Coastal Resilience Study

City of Lynn, MA
May 31, 2016
Presenters

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City of Lynn Coastal Resilience Study
Coastal Resilience Study

Adaptation Strategies for Critical Infrastructure

- Infrastructure Vulnerability and Risk Assessment
- Coastal Protection and Vulnerabilities
- Adaptation Strategies
- Working Group Meeting
- Public Meeting #3 – May 31
VULNERABILITY AND RISK ASSESSMENT SUMMARY

Sea Level Rise
Source: NOAA

Storm Surge
Source: Multiple lines of evidence based on comparison of SLOSH model results to FEMA mapping and other analyses

City of Lynn Coastal Resilience Study
Consequence

Environmental
- Contamination
- Ecosystems

Community
- Health & Safety Services
- Utilities
- Transportation
- Cultural Resources

Economic
- Commerce
- Costs to repair and replace damage
Public Facilities at Risk

- Coastal Protection
- Transportation
- Energy and Utilities
- Drainage and Sewer
- Medical Facility
Facilities with Highest Risk

Coastal Protection Measures
- Seawall at Riley Way Ext.

Drainage and Sewer
- Camden Street Sewer Lift Station
- Blossom Street Sewer Lift Station
- Reed Street Sewer Lift Station
- Hanson Street Sewer Lift Station

Health care
- Habit Management Center
- DCR Skating Rink

Transportation
- Gear Plant Heliport

Critical Intersections
- Lynnway and Commercial
- Nahant Circle
- Lynnway and Blossom
- Lynnway and Broad
- Summer and River (Camden)

City of Lynn Coastal Resilience Study
Adaptation

City of Lynn Coastal Resilience Study
Seawall at Riley Way Extension

- Protects landfill and waste water treatment plant
- Seawall is damaged and non-functioning
- Erosion assessment:
  - Scenario: 100-year storm, high SLR 2041 and 2066
  - Wave heights 4 to 5 feet for a 100-year storm
  - Estimated erosion: 7.1 feet (2041) and 17.6 feet (2066)
New commercial or public development

- Commercial or public development
- Space is available between infrastructure and the high tide line
- Green design including natural coastal protection elements
- Provides recreational space
- Living with Water concept
Commercial Development with limited space between the high tide line and infrastructure

- Hard coastal protection
- Habitat provided in subtidal shelf seaward of the hard structure
- Deployable seawall would be deployed prior to extreme storms, and allows the permanent hard structure to be low enough to allow an ocean view

Coastal Solutions
Existing Residential – Coastal Protection

- Lower cost solutions for existing residential areas
- Minimal space between high tide line and structures
- Deployable seawall would be deployed prior to extreme storms, and allows the permanent hard structure to be low enough to allow an ocean view
- Habitat enhancement on vegetated rock revetment
- Raising house freeboard improves resiliency
Transportation

- Critical Intersection
  - Nahant Circle
  - Lynnway and Blossom
- Emergency Transportation
  - Heliport
Transportation
Nahant Circle

Adaptation Options:

• Extend *seawall*
• Extend *dune system* from the south; *improve drainage* along road
### ADAPTATION STRATEGIES

<table>
<thead>
<tr>
<th>Adaptation Strategy</th>
<th>Description</th>
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<tbody>
<tr>
<td>Deployable Flood Walls between Lynnway and Waterfront</td>
<td>Protection</td>
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<tr>
<td>Permanent Flood Barriers between Lynnway and Waterfront</td>
<td>Protection</td>
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<tr>
<td>Stormwater Infiltration &amp; Retention</td>
<td>Accommodation</td>
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<tr>
<td>Elevation</td>
<td>Retreat</td>
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<tr>
<td>Emergency Plans</td>
<td>Programmatic</td>
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</table>
Drainage and Sewer

- Sewer Lift Stations (inundation)
  - Camden Street, Reed Street
- Storm drain Facilities (change in gradient)
  - Lynnway/ Harbor area
  - Western Avenue area
<table>
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<th>ADAPTATION STRATEGIES</th>
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<td>prevents or provides resistance to damage from flooding while allowing floodwaters to enter the structure or area.</td>
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<tr>
<td>REDUNDANCY</td>
<td>(Programmatic)</td>
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<td>STUDIES</td>
<td>(Programmatic)</td>
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**STUDIES: A comprehensive capacity study should be performed that evaluates methods for source control, management of inflow/infiltration, and opportunities for green infrastructure.**
Medical Facility

- Habit Management Facility
  - Access
  - Damage to building
- Protection
  - Sandbags and flood walls
- Retreat
  - Relocate/elevation
- Programmatic
  - Emergency plan
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Programmatic Adaptation

Policies, Plan and Regulations

- Zoning changes to recognize risk
- Open space to accommodate/direct water
- Design standards to reduce damage
- Planning for effective emergency response

Consider during Normal Planning Process
Time for Your Input

The Community’s Input is Essential