

23. HURRICANE PREPAREDNESS

- A. 1. Identify any residential development proposed within the hurricane vulnerability zone delineated in the applicable regional hurricane evacuation study, regional public hurricane shelter study or adopted county peacetime emergency plan. If so, delineate the proposed development's location on the appropriate county and/or regional hurricane evacuation map and respond to questions B.(1) and B.(2) below. Proposed mobile home and park trailer developments should answer question B.(1), regardless of location, or answer questions B.(1) and B.(2) below, if proposed within the hurricane vulnerability zone or the high hazard hurricane evacuation area.**

Not Applicable. None of the dwelling units are within a hurricane vulnerability zone. See Broward County Evacuation map and shelter locations provided in Appendix 23-1.

- 2. Identify any hotel/motel or recreational vehicle/travel trailer development proposed within the high hazard hurricane evacuation area delineated in the applicable regional hurricane evacuation study, regional public hurricane shelter study, or adopted county peacetime emergency plan. If present, delineate the proposed development's location on the appropriate county or regional hurricane evacuation map and answer questions B.(1) and B.(2) below.**

Not Applicable

- 3. Identify whether the proposed development is location in a designated special hurricane preparedness district.**

Not Applicable

- B. 1. For each phase of the development, determine the development's public hurricane shelter space requirements based on the behavioral assumptions identified in the applicable regional study or county plan. Identify the existing public hurricane shelter space capacity during the one hundred year or category three hurricane event within the county where the development is being proposed and indicate whether the county has a deficit or surplus of public hurricane shelter space during the one hundred year or category three hurricane event.**

See Appendix 23-2, a regional hurricane evacuation analysis provided by the SFRPC.

- 2. For each phase of the development, determine the number of evacuating**

vehicles the development would generate during a hurricane evacuation event based on the transportation and behavioral assumptions identified in the applicable regional study or county plan. Identify the nearest designated hurricane evacuation route and determine what percentage of level of service E hourly directional and maximum service volume the project will utilize.

See Appendix 23-2, a regional hurricane evacuation analysis provided by the SFRPC.

C. Identify and describe any action(s) or provisions that will be undertaken to mitigate impacts on hurricane preparedness.

Not applicable.

Appendix 23-1
Broward County
Evacuation Map & Shelter Locations

BROWARD COUNTY FLORIDA 2008 Hurricane Hotline: 954-831-4000 HURRICANE EVACUATION MAP

Broward Emergency Management Agency
 201 N. W. 84th Avenue, Plantation, FL 33324
 Telephone: 954-831-3900

Hurricane Hotline: 954-831-4000

AMERICAN RED CROSS Regional Hurricane Shelters

- 1) **Lyons Creek Middle School**
4333 Sol Press Blvd., Coconut Creek 33073
- 2) **Coral Glades High School**
2700 Sportsplex Dr, Coral Springs 33065
- 3) **Monarch High School**
5050 Wiles Road, Coconut Creek 33073
- 4) **Pompano Beach Institute of International Studies High School**
1400 N. E. 6th St., Pompano Beach 33060
- 5) **Park Lakes Elementary School**
3925 N. State Road 7, Lauderdale Lakes 33319
- 6) **Rock Island Elementary/Arthur Ashe Middle School**
1701 N. W. 23rd Ave., Fort Lauderdale 33311
- 7) **Plantation Elementary School**
651 N. W. 42nd Ave., Plantation 33317
- 8) **Fox Trail Elementary School**
1250 Nob Hill Road, Davie 33324
- 9) **Falcon Cove Middle School**
4251 Bonaventure Blvd., Weston 33332
- 10) **Silver Trail Middle School**
18300 Sheridan St., Pembroke Pines 33331
- 11) **New Renaissance Middle School**
10701 Miramar Blvd., Miramar 33025
- 12) **Watkins Elementary School**
3520 S. W. 52nd Ave., Pembroke Park 33023

Not all shelters may be open during a state of emergency. In the event of an evacuation order, monitor news reports or call the Broward County Hurricane Hotline, 954-831-4000, for specific shelter openings.

Pet-Friendly Shelter

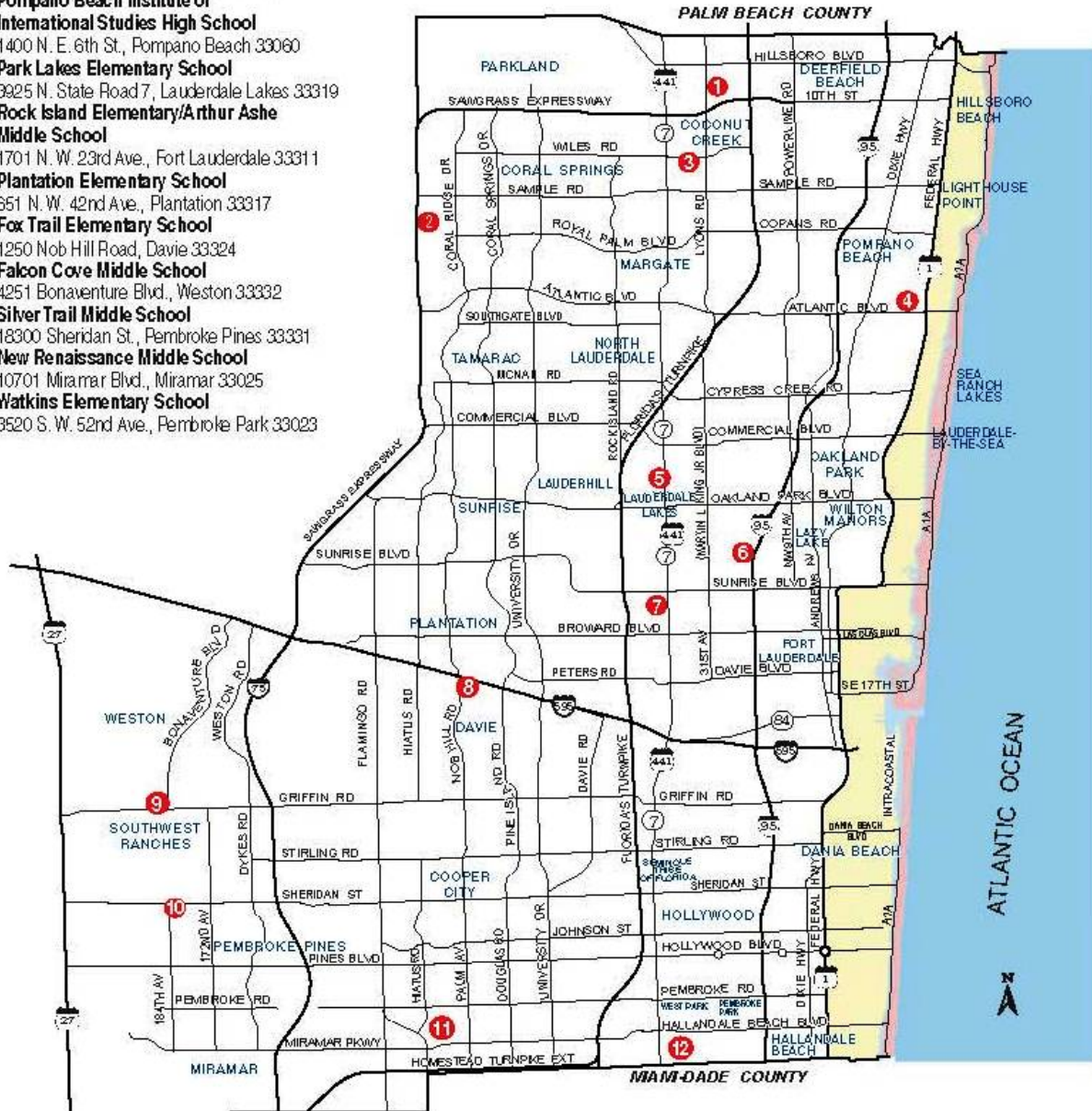
A pet-friendly shelter operated by the American Red Cross and the Broward County Humane Society is available to residents with pets who either live in an evacuation area, or a mobile home anywhere in Broward County. Pre-registration is required. Call the Humane Society at 954-989-3977.

PLAN A

PLAN B

Typically a Category 1-2 hurricane. Typically a Category 3 or higher hurricane.

Those persons located in low lying areas or beside tidal bodies of water should seek shelter elsewhere if conditions warrant. ALL mobile home residents must evacuate in PLAN A and PLAN B. In addition, mobile home residents may be ordered to evacuate if tropical storm conditions warrant.



Appendix 23-2
SFRPC
Correspondence

South
Florida
Regional
Planning
Council



RECEIVED

AUG 18 2008

Kerr & Associates, Inc.

August 15, 2008

Mr. Leigh Kerr, AICP
President, Leigh Robinson Kerr and Associates
808 East Las Olas Boulevard, Suite 104
Fort Lauderdale, Florida 33301

Dear Mr. Kerr:

The pre-application agreement for the Riverbend Development of Regional Impact (DRI) specifies that the Applicant shall include a regional hurricane evacuation analysis using the results of the 2006 South Florida Regional Hurricane Evacuation Model in its response to Question 23 in the Application for Development Approval (ADA). In accordance with the pre-application agreement, Council staff has prepared this analysis, which is based on the development program provided by the Applicant in the Pre-Application Package, as modified.

Please feel free to contact me if you have questions.

Sincerely,

A handwritten signature in black ink that reads "Richard F. Ogburn". The signature is fluid and cursive, with the first name being the most prominent.

Richard F. Ogburn
Assistant to the Director for Research and Budget

RFO/



**Riverbend Development of Regional Impact (DRI)
Regional Hurricane Evacuation Impact Analysis
August 15, 2008**

Background

The 2006 South Florida Regional Hurricane Evacuation Model is a regional analytical tool built upon the best available data. Using a baseline modeling environment built on socio-economic, demographic, behavioral and dwelling unit data, it measures the impact of additional permanent, mobile home and hotel units on regional hurricane evacuation dynamics. To assess a development's impact, the project's permanent, mobile home and hotel unit totals, as embodied in its development program, are entered into the model in the appropriate model evacuation zone.

The Riverbend Development of Regional Impact (DRI) is located at the northwest quadrant of Interstate 95 and Broward Boulevard in the City of Fort Lauderdale, in Broward County. It falls into Broward County model evacuation zone 30, which is outside of a county-designated evacuation area (see attached map). Therefore, the Riverbend DRI's principal hurricane evacuation impacts will result from "shadow" evacuation, which refers to those people who choose to evacuate under specific hurricane conditions even though they do not reside in an official evacuation area. Shadow evacuation increases proportional to hurricane intensity.

According to the Riverbend DRI development program, this project will generate a total of 427 permanent units and 550 hotel units. SFRPC staff entered these numbers into the model to generate the impact analysis.

Riverbend DRI Development Program

Proposed Use	Number	Unit
Office	3,381,000	Square Feet
Retail	1,146,000	Square Feet
Hotel	550	Rooms
Residential	427	Dwelling Units

Impact Summary

Based on the model run, the Riverbend DRI development program would result in the following incremental impacts:

- An increase of no more than one-tenth of one hour on Broward County critical roadway links and regional clearance times under a worst case (3B) evacuation scenario;
- Generation of 540 additional evacuating vehicles under a worst case (3B) evacuation scenario, 301 of which would load onto the regional roadways to leave the South Florida region. Of these, 94 vehicles would load onto I-95 northbound, 136 vehicles would load onto Florida's Turnpike northbound, 12 vehicles would load onto US 27 northbound and 60 vehicles would load onto I-75 westbound/northbound;
- Generation of 833 additional evacuating people under a worst case (3B) evacuation scenario, 27 of whom would travel to Broward County shelters; and
- Minimal impact on available shelter space in Broward County.

For additional analysis details please see Attachment 1. For more information on the 2006 South Florida Regional Hurricane Evacuation Model, please consult the Technical Support Document available online at www.sfrpc.com/rhem.htm.

Attachment #1:
Clearance Time, Evacuating People and Evacuating Vehicles

Riverbend Development of Regional Impact
2006 South Florida Regional Hurricane Evacuation Model Run

2006 South Florida Regional Hurricane Evacuation Model
 Summary for Riverbend DRI
 Summary of Evacuating Vehicles by County of Origin and by Destination

County of Origin Destination	Change in Evacuating Vehicles from Baseline 2006 SFRHEM					
	1A	1B	2A	2B	3A	3B
Monroe County	0	0	0	0	0	0
Monroe / Shelter	0	0	0	0	0	0
Monroe / Hotel	0	0	0	0	0	0
Monroe / Local Residence	0	0	0	0	0	0
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	0	0	0	0	0	0
Miami-Dade / Local Residence	0	0	0	0	0	0
Broward / Shelter	0	0	0	0	0	0
Broward / Hotel	0	0	0	0	0	0
Broward / Local Residence	0	0	0	0	0	0
North Out of Region	0	0	0	0	0	0
West Out of Region	0	0	0	0	0	0
Miami-Dade County	0	0	0	0	0	0
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	0	0	0	0	0	0
Miami-Dade / Local Residence	0	0	0	0	0	0
Broward / Shelter	0	0	0	0	0	0
Broward / Hotel	0	0	0	0	0	0
Broward / Local Residence	0	0	0	0	0	0
North Out of Region	0	0	0	0	0	0
West Out of Region	0	0	0	0	0	0
Broward County	336	337	376	471	437	540
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	16	16	18	22	20	25
Miami-Dade / Local Residence	111	111	125	158	140	176
Broward / Shelter	4	5	5	6	13	14
Broward / Hotel	0	0	0	0	2	2
Broward / Local Residence	15	15	15	15	22	22
North Out of Region	152	152	171	217	192	241
West Out of Region	38	38	42	53	48	60
South Florida	336	337	376	471	437	540
Monroe / Shelter	0	0	0	0	0	0
Monroe / Hotel	0	0	0	0	0	0
Monroe / Local Residence	0	0	0	0	0	0
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	16	16	18	22	20	25
Miami-Dade / Local Residence	111	111	125	158	140	176
Broward / Shelter	4	5	5	6	13	14
Broward / Hotel	0	0	0	0	2	2
Broward / Local Residence	15	15	15	15	22	22
North Out of Region	152	152	171	217	192	241
West Out of Region	38	38	42	53	48	60

2006 South Florida Regional Hurricane Evacuation Model
 Summary for Riverbend DRI
 Summary of Evacuating People by County of Origin and by Destination

County of Origin Destination	Change Evacuating People from Baseline 2006 SFRHEM					
	1A	1B	2A	2B	3A	3B
Monroe County	0	0	0	0	0	0
Monroe / Shelter	0	0	0	0	0	0
Monroe / Hotel	0	0	0	0	0	0
Monroe / Local Residence	0	0	0	0	0	0
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	0	0	0	0	0	0
Miami-Dade / Local Residence	0	0	0	0	0	0
Broward / Shelter	0	0	0	0	0	0
Broward / Hotel	0	0	0	0	0	0
Broward / Local Residence	0	0	0	0	0	0
North Out of Region	0	0	0	0	0	0
West Out of Region	0	0	0	0	0	0
Miami-Dade County	0	0	0	0	0	0
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	0	0	0	0	0	0
Miami-Dade / Local Residence	0	0	0	0	0	0
Broward / Shelter	0	0	0	0	0	0
Broward / Hotel	0	0	0	0	0	0
Broward / Local Residence	0	0	0	0	0	0
North Out of Region	0	0	0	0	0	0
West Out of Region	0	0	0	0	0	0
Broward County	510	631	569	700	684	833
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	23	29	26	32	30	37
Miami-Dade / Local Residence	162	203	181	227	207	258
Broward / Shelter	5	7	9	10	23	27
Broward / Hotel	1	1	1	1	6	6
Broward / Local Residence	42	42	40	40	62	62
North Out of Region	222	279	250	312	285	355
West Out of Region	55	70	62	78	71	88
South Florida	510	631	569	700	684	833
Monroe / Shelter	0	0	0	0	0	0
Monroe / Hotel	0	0	0	0	0	0
Monroe / Local Residence	0	0	0	0	0	0
Miami-Dade / Shelter	0	0	0	0	0	0
Miami-Dade / Hotel	23	29	26	32	30	37
Miami-Dade / Local Residence	162	203	181	227	207	258
Broward / Shelter	5	7	9	10	23	27
Broward / Hotel	1	1	1	1	6	6
Broward / Local Residence	42	42	40	40	62	62
North Out of Region	222	279	250	312	285	355
West Out of Region	55	70	62	78	71	88

2006 South Florida Regional Hurricane Evacuation Model
 Summary for Riverbend DRI
 Evacuating Traffic on Critical Links

Critical Links	Change in Evacuating Vehicles from 2006 SFRHEM					
	1A	1B	2A	2B	3A	3B
Regional Routes out of South Florida						
I-95 northbound out of Region	59	59	66	84	74	94
Florida Turnpike northbound out of Region	86	86	96	122	108	136
US 27 northbound out of Region	8	8	9	11	10	12
I-75 west/northbound out of Region	38	38	43	54	48	60
US 41 westbound out of Region	0	0	0	0	0	0
Monroe County Critical Links						
Snake Creek Bridge	0	0	0	0	0	0
US 1 18-mile stretch out of the Florida Keys	0	0	0	0	0	0
Northbound Card Sound Road before Ocean Reef	0	0	0	0	0	0
Miami-Dade County Critical Links						
US 1 through Florida City	0	0	0	0	0	0
Northbound ramp from US 1 to the HEFT	0	0	0	0	0	0
Krome Avenue link through downtown Homestead	0	0	0	0	0	0
HEFT link north of the SW 312 Street interchange	0	0	0	0	0	0
Krome Avenue link north of Quail Roost Drive	0	0	0	0	0	0
HEFT link north of the SW 137th Avenue interchange	0	0	0	0	0	0
HEFT link north of the SW 112th Avenue interchange	0	0	0	0	0	0
HEFT link north of Coral Reef Road interchange	0	0	0	0	0	0
HEFT link south of US 27 interchange	0	0	0	0	0	0
McArthur Causeway	0	0	0	0	0	0
Venetian Causeway	0	0	0	0	0	0
Julia Tuttle Causeway	0	0	0	0	0	0
Kennedy Causeway	0	0	0	0	0	0
Broad Causeway (96th Street)	0	0	0	0	0	0
Sunny Isles Causeway	0	0	0	0	0	0
Lehman Causeway	0	0	0	0	0	0
Broward County Critical Links						
Hallandale Beach Blvd bridge over the Intracoastal	0	0	0	0	0	0
Hollywood Blvd bridge over the Intracoastal	0	0	0	0	0	0
Sunrise Blvd bridge over the Intracoastal	0	0	0	0	0	0
Oakland Park Blvd bridge over the Intracoastal	0	0	0	0	0	0
NE 14th Street Bridge over the Intracoastal	0	0	0	0	0	0
Hillsboro bridge over the Intracoastal	0	0	0	0	0	0
Atlantic Blvd bridge over the Intracoastal	0	0	0	0	0	0
SE 17th Street bridge over the Intracoastal	0	0	0	0	0	0
East Commercial Blvd bridge over the Intracoastal	0	0	0	0	0	0
Sheridan Street bridge over the Intracoastal	0	0	0	0	0	0
Dania Beach Blvd bridge over the Intracoastal	0	0	0	0	0	0
Las Olas bridge over the Intracoastal	0	0	0	0	0	0

2006 South Florida Regional Hurricane Evacuation Model
 Summary for Riverbend DRI
 Critical Links Analysis/Regional Clearance Times

Critical Links	Change in Clearance Times* from 2006 SFRHEM					
	1A	1B	2A	2B	3A	3B
Regional Routes out of South Florida						
I-95 northbound out of Region	0.0	0.0	0.1	0.0	0.1	0.0
Florida Turnpike northbound out of Region	0.0	0.0	0.0	0.0	0.0	0.1
US 27 northbound out of Region	0.0	0.0	0.0	0.0	0.0	0.0
I-75 west/northbound out of Region	0.0	0.1	0.0	0.0	0.0	0.0
US 41 westbound out of Region	0.0	0.0	0.0	0.0	0.0	0.0
Monroe County Critical Links						
Snake Creek Bridge	0.0	0.0	0.0	0.0	0.0	0.0
US 1 18-mile stretch out of the Florida Keys	0.0	0.0	0.0	0.0	0.0	0.0
Northbound Card Sound Road before Ocean Reef	0.0	0.0	0.0	0.0	0.0	0.0
Miami-Dade County Critical Links						
US 1 through Florida City	0.0	0.0	0.0	0.0	0.0	0.0
Northbound ramp from US 1 to the HEFT	0.0	0.0	0.0	0.0	0.0	0.0
Krome Avenue link through downtown Homestead	0.0	0.0	0.0	0.0	0.0	0.0
HEFT link north of the SW 312 Street interchange	0.0	0.0	0.0	0.0	0.0	0.0
Krome Avenue link north of Quail Roost Drive	0.0	0.0	0.0	0.0	0.0	0.0
HEFT link north of the SW 137th Avenue interchange	0.0	0.0	0.0	0.0	0.0	0.0
HEFT link north of the SW 112th Avenue interchange	0.0	0.0	0.0	0.0	0.0	0.0
HEFT link north of Coral Reef Road interchange	0.0	0.0	0.0	0.0	0.0	0.0
HEFT link south of US 27 interchange	0.0	0.0	0.0	0.0	0.0	0.0
McArthur Causeway	0.0	0.0	0.0	0.0	0.0	0.0
Venetian Causeway	0.0	0.0	0.0	0.0	0.0	0.0
Julia Tuttle Causeway	0.0	0.0	0.0	0.0	0.0	0.0
Kennedy Causeway	0.0	0.0	0.0	0.0	0.0	0.0
Broad Causeway (96th Street)	0.0	0.0	0.0	0.0	0.0	0.0
Sunny Isles Causeway	0.0	0.0	0.0	0.0	0.0	0.0
Lehman Causeway	0.0	0.0	0.0	0.0	0.0	0.0
Broward County Critical Links						
Hallandale Beach Blvd bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Hollywood Blvd bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Sunrise Blvd bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Oakland Park Blvd bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
NE 14th Street Bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Hillsboro bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Atlantic Blvd bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
SE 17th Street bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
East Commercial Blvd bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Sheridan Street bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Dania Beach Blvd bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0
Las Olas bridge over the Intracoastal	0.0	0.0	0.0	0.0	0.0	0.0

* The clearance times shown represent the traffic volume-to-roadway capacity ratio, in hours, for each specified critical link. These times are mutually exclusive and are not cumulative. Under each hurricane evacuation scenario, each county's overall clearance time is defined as the number of hours it takes total evacuating vehicles to traverse that county's most limiting critical link (the critical link with the highest volume-to-capacity ratio). For the regional roadways, clearance time is the amount of time it takes the total evacuating vehicles on each regional roadway to exit the region under each hurricane evacuation scenario.

Map 4 - Broward County Model Geography 2006 South Florida Regional Hurricane Evacuation Traffic Study

Traffic Analysis Zones



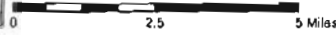
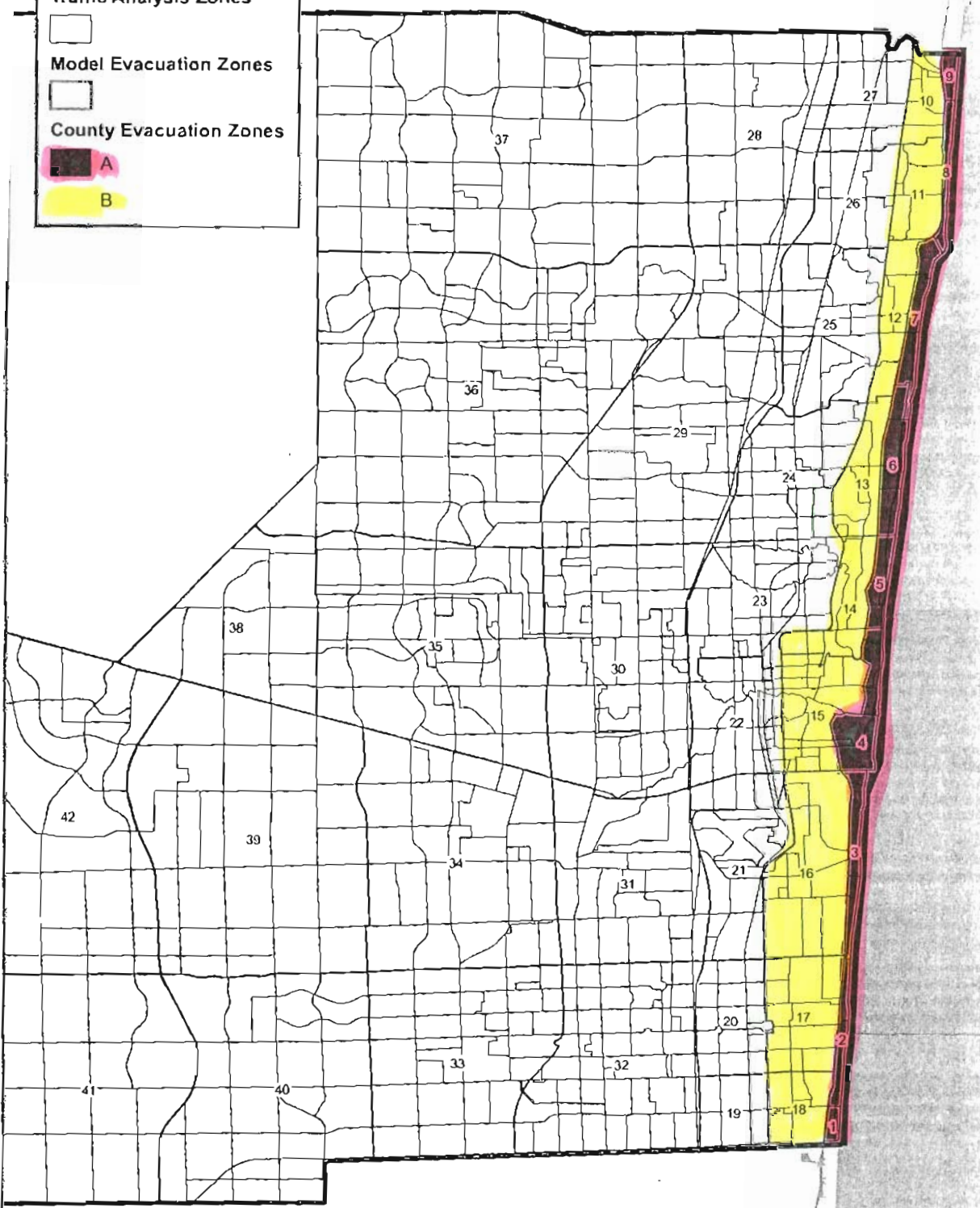
Model Evacuation Zones



County Evacuation Zones



B



Sources: Miami-Dade, Broward and Monroe Counties SFRPC Note: For planning purposes only All distances are approximate.