Integrating Hazard Mitigation into MPO Long-Range Transportation Planning
Charlotte County-Punta Gorda MPO
Charlotte County Project Coordination Committee Meeting

East Port Environmental Campus, Training Room B
25550 Harbor View Road, Suite 4
Port Charlotte, FL 33980-2503

MARCH 26, 2009
2:00 P.M. – 5:00 P.M.

The third Project Technical Advisory Committee meeting was held on March 26th from 2:00 p.m. to 5:00 p.m. in order to discuss mitigation options. The following participants were present:

- Mark Gumula, Charlotte County MPO
- Wayne Sallade, Charlotte County Emergency Management
- Mitchell Austin, City of Punta Gorda
- Jim Fendrick, Charlotte County Growth Management
- Harrison Higgins, FSU Department of Urban and Regional Planning
- Peter Koeppel, FSU Department of Urban and Regional Planning
- Link Walther, CSA International, Inc. (CSA)
- Julie Dennis, CSA

Welcome and Introductions
Julie Dennis began the meeting and due to the small crowd in the room and familiarity with the project and each other, it was decided that all welcomes and introductions would be skipped to get to the core of the agenda.

Overview of Agenda
Harrison Higgins explained that the PTAC would be presented with the mapping outputs from the last two meetings' exercise and the scenario development exercise. There is a newly created website that is now live (http://www.fsu.edu/~fpdl/mpoproject/index.htm), and Peter Koeppel will provide a walk-through. CSA will present the hazard issues and mitigation options and together FSU and CSA will discuss the status of the exposure assessment.

Scenario Development Update
Mr. Higgins reminded the group of the mapping exercise that was conducted at the last two meetings and refreshed the group on the terms used in the project: protection, accommodation, and retreat/relocation.

Protection: Attempt to create a barrier to a hazard.
Accommodation: Attempt to design or retrofit.
Retreat/Relocation: Removal or plans to relocate in the future.

It was reported that after the first PTAC meeting a smaller group gathered to validate the data, and the final outputs from this meeting would be reported on the maps. Mark Gumula asked whether or not a marina would retreat, as there was one located in an identified "retreat" zone. Higgins answered yes, that the marina would move landward. Mitch Austin commented about the maps, explaining that in the Charlotte County GIS water layer, there is a field called "type" and that *water* must be selected because if this type is not selected, the map depiction will not be accurate and will show areas that are actually land as water.

Mr. Higgins reminded the PTAC of the four scenarios that would be examined: a base case scenario (existing comprehensive plans), the output of the Smart Charlotte County 2050 Comprehensive Plan, a scenario that examines current policy and incorporates hazard mitigation policies, and the final scenario which will take hazard mitigation policy levels a step further and incorporate growth management principles as well. He stated that currently, we are taking the control totals and developing new projections from employees based on county growth management projects, but will have to re-project and disaggregate the data in order for it to be used in HAZUS and transportation modeling for this project. Currently, the project team has land use layers for the existing land use map, but is waiting for Glatting Jackson to come up with a new land use map based on the Smart Charlotte 2050 plan. The plan is to run these scenarios within the models over the summer.

Website Overview

Peter Koeppel with FSU Department of Urban and Regional Planning provided a walk-through of the new aforementioned project website. It was mentioned that at this time, this website cannot be searched with Google. The website includes a project summary, project documents and maps and various sections on the components of this project. It was also reported that there is a section for the PTAC specifically that contains all of the documents produced out of these meetings, but could contain more information if the PTAC would like to see it. Harrison Higgins noted that the MPO was listed as the "Punta Gorda MPO," which is something that will be changed as this site is a work in progress. Harrison requested that the MPO, County, and City possibly create links back to this website, as there are currently links to all three of the websites for these entities. This is a useful resource with a reasonable amount of information that will be utilized more in the future of this project.

Status of Exposure Assessment

Harrison Higgins explained that the exposure assessment is attempting to look at the network of roads that were of concern to the MPO and figure out which sections of the roadway would be vulnerable under each of the scenarios (Base Case-Cat 2 Storm, 0.5 meter SLR, Base Case + 0.5 meter SLR, 1 meter SLR by the year 2100). Next, the team will identify the different sections that would be vulnerable to these four hazards scenarios and match up vulnerable road sections with mitigation options for protection, accommodation, or retreat/relocation. Harrison referred back to the mapping exercise outputs.

He stated that what is currently being accomplished is the examination of attributes for the road networks based on centerline data and then taking break line data (Z-coordinate date for elevations) to match the SLR data and centerline data of roads. Centerline data was buffered to assure that the maps were more accurate. Julie Dennis explained the draft base map available for review and the meaning of the correlating colors. The issue of using crown data was discussed and how this was taken into consideration. Wayne Sallade pointed out that this was the lower end of the Category 2 boundaries. There was a discussion of the different vulnerable areas identified on the map based on the coloring. Ms. Dennis then discussed the other draft map available that showed the roads that were seaward of the Coastal Construction Control Line.

FSU will then take the information identified on the base map and integrate it into the modeling and, as a result, additional map outputs will be created. The end result would be a table with vulnerable road segments and mitigation planning alternatives/projects that would line up with the road vulnerabilities. Ms. Dennis pointed out that development of the road segment table has begun; however, it is currently a 65-page document that isn't very useful because the specific roads of interest to the MPO haven't yet been culled. This complete data was offered out to the City and County. Mitch Austin stated that he would like a copy of the city's data.

Hazard Issues for Charlotte County's Transportation

Julie Dennis provided an overview of the analysis conducted to determine hazard issues for Charlotte County's transportation system. It was mentioned that a series of interviews were conducted asking questions related to the damage received from Hurricane Charley, job responsibilities after Charley, the impacts of the hurricane on the County's transportation system and potential vulnerabilities of the transportation system that were not evident during Hurricane Charley. The following four individuals were interviewed:

- Mark Gumula, Director of Charlotte County-Punta Gorda MPO
- Rick Keeney, Director of Public Works for the City of Punta Gorda
- Gary Quill, Executive Director for the Charlotte County Airport
- Wayne Sallade, Director of Charlotte County Emergency Management

It was noted that Hurricane Charley was primarily a wind event that produced very little storm surge, making it not the best subject for addressing the hazards presented in this project. Julie then presented the details that resulted from the interviews, based on those damages received by surface transportation and the impacts on the Charlotte County Airport. Mostly navigational issues were mentioned during the interviews due to damaged traffic signals and signage. The Charlotte County Airport, however received extensive damage to their facilities due to the age of the structures. Following the hurricane, it was pointed out that there were significant improvements to the stormwater drainage system and the airport undertook a 3.5 year redevelopment effort to repair and reconstruct its facilities in order to bring them up to code and, in some instances, above current requirements. The different roles that employees were asked to take on post-storm were discussed and it was reported that there was a significant amount of collaboration and positive communication during the response and recovery effort.

Transportation impacts from other hazards were also addressed. It was noted that there had been significant road impacts from past flood events and storms that didn't reach hurricane status. It was also noted that the City of Punta Gorda is at a very low elevation, which creates storm surge issues especially in the downtown area. If a tropical storm or hurricane is in the Gulf of Mexico (not even threatening to make landfall near the city), the stormwater drainage system can back up and cause the roads to flood. While it was reported that the interstate running through the county was closed during a wildfire event, the fire didn't cause any damage to the infrastructure and only temporarily detoured traffic movement.

A brief list was created to discuss other potential vulnerabilities in Charlotte County that may not have been an issue when Hurricane Charley occurred.

- Most of the urbanized areas within the County are located in a storm surge zone.
- The City of Punta Gorda often experiences issues with small floods and in a large storm event, north-south travel into Punta Gorda could be shut down and infrastructure could be damaged.
- Many low-elevation communities in the County have canals and are located close to the water.
- One of the biggest weaknesses of the Charlotte County transportation system is the age of the bridges.
- Roads in the community as low as 2 feet above sea level, and sea level rise could significantly impact these roads in the future.

Based on all of this information, the following hazard issues were identified:

- Wind damage to traffic signals, lighting, signs and facility buildings.
- Temporary flooding of roads.
- Inundation and/or destruction of roads and bridges due to SLR/storm surge.
- Changes in traffic patterns and transit needs following a disaster.

- Temporary changes in job responsibilities and the need for continued communication.
- Need to secure funding for repairs and mitigation.

Ms. Dennis then led a discussion to determine what other issues needed to be added to this list, and the following issues were mentioned:

- Logistics and Land Use: Response of local agencies to move equipment and deal with disaster (lack of fuel or not located where you need it and/or can't reach it due to hazard impacts along transportation system.
- The temporary loss of roads due to flooding (both storm surge and inland flooding).
- Stormwater drainage issues due to flooding.
- Building/Infrastructure development in the natural flow way (historic slews), which can cause flooding of transportation infrastructure and create dams/dike with roads that can easily be blown out if inundated with water.

There was a discussion on whether or not tsunami should be included as a hazard and it was determined that it would not be included in the analysis. Burnt Store Road was mentioned as an issue for the county because it currently is between a slew and harbor and acts as a dam. Therefore, if they were to receive a lot of water, it would blow out the road. Mitch Austin suggested that some of these roads be reconstructed to include sections of bridges over dry land to alleviate the dike situation that was created. Jim Fendrick suggested that one recommendation that might come out of this effort is an update to stormwater mitigation plans. The group was also interested in the possibility of mapping the roadbed as part of the exposure assessment. There is a need to identify and account for railroads and ensure they are included on the maps.

Transportation Projects that Effectively Integrate Hazard Mitigation

Julie Dennis then gave an overview of the next presentation and explained its purpose would be to provide Charlotte County with some examples of mitigation projects they could consider as a part of their hazard mitigation strategy for the Long-Range Transportation Plan. It was pointed out that the project examples would be in terms of the categories of hazard mitigation options: protection, accommodation, and retreat/relocation.

To begin the discussion, two protection strategies were discussed. The first was a project titled "U.S. Highway 98 Revetment Project for Franklin County, FL." The issue identified in Franklin County was the constant erosion of roads from coastal storm impacts and the fact that this road is an important evacuation route for the county. This project worked to permanently restore the roadway to decrease its vulnerability and protect the shoreline. It was pointed out that it was unlikely that this mitigation technique would protect against future sea level rise and increased storm surge as designated currently due to the fact that the road was not elevated, only protected. The second protection strategy, found in Miami-Dade County, Florida, titled "C-4 Basin Initiative" addressed the issue of frequent flooding of roadways and neighborhoods due to low elevations and inadequate stormwater management. This project was a collaborative effort that was a product of the Governor's South Florida Task Force to alleviate flooding in South Florida and consisted of many different projects targeting the same area. It was noted that while this type of project is expensive to construct and maintain, it allows existing development to remain as is in its current location.

Next, accommodation measures were discussed beginning with the Long-Range Mitigation Plan for NC-12 and Bonner Bridge Replacement Project in the Outer Banks of North Carolina. The issue in this area is that the NC-12 road and bridge serve as the only evacuation route between the Outer Banks and the mainland, however, the road is often subject to over-washing and the bridge is vulnerable to sea level rise. A long-range planning effort to mitigate impacts to the bridge and road began in the early 1990's, but lost momentum due to funding. However, the project just recently regained momentum. This project will be conducted in two phases: 1) a

short-term solution based on where the shoreline is projected to be in 15 years and 2) a long-term solution based on where the shoreline is projected to be in 50 years, taking into consideration sea level rise. The result will be the elevation of both the bridge and in some places the elevation of the road over land to accommodate for storm surge and sea level rise. This was pointed out to be the most progressive project identified, however, it is yet to be implemented due to the conflicting nature of the need to protect infrastructure and environmental impacts to National Parks and Wildlife Refuges located on the Outer Banks.

The next accommodation measure mentioned was the I-10 Bridge Replacement Project in Escambia County, Florida. These two parallel bridges were destroyed by storm surge from Hurricane Ivan and are also a part of the interstate system and an important evacuation route. A temporary solution was put in place while a complete hydrological study was performed to determine possible future storm surge. The bridges were then elevated and hardened as a result of the findings. Sea level rise was not taken into account during this bridge elevation project, however, the bridges were significantly elevated and may have some unintentional benefits with regards to SLR.

The final accommodation project reviewed was the Road Base Stabilization Project in Walton County, Florida. The issue in this county was the repetitive flooding and erosion of roads after rain/storm events. When this happens, paved roads would become inundated and if left in this flooded state for a considerable amount of time, the limestone roadbed will soften and can lead to the cracking when automobiles drive over the softened road. This project is a process used to mitigate the damage from flooding by sealing the roadbeds prior to pavement to create a more flexible road base that can withstand the impacts of temporary inundation. It was noted that this project was more appropriate for inland areas due to the fact that storm surge and the movement of water could still have an impact on the road.

Finally Julie discussed the overall trends noted in these successful projects as well as the conclusions with regards to protection, accommodation, and retreat/relocation. It was pointed out that the two main trends identified were the popularity of collaboration in the larger more successful projects and the successfulness of long-range planning efforts. It was further noted that most of these projects that involved long-range planning and collaboration were state initiatives and did not originate in the MPO.

It was concluded that in some places in Charlotte County such as the Downtown Punta Gorda area, where frequent flooding occurs, it is highly unlikely that the infrastructure would be relocated and elevation may not be feasible. In this case, protection may be the most feasible option. However, in other areas in the county where the roads often remain flooded for long periods, an accommodation measure such as road stabilization projects might be appropriate. In addition, it was also reported that the bridges in Charlotte County were at a low elevation, and the NC-12 and Escambia Bridge projects are good examples of ways to mitigate this hazard. No successful examples of retreat or relocation were identified during research, however, it was stated that this is still an important scenario to consider.

Due to time constraints and the lack of the exposure assessment, it was determined that the PTAC would add the development of a preliminary list of hazard mitigation options to the next agenda as an item. The meeting adjourned at 5:00 p.m.