COMMON GROUND
An Approach to the Incremental + Instantaneous Dynamics of the Bay Area Shoreline
COMMON GROUND
THE TEAM

LANDSCAPE ARCHITECTURE
ART, EDUCATION, SCIENCE
ARCHITECTURE
COASTAL ENGINEERING
FINANCIAL ADVISING
BENTHIC ECOLOGY
URBAN DESIGN
TERRESTRIAL ECOLOGY
COMMUNITY ENGAGEMENT
HYDROLOGY
TRANSPORTATION ENGINEERING

TLS Landscape Architecture
Exploratorium
Michael Maltzan Architecture
Guy Nordenson and Associates
Sitelab Urban Studio
HR&A Advisors
Lotus Water
Rana Creek Design
Dr. John Oliver
Richard Hindle, UC Berkeley
Fehr & Peers Transportation Consultants
KING TIDES 2017

BLOCKING NATURAL FLOWS

CONSTRUCTION STARTS 2088

LOWEST COST OPTION AT $1.2 BILLION
WHY IS THIS CRITICAL
WHY SR 37?

NORTH BAY IS AFFORDABLE AND GROWING

THERE LIMITED PUBLIC TRANSIT IN NORTH BAY

SR 37 IS KEY CORRIDOR FOR PEOPLE TO GET TO WORK

‘2/3 of all trips on SR 37 are made by those earning at or below the median income.’
WHY THE NORTH BAYLANDS?

MARSHES HAVE SPACE TO RETREAT UPLANDS

LARGEST PATCH OF BAYLANDS IN THE BAY AREA

1/3rd OF BAY’S SEDIMENT COMES FROM NAPA AND SONOMA WATERSHED

‘the largest patch of baylands in the Bay Area will be inundated by 2100’
Very few live at the site, but 550,000 people live in cities around the baylands.
<table>
<thead>
<tr>
<th>Adapting Ground</th>
<th>Identity</th>
<th>Mobility</th>
<th>Constituency</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOP FLOODING</td>
<td>KIDS LEARNING CENTER</td>
<td>CAUSEWAY TO REPLACE 37, MORE RAPID (AFFORDABLE) TRANSIT</td>
<td>\textbf{NOT EASILY ACCESSED}</td>
</tr>
<tr>
<td>REPLENISH THE SOIL THAT ERODED DURING FARMING YEARS</td>
<td>MORE PROTECTION OF THE WETLANDS</td>
<td>AFFORDABLE, SUSTAINABLE BUILT HOUSING WITH ACCESS TO TRANSPORTATION</td>
<td>\textbf{AFFORDABLE, SUSTAINABLE BUILT HOUSING WITH ACCESS TO TRANSPORTATION}</td>
</tr>
<tr>
<td>SLOUGH HEAVEN</td>
<td></td>
<td>CAUSEWAY TO REPLACE 37, MORE RAPID (AFFORDABLE) TRANSIT</td>
<td>\textbf{CAUSEWAY TO REPLACE 37, MORE RAPID (AFFORDABLE) TRANSIT}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>\textbf{AFFORDABLE, SUSTAINABLE BUILT HOUSING WITH ACCESS TO TRANSPORTATION}</td>
<td>\textbf{AFFORDABLE, SUSTAINABLE BUILT HOUSING WITH ACCESS TO TRANSPORTATION}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FINDING COMMON GROUND

Landowners

Transportation

Conservation

Community Access
ALTERNATE ALIGNMENTS

BERM IN PLACE
SAN PABLO BAY BRIDGE/TUNNEL
SR12 ALIGNMENT
CAUSEWAY IN PLACE
NORTHERN ALIGNMENT
SCENIC BAYWAY+RAIL
CAUSEWAY ALTERNATIVES

NORTHERN ALIGNMENT

• Moderate Cost - major section rests on firm ground
• Unobstructed flows for ecological processes
• Politically challenging and multiple land owners
• Loss of access to Mare Island, Cullinan, Tubbs Island

SOUTHERN ALIGNMENT

• Iconic “Front Door or Window” - adding value & beauty through design
• Allows for Strip Marsh migration
• Majority of section to be build on soft ground and runs through refuge
• Retains access for communities in Vallejo and Mare Island to the baylands
THE BAYWAY: Design Principles

1. PRIORITIZE ELEVATED CAUSEWAY STRUCTURE
2. IMPROVE HABITAT & HYDROLOGIC CONNECTIVITY
3. RESPOND TO INTRINSIC QUALITIES OF THE LANDSCAPE
4. MAKE AN ICONIC FRONT DOOR TO BAYLANDS OPEN SPACE
SCENIC HIGHWAYS

Chesapeake Bay Bridge and Tunnel

- Governing body of the District - innovative capital/operations model for complex context.
- Mission: To provide the traveling public with a safe, cost effective, and unique driving experience across the scenic Chesapeake Bay.
- Ranked among the Top 25 Virginia attractions most frequently visited by travelers, #3 for the Coastal Virginia/Chesapeake Bay regions.
- Crosses over and under open waters - 17.6 miles
- Sponsor programs for birdwatching, Special Olympics Torch Run, etc.
- Gross toll revenue for calendar year 2016 totaled $57,475,733

Doyle Drive, Presidio

- Fundamental problem for most was that all the offerings were variations on the straightforward freeway - absent of “design”
- First to step into the jurisdictional morass and political quagmire, creating the Doyle Drive Task Force in the early 1990s to provide recommendations
- Michael Painter, LA created scheme of a road ran in a cut-and-cover tunnel with a landscaped top, so that people could once again walk to the historic battery bluff. Initially dismissed as infeasible and too expensive.
- Painter plan incorporated into Caltrans alternatives & proved to be superior
- $1.1 billion project is completed in 2015 (less than $3 billion Caltrans alt)
PARKWAYS

Blue Ridge Parkway

- Generating $1.5 billion in total business sales, sustaining approximately 9,300 jobs, and creating an increase of $251.7 million in labor earnings.
- Minimized political involvement in development of its route, instead provided principles to guide its development.
- Protected ROW would allow for preservation & restoration of landscape.
- Structures simple character and encourages harmony with natural environment - a unified kinetic experience.
- Accommodate ease & safety of travel while revealing the character of the land.
- Provide traveler with scenic qualities through waysides, overlooks, picnic areas and lodging.

Bronx River Parkway

- Road closed on Sunday’s for pedestrian/bicycles only.
- 13 mile-long road part of a larger effort to save Bronx River from further degradation through land reclamation.
- Park on both sides - turned an abandoned wastelands into a park accessible between Westchester County and NYC.
- Use of overpasses at crossings and curvilinear alignment/reduced speed.
- Varying width of entire parkways creates additional visual interest.
- Excludes commercial vehicle.

- Use of overpasses at crossings and curvilinear alignment/reduced speed.
- Varying width of entire parkways creates additional visual interest.
- Excludes commercial vehicle.
INTERNATIONAL

Norwegian Scenic Routes

- One in every 15 Norwegian employee works in tourism industry today.
- Since 2004 contributes to 4.2% of their GDP.
- Starting in 1994, they took 20 yrs to upgrade and connect existing highways
- Goal improving scenic experience and invite tourists.
- Boost to appreciation of nature

ØRESUND BRIDGE

- This bridge follows a scenic curved alignment to reduce ecological impacts.
- 10 mile long road and rail link between Sweden and Denmark.
- Independent owner and operator - joint venture with history of building & financing hinterland infrastructure.
- Entitled to levy charges from users to cover operating and interest expense and finance repayment of loans for construction.
- Bridge proved to be a great success for growing economy with a population of 3.7 million on either ends.
- Artificial island supports ecological haven for flora and fauna.
THE GRAND BAYWAY

ICONIC FRONT DOOR

IMPROVED HABITAT CONNECTIVITY

BRINGING PEOPLE TO THE BAYLANDS
SR37 road embankment constructed 1928 for $484,954 using dredge fill from borrow ditch alongside road.
The Baylands & SR 37
2050 - SR 37 Southern Option

Recommended actions from Bayland Goals Report 2015:

- Elevate SR 37 to a causeway & remove other barriers to achieve unimpeded tidal & hydrological connectivity.
- Retreating scarp with sea level rise +
- Extensive mudflats +
1. Western Sandpiper
2. Overlook Tower
3. River Otter
4. Fall Run Chinook
5. Canvasback Duck
6. Napa River
7. American Avocet
8. Great Egret
9. American Bittern
10. Tule Elk
11. Bird Tower
12. Artificial Aquatic Vegetation
13. Aquaculture Breakwater
14. Aquatic Fiber Substrate
15. Artificial Islands
16. Artificial Floating Islands
HYPER ACCRETION GARDENS
Gaining ground

1. Sonoma Creek
2. Wind Sculpture
3. Slough Marsh
4. Wetland Monitoring
5. Existing Levee and High Marsh Plain
6. Low Marsh Plain
7. Low Marsh/Mudflats
8. Levee Breach Gates
9. Wattle Wall Hyper-Accretion Garden
10. Mudflat/New Sediment Accretion
11. New Chamfer Levee and Trail
12. Overlook Tower
13. Wingo
14. Poplar Trees
15. Aquatic Planting Armatures

Historical: Extensive marshes at high tide, deep & wide sloughs
Settlement: Levee sloughs, reclaim marshes for agriculture
Today: Subsided fields, constrained sloughs & marshes
Future: Breach levees, restore marshes, elevate ground

Sediment Layer - Initial Breach, 2020
Sediment Layer - Gradual Accretion and Settling, 2021-2024
Sediment Layer - Megaflood, Spring 2025
THE GRAND BAYWAY

- CULLINAN
- TOLAY
- WINGO
- BUCHLI
- NAPA JUNCTION
- MARE ISLAND
MARE ISLAND GATEWAY HUB
### IMPLEMENTATION

**NEAR-TERM PROJECTS**

1. **Regional Entity**
   - Economic planning and another year initiating corridor recommendations
   - 9-12 months

2. **Sonoma Creek**
   - Baylands Outreach Strategy
   - 12-15 months

3. **Multi-Modal**
   - Public Access Study for SR37 Corridor

**MID-TERM PROJECTS**

1. **Mare Island Gateway**
   - Incorporate multimodal hub and access to the baylands
   - 5-10yrs

2. **Napa Junction Gateway**
   - Incorporate American Canyon park design and connect baylands to uplands
   - 5-10yrs

**Scenic Causeway**
- Add value to chosen alternative to make it the iconic front door for the North Bay
- 5-10 yrs

### STIP/ITIP Estimate

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimate</th>
<th>Process</th>
<th>Time Estimate</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>$32 m</td>
<td>2018</td>
<td>5 yrs</td>
<td>$20 m</td>
</tr>
<tr>
<td>2019</td>
<td>$140 m</td>
<td>2026</td>
<td>5-8 yrs</td>
<td>$90 m</td>
</tr>
<tr>
<td>2020</td>
<td>$104 m</td>
<td>2030</td>
<td>3-4 yrs</td>
<td>$30 m</td>
</tr>
<tr>
<td>2021</td>
<td>$138 m</td>
<td>2025</td>
<td>1-2 yrs</td>
<td>TBD</td>
</tr>
<tr>
<td>2024</td>
<td>$1004 m***</td>
<td>2025</td>
<td>5 yrs</td>
<td>$1000 m***</td>
</tr>
</tbody>
</table>

### Process

- Current evaluating a range of alternatives
- Initiate Environmental Documents (2 alternatives*)

**Time Estimate**
- 2 yr Project Initiation Document
- 5 yrs Initiate Environmental Documents

**Cost Estimate**
- NEAR-TERM PROJECTS
- MID-TERM PROJECTS
- Complete Inundation of the Corridor

- Regular Inundation and Flooding Events
- SR 37 closed for 28 days

- Complete Inundation of the Corridor
- Project Completion

- 2018: SR 37 closed for 28 days
- 2019: 5 yrs Initiate Environmental Documents
- 2020: 10 yrs Initiate Design Documents
- 2025: 20 yrs Initiate ROW/Mitigation
- 2028: 5 yrs Project Construction Ready
- 2034: 70 yrs Project Construction Ready
- 2112: 2100 Project Completion

### Implementation Timeline

- 2018: Currently evaluating a range of alternatives
- 2019: Initiate Environmental Documents (2 alternatives*)
- 2020: Project Initiation Document

---

**Project Completion**: 2112

**70 yrs Project Completion**: 2100

**Complete Inundation of the Corridor**: 2112

**Regular Inundation and Flooding Events**: 2050

**SR 37 closed for 28 days**: 2018
MULTI-MODAL PUBLIC ACCESS STUDY

EVALUATE ALL SR37 ALIGNMENTS TO IMPROVE ACCESS TO THE BAYLANDS