baylands before heading north along the east side of the Napa River and into the City of the Napa. The California Northern Railroad transports fuel tanker cars and has potential to impact sensitive wetlands if disrupted. The railroad is first exposed to flooding at 24" TWL as it runs north of the Baylands, with additional segments exposed at 36" TWL along the Napa River, and segments near downtown Napa are impacted at 66" TWL.



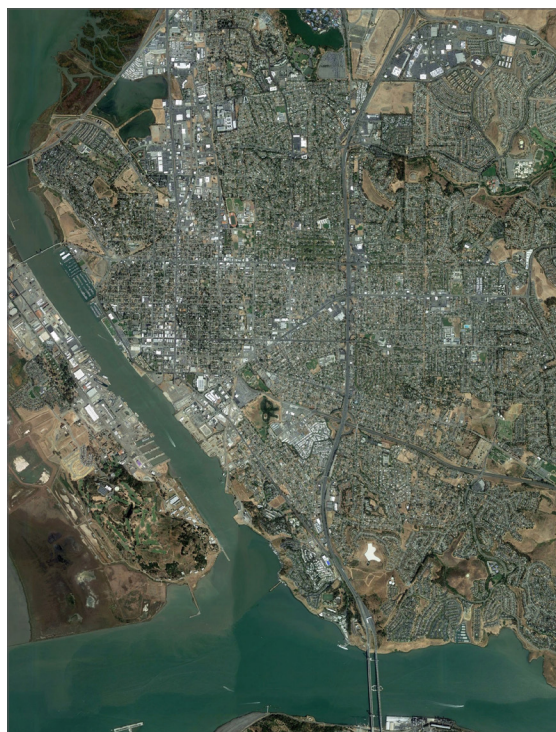
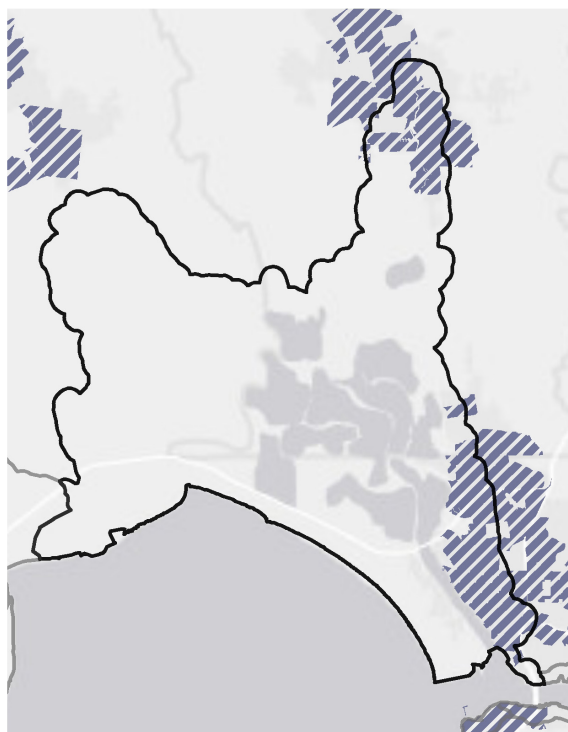
SR-37 and Sonoma Baylands. Photo by SF Baykeeper, Cole Burchiel, and LightHawk.

Napa County Airport • Though it doesn't support commercial aviation, the Napa County Airport is an economic component of the Napa Valley (commercial tenants provide 406 jobs with a total income of \$18.4 million annually). It is estimated that aircraft at Napa County Airport provides \$2.3 million annually in property taxes. Nearly 83 percent of the tax dollars collected are allocated to Napa Valley schools.¹² At 36" TWL, flooding begins to overtop embankments surrounding the airport. Flooding of runways at 77" TWL will reduce airport functions.

Local Roads • Off ramps from SR-37 on Mare Island (Walnut and Railroad Ave.) already experience flooding issues, cutting off access to Mare Island. Access to downtown Vallejo is provided via off ramps from SR-37 (Sacramento Street and Sonoma Boulevard), which are impacted at 48" TWL.



VULNERABLE COMMUNITIES



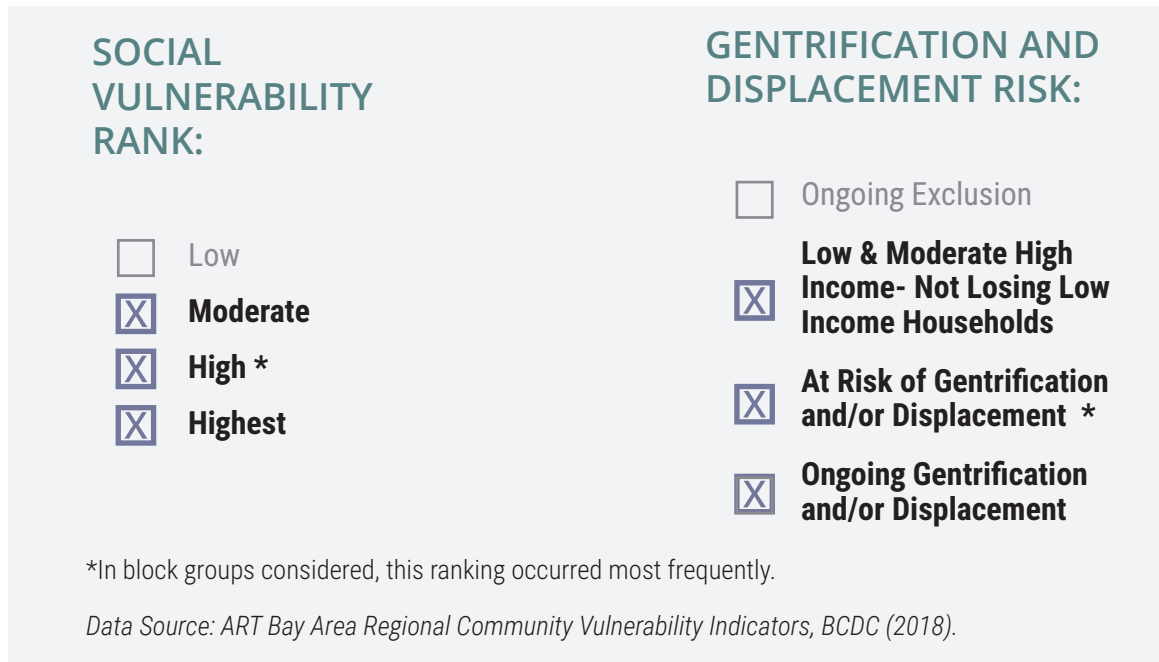
Vallejo. Map data © 2019 by Google.

Vallejo & American Canyon • For the purposes of this report, 24 block groups were assigned to a functional community called “Vallejo & American Canyon.” The block groups that were assessed can be referenced in the appendix. This is a placeholder designation for a set of block groups that have a moderate, high, or highest social vulnerability ranking within the Vallejo and American Canyon area. We have provided some history and context for these areas, primarily gathered via desktop research, and in some cases stakeholder and community vetting. This should be considered a starting point. Before this is used for any planning purposes, this data should be 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 bring into the planning process.

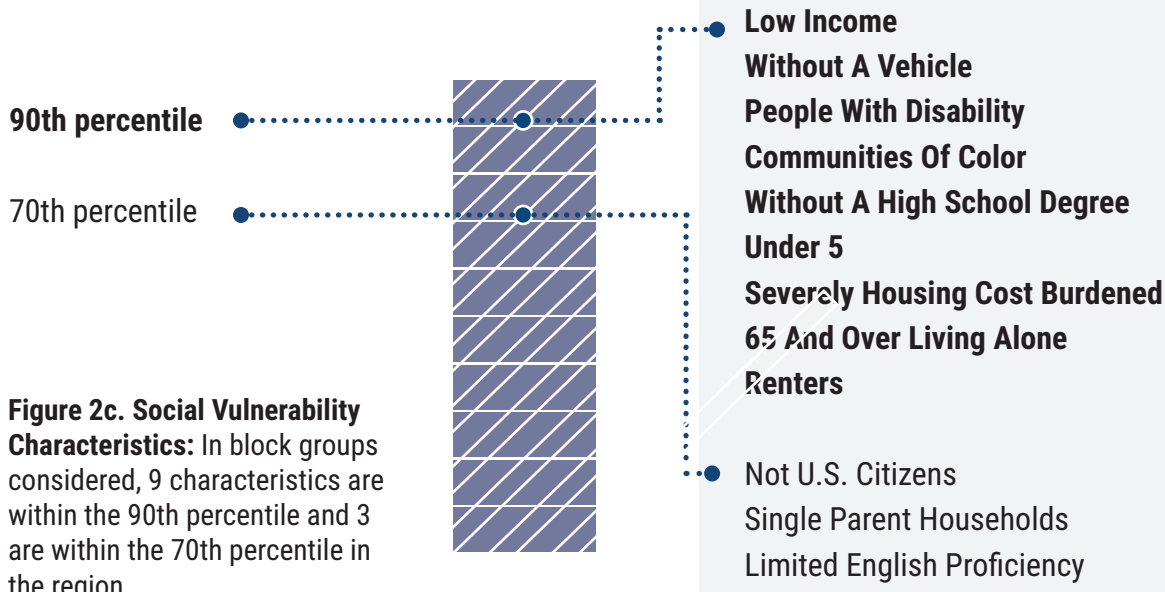
Vallejo is the 10th largest city the Bay Area and the largest city in Solano County. Vallejo’s history has been closely tied with the Mare Island Naval Shipyard and other maritime industries along its waterfront. During World War II, the waterfront was at its peak with the shipyard fully operating. The waterfront declined following World War II, leading to neglect and decay.¹³ Vallejo represents a transportation hub in Solano County with a ferry terminal and regional bus connections to San Francisco and the East Bay. The recent update of Vallejo General Plan 2040, adopted by City Council in 2017, contains themes of community cohesion and includes goals such as Strong Community Bonds and Caring, Equitable Community.¹⁴ Additionally, “in 2012,

Vallejo made history by becoming the first U.S. municipality to approve a community-wide participatory budgeting process that engages all residents in deciding how to spend a portion of the City budget.”¹⁵

Twenty four block groups are considered moderate, high, or highest social vulnerability. The community has block groups with three social vulnerability characteristics in the 70th percentile and nine vulnerability characteristics in the 90th percentile (Figure 2c).



SOCIAL VULNERABILITY PERCENTILES IN VALLEJO & AMERICAN CANYON





In this section, social vulnerability was used as the starting place for analysis. Contamination burden was assessed only for the block groups included in the functional community groupings. This means that there could be block groups that score in the moderate, high, or highest for contamination burden that were not ALSO in the designated functional community grouping that were not considered. In short, we only look at areas that have contamination burden if they are also ranked as socially vulnerable.

The Mare Island Naval Shipyard left behind a legacy of contamination with 52 hazardous sites on the island, including contaminated groundwater, soil, and sediment.¹⁶ This spurred an era of urban renewal in the 1950s and 60s to transform the waterfront, including the creation of the Vallejo Ferry Terminal. Vallejo now represents a transportation hub in Solano County with the ferry terminal and regional bus connections to San Francisco and the East Bay.¹⁷

There is a strong environmental justice activism community currently mobilizing around a proposed cement plant on South Vallejo's waterfront at the former Sperry flour mill. The proposed project would include a deep-water terminal and other industrial improvements such as a laydown area, trucking and rail connections, and break-bulk commodities in addition to the cement plant.¹⁸ Fresh Air Vallejo, All Positives Possible, community members, and other environmental organizations, environmental justice organizations, unions, civil rights groups, businesses, and student organizations have rallied around the environmental review process, requesting more public meetings and generating large numbers of public comments on the detrimental health impacts the project would cause. Additionally, the Bay Area Air Quality Management District took issue with the emissions analysis and the California Department of Justice issued a letter in late 2018 criticizing the accuracy of the emissions analysis and environmental justice analysis.¹⁹

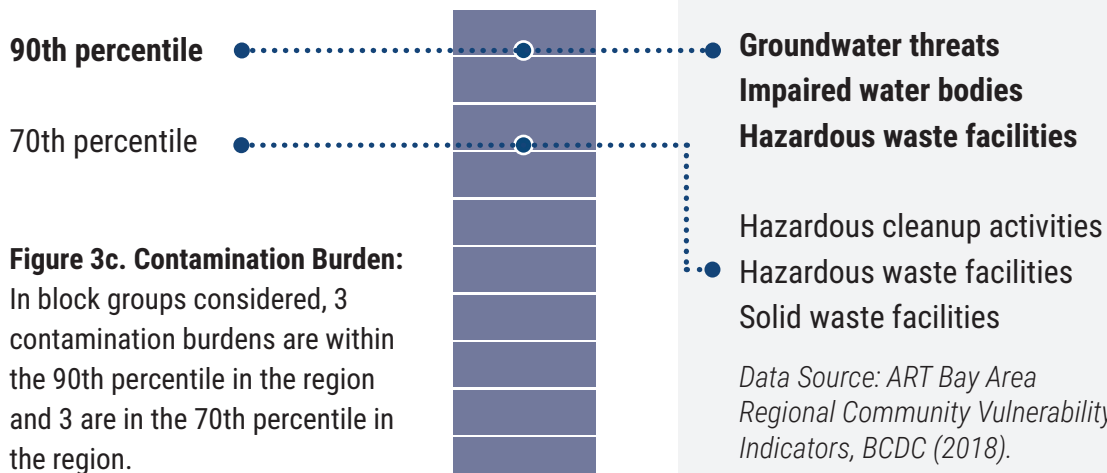


The Vallejo waterfront. Photo by Liz Henry licensed under CC BY-ND 2.0

In the city of Vallejo 5 block groups have either High or Moderate contamination vulnerability and 3 of these block groups are exposed to sea level rise. The block groups flagged for contamination vulnerability are all clustered south of Curtola Parkway and on Mare Island.

Three contamination burdens are exhibited in at least one block group at in the 90th percentile in the region and three at the 70th percentile (Figure 3c).

CONTAMINATION BURDEN PERCENTILES IN VALLEJO & AMERICAN CANYON



Napa • For the purposes of this report, 10 block groups were assigned to a functional community called “Napa.” The block groups that were assessed can be referenced in the appendix. This is a placeholder designation for a set of block groups that have a moderate, high, or highest social vulnerability ranking within the Napa area. We have provided some history and context for these areas, primarily gathered via desktop research, and in some cases stakeholder and community vetting. This should be considered a starting point. Before this is used for any planning purposes, this data should be ground-truthed and vetted with the

SOCIAL VULNERABILITY RANK:

☐ Low

☒ Moderate

☒ High *

☒ Highest

GENTRIFICATION AND DISPLACEMENT RISK:

☐ Ongoing Exclusion

☒ Low Income- Not Losing Low Income Households

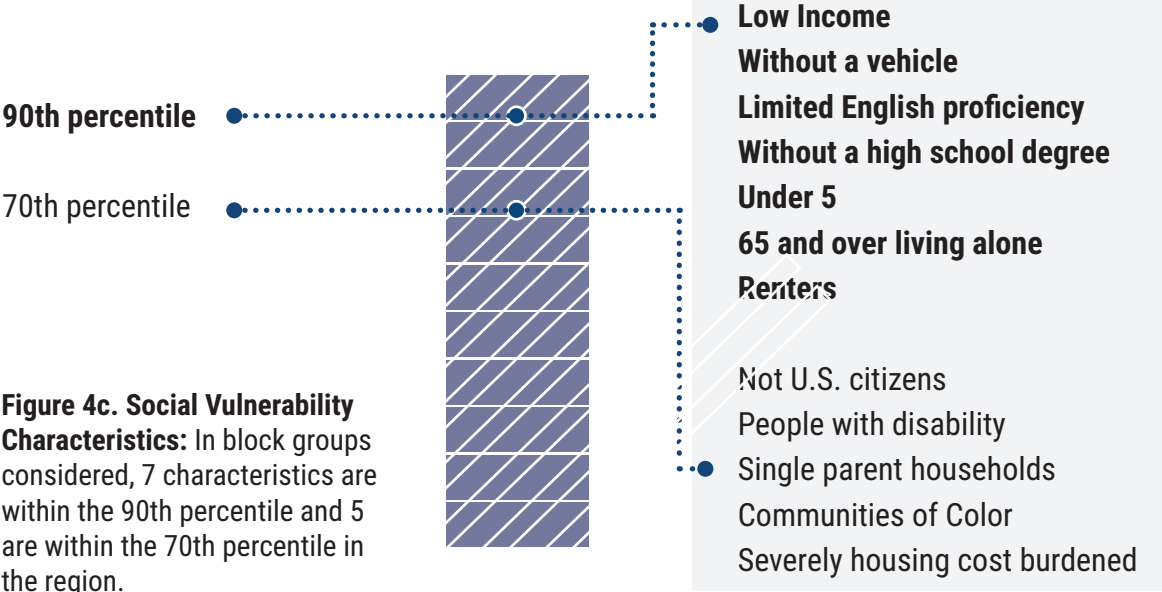
☒ At Risk of Gentrification and/or Displacement *

☒ 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).

SOCIAL VULNERABILITY PERCENTILES IN NAPA



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 bring into the planning process.

Ten block groups are considered moderate, high, or highest social vulnerability. The community has block groups with five social vulnerability characteristics in the 70th percentile and seven vulnerability characteristics in the 90th percentile (Figure 4c).

In this section, social vulnerability was used as the starting place for analysis. Contamination burden was assessed only for the block groups included in the functional community groupings. This means that there could be block groups that score in the moderate, high, or highest for contamination burden that were not ALSO in the designated functional community grouping that were not considered. In short, we only look at areas that have contamination burden if they are also ranked as socially vulnerable.

The community has block groups with two contamination vulnerabilities in the 70th percentile and one vulnerability characteristic

CONTAMINATION BURDEN
PERCENTILES IN NAPA

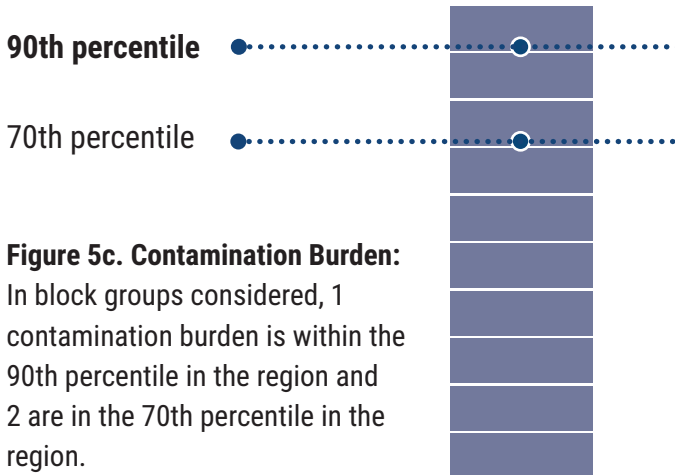


Figure 5c. Contamination Burden:
In block groups considered, 1 contamination burden is within the 90th percentile in the region and 2 are in the 70th percentile in the region.

BURDEN RANK:

- ☒ Low *
- ☐ Moderate
- ☐ High
- ☐ Highest

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



- Groundwater threats
- Hazardous cleanup activities
- Solid waste facilities

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

FIRST EXPOSURE OF CRITICAL FACILITIES IN VALLEJO & AMERICAN CANYON AND NAPA COMMUNITIES










Critical Facilities/Services Impacted		12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
Health Clinics	La Clinica Vallejo Dental (Sonoma Blvd, Vallejo)										
Police and Fire Stations	Vallejo Fire Department Station 3										
Schools	Al-Noor Islamic School (Sonoma Blvd, Vallejo)										
	Vallejo City Unified School District (Walnut Ave, Vallejo)			M	M	M	M	M	M		
	Kaiser Permanente School of Allied Health Sciences (Marina Way, Richmond)										
Utilities	Napa Valley College Solar										
	Skaggs Island Substation										
	Vallejo Sanitation and Flood Control District (Ryder St, Vallejo)										
	Napa Sanitation District (Soscol Ferry Rd, Napa)										

Table 1c. Critical Services and Facilities: First exposure of critical services and facilities. "M" refers to minor impacts such as impacts to access roads. Blue bars represent when asset is first exposed to flooding.

in the 90th percentile (Figure 5c).

Critical services and facilities may be impacted by flooding. Table 1c provides details on critical services potentially at risk of flooding within the communities analyzed. First impacts of exposure of assessed critical facilities begins at 36" TWL and increase through 108" TWL.

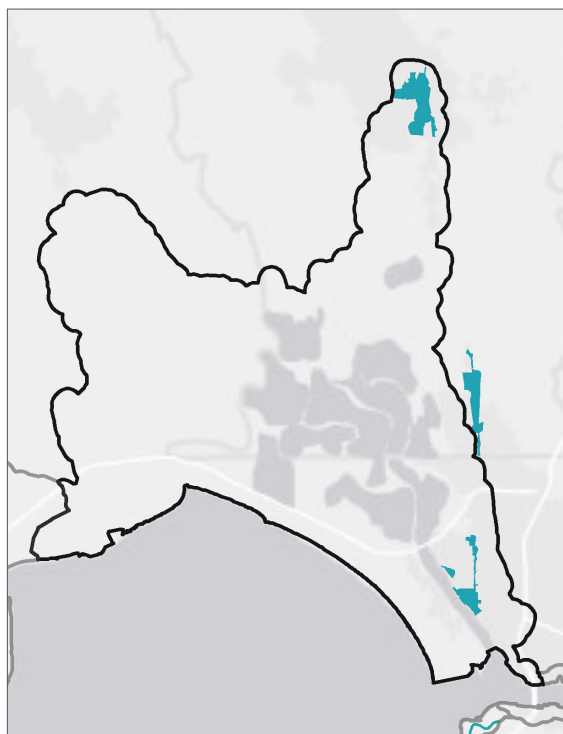
Total water levels (TWLs) are used to represent various combinations of temporary and/or permanent flooding that may occur with future sea level rise. Values in the table reflect potential risks to critical facilities in the absence of adaptation planning.



Vallejo Ferry Terminal. Photo by BCDC staff.



PRIORITY DEVELOPMENT AREAS (PDAS)



Vallejo Waterfront & Downtown PDA. Map data © 2019 by Google.

Vallejo Waterfront & Downtown PDA • The Vallejo Waterfront & Downtown PDA is a Suburban Center PDA which covers 189 acres, including 92 acres at the waterfront site opposite Mare Island just south of River Park and 97 acres downtown, south of Capitol Street and west of Sutter Street. This PDA includes two regionally important transit facilities: the Vallejo Ferry Terminal and Vallejo Transit Center, which provide important commuter connections to the East Bay, San Francisco, and the rest of the North Bay. Vallejo can also be accessed from Interstates 80 and 780 and State Routes 37 and 29.

The city's economy was tied to shipbuilding until 1996 when the shipyard closed. Since then, the city has been working to revitalize its economy.²⁰ The vision for this PDA is to provide a high-density, mixed-use environment within walking distance of multiple transit opportunities, waterfront open space, and the historic downtown by significantly intensifying development within walking distance to the Ferry and Transit Center, while retaining the historic character of the downtown.²¹ This PDA is also adjacent to the Sonoma Boulevard PDA, a mixed-use corridor that runs along SR-29.²²

At 48" TWL, a major portion of the waterfront site floods, with minor flooding along the shoreline in the downtown section of the PDA, including the Ferry Terminal.



Vallejo waterfront. Photo by Patrick Nouhailler licensed under CC BY-SA 2.0

CURRENT AND FUTURE HOUSING AND JOBS IN THE VALLEJO WATERFRONT & DOWNTOWN PDA



Residential Housing Units

Existing in 2010:	336
Projections for 2040:	1,235
Percent Growth:	268%



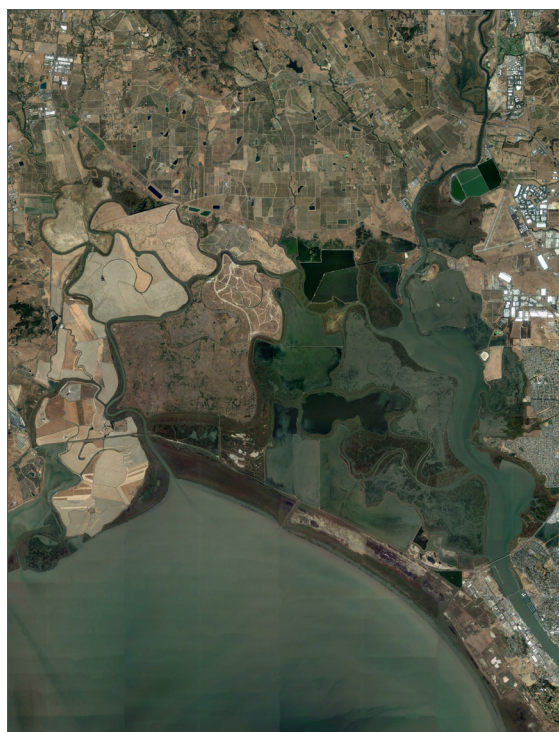
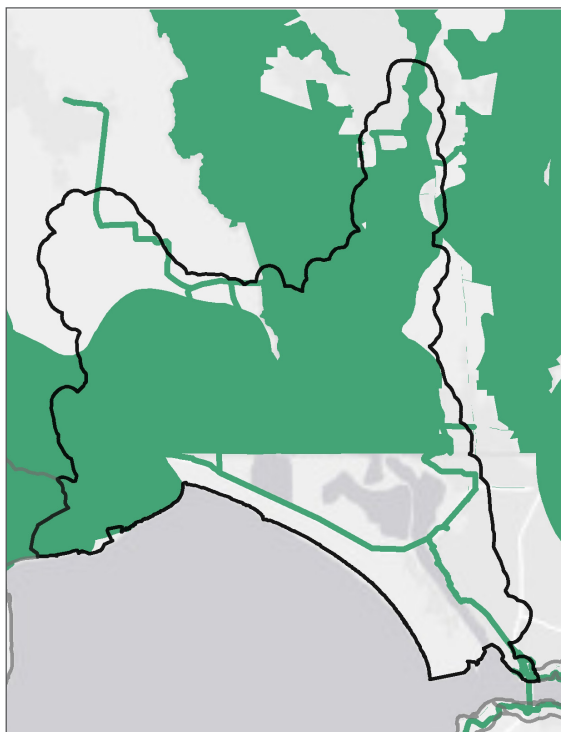
Job Spaces

Existing in 2010:	1,461
Projections for 2040:	1,551
Percent Growth:	6%

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



PRIORITY CONSERVATION AREAS (PCAS)



Sonoma Baylands PCA. Map data © 2019 by Google

San Francisco Bay Water Trail PCA

• 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.²³ Within this OLU there are 77 miles of Bay Trail. The Bay Trail is adjacent to the Waterfront and Downtown Vallejo PDA, supporting the goals of connecting commuters to transit. This stretch is adjacent to the Vallejo vulnerable community, providing recreation and transportation opportunities to residents.

PCA DESIGNATION:

- ☐ Natural Landscapes
- ☐ Agricultural Lands
- ☐ Urban Greening
- ☒ **Regional Recreation**

FUNCTIONS/BENEFITS:

- **Recreation**
- **Economic Development**
- **Wildlife Habitat**

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



Sonoma Baylands. Photo by SF Baykeeper, Cole Burchiel, and LightHawk.

While there are some small segments of the Bay Trail impacted at 12" TWL, at 48" TWL both existing and proposed Bay Trail segments are impacted, including White Slough and along Harbor Way on the waterfront.

San Francisco Bay 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.²⁴ In this OLU all sites are exposed to flooding at 12" TWL. Green Island Boat Launch Ramp is identified as a dirt road entry waterfront park launch site, and thus likely highly susceptible to sea level rise. Hudeman Slough, Cullinan Ranch, Cuttings Wharf, JFK Memorial Park, Riverside Drive Launch Ramp, Downtown Napa, Jim Hench Memorial Kayak Launch, and Brinkman's Marina are floating docks or ramps that are less vulnerable to inundation but access to the sites may be impacted.

PCA DESIGNATION:

- ☒ **Natural Landscapes**
- ☐ Agricultural Lands
- ☐ Urban Greening
- ☐ Regional Recreation

FUNCTIONS/BENEFITS:

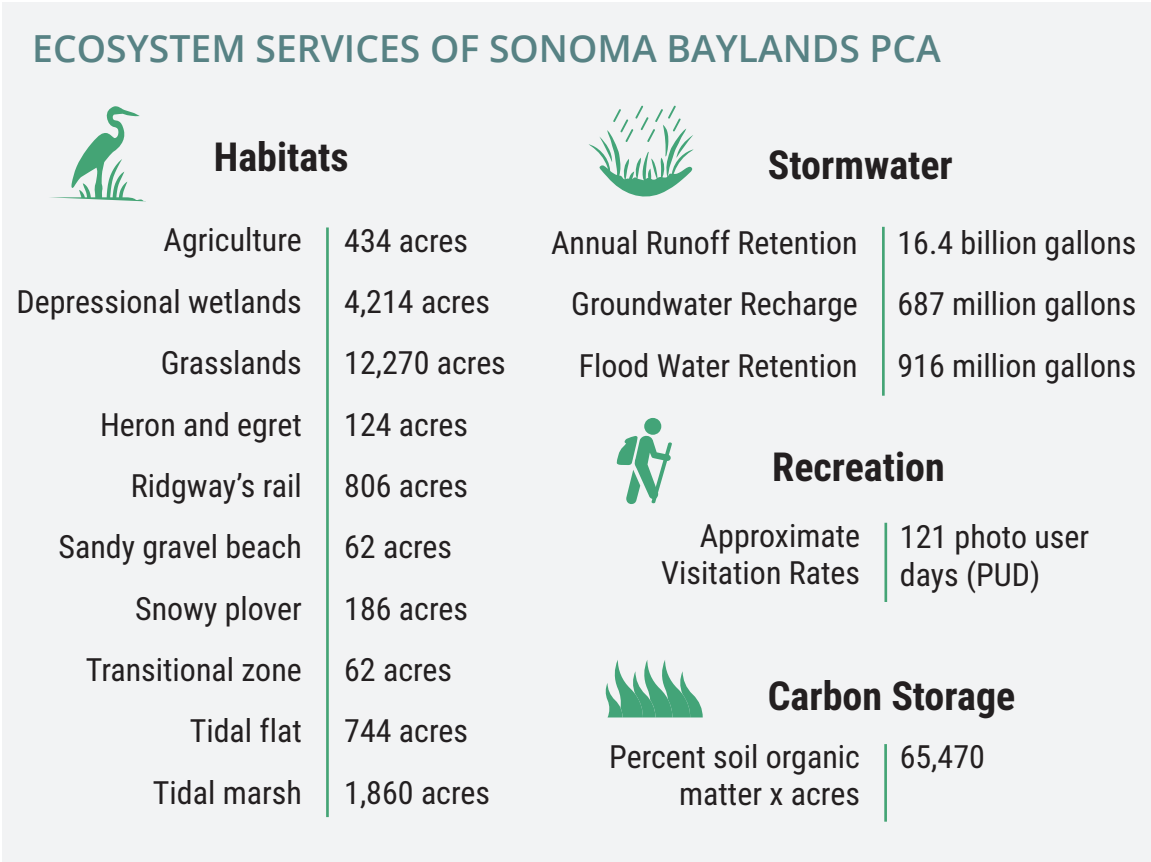
- **Recreation**
- **Community Health**
- **Economic Development**
- **Transportation**
- **Environmental Stewardship**

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

Sonoma Baylands PCA • Only a portion of the Sonoma Baylands PCA lies within this OLU. The Sonoma Baylands PCA includes restored tidal marsh and diked baylands. The majority of the PCA is owned and managed by the U.S. Fish and Wildlife Service (USFWS) as part of the San Pablo Bay National Wildlife Refuge, but there are also private lands owned by the Sonoma Land Trust, among others. It extends from the northern arc of San Pablo Bay shoreline east to the Napa River, west to the Petaluma River and north to Schellville. Portions of Sonoma Baylands that have been diked for more than a hundred years have experienced significant subsidence (generally 6-7 feet) and some require sediment placement to rebuild elevation.²⁵ The PCA is highly valued for recreational visitation and provides great habitat value for threatened and endangered marsh species, such as California Ridgway's rail and salt marsh harvest mouse.²⁶ The Sonoma Baylands PCA is first exposed at 12" TWL and completely submerged at 48" TWL.

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

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



Napa County Agricultural Lands and Watersheds

PCA • This PCA encompasses the unincorporated agricultural and watershed lands of most of Napa County, but only a portion of this PCA is within this OLU. Agriculture and viticulture (wineries) are the economic engine of the county and has driven support for conservation of agricultural lands in Napa County²⁷. The area is biologically diverse supporting a variety of flora and fauna and has the greatest density of oak woodlands in California. There are seven federally listed species in the part of the PCA within the bounds of this OLU. Two percent of the PCA is exposed at 12" TWL which represents most of the PCA that lies within this OLU boundary. There are many ecosystem services of this PCA including providing habitat, recreation, carbon storage and stormwater services (Figure 7c).

Figure 7c. Ecosystem Services of the PCA. Statistics on habitats, recreation, carbon storage and stormwater retention in this PCA.

Data by the ART Bay Area Natural Capital Project (2019).

PCA DESIGNATION:

☒ Natural Landscapes

☐ Agricultural Lands

☐ Urban Greening

☐ Regional Recreation

FUNCTIONS/BENEFITS:

- Recreation
- Community Health
- Economic Development
- Transportation
- Environmental Stewardship

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

ECOSYSTEM SERVICES OF NAPA COUNTY AGRICULTURAL LANDS AND WATERSHEDS PCA



Habitats

Agriculture	248 acres
Bird hot spots	1,550 acres
Depressional wetlands	5,454 acres
Grasslands	30,923 acres
Heron and egret & Lagoon	124 acres
Playa	310 acres
Ridgway's rail	992 acres
Sandy gravel beach	124 acres
Snowy Plover	2,107 acres
Transitional zone	62 acres
Tidal flat	2,540 acres
Tidal marsh	3,222 acres
Salt marsh harvest mouse	450 acres



Stormwater

Annual Runoff Retention	369 billion gallons
Groundwater Recharge	3 billion gallons
Flood Water Retention	16.7 billion gallons



Recreation

Approximate Visitation Rates	764 photo user days (PUD)
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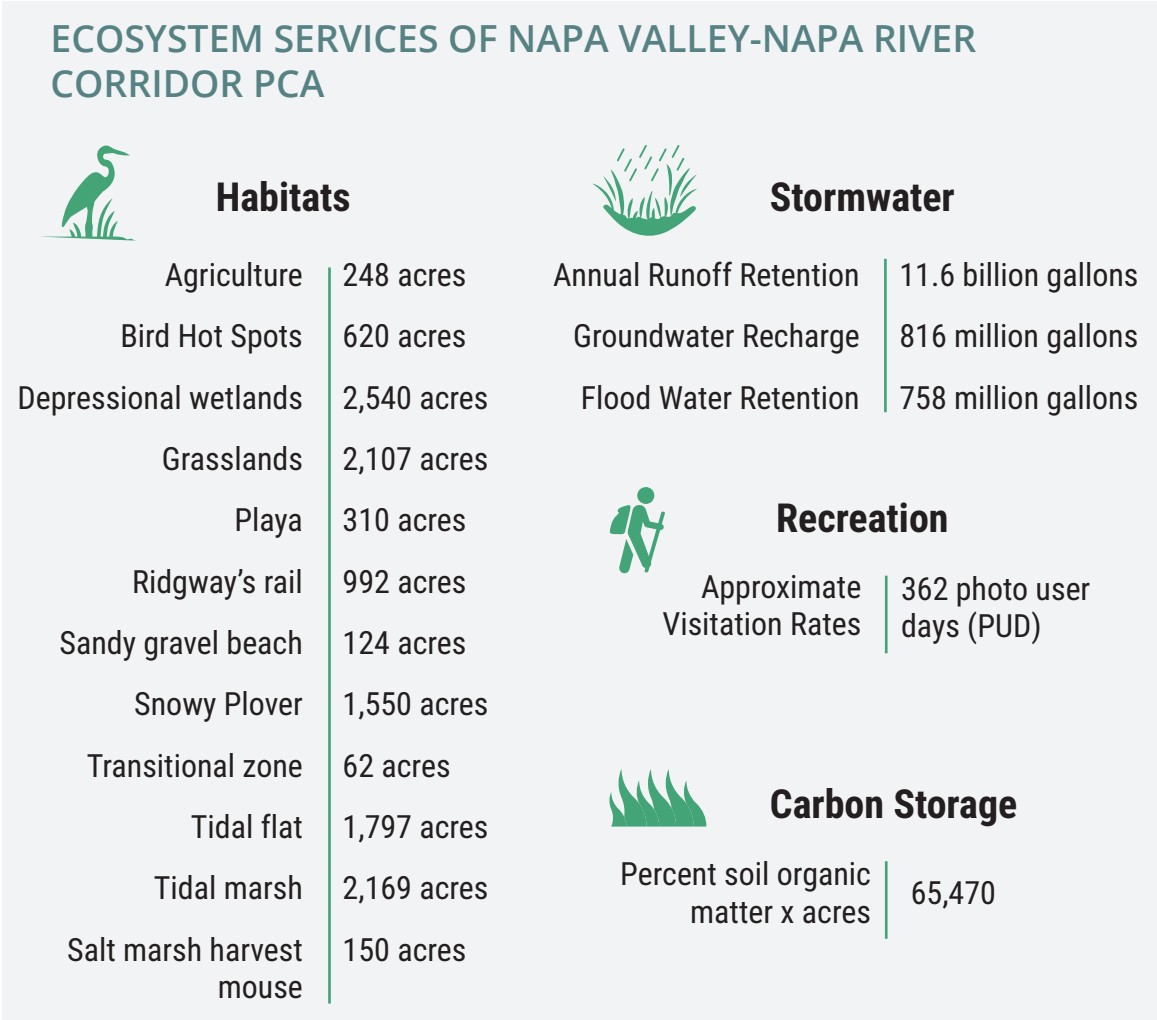
Carbon Storage

Percent soil organic matter x acres	65,470
-------------------------------------	--------

Napa Valley-Napa River Corridor PCA • The Napa Valley-Napa River Corridor PCA follows the area along the Napa River, which runs from northwestern Napa County, northeast of the City of Calistoga, to the San Pablo Bay, however only a portion of this PCA lies within the boundaries of this OLU. The river drains the Napa Valley, which is a rich agricultural region famous for wine production.²⁸ The Napa River plays an important role in connecting recreational trails, cities, and saltwater and freshwater bodies for fish reproduction. The Napa River Corridor has the highest visitation rates within the PCA network.²⁹ Land conservation along the Napa River will protect the species dependent on these habitats and provide further opportunities for recreation and restoration along this corridor. The PCA is first exposed at 12" TWL, flooding farmland, Napa-Sonoma salt ponds, and Kennedy Park. The first developed area around the Imola Shopping Center floods at 77" TWL.

There are many ecosystem services of this PCA including providing habitat, recreation, carbon storage, and stormwater services of runoff retention, groundwater recharge, and flood water retention (Figure 8c).

Figure 8c. Ecosystem Services of the PCA. Statistics on habitats, recreation, carbon storage and stormwater retention in this PCA. *Data by the ART Bay Area Natural Capital Project (2019).*



The Napa River Corridor has the highest visitation rates within the PCA network.³⁰

PCA DESIGNATION:

- ☒ **Natural Landscapes**
- ☐ Agricultural Lands
- ☐ Urban Greening
- ☐ Regional Recreation

FUNCTIONS/BENEFITS:

- **Recreation**
- **Community Health**
- **Economic Development**
- **Transportation**
- **Environmental Stewardship**

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



SR-37 and Napa River wetlands. Photo by BCDC staff.

Focus Area A: *Vallejo*



Location

This area includes the City of Vallejo, specifically the Mare Island, West Vallejo, South Vallejo, and Glen Cove neighborhoods (Figure 9c).

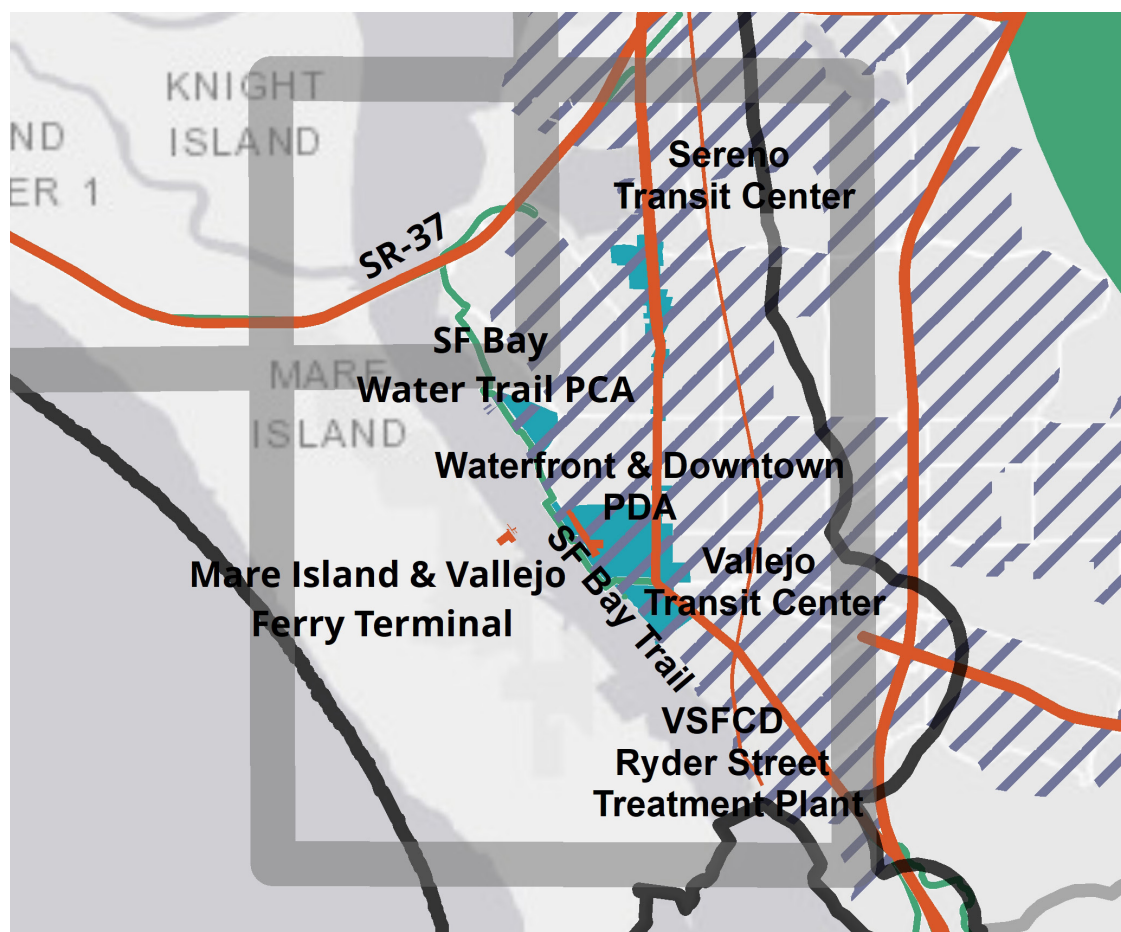


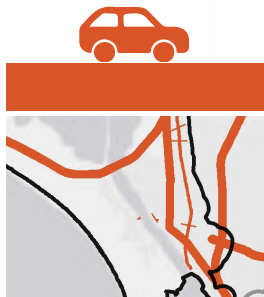
Figure 9c. Top: Identification of where Focus Area is within OLU. Bottom: Map of Focus Area containing regional systems. Individual assets assessed in this Focus Area are labeled on the map and listed on the following page.



Why shared stories of vulnerability?

This Focus Area was selected because it contains a variety of regional systems, including transportation assets such as SR-37, Mare Island/Vallejo Ferry Terminals, Vallejo Transit Center, Sereno Transit Center, local roads, Vallejo Downtown and Waterfront PDA, San Francisco Bay Trail and San Francisco Water Trail PCAs, and Vallejo 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. The goal of communicating shared vulnerabilities and consequences is to encourage multi-benefit solutions through collaborations and coordination.

Figure 9c. MAP OF REGIONAL SYSTEMS AND LIST OF INDIVIDUAL ASSETS ASSESSED WITHIN THIS FOCUS AREA LISTED BELOW:



TRANSPORTATION

- SR-37
- Mare Island/Vallejo Ferry terminals
- Vallejo Transit Center
- Sereno Transit Center
- Local Roads



VULNERABLE COMMUNITIES

- Vallejo Community



PRIORITY DEVELOPMENT AREAS (PDAs)

- Vallejo Downtown & Waterfront PDA



PRIORITY CONSERVATION AREAS (PCAs)

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

Shoreline today and into the future

SHORELINE TYPE STORY

What is the shoreline made up of now?

All of the shoreline within the Mare Island strait is characterized as an embankment or berm. Along the western edge of Mare Island, the shoreline is primarily wetland. There is a large breakwater extending west from the tip of Mare Island, which currently provides some shoreline protection for SR-37.³¹

SHORELINE DEVELOPMENT STORY

How will the shoreline change in the future?

There are a number of planned projects that might have an impact on the flood paths along the shoreline.

The major potential shoreline changes include:

- **North Mare Island Redevelopment (Planned)**
- **Vallejo Marine Terminal (Planned)**
- **Vallejo Marina Expansion (Planned)**



Vallejo waterfront. Photo by Bill Williams is licensed under CC BY 2.0

Current and future flooding risk

OVERTOPPING STORY

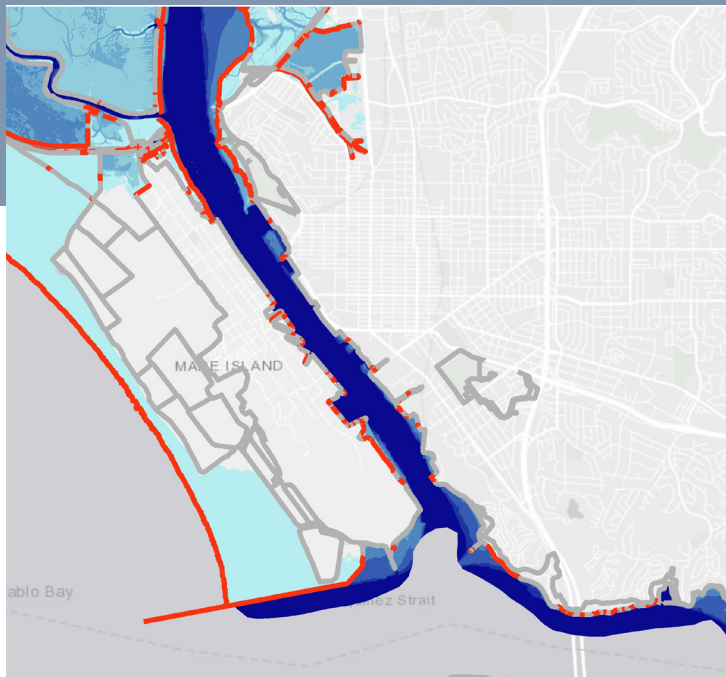
Where is water coming over the shoreline?

Overtopping occurs in three key areas in this Focus Area. On Mare Island, at 12" TWL, there is overtopping along the northwest end of Mare Island (Figure 10c). Also at 12" TWL overtopping of White Slough occurs as well as overtopping of Austin Creek. At 24" TWL, overtopping of Austin Creek increases. In Downtown and south Vallejo, overtopping occurs along the banks of Napa River, specifically where the shoreline along the Vallejo Sanitation and Flood Control District's (VSFCD) Ryder Street Treatment Plant begins to flood at 36" TWL. Overtopping extends north and south as water levels increase.

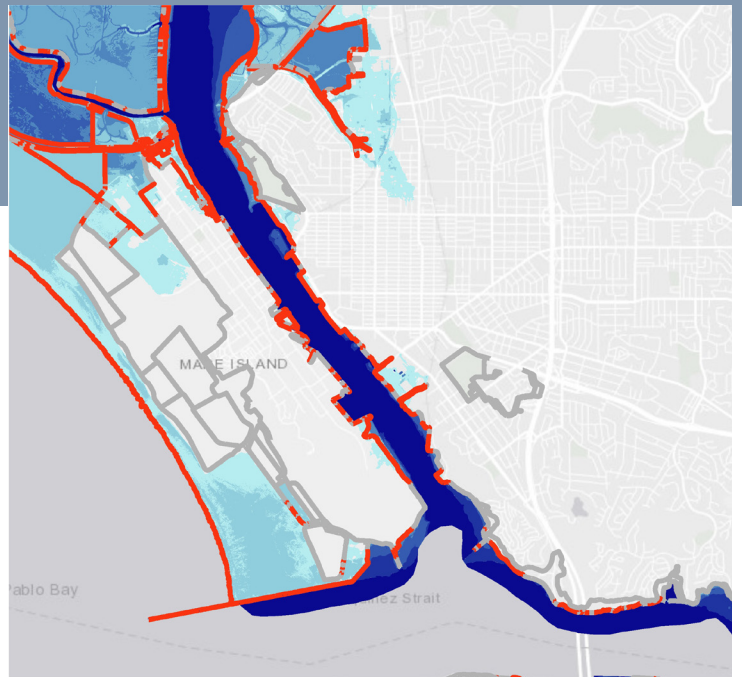
FLOODING EXPOSURE STORY

Where does flooding occur?

Exposure of roads, housing, and industrial areas incrementally increases with increasing water levels on Mare Island. On Mare Island at 12" TWL exposure of the SR-37 exit ramp and nearby local roads occurs (Table 2c). At 24" TWL, SR-37 roadway becomes flooded west of Mare Island Strait. Flooding of the VSFCD Wastewater Treatment Plant begins at 36" TWL and is completely flooded by 66" TWL. Flooding from Austin Creek, White Slough, and adjacent wetlands expands to cross Sonoma Blvd (SR-29) at 48" TWL. Access to the Brinkman's Marina Water Trail site is impacted at 48" TWL. On the south side of White Slough, the Sacramento Street on-ramp to SR-37 is exposed at 48" TWL. The Downtown and Waterfront PDA as well as sections of the Bay Trail are also exposed at 48" TWL. The old Naval Shipyard, a contaminated site, becomes inundated at 66" TWL. At 52" TWL, access to the Vallejo Ferry Terminal is impacted. Also at 66" TWL, the Sereno Transit Center and nearby neighborhoods are exposed. Flooding of this area would impact movement throughout the city. Flooding in this area also overlaps with the boundaries of the Sonoma Boulevard PDA. In Downtown and South Vallejo, exposure expands north along the shoreline to flood Mare Island Way. On the north side of White Slough, SR-37 is exposed at 77" TWL. At 108" TWL, entire neighborhoods are flooded.



24" TWL



48" TWL

OVERTOPPING AND FLOODING ▲

Figure 10c. 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.

- No overtopping
- Overtopping
- Shallower depth of flooding
- Deeper depth of flooding

FIRST FLOODING OF REGIONAL SYSTEMS ASSESSED

Regional Systems Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
SR-37 on-ramps										
SR-37										
SF Bay Trail PCA										
SF Bay Water Trail PCA										
Downtown and Waterfront PDA										
SR-29 (Sonoma Blvd)										
Vallejo Ferry Terminal										
Sereno Transit Center										
Mare Island Ferry Terminal										
Vallejo Community										

Table 2c. 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. Municipal Infrastructure

Municipal facilities in Vallejo, including electrical substations and water treatment, provide critical functions for the entire community, including vulnerable community members. These facilities are directly vulnerable to flooding due to their location near the shoreline and salt-sensitive equipment and indirectly vulnerable to flooding due to impacts to access roads, and lack redundancy.



2. Local and Regional Transportation

There are limited transit and transportation options entering or leaving Vallejo and Mare Island. Flooding of surface access to SR-29, SR-37, Vallejo Ferry Terminal, Vallejo Transit Center, and Sonoma Boulevard will severely impact people's ability to access jobs and services elsewhere in the region. These disruptions may have disproportionate impacts to vulnerable community members.



3. Future Development and Contamination

The Mare Island strait has a large number of planned developments along with a high number of toxic sites. These developments have the potential to increase residential, commercial, and recreational use in the area while the contamination risk may not change or may worsen as flooding and rising groundwaters mobilize contaminants. The Downtown Vallejo and Mare Island specific plans do not currently incorporate planning and information about sea level rise and adaptation and community members and water users do not have information about the environmental and public health risks of being exposed to this pollution. These impacts may also disproportionately impact the most vulnerable residents in Vallejo.

Mare Island. Photo by BCDC.



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 • Flooding issues place a disproportionate burden on disadvantaged communities. In some cases, these communities are co-located or are adjacent to contaminated sites, which increases the environmental burden on Vallejo.

Disruption of the electrical substation or transmission lines may disrupt services to those within the PDA and other vulnerable communities.

The Bay Trail provides free shoreline recreation and transportation to all residents of the Bay area. If the Bay Trail adjacent to Vallejo is disrupted or permanently damaged, residents will lose recreation and non-motorized travel 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; however, even temporary flooding or mud and debris can preclude these individuals from using the trail.

Economy • Flooding at the Vallejo ferry terminal or Sereno Transit Center will place additional strain on already congested highways in the area, including highly vulnerable SR-37, limiting commuter’s ability to get to job centers in Marin and San Francisco.



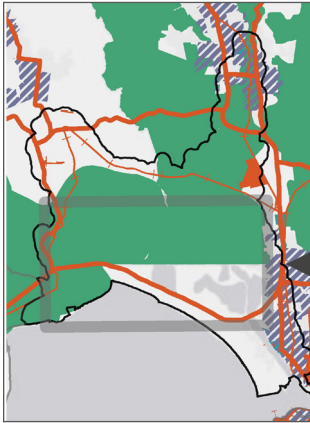
Flooding impacts largely in the employment zoned area mean employment and jobs may be most impacted by flooding in this area. As new development plans move forward to create a re-vitalized downtown with increasing mixed-use development, including residential and commercial uses, this could impact the economy if development plans proceed without taking sea level rise into consideration.

Flooding of maritime industrial parcels on Mare Island will disrupt local job opportunities and eliminate one of the few dry-docking facilities on the Bay.

Environment • The high concentration of toxic sites along the Mare Island Strait means flooding here will have negative impacts on the environment and public health.



Focus Area B: *SR-37 Corridor and The Sonoma Baylands*



Location

The SR-37 Corridor Focus Area spans from Mare Island in the east to Sears Point in the west along San Pablo Bay, including the Sonoma Baylands PCA (Figure 12c).

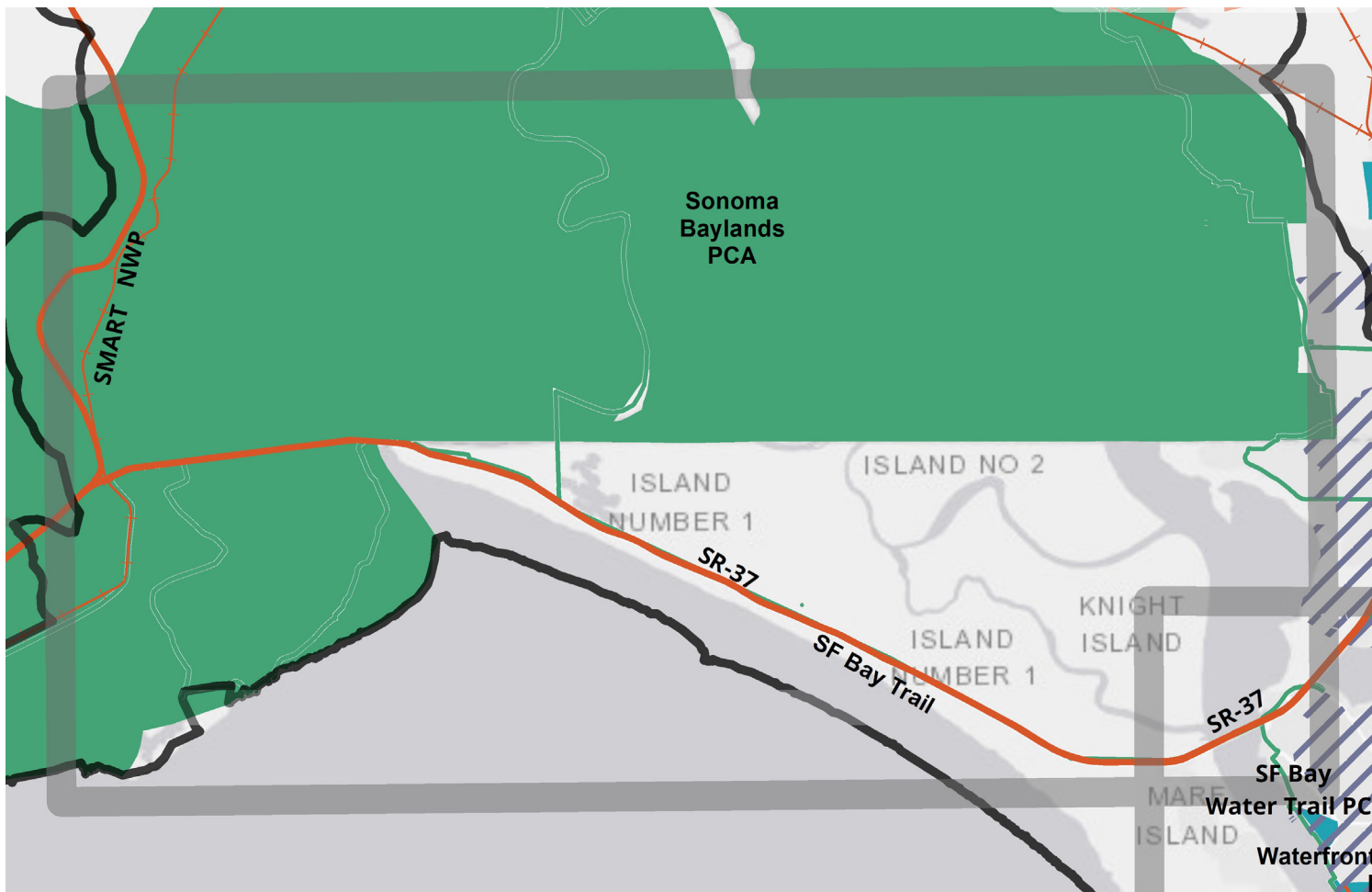


Figure 12c. Top: Identification of where Focus Area is within OLU. Bottom: Map of Focus Area containing regional systems. Individual assets assessed in this Focus Area are labeled on the map and listed on the following page.

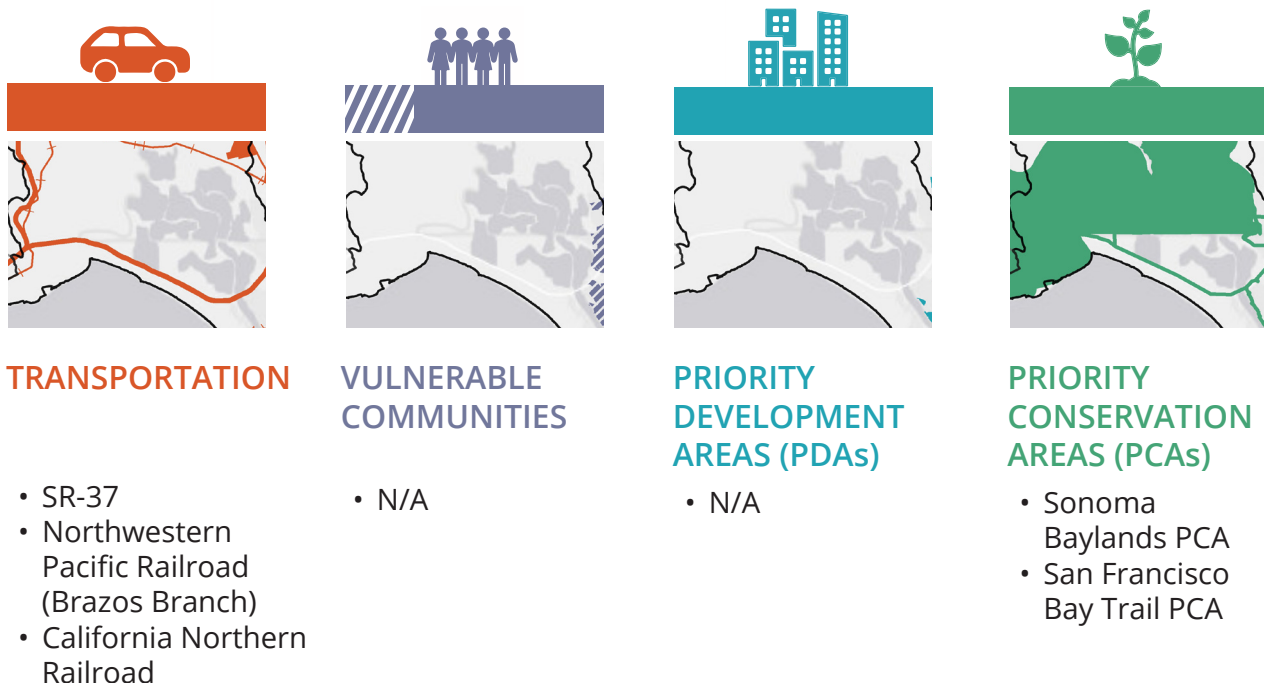


Sonoma Baylands. Map data ©2019 by Google.

Why shared stories of vulnerability?

This Focus Area was selected because it contains a variety of regional systems, including transportation assets such as SR-37, California Northern Railroad Northern Pacific Railroad, San Francisco Bay Trail and the Sonoma Baylands PCAs. 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. The goal of communicating shared vulnerabilities and consequences is to encourage multi-benefit solutions through collaborations and coordination.

Figure 12c. MAP OF REGIONAL SYSTEMS AND LIST OF INDIVIDUAL ASSETS ASSESSED WITHIN THIS FOCUS AREA LISTED BELOW:



Shoreline today and into the future

SHORELINE TYPE STORY

What is the shoreline made up of now?

The shoreline in this area is primarily characterized by the Sonoma Baylands wetlands, which form the first line of defense along much of the SR-37 corridor. There are currently a series of levees providing flood protection to SR-37 along Sonoma Creek, Tolay Creek, and the Napa River. The highway itself and some low-lying berms form the second line of defense. Finally, the breakwater extending west from Mare Island provides some level of flood protection for eastern segments of SR-37.

SHORELINE DEVELOPMENT STORY

How will the shoreline change in the future?

Major planning efforts are underway to address the existing congestion and flooding issues facing the corridor.³² Changes to the SR-37 corridor will have consequences for the shoreline in this Focus Area. Additionally, recent and planned restoration efforts at Sears Point, Napa Sonoma Marshes Wildlife Area, Cullinan Ranch, and Skaggs Island may have impacts on the shoreline.³³



Sonoma Baylands. Photo by BCDC staff.

Current and future flooding risk

OVERTOPPING STORY

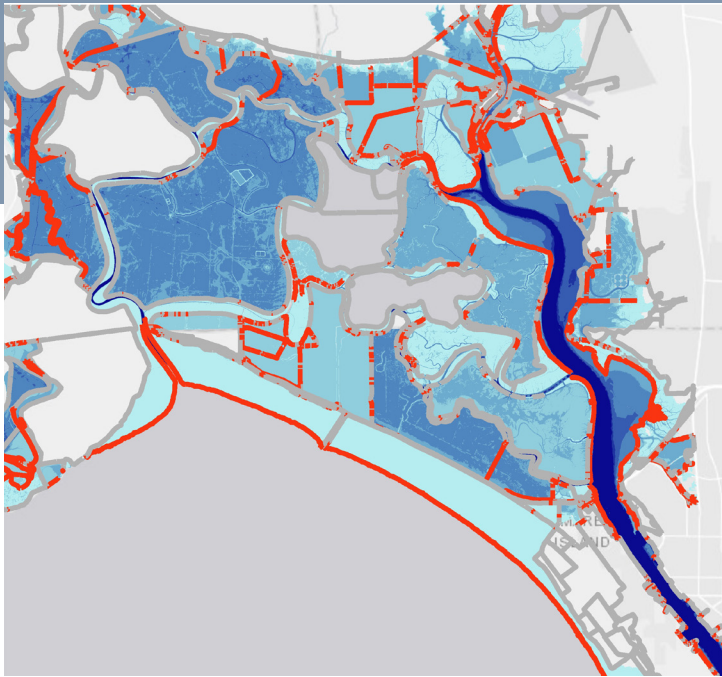
Where is water coming over the shoreline?

From west to east, overtopping begins at 12" TWL between the Petaluma River and Tolay Creek, with most overtopping coming from the Bay (Figure 13c). There is also limited overtopping along the west banks of Tolay Creek. Between Tolay Creek and Sonoma Creek, there is no overtopping until 36" TWL. East of Sonoma Creek, there is limited overtopping along Napa Creek at 12" TWL as well as significant overtopping from the Napa River, impacting Russ Island, Knight Island and surrounding wetlands.

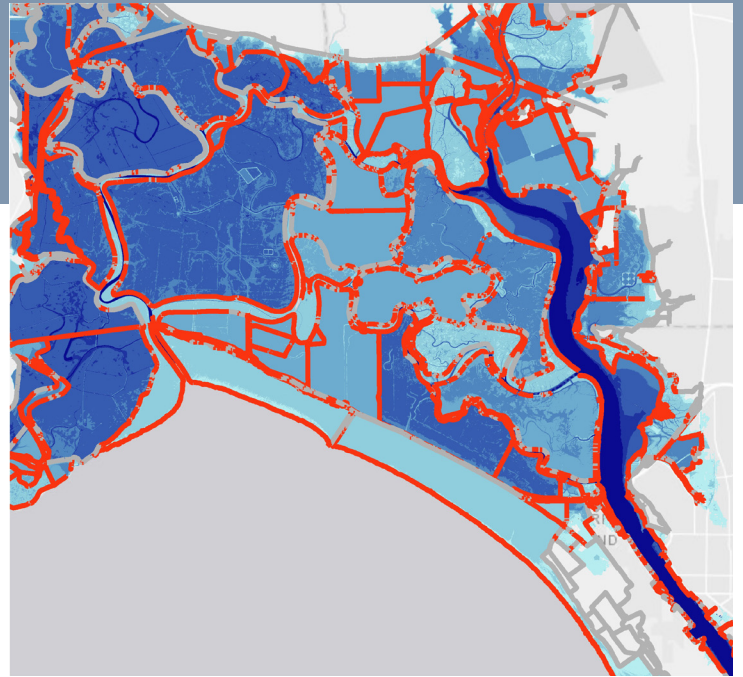
FLOODING EXPOSURE STORY

Where does flooding occur?

At 12" TWL, Island Number 1, Island Number 2, and Russ Island become inundated. At 24" TWL, flooding occurs at Skaggs Island and a segment off the Northern Pacific Railroad track near Tolay Creek. At 24" TWL, flooding also occurs on SR-37 near Guadalcanal Village and also impacts a segment of Bay Trail. At 36" TWL, significant segments of SR-37 near Tolay Creek are flooded as well as Tubbs Island. At 48" TWL, all low-lying areas in the Sonoma Baylands are flooded. At 66" TWL, all of SR-37 is flooded (Table 3c).



24" TWL



48" TWL

OVERTOPPING AND FLOODING ▲

Figure 13c. 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.

- No overtopping
- Overtopping
- Shallower depth of flooding
- Deeper depth of flooding

FIRST FLOODING OF REGIONAL SYSTEMS ASSESSED

Regional Systems Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
Sonoma Baylands PCA										
San Francisco Bay Trail PCA										
California Northern Railroad										
Northwestern Pacific Railroad										
SR-37										

Table 3c. 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. Complex Governance

There are large restoration and transportation projects planned in this area to address congestion and flooding issues, improve wildlife habitat, and improve recreational access. The complexity of these large projects, number of stakeholders, and coordination with transportation planners, private landowners, and public agencies exacerbates flood control planning challenges.



2. Regional Transportation

SR-37 passes through tidal marsh, lacks redundancy for moving people and goods from Solano to Marin County and the rest of the region, and does not accommodate public transit, bike, or pedestrian travel. The corridor already experiences congestion and flooding issues and is directly at risk from sea level rise. The railroad line represents an opportunity for improving regional transportation alternatives, but also a barrier to the tidal marsh connectivity. Existing flood control is ad-hoc and uncoordinated, including aging agricultural levees, diked baylands, and a breakwater. Access to SR-37 relies on on-ramp and ground transportation connections which are also vulnerable to flooding outside this Focus Area. Adaptation projects for SR-37 are complicated by coordination with multiple stakeholders and regulations for development in sensitive marsh habitat.



3. Ecosystem Services

Tidal marsh and wetlands in the Sonoma Baylands represent an incredible resource for ecosystem services for the region and hemisphere, including endangered species wildlife habitat, flood protection, fisheries, and carbon sequestration. Additionally, there has already been significant investment in tidal marsh restoration which could be lost, along with their flood control services, as these ecosystem services are directly vulnerable to sea level rise. Transportation infrastructure including the SR-37 and the railroad represent barriers to connectivity between tidal marsh and the Bay. Any flood control strategies in this sensitive tidal marsh will also experience a complex regulatory landscape.

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 • Lower income workers, living in Solano (where it is more affordable) and commuting to Marin and Sonoma will be most impacted by flooding issues on SR-37.



Economy • Disruption of heavy rail service in the area will cause economic disruption and increase the number of truck loads on already congested highways. Disruption of SR-37 will severely impact commuter travel from Sonoma/Napa counties to jobs in Marin and San Francisco counties due to lack of alternatives. Flooding of the existing rail alignment being considered for service extension by SMART will limit the creation of alternative transportation options through the corridor.



Environment • More frequent flooding or permanent inundation of key tidal marsh habitat areas in the Sonoma Baylands due to sea level rise and subsidence will negatively impact threatened and endangered species, and will vastly reduce the ecosystem functions and benefits marshes provide, including wave attenuation and storm buffering, water filtration, nursery and rearing grounds for commercially important species such as Dungeness crab and salmonids. Conversion of marshes to mudflats or open bay due to rising sea levels may alternatively benefit migratory waterfowl and shorebirds.

Area of Impact C: *South Napa*



Location

This Area of Impact is located south of the City of Napa, bounded by Imola Ave/SR-121 to the north and the Napa Vallejo Highway (SR-221) to the east (Figure 14c).

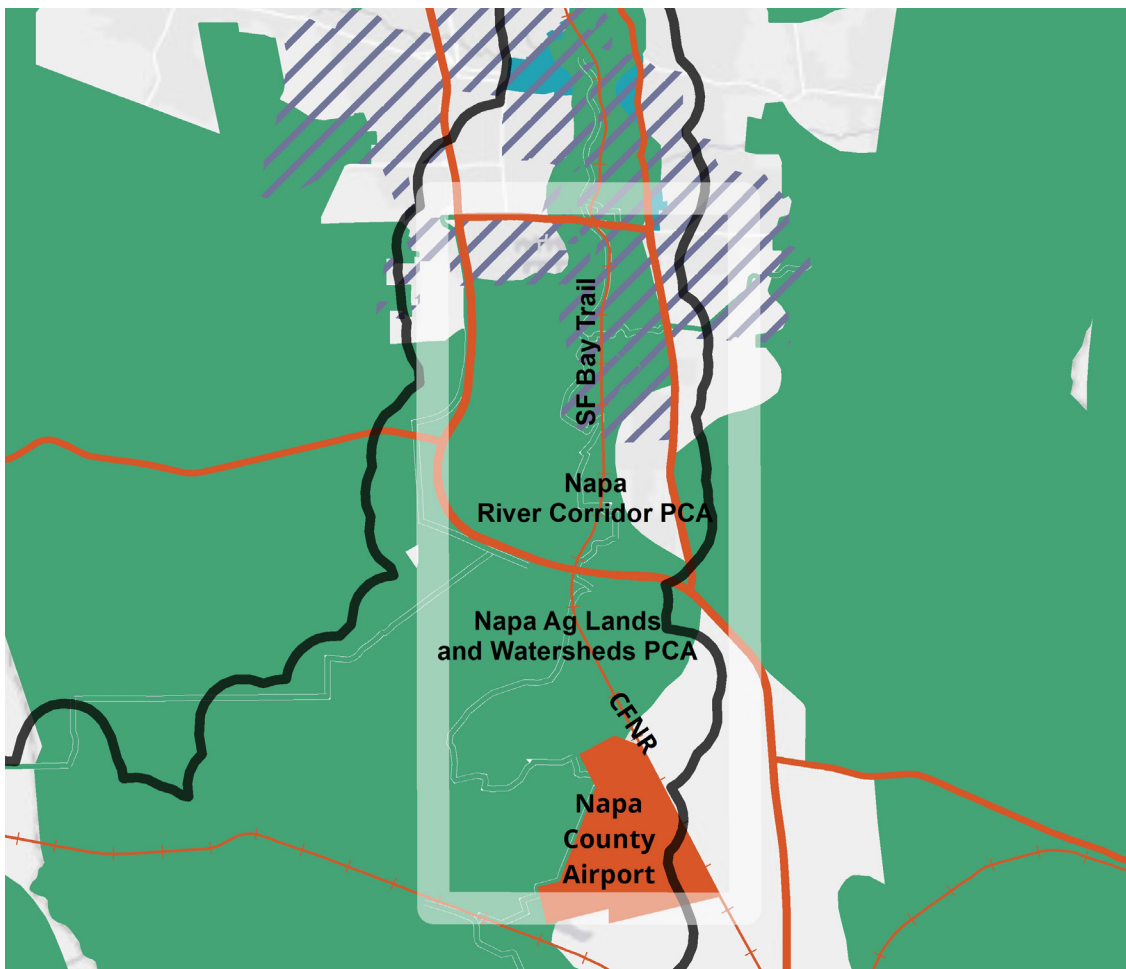


Figure 14c. Top: Identification of where Area of Impact is within OLU. Bottom: Map of Area of Impact containing regional systems. Individual assets assessed in this focus area are labeled on the map and listed on the following page.

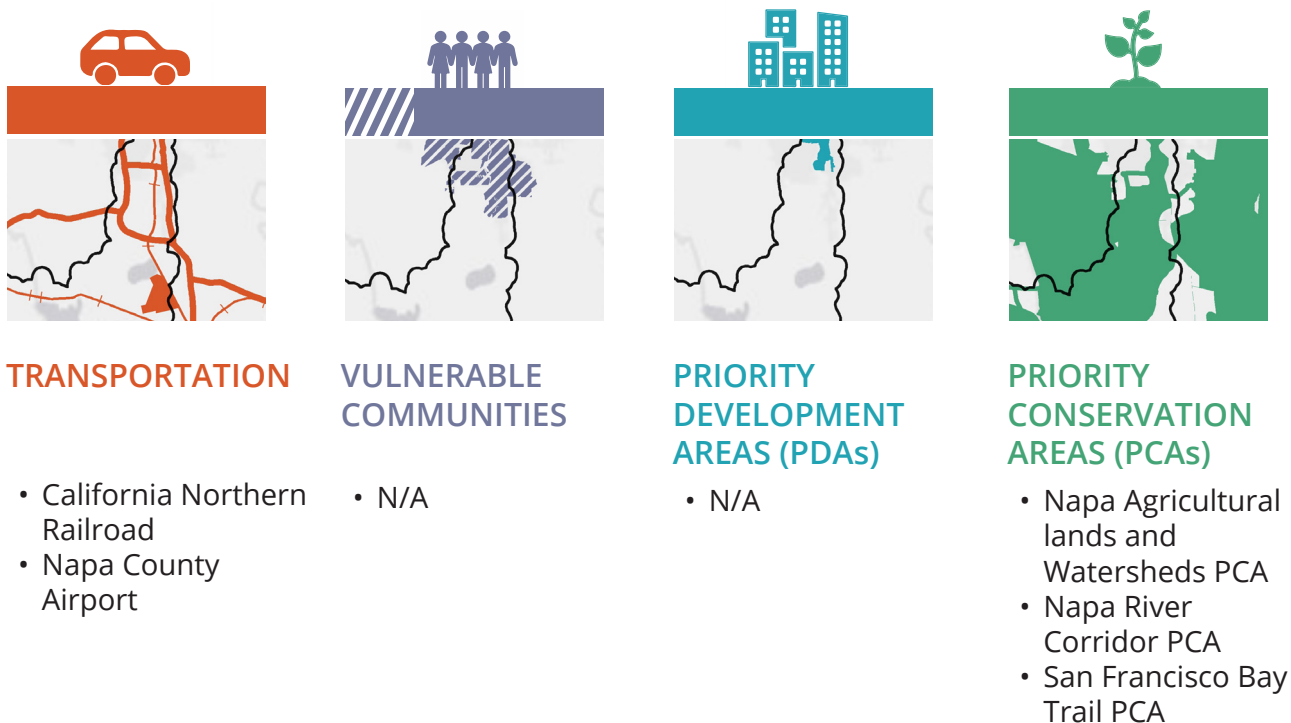


South Napa. Map data ©2019 by Google.

Why shared stories of vulnerability?

This Area of Impact was selected because it contains a variety of regional systems, including transportation assets such as the California Northern Railroad and Napa County Airport, Napa Agricultural Lands and Watersheds, Napa River Corridor, and San Francisco Bay Trail PCAs. 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. The goal of communicating shared vulnerabilities and consequences is to encourage multi-benefit solutions through collaborations and coordination.

Figure 14c. MAP OF REGIONAL SYSTEMS AND LIST OF INDIVIDUAL ASSETS ASSESSED WITHIN THIS AREA OF IMPACT LISTED BELOW:



Shoreline today and into the future

SHORELINE TYPE STORY

What is the shoreline made up of now?

The primary shoreline type is wetland or berm along much of the Napa River. Several channels off the river are characterized as embankments, including those protecting the Napa County airport. The railroad alignment forms a secondary shoreline near W. Imola Avenue.³⁴

SHORELINE DEVELOPMENT STORY

How will the shoreline change in the future?

There is no data indicating any future shoreline changes at the time of publication.



Bridges over Napa River in Downtown Napa. Photo by WineCountry Media is licensed under CC BY 2.0

Current and future flooding risk

OVERTOPPING STORY

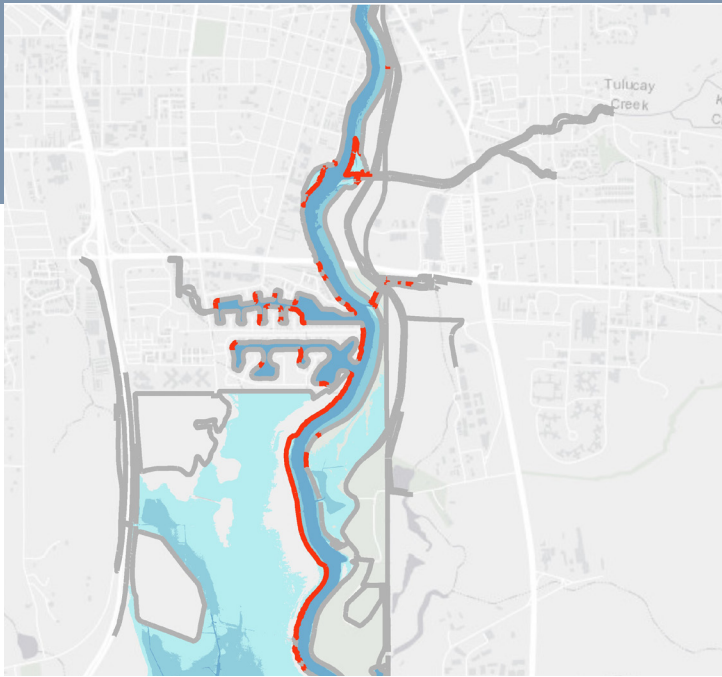
Where is water coming over the shoreline?

At 12" TWL, wetlands along the Napa river are overtopped (Figure 15c). At 24" TWL, berms primarily west of the river begin to be overtopped. At 36" TWL, the railroad near W. Imola Avenue overtops as well as embankments and berms surrounding the airport.

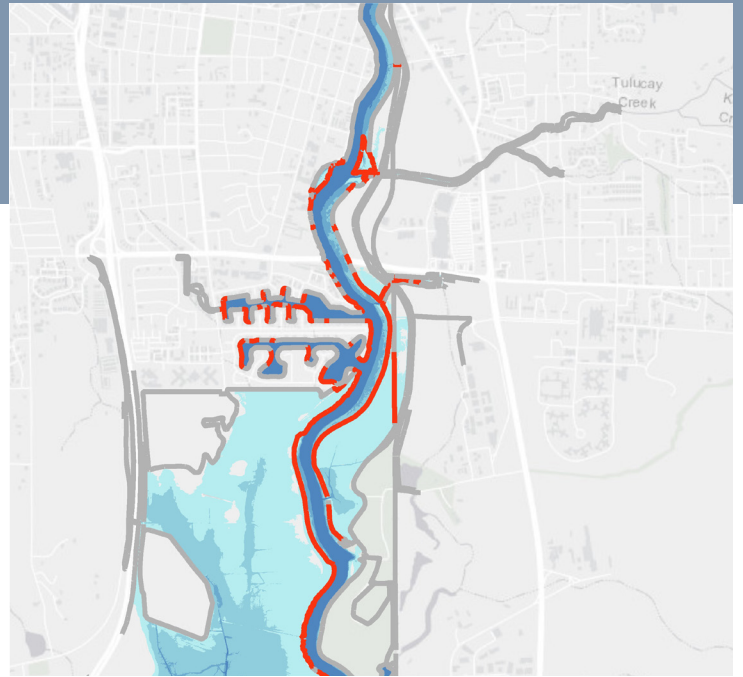
FLOODING EXPOSURE STORY

Where does flooding occur?

At 12" TWL, the Napa River Corridor PCA floods, including salt ponds, wetlands, farmland, and Kennedy Park. At 24" TWL, some segments of the California Northern Railroad are exposed just south of SR-29 as well as pedestrian access to the Napa River via the Bay Trail (Table 4c). At 36" TWL, additional segments of the railroad near W. Imola Avenue are exposed. At 48" TWL, flooding begins to impact the southernmost runway of the Napa County airport. At 77" TWL, all Napa County Airport runways are exposed to flooding.



12" TWL



24" TWL

OVERTOPPING AND FLOODING ▲

Figure 15c. 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.

- No overtopping
- Overtopping
- Shallower depth of flooding
- Deeper depth of flooding

FIRST FLOODING OF REGIONAL SYSTEMS ASSESSED

Regional Systems Impacted	12"	24"	36"	48"	52"	66"	77"	84"	96"	108"
Napa River Corridor PCA										
Napa County Agricultural Lands PCA										
San Francisco Bay Trail PCA										
California Northern Railroad										
Napa County Airport										

Table 4c. 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. Agriculture

Flooding of agricultural lands in this area will directly impact wildlife habitat, the local economy, and recreational opportunities. The agricultural function of these lands is also dependent on railroad connections to carry goods which are also vulnerable to flooding. There is a lack of information available to understand the extent and impact of saltwater intrusion on the cultivation of agricultural products grown in this area.

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 Napa River Corridor has some of the highest visitation rates within the PCA network. Open space provides low cost recreation for communities, which may bear a disproportionate impact from closure of these areas.



Economy • Flooding of key tourist-serving facilities including the Napa County airport and Napa River Corridor have a potential to impact the regional economy. Flooding of key agricultural assets, including farmland and the California Northern Railroad may impact the Napa Valley's ability to grow and transport agricultural goods.



Environment • Early flooding of the Napa Agricultural Lands PCA may impact habitat quality for endangered and threatened species observed within its boundaries.

Advancing adaptation solutions

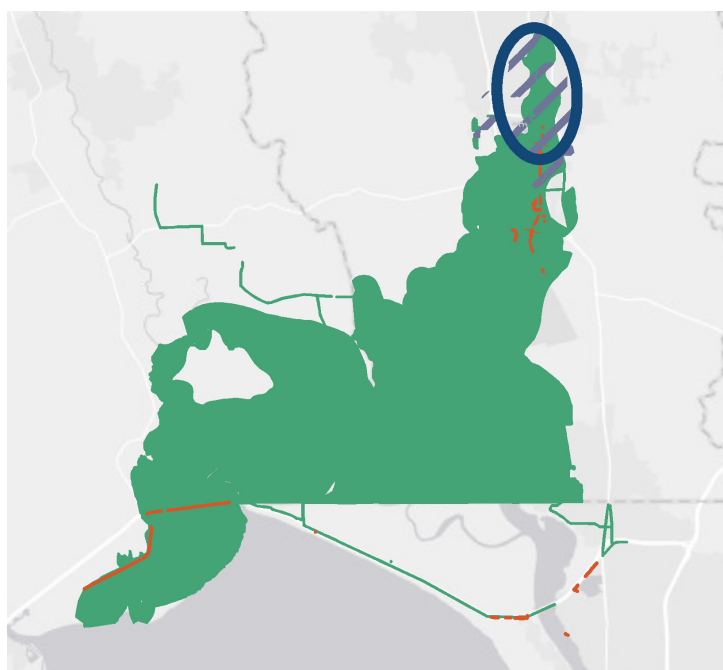
FITTING INTO REGIONAL STORY

How are local areas contributing to 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 36” TWL



- Regional Hot Spot
- Transportation Infrastructure
- Vulnerable Community
- PDA
- PCA

Figure 16c. Napa Hot Spot: From 36” TWL to 108” TWL, this Area of Impact contains clusters of assets that have among the highest consequences of flooding in the region.

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

It becomes a Regional Hot Spot starting at 36” TWL and continues to 108” TWL (Figure 16c).

The Napa cluster is driven by impacts to depressional wetlands, ridgway's rail habitat, snowy plover habitat, tidal marsh habitat, salt marsh harvest mouse habitat, agricultural lands, groundwater recharge and stormwater infiltration, and visitation in the Napa Valley-Napa River Corridor and Napa County Agricultural Lands and Waterways PCAs as well as a Regional Bicycle Network segment, along with socially vulnerable block groups.

Chapter 4 Regional Adaptation provides adaptation responses for regional issues.



Buildings along the Napa River in Downtown Napa. Photo by WineCountry Media is licensed under CC BY 2.0

Endnotes

- 1 "San Pablo Bay Wetlands," Audubon, September 12, 2016, <https://www.audubon.org/important-bird-areas/san-pablo-bay-wetlands>.
- 2 Beth Huning, "Active Wetland Habitat Projects of the San Francisco Bay Joint Venture," Fact Sheet (San Francisco Bay Joint Ventures, San Francisco Estuary Institute, 2017), <https://www.sfbayjv.org/pdf/SFBJV%20Factsheet%20020117.pdf>.
- 3 Fehr Peers, "SR37 Travel Behavior Transit Feasibility Study," 2019, https://sta.ca.gov/wp-content/uploads/2019/05/SR37_Travel_Behavior_Transit_Feasibility_5-3-2019.pdf.
- 4 "SR 37 Transportation and Sea Level Rise Corridor Improvement Plan" (Kimly Horn, AECOM for MTC, February 2018), <https://mtc.ca.gov/sites/default/files/SR-37-Corridor-Plan-with-appendix.pdf>.
- 5 Caltrans, "2016 Vehicle Volumes (AADT)."
- 6 Caltrans, "2016 Truck Volumes (AADTT)."
- 7 "Highway 37," accessed August 28, 2019, <https://scta.ca.gov/projects/highway37/>.
- 8 "Lifeline Routes."
- 9 "Ferry Ridership Exploding, Especially in Vallejo," Times-Herald (blog), March 14, 2018, <http://www.timesheraldonline.com/general-news/20180314/ferry-ridership-exploding-especially-in-vallejo>.
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