Welcome to the Network
Norfolk, Virginia
Resilience is the capacity of individuals, communities and systems to survive, adapt and grow in the face of stress and shocks and even transform when conditions require it.
Resilience at the City Level

Strengthening the capacity of individual systems in order to strengthen the city overall.
Resilience--Not Exclusively Government

- Residents
- Businesses
- Nonprofits
- Colleges and Universities
- Religious Groups
- Philanthropy
- Etc., Etc., Etc.
Priority Shocks and Stresses

- Rising sea level/coastal erosion/flooding
- Aging Infrastructure
- Transportation networks
- Economic diversity and vibrancy
- Poverty/inequality
- Homelessness and affordable housing
- Education
Norfolk Resilience Themes

- Coastal Resilience
- Economic Resilience
- Neighborhood Resilience
Norfolk’s Stresses & Shocks
Increased Flooding

Water Level Elevations of Significant Storms since 1933 at Sewells Point Tide Gauge

<table>
<thead>
<tr>
<th>Year</th>
<th>Storm Type</th>
<th>Elevation (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1933</td>
<td>Hurricane</td>
<td>8.1</td>
</tr>
<tr>
<td>1936</td>
<td>Hurricane</td>
<td>6.7</td>
</tr>
<tr>
<td>1962</td>
<td>Ash Wednesday</td>
<td>7.2</td>
</tr>
<tr>
<td>1978</td>
<td>Nor’Easter</td>
<td>6.4</td>
</tr>
<tr>
<td>1998</td>
<td>Nor’Easter</td>
<td>6.5</td>
</tr>
<tr>
<td>2003</td>
<td>Hurricane Isabel</td>
<td>7.9</td>
</tr>
<tr>
<td>2006</td>
<td>Nor’Easter</td>
<td>6.7</td>
</tr>
<tr>
<td>2009</td>
<td>Nor’Easter</td>
<td>7.7</td>
</tr>
<tr>
<td>2011</td>
<td>Hurricane Irene</td>
<td>7.3</td>
</tr>
<tr>
<td>2012</td>
<td>Hurricane Sandy</td>
<td>6.8</td>
</tr>
<tr>
<td>2015</td>
<td>Hurricane Joaquin</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Source: NOAA; Sewell’s Point Tide Gauge, Norfolk
Coastal Learning—ULI Fort Norfolk

Development Framework

- Pedestrian Connection Through Medical Center
- Tide Station
- Development / Reuse Parcels
- Potential connection to Ghent
- Improve connections and visibility of Ft Norfolk and Plum Point Park
- Waterfront Resilience Park
- Incorporate Bio Retention in open space and streetscape
Coastal Learning—Dutch Dialogues
Coastal Learning—NDRC Grant
Norfolk’s Stresses and Shocks
Over-reliance on Federal Spending

Absolute change in jobs (2001-2014)

Norfolk has lost a substantial number of jobs, while most other cities gained jobs.

<table>
<thead>
<tr>
<th>City</th>
<th>Jobs Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norfolk</td>
<td>(22,666)</td>
</tr>
<tr>
<td>Chesapeake</td>
<td>14,574</td>
</tr>
<tr>
<td>Portsmouth</td>
<td>6,517</td>
</tr>
<tr>
<td>Suffolk</td>
<td>6,181</td>
</tr>
<tr>
<td>Newport News</td>
<td>5,251</td>
</tr>
<tr>
<td>Virginia Beach</td>
<td>4,150</td>
</tr>
<tr>
<td>Hampton</td>
<td>(6,907)</td>
</tr>
</tbody>
</table>
Norfolk’s Stresses and Shocks
New Jobs Pay Less

Industries in which Norfolk is gaining jobs have lower wages than industries in which Norfolk is losing jobs.

- **Citywide Average**: $50,926
- **Growing Industries**: $40,770
- **Declining Industries**: $56,085
Norfolk’s Stress and Shocks
Concentrated Poverty

Median Household Income by Census Block Group, 2013

Source: ESRI
Design the coastal community of the future.

Create economic opportunity.

Strengthen our neighborhoods.
Previous Approach—Stop Flooding

- Hampton Blvd. (Jamestown Cres., Bridge)
  - Raised roadways
  - Drainage improvements
  - Structure elevation (FEMA Grant)

- Hague
  - Floodwall
  - Tidewater gate
  - Berms
  - Raised roadways
  - Outfall improvements

- Downtown Floodwall
  - Raise height for FEMA certification

- Willoughby/Ocean View (Funded)
  - Dune & sand replenishment
  - Structure evaluations (FEMA Grant)
  - Outfall improvements

- Pretty Lake
  - Floodwall
  - Tidewater gate
  - Pump station

- Bay Streets
  - Streetscape improvements
  - Drainage

- Broad Creek
  - Floodwall
  - Tidewater gate
  - Pump station
  - Living shorelines
  - Structure elevation (FEMA Grant)
USACE Norfolk Coastal Storm Risk Management Study

Piloting a new partnership for planning with the US Army Corps of Engineers
Designing the Coastal Community of the Future

Ohio Creek Watershed--$115M
Coastal Resilience Accelerator--$5M
Vision 2100—Community Driven Planning

- Economic Engines
- Adaption Area
- Opportunity Area
- Stability Area
RETAIN YOUR RAIN

Approximate number of bath tubs per inch(es) of rain:
0.5" ~ 9 bath tubs
1" ~ 18 bath tubs
1.5" ~ 37 bath tubs
2" ~ 55 bath tubs
2.5" ~ 70 bath tubs
3" ~ 78 bath tubs
3.5" ~ 85 bath tubs
Nurturing the Entrepreneurial Ecosystem

*Programs Receiving National Recognition*

- **Norfolk is the first locality in the Commonwealth to offer ExporTech**
  - Global Trade Initiatives
  - Information, Access to Capital and Technical Assistance

- **Park Place Business Café**
  *International Economic Development Council Gold Award for Excellence in Economic Development*
  *(population 200,000-500,000)*

- **America’s Best Cities for Global Trade**
  *Global Trade Magazine, 2016*

- **Global Initiatives Fund**
  *America Planning Association Excellence in Economic Development Planning, 2016*
  - Norfolk is the first locality in the Commonwealth to support local exporters by providing patient, flexible capital to fund their export-related activities

- **Top Five Cities for Entrepreneurs**
  *Entrepreneur Magazine, 2013*
Newton’s Creek Watershed

Possible Connectivity

Preliminary sketch of possible connectivity routes
ST. PAUL’S QUARTER
Land Uses
THANK YOU!