

# Marin County Sea Level Rise Adaptation Planning

## Marin BayWAVE Program

July 19, 2016

### Scope of work

- Task 1: Model and scenario selection
- Task 2: Collaborative with local SLR efforts
- Task 3: Vulnerability Assessment
- Task 4: Public and agency involvement
- Task 5: Early action items

### BayWAVE Scenarios

CO2F Model	Sea level rise	100 year return
Near term	33 cm (10 ft)	48 in (12 ft)
Mid term	50 cm (16 ft)	60 in (15 ft)
Long term	66 cm (21 ft)	76 in (19 ft)



### Early Actions

#### Adaptation Toolkit

Develop the plan on the adaptation measures and guidelines on implementation along with other items

#### Arrested Beach



#### Beach Marsh



#### Local Hazard Mitigation Plan

Coordinate with existing local hazard mitigation plan

### Collaboration and public involvement

#### Collaboration

Work closely with other agencies and organizations



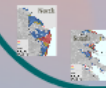
#### Public and Agency Involvement

Open public and agency participation in the process and provide feedback to the public



### Vulnerability Assessment

- Identified the areas impacted by the SLR scenarios along the bay shoreline
- Identified all the assets, structures and property owners within the inundation area
- Vulnerability report to show the impacts by city, town, and assets



### Assets

Facilities and buildings  
 Parks and recreation  
 Open space, agriculture, forestry and other natural resources  
 Highways  
 Historical and cultural resources  
 Hazardous and toxic waste  
 Energy resources  
 Private and technological resources

Chris Choo, principal planner

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415.473.7586

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### Early Actions

#### Adaptation Toolkit

Develop the plan on the adaptation measures and guidelines on implementation along with the plan.

#### Arrested Beach



#### Beach Marsh



#### Local Hazard Mitigation Plan

Coordinate with other agencies and update the local hazard mitigation plan.

### Collaboration and public involvement

#### Collaboration

Work with local SLR efforts and other agencies to coordinate and share information.



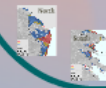
#### Public and Agency Involvement

Use public and agency input to inform the plan and ensure it meets the needs of the community.



### Vulnerability Assessment

- Identified the areas impacted by the SLR scenarios along the bay shoreline.
- Identified all the assets, structures and property owners within the inundation area.
- Vulnerability report to show the impacts by city, town, and asset.



### Assets

Identify and inventory the assets, structures and property owners within the inundation area. Identify the assets and structures based on and public survey. Use geographic information system and other resources.

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# *Scope of work*

Task 1: Model and scenario selection

Task 2: Collaboration with local SLR efforts

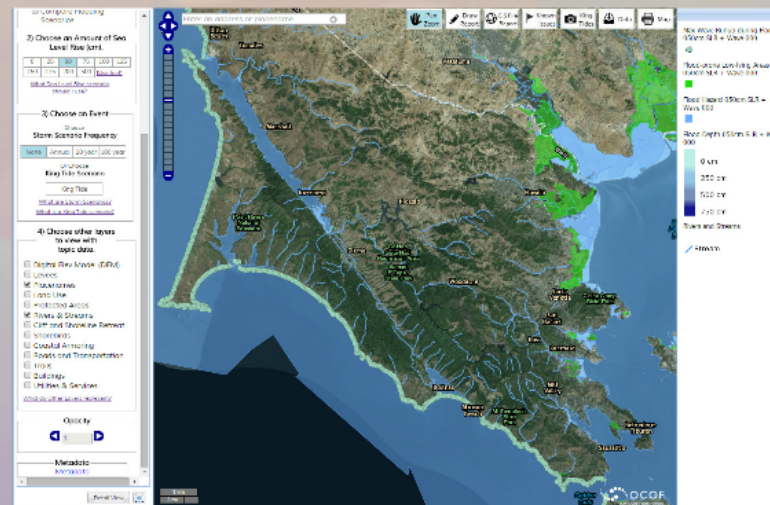
Task 3: Vulnerability Assessment

Task 4: Public and agency involvement

Task 5: Early Action items

# BayWAVE Scenarios

OCOF Model	Sea level rise	100 year storm
Near term	25 cm (10 in)	46 in (3.8 ft)
Mid term	50 cm (20 in)	56 in (4.7 ft)
Long term	150 cm (60 in)	96 in (8 ft)



<http://data.prbo.org/apps/ocof/>

# Collaboration and public involvement

## Collaboration

**Staff:** local and regional efforts, across departments and agencies

**Regional:** Coordination with San Mateo, Crissy Field, and City of Benicia Vulnerability Assessment efforts, larger Bay Area sea level rise efforts

**Funding:** Discussing opportunities for grants and collaboration



## Public and Agency Involvement

- Policy, Technical, and Executive Committees to guide the program and provide input
- Targeted outreach to youth and impacted communities
- Respond to public requests for presentations

[www.MarinSLR.org](http://www.MarinSLR.org)



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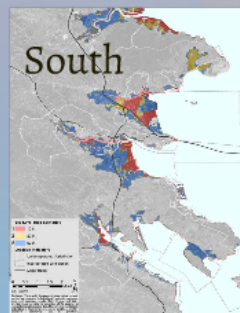
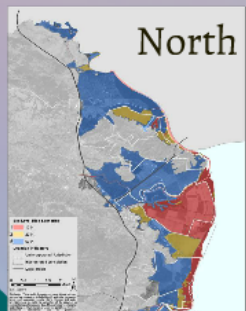






# Vulnerability Assessment

- Identified the areas impacted by the SLR scenarios along the bay shoreline
- Identified all the asset managers and property owners within the inundation area
- Vulnerability report to show the impacts by city, town, and asset



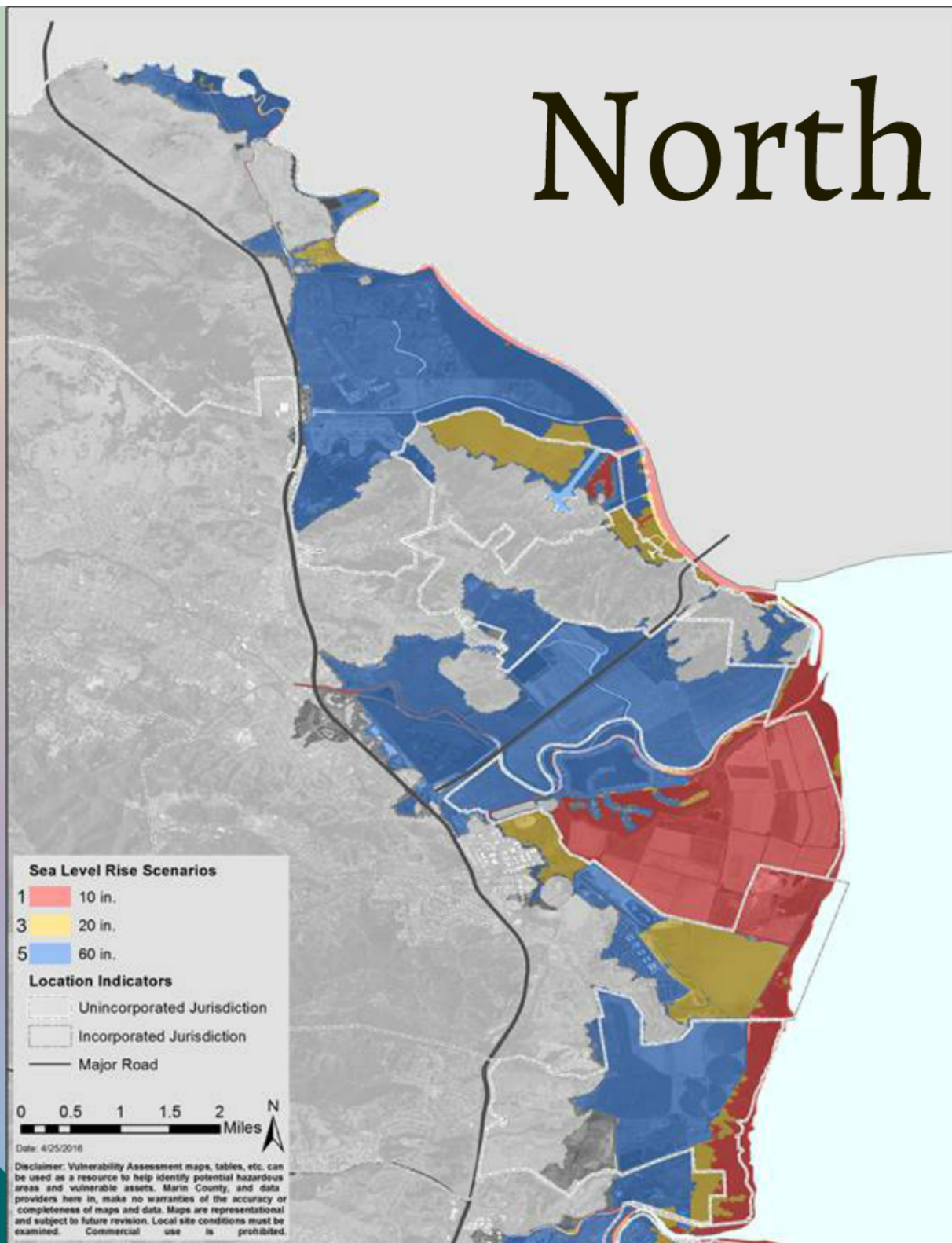
8,360  
parcels  
exposed

105  
asset  
managers

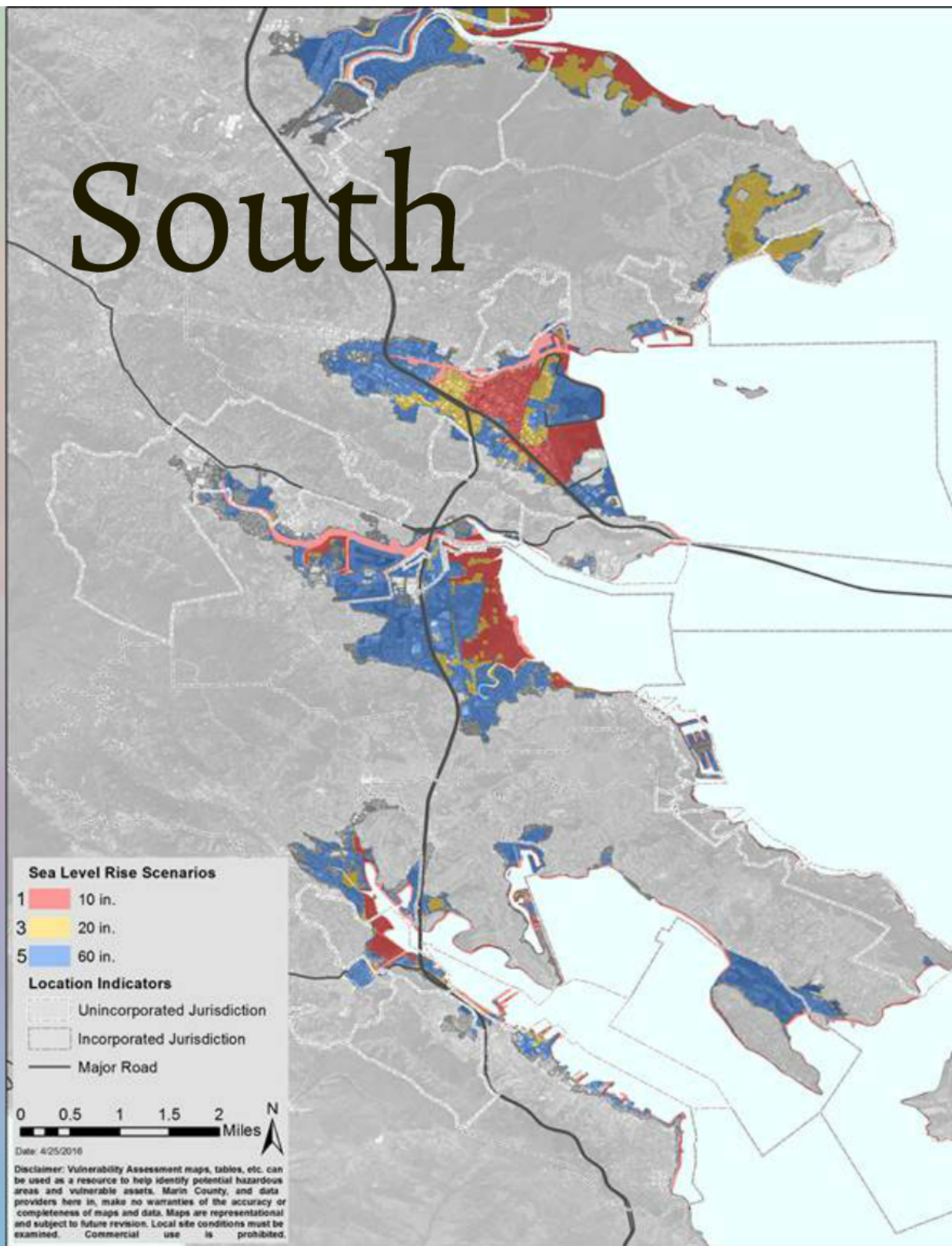
## Ass

Parcels and  
Roads and  
Water, wastewater, storm  
telecomm  
Agric  
Habitats a  
Recreation an  
Emergen  
Historic and arche

# North



# South



**Sea Level Rise Scenarios**

1 10 in.  
3 20 in.  
5 60 in.

**Location Indicators**

Unincorporated Jurisdiction  
Incorporated Jurisdiction  
Major Road

0 0.5 1 1.5 2 Miles

Date: 4/25/2016

Disclaimer: Vulnerability Assessment maps, tables, etc. can be used as a resource to help identify potential hazardous areas and vulnerable assets. Marin County, and data providers here in, make no warranties of the accuracy or completeness of maps and data. Maps are representational and subject to future revision. Local site conditions must be examined. Commercial use is prohibited.



**8,360**  
parcels  
exposed

**105**  
asset  
managers

property

cts by city,

# *Assets*

Parcels and buildings

Roads and waterways

Water, wastewater, stormwater, gas, electricity, and  
telecommunications

Agriculture

Habitats and wildlife

Recreation and public access

Emergency services

Historic and archeological resources

# *Early Actions*

## *Adaptation Toolkit*

Develop fact sheets on the adaptation measures and guidance on implementation along our shoreline

## *Local Hazard Mitigation Plan*

Coordinate early warnings during flood events with our countywide hazard plan

## *Aramburu Beach*

Addressing erosion from wind and waves by building beach using rock, trees, and sediment



## *Bothin Marsh*

Build wetlands to increase flood protection, create habitat, and be resilient to sea level rise. Develop an approach with the regulatory agencies to reuse sediment to better prepare wetlands for rising tides





# *Adaptation Toolkit*

Develop fact sheets on the adaptation measures and guidance on implementation along our shoreline

*Local Hazards*

A large teal circular graphic with a thick border, partially overlapping the top and left edges of the slide. The background is a light blue gradient with a bokeh effect of soft, out-of-focus circles in various colors.

# *Local Hazard Mitigation Plan*

Coordinate early warnings  
during flood events with our  
countywide hazard plan

# *Bothin Marsh*

Build wetlands to increase flood protection, create habitat, and be resilient to sea level rise. Develop an approach with the regulatory agencies to reuse sediment to better prepare wetlands for rising tides



# *Aramburu Beach*

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CO2F Model	Sea level rise	100 year return
Near term	35 cm (14 in)	48 in (12 ft)
Mid term	50 cm (20 in)	60 in (15 ft)
Long term	65 cm (26 in)	75 in (19 ft)



### Early Actions

#### Adaptation Toolkit

Develop the plan on the adaptation measures and guidelines on implementation along with the plan.

#### Arrested Beach



#### Beach Marsh



#### Local Hazard Mitigation Plan

Coordinate with existing local hazard mitigation plan.

### Collaboration and public involvement

#### Collaboration

Work with local SLR efforts and agencies.



#### Public and Agency Involvement

Use public and agency input to inform the plan.



### Vulnerability Assessment

- Identified the areas impacted by the SLR scenarios along the bay shoreline.
- Identified all the assets, structures and property owners within the inundation area.
- Vulnerability report to show the impacts by city, town, and assets.



### Assets

Identify and list the assets, structures and property owners within the inundation area.

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