Considering Events in Multimodal Freight Corridor Planning

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What kind of transportation system do we want? Now? Or In 30 years?

Safe, Secure, Environmental
Responsible,
Efficient/Reliable

- Common theme across Modal Agencies, USACE, US DOT, State DOT’s, etc.

Customers
(Shippers/Carriers/Public) assume this plus

- cost effectiveness and accessibility to various modes and facilities, and ultimately markets
Risks and Events occur everywhere

- Every region of country suffers from this!! (Where is Paradise?)
  - Tornados, Heat, Drought, Flooding, Snow, Rain, Hurricanes, etc…
- Climate and Demographic changes
- Difference of Scale and Frequency of Events and Risks
- Infrastructure is becoming more critical in responding to events
Corridor Data Based on March 19, 2003
From 4:00pm - 8:00pm PST
Truck Speed Calculation Based on 50-mile increments

Corridor’s included in analysis are (I5, I10, I45, I65, I70)
“Ongoing Disruptions” implies managing or mitigating risks

- Understanding normal and asymmetric risks
  - Who bears the risk and to what degree
  - Difference of public and private sector risk assessment and response

- Balancing national versus sub regional, local importance
  - Identifying policy and planning goals
  - Understanding micro and regional interactions

- Build for extreme or normal conditions
  - New standards or retrofitting

- Estimate willingness to pay/change

- Budget challenges
# How Do We Respond to Change in Public Sector – some examples

<table>
<thead>
<tr>
<th>Sector</th>
<th>Short-Term</th>
<th>Medium Term</th>
<th>Long Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
<td>Prepare, Respond, Ignore</td>
<td>Prepare, Ignore</td>
<td>Move, relocate</td>
</tr>
<tr>
<td>Emergency Responders</td>
<td>Respond</td>
<td>Training, New equipment, etc., Table Top Exercises</td>
<td>Move, relocate</td>
</tr>
<tr>
<td>Public Infrastructure</td>
<td>Respond Operationally</td>
<td>Improve Operational Response</td>
<td>Retrofit or repair, engineering standards, etc.</td>
</tr>
<tr>
<td>Planning Response</td>
<td><em>Forensic Studies</em></td>
<td><em>Recommendations</em></td>
<td><em>Policy/Planning Guidance, Ordinances</em></td>
</tr>
</tbody>
</table>
Costs to Users
  - Delay, lost productivity – plant closures
  - Inventory disruptions – lost output, supply chains
  - Survey instruments – modeling behavior

Infrastructure damage assessments
  - Damages to roadway, tracks, etc.
  - Inspection time – costs

Non Transportation Infrastructure Affects
  - Services Disruption, Power-Power
  - Recreational Losses
  - Environmental Derogation

A lot of this information would not necessarily be in initial planning consideration
System Planning Limited by Traditional Public Sector Planning Frameworks

- Shaped by demands to compare projects within a given budget (mode) or geography
- Differ by agency regarding what can be considered
  - Public Benefits and Costs
    - Reduce emissions, environmental restoration, health risks and exposure, risk management/ mitigation, etc., Job creation.
  - Externalities – limited consideration
    - First Order effects – Improved Operations
    - Second and Third Order Effects – changing capacity and routings
- Forecasting and Scenario profiles
  - Desired certainty of answers often exceed analytical capacity
  - Network effects not included
  - No pre – post study analysis done on routine basis
Recent Cross or Corridor Modal Studies Externalities Are Discussed

- Black Warrior Tenn-Tom Waterway System
- Minnesota Bridge Collapse
- Business Realignment Estimates - FHWA
- (NCHRP) Report 586: Rail Freight Solutions to Roadway Congestion
- Lock and Dam Closures
  - Chickamauga Locks
  - Emsworth, Dashields, and Montgomery
- Marine Highway Program
Problem Statement – Public Perspective

- Do we have the right tools (data/models, funding, etc.) to develop sustainable projects to enhance/improve corridor operations?
- Can we effectively make statements on broad benefits and externalities related to risks?
- Does the right guidance exist to allow for these benefits to be considered across modes and implemented?
Some Basic Research Questions

- Evaluation of externalities in current project approval process
- Relationship of multimodal trade-off analysis in environmental stewardship discussions
- Data and planning guidelines that are cross agency and modally transparent
- Improve understanding of spatial markets and realignment in response to transportation projects and risks
- Encouraging determination on boundaries related to non-monetary public goals (risks, health, etc.)
- Expanding geographic corridors into a more integrated framework
- Coordinating multiuse or multipurpose planning options
- How to implement any recommendations?
Coastal Louisiana

1956

2050?
Conclusion

- Weather (Events) Happens!!
- Do we need to include new variables in planning process that fully estimate all costs/benefits
- Some studies already seeking to understand relationships for freight
- Response frameworks vary, but unless we are moving to a long term framework that better aligns additional activities with other goals, we will not improve corridors