

Look Out Below Report Briefing:

Groundwater Rise,
Combined Flood Risk,
Community Action,
and Next Steps

 SPUR CASE STUDY
MAY 2024

Look Out Below

Groundwater rise
impacts on East
Palo Alto — A case
study for equitable
adaptation



Who are we?

SPUR is an urban planning & public policy organization





Planning

We Believe: Growth can be good and should be directed to areas that will support equitable development and sustainability.

[Read More >](#)



Housing

We Believe: Housing is a human right and should be affordable to everyone.

[Read More >](#)



Transportation

We believe: Walking, biking, and taking transit should be the safest and best ways to get around for people of all ages and abilities.

[Read More >](#)



Good Government

We believe: The public sector can and should serve the collective good.

[Read More >](#)



Sustainability and Resilience

We believe: The region should be environmentally just, carbon-neutral, and resilient to climate change and earthquakes.

[Read More >](#)



Economic Justice

We believe: Prosperity is essential to a thriving region and should be planned for, supported, and shared so that all people can participate in and benefit from economic growth.

[Read More >](#)



Our Mission

Through research, education and advocacy, SPUR works to create an equitable, sustainable and prosperous region in which all people thrive.



Who's in the room?

Look Out Below

*Groundwater rise impacts on
East Palo Alto
– A case study for equitable adaptation*

Look Out Below

Groundwater rise
impacts on East
Palo Alto — A case
study for equitable
adaptation

Research questions:

How will groundwater rise impact flood risk in low-lying communities? How will it specifically impact East Palo Alto?

What is the biggest concern for community members?

What can be done? What can community leaders and city leaders do?

How do we communicate these risks to community members?

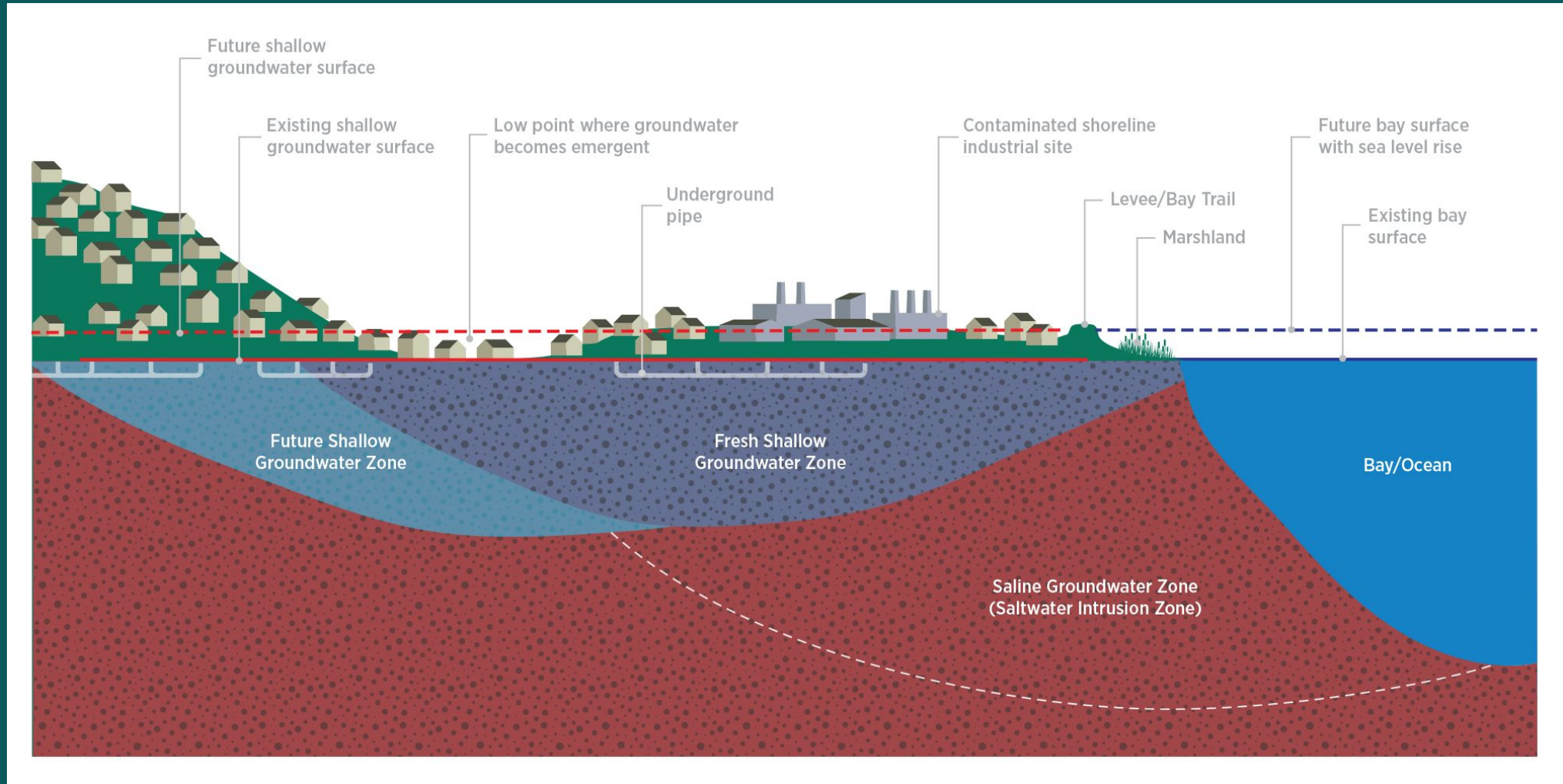
Report Contents:

East Palo Alto: A Community Surrounded by Water

Shallow Groundwater Impacts on East Palo Alto

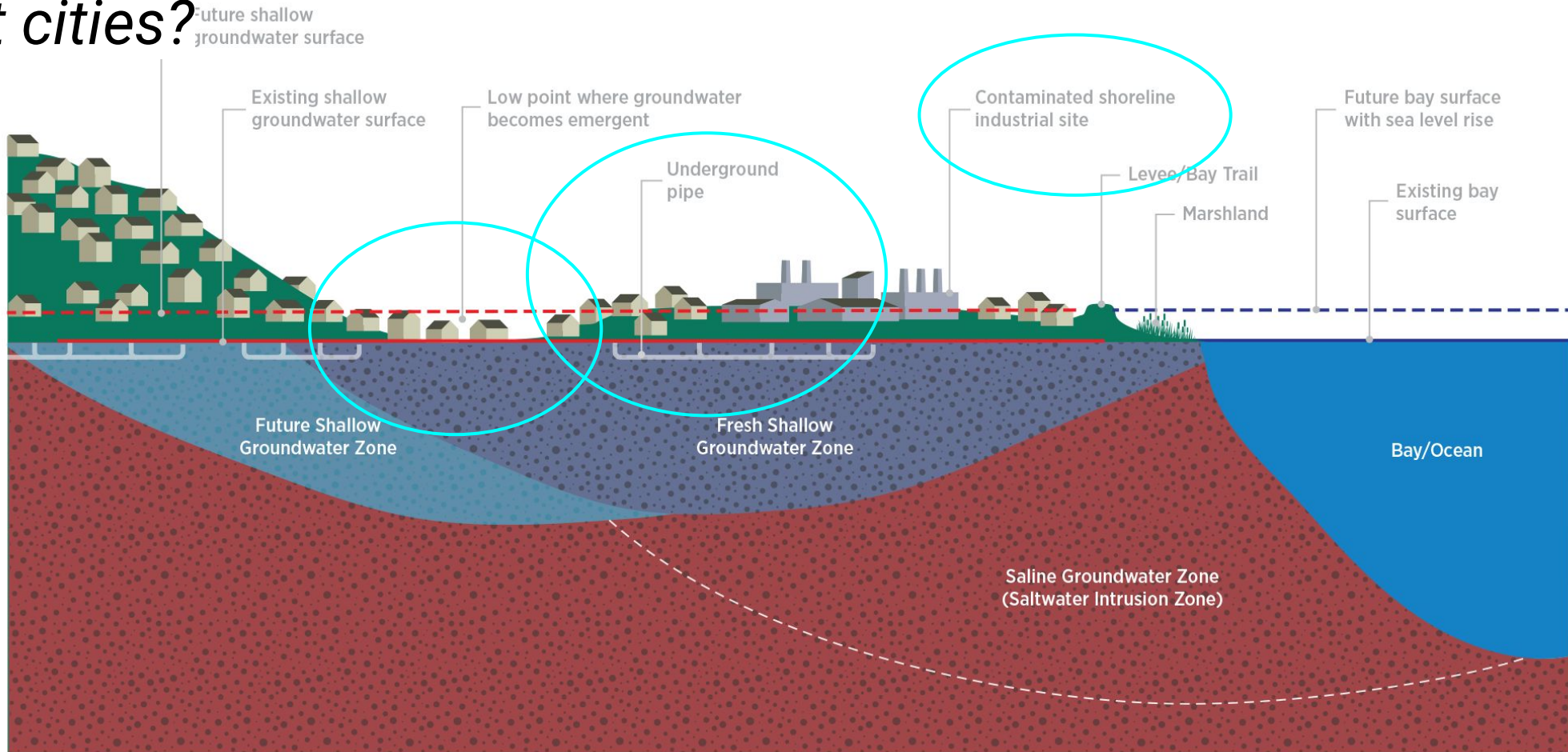
Recommendations

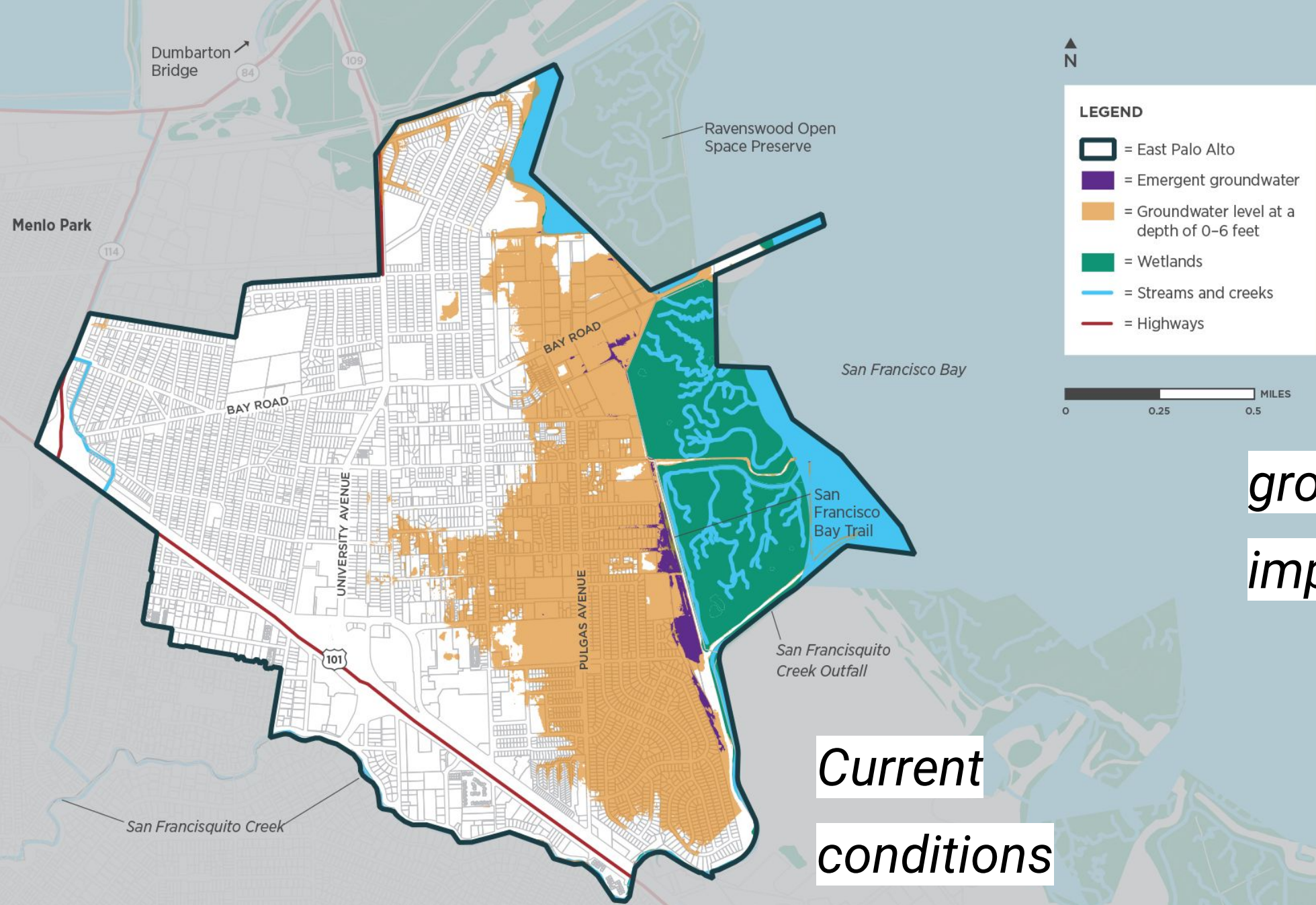
What is groundwater rise?



How will groundwater rise

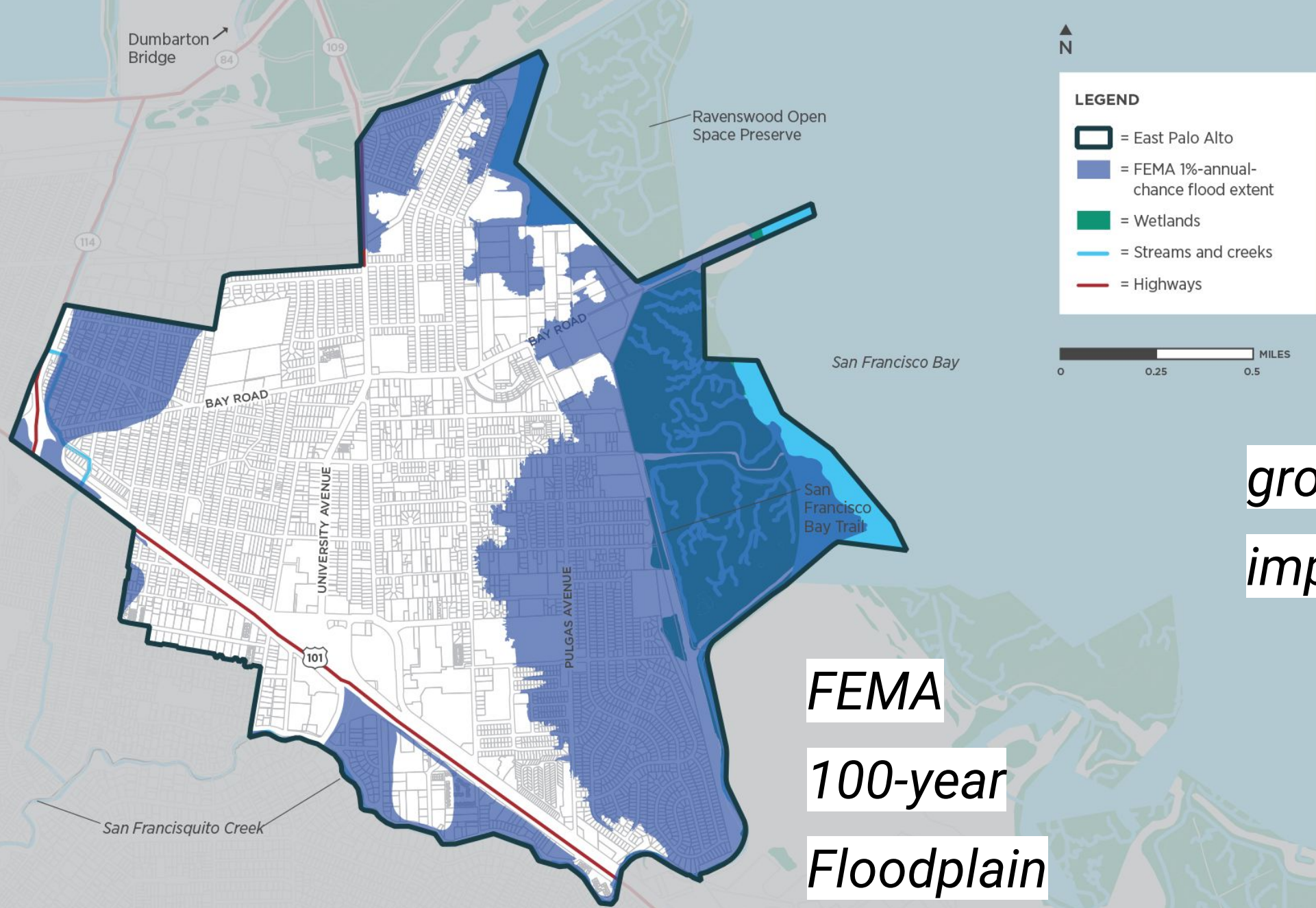
impact cities?





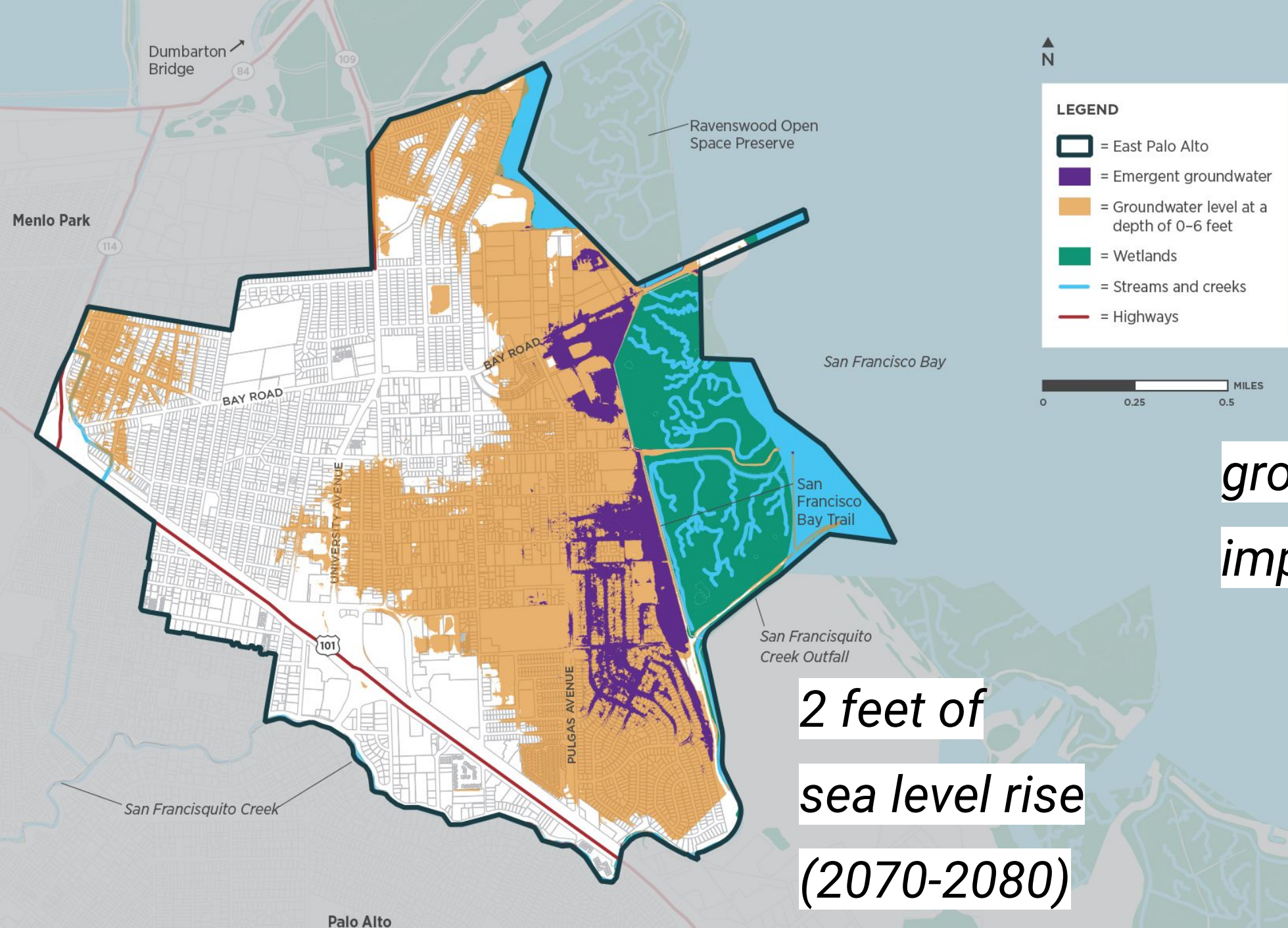
*How will
groundwater rise
impact East Palo
Alto?*

*Current
conditions*



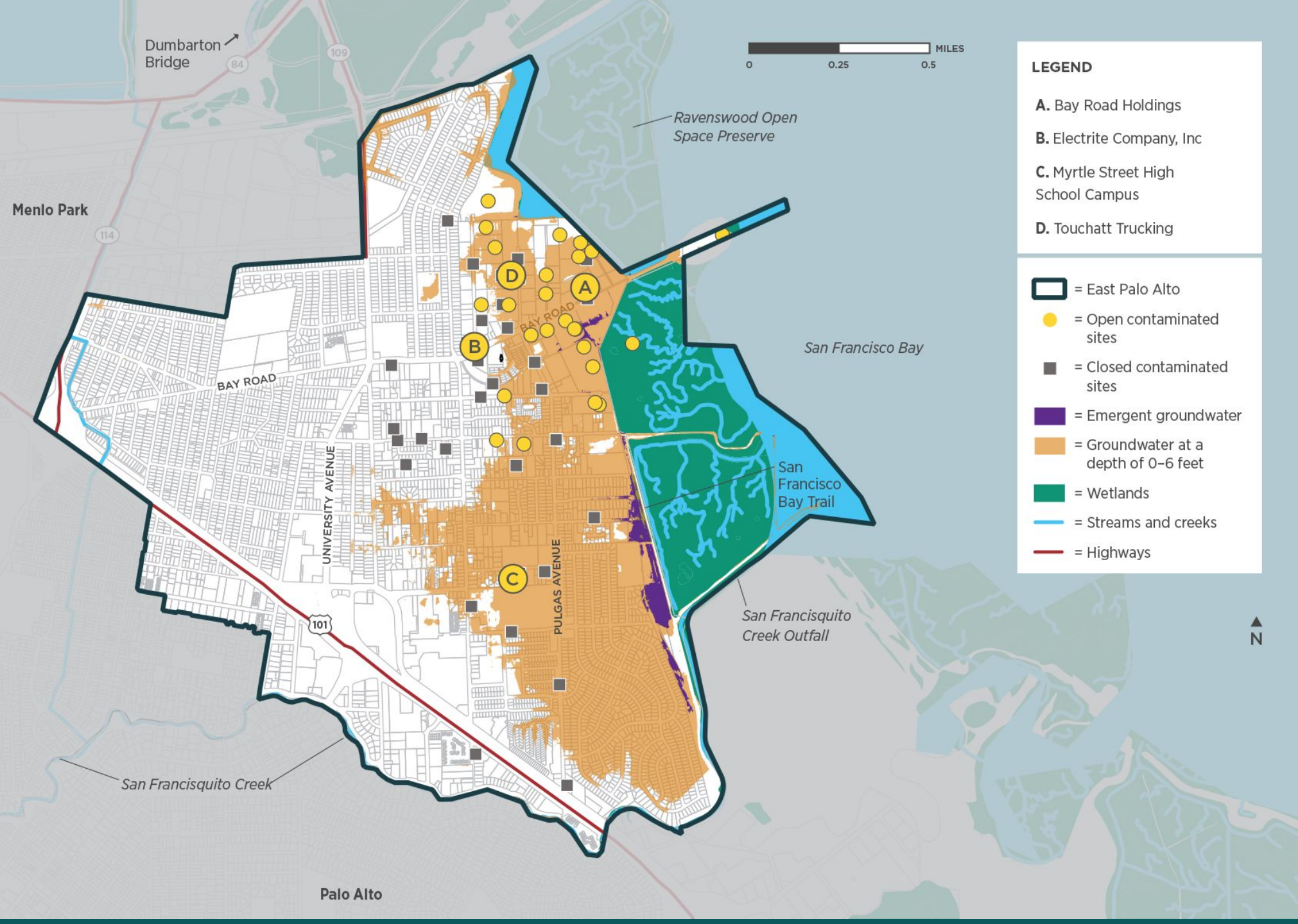
How will
groundwater rise
impact East Palo
Alto?

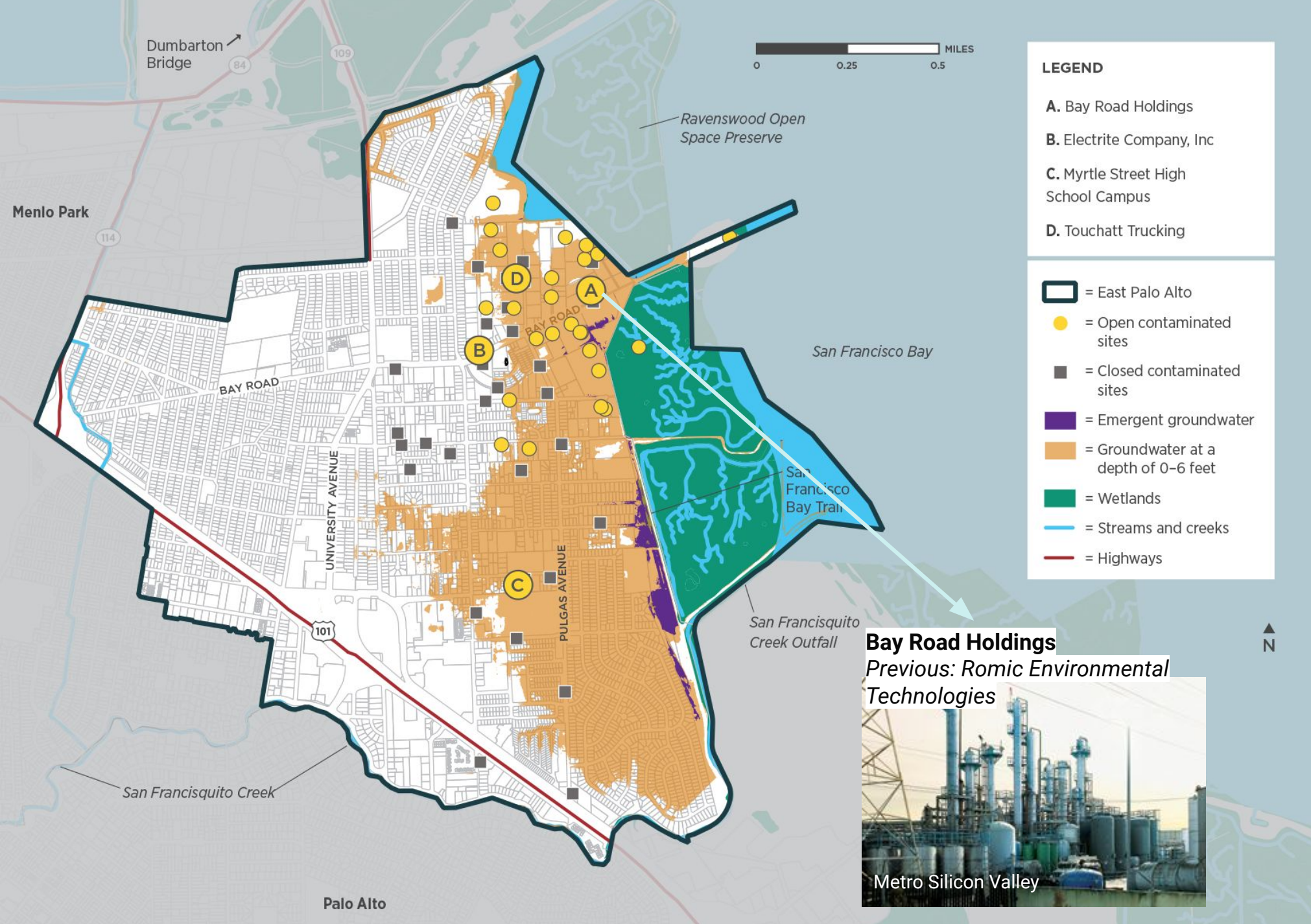
FEMA
100-year
Floodplain



How will
groundwater rise
impact East Palo
Alto?

2 feet of
sea level rise
(2070-2080)





Bay Road Holdings
 Lead Agency: US EPA
 RCRA

Current use: Vacant with development plans BUT land use restrictions in place

Contaminants: **Volatile organic compounds (VOCs)**, Total petroleum hydrocarbons (TPHs), polychlorinated biphenyls (PCBs), metals including lead and mercury, organochlorine pesticides (OCPs), etc.

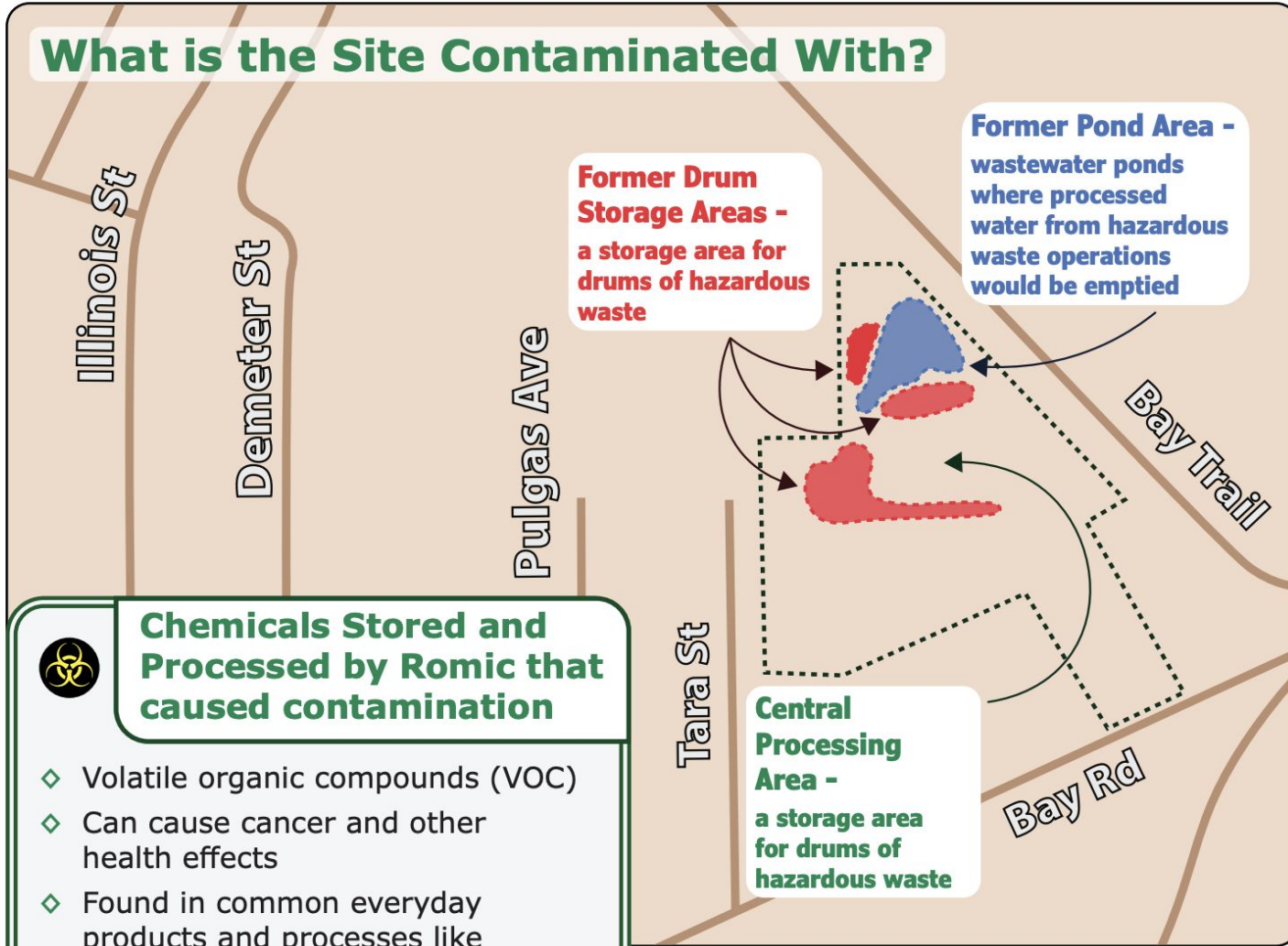
Sitewide groundwater contamination to a depth of 80 feet

Previous use: Hazardous waste facility

Remediation: Biological remediation



What is the Site Contaminated With?



Chemicals Stored and Processed by Romic that caused contamination

- ◇ Volatile organic compounds (VOC)
- ◇ Can cause cancer and other health effects
- ◇ Found in common everyday products and processes like dry cleaning

Figure 1: This figure shows the boundaries of the site in East Palo Alto, California.

Step 5 - Natural bacteria breaks down the VOCs into less toxic "end products" like ethane and carbon dioxide

Step 1 - Extracts groundwater

Enhanced Biological Treatment Process

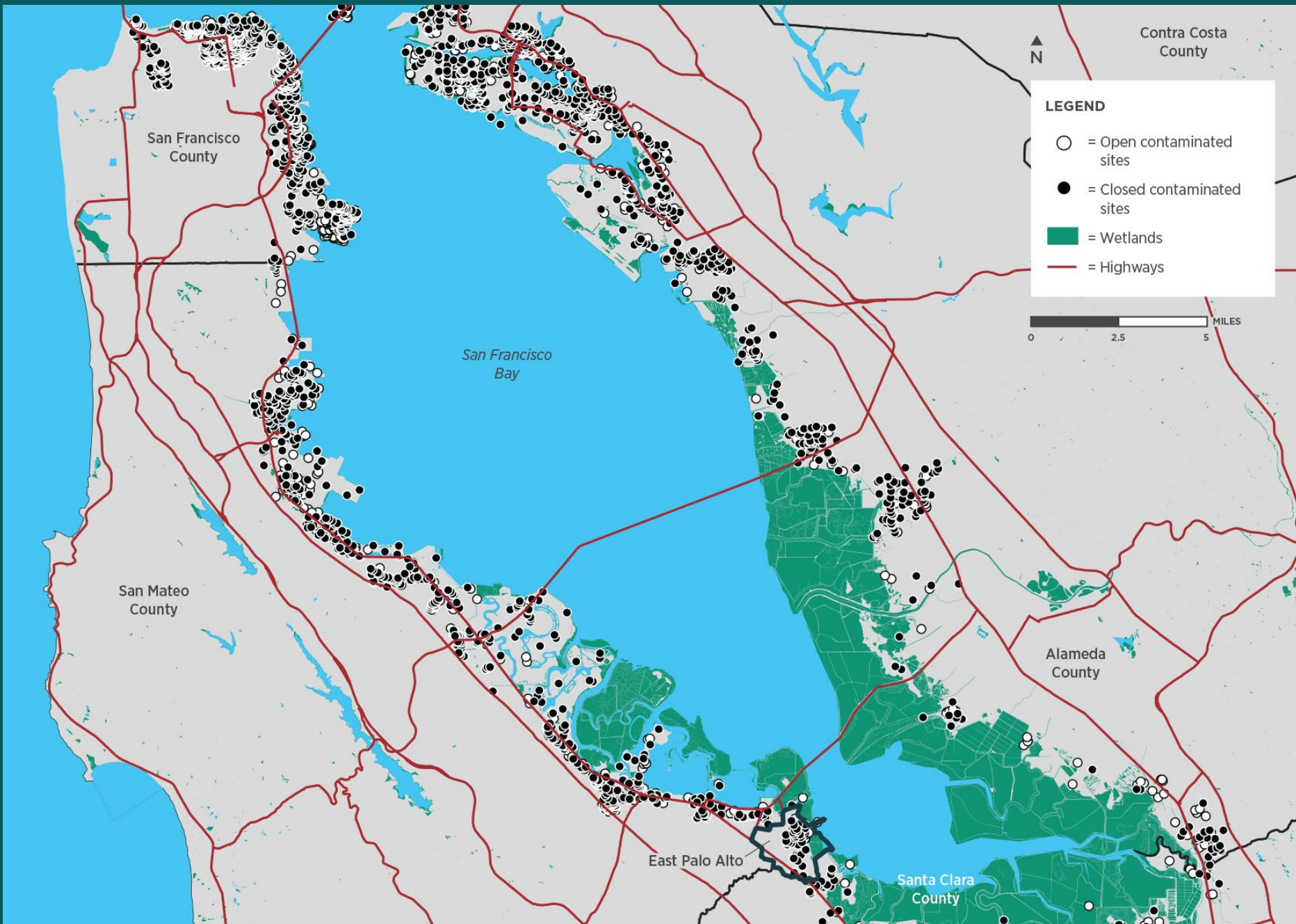
Step 4 - Nutrients feed natural bacteria

Step 2 - Adds food-based nutrients

Step 3 - Reinjects groundwater to distribute nutrients into the ground

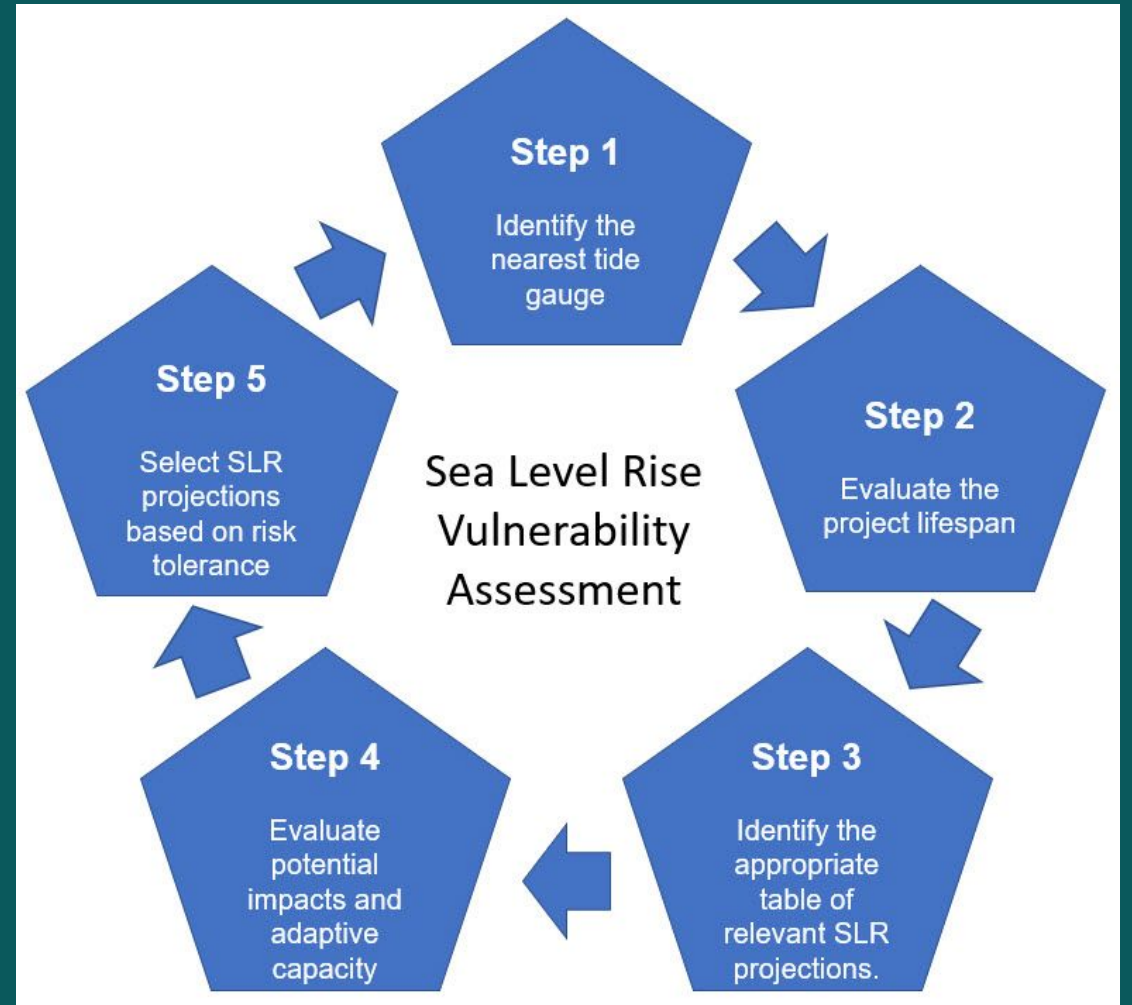
Figure 2: Enhanced biological treatment process. See figure 3 below for diagram of this process.

Bayshore Contaminated Sites



DTSC requires a SLR vulnerability assessment (SLRVA) be conducted at each stage of the remediation process to specifically evaluate the resilience of the wastes and remedy at the site to future SLR impacts.

Sea Level Rise Guidance
to DTSC Project Managers
for Cleanup Activities



Recommendations

Recommendation 1

Require all city plans and infrastructure projects to assess the risks of groundwater rise and compound flooding.

Recommendation 2

Consider adopting Shallow Groundwater Rise Overlay Districts, which specify design and retrofit requirements for underground infrastructure, roadways, and new shoreline development in high-hazard areas.

Recommendation 3

In partnership with impacted communities, update guidance for remediation requirements of shoreline sites to incorporate risks of contaminant mobilization from groundwater and sea level rise.

Recommendation 4

Update sea level rise and flood maps to reflect shallow groundwater rise so that relevant agencies can begin planning processes to address it.

Recommendation 5

Pursue a variety of innovative funding mechanisms to support groundwater rise research, adaptation planning, and implementation projects.

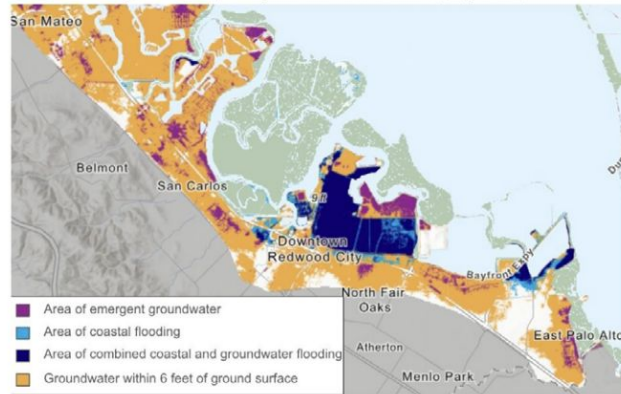
NOTICIAS

The California Ocean Protection Council estimates that sea level in the San Francisco Bay Area could rise by about **1 foot to 2 feet by the year 2060** (under intermediate to “worst case” climate change scenarios).

At **2-feet of sea level rise**, low-lying areas of Belle Haven, East Palo Alto (east of Pulgas Avenue), and Redwood City (a quarter mile of the Bayshore east of Highway 101) will likely experience consistent flooding from groundwater if no adaptation actions are taken. The map shows where this flooding would occur under this scenario.

Groundwater & Coastal Flooding with 2 Feet of Sea-Level Rise

Map of groundwater levels under 2 feet of sea level rise scenario. **Dark blue, purple, and light blue show areas of flooding due to sea level and groundwater rise. Emergent groundwater (purple) refers to groundwater levels that are above ground (i.e. pooling on roads or other low-lying areas).**



*Source: Screenshot taken from Pathways Climate Institute & San Francisco Estuary Institute (2022) web-based maps.

Nuestra Casa is monitoring groundwater rise and its impact on our community. With your support, we will be educating and working with our local policymakers to determine effective adaptation solutions.

Some ways you can take action now:

- Join our Environmental Justice Academy
- Share this Noticia with your family and friends
- Contact environmentaljustice@nuestracasa.org for more information

HOW CAN I GET INVOLVED?

INVOLÚCRATE Y MANTENTE INFORMADO

FOR MORE INFORMATION:
environmentaljustice@nuestracasa.org



VISIT NUESTRA CASA'S WATER JUSTICE WEBSITE

NOTICIAS

¿QUÉ ES EL AUMENTO DEL NIVEL DE LAS AGUAS SUBTERRÁNEAS SUPERFICIALES?

Las aguas subterráneas superficiales son agua de lluvia que se almacena en suelos cerca de la superficie terrestre. A medida que el nivel del mar sube, el agua salada de la bahía migra hacia adentro, empujando el agua subterránea hacia la superficie. No sabemos todo acerca de cómo esto nos afectará ahora y en el futuro. Sin embargo, sabemos que las inundaciones serán más frecuentes de lo que se pensaba anteriormente debido al cambio climático, y esto impactará tanto en la infraestructura como en la salud pública.

¿CÓMO AFECTARÁ EL AUMENTO DEL NIVEL DE LAS AGUAS SUBTERRÁNEAS A MI COMUNIDAD?

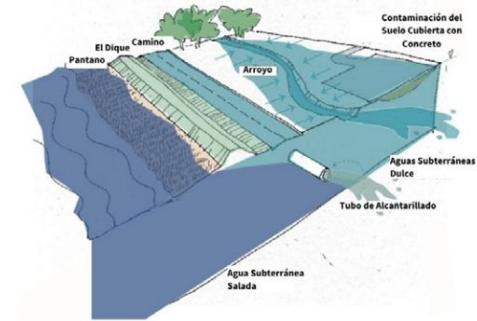
El aumento del nivel freático probablemente llevará a diversos impactos en comunidades de baja altitud a lo largo de la costa de la Bahía de San Francisco. Los impactos pueden incluir:

- **Aumento de las inundaciones durante los inviernos húmedos**, lo que podría dificultar en moverse y el acceso a servicios en partes de East Palo Alto, Belle Haven y Redwood City.
- **Desbordamientos más frecuentes de aguas pluviales y aguas residuales**. Los tubos de drenaje de lluvia y aguas residuales no pueden manejar los niveles altos del agua subterránea, especialmente durante eventos de lluvia intensa. Los desbordamientos pueden afectar la salud pública y la salud del ecosistema de la Bahía.
- **Daños en los cimientos de edificios y viviendas**. Los cimientos de los edificios se desgastan más rápido si están regularmente en contacto con agua salada. Reparar los cimientos puede ser costoso para los propietarios.
- **Corrosión de carreteras e infraestructura subterránea como tuberías de agua potable**. Es posible que sea necesario mejorar la infraestructura para protegerse

contra la infiltración del agua subterránea y la corrosión provocada por el aumento del nivel freático. Las mejoras en la infraestructura son costosas y los costos podrían trasladarse a los clientes locales si la ciudad, el estado o el gobierno federal no las financia.

- **Algunos contaminantes que quedan en los suelos de antiguos sitios industriales pueden desplazarse hacia las aguas de inundación y las tuberías de aguas pluviales y cloacas agrietadas**. Esto puede ocurrir en sitios industriales que han sido remediados y en aquellos que aún no han sido limpiados. En Redwood City, Belle Haven y East Palo Alto, hay alrededor de 200 sitios contaminados que podrían verse afectados por el aumento del nivel freático y del mar.

Imagen de los Impactos del Aumento de las Aguas Subterráneas



Fuente: Dibujo por la Dra. Kristina Hill. Bay Conservation and Development Commission (BCDC) Adapting to Rising Tides. <https://www.adaptingtorisingtides.org/portfolio/shallow-groundwater-rise/>

¡PARTICIPE Y MANTÉNGASE ACTUALIZADO!

Peninsula Accountability for Contamination Team (PACT)

Mission Statement:

Our mission is to advocate alongside community members to advance **contaminated site clean-up and infrastructure resilience**, addressing the impacts of sea level and groundwater rise in **low-lying areas of the Peninsula**. Through this work, we aim to safeguard the health and well-being of our community for generations to come.



Agenda

- **Groundwater rise & combined flooding in the Bay Area & East Palo Alto**
 - Daisy Ramirez Lopez, Environmental Engineer and Community Engagement, Pathways Climate Institute
- **PACT member presentations**
 - Osvaldo Macias, Environmental Justice Fellow at Nuestra Casa
 - Moana Kofutua, Senior Youth Organizer for Youth United for Community Action
 - Video Presentation from Pam Jones, Belle Haven Empowered & Juanita Croft, Belle Haven CDF
 - Cade Cannedy, Director of Programs at Climate Resilient Communities
- **County & Regional Context**
 - Len Materman, Chief Executive Officer at OneShoreline
 - Dana Brechwald, Assistant Planning Director for Climate Adaptation at the Bay Conservation Development Commission
- **Panel Discussion followed by Audience Q&A**

Our Speakers:



Groundwater Rise in the San Francisco Bay Area

Daisy Ramírez López

Environmental Engineer

Pathways Climate Institute

Look Out Below Report Briefing

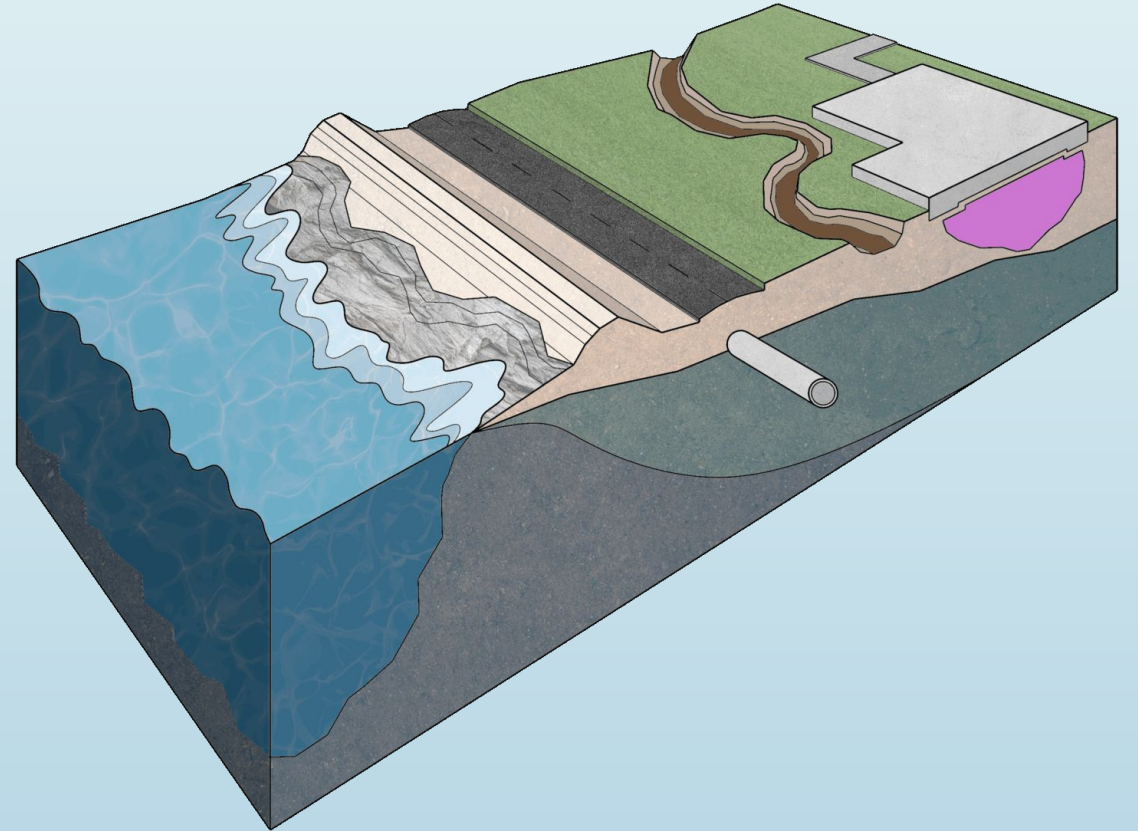
September 5, 2024



pathways
CLIMATE INSTITUTE

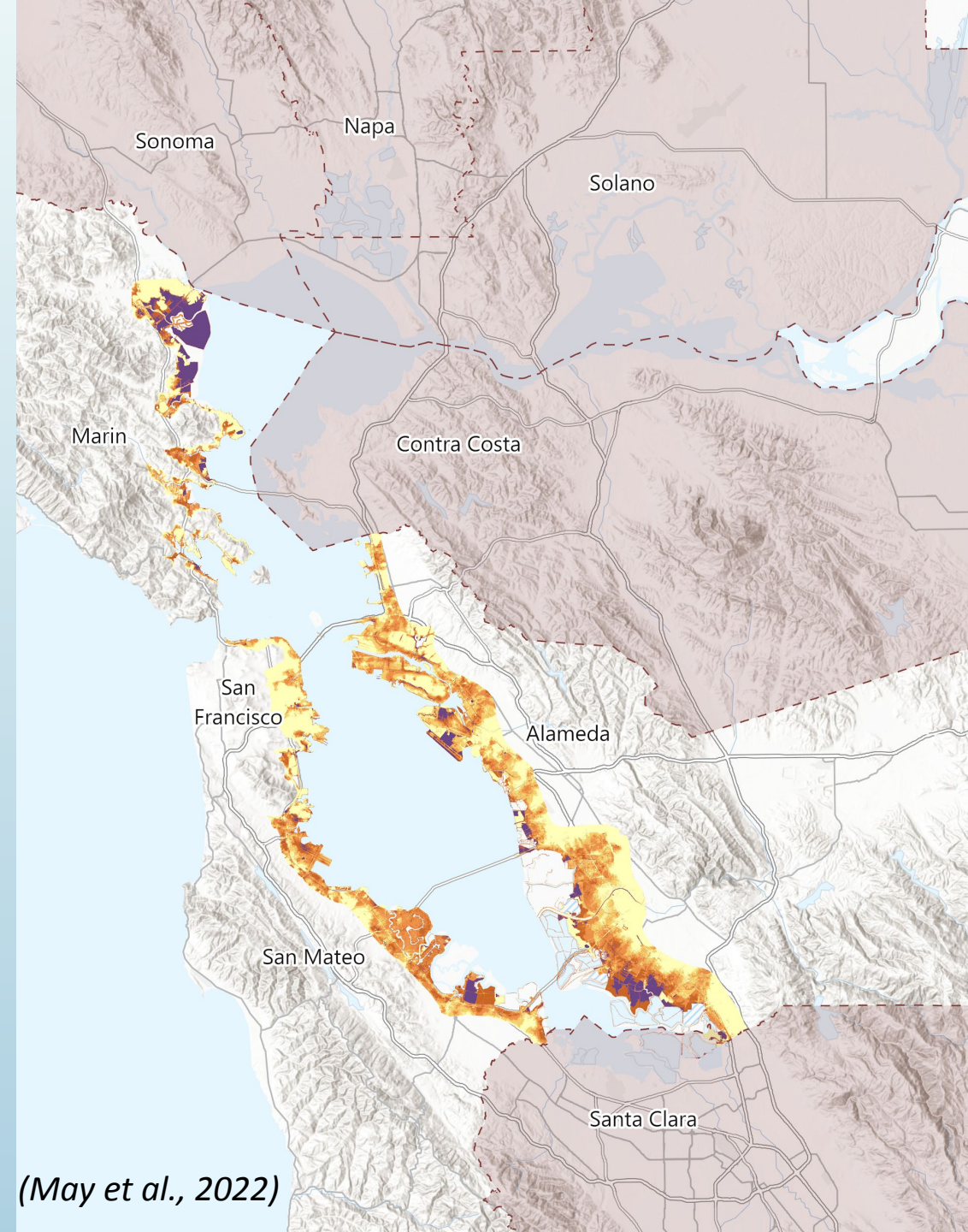
What is Groundwater Rise?

- As sea levels rise in the San Francisco Bay, the shallow groundwater underneath low-lying coastal communities also rises
- As sea level rise continues to increase, the groundwater table rises above the ground surface, causing *emergent groundwater*



Current Conditions

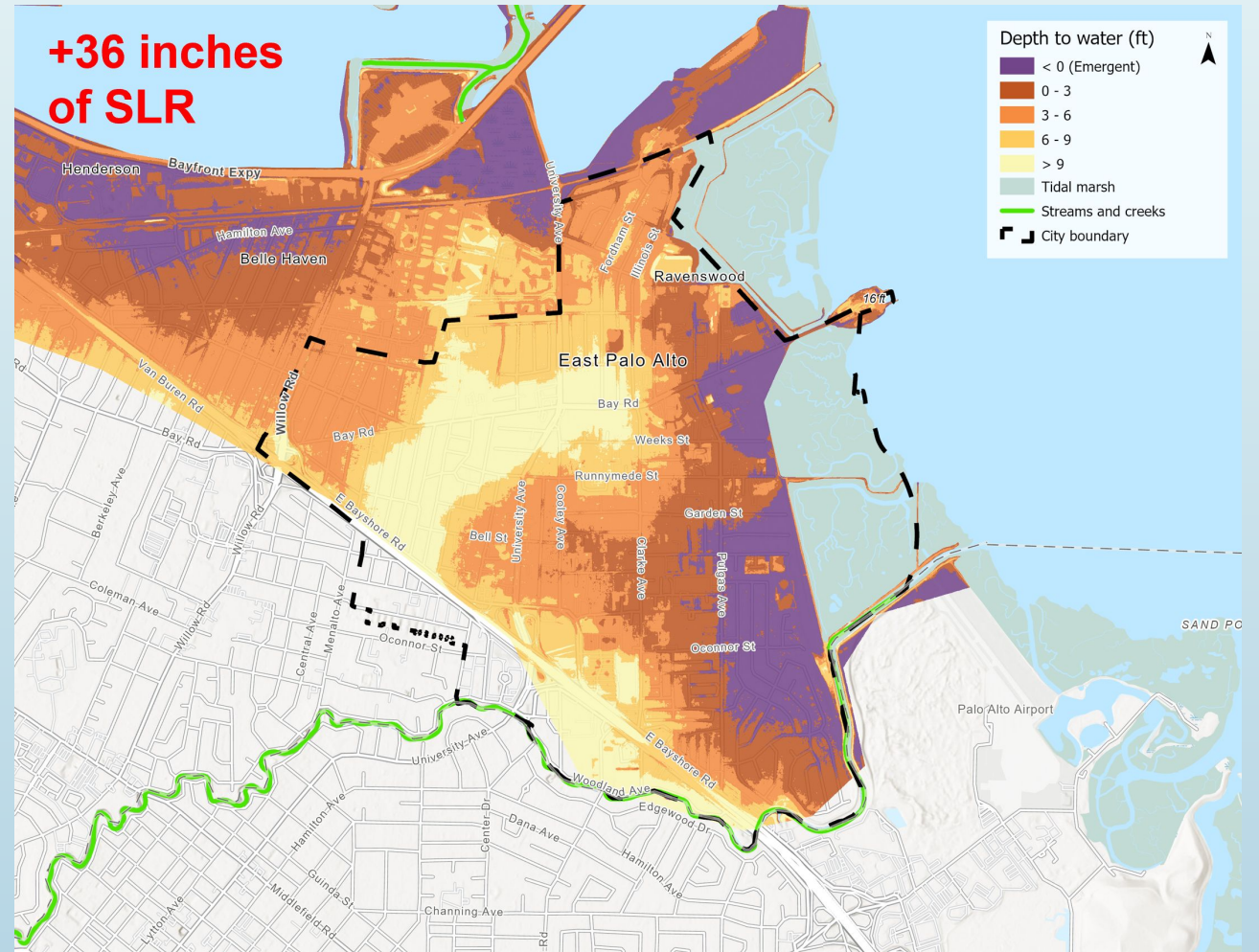
- Nearly all Bay Area coastal communities experience groundwater rise and emergent groundwater today
- 4 Bay Area counties have been mapped, each including future conditions for the 10 BCDC ART sea level rise scenarios



(May et al., 2022)

East Palo Alto Groundwater Current Conditions

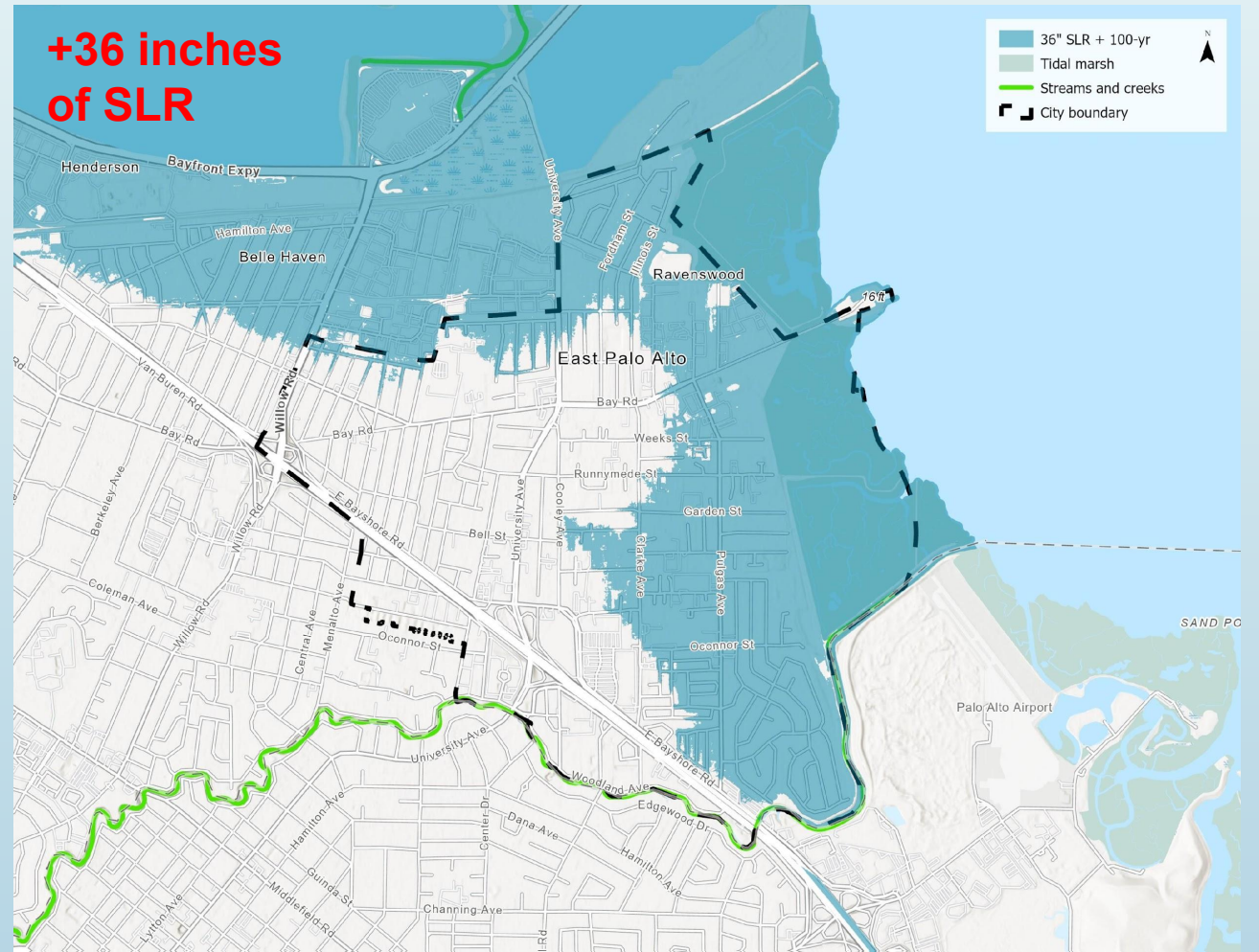
- In East Palo Alto, emergent groundwater is located near low-lying areas along the shoreline such as marshlands and areas of open water
- Substantial areas with groundwater within 6 feet of the ground surface



(May et al., 2022)

East Palo Alto Coastal Flooding

- Coastal flooding occurs when coastal storms elevate Bay water levels resulting in temporary flooding
- Because of topographic conditions in this area, flooding can become widespread

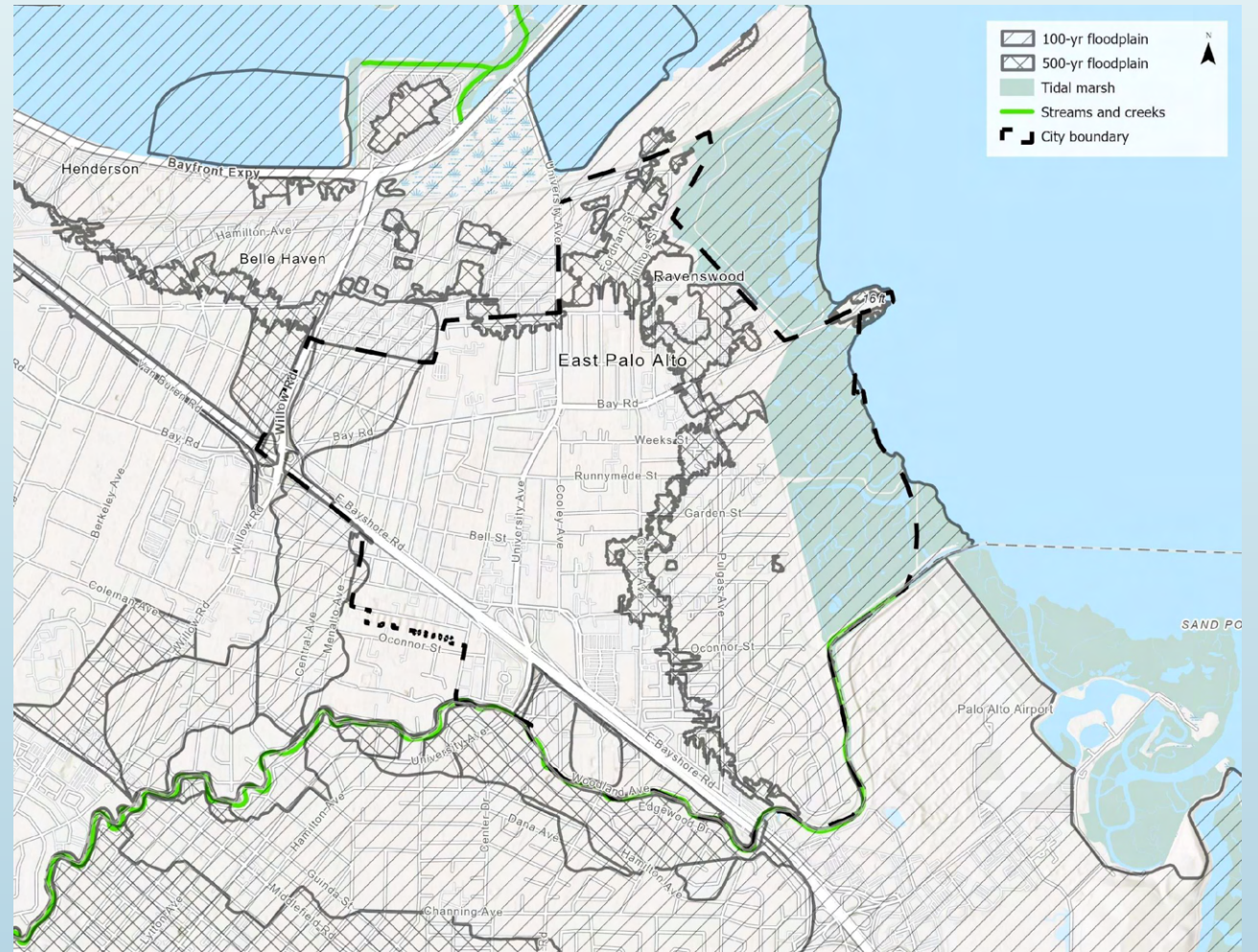


East Palo Alto Extreme Precipitation & Riverine Flooding

- Extreme precipitation increases frequency of creek overtopping, overwhelms sewer systems, causes street flooding, and creates larger flood extents

Frequency	Duration	2050	2100
10yr	3-hr	+22%	+57%
	24-hr	+18%	+41%
100yr	3-hr	+26%	+67%
	24-hr	+22%	+51%

(Pathways and LBNL, 2023)

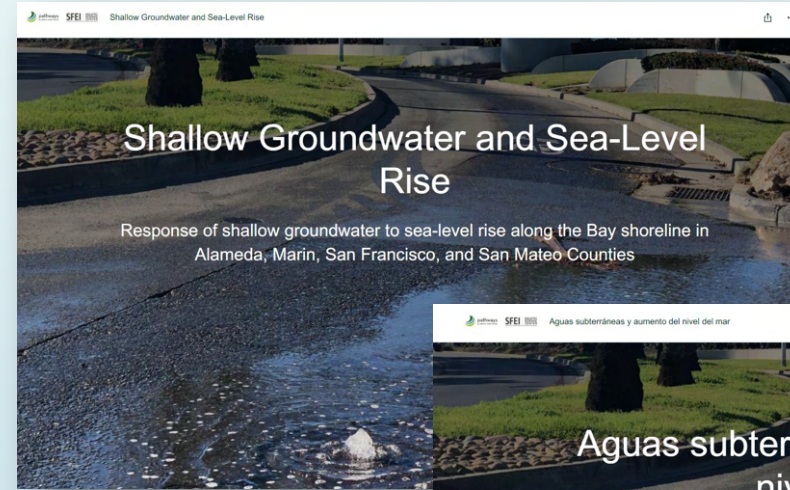


Bay Area Impacts

- Sea level rise in the Bay Area will cause earlier flooding from below than coastal flooding impacting sewer systems, underground infrastructure, roadways and homes, and mobilize contaminants
- Adapting to climate change needs to consider all water related hazards; physical strategies alone will not be sufficient, governance structures and policy measures will be needed for holistic adaptation

Capacity Building

- Key in addressing climate change impacts
- Dissemination of publicly available data
 - Town Halls
 - Focus Groups
 - StoryMaps, reports, and more
- Ongoing partnerships and future collaborations



Thank you!

Daisy Ramírez López

daisy.ramirez.lopez@pathwaysclimate.com





A Bright

Para Nuestra Comunidad

Future

September 5th, 2024

By Osvaldo Macias





East Palo Alto Historical Context

- Deed restrictions and redlining
- East Palo Alto incorporated in 1983

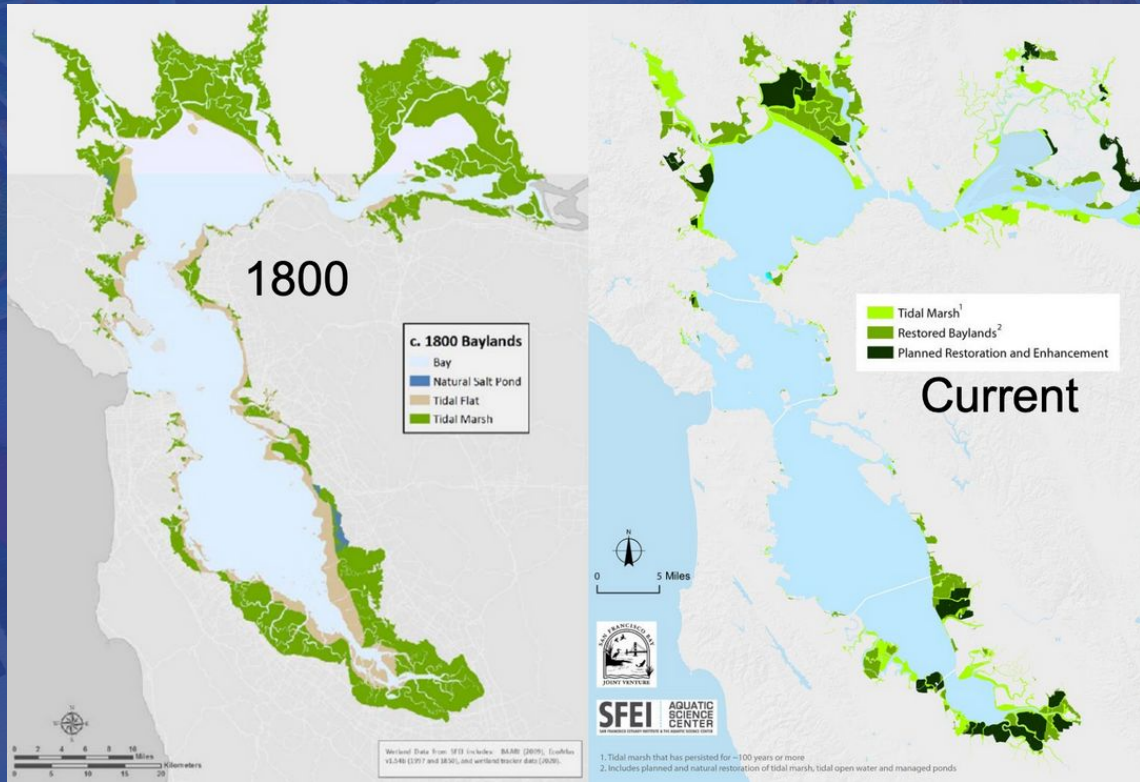


An aerial view of East Palo Alto. Photo via Wikimedia Commons, CC

BY-SA 3.0



Flooding



Courtesy of the San Francisco Estuary
Institute



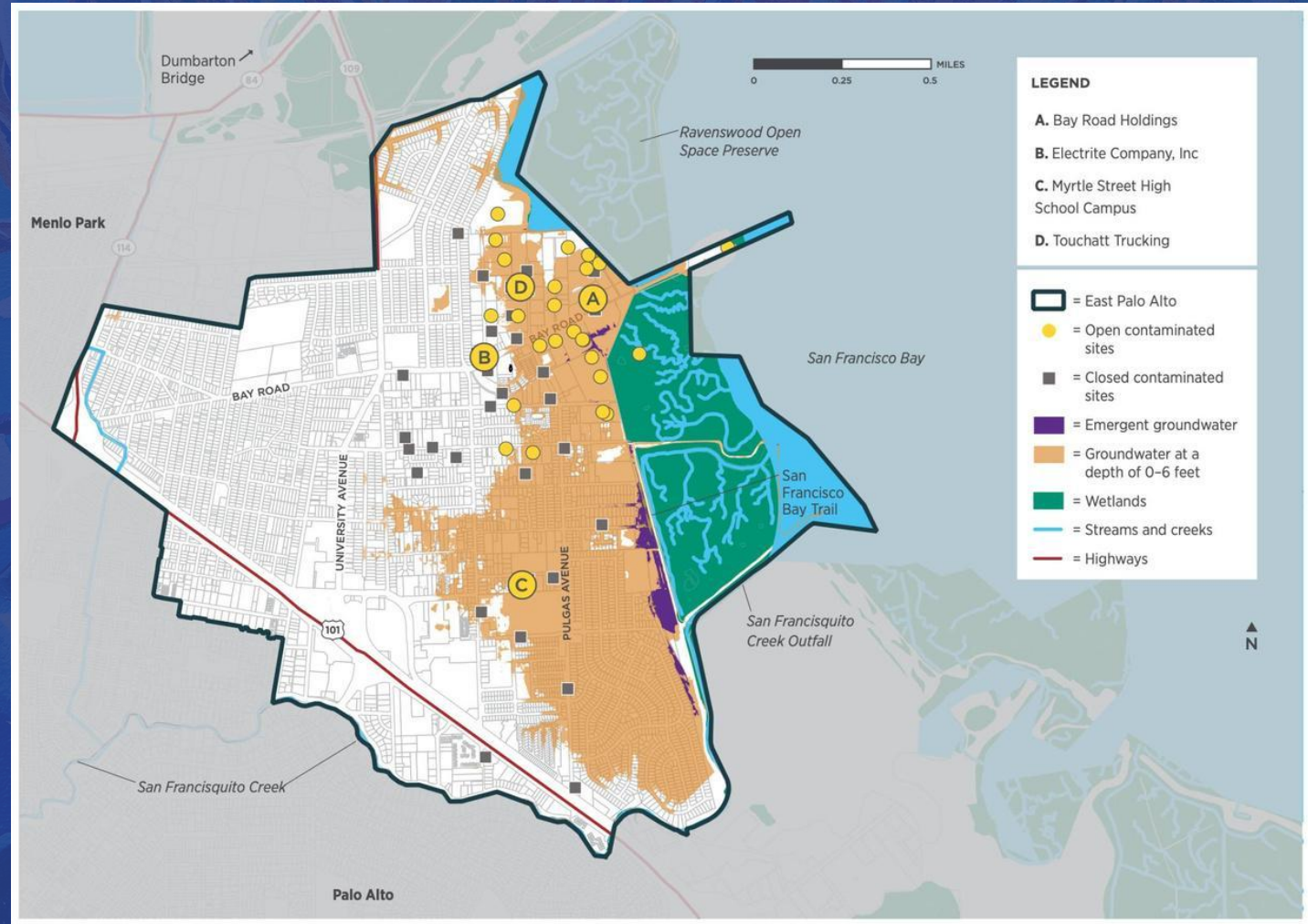
Courtesy of the San Francisco Creek Joint Powers
Authority



Contaminated Sites

More than 50
contaminated sites
in East Palo Alto

Implications for
community health
and safety is
unknown



Courtesy SPUR, using data sourced from Pathways Climate Institute and San Francisco Estuary Institute.



“I just want a plan for the future, because if this happens and there’s going to be flooding everywhere, people should know how to respond,” - Heleine Grewe



Peninsula Accountability for Contamination Team (PACT)





Thank You!

Next presentation: Moana Kofutua, Senior Youth Organizer
Youth United for Community Action

Next presentation: Pam Jones and Juanita Croft
Belle Haven Empowered & Belle Haven Community Development Fund

Video



Initial Screening of Cleanup Sites

September 2024

MOTIVATION

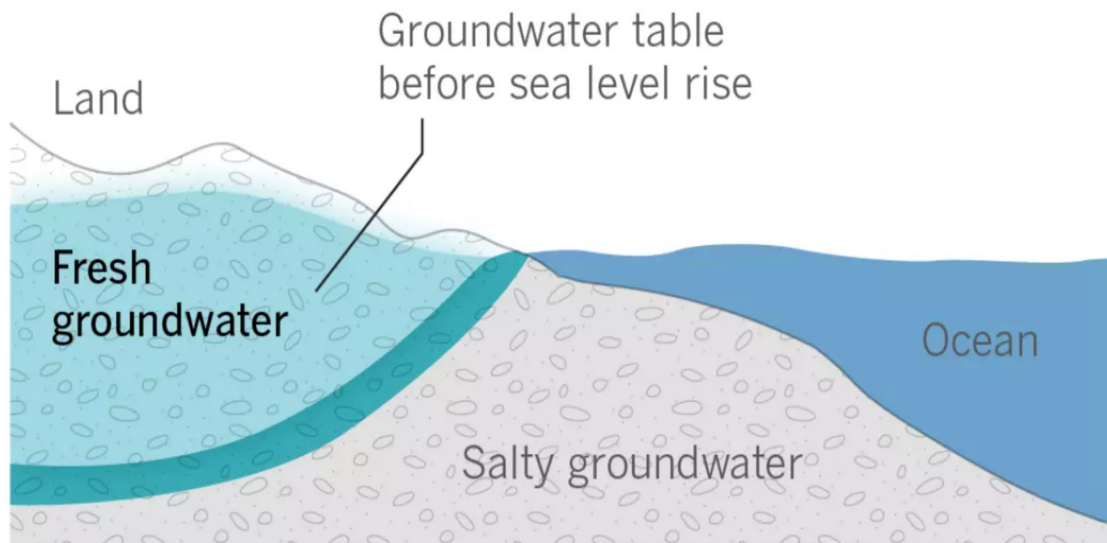
Project Goals/Objectives

1. Data collection
 - Inventory contaminated sites in project area, collecting data from multiple sources
2. Define prioritization factors
 - Based on site conditions, flood hazard, environmental justice, and potential opportunities for future development
3. Identify sites of concern
 - Perform initial screening to prioritize sites to investigate further
4. *Facilitate community feedback*
 - *Engaging the community will ensure a comprehensive and effective approach to environmental management*
5. *Advocate for change*
 - *Expediate the cleanup process and urge local, county and state officials to take action*

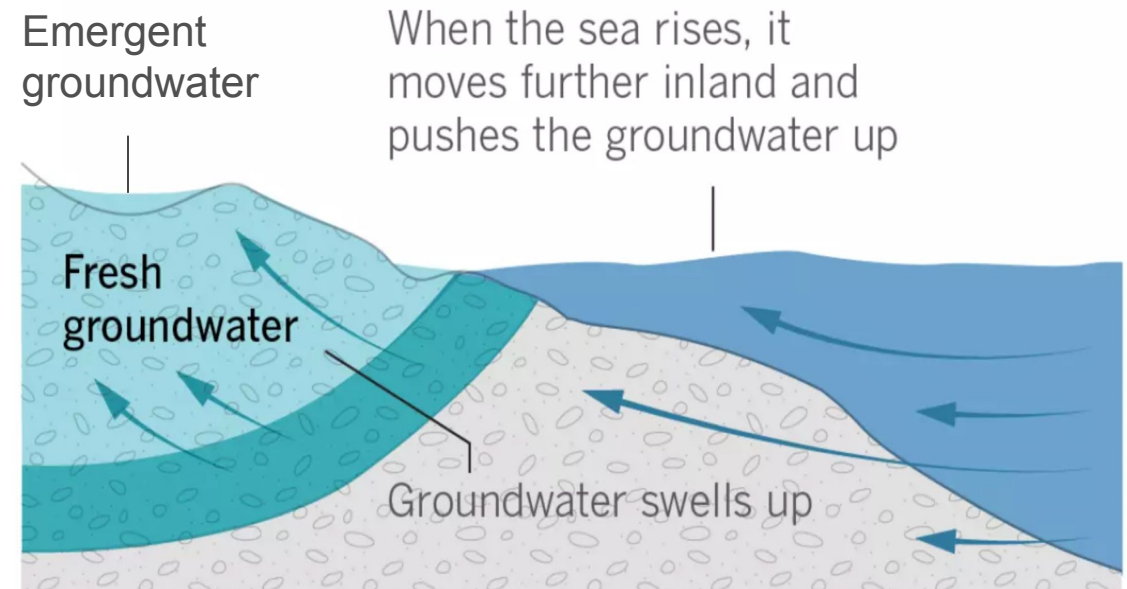
MOTIVATION

Shallow Groundwater Rise

Before sea level rise



During sea level rise



Lorena Elebee / Los Angeles Times

MOTIVATION

Contaminant Types and Exposure Pathways

Inorganic

Heavy metals
(arsenic, mercury, zinc, lead...)
Radioactive (uranium)
Nitrates (fertilizers)

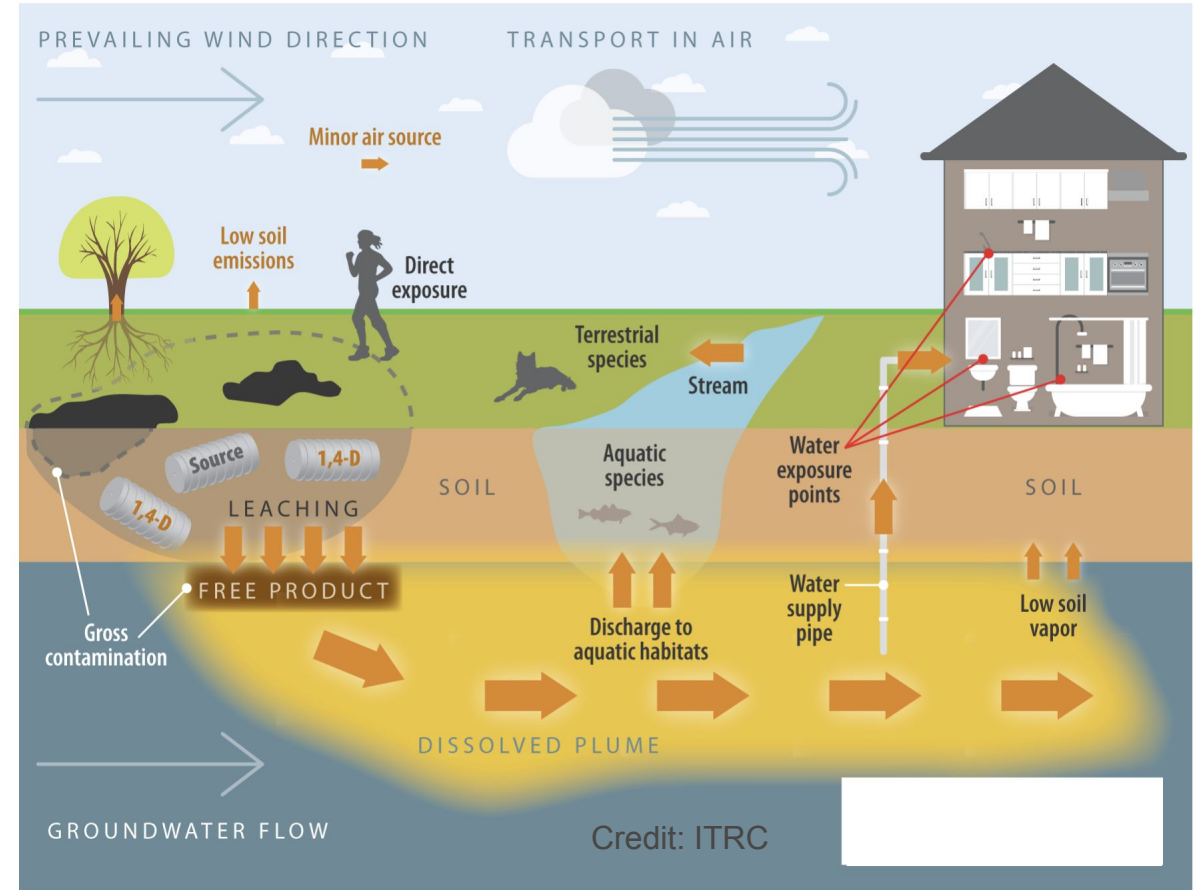
Organic

Petroleum hydrocarbons
(diesel, oil, fuel)
Chlorinated hydrocarbons
(PCB, TCE, PCE, DDT)
...PFAS, VOCs

Pathways:
Ingestion,
inhalation, skin
contact

Direct:
Living/Working at
site

Indirect:
“downstream”



Exposure potential is very low, but with groundwater rise, there are some pathways that have not been addressed before

MOTIVATION

Impact of Groundwater Rise on Contaminants

Contaminants
"mobilize"

Impacts from rising groundwater

Basements and drainage systems could flood

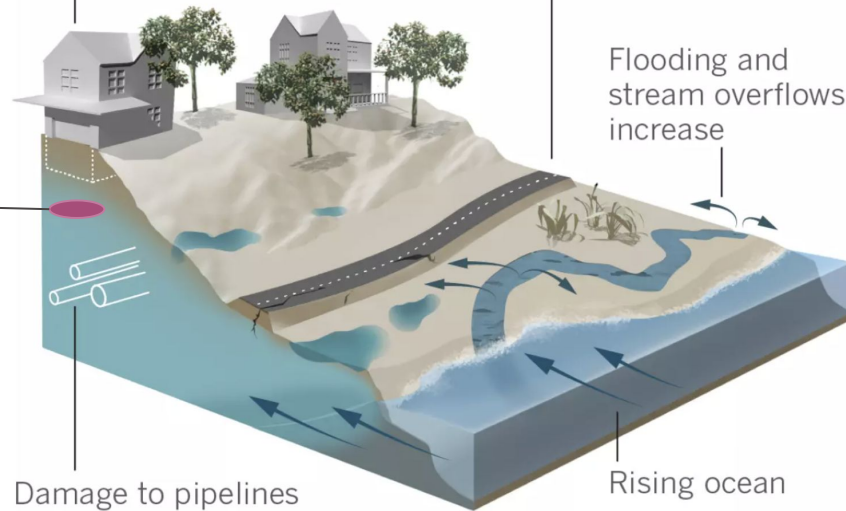
Roads and other structures weaken

Flooding and stream overflows increase

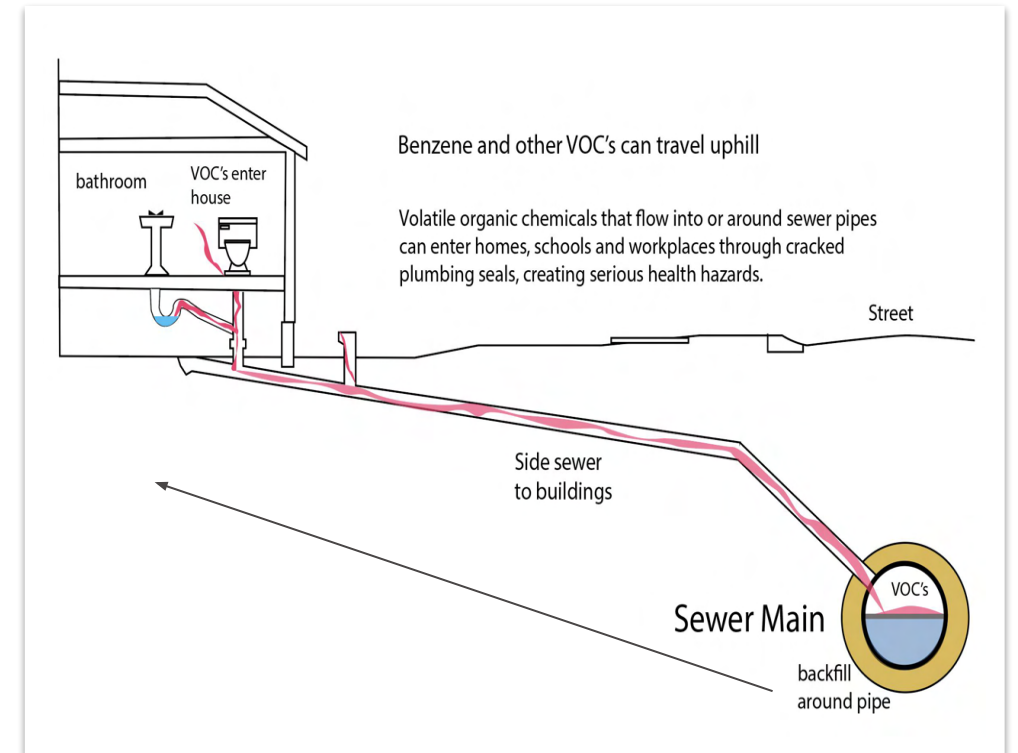
Damage to pipelines and sewage systems

Rising ocean

U.S. Geological Survey

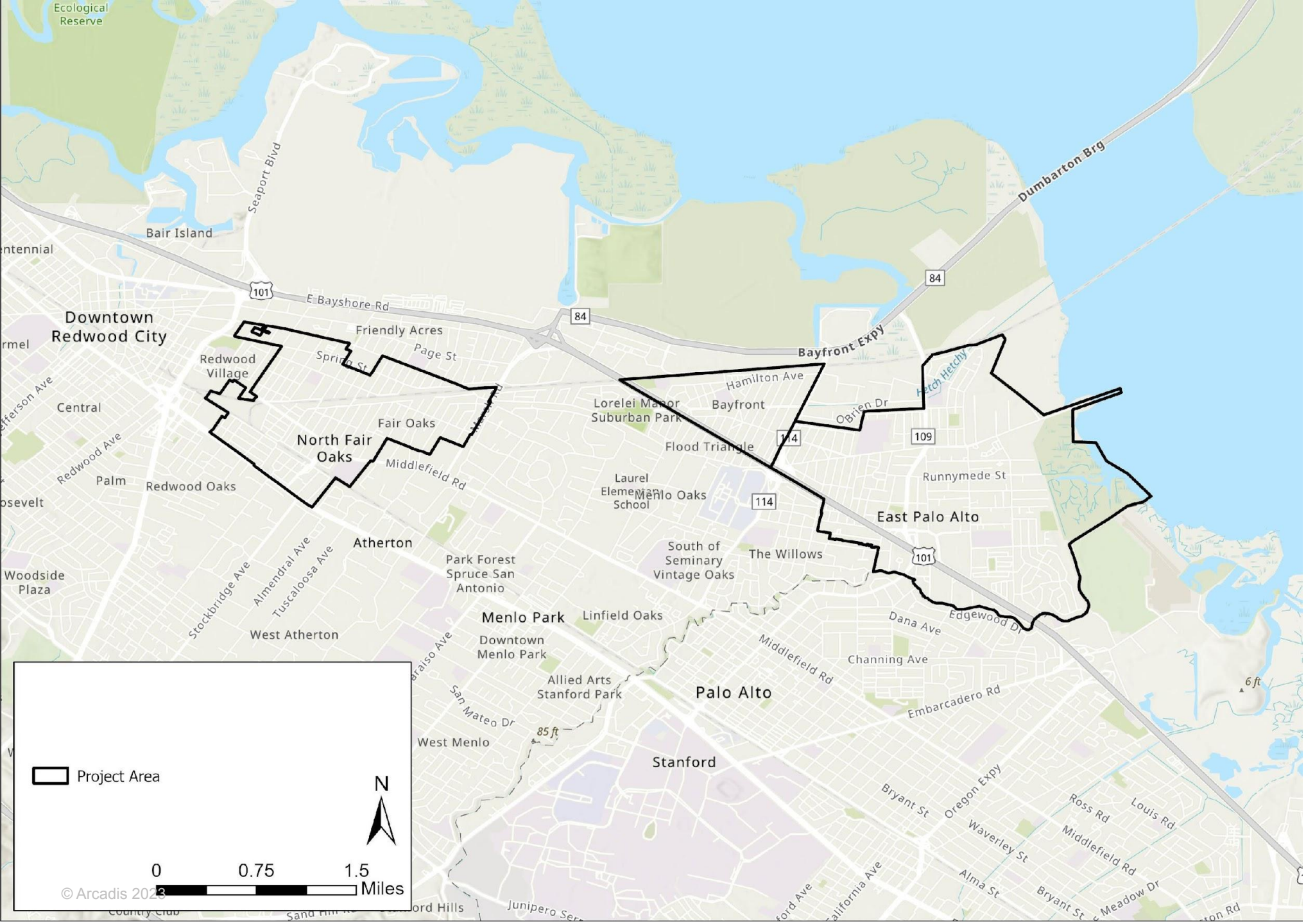


Lorena Elebee / Los Angeles Times



Credit: Kristina Hill

Study area



Project Area

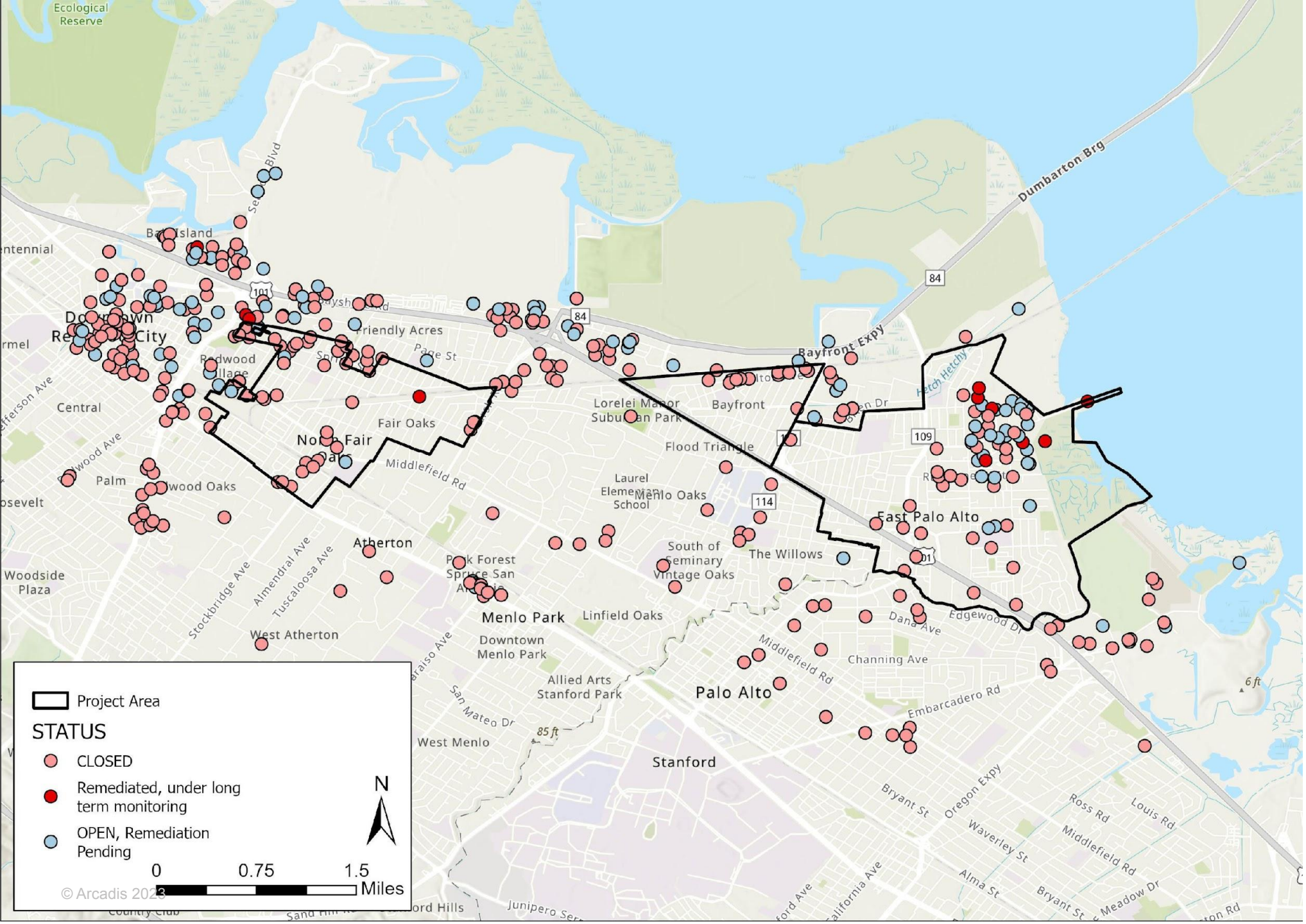


0 0.75 1.5 Miles

Site Map

Total # Sites: 428

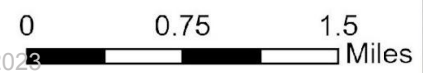
All sites within a buffer of community boundary (Including East Palo Alto)

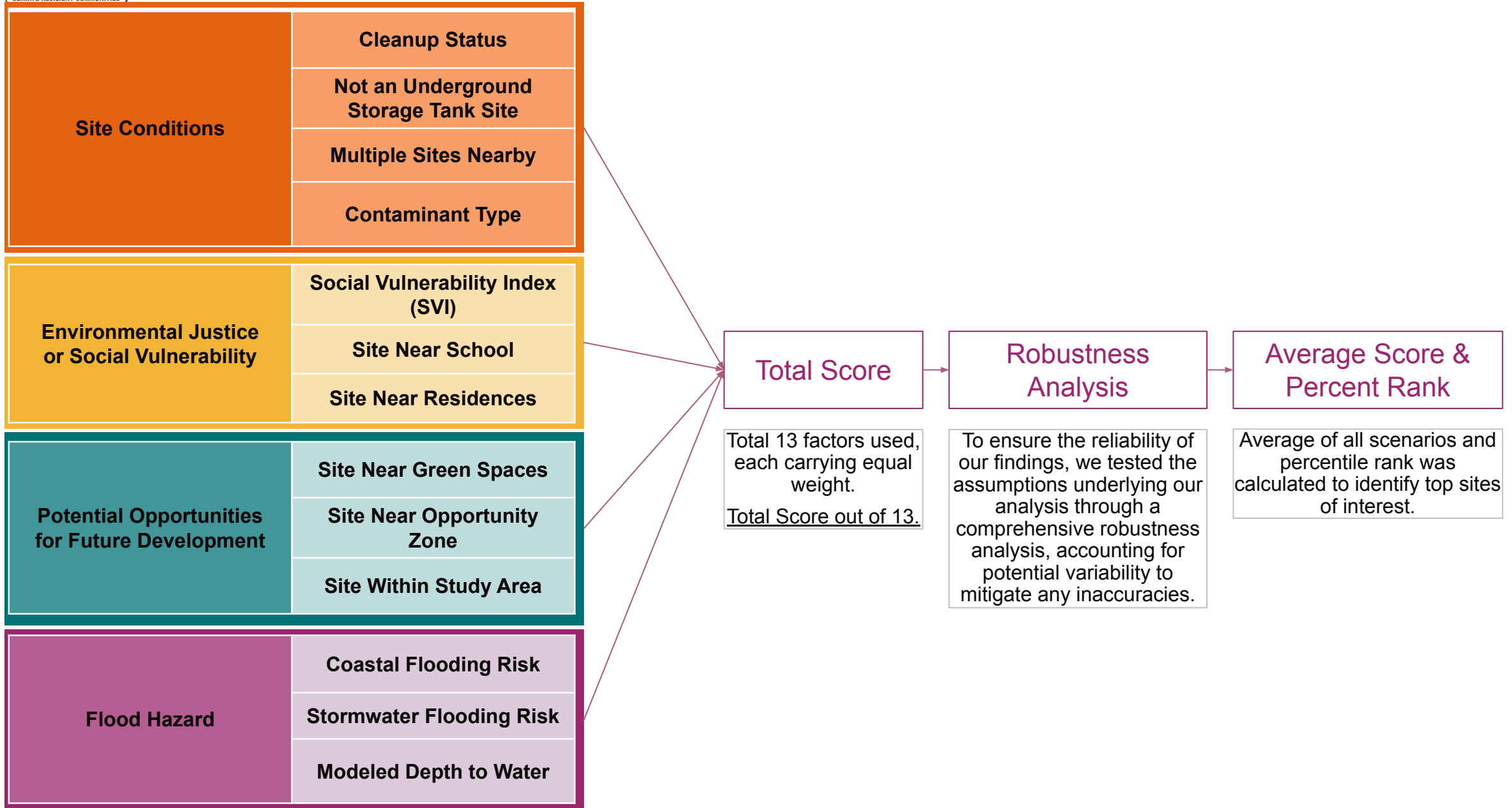


Project Area

STATUS

- CLOSED
- Remediated, under long term monitoring
- OPEN, Remediation Pending





Community Feedback

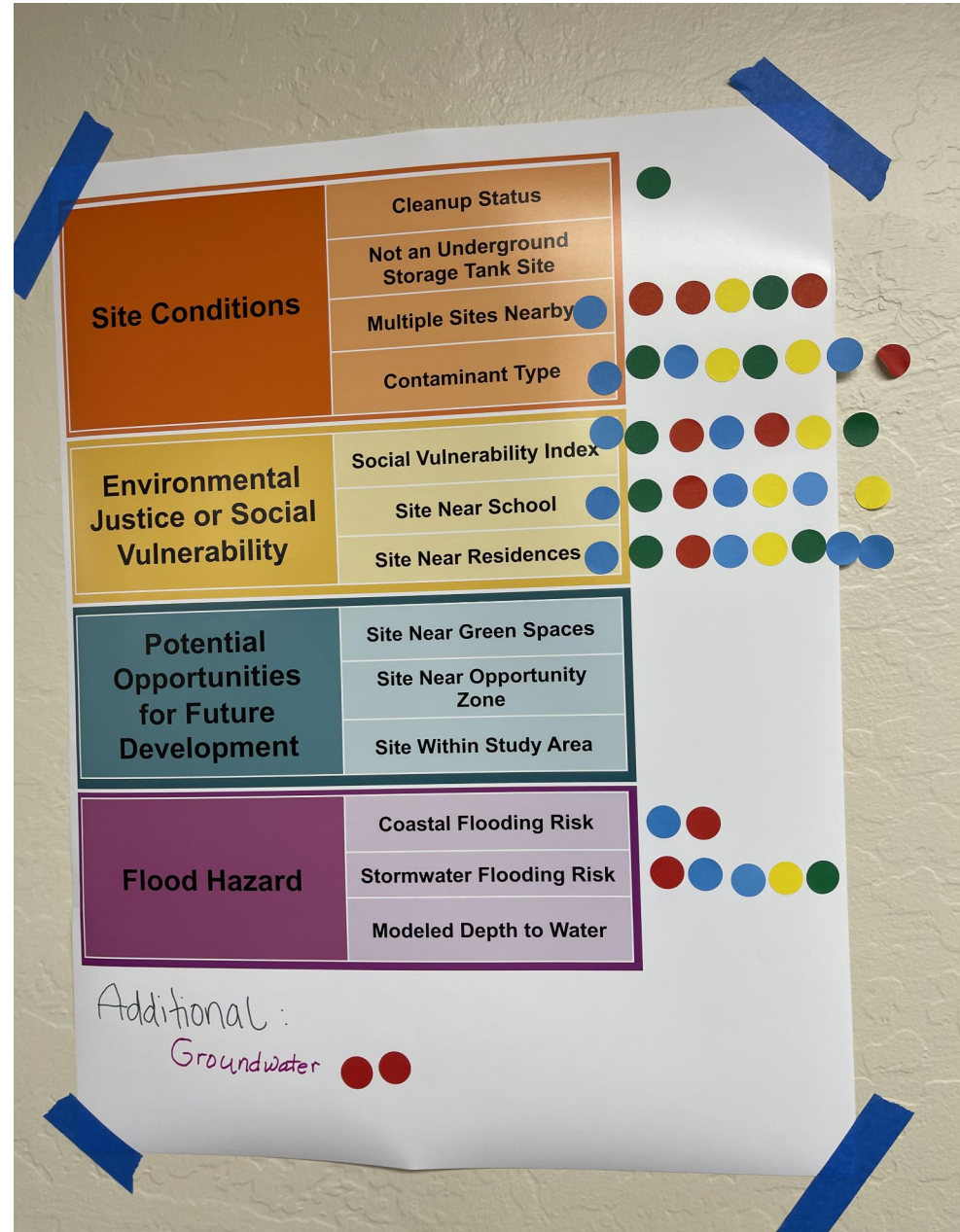
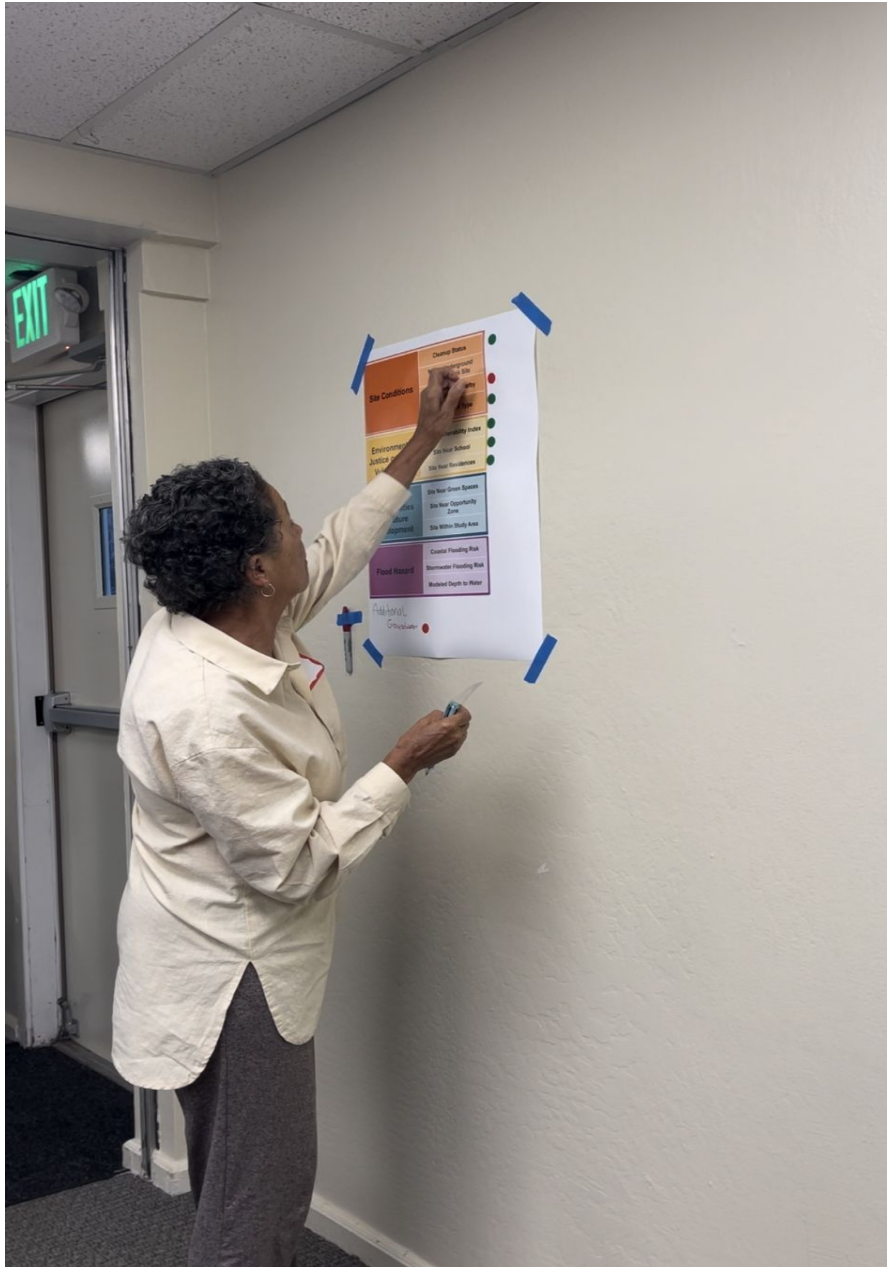
Rank the Factors

Site Conditions	Cleanup Status	
	Not an Underground Storage Tank Site	
	Multiple Sites Nearby	
	Contaminant Type	

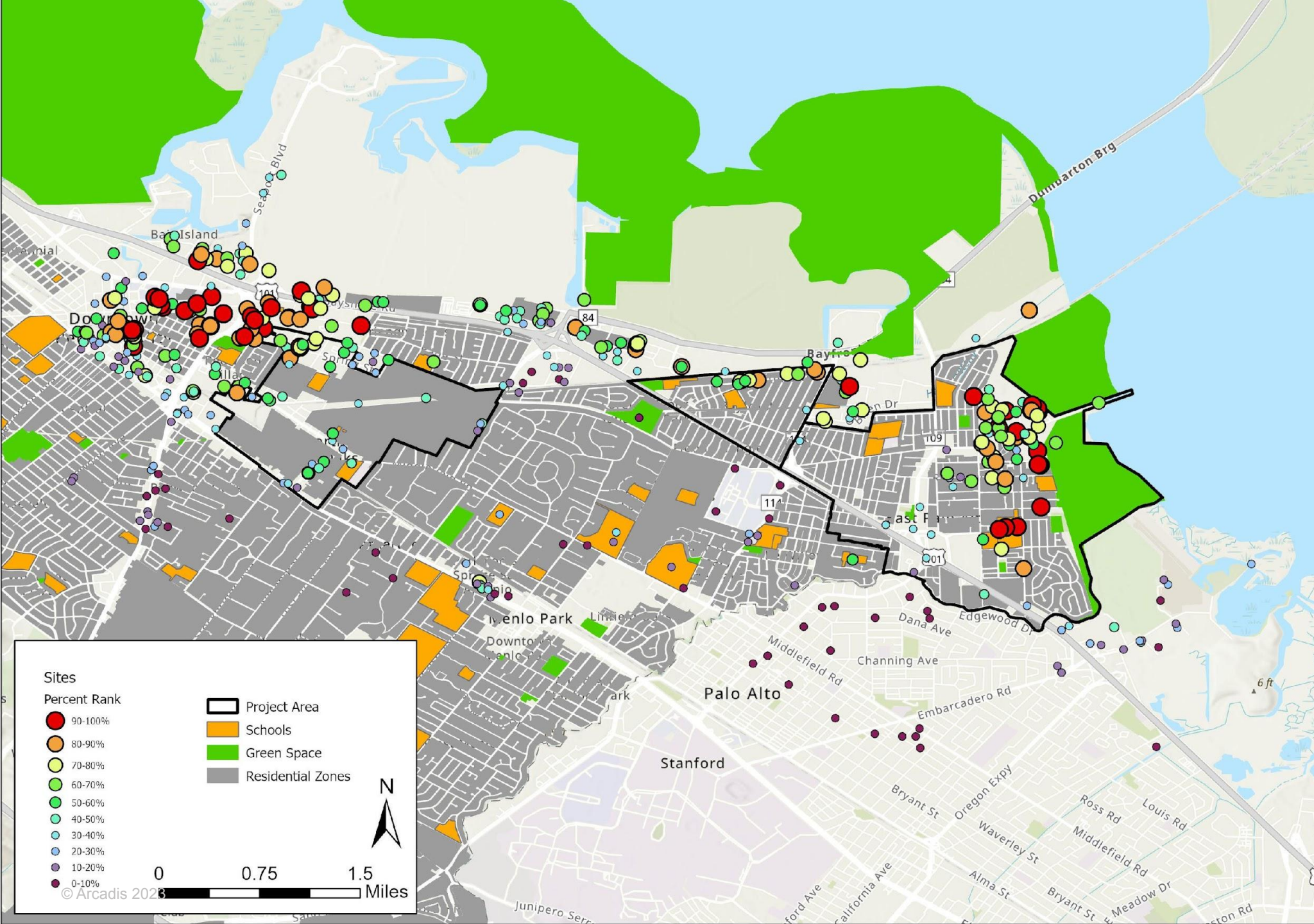
Environmental Justice or Social Vulnerability	Social Vulnerability Index (SVI)	
	Site Near School	
	Site Near Residences	

Potential Opportunities for Future Development	Site Near Green Spaces	
	Site Near Opportunity Zone	
	Site Within Study Area	

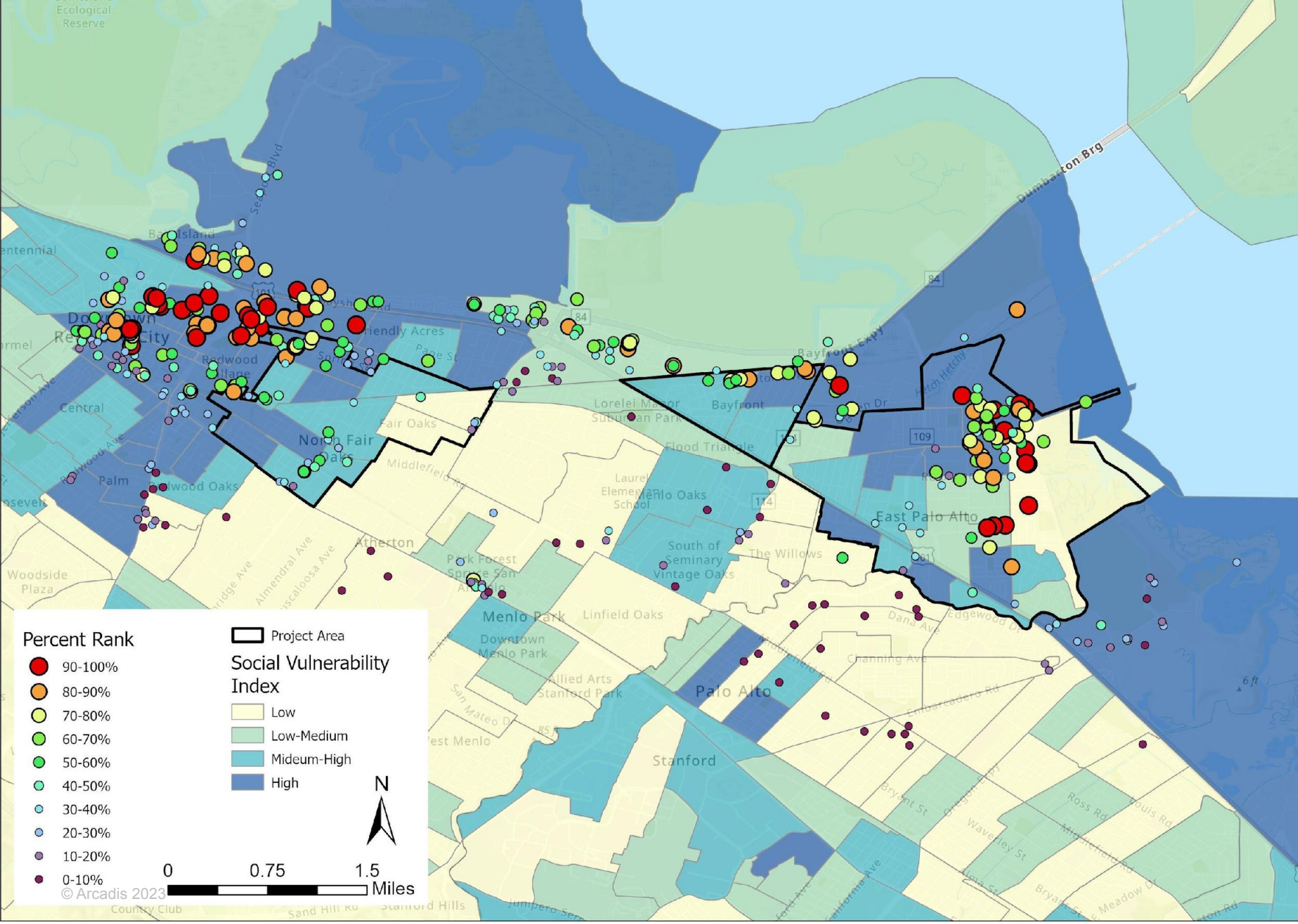
Flood Hazard	Coastal Flooding Risk	
	Stormwater Flooding Risk	
	Modeled Depth to Water	



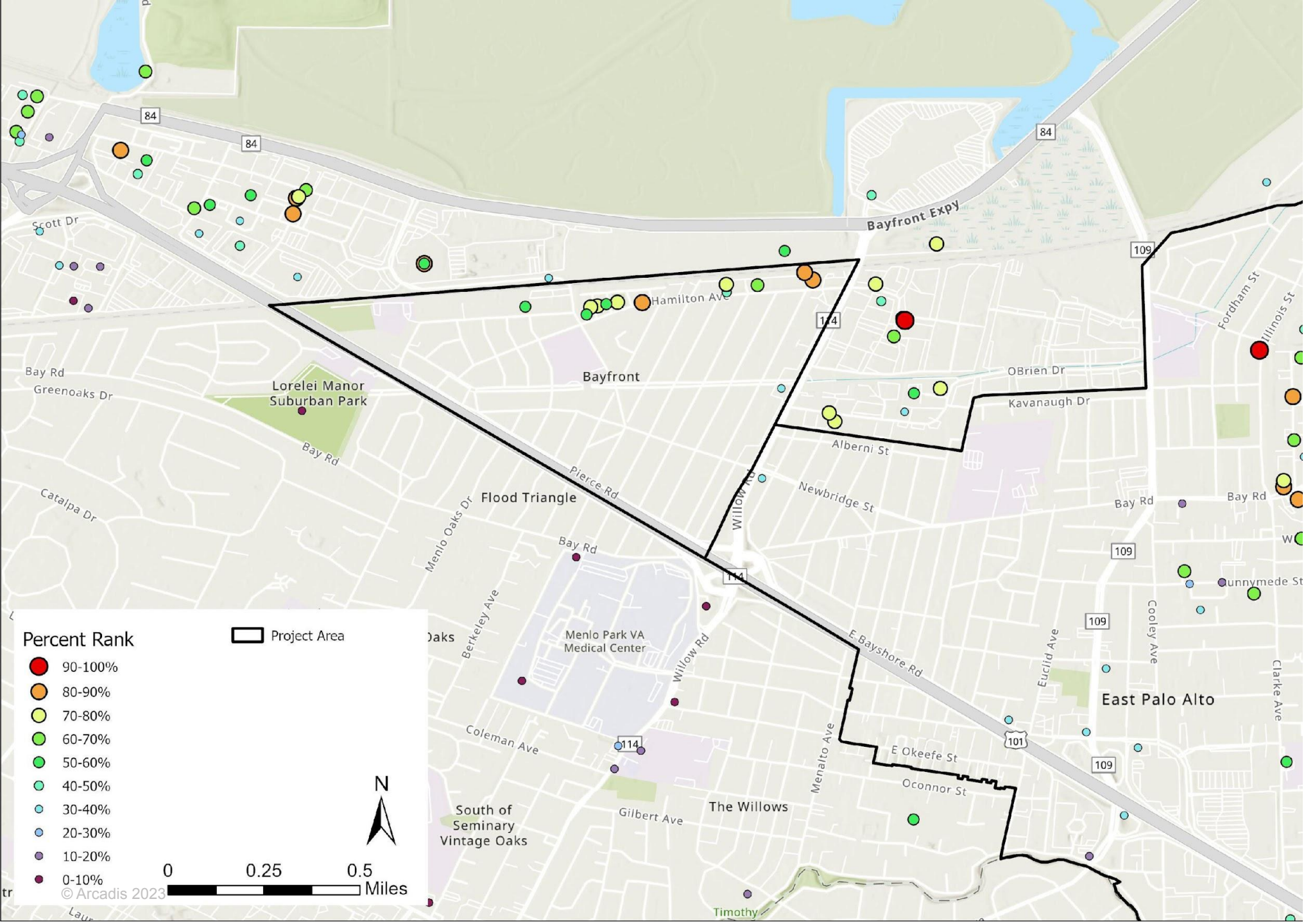
Green Space, Residential Area, Schools



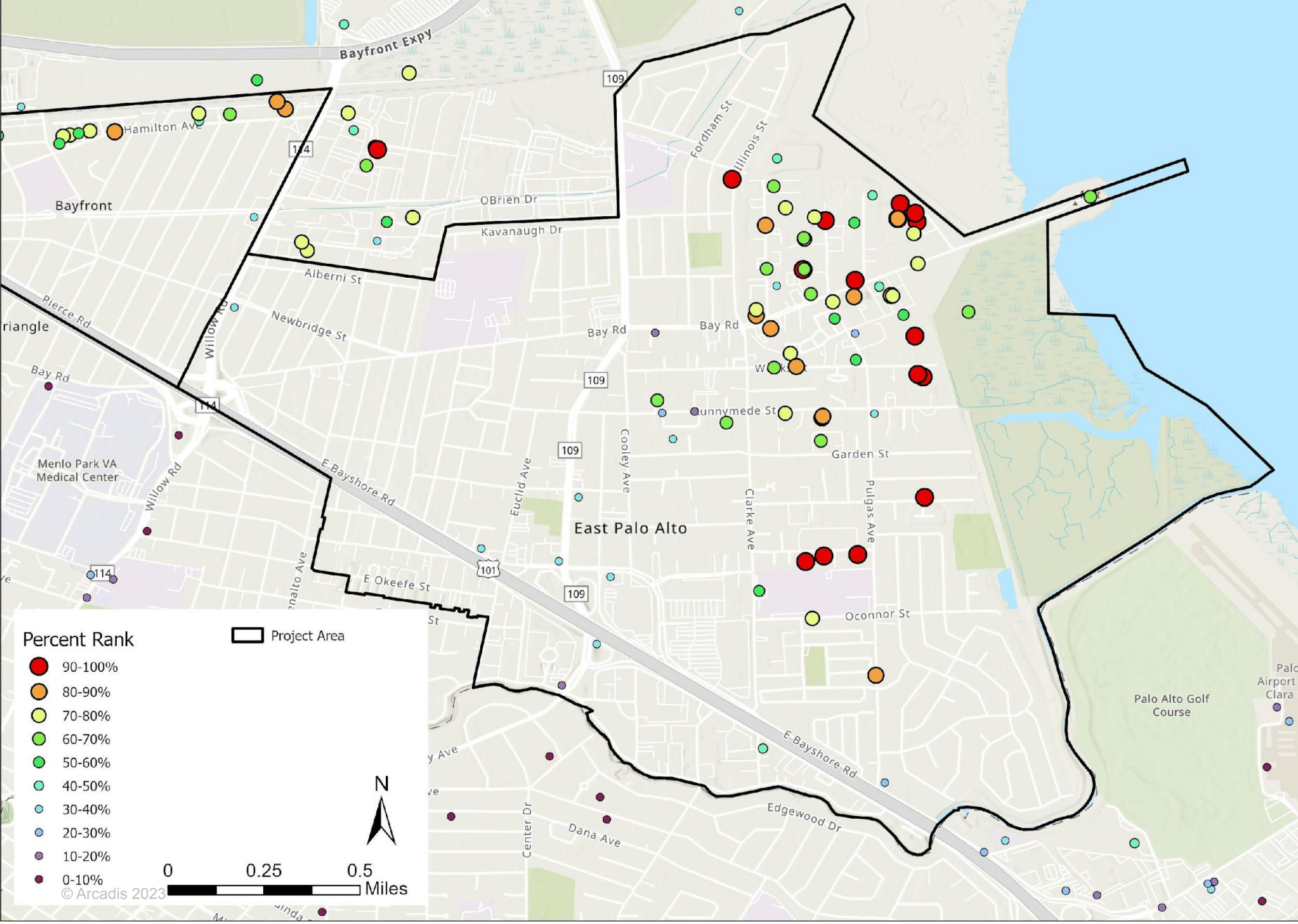
Initial Site Screening Results and SVI Map



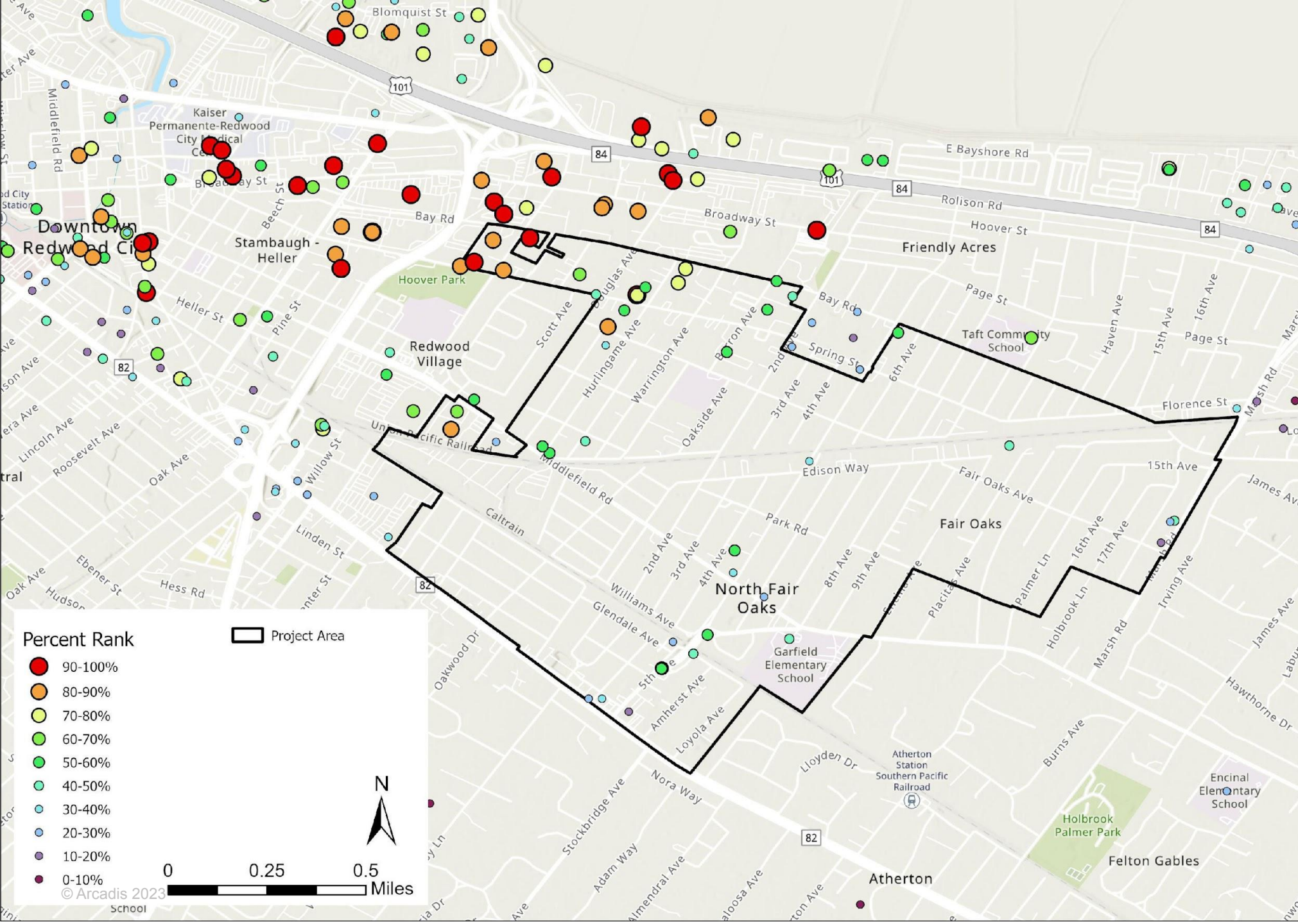
Initial Site Screening Results – Belle Haven



Initial Site Screening Results – East Palo Alto



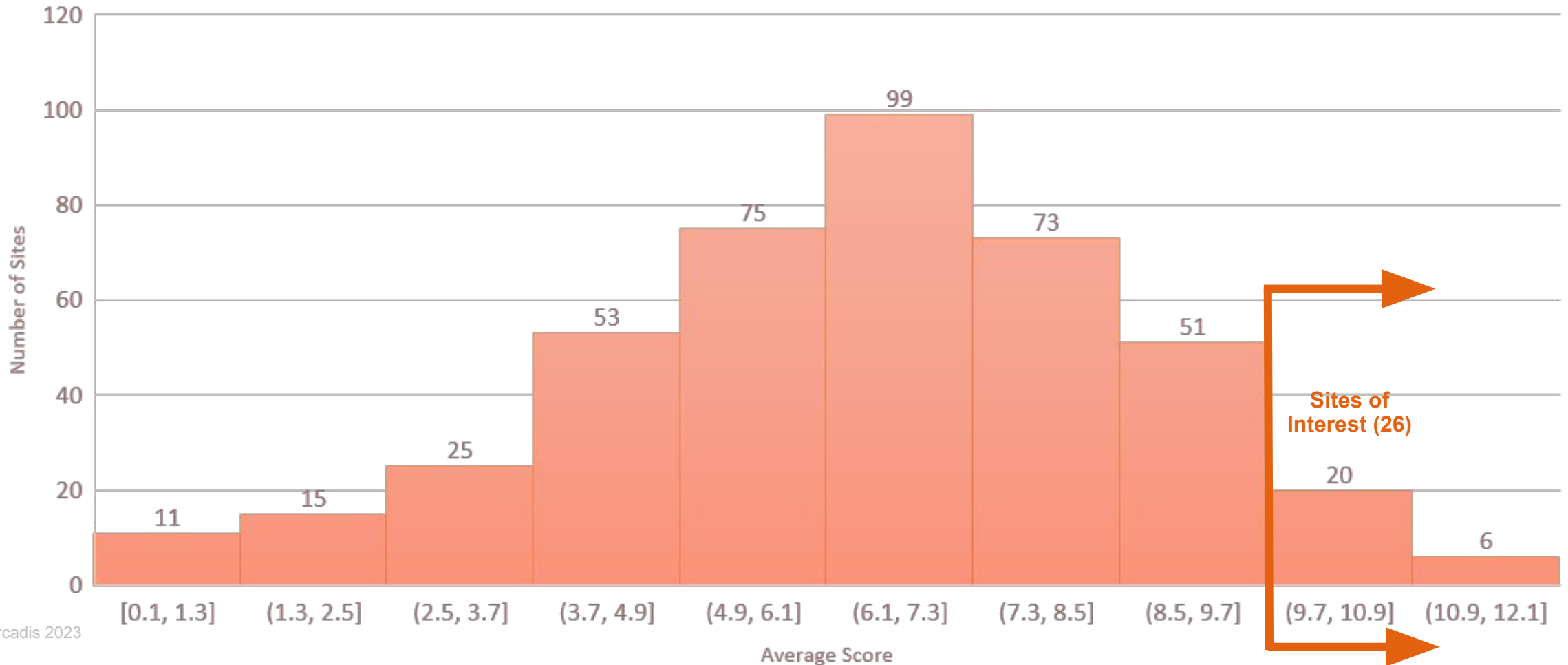
Initial Site Screening Results – North Fair Oaks



DRAFT Results

The histogram below identifies the distribution of initial screening scores. Based on the break observed in the histogram, we identified 26 sites as anomalous and therefore, as sites of interest. These can be varied based on the number of bins chosen.

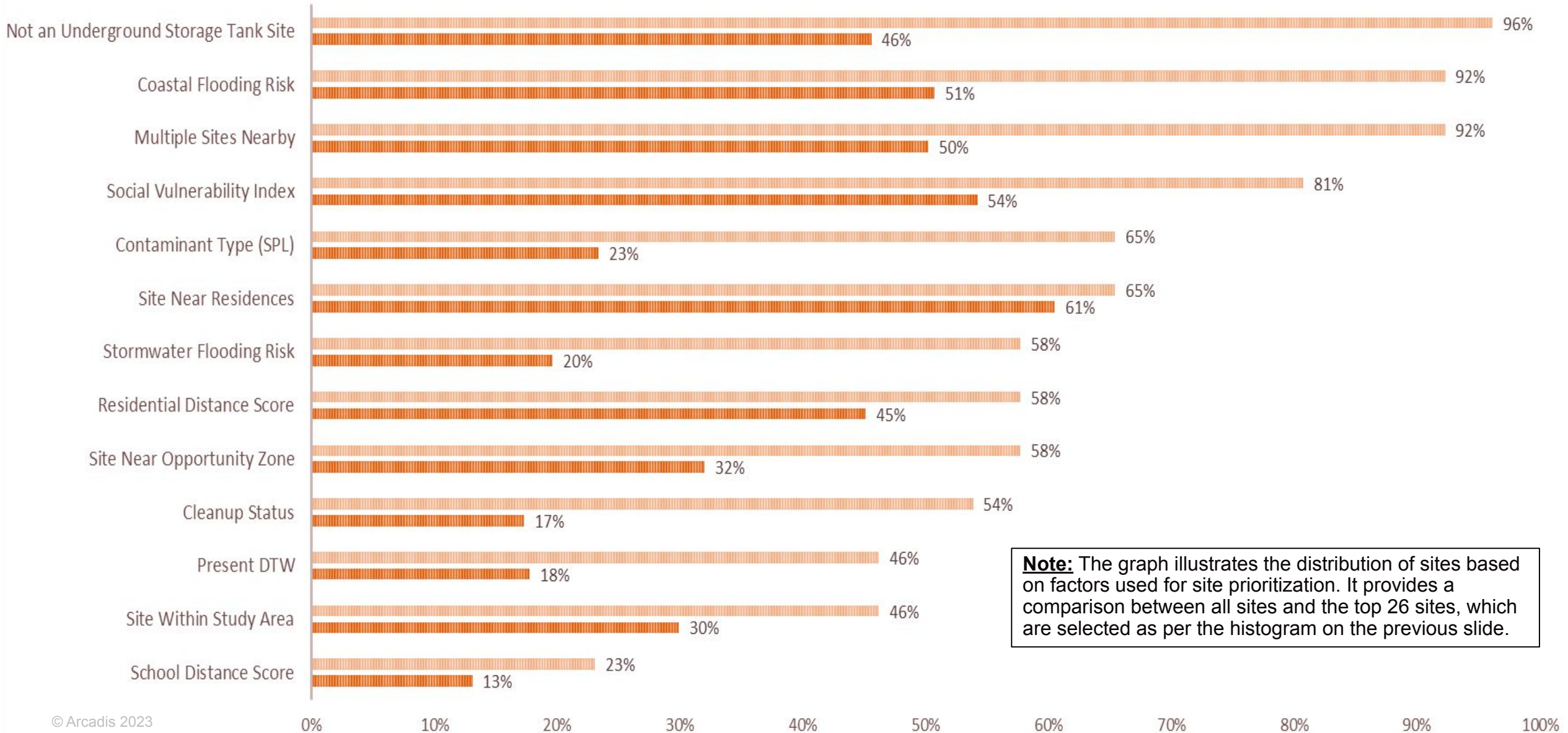
Histogram of Average Robustness Score



What is the makeup of selected sites versus all sites?

FACTOR DISTRIBUTION

Sites Identified During Initial Screening All Sites

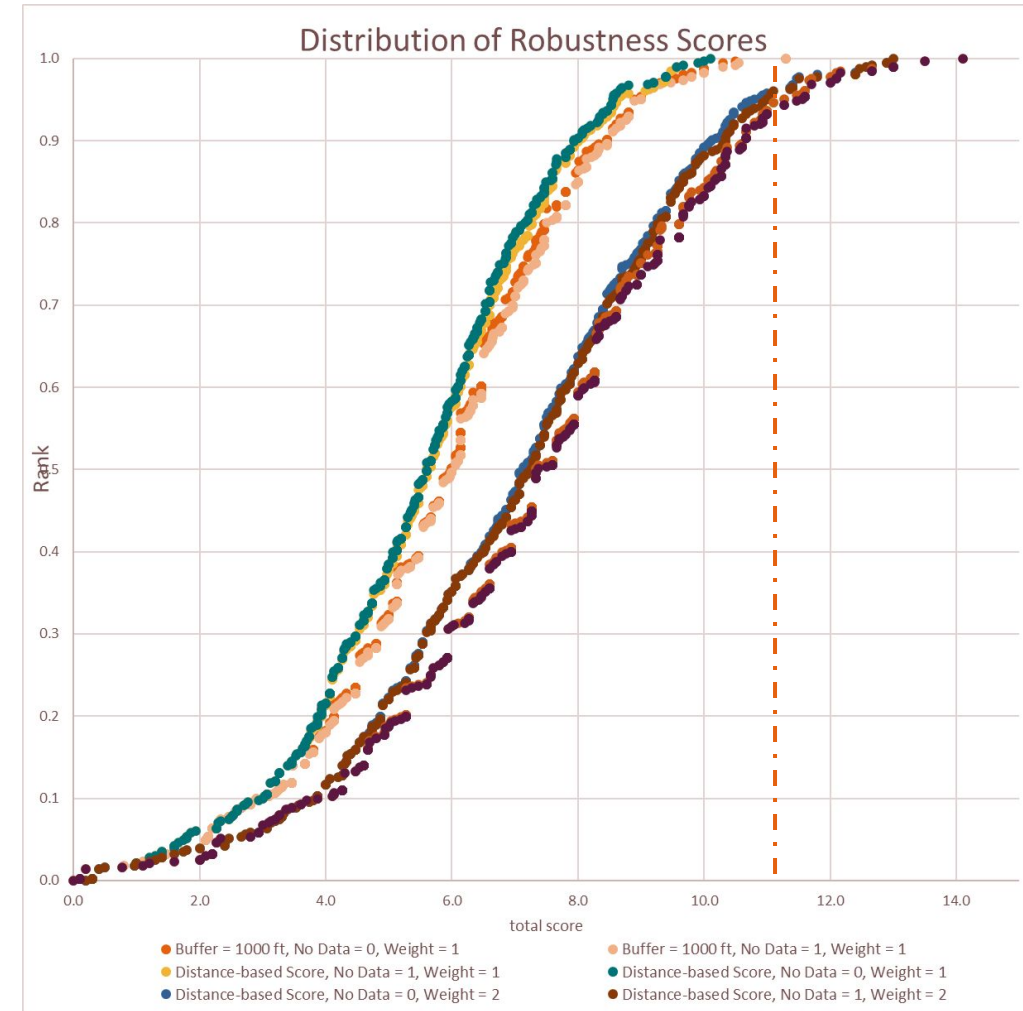
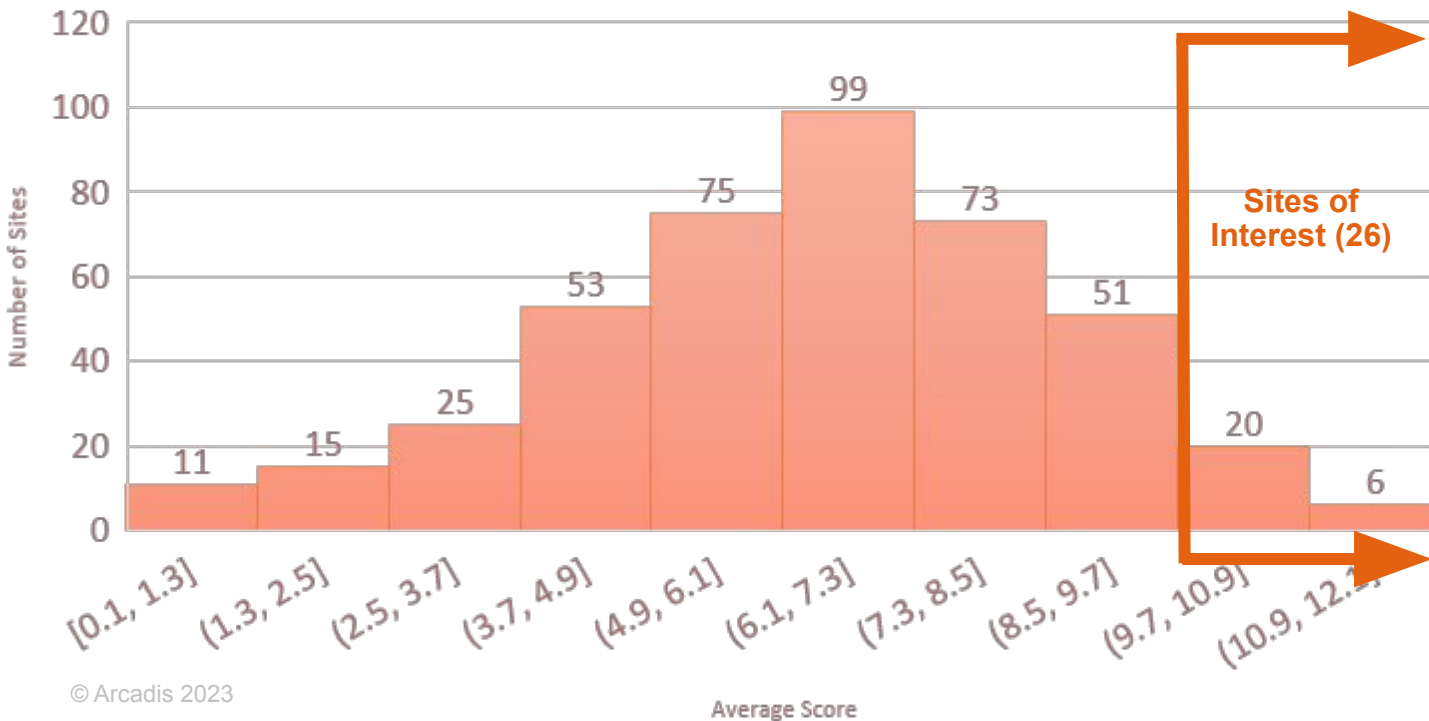


Note: The graph illustrates the distribution of sites based on factors used for site prioritization. It provides a comparison between all sites and the top 26 sites, which are selected as per the histogram on the previous slide.

DRAFT Results Review

- Normalized scores give equal weight to each factor
- Average Score taken across the 8 robustness iterations
- The histogram below identifies the distribution of initial screening scores. Based on the break observed in the histogram, we identified 26 sites as anomalous and therefore, as sites of interest.

Histogram of Average Robustness Score



Note: The sites of interest are based on a breaking point observed in the histogram. The number can be varied based on the number of bins chosen.

DRAFT Top Sites of Interest Retained for Additional Assessment (1/3)

GLOBAL_ID	Site Name	Status	Potential Contaminant of Concern	Project Area	Average Score	Robustness Percentile
SL0608188378	TYCO ENGINEERED PRODUCTS	OPEN - LONG TERM MANAGEMENT - LAND USE RESTRICTIONS	POLYCHLORINATED BIPHENYL (PCBS)	0	10.5	1.000
T0608100657	STANFORD-IN-REDWOOD CITY REDEVELOPMENT PROJECT	OPEN - INACTIVE	SOLVENTS, TETRACHLOROETHYLENE (PCE)	0	12.5	0.997
T10000009541	RHONE-POULENC - PRIMARY SCHOOL	OPEN - SITE ASSESSMENT	ARSENIC, CHLORDANE, DDD / DDE / DDT, OTHER INSECTICIDES / PESTICIDE / FUMIGANTS / HERBICIDES, TOXAPHENE	1	12.5	0.995
T10000010291	RHONE-POULENC - 1990 BAY ROAD SITE - SOUTH OF WEEKS STREET SUBAREA	OPEN - REMEDIATION - LAND USE RESTRICTIONS	ARSENIC, DDD / DDE / DDT, TRICHLOROETHYLENE (TCE)	1	12.5	0.995
T10000003148	METALS HEAT TREATING - FORMER	COMPLETED - CASE CLOSED - LAND USE RESTRICTIONS	" POTENTIAL CONTAMINANTS OF CONCERN BENZENE, CYANIDE, GASOLINE, OTHER CHLORINATED HYDROCARBONS, OTHER PETROLEUM, TOLUENE, XYLENE	0	12.2	0.990
41340062	TYDEMAN MACHINE WORKS	No Action Required	GASOLINE, TPH-MOTOR OIL	0	12.2	0.988
41280094	ROMIC CHEMICAL CORPORATION	Refer: RCRA	* HALOGENATED ORGANIC COMPOUNDS, * HYDROCARBON SOLVENTS, * HALOGENATED SOLVENTS	1	12.1.	0.985
41280139	WOODSPRING CENTER	Refer: RWQCB	Benzene, Tetrachloroethylene (PCE), Trichloroethylene (TCE)	0	12.0	0.985
80001511	DUOLITE INTERNATIONAL INC.	Refer: RWQCB	OTHER CHLORINATED HYDROCARBONS, TETRACHLOROETHYLENE (PCE), TRICHLOROETHYLENE (TCE) , 1,3-Dichlorobenzene, Trichloroethylene (TCE), 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, Chlorobenzene, Tetrachloroethylene (PCE)	0	11.7	0.981
T10000009933	BEEGER PROPERTY - CLEANUP CASE	COMPLETED - CASE CLOSED	DICHLOROETHENE (DCE), DIESEL, OTHER CHLORINATED HYDROCARBONS, TETRACHLOROETHYLENE (PCE), TRICHLOROETHYLENE (TCE)	0	11.7	0.981

DRAFT Top Sites of Interest Retained for Additional Assessment (2/3)

GLOBAL_ID	Site Name	Status	Potential Contaminant of Concern	Project Area	Average Score	Robustness Percentile
T10000002294	REDWOOD CITY RAIL SPUR (BETWEEN BAY ROAD AND CHARTER STREET)	OPEN - LONG TERM MANAGEMENT	OTHER CHLORINATED HYDROCARBONS, POLYCHLORINATED BIPHENYLS (PCBS)	0	11.6	0.976
60002595	WILLOW OFFICE PARK	ACTIVE	Dichloroethylene, PCE, TCE, Vinyl Chloride	0	11.4	0.974
SL0608130496	RUST PROPERTY	Refer: RCRA	*LEAD, WASTE OIL / MOTOR / HYDRAULIC / LUBRICATING	0	11.4	0.971
60002678	1772 Broadway	Active	TETRACHLOROETHYLENE (PCE)	0	11.2	0.967
T10000007273	ARTISTIC CLEANERS, FORMER	OPEN - SITE ASSESSMENT	DICHLOROETHENE (DCE), TETRACHLOROETHYLENE (PCE), TRICHLOROETHYLENE (TCE)	0	11.2	0.967
T10000012207	FORMER CALL-MAC TRANSPORTATION	OPEN - INACTIVE	ARSENIC, OTHER INSECTICIDES / PESTICIDE / FUMIGANTS / HERBICIDES	1	11.2	0.964
60002245	KS Mattson Property	Inactive - Needs Evaluation	Under Investigation	1	11.1	0.957
71003307	Pressure Vessel Services, Inc.	Refer: RWQCB	Lead, Benzene, Cadmium and compounds, TPH-diesel, Methane, Tetrachloroethylene (PCE), TPH-gas	0	11.1	0.957
SL0608102323	RAVENSWOOD - ROMIC ENVIRONMENTAL TECHNOLOGIES	OPEN - REMEDIATION	SOLVENTS	1	11.1	0.957
SL18214594	IDEA	COMPLETED - CASE CLOSED	CHLORINATED SOLVENTS - PCE, CHLORINATED SOLVENTS - TCE, METALS/HEAVY METALS - CHROMIUM 6, OTHER SPILL, PESTICIDES/HERBICIDES, PETROLEUM - AUTOMOTIVE GASOLINES, PETROLEUM - DIESEL FUELS, PETROLEUM - WASTE OIL, VOLATILE ORGANIC COMPOUNDS (VOC)	1	11.1	0.955

DRAFT Top Sites of Interest Retained for Additional Assessment (3/3)

GLOBAL_ID	Site Name	Status	Potential Contaminant of Concern	Project Area	Average Score	Robustness Percentile
60001223	Myrtle Street High School Campus	Certified	DDE, Dieldrin, No Contaminants found, DDT, DDD, Lead, Chlordane	1	10.9	0.948
60001925	Myrtle Street High School Campus Phase 2	Certified O&M - Land Use Restrictions Only	Arsenic, DDD, DDE, DDT, Lead, Dieldrin	1	10.9	0.948
60003266	QUONG LEE LAUNDRY	Active	Trichloroethylene (TCE), 1,1-Dichloroethylene, Vinyl chloride, Tetrachloroethylene (PCE), 1,2-Dichloroethylene (cis), 1,2-Dichloroethylene (trans)	0	10.9	0.948
41590001	REDWOOD GENERAL TIRE SERVICE CO.	Refer: RWQCB	* HYDROCARBON SOLVENTS, * WASTE OIL & MIXED OIL	0	10.9	0.943
T0608100068	BEEGER PROPERTY	COMPLETED - CASE CLOSED - LAND USE RESTRICTIONS	GASOLINE	0	10.9	0.943
T0608149545	PICK & SAVE AUTO WRECKERS	OPEN - INACTIVE	WASTE OIL / MOTOR / HYDRAULIC / LUBRICATING	1	10.8	0.941
SL0608171026	FORMER UPRR RAIL SPUR	COMPLETED - CASE CLOSED	ARSENIC	1	10.7	0.939
60002490	Kaiser Permanente - Redwood City	Active	TETRACHLOROETHYLENE (PCE), TRICHLOROETHYLENE (TCE) , Methyl tertbutyl ether (MTBE), Perchlorate, Trichloroethylene (TCE), 1,2-Dichloroethylene (cis)	0	10.7	0.934



September 5, 2024

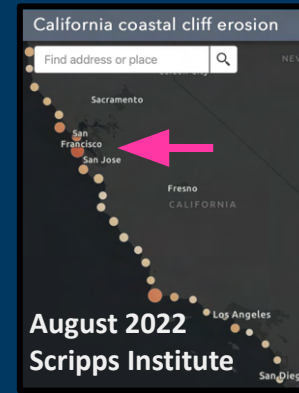
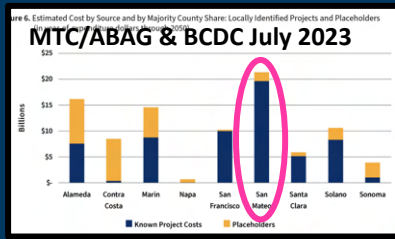
SPUR Forum on Groundwater Rise

San Mateo County Flood and Sea Level Rise Resiliency District

Len Materman, CEO

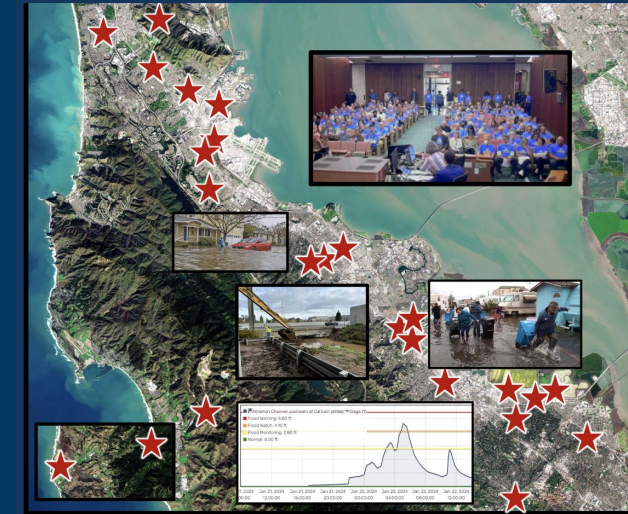
info@OneShoreline.org

OneShoreline
Building Solutions for a Changing Climate



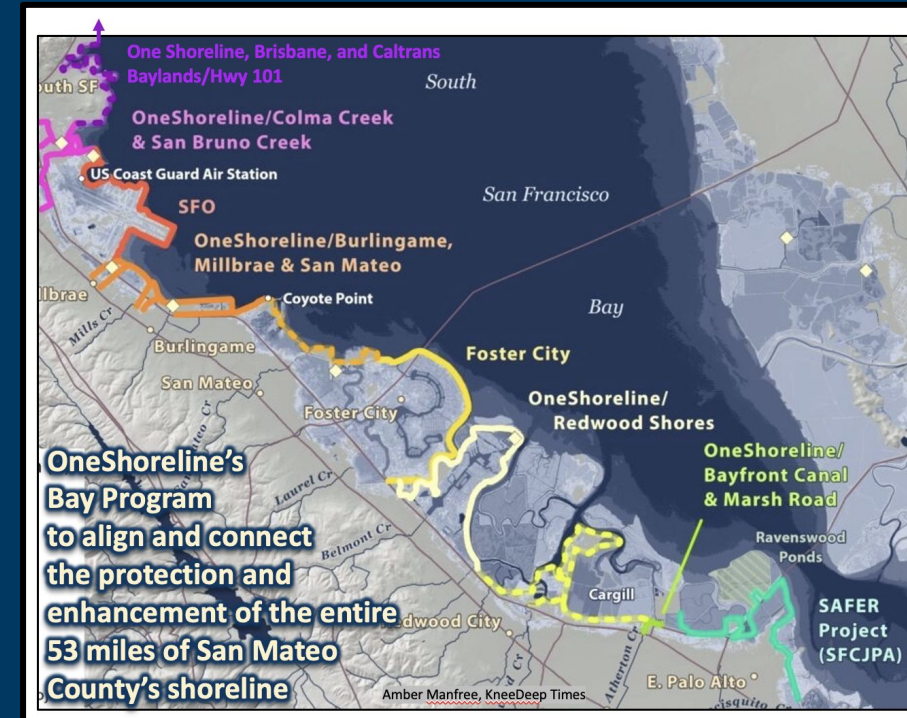
Climate change is a transformative challenge that jurisdictions in San Mateo County were not well-positioned to address individually.

State law created OneShoreline on Jan. 1, 2020 as the first independent government agency in CA to plan and build regional resilience related to the water-related impacts of climate change: flooding, SLR, coastal erosion, drought, and groundwater rise.



OneShoreline 2024-25 Priorities

- Advance Bayside and Pacific Coast projects that align long-term resilience for developed and natural areas across jurisdictions
- Provide early warning of, and reduce the impacts of, today's extreme storms made worse by rising tides
- Develop ongoing funding streams to sustain resilience efforts long-term
- Plan land use, private development, and public infrastructure for future climate-driven conditions in coordination with regional resilience projects



OneShoreline's *Planning Policy Guidance* for Bayside jurisdictions



Incorporate climate resilience into general plans, specific plans, zoning ordinances, and reviews of private development proposals so new facilities can function during their intended lifespan and contribute to regional resilience. Regarding groundwater rise, developments shall:

- include a buffer zone of 35' along creeks to increase capacity for groundwater flows
- secure site-specific data and analyze vulnerabilities to all project features, including below ground structures, utilities, and contaminated sites, as well as roadway subgrades
- monitor and mitigate future groundwater impacts, including buoyancy, seepage, infiltration, liquefaction, corrosion, and hazardous materials mobilization
- disclose site-specific risks in real estate transactions

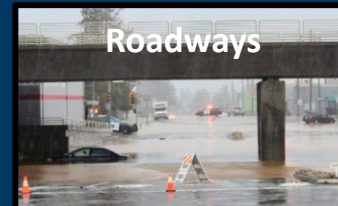
OneShoreline is creating countywide guidance for resilient *Public Infrastructure* by integrating climate risks into the processes and documents used to plan and design the backbone of our communities, starting with roads, and stormwater and wastewater systems; followed by water recycling systems, communications and electric/gas utilities, parks, and public buildings.



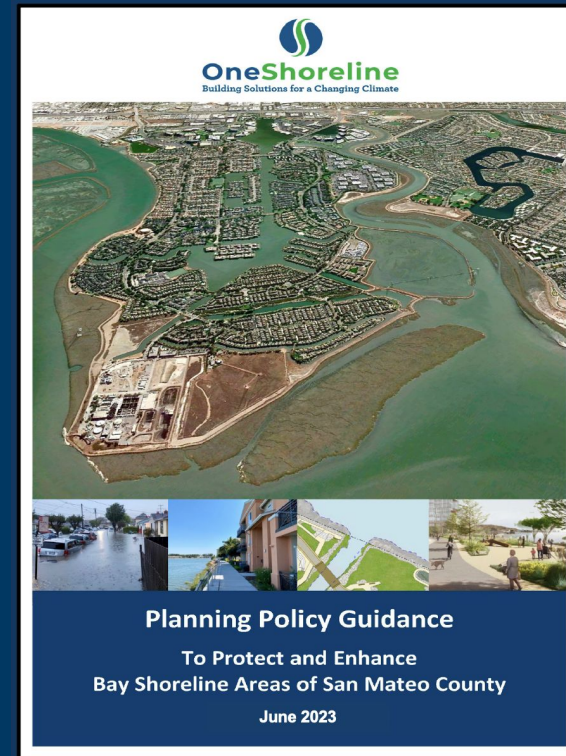
Stormwater



Wastewater



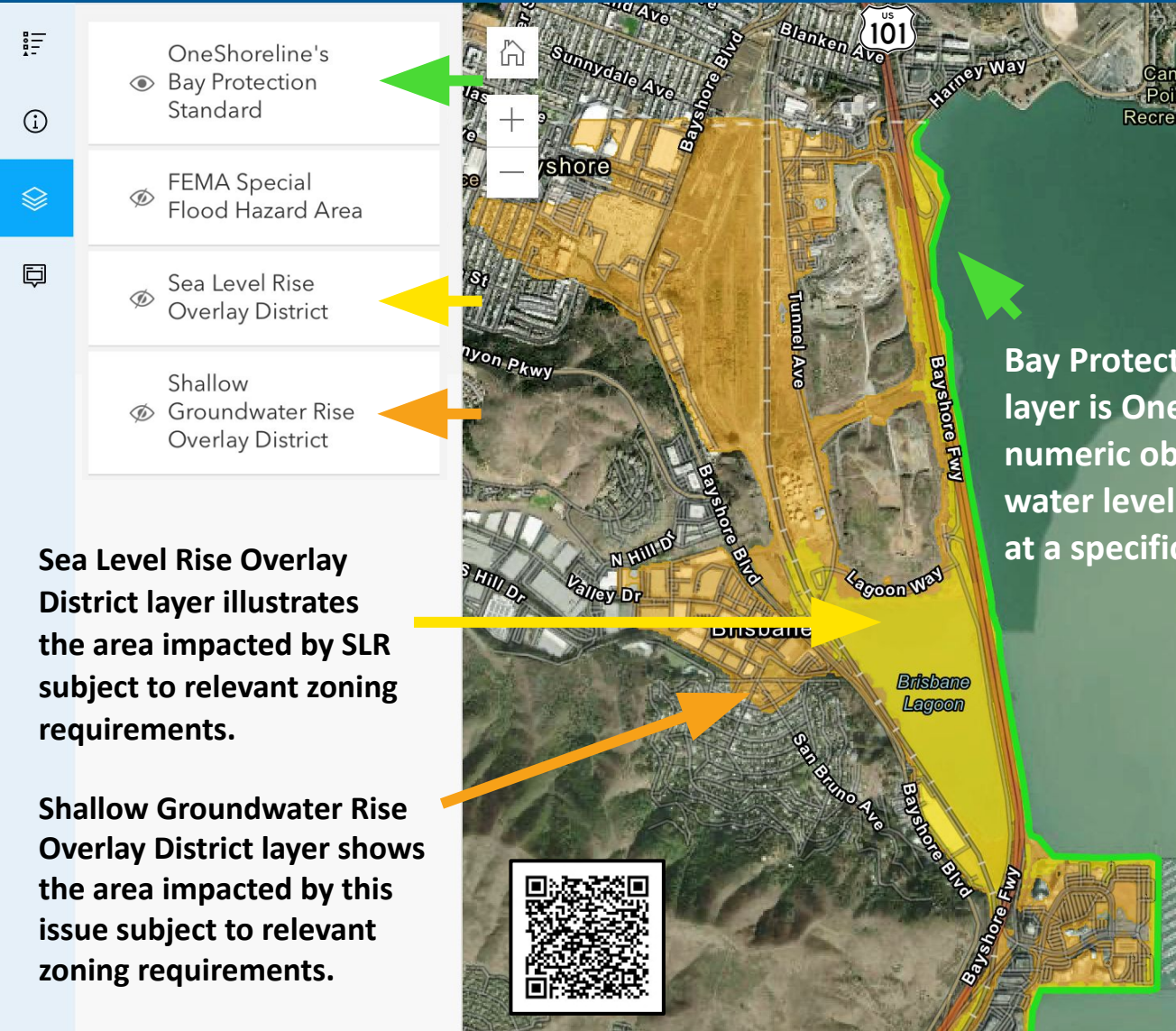
Roadways



[OneShoreline.org/Planning-Guidance](https://OnShoreline.org/Planning-Guidance)

A new interactive online map accompanying OneShoreline's *Planning Policy Guidance*

OneShoreline Bayside Map of Future Conditions

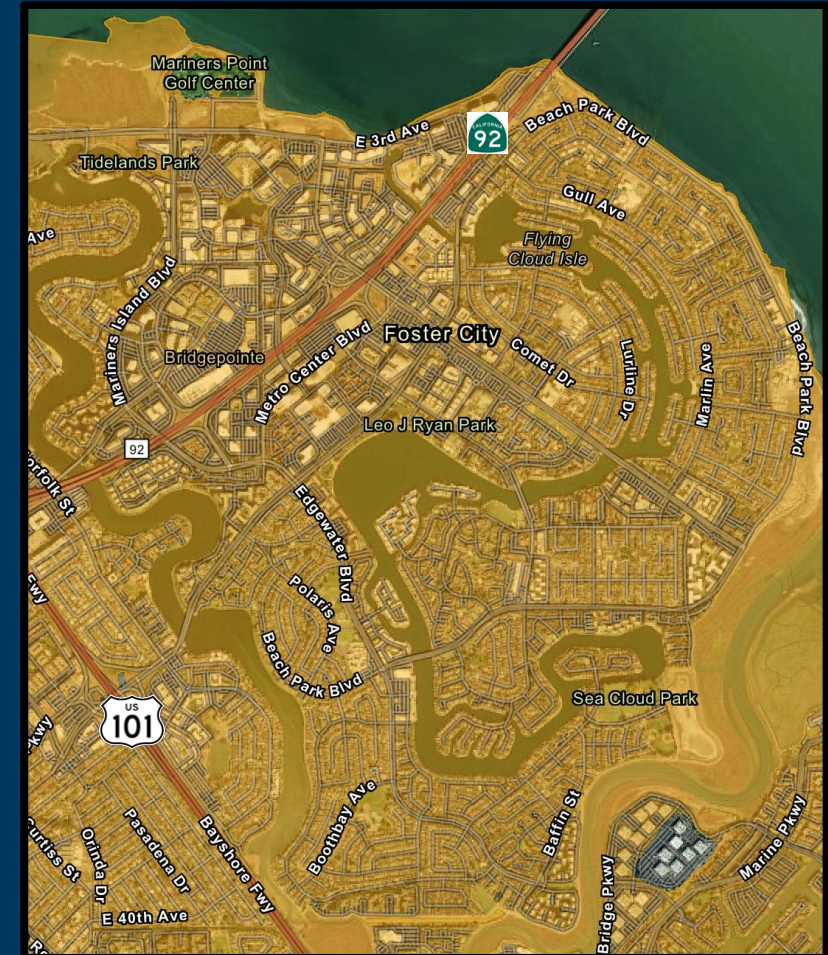


Sea Level Rise Overlay District layer illustrates the area impacted by SLR subject to relevant zoning requirements.

Shallow Groundwater Rise Overlay District layer shows the area impacted by this issue subject to relevant zoning requirements.

Bay Protection Standard layer is OneShoreline's numeric objective for water level protection at a specific location.

Shallow groundwater rise layer in the Foster City area





Regional Shoreline Adaptation Plan

An implementing project of **BAY ADAPT**

BCDC and the Regional Shoreline Adaptation Plan

Dana Brechwald
Assistant Planning Director for
Climate Adaptation

August 15, 2024

About BCDC



The San Francisco Bay Conservation and Development Commission protects and enhances San Francisco Bay and advances the Bay's responsible, productive, and equitable use for this and future generations as we face a changing climate and rising sea levels.

What We Do

- Issue and enforce permits for projects in the bay and on the shoreline
- Limit bay fill, preserve and enhance public access to the bay
- Help cities and counties adapt to sea level rise
- Plan for equitable, safe, and science-based future for the bay



BAY ADAPT

REGIONAL STRATEGY FOR A RISING BAY

A regional, **consensus-driven strategy** that lays out the actions necessary to adapt the Bay Area to rising sea level to protect people and the natural and built environment.

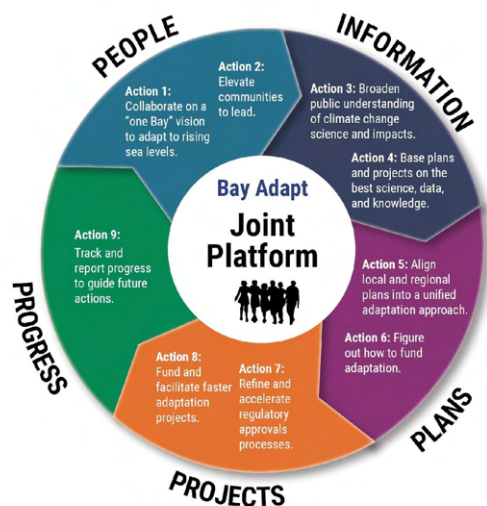
An initiative of the San Francisco Bay Conservation and Development Commission.



Photo of King Tides flooding at the Embarcadero, San Francisco. Photo courtesy of the California King Tides Project.

The Regional Shoreline Adaptation Plan (RSAP) is implementing the Joint Platform

- *Task 1.1:* Create a long-term regional vision rooted in communities, Bay habitats, and the economy
- *Task 5.1:* Provide incentives for robust, coordinated local adaptation plans.
- *Task 8.1:* Incentivize projects that meet regional guidelines
- *Task 9.1:* Measure regional progress using metrics and share results.



Why plan regionally for sea level rise?

- **Coordinated** adaptation
- Priority resources to **frontline communities**
- Long-term **health of wetlands**
- **Strategic** implementation
- Common **standards and methods**
- Pipeline of **funding**
- Track and **measure progress**



Regional Shoreline
Adaptation Plan

An implementing project of **BAY ADAPT**

What is the Regional Shoreline Adaptation Plan (RSAP)?

A region-wide plan for the Bay shoreline that guides the creation of coordinated, **locally-planned** sea level rise **adaptation actions** that **work together** to meet **regional goals**.



OCEAN
PROTECTION
COUNCIL



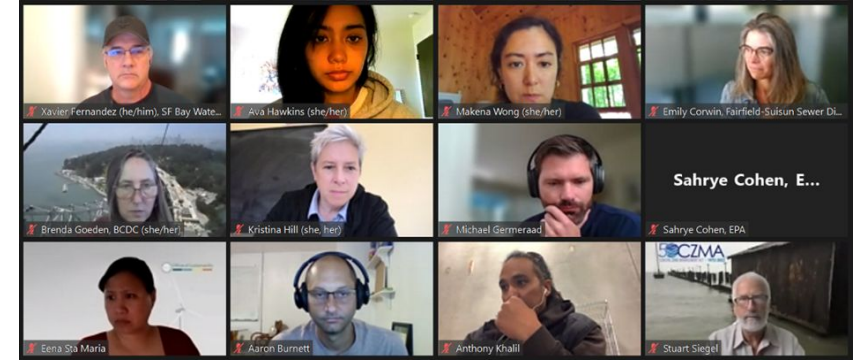
New legislation to support sea level rise adaptation (SB 272)

- Statewide legislation passed into law on Oct 7, 2023
- Requires local jurisdictions to develop subregional resiliency plans and for BCDC to develop guidelines for which plans must follow
- Requires BCDC to review - and approve or deny plans - based on consistency with guidelines
- Prioritizes State funding for plan creation and projects in approved plans



- ✓ **Regional Preparation**
- ✓ **Coordination**
- ✓ **Priorities and Funding**

Broad engagement across the region



- 10 Community events
- 5 Advisory Group meetings
- 15+ Subcommittee meetings
- 1 Public workshop
- 5 Local workshops
- 1 Practitioner workshop
- 3 Conferences
- 1 Online survey
- 9-County local elected official road show



• Public comment period begins **September 16**

Coastal Flood Hazards and Sea Level Rise Scenarios Standard

Coastal Flood Hazards and Sea Level Rise Scenarios						
Sea Level Rise Scenarios	Minimum Coastal Flood Hazards				Required Elements	
	Tidal Inundation (MHHW)	Storm Surge (100-year)	Shallow Groundwater	Groundwater Emergence/ Flooding	Element C: Vulnerability Assessment**	Element D: Adaptation Strategies and Pathways**
0.8 ft (2050)	MHHW + 0.8 ft	MHHW + 3.5 ft + 0.8 ft	Depth to groundwater for 0.8 ft of sea level rise	Groundwater that has reached the surface for 0.8 ft of sea level rise	✓	✓
3.1 ft (2100 Intermediate)	MHHW + 3.1 ft	MHHW + 3.5 ft + 3.1 ft	Depth to groundwater for 3.1 ft of sea level rise	Groundwater that has reached the surface for 3.1 ft of sea level rise	✓	✓
4.9 ft (2100 Intermediate-High)	MHHW + 4.9 ft	MHHW + 3.5 ft + 4.9 ft	Depth to groundwater for 4.9 ft of sea level rise	Groundwater that has reached the surface for 4.9 ft of sea level rise	✓	
6.6 ft (2100 High)	MHHW + 6.6 ft	MHHW + 3.5 ft + 6.6 ft	Depth to groundwater for 6.6 ft of sea level rise	Groundwater that has reached the surface for 6.6 ft of sea level rise	✓	✓*

Topic Area: Shoreline Contamination

One Bay Vision: People and ecosystems are safe from contamination risks

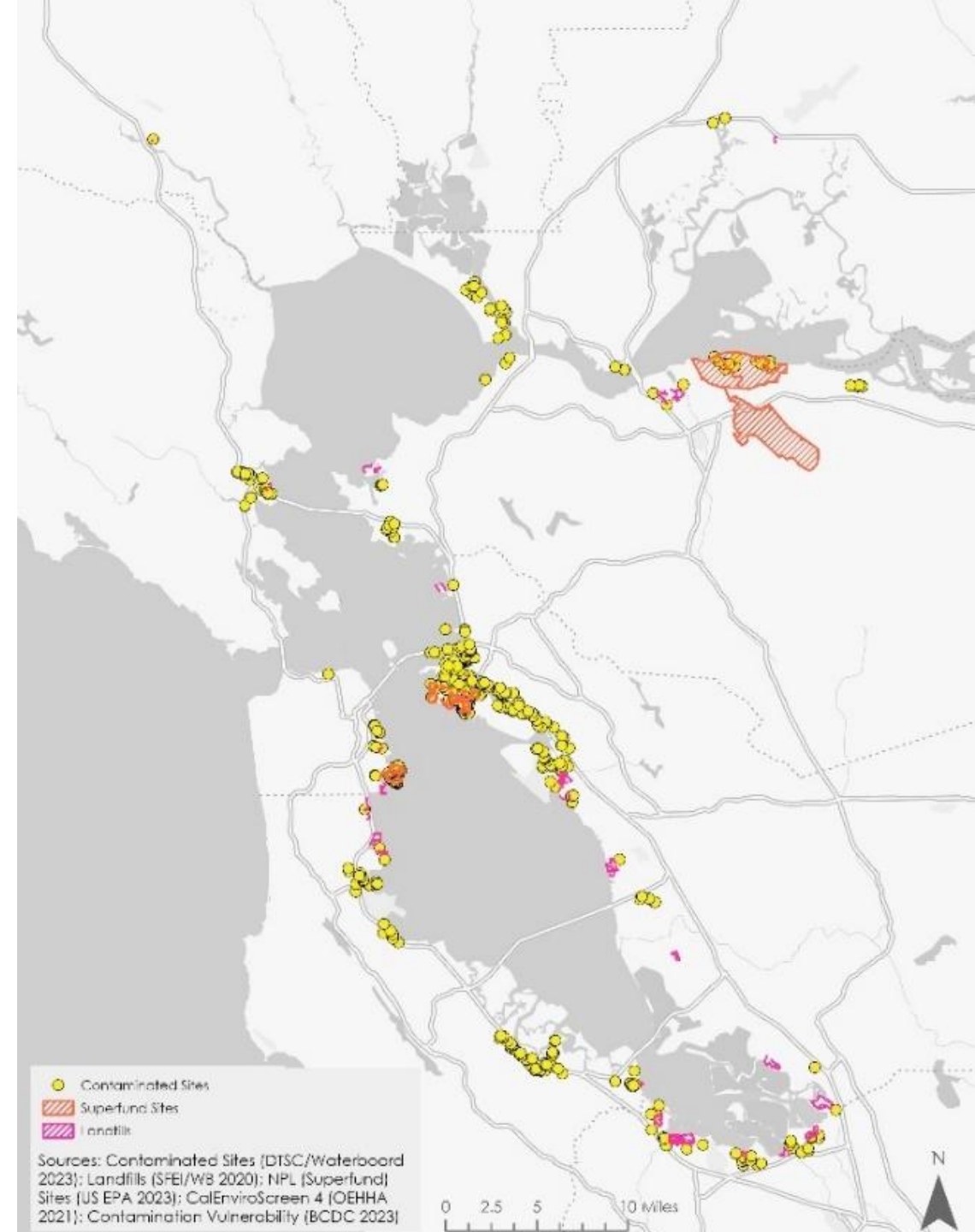
To achieve this:

- Collaborate with communities, scientists, industries, and government agencies to **identify, mitigate, adapt, and remediate contaminated shoreline sites**.
- Prioritize remediation of contaminated sites in Environmental Justice communities, while minimizing transferring contamination burden.
- **Integrate emerging science on shallow groundwater rise** into planning and adaptation decisions and identify innovative solutions.



Strategic Regional Priority: Reduced Contamination in Environmental Justice Communities

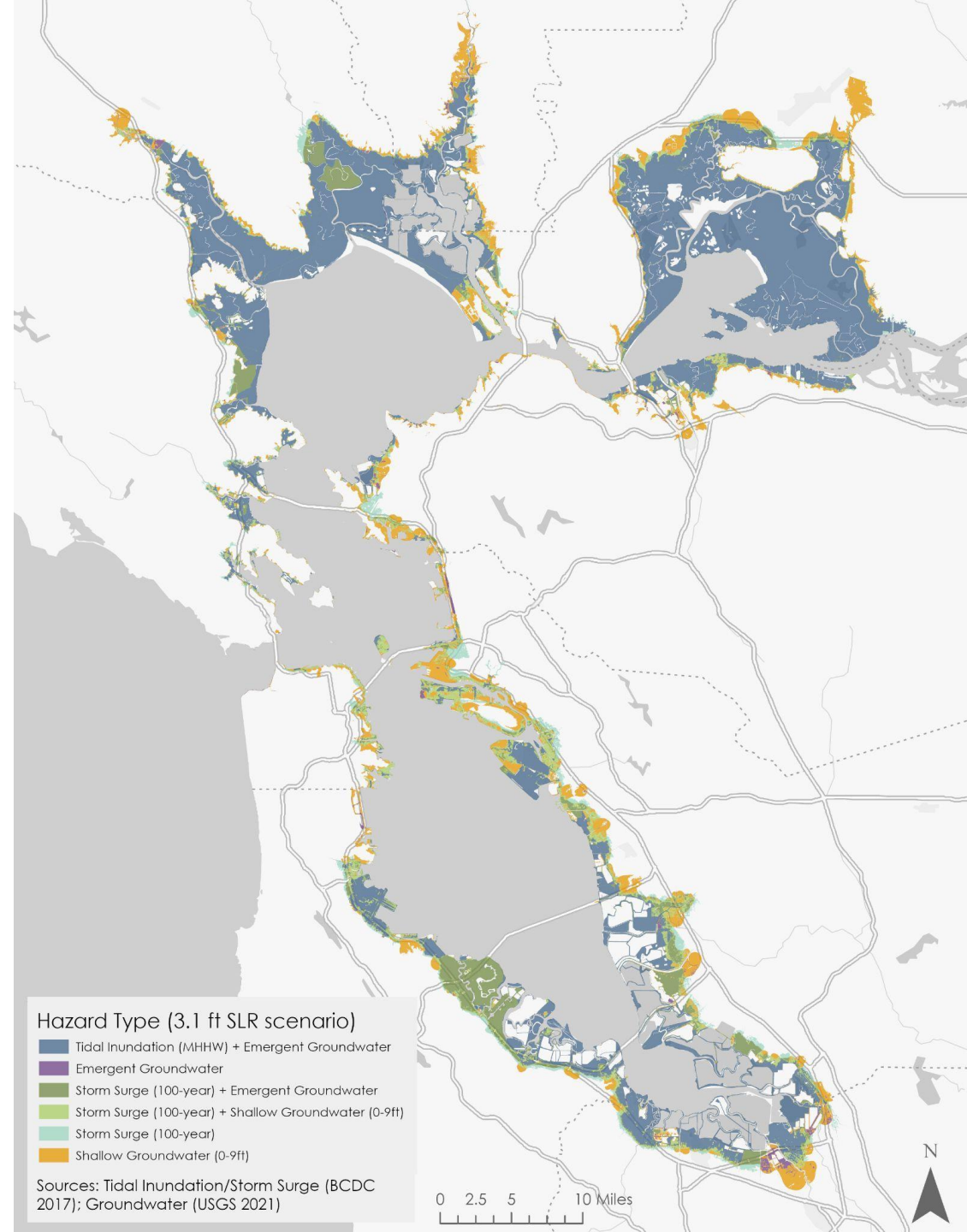
- Areas along the Bay shoreline containing identified contaminated sites in environmental justice communities must identify strategies to advance remediation and reduce risks of toxic materials mobilization and vaporization in communities due to flooding. This should include analysis of how planned adaptation will prevent mobilization of contaminants or demonstration of how coordination with a lead regulatory agency is being conducted for prevention purposes (where appropriate). In the adaptation strategies, demonstrate and describe where and how remediation is being prioritized and what coordination is occurring with the responsible parties and regulatory agencies, which may include the U.S. EPA Region IX, the California Environmental Protection Agency's (Cal/EPA's) State Water Resources and Control Board and/or Regional Boards, the Cal/EPA's Department of Toxic Substances Control, and/or a County's Department of Environmental Health, or the Local Oversight Program (LOP).
- Data source: Contaminated sites, as identified by the California Water Quality Control Board (WB) and California Department of Toxic Substances Control (DTSC); Landfills, as identified by SFEI and WB; Superfund sites as identified by US EPA — within communities identified by CalEnviroScreen and BCDC's Contamination Vulnerability



Online Mapping Platform

- Display mapped data
- Download datasets
- Perform calculated statistics

Coming early 2025



Stay Involved

Learn more & sign up for our
newsletter at

www.bayadapt.org

Dana Brechwald

Assistant Planning Director for Climate
Adaptation

Dana.Brechwald@bcdca.gov



Panel Discussion

Q&A

Online

Proposition 4 Explained: The Climate Bond for a Sustainable California

 Digital Discourse

12:00 to 1:00 p.m. | Tuesday, September 17, 2024

 SPUR

Public Programs



SILVER SPUR AWARDS

Join SPUR for an evening
of inspiration at the
Silver SPUR Awards!



The Bay Area's most prominent civic event brings together elected officials, and business, civic, and philanthropic leaders to celebrate three exceptional individuals and their contributions to our communities.



Thursday, October 24, 2024
Blue Shield of California Theater
at YBCA in San Francisco

4:00 p.m. Guest check-in

4:30 p.m. Theater seating opens

5:00 p.m. Silver SPUR Awards show begins

Cocktail party and networking reception to follow at the Yerba Buena Center for the Arts

2024 HONOREES

This year, please join us in honoring:



Chip Bergh

Executive Vice Chairman of the Board
Levi Strauss & Co



Tomiquia Moss

Secretary of the California Business
Consumer Services and Housing Agency



Senator Scott Wiener

District 11
California State Senate



Thank you for joining us!