The Coastline now and in the future

Across the three towns, coastal infrastructure elements were noted in 2009 as:

- **Scituate**: 71 publicly-owned coastal structures with a total of over 30,000 feet (5.7 miles)
- **Marshfield**: 32 publicly-owned coastal structures, with a total length of over 20,000 feet (3.9 miles)
- **Duxbury**: 13 publicly-owned coastal structures, with a total length of over 4,700 feet (0.9 miles)

Based on Coastal Hazards Commission (CHC) Inventory, 2009
The Coastline now and in the future

Across the three towns, conditions were noted in 2009 as:

- **Scituate**: 32 structures in FAIR condition, 5 in POOR condition
  ➞ *Estimated $30M to EXCELLENT*
- **Marshfield**: 21 structures in FAIR condition, 7 in POOR condition
  ➞ *Estimated $22M to EXCELLENT*
- **Duxbury**: 5 structures in FAIR condition, 4 in Critical condition
  ➞ *Estimated $2.5M to EXCELLENT*

Based on Coastal Hazards Commission (CHC) Inventory, 2009
The Coastline now and in the future

Since then, work has been completed or planned for multiple sections including:

- **Scituate**: Minot Beach, Surfside Road, and First Cliff among other sections
- **Marshfield**: Fieldston, Hewitt’s Point, and Brant Rock among other sections

*Work has addressed sections assessed as FAIR and POOR*
Storm Impacts to Coasts

Past Storm Events

- The **Blizzard of 1978** resulted in a rise of 9.82 feet relative to mean sea level (MSL).
  - Resulted in $\sim 9M$ in claims across the 3 towns

- The **Perfect Storm (1991)** resulted in a rise of 8.96 feet relative to MSL
  - Resulted in $\sim 40M$ in claims across the 3 towns
## A Changing Shoreline

### Changes in shorelines width (2’ or greater per year)

<table>
<thead>
<tr>
<th>Town</th>
<th>Area Name</th>
<th>Coastal Structure(s)</th>
<th>Type of Coastal Structure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scituate</td>
<td>Cohasset Harbor</td>
<td>No</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Peggotty Beach</td>
<td>Yes</td>
<td>Revetment/ Barrier Beach</td>
</tr>
<tr>
<td></td>
<td>Mouth of North River</td>
<td>No</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Humarock Beach</td>
<td>Yes</td>
<td>Seawall</td>
</tr>
<tr>
<td>Marshfield</td>
<td>Ferry Street</td>
<td>Yes</td>
<td>Seawall/ Groins/ Revetment</td>
</tr>
<tr>
<td></td>
<td>Brant Rock</td>
<td>Yes</td>
<td>Seawall/ Revetment</td>
</tr>
<tr>
<td></td>
<td>Bay Avenue</td>
<td>Yes</td>
<td>Seawall/ Revetment</td>
</tr>
<tr>
<td>Duxbury</td>
<td>Duxbury Beach</td>
<td>No</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Goose Point</td>
<td>N/A</td>
<td>---</td>
</tr>
</tbody>
</table>

Source: South Shore Coastal Hazards Characterization Atlas
A Changing Shoreline

Coastal structure impact the shoreline change rate, while changes to shoreline impact structures performance.

Source: Surfrider Foundation

Source: US Army Corps of Engineers
A Changing Environment

Coastal wetlands, in particular salt marshes, are not a static feature.

• Have moved over time in relation to sea level and changing tides, and will continue to move.

Source: Adapting to Sea Level Rise Presentation, Slovinsky/Lockman
Past Sea Level Rise

- Rate of change in MSL for Boston Harbor is 2.63 mm/yr (approx. 1”/10 years)
- Based on over 80 years of data (1921-2010)