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Study Methodology Statement

Proposed Methodology for Hurricane Evacuation Analyses

for:

Ridge Road Extension Phase I & II

Alternatives Analysis

USACOE Permit Application No. SAJ-2011-00551 (IP-TEH)

From Ridge Road/Decubellis Road to US 41

County Project Number: C-6686.2
Pasco County

PREPARED FOR:



Pasco County Engineering Services Department

PREPARED BY:

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PROPOSED METHODOLOGY FOR HURRICANE EVACUATION ANALYSES

1.0 General

Pasco County has applied for a permit from the Army Corps of Engineers (ACOE) to construct an extension of Ridge Road from its current terminus at Decubellis/Moon Lake Road eastward to US 41. The project is known as the Ridge Road Extension (RRE). The project includes connections to an existing interchange at the Suncoast Parkway. The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise, is a co-applicant for this project.

The purpose of the RRE Project is to construct a new east-west roadway connecting west Pasco County to Central Pasco County. The RRE project will fulfill Pasco County's current need to improve east-west capacity and enhance overall mobility in both west and central Pasco County in accordance with the County's current Comprehensive Plan and the Metropolitan Planning Organizations (MPO) Long Range Transportation Plan (LRTP). The RRE Project will also provide additional roadway capacity and improve routing away from coastal hazard areas and improve hurricane evacuation clearance times in the event of a hurricane or other major weather-related occurrence in accordance with State requirements and Pasco County's current Comprehensive Plan.

The ACOE Request for Additional Information dated 7-23-12 requested that the applicant, Pasco County, provide an analysis which will allow an objective, quantifiable comparison of the effect of the RRE alternatives on the evacuation of the vulnerable population within Pasco County's Evacuation Levels A through E.

2.0 Alternatives to be Analyzed

As part of Pasco County's on-going efforts to obtain an ACOE permit for the Ridge Road Extension, numerous alternatives have been analyzed by Pasco County. The previously evaluated alternatives are numbered 1 through 6. As a part of the permit application review process, the ACOE has requested that additional alternatives be evaluated. These additional alternatives are numbered 7 through 12. Descriptions for all the alternatives are provided below. The base roadway network to which all alternatives are compared to satisfy the required number of east-west lanes is the Cost Affordable plan from Pasco County's 2035 Long Range Transportation Plan (LRTP). A summary of all the alternatives and the number of lanes provided by each is provided on Table 1. All build alternatives provide the same number of lanes east and west of the Suncoast Parkway as are provided under the 2035 Cost Affordable Plan. The limits of improvements for all build alternatives are Starkey Blvd/Moon Lake Road on the west and US 41 on the east unless otherwise noted in the description below.

TABLE 1

Summary of Alternatives and Number of Lanes

Roadway	Existing Alternatives													
	Cost Affordable		No Build (Alt 1)		Alt 2		Alt 3		Alt 4		Alt 5		Alt 6 (G)	
	West*	East*	West	East	West	East	West	East	West	East	West	East	West	East
SR 52	6	6	6	6	10	10	6/4E	6/4E	6	6	8	8	6	6
RRE	4	4	0	0	0	0	0	0	0	0	0	0	4	4
Tower	2	4	2	4	2	4	2	4	4	6	2	4	2	4
SR 54	6	6	6	6	6	6	6	6	8	8	8	8	6	6
Totals	18	20	14	16	18	20	18	20	18	20	18	20	18	20

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Roadway	Additional Alternatives Requested by ACOE													
	Cost Affordable		Alt 7 (Comment 5a)		Alt 8 (Comment 5b)		Alt 9 (Comment 6b)		Alt 10 (Comment 6c)		Alt 11 (Comment 6d)		Alt 12 (Comment 6e)	
	West	East	West	East	West	East	West	East	West	East	West	East	West	East
SR 52	6	6	6	6	6	6	8	8	6	6	8	8	6	6
RRE	4	4	4**	4	4***	4	0	0	2	2	2	2	2	2
Tower	2	4	2	4	2	4	4	6	4	6	2	4	2	4
SR 54	6	6	6	6	6	6	6	6	6	6	6	6	8	8
Totals	18	20	18	20	18	20	18	20	18	20	18	20	18	20

* West denotes west of the Suncoast parkway and east denotes east of the Suncoast Parkway

**Elevated through Serenova

***Elevated in Segments of Serenova

Alternative 1 – No Build

The No Build alternative assumes that none of the proposed build alternatives are constructed.

Alternative 2 – Expansion of SR 52 from 6 lanes to 10 lanes at Grade

SR 52 is planned for 6-lanes in the 2035 Cost Affordable LRTP. For this alternative 4 more lanes are assumed to be added at grade to convert the 6-lane divided facility to a 10-lane divided facility. Ramp improvements at the Suncoast Parkway are included in this alternative. It is assumed that the Ridge Road Extension is not constructed.

Alternative 3 – Expansion of SR 52 to Ten Lanes with Six at Grade and 4 Elevated

This alternative also expands SR 52 from 6-lanes to 10-lanes although for this alternative the additional 4 lanes are to be constructed elevated within the median of SR 52. To create sufficient room within the median, the inside through-lanes are converted to turn lanes and an additional through lane is added on the outside. Overpasses for the elevated 4-lane facility are assumed at Moon Lake Road and US 41. Interchange modifications are assumed at the Suncoast Parkway to provide for ramp access between the elevated lanes and the Suncoast Parkway. It is assumed that the Ridge Road Extension is not constructed.

Alternative 4 – Expansion of SR 54 from Six Lanes to Eight Lanes with Two Additional Lanes on Tower Road

SR 54 is planned for 6-lanes in the 2035 Cost Affordable LRTP. Under this Alternative, SR 54 is expanded to 8-lanes at grade. Ramp improvements at the Suncoast Parkway are included. Additionally, Tower Road is widened from 2-lanes as envisioned in the Cost Affordable Plan to 4-lanes west of the Suncoast Parkway. East of the Suncoast Parkway Tower Road is widened from the 4 lanes envisioned in the Cost Affordable Plan to 6 lanes. An overpass for Tower Road at the Suncoast Parkway is included and there is no connection between Tower Road and the Suncoast Parkway. It is assumed that the Ridge Road Extension is not constructed.

Alternative 5 – Expansion of SR 52 and SR 54 from Six Lanes to Eight Lanes

Both SR 52 and SR 54 are expanded from 6-lanes to 8-lanes at grade under this alternative. Ramp improvements at the Suncoast Parkway at both SR 52 and SR 54 are included. It is assumed that the Ridge Road Extension is not constructed.

Alternative 6 – Four Lane Divided Ridge Road Extension at Grade

For this alternative it is assumed that a 4-lane divided Ridge Road Extension is constructed at grade from the current terminus of Ridge Road at the Moon Lake/Decubellis Road intersection to US 41. A connection with the Suncoast Parkway is assumed at the location of the existing

overpass. Previously Pasco County analyzed six route variations for the construction of the Ridge Road Extension and determined that the alternative known as 6G was preferred. For additional analyses involving modifications to the original Ridge Road Extension 4-lane at grade concept only the route for 6G will be analyzed.

Alternative 7 – Four Lane Divided Ridge Road Extension Elevated through Serenova

This alternative is the same as Alternative 6 except that the segment of Ridge Road Extension that passes through the Serenova preserve is assumed to be constructed elevated. The elevated segment will not include a short segment that must pass through Florida Power Corporation property. This short segment, within uplands, is to be at grade to provide clearance beneath the overhead high voltage power transmission lines. The elevated segment will end where Pasco County's limits of the Ridge Road Extension meet the Turnpike's segment west of the Suncoast Parkway. The remainder of the Ridge Road Extension to US 41 will be at grade.

Alternative 8 – Four Lane Divided Ridge Road Extension - Portions Elevated through Serenova

This alternative is the same as Alternative 7 except that Ridge Road Extension will be constructed elevated for reduced segments and will be at grade through additional areas of uplands within Serenova.

Alternative 9 – Expansion of SR 52 from Six to Eight Lanes with Two Additional Lanes on Tower Road

SR 52 is planned for 6-lanes in the 2035 Cost Affordable LRTP. Under this Alternative, SR 52 is expanded to 8-lanes at grade. Additionally, Tower Road is widened from 2-lanes as envisioned in the Cost Affordable Plan to 4-lanes west of the Suncoast Parkway. East of the Suncoast Parkway Tower Road is widened from the 4 lanes envisioned in the Cost Affordable Plan to 6 lanes. An overpass for Tower Road at the Suncoast Parkway is included and there is no connection between Tower Road and the Suncoast Parkway. It is assumed that the Ridge Road Extension is not constructed.

Alternative 10 – Two Lane Ridge Road Extension with Two Additional Lanes on Tower Road

Under this alternative, the Ridge Road Extension is constructed as an at grade 2-lane facility in lieu of a 4-lane roadway. Additionally, Tower Road is widened from 2-lanes as envisioned in the Cost Affordable Plan to 4-lanes west of the Suncoast Parkway. East of the Suncoast Parkway Tower Road is widened from the 4 lanes envisioned in the Cost Affordable Plan to 6 lanes. An overpass for Tower Road at the Suncoast Parkway is included and there is no connection between Tower Road and the Suncoast Parkway.

Alternative 11 - Two Lane Ridge Road Extension and Expansion of SR 52 from Six to Eight Lanes

Under this alternative, the Ridge Road Extension is constructed as an at grade 2-lane facility in lieu of a 4-lane roadway. SR 52 is widened from the planned 6-lanes in the 2035 Cost Affordable LRTP to 8-lanes at grade. Ramp improvements at the Suncoast Parkway at SR 52 are included.

Alternative 12 - Two Lane Ridge Road Extension and Expansion of SR 54 from Six to Eight Lanes

Under this alternative, the Ridge Road Extension is constructed as an at grade 2-lane facility in lieu of a 4-lane roadway. SR 54 is widened from the planned 6-lanes in the 2035 Cost Affordable LRTP to 8-lanes at grade. Ramp improvements at the Suncoast Parkway at SR 54 are included.

Each of the RRE alternatives provided on Table 1 will be evaluated utilizing the TIME model.

3.0 TIME Model Evacuation Analyses

The Statewide Regional Evacuation Study Program (SRESP) was released on August 26, 2010. Upon release by the Florida Division of Emergency Management, this Study became the best available data and professionally acceptable analysis for evaluating alternative evacuation scenarios, including alternative roadway improvements.

The SRESP resulted in the development of a Transportation Interface for Modeling Evacuations (TIME). Wilbur Smith Associates developed TIME which is based on an ArcGIS platform and is essentially a condensed transportation model. TIME provides a user friendly means of modifying input variables that would change the clearance times for various evacuation scenarios.

Two distinct sets of scenarios can be developed using TIME—Base Scenarios and Operational Scenarios.

The Base Scenario was developed to estimate a series of worst case situations. The Base Scenario assumes that 100% of the vulnerable population evacuates and includes impacts from counties outside of the Tampa Bay Regional Planning area. The Base Scenario was generally designed for growth management purposes in order to ensure that all residents that choose to evacuate during an event are able to do so. Because the purpose of this analysis is to provide a quantifiable comparison of the alternative roadway improvements, the Base Scenario will be utilized.

The second scenario available in TIME is the Operational Scenario. Operational scenarios were developed by the Regional Planning Councils in coordination with local emergency

managers and are designed to assist emergency management personnel to plan for different storm events. The Operational Scenario will be utilized in the alternatives analysis if it is determined to be necessary to test the effects of one-way evacuation operations and impacts from potential road closures due to accidents or flooding.

The analyses will calculate Clearance Times for each of the alternatives.

The following assumptions will be utilized in completing the alternatives analysis:

1. The TIME model runs will be made for the 2015 time period.
2. The model runs will include all counties in the Tampa Bay Regional Planning Council.
3. The scenarios will assume a Level C/12 hour event.
4. Model variables will remain as provided in the SRESP with the exception of the following:
 - The highway network will be amended to include the improvements proposed in each of the alternatives.
 - Locations and capacities of shelters in Pasco County will be updated to reflect designated shelters and refuges of last resort.

4.0 Additional Information

The responses to questions in the RAI dated 7-23-12 may include information in addition to the results from the TIME analyses. It is the intention of the applicant to consult with the Pasco County Sheriff's Office, the Florida Department of Transportation, and the Florida Highway Patrol regarding traffic operational issues which may be relevant to the analyses.

5.0 Sources and References

This methodology was developed with assistance from Betti Johnson, AICP, Principal Planner, Emergency Management Program, TBRPC; Ameera Sayeed, Senior Regional Planner, Northeast Florida Regional Council; and, Annette Doying, Emergency Management Director, Pasco County.

The following references were utilized:

TIME Training Manual (Not dated)
Statewide Regional Evacuation Study, August 2010
Tampa Bay Regional Planning Council, Transportation Analysis, 2010
Analysis of Florida's One-Way Operations for Hurricane Evacuation, March 2002