

City of Millbrae Sea Level Rise Adaptation Assessment

June 13, 2019

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 - Sea Level Rise in Millbrae
 - Potential Mitigation Measures
 - Your Input
 - Next Steps for Millbrae



About the Assessment - Overview

- Millbrae is a great place to live and work
- Taking practical, common sense steps to address problems facing our community is in everyone's best interest
- Sea level rise is increasing and threatens the heart of downtown Millbrae:
 - Our transportation system
 - Jobs
 - Homes
 - Infrastructure that serves everyone
- The Assessment will help us adapt and achieve protected shorelines.



About the Assessment - Overview

- Millbrae Received a Grant to Assess Impacts of Sea Level Rise and Propose Potential Mitigations
 - Sea Change San Mateo County Community Resilience Grant
 - \$60,000 with a Partial City Match
 - Build on Previous Studies
 - Sea Level Rise Vulnerability Assessment
 - SFEI Bay Shoreline Adaptation Atlas
- Mitigations Can Reduce Overall Flood Risk, Including FEMA Floodplains
- Protecting Vulnerable Areas Protects Everyone



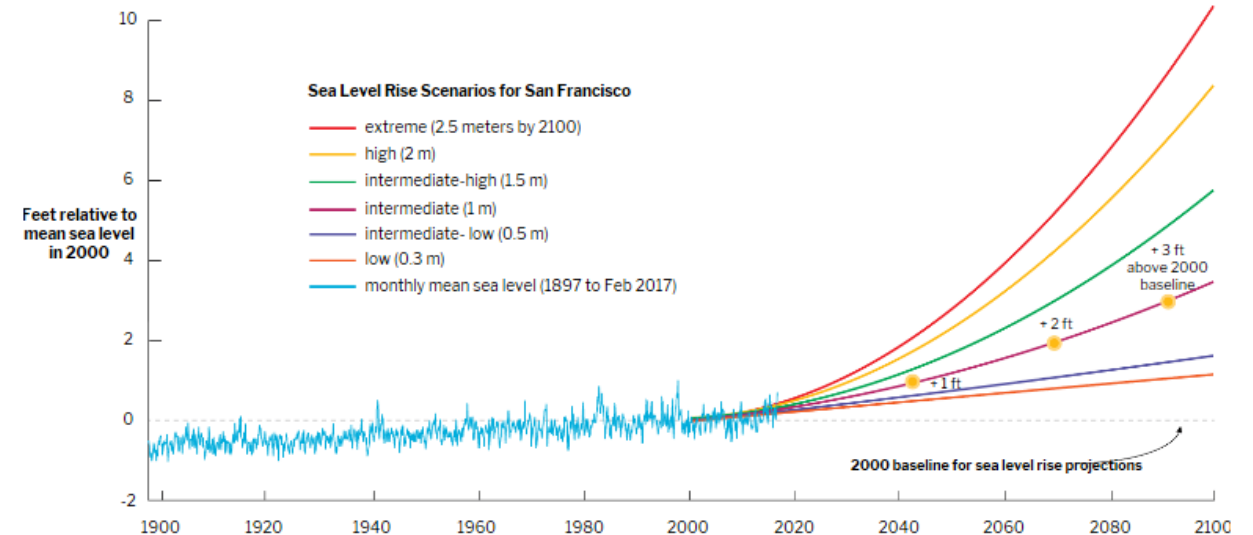
About the Assessment - Goals

- Develop City-Level Mapping of Sea Level Rise and Infrastructure
- Identify and Explain Risks
- Collaborate to Identify Regional Solutions
 - Burlingame
 - SFO
 - San Mateo County
- Solicit Public Input
- Integrate Findings into Future Plans
- Move Toward Action



Sea Level Rise in Millbrae

- The Bay Has Risen 8 Inches Since the 1800s¹
- Future Sea Level Rise Estimates Vary
- Our Work Builds on the County's 2018 Study³
 - 100-year FEMA mapping +3.3 feet
 - 100-year FEMA mapping +6.6 feet



Sea level rise projections for San Francisco for several global scenarios, based on global projections from a 2017 NOAA technical report²

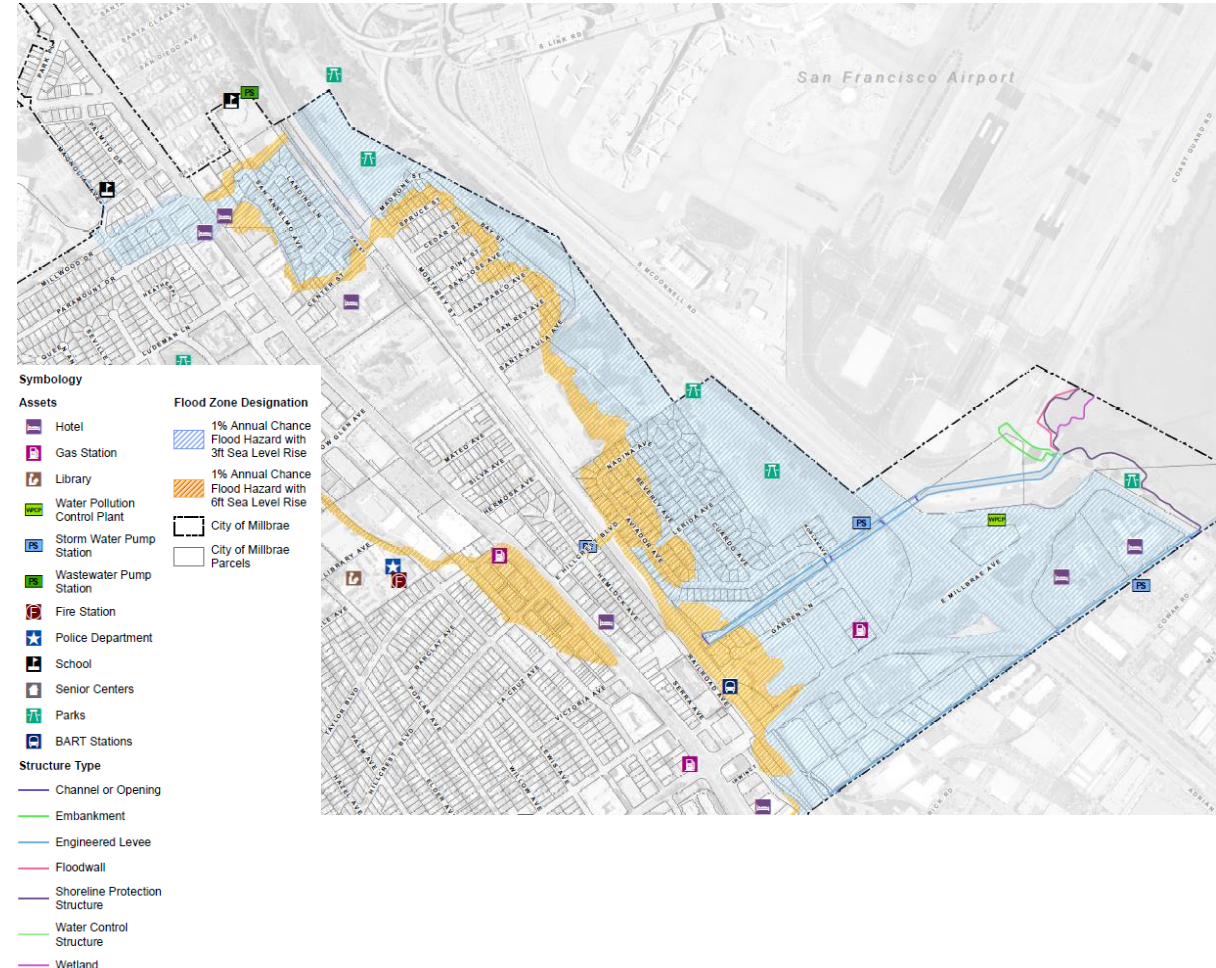
¹ As reported at San Francisco's Fort Point Gage

² NOAA Technical Report NOS CO-OPS 083, 2017

³ Sea Level Rise Vulnerability Assessment, 2018

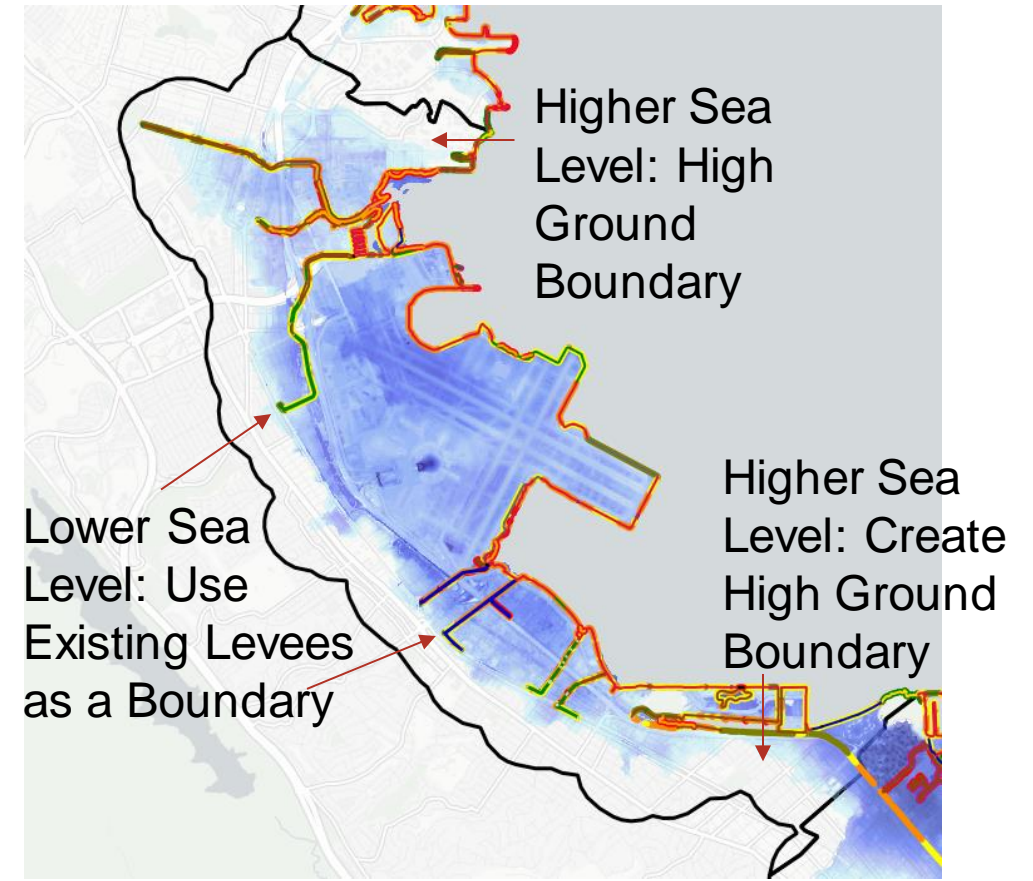
A Failure To Plan Is Planning To Fail

- What's at Risk
 - City Drainage & Pump Stations
 - Businesses
 - Hotels
 - Water Pollution Control Plant
 - City Buildings
 - Electrical & Gas Infrastructure
 - Homes



Millbrae Is Not An Island

- Continuous Protection from “High Ground” to “High Ground” is Needed to Prevent the Bay from Entering
 - Local Barriers for Lower Sea Level Rise
 - Regional Solution At Higher Sea Level Rise- Oyster Point and Coyote Point Are “High Ground”. Our Team:
 - South SF
 - SFO
 - San Bruno
 - Burlingame
 - San Mateo



Discussion of Solutions – Shoreline Protection

- Millbrae Doesn't Own Much Shoreline
- How Should We Protect Our Cities?
 - Levees
 - Floodwalls
 - Rocky/Shell Shoreline Creation
 - Ecotone Levees/Wetlands



Discussion of Solutions – Shoreline Protection

- Levees – Some Pros:
 - Can Be Planted for Recreation
 - Can Add a Floodwall Later to Phase Height
- Levees – Some Cons:
 - Requires Land to Construct
 - Can Block Shoreline Vistas
 - Susceptible to Wave Erosion



Discussion of Solutions – Shoreline Protection

- Floodwall/Sheet Piling – Some Pros:
 - Less Susceptible to Erosion Than a Levee
 - Less Land Required to Construct
 - Possibility to Align Along Old Bayshore
- Floodwall/Sheet Piling – Some Cons:
 - Can Block Shoreline Access/Views
 - May Be More Expensive

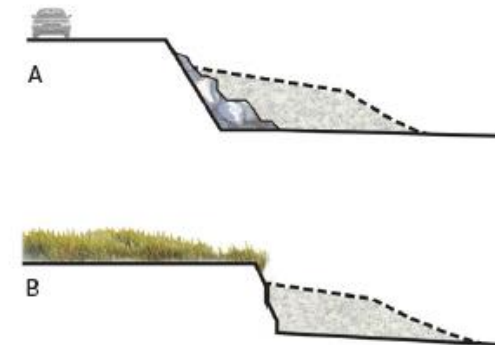


Discussion of Solutions – Shoreline Protection

- Rocky/Shell Shoreline – Some Pros:
 - Ecological Value
 - Recreational Opportunities
 - Dissipate Wave Energy
- Rocky/Shell Shoreline – Some Cons:
 - May Be More Effective At Lower Rise
 - Require Bay Fill & Permitting
 - May Encourage Birds, Putting Planes At Risk



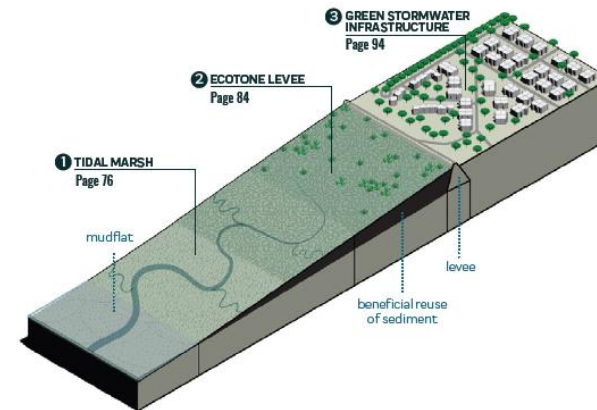
Coarse Beach Placement Concepts



Credit: SFEI SF Bay
Shore Adaptation Atlas

Discussion of Solutions – Shoreline Protection

- Ecotone Levees/Marsh Land – Some Pros:
 - Recreational Benefits
 - Ecological Benefits
 - Maintain Viewscapes
- Ecotone Levees/Marsh Land – Some Cons:
 - Significant Risk of Impacts to SFO
 - Significant Fill or Easements Required
 - Cost



Credit: SFEI SF Bay
Shore Adaptation Atlas

Discussion of Solutions – Local Structural

- Canal Raises
- Tide Gate Fixes
- Pump Station Upgrades
- Site-Specific Improvements



Discussion of Solutions – Local Non-Structural

- Planning to Better Understand Risks and Responses
 - Storm Drain Master Plan
 - Hazard Mitigation Planning
 - Climate Action Plan
- Stricter Development Standards to Elevate and Protect Structures
- Construction to Reduce Local Flooding



Your Input

- What Are Your Concerns?
- What Does Millbrae Need to Protect?
- How Should We Protect the City?



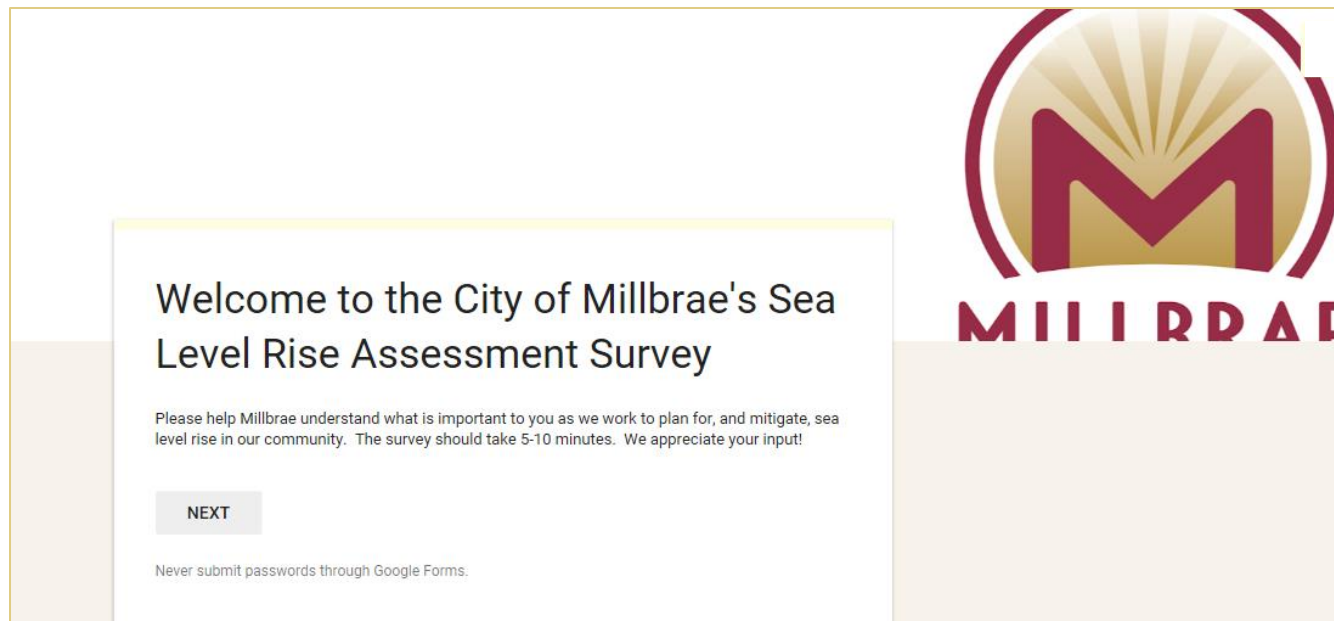
Next Steps For Millbrae

- Catalog Potential Risks to the City
- Collaborate with Partners
- Identify Alternatives
- Prepare Draft Assessment
- Develop Priorities
- Integrate Findings Into Local and Regional Plans
- Identify Funding Opportunities
- Build for a Safer Future!



Stay Involved

- Visit Our Website at: <https://www.ci.millbrae.ca.us/climateassessment>
- Take Our Online Survey at <http://bit.ly/MillbraeSLRSurvey>



Thank You!

- We welcome your questions



Supported by Climate Ready SMC, an initiative of the County of San Mateo Office of Sustainability

CITY OF MILLBRAE