Vulnerability Assessment
Demonstration and Application

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Why Vulnerability Assessment?

- Understanding when and how to adapt
- Evaluating existing and future vulnerabilities to climate change
- Inform & prioritize projects in urban land use planning
- Identify impacts to community assets
- Strategically allocate limited resources
Vulnerability

Exposure

Sensitivity

Adaptive Capacity

<table>
<thead>
<tr>
<th>Elevation</th>
<th>Building</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-lying</td>
<td>Structure in flood plain</td>
<td>Uninsured</td>
</tr>
<tr>
<td>Ridgeline</td>
<td>Elevated structure</td>
<td>Insured</td>
</tr>
</tbody>
</table>
Exposure (E)
- Flood inundation
- Slope
- Storm surge
- Wave power
- High tide
- Soil flooding

Sensitivity (S)
- Population density
- Land use
- Child and elderly population
- Low income and non-working population

Adaptive Capacity (AC)
- Shelters
- Proximity to I-95
- Resilience
- Infrastructure
- Natural habitat
Design of Coastal Vulnerability Index
Methodology
Multi scale Assessment

Image edited from: http://www.charim.net/methodology/53
Town/Political Scale

Coastal Vulnerability Index

Area of Interest
- Stratford

Assessment Type
- Individual Layers
- Output Layers
- Weighted Exposure

Select an Output Layer
- Select an output layer to examine.

Natural Habitat Exposure

This data table is the geometric mean computed using the following input layers: Hydrology, Habitat and Sea Level Rise.
- Metadata
- Download GIS Layer

Selected Area Stats

Position: -73.124°E, 41.173°N
Town: Stratford
COG: Metro
Rank: 3.779763
Hydrology: 5
Slr: 2.7
Habitat: 4

Number of Cells

<table>
<thead>
<tr>
<th>Rank</th>
<th>Number of Cells</th>
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<tbody>
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<td>4</td>
<td>400</td>
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<tr>
<td>5</td>
<td>200</td>
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</table>

Statistic | Value
--- | ---
Mean Rank | 2.54
Assets with higher adaptive capacity and low sensitivity can tolerate impacts to a greater degree and therefore have an overall lower vulnerability.

- Vulnerability +

Assets with higher sensitivity and low adaptive capacity are more susceptible to impacts, and therefore have an overall higher vulnerability.

- Vulnerability +

Adapted from: Adapting Urban Water Systems to Climate Change, A handbook for decision makers at the local level. SWITCH Training Kit. 2011.
• Building it as a tool that is robust, customizable and multi-scale
• Improves the understanding of vulnerability and adaptive capacity.
• A tool for public engagement and builds awareness
• Informs & prioritizes projects to strategically allocate limited resources