Measuring Performance

2018 Security Assessment Report
Table of Contents

Introduction ............................................................................................................................................................ 4
Review of County Plans ........................................................................................................................................ 5
  Comprehensive Emergency Management Plans (CEMPs) .................................................................................. 6
  Post Disaster Redevelopment Plans (PDRPs) ....................................................................................................... 6
  Local Mitigation Strategies (LMSs) ................................................................................................................... 6
  Transportation Disadvantaged Service Plans .................................................................................................. 7
Current MPO Practices .......................................................................................................................................... 7
  Prioritization Scoring Criteria ............................................................................................................................. 7
  Freight Assets and Connections ........................................................................................................................ 8
    Vulnerable Bridges ....................................................................................................................................... 12
  ATMS and Evacuation Routes .......................................................................................................................... 13
Recommendations ............................................................................................................................................... 15

Table of Maps
Map 1 – Regional Freight Network ................................................................................................................... 9
Map 2 – 2015 National Bridge Inventory ......................................................................................................... 11
Map 3 – ATMS and Evacuation Routes in the Sarasota/Manatee Area ............................................................. 14

Table of Tables
Table 1 – Bridges Existing (2015) AADT and Truck Volume Percentages ...................................................... 10

Table of Figures
Figure 1 – Infrastructure Condition and Volume – Bridges ................................................................................ 12
Introduction

Although the beaches on the west coast of Florida are beautiful, they are also vulnerable to all hazards. In 2016, Sarasota and Manatee counties were impacted by hurricanes Hermine and Matthew. Even though an evacuation was not ordered, severe flooding required the services of emergency operations, public works, and transit providers. Hurricane Irma made landfall in South Florida in 2017 and caused emergency evacuation orders to be declared. Thirty (30) shelters were opened between Manatee and Sarasota Counties in order to receive residents from mandatory and voluntary evacuation zones.

In addition to being vulnerable during severe weather events such as hurricanes and storm surge, the barrier islands are also vulnerable to king tide flooding on sunny days. With a higher-than-average senior population, evacuation of persons with special needs is dependent on local transit and generally requires it to begin about 48 hours before good information about the storm path is available. This impacts working parents and children when schools are closed to serve as shelters, and people who depend on buses for daily transportation are stranded when they are diverted for emergency operations.

To better prepare for and understand hazard mitigation planning, the Sarasota/Manatee Metropolitan Planning Organization (MPO) was selected as one of the six regions throughout the United States to receive training on developing an emergency recovery plan funded through a Federal Transit Administration (FTA) research grant. The All Hazards Recovery Plan Workshop was a two-day training course designed to provide participants with the tools, knowledge, skills, and resources to develop an emergency transportation recovery plan that includes coordinated transit, transportation demand management (TDM), and intelligent transportation system (ITS) strategies. This plan is developed recognizing the specific needs, resources, and relationships with emergency responders within each region.

A key part of the FTA-funded research project was to develop a pilot emergency recovery plan for Portland, Oregon, that included transit TDM strategies and the use of ITS and other technologies to facilitate recovery after an emergency event. Based on the experience in Portland, a training course was developed and offered in six other regions throughout the US. During this training, the Sarasota/Manatee MPO partnered with regional representatives from the following agencies and departments:

- Hillsborough County MPO
- Emergency management centers
- Florida Department of Transportation
- Public transit providers
- School Board transportation
- County planning and public works departments
- City planning and public works departments
- Fire and rescue department

During the two-day training course, participants worked through scenarios designed to provide an overview of the six major components identified in the Portland pilot study:

- **Transportation Recovery** – Defined response and recovery phases as separate and part of the four phases of emergency management: Preparedness, Response, Recovery, and Mitigation. Participants worked through an exercise designed to assess how the transportation system is impacted by natural disasters, technological or human-caused hazards. Impacts ranged from loss of communication and concerns with cyber-security to catastrophic damage to roadways. Understanding the recovery phase becomes a key component in knowing how to prepare and mitigate future potential hazards.
• **Communications** – Explained the need for communication strategies to be developed in advance of an incident as a critical component of recovery. Available communications technologies and methods were reviewed in understanding that communication, collaboration, and coordination are critical pieces in all recovery efforts.

• **Roles and Responsibilities** – Described the roles and responsibilities of Federal, State, regional, and local agencies in recovery planning as part of the National Response Framework. Potential roles and responsibilities of other stakeholders, including the private sector, social media, ride-sharing services and vanpool providers during the recovery planning was discussed.

• **Vulnerability Assessment** – Defined a vulnerability assessment including a discussion of the linkage between vulnerability assessment, risk factors and the development of mitigation measures. The FHWA Vulnerability Assessment Framework was reviewed along with examples of how other regions and MPOs have conducted an assessment of their transportation assets most vulnerable to hazards.

• **Transportation Recovery Strategies** – Identified actions that should be taken prior to and during recovery to effectively implement the strategies. Several categories of transportation recovery strategies including infrastructure assessment/repair, transit operations, transportation demand management, intelligent transportation systems, and paratransit were presented along with successful examples from other areas.

• **Prioritizing Post-Disaster Investments** – Reviewed available tools and methods specifically designed to help prioritize investments after a disaster. Those tools and methods currently in use by MPOs and others were specifically noted.

The 2018 Security Assessment Report provides additional details regarding the results and coordination that took place during the two-day workshop. The remainder of this report provides a review of planning efforts already undertaken in Sarasota and Manatee Counties to address hazards and emergency preparedness as well as the planning efforts undertaken by the Sarasota/Manatee MPO that may relate and be useful to hazards planning for the two-county metropolitan area. A series of recommendations provide guidance on how the MPO can build on these existing efforts to further engage with and aid the hazards planning process for the area, particularly in long-term recovery and mitigation.

**Review of County Plans**

A number of plans at the county level provide guidance on the response to hazards at various stages of the hazard management process and for different entities. A review of these plans highlights what information was collected, what analyses were completed, and what indicators were developed at the county level that might inform any efforts taken at the regional level by the MPO in hazards planning for transportation.
Hazards planning documents at the County level include:

- Comprehensive Emergency Management Plans (Manatee County 2013, Sarasota County 2015)
- Post Disaster Redevelopment Plans (Manatee County 2009, Sarasota County 2015)
- Local Mitigation Strategies (Manatee County 2014, Sarasota County 2010)
- Transportation Disadvantaged Service Plans with emergency preparedness components (Manatee County 2013, Sarasota County 2013)

**Comprehensive Emergency Management Plans (CEMPs)**

The CEMP serves as a broader overview document of the emergency response process. The Manatee and Sarasota Counties’ CEMPs include sections that identify hazards and the threat level posed by these hazards to the respective counties. Other notable information includes local demographic and economic information.

**Post Disaster Redevelopment Plans (PDRPs)**

PDRPs focus on the specific recovery phase of the hazard response process directly after an emergency has occurred. Notable information contained in these documents includes vulnerability analyses of certain populations that have special needs (e.g., older adults, youth, people that do not primarily speak English), which may include certain transportation needs such as requiring additional time or assistance to evacuate. There are also vulnerability analyses for assets, including some analysis for transportation infrastructure such as roads and bridges, which focuses on location in flood or storm surge zones. The PDRPs mention the importance of repair of infrastructure as part of the post-disaster response, as well as restoring public transit service and adapting it to new locational needs in the post-disaster environment. The Sarasota PDRP also includes tracking indicators to measure recovery progress that may also be helpful to monitor in the longer term:

- Financial expenditure, including tracking outside resources and how these funds are being used
- Performance and schedule variance from set goals or estimated timeline (determined after level of damage is known)
- Contracting statistics — number of local businesses, small or minority businesses
- Public participation levels — interaction and transparency statistics
- Employment resumption metrics
- Home occupancy and rental rates
- Accommodation occupancy rates
- Standard-of-living measurements to judge quality of recovery
- Number of actions and projects started and accomplished — including an estimate of the population that has benefited as a result, if possible

**Local Mitigation Strategies (LMSs)**

LMSs address actions completed in the longer term to mitigate future risk and damages from a hazard. The LMSs for Manatee and Sarasota Counties include identification of hazards and the risk level they pose as well as a list of specific mitigation projects by local jurisdiction, which, in some cases, relies on implementation by higher jurisdictions such as the Florida Department of Transportation (FDOT). These mitigation projects include transportation-related improvements.
Manatee County’s LMS list more than 100 projects, which include those related to evacuation route drainage and signal structure improvements. (See Section VII of the LMS for more information) Sarasota County’s LMS lists more than 140 projects, including projects related to road drainage improvements, Bird Key Bridge rehabilitation, and evacuation signs. (See Appendix I of the LMS for more information)

These projects are prioritized by criteria identified in the plans. The Manatee County LMS mentions that mitigation planning participants identified 19 scoring criteria, with 3 criteria highlighted as important by FEMA – cost effectiveness (cost/benefit ratio), technical feasibility, and environmental soundness. The criteria from the Sarasota LMS included 7 scoring factors that overlapped with Manatee County’s. The most notable criteria for both counties are:

- Cost effectiveness or cost impact
- Probability of funding
- Probability of community acceptance
- Benefit-cost ratio
- Complexity of implementation; including time frame
- Health and safety considerations; those served directly

**Transportation Disadvantaged Service Plans**

The community transportation coordinator (CTC) develops a Transportation Disadvantaged Service Plan (TDSPs) for each county that cover hazard management and/or emergency preparedness. These efforts may provide an opportunity for further vulnerability analyses and mitigation planning in addition to immediate response procedures when an emergency is occurring.

**Current MPO Practices**

In addition to county hazard planning efforts, the MPO also has undertaken planning efforts that provide data, analysis, and prioritization indicators that are relevant for hazards planning. These efforts stem from freight and project prioritization efforts, economic development planning, and Advanced Traffic Management System (ATMS) management.

**Prioritization Scoring Criteria**

The MPO uses a set of scoring criteria to prioritize projects for funding through the Transportation Improvement Program (TIP). These criteria include items described below that are relevant to prioritization in terms of hazard mitigation planning and rebuilding during long-term recovery:

- Safety:
  - Evacuation Route – 3 points if project is located on a designated evacuation route in Zones A–B, 1 point in Zones C–E
- Infrastructure Condition:
  - Resiliency (Flood Hazard Area) – 1 point if project improves resiliency in special flood hazard area
  - Resiliency (Storm Surge Zone) – 3 points if project improves resiliency in Storm Surge Zone Category T or 1; 2 points in Category 2; 1 point in Category 3.
Note that the maximum number of points for each of the six overall criteria categories is 15, for a total maximum of 90 points per project.

**Freight Assets and Connections**

As part of its *Measuring Performance: Freight and Economic Development* report completed in January 2017, the MPO provided a basis for identification of important assets, transportation infrastructure, and potential prioritization criteria of these assets and infrastructure from a freight and economic development perspective.

The report notes assets of the area from an economic perspective, highlighting Port Manatee as a major economic generator and the Sarasota-Bradenton International Airport and the barrier islands as key assets for the area’s largest industry and freight generator—tourism. The report notes other important industries that likely would have associated economic assets, including distribution centers, agricultural/horticultural/cattle production sites, manufacturing sites, hospitals, government buildings, and development sites.

The project priorities scoring criteria incorporates freight measures to access whether the project is in a major freight hub. Map 1 is used to determine the below scoring criteria:

- **Freight**
  - Economic Development – 3 points if project is within established CRA, TIFF, Brownfield, Enterprise Zone, Port Encouragement Zone or other locally established special district
  - Freight Network – 4 points if project is on regional Freight Mobility Corridor, 2 points if on Freight Distribution Route, 1 point if on Freight Activity Center
  - Freight Access – 4 points if projects provide direct access to high freight activity area, 2 points if it provides direct access to medium freight activity area, 0 points if it provides direct access to low freight activity area
  - Percent (%) of Daily Truck Volumes – 2 points of project is on segment with daily truck volumes of 6,001 – 15,000, 1 point if daily truck volumes are 3,501 – 6,000
  - Tourism – 2 points if project is within ¼ mile of a tourist destination.
The report indicates a few measures that might help prioritize these assets in terms of mitigation and long-term recovery. The amount of freight generation by asset may provide one indicator to measure and prioritize assets (the report includes freight generation numbers for the seaport and airport, so some of this information is already collected and documented). An additional indicator may be the importance of related industry; the report documents the largest employers in the area as measured by employees, which could be included in measures of industry importance. Note that assets such as hospitals and government buildings also are important for the immediate response/recovery phase given their importance for emergency medical care and administrative operations, likely heightening their prioritization in securing access.

In addition to identifying assets, the report discusses important transportation infrastructure that provides access to identified assets and important destinations outside the immediate Sarasota/Manatee area and facilitates the movement of freight and people for economic development purposes. Three main infrastructure types discussed in the report are highways, bridges, and rail lines. Highways are highlighted as the network that carries most of the freight in the Sarasota/Manatee area, and measures of freight tonnage delivered by truck and truck volumes on highways and bridges and at railroad crossings are included. These measures of tonnage and truck volumes can provide one measure of prioritization for bridges and roadways.

Additional prioritization considerations might include the importance of assets connected by infrastructure, as discussed at the beginning of this section, and the number of alternative connections/routes. For example, the report notes the importance of bridges given the coastal location of the Sarasota/Manatee area and their role in linking the mainland and barrier islands to facilitate the movement of tourists, workers, and freight. Another point noted is that the Sunshine Skyway Bridge is the only direct link between the Sarasota/Manatee area and Pinellas County, which has key urban centers. Given that alternative direct connections are limited between these two areas, this bridge might be more highly prioritized in terms of this indicator.

Specifically intended to capture and assess the movement of freight and goods, Table 1 was included in the Freight and Economic Development report. It provides a means for evaluating use of the region’s bridges as a possible criterion for prioritizing and identifying transportation infrastructure recovery projects.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Location</th>
<th>AADT*</th>
<th>Truck Volumes</th>
<th>Truck Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 72</td>
<td>Stickney Point Road Bridge</td>
<td>25,000</td>
<td>770</td>
<td>3%</td>
</tr>
<tr>
<td>SR 758</td>
<td>Siesta Drive Bridge</td>
<td>16,200</td>
<td>588</td>
<td>4%</td>
</tr>
<tr>
<td>SR 789</td>
<td>Ringling Causeway</td>
<td>35,000</td>
<td>1,319</td>
<td>4%</td>
</tr>
<tr>
<td>SR 684</td>
<td>Cortez Road Bridge</td>
<td>15,700</td>
<td>620</td>
<td>4%</td>
</tr>
<tr>
<td>SR 64</td>
<td>Manatee Avenue Bridge</td>
<td>16,400</td>
<td>707</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Annual Average Daily Traffic

As shown in Map 2, the national bridge inventory identified nearly 500 bridges in Sarasota and Manatee counties. Although not all of these bridges are critical connections for transportation recovery, areas where prioritization of bridge assets should be considered include the barrier islands where limited connections exist.
Map 2 – 2015 National Bridge Inventory

Sarasota/Manatee MPO
2015 National Bridge Inventory
Sarasota County 294 Bridges
Manatee County 199 Bridges
**Vulnerable Bridges**

Vulnerable bridges have been prioritized by the MPO by condition and daily traffic volume. As can be seen on Figure 1, 95% of all bridges in Manatee and Sarasota Counties are in good condition while 4 to 5 major bridges from each county are currently in fair conditions.

![Figure 1 – Infrastructure Condition and Volume - Bridges](image)

**Manatee County**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Bridge</th>
<th>2017 AADT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Desoto Bridge</td>
<td>59,500</td>
</tr>
<tr>
<td>2</td>
<td>Anna Maria Bridge</td>
<td>16,400</td>
</tr>
<tr>
<td>3</td>
<td>Cortez Bridge</td>
<td>15,700</td>
</tr>
<tr>
<td>4</td>
<td>Gulf of Mexico Dr/ Longboat Pass</td>
<td>8,300</td>
</tr>
</tbody>
</table>

**Sarasota County**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Bridge</th>
<th>2017 AADT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US 41 - Roberts Bay Bridge</td>
<td>44,500</td>
</tr>
<tr>
<td>2</td>
<td>US 41 NB - North Creek Bridge</td>
<td>40,000</td>
</tr>
<tr>
<td>3</td>
<td>US 41 SB - Catfish Creek Bridge</td>
<td>39,000</td>
</tr>
<tr>
<td>4</td>
<td>US 41 SB - South Creek</td>
<td>39,000</td>
</tr>
<tr>
<td>5</td>
<td>SR 789 NB - Coon Key Waterway</td>
<td>29,000</td>
</tr>
</tbody>
</table>

*AAADT is annual average daily traffic.
ATMS and Evacuation Routes

The MPO also coordinates with local agencies for the ATMS, specifically to ensure that it is consistent with the regional ITS architecture. The ATMS is centrally operated out of the Regional Traffic Management Center, which controls traffic signals, electronic signs, and cameras, among other components, in the Sarasota/Manatee area. ATMS can be helpful in facilitating response to hazards, such as using information collected via cameras to evaluate disaster response after the fact. Comparing the location of ATMS infrastructure to the location of evacuation routes (see Map ) provides a means of prioritizing ATMS projects; projects that correspond to evacuation routes can be prioritized over those that are not. As shown in Map , many of the region’s evacuation routes have or are planned to be equipped with ATMS technology.

As with the bridge inventory previously discussed, noticeable gaps exist along routes connecting to and on the area barrier islands. Connections on the edges of the two-county planning area with neighboring regions also are gaps in the ATMS system. Communication across multiple regions is a critical component during times of evacuation and recovery from storm- and weather-related events.
Map 3 – ATMS and Evacuation Routes in the Sarasota/Manatee Area
**Recommendations**

The following recommendations provide guidance for future steps the MPO could take to engage in hazards planning with local governments based on the review of efforts already undertaken at the County and MPO levels. The general recommendations reference possible MPO roles identified in *The Role of the Metropolitan Planning Organization (MPO) in Preparing for Security Incidents and Transportation System Response* (Meyer, 2004).

**Consider a more robust vulnerability/mitigation analysis for regional assets and infrastructure as part of the Long Range Transportation Plan process.**

The MPO can build on the hazard identification, data collection, vulnerability analysis, project identification, and prioritization criteria in the County LMSs and existing MPO planning efforts such as the Environment and Livability Performance Measures to create a more regionally-focused and synthesized vulnerability and mitigation analysis. Such an analysis can build on current MPO project prioritization criteria based on hazards for both long-term rebuilding after a hazard occurrence or for mitigation retrofitting.

This process can incorporate guidance from FHWA on vulnerability assessment, which also may include reliance on stakeholder input to inform aspects of the analysis. Coordination of regional planning should involve local emergency management agencies, FDOT, neighboring MPOs, the Tampa Bay Regional Planning Council (TBRPC), and the Southwest Florida Regional Planning Council (SWFRPC), among others.

This effort can be helpful to provide analysis at a regional network level to identify gaps and redundancies, as well as to consider a range of mitigation strategies appropriate for different hazards and circumstances aside from standard repair of infrastructure. The Charlotte County-Punta Gorda MPO provides an example of these strategies in its 2035 LRTP Hazard Mitigation section. Strategies identified include protection from a hazard (e.g., a barrier), accommodation of a hazard (e.g., retrofitting infrastructure to reduce damage risk) and retreat/relocation (avoiding vulnerable locations). The criteria used to evaluate these options include:

- Hazards addressed and timeframe of hazard risk
- Level of protection
- Lifespan (temporary or permanent solutions)
- Benefits (e.g., lowered maintenance/repair costs, decreased delays from out of service, avoided damages)
- Costs (e.g., increased cost over standards, lifecycle costs, adjacent land impacts, environmental impacts)

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Act as a clearinghouse to disseminate best practices in resilient design and transportation practices.

As noted in the MPO Practices section, the Sarasota/Manatee MPO already includes resiliency criteria as part of its project scoring process. To further facilitate the incorporation of resilient transportation infrastructure and promote resilient transportation practices, systems, and services, the MPO can collect and disseminate information on best practices that are particularly well-suited to address hazards posing the greatest threat to the area. Such information also may serve as a resource for local jurisdictions carrying out transportation projects under their respective jurisdictions.

Evaluate opportunities to coordinate hazard planning efforts at a regional scale with local jurisdictions.

The MPO can build on efforts already undertaken by local jurisdictions to coordinate with each other by exploring opportunities to provide a forum and act as a liaison among the various local jurisdictions in the Sarasota/Manatee area. This effort with help identify and address any regional considerations exceeding local jurisdictional boundaries.
Measuring Performance

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