SOUTH BAY SPONGE

RESILIENT BY DESIGN
BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

THE FIELD OPERATIONS TEAM

James Corner Field Operations
Acterra
Andrea Baker Consulting
Moffatt & Nichol
Magnusson Klemencic Associates
The San Francisco Bay National Estuarine Research Reserve
The Bay Institute, Marc Holmes
SeArc - EConcrete
James Lima Planning and Development
H.T. Harvey & Associates
Adventure Pictures
Playhou.se Animation

Prepared for:

RESILIENT BY DESIGN

Collaborative Design Phase
January - May 2018

RESILIENT BY DESIGN BAY AREA CHALLENGE THE FIELD OPERATIONS TEAM

RESILIENT BY DESIGN

BAY AREA CHALLENGE

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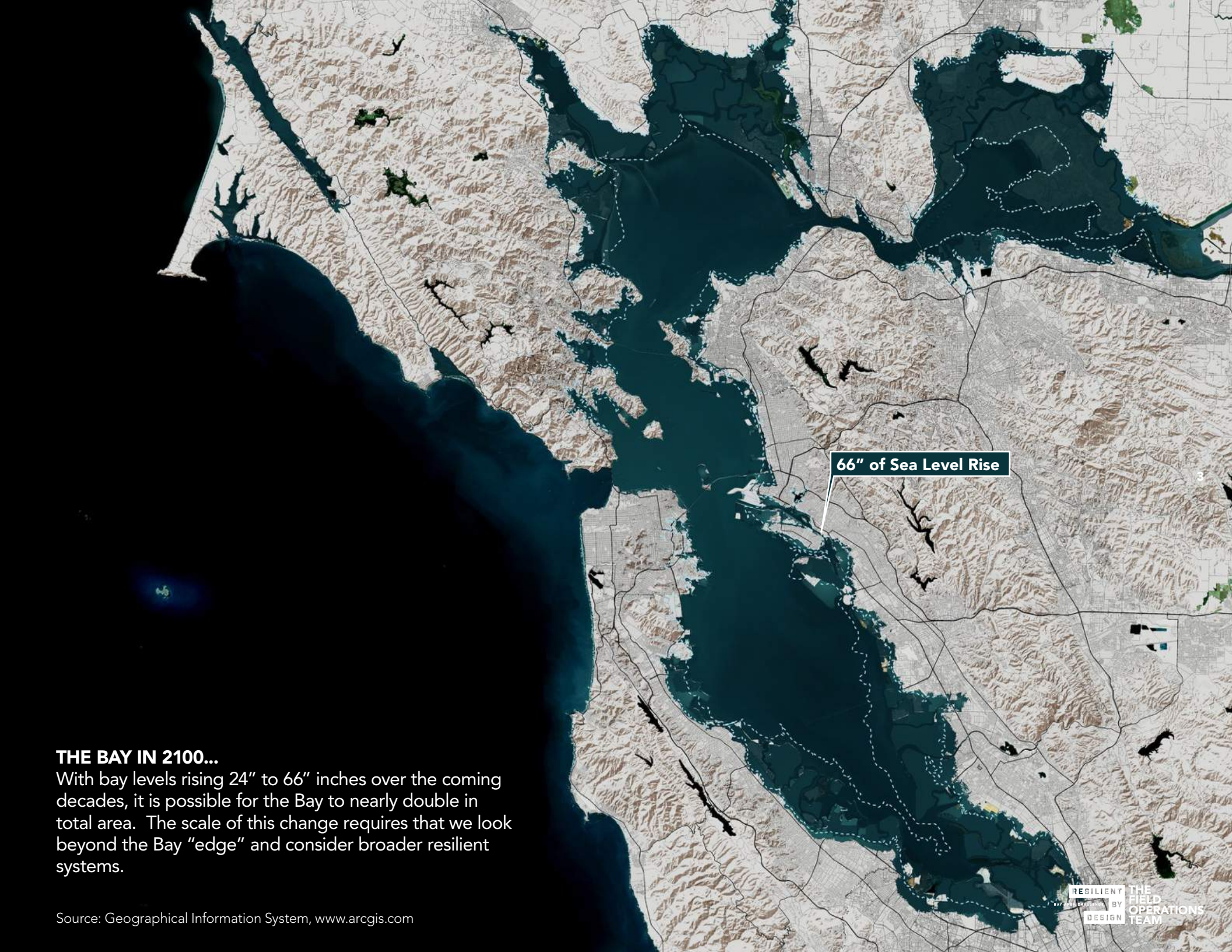
OBSERVATION #1:
Resiliency = the Capacity to Bounce Back

Resiliency does not mean 100% protection and insulation from challenges, but more the capacity to recover from and adapt to ongoing and varied challenges over time. A "resilient community" is one that can quickly recover, creatively adapt and absorb stresses without too much loss of investment.

Thus, one cannot simply isolate "resiliency in the bay" to water's edge ecology and engineering alone; the effort must equally embrace broader issues of economic investment, community enhancement, primary infrastructures, and a variety of different solutions to different contexts, enabling more flexible and agile forms of "bouncing back."

Question: How do we strengthen design and planning approaches to bay resiliency by integrating people and communities with ecological and infrastructural systems?



THE BAY IN 2100...
With bay levels rising 24" to 66" inches over the coming decades, it is possible for the Bay to nearly double in total area. The scale of this change requires that we look beyond the Bay "edge" and consider broader resilient systems.

Source: Geographical Information System, www.arcgis.com

OBSERVATION #2:
BAY COMMUNITIES - A DISCONNECT?

Whereas a satellite photograph may well show many communities surrounding the Bay, the actual condition on the ground is that these same communities are often disconnected from and bear little actual relationship to the Bay. Many are cut off from the Bay by freeways or other infrastructures; others turn their back on marsh-land and other edge conditions as they see little value or connection.

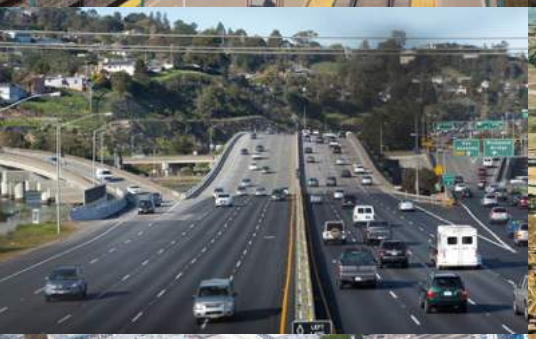
Question: How do we re-connect communities with the Bay in direct, visceral and experiential ways that support greater understanding and reciprocity?




MAJESTIC




Many communities today
are cut off from the Bay









Delta



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OBSERVATION #3: BAY NATURE?

To the extent that the Bay has always had soft wetland and marsh edges, these have been seriously diminished and will continue to be lost as water levels rise and swallow them up. These wetlands are crucial to resiliency as they help to absorb and minimize damage from floods and storms, while at the same time providing critical habitat and bio-diversity.

Question: How do we protect, restore, enhance and help these valuable systems to remain viable in the face of rising sea levels? How do we create new and more robust ecological systems of absorption?

HOW DO WE PROTECT AND ENHANCE THE NATURAL SYSTEMS OF THE BAY?

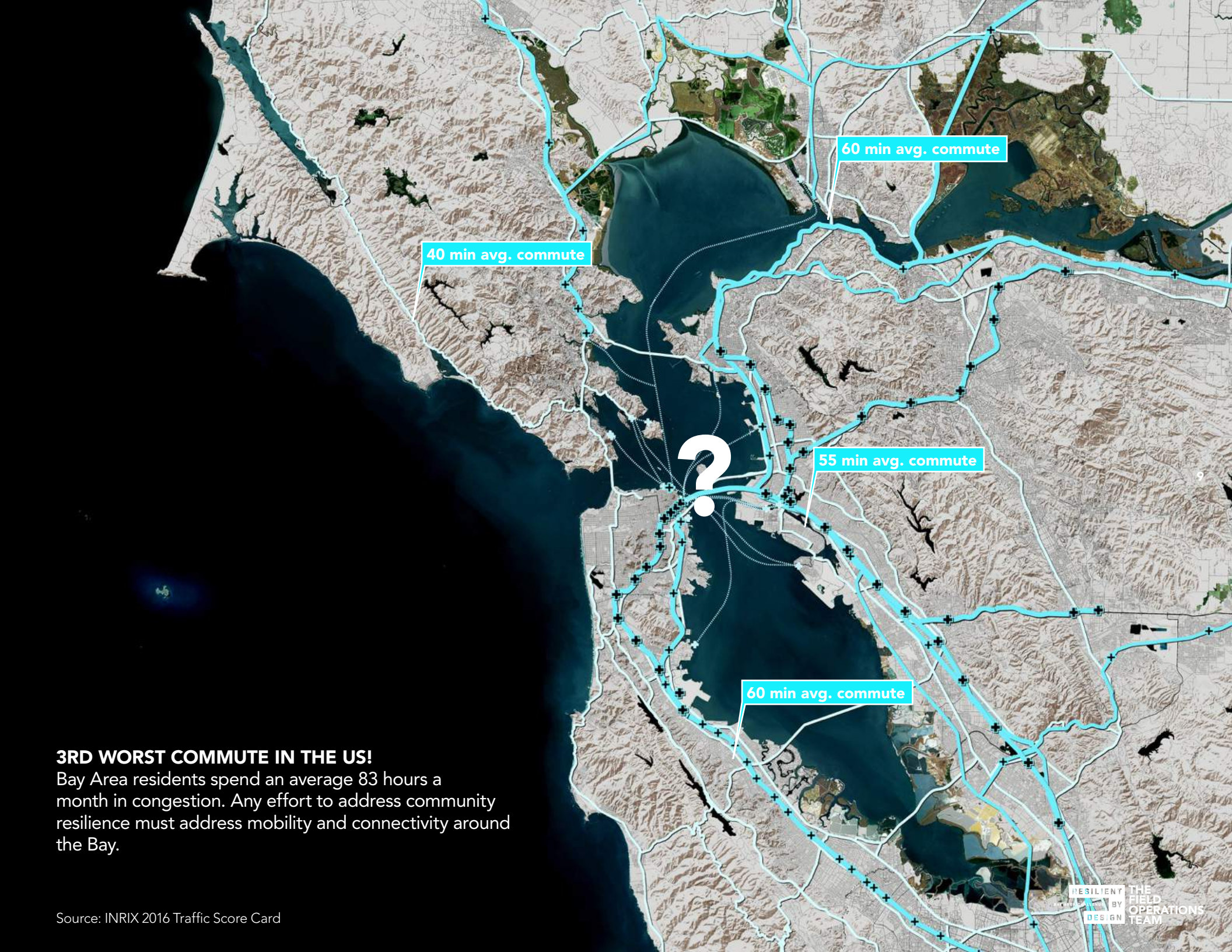
With bay levels rising 24" to 66" inches over the coming decades, the remaining marsh lands and absorptive shores will require protection, management and plans to capture and build-up sediment.

Source: San Francisco Estuary Institute, https://www.resilience.sfei.org/

OBSERVATION #4: BAY TRANSIT?

The Bay area is one of the worst regions for commuting in the country. Traffic and transit issues dominated many of the conversations with community members around the Bay.

Question: How might we tie resiliency planning in with improvements to connectivity, mobility and transit? How might we coordinate with California's 2018 State Rail Plan to leverage the state's capital investment strategies for a coordinated transit system that will dramatically improve mobility and enhance quality of life throughout the region?



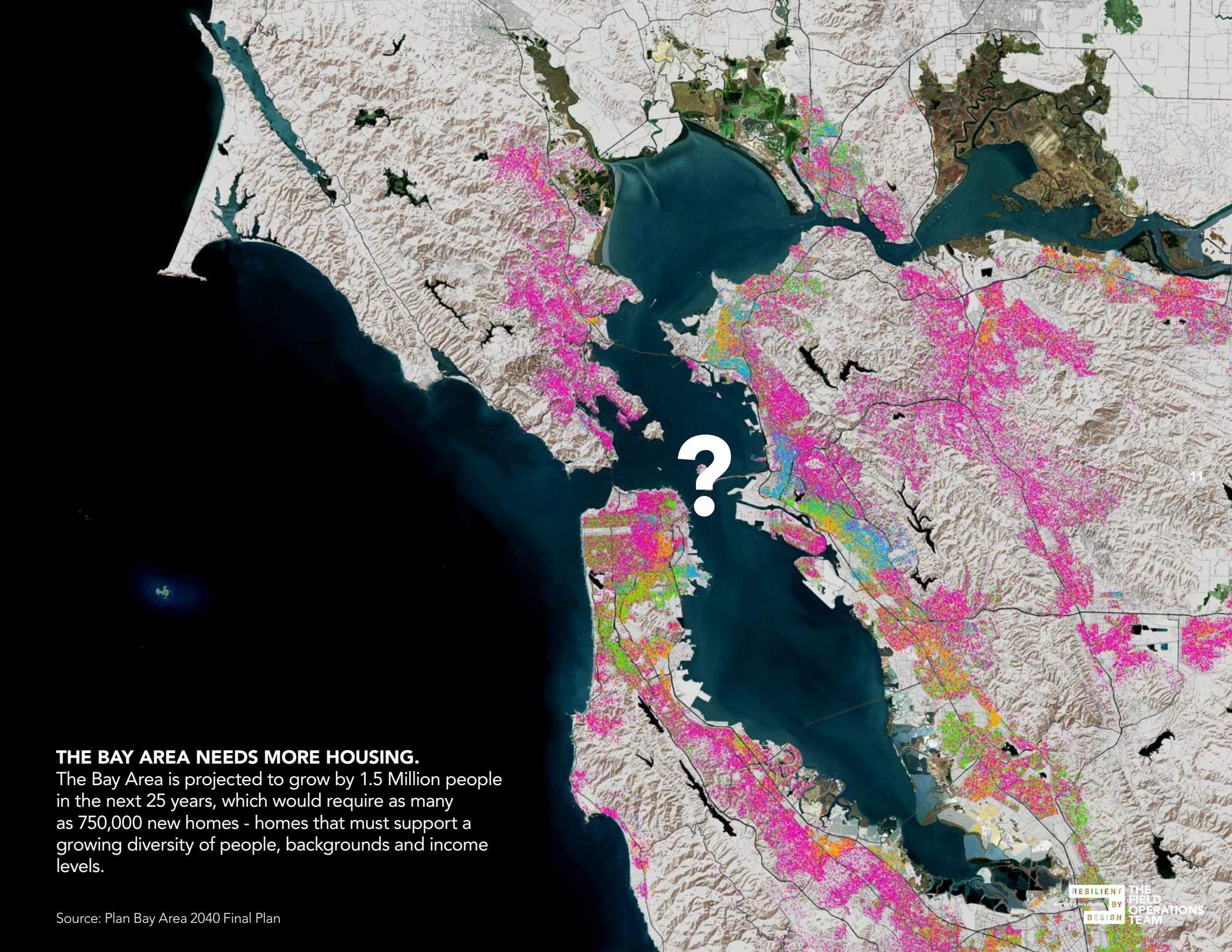
3RD WORST COMMUTE IN THE US!
Bay Area residents spend an average 83 hours a month in congestion. Any effort to address community resilience must address mobility and connectivity around the Bay.

Source: INRIX 2016 Traffic Score Card

OBSERVATION #5: HOUSING?

The Bay area is desperately under-served in terms of housing, especially affordable housing for lower income groups. At the same time, many sites are land-constrained and challenged for building new communities. Surely new investment in housing and development would not only help to support a more equitable and diverse set of communities, but would also help to support some of the costs involved in building a more resilient Bay and related infrastructures.

Question: How might development, densification, infill and land transfers help balance the equation necessary for Bay resiliency?



THE BAY AREA NEEDS MORE HOUSING.
The Bay Area is projected to grow by 1.5 Million people in the next 25 years, which would require as many as 750,000 new homes - homes that must support a growing diversity of people, backgrounds and income levels.

Source: Plan Bay Area 2040 Final Plan

OBSERVATION #6:
BAY RESILIENCY FUNDING?

Measure AA promises $500M over 20 years for shoreline improvements. The costs of simple levee installation and upgrades, however, range from $7-77M per mile, which would equal between 7-77 miles of improvement. There are more than 500 miles of Bay edge today.

Question: Where might additional sources of funding come from? How might resiliency investments add value and therefore derive revenue? Might re-zoning, densification, infill, and land swaps / transfers help in terms of creating value over time?

KQED News TOPICS PROGRAMS & BLOGS SPECIAL COVERAGE

PENINSULA PRESS

A Year After Measure AA Passed, Funding Remains a Challenge for Restoring SF Bay Wetlands

By Isha Salian
Peninsula Press
JUNE 8, 2017

SHARE

Source: KQED News, https://ww2.kqed.org/news

SOUTH BAY TOWNS

The Bay is so many things to so many different people – it is a place of beauty, serenity, ecology, recreation, economy and identity, to name just a few. The Field Operations Team worked closely with the communities in the South Bay and Silicon Valley to shape a vibrant and living framework for adaptation in the face of climate change and sea level rise, envisioning a future where nature and technology work together to improve the resiliency of our cities and towns, our social fabric and our collective health and well-being.


San Pablo Bay
San Rafael
Richmond
Marin City
Islais Creek
San Leandro
South City
Alameda Creek
RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

The South Bay and Silicon Valley include some of the lowest-lying and most vulnerable communities to sea level rise in the Bay Area, and at the same time are growing rapidly without big plans for increasing housing and transit connectivity. Any effort for resiliency in the South Bay must consider these vulnerabilities.

And yet, Silicon Valley is a global center of innovation. Any innovations in the global effort to address climate change are poised to happen here!


5 MILES

DESIGN FOR EQUITY

Completing “resilience” in one place only magnifies the stresses and vulnerabilities of neighboring places. Without a holistic and large-scale approach, any resiliency efforts in the South Bay will be incomplete.

Therefore, The Field Operations Team worked with several neighboring communities in the South Bay, with a specific focus on East Palo Alto, one of the most disadvantaged and vulnerable communities to sea level rise in the Bay Area (and, yet, full of vitality, curiosity and enthusiasm to get things done!). Our communication and engagement efforts focused on achieving as broad and diverse a representation of the East Palo Alto community as possible.

Throughout this effort, we have sought to create an open and inclusive engagement process; to thoughtfully identify key vulnerabilities, disadvantages and inequities; and to prepare creative solutions to environmental, social and economic challenges that are resonant and effective.


EAST PALO ALTO
HOMES AT SEA LEVEL

SOUTH BAY TOWNS

Our South Bay Site covers more than 20 miles of shoreline, stretching from Bedwell Park in Menlo Park to the San Tomas De Aquino Creek in Santa Clara. Our effort covers two counties (San Mateo and Santa Clara) and as many as six cities (Menlo Park, East Palo Alto, Palo Alto, Mountain View, Sunnyvale and Santa Clara).

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

SOUTH BAY TOWNS & SEA LEVEL RISE

With bay levels rising 24” to 66” inches over the coming decades, the bay will effectively double in total area. East Palo Alto and portions of Moffett Park in Sunnyvale are already experiencing flooding after major storm events. Without a plan of action, nearly every community in the South Bay will be impacted.


South Bay Towns
2100

VULNERABILITIES

All communities on the bay are vulnerable impacts from to sea level rise. Within this 'vulnerability zone' in the South Bay, there are vulnerable community resources: homes, schools, churches and libraries; vulnerable critical infrastructure: bridges, highways, water treatment facilities, water supply facilities, airports; and, vulnerable businesses that are an economic engine for the region: Facebook, Google, Amazon and many other companies have headquarters that are at risk with sea level rise. While tools for calculating the value of expected losses are still in their early stages, current models project an average of $10-15BN in annual losses across San Mateo and Santa Clara Counties as a result of sea level rise and fluvial flooding if no action is taken.

Critical Infrastructure

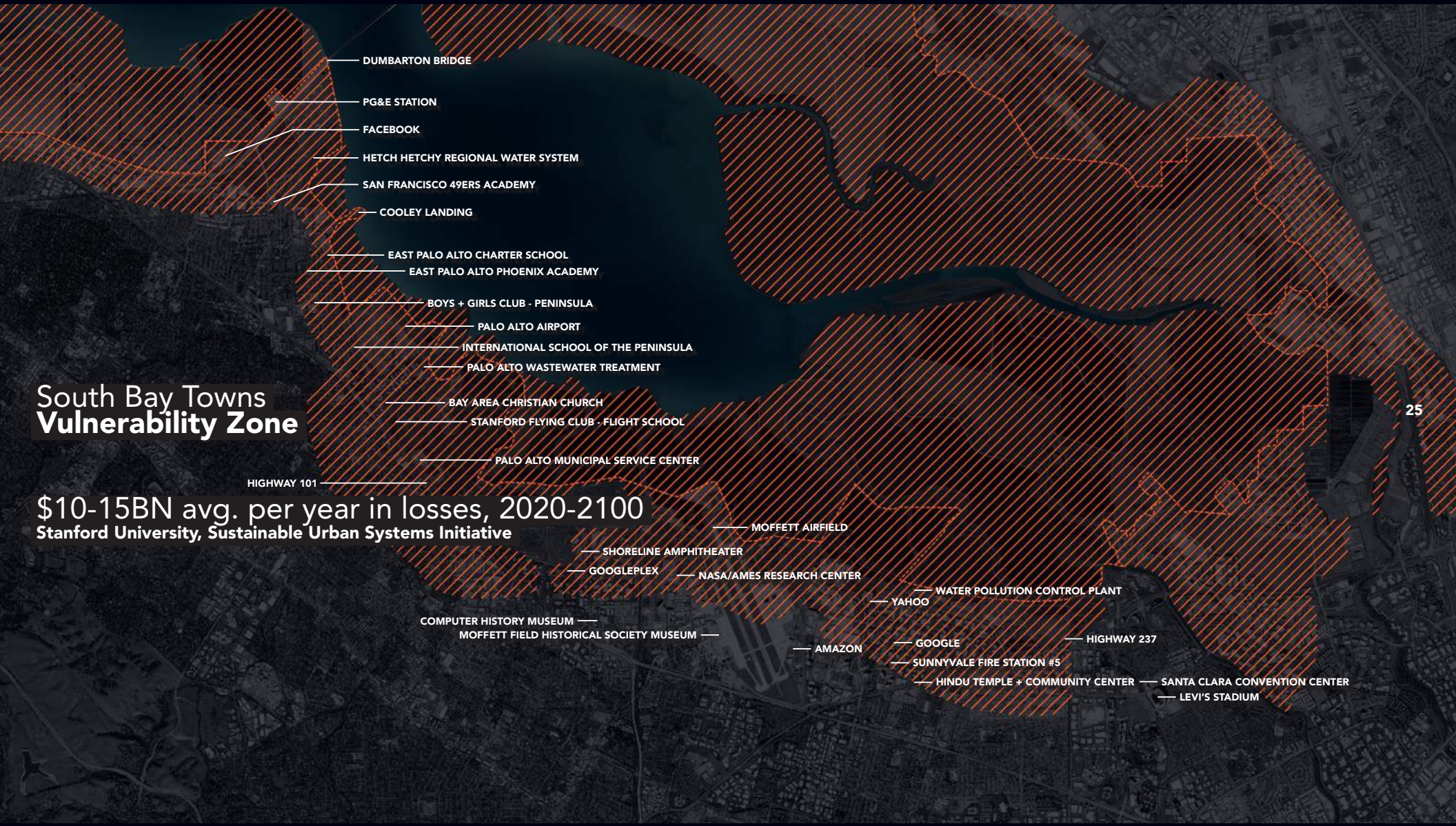
Colorado Power Station (Palo Alto)
Dumbarton Bridge
Hetch Hetchy Regional Water System
Highway 101
Highway 237
Lockheed Substations
PG&E Natural Gas Pipelines
PG&E Substations and Transmission Lines
Moffett Airfield
NASA Ames Substation
Palo Alto Airport
Palo Alto Wastewater Treatment
Sunnyvale Water Pollution Control Plant
Sunnyvale Fire Station #5
WAPA Power Substation
and much more

Community Resources

Bay Area Christian Church
Cooley Landing
San Francisco 49ers Academy
EPA Charter School
EPA Phoenix Academy
The Girls' Middle School
Hindu Temple + Community Center
International School of the Peninsula
Lord's Grace Christian Church
Ohlone Elementary School
Oshman Family Jewish Community Center
Palo Verde Elementary School
Palo Alto Municipal Service Center
Shoreline Amphitheater
Sunnyvale SMaRT Station Recycling Center
and many more

Business Headquarters

Acme Bioscience
Amazon
Axcient
Facebook
Equinix
Google
Honeywell
Infinera
Intuit
LinkedIn
NASA Ames Research Center
Netapp
Southwall Technologies
Texas Instruments
Yahoo
and many more



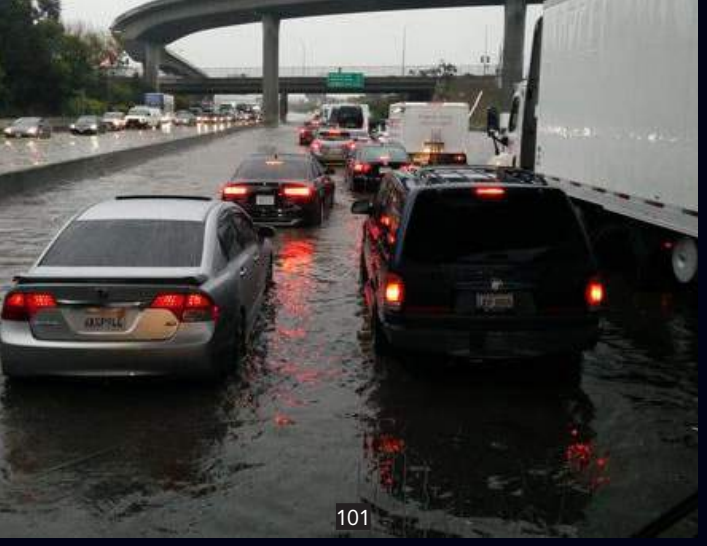
South Bay Towns
Vulnerability Zone

$10-15BN avg. per year in losses, 2020-2100

Stanford University, Sustainable Urban Systems Initiative

VULNERABILITIES

Several communities in the South Bay are already experiencing the impacts of flooding with no rise in sea level. Flooding today is largely the result of severe storms, with creeks and channels over topping their banks or storm drains reaching capacity or failing. After major storms, the city of East Palo Alto has to vacuum stormwater from streets. This storm-induced flooding will only be exacerbated with rising sea levels, as stormwater entering low-lying areas from upstream will be unable to drain into the bay.


101


San Francisquito Creek Storm Flows


San Francisquito Creek


Sunnyvale - Central Expressway


East Palo Alto

San Jose


Palo Alto


Sunnyvale


East Palo Alto

We began our effort by collating the various planning, design and engineering efforts - from Menlo Park to Sunnyvale - that are underway, on-going or simply at the conceptual stage.

We see our work as building on these efforts - finding the gaps in between and leveraging these as openings or opportunities for a more comprehensive, holistic and complete vision for resiliency in the South Bay.

Current South Bay Projects

“EDGES”

There are several shoreline projects underway in the South Bay, the largest of these efforts are 1) the USACE Shoreline Study and 2) the SAFER Bay Project.

The USACE Shoreline Project looked at eleven (11) shoreline segments (Economic Impact Areas 1-11) from Mountain View to Alviso. Of the eleven EIA’s, only EIA 11 along Alviso’s shoreline is funded and poised for implementation.

SAFER (Strategy to Address Flood protection, Ecosystems and Recreation) is a flood protection project led by the San Francisquito Creek Joint Powers Authority (SFCJPA) with a focus on cities of East Palo Alto, Menlo Park, and Palo Alto. Of the several miles included in the study, only the first phase effort at the mouth of San Francisquito Creek is funded and poised for implementation.

Edges:
Reinforced Levees

SAFER BAY EAST PALO ALTO
(unfunded)

SAFER BAY PALO ALTO
(Conceptual, unfunded)

BAY SHORELINE ECONOMIC IMPACT AREAS - EIA 1-10
(unfunded)

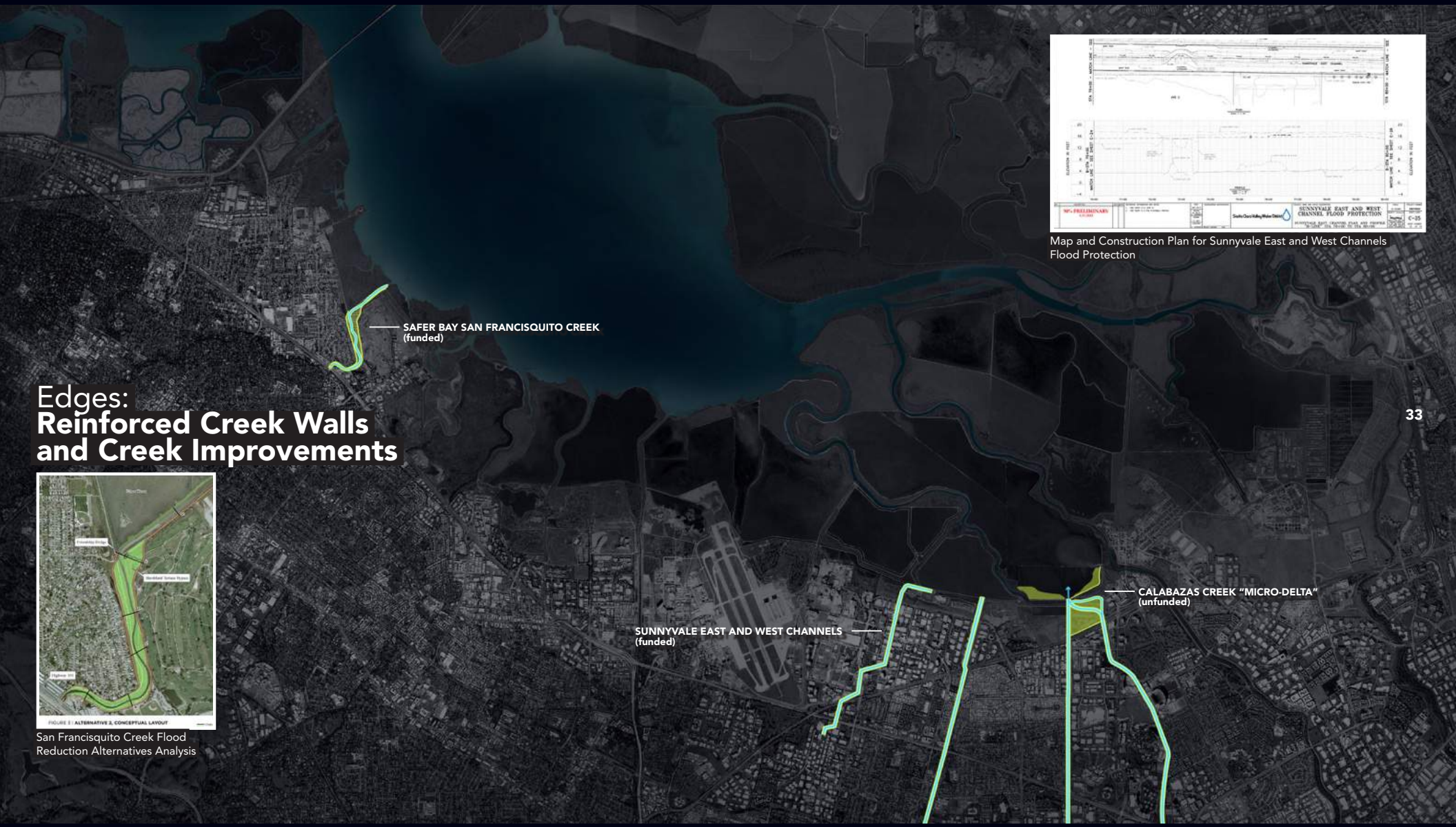
BAY SHORELINE ECONOMIC IMPACT AREAS - EIA 11
(partially-funded)

Preliminary Feasibility Study for South San Francisco Bay Shoreline Economic Impact Areas

Safer Bay Project Public Draft Feasibility Report for East Palo Alto and Menlo Park

“EDGES”

In addition to the Shoreline Levee projects, there are several creek and channel improvement projects designed to address storm water flooding in the South Bay: 1) the SAFER Bay Project for the mouth of San Francisquito Creek (S.F. Bay-Highway 101 Project), currently funded and under construction; 2) the Sunnyvale East and West Channel Improvement Project, currently permitted and funded by the Santa Clara Valley Water District; and, 3) the Calabazas Creek ‘micro-delta’ project, a collaborative effort between the South Bay Salt Ponds Project and the San Francisco Estuary Institute (SFEI) to create an inter-tidal connection between the Creek and the restoration of Pond A8.



Map and Construction Plan for Sunnyvale East and West Channels Flood Protection

Edges:
Reinforced Creek Walls and Creek Improvements

San Francisquito Creek Flood Reduction Alternatives Analysis

“SPONGES”

One of the most nationally significant restoration efforts is underway in the South Bay. The South Bay Salt Pond Restoration Project is the largest tidal wetland restoration project on the West Coast. When complete, the project will restore 15,100 acres of industrial salt ponds to a rich mosaic of tidal wetlands and other habitats. Once established, newly restored wetlands act as giant sponges, absorbing floodwaters during storm events and slowly releasing runoff back into the Bay.

Sponges:
South Bay Salt Ponds

South Bay Salt Ponds Restoration Project
(partially-funded)

“SPONGES”

In addition to the South Bay Salt Ponds Project, there are a host of remnant and emergent marshlands, restored marsh preserves, managed flood basins and proposals for further pond restoration projects and horizontal levees. Like the South Bay Salt Ponds, these marshlands, tidal wetlands and managed ponds act as ‘sponges’ by increasing the flood carrying capacity of the region.

Sponges:
Marshes, Flood Basins and Managed Ponds

"CORRIDORS"

Each city along the South Bay has current plans that aim to guide any growth or redevelopment within their jurisdiction. There are presently several plans in the South Bay that govern the redevelopment of low-lying areas that are highly vulnerable to sea level rise, including: 1) Facebook's new Willow Campus Plan in Menlo Park; 2) the City of East Palo Alto Ravenswood TOD Specific Plan; 3) the City of Mountain View Specific Plan; 4) NASA Ames Development Plan; and, 5) the City of Sunnyvale Moffett Park Specific Plan, which made headlines recently with the unveiling of Google's many recent acquisitions in Moffett Park. With such significant planned growth and change, there is an unprecedented opportunity to coordinate this growth with resiliency efforts.

Corridors:
Specific Plans

CITY OF MENLO PARK
FACEBOOK WILLOW CAMPUS
(funded)

CITY OF EAST PALO ALTO
RAVENSWOOD TOD SPECIFIC PLAN
(unfunded)

City of Sunnyvale Moffett Park Specific Plan

CITY OF MOUNTAIN VIEW
SPECIFIC PLAN
(partially-funded)

CITY OF SUNNYVALE
MOFFETT PARK SPECIFIC PLAN
(partially-funded)

NASA AMES DEVELOPMENT PLAN
(partially-funded)

Ravenswood / 4 Corners TOD Specific Plan - City of East Palo Alto

“CORRIDORS”

Each of the region’s General and Specific Plans include aspirations and provisions for increased public transit, ranging from Light Rail systems in Sunnyvale and San Jose, to BRT routes in Menlo Park, East Palo Alto, Palo Alto and Mountain View. One of the most transformational transit projects for the South Bay would be the Dumbarton Rail Project, a proposal to extend rail service from the Caltrain Station in Redwood City across the Bay to Union City, with a new station in Menlo Park or East Palo Alto. While this project is currently unfunded, original finance plans included provisions for sea level rise improvements that would benefit East Palo Alto and Menlo Park.

Hubs:
Transportation Planning

DUMBARTON RAIL CORRIDOR
ALTERNATIVES STUDY
(unfunded)

Dumbarton Rail Corridor Alternatives Study

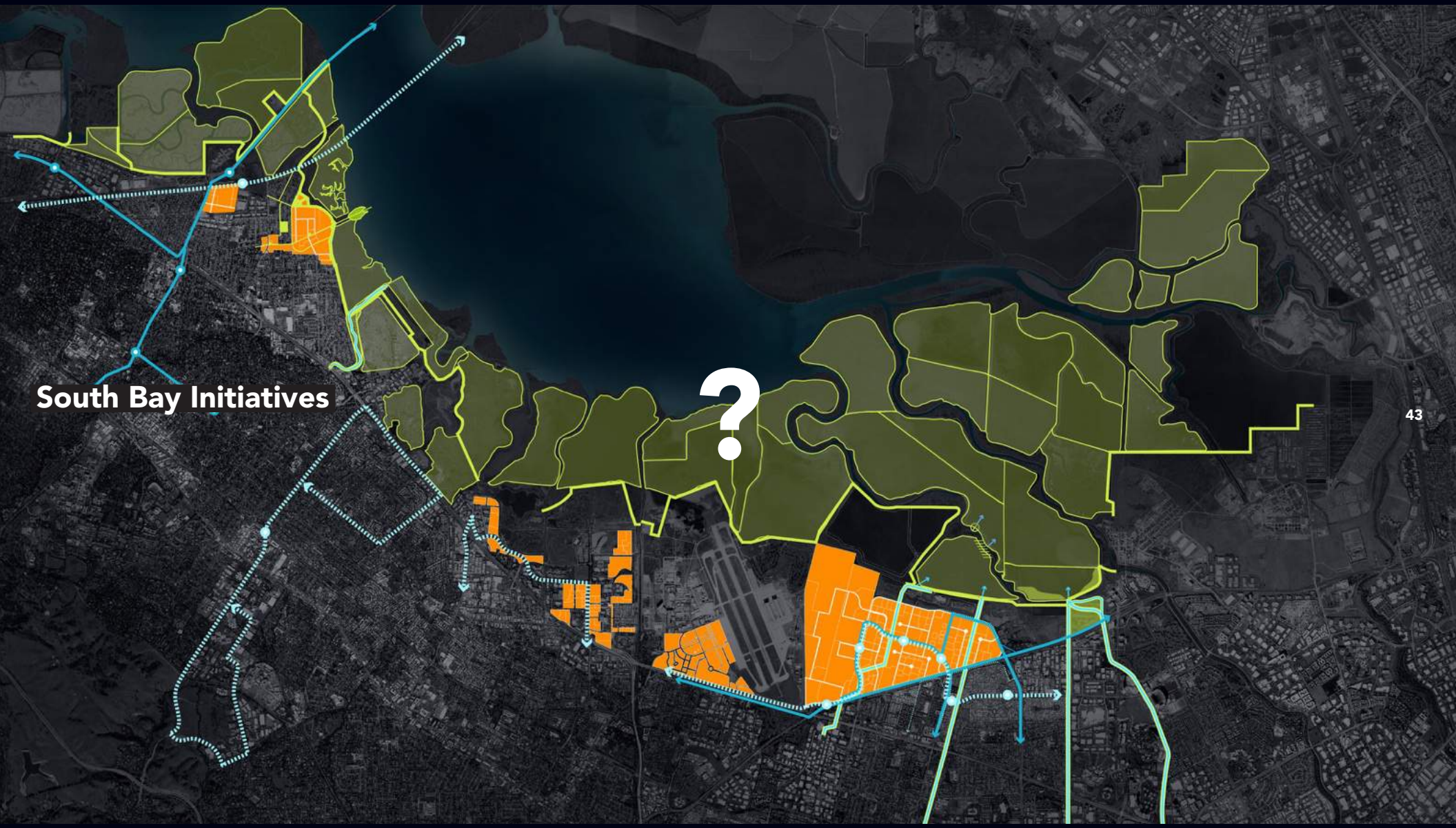
CITY OF MOUNTAIN VIEW
SPECIFIC PLAN
(partially-funded)

City of Sunnyvale Moffett Park Specific Plan

CITY OF SUNNYVALE
MOFFETT PARK SPECIFIC PLAN
(partially-funded)

SOUTH BAY PROJECTS: COLLATION AND COHESION

The simple effort of collating the many projects in the South Bay is incredibly instructive and motivating: it is clear that we have a remarkable opportunity to increase the synchronization between the important efforts to advance flood protection in the region with the unprecedented and ambitious growth in the very locations that are most vulnerable. How might this synchronization and potential be unlocked? Furthermore, how might any coordination and cohesion between efforts achieve the greatest range of benefits for all?


South Bay Initiatives
?

SOUTH BAY TOWNS: COORDINATION & COOPERATION

The South Bay Towns project is the epitome of a multi-jurisdictional challenge: the project encompasses two counties (San Mateo, Santa Clara), one water district (Santa Clara Valley Water District), six cities (Menlo Park, East Palo Alto, Palo Alto, Mountain View, Sunnyvale, Santa Clara), and at least five federal agencies (National Marine Fisheries Service, U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, U.S. Natural Resources Conservation, NASA). At each level, each of these agencies - among many other non-government stakeholders - are leading their own sea-level rise planning processes, which can easily result in ad-hoc decision-making, lack of regional coordination and failure to account for interdependence. What new institutional and governance arrangements might provide processes for multi-level coordination and cooperation?

RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

SOUTH BAY TOWNS: OUTREACH AND ENGAGEMENT

Our approach to outreach and engagement in the South Bay is, in many ways, 'Come one, come all!" We set out to listen to, learn from, and collaborate with any and all agencies working on projects related to sea-level rise or to bayfront planning in general, as well as any and all residents that we could welcome into our process.

Our approach was two-fold:
First, we established connections with state, regional, and county agencies working directly with sea-level rise in the South Bay and branched out to coordinate with individual cities, NGOs and businesses. We integrated each agency into our process through meetings, workshops, and one-on-one conversations and we incorporated all feedback into our thinking and into our wider vision for the South Bay.

Second, we set out to connect directly with residents and to work with local community groups, organizations and individuals to create engagement activities that fostered communication and enabled us to understand and address their vulnerabilities, while simultaneously creating as much value as possible.

South Bay Towns Active Stakeholders:

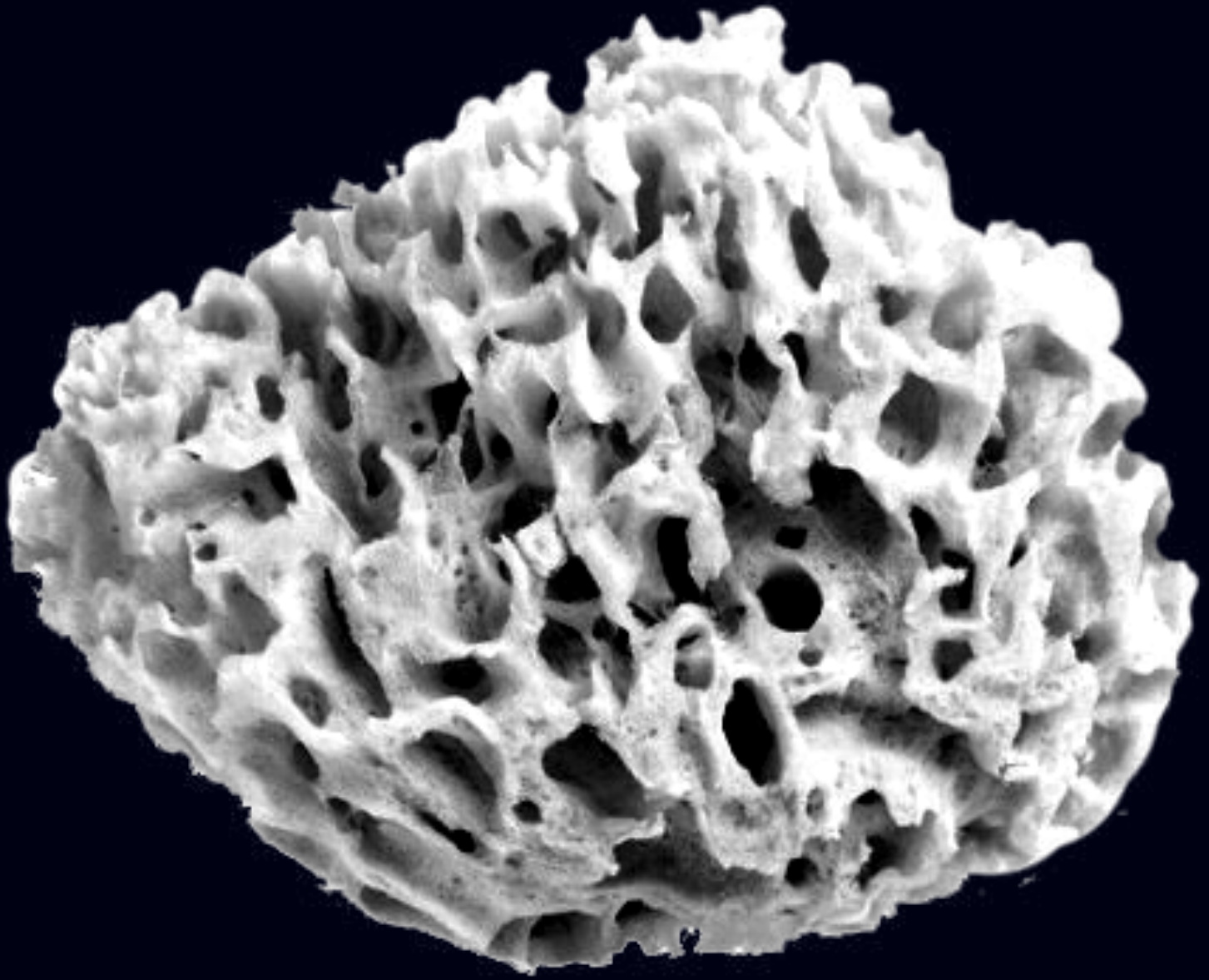
Acterra
California Coastal Conservancy
Citizens Committee To Complete The Refuge
City of East Palo Alto
City of Palo Alto
City of Sunnyvale, Environmental Dept.
East Palo Alto Residents, EPA Farmers Market
East Palo Alto Residents, EPA Public Meeting
East Palo Alto Residents, St. Francis of Assisi
East Palo Alto Youth, EPA Phoenix Academy
Google
Joint Venture Silicon Valley
Mountain View Residents, MV Farmers Market
Mountain View Residents, Shoreline Park
Mid-Pen Regional Open Space District
Metropolitan Transportation Commission (MTC)
NASA
Northern California Grantmakers
Palo Alto Residents, Baylands Nature Preserve
San Francisco Bay National Wildlife Refuge
San Francisquito Creek Joint Powers Authority
San Mateo County Office of Sustainability
Santa Clara County Office Of Sustainability
Santa Clara Valley Water District
SFEI
South Bay Salt Pond Restoration Project
SPUR
Stanford Univ., Sustainable Urban Systems Initiative
Sunnyvale Residents, Sunnyvale Farmers Market
Sunnyvale Residents, Climate Change Summit
The Silicon Valley Leadership Group

South Bay Towns Stakeholder Network

SOUTH BAY SPONGE

For some, sea-level rise and its related vulnerabilities are an abstraction: the timeframe, the scale, the impacts can be complex and challenging to fully comprehend. Yet, for others, sea-level rise and its impacts are already a visceral and anxiety-inducing threat. Without minimizing the urgency of identifying and addressing the vulnerabilities, our team crafted our outreach campaign around a more optimistic, forward-thinking and imaginative concept.

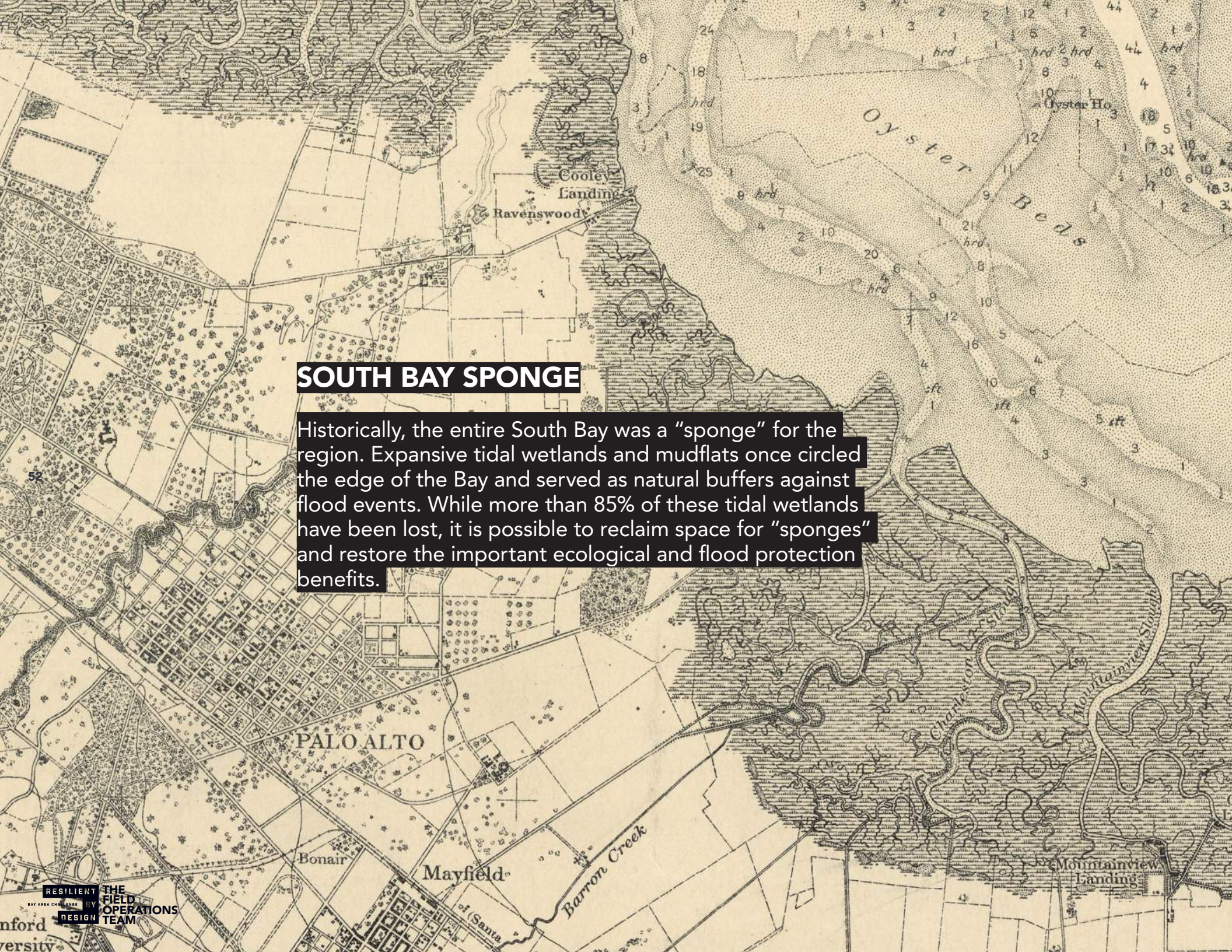
As we set out to introduce ourselves, our team and the goals of the Resilient By Design Challenge to our many South Bay stakeholders, we framed our conversations around the concept of a “sponge”.



SOUTH BAY SPONGE

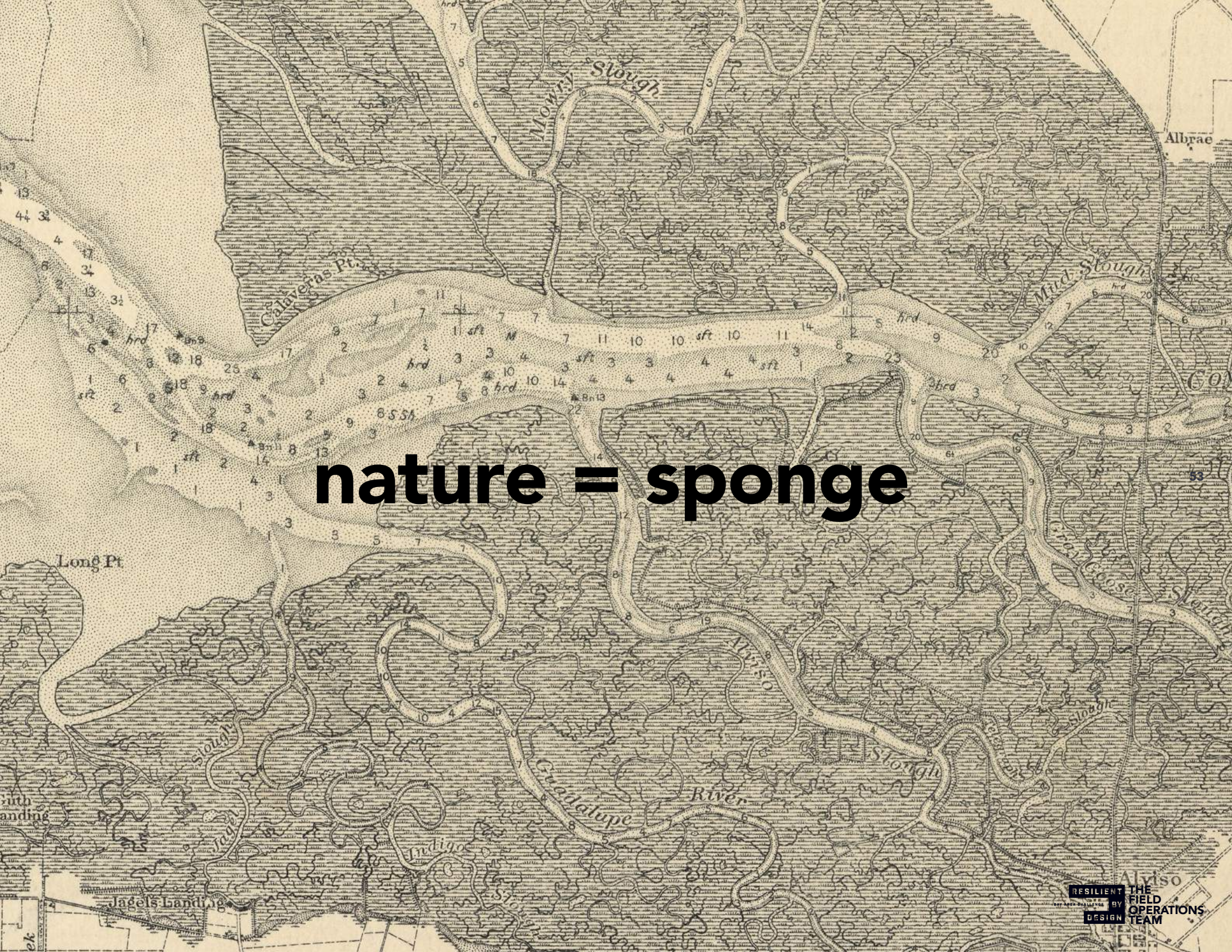
The concept: Nature, in the form of wetlands, marshes, wet-footed forests, mudflats, inter-tidal zones and soft shouldered creeks, acts as a giant “sponge” - absorbing floodwaters during storm events and slowly releasing runoff as storms and tides subside.


nature = sponge



SOUTH BAY SPONGE

Historically, the entire South Bay was a "sponge" for the region. Expansive tidal wetlands and mudflats once circled the edge of the Bay and served as natural buffers against flood events. While more than 85% of these tidal wetlands have been lost, it is possible to reclaim space for "sponges" and restore the important ecological and flood protection benefits.


nature = sponge
Long Pt
Calaveras Pt.
Mud Slough
Alviso
Guadalupe River
Jagels Landing
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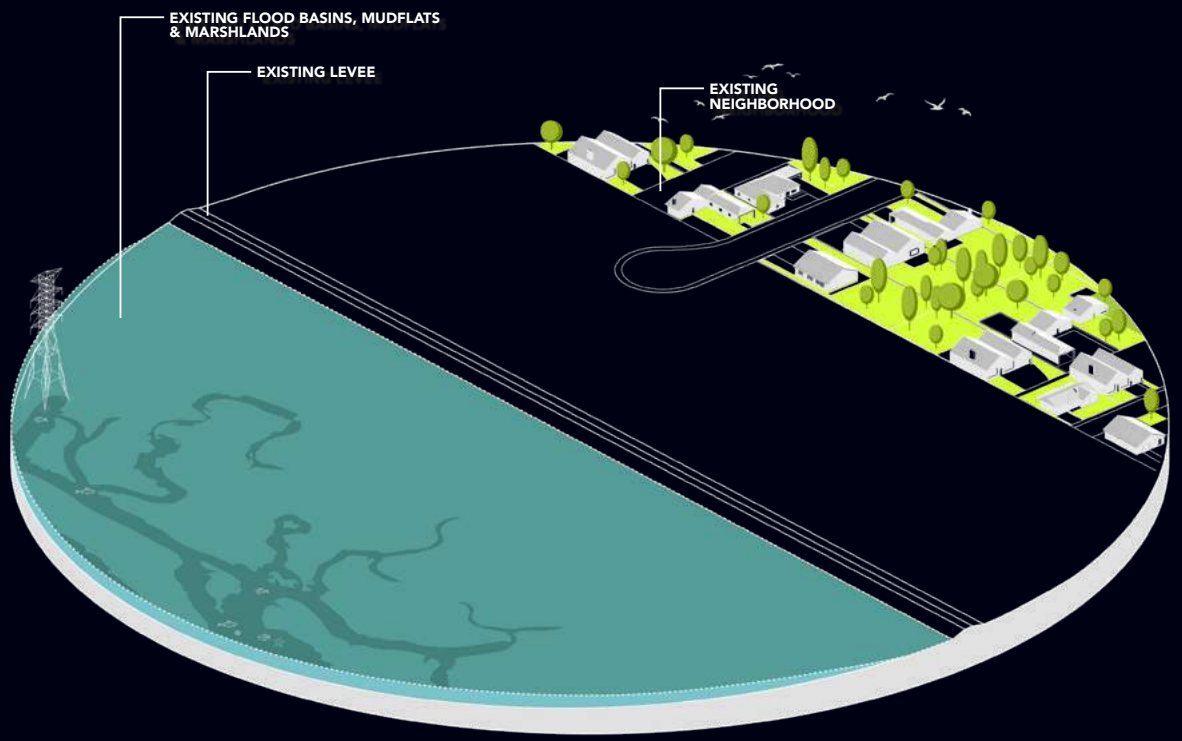
SOUTH BAY SPONGE

East Palo Alto is today one of the lowest-lying and most vulnerable communities to sea-level rise in the entire Bay Area. Many residents live at or near sea-level today protected only by a shoreline levee that is below sea-level rise projections and existing stormwater infrastructure is already overwhelmed by regularly occurring storm events.

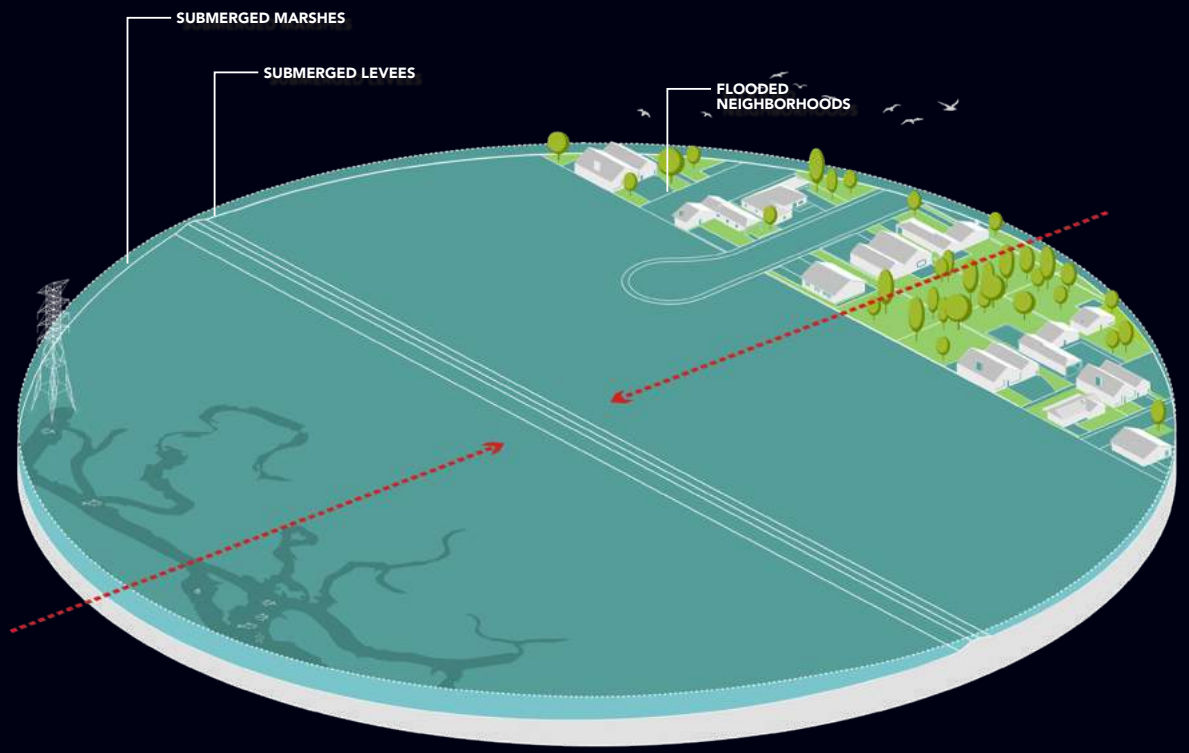
While East Palo Alto may be a canary in the coal mine for sea-level rise, its vulnerabilities can be found in other south bay towns as well as many other communities around the Bay.



The Bay Edge Today
(East Palo Alto)

SOUTH BAY SPONGE

As sea-level rises, low-lying communities like East Palo Alto will face flooding from two directions: 1) higher average elevations of the Bay compound the flooding potential of high and king tides, increasing the possibility of over-topping levees and 2) stormwater run-off draining towards the Bay from within the communities will be unable to drain into the Bay because of higher water levels. Without a plan to address both of these flood sources, the flood waters will have nowhere to go - resulting in the flooding of homes, businesses and infrastructure.

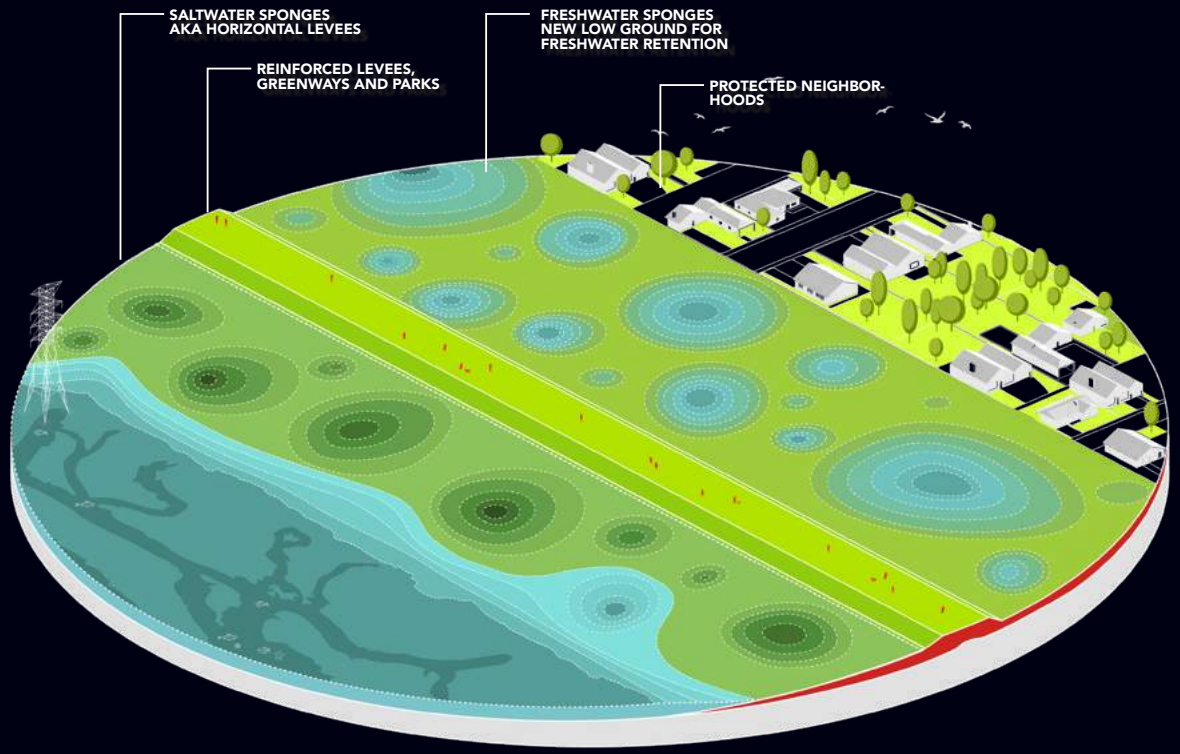


Sea Level Rise → ← Surface Water

Flooding

SOUTH BAY SPONGE

Using the concept of nature as a “sponge”, we combine a new shoreline levee PLUS shallow marshland edges in the Bay (“horizontal levees” or “saltwater sponges”) and new inland freshwater wetlands (“freshwater sponges”) for stormwater to collect, filter and ultimately disperse. The result is an innovative redesign of the modern shoreline that employs natural systems or “sponges” to not only defend against sea level rise, but also sequester carbon, cleanse pollutants and revitalize fish and native wildlife.


SALTWATER SPONGES
AKA HORIZONTAL LEVEES
REINFORCED LEVEES,
GREENWAYS AND PARKS
FRESHWATER SPONGES
NEW LOW GROUND FOR
FRESHWATER RETENTION
PROTECTED NEIGHBOR-
HOODS

The Sponge

THE “SPONGE HUB”

As a means to spread the concept of “sponges” as a natural form of flood protection and to engage with as broad an audience as possible, we created a mobile hub of information on the South Bay Resilient By Design Effort, dubbed the “Sponge Hub”.

Between February and May, our team toured the Sponge Hub around South Bay Communities - appearing at Farmers Markets, churches, high school sport events, park and Bay Trail locations. At each appearance, our approach was four-fold: 1) to communicate the work of Resilient By Design, 2) to convey the specific relevance of sea-level rise to each community and each place, 3) to listen, absorb and interact with the community, and 4) to be optimistic, forward thinking, memorable and fun (we served cotton-candy “edible sponges”) - all with the aim of fostering greater curiosity, enthusiasm and optimism for participating in sea-level rise planning.


RESILIENT
BAY AREA CHALLENGE
BY
DESIGN
THE
FIELD
OPERATIONS
TEAM
#spongehub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FIELD
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TEAM


THE
FIELD
OPERATIONS
TEAM


EAST PALO ALTO


62


RESILIENT
BY
DESIGN
BAY AREA CHALLENGE
THE
FIELD
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TEAM


THE
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TEAM






SOUTH BAY SPONGE





RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

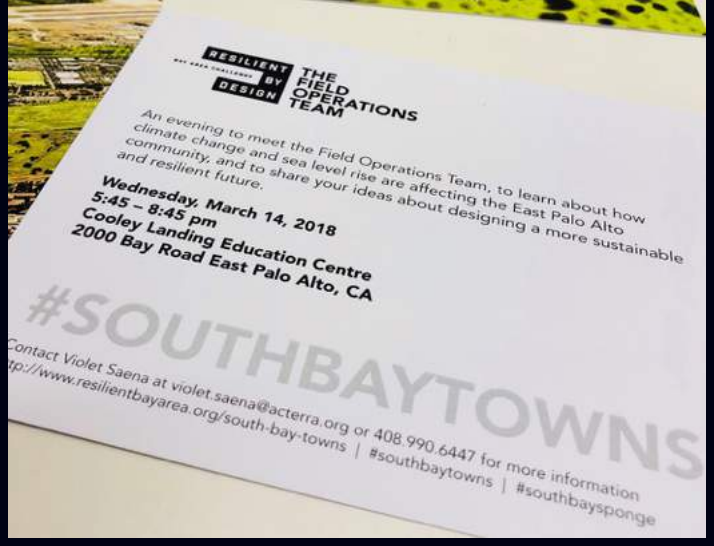
COMMUNITY EVENTS

In addition to the mobile “Sponge Hub” activities, we organized and participated in several participatory public events, including regional sea-level rise cooperation workshops (Joint Venture Silicon Valley), high-school environmental education workshops (East Palo Alto’s Phoenix Academy), climate action workshops (Sunnyvale), community leadership meetings (Faith in Action, East Palo Alto), and Earth Day celebrations. Our largest public event was a public meeting for the East Palo Alto Community, held at Cooley Landing.

Each community workshops and meeting was designed to be highly “active”. Using a variety of interactive techniques, we inspired participants to imagine, investigate, construct, and reflect; by touching, moving, writing and playing. Participants quickly inquired, discovered, and experimented with solutions without the limitations of verbal communication. Through visceral interactions with physical models, sketch stations and voting games we enabled participants to quickly communicate and test their visual and spatial ideas and build off each other to generate ideas and solutions for and by their communities. All of the feedback, ideas and insights we gathered has been incorporated into our thinking and into our wider vision for the South Bay.


STORAGE


#SOUTHBAYTOWNS
#SOUTHBAYSPONGE
RESILIENT BY DESIGN
THE FIELD OPERATIONS TEAM
An evening to meet the Field Operations Team, to learn about how climate change and sea level rise are affecting the East Palo Alto community, and to share your ideas about designing a more sustainable and resilient future.
Wednesday, March 14, 2018
5:45 – 8:45 pm
Cooley Landing Education Centre
2000 Bay Road East Palo Alto, CA
#SOUTHBAYTOWNS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#SOUTHBAYTOWNS
Contact Violet Saena at violet.saena@acterra.org or 408.990.6447 for more information
http://www.resilientbayarea.org/south-bay-towns | #southbaytowns | #southbaysponge


MARCALO!
¿P asas muebas fuerge en tráfico? ¿Si es as donde?
FAAILOA I N PINE!
O e poloka le
RESILIENT BY DESIGN
THE FIELD OPERATIONS TEAM


What should happen at the edge?
CREA LA ORILLA
¿Qué deberia ocurrir a lo largo de la orilla?







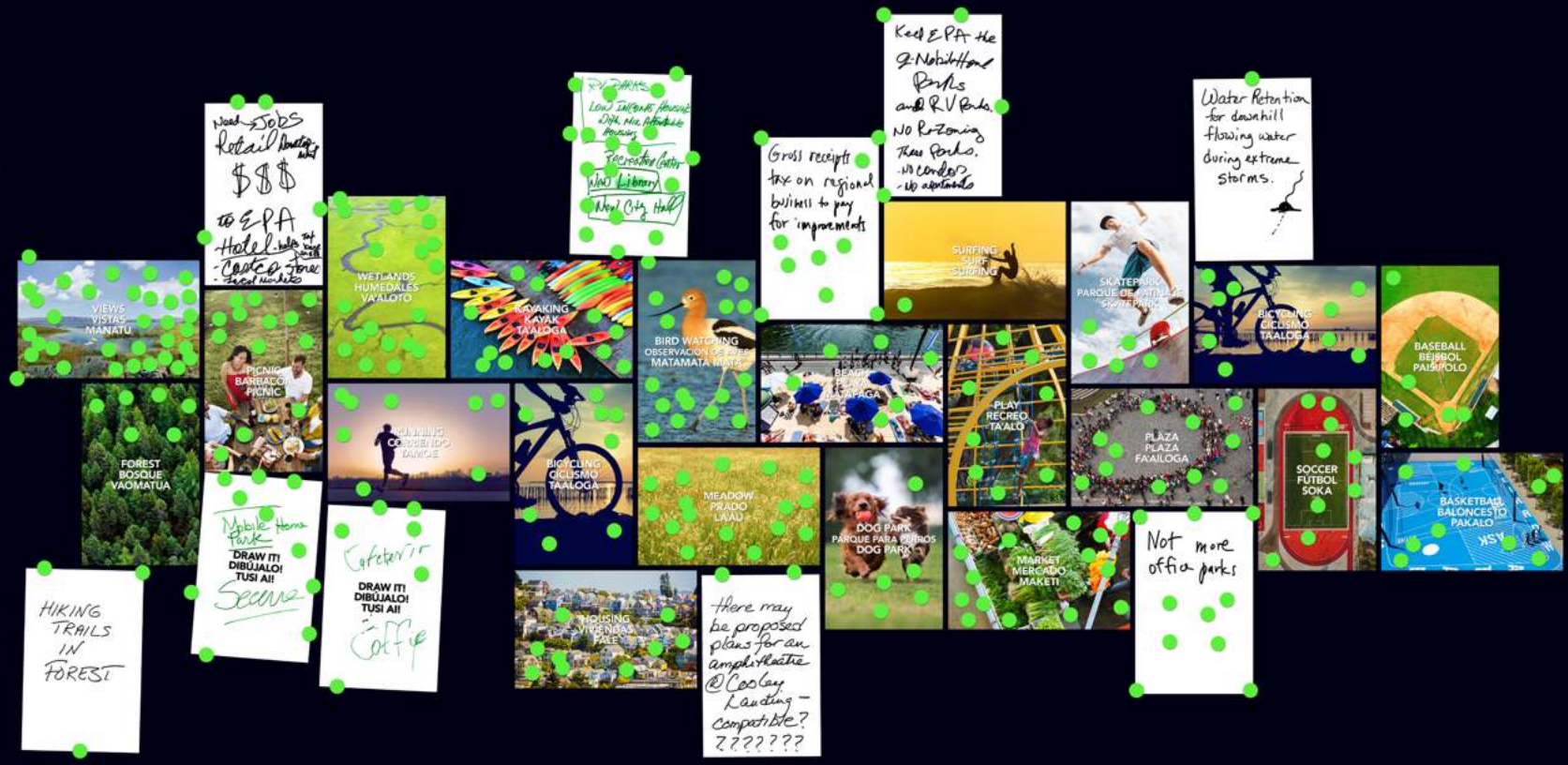
RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

MAKE THE EDGE
What should happen at the edge?

CREA LA ORILLA
¿Qué debería ocurrir a lo largo de la orilla?

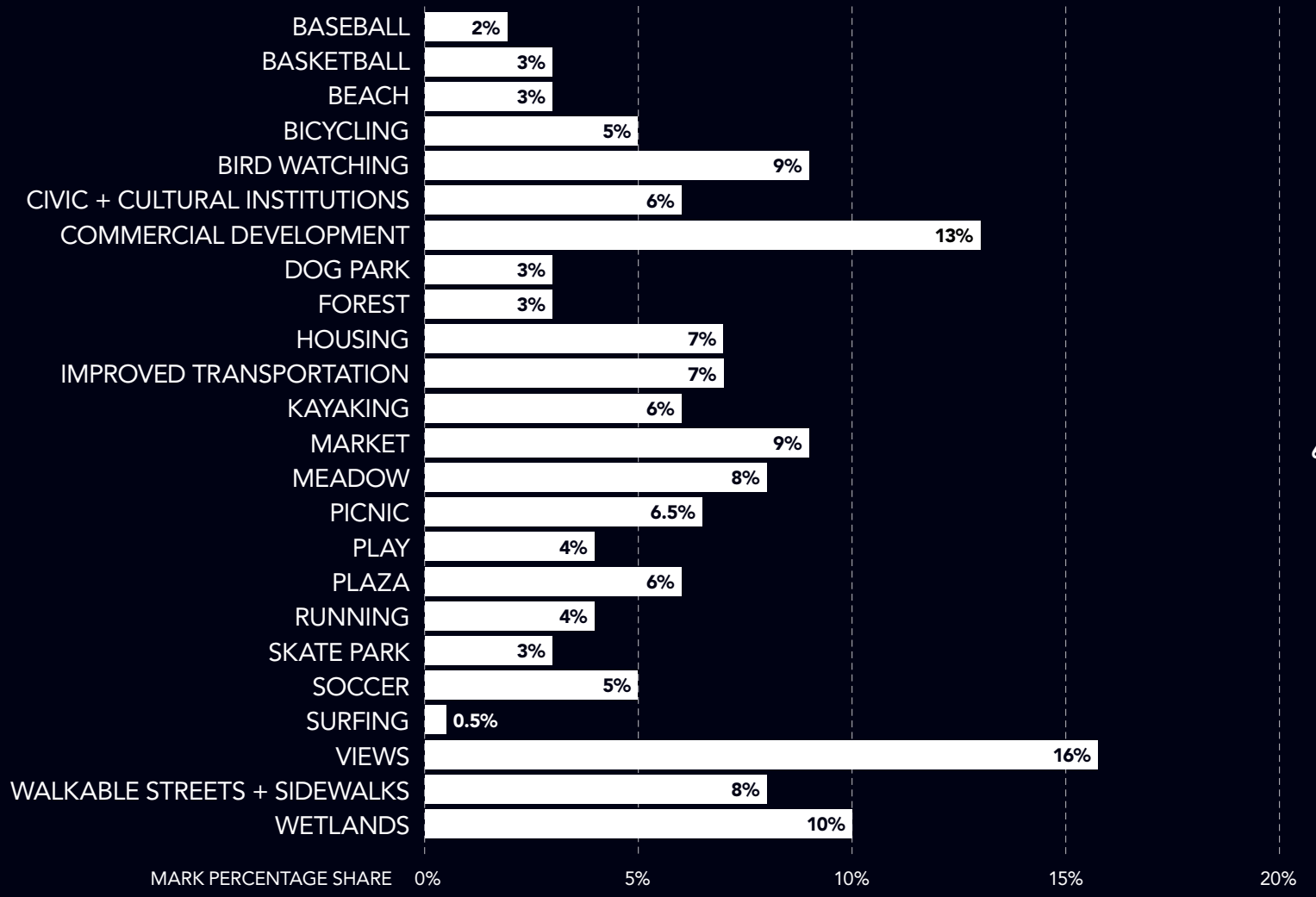
FAUSIA SE NOFOAGA ILE GAFATAI
O lea le mea e tatau ona fuafua ma tupu ile gafatai



EDGES
SPONGES
CORRIDORS
HUBS

INTERACTIVE 'VOTING' PANELS
A multi-lingual, interactive panel from our public events that invites participants to 'vote' on the types of features and programs that they would like to see incorporated into any new shoreline. Write-in cards were also provided to expand the response possibilities.

QUESTION: WHAT SHOULD HAPPEN AT THE EDGE?



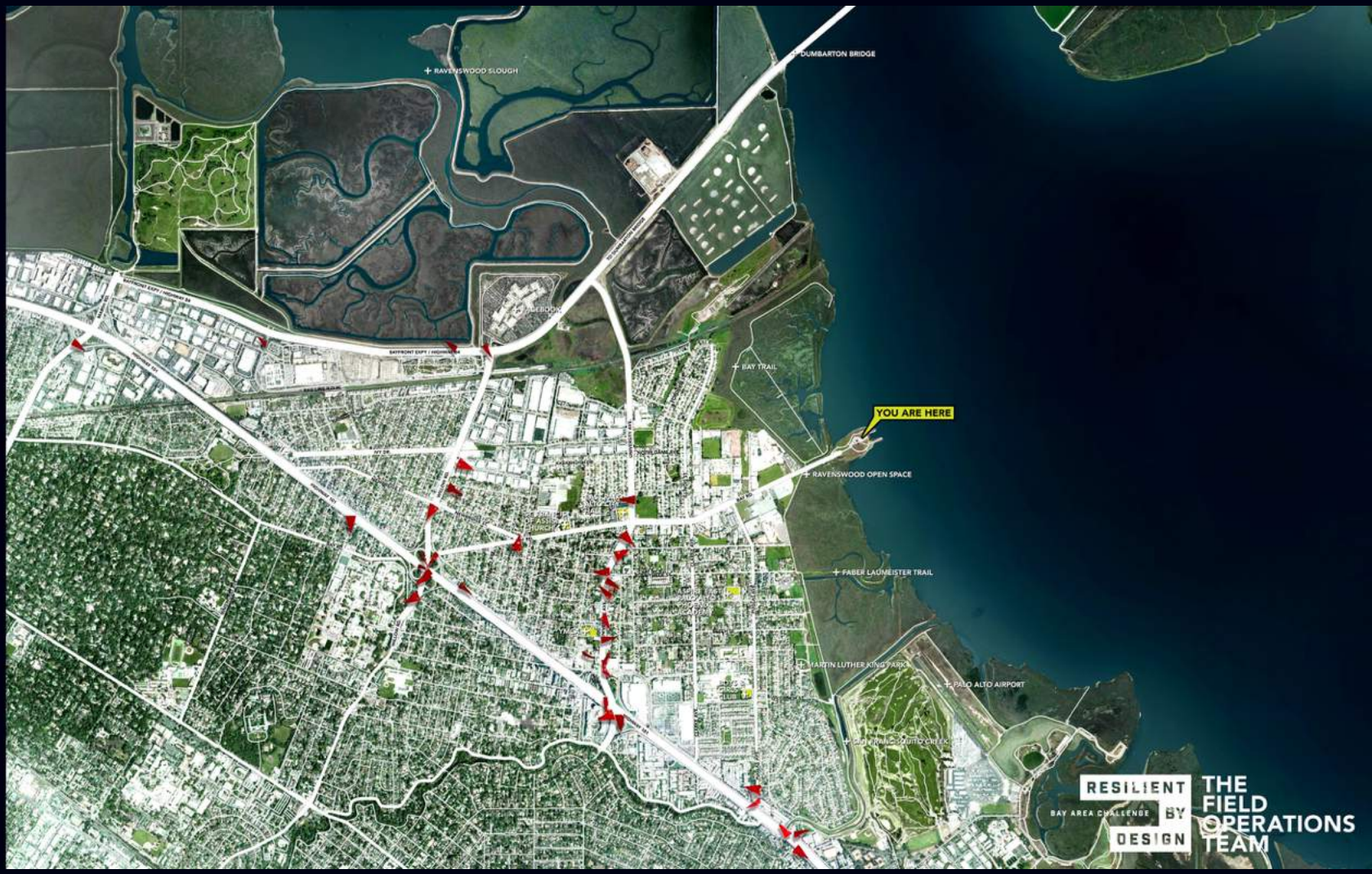
INTERACTIVE 'VOTING' PANELS

After each event, we collate and quantify the feedback in order to understand the many priorities that should be reflected in any design effort.

PUT A PIN ON IT!
Do you sit in traffic? If so, where?

MÁRCALO!
¿Pasas mucho tiempo en tráfico? ¿Si es así, donde?

FAAILOA I NI PINE!
O e poloka ile auala I taimi o feoaiga? Afai e ioe, I fea?



EDGES
SPONGES
CORRIDORS
HUBS

INTERACTIVE PANELS
A multi-lingual, interactive panel from our public events that invites participants to mark the locations where they experience traffic and congestion. While not directly related to sea-level rise, access and mobility are important to building resilience.

Engagement
Put a Pin on It!

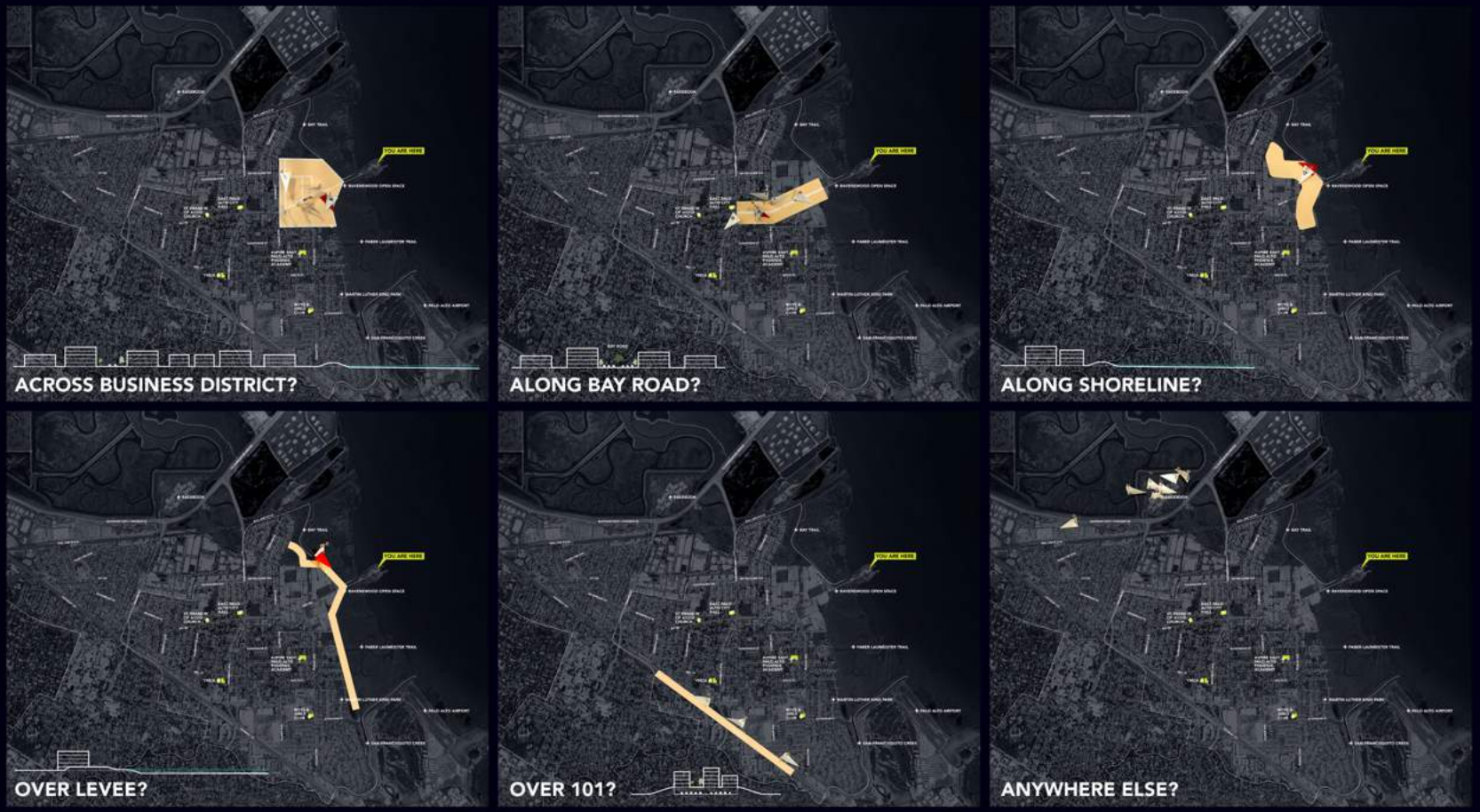
INTERACTIVE PANELS

After each event, we collate and quantify the feedback in order to understand the many priorities that should be reflected in any design effort. In this instance, it is clear that solutions are needed to alleviate congestion within the residential streets of East Palo Alto.

MAP IT!
Do you want more housing? If so, where?

DIBÚJALO!
Se necesita más vivienda? ¿Si es así, donde?

FAIA SE ATA FAAFANUA!
E manaomia nisi fale/ nofoaga? Afai e ioe, I fea?



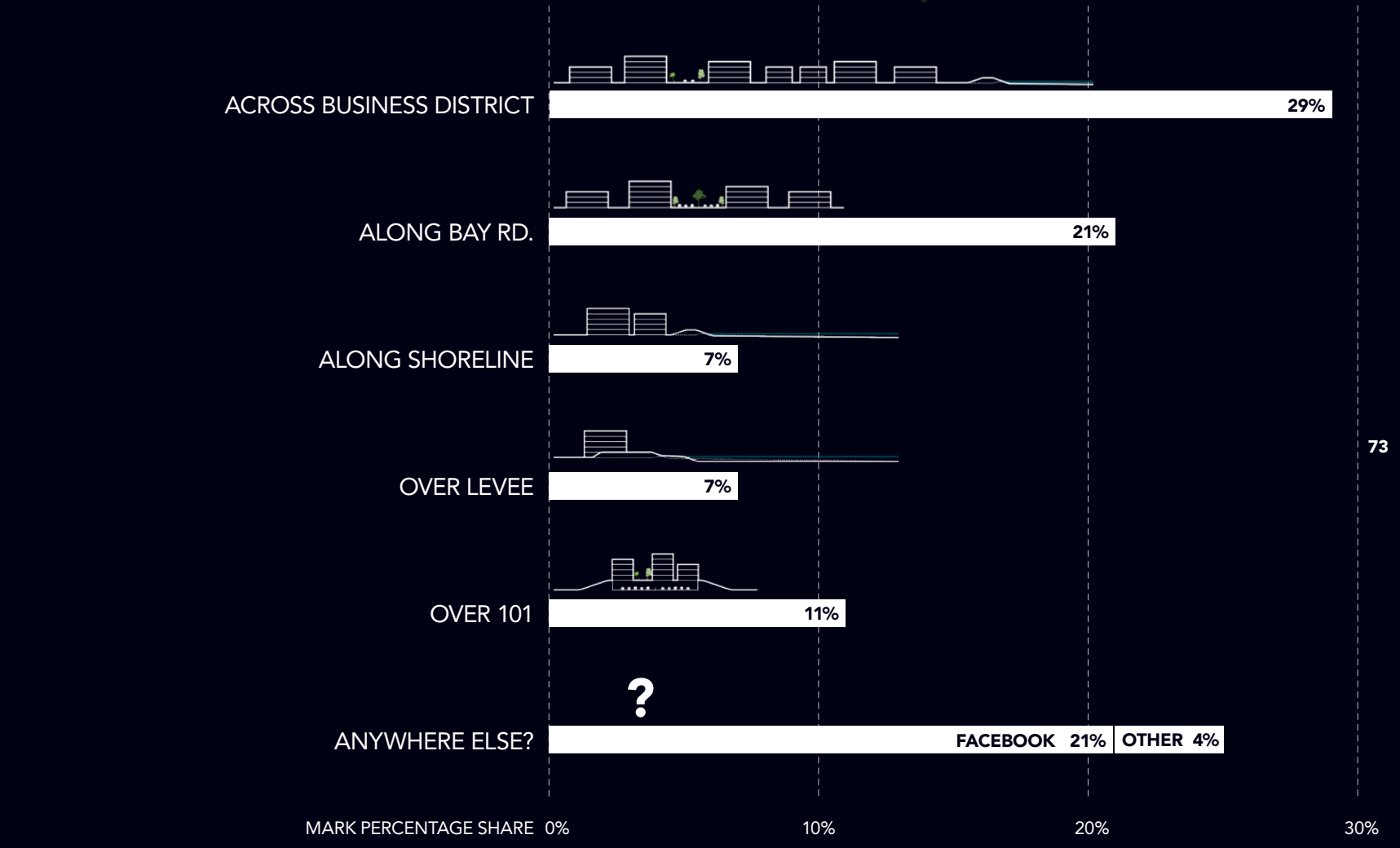
EDGES
SPONGES
CORRIDORS
HUBS

INTERACTIVE PANELS

A multi-lingual, interactive panel from our public events that invites participants to mark the locations where they would like to see more housing. While not directly related to sea-level rise, access to affordable housing is important to building community resilience.

Engagement
Map It!

QUESTION: DO YOU WANT MORE HOUSING? IF SO, WHERE?



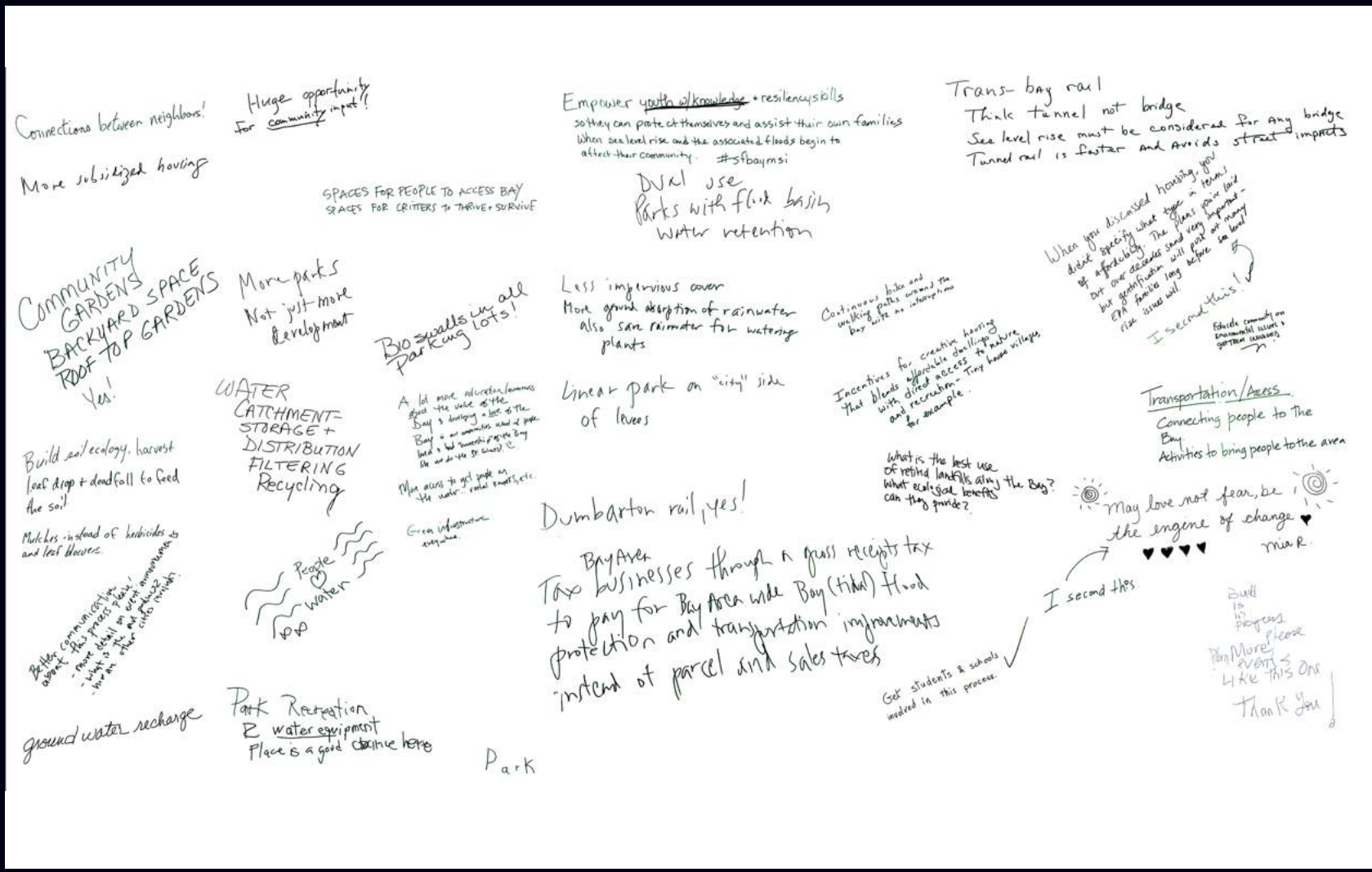
INTERACTIVE PANELS

After each event, we collate and quantify the feedback in order to understand the many priorities that should be reflected in any design effort. In this instance, preferences for new housing locations in East Palo Alto were distributed across all options, with the highest support for housing within the Ravenswood Business District, an area currently planned for exclusively commercial and industrial uses.

GRAFFITI WALL
What will make your community more resilient?

MURO DE GRAFFITI
¿Qué haría su comunidad más resiliente?

PAPUIPUI E VALIVALI I ATA
Olea ni auala e ao ona faʻia ina ia faamautuina ai le saogalemu o tagata lautele



EDGES
SPONGES
CORRIDORS
HUBS

INTERACTIVE PANELS

A multi-lingual, interactive panel from our public events that invites participants to improvise and write-in any ideas or concepts that would help to make the community more resilient. This technique allowed our team to capture any thoughts, concerns or considerations not covered by the other activities.

Empower youth w/knowledge + resiliency skills
so they can protect themselves and assist their own families
when sea level rise and the associated floods begin to
affect their community. #sfbaymsi

Trans- bay rail
Think tunnel not bridge
Sea level rise must be considered f
Tunnel rail is faster and avoids st

R PEOPLE TO ACCESS BAY
CRITTERS TO THRIVE + SURVIVE

Dual use
Parks with flex basin
water retention

When you discussed housing, you
didn't specify what type in terms
of affordability. The plans you've laid
out over decades sound very important -
but gentrification will push out many
EPA families long before sea level
rise issues will.

I second this!

Educate c
Environmenta
GET them

Bio swales in all
parking LOTS!

Less impervious cover
More ground absorption of rainwater
also save rainwater for watering
plants

Continuous bike and
walking paths around the
bay with no interruptions

Incentives for creative housing
that blends affordable dwellings
with direct access to nature
and recreation - Tiny house villages,
for example.

Transportation/
Connecting peop
Bay.
Activities to bring

A lot more education/awareness
about the value of the
Bay & developing a love of the
Bay in our communities what if people
loved & had "ownership" of the Bay
like we do the SF Giants?

Linear park on "city" side
of levees

What is the best use
of retired landfills along the Bay?
What ecological benefits
can they provide?

More access to get people on
the water... rental kayaks, etc.

Green infrastructure
everywhere.

Dumbarton rail, yes!

May love not fear
the engine of e

BayArea
Tax businesses through a gross receipts tax
to pay for Bay Area wide Bay (tidal) flood
protection and transportation improvements
instead of parcel and sales taxes

I second this.

Get students & schools
involved in this process.

Bu
is
in
pic

Plan M
ev
LIK

AGENCY WORKSHOPS

Over the past several months, we have spoken to, learned from, and worked iteratively with many agency stakeholders working on climate adaptation and resiliency project in the South Bay. These agency partners have provided much needed advice, feedback and insights on the science, the designs, and the governing and funding mechanisms, and all have been crucial to the success of this effort.









RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

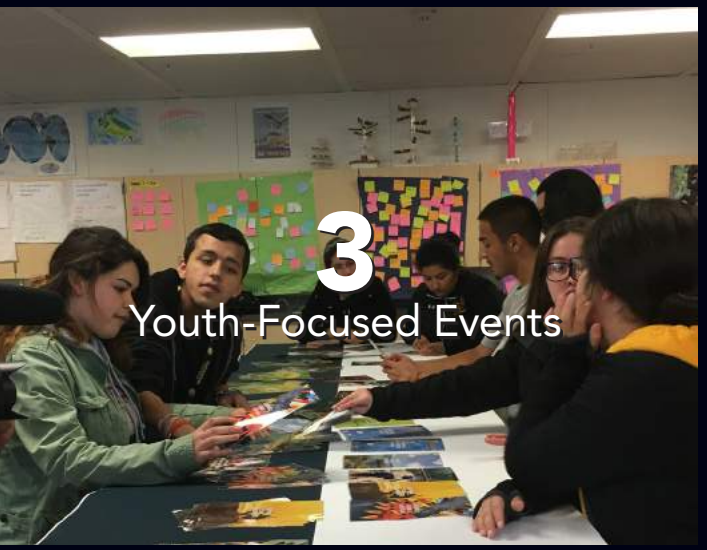
SOUTH BAY SPONGE: ENGAGEMENT & SUPPORT

Our outreach and engagement approach been enormously well-received. Agencies, community groups and school continue to ask us to come and present our findings, our framework for resilience, and our visions for the South Bay. Through varied techniques and formats for participation, we have effectively promoted the Resilient By Design process and effort; identified key challenges and obstacles facing large-scale resiliency initiatives in the South Bay; built enthusiasm for the SOUTH BAY SPONGE project; and, identified many agencies, organizations and individuals that can continue to serve as allies, advisors and promoters of the SOUTH BAY SPONGE initiative.


2
Public Events


21
Sponge Hub Drop-ins


4
Workshop Lectures


3
Youth-Focused Events


300+
Edible Sponges


6
Working Group Meetings


17
Team Meetings


24
Agency Meetings

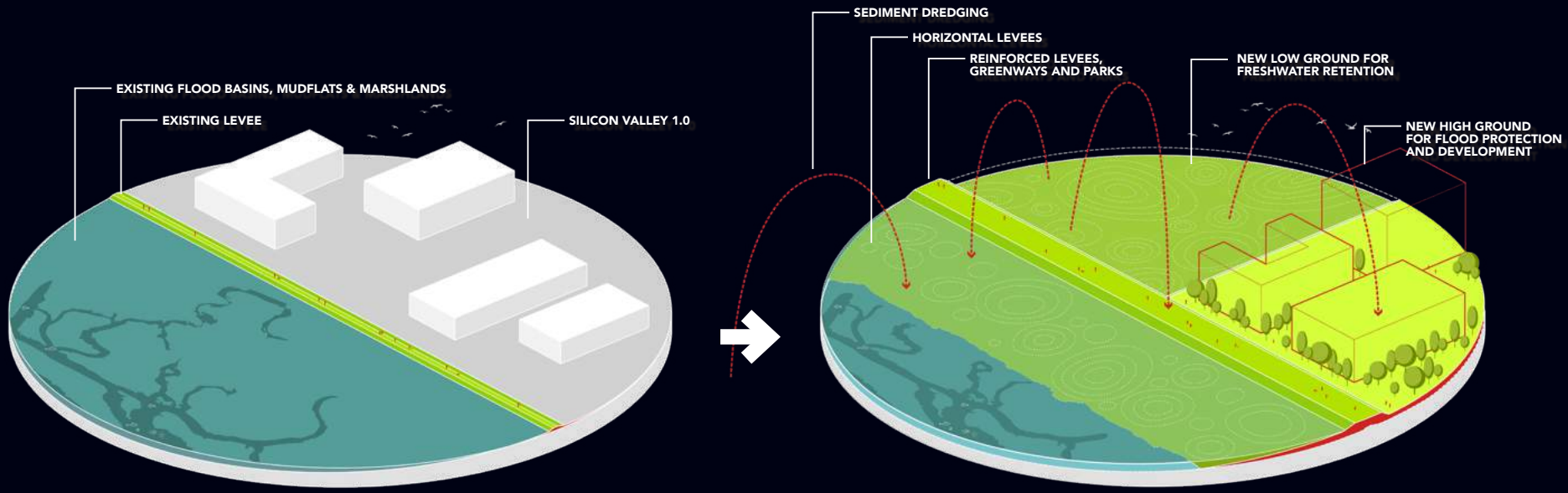

5
Design Meetings
THE FIELD OPERATIONS TEAM

The SOUTH BAY SPONGE is an idea. It is a framework for adaptation - for adapting our shoreline and infrastructure and for advancing our methods of planning, design and communication to achieve new forms of settlement on the Bay. In the pages that follow, we outline five specific design frameworks for resilience in the South Bay. Our team's design process relied heavily on the input received from local agencies, organizations and individuals - all of which inspired and encouraged us towards a transformational vision for the whole region.

Design Concepts

1. THE SOIL SWAP

First, we propose a “soil swap” - a coordinated, collaborative and regional approach to finding, sorting, moving, storing and utilizing soil for sea-level rise improvements. Soil is a fundamental component of sea-level rise adaptation projects: it is needed to build-up the shoreline edges, restore levees, create new horizontal levee systems, and elevate building sites, among other uses. The problem today: there is not enough soil that is either readily available or that meets the soil specification defined by the Regional Water Quality Control Board. One example: the USACE’s EIA 11 shoreline project for Alviso is funded and permitted, yet is unable to acquire adequate soil to achieve the design.



THE SOIL SWAP

A strategy for cooperative management of soil for sea-level rise projects in the South Bay

THE SOIL SWAP

The “Soil Swap” suggests a large-scale framework for multi-level cooperation between South Bay agencies to collaboratively source material and prioritize its placement and utilization.

THE SOIL SWAP

A strategy for cooperative management of soil for sea-level rise projects in the South Bay

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

THE SOIL SWAP

The aim of the "Soil Swap" is to create a coordinated and phased shoreline protection project for the entire South Bay. Phasing would begin with the lowest-lying and most vulnerable areas, would connect into existing high-points (often landfills and local parks) and expand to create a continuous new shoreline. This new high-ground is at once a sea-level rise infrastructure, but also green space, parks, trails, and amenities for the whole region.

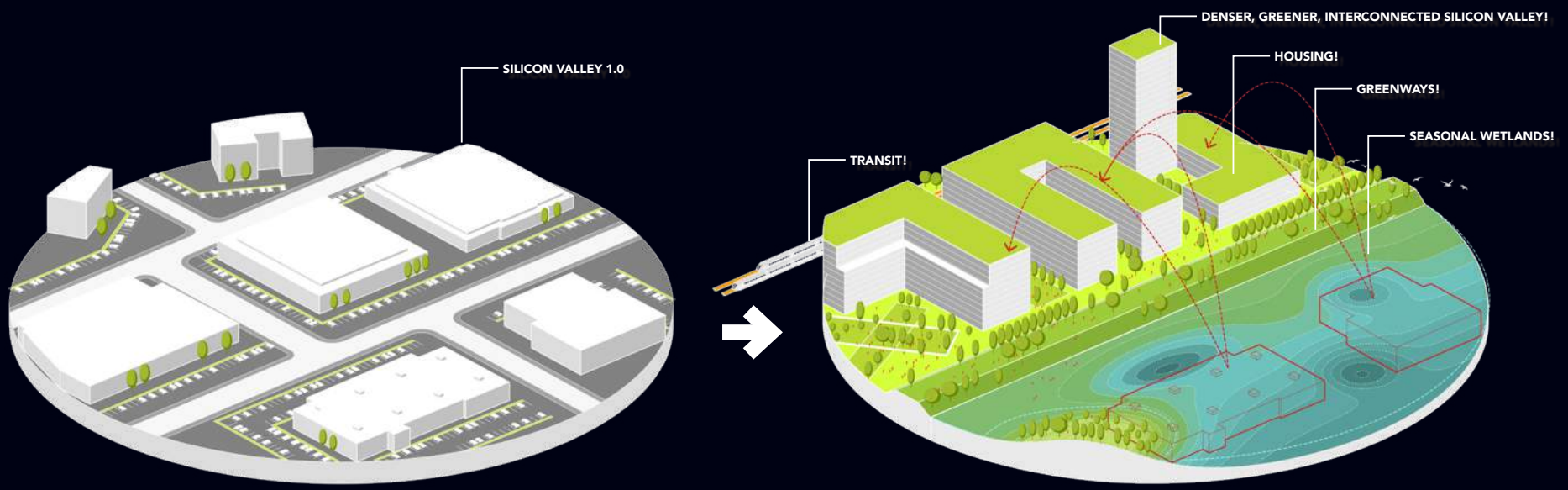
The "Soil Swap" results in a shoreline protection project that achieves many of the benefits and eligibility requirements of local and state grants and funding sources, including: flood protection; ecosystem and watershed protection; restoration, rehabilitation, and improvement of wildlife habitat; local parks and park improvements; restoration of wetlands and watersheds; reduction of polluted runoff; equitable access to clean water, parks and recreation for under-served low-income communities; waterway and natural resource protection; recreational trails and trails-related facilities for recreational trail uses; increased use of active modes of transportation, such as biking and walking; public access to natural resources; water conservation; healthy forests and urban greening; and, climate adaptation and resiliency.

THE SOIL SWAP

A strategy for assembling a cohesive and complete protective shoreline and bayfront parkland

2. THE LAND-USE SWAP

Next, we propose a “land swap” - a strategic approach towards the de-densification in the lowest-lying areas of the shoreline and the densification of sites on higher ground. This strategy might appear radical and unrealistic on a large-scale, however, Silicon Valley is evolving at an unprecedented rate. One example: Google has bought roughly four dozen properties in the Moffett Park district of Sunnyvale with a combined value of around $800 million. More than half of these properties are vulnerable to creek flooding today and sea-level rise in the coming decades. This growth offers an unprecedented opportunity to reevaluate land-use and potentially achieve a new and greener form of urbanism in Silicon Valley.



THE LAND-USE SWAP
A strategy for densification and de-densification at the Bay's edge

THE LAND-USE SWAP

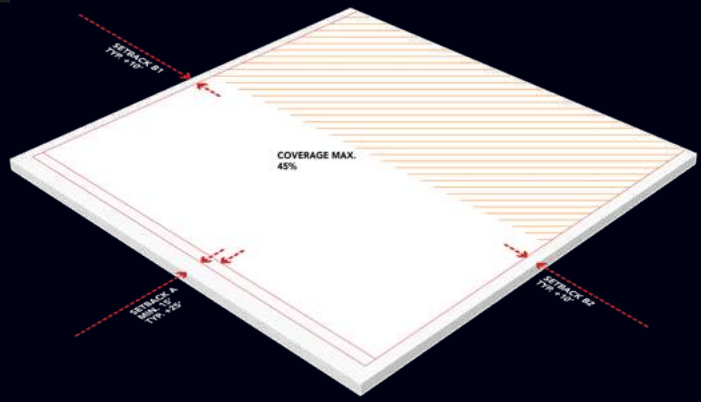
The concept of a “land-use swap” would necessitate changes to local general and specific plans as well as zoning regulations for individual parcels. For example: zoning regulations Moffett Park are based on car-dependent workforce, and result in low density development, often with as much as 50% of the site dedicated to parking. If these zoning regulations were adjusted to promote higher-density, transit-oriented development, significant portions of the Moffett Park district could be opened up for green infrastructure projects: stormwater detention “sponges” as well as parks and green amenities for the next generation of Silicon Valley’s workforce.

Regulations
Moffett Park Typical Lot

Typical Lot
400’ x 400’
160,000 Sq. Ft.

Setbacks
15’ minimum from street
20’ combined minimum sides
No rear minimum

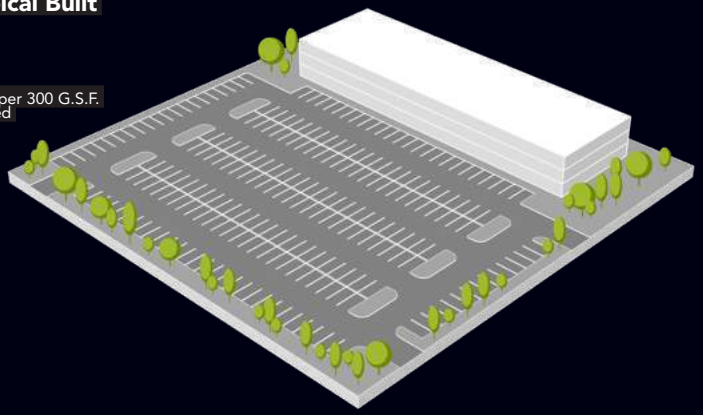
Coverage
Maximum 45% of lot size



Regulations
Moffett Park Typical Built

Zoning MP-1/MP-TOD
Max FAR .5/STD FAR .5

80,000 G.S.F. max.
Minimum 1 parking space per 300 G.S.F.
267 parking spaces required



Parking 50%

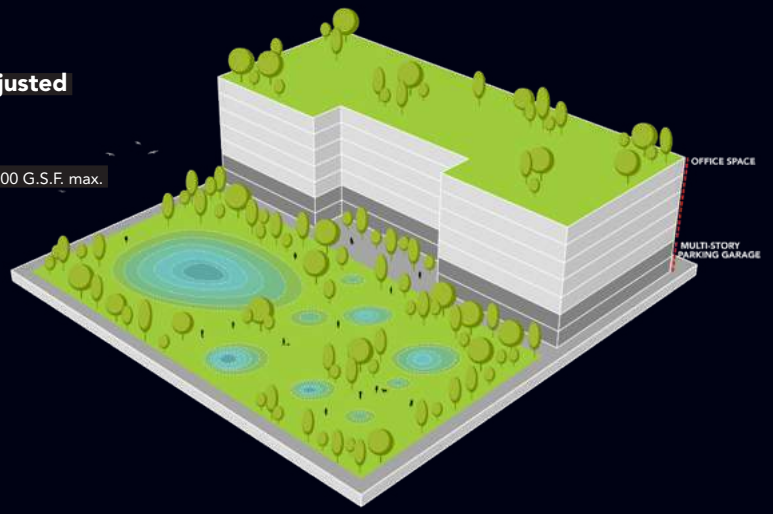
Building Footprint 40%

Pervious 10%

Regulations
Moffett Park Adjusted

Max FAR 2.0
320,000 G.S.F. max.

No parking minimum
2.7 parking spaces per 1,000 G.S.F. max.



Circulation 10%

Building Footprint 45%

Pervious 45%

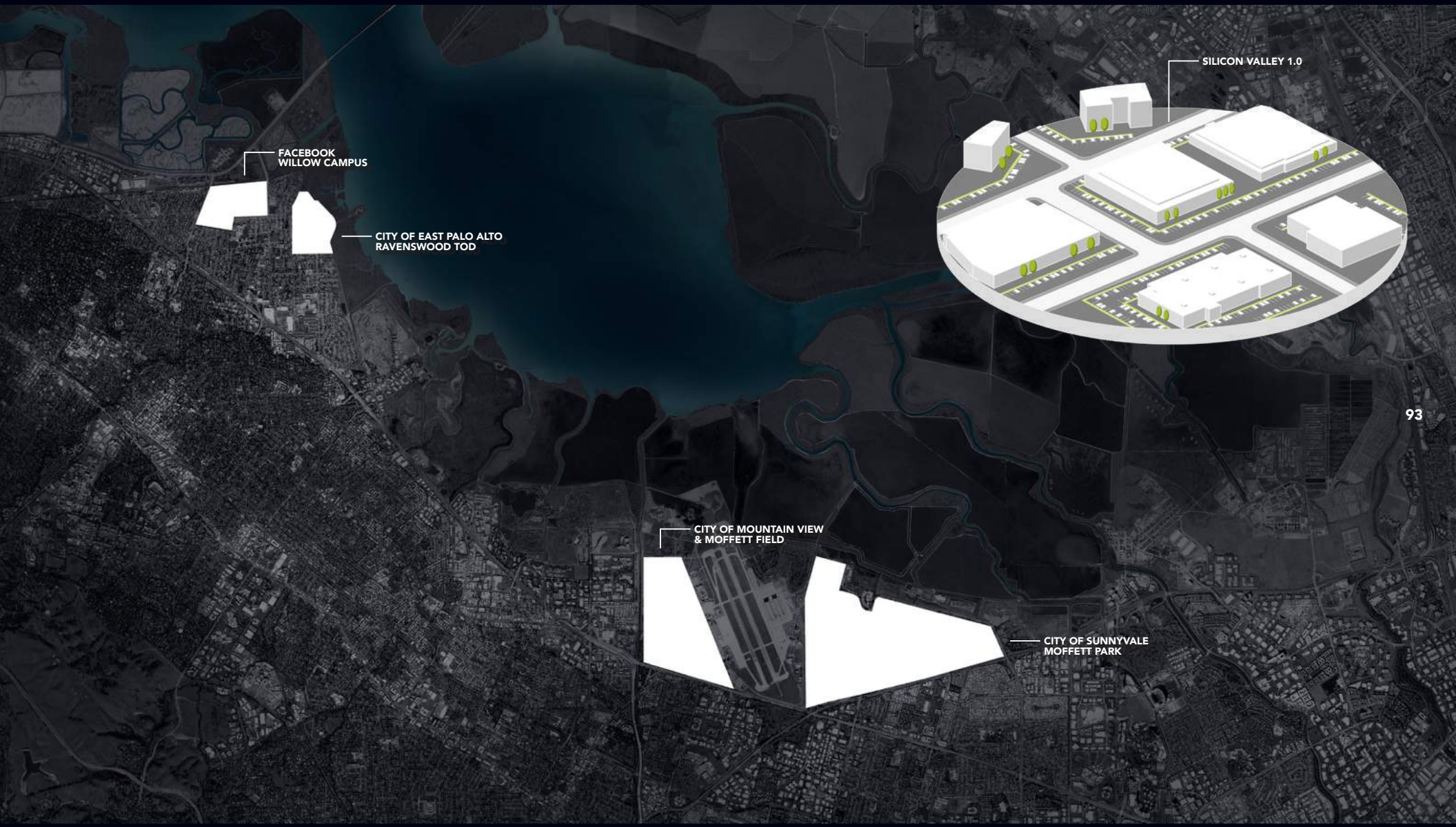
THE LAND-USE SWAP

A strategy for maximizing green infrastructure in the South Bay

RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

THE LAND-USE SWAP

While the entire Bay Area is struggling with a housing shortage, the South Bay has two unique development conditions: 1) Facebook and Google are both expanding their campus footprint at staggering speeds and 2) the Ravenswood Business District in East Palo Alto, the NASA Ames Campus and Moffett Field are all large-scale under-achieving sites that are poised for redevelopment. The opportunity is not only to unlock the potential of these sites, but to encourage multi-benefit outcomes for the local community and region.



THE LAND-USE SWAP
Areas with significant projected growth and change

THE LAND-USE SWAP

The goals of the "land-use swap" are two-fold: 1) to densify, to enable and encourage more dense and mixed forms of development in suitable sites and 2) to de-densify, to release the lowest-lying areas to provide space to support the regions flood management strategy.

Transfers of developments have the potential to generate significant funds to preserve and strengthen resiliency infrastructure while focusing uses in identified growth areas, supporting a built environment and land use planning strategy that enhances the quality of life and economic competitiveness of the region. As part of this tool, considerations can be made to guide resulting development and help to provide new parks, open spaces, schools, or other public assets or amenities.

The approach has precedent and there is reliable local appetite. In the region, the Los Altos School District and City of Mountain View are proposing a transfer of development rights to help fund construction of a new community school. The deal proposes transferring 610,000 square feet of development rights from a 8.63 acre site through a TDR and estimates generating approximately $80 million through the process. Illustratively, Google currently has plans for a campus totaling 6 million to 8 million square feet in the area. Last year Google purchased four dozen properties in Sunnyvale alone with a combined value of approximately $800 million.

THE LAND-USE SWAP
A strategy for densification and de-densification at the Bay's edge

RESILIENT BY DESIGN BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

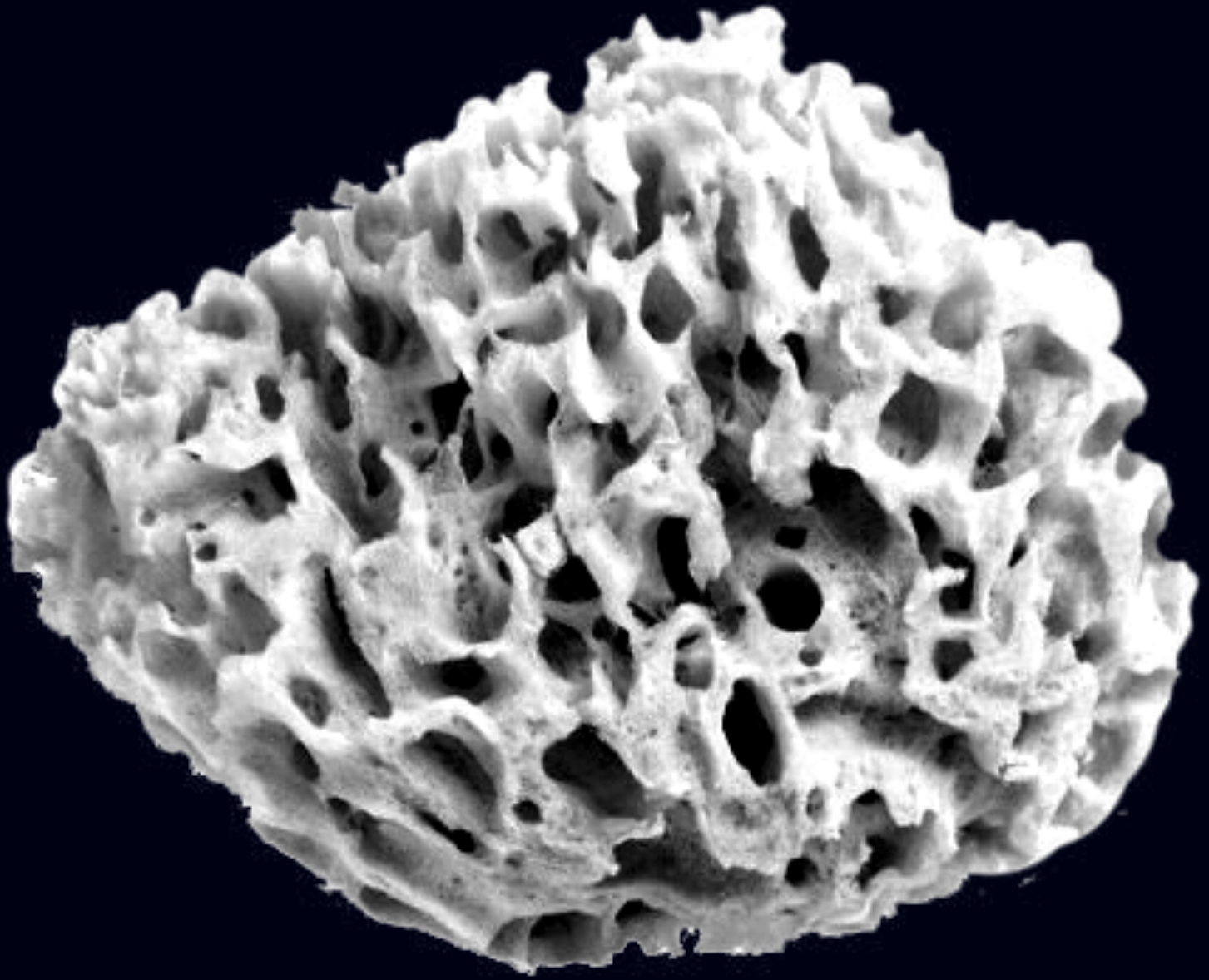
THE LAND-USE SWAP

Any growth and resiliency planning at the Bay's edge must be tied in with improvements to connectivity, mobility and transit. Running trails, bikeways, BRT routes, Light-rail and heavy rail trains all form part of a mobility network that will not only increase the prosperity of the region, but also the resilience of the communities and residents living, working and commuting along the Bay.

THE LAND-USE SWAP
Densification at the Bay's edge, coordinated with transit

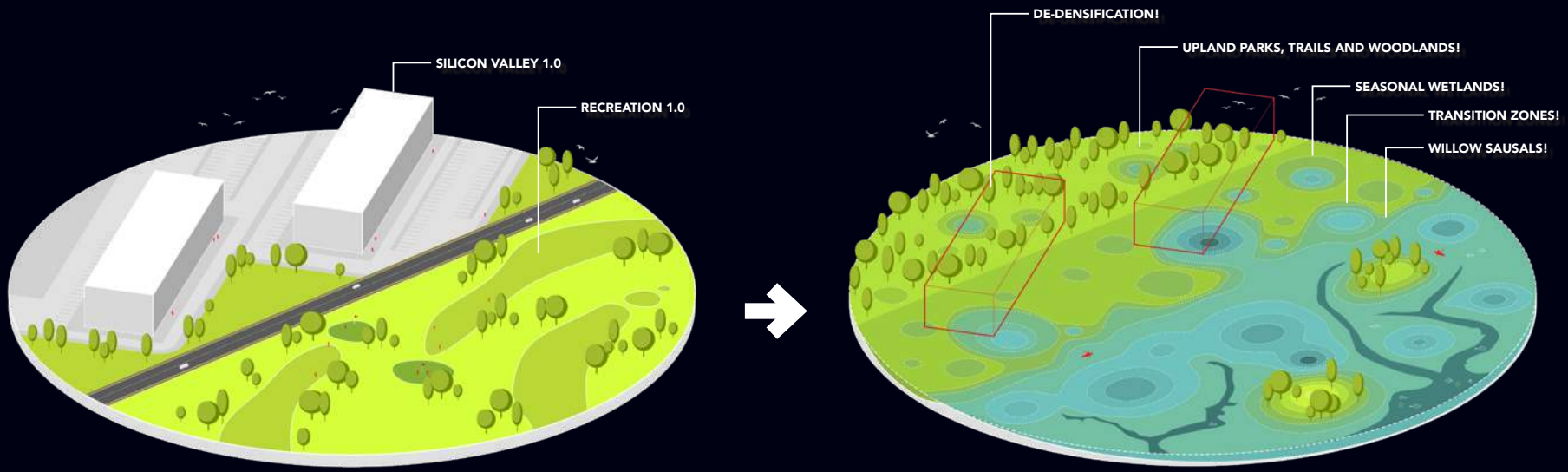
3. THE SPONGE

The Sponge is a concept for using nature and natural systems as a primary tool for climate adaptation and resiliency in the South Bay, inspired by the historic function of the region's inter-tidal marshlands as flood protection, as well as the by remarkable efforts to restore the Salt Ponds. The potential of a large-scale assemblage of remnant marshlands, newly restored salt ponds and newly constructed wetlands as the core component of a regional flood protection strategy is at once radically innovative, but also resonant with the South Bay landscape today. In addition to addressing climate adaptation, the South Bay Sponge can give the landscapes of the South Bay a powerful and legible identity.



THE SPONGE

The “Sponges” are green infrastructure on a large-scale: new absorptive landscapes for collecting, filtering and dispersing flood waters during storm events. The Sponges are also diverse eco-tones, designed with topographic variation to support a range of ecological conditions from ponds, to marshlands, to transitional and seasonal wetlands, to floodable parks and green spaces at higher elevations alongside new and existing neighborhoods and development.



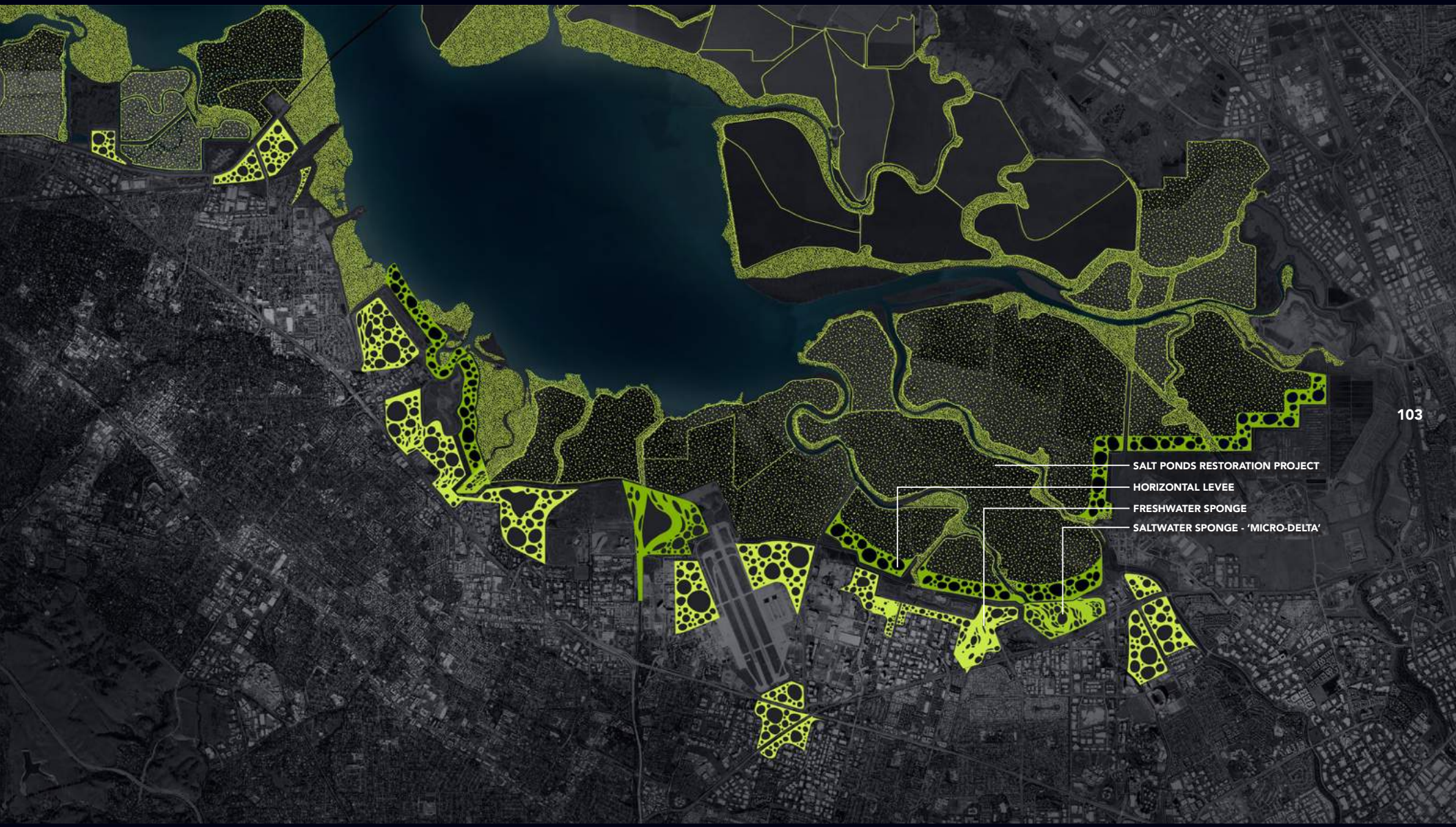
THE SPONGE
New Landscapes of Absorption

RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

THE SPONGE

The “Soil Swap” and “Land-use Swap” both enable the opportunity to create absorptive landscapes or “sponges”. Low-lying sites supplying soil become stormwater infrastructure or “freshwater sponges”. Sites receiving soil within the Bay become tide and wave cushions or “saltwater sponges”. Together, the combination of natural, absorptive systems in the bay and within bayfront communities will ensure greater resiliency as bay waters rise.

The Sponges achieve many of the benefits and eligibility requirements of local and state grants and funding sources, including: flood protection; ecosystem and watershed protection; restoration, rehabilitation, and improvement of wildlife habitat; local parks and park improvements; restoration of wetlands and watersheds; reduction of polluted runoff; equitable access to clean water, parks and recreation for under-served low-income communities; waterway and natural resource protection; public access to natural resources; water conservation; healthy forests and urban greening; and, climate adaptation and resiliency.

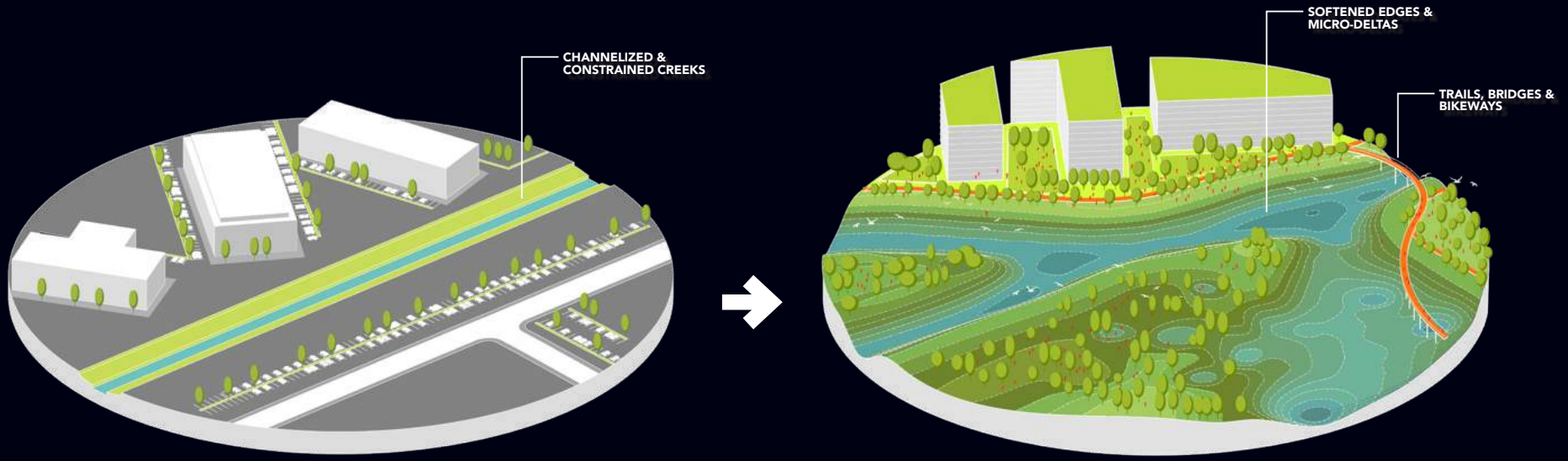


THE SPONGE

New large-scale landscapes of absorption for the South Bay

4. THE CREEKS

Next, we widen and soften the creek corridors, thereby reducing speed of flood waters and providing space for water detention and absorption. The softer, wider and greener creeks become linear parks and trails that connect South Bay Towns to the Bay.



THE CREEKS
From channels to absorptive, green infrastructure

THE CREEKS

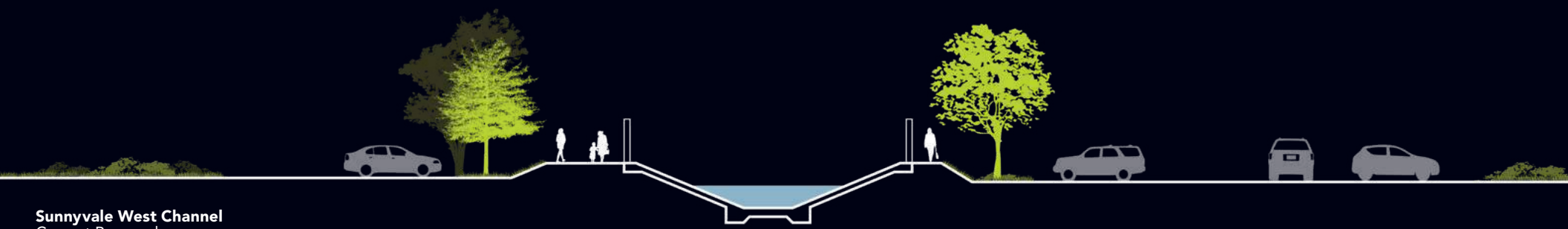
The creeks of South Bay - there are eleven creeks between East Palo Alto and Santa Clara - are largely constrained and channelized as they meander from the hills and through neighborhoods and development on their way to the Bay. All of these creeks are at or near capacity for flood protection, with few opportunities to adapt to higher bay levels and an increasing unpredictability of storm conditions.

THE CREEKS TODAY

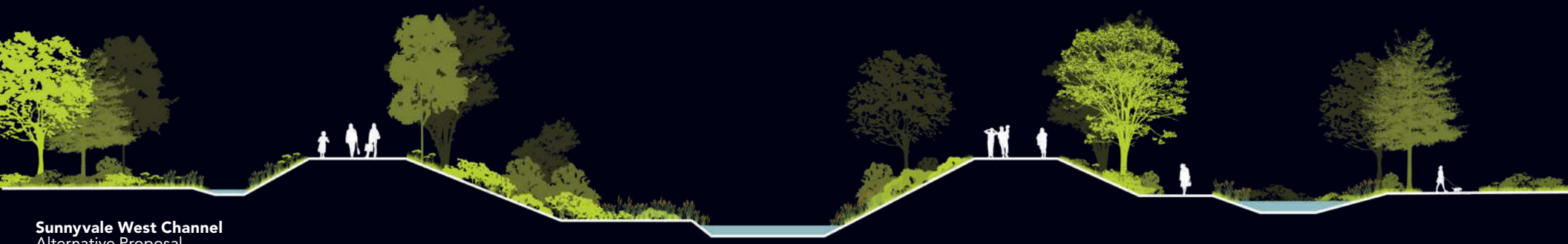
THE CREEKS

By widening the creek corridors and softening creek edges, we are creating the opportunity to both increase the storage and absorptive capacity of the creeks while also enabling and facilitating further adaptation over time.

STEVENS CREEK | SUNNYVALE WEST | SUNNYVALE EAST | CALABAZAS CREEK | SAN TOMAS DE AQUINO



Sunnyvale West Channel
Current Proposal



Sunnyvale West Channel
Alternative Proposal

THE CREEKS
From channels to absorptive, green infrastructure

THE CREEKS

As the creeks approach the lower elevations near the bay, they merge with the “sponges” to create micro-deltas along the shoreline, resulting in a dynamic, adaptive and highly diverse ecological systems for flood protection. This widening and softening of the creeks is one of the most critical frameworks for flood protection for the entire Bay Area. Nearly every city on the bay is at risk to fluvial flooding from storm events today, a massive liability that only increases with higher bay levels. This concept for widened creeks, sponges and micro-deltas can be applied to creeks and watersheds around the Bay.

The Creeks achieve many of the benefits and eligibility requirements of local and state grants and funding sources, including: flood protection; development of wildlife corridors and urban trails; ecosystem and watershed protection and restoration; water supply infrastructure projects; local parks and park improvements; environmental protection and restoration projects; equitable access to clean water, parks and recreation for under-served low-income communities; waterway and natural resource protection; water pollution and contamination control; public access to natural resources; water conservation; healthy forests and urban greening; acquisition, enhancement, or restoration of wetlands or riparian habitat; and, climate adaptation and resiliency.

THE CREEKS
From channels to absorptive, green infrastructure

THE SOUTH BAY SPONGE

The SOUTH BAY SPONGE is an idea. It is a framework for adaptation - for adapting our shoreline and infrastructure and for advancing our methods of planning, design and communication to achieve new forms of settlement on the Bay.

It is a framework for cooperation - for evolving the ways we collaborate across boundaries and jurisdictions to achieve new forms of cooperation, policy and governance.

And, above all, it is a framework for the Bay - for understanding the Bay as our region's most important resource, one deserving of even greater protection, enrichment and connection.

THE SOUTH BAY SPONGE

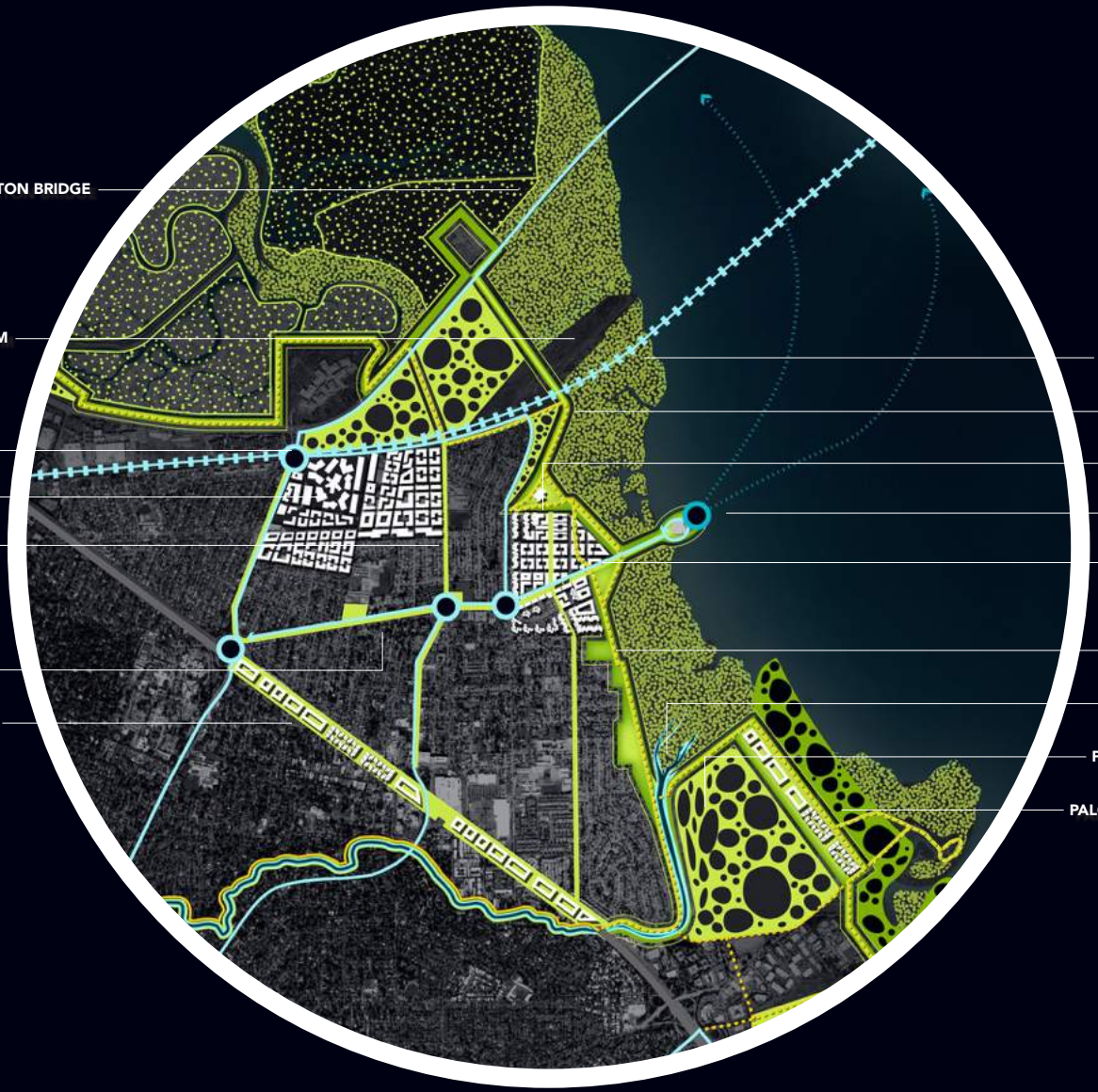
THE SOUTH BAY SPONGE: EAST PALO ALTO

The four-fold framework of “Soil Swap”, “Land-use Swap”, “Sponges” and “Creeks” combine in a straight-forward and pragmatic form for East Palo Alto. The shoreline alignment is consistent with the latest SAFER plans, the business district is consistent with the specific plan and the transit initiatives are consistent with regional proposals. The new ideas resulting from our framework and from stakeholder input include:

1) improvements to a number of key vehicular routes, including Bay Road, University Avenue, Pulgas Avenue and a new Bay Loop Road along the Ravenswood shoreline - all to relieve the regional congestion pressures that disproportionately affect the community;

2) a richly imagined and multi-benefit proposal for the shoreline levee, one that includes diverse community amenities and qualities gleaned through our public engagement and resident participation; and,

3) a cooperative governance and funding strategy, described in the following section, that strategically links the funding of East Palo Alto’s flood protection projects to the resources of the entire South Bay region.



THE SOUTH BAY SPONGE: EAST PALO ALTO

South Bay Sponge
East Palo Alto Today

South Bay Sponge
A greener and more resilient East Palo Alto

RESILIENT BAY AREA CHALLENGE BY DESIGN

THE FIELD OPERATIONS TEAM

South Bay Sponge
East Palo Alto Bay Road Improvements

RESILIENT BAY AREA CHALLENGE BY DESIGN

THE FIELD OPERATIONS TEAM


TELEMUNDO
Green Cart
Green Cart
RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

South Bay Sponge
East Palo Alto Bay Trail

RESILIENT BAY AREA CHALLENGE BY DESIGN

THE FIELD OPERATIONS TEAM


COOLEY
LANDING

South Bay Sponge
East Palo Alto Baylands Park

South Bay Sponge
Micro-units and Community Amenities

COMMUNITY AMENITIES

Bike Repair
Water Bottle Fillers
Bike Parking
Bike Share

MICRO-HABITATS

Bird Totems
Insect Hotels
Soil Building
Butterfly Hatching

VIEWING TOWER

Vista Overlook
Landmark Structure
Bird Watching

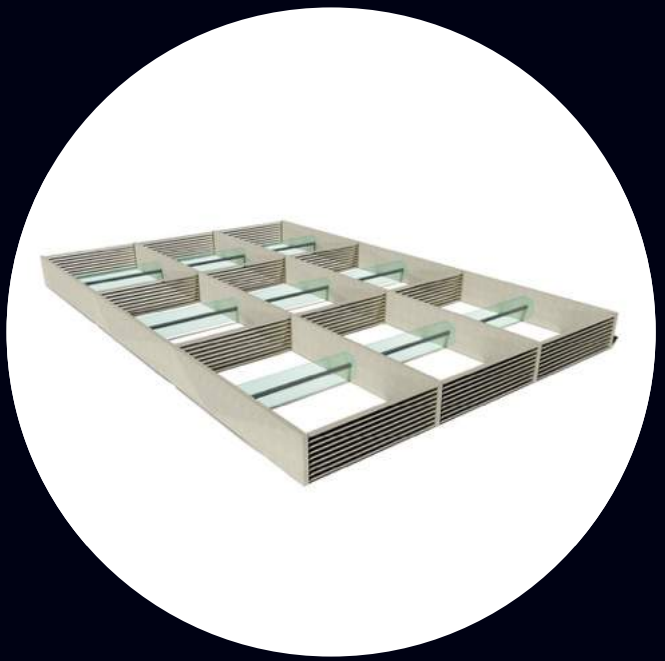
RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

RECREATION FIELDS

Soccer
Basketball
Playgrounds
Shaded Tables

SEDIMENT SPONGE

Wall Stabilization
Sediment Trap
Habitat
Green Infrastructure



ENERGY SPONGE

Floating Hydropower Generation
Modular & Flexible for Creeks

RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

THE SOUTH BAY SPONGE: SUNNYVALE AND MOFFETT FIELD

Relative to East Palo Alto, the four-fold framework of "Soil Swap", "Land-use Swap", "Sponges" and "Creeks" combine in more radical forms for Sunnyvale and Moffett Field. The degree of transformation is inspired by 1) the unprecedented scale, pace and environmental aspiration of Google's growth in the area; 2) the massive redevelopment potential for Moffett Field over the next several decades; and 3) the openness to innovative thinking by all stakeholders working on climate adaptation in this particular locale. All stakeholders from City departments, the Water District, Parks Districts, NGOs and businesses are committed to innovative thinking at all scales in order to make climate adaptation happen.

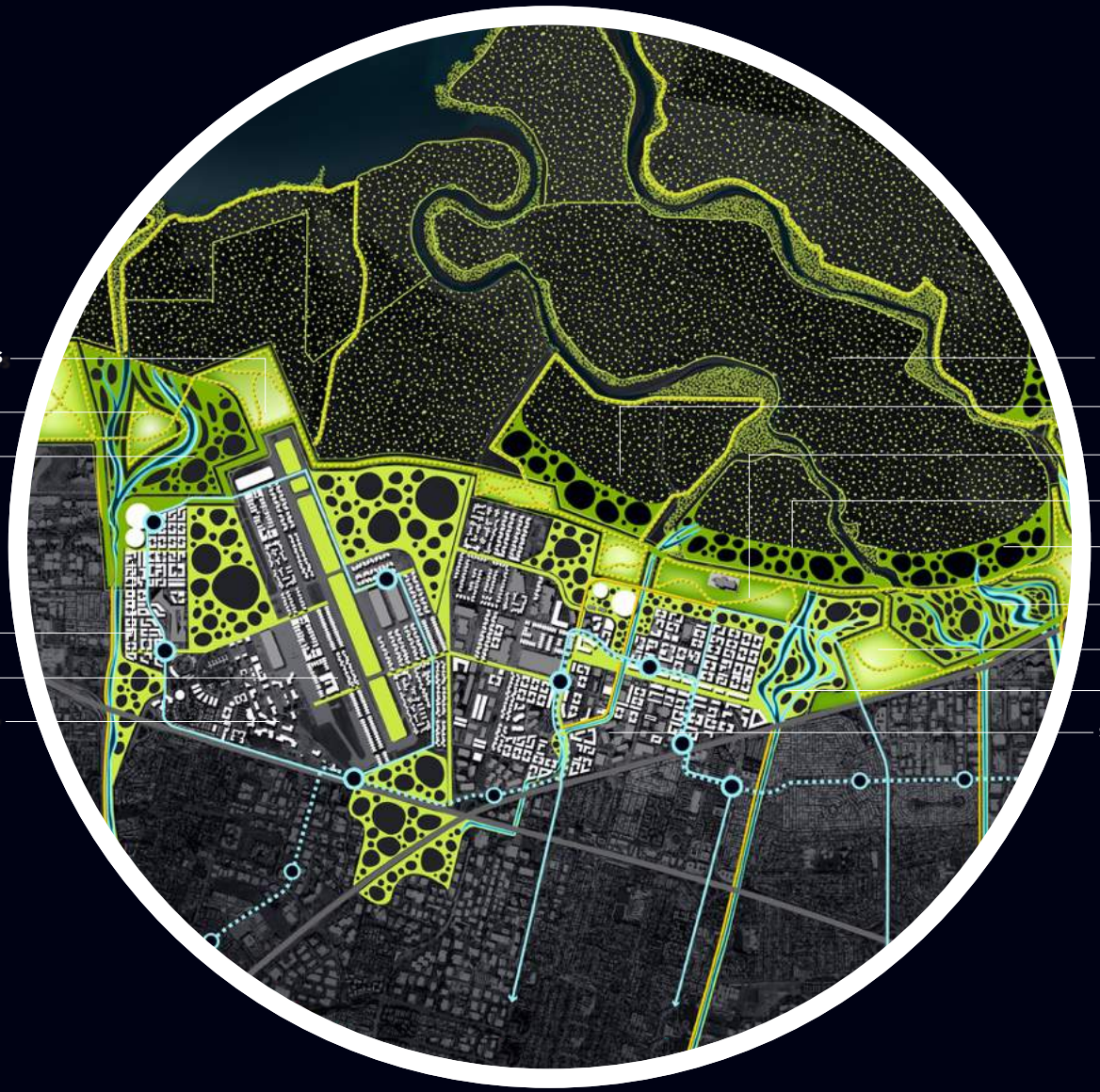
New ideas resulting from our framework and from stakeholder input include:

1) the transformation of Stevens Creek; Sunnyvale West and East Channels into widened naturalized creeks, wetlands and micro-deltas;

2) the consolidation of properties in Moffett Park to open up sites for flood water storage and habitat ("sponges");

3) the redevelopment of Moffett Field as a new, mixed-use and transit-oriented development on the Bay; and,

4) the reclamation and restoration of the Water Pollution Control Ponds and Water District Ponds into horizontal levees and future marshlands - the next step in completing the South Bay Salt Ponds as a continuous "sponge" and natural refuge.



THE SOUTH BAY SPONGE: SUNNYVALE AND MOFFETT FIELD

South Bay Sponge
Moffett Field Today

South Bay Sponge
A more absorptive Moffett Field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RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

South Bay Sponge
Moffett Field, Nature + Aerospace Research

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM


RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

South Bay Sponge
Sunnyvale Moffett Park Today


RESILIENT BY DESIGN
THE FIELD OPERATIONS TEAM

South Bay Sponge
A more absorptive Moffett Park

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM


RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

South Bay Sponge
Sunnyvale West Channel

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

South Bay Sponge
Sunnyvale Baylands Park

RESILIENT BY DESIGN
BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

South Bay Sponge
Sunnyvale Baylands Park

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

South Bay Sponge
Sunnyvale East Micro-delta

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

South Bay Sponge
New Forms of Living on the Bay

RESILIENT BY DESIGN
BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM

South Bay Sponge
Sunnyvale Today

South Bay Sponge
Sunnyvale Baylands Park

RESILIENT BY DESIGN BAY AREA CHALLENGE

THE FIELD OPERATIONS TEAM


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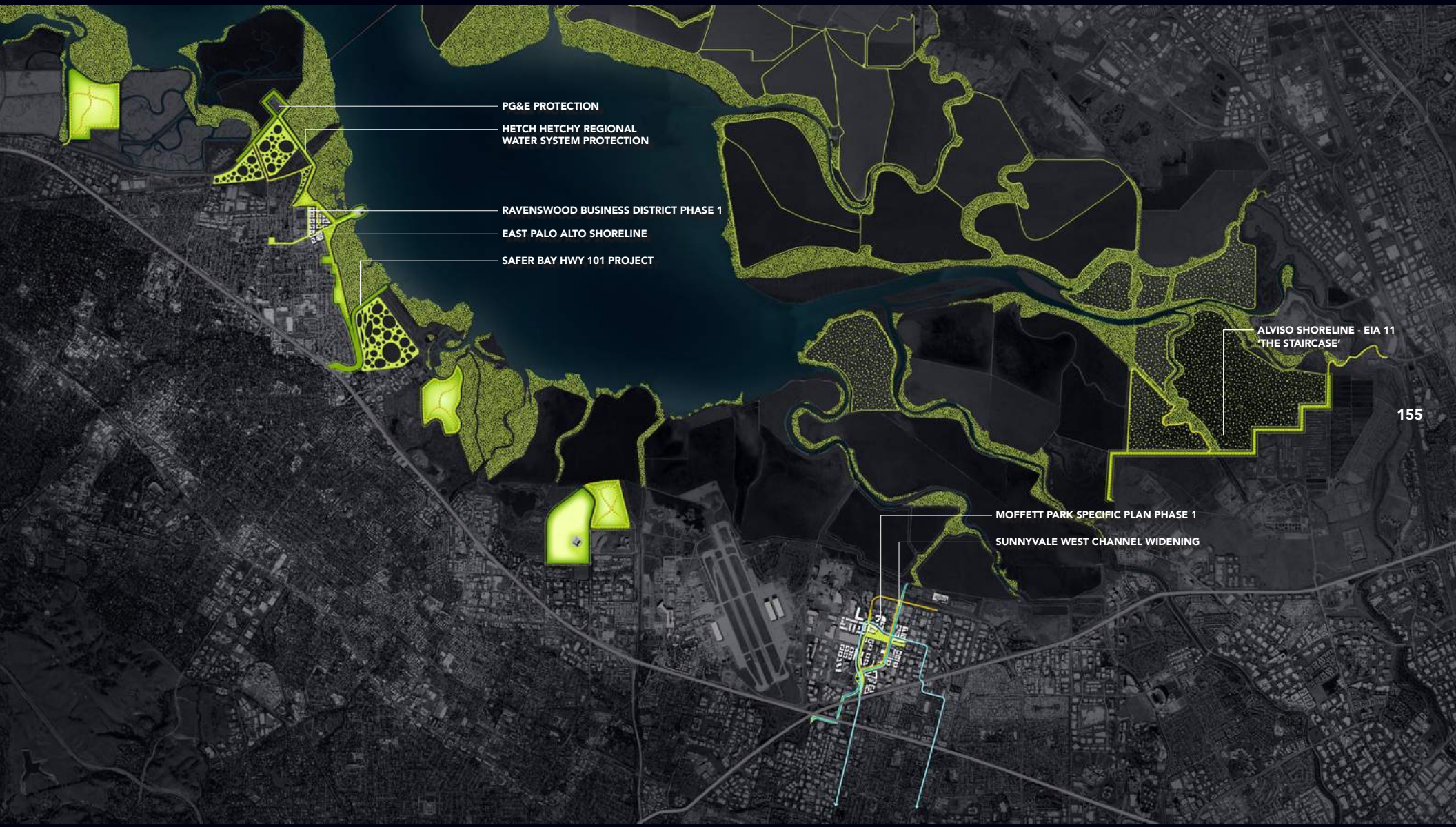
RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

SOUTH BAY SPONGE
EARLY WINS: 5-YEAR PROJECTS

There are two specific projects in the South Bay Sponge framework that are poised to advance to the next stage of design and achieve greater and more diverse benefits:

1) SAFER East Palo Alto Shoreline: the SFCJPA is underway in evaluating alternative alignments and their planning process can be aided by the public engagement strategies we have initiated and the inputs we have gathered from the community; and,

2) The widening of Sunnyvale West Channel: Google and the Santa Clara Valley Water District have recently signed an MOU to collaborate on alternative configurations for flood protection improvements to the channel, including concepts for widening and greening the channel.



THE SOUTH BAY SPONGE:
5 Years: 2020-2025

RESILIENT BY DESIGN
BAY AREA CHALLENGE
THE FIELD OPERATIONS TEAM

SOUTH BAY SPONGE
10-YEAR PROJECTS

With a 10-year horizon, we can anticipate the completion of the following projects and components of the framework:

1) Facebook's Willow Campus and the Dumbarton Rail Spur to a new station in Menlo Park / East Palo Alto;

2) East Palo Alto's Levee and Shoreline Park;

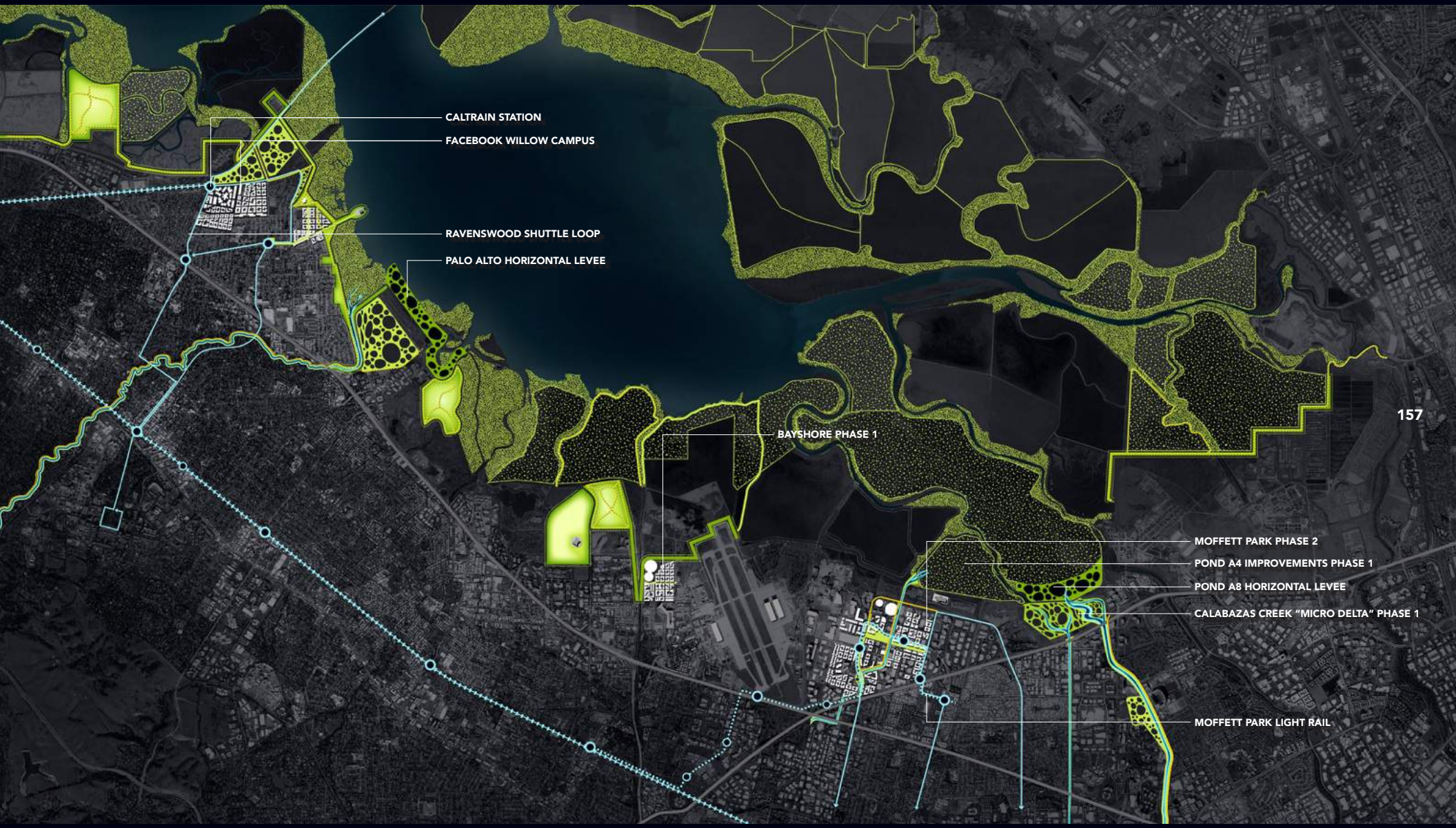
3) Palo Alto's horizontal levees, supported by the Palo Alto Regional Water Quality Control Plant;

4) Google's Bayshore Campus and realigned shoreline levee at Stevens Creek;

5) Extension of greenways and transit systems in Sunnyvale Moffett Park;

6) Phase 1 improvements to Pond A4; and,

7) Phase 1 of the Calabazas Creek micro-delta project and its connection to Pond A8.



THE SOUTH BAY SPONGE:
10 Years: 2026-2030

SOUTH BAY SPONGE
20-YEAR PROJECTS

With a 20-year horizon, we can anticipate the completion of the following projects and components of the framework:

1) further redevelopment of East Palo Alto's Ravenswood Business District;

2) the Adobe Creek micro-delta in Palo Alto;

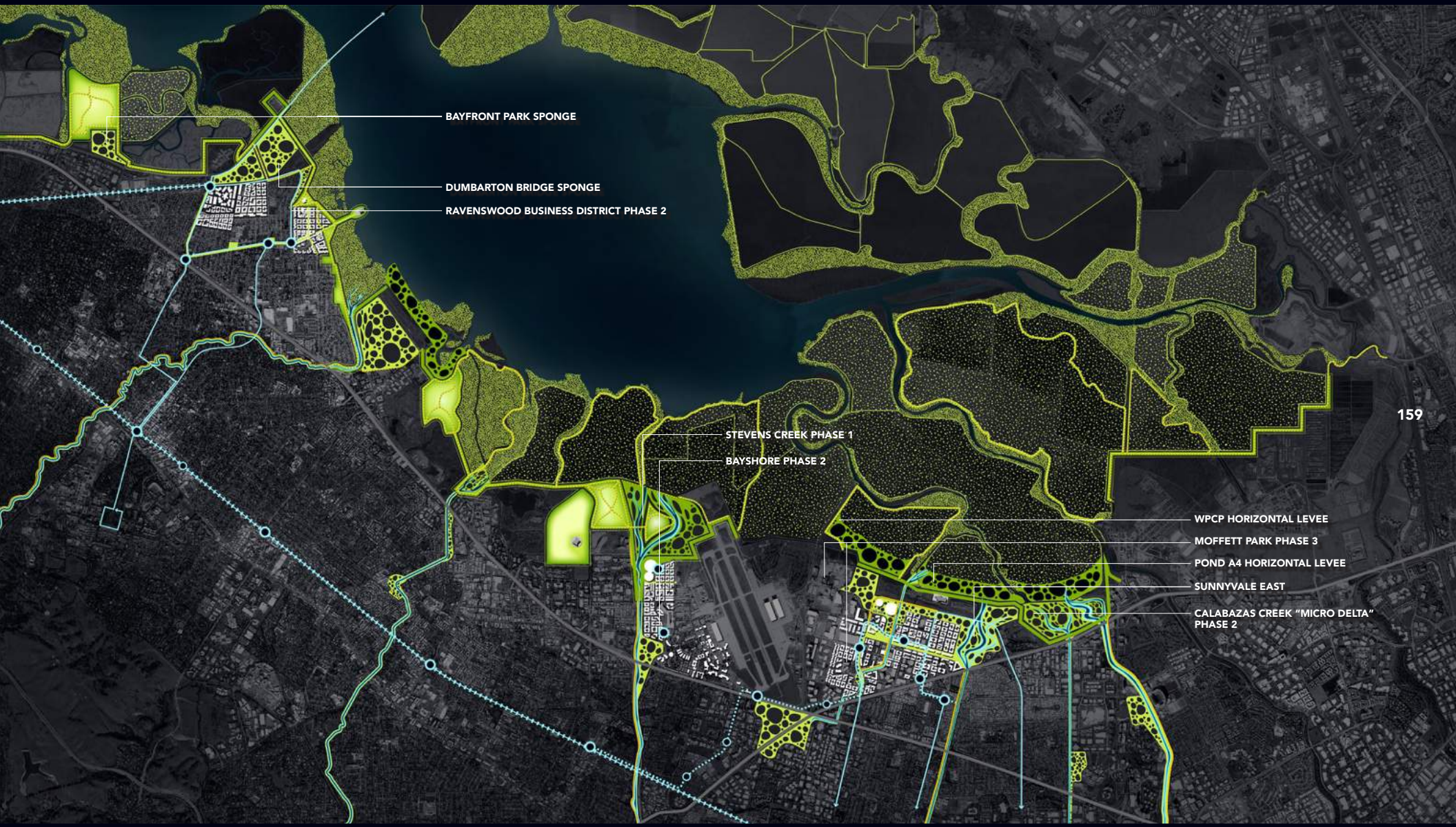
3) the Stevens Creek micro-delta project in Mountain View, the Midpen "Point Park", and the interconnection with the Salt Ponds Restoration Project;

4) the continued redevelopment of the Bayshore and NASA Ames sites;

5) the widening of Sunnyvale East Channel;

6) the restoration of Pond A4 and the Water Pollution Control Ponds with horizontal levees; and,

7) Phase 2 of the Calabazas Creek micro-delta project and its connection to Pond A8.



THE SOUTH BAY SPONGE:
20 Years: 2031-2040

SOUTH BAY SPONGE
30-YEAR PROJECTS

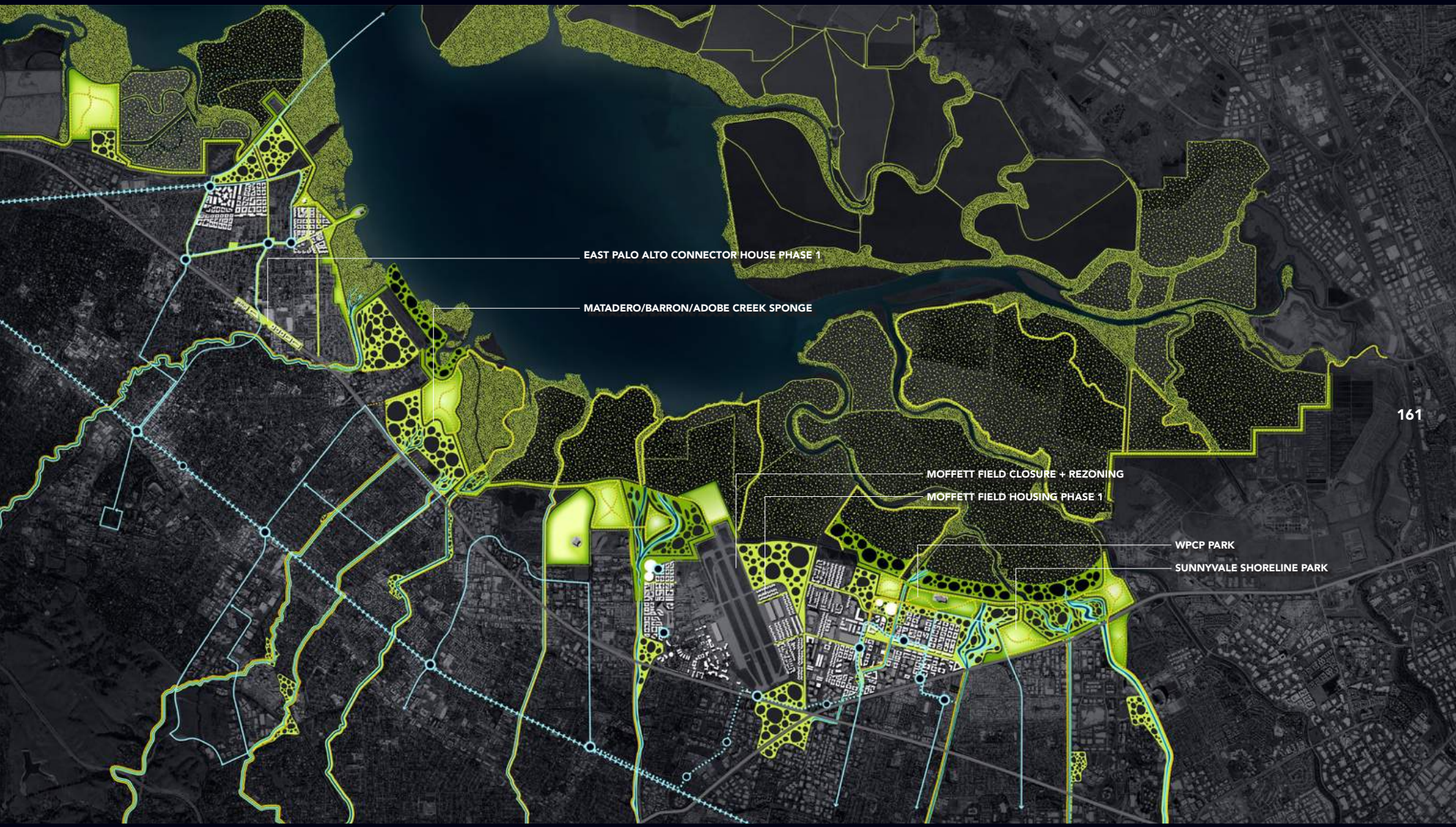
With a 30-year horizon, we can anticipate the completion of the following projects and components of the framework:

1) further redevelopment of East Palo Alto's Ravenswood Business District;

2) the widening of Matadero and Barron Creeks in Palo Alto;

3) the closure, rezoning and Phase 1 redevelopment of Moffett Field; and,

4) Sunnyvale Shoreline Park - the "Crissy Field of South Bay".



THE SOUTH BAY SPONGE:
30 Years: 2041-2050

SOUTH BAY SPONGE
30-YEARS+ PROJECTS

With a 30-year plus horizon, we can anticipate the completion of the following projects and components of the framework:

1) Dumbarton Rail Crossing between Menlo Park / East Palo Alto and Union City;

2) the widening of Permanente Creek in Mountain View;

3) the continued redevelopment of Moffett Field and associated flood protection projects; and,

4) the final phases of the South Bay Salt Ponds Restoration Project.

THE SOUTH BAY SPONGE:
30+ Years: 2051-2100

The South Bay Sponge is a design framework that thoughtfully imagines new possibilities for climate adaptation in the South Bay that can grow in scale, incentivize investment, build public support and excitement, facilitate coordination across jurisdictions, and contribute to the larger effort to increase resilience in the Bay Area.

It is big, ambitious, complex and seemingly impossible to implement. The level of cooperation required across jurisdictions is unprecedented. However, the cooperation involved is necessary. Without a cohesive, multi-jurisdictional solution - massive financial, infrastructural, ecological and human losses will occur and reoccur - and the most vulnerable of South Bay communities, East Palo Alto, will be left behind.

In the pages that follow, we begin to outline our fifth and final framework: a framework for cooperation and implementation. We start with a summary of estimated costs, followed by a summary of the many funding sources that would support a "South Bay Sponge" funding portfolio, and we sketch a new multi-jurisdictional governing body for managing and delivering the region's multi-benefit flood protection projects: The South Bay Multi-benefit Resiliency District.

South Bay Multi-benefit Resiliency District

South Bay Sponge
Order-of-Magnitude Costs

	SHORELINE LEVEE	SPONGE & HORIZONTAL LEVEE
MENLO PARK	6.5 miles of levee = $295 M	N/A
EAST PALO ALTO	2.6 miles of levee = $125 M	20 ac Ravenswood Sponge = $10 M
PALO ALTO	4.7 miles of levee = $210 M	350 ac Sponge = $87.5 M 260 ac Horizontal Levee = $65 M
MOUNTAIN VIEW	4.8 miles of levee = $215 M	450 ac Sponge & Micro-Delta = $115 M
SUNNYVALE	3.9 miles of levee = $175 M	400 ac Sponge = $100 M 325 ac Horizontal Levee = $80 M 160 ac Micro-Deltas = $40 M

CREEK	CONNECTIVITY / MOBILITY	TOTAL
N/A	Dumbarton Rail Spur = $500 M 7 miles of Bay Trail = $7 M	$800 M
N/A	Bay Road Improvements = $50 M Loop Road = $50 M 3.5 miles of Bay Trail = $3.5 M	$250 M
3.9 miles of Matadero Creek = $45 M 3.7 miles of Barron Creek = $40 M 2.5 miles of Adobe Creek = $30 M	10 miles of Bay Trail = $10 M	$500 M
4.9 miles of Permanente Creek = $50 M 4.2 miles of Stevens Creek = $50 M	10 miles of Bike Ways = $10 M 15 miles of Bay Trail = $15 M	$450 M
2.0 miles of Sunnyvale West = $25 M 4.8 miles of Sunnyvale East= $60 M	10 miles of Bike Ways = $10 M 15 miles of Bay Trail = $15 M	$500 M

= $2.5BN

RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

SOURCES OF FUNDING

While a variety of existing sources of local, state, and federal funding may support the implementation of the South Bay Sponge, the 20-mile project will be dependent on a portfolio of multiple-funding sources. Given the scale and estimated costs of the framework components, all existing sources of funding, even when combined, fall short of what is necessary to protect vulnerable areas. Moreover, the availability of some of our identified sources of funding is uncertain in the future.

Existing sources of funding are more likely to support further project planning and feasibility assessment in the short-term to either establish a more detailed and implementable project strategy or to identify further sources of capital funding.

That said, local funding sources are the most viable component of a funding portfolio for implementing resiliency projects in the South Bay. Projects in Santa Clara will benefit from both the Water District and its parcel-tax funded mandate to provide flood protection for the county, as well as the high potential for public-private partnerships with Silicon Valley firms. These advantages, however, will not address projects in neighboring San Mateo County, or ensure that sufficient funding is available for all projects or all communities.

An 'all of the above' approach to building a funding portfolio will be necessary, and this complex portfolio will then require significant levels of cooperation between jurisdictions to ensure cohesive decision-making, regional coordination, and interdependence.

An 'All of the Above' Funding Portfolio

The South Bay Sponge would require a portfolio of funding strategies combining local, state, and federal government sources along with public-private partnerships and foundations

Local Funding

Measure AA

Special Districts:
Santa Clara Valley Water District
San Mateo County Flood District

Parcel Taxes

Development Impact Fees paired with TODs & Density Incentives

Local Sales Tax

Special Tolls on Transportation

Utilities Rates and Charges

Public-Private Partnerships

Foundations

+

State Funding

Proposition 1

Proposition 68 *(June Ballot)*

Senate Bill 1

Cap and Trade

California Transportation Commission

State General Funding

+

Federal Funding

Environmental Protection Agency

Army Corp of Engineers

Fish and Wildlife Service

National Oceanographic and Atmospheric Agency

South Bay Sponge Funding: Local

Local funding sources are the most viable component of a funding portfolio.

SOURCE/STRATEGY	ELIGIBILITY CRITERIA	VALUE ($)
MEASURE AA	Regional, 9-county parcel tax of $12/ year to fund wetlands restoration	$500 M total over 20 years, $25 M annual allocation, $150,000 to $6.2 M range for FY2017
SPECIAL DISTRICTS: SANTA CLARA VALLEY WATER DISTRICT	Strategy to fund specific flood protection initiatives across the county	Annual budget depends on district boundaries & taxation structure
PARCEL TAXES	Flat tax that does not vary according to the assessed value of the property	Annual revenue varies by district size
SPECIAL TOLLS ON TRANSPORTATION	Used to finance regional transportation capital improvements	Determined by rate increase
UTILITIES RATES AND CHARGES	Proposition 218 allows water and sewer utilities in California to increase rates to fund resilient infrastructure spending	Determined by rate increase
PUBLIC-PRIVATE PARTNERSHIPS	The number of Silicon Valley businesses at risk with SLR suggests partnerships are inevitable. Google & Facebook are sponsoring forms of resiliency studies in the region.	Case-by-case
FOUNDATIONS	Silicon Valley Community Foundation, Packard Foundation, and Hewlett Foundation are a few South Bay foundations supporting Climate Change initiatives	Case-by-case

RELEVANT RESTRICTIONS	RELEVANT PROJECT	RELEVANT JURISDICTION	LIKELIHOOD
Will not consider gray or hard infrastructure projects	Saltwater Sponge / Horizontal Levee Freshwater Sponge Creeks / Micro-deltas	All	✓
Requires multi-jurisdiction coordination and cooperation	Shoreline Levee / Horizontal Levee Freshwater Sponge / Saltwater Sponge Creeks / Micro-deltas	All	✓
Maximum geographic scale of implementation is the county	All	All	?
Generally requires buy-in of voters in the entire San Francisco Bay region	Transit Infrastructure Improvements	All	?
Can only be used to fund projects that will have a direct benefit for water supply infrastructure	Freshwater Sponge Shoreline Levee / Horizontal Levee Creeks	All	?
Case-by-case	All	All	✓
Case-by-case	All	All	?

South Bay Sponge Funding: State

Current State Funds are either spent down, on the ballot this June or discretionary from year to year. Prop 68 and Senate Bill 1 are potential sources if they make it through the June Ballot.

SOURCE/STRATEGY	ELIGIBILITY CRITERIA	VALUE ($)
PROPOSITION 1	Ecosystem and watershed protection, surface and groundwater storage, and water supply infrastructure	$7.54 B allocated, $6.62 B committed, $928,362,000 remaining
PROPOSITION 1E	Rebuild and repair vulnerable flood control structures	$4.09 B allocated, $4.05 B committed, $33,978 remaining
PROPOSITION 68 (JUNE BALLOT)	Funds for the development, restoration & acquisition of parks, as well as for resource conservation programs	$4.0 B, if approved by voters
PROPOSITION 84	Water quality & supply, flood control, waterway & resource protection, state & local park improvements	$5.39 B allocated, $5.26 B committed, $128,554 remaining
SENATE BILL 1 (JUNE BALLOT)	Repairs and upgrades to transportation infrastructure to build a more sustainable future network	$5.4 B annual budget funded by a statewide gas tax
CAP AND TRADE	Auction revenue prioritizes urban greening, climate adaptation & resiliency projects	$2.0 B annual budget funded by GHG emissions market
CALIFORNIA TRANSPORTATION COMMISSION	Increase use of active modes of transportation, such as biking and walking	$1.5 M annual budget for the Active Transportation Program (ATP)
STATE GENERAL FUND	State appropriation funds many California agency grant programs	Ranges from $2.0 M to $15+ M, depending on the agency and the year

RELEVANT RESTRICTIONS	RELEVANT PROJECT	RELEVANT JURISDICTION	LIKELIHOOD
Most of the fund has already been spent down	Freshwater Sponge Shoreline Levee / Horizontal Levee Creeks / Micro-deltas	All	?
Most of the fund has already been spent down	Shoreline Levee / Horizontal Levee	All	?
Measure reallocates unissued bonds approved via Proposition 1, 1E and 84	Freshwater Sponge Shoreline Levee / Horizontal Levee	All	?
Most of the fund has already been spent down	Freshwater Sponge Shoreline Levee / Horizontal Levee Creeks/ Micro-deltas	All	?
Funds climate adaptation planning to protect investments in transportation projects, but does not fund implementation	Shoreline Levee / Transit Infrastructure Improvements	All	?
Funds grant programs that vary in scope and scale by agency	Freshwater Sponge Shoreline Levee / Horizontal Levee Creeks / Micro-deltas	All, with priority to disadvantaged communities	?
N/A	Trails / Bikeways Shoreline Levee	All	?
Grant requirements vary by agency	All	All	?

South Bay Sponge Funding: Federal

Current Federal Funds and Grants are limited in value, so are an unreliable source for capital projects in South Bay.

SOURCE/STRATEGY	ELIGIBILITY CRITERIA	VALUE ($)
EPA SAN FRANCISCO BAY WATER QUALITY IMPROVEMENT FUND	Emphasis on technically sound projects to restore wetlands and watersheds, and to reduce polluted runoff	$5 M annually
USACE CONTINUING AUTHORITY PROGRAM	Only granted for projects of limited scope and complexity; may be appropriate to fund a discrete phase that is part of a larger design; often implemented in sites of immediate risk	$10 M cap per project
USACE PRE-DEVELOPMENT GRANT	Funding for planning/pre-development stages of Army Corp regulated project	$100,000 maximum
FISH + WILDLIFE WILDLIFE RESTORATION GRANT	Funding for the selection, restoration, rehabilitation, and improvement of wildlife habitat, wildlife management research, and the distribution of information produced by the projects	$5 M annually
NOAA COASTAL RESILIENCE GRANT	Two focus areas: strengthening the resilience of coastal communities and habitat restoration	Up to $2 M per proposal, funding dependent on annual appropriations

RELEVANT RESTRICTIONS	RELEVANT PROJECT	RELEVANT JURISDICTION	LIKELIHOOD
Would require a government partner agency	Freshwater Sponge Saltwater Sponge / Horizontal Levee Creeks / Micro-deltas	All	?
Would require a government partner agency	Freshwater Levee, discrete project area	All	?
Would require a government partner agency	Freshwater Levee, design development	All	?
Would require a government partner agency	Freshwater Sponge Saltwater Sponge / Horizontal Levee Creeks / Micro-deltas	All	?
FY2018 pre-proposal deadline has passed, would require a government partner agency	Freshwater Sponge Horizontal Levee	All	?

South Bay Sponge
Shoreline Levee: Regulatory and Funding Path

PERMITTING / APPROVALS

LOCAL

City, County, Special Districts

S.F. Bay Conservation & Development Committee (BCDC)

Regional Water Quality Control Board

STATE

California Coastal Commission

California Dept. of Fish and Game

State Lands Commission

State Water Resources Control Board

CEQA Review

FEDERAL

National Marine Fisheries Service

U.S. Army Corps of Engineers

U.S. Fish & Wildlife Service

U.S. Natural Resources Conservation

REGULATORY CHANGES

General Plan Amendments

Relevant Specific & Master Plan Amendments

Local Comprehensive Plan Amendments

Bay Plan Amendment

SF Bay Basin Plan Amendment

Any CEQA-related requirements

SOURCES OF FUNDING	ELIGIBILITY / BENEFITS
LOCAL	
Measure AA	Ecosystem and watershed protection and restoration
Special Districts: Santa Clara Valley Water District	Water supply infrastructure projects
Public-Private Partnerships	Local parks and park improvements
Foundations	Environmental protection and restoration projects
	Flood protection
STATE	Equitable access to clean water, parks and recreation for under-served low-income communities
→ Proposition 68 *(June Ballot)*	→ Waterway and natural resource protection
Senate Bill 1	Recreational trails and trails-related facilities for recreational trail uses
Cap and Trade	Water pollution and contamination control
Transportation Commission Active Transportation Program	Public access to natural resources
State Parks Recreational Trails Program	Water conservation
	Healthy forests and urban greening
FEDERAL	Climate adaptation and resiliency
NOAA Coastal Resilience Grants	Increased use of active modes of transportation, such as biking and walking
ACE Pre-Development Grants	
ACE Continuing Authority Program	

South Bay Sponge
Sponge: Regulatory and Funding Path

PERMITTING / APPROVALS

LOCAL

City, County, Special Districts

S.F. Bay Conservation & Development Committee (BCDC)

Regional Water Quality Control Board

STATE

California Coastal Commission

California Dept. of Fish and Game

State Lands Commission

State Water Resources Control Board

CEQA Review

FEDERAL

National Marine Fisheries Service

U.S. Army Corps of Engineers

U.S. Fish & Wildlife Service

U.S. Natural Resources Conservation

REGULATORY CHANGES

General Plan Amendments

Relevant Specific & Master Plan Amendments

Local Comprehensive Plan Amendments

Bay Plan Amendment

SF Bay Basin Plan Amendment

CEQA-related requirements

SOURCES OF FUNDING

LOCAL

Measure AA

Special Districts:
Santa Clara Valley Water District

Utilities Rates and Charges

Public-Private Partnerships

Foundations

STATE

Proposition 68 *(June Ballot)*

Cap and Trade

Department of Fish and Game
Wetlands Restoration for Greenhouse
Gas Reduction Grants

State Parks Land and Water Conservation
Fund Grants

FEDERAL

NOAA Coastal Resilience Grants

Fish & Wildlife Service Wildlife
Restoration Grant Program

ELIGIBILITY / BENEFITS

Restoration, rehabilitation, and
improvement of wildlife habitat

Ecosystem and watershed protection
and restoration

Local parks and park improvements

Restore wetlands and watersheds

Reduce polluted runoff

Environmental protection and restoration projects

Flood protection

Equitable access to clean water, parks and recreation
for under-served low-income communities

Waterway and natural resource protection

Water pollution and contamination control

Public access to natural resources

Water conservation

Healthy forests and urban greening

Climate adaptation and resiliency

South Bay Sponge
Creeks: Regulatory and Funding Path

	PERMITTING / APPROVALS	REGULATORY CHANGES
180	**LOCAL** City and County Agencies Flood Control Districts Regional Water Quality Control Board **STATE** California Dept. of Fish and Game State Water Resources Control Board CEQA Review **FEDERAL** U.S. Army Corps of Engineers U.S. Fish & Wildlife Service U.S. Natural Resources Conservation	General Plan Amendments Relevant Specific & Master Plan Amendments Local Comprehensive Plan Amendments SF Bay Basin Plan Amendment Any CEQA-related requirements

SOURCES OF FUNDING

LOCAL

Special Districts:
Santa Clara Valley Water District

Public-Private Partnerships

Foundations

STATE

Proposition 68 *(June Ballot)*

Cap and Trade

State Parks Habitat Conservation Fund

FEDERAL

EPA San Francisco Bay
Water Quality Improvement Fund

Fish & Wildlife Service Wildlife
Restoration Grant Program

ELIGIBILITY / BENEFITS

Development of wildlife corridors and urban trails

Ecosystem and watershed protection
and restoration

Water supply infrastructure projects

Local parks and park improvements

Environmental protection and restoration projects

Flood protection

Equitable access to clean water, parks and recreation
for under-served low-income communities

Waterway and natural resource protection,

Water pollution and contamination control

Public access to natural resources

Water conservation

Healthy forests and urban greening

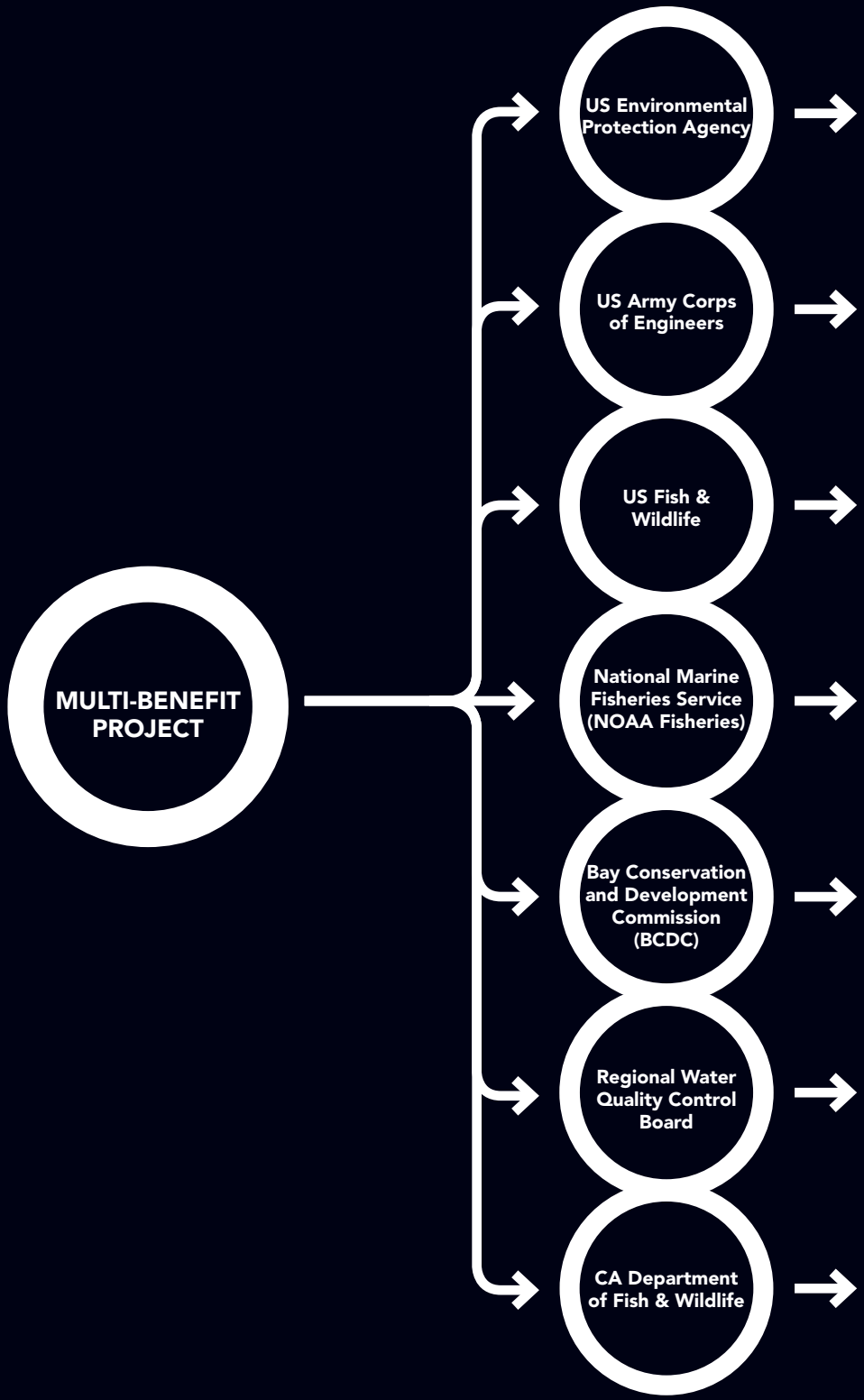
Climate adaptation and resiliency

Acquisition, enhancement, or restoration
of wetlands or riparian habitat

PERMITTING TODAY

The South Bay Sponge - and the majority of climate adaptation projects in the Bay Area - will require permits from local, regional and federal agencies. Approval processes, regulations, and even vocabulary vary across these levels. Sometimes goals and processes overlap, sometimes they conflict. There is no current mechanism, with the exception the San Francisco Bay Joint Aquatic Resource Permit Application (JARPA) and the San Francisco Bay Long Term Management Strategy (LTMS), for bringing diverse parties together to implement projects that support mutually beneficial resiliency strategies. What happens when agencies come to conflicting conclusions? There simply is not enough time or money to proceed with business-as-usual.

With the scale of adaptation required, the environmental interdependence of adaptation components, and the number of parties simultaneously vying for approval and funding - suggests that a new form of integrated permitting will be necessary.


MULTI-BENEFIT PROJECT
US Environmental Protection Agency
US Army Corps of Engineers
US Fish & Wildlife
National Marine Fisheries Service (NOAA Fisheries)
Bay Conservation and Development Commission (BCDC)
Regional Water Quality Control Board
CA Department of Fish & Wildlife
?

COOPERATIVE, INTEGRATIVE PERMITTING

We propose a cooperative agreement between regional, state and federal permitting agencies to 1) strengthen regional cooperation; 2) coordinate and streamline implementation for projects with multiple benefits that address critical long-term needs across jurisdictions and 3) resolve bottlenecks in permitting, approvals, and other regulatory issues. Discussions are underway for inter-agency permitting coordination between the US Army Corps of Engineers, the National Marine Fisheries Service (NOAA Fisheries), US Fish and Wildlife Service, Bay Conservation and Development Commission, San Francisco Regional Water Quality Control Board, CA Department of Fish and Wildlife, and the US Environmental Protection Agency. Representatives from each group are provisionally titled the Bay Restoration Regulatory Integration Team. This may be the new model for inter-agency coordination for accelerating multi-benefit, climate adaptation projects around the Bay.

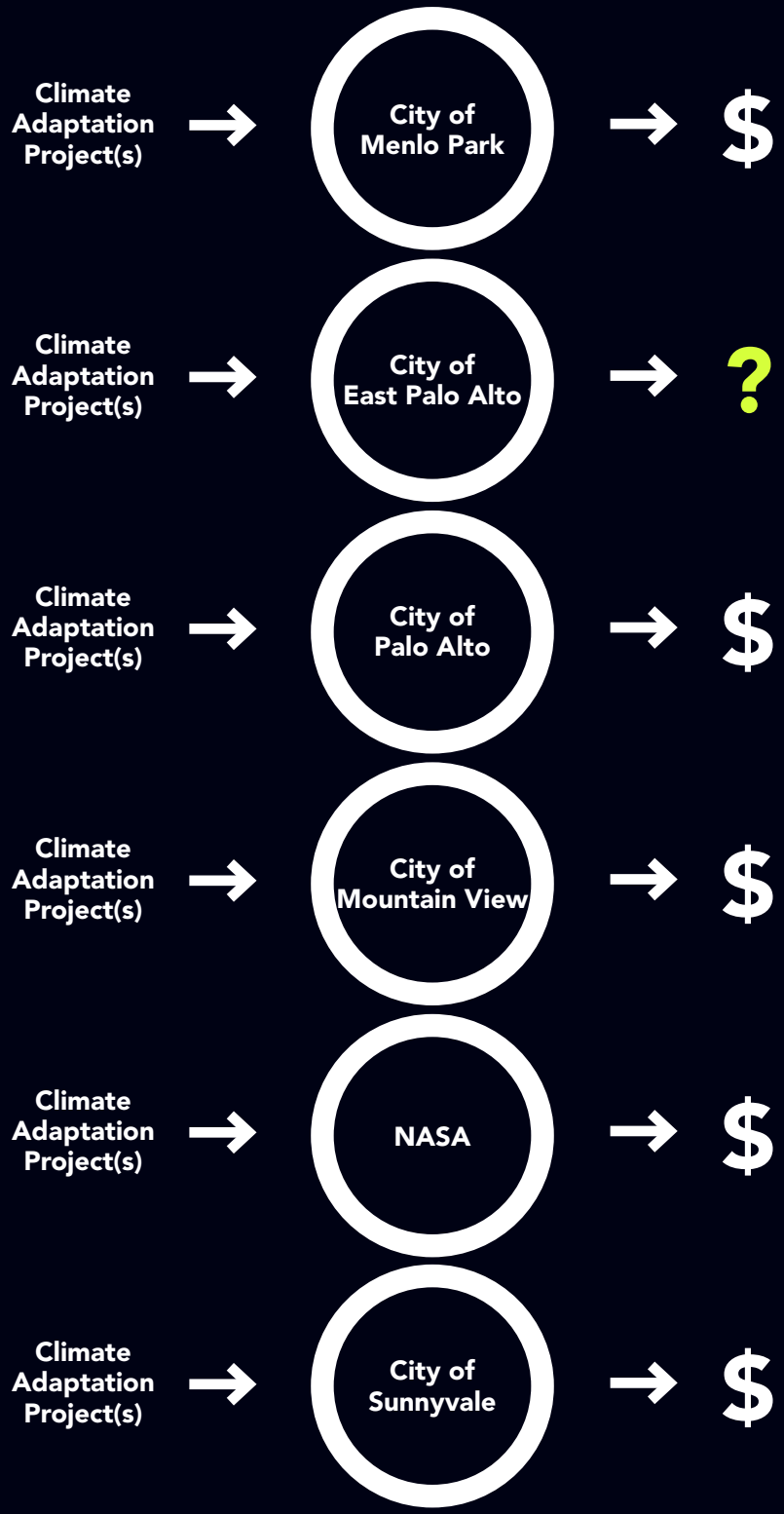
Integrated Permitting for Multi-benefit Projects

Coordinate the permitting process for multi-benefit wetland restoration, flood management and public access infrastructure projects by dedicating regulatory agency representatives to review permit applications as a team in the most efficient manner.

GOVERNING, FUNDING AND IMPLEMENTING MULTI-BENEFIT CLIMATE ADAPTATION PROJECTS TODAY

Our government system does not work for large-scale, multi-benefit projects. Access to resources and ability to leverage funding varies significantly across the region. Individual jurisdictions, utilities, and private landowners are rightly concerned about meeting their own immediate resiliency needs. This individualized approach makes already extraordinarily expensive projects even more costly, and puts under-resourced jurisdictions, communities or land-owners at a significant disadvantage.

No mechanism currently exists to identify shared goals, jointly pursue funding, and implement multi-benefit projects that cross jurisdictions. In the absence of diligent coordination, resiliency investments protecting discrete neighborhoods or assets may move forward, but without a continuous line of protection, the region - and disadvantaged communities in particular - will remain vulnerable.


Climate Adaptation Project(s)
City of Menlo Park
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Climate Adaptation Project(s)
City of East Palo Alto
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Climate Adaptation Project(s)
City of Palo Alto
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Climate Adaptation Project(s)
City of Mountain View
$
Climate Adaptation Project(s)
NASA
$
Climate Adaptation Project(s)
City of Sunnyvale
$

THE SOUTH BAY MULTI-BENEFIT RESILIENCY DISTRICT

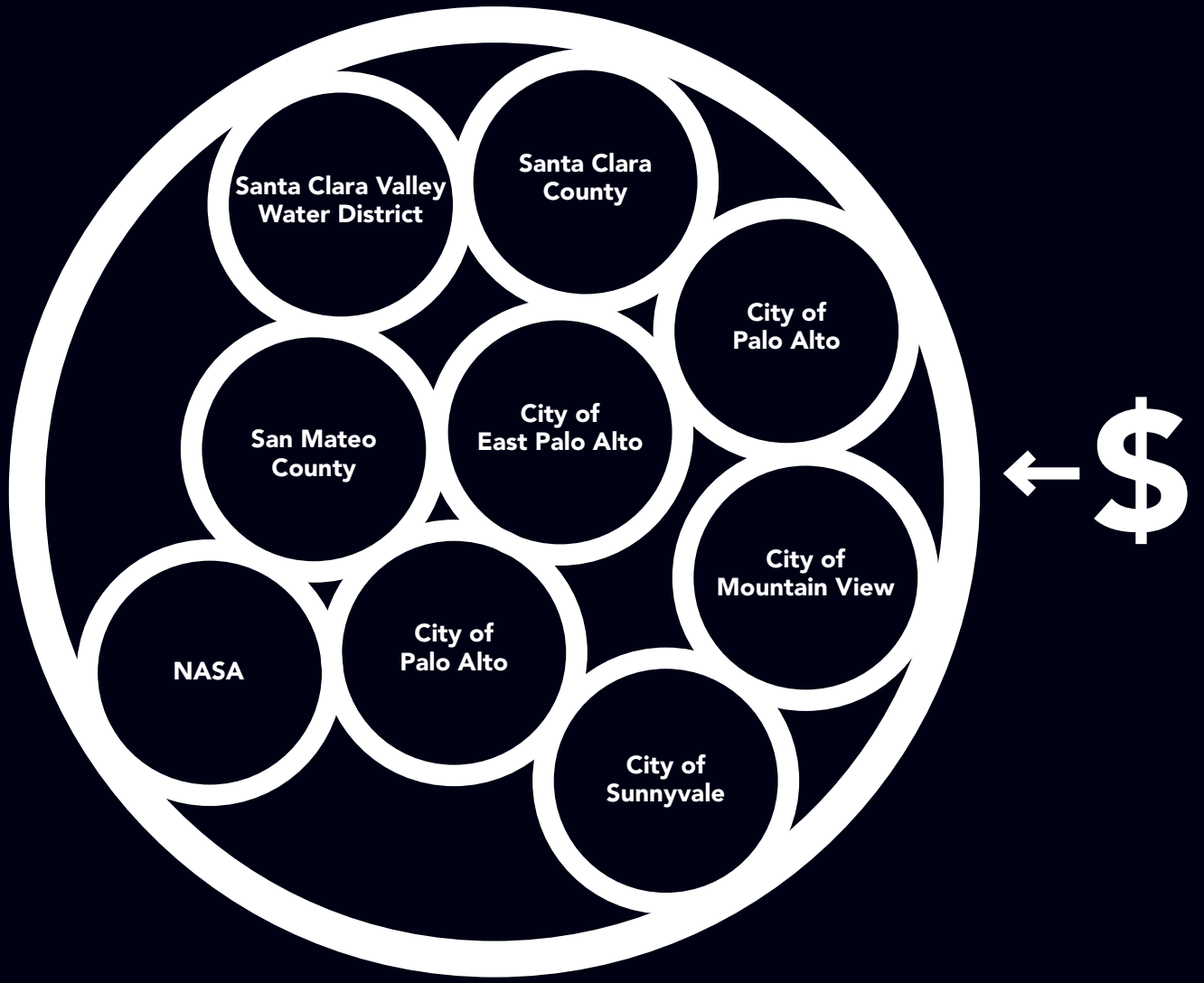
We propose a new framework for cooperation and coordination across jurisdictions in the South Bay. Each municipality plus the Water District and NASA would enter a collaborative agreement to define how the region messages, deliberates, prioritizes, acquires funds and implements multi-benefit resiliency projects. The framework may take the form of a Special District - The South Bay Multi-Benefit Resiliency District - whereby a host of funding mechanisms become feasible.

This cross-jurisdictional cooperation could all start with something as simple as an MOU between jurisdictions. It may be that the Santa Clara Valley Water District and San Mateo County Flood District already have the mechanisms in place to fund components of the South Bay Sponge, but it is clear that significant additional funds are required for continuous protection and significant coordination is required to make it all happen.

The South Bay Sponge becomes the idea, the framework and the motivation for this new form of cooperative planning for a more resilient South Bay.

South Bay Multi-benefit Resiliency District

A cross-jurisdictional framework for a cooperative process of deliberation, prioritization and implementation of multi-benefit resiliency projects



RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

SOUTH BAY SPONGE: NEXT STEPS

There are a variety of ways in which the South Bay Sponge project might continue. We have received enormous support from all stakeholders involved, and have had a remarkably successful public engagement process that is a model for messaging, educating and inspiring a broader public. In any scenario, however, specific funding sources would be needed to support further work, whether for continuing the public engagement and education efforts; for continuing project planning and feasibility assessments; for the preparation of a more detailed and implementable pilot project; or, to identify further sources of capital funding. At this point, we can provisionally outline the following potential sponsors for next steps:

1) The San Francisquito Creek Joint Powers Authority (SFCJPA): for continuing the “South Bay Sponge” public engagement efforts in East Palo Alto, building on the enthusiasm and momentum we have generated;

2) The Santa Clara Valley Water District: for continuing the “South Bay Sponge” public engagement efforts in Palo Alto, Mountain View and Sunnyvale or to prepare of a more detailed and implementable “South Bay Sponge” pilot project;

3) Silicon Valley Business(es) or Foundation(s): for advancing the “South Bay Sponge” as a regional civic engagement campaign around resilience - with the aim of cultivating as broad an audience as possible, including the next generation of voters.

THE SOUTH BAY SPONGE
A framework and a campaign for a more resilient South Bay

RESILIENT BAY AREA CHALLENGE BY DESIGN
THE FIELD OPERATIONS TEAM

SOUTH BAY SPONGE: ACKNOWLEDGMENTS

A special thanks to all participants in our effort to imagine a more resilient South Bay. We are grateful to all who participated in our workshop series, presentations, public events, interviews and conversations around the challenges and opportunities of climate adaptation planning for the region. In addition, we want to express gratitude to all of the community members of East Palo Alto, Sunnyvale, and surrounding areas who provided ideas and feedback essential to the development of the concepts in this report.

Acterra
- Julie Noblitt, Energy and Climate Program Director
- Violet Saena, Resilient Communities Program Manager

California Coastal Conservancy
- Amy Hutzel, Deputy Executive Officer

Citizens Committee To Complete The Refuge
- Eileen McLaughlin, Board Member

City of East Palo Alto
- Mayor Ruben Abrica
- Sean Charpentier, Assistant City Manager

East Palo Alto, Ravenswood Shores Business District
- Jeff Poetsch, President

City of East Palo Alto Residents
- Dee Uhila
- Carlota Calballo
- Romain Tanière
- Attendees of EPA's Public Meeting
- Members of St. Francis of Assisi Church
- Students of Phoenix Academy
- EPA Farmers Market
- Faith In Action

City of Mountain View
- Raymond Wong, Senior Project Manager

City of Mountain View Residents
- Mountain View Farmers Market
- Shoreline Park

City of Palo Alto
- Phil Bobel, Manager, Public Works Engineering
- Samantha Engelage, Senior Engineer
- Gil Friend, Chief Sustainability Officer
- Karin North, Watershed Protection Manager
- Julie Weiss, Project Manager

City of Palo Alto Residents
- Baylands Nature Preserve
- Palo Alto Baylands Park
- Palo Alto Farmers Market

City of Sunnyvale
- Melody Tovar, Regulatory Programs Division Manager
- Elaine Marshall, Environmental Programs Manager

City of Sunnyvale Residents
- Sunnyvale Farmers Market
- Attendees of Sunnyvale Climate Change Summit

Google
- Kate Malmgren, Urban Ecology Program Lead
- Ashley Muse, Campus Design, Technical Specialist

Joint Venture Silicon Valley
- Kara Gross, Director, Public Sector Climate Initiatives

Midpeninsula Regional Open Space District
- Kirk Lenington, Natural Resources Manager
- Melanie Askay, Grants Specialist
- Joshua Hugg, Government Affairs Specialist
- Whitney Berry, Planner
- Jane Mark, Planning Manager
- Karine Tokatlian, Resource Management Specialist
- Tina Hugg, Senior Planner

Metropolitan Transportation Commission (MTC)
Stefanie Hom, Associate Planner/Analyst

NASA Ames Research Center
Lisa Lockyer, Legislative Director

San Francisco Estuary Institute (SFEI)
Warner Chabot, Executive Director
Robin Grossinger, Senior Scientist
Katie McKnight, Environmental Analyst, Resilient Landscapes Team

San Francisquito Creek Joint Powers Authority
Len Materman, Executive Director

San Mateo County
Supervisor Dave Pine
Jasneet Sharma, Interim Sustainability Program Manager
Michael Barber, Chief Legislative Aid/Budget Analyst
Jim Eggemeyer, Director, Office of Sustainability
Marcus Griswold, Climate Adaptation Specialist
Deborah Hirst, Legislative Aide
Hilary Papendick, Climate Change Program Manager

Santa Clara County Office Of Sustainability
Kevin Armstrong, Interim Manager
Brad Angell, Sustainability Analyst

Santa Clara Valley Water District
Linda Lezotte, Vice-Chair
Vincent Gin, Deputy Operating Officer
Rechelle Blank, Engineering Manager

Silicon Valley Leadership Group
Mike Mielke, Sr. Vice President, Environment & Energy
Kendra Schultz, Energy and Environment Associate

South Bay Salt Pond Restoration Project
John Bourgeois, Executive Project Manager

SPUR San Jose Forum on South Bay Resiliency

Stanford University
Sustainable Urban Systems Initiative

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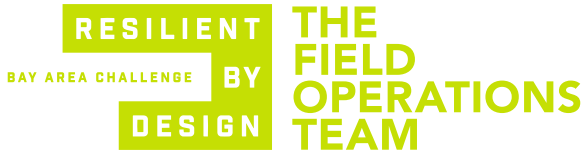
RESILIENT
BAY AREA CHALLENGE
BY
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