

**Task A5b6
Location Hydraulic Report
Addendum**

TAMPA INTERSTATE STUDY

WPI No. 7140004, State Project No. 99007-1402, FAP No. IR-9999(43)

The project consists of approximately 12 miles (19.31km) of multi-lane improvements to I-275 from Dale Mabry Highway interchange north to Dr. Martin Luther King Jr. Boulevard and I-4 from I-275 (including interchange) to east of 50th Street (U.S. 41); a multi-lane controlled access facility (Crosstown Connector) on new alignment from I-4 south to the existing Tampa South Crosstown Expressway; and improvements to approximately 4.4 miles (7.08km) of the Tampa South Crosstown Expressway from the Kennedy Boulevard overpass east to Maydell Drive, Hillsborough County.

**Prepared For
FLORIDA DEPARTMENT
OF
TRANSPORTATION**

**Prepared By
GREINER, INC.**

**In Association With
KNIGHT APPRAISAL SERVICES, INC.
PIPER ARCHAEOLOGICAL SERVICES**

SEPTEMBER 1993

**Task A5b6
Location Hydraulic Report
Addendum**

TAMPA INTERSTATE STUDY

WPI No. 7140004, State Project No. 99007-1402, FAP No. IR-9999(43)

The project consists of approximately 12 miles (19.31km) of multi-lane improvements to I-275 from Dale Mabry Highway Interchange north to Dr. Martin Luther King Jr. Boulevard and I-4 from I-275 (including interchange) to east of 50th Street (U.S. 41); a multi-lane controlled access facility (Crosstown Connector) on new alignment from I-4 south to the existing Tampa South Crosstown Expressway; and improvements to approximately 4.4 miles (7.08km) of the Tampa South Crosstown Expressway from the Kennedy Boulevard overpass east to Maydell Drive, Hillsborough County.

**Prepared For
FLORIDA DEPARTMENT
OF
TRANSPORTATION**

**Prepared By
GREINER, INC.**

**In Association With
KNIGHT APPRAISAL SERVICES, INC.
PIPER ARCHAEOLOGICAL SERVICES**

SEPTEMBER 1993

EXECUTIVE SUMMARY

This addendum updates the Tampa Interstate Study Location Hydraulic Report (Greiner, 1991) prepared for Interstate 275 (I-275 from Dale Mabry Highway Interchange north to Dr. Martin Luther King, Jr. Boulevard, Interstate 4(I04) from I-275 to east of 50th Street (U.S. 41), and the Crosstown Connector from I-4 southward to the existing Tampa South Crosstown Expressway. The update area includes the transition area roadway improvements on the Crosstown Expressway which extends from Kennedy Boulevard (S.R. 60) overpass on the west to Maydell Drive to the east.

This Location Hydraulic Report (LHR) addenda was completed in accordance with 23CFR 650A. It provides supporting data and discussions of potential floodplain impacts due to the proposed improvements on the Crosstown Expressway.

Currently, the Crosstown Expressway provides a four-lane roadway system. The proposed improvements will provide a four-lane eastbound and a three-lane westbound system with auxiliary lanes.

Within the project limits, the existing roadway traverses the Federal Emergency Management Agency (FEMA) flood zones A, B, and C.

The base floodplain (Zone A10) within the project area results from tidal storm surge in McKay Bay. The base flood elevation (with storm surge) is elevation 3.36M (11.0 feet) NGVD in the study area. Within the project area, the existing Crosstown Expressway represents a longitudinal encroachment on the base floodplain. Three types of improvements are proposed along the Crosstown Expressway which will require encroachment in the base floodplain. These improvements include: filling of areas along the existing mainline for additional lanage requirements, filling of areas for construction of ramps entering or exiting the Crosstown Expressway and construction of piers within the floodplain for construction of ramp bridge structures. Since the base floodplain is associated

with storm surge within McKay Bay, these fill volumes will have minimal impacts on the base flood elevations and flood conveyance.

The existing drainage structures within the project area outfall either to the Ybor Channel (Kennedy Boulevard to west of 22nd Street), McKay Bay (from 22nd Street to 40th Street) and Palm River (from 40th Street to Maydell Drive).

A total of 17 existing cross-drain structures are located within the project limits. These cross-drain structures include 10 reinforced concrete pipes (RCP), with sizes ranging from 24 to 60 inches and 6 concrete box culverts (CBC), with sizes ranging from 3 feet x 3 feet to 9 feet x 8 feet. One existing bridge structure spans an existing stormwater outfall canal to McKay Bay at 34th Street.

The existing bridge structure CD-207 will be widened and will span the existing stormwater outfall canal to McKay Bay as in the existing condition. The proposed abutment locations are the same as today. No piers are proposed to be located within the canal. This structure is considered a Category 3 structure. The remainder of the cross-drain structures will not require modifications since the existing structure lengths are sufficient to extend beyond the proposed roadway improvement area. These structures are considered as Category 2 structures.

The proposed roadway project should not significantly contribute to an increase in flood elevations. Due to the degree of existing urbanization within the project corridor, the proposed project should not increase the potential for development within the floodplain.

The roadway within the project corridor serves the community as an evacuation route. Modifications to the roadway width should improve the use of the facility for emergency services and evacuation purposes.

TABLE OF CONTENTS

Description	Page
EXECUTIVE SUMMARY	i
LIST OF TABLES	iv
LIST OF EXHIBITS	iv
INTRODUCTION	1
Project Description	1
Flood Zone Designation	2
Existing Drainage Problems	3
DESCRIPTION OF DRAINAGE STRUCTURES	3
STRUCTURE ANALYSIS	4
DRAINAGE STRUCTURE CATEGORIZATION	4
Category 2	5
Category 3	5
REGULATORY AGENCY COORDINATION	6
Local Agencies	6
State Agencies	6
Federal Agencies	7
CONCLUSIONS	7

List of Tables

<u>Table</u>	<u>Title</u>	<u>Follows</u>
1	FEMA Flood zone Designations	Exhibit 3
2	Drainage Structures	Page 3

List of Exhibits

<u>Exhibit</u>	<u>Title</u>	<u>Follows</u>
1	Location Map	Page 1
2	Typical Section	Exhibit 1
3	Floodplain Maps	Page 2
4	Existing Drainage Structures	Table 2

TIS LHR ADDENDUM

Introduction

This addendum updates the Tampa Interstate Study Location Hydraulic Report (Greiner, 1991) prepared for Interstate 275 (I-275 from Dale Mabry Highway Interchange north to Dr. Martin Luther King Jr. Boulevard, Interstate 4 (I-4) from I-275 to east of 50th Street (U.S. 41), and the Crosstown Connector from I-4 southward to the existing Tampa South Crosstown Expressway. The update area includes the transition area roadway improvements on the Crosstown Expressway which extends from Kennedy Boulevard (S.R. 60) overpass on the west to Maydell Drive to the east.

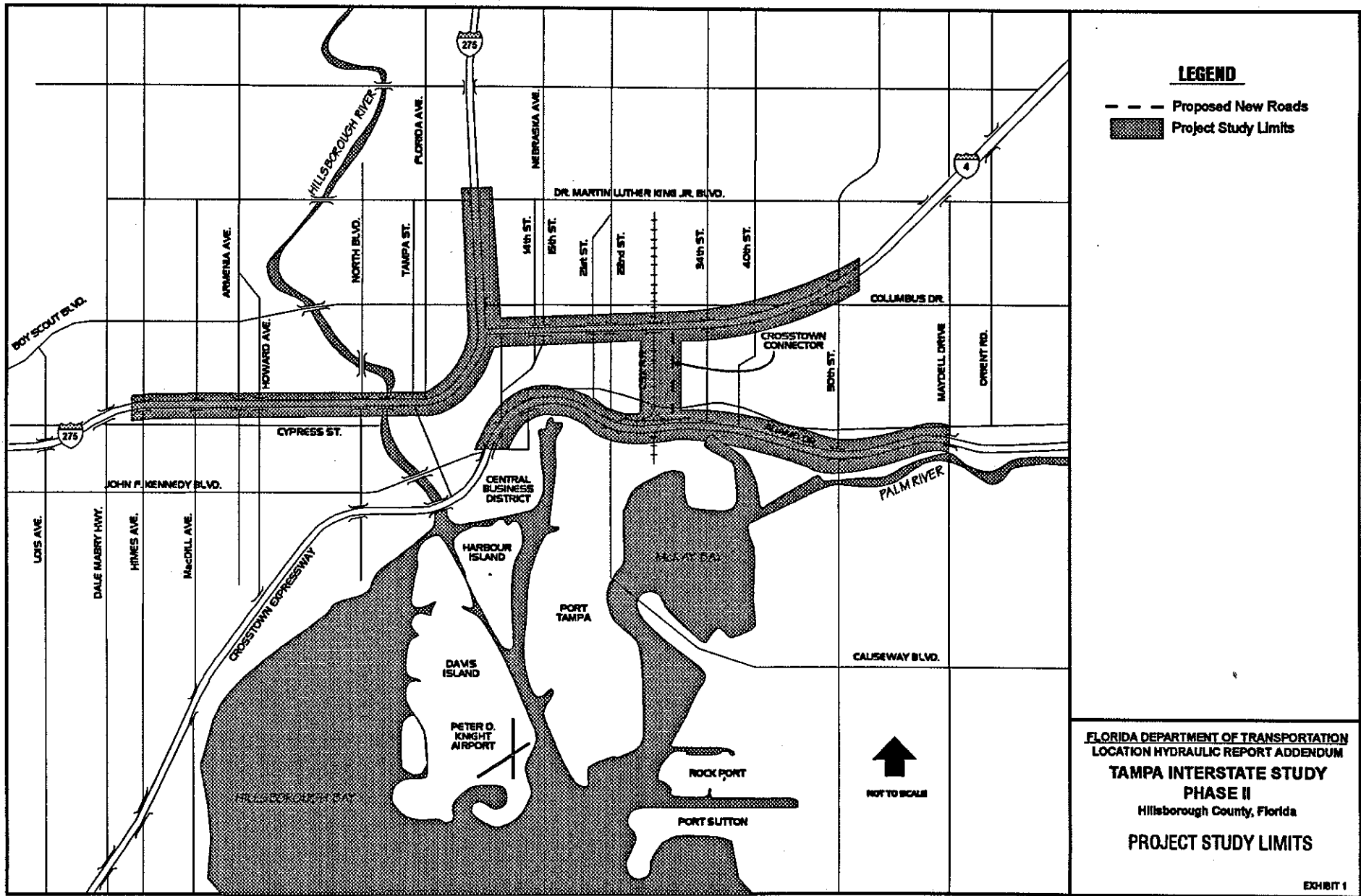
This Location Hydraulic Report (LHR) addenda was completed in accordance with 23CFR 650A. It provides supporting data and discussions of potential floodplain impacts due to the proposed improvements on the Crosstown Expressway.

Project Description

The Crosstown Expressway improvements begin at the Kennedy Boulevard overpass and extends east to Maydell Drive (See Exhibit 1).

Currently, the Crosstown Expressway provides a four-lane roadway system. The proposed improvements will provide a four-lane eastbound and a three-lane westbound system with auxiliary lanes. Exhibit 2 shows the typical cross-sections of the proposed roadway systems.

The existing roadway serves the community as an evacuation route. The roadway within the project limits is an elevated highway, therefore, the roadway overtopping and the traffic interruption due to flooding will be minimized.



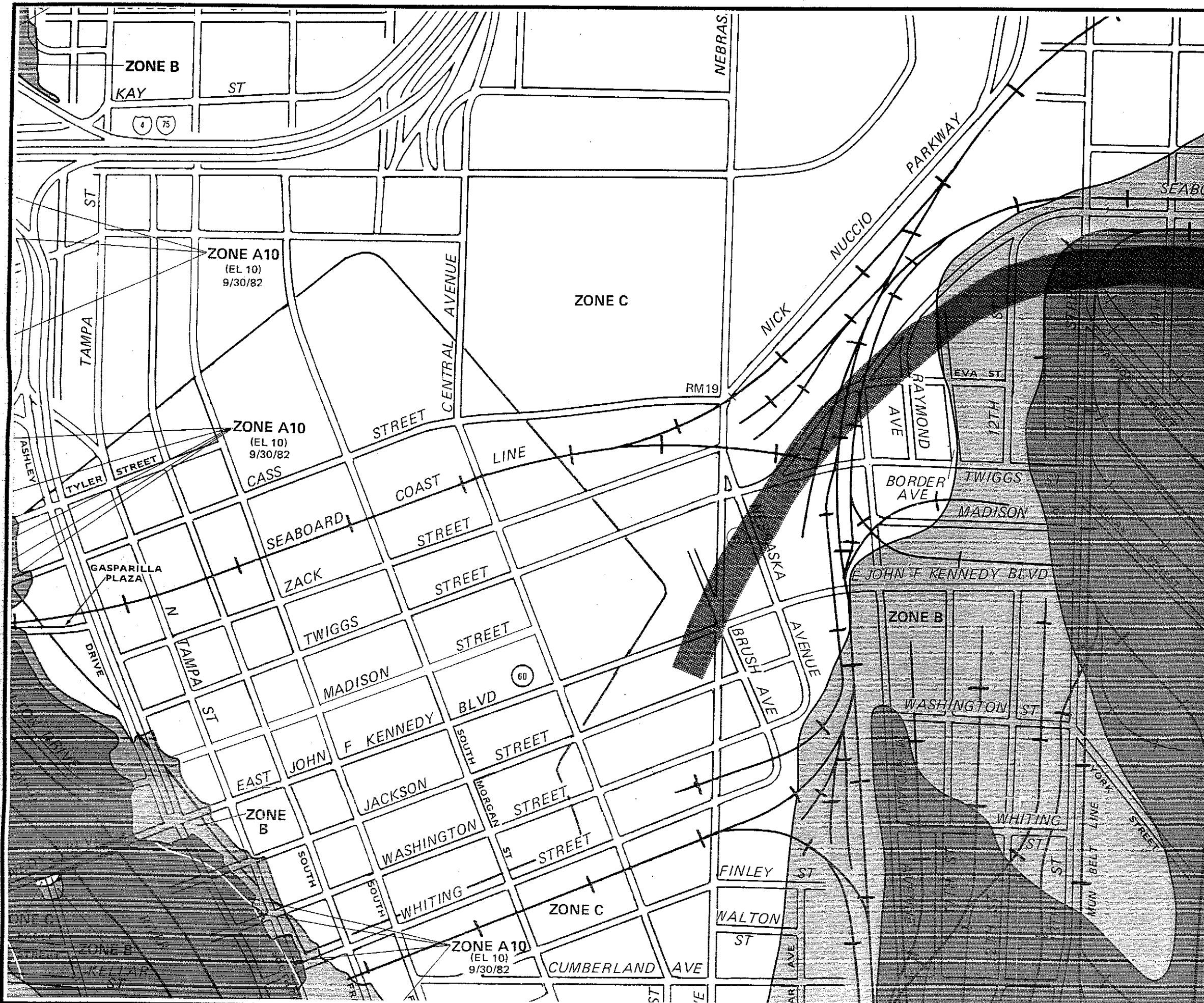
This report contains general information and is intended for planning purposes only. Specific, detailed studies will be required for each cross-drain structure before construction of any improvements.

Flood Zone Designations

A floodplain map, prepared for the project area from the FEMA Flood Insurance Rate Maps (FIRM) is shown in Exhibit 3. This information was taken from the City of Tampa FIRM Community Panel Numbers 120114 0025C and 120114 0026C, dated September 30, 1982. It should be noted that the FEMA FIRM maps have not been updated to show the location of the Crosstown Expressway since its construction. Explanations of the flood zone designations are listed in Table 1.

The base floodplain (Zone A10) within the project area results from tidal storm surge in McKay Bay. The base flood elevation (with storm surge) is elevation 3.36M (11.0 feet) NGVD in the study area. Within the project area, the existing Crosstown Expressway represents a longitudinal encroachment on the base floodplain. Three types of improvements are proposed along the Crosstown Expressway which will require encroachment in the base floodplain. These improvements include: filling of areas along the existing mainline for additional lanage requirements, filling of areas for construction of ramps entering or exiting the Crosstown Expressway and construction of piers within the floodplain for construction of ramp bridge structures. Since the base floodplain is associated with storm surge within McKay Bay, these fill volumes will have minimal impacts on the base flood elevations and flood conveyance.

Although the project limits are located within the base floodplain, the majority of the existing Crosstown Expressway is elevated above the base flood elevation. Roadway overtopping and traffic interruption due to flooding will be minimized. There are no regulated floodways within the project limits. Due to the degree of existing development



LEGEND

EXPLANATION OF ZONE DESIGNATIONS

Zone

- A Area of 100-year flood; base flood elevations and flood hazard factors not determined.
- A1-A30 Area of 100-year flood; base flood elevations and flood hazard factors determines.
- B 100-500 year floodplain.
- C Area of minimal flooding (No shading)

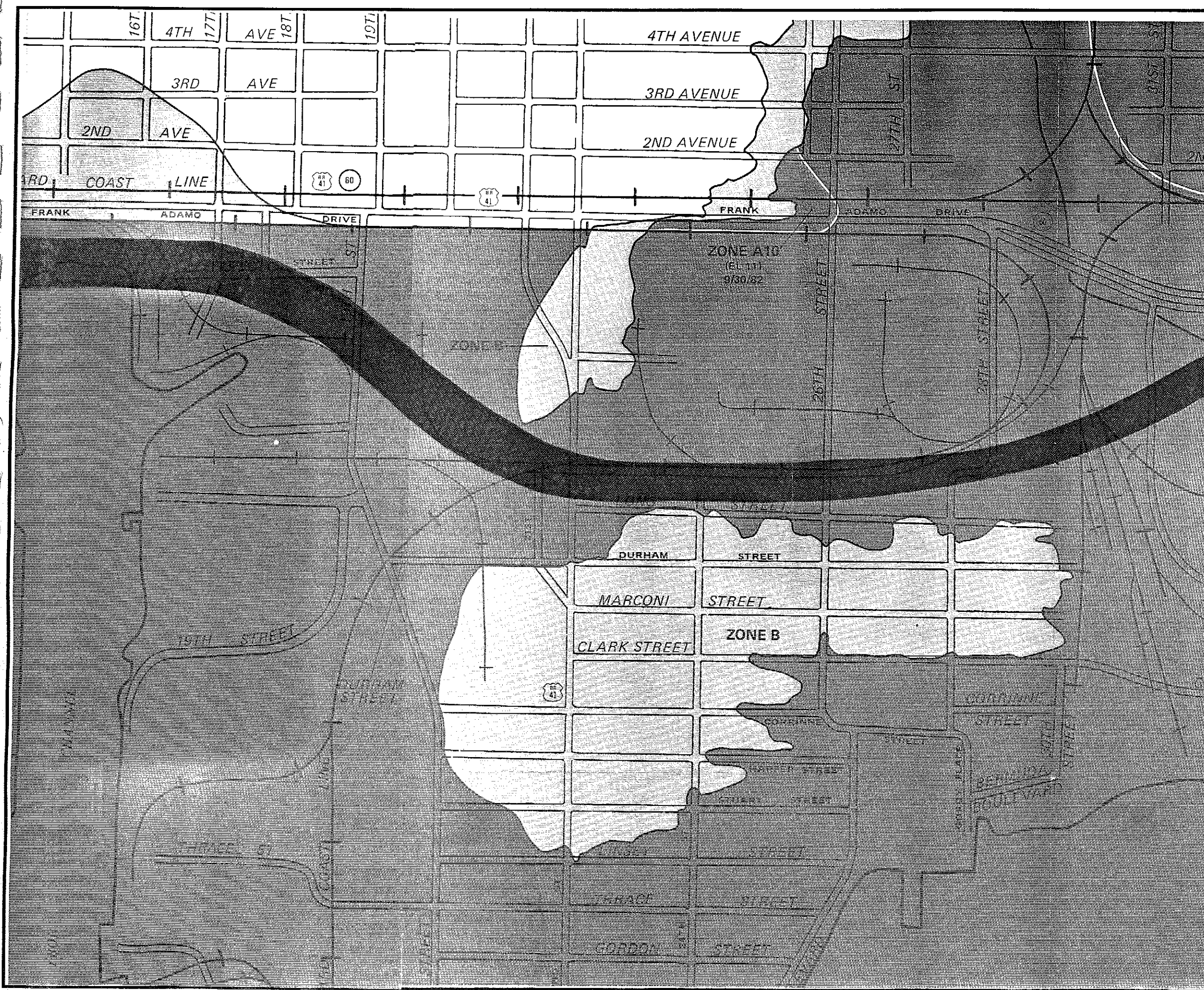
//// Project Corridor

FLORIDA DEPARTMENT OF TRANSPORTATION
LOCATION HYDRAULIC REPORT ADDENDUM

TAMPA INTERSTATE STUDY PHASE II

Hillsborough County, Florida

FLOODPLAINS

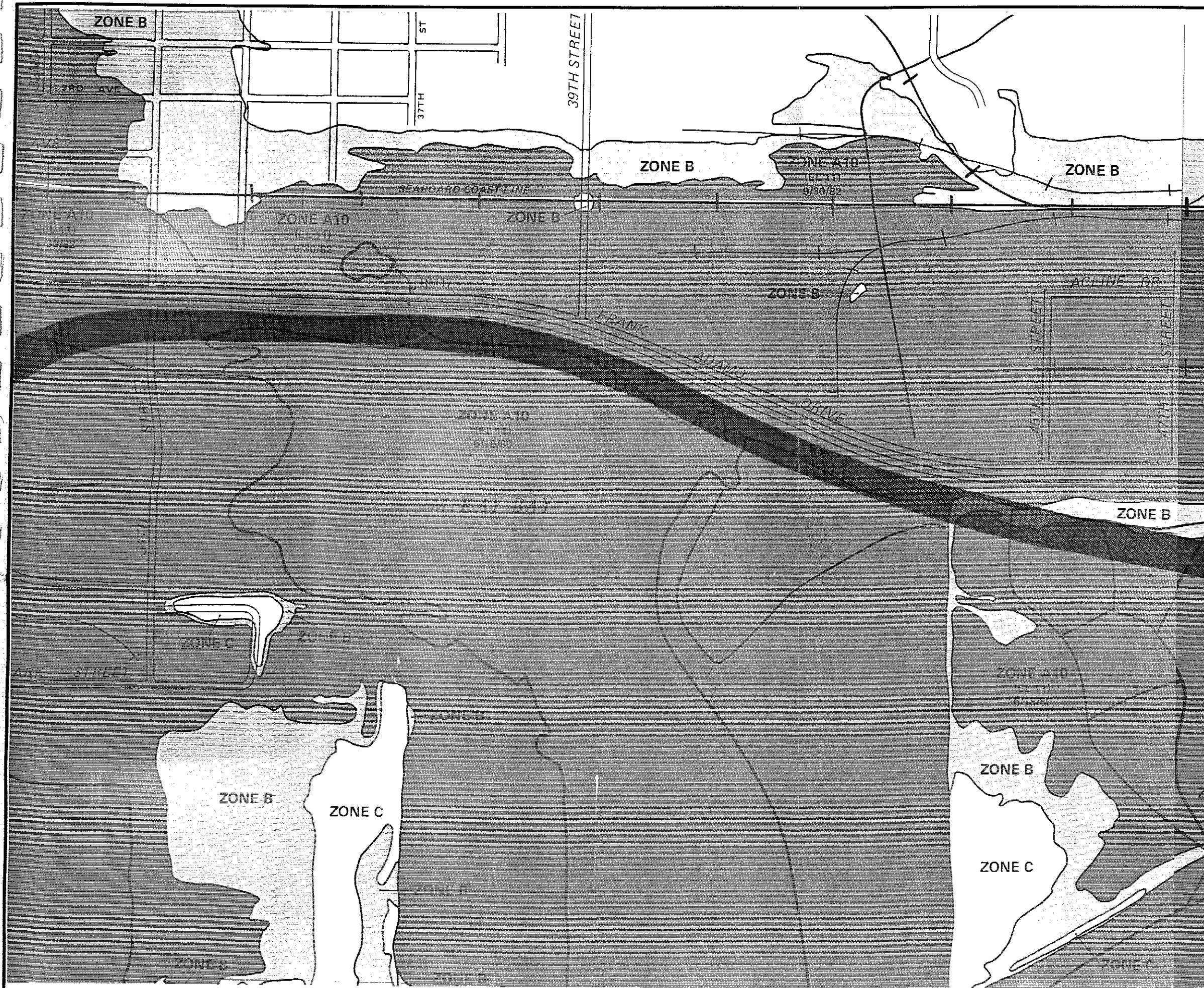


LEGEND

EXPLANATION OF ZONE DESIGNATIONS

- Zone
- A Area of 100-year flood; base flood elevations and flood hazard factors not determined.
 - A1-A30 Area of 100-year flood; base flood elevations and flood hazard factors determines.
 - B 100-500 year floodplain.
 - C Area of minimal flooding (No shading)
 - /// Project Corridor

FLORIDA DEPARTMENT OF TRANSPORTATION
LOCATION HYDRAULIC REPORT ADDENDUM
TAMPA INTERSTATE STUDY
PHASE II
Hillsborough County, Florida
FLOODPLAINS

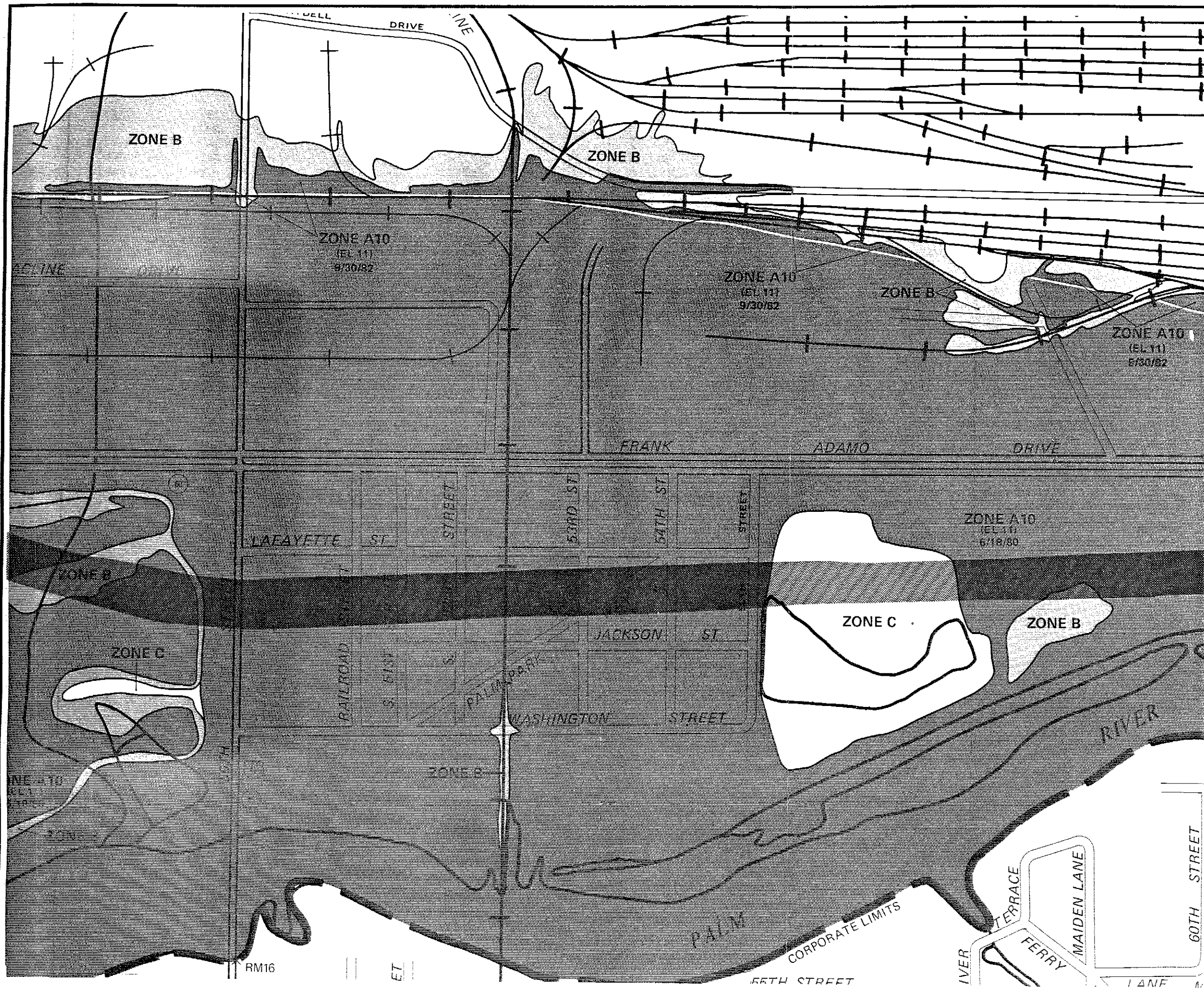


LEGEND

EXPLANATION OF ZONE DESIGNATIONS

- Zone
- A Area of 100-year flood; base flood elevations and flood hazard factors not determined.
 - A1-A30 Area of 100-year flood; base flood elevations and flood hazard factors determines.
 - B 100-500 year floodplain.
 - C Area of minimal flooding (No shading)
 - //// Project Corridor

FLORIDA DEPARTMENT OF TRANSPORTATION
LOCATION HYDRAULIC REPORT ADDENDUM
TAMPA INTERSTATE STUDY
PHASE II
Hillsborough County, Florida
FLOODPLAINS



LEGEND

EXPLANATION OF ZONE DESIGNATIONS

Zone

- A Area of 100-year flood; base flood elevations and flood hazard factors not determined.
- A1-A30 Area of 100-year flood; base flood elevations and flood hazard factors determines.
- B 100-500 year floodplain.
- C Area of minimal flooding (No shading)

//// Project Corridor

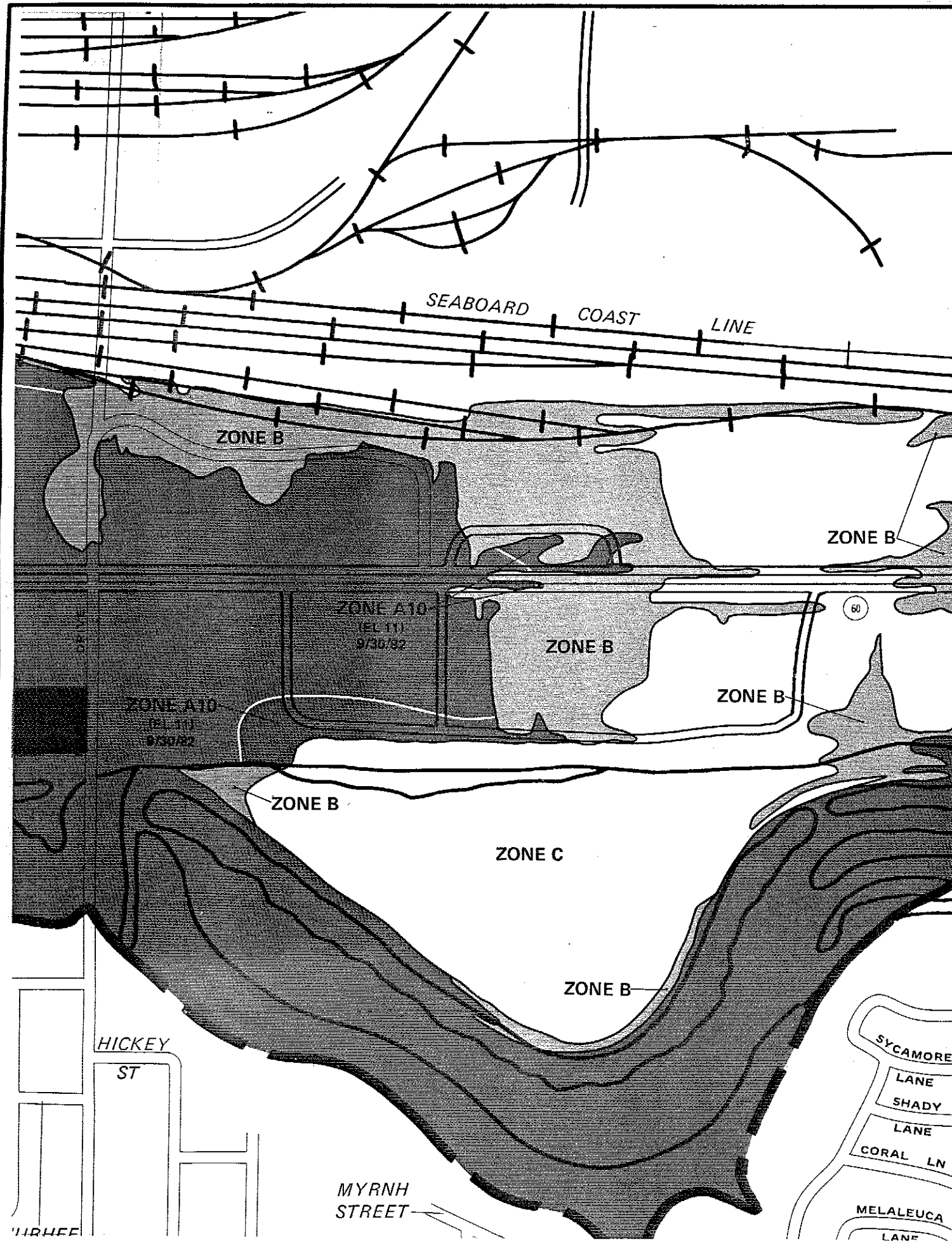
FLORIDA DEPARTMENT OF TRANSPORTATION
LOCATION HYDRAULIC REPORT ADDENDUM

TAMPA INTERSTATE STUDY

PHASE II

Hillsborough County, Florida

FLOODPLAINS



LEGEND

EXPLANATION OF ZONE DESIGNATIONS

Zone

- A Area of 100-year flood; base flood elevations and flood hazard factors not determined.
- A1-A30 Area of 100-year flood; base flood elevations and flood hazard factors determines.
- B 100-500 year floodplain.
- C Area of minimal flooding (No shading)

//// Project Corridor

FLORIDA DEPARTMENT OF TRANSPORTATION
LOCATION HYDRAULIC REPORT ADDENDUM

TAMPA INTERSTATE STUDY PHASE II

Hillsborough County, Florida

FLOODPLAINS

TABLE 1

FEMA FLOOD ZONE DESIGNATIONS

<u>Zone</u>	<u>Explanation</u>
A	Area of 100-year flood; base flood elevations and flood hazard factors not determined.
A1-A30	Area of 100-year flood; base flood elevations and flood hazard factors determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.
C	Area of minimal flooding.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and Flood Hazard factors determined.

within the project area, the proposed roadway improvements should not support incompatible floodplain development.

Existing Drainage Problems

The maintenance and drainage staff of the Florida Department of Transportation (FDOT) and the City of Tampa were contacted regarding existing drainage problems within the project area. No drainage problems associated with the existing cross-drain structures were reported.

Description of Drainage Structures

The existing drainage structures within the project area outfall either to the Ybor Channel (Kennedy Boulevard to west of 22nd Street), McKay Bay (from 22nd Street to 40th Street) and Palm River (from 40th Street to Maydell Drive).

Drainage structures within the area have been identified utilizing information from the City of Tampa Drainage Atlas, site inspections and FDOT as-built plans. The drainage structures in the project area are listed in Table 2 and shown in Exhibit 4. A total of 17 existing cross-drain structures are located within the project limits.

The information listed in Table 2 contains cross-drain structure location, type, size, invert elevations, length, and drainage basin area. These cross-drain structures include 10 reinforced concrete pipes (RCP), with sizes ranging from 24 to 60 inches and 6 concrete box culverts (CBC), with sizes ranging from 3 feet x 3 feet to 9 feet x 8 feet. One existing bridge structure spans an existing stormwater outfall canal to McKay Bay at 34th Street.

TABLE 2

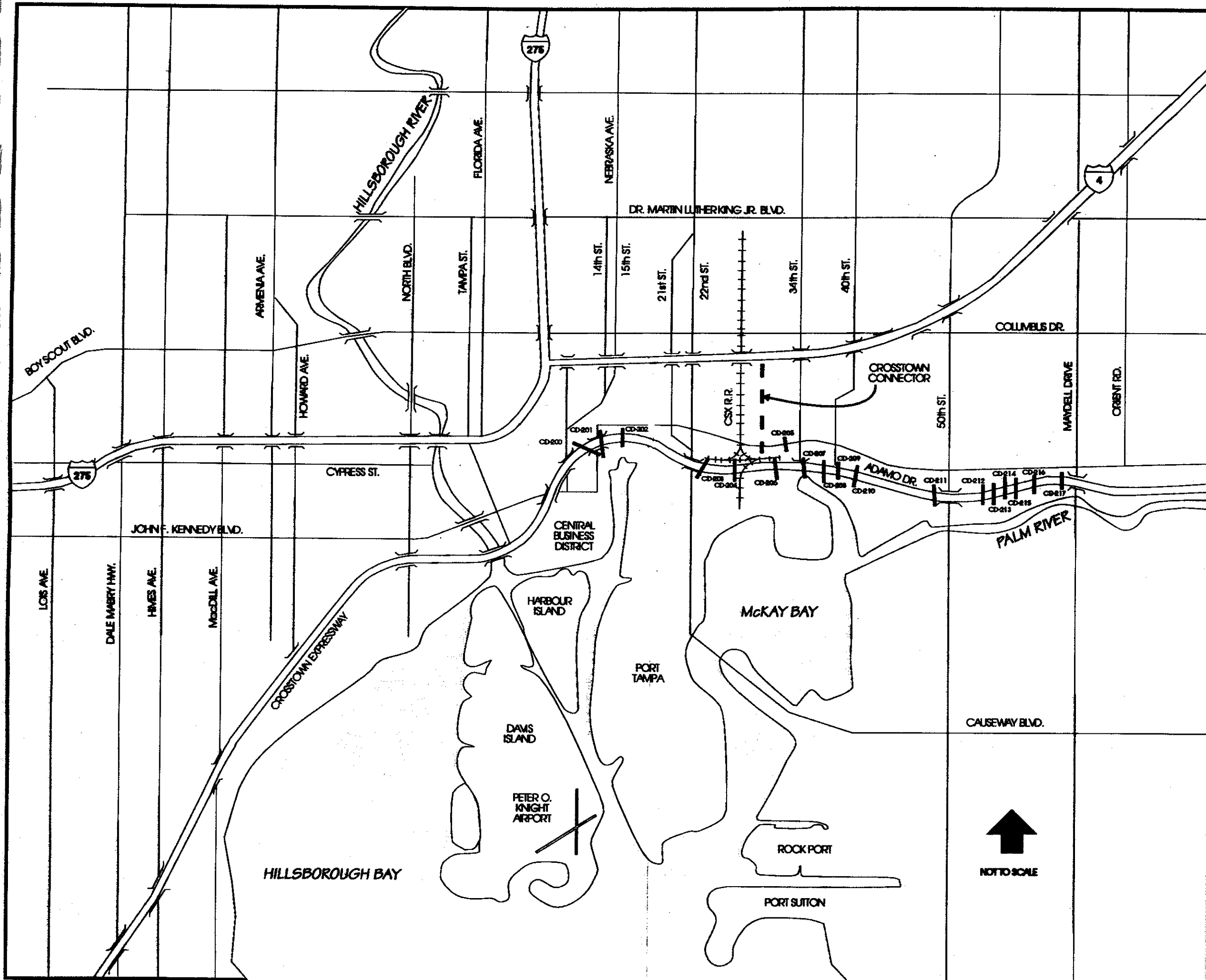
DRAINAGE STRUCTURES

STRUCTURE I.D.	LOCATION	SIZE/TYPE	LENGTH (FT.)	INVERT (H.W.) (FT. NGVD)	INVERT (T.W.) (FT. NGVD)	DRAINAGE AREA (AC)	OUTFALL LOCATION
CD-200	13th Street	(2) 60" RCP(1)					Ybor Channel
CD-201	13th Street	54" RCP(1)					Ybor Channel
CD-202	15th Street	(2) 5' x 6" CBC (1)					Ybor Channel
CD-203	W. of 22nd St.	(2) 48" RCP					Ybor Channel
CD-204	CSX RR	3' x 3' CBC	258	4.3	2.3	12.5	McKay Bay
CD-205	S.R. 60	(2) 48" RCP				380	McKay Bay
CD-206	E. of 34th St.	24" RCP	240	5.4	5.0	5.	McKay Bay
CD-207	W. of 34th St.	Bridge				2500	McKay Bay
CD-208	W. of 34th St.	8' x 8' CBC	460	-3.9	-3.9	110	McKay Bay
CD-209	39th St.	42" RCP(1)	370				McKay Bay
CD-210	W. of 39th St.	(2) 8' x 7' CBC	469	-2.6	-2.6	1080	McKay Bay
CD-211	50th St.	(2) 9' x 8' CBC	298	-3.6	-3.6	1430	Palm River
CD-212	CSX RR	5' x 5' CBC	260	-1.0	-1.0	50	Palm River
CD-213	CSX RR	24" RCP	252	2.0	1.6	5	Palm River
CD-214	W. of CSX RR	8' x 4' CBC	242	-1.0	-1.0	135	Palm River
CD-215	W. of CSX RR	(2) 42" RCP	180	-1.0	-1.7	29	Palm River
CD-216	E. of Maydell Dr.	36" RCP	220	1.5	1.0	7	Palm River
CD-217	Maydell Dr.	30" RCP		0.0	-0.92	7	Palm River

RCP - Reinforced Concrete Pipe

CBC - Concrete Box Culvert

(1) City of Tampa Stormwater Outfall



LEGEND

- Proposed New Roads
- CD Cross-Drain



NOT TO SCALE

FLORIDA DEPARTMENT OF TRANSPORTATION
 LOCATION HYDRAULIC REPORT ADDENDUM
TAMPA INTERSTATE STUDY
PHASE II
 Hillsborough County, Florida
EXISTING DRAINAGE STRUCTURES

Structure Analysis

The proposed roadway improvements will have minimal impacts on the existing cross-drain structures within the project limits. Cross-drain structure CD-206 will require relocation during the construction of the proposed Ramp F. This structure is an equalizer structure between two existing Crosstown Expressway detention areas. The culvert is considered part of the storm sewer system and will not be evaluated for floodplain impacts.

The existing bridge structure CD-207 will be widened and will span the existing stormwater outfall canal to McKay Bay as in the existing condition. The proposed abutment locations are the same as today. No piers are proposed to be located within the canal. The remainder of the cross-drain structures will not require modifications since the existing structure lengths are sufficient to extend beyond the proposed roadway improvement area.

Drainage Structure Categorization

In accordance with the requirements set forth in 23CFR 650A, the project area was evaluated to determine the impact of the proposed roadway improvements. Required hydraulic improvements as a result of the roadway improvements are categorized based on the type of hydraulic improvements and estimated floodplain impacts. Within the project area, the Crosstown Expressway represents a longitudinal encroachment on the floodplain.

The hydraulic structures in the project corridor were divided into two categories depending on hydraulic performance: Category 2 and Category 3. These categories describe the type of modifications required for each structure.

Category 2: Structures which will not involve the Replacement or Modification of any Drainage Structures

Category 2 structures must be on existing alignment and not involve the replacement or modifications of any drainage structures. Due to the minimal roadway improvements proposed, all structures with the exception of CD-207 are Category 2 structures. Category 2 structures will not involve the replacement or modification of any existing drainage structures, or the addition of any new drainage structures. As a result, the structures will not affect flood heights or flood plain limits. These structures will not result in increased or new adverse environmental impacts; it will not increase flood risks or damage; and there will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

Category 3: Structures Involving Modification to Existing Drainage Structures

Category 3 structures include activities which will not involve the replacement of any existing drainage structures or the construction of any new drainage structures. This category applies only to projects which involve modifications to existing structures (i.e., extending cross-drains, adding headwalls, relocating manholes and inlets). Cross-drain CD-207 falls within this category. The modifications to the drainage structure included in this category will result in an insignificant change in their capacity to carry floodwater. This change will cause minimal increases in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial flood plain values or any significant change in flood risks or damage. There will not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

Regulatory Agency Coordination

Local Agencies

The City of Tampa is the local agency with jurisdiction for the proposed improvements. Coordination with the City of Tampa will be required during preliminary and final design to address floodplain and stormwater quality impacts as well as proposed modifications to the existing drainage system.

State Agencies

State agencies that have permitting responsibilities relevant to the proposed improvements include the Florida Department of Environmental Protection (FDEP), and the Southwest Florida Water Management District (SWFWMD). FDEP requires easements for any crossing of state-owned lands. Coordination for easements should be accomplished during final design.

SWFWMD requires surface water management permits for the construction or alteration of any surface water system pursuant to Chapter 40D-40, F.A.C. This permit considers the impacts on floodplains, stormwater quantity, and wetlands from public roadway projects. In addition, pursuant to Chapter 17-25, F.A.C., SWFWMD regulates the discharge of untreated stormwater runoff which could be a potential source of pollution of the state. All new stormwater discharge facilities must comply with the design and performance standards set for in Chapter 17-25.025, F.A.C. SWFWMD has also been delegated permit authority by the Florida Department of Environmental Protection (FDEP) for all dredge and fill activities conducted in areas either in, or connected to, waters of the State, pursuant to Chapter 17-4.28, F.A.C.

Federal Agencies

The Federal agency which could require permits for the proposed improvements is the U.S. Army Corps of Engineers (COE).

The COE also issues permits relevant to dredge and fill activities in water of the United States based on COE, Section 404. To simplify the dredge and fill permitting procedures, the FDEP and COE have developed a joint application form.

A Notice of Intent and Stormwater Pollution Prevention Plan may be required for the project prior to the beginning of construction. This requirement is in accordance with EPA's NPDES criteria for stormwater discharges.

CONCLUSIONS

With the improvements proposed for the Crosstown Expressway, the modification of one existing drainage structure will be required. The remainder of the cross-drain structures do not require modifications.

The existing roadway traverses the FEMA Flood Zone A. This flood zone is associated with tidal storm surge. There are no regulated floodways within the proposed project limits. Although there is some additional floodplain encroachment due to proposed ramps entering and exiting the Crosstown Expressway and pier supports of the elevated roadway, base flood elevations should not be impacted.

The proposed roadway project should not significantly contribute to an increase in flood elevations. Due to the degree of existing urbanization within the project corridor, the proposed project should not increase the potential for development within the floodplain.

The roadway within the project corridor serves the community as an evacuation route. Modifications to the roadway width should improve the use of the facility for emergency services and evacuation purposes.

It is concluded that the proposed project should not adversely impact the floodplain.