FHWA Resilience & Durability to Extreme Weather Pilot Program – Status Report

presented to
One Bay Resilient Communities Working Group

presented by
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Marshall Flynn
Tampa Bay Regional Planning Council

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Purpose

» Provide information and recommendations to ensure the region’s transportation system meets the near and long term functional, economic, and quality of life goals of Tampa Bay’s residents, businesses, and visitors in the face of weather and climate changes.
Relationship to the Long Range Transportation Plan (LRTP)

» Regional vulnerability assessment of surface transportation assets focusing on **inland flooding**, **storm surge**, and **sea level rise**

» MPO’s are required to adopt a new LRTP every 5 years (2045 planning horizon)

» Address **Fixing America’s Surface Transportation (FAST) Act** requirements for MPO long range transportation planning:
  - Consider projects/strategies to improve the resilience and reliability of the transportation system; stormwater mitigation
  - Consultation with agencies and officials responsible for natural disaster risk reduction
Work Plan

Climate & Weather
- Obtain Data
- Identify Vulnerable Areas
- Identify at risk Transportation

Critical Linkages
- Stakeholder Engagement
- Quantitative Analysis of Critical links

Adaptation Strategies
- Econometric Analysis
- Adaptation/ Mitigation Strategies
- Include in Decision Making

Final Report
- Summer to Winter 2019

Timeline:
- Fall 2018
- Fall 2018
- Winter/ Spring 2019
Overview

Sea Level Rise – 2045 NOAA

Storm Surge

Increased Precipitation

Transportation Network – 2040+ (adopted network and socio-economic data)

Regional Econometric Analysis

Develop Adaptation and Mitigation Strategies

= stakeholder review (local mitigation strategy groups, citizen advisory committees, local coordinating boards, TMA, One Bay, etc.)
Downtown Tampa
2045 Downtown Tampa
Category 3 Storm + High SLR
### Percentage of Network Impacted

**Regional Network:**
- **Cat 3 High – 28%**
- **9 Inch – 12%**

<table>
<thead>
<tr>
<th>Region</th>
<th>Category 3 Storm + High SLR</th>
<th>9 Inches Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hillsborough</td>
<td>19.6%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Pinellas</td>
<td>56.8%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Pasco</td>
<td>13.3%</td>
<td>11.8%</td>
</tr>
</tbody>
</table>

**Bar Chart:**
- **Hillsborough:** 348
- **Pinellas:** 545
- **Pasco:** 115

**Legend:**
- Category 3 Storm + High SLR
- 9 Inches Precipitation
St Petersburg, FL
2045 St. Petersburg, FL
Category 3 Storm + High SLR
Representative Projects

» Hillsborough
   1. Gandy Blvd from 4th St to S Dale Mabry Hwy
   2. Big Bend Rd from US-41 to I-75

» Pinellas
   3. Gulf Boulevard from Bath Club Circle to 125th Ave & Tom Stuart Cswy Bridge
   4. Roosevelt Boulevard from Ulmerton Road to Gandy Blvd

» Pasco
   5. US 19 from S.R.54 to S.R.52
   6. S.R.54 from US 19 to Suncoast Pkwy
2045 US 19 and SR 54
Category 3 Storm + High SLR
## Adaptation Strategies

<table>
<thead>
<tr>
<th>Status</th>
<th>Criticality</th>
<th>Vulnerability</th>
<th>Avoidance</th>
<th>Drainage Enhancement</th>
<th>Asset Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Project</td>
<td>Any</td>
<td>High or Moderate</td>
<td>Raise Roadway Profile</td>
<td>Detention / Retention Ponds</td>
<td>Enhance Subbase</td>
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<td>High</td>
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<tr>
<td>Existing Roadway</td>
<td>High</td>
<td>Low</td>
<td></td>
<td>Enhanced Swales / Ditches</td>
<td>Harden Shoulders / Protected Medians</td>
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<tr>
<td>Existing Roadway</td>
<td>Moderate</td>
<td>High</td>
<td></td>
<td>Detention / Retention Ponds</td>
<td>Enhance Road Surface</td>
</tr>
<tr>
<td>Existing Roadway</td>
<td>Moderate</td>
<td>Moderate</td>
<td></td>
<td>Depressed Medians</td>
<td>Vegetation</td>
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Adaptation Strategies

» Highly Vulnerable Roads
  • Critical roads – raise profile, enhance sub-base, add retention/detention ponds
  • Somewhat critical – just enhance sub-base & add retention/detention ponds

» Moderately Vulnerable Roads
  • Critical roads - just enhance sub-base & add retention/detention ponds
  • Somewhat critical – depress medians, vegetation
This is accurate. The use of “just” seems funny because these are still major strategies. Raising the profile and drainage are avoidance techniques, sub base and vegetation are protection techniques
Karen Kiselewski, 8/1/2019

Also, she can mention that green solutions also are suggested, but outside the realm of LRTP
Karen Kiselewski, 8/1/2019

Karen Kiselewski, 8/1/2019
Representative Projects

» Hillsborough
1. Gandy Blvd from 4th St to S Dale Mabry Hwy
2. Big Bend Rd from US-41 to I-75

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3. Gulf Boulevard from Bath Club Circle to 125th Ave & Tom Stuart Cswy Bridge
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### Example Strategies, Costs

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<th>Adaptation Strategies</th>
<th>Cost (million)</th>
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<tr>
<td>Gandy Bridge (approaches)</td>
<td>Raise profile</td>
<td>$74.0</td>
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<tr>
<td>Big Bend Rd</td>
<td>Drainage, enhanced road surface, vegetation</td>
<td>$3.7</td>
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<tr>
<td>Gulf Blvd</td>
<td>Beach/shoreline enhancement, Cross drains and swales</td>
<td>$12.4</td>
</tr>
<tr>
<td>Roosevelt Blvd</td>
<td>Enhanced road surface, drainage, raised median</td>
<td>$16.4</td>
</tr>
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</table>
| US 19 | A) Raise profile  
B) Beach/shoreline, raise intersections, vegetation | $136.3  
$71.0 |
| SR 54 | Drainage, raise median, raise intersection profiles | $8.8 |
Coordination

Resiliency & Durability to Extreme Weather Pilot Project

- Pinellas County Restore Act Vulnerability Assessment
- Hillsborough County Perils of Flood Act Matrix of Impacts Initiative
- University of South Florida School of Community Design
- University of South Florida Department of Urban Planning
- LMSWG staff from each county
- Public Works staff from each county
- FDOT D7 Community Liaison and Drainage Engineer
- FDOT D7 Gandy Blvd PD&E Manager

Hillsborough County Perils of Flood Act Matrix of Impacts Initiative
Contact Information

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