

**PROJECT DEVELOPMENT AND ENVIRONMENT STUDY**

**West Bay Parkway (Segment 1 and 2)  
Hurricane Evacuation Analysis**

**The proposed widening of CR 388 from SR 79 to SR 77 and  
the proposed CR 388 Extension (New Alignment), from US 98 (SR 30A) west of  
Phillips Inlet to SR 79 in the vicinity of CR 388**

**Walton and Bay Counties**

**FPID: 424464-1-22-01, 424464-2-22-01,  
and 424464-3-22-01**

**Prepared for:  
Florida Department of Transportation District 3**

**Prepared by:**  
The logo for PBS & J, featuring the letters 'PBS' in a large, bold, red serif font, followed by an ampersand '&' and the letter 'J' in a smaller, red serif font.

**July 2009**

## **Introduction**

The Florida Department of Transportation (FDOT) in conjunction with Walton and Bay Counties has initiated a Project Development and Environment Study for the proposed extension of County Road 388 from US 98 in Walton County to State Road 77 in Bay County. CR 388 and its extension are referred to as the West Bay Parkway. Segment 1 begins in Walton County and continues to SR 79 in Bay County. Segment 2 begins at SR 79 and continues to SR 77. The proposed roadway would service expected future growth in the southeast Walton County area as well southwest Bay County, including trips to and from the new Panama City-Bay County International Airport. Future travel demand involves not only daily trip making but also possible hurricane evacuation traffic in the event of a threatening storm. *One of the secondary purposes of the project is to provide an alternate hurricane evacuation route for residents of coastal Walton County who are currently limited to US 331 as the sole escape route.*

This technical memorandum deals with the hurricane evacuation benefits of various proposed roadway alternatives being considered by FDOT and the project team.

## **Dwelling Unit Information**

Dwelling unit data for an existing base year and 2035 future year analysis were developed for four areas of Walton County and eight areas of Bay County which could have some evacuation impact on the proposed project and SR 79. These areas are:

### **Walton County**

- 1) Southwest Walton County - area below Choctawhatchee Bay and west of US 331
- 2) Southeast Walton County - area below the Intracoastal Waterway (ICW) and east of US 331
- 3) US 331 area south of SR 20—developed areas north of Choctawhatchee Bay around US 331 south of SR 20 near Freeport
- 4) SR 81 area around SR 20

### **Bay County**

- 1) Beachfront area west of SR 79
- 2) Back beach area west of SR 79
- 3) Beachfront area east of SR 79 to Beckrich Road
- 4) Back beach area east of SR 79 to Beckrich Road
- 5) Inland area between US 98 and ICW west of SR 79

- 6) Inland area contiguous to SR 79 up to the ICW
- 7) Inland northwest area west of SR 79 above ICW
- 8) Inland area north of West Bay between SR 79 and SR 77

All dwelling unit data is based on FDOT's Traffic Analysis Zonal (TAZ) data for the existing base year and future 2035 and is therefore consistent with land use employed in the daily traffic analysis conducted by PBS&J for this PD&E study. TAZ data provides permanent and seasonal unit data as well as vehicle ownership data that is critical to calculating the number of evacuating vehicles generated from subareas of Walton and Bay Counties. In that regard, the number of units by type and unique vehicle ownership of each of the twelve areas (described above) was developed by combining data in TAZ's contained in each area. The study area is projected to have significant development by the Year 2035 and the traffic analysis zonal data reflects this expected trend.

### **Evacuation Behavioral Assumptions**

In order to calculate the numbers of evacuating vehicles that might use the proposed West Bay Parkway and SR 79, certain assumptions about seasonal occupancy, evacuation participation, and vehicle usage had to be made for each of the twelve subareas. A low and high seasonal occupancy was factored into the analysis scenarios for seasonal units. Specifically, a low occupancy level of 25 percent and a high occupancy level of 95 percent were used to establish the extremes of population intensity that might be present at the start of an evacuation. These extremes of seasonal occupancy are consistent with the existing regional hurricane evacuation study.

Evacuation participation rates were specified for each subarea by category of hurricane (1, 3, and 5) and by type of unit. For this study, 100 percent evacuation participation was assumed for all occupied seasonal units and mobile homes regardless of location or category of storm. For the permanent units, participation rates were varied by category of storm and subarea location in accordance with surge mapping and evacuation zones established by the county, Florida Division of Emergency Management, Federal Emergency Management Agency (FEMA), and US Army Corps of Engineers (Mobile District) in the latest hurricane evacuation study developed for the northwest Florida region.

Evacuation vehicle usage rates refer to the average percentage of vehicles owned at the origin (home end) that will be used in evacuations. For this study, 100 percent of vehicles associated with seasonal units and 75 percent of vehicles available at permanent units/mobile homes were assumed to be used. For the beachfront areas, 80 percent usage was assumed. This is a well documented behavioral parameter used in the hurricane evacuation study for the region and is supported by actual evacuation statistics researched by Dr. Jay Baker of Florida State University. Dr. Baker is the leading hurricane evacuation behavioral scientist in the entire country.

Tables 1 and 2 provide the entire spectrum of dwelling unit and behavioral assumptions developed for each subarea.

### **Evacuating Vehicles Using the West Bay Parkway and SR 79 Evacuation Corridor**

By applying the behavioral assumptions to the dwelling unit data for the base and future (2035) analysis years, the total gross number of evacuating vehicles produced by each subarea was calculated for a wide range of storm intensity and seasonal occupancy situations. Tables 1 and 2 show these generated vehicle numbers for the base and future years respectively.

To then develop the number of evacuation vehicles using the existing SR 79 and US 331 escape routes as well as the proposed West Bay Parkway, assumptions had to be made by storm intensity and seasonal occupancy scenario as to the percentage of each subarea's evacuation traffic that might use the available routes. Assumptions were developed for a "no build" and "build" alternative. Although there are a number of "build" alternative alignments being considered, for hurricane evacuation analysis purposes, there is not a lot of difference that would warrant multiple "build" runs. The conclusions section of this report provides a discussion of alternative alignment considerations.

Tables 1 and 2 specify the percentage of each subarea that might use the new facility for each of the scenarios previously described. With the project improvement and for Category 3 and above storms, it is projected that the proposed West Bay Parkway will attract a significant portion of the southeast Walton traffic due to upstream evacuation congestion on US 331. By the Year 2035, the SR 79 and 77 evacuation corridors will be multi-laned whereas US 331 is still projected to be a two lane facility north of Freeport to I-10. The percentages shown in Table 1 and 2 reflect these assumptions.

Applying the roadway usage percentages to the socioeconomic and behavioral assumptions yields the number of vehicles using the proposed project. These figures are developed and specified in Tables 1 and 2 for the existing base year and future (2035) years. In the final section of the two tables, the evacuation vehicle data is then stratified for three focal roadway segments:

US 331 north of SR 20 to I-10

SR 79 north to I-10

CR 388/proposed West Bay Parkway

It should be noted that Segment 2 of the project continues from SR 79 to SR 77. Even if improved, it will continue to serve primarily as a feeder route to SR 77 and SR 79 for evacuation purposes and will carry relatively modest evacuation traffic volumes compared to Segment 1 and SR 79.

## Evacuation Clearance Times

Using the expected number of evacuating vehicles at each roadway location and making realistic assumptions about ambient background traffic (non-evacuation traffic), a raw clearance time was developed by metering the traffic through each segment. The service volume assumed for each segment is the average number of evacuation vehicles that is expected to traverse the segment on an hourly basis during the evacuation. Clearance times are developed by dividing the hour by hour evacuation traffic and expected ambient background traffic by the expected evacuation service volume. Queues are carried forward to the next hourly interval until all traffic has been dissipated.

For today's existing condition, clearance times range from 6 to 18 hours for the US 331 evacuation corridor depending on category of hurricane and tourist occupancy. The highest time relates to a Category 5 hurricane with a near full tourist occupancy situation. By the year 2035, times will deteriorate to a range of 7 to 26 hours for the US 331 evacuation corridor without implementation of the proposed West Bay Parkway. Times above 24 hours put Walton County in the difficult position of having to issue evacuation orders before the National Hurricane Center issues a warning for certain worst case situations.

US 231 is Bay County's most congested evacuation corridor and has existing clearance times of 6 to 24 hours depending on category of hurricane and tourist occupancy. By the year 2035, clearance times associated with US 231 will deteriorate to a range of 9 to 35 hours if expected growth occurs. SR 79, which is an alternative escape route for the Panama City Beach area, currently has times ranging from 4 to 13 hours. Even with widening improvements, by the year 2035 times will be in the 5 to 17 hour range.

*It should be noted that SR 77 was also included as an evacuation route in the analysis. Its function as an evacuation route is important but not as critical as US 231 and SR 79. Improvements to Segment 2 of the West Bay Parkway (between SR 79 and SR 77) will not alter positively or negatively the functionality of SR 77 as an evacuation route.*

## Conclusions

The greatest evacuation benefit of implementing the proposed West Bay Parkway is in reducing clearance times for the Walton County's US 331 evacuation corridor. With the project, times will fall to the 5 to 20 hour range saving the county almost 6 hours for a worst case situation in the year 2035. This will allow Walton County to make the evacuation decision after the National Hurricane Center issues a warning for the area and when the county has much more confidence in the storm track.

An analysis of hurricane evacuation impacts regarding implementation of the West Bay Parkway, provides the following conclusions:

1) Reduced Walton County Clearance Time--The new West Bay Parkway facility will attract a significant portion of some of the US 331 evacuation traffic that normally would continue on US

331 to I-10. Since US 331 is the critical bottleneck for Walton County evacuations and since it will still be only two lanes above Freeport, reducing traffic at that location has the effect of reducing the county's overall evacuation time requirement. This is particularly true for future year scenarios involving intense hurricanes and a high seasonal occupancy.

2) Improved Evacuation Decision Making—The reduction in clearance times “buys” Walton County up to one whole advisory from the National Hurricane Center allowing decisions when the County is more confident of the potential strike area.

3) System Redundancy—The implementation of the West Bay Parkway gives Walton County an efficient duplicate evacuation route for residents below the ICW so that they are not solely dependent on US 331 as their escape route. Any crashes on US 331 could compromise the carrying capacity of that evacuation corridor and the West Bay Parkway provides a much needed alternative escape route.

4) Greater Use of SR 79—Currently, SR 79 is somewhat underutilized as an evacuation route compared to US 231. With a widened SR 79 by the year 2035, and with implementation of the West Bay Parkway, SR 79 will be utilized in a much more robust manner as it serves the region's evacuation needs.

5) Alternative Alignment Considerations---Currently, the PD&E analysis is focusing on several different alignments between US 98 in Walton County and SR 79 in Bay County. Two of the alignments are more northerly oriented with tie-ins to US 98 west of Camp Creek crossing the ICW and then intersecting with SR 79 well north of the ICW in Bay County. The other alignment alternatives are more southerly alignments starting at US 98 near Camp Creek and running more easterly to a SR 79 tie-in closer to the beaches area. From a purely hurricane evacuation perspective, although all of the alignments will be greatly beneficial, the northern alignments are likely to provide the greatest attraction to southeastern Walton County evacuees. The northern alignments also intersect SR 79 away from the congested beach areas, disbursing turning movement congestion and conflicts in a better location.

**APPENDIX A**  
**EXISTING YEAR HURRICANE EVACUATION ANALYSIS TABLES**

<i>Evacuation Vehicles Generated by Potential Contributors to CR 388/West Bay Parkway</i>														
			Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay		
	Walton SW	Walton SE	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn		
	below ICW	below ICW	near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77		
<b>Dwelling Units</b>	3108	1902	891	604	258	1955	190	2500	322	504	38	817	<i>perm occ du's</i>	
	1700	4671	574	301	2111	3188	3450	2000	140	110	8	173	<i>seasonal du's</i>	
	321	500	250	200	0	700	0	700	100	150	20	500	<i>mobile homes</i>	
<b>Seasonal Unit/</b>	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	<i>low seasonal occupancy</i>	
<b>Occupancy Levels</b>	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	<i>high seasonal occupancy</i>	
<b>Permanent units</b>														
<b>Evac Participation Rate/Cat 1</b>	20%	20%	2%	1%	100%	30%	100%	30%	5%	5%	1%	1%	<i>of perm units</i>	
<b>Evac Participation Rate/Cat 3</b>	100%	100%	10%	5%	100%	100%	100%	100%	30%	30%	5%	5%	<i>of perm units</i>	
<b>Evac Participation Rate/Cat 5</b>	100%	100%	80%	10%	100%	100%	100%	100%	100%	100%	10%	10%	<i>of perm units</i>	
<b>Seasonal units</b>														
<b>Evac Participation Rate/Cat 1</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	<i>of seasonal units</i>	
<b>Evac Participation Rate/Cat 3</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	<i>of seasonal units</i>	
<b>Evac Participation Rate/Cat 5</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	<i>of seasonal units</i>	
<b>Mobile Home units</b>														
<b>Evac Participation Rate/Cat 1</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	<i>of mobile home units</i>	
<b>Evac Participation Rate/Cat 3</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	<i>of mobile home units</i>	
<b>Evac Participation Rate/Cat 5</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	<i>of mobile home units</i>	
<b>Vehicles per Unit</b>	1.67	1.67	1.59	1.81	2.10	1.54	1.00	1.84	1.65	1.70	1.74	1.66	<i>vehicles per perm unit</i>	
	1.10	1.10	1.05	1.05	1.10	1.05	1.10	1.05	1.05	1.05	1.05	1.05	<i>vehicles per seasonal unit</i>	
	1.67	1.67	1.59	1.81	2.10	1.54	1.00	1.84	1.65	1.70	1.74	1.66	<i>vehicles per mobile home unit</i>	
<b>Evac Vehicle Usage Rate</b>	75%	75%	75%	75%	80%	75%	80%	75%	75%	75%	75%	75%	<i>of permanent unit vehicles</i>	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	<i>of seasonal unit vehicles</i>	
	75%	75%	75%	75%	80%	75%	80%	75%	75%	75%	75%	75%	<i>of mobile home unit vehicles</i>	
<b>Total Gross Evacuating</b>														
<b>Vehicles Generated</b>													total	
<b>Cat 1 Low Seas occ</b>	1568	2262	464	356	1014	2080	1101	2236	174	243	28	672	12198	vehicles
<b>Cat 1 High Seas occ</b>	2877	5859	886	577	2639	4423	3757	3706	277	324	34	799	26159	vehicles
<b>Cat 3 Low Seas occ</b>	4360	3667	525	378	1014	3095	1101	3975	243	356	29	688	19430	vehicles
<b>Cat 3 High Seas occ</b>	5669	7263	947	599	2639	5438	3757	5445	346	436	35	815	33391	vehicles
<b>Cat 5 Low Seas occ</b>	4360	3667	1060	405	1014	3095	1101	3975	435	671	31	707	20522	vehicles
<b>Cat 5 High Seas occ</b>	5669	7263	1482	627	2639	5438	3757	5445	538	752	36	835	34483	vehicles

<i>Portion of Evacuation Vehicles Generated by Potential Contributors</i>												<i>Existing Year</i>
<i>Using US 331 at SR 20 Walton County evacuation route</i>												
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77
<b>no build</b>												
Cat 1 Low Seas occ	85%	85%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 1 High Seas occ	85%	85%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 3 Low Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 3 High Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 5 Low Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 5 High Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>w/proposed CR 388/West Bay Parkway</b>												
Cat 1 Low Seas occ	80%	50%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 1 High Seas occ	80%	50%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 3 Low Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 3 High Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 5 Low Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cat 5 High Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<i>Portion of Evacuation Vehicles Generated by Potential Contributors</i>												<i>Existing Year</i>
<i>Using SR 79 Bay County evacuation route</i>												
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77
<b>no build</b>												
Cat 1 Low Seas occ	0%	5%	0%	0%	60%	60%	15%	15%	70%	70%	80%	40%
Cat 1 High Seas occ	0%	5%	0%	0%	60%	60%	15%	15%	70%	70%	80%	40%
Cat 3 Low Seas occ	0%	5%	0%	0%	70%	70%	20%	20%	80%	80%	90%	45%
Cat 3 High Seas occ	0%	5%	0%	0%	70%	70%	20%	20%	80%	80%	90%	45%
Cat 5 Low Seas occ	0%	5%	0%	0%	80%	80%	30%	30%	90%	90%	100%	50%
Cat 5 High Seas occ	0%	5%	0%	0%	80%	80%	30%	30%	90%	90%	100%	50%
<b>w/proposed CR 388/West Bay Parkway</b>												
Cat 1 Low Seas occ	0%	35%	0%	0%	60%	60%	15%	15%	70%	70%	80%	40%
Cat 1 High Seas occ	0%	35%	0%	0%	60%	60%	15%	15%	70%	70%	80%	40%
Cat 3 Low Seas occ	0%	45%	0%	0%	70%	70%	20%	20%	80%	80%	90%	45%
Cat 3 High Seas occ	0%	45%	0%	0%	70%	70%	20%	20%	80%	80%	90%	45%
Cat 5 Low Seas occ	0%	45%	0%	0%	80%	80%	30%	30%	90%	90%	100%	50%
Cat 5 High Seas occ	0%	45%	0%	0%	80%	80%	30%	30%	90%	90%	100%	50%

<i>Evacuation Vehicles Generated by Potential Contributors</i>													Existing Year	
<i>Using US 331 at SR 20 Walton County evacuation route</i>														
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay		
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn		
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77	US 331	
<b>no build</b>													vehicle totals by scenario	
Cat 1 Low Seas occ	1333	1923	464	0	0	0	0	0	0	0	0	0	3719	
Cat 1 High Seas occ	2445	4980	886	0	0	0	0	0	0	0	0	0	8311	
Cat 3 Low Seas occ	4360	3483	525	0	0	0	0	0	0	0	0	0	8369	
Cat 3 High Seas occ	5669	6900	947	0	0	0	0	0	0	0	0	0	13517	
Cat 5 Low Seas occ	4360	3483	1060	0	0	0	0	0	0	0	0	0	8904	
Cat 5 High Seas occ	5669	6900	1482	0	0	0	0	0	0	0	0	0	14052	
<b>w/proposed CR 388/West Bay Parkway</b>														
Cat 1 Low Seas occ	1254	1131	464	0	0	0	0	0	0	0	0	0	2849	
Cat 1 High Seas occ	2301	2929	886	0	0	0	0	0	0	0	0	0	6117	
Cat 3 Low Seas occ	4360	2017	525	0	0	0	0	0	0	0	0	0	6902	
Cat 3 High Seas occ	5669	3995	947	0	0	0	0	0	0	0	0	0	10611	
Cat 5 Low Seas occ	4360	2017	1060	0	0	0	0	0	0	0	0	0	7437	
Cat 5 High Seas occ	5669	3995	1482	0	0	0	0	0	0	0	0	0	11146	
<i>Evacuation Vehicles Generated by Potential Contributors</i>													Existing Year	
<i>Using SR 79 Bay County evacuation route</i>														
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay		
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn		
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77	SR 79	
<b>no build</b>													vehicle totals by scenario	
Cat 1 Low Seas occ	0	113	0	0	608	1248	165	335	122	170	23	269	3053	
Cat 1 High Seas occ	0	293	0	0	1584	2654	564	556	194	226	27	320	6418	
Cat 3 Low Seas occ	0	183	0	0	710	2166	220	795	194	284	26	309	4889	
Cat 3 High Seas occ	0	363	0	0	1848	3807	751	1089	277	349	32	367	8882	
Cat 5 Low Seas occ	0	183	0	0	811	2476	330	1193	392	604	31	354	6373	
Cat 5 High Seas occ	0	363	0	0	2112	4350	1127	1634	484	677	36	417	11201	
<b>w/proposed CR 388/West Bay Parkway</b>														
Cat 1 Low Seas occ	0	792	0	0	608	1248	165	335	122	170	23	269	3732	
Cat 1 High Seas occ	0	2051	0	0	1584	2654	564	556	194	226	27	320	8175	
Cat 3 Low Seas occ	0	1650	0	0	710	2166	220	795	194	284	26	309	6356	
Cat 3 High Seas occ	0	3269	0	0	1848	3807	751	1089	277	349	32	367	11787	
Cat 5 Low Seas occ	0	1650	0	0	811	2476	330	1193	392	604	31	354	7840	
Cat 5 High Seas occ	0	3269	0	0	2112	4350	1127	1634	484	677	36	417	14106	

<i>Clearance Time Analysis for Key Hurricane Evac Out Routes</i>											<i>Existing Year</i>
	US 331 n of SR 20 to I-10		SR 79 north to I-10		CR 388/W Bay Pkwy		SR 77 north to I-10		US 231 north to I-10		
	no build	w/project	no build	w/project	no build	w/project	no build	w/project	no build	w/project	
<b>Evac traffic on link</b>											
<b>Cat 1 Low Seas occ</b>	3719	2849	3053	3732	0	679	1100	1100	8900	8900	
<b>Cat 1 High Seas occ</b>	8311	6117	6418	8175	0	1758	1500	1500	13000	13000	
<b>Cat 3 Low Seas occ</b>	8369	6902	4889	6356	0	1467	2200	2200	19000	19000	
<b>Cat 3 High Seas occ</b>	13517	10611	8882	11787	0	2905	2900	2900	26000	26000	
<b>Cat 5 Low Seas occ</b>	8904	7437	6373	7840	0	1467	3500	3500	28000	28000	
<b>Cat 5 High Seas occ</b>	14052	11146	11201	14106	0	2905	4500	4500	37000	37000	
<b>Background traffic on link</b>	1000	1000	200	200	0	200	200	200	800	800	
<b>Avg Evac Service Volume</b>											
<b>During Evacuation</b>	850	850	850	850	0	850	850	850	1600	1600	
<b>Raw Clearance Time</b>											
<b>w Rapid Loading (in hours)</b>											
<b>Cat 1 Low Seas occ</b>	5.6	4.5	3.8	4.6	0.0	1.0	1.5	1.5	6.1	6.1	hours
<b>Cat 1 High Seas occ</b>	11.0	8.4	7.8	9.9	0.0	2.3	2.0	2.0	8.6	8.6	hours
<b>Cat 3 Low Seas occ</b>	11.0	9.3	6.0	7.7	0.0	2.0	2.8	2.8	12.4	12.4	hours
<b>Cat 3 High Seas occ</b>	17.1	13.7	10.7	14.1	0.0	3.7	3.6	3.6	16.8	16.8	hours
<b>Cat 5 Low Seas occ</b>	11.7	9.9	7.7	9.5	0.0	2.0	4.4	4.4	18.0	18.0	hours
<b>Cat 5 High Seas occ</b>	17.7	14.3	13.4	16.8	0.0	3.7	5.5	5.5	23.6	23.6	hours

**APPENDIX B**  
**FUTURE YEAR HURRICANE EVACUATION ANALYSIS TABLES**

<i>Evacuation Vehicles Generated by Potential Contributors to CR 388/West Bay Parkway</i>														<b>Future Year 2035</b>	
		Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay		
		below ICW	below ICW	s of SR 20 near US 331	around SR 81 and SR 20 int	beachfront w of SR 79	backbeach w of SR 79	e of SR 79 to Beckrich Rd	e of SR 79 to Beckrich Rd	US 98 to ICW w of SR 79	contiguous to 79 to ICW	inland w of SR 79	inland betwn SR 79 & SR 77		
<b>Dwelling Units</b>		5221	6397	1292	8007	540	2893	1496	6223	748	2575	1121	2980		<i>perm occ du's</i>
		2174	5844	705	5646	4798	4507	8135	5351	275	717	169	1294		<i>seasonal du's</i>
		500	700	300	500	0	800	0	900	200	200	100	900		<i>mobile homes</i>
<b>Seasonal Unit/ Occupancy Levels</b>		25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%		<i>low seasonal occupancy</i>
		95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%		<i>high seasonal occupancy</i>
<b>Permanent units</b>															
<b>Evac Participation Rate/Cat 1</b>		20%	20%	2%	1%	100%	30%	100%	30%	5%	5%	1%	1%		<i>of perm units</i>
<b>Evac Participation Rate/Cat 3</b>		100%	100%	10%	5%	100%	100%	100%	100%	30%	30%	5%	5%		<i>of perm units</i>
<b>Evac Participation Rate/Cat 5</b>		100%	100%	80%	10%	100%	100%	100%	100%	100%	100%	10%	10%		<i>of perm units</i>
<b>Seasonal units</b>															
<b>Evac Participation Rate/Cat 1</b>		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		<i>of seasonal units</i>
<b>Evac Participation Rate/Cat 3</b>		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		<i>of seasonal units</i>
<b>Evac Participation Rate/Cat 5</b>		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		<i>of seasonal units</i>
<b>Mobile Home units</b>															
<b>Evac Participation Rate/Cat 1</b>		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		<i>of mobile home units</i>
<b>Evac Participation Rate/Cat 3</b>		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		<i>of mobile home units</i>
<b>Evac Participation Rate/Cat 5</b>		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		<i>of mobile home units</i>
<b>Vehicles per Unit</b>		1.67	1.75	1.59	1.81	2.10	1.54	1.00	1.84	1.65	1.70	1.74	1.66		<i>vehicles per perm unit</i>
		1.10	1.10	1.05	1.05	1.10	1.05	1.10	1.05	1.05	1.05	1.05	1.05		<i>vehicles per seasonal unit</i>
		1.67	1.75	1.59	1.81	2.10	1.54	1.00	1.84	1.65	1.70	1.74	1.66		<i>vehicles per mobile home unit</i>
<b>Evac Vehicle Usage Rate</b>		75%	75%	75%	75%	80%	75%	80%	75%	75%	75%	75%	75%		<i>of permanent unit vehicles</i>
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		<i>of seasonal unit vehicles</i>
		75%	75%	75%	75%	80%	75%	80%	75%	75%	75%	75%	75%		<i>of mobile home unit vehicles</i>
<b>Total Gross Evacuating Vehicles Generated</b>															
															total
<b>Cat 1 Low Seas occ</b>		2407	4021	566	2263	2227	2832	3434	4850	354	595	188	1486	25223	vehicles
<b>Cat 1 High Seas occ</b>		4081	8521	1085	6413	5921	6145	9698	8783	556	1122	312	2437	55073	vehicles
<b>Cat 3 Low Seas occ</b>		7137	10003	661	2670	2227	4525	3434	9992	523	1352	241	1590	44355	vehicles
<b>Cat 3 High Seas occ</b>		8811	14503	1179	6820	5921	7837	9698	13925	725	1879	366	2541	74205	vehicles
<b>Cat 5 Low Seas occ</b>		7137	10003	1489	3180	2227	4525	3434	9992	998	3471	308	1719	48483	vehicles
<b>Cat 5 High Seas occ</b>		8811	14503	2007	7330	5921	7837	9698	13925	1200	3998	432	2670	78334	vehicles

<i>Portion of Evacuation Vehicles Generated by Potential Contributors</i>												<b>Future Year 2035</b>	
<i>Using US 331 at SR 20 Walton County evacuation route</i>													
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay	
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn	
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77	
<b>no build</b>													
Cat 1 Low Seas occ	80%	85%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 1 High Seas occ	80%	85%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 3 Low Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 3 High Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 5 Low Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 5 High Seas occ	100%	95%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
<b>w/proposed CR 388/West Bay Parkway</b>													
Cat 1 Low Seas occ	80%	50%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 1 High Seas occ	80%	50%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 3 Low Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 3 High Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 5 Low Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Cat 5 High Seas occ	100%	55%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
<i>Portion of Evacuation Vehicles Generated by Potential Contributors</i>												<b>Future Year 2035</b>	
<i>Using SR 79 Bay County evacuation route</i>													
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay	
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn	
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77	
<b>no build</b>													
Cat 1 Low Seas occ	0%	5%	0%	0%	60%	60%	20%	20%	70%	70%	80%	40%	
Cat 1 High Seas occ	0%	5%	0%	0%	60%	60%	20%	20%	70%	70%	80%	40%	
Cat 3 Low Seas occ	0%	5%	0%	0%	70%	70%	30%	30%	80%	80%	90%	45%	
Cat 3 High Seas occ	0%	5%	0%	0%	70%	70%	30%	30%	80%	80%	90%	45%	
Cat 5 Low Seas occ	0%	5%	0%	0%	80%	80%	40%	40%	90%	90%	100%	50%	
Cat 5 High Seas occ	0%	5%	0%	0%	80%	80%	40%	40%	90%	90%	100%	50%	
<b>w/proposed CR 388/West Bay Parkway</b>													
Cat 1 Low Seas occ	0%	35%	0%	0%	60%	60%	20%	20%	70%	70%	80%	40%	
Cat 1 High Seas occ	0%	35%	0%	0%	60%	60%	20%	20%	70%	70%	80%	40%	
Cat 3 Low Seas occ	0%	45%	0%	0%	70%	70%	30%	30%	80%	80%	90%	45%	
Cat 3 High Seas occ	0%	45%	0%	0%	70%	70%	30%	30%	80%	80%	90%	45%	
Cat 5 Low Seas occ	0%	45%	0%	0%	80%	80%	40%	40%	90%	90%	100%	50%	
Cat 5 High Seas occ	0%	45%	0%	0%	80%	80%	40%	40%	90%	90%	100%	50%	

<i>Evacuation Vehicles Generated by Potential Contributors</i>													<b>Future Year 2035</b>	
<i>Using US 331 at SR 20 Walton County evacuation route</i>														
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay		
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn		
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77	US 331	
<b>no build</b>													vehicle totals by scenario	
Cat 1 Low Seas occ	1925	3418	566	0	0	0	0	0	0	0	0	0	5910	
Cat 1 High Seas occ	3265	7243	1085	0	0	0	0	0	0	0	0	0	11592	
Cat 3 Low Seas occ	7137	9503	661	0	0	0	0	0	0	0	0	0	17301	
Cat 3 High Seas occ	8811	13778	1179	0	0	0	0	0	0	0	0	0	23768	
Cat 5 Low Seas occ	7137	9503	1489	0	0	0	0	0	0	0	0	0	18129	
Cat 5 High Seas occ	8811	13778	2007	0	0	0	0	0	0	0	0	0	24596	
<b>w/proposed CR 388/West Bay Parkway</b>														
Cat 1 Low Seas occ	1925	2011	566	0	0	0	0	0	0	0	0	0	4502	
Cat 1 High Seas occ	3265	4261	1085	0	0	0	0	0	0	0	0	0	8610	
Cat 3 Low Seas occ	7137	5502	661	0	0	0	0	0	0	0	0	0	13300	
Cat 3 High Seas occ	8811	7977	1179	0	0	0	0	0	0	0	0	0	17967	
Cat 5 Low Seas occ	7137	5502	1489	0	0	0	0	0	0	0	0	0	14128	
Cat 5 High Seas occ	8811	7977	2007	0	0	0	0	0	0	0	0	0	18795	
<i>Evacuation Vehicles Generated by Potential Contributors</i>													<b>Future Year 2035</b>	
<i>Using SR 79 Bay County evacuation route</i>														
	Walton SW	Walton SE	Walton area	Walton area	Bay area	Bay area	Bay beachfront	Bay backbeach	Bay inland	Bay inland	Bay NW	Bay n of bay		
	below ICW	below ICW	s of SR 20	around SR 81	beachfront	backbeach	e of SR 79	e of SR 79	US 98 to ICW	contiguous	inland	inland betwn		
			near US 331	and SR 20 int	w of SR 79	w of SR 79	to Beckrich Rd	to Beckrich Rd	w of SR 79	to 79 to ICW	w of SR 79	SR 79 & SR 77	SR 79	
<b>no build</b>													vehicle totals by scenario	
Cat 1 Low Seas occ	0	201	0	0	1336	1699	687	970	248	416	151	594	6302	
Cat 1 High Seas occ	0	426	0	0	3553	3687	1940	1757	389	785	250	975	13761	
Cat 3 Low Seas occ	0	500	0	0	1559	3167	1030	2998	419	1081	217	715	11686	
Cat 3 High Seas occ	0	725	0	0	4145	5486	2909	4178	580	1503	329	1143	20998	
Cat 5 Low Seas occ	0	500	0	0	1781	3620	1374	3997	898	3124	308	860	16462	
Cat 5 High Seas occ	0	725	0	0	4737	6270	3879	5570	1080	3598	432	1335	27627	
<b>w/proposed CR 388/West Bay Parkway</b>														
Cat 1 Low Seas occ	0	1407	0	0	1336	1699	687	970	248	416	151	594	7508	
Cat 1 High Seas occ	0	2982	0	0	3553	3687	1940	1757	389	785	250	975	16317	
Cat 3 Low Seas occ	0	4501	0	0	1559	3167	1030	2998	419	1081	217	715	15688	
Cat 3 High Seas occ	0	6526	0	0	4145	5486	2909	4178	580	1503	329	1143	26800	
Cat 5 Low Seas occ	0	4501	0	0	1781	3620	1374	3997	898	3124	308	860	20463	
Cat 5 High Seas occ	0	6526	0	0	4737	6270	3879	5570	1080	3598	432	1335	33428	

<i>Clearance Time Analysis for Key Hurricane Evac Out Routes</i>										<i>Future Year 2035</i>	
	US 331 n of SR 20 to I-10		SR 79 north to I-10		CR 388/W Bay Pkwy		SR 77 north to I-10		US 231 north to I-10		
	no build	w/project	no build	w/project	no build	w/project	no build	w/project	no build	w/project	
<b>Evac traffic on link</b>											
Cat 1 Low Seas occ	5910	4502	6302	7508	0	1206	2200	2200	13350	13350	
Cat 1 High Seas occ	11592	8610	13761	16317	0	2556	3000	3000	19500	19500	
Cat 3 Low Seas occ	17301	13300	11686	15688	0	4001	4400	4400	28500	28500	
Cat 3 High Seas occ	23768	17967	20998	26800	0	5801	5800	5800	39000	39000	
Cat 5 Low Seas occ	18129	14128	16462	20463	0	4001	7000	7000	42000	42000	
Cat 5 High Seas occ	24596	18795	27627	33428	0	5801	9000	9000	55500	55500	
<b>Background traffic on link</b>	1000	1000	500	500	0	800	400	400	1200	1200	
<b>Avg Evac Service Volume</b>											
<b>During Evacuation</b>	1000	1000	1600	1600	1000	1000	1600	1600	1600	1600	
<b>Raw Clearance Time</b>											
<b>w Rapid Loading (in hours)</b>											
Cat 1 Low Seas occ	6.9	5.5	4.3	5.0	0.0	2.0	1.6	1.6	9.1	9.1	hours
Cat 1 High Seas occ	12.6	9.6	8.9	10.5	0.0	3.4	2.1	2.1	12.9	12.9	hours
Cat 3 Low Seas occ	18.3	14.3	7.6	10.1	0.0	4.8	3.0	3.0	18.6	18.6	hours
Cat 3 High Seas occ	24.8	19.0	13.4	17.1	0.0	6.6	3.9	3.9	25.1	25.1	hours
Cat 5 Low Seas occ	19.1	15.1	10.6	13.1	0.0	4.8	4.6	4.6	27.0	27.0	hours
Cat 5 High Seas occ	25.6	19.8	17.6	21.2	0.0	6.6	5.9	5.9	35.4	35.4	hours