

# Including sea-level change in regulatory frameworks and municipal planning



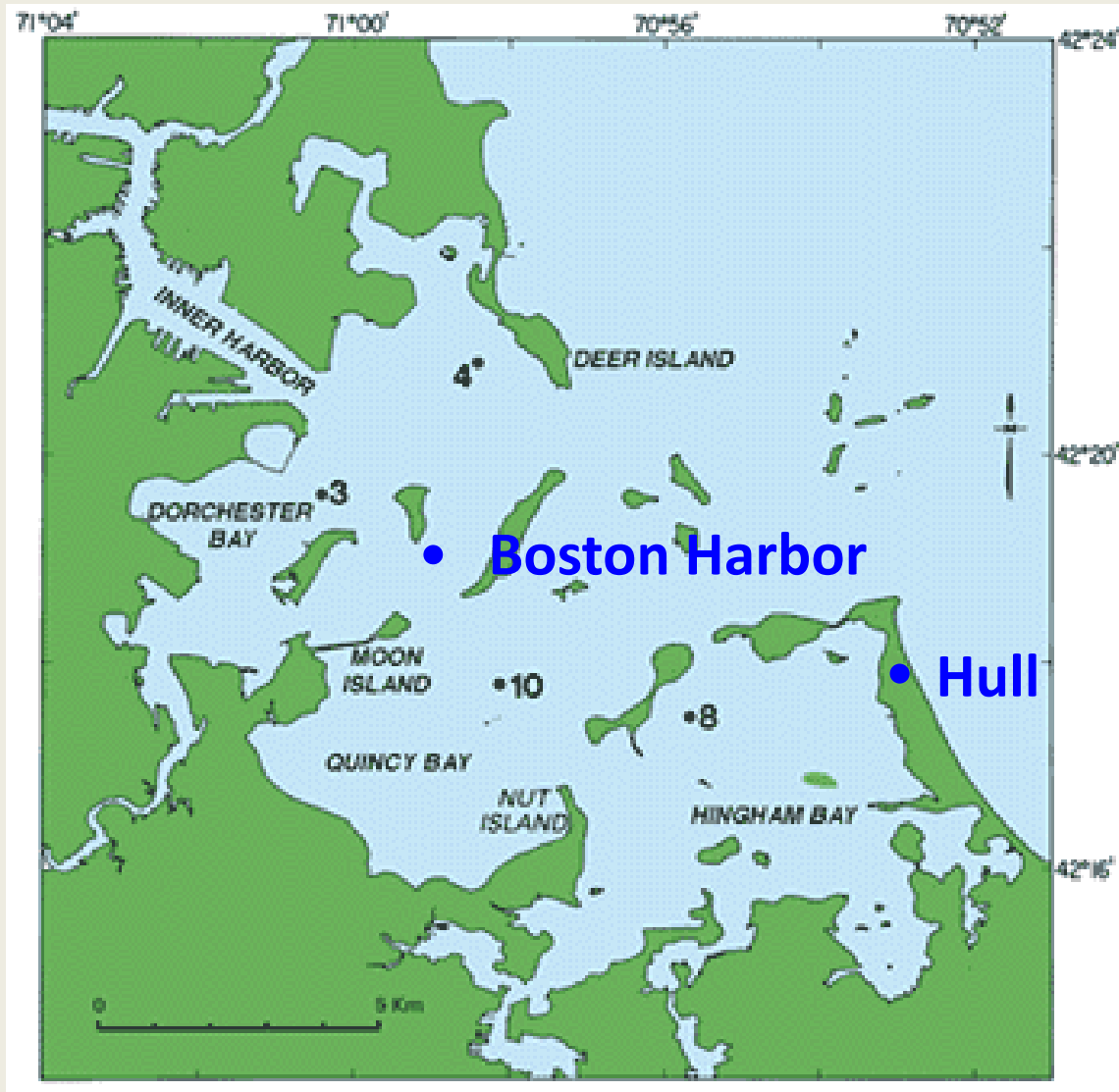
**Kathleen Baskin, Director of Water Policy**  
**Executive Office of Energy and Environmental Affairs**  
**September 11, 2013**



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# Static Inundation Mapping/Visualizations



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# Scully Senior Center

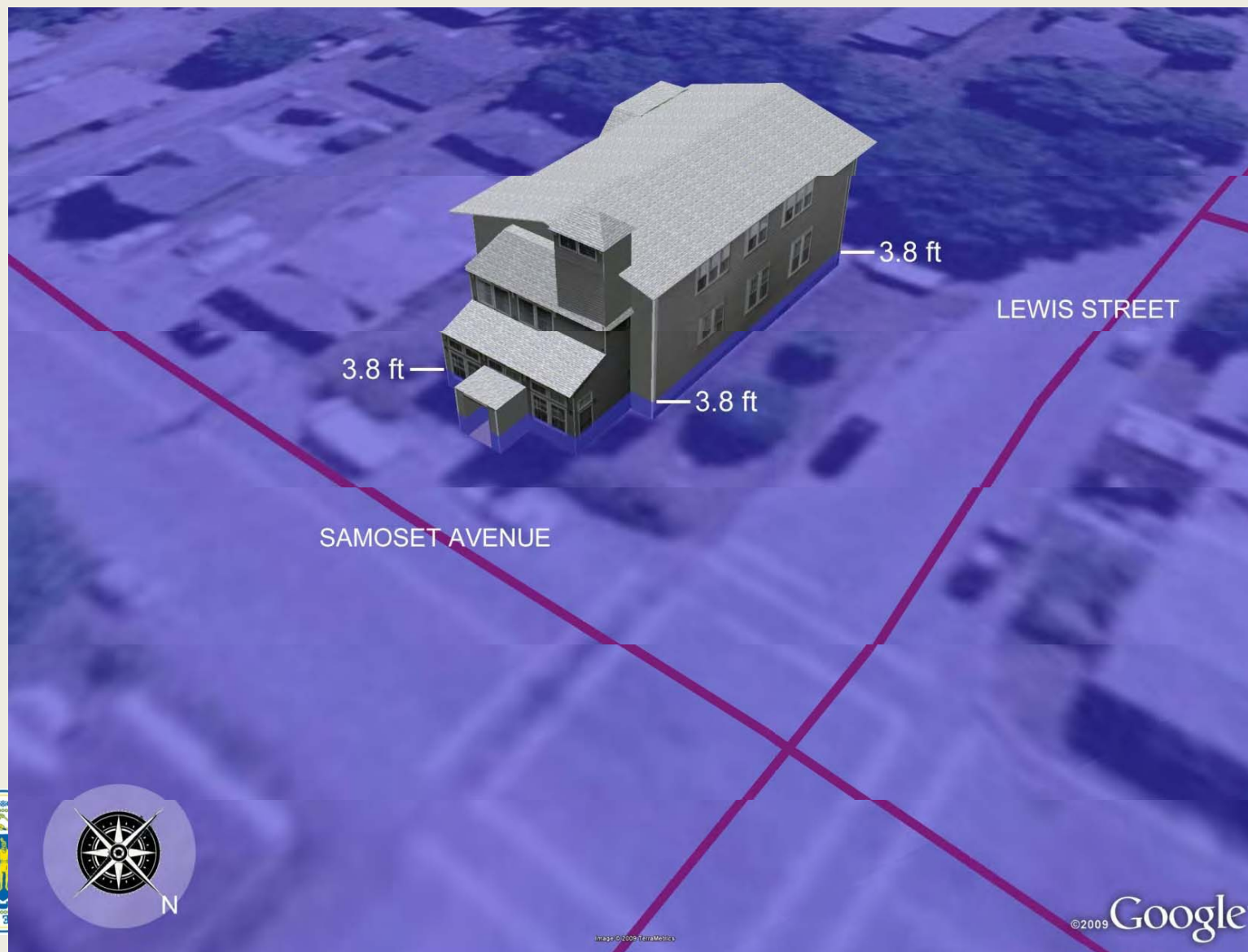
Flooding around critical facility from base flood





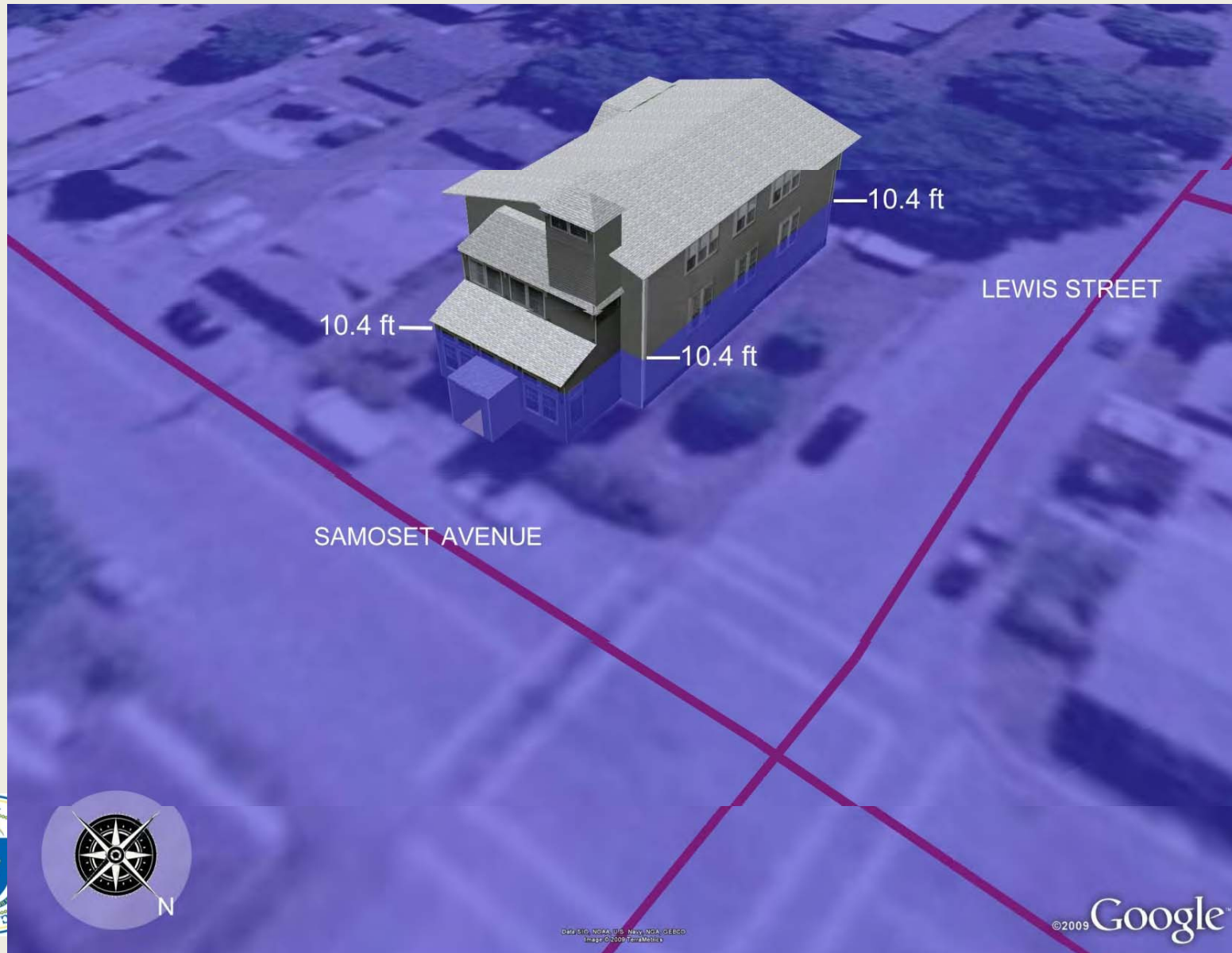
## Scully Senior Center

Flooding around critical facility from base flood plus 3.3 feet of sea level rise



## Scully Senior Center

Flooding around critical facility from base flood plus 9.8 feet of sea level rise





# Boston – 2.5 feet of Sea Level Rise or Surge

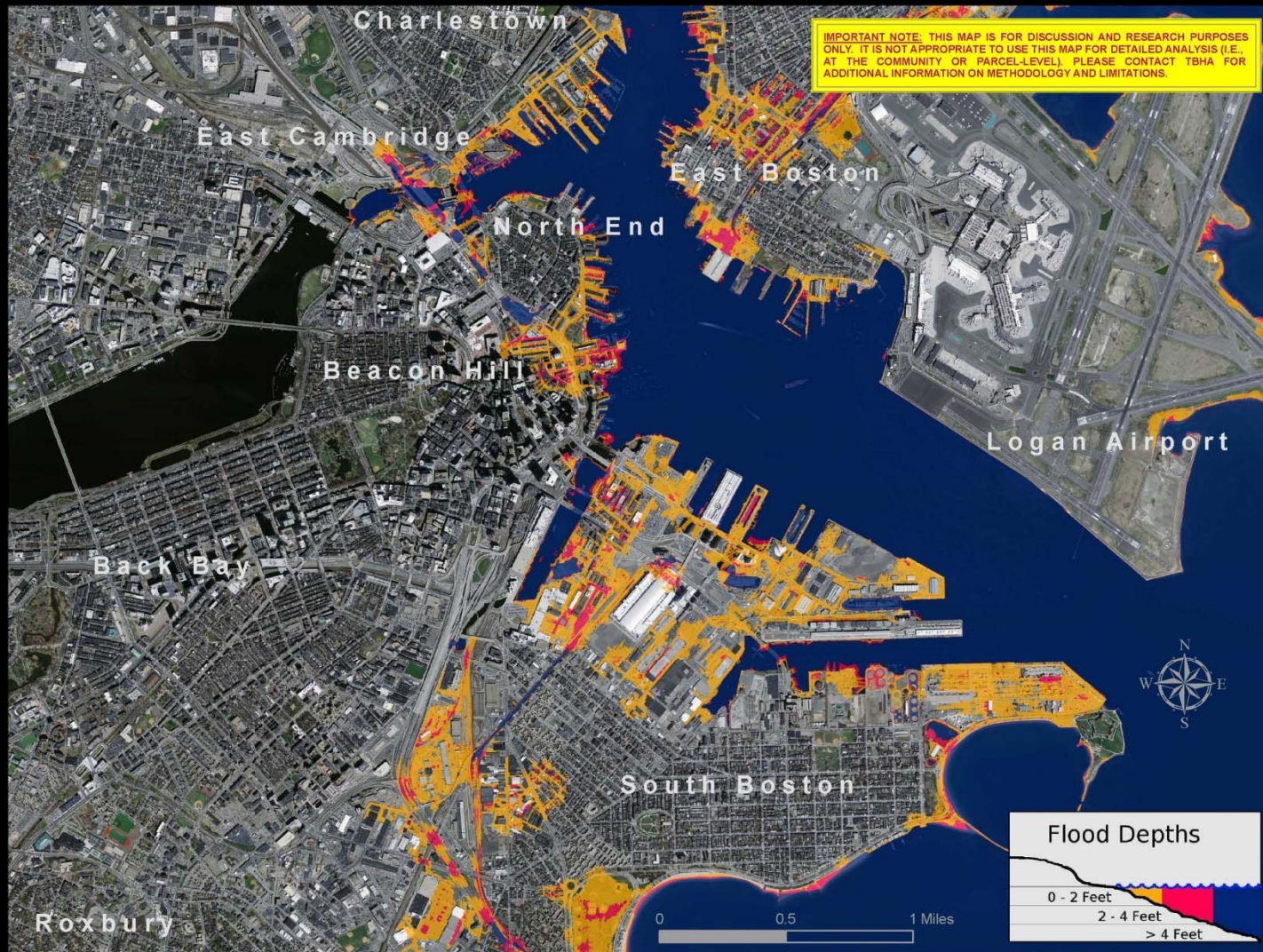
Source: The Boston Harbor Association, 2013





# Boston – 5 feet of Sea Level Rise or Surge

Source: The Boston Harbor Association, 2013



# Boston – 7.5 feet of Sea Level Rise or Surge

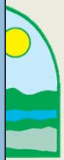
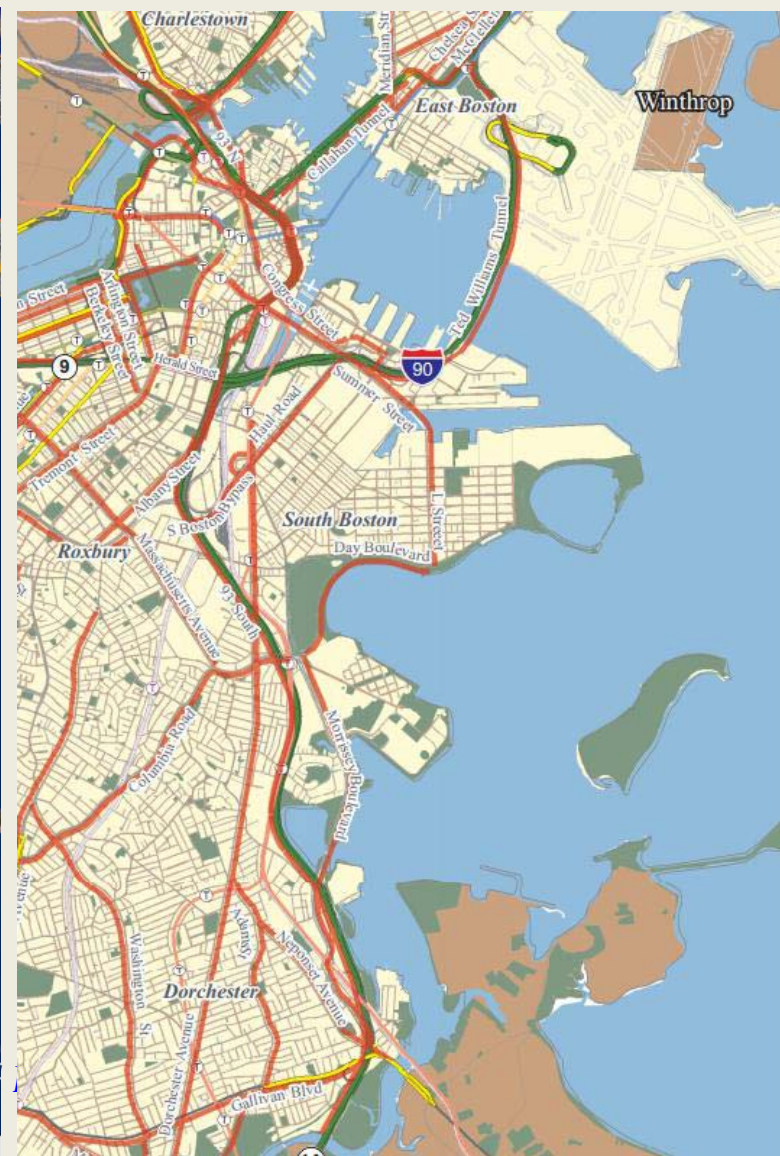
Source: The Boston Harbor Association, 2013





# Comparison: 5 feet of Sea Level Rise and Evacuation Routes

sources: City of Boston and TBHA



# Dynamic Modeling of Sea Level Rise and Storm Surge



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# Scituate – Marshfield – Duxbury

(coastal communities south of Boston, MA)

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## Dynamic Modeling of Sea Level Rise & Storm Surge



# Scituate: Sea Level Rise & Storm Surge

SLR of 1.08 ft by 2038



SLR of 5.16 ft by 2088



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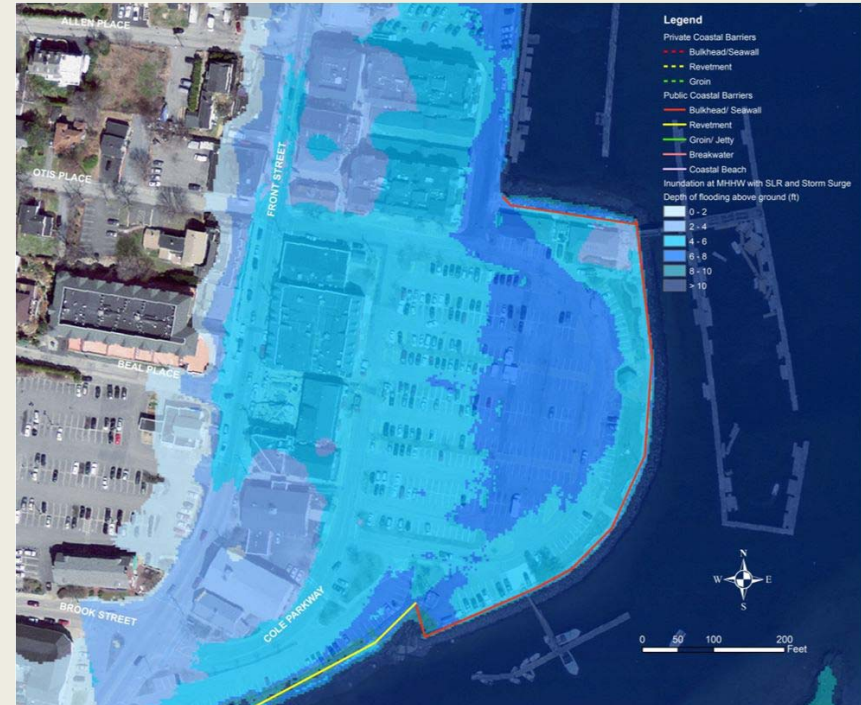


# Scituate: Sea Level Rise & Storm Surge

SLR of 1.08 ft by 2038 and  
Storm Surge from Category 1  
Hurricane



SLR of 5.16 ft by 2088 and  
Storm Surge from Category 1  
Hurricane



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# Dynamic Modeling of Sea Level Rise

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## DOT Central Artery ("Big Dig," 16 yrs, \$14B-\$22B)

~\$700K, evaluate extreme weather vulnerabilities, adaptation options



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## MassPort (Logan Airport)

\$500K review of historic occurrences and predicted natural hazard events through 2033, worst-case scenarios





# Existing and New Regulations



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# Addressing Sea Level Rise through Regulation

## Modifying Existing Regulations

### Executive Office of Energy and Environmental Affairs

- Updating MA Environmental Policy Act public review process to consider climate effects such as sea level rise

### Department of Environmental Protection

- Updating tidelands & waterways (Chap 91) regulations to address sea level rise

## Developing New Regulations

### Boston Conservation Commission

- Sea level rise/wetlands ordinance





# Incentives and Voluntary Actions



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# Town of Hull Freeboard Incentive

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- Towns cannot require property owners to build at elevations higher than the FEMA maps, or other state regulations require; they may encourage owners to include freeboard in their projects.
- Building department permit fees reduced by \$500 (or by cost of permit, if <\$500) if an elevation certificate verifies building is elevated a minimum of 2 feet above the highest federal or state requirement for the flood zone.



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# Spaulding Rehabilitation Hospital - Charlestown

- Opened April 27, 2013
- 8 stories, 132 beds
- Designed for 2 ft of sea level rise as new 100-year flood elevation; first floor is 1.35 ft higher than that
- Patient rooms have key-operable windows and are not on ground or lower floors
- Mechanical and electrical systems on the roof



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# Thank you



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