Other studies along with the Interstate Risk Assessment Study

- Study info can be found at:
  - www.dot.ga.gov/BS/Studies
- 2003 - Interstate System Plan
- 2008 I-285 Strategic Implementation System Plan
- 2009 Radial Freeway System Plan
- 2010 Managed Lane System Plan
- 2014 Managed Lane Implementation Plan
- 2014 Metro Atlanta Operational Planning Study
Other studies along with the Interstate Risk Assessment Study

- Downtown Connector Study
  www.dot.ga.gov/BS/Studies/DowntownConnector
GDOT Interstate Risk Assessment

- Sometimes it’s obvious where GDOT needs to focus resources

- Atlanta GA I-85 at Piedmont Rd area
Background

• Interstate Risk Assessment study objective
  – Define a quantitative and verifiable decision-making process for prioritizing \textit{interstate maintenance} projects

• Key components
  – Develop a risk profile for the interstate system
  – Develop a plan for addressing highest risks
    • Identify mitigation strategies
    • Prioritize strategies
Types of Risk to Consider

- **Performance risks**
  - Loss of service due to *pavement* deterioration
  - Loss of service due to *bridge* deterioration

- **External risks (potentially)**
  - Hurricane
  - Flooding
  - Earthquake
  - Tornado
  - Man made events

These risks can be addressed proactively through maintenance activities.

These risks can not
Evaluating the Likelihood of Pavement Performance Risk

• COPACES rating
• Truck ADT

• Conduct analysis by lane based on truck distribution

<table>
<thead>
<tr>
<th>One Way ADT</th>
<th>2 Lanes in One Direction</th>
<th>3+ Lanes in One Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inner</td>
<td>Outer</td>
</tr>
<tr>
<td>2,000</td>
<td>6</td>
<td>94</td>
</tr>
<tr>
<td>4,000</td>
<td>12</td>
<td>88</td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Evaluating the Likelihood of Bridge Performance Risk

- Condition ratings – super, sub, deck
- Inventory rating
- Inventory rating for HMOD truck
- Truck ADT
- Fracture critical designation
Evaluating the Likelihood of External Risks

Example – Flooding risk

Segment is in the floodplain and gets a flag for flooding risk

Segment is not in the floodplain and does not get a flag
Evaluating Consequences

- Consumer Markets Served
- Industrial Markets Served
- Freight Served
- Capacity Constraint during Construction
Population Served

• Measure of importance of interstate segment to serve residential auto trips

• Approach
  – Identify all passenger vehicle trips that begin or end in each TAZ and use I-75 segment
  – Weight and sum population across TAZs

• Required data
  – Select passenger vehicle trip tables for each set of links (SWM)
  – Population in each zone (2006 pop/SWM)
Consumer Markets Served

• Measure of the importance of interstate segment to serve goods to/from commercial markets

• Approach
  – Identify all truck trips that begin or end in each TAZ and use I-75 segment
  – Weight and sum population across TAZs

• Required data
  – Select truck trip tables for each set of links (SWM)
  – Population in each zone (2006 pop/SWM)
Jobs Served

- Measure of the importance of interstate segment to serve auto access to jobs
- Approach
  - Identify all passenger vehicle trips that begin or end in each TAZ and use I-75 segment
  - Weight and sum employment across TAZs
- Required data
  - Select passenger vehicle trip tables for each set of links (SWM)
  - Employment in each zone (2006 pop/SWM)
Industrial Markets Served

- Measure of the importance of interstate segment to serve goods to and from industrial markets

- Approach
  - Identify all truck trips that begin or end in each TAZ and use I-75 segment
  - Weight and sum employment across TAZs

- Required data
  - Select truck trip tables for each set of links (SWM)
  - Employment in each zone (2006 pop/SWM)
Freight Served

• Measure of the importance of interstate segment to general freight flows
  – Trucks serving GA, AND
  – Trucks passing through GA

• Approach – Import freight daily vehicle volumes directly from SWM

• Required data
  – Freight daily vehicle volume (SWM)
Capacity Constraint

• Measure of work zone delay

• Approach - Develop capacity factors using HCM default capacities
  – Capacity factor = existing capacity divided by capacity if 2 lanes dropped
  – Existing V/C * capacity factor = constrained V/C

• Required data
  – Existing link V/C (SWM)
  – Capacity factor table (under development)
Evacuation Route

• Measure of importance of interstate segment for evacuation/security response

• Approach – binary approach
  – If on evacuation route, link gets “1”
  – If not, link gets “0”

• Required data
  – GDOT evacuation routes (GA NaviGAtor)
Calculating Consequence Score

1. Calculate each consequence element for each link
2. Normalize the results and record on a 0-100 scale
3. Combine consequence elements using weights that reflect relative importance of each consequence
Questions ?