TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDY

HILLSBOROUGH COUNTY, FLORIDA

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PRELIMINARY ENGINEERING REPORT

Prepared for
TAMPA-HILLSBOROUGH COUNTY
EXPRESSWAY AUTHORITY

Submitted by
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SECTION 1

1.0 Abstract

The preliminary engineering report was prepared to document the analysis of the proposed extension of the Tampa South Crosstown Expressway from its current terminus at I-75 to State Road 60 east of Brandon.

The study started in August 1989 and has collected and reviewed information for an area of approximately 110 square miles.

Public informational meetings were held on October 25, 1989, January 31, 1990 and June 28, 1990. During this process, 50 alignments were studied over the period of August, 1989 through January, 1990. Following the January, 1990 public informational meeting, an additional alignment was suggested by a local area group of citizens. The citizen alignment suggestion was incorporated into the study during February. During the Tampa Hillsborough County Expressway Authority meeting in February 1990, the consultant recommendation reduced the number of alignments to be retained from the original 50 to 5. The citizen alignment was not recommended.

Following recommendations made by the citizens group, the Expressway

Authority concurred in the consultant recommendation and also directed the citizen group alignment be retained for further study. In subsequent meetings with the citizen group during March 1990, clarification of their proposed alignment resulted in an alternative alignment segment which meant that two alignments were, in fact, intended by the citizen recommendations. Accordingly, seven alignments were retained for further study and presented at the June 1990 public information meeting.

The study continued with further refinement and analysis of the seven alignments retained for further study and the No-Build alternative. Environmental and Engineering reports, including a Draft Environmental Impact Statement (DEIS), were prepared for review by FDOT and FHWA. FHWA concurrence with the DEIS was received during August 1991.

The Public Hearing for the project was held September 23, 1991, and was attended by approximately 600 people. All seven alignments were presented, along with the No-Build alternative.

In consultation with FDOT and the Tampa-Hillsborough County Expressway Authority (THCEA) a recommendation was presented on November 25, 1991 in favor of construction Alternative 3. The FDOT concurred in the recommendation. The THCEA conducted a further public hearing on

December 2, 1991, and following public comment the seven member THCEA board voted 4-3 in favor of the preferred construction alternative, Alternative 3.

Alternative 3 utilizes existing State Road (SR) 60 as the principal alignment location. In response to public comment at the December 2, 1991 hearing the THCEA requested review of a modified Alignment 3A which tied to SR 60 near Pauls Drive instead of the originally proposed tie to SR 60 between Providence Road and Lakewood Drive. This modification is within the general corridor presented at the September 30, 1991 Public Hearing but avoids newly constructed development which was underway during the recommendation phase in late 1991. The study comparing the modified alignment 3A to the original Alternative 3 was completed during June 1992 and following consultation with the FDOT and THCEA, alternative 3A, tieing to SR 60 near Pauls Drive and proceeding easterly in the SR 60 alignment, was approved June 22, 1992. Modified Alternative 3A was presented at a public hearing held February 16, 1993.

The information supporting the recommended action is contained in this report.

SECTION 2

2.0 Introduction

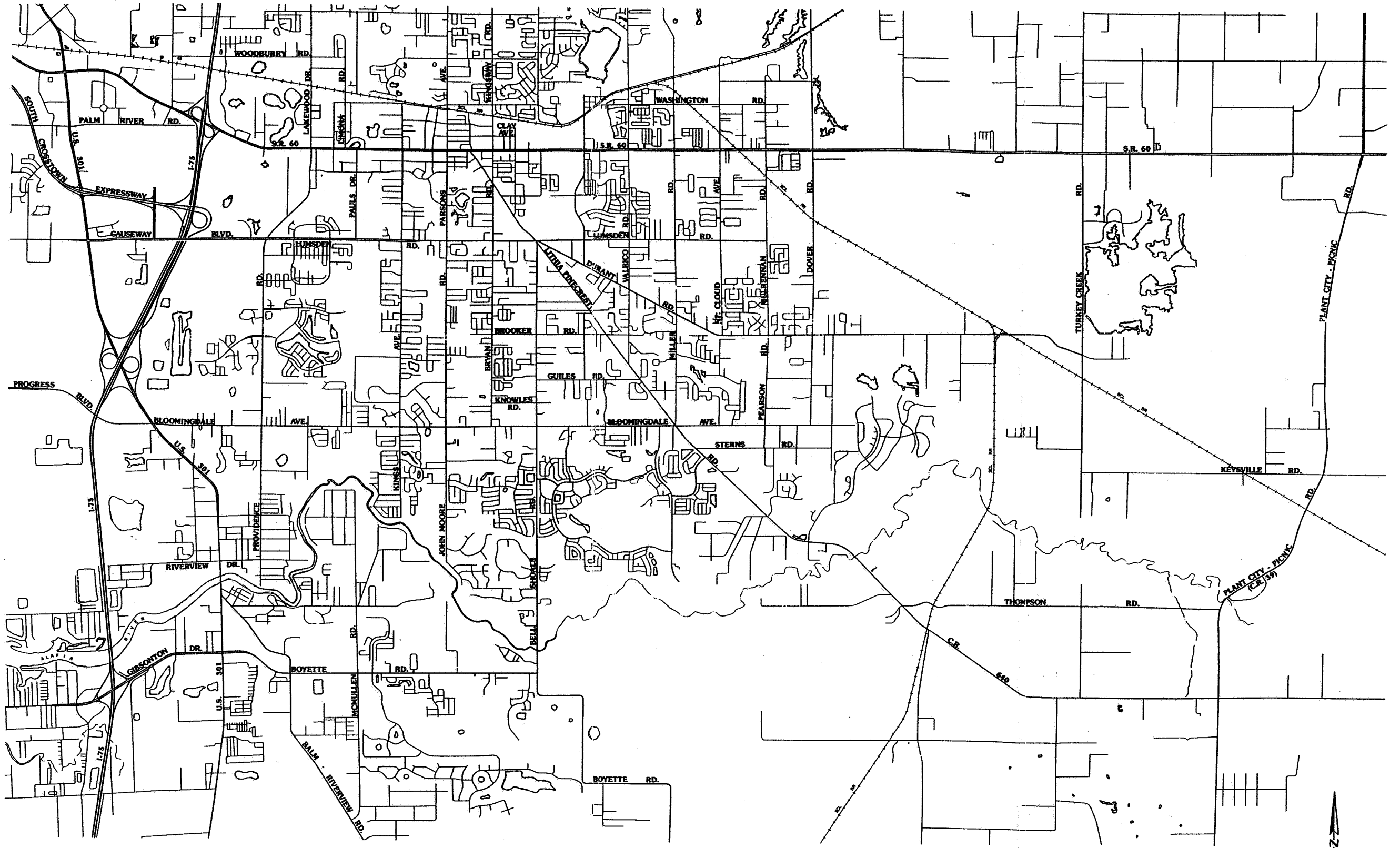
This preliminary engineering report (PER) documents the scientific engineering analysis of the Tampa South Crosstown Expressway Extension, Project Development and Environmental Study, for the Tampa-Hillsborough County Expressway Authority in association with the Florida Department of Transportation. The need for the proposed facility is described including several improvement alternatives and a "no-build" alternative.

The extensive social and engineering data upon which much of this PER is based are available in the project's Data Collection Report. Additional information may also be found in the project's Environmental Impact Statement.

This study, begun in August, 1989, has been conducted by the Authority's consultant, Brown & Root-Genesis Engineering Company, in association with Glatting Lopez Kercher Anglin, Inc. (Project Planner and Project Transportation Planner), and HDR Engineering, Inc. (Environmental Consultant).

2.1 Purpose

The proposed extension of the Crosstown Expressway has been studied previously. The Tampa-Hillsborough County Expressway Authority (THCEA) conducted a location study for the Crosstown Extension in 1974. Due to public opposition to the project, the Authority decided not to continue planning and constructing the extension east of Interstate 75. Since then, the Crosstown Extension has been identified by the Metropolitan Planning Organization (MPO) as a needed facility. The project is identified on the Tampa Urban Area MPO, 2010 Transportation Plan. In a 1987 study, the Authority reviewed a westerly extension to the Gandy Bridge, a proposed connector to I-4 near Ybor City and an eastern extension. The 1987 study conclusions are listed in section 4.3, Consistency with Transportation Plans. The Expressway Authority decided to proceed with this PD&E Study for the extension based on the 1987 study following a request from the MPO to conduct the study and a request from the Greater Brandon Chamber of Commerce. The MPO specifically requested the study include the area south of the Alafia River. During November 1989, following the October 28, 1989 public information meeting, the Authority increased the study area, in response to public comment, to also include the area north of S.R. 60 to the CSX railway. The study area is shown in Figure 2.1-1.



Brown&Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa–Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	STUDY AREA	Figure 2.1-1

Analysis of the remaining alternatives is based upon both existing conditions in the study areas as well as local road improvements scheduled in Hillsborough County's 5-year Capital improvements plan, the MPO 2010 Transportation Plan and analysis of Hillsborough County/City/County Planning Commission (HCCCPC) Florida Standard Urban Transportation Model Structure (FSUTMS).

The existing condition information in this report has been collected to identify and evaluate alternative corridors for the Tampa South Crosstown Expressway Extension.

2.2 Project Description

The Crosstown Extension is a proposed limited-access facility which will extend easterly from I-75, where the Expressway currently terminates, to State Road (SR) 60, east of Brandon, in unincorporated Hillsborough County, Florida (see Figure 2.1-1). The total length of this extension will be approximately 8 miles. (During the course of the study 52 alternative alignments have been investigated with total lengths varying from 8 to 18 miles.)

The limits of the study area were determined by the Feasibility Study prepared for the Tampa-Hillsborough County Expressway Authority in 1987 and as established in the Scope of Work for this study. As shown in Figure 2.1-1, the study limits are generally bounded by I-75 on the west and SR 39 on the east; the north boundary is 1 1/2 miles north of SR 60 and the south boundary is about two miles south of the Alafia River. Therefore, information and data have been collected primarily for areas within the study boundaries. However, information has also been collected for areas adjacent to the study area, as needed, to identify and evaluate potential alternative alignments for the proposed expressway.

SECTION 3

3.0 Existing Conditions

Information regarding existing arterial roadways and State highway conditions in the study area has been collected. Since the proposed Expressway would be a new facility, the only existing section is at the current eastern terminus at its interchange with I-75.

The information presented in this portion of the report was used to identify the alternative alignments. After analysis, the existing condition data was used to evaluate the alternative alignments.

3.1 Existing Roadway Characteristics

It is important that the proposed Crosstown Extension through the Brandon area is compatible with the existing roadway facilities in the area. To determine the characteristics of the existing system, available roadway information from the Florida Department of Transportation, Tampa Urban Area Metropolitan Planning Organization, and Hillsborough County was reviewed.

Generally, the major east-west roads in the area are: Brandon Boulevard (SR 60),

Lumsden Road, and Bloomingdale Avenue. Major north-south roads include: I-75, US 301, Providence Road, Kings Avenue, John Moore Road, Bryan Road, Bell Shoals Road, Mt. Carmel Road, Valrico Road, Miller Road, St. Cloud Avenue, Mulrennan Road, and Dover Road. US 301, Bell Shoals Road and Lithia-Pinecrest Road are the only roads within the study area that cross the Alafia River. These roads are shown in Figure 2.1-1, Crosstown Extension Study Area.

3.1.1 Functional Classifications

Table 3.1.1-1, Existing Highway Characteristics, lists the major roadways in the area and provides the number of lanes and their classifications. The existing 1990 and 1994 projected Level of Service (LOS) is provided for these roadways in Table 4.3-1.

Posted speeds for the major roads in the study area are shown in Table 3.1.1-2, Posted Speeds for North-South Roads and Table 3.1.1-3, Posted Speeds for East-West Roads.

3.1.2 Typical Sections

The number of lanes for major roads in the study area varies from 8 lanes divided on I-75 to 2 lanes undivided for collector roads. This information is presented in Table 3.1.1-1, Existing Highway Characteristics.

TABLE 3.1.1-1

EXISTING HIGHWAY CHARACTERISTICS
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

Road Name	Segment	No. of Lanes	Classification
State Road 60 (Brandon Road)	I-75 to Knights Ave.	6D*	Principal Arterial
State Road 60 (Brandon Road)	Knights Avenue to Bryan Road	6U	Principal Arterial
State Road 60 (Brandon Road)	Bryan Road to CR 39	4D	Principal Arterial
State Road 676 (Causeway Blvd)	I-75 to Providence Road	6D	Collector
Lumsden Road	Providence Road to Kings Avenue	4D	Collector
Lumsden Road	Kings Avenue to Lithia-Pinecrest Road	4D*	Collector
Bloomingdale Avenue	I-75 to Dover Road	2U	Collector
Durant Road	Lithia-Pinecrest Road to Turkey Creek Road	2U	Collector
Lithia-Pinecrest Road	SR 60 to CR 39	2U	Collector
Riverview Road	I-75 to Providence Road	2U	Collector
Gibsonton Drive	I-75 to US 301	4D	Collector
Boyette Road	Balm-Riverview Road to BellShoals Road	2U	Collector
Brooker Road	John Moore Road to Lithia-Pinecrest Road	2U	Collector
Interstate 75	SR 60 to Crosstown Expressway	6D	Freeway
Interstate 75	Crosstown Expressway to Gibsonton Road	8D	Freeway
Interstate 75	Gibsonton Road to CR 672	6D	Freeway
US 301	SR 60 to Crosstown Expressway	4D	Principal Arterial
US 301	Crosstown Expressway to Lumsden Road	6D	Principal Arterial
US 301	Lumsden Road to Bloomingdale Avenue	4D	Principal Arterial

D = Divided
U = Undivided

Source: Tampa Urban Area Metropolitan Planning Organization
* Constructed 1990 - 1992

TABLE 3.1.1-1

EXISTING HIGHWAY CHARACTERISTICS
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

Road Name	Segment	No. of Lanes	Classification
US 301	Bloomingdale Avenue to Gibsonton Road	6D	Principal Arterial
US 301	Gibsonton Road to CR 672 (Big Bend Road)	2U	Principal Arterial
Providence Boulevard	SR 60 to Riverview Drive	2U	Collector
Kings Avenue	SR 60 to Bloomingdale Avenue	4D*	Collector
Parsons Road	SR 60 to Lumsden Road	2U	Collector
John Moore Road	Lumsden Road to Bloomingdale Avenue	2U	Collector
Balm-Riverview Road	Boyette Road to Big Bend Road	2U	Collector
Bryan Road	SR 60 to Bloomingdale Avenue	2U	Collector
Bell Shoals Road	Lithia-Pinecrest Road to Boyette Road	2U	Collector
Dover Road	SR 60 to Durant Road	2U	Collector
Turkey Creek Road	SR 60 to Keysville Road	2U	Collector
Plant City-Picnic Road (CR 39)	SR 60 to Lithia-Pinecrest Road	2U	Collector

D = Divided
U = Undivided

Source: Tampa Urban Area Metropolitan Planning Organization
* Constructed 1990 - 1992

TABLE 3.1.1-2

POSTED SPEEDS FOR NORTH-SOUTH ROADS

Location	From	To	Speed
I-75	Bloomingdale	S.R. 60	65
Lakewood Drive	Lumsden	S.R. 60	40
	S.R. 60	Woodberry	35
	Woodberry	S.R. 574A	40
Providence Road	Riverview	S.R. 60	40
Pauls Drive	Lumsden	S.R. 60	40
Kings Avenue	Alafia Blvd.	Bloomingdale	35
	Bloomingdale	Lumsden	40
	Lumsden	S.R. 60	35
	S.R. 60	Victoria	35
Parsons Avenue	Lumsden	Robertson	40
	Robertson	Clay	30
	Clay	Windhorst	40
Bryan Road	Bloomingdale	Brooker	45
	Brooker	S.R. 60	35
Kingsway Road	S.R. 60	Clay Road	30
Mt. Carmel Rd.	Durant	Lumsden	30
	Lumsden	S.R. 60	30
	S.R. 60	Front	40
	Front	Valrico Lake Road	35
Valrico Road	Lithia Pinecrest	Durant	30
	Durant	S.R. 574	45
Miller Road	Lithia Pinecrest	S.R. 60	40
	S.R. 60	Washington	35
St. Cloud Avenue	Durant	Crosby	45
Mulrennan Road	Durant	Lumsden	40
	Lumsden	S.R. 60	40
	S.R. 60	Washington	25
S. Dover Road	Durant	S.R. 60	40
	S.R. 60	S.R. 574	45

TABLE 3.1.1-3

POSTED SPEEDS FOR EAST-WEST ROADS

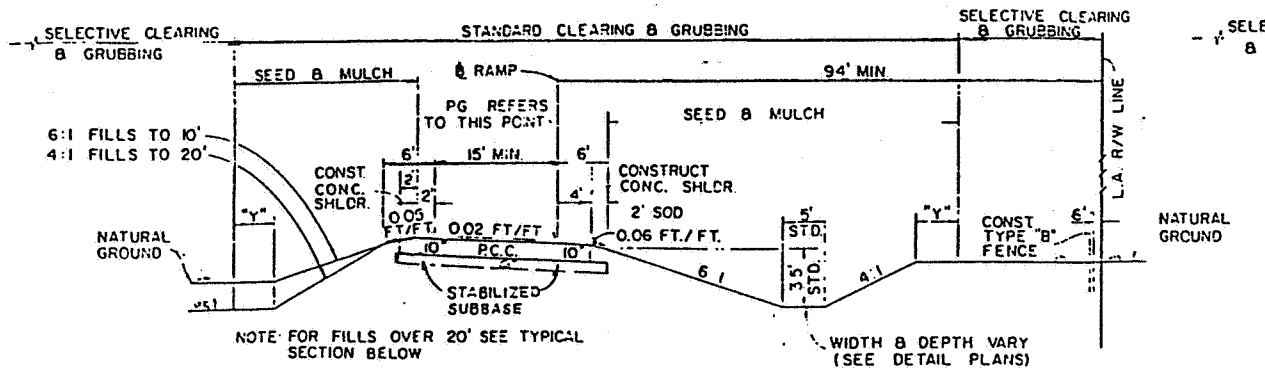
Location	From	To	Speed
S.R. 60	I-75	Kings Avenue	45
	Kings Avenue	Lithia Pinecrest	35
	Lithia Pinecrest	Ridgewood	40
	Ridgewood	Mt. Carmel	50
	Mt. Carmel	Rolling Hill Blvd.	45
	Rolling Hill Blvd.	South Dover	55
Causeway Blvd./ Lumsden	U.S. 301	Kings Avenue	50
	Kings Avenue	Lithia Pinecrest	35
	Valrico Road	Miller Road	30
Lithia Pinecrest Rd.	S.R. 39	Lithia Springs Rd.	45
	Lumsden Rd.	S.R. 60	30

Typical sections for the existing Crosstown and ramps are shown in Figure 3.1.2-1, Crosstown Typical Section and Ramp/Loop Typical Sections, respectively.

3.1.3 Pedestrian and Bicycle Facilities

The existing pedestrian facilities in the study area are limited. There are very few existing sidewalks parallel to the existing east-west roadways. Sidewalks run parallel to SR 60 for 6400 feet on the south side from Moon Avenue to Beverly Boulevard. On the north side of SR 60 sidewalks parallel the road for 4000 feet from Knights Avenue to Kingsway. Construction of multilane widening of SR 60 was completed in 1992, with sidewalks provided adjacent to both sides of SR 60 from the vicinity of Providence Road to the vicinity of Valrico Road.

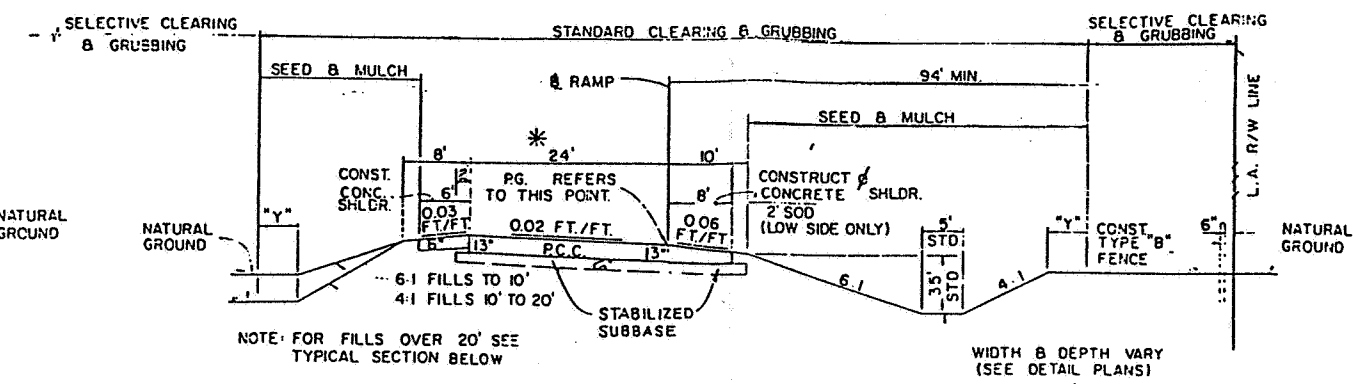
On Lumsden Road there is 5000 feet of sidewalk on the south side adjacent to Heather Lakes West and East subdivisions, and on the north side there is a 1000 foot long stretch of sidewalk adjacent to the developed portion of Heather Lakes, and 1300 feet of sidewalk adjacent to the Ridgeland Subdivision. These subdivisions are shown in Figure 3.1.3-1. There is approximately 4200 feet of sidewalk each side of Mount Carmel extending northerly from Lumsden Road. During 1991, 1992 reconstruction of Lumsden Road sidewalks were provided on both sides of the four lane divided street from Kings Avenue to Lithia Pinecrest.



TYPICAL SECTION
FOR
SINGLE LANE RAMPS & COLLECTOR DISTRIBUTORS

FOR CONCRETE PAVEMENT DETAILS SEE SHT. NOS. 7 THRU 88

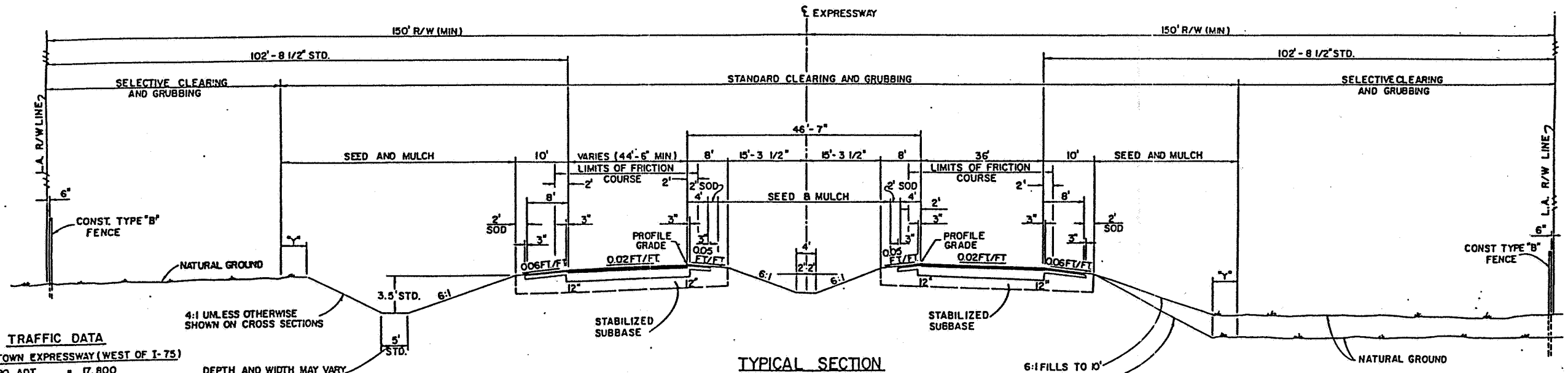
DESIGN SPEED - 50 M.P.H.
LOOPS - 35 M.P.H.



TYPICAL SECTION
FOR
TWO LANE RAMPS & COLLECTOR DISTRIBUTORS

FOR CONCRETE PAVEMENT DETAILS SEE SHT. NOS. 7 THRU 88

DESIGN SPEED - 50 M.P.H.



TRAFFIC DATA
S. CROSSTOWN EXPRESSWAY (WEST OF I-75)

1980 ADT	= 17,800
1985 ADT	= 22,400
1990 ADT	= 28,400
2000 ADT	= 41,200
K	= 10%
D	= 60%
DESIGN HOUR T (TWO-WAY ADT)	= 7%
DESIGN 24 HR. T	= 14%

DEPTH AND WIDTH MAY VARY SEE DETAIL PLANS

"Y" 15' OR AREA DISTURBED DURING CONSTRUCTION

TYPICAL SECTION
SOUTH CROSSTOWN EXPRESSWAY

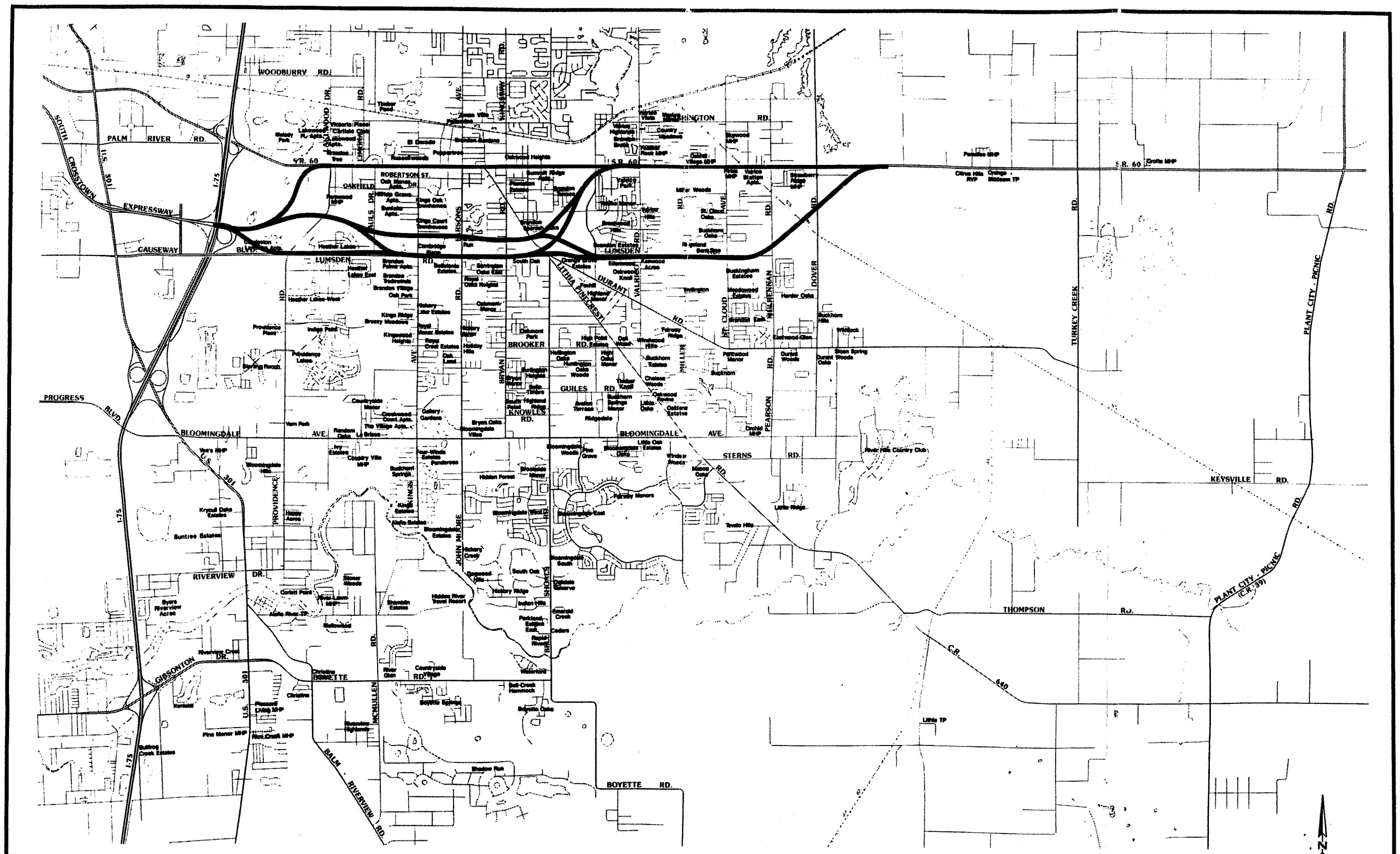
OPTIONAL BASE GROUP 9 (THICKNESS VARIES, SEE ABOVE), WITH TYPE S STRUCTURAL COURSE (4" THICK) AND ASPHALTIC CONCRETE FRICTION COURSE (5/8" THICK) FC-2.
STA. 1013+00.00 TO STA. 1015 + 71.96
FOR ADDITIONAL DETAILS SEE INDEX Nº 450, 452, 500, 525, 510, 513
DESIGN SPEED 60 M.P.H.

Brown & Root-Genesis Engineering Company
GLATTING LOPEZ KERCHER ANGLIN
HDR
Tampa-Hillsborough County Expressway Authority
DAY SPIES, EXECUTIVE DIRECTOR — WILLIAM E. HOLLAND, JR., ATTORNEY

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

CROSSTOWN TYPICAL SECTIONS

Figure 3.1.2-1



Brown&Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	NEIGHBORHOODS AND SUBDIVISIONS	Figure 3.1.3-1

Tables 3.1.3-1 and 3.1.3-2 show the location of signalized intersections on both SR 60 and Lumsden Road and those with crosswalks and/or with pedestrian controlled signals.

There are several schools located adjacent to SR 60 whose boundaries are split by SR 60. These schools are shown in Figure 3.3.2-1. The pedestrian controlled signals allow students to cross SR 60 in these areas.

Lumsden Road does not have as many schools within close proximity. As shown in Table 3.1.3-2, the only pedestrian controlled crosswalk signal is at Bryan.

There are no designated bicycle paths in the study area. Hillsborough County Engineering Services has indicated that in rural areas the standard design practice is to utilize 4 feet of the paved shoulder for bike paths, and that in urban areas the 14 feet wide outside lanes will accommodate both motorized and bicycle traffic. SR 60 has paved shoulders throughout the study area which are available for use by bicycle traffic, although from Providence to Bryan Road/Kingsway Road the volume of traffic and number of commercial driveways do not make the roadway bicycle "friendly". Lumsden has paved

TABLE 3.1.3-1

SIGNALIZED INTERSECTIONS ON SR 60

Cross Street	Crosswalk	Crosswalk with Pedestrian Controlled Signal
Providence Road	Yes	Yes
Lakewood Drive	Yes	Yes
Hilltop Road	No	No
Buckingham Place	No	No
Kings Avenue	Yes	Yes
Parsons	Yes	Yes
Lithia-Pinecrest/Pinewood	Yes	No
Bryan Road/Kingsway Road	Yes	Yes
Valrico Road	Yes	Yes
Miller Road	Yes	Yes
St. Cloud Road	Yes	Yes

TABLE 3.1.3-2

SIGNALIZED INTERSECTIONS ON LUMSDEN ROAD

Cross Street	Crosswalk	Crosswalk with Pedestrian Controlled Signal
Providence Road	No	No
Kings Avenue	Yes	Yes
Parson Drive/John Moore Road	Yes	Yes
Bryan Road	Yes	Yes
Lithia-Pinecrest	No	No

shoulders from I-75 to Kings Avenue. From Kings Avenue to the east, Lumsden Road has 24 feet of pavement, without paved shoulders. The Lumsden widening constructed in 1991-1992 from Kings Avenue to Lithia Pinecrest Road consists of a divided 4-lane urban section with 24 feet of pavement with no provision for bicycle traffic.

3.1.4 Right-of-Way

Minimum existing right-of-way is 300 feet for the Tampa South Crosstown Expressway west of the Faulkenburg Road crossing.

Existing right-of-way widths along SR 60, Lumsden Road and other offset areas are listed in Table 3.1.4-1, Existing ROW Width.

3.1.5 Horizontal Alignment

The existing Tampa South Crosstown Expressway has an existing 1 degree 45 second horizontal curve immediately to the west of Faulkenburg Road. Table 3.1.5-1, Existing I-75/Crosstown Ramp Geometry, shows the existing degree of curve for the ramps connecting I-75 to the Crosstown Expressway. Figure 3.1.5-1, Interchange Layout I-75 and Crosstown Expressway shows the existing interchange.

TABLE 3.1.4-1

EXISTING ROW WIDTH

	S.R. 60	Causeway Boulevard/ Lumsden Road
I-75 to Providence	182'	200'
Providence to Pauls	182'	235'**
Pauls to Kings	182'	Varies 235'** to 200'
Kings to Parsons	Varies 182' to 106'	90'***
Parsons to Bryan	N/A	90'***
Parsons to Lithia-Pinecrest	Varies 106' to 93.5'	N/A
Lithia-Pinecrest to Bryan	Varies 102.5' to 150.72'*	N/A
Bryan to Lithia-Pinecrest	N/A*	90'***
Bryan to Beverly Boulevard	Varies 161.19' to 182'*	N/A
Beverly Boulevard to Mt. Carmel	182'	N/A
Lithia-Pinecrest to Mt. Carmel	N/A	Varies 100' to 135'
Mt. Carmel to Valrico	182'	Varies 100' to 75'
Valrico to Miller	182'	Varies 67' to 35'
Miller to St. Cloud	182'	Varies 35' to 65'
St. Cloud to Mulrennan	182'	Varies - no record of maintained or dedicated ROW to 65'
Mulrennan to Dover	182'	Varies 50' to 97'

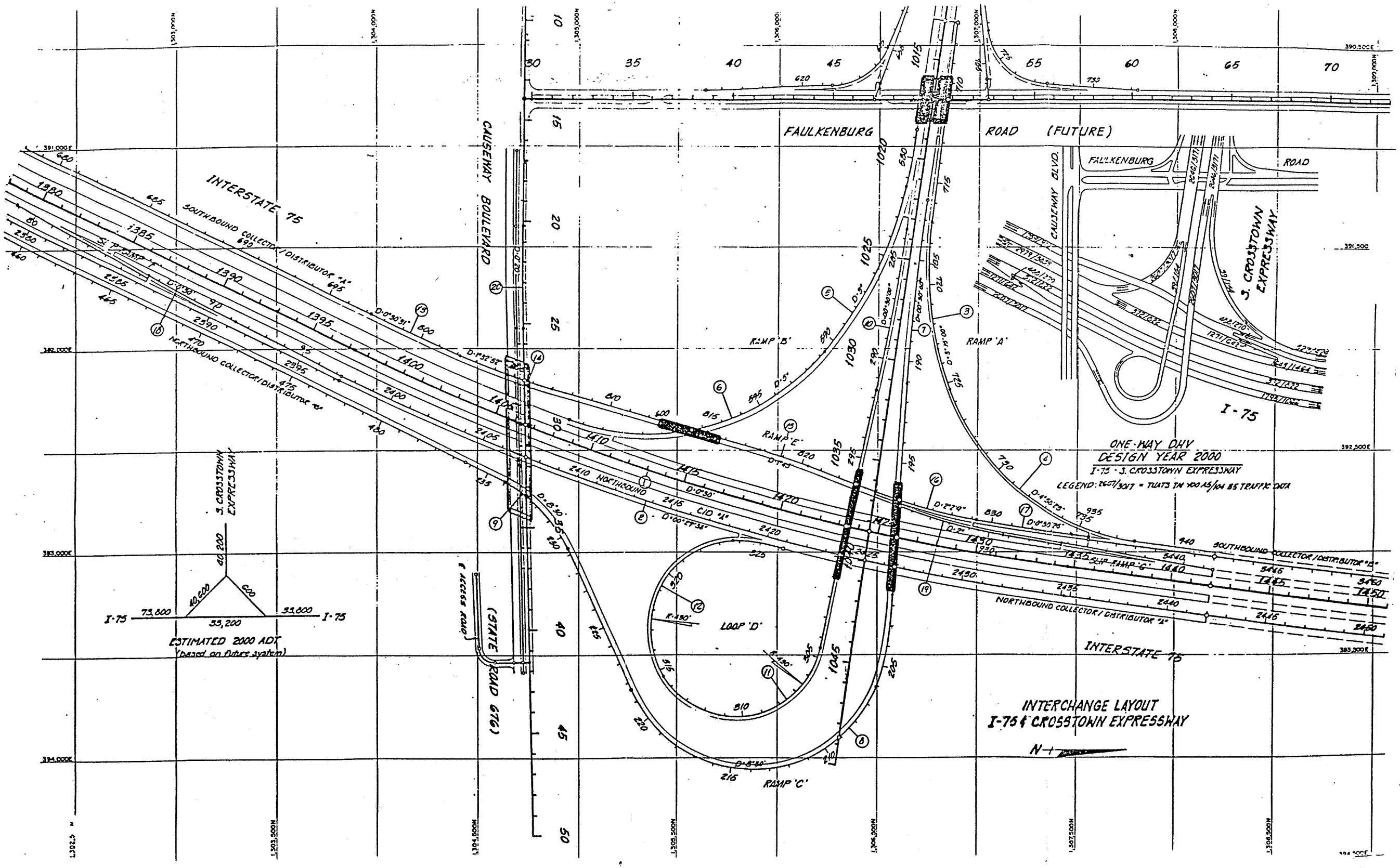
* Includes ROW acquisition shown in SPN 10110-2556
** Includes 50' Drainage Easement
*** Includes ROW acquisition for Lumsden Road Improvements, County Project No. A5A126

TABLE 3.1.5-1

EXISTING I-75/CROSSTOWN RAMP GEOMETRY

	Degree of Curve
Ramp "A"	3^{o} 15'
Ramp "B"	5^{o}
Ramp "C"	8^{o} 30'
Loop "D"	13^{o} 20'

Source: FDOT Construction Plans
SPN 10075-3422



Brown&Root-Genesis Engineering Company · GLATTING LOPEZ KERCHER ANGLIN · HDR · Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	INTERCHANGE LAYOUT I-75 & CROSSTOWN EXPRESSWAY	Figure 3.1.5-1

The alignment of Causeway Boulevard/Lumsden Road within the study area is virtually a straight tangent.

The alignment of SR 60 east of I-75 is virtually a straight tangent with the exception of a 2° curve west of Lakewood Dr.

3.1.6 Vertical Alignment

The existing Tampa South Crosstown Expressway has an existing vertical grade of 2.84 percent as it approaches Faulkenburg Rd. The design speed of the existing expressway is 60 mph.

The maximum existing grades for SR 60 and ramps connecting I-75 and the Crosstown Expressway are shown in Table 3.1.6-1.

The study area terrain is gently rolling. The existing ground elevations in the study area vary from elevation 5 mean sea level (MSL) near the Alafia River, to elevation 125 at the intersection of SR 60 and Dover Rd. The existing ground level at the Tampa South Crosstown Terminus at I-75 is approximately elevation 30 feet (MSL).

TABLE 3.1.6-1

EXISTING VERTICAL GRADE ON SR 60
(Between Cross Streets)

Cross Street	Maximum Grade
Providence	-1.00%
Kings Avenue	+0.70%
Parsons Avenue	+0.89%
Lithia Pinecrest	+1.13%
Kingsway	+2.02%
Mt. Carmel Road	-3.11%
Valrico Road	-1.08%
Miller Road	+1.45%
Mulrennan Road	+4.03%
Dover	

Source: FDOT State Job No. 1011-601, 10110-3111

TABLE 3.1.6-1

EXISTING I-75/CROSSTOWN RAMP PROFILE GRADES

Ramp/Loop	Maximum Grade
Ramp A	1.64%
Ramp B	1.70%
Ramp C	3.16%
Loop D	1.44%

Source: FDOT Construction Plans
SPN 10075-3422

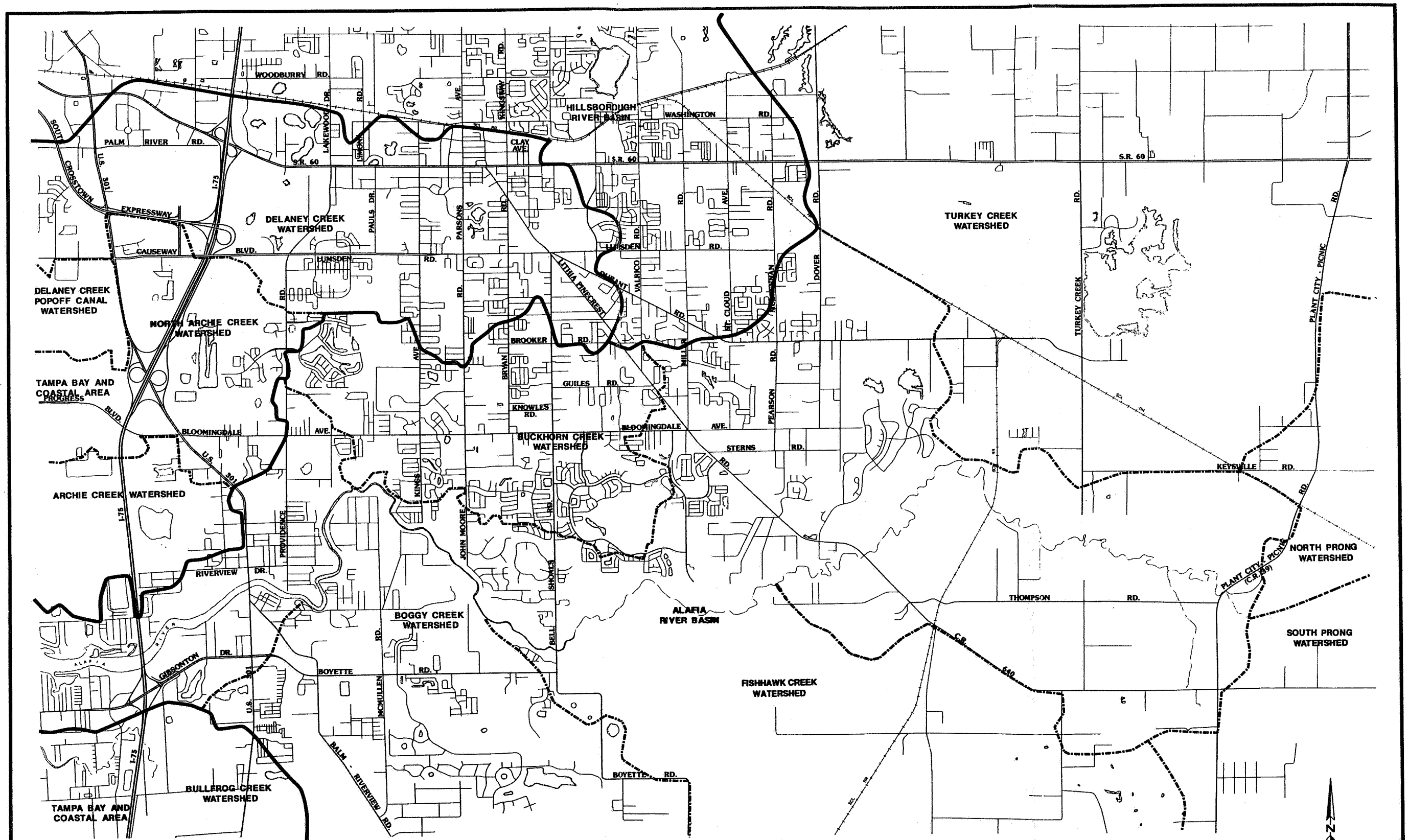
3.1.7 Drainage

Delineation of major drainage basins and associated major watersheds, as shown in Figure 3.1.7-1, were taken from studies prepared for the Southwest Florida Water Management District (SWFWMD), Hillsborough County and the Alafia River Basin Board, as well as USGS River Basin Quadrangles.

The study area can be broken into three major drainage basins: the Alafia River Basin, the Hillsborough River Basin, and the Tampa Bay Coastal Area. There are no regulated floodways within the study area.

Flooding problems have been recognized within the study area for many years. In an attempt to address these problems, Stormwater Management Master Plans (SMMP) were developed for several of the regions associated with this project. The reports presently completed include the Archie Creek/Coastal Areas and Buckhorn Creek Watersheds SMMP and the Delaney Creek SMMP.

SMMP's will be developed for the Turkey Creek Watershed, Boggy Creek Watershed, and the Fishhawk Creek Watershed. Finalized reports for these areas will be prepared for SWFWMD, Hillsborough County and the Alafia River Basin Board.



SOURCE: Archie Creek/Coastal Areas and Buckhorn Creek Watersheds.
Stormwater Management Masterplan, 1988, SWFWMD, ALAFIA RIVER Basin Board, and HILLSBOROUGH COUNTY
Delaney Creek Storm Water Management Master Plan, 1986, SWFWMD & ALAFIA RIVER Basin Board
USGS River Basin Quadrangles USGS Quadrangles

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TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

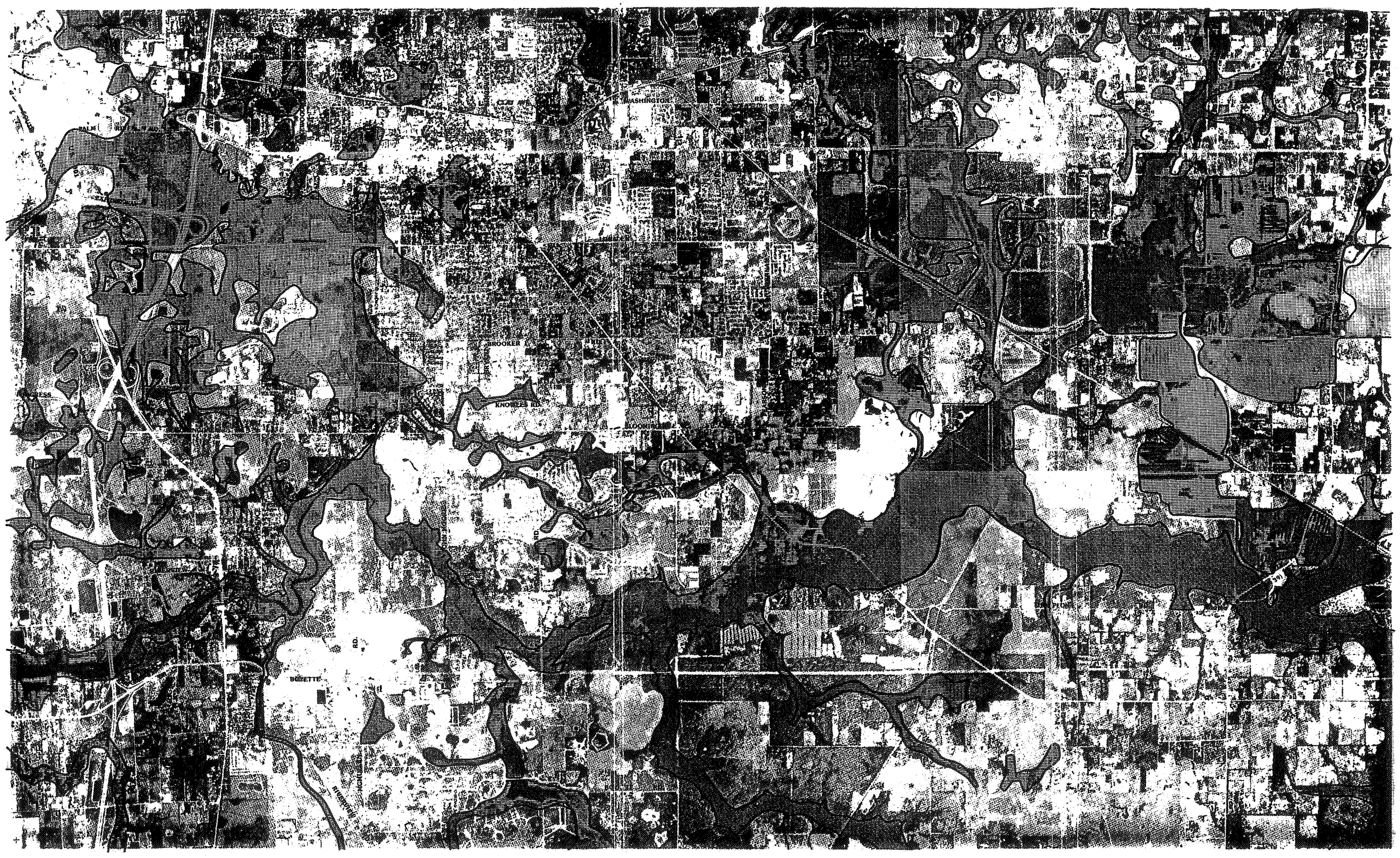
MAJOR DRAINAGE BASIN AND ASSOCIATED WATERSHEDS WITHIN THE STUDY AREA

Figure 3.1.7-1

The Flood Insurance Rate Maps (Federal Emergency Management Agency) were used to identify the 100-year floodplains and floodways (see Figure 3.1.7-2). Most of the base maps were revised April 17, 1984. A few of the maps have an effective date of June 18, 1980. New development of the subdivisions where the grade has been raised are not represented in Figure 3.1.7-2. The pre-development flood plains are shown.

The existing Crosstown Expressway has an open drainage system which eventually ties into the Delaney Creek Watershed. The portion of the study area bounded by I-75, S.R. 60, Causeway Boulevard/Lumsden Road and Kings Avenue is drained by a series of lateral ditches which flow into Delaney Creek.

Between S.R. 60 and Lumsden Road and east of Kings, the terrain increases in elevation, and the soil associations in the area become increasingly more sandy. This soil has higher percolation rates and as a result, the existing roadway drainage systems in this portion of the study area are predominantly of an open type with shallow roadside ditches. An exception to this is a 3600' stretch of S.R. 60 from Moon Street to Bryan Road. The drainage system in this area consists of concrete pipe storm sewer which ultimately drains to a small lake to the south of S.R. 60 and east of Parsons Avenue. The pipe size varies from 18" to 36" along S.R. 60 and increases in size to 48" as it nears the



Source: Flood Insurance Rate Maps.
Federal Emergency Management Agency 1984

100 Year floodplain and floodway areas shown shaded above within outline areas

Brown & Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	100-YEAR FLOODPLAINS AND FLOODWAYS WITHIN THE STUDY AREA	Figure 3.1.7-2

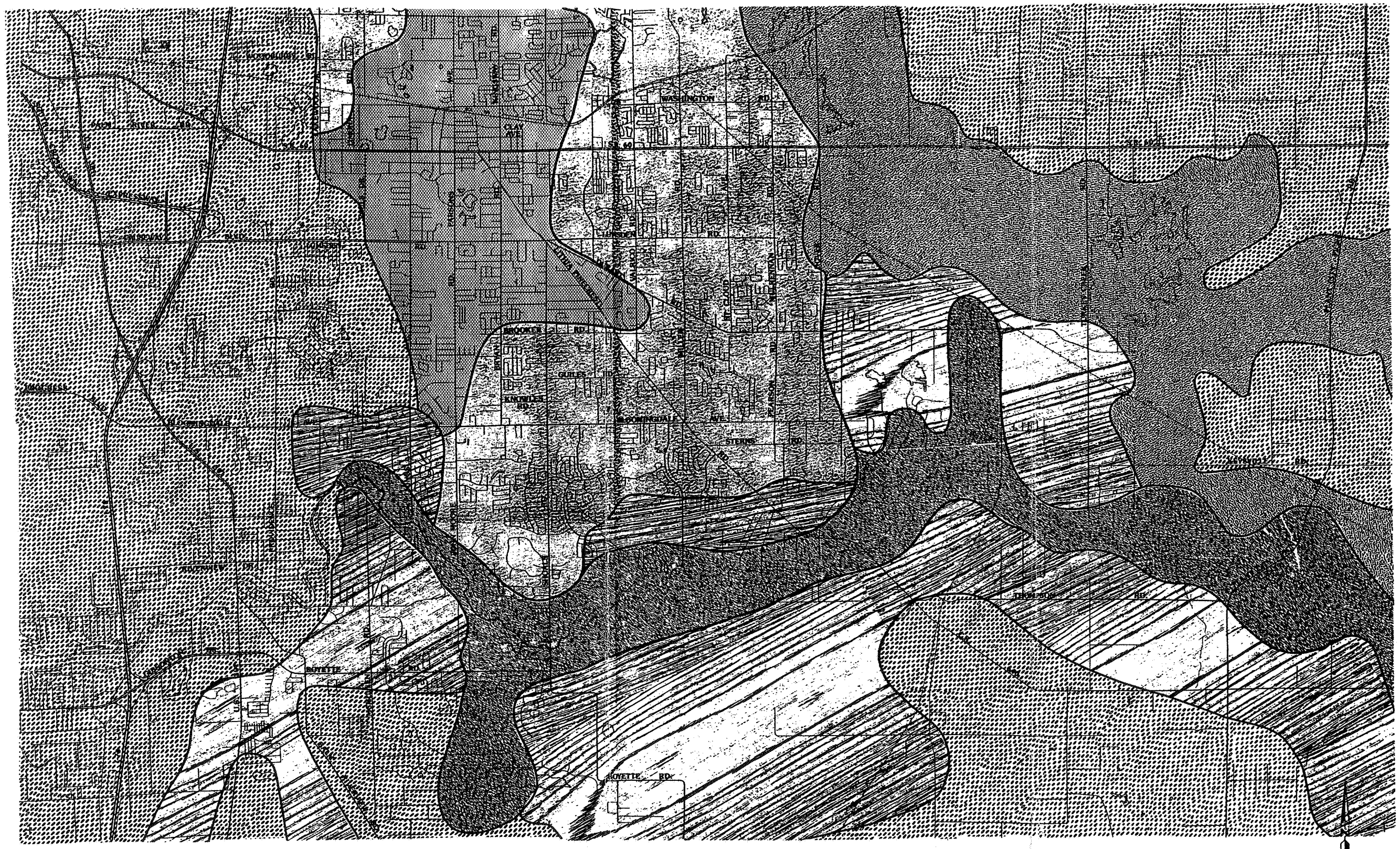
outfall. Improvements constructed in 1991/1992 on S.R. 60 included the installation of a closed storm sewer system from Bryan to Valrico, approximately 8000 feet.

Improvements constructed in 1991/1992 on Lumsden Road from Kings Avenue from Lithia Pinecrest Road included the installation of a closed storm system, as well as a stormwater pumping station.

3.1.8 Geotechnical

Six general soil associations exist within the study area. Figure 3.1.8-1 shows the locations of these associations. The soils are associated with three major land formations; the poorly drained soils of the Alafia floodplain, the soils of the flatwoods, and the soils connected with the mined areas. The urbanized portions of the study area are characterized by modified soils which are included in the Urban land associations.

The Zolfo-Seffner-Tavares soils support the floodplain of the Alafia River and its headwaters. This association is nearly level to moderately sloping and is moderately well drained to somewhat poorly drained with a sandy sub-soil or is sandy throughout. The Alafia River itself is made up of Winder-Chobee-St. Johns soils. This association is nearly level, consisting of poorly drained and very poorly drained soils that have a loamy or sandy subsoil.



Source: Hillsborough County Soil Survey.
Soil Conservation Service.

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HDR
Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

SOIL ASSOCIATIONS WITHIN THE STUDY AREA

Figure 3.1.8-1

A ridge of sandy soils around Brandon is made up of the Urban land-Candler association. Most areas have been modified for urban usage and are nearly level to strongly sloping. This collection consists of excessively drained soils that are sandy throughout. An area of well drained soils lie west of Brandon proper and is composed of the Candler-Lake association of soils. These are characterized by nearly level to strongly sloping, excessively well drained soils that are sandy throughout. The area surrounding I-75 is made up of the Myakka-Basinger-Holopaw association that is typical of the flatwoods. It is nearly level, poorly drained and very poorly drained soils that are either sandy throughout, or have a sandy or loamy subsoil.

The mined area in the northeast of the study area is made up of the Arents-Haplaquents-Quartzipsamments association. These are characterized by very steep, heterogenous soils; nearly level, very poorly drained that have clays throughout; and moderately well drained to excessively drained soils that are sandy throughout. As a result of mining activities, this area has been reworked and is typically composed of undulating lakes with upland spoil areas.

Table 3.1.8-1 shows the soil and water characteristics of the soil associations in the study area.

TABLE 3.1.8-1

SOIL AND WATER FEATURES

	Hydrologic Group	High Water Table Depth	Kind	Months
Candler-Lake	A	>6.0	---	-----
Urban-Land-Candler	A	>6.0	---	-----
Zolfo-Seffner-Tavares	A/C	1.5-6.0	Apparent	Jun-Dec
Myakka-Basinger-Holopaw	D	+2.0-1.0	Apparent	Jun-Apr
Winder-Chobee-St. Johns	B/D	0.0-1.0	Apparent	Jun-Feb
Arents-Haplaquents-Quartzipamments		SEE NOTE		

Hydrologic Group A--(Low runoff potential) Soils have high infiltration rates even when thoroughly wetted and a high rate of water transmission.

Hydrologic Group B--(Moderately low runoff potential) Soils that have moderate infiltration rates when thoroughly wetted and a moderate rate of water transmission.

Hydrologic Group C--(Moderately high runoff potential) Soils that have slow infiltration rates when thoroughly wetted and a slow rate of water transmission.

Hydrologic Group D--(High runoff potential) Soils having very slow infiltration rates when thoroughly wetted and a very slow rate of water transmission.

Apparent Water Table--The level at which water stands in an unlined bore hole after an adequate time of adjustment.

NOTE: Soil materials which have been removed, reworked and shaped as a result of mining areas in the study area.

Source: Soil Survey Update, Hillsborough County, FL, 1988 Hillsborough Soil and Water Conservation District

3.1.9 Accident Data

The Florida Department of Transportation Office of Accident Records and Research maintains historical accident data on state maintained roadways. As the South Crosstown Extension would parallel State Road (SR) 60, the recent accident data, 1985-1988, for SR 60 between Interstate 75 and County Road (CR) 39 is summarized in Table 3.1.9-1.

The accident ratio is a quick reference to determine the safety performance of the roadway. In the years 1986-1988 the ratio is greater than 1.0 which means that the section of SR 60 had a higher accident occurrence rate than similar state facilities.

Accident data for all other major roads in the study area are maintained by Hillsborough County Sheriffs office. Data is not available prior to August, 1989. Analysis and evaluation of accident data is provided in Section 4.8. No data was compiled for the existing Crosstown Expressway since it does not affect the considerations relative to the easterly extension.

3.1.10 Traffic Signals

The existing Crosstown Expressway operates as a limited access road and as

TABLE 3.1.9-1

ACCIDENT DATA ON S.R. 60

Year	Fatal Accidents	Total Accidents	Accidents per MVMT*	State Average Accidents per MVMT*	Accident Rates
1985	7	360	2.780	2.870	0.968
1986	9	396	3.077	2.513	1.224
1987	8	501	3.515	2.332	1.507
1988	4	449	3.049	2.369	1.287

*MVMT - Million vehicle miles of travel

such is not signalized. Traffic signal locations on SR 60 and Lumsden Road are summarized in Tables 3.1.3-1 and 3.1.3-2, as shown previously.

3.1.11 Lighting

The existing Crosstown has continuous lighting and its termini with I-75 is illuminated with high mast lighting.

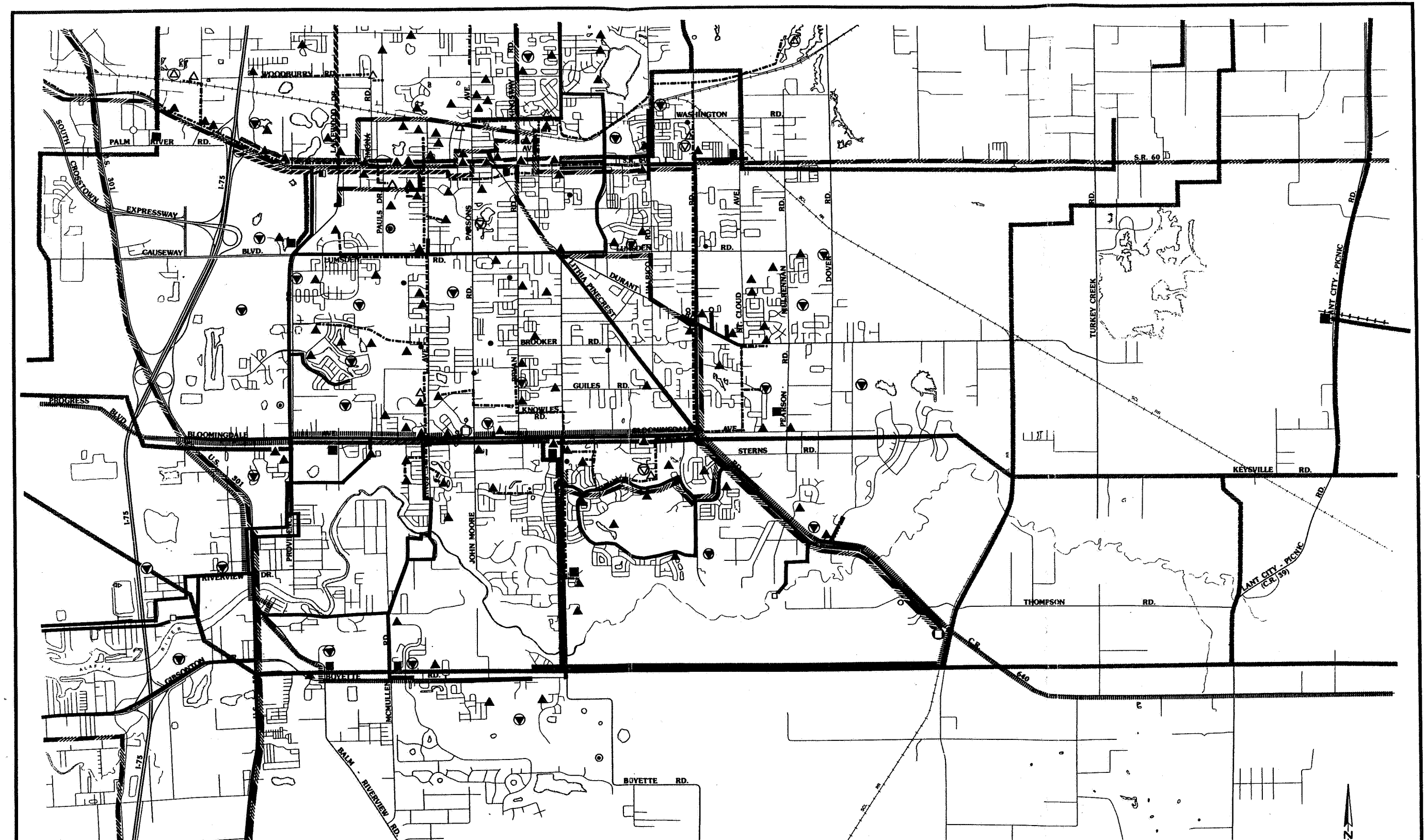
SR 60 is not provided with lighting, with the exception of the Parsons Avenue intersection.

Lumsden Road does not have lighting, with the exception of the immediate vicinity of its intersections with Bryan Road and Parsons Avenue/John Moore Road.

Lighting is provided on several residential streets in the study area and is maintained by Hillsborough County.

3.1.12 Utilities

The major utilities located within the study area have been inventoried as shown in Figure 3.1.12-1. Utility contacts are shown in Table 3.1.12-1. These



SOURCES:

Hillsborough County Planning and Zoning Dept.
Tampa Pipeline Co., Gardinier Inc.,
Peoples Gas System GTE, AT&T, US Sprint, TECO
USGS Quad Maps

LEGEND

- MAIN GAS (6" or LARGER)
- REGULATOR STATION
- ELECTRIC SUBSTATION
- ELECTRIC TRANSMISSION LINE
- RADIO/TV TOWER
- WATER TREATMENT PLANT
- WATER PUMP STATION
- WATER MAIN (12"and LARGER)
- WATER WELL
- WATER WELL (CAPPED)
- WASTE WATER TREATMENT PLANT
- INTERIM WWTP
- PUMP STATION
- PROPOSED WWTP
- PROPOSED or UPGRADED PUMPING STATION
- FORCE MAIN (10" or LARGER)
- FIBER OPTIC TELEPHONE CABLES
- TRANSMISSION PIPELINE

N

SCALE IN FEET
0 2000 4000 6000
0 1/2 1.0 1.13
SCALE IN MILES

Brown&Root-Genesis Engineering Company
GLATTING LOPEZ KERCHER ANGLIN
HDR

Tampa–Hillsborough County Expressway Authority
RAY SPEED, EXECUTIVE DIRECTOR
WILLIAM C. McLEAN, JR., ATTORNEY

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

MAJOR UTILITIES LOCATED WITHIN THE STUDY AREA

Figure 3.1.12-1

TABLE 3.1.12-1

UTILITY CONTACTS

Gardinier, Inc.
Mr. Dean Keinshindt
8813 Highway 41 South
Riverview, FL 33569

Tampa Electric Company
Mr. Mike Capparelli
P.O. Box 111
Tampa, FL 33601

AT&T
Mr. Bill Mercer
2261 Massaro Boulevard
Tampa, FL 33619

Paragon Cable
Mr. Charles Simard
5908 Breckenridge Parkway
Tampa, FL 33610

Central Florida Pipeline Corporation
Mr. Arthur Smith
1904 Hemlock Avenue
Tampa, FL 33604

GTE Florida, Inc.
Mr. Jim Bates
Systems Engineer
Liaison-Right-of-Way Joint Use
P.O. Box 110 (MC-39)
Tampa, FL 33601

Hillsborough County
Planning and Zoning Department
Mr. Jeff Miller
800 E. Twiggs Street
Tampa, FL 33602

U.S. Sprint
Mr. Ron Black
925 Semoran Boulevard, Suite 106
Winter Park, FL 32792

Tampa Electric Company
Mr. Larry Claxon
P.O. Box 111
Tampa, FL 33601

People's Gas System, Inc.
Mr. Steve Tidwell
1200 N. 13th Street
Tampa, FL 33605

Tampa Bay Pipeline Company
Mr. Bruce Helms
5802 Hartford Street, P.O. Box 5526
Tampa, FL 33675

CSX Rail Transport
Mr. Charles W. Hutchinson
5656 Adamo Drive
Tampa, FL 33619

Tampa Pipeline Limited Partnership
Mr. Warren R. McDonald
P.O. Box 19201
Tampa, FL 33686

utilities include electrical power transmission lines, power substations, water and wastewater treatment plants and pump stations, major water distribution lines and wastewater force mains, water wells, broadcast towers and high pressure gas transmission lines. This information was used in identifying alternative corridors; in addition, the utility data was used in developing construction costs for alternative corridors.

In addition to major existing utility lines located within the study area, planned new construction by the utility companies was also identified and included in the process of identifying alternative corridors.

Construction costs are included in the estimate when relocation of utilities involves facilities not located within existing right-of-way.

The following describes utility systems which were identified as important in the consideration of alternative corridors.

Water and Wastewater Facilities

The source for the inventory of the water and sewer facilities is the Hillsborough County Planning and Zoning Department five year plan. Facilities identified in Figure 3.1.12-1 include existing water and sewer lines,

and existing and future water treatment plants, wastewater treatment plants and master lift stations. Gardnier, Inc. maintains a large diameter raw water line and several pump stations in the study area.

The water and wastewater facilities shown include only the major lines and plants, and do not include facilities serving individual homes and neighborhoods within the study area. However, information regarding these facilities and major future water and sewer lines has been collected and was used in developing cost estimates for alternative alignments.

Electrical Power

The study area is serviced by Tampa Electric Company. As shown in Figure 3.1.12-1, there are several major transmission lines, as well as substations, located throughout the corridor.

In addition to the major power transmission line, there are numerous distribution lines which serve the developed regions of the study area. These lines have not been shown on Figure 3.1.12-1; however, information regarding the locations of these lines is available and will be used in developing construction cost estimates.

Telephone

Major underground telephone conduits, housing glass fiber telephone lines, exist throughout the study area. As shown in Figure 3.1.12-1, one line runs parallel to US 301, two others run approximately parallel to SR 60. There are several additional trunk lines which branch off from these routes.

In addition to these major lines, numerous small underground lines which are serviced by GTE are located along most major roadways. These lines are not shown on Figure 3.1.12-1.

Natural Gas

There are no major natural gas transmission lines within the study area; however, there are several distribution lines, serviced by People's Gas System Inc., shown on Figure 3.1.12-1. The location of these lines will be available for use in developing construction cost estimates.

Gas Transmission Lines

There are two major ammonia gas transmission lines, operated by Tampa Bay Pipeline Company, within the study area. As shown in Figure 3.1.12-1, the

two pipelines enter the corridor from the west along Progress Boulevard. The first pipeline follows a route along Bloomingdale Avenue to CR 640, continuing eastward to the county line. The second pipeline parallels US 301 southward across the Alafia River to Boyette Road. This pipeline continues eastward along Boyette Road and the TECO transmission easement to CR 640 and then continues in the same easement as the pipeline described above, eastward to the county line.

3.2 Existing Bridges

There are three existing bridges associated with the Tampa South Crosstown Terminus with I-75. A fourth bridge allows traffic on Causeway Boulevard to cross I-75 and its collector-distributor system. The location of these structures is shown in Figure 3.1.5-1. Loop "D" (which directs eastbound Crosstown traffic to enter the I-75 northbound collector/distributor "A") has a bridge structure which crosses southbound Ramp "E", northbound collector/distributor "A" and the mainlanes of I-75. The structure on Ramp "C" (which allows traffic on I-75 northbound collector/distributor "B" to enter the westbound Crosstown) crosses the same roadways as the structure on Loop "D".

There is also a bridge on southbound Ramp "E" over Ramp "B".

3.2.1 Type of Structure

Bridges for Loop "D", Ramp "C", and Causeway Boulevard have concrete pile foundations with cast-in-place footings, piers and caps. The superstructure consists of prestressed concrete beams with a cast-in-place concrete bridge deck. The abutments for the Ramp "E" bridge are supported by either battered piles or drilled shaft foundations with cast-in-place concrete footings. The abutments also serve as retaining wall structure.The Ramp "E" bridge consists of steel box girders, with a cast-in-place concrete bridge deck. These structures were constructed in 1985.

The bridge numbers are listed in Table 3.2.1-1, Summary of Bridge Inspection.

3.2.2 Condition (Structure Rating)

The bridges on Ramp "C", Loop "D", Ramp "E" and Causeway Boulevard were inspected in October of 1988. The results of this inspection are summarized in Table 3.2.1-1.

3.2.3 Horizontal and Vertical Alignment

The original design speeds are shown in Table 3.2.3-1, Original Roadway

TABLE 3.2.1-1

SUMMARY OF BRIDGE INSPECTION
August, 1990
Numerical Condition Rating

Bridge	Ramp "C"	Loop "D"	Ramp "E"	Causeway Boulevard
Year Constructed	1985	1985	1985	1985
Bridge Number	100488	100487	100498	100497
Substructure	8	8	8	8
Superstructure	8	8	8	7
Deck	8	8	8	7
Approach Roadway	8	8	8	8
Non-Structural Features	4	4	4	8
Sufficiency Rating	81.9	93.0	100.0	96.6
Operating Rating	252 HS29T	261 HS34T	297 HS54T	277 HS43T

TABLE 3.2.3-1

ORIGINAL ROADWAY DESIGN SPEEDS

Road	Original Design Speed	Location
Crosstown	60 mph	West of I-75
Ramp "C"	50 mph	
Loop "D"	50 mph	Tangent
Loop "D"	35 mph	In 430' radius curve
I-75	70 mph	

Design Speeds. Figure 3.2.3-1 depicts typical sections for Ramp "C", Loop "D", and Ramp "E" showing the lane widths, shoulder widths and overall clear widths for these structures.

The minimum vertical design clearance for each of these structures is shown in Table 3.2.3-2, Minimum Vertical Design Clearance.

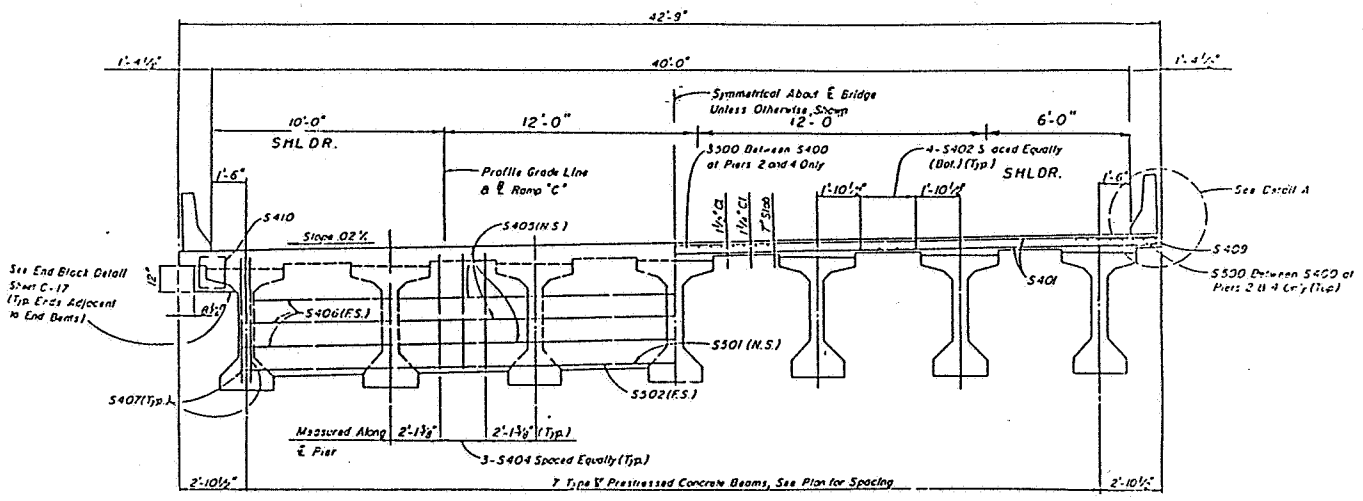
3.2.4 Span Arrangement

The overall span length varies from 286'-0" for Ramp "E" to 508'-0" for Loop "D".

The overall span length for each structure is summarized in Table 3.2.4-1, Bridge Span Lengths, as are the number and length of each individual span.

3.3 Existing Environmental Characteristics

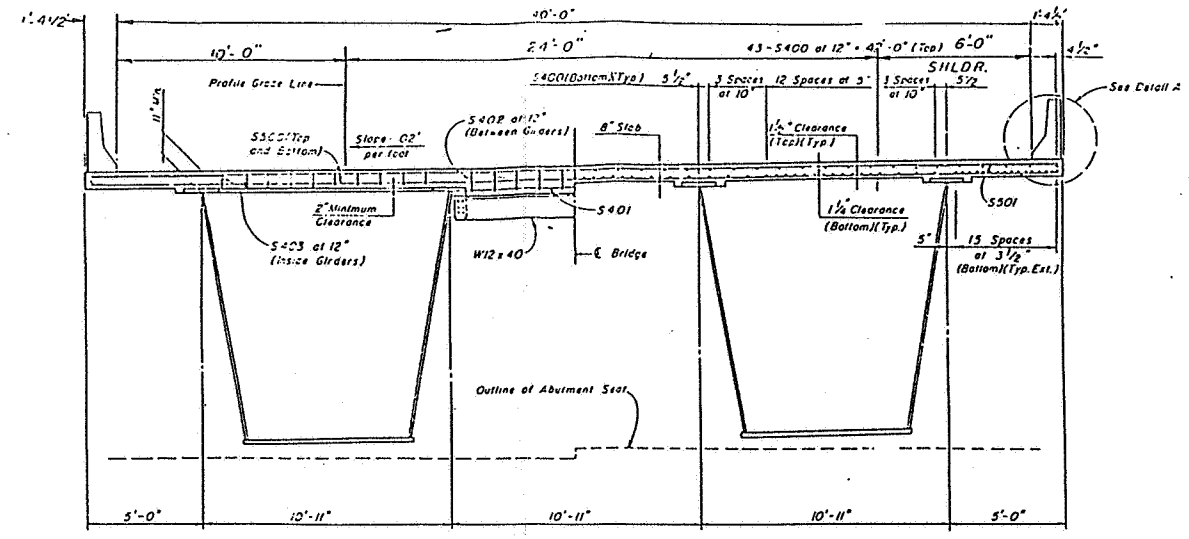
Information collected regarding the existing environmental characteristics within the Crosstown Extension Study Area encompasses both the human and natural environments.



HALF END ELEVATION HALF SECTION

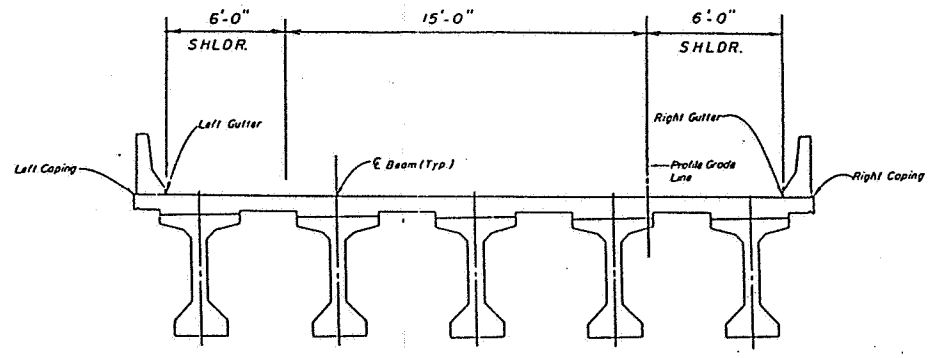
SPANS 1 & 4

EXISTING RAMP "C" STRUCTURE
CROSS SECTION



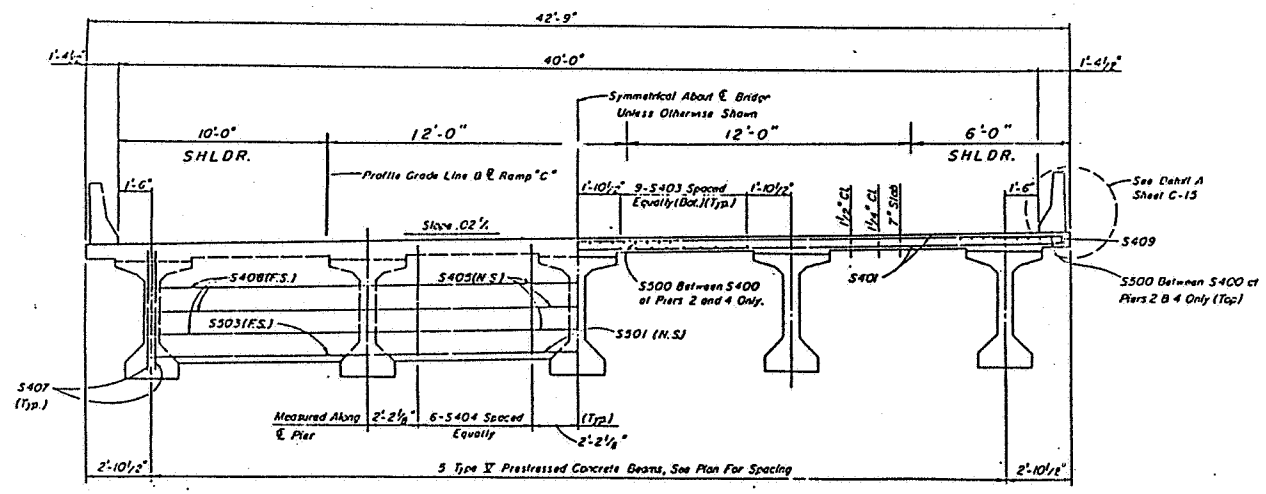
HALF END ELEVATION HALF SECTION

EXISTING RAMP "E" STRUCTURE OVER RAMP "B"
CROSS SECTION



TYPICAL SECTION THRU ROADWAY OF SPANS 1, 2 & 4 SHOWING LOCATION OF ELEVATION POINTS

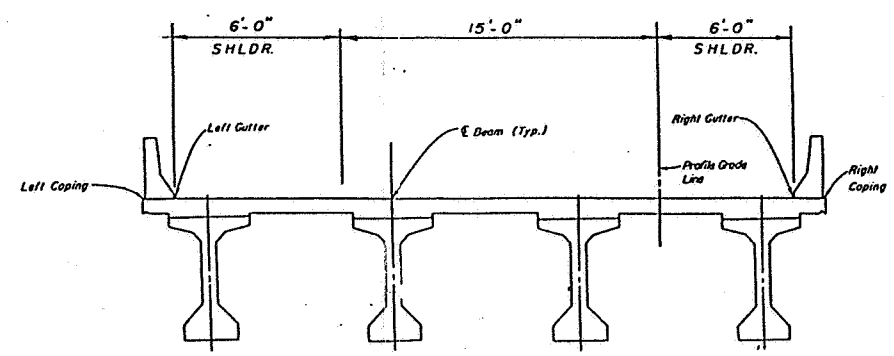
EXISTING LOOP "D" STRUCTURE OVER I-75
CROSS SECTION



HALF END ELEVATION HALF SECTION

SPANS 2 & 3

EXISTING RAMP "C" STRUCTURE
CROSS SECTION



TYPICAL SECTION THRU ROADWAY OF SPAN 3 SHOWING LOCATION OF ELEVATION POINTS

EXISTING LOOP "D" STRUCTURE OVER I-75
CROSS SECTION

Brown & Root-Genesis Engineering Company	GLATTING LOPEZ KERCHER ANGLIN	HDR	Tampa-Hillsborough County Expressway Authority RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM E. McLEAN, JR., ATTORNEY	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	BRIDGE TYPICAL SECTION RAMP "C", LOOP "D" AND RAMP "E"	Figure 3.2.3-1

TABLE 3.2.3-2

MINIMUM VERTICAL DESIGN CLEARANCE

Bridge	Ramp "C"	Loop "D"	Ramp "E"
Northbound I-75	16' - 4"		
Southbound I-75		16' - 4"	
Ramp "B"			16' - 5"

TABLE 3.2.4-1

BRIDGE SPAN LENGTHS

Bridge	Overall Length	Length Span 1	Length Span 2	Length Span 3	Length Span 4
Ramp "C"	494'-2"	130'-0"	119'-1"	113'-1"	132'-0"
Loop "D"	508'-0"	133'-0"	133'-0"	112'-0"	130'-0"
Ramp "E"	286'-0"	286'-0"			

The human environment is expressed in terms of land use; existing neighborhoods and subdivisions; schools; cultural features; and community facilities. Land use within the study area is primarily residential, with commercial activity concentrated around major intersections. Consequently, the study area consists of a number of well established neighborhoods as well as several planned developments, which will become identifiable neighborhoods in the future. To serve the residential areas, there are a number of public and private schools, churches, parks and recreation facilities, and cemeteries. Historic sites, and archeological sites also are located in the study area.

The most prominent feature of the natural environment is the Alafia River, located in the southern third of the study area.

3.3.1 Land Use Data

Five categories of existing land uses were identified for the study area. Below is a brief description of the existing land uses in each category and the general location of these uses.

Residential - Includes mostly single-family subdivisions, as well as single-family homes not officially associated with a neighborhood. Some multifamily development exists, generally along Providence Road, northern

Bloomingdale, and in the vicinity of Humana Hospital. Mobile home parks are generally located along SR 60 and the fringes of the study area.

Commercial - Includes strip commercial/retail establishments along SR 60, Oakfield Drive, and major intersections throughout the study area.

Office - Includes general office space, professional services, and medical facilities. With Humana Hospital located within the study area (southwest corner of Oakfield Drive and Parsons Road), supporting medical office space is located in the vicinity along Oakfield Drive and Vonderburg Road. Other office space is found along SR 60 and Bloomingdale Avenue, west of John Moore Road.

Public - Includes government buildings, parks and recreational facilities, and water bodies scattered throughout the study area. The major water feature is the Alafia River, which runs through the southern section of the study area, and is fed by five creeks.

Vacant - Includes agricultural, mining, and wetland areas where no structures currently exist, as described below:

- Agricultural - concentrated in the southern and eastern fringes of the

study area.

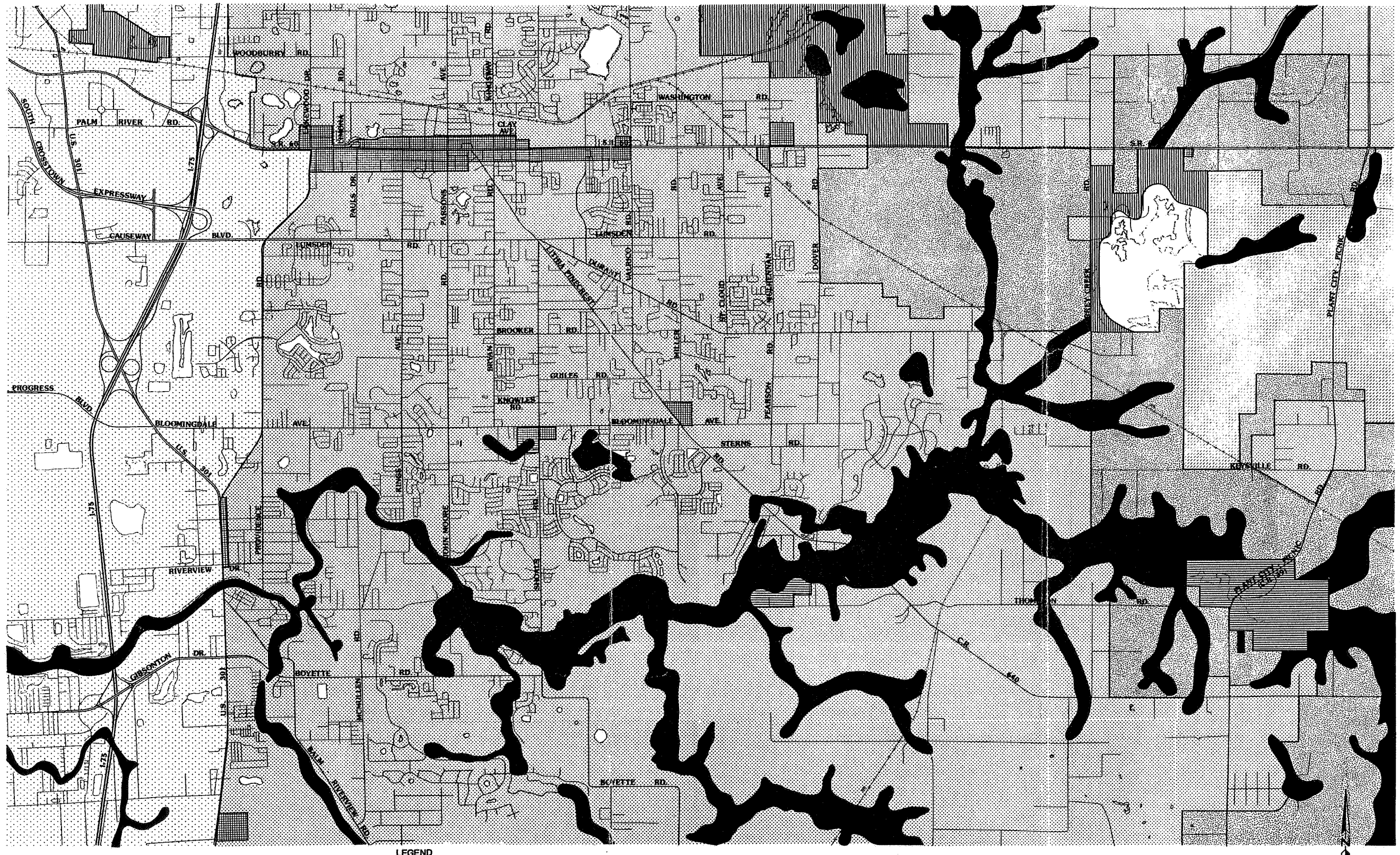
- o Mining - phosphate mining operations along the eastern edge of the study area.

- o Wetlands - generally concentrated around the Alafia River, creeks and lakes within the study area.

Future land use information for the Crosstown Expressway Extension Study area is particularly important for understanding how existing vacant parcels are expected to develop in the future. Figure 3.3.1-1 identifies the future land use projected for the study area.

The study area is located totally within unincorporated Hillsborough County. The Hillsborough County Commission adopted its revised Comprehensive Plan in July 1989, which includes the "Future Land Use Element" and the 2010 Land Use Plan Map (i.e., future land use map).

The future land use element consists of two sections: (1) goals, objectives and policies, and (2) future land use map. The goals and objectives establish purpose and direction, while the policies provide specific guidelines for evaluating development proposals and making decisions. The future land use plan shows the spatial relationship between anticipated land uses.



SOURCE: Hillsborough County City-County Planning Commission

LEGEND

URBAN LEVEL	MINING
RESIDENTIAL	NATURAL PRESERVATION
COMMERCIAL/INDUSTRIAL	CONSERVATION/ENVIRONMENTALLY SENSITIVE
AGRICULTURAL	PUBLIC/INSTITUTIONAL

Brown & Root-Genesis Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

Tampa–Hillsborough County Expressway Authority

RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. MCLEAN, JR., ATTORNEY

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

FUTURE LAND USE PLAN

Figure 3.3.1-1

The goal of the future land use element is to:

> "Ensure that the character and location uses optimize the combined potentials for economic benefit and the enjoyment and the protection of natural resources while minimizing the threat to health, safety and welfare posed by hazards, nuisances, incompatible land uses, and environmental degradation." (Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County, Florida; Future Land Use Element; July, 1989, p. 4)

Based on this goal, future land use designations in unincorporated Hillsborough County within the study area are described as follows:

Residential: It is anticipated that this designation will continue to dominate the study area. Densities are generally under six dwelling units (DU) per acre, with higher densities shown for the area between US 301 and I-75.

Commercial/Industrial: This designation generally involves a concentration of retail establishments along SR 60, at the intersection of Bloomingdale Avenue and Bell Shoals Road, and at the intersection of Bloomingdale Avenue and Lithia-Pinecrest Road. The only industrial designation is in the southwest section of the study area near US 301. Existing commercial land

uses outside of the zoned commercial/industrial areas are consistent with current zoning designations.

Urban Level: This designation forms a corridor along I-75, (which is the western edge of the study area), and indicates the areas that are best suited for suburban uses. Development in these areas occurs as transportation and other public facilities and services become available. Serving as a transitional area, non-residential development intensities can be up to a 0.5 floor area ratio, with residential densities up to 12 dwelling units per gross acre.

Agriculture/Rural: This designation applies to the eastern fringe of the study area, with a maximum density of 0.2 DU/acre, or 1.0 DU/10 acres.

Agriculture/Mining: This designation applies to the eastern edge of the study area, straddling SR 39. This designation anticipates that phosphate mining operations will remain concentrated in this area.

Conservation: This designation is divided into two categories, as described below:

- Environmentally Sensitive Areas - This category includes those major, privately-owned lands which are environmentally sensitive, such as the

wetland areas shown predominantly along the banks of the Alafia River and tributary creeks.

- Natural Preservation - This category designates major publicly-owned or managed lands used primarily for conservation purposes. Typically, these lands are environmentally unique, irreplaceable or valued ecological resources, with some being suitable for compatible recreation uses. They are located on the southeastern edge of the study area, straddling the Alafia River.

Public: This designation includes utilities and recreation areas found in three locations: (1) northwest section, between US 301 and Riverview Drive, (2) central section, north of SR 60 (1,600 acres for effluent sprayfield and a park), and (3) Edward Medard Park on the northwest shore of Pleasant Grove Reservoir.

In addition, objectives and policies have been proposed for the Alafia River. The county's goal for the river is "to preserve, protect and promote the Alafia River and its natural resources and recreational benefits." (Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County, Florida; Future Land Use Map; July 1989.) The concept of a river corridor overlay is being discussed, which would add restrictions for future

development along the Alafia River. It is expected that this concept will be studied further.

Planned Developments

Twenty-seven planned developments (PDs) are located within the study area. Planned developments are those for which an overall master plan has been announced, and are larger than 100 acres in size. The 27 planned developments within the study area were identified to help predict the pattern of future development.

Summary

This discussion on land use highlights several area characteristics which were considered as each alternative alignment was evaluated.

- The Alafia River divides the study area with only US 301, Bell Shoals Road and Lithia-Pinecrest Road connecting the area south of the river to the area north of the river.

- Phosphate mining operations (existing and former sites) are located along the eastern edge of the study area. It is unlikely that these areas

will be developed for commercial or residential uses in the foreseeable future due to the cost of reclamation activities which must take place before development can occur.

- The I-75 corridor has been designated for more intense development than other parts of the study area. This designation is reinforced by the several approved planned developments and developments of regional impact located within this corridor. These projects will form a new core of housing, employment activity, with a concentration of commercial, office, and industrial development. Therefore, the demand for residential uses throughout the Brandon area will likely remain high as the I-75 corridor is developed. It may be summarized that as the Central Brandon area infills, land east of Dover Road will increasingly be attractive for residential development.

More detailed land use information may be found in the Environmental Impact Statement (EIS) and the Data Collection Report for this project.

3.3.2 Cultural Features

Cultural features and community facilities not only serve the needs of the surrounding areas, but also provide points of cohesion for adjacent

neighborhoods and communities. Cultural features preserve and enhance the cultural nature of a community, and include: churches and other religious institutions; parks and other recreational areas; historic sites; archeological sites; and other neighborhood gathering places. Community facilities can be defined as those which house services provided by local government and private individuals on an area-wide basis, such as: fire stations, police stations, public and private schools, medical and emergency treatment facilities, cemeteries, and public buildings and facilities.

These definitions were used in collecting information for the study area. Sources of information that were used in preparing the map include: local government department files, road surveys, the Hillsborough County School Board, local planning department files, site research and general knowledge of the area. The following discussion focuses on schools, cultural features and community facilities, future facilities, and archaeological and historical resources.

Schools - There are 30 schools within the study area, 20 of which are public and 10 are private. These schools are listed in Table 3.3.2-1, and are mapped in Figure 3.3.2-1. The boundaries for each public school are also shown in Figure 3.3.2-1, since this information is helpful in understanding how an alignment may affect the service area of a school.

Cultural Features and Community Facilities - Cultural features and community facilities currently existing within the study area are shown on the map in Figure 3.3.2-2 and are listed in Table 3.3.2-2. Throughout the study, considerable effort has been undertaken to avoid these facilities. If it becomes necessary to displace any of these facilities, it is desirable that they be able to relocate as close to their original location as possible.

TABLE 3.3.2-1

SCHOOLS LOCATED WITHIN THE STUDY AREA
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

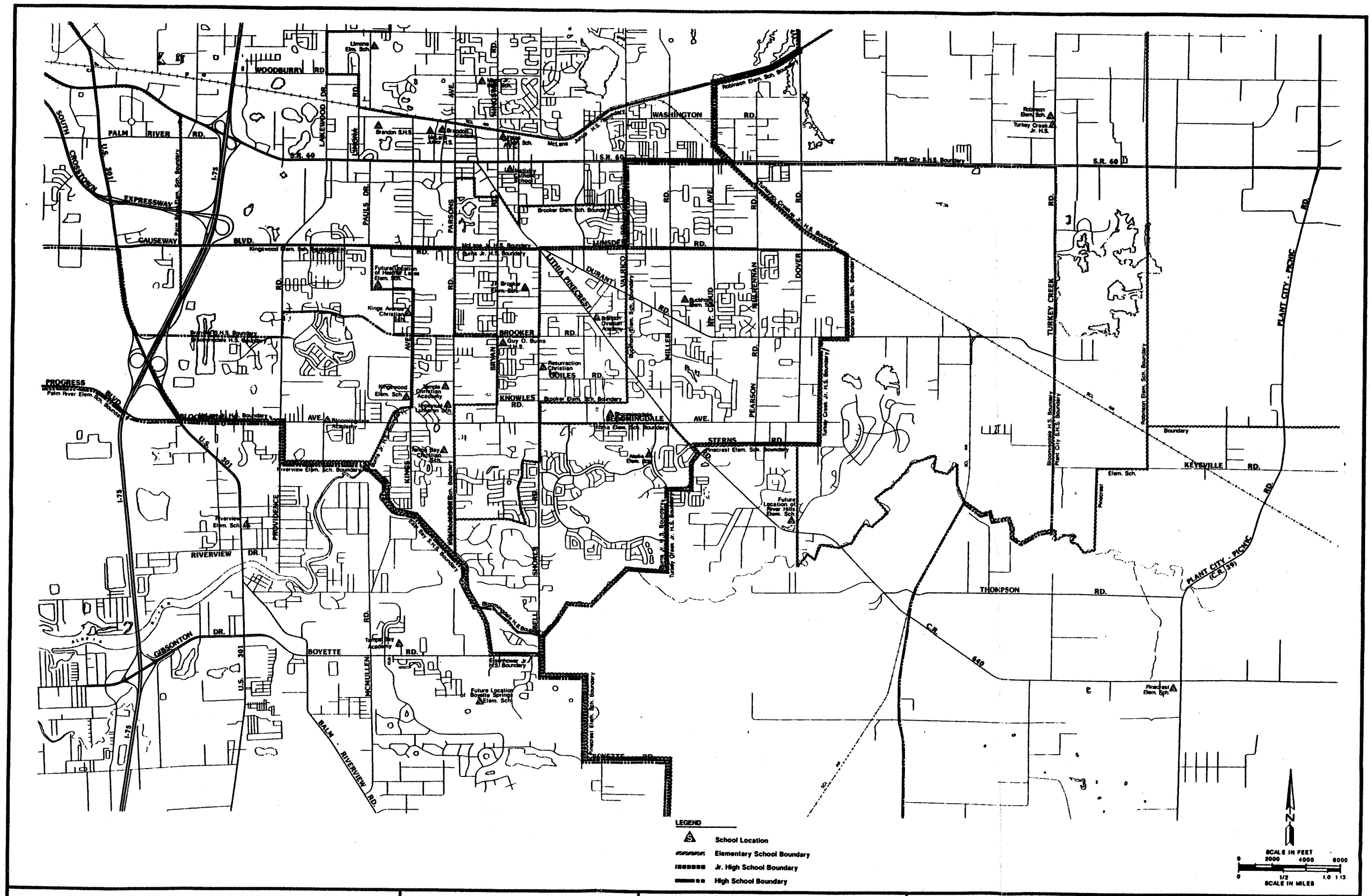
Hillsborough County Public Schools

Alafia Elementary School
J.R. Brooker Elementary School
Buckhorn Elementary School
Gibsonton Elementary School
Kingswood Elementary School
Limona Elementary School
Palm River Elementary School
Pinecrest Elementary School
Progress Village Elementary School
Riverview Elementary School
Robinson Elementary School
Walter S. Yates Elementary School
Guy O. Burns Junior High School
Dowdell Junior High School (outside study area, but serves a portion of the study area)
Eisenhower Junior High School
McLane Junior High School
Mann Junior High School
Turkey Creek Junior High School
Bloomingdale Senior High School
Brandon Senior High School
East Bay Senior High School
Plant City Senior High School (outside study area, but serves a portion of the study area)

Private Schools

Bloomingdale Academy
Brandon Academy
Brandon Christian Academy
Immanuel Lutheran School
Kings Avenue Christian School
Nativity School
Resurrection Christian School
Tampa Bay Academy
Tampa Bay Christian School
Temple Christian Academy

Sources: Hillsborough County School Board
Glatting Lopez Kercher Anglin, Inc.



Brown&Root-Genesis Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

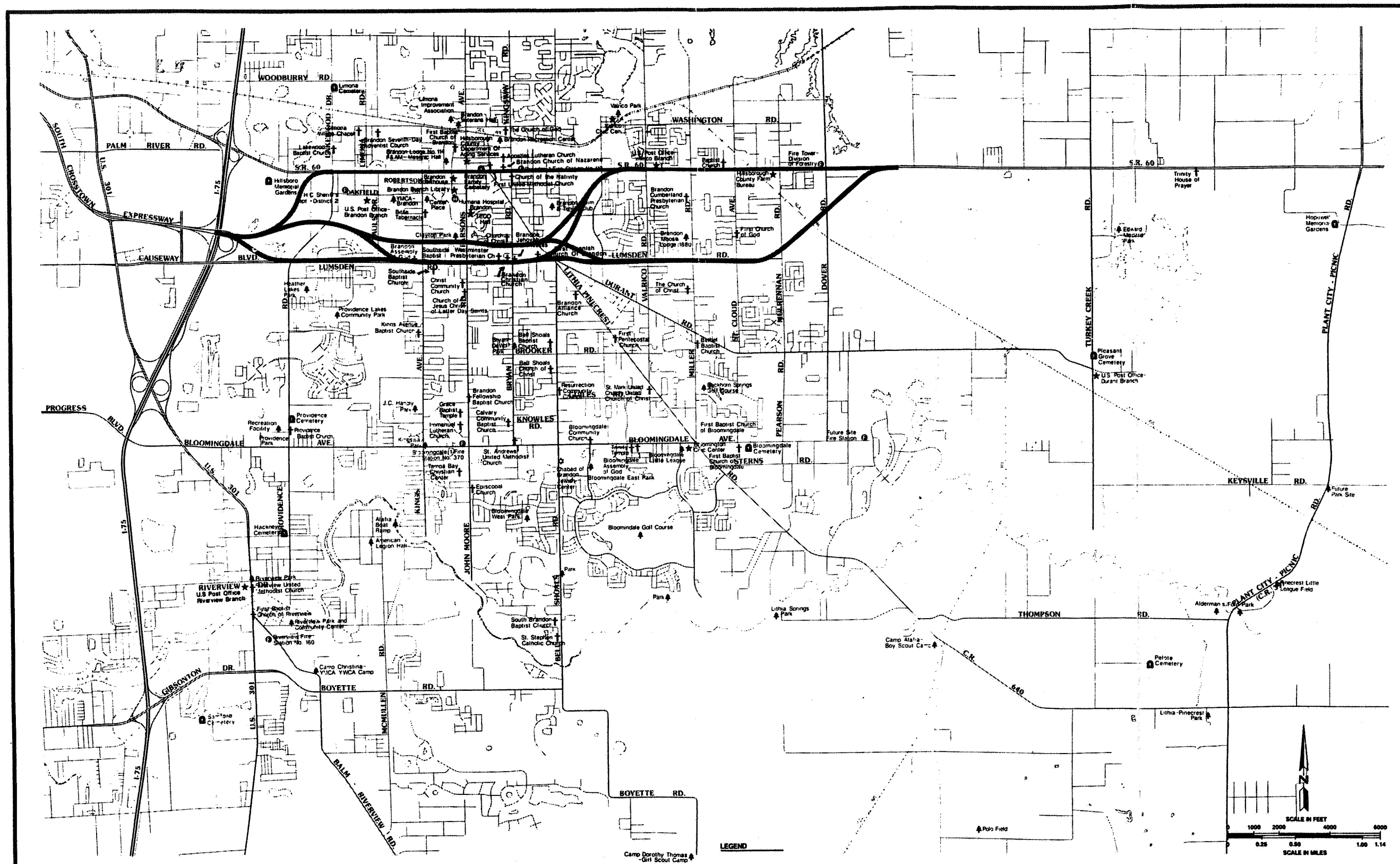
Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

SCHOOLS AND COUNTY SCHOOL BOUNDARIES WITHIN THE STUDY AREA

Figure 3.3.2-1



Brown & Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	CULTURAL FEATURES AND COMMUNITY FACILITIES	Figure 3.3.2-2

TABLE 3.3.2-2

CULTURAL FEATURES AND COMMUNITY FACILITIES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

Churches and Religious Institutions

Apostles Lutheran Church
Bell Shoals Baptist Church
Bell Shoals Church of Christ
Bethel Baptist Church
Bible Tabernacle
Bloomingdale Assembly of God
Bloomingdale Community Church
Brandon Alliance Church
Brandon Assembly of God
Brandon Christian Church (Disciples of Christ)
Brandon Church of the Nazarene
Brandon Congregation of Jehovah's Witnesses
Brandon Cumberland Presbyterian Church
Brandon Fellowship Baptist Church
Brandon Seventh-Day Adventist Church
Calvary Community Baptist Church
Chabad of Brandon Jewish Center
Christ Community Church
The Church of Christ
The Church of God
Church of Jesus Christ of Latter-Day Saints
Church of the Nativity
Episcopal Church (east of John Moore Road, between Hidden Lake Drive and Bloomingfield)
First Baptist Church of Bloomingdale
First Baptist Church of Brandon
First Baptist Church of Riverview
First Church of God
First Pentecostal Church
First Spanish Church of Brandon
First United Methodist Church
Grace Baptist Temple
Immanuel Lutheran Church
Kings Avenue Baptist Church
Lakewood Baptist
Limona Village Chapel United Methodist Church
Providence Baptist Church
Resurrection Community Church
Riverview United Methodist Church
St. Andrews United Methodist Church

TABLE 3.3.2-2 (Continued)

CULTURAL FEATURES AND COMMUNITY FACILITIES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

St. Mark United Church - United Church of Christ (Lithia-Pinecrest)
St. Stephen Catholic Church
Seventh Day Adventist Church
South Brandon Baptist Church
Southside Baptist Church
Trinity House of Prayer

Churches and Religious Institutions (Continued)

Trinity Temple
Westminster Presbyterian Church

Parks, Recreational and Civic Facilities

Alafia Boat Ramp
Alderman's Ford Park
American Legion Hall - Alafia Post No. 148
Bloomingdale Civic Center/Little League
Bloomingdale East Park
Bloomingdale Golf Course
Bloomingdale West Park
Boyette Springs Park
Brandon Lodge No. 114F & AM - Masonic Hall
Brandon Moose Lodge 1880
Brandon Recreation Center (includes Scull Field and Rodgers Field)
Brandon Swim and Tennis Club
Brandon Veterans' Hall
Bryan-DeWolf Park
Buckhorn Springs Golf Course
Camp Alafia - Boy Scout camp
Camp Christina - YMCA/YWCA camp
Camp Dorothy Thomas - Girl Scout camp
Camp Florida
Center Place
Clayton Park/South Brandon Little League
Edward Medard park
J.C. Handly Park/Denton Sports Center
Heather Lakes Park
Kingsway Park
Limona Improvement Association

TABLE 3.3.2-2 (Continued)

CULTURAL FEATURES AND COMMUNITY FACILITIES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

Lithia-Pinecrest Park
Lithia Springs Park
Pinecrest Little League Field
Polo Field
Providence Lakes Community Park
Providence Park
Recreation Facility (across from Providence Baptist Church)
Riverview Park
Riverview Park and Community Center
TECO Hall
Unnamed Park (at Alafia River, south of Bloomingdale PD)
Unnamed Park (east of Bell Shoals Road, South of Bloomingdale Avenue)
Valrico Park
YMCA - Brandon

Government Buildings

Brandon Branch Library
Brandon Courthouse
Hillsborough County Department of Aging Services
Hillsborough County Farm Bureau
Hillsborough County Sheriff's Department - District 2
U.S. Post Office - Durant Branch
U.S. Post Office - Brandon Branch
U.S. Post Office - Riverview Branch
U.S. Post Office - Valrico Branch
Valrico Civic Center

Hospitals

Humana Hospital - Brandon

Cemeteries

Bloomingdale Community Cemetery
Hackney Cemetery
Hillsboro Memorial Gardens
Hopewell Memorial Gardens
Limona Cemetery
Pelote Cemetery

TABLE 3.3.2-2 (Continued)

CULTURAL FEATURES AND COMMUNITY FACILITIES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

Pleasant Grove Cemetery
Providence Cemetery
Samford Cemetery

Fire Stations

Fire Tower - Division of Forestry
Bloomingdale 1 Fire Station No. 370
Brandon 1 Fire Station No. 110
Riverview Fire Station No. 160

Sources: Hillsborough County Parks and Recreation Department
Rand McNally Hillsborough County Streetfinder
Glatting Lopez Kercher Anglin, Inc.

If relocation is not possible, any remaining facilities may find it necessary to accommodate a larger service area.

Churches and parks/recreation facilities are the most frequent type of community facilities found within the Crosstown Extension study area. Most religious denominations are located within the study area, many of which have a private school affiliation.

Most of the parks and recreational facilities serve local neighborhoods within the study area. However, three regional parks are located within the eastern half of the study area: Alderman's Ford Park (596 acres), Edward Medard Park (located along Pleasant Grove Reservoir), and Lithia Springs Park (a 160-acre park, with renowned natural springs). Three camps are also located within the study area: Camp Alafia (Boy Scout camp), Camp Christina (YMCA/YWCA camp), and Camp Dorothy Thomas (Girl Scout camp). The Alafia River, which generally flows east to west along the southern section of the study area, also provides recreational opportunities within the study area, such as: boating, canoeing, and fishing. No parks are impacted upon by any of the proposed alignments retained for further study.

The major community facility is Humana Hospital-Brandon, a 220-bed facility located in the northern section of the study area.

Future Facilities - Since the study area is located in one of the fastest growing areas of Hillsborough County, plans indicate that several new facilities will be built in the near future. It is helpful to understand the location of these future facilities in developing corridors for the Crosstown Extension. Listed below are the new facilities planned for development, or which were constructed during the course of the study.

Public Schools

- Mintz Elementary School opended in October, 1991; within Heather Lakes East planned development)

- Summerfield Elementary School opened in May, 1991; within the Summerfield community)

- Lithia Springs Elementary School (opened in August, 1992; within River Hills Country Club DRI)

- Boyette Springs Elementary School opened in August, 1992; within Boyette Springs planned development)

Parks

- Shadow Run Park (property purchased; within Shadow Run subdivision)

- Keysville Park (12 acres purchased; at southeast corner of SR 39 and Keysville Road)

- Buckhorn Springs Park (under negotiation to lease property for passive use adjacent to water pumping station)

- Valrico Park (94 acres of the 1,600-acre site used for utilities; within Valrico)

- Robert J. Davis Memorial Park (project of Hillsborough County Parks and Recreation Department, Florida Department of Natural Resources, and the US Department of the Interior; east of Timber Pond subdivision)

Humana Hospital - Brandon

- Brandon Obstetrics Center (has been constructed and is located west of Humana Hospital - Brandon at northwest corner of Vonderburg and Oakfield Roads)

- Humana Hospital - Brandon has been constructed on 25 acres purchased on the east side of Parsons Road, across from the existing hospital facility

Churches

- Church of the Brethren (planned for the east side of Providence Road, on western edge of Providence Lakes)

- Presbyterian Church (north side of Bloomingdale Avenue, across from Bloomingdale Square)

Archaeological and Historical Resources - The study area encompasses most of the Alafia River and its floodplain downstream from the north and south forks. Based on the known and suspected site information, the Alafia River area includes one of Hillsborough County's most notable archaeological/historical resource areas. Early twentieth century archaeological work near the river's mouth, and later work along the Alafia's south fork and elsewhere in and near the study area, have documented a rich and culturally diverse prehistory and early history; and the same should hold true for portions of the study area itself. In particular, areas of high archaeological/historical potential include relatively well-drained and

archaeological/historical potential include relatively well-drained and topographically high lands immediately adjacent to the river channel and floodplain margin, along the river's numerous tributary streams and branches, and around drainage heads. Both Buckhorn Springs and Lithia Springs are of considerably high potential, particularly for early Paleo-Indian sites, multi-period occupations, and paleontological remains.

North of the Alafia in the western portion of the study area is high, rolling terrain marked by many lakes, ponds, and freshwater marshes. Uplands surrounding these features may be expected to contain archaeological and historical sites. A major ecotonal break coursing north-south between these uplands and the coastal flatlands to the west is another area of high archaeological/historical resource potential. Table 3.3.2-3 indicates the known archaeological sites within the study area.

Historical Structures - Of the 10 recorded historic structure sites, eight are currently private residences located in Brandon and Hopewell (see Table 3.3.2-4, Historic Structures in the Study Area). Of the remaining two sites, one is currently used as a civic center, and the other houses a commercial establishment. The Moseley Homestead (8HI208) is listed on the National Register of Historic Places. Of the remaining nine sites, the civic center structure (8HI146) and the commercial structure 8HI205 are considered potentially eligible for the National Register by the Tampa-Hillsborough Historic Preservation Board.

Table 3.3.2-3

ARCHAEOLOGICAL SITES WITHIN THE STUDY AREA
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

SITE #	SITE NAME	T-R-S	CULTURAL AFFILIATION	SITE TYPE
8HI21	RIVERVIEW	30-20-16	unknown prehistoric	INDIAN MOUND
8HI319	LITHIA	30-21-16	unknown prehistoric	LITHIC SCATTER
8HI322	[no name]	29-21-21	unknown prehistoric	ARTIFACT SCATTER
8HI334	HARRIS	30-20-13	unknown prehistoric	ARTIFACT SCATTER
8HI335	FULLER	30-20-13	unknown prehistoric	LITHIC SCATTER, REDEPOSITED
8HI336	ORANGE GROVE	30-21-7	unknown prehistoric	LITHIC SCATTER
8HI337	[no name]	30-20-11	unknown prehistoric	LITHIC SCATTER
8HI338	[no name]	30-20-12	unknown prehistoric	HISTORIC REFUSE
8HI339	FORT ALAFIA	30-22-8	AMERICAN	FORT SITE
8HI340	CEDAR GROVE	30-22-8	LATE ARCHAIC	LITHIC SCATTER
8HI407	LIGHTFOOT	30-19-24	WEEDEN ISLAND	ARTIFACT SCATTER
8HI417	BRYANT	30-21-14	ARCHAIC	LITHIC SCATTER
8HI478	ALAFIA SOUTH	30-20-19	ARCHAIC	LITHIC SCATTER
8HI479	ROAST PIG	30-20-30	ARCHAIC	LITHIC SCATTER
8HI520	SOUTH RAILROAD	29-20-20	unknown prehistoric	LITHIC SCATTER
8HI521	TITUS CHURCH	30-20-6	ARCHAIC	LITHIC SCATTER
8HI522	TWO HORSE	30-20-6	ARCHAIC	LITHIC SCATTER
8HI523	BLOOMINGDALE	30-20-6	ARCHAIC	LITHIC SCATTER
8HI538	WISE FARM	29-19-24	unknown prehistoric	ARTIFACT SCATTER
8HI972	C-6,7,8,9	29-22-28	unknown prehistoric	ARTIFACT SCATTER
8HI973	C-10	29 22-28	unknown prehistoric	LITHIC SCATTER
8HI2119	TIMBERPOND	29-20-22	unknown prehistoric	LITHIC SCATTER
8HI2129	EASTWOOD 1	30-21-9	ARCHAIC, TRANSITIONAL	ARTIFACT SCATTER
8HI2130	EASTWOOD 2	30-21-16	unknown prehistoric	LITHIC SCATTER
8HI2131	EASTWOOD 3	30-21-16	unknown prehistoric	LITHIC SCATTER
8HI2132	EASTWOOD 4	30-21-9	TRANSITIONAL	ARTIFACT SCATTER
8HI2133	EASTWOOD 5	30-21-9	AMERICAN, TRANSITIONAL	ARTIFACT SCATTER
8HI2134	EASTWOOD 6	30-21-9	MIDDLE & LATE ARCHAIC	LITHIC SCATTER
8HI2135	EASTWOOD 7	30-21-10	TRANSITIONAL	ARTIFACT SCATTER
8HI2142	NASTY KNOLL	29-20-20	unknown prehistoric	LITHIC SCATTER
8HI2143	REGENCY W	29-20-20	ARCHAIC	LITHIC SCATTER
8HI2144	[no name]	29-20-20	unknown prehistoric	LITHIC SCATTER
8HI2145	STUCK CAR	29-20-20	unknown prehistoric	LITHIC SCATTER
8HI2146	REGENCY SW	29-20-20	unknown prehistoric	LITHIC SCATTER
8HI2182	DIRT ROAD SITE	30-19-13	unknown prehistoric	LITHIC SCATTER
8HI2183	BLACK SNAKE SITE	30-20-7	unknown prehistoric	LITHIC SCATTER
8HI2184	BURNT SCRUB SITE	30-20-7	unknown prehistoric	LITHIC SCATTER
8HI2185	CANAL SITE	30-19-12	unknown prehistoric	LITHIC SCATTER
8HI2186	OAK GROVE SITE	30-19-12	unknown prehistoric	LITHIC SCATTER
8HI3285	RIVER GLEN	30-20-22	LATE ARCHAIC WEEDEN ISLAND SAFETY HARBOR	ARTIFACT SCATTER
8HI3388	FISH HAWK 6	30-21-15	unknown prehistoric	LITHIC SCATTER
8HI3390	FISH HAWK 8	30-21-30	unknown prehistoric	LITHIC SCATTER
8HI3392	FISH HAWK 10	30-21-21	AMERICAN	HISTORIC REFUSE

TOTAL = 43 ARCHAEOLOGICAL SITES
NO NHRP-LISTED OR ELIGIBLE ARCHAEOLOGICAL SITES = 0
T-R-S = Township-Range-Section

Source: Table 4-6

TABLE 3.3.2-4

HISTORIC STRUCTURES WITHIN THE STUDY AREA
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD&E STUDY

Site #	Site Name	T-R-S	Street Address	Current Use	Register
8HI146	Valrico Civic Club	29-20-24	5th St., Valrico	Civic Center	Potential
8HI203	Evers House	30-22-5	SR 39 & Seily, Alafia	Private Res.	
8HI204	Farnsworth House	30-22-8	0.2 Mi East of SR 39 & Swill, Alafia	Private Res.	
8HI205	Brandon House	29-20-26	401 W. Brandon Blvd., Brandon	Comm., Unsp.	Potential
8HI206	Galvin-Carl (Fessenden) House	9-21-32	Durant & Mulrennan Rds., Brandon	Private Res.	Potential
8HI207	Valrico Villa (Skjellte) House	29-20-25	Morningside Rd. & Brandon Blvd., Brandon	Private Res.	
8HI208	Moseley Homestead	29-20-21	1820 W. Brandon Blvd., Brandon	Private Res.	Listed
8HI209	[No Name]	29-20-21	1514 Victoria St., Brandon	Private Res.	
8HI218	J.R. McDonald House	29-22-29	Hopewell Rd., Nichols Grove	Private Res.	Potential
8HI219	Glen McDonald Hopewell	29-22-29	Hopewell Rd. & SR 39,	Private Res.	Potential

TOTAL = 10 HISTORIC STRUCTURES
No. NRHP Historic Structure Sites = 1 (8HI208)
T-R-S = Township-Range-Section

A more detailed discussion of the archaeological and historic resources is presented in the accompanying Environmental Impact Statement, and the Archaeological and Historic Resource Assessment.

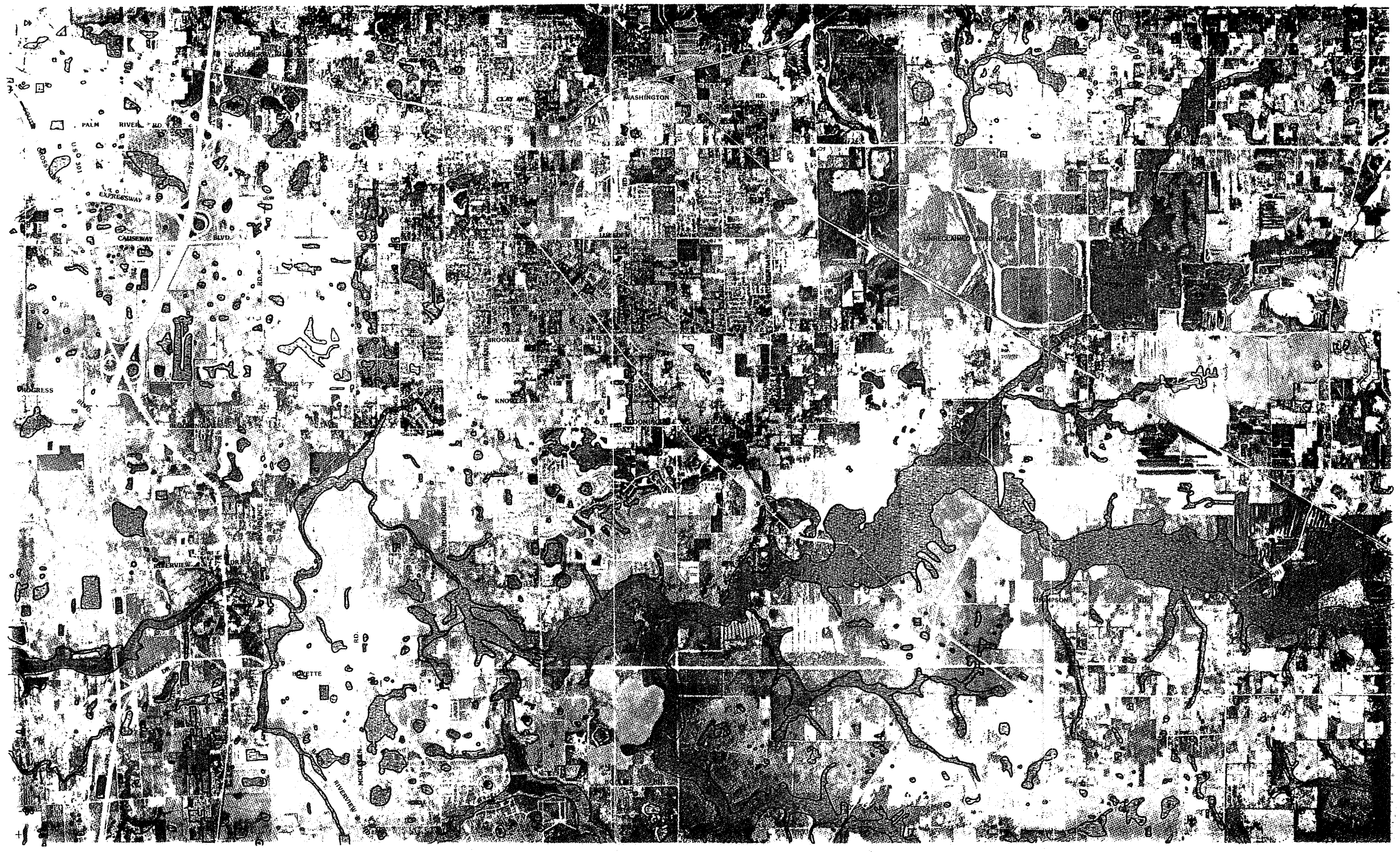
3.3.3 Natural and Biological Features

Available data, local knowledge and personal observations are used to provide information pertaining to hydrological and natural features of the study area. The following sections present these data on wetlands, threatened and endangered species, unreclaimed areas and general biology of the area.

Wetlands

The environmentally sensitive areas in Hillsborough County, which generally correspond to wetland areas, have been mapped by the Hillsborough County City-County Planning Commission as a part of the comprehensive planning effort. This map was used to delineate the major wetlands within the study area (see Figure 3.3.3-1) in addition to the National Wetlands Inventory maps (US Fish and Wildlife Service).

The study area contains about 15 square miles of wetlands, the majority of which is mixed hardwood swamp. Most of these wetlands are associated with



Source: National Wetlands Inventory.
U.S. Fish Wildlife Service.

Brown&Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	MAJOR WETLANDS WITHIN THE STUDY AREA	Figure 3.3.3-1

the floodplain of the Alafia River and its tributaries. There are two large springs within the floodplain: (1) Buckhorn Springs, located in the northeast quarter of Section 9, Township 29S, Range 20E, and (2) Lithia Springs, located in Section 17, Township 29S, Range 21E. Buckhorn Springs is owned and utilized by Gardinier as a source of process water for their chemical operations, while Lithia Springs is within Lithia Springs Park, which is operated by Hillsborough County. The alternatives under study do not encroach upon either spring. A large number of relatively small cypress domes, bay heads, streams, lakes, ponds and herbaceous wetlands are situated throughout the study area. A wetland system of lakes north of SR 60 is composed of four major lakes. Lake Weeks, Lake Hooker, Long Pond, and Valrico Lake comprise this system. The wetlands are typified by shallow herbaceous edges with urban encroachment. The remaining alternatives under study do not encroach upon this lake system.

The floodplain of the Alafia River has been severely impacted by phosphate mining activities in its headwaters in both Hillsborough and Polk Counties. These activities were the primary cause of poor water quality that was reportedly measured in the river for many years. As a result of stricter regulatory control of phosphate mining and processing, the water quality of the Alafia has shown some improvements over the last several years.

Of the tributaries to the Alafia that lie within the study area, the Turkey Creek drainage has been the most disturbed. Several square miles of unreclaimed, "old lands" currently occupy much of the Turkey Creek watershed. The upper reaches of the stream flow into a phosphate pit which has been reclaimed as a lake, called Lake Sucarnoochee, which is included in Medard Park, a recreational area maintained by Hillsborough County. The majority of the other wetlands throughout the study area have been impacted by alteration of drainage patterns and inputs from adjacent developments.

Outstanding Florida Waters

No Outstanding Florida Waters exist within the study area.

Aquatic Preserves and/or Wild and Scenic Rivers

No aquatic preserves are within the study area. No wild and scenic rivers exist within the study area.

Endangered and Threatened Species

The study area for the proposed extension of the Tampa South Crosstown Expressway encompasses about 105 square miles, including a large portion of

the Alafia River floodplain. While there are extensive residential and commercial developments in the Brandon area and large tracts of mined land to the east of Brandon, there is still considerable undeveloped property within the area that can and does support a variety of species that are listed as threatened, endangered or of special concern by both federal and state agencies. A listing of those species known or expected to occur within the study area is shown in Tables 3.3.3-1 and 3.3.3-2. The faunal list was developed primarily from personal observations in the study area while the plant list is derived from the listing maintained by the Florida Department of Transportation. A total of 31 animals and 13 plants are either known or expected to occur within the study area.

Biological Assessment

This area is typified by urban encroachment into pine flatwood and wetland habitat. The Alafia River is the dominant wetland feature in the southern portion of the study area. It is primarily forested wetlands with associated herbaceous areas. Other wetlands include large marsh areas which support numerous herbaceous species and prime wetland habitat.

ENDANGERED, THREATENED AND SPECIAL CONCERN ANIMAL SPECIES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION STUDY AREA

Common Name	Scientific Name	FGFWC	USFWS
American Alligator+	*Alligator mississippiensis*	SSC	T
Artic Peregrine Falcon+	*Falco peregrinus tundruis*	E	T
Bald Eagle+	*Haliaeetus leucocephalus*	T	E
Brown Pelican+	*Pelicanus occidentalis*	SSC	—
Florida Black Bear	*Ursa americanus floridanus*	T	UR2
Florida Burrowing Owl	*Athene cunicularia*	SSC	—
Florida Gopher Frog+	*Rana areolata aesopus*	SSC	UR2
Florida Mouse	*Peromyscus floridanus*	SSC	UR2
Florida Sandhill Crane+	*Grus canadensis pratensis*	T	—
Florida Scrub Jay	*Aphelocoma coerulescens coerulescens*	T	T
Gopher Tortoise+	*Gopherus polyphemus*	SSC	UR2
Indigo Snake+	*Drymarchon croais couperi*	T	T
Limpkin+	*Aramus guarauna*	SSC	—
Little Blue Heron+	*Egretta caerulea*	SSC	—
Osprey+	*Pandion haliaetus*	SSC	—
Roseate Spoonbill+	*Ajaia Ajaja*	SSC	—
Round-tailed Muskrat+	*Neofiber alleni*	—	UR2
Sherman's Fox Squirrel+	*Sciurus niger shermani*	SSC	UR2
Short-tailed Snake+	*Stilosoma extenuatum*	T	UR2
Snowy Egret+	*E. thula*	SSC	—
Southeastern Kestrel+	*Falco sparverius paulus*	T	UR2
Southeastern Big-eared Bat+	*Plectotus rafinesque*	—	UR2
Suwannee Cooter+	*Chrysemys concinna suwanniensis*	SSC	—
Tricolored Heron+	*E. tricolor*	SSC	—
West Indian Manatee	*Trichechus manatus latirostris*	E	E
Wood Stork+	*Mycteria americana*	E	E

E = Endangered
T = Threatened
SSC = Species of Special Concern
UR2 = Under review for listing, but substantial evidence of biological vulnerability and/or threat is lacking
UR5 = Still formally under review for listing, but no longer considered for listing because recent information indicates species is more widespread or abundant than previously believed
+ = Species known or expected in project area

TABLE 3.3.3-1

ENDANGERED AND THREATENED PLANT SPECIES
TAMPA SOUTH CROSSTOWN EXPRESSWAY STUDY AREA

Common Name	Scientific Name	Designated Status	
		USFWS	FDA
Narrow-Leaved False Foxglove	*Agalinis stenophylla*	UR2	-
Crustiss Milkweed	*Asclepias curtissii*	-	T
Southern Milkweed	*Asclepias viridula*	UR2	T
Auricled Spleenwort	*Asplenium auritum*	-	E
Sand Butterfly Pea	*Centrosema arenicola*	UR5	-
Florida Golden-Aster	*Chrysopsis floridana*	E	E
False Coco	*Eulophia ecristata*	-	T
Hairy Cucumber-Leaf Sunflower; Hairy Sunflower	*Helianthus debilis vestitus*	UR1	-
Nodding Pinweed; Drooping Pinweed	*Lechea cernua*	UR2	-
Slender-Leaved False Dragonhead; Small's Dragonhead	*Physotegia leptophyllum*	UR2	-
Needle Palm	*Rhapidophyllum hystrix*	UR5	C
Broad-Leaved Nodding-Caps; Broad-Leaved	*Triphora latifolia*	UR2	T
Tampa Vervain	*Verbena tampensis*	UR1	-

E = Endangered
T = Threatened
UR1 = Under review for federal listing, with substantial evidence in existence indicating at least some degree of biological vulnerability and/or threat.
UR2 = Under review for federal listing, but substantial evidence of biological vulnerability and/or threat is lacking.
UR5 = Still formally under review for listing, but no longer considered for listing because recent information indicates species is more widespread or abundant than previously believed.

TABLE 3.3.3-2

SECTION 4

4.0 NEED FOR IMPROVEMENT

The eastern extension of the Tampa South Crosstown Expressway is proposed for three purposes: (1) to serve inter-regional east-west traffic travelling through the Brandon area, including truck traffic, much of which is travelling to and from the Port of Tampa; (2) to serve east-west traffic within Brandon; and (3) to provide mobility between the Brandon residential community and the Tampa Central Business District, the Westshore Business District, MacDill Air Force Base and other regional employment centers, by way of access to the Crosstown Expressway and to Interstate 75.

A proposed easterly extension of the Tampa South Crosstown Expressway has appeared in the following transportation plans:

- Tampa Urban Area Metropolitan Planning Organization - Summary Report, Year 2010 Long Range Transportation Plan for Hillsborough County (1986) and Transportation Improvement Program, FY 91- FY 95, (Revised 1993)*;

* The Hillsborough County Metropolitan Planning Organization (MPO) formed a task force group responsible for developing alternative solutions to extending the Crosstown Expressway and held a public hearing on May 26, 1993. The MPO voted to accept the recommendation to delete the limited access extension of the Crosstown Expressway from the 2010 Long Range Transportation Plan.

- Tampa Urban Area Metropolitan Planning Organization updated 2010 Long Range Transportation Plan, Adoped September 10, 1991, and is included as a listed "Enhanced Revenues Project" (Priority 2).

- Hillsborough County - Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County (July 1989);*

- Florida's Turnpike - Florida's Turnpike Statewide System Plan; and

- Florida Department of Transportation - Florida Intrastate Highway System Plan (FIHSP).

These transportation plans indicate a regional recognition of the need for the Crosstown Extension, over the next twenty years. The expressway extension is warranted and it is consistent with the comprehensively planned development of Hillsborough County.

* Hillsborough County planning commission has determined that a proposed extension would be inconsistent with the Hillsborough County Comprehensive Plan, even though the facility was shown in the previously approved Comprehensive Plan.

4.1 Safety and Condition of Existing Facilities

The Crosstown Expressway Interchange with I-75 and the portion of the expressway between US 301 and I-75 were constructed in 1985.

As can be seen in Figure 3.1.2-1, the existing expressway has 10 foot wide outside shoulders, 8 foot wide paved and 8 foot wide inside shoulders, 4 feet of which is paved. The outside shoulder width is a minimum value and the median shoulder is a desirable value.

The shoulders on the Ramp "C" bridge are 10 feet on the outside and 6 feet for the median. These values are desirable for a two lane structure.

The shoulders on the Loop "D" bridge are both 6 feet, which is desirable for a one lane ramp.

The median width on the Crosstown is 46 feet-7 inches which is less than the 60 feet minimum now permitted.

As can be seen, the existing Crosstown generally meets the existing safety requirements with regard to shoulder width and falls below now current requirements for minimum median width.

As stated in Section 3.1.11, the I-75/Crosstown Interchange is fully lit with high mast lighting.

The existing interchange and the Crosstown are generally safe facilities which, except for median width, meet current design criteria.

Recent accident data for SR 60 between Interstate 75 and County Road (CR) 39 were summarized previously in Table 3.1.9-1. These data were provided by the Florida Department of Transportation Office of Accident Records and Research. In the years 1986, 1987 and 1988 the ratio was greater than 1.0, which means that the section of SR 60 had a higher accident occurrence rate than similar State facilities. These higher accident rates are not due to geometric or design deficiencies of SR 60; rather, they are likely due to high levels of congestion on SR 60 where through traffic is mixed with local Brandon traffic. The proposed extension of the Crosstown Expressway will serve as an alternative route for through traffic, particularly for trucks. Eliminating this through traffic from the SR 60 travel stream will allow SR 60 to function as a local arterial, primarily serving the access roads of abutting properties, which should provide for safer operation than today's "mixed traffic." The proposed extension of the Crosstown Expressway will provide the through interregional trips a much safer alternative than SR 60.

The predominint accident types on SR-60 were due to rear end collisions and left-turns across opposing traffic. The extension will not appreciably reduce the congestion on SR 60 but will provide greater control of left turns by using medians and by application of FDOT Access Management Rules. By providing safe refuge, at controlled locations, for left turn movements, some reduction of rear-end type accidents may also occur. The land uses surrounding SR 60 are not expected to change. The fact that much of the traffic on SR 60 is seeking adjacent destinations will result in continued high incidence of turns and stops as drivers negotiate driveways.

The existing SR 60 meets urban arterial geometric design criteria. The FDOT reconstructed SR 60 from the vicinity of Providence Road to near Valrico Road during 1991,1992. The new facility will replace the existing roadway and provide further safety of operations. Congestion is a primary factor in safe roadway operation. Due to land use in the SR 60 corridor, the improvements proposed for SR 60 are not expected to result in reduction of congestion through the year 2010.

Lumsden Road is the only other through, east-west arterial in the study area for the remaining alternatives. Lumsden Road was widened to four lanes between Kings Avenue and Lithia Pinecrest Road during 1991,1992. Lumsden is a collector road and meets the standards applicable to its functional class.

Accident data are not available for Lumsden Road.

Other collector roadways in the study area are generally aligned north-south and also meet the standards for collector roads. Kings Avenue was reconstructed during 1991,1992 to four lane urban standards.

4.2 System Linkage

The proposed eastern extension of the Tampa South Crosstown Expressway will be a major link in the transportation system of the Tampa urban area. This facility will connect the existing Crosstown Expressway, at I-75, eastward to State Road (SR) 60 east of the developed area of Brandon. The project also serves as an important connecting link in the Florida Intrastate Highway System Plan.

SR 60 is an existing four-lane highway which extends across the State between the Tampa urban area and the east coast of Florida. East of Brandon, SR 60 is generally a rural highway; however, within the Brandon area it is six lanes wide and serves as an urban arterial providing access to Brandon's shopping and business district. Therefore, the eastern limits of urban development along SR 60, generally considered to be at Dover Road, is a logical eastern terminal for the Crosstown Expressway extension. With this eastern terminus,

the proposed eastern extension of the Tampa South Crosstown Expressway will provide a direct connection from this cross-state multi-lane highway to Tampa's regional highway system by way of Interstate 75 and the existing Crosstown Expressway.

SR 60 is the major east-west road in the study area. The only other continuous east-west roads providing a connection to either the Crosstown Expressway or I-75 are Lumsden Road and Bloomingdale Avenue.

Lumsden Road is four lanes wide from US 301 east to Faulkenburg Road, six lanes wide from Faulkenburg Road to Providence Road, four lanes wide from Providence Road to Lithia-Pinecrest Road and two lanes wide east of Lithia-Pinecrest Road. Lumsden overpasses I-75 with no interchange. Access from Lumsden Road to the Crosstown Expressway is provided by way of Faulkenburg Road, which includes a half-diamond interchange at the Expressway, carrying traffic to and from the west.

Bloomingdale Avenue is two lanes wide through the study area, although current plans call for widening to four lanes from US 301 east to Lithia-Pinecrest Road. Bloomingdale Avenue overpasses I-75 with no interchange; however, access to I-75 is provided by way of US 301 which includes a full interchange at I-75. Access from Bloomingdale Avenue to the Crosstown

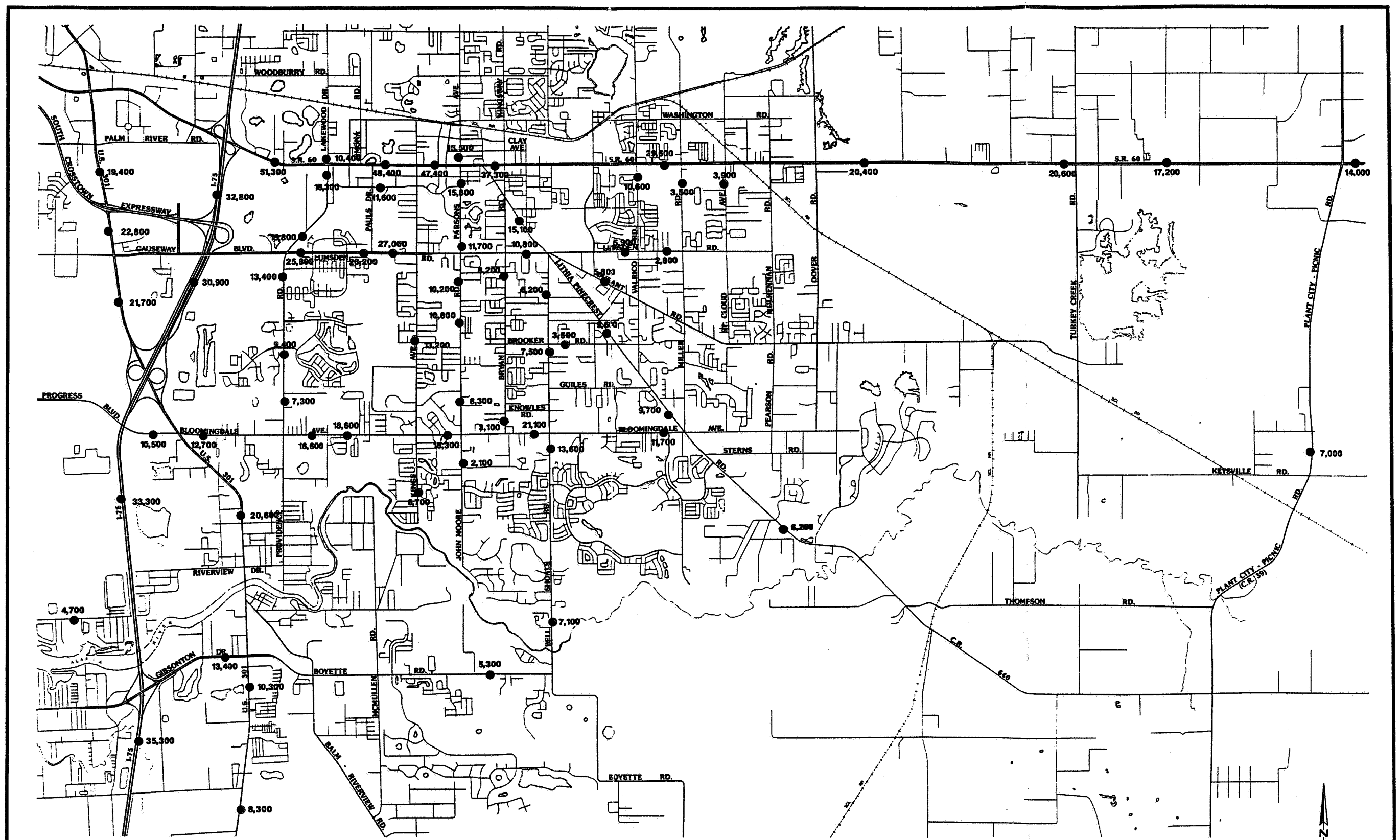
Expressway is provided only by way of US 301, which interchanges with the Expressway about 2.5 miles north of Bloomingdale Avenue.

4.3 Transportation Demand and Capacity

4.3.1 Existing Traffic Demand

Figure 4.3-1 shows daily traffic counts in the study area based on 1989 and 1990 data from the Tampa-Hillsborough County Expressway Authority, Florida Department of Transportation, and Tampa Urban Area Metropolitan Planning Organization (MPO). Based on hourly counts collected in 1990 at several locations, peak hour volumes range from 7.5% to 10% of daily volumes, peak direction traffic in the peak hour ranges from 50% to 70% of the total hourly volume, and the percentage of trucks ranges from 3% to 15%.

Level of Service (LOS) is a measure of the operating characteristics of a roadway. The best level of service is "A" where vehicular traffic is virtually unimpeded and safety of operation is greatest. The worst case



Sources: Florida Department of Transportation
Hillsborough County Engineering Department
Glatting Lopez Kercher Anglin, Inc.

Brown & Root-Genesis Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

Tampa–Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

EXISTING AVERAGE DAILY TRAFFIC

Figure 4.3-1

LOS is "F" where traffic congestion is considerable and safety of operation is lowest.

SR 60 operates at LOS "B" and "C" through most of the eastern portion of the study area, with daily volumes ranging from 30,000 vehicles east of Valrico Road to 14,000 vehicles east of SR 39. Within the developed areas of Brandon, SR 60 operates at LOS "E" and "F", with daily volumes ranging from 37,000 vehicles to 51,000 vehicles.

With completion of the four-laning from Kings Avenue to Lithia-Pinecrest Road, Lumsden Road will be operating at LOS "B" and "C" based on current traffic counts. Volumes on this road are heavily directional during the peak hour, particularly west of Kings Avenue where over 70% of the peak hour volume travels in the peak direction.

Bloomingdale Avenue currently operates at LOS "D" and "E" through the western portions of the study area, with daily volumes ranging from 11,000 vehicles to 21,000 vehicles.

Table 4.3-1 shows existing and projected volumes and levels of service for major roads in the study area as prepared by the Hillsborough County City County Planning Commission.

TABLE 4.3-1

INVENTORY OF ROADWAYS

County Roadway	From	To	F/C	Length Miles	Lane Type	Annual Growth Rate	LOS STD	CAP @ LOS STD	Count Year	Vol	EST 90 VOL	EST 90 V/C	EST 90 LOS	EST 94 VOL	EST 94 V/C	EST 94 LOS
SR 60	I-75	Kings Ave.	PA	2.2	4LD	0.0567	D	31,700	90	5521	55210	1.74	F	67732	2.14	F
SR 60	Kings Ave.	Kingsway Rd.	PA	1.0	6LD	0.0567	D	46,300	88	4313	48028	1.04	E	57811	1.25	F
SR 60	Kingsway Rd.	Dover Rd.	PA	3.6	4LD	0.0567	D	32,500	90	3221	32218	0.99	D	39525	1.22	F
Causeway/Lumsden	US 41	US 301	MA	3.2	2L	0.0567	E	17,400	88	1569	17469	1.00	F	21028	1.21	F
Lumsden Blvd.	Kings Ave.	Lithia-Pinecrest	COL	1.5	2L	0.0567	D	14,400	89	1935	20456	1.42	F	24846	1.73	F
Bloomingdale Ave.	US Hwy 301	John Moore	COL	3.2	2L	0.0567	D	14,400	87	1093	12793	0.89	D	15272	1.06	E
Bloomingdale Ave.	John Moore	Bell Shoals Rd.	COL	1.3	2L	0.0567	D	14,400	89	1834	19383	1.35	F	23543	1.63	F
US 301	I-4	Crosstown Xway	PA	4.6	4LD	0.0567	D	32,500	88	2666	29683	0.91	B	35730	1.10	F
Lakewood Dr.	Providence Rd.	SR 60	COL	0.9	2L	0.0567	D	14,400	90	1351	13517	0.94	D	16583	1.15	F
Kings Avenue	Lumsden Rd.	SR 60	COL	1.0	2L	0.0567	D	14,400	90	1745	17455	1.21	F	21414	1.49	F
Parsons Ave.	Lumsden Rd.	Oakfield	COL	0.8	2L	0.0567	D	14,400	88	1169	13021	0.90	D	15674	1.09	E
Parsons Ave.	Oakfield	SR 60	COL	0.3	2L	0.0567	D	14,400	89	1575	16643	1.16	F	20215	1.40	F
Parsons Ave.	SR 60	SR 574	COL	3.1	2L	0.0567	D	14,400	88	1553	17298	1.20	F	20821	1.45	F
John Moore Rd.	Bloomingdale Ave.	Lumsden Rd.	COL	2.1	2L	0.0567	D	14,400	87	1160	13573	0.94	D	16204	1.13	F
Kingsway Rd.	SR 60	SR 574	COL	3.1	2L	0.0567	D	14,400	88	1338	14900	1.03	E	17935	1.25	F
Lithia Pinecrest Rd.	SR 60	Bell Shoals	COL	1.3	2L	0.0567	D	14,400	88	1507	16779	1.17	F	20197	1.40	F

LEGEND

F/C = Functional Class
MA = Minor Arterial
PA = Principle Arterial
COL = Collector
ART = Arterial

Length = Length of Segment in Miles
Lane Type = Lane Arrangement
CAP = Capacity (Max Flow Rate) at LOS STD
V/C = Volume to Capacity Ratio
LOS = Level of Service

Source: Hillsborough County City County Planning Commission

4.3.2 Forecasted Travel Demand

Year 2010 traffic volumes were projected for the "No-Build" alternative, alternative 3, and alternatives 7, 16, 49, 50, 51 and 52 using the Florida Standard Urban Transportation Model Structure (FSUTMS). These alternatives were selected for modeling and further study following the corridor analysis phase of the study as presented in Section 5 of this report. Because the travel service characteristics of alternatives 7, 16, 49, 50, 51 and 52 are equivalent, they were grouped together and referred to as the "Lumsden" alternatives. This analysis was accomplished using alternative networks of the Tampa Urban Area Transportation Study (TUATS) and the adopted travel forecasting model of the MPO. Each alternative is described below.

- **No-Build Alternative** - is the "no-build" network which reflects the adopted long range plan of TUATS without the Crosstown Expressway extension. This network includes widening of each local east-west road in the Brandon area, and serves as the base network for the other alternatives.

- **Alternative 3** - includes the long range plan TUATS network with an extension of the Crosstown Expressway along SR 60 to

Dover Road. In order to address staged construction options, a partial project option to this alternative, terminating at Kings Avenue, has also been evaluated.

- **"Lumsden" Alternative** - includes the long range plan TUATS network with an extension of the Crosstown Expressway along Lumsden Road to SR 60 near Dover Road. In order to address staged construction options, two partial project options of this alternative were also evaluated. One option terminates at Lithia-Pinecrest Road, and the other option terminates at Kings Avenue.

The forecasted travel demand has been evaluated to determine the extent to which the alternatives will meet the purposes of the project. The first two primary purposes, serving inter-regional through traffic and serving local traffic, were evaluated in two ways: systems travel service characteristics and volume-to-capacity comparisons.

Travel service characteristics of each alternative are summarized in Table 4.3-2. As shown, construction of any "Build" alternative will provide significant travel time savings compared to the "No-Build" alternative. Based on this analysis, the "Build" alternatives will provide

TABLE 4.3-2

SUMMARY OF 2010 SYSTEMS TRAVEL SERVICE CHARACTERISTICS

ALTERNATIVES	Vehicle Miles of Travel per Day (000's)	Vehicle Hours of Travel per Year (000's)	Annual Savings Relative to No-Build (000's of VHT)
No-Build	**45,310**	**581,546**	**--**
Lumsden Alignment	**45,302**	**579,940**	**1,606**
SR 60 (Alignment 3)	**45,309**	**579,299**	**2,247**

Lumsden Alignments refer to Alternative 7,16,49,50,51,52.

SR 60 Alignment refers to Alternative Alignment 3.

Each alternative, including the No-build, assumes all planned roadway widenings included in the adopted long-rage plan of the Tampa Urban Area Transportation Study are completed by the year 2010.

much better overall travel service for through traffic and local traffic than the "No-Build" alternative.

Projected volumes were compared to planned roadway capacities for each of the alternatives. The volume is the number of vehicle trips expected to occur based on the Future Land Use Plan of Hillsborough County, including such factors as population, land use, and trips generated from external areas. Capacity refers to the volume of vehicle trips which can be accommodated on the transportation network at Level of Service "D". Accordingly, a volume to capacity ratio greater than one indicates that additional improvements are needed to adequately serve projected volumes at level of service "D". Table 4.3-3 presents overall 2010 volume-to-capacity ratios at several "cutlines" within the study area. The volumes used in preparing this table are projected year 2010 volumes from the MPO model; the capacities are planned year 2010 capacities on all east-west arterial roadways based on the adopted Year 2010 Long Range Transportation Plan of the MPO. As shown in Table 4.3-3, the overall system of east-west roadways with each of the "Build" alternatives will provide sufficient roadway capacity to adequately serve projected traffic volumes.

TABLE 4.3-3

2010 "Cut Line" V/C Ratios

ALTERNATIVES	West of Providence Road	West of Kings Avenue	West of John Moore Road	West of Bryan Road	West of Valrico Road	West of Dover Road
No-Build	**1.22**	**1.08**	**1.15**	**1.26**	**0.80**	**0.81**
Lumsden Alignment	**0.93**	**0.84**	**0.86**	**0.90**	**0.64**	**0.60**
SR 60 (Alignment 3)	**0.94**	**0.86**	**0.89**	**0.91**	**0.63**	**0.59**

Lumsden Alignments refer to Alternative Alignments 7,16, 49,50,51,52.
SR 60 Alignment refers to Alternative Alignment 3.
CUTLINE refers to the total volume of traffic on all east-west arterial roadways in the study area (SR 60, Lumsden Road, and Bloomingdale Avenue).

NOTE: Capacities include all planned roadway widenings on adopted long range plan of the Tampa Urban Area Transportation Study.

Based on capacity at Level-of-Service "D," which is the minimum acceptable Level-of-Service adopted in the Hillsborough County Comprehensive Plan.

The third primary purpose of the project is to provide mobility between the Brandon residential community and regional employment centers. Each of the "Build" alternatives will provide a safe, high-speed expressway connection between the residential community and the Crosstown Expressway and I-75. This connection will provide good mobility between Brandon and the Tampa Central Business District, the Westshore Business District, the University of South Florida, MacDill Air Force Base, and other regional employment centers. However, the "No-Build" alternative will provide significantly less mobility (i.e., slower peak hour travel times). Based on the analysis presented in Table 4.3-3, about four new arterial lanes of capacity will be needed on the existing arterial system in addition to the widening already planned in order to serve projected year 2010 volumes at Level of Service "D" without an extension of the Crosstown Expressway. Therefore, a total of six to ten new lanes of arterial roadway would need to be added to the existing east-west arterials in the corridor.

The "all arterial" alternative would result in an average speed of about 17 miles per hour on the arterials during peak hours (at Level of Service "D"). The expressway would provide an average operating speed of about 45 miles per hour on the expressway (at Level of Service "D"). This travel time difference would mean a trip from

Lithia-Pinecrest Road to Faulkenburg Road would take approximately ten minutes more with the "all arterial" solution than with the expressway extension. The "all arterial" solution and the expressway extension solution would each be designed to meet projected traffic volumes in the year 2010. Although this "all arterial" alternative meets the needs of local traffic within Brandon, it cannot satisfy the other purposes of the proposed Crosstown Expressway extension.

However, the future land use plan of Hillsborough County anticipates that population and employment will continue to increase in the Brandon area beyond the year 2010. The projected 2010 population anticipates that approximately 50% of the developable land in the study area will be built-out; therefore, additional improvements to arterial roadways or the expressway will be needed in order to serve continued growth beyond the year 2010. Such anticipated growth is consistent with the Hillsborough County Comprehensive Plan, including the Future Land Use Element. In effect, it may be concluded that the extension of the expressway will facilitate well-managed implementation of the Future Land Use Plan.

The proposed action will provide necessary future capacity that is not otherwise available within the currently adopted Long Range Transportation Plan.

4.4 Previous Studies

Current and past studies and reports pertaining to transportation plans and programs for the Crosstown Extension study area are summarized below.

Corridor Study on the South Crosstown Expressway Eastern Extension to Brandon, 1974, (Tampa-Hillsborough County Expressway Authority)

In 1974, a corridor study was conducted for the proposed Eastern Extension of the South Crosstown Expressway from the Tampa Central Business District to Brandon. The study area for this effort was bounded by: SR 60 (to the north), Dover Road (to the east), Bloomingdale Avenue (to the south), and the Tampa Central Business District (to the west). Based on engineering and environmental factors, the modified Central Corridor was recommended for the extension east of I-75. This corridor extended from I-75 through the South Brandon area, and terminated at SR 60 in the vicinity of Miller Road. Based on significant public opposition by residents in the

Brandon area, the Expressway Authority voted to terminate the Crosstown Expressway at I-75.

Feasibility Report - Study of Extensions to the Tampa South Crosstown Expressway, 1987, (Tampa-Hillsborough County Expressway Authority)

This study was conducted in 1987 to evaluate the financial feasibility of three proposed extensions to the Crosstown Expressway, and to rank the implementation of these projects. The eastern extension through Brandon was one of the three projects studied. This study recommended that the Authority proceed with engineering and environmental analysis of the proposed eastern extension of the Crosstown Expressway in order to identify a specific location for the facility.

Year 2010 Long Range Transportation Plan for Hillsborough County, 1986, (Tampa Urban Area Metropolitan Planning Organization)

The Tampa Urban Area Metropolitan Planning Organization (MPO) adopted the 2010 Long Range Transportation Plan in 1986. This plan stated that, "the extension of the East Crosstown Expressway through Brandon to SR 60 approximately at Dover Road is necessary to

relieving SR 60 peak auto and truck traffic through downtown Brandon, and to providing service to the existing Crosstown." In addition, a related policy included in the plan states "the Expressway Authority is requested to initiate detailed corridor and financial feasibility studies on the South Crosstown extension, East Crosstown (Brandon) extension..."

North Brandon Transportation Study, 1987, (Tampa Urban Area Metropolitan Planning Organization)

The MPO completed this study in March 1987 to aid in updating the year 2010 Long Range Transportation Plan with respect to proposed east-west arterial and collector roadways in the North Brandon area. The study area is bounded by: SR 574 (to the north), Valrico Road (to the east), SR 60 (to the south), and US 301 (to the west). The study's recommendations include improvements to a number of east-west roads, even with the Crosstown Extension in place.

Long Range Transportation Plan, September 1991, (Tampa Urban Area Metropolitan Planning Organization) Plan Update.

The September 1991 Long Range Transportation Plan underwent 3 series of 8 public work shops (24 total workshops) and 3 Public Hearings to develop the approved plan to guide development of a balanced transportation system to meet travel demand for the next 20 years. The easterly extension is included in the Enhanced Revenue Projects (Priority 2) portion of the recommended highway improvements.

Florida Intrastate Highway System Plan, 1988, (Florida Department of Transportation)

The Florida Department of Transportation developed this plan in 1988 for a 20-year period. The eastern extension of the Crosstown Expressway appears in the first ten years of the plan (1989-1998) as a new expressway.

Future of Hillsborough Comprehensive Plan for Unincorporated Hillsborough County, (Hillsborough County)

The Hillsborough County Board of County Commissioners adopted a revised Comprehensive Plan in July 1989. The easterly extension of the Crosstown Expressway is included in the Traffic Circulation

Element (Year 2010 Long Range Plan; July 27, 1989) and the Future land Use Element (Future of Hillsborough Unincorporated County 2010 Land Use Plan Map; July, 1989).

4.5 Federal, State, or Local Government Authority

The extension of the Crosstown Expressway is included in the adopted 2010 long range transportation plan of the Tampa Urban Area MPO. The facility is also included in the Comprehensive Plan for Hillsborough County as adopted by the Hillsborough County Commission.

4.6 Social Demands and Economic Development

The study area for the Crosstown Extension is located within unincorporated eastern Hillsborough County. The study area is primarily residential in nature, and includes the southern portion of the Brandon community. Shopping and other business activities are primarily located within the SR 60 business district, and neighborhood shopping centers are also located at several major roadway intersections throughout the study area. There are no employment centers located in the study area, although the I-75 corridor is designated Urban Level on the Hillsborough County Future Land Use Plan;

significant amounts of new employment are anticipated in this corridor by the year 2010.

Eastern Hillsborough County, including the study area, has experienced rapid population growth over the past ten years. The population of the general study area, bounded by SR 60 on the north, SR 39 on the east, the Alafia River on the south, and I-75 on the west, grew from about 30,000 persons in 1980 to about 53,600 persons in 1988. The annual growth rate over these eight years was approximately 7.5 percent per year, or about 3000 persons per year. The projected year 2010 population for the area is approximately 83,300 persons. The projected annual growth rate from 1988 to 2010 is approximately two percent per year, or about 1300 persons per year. As noted earlier in this section, significant land use availability will exist beyond 2010 as only approximately one-half of the area will be "built out". However, the continued growth of the area will, in time, increase the need for an expressway while at the same time, closing off legitimate alignment alternatives, and facing ever escalating costs for right-of-way and construction.

4.7 Modal Interrelationships

Hillsborough Area Rapid Transit (HARTline) services the study area with scheduled bus services. The Hillsborough County Mass Transit Corridor

Alternatives Analysis Study commissioned by the Florida Department of Transportation, the Metropolitan Planning Organization, and HARTline, determined a proposed rail corridor along SR 60 to Valrico Road. The 2010 Long Range Plan of the MPO includes both the Mass Transit Corridor along SR 60 and the Eastern Extension of the Crosstown Expressway; therefore, the Plan calls for rail and bus service throughout the Brandon area including express bus service between Brandon and regional employment centers. Construction of the Crosstown Extension will provide a safe, high-speed facility for use by the express bus service. The provision of mass transit facilities and an extension of the expressway are consistent with the 2010 Long Range Transportation Plan.

4.8 Air Quality

The Tampa urban area has been designated a non-attainment area for ozone by the EPA. Construction of the Crosstown Extension will significantly reduce overall vehicle hours of travel in Hillsborough County, as shown in Table 4.3-2, which will reduce overall automobile air emissions. Therefore, construction of the extension of the Crosstown Expressway is consistent with the need to reduce air emissions, and improve air quality in the region.

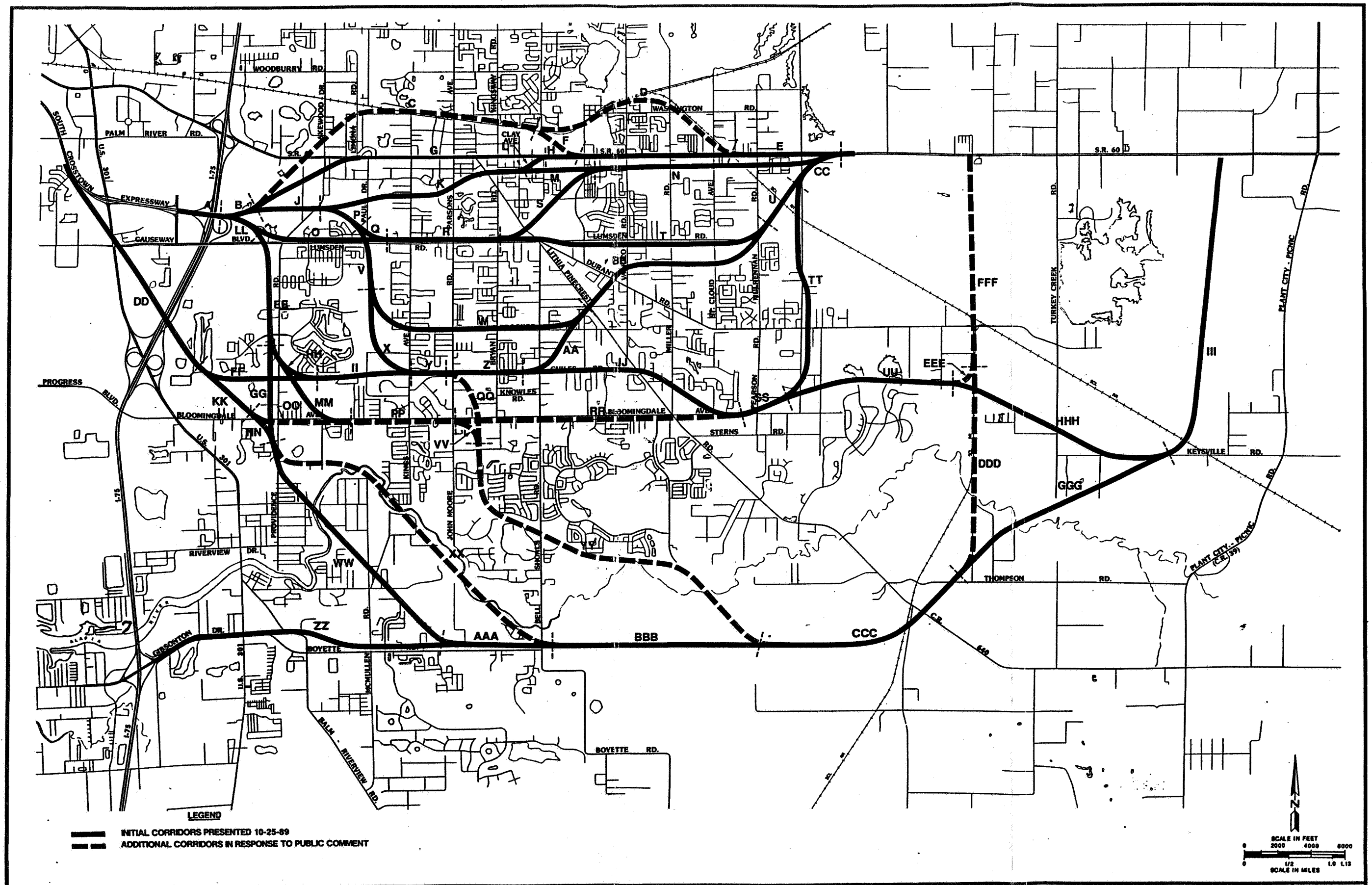
SECTION 5

5.0 CORRIDOR ANALYSIS

5.1 Evaluation of Alternative Corridors

The study area bounded by State Road 60 to the north, Interstate 75 to the west and extending south of the Alafia River east of Brandon was subdivided into five major corridors for alternative evaluations (see section 5.3.1). Based on data collected for the study area; review of current (March 1989) 1" = 1000' color photographic mosaic mapping; application of sound design principles; and local knowledge, several study corridor alignments were identified, as shown in Figure 5.1-1. These initial alignments were reviewed with the Expressway Authority and presented for public review and comment at the October 25, 1989 Public Information Meeting. As a result of this meeting, corridor alignments were added in response to public comment, as presented in Figure 5.1-2. Public comment also addressed a desire to extend the study area north of State Road 60. Upon approval of the Expressway Authority, the area north of State Road 60 was studied, resulting in two additional corridor alignments. Consequently, 50 alternative alignments were evaluated for community impacts, natural environmental impacts, and cost.

The evaluation factors used for the study were developed by the study team during



Brown&Root-Genesis Engineering Company

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HDR

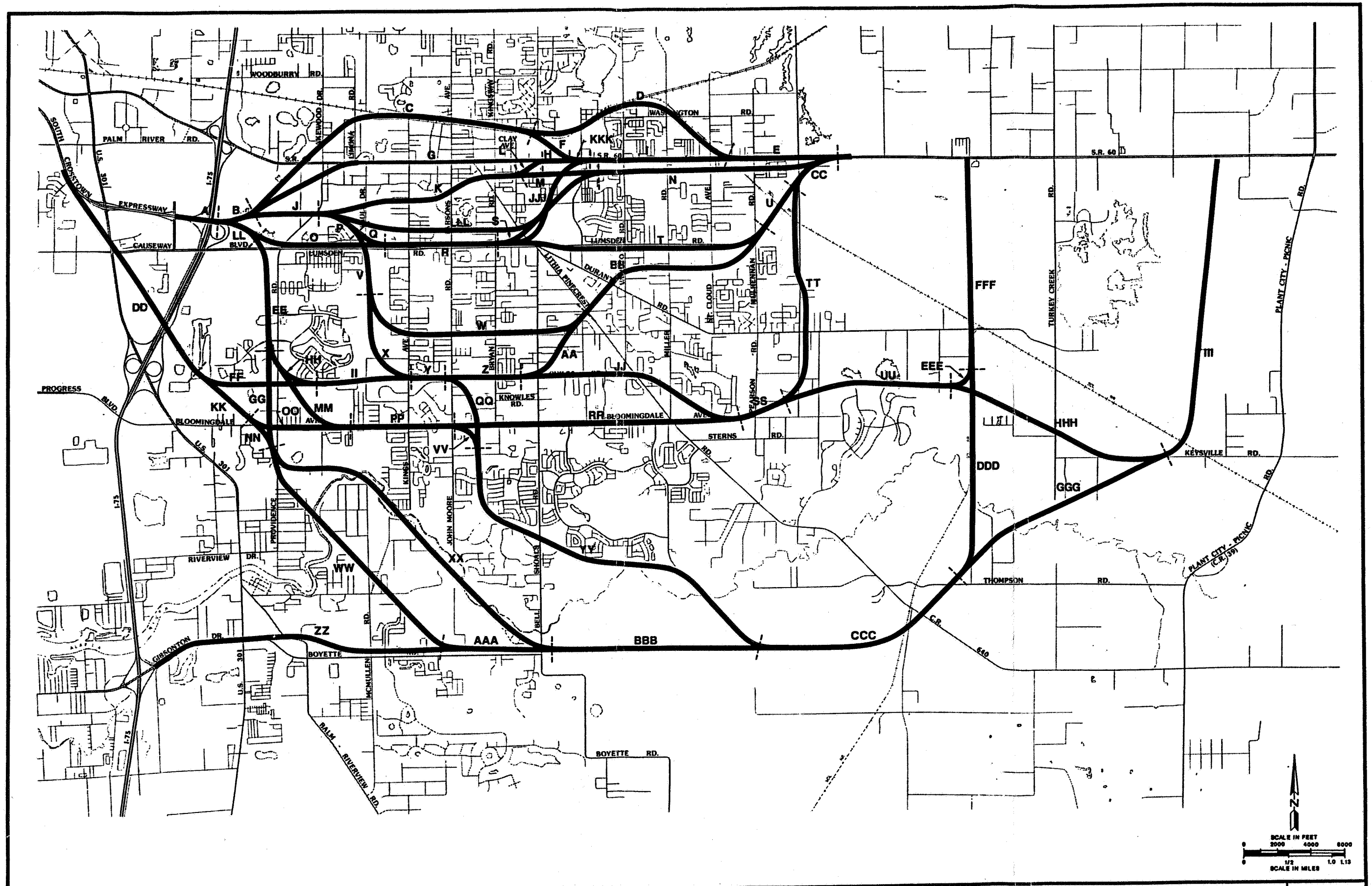
Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

ALTERNATIVE CORRIDORS

Figure 5.1-1



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Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

ALTERNATIVE CORRIDORS

Figure 5.1-2

September and October 1989. The initial evaluation factors were reviewed with the Technical Review Committee and the Environmental Advisory Group on October 16, 1989. As a result, an item to evaluate Significant Wildlife Habitat was added in response to comments received. Also, in response to comments received from the public, factors were added to enable evaluation of the number of residences that would remain 300 feet either side of and adjacent to each alternative corridor alignment. This factor was provided to give some additional measure of residential impacts of each route, in addition to actual displacements within the right-of-way.

The corridor analysis element of the study involved mapping the 50 alternative alignments on current 1" = 400' aerial photography (April, 1989) and evaluating the impacts of each alignment, as measured by the approved evaluation factors (see Table 5.2-6). The results of this evaluation were presented to the following groups:

o	Technical Review Committee and Environmental Advisory Group	January 9, 1990
o	Tampa-Hillsborough County Expressway Authority	January 22, 1990
o	General Public	January 31, 1990 Public Information Meeting

o Technical Review Committee and Environmental Advisory Group — February 19, 1990

Based on the Data Collection Report, study of the 1" = 400' mapping, and site research, all of the evaluation factors were quantified on a segment by segment basis.

An additional alignment was presented by the public at the January 31, 1990 Public Information Meeting. This alignment, located northerly of Lumsden Road was reviewed with the citizens group that proposed it and was then entered as an additional alignment within the Northern Corridor. The proposed alternative was subjected to the same analysis and evaluation as all the other routes, including field review and verification of evaluation data. The results of the review were presented to the Technical Review Committee and the Environmental Advisory Group on February 19, 1990.

The study team proposed retaining 5 alignments, generally located within the State Road 60 alignment, or along Lumsden Road and several connecting alignments between the two. The alignment located north of Lumsden Road was not recommended by the Study Team since it offered no significant advantage over the recommended alignments and since the Study Team determined that the new corridor located approximately 1000 feet north of the existing Lumsden Road

Corridor would create a remainder that would have rapidly changing land use characteristics. The Technical Review Committee and Environmental Advisory Group concurred with the Study Team recommendations.

On February 26, 1990, the Study Team presented its findings to the Expressway Authority. The presentation reviewed the alternatives considered and reviewed the findings of the evaluation. The five alternatives within the Northern Corridor which were found to have least community impacts, superior or equal travel service benefits and costs within the range of the alternatives studied were recommended to be retained for further study. The Expressway Authority passed a resolution accepting the Study Team recommendations. During the course of the Expressway Authority meeting, the citizens group named the Citizens Against the Crosstown Hook-up via Lumsden Road (CATCH) formally proposed the new alignment parallel to and approximately 1000' north of Lumsden Road. The citizens requested the Authority retain their alignment and presented reasons why they believed their proposal should receive further study. The Expressway Authority, accepting the Citizens Group proposal, modified their resolution and added the alignment to those retained for further study.

Based upon the technical analysis and public input, 6 alignments plus the "no build" option were retained for further study at the direction of the Tampa-Hillsborough County Expressway Authority. During meetings with CATCH representatives, they

further refined their request to add a connection to the Lumsden Road alignments with a southerly shift, near Mt. Carmel Road, and refined their proposal for the originally requested alignment. A seventh alignment was added as a design alternative to the original CATCH proposed at the request of the CATCH Group.

5.2 Corridor Alignment Impacts

Impacts of the alternative alignments were measured by four broad classifications: socioeconomic impacts, natural environmental impacts, cost, and travel service. Each evaluation measure is presented in Table 5.2-1 and described below.

In measuring socioeconomic impacts, the following factors were considered: business and economic development, residential, parks and recreation facilities, community facilities, historic structures, and archaeological sites. Most of these impacts were measured within the right-of-way of a corridor. However, residential and community facility impacts were also measured for areas within 300 feet of a segment's right-of-way, in response to public comment and since these areas could experience other impacts of the roadway such as visual impacts.

Business impacts were measured in terms of vacant establishments as well as occupied establishments. In addition, impacts to planned developments were included since a project would need to obtain new government approvals to

accommodate the extension's right-of-way if it went through an approved planned area.

Residential impacts were evaluated for three housing types: single family homes, multifamily units, and mobile homes, as well as neighborhood impacts. If a segment right-of-way separated a neighborhood into two distinct areas, then the neighborhood was considered to be divided. If a segment right-of-way went through an edge of a neighborhood, it was considered to be a "neighborhood encroached" since the balance of the neighborhood would continue to function as a community.

Parks and recreation facilities were measured in two ways: (1) displaced, which would be a total taking, or (2) encroached, which would allow the park to continue to function beside the extension roadway.

Community facilities provide neighborhood cohesion and include: churches, schools, government buildings, fire stations, police stations, cemeteries, and hospitals. These facilities generally serve the areas adjacent to them. If displaced and another location is not found, remaining facilities will need to serve a larger area. If left within 300 feet of the extension's right-of-way, the facility may be subject to visual and noise impacts.

TABLE 5.2-1

EVALUATION MEASURES USED FOR CORRIDOR ANALYSIS TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Socioeconomic Impacts	Business and Economic Development Total Businesses Displaced (SF) Total Businesses Displaced (No.) Vacant Business Locations Displaced (No.) Occupied Business Locations Displaced (No.) Planned Developments Impacted (No.)
	Residential Single Family Homes Displaced (No.) Multifamily Units Displaced (No.) Mobile Homes Displaced (No.) Undeveloped Lots Displaced (No.)
	Single Family Homes w/i 300 Ft. (No.) Multifamily Units w/i 300 Ft. (No.) Mobile Homes w/i 300 Ft. (No.)
	Neighborhoods Divided (No.) Neighborhoods Encroached (No.)
Socioeconomic Impacts	Parks/Recreation Facilities Parks Displaced (No.) Parkland Displaced (AC.) Parks Encroached (No.)
	Community Facilities Community Facilities Displaced (No.) Community Facilities w/i 300 Ft. (No.)
	Historic Structures Historic Structures Displaced (No.)
	Archaeologically Significant Sites Archaeological Sites Impacted (No.)
Natural Environment	Wetlands w/i ROW (Acres) Wetland System Impacted (Low Value, Medium Value, High Value) Significant Wildlife Habitat w/i ROW (acres) Significant Wildlife Habitat Impacted (Low Value, Medium Value, High Value) Hazardous Waste Sites Impacted (No.)

TABLE 5.2-1 (Continued)

EVALUATION MEASURES USED FOR CORRIDOR ANALYSIS
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Project Costs	Construction Cost ($1989) Right-of-Way Cost ($1989) Total Project Cost ($1989) Length of Centerline (miles) Right-of-Way (Acres)
Travel Service	Traffic Volumes on Crosstown Extension Average Daily Trips by Extension Link Peak-Hour Directional Volume by Extension Link
	Truck Volumes on Extension Truck Average Daily Trips Classified by axle by Extension Link
	Traffic Volumes on other Roads Affect on Average Daily Trips on eight arterial and collector streets in study area by major link
	Traffic Volumes at Interchange Areas Increase in Average Daily Trips at the interchange locations in study area
	Vehicle Miles of Travel on Alternate Corridors Vehicle Miles of Travel by Extension Link
	Vehicle Hours of Travel System Vehicle Hours of Travel
	Vehicle Miles of Travel System Vehicle Miles of Travel

Sources: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.
HDR Engineering, Inc.

Three major factors were considered in measuring the natural environment impacts: wetlands, wildlife habitat areas, and hazardous waste sites. Wetlands and wildlife habitat areas were measured in terms of their value (low, medium, high), as well as the number of acres to provide a better understanding of the roadway's impact.

Project cost is the sum of construction cost and right-of-way cost. The construction cost figures include: linear roadway, frontage roads, interchanges, overpasses, and mitigation.

Right-of-way cost includes land purchased for mitigation of wetland impacts. A factor averaging 50% of the land value was added for litigation and court costs, based on the experience and judgment of the appraiser. Right-of-way cost estimates were modified at several stages in the analysis to reflect current FDOT guidelines and the factors used were changed accordingly.

The travel service measure basically provides a comparison of traffic volumes, miles traveled, and hours of travel. Broad corridors were used for this evaluation instead of specific alignments, since the results would change more by a major change in location, rather than a minor adjustment in the alignment. Section 6 provides a summary of the traffic analysis.

To facilitate the evaluation of impacts, the 51 alternative alignments were divided

into 63 segments, as shown in Figure 5.1-2. The evaluation data collected for each segment is shown in Table 5.2-2.

Details about the values of individual wetland systems and individual wildlife habitat are provided in Table 5.2-3 and 5.2-4, respectively.

EVALUATION DATA BY SEGMENT
CROSSTOWN PD & E STUDY

	A	B	C	D	E	F	G	H
BUSINESS & ECONOMIC DEVELOPMENT								
Total Businesses Displaced (No.)	0	0	24	7	0	0	15	0
Total Businesses Displaced (SF)	0	0	78,700	7,500	0	0	85,525	0
Vacant Business Locations (No.)	0	0	1	4	0	0	0	
Occupied Business Locations(No.)	0	0	23	3	0	0	15	
Planned Developments Impacted (No.)	0	1	0	0	0	0	0	0
PARKS/RECREATION FACILITIES								
Parks Displaced (No.)	0	0	1	0	0	0	0	0
Parks Encroached (No.)	0	0	1	0	0	0	0	0
Parkland Displaced (AC)	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0
HISTORIC STRUCTURES								
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES								
Archeological Sites Impacted (No.)	0	0	1	0	0	0	0	0
RESIDENTIAL								
Single Family Homes Displaced (No.)	0	0	71	75	3	38	0	0
Multi-Family Units Displaced (No.)	0	0	16	0	0	0	4	0
Mobile Homes Displaced (No.)	0	0	0	6	0	0	0	0
Undeveloped Lots Displaced (No.)	0	0	0	27	0	0	0	0
Single Family Homes w/i 300 Ft. (No.)	0	0	143	75	6	7	4	9
Multi-Family Units w/i 300 Ft. (No.)	0	0	142	16	0	0	0	0
Mobile Homes w/i 300 Ft. (No.)	0	0	0	4	16	9	0	0
Neighborhoods Divided (No.)	0	0	2	0	0	0	0	0
Neighborhoods Encroached (No.)	0	0	1	0	1	0	0	0
COMMUNITY FACILITIES								
Community Facilities Displaced (No.)	0	0	3	0	0	0	0	0
Community Facilities w/i 300 Ft. (No.)	0	0	4	1	0	0	0	0
PROJECT COSTS								
Length (Centerline miles)	0.00	0.44	3.61	3.10	1.40	0.92	3.72	0.33
Construction Cost ($1989)	$21.98	$2.99	$70.08	$55.08	$25.19	$10.17	$111.63	$6.78
Right of Way ($1989)	$0.00	$9.08	$53.40	$19.16	$6.52	$7.47	$20.19	$1.99
Right of Way (Acres)	5.51	15.91	124.80	108.64	34.44	32.71	56.37	8.04
TOTAL PROJECT COST	$22.0	$12.1	$123.5	$74.2	$31.7	$17.6	$131.8	$8.8
NATURAL ENVIRONMENT IMPACTS								
Wetlands (AC)	0.4	2.6	6.3	0.0	0.0	0.0	7.3	0.0
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 5.2-2

NOTE: Costs are 1989 dollars, costs are applicable to initial analysis of 52 alignments and are further refined and revised in later sections as appropriate to the stages of the study.

	I	J	K	L	M	N	O	P
BUSINESS & ECONOMIC DEVELOPMENT								
Total Businesses Displaced (No.)	12	0	3	5	0	0	0	0
Total Businesses Displaced (SF)	63,975	0	58,750	5,000	0	0	0	0
Vacant Business Locations (No.)	4	0	0	1	0	0	0	0
Occupied Business Locations(No.)	8	0	3	4	0	0	0	0
Planned Developments Impacted (No.)	0	0	0	0	0	0	0	1
PARKS/RECREATION FACILITIES								
Parks Displaced (No.)	0	0	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HISTORIC STRUCTURES								
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES								
Archeological Sites Impacted (No.)	0	0	0	0	0	0	0	0
RESIDENTIAL								
Single Family Homes Displaced (No.)	6	0	59	11	49	6	20	0
Multi-Family Units Displaced (No.)	0	0	0	56	0	56	0	0
Mobile Homes Displaced (No.)	5	0	0	0	21	62	0	0
Undeveloped Lots Displaced (No.)	0	0	0	0	0	0	0	0
Single Family Homes w/i 300 Ft. (No.)	15	0	45	18	84	6	172	0
Multi-Family Units w/i 300 Ft. (No.)	16	0	142	0	56	40	64	0
Mobile Homes w/i 300 Ft. (No.)	73	0	0	0	31	149	0	0
Neighborhoods Divided (No.)	0	0	1	0	0	2	1	0
Neighborhoods Encroached (No.)	0	0	1	0	2	1	2	0
COMMUNITY FACILITIES								
Community Facilities Displaced (No.)	0	0	1	0	0	0	0	0
Community Facilities w/i 300 Ft. (No.)	2	0	3	0	0	0	0	0
PROJECT COSTS								
Length (Centerline miles)	1.71	0.78	2.33	0.54	1.24	2.96	1.81	0.44
Construction Cost ($1989)	$30.05	$4.33	$43.12	$10.20	$21.26	$60.44	$15.66	$1.78
Right of Way ($1989)	$16.74	$9.41	$23.44	$6.93	$9.21	$16.25	$22.12	$2.11
Right of Way (Acres)	47.47	28.75	85.67	18.89	45.39	107.61	46.30	15.74
TOTAL PROJECT COST	$46.8	$13.7	$66.6	$17.1	$30.5	$76.7	$37.8	$3.9
NATURAL ENVIRONMENT IMPACTS								
Wetlands (AC)	0.0	1.8	9.9	0.0	0.5	1.3	7.9	4.4
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 5.2-2

	Q	R	S	T	U	V	W	X
BUSINESS & ECONOMIC DEVELOPMENT								
Total Businesses Displaced (No.)	0	11	0	1	0	0	0	0
Total Businesses Displaced (SF)	0	21,250	0	10,000	0	0	0	0
Vacant Business Locations (No.)	0	3	0	0	0	0	0	0
Occupied Business Locations(No.)	0	8	0	1	0	0	0	0
Planned Developments Impacted (No.)	0	0	1	0	0	0	0	1
PARKS/RECREATION FACILITIES								
Parks Displaced (No.)	0	0	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HISTORIC STRUCTURES								
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES								
Archeological Sites Impacted (No.)	0	0	0	0	0	0	0	0
RESIDENTIAL								
Single Family Homes Displaced (No.)	8	11	41	41	0	0	105	13
Multi-Family Units Displaced (No.)	0	0	0	0	0	0	0	0
Mobile Homes Displaced (No.)	0	0	26	0	0	0	0	0
Undeveloped Lots Displaced (No.)	0	0	0	0	0	0	0	0
Single Family Homes w/i 300 Ft. (No.)	7	39	73	93	0	28	178	16
Multi-Family Units w/i 300 Ft. (No.)	0	0	0	0	0	0	0	0
Mobile Homes w/i 300 Ft. (No.)	0	0	68	0	0	0	0	1
Neighborhoods Divided (No.)	1	0	1	0	0	0	0	0
Neighborhoods Encroached (No.)	0	0	1	1	0	0	1	1
COMMUNITY FACILITIES								
Community Facilities Displaced (No.)	0	0	3	3	0	0	1	0
Community Facilities w/i 300 Ft. (No.)	0	0	0	0	0	0	3	0
PROJECT COSTS								
Length (Centerline miles)	0.59	1.14	1.75	3.27	0.85	0.92	2.73	1.21
Construction Cost ($1989)	$3.95	$20.94	$17.50	$60.74	$5.01	$17.90	$49.62	$22.35
Right of Way ($1989)	$4.29	$9.49	$16.05	$26.44	$2.07	$3.14	$21.75	$5.44
Right of Way (Acres)	20.04	28.24	64.26	109.09	30.82	32.95	100.83	46.04
TOTAL PROJECT COST	$8.2	$30.4	$33.5	$87.2	$7.1	$21.0	$71.4	$27.8
NATURAL ENVIRONMENT IMPACTS								
Wetlands (AC)	11.0	0.2	0.5	0.0	4.6	16.0	4.5	4.1
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 5.2-2

	Y	Z	AA	BB	CC	DD	EE	FF
BUSINESS & ECONOMIC DEVELOPMENT								
Total Businesses Displaced (No.)	0	0	0	0	0	0	0	0
Total Businesses Displaced (SF)	0	0	0	0	0	0	0	0
Vacant Business Locations (No.)	0	0	0	0	0	0	0	0
Occupied Business Locations(No.)	0	0	0	0	0	0	0	0
Planned Developments Impacted (No.)	0	0	0	0	0	2	2	0
PARKS/RECREATION FACILITIES								
Parks Displaced (No.)	0	0	0	0	0	0	0	1
Parks Encroached (No.)	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HISTORIC STRUCTURES								
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES								
Archeological Sites Impacted (No.)	0	0	0	0	0	0	0	0
RESIDENTIAL								
Single Family Homes Displaced (No.)	10	36	21	48	0	4	6	10
Multi-Family Units Displaced (No.)	0	0	0	0	0	0	32	0
Mobile Homes Displaced (No.)	0	0	0	0	2	8	0	0
Undeveloped Lots Displaced (No.)	0	0	3	0	0	0	7	34
Single Family Homes w/i 300 Ft. (No.)	12	96	42	85	0	10	48	53
Multi-Family Units w/i 300 Ft. (No.)	0	0	0	0	0	0	80	0
Mobile Homes w/i 300 Ft. (No.)	0	0	0	0	0	6	0	0
Neighborhoods Divided (No.)	0	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	0	2	0	0	0	1	1	0
COMMUNITY FACILITIES								
Community Facilities Displaced (No.)	0	0	0	0	0	0	0	0
Community Facilities w/i 300 Ft. (No.)	0	2	1	0	0	0	0	0
PROJECT COSTS								
Length (Centerline miles)	0.16	1.11	1.02	2.62	0.71	2.76	1.48	1.47
Construction Cost ($1989)	$2.56	$20.44	$10.71	$48.77	$11.07	$47.54	$27.95	$25.21
Right of Way ($1989)	$1.82	$8.24	$8.14	$12.64	$1.14	$18.47	$12.32	$6.17
Right of Way (Acres)	5.72	40.01	37.05	82.51	26.00	112.43	73.00	53.48
TOTAL PROJECT COST	$4.4	$28.7	$18.8	$61.4	$12.2	$66.0	$40.3	$31.4
NATURAL ENVIRONMENT IMPACTS								
Wetlands (AC)	0.0	0.0	0.6	0.0	0.0	5.5	3.4	7.0
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 5.2-2

	GG	HH	II	JJ	KK	LL	MM	NN
BUSINESS & ECONOMIC DEVELOPMENT								
Total Businesses Displaced (No.)	0	0	0	0	0	0	0	0
Total Businesses Displaced (SF)	0	0	0	0	0	0	0	0
Vacant Business Locations (No.)	0	0	0	0	0	0	0	0
Occupied Business Locations(No.)	0	0	0	0	0	0	0	0
Planned Developments Impacted (No.)	0	0	1	0	0	1	0	1
PARKS/RECREATION FACILITIES								
Parks Displaced (No.)	1	0	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HISTORIC STRUCTURES								
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES								
Archeological Sites Impacted (No.)	0	0	0	0	0	0	0	0
RESIDENTIAL								
Single Family Homes Displaced (No.)	11	12	12	31	2	0	18	3
Multi-Family Units Displaced (No.)	0	0	0	0	0	0	0	0
Mobile Homes Displaced (No.)	0	0	0	0	0	0	0	0
Undeveloped Lots Displaced (No.)	28	7	70	12	0	0	7	0
Single Family Homes w/i 300 Ft. (No.)	19	74	49	89	2	0	44	5
Multi-Family Units w/i 300 Ft. (No.)	0	0	0	0	0	0	0	0
Mobile Homes w/i 300 Ft. (No.)	0	0	0	0	0	0	0	0
Neighborhoods Divided (No.)	0	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	1	1	0	0	0	0	0	0
COMMUNITY FACILITIES								
Community Facilities Displaced (No.)	0	0	0	1	0	0	0	0
Community Facilities w/i 300 Ft. (No.)	3	0	0	0	0	0	0	0
PROJECT COSTS								
Length (Centerline miles)	1.20	0.62	1.22	2.56	0.77	0.37	1.44	0.70
Construction Cost ($1989)	$23.12	$5.97	$9.81	$37.22	$4.79	$4.04	$13.14	$14.14
Right of Way ($1989)	$7.44	$5.09	$7.14	$12.29	$2.99	$5.26	$6.59	$2.52
Right of Way (Acres)	43.84	22.56	45.80	92.49	28.57	13.43	52.51	25.21
TOTAL PROJECT COST	$30.6	$11.1	$16.9	$49.5	$7.8	$9.3	$19.7	$16.7
NATURAL ENVIRONMENT IMPACTS								
Wetlands (AC)	0.0	0.0	2.5	1.9	7.7	4.6	0.0	3.7
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 5.2-2

	OO	PP	QQ	RR	SS	TT	UU	VV
BUSINESS & ECONOMIC DEVELOPMENT								
Total Businesses Displaced (No.)	0	18	0	42	0	0	0	24
Total Businesses Displaced (SF)	0	87,500	0	140,525	0	0	0	78,500
Vacant Business Locations (No.)	0	1	0	22	0	0	0	14
Occupied Business Locations(No.)	0	17	0	20	0	0	0	10
Planned Developments Impacted (No.)	0	0	0	0	0	0	1	0
PARKS/RECREATION FACILITIES								
Parks Displaced (No.)	0	0	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HISTORIC STRUCTURES								
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES								
Archeological Sites Impacted (No.)	0	0	0	0	0	0	0	0
RESIDENTIAL								
Single Family Homes Displaced (No.)	24	9	21	37	6	12	7	7
Multi-Family Units Displaced (No.)	0	0	8	46	0	0	0	0
Mobile Homes Displaced (No.)	0	0	0	0	0	1	0	0
Undeveloped Lots Displaced (No.)	0	0	0	0	0	4	18	0
Single Family Homes w/i 300 Ft. (No.)	38	46	32	88	9	30	11	20
Multi-Family Units w/i 300 Ft. (No.)	0	88	64	86	0	0	0	0
Mobile Homes w/i 300 Ft. (No.)	0	0	0	0	0	0	0	0
Neighborhoods Divided (No.)	0	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	1	1	1	3	0	0	0	0
COMMUNITY FACILITIES								
Community Facilities Displaced (No.)	0	0	0	2	0	0	0	0
Community Facilities w/i 300 Ft. (No.)	0	0	0	4	2	0	0	1
PROJECT COSTS								
Length (Centerline miles)	1.47	0.76	1.41	3.57	0.57	2.86	1.95	0.91
Construction Cost ($1989)	$26.45	$13.74	$12.98	$63.09	$5.55	$24.21	$7.41	$7.76
Right of Way ($1989)	$8.23	$17.65	$5.29	$50.53	$1.38	$12.45	$5.82	$12.62
Right of Way (Acres)	40.71	18.55	50.34	95.42	20.70	105.17	70.88	18.94
TOTAL PROJECT COST	$34.7	$31.4	$18.3	$113.6	$6.9	$36.7	$13.2	$20.4
NATURAL ENVIRONMENT IMPACTS								
Wetlands (AC)	1.6	0.0	0.6	2.9	0.0	12.0	3.0	2.8
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 5.2-2

	WW	XX	YY	ZZ	AAA	BBB	CCC	DDD
BUSINESS & ECONOMIC DEVELOPMENT								
Total Businesses Displaced (No.)	0	0	0	0	0	0	0	0
Total Businesses Displaced (SF)	0	0	0	0	0	0	0	0
Vacant Business Locations (No.)	0	0	0	0	0	0	0	0
Occupied Business Locations(No.)	0	0	0	0	0	0	0	0
Planned Developments Impacted (No.)	1	1	1	2	0	0	1	0
PARKS/RECREATION FACILITIES								
Parks Displaced (No.)	0	0	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HISTORIC STRUCTURES								
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES								
Archeological Sites Impacted (No.)	1	0	0	0	0	0	0	1
RESIDENTIAL								
Single Family Homes Displaced (No.)	33	18	61	17	2	0	1	2
Multi-Family Units Displaced (No.)	0	0	0	0	0	0	0	0
Mobile Homes Displaced (No.)	26	52	0	3	0	0	0	0
Undeveloped Lots Displaced (No.)	3	0	0	12	0	0	0	0
Single Family Homes w/i 300 Ft. (No.)	76	44	144	65	4	0	0	4
Multi-Family Units w/i 300 Ft. (No.)	0	0	0	0	0	0	0	0
Mobile Homes w/i 300 Ft. (No.)	9	104	0	19	0	0	2	0
Neighborhoods Divided (No.)	0	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	0	0	3	1	0	0	0	0
COMMUNITY FACILITIES								
Community Facilities Displaced (No.)	0	0	0	0	0	0	0	0
Community Facilities w/i 300 Ft. (No.)	0	0	1	1	0	0	0	0
PROJECT COSTS								
Length (Centerline miles)	3.42	4.18	4.43	4.04	0.97	2.49	2.60	3.02
Construction Cost ($1989)	$26.22	$39.78	$24.45	$51.40	$8.80	$9.78	$12.74	$15.70
Right of Way ($1989)	$17.15	$32.21	$26.87	$18.05	$2.86	$2.91	$3.21	$4.63
Right of Way (Acres)	125.93	153.58	161.50	106.52	35.12	90.29	95.73	109.33
TOTAL PROJECT COST	$43.4	$72.0	$51.3	$69.5	$11.7	$12.7	$15.9	$20.3
NATURAL ENVIRONMENT IMPACTS								
Wetlands (AC)	23.1	45.4	30.7	17.2	13.2	10.0	14.7	34.7
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	38.8	45.4	0.0

TABLE 5.2-2

	EEE	FFF	GGG	HHH	III	JJJ	KKK
BUSINESS & ECONOMIC DEVELOPMENT							
Total Businesses Displaced (No.)	0	0	0	0	0	27	0
Total Businesses Displaced (SF)	0	0	0	0	0	119,250	0
Vacant Business Locations (No.)	0	0	0	0	0	5	0
Occupied Business Locations(No.)	0	0	0	0	0	22	0
Planned Developments Impacted (No.)	0	0	1	0	0	0	0
PARKS/RECREATION FACILITIES							
Parks Displaced (No.)	0	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0
Parkland Displaced (AC)	0.0	0.0	0.0	0.0	0.0	0	0.0
HISTORIC STRUCTURES							
Historic Structures Displaced (No.)	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES							
Archeological Sites Impacted (No.)	0	0	0	0	0	0	0
RESIDENTIAL							
Single Family Homes Displaced (No.)	3	1	5	5	0	15	0
Multi-Family Units Displaced (No.)	0	0	0	0	0	0	0
Mobile Homes Displaced (No.)	0	0	0	0	0	2	0
Undeveloped Lots Displaced (No.)	0	0	0	0	0	0	0
Single Family Homes w/i 300 Ft. (No.)	7	30	6	9	2	32	5
Multi-Family Units w/i 300 Ft. (No.)	0	0	0	0	0	0	0
Mobile Homes w/i 300 Ft. (No.)	0	0	0	6	0	23	0
Neighborhoods Divided (No.)	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	0	0	0	0	0	0	0
COMMUNITY FACILITIES							
Community Facilities Displaced (No.)	0	0	0	0	0	3	0
Community Facilities w/i 300 Ft. (No.)	0	0	0	0	0	0	0
PROJECT COSTS							
Length (Centerline miles)	0.70	2.27	3.04	3.01	2.94	1.86	0.29
Construction Cost ($1989)	$2.64	$15.48	$16.31	$13.82	$17.54	$22.57	$4.66
Right of Way ($1989)	$1.00	$0.83	$4.55	$4.36	$0.95	$23.90	$4.69
Right of Way (Acres)	26.41	81.78	111.64	111.02	137.00	69.90	7.00
TOTAL PROJECT COST	$3.6	$16.3	$20.9	$18.2	$18.5	$46.5	$9.4
NATURAL ENVIRONMENT IMPACTS							
Wetlands (AC)	0.1	43.4	19.6	6.8	14.3	0.00	0.00
Hazardous Waste Sites (No.)	0	0	0	0	0	0.00	0.00
Significant Wildlife Habitat (Ac.)	0.0	0.0	0.0	0.0	0.0	0.00	0.00

TABLE 5.2-2

Table 5.2-3

INDIVIDUAL WETLAND SYSTEM VALUES BY SEGMENT
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
A	A1	0.4	Low
B	B1	1.5	Low
	B2	1.0	Low
	B3	0.1	Low
C	C1	0.2	Low
	C2	0.2	Low
	C3	5.4	High
	C4	0.5	High
D		0.0	--
E		0.0	--
F		0.0	--
G	G1	0.2	Low
	G2	0.1	Low
	G3	0.3	Low
	G4	4.2	Moderate
	G5	2.5	Moderate
H		0.0	--
I		0.0	--
J	J1	1.0	Low
	J2	0.4	Low
	J3	0.1	Low
	J4	0.1	Low
	J5	0.2	Low
K	K1	1.3	Low
	K2	2.4	Moderate
	K3	1.9	Low
	K4	1.3	Low
	K5	3.0	Moderate
L		0.0	--

Source: HDR Engineering, Inc.

Table 5.2-3

INDIVIDUAL WETLAND SYSTEM VALUES BY SEGMENT
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
M	M1	0.5	Low
N	N1	0.8	Low
	N2	0.5	Low
O	O1	4.0	Low
	O2	1.3	Low
	O3	2.3	Low
	O4	0.2	Moderate
	O5	0.1	Moderate
P	P1	4.4	Low
Q	Q1	3.4	Moderate
	Q2	1.1	Moderate
	Q3	0.3	Low
	Q4	6.2	Low
R	R1	0.1	Moderate
	R2	0.1	Low
S	S1	0.5	Low
T		0.0	--
U	U1	4.6	Low
V	V1	6.5	Low
	V2	0.1	Moderate
	V3	9.2	Moderate
	V4	0.2	Low
W	W1	0.1	Low
	W2	4.4	Moderate
X	X1	0.1	Low
	X2	1.0	Moderate
	X3	2.0	Moderate
	X4	0.9	Moderate
	X5	0.1	Low

Source: HDR Engineering, Inc.

Table 5.2-3

INDIVIDUAL WETLAND SYSTEM VALUES BY SEGMENT
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
Y		0.0	--
Z		0.0	--
AA	AA1	1.2	Low
BB		0.0	--
CC		0.0	--
DD	DD1	0.1	Low
	DD2	0.4	Low
	DD3	2.4	Low
	DD4	1.2	Low
	DD5	1.1	Low
	DD6	0.3	Low
EE	EE1	0.2	Low
	EE2	0.5	Low
	EE3	2.4	Moderate
	EE4	0.3	Low
FF	FF1	8.8	Low
	FF2	1.5	Low
	FF3	1.2	Low
GG		0.0	--
HH		0.0	--
II	II1	0.7	Low
	II2	0.1	Low
	II3	1.7	Moderate
JJ	JJ1	1.2	Low
	JJ2	1.1	Low
	JJ3	0.5	Low
KK	KK1	7.7	Low
LL	LL1	1.7	Low
	LL2	1.5	Low

Source: HDR Engineering, Inc

Table 5.2-3

INDIVIDUAL WETLAND SYSTEM VALUES BY SEGMENT
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
	LL3	1.4	Low
MM		0.0	--
NN	NN1	3.4	Moderate
	NN2	0.1	Moderate
	NN3	0.1	Low
	NN4	0.1	Low
OO	OO1	1.6	Low
PP		0.0	--
QQ	QQ1	2.2	Low
	QQ2	0.1	Low
RR	RR1	0.8	Low
	RR2	2.9	Low
	RR3	0.9	Low
SS		0.0	--
TT	TT1	7.2	Low
	TT2	1.3	Moderate
	TT3	3.5	Moderate
	TT4	0.2	Low
	TT5	0.4	Low
	TT6	0.4	Low
UU	UU1	1.4	Low
	UU2	0.6	Low
	UU3	1.0	Low
VV	VV1	0.5	Low
	VV2	0.2	Low
	VV3	0.6	Low
	VV4	1.5	Low
WW	WW1	3.2	Moderate
	WW2	2.9	High

Source: HDR Engineering, Inc

Table 5.2-3

INDIVIDUAL WETLAND SYSTEM VALUES BY SEGMENT
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
	WW3	4.2	Moderate
	WW4	2.4	Low
	WW5	8.6	High
XX	XX1	14.7	High
	XX2	6.8	Moderate
	XX3	19.8	High
	XX4	2.4	High
	XX5	1.0	High
	XX6	10.3	High
	XX7	0.3	Low
YY	YY1	4.0	High
	YY2	3.7	Moderate
	YY3	9.6	High
	YY4	1.0	Low
	YY5	1.3	Low
	YY6	0.6	Low
	YY7	9.0	High
	YY8	1.5	High
	YY9	2.3	Moderate
ZZ	ZZ1	0.6	Moderate
	ZZ2	0.3	Moderate
	ZZ3	8.6	High
	ZZ4	0.1	Low
	ZZ5	0.4	Low
	ZZ6	2.1	Low
	ZZ7	1.3	Low
	ZZ8	1.9	Moderate
	ZZ9	1.9	Moderate
AAA	AAA1	6.7	High

Source: HDR Engineering, Inc

Table 5.2-3

INDIVIDUAL WETLAND SYSTEM VALUES BY SEGMENT
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
	AAA2	6.5	Moderate
BBB	BBB1	5.7	Moderate
	BBB2	2.8	Moderate
	BBB3	1.5	High
CCC	CCC1	8.9	High
	CCC2	0.9	High
	CCC3	3.7	High
	CCC4	4.8	High
DDD	DDD1	21.5	Moderate
	DDD2	9.9	High
	DDD3	2.1	High
	DDD4	1.2	High
EEE	EEE1	0.1	Low
FFF	FFF1	43.4	Low
GGG	GGG1	0.0	High
	GGG2	8.6	High
	GGG3	2.3	High
	GGG4	1.4	High
	GGG5	0.1	Low
	GGG6	1.2	High
HHH	HHH1	0.1	Low
	HHH2	1.6	Moderate
	HHH3	5.0	Low
	HHH4	0.1	Low
III	III1	4.0	Low
	III2	0.1	Low
	III3	0.8	Low
	III4	5.7	Moderate
	III5	0.5	Low

Source: HDR Engineering, Inc

Table 5.2-3

INDIVIDUAL WETLAND SYSTEM VALUES BY SEGMENT TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
	III6	0.1	Low
	III7	0.5	Low
	III8	2.6	Low
	III9	0.6	Low
JJJ		0.0	--
KKK		0.0	--
LLL	LLL1	4.0	Moderate
	LLL2	10.6	Moderate
	LLL3	2.8	Low

Source: HDR Engineering, Inc.

Table 5.2-4

SIGNIFICANT WILDLIFE HABITAT VALUES BY SEGMENT TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Segment	Wetlands		
	ID	Acreage	Value
YY	YYh1	3.2	High
BBB	BBBh1	5.6	Moderate
	BBBh2	34.4	High
CCC	CCCh1	35.8	High
	CCCh2	9.6	Moderate
	CCCh3	3.2	Moderate

Note: Only impacted segments are shown, all other segments had no impact.

Source: HDR Engineering, Inc.

Wetland values and the wildlife habitat were evaluated for each corridor segment for 300' either side of and including the proposed ROW and were rated as either High, Moderate or Low.

Criteria used to establish High, Moderate or Low values for identified wetlands within proposed ROW include the following:

- o habitat value
- o breeding ground
- o feeding ground
- o diversity of flora and fauna
- o value as a buffer
- o value as a shallow and deep water habitat
- o uplands border value

WETII analysis of wetlands was performed and is addressed in the EIS and the Permit Coordination Report. The WETII analysis method takes into account the effects of ground water recharge, ground water discharge and numerous other wetland and environmental criteria. This section includes the initial analysis of wetlands which was performed prior to WETII criteria being required.

All evaluations were made using the data collection report information and the 1" = 400' corridor analysis maps. Field verification was performed to confirm initial identification of these areas.

By combining the segments into different arrangements, as shown in Table 5.2-5, the impacts of each alignment can be identified. Evaluation data by alignment is presented in Table 5.2-6. (Note: the data provided are developmental and subject to change as the study progresses.)

5.3 Corridor Evaluation

The alternative alignments were evaluated in the following manner:

- Evaluation of Travel Service;
- Natural/Environmental Analysis;
- Evaluation of eastern and western terminal connections;
- Evaluation of Southern Corridor alignments;
- Evaluation of Northern Corridor alignments; and
- Comparison of best alignments from each corridor.

Before describing this process in the following sections, it is important to keep two factors in mind:

1. At this level of evaluation, alignments were compared in order to determine if some were clearly superior to others, looking for only major differences in impacts.

TABLE 5.2-5

IDENTIFICATION OF ALTERNATIVE ALIGNMENTS

Alignment	Segment Combination											
1	A	B	C	D	E							
2	A	B	C	F	KKK	I	E					
3	A	B	G	H	KKK	I	E					
4	A	B	J	K	L	H	KKK	I	E			
5	A	B	J	K	M	N						
6	A	B	J	P	Q	R	S	N				
7	A	B	J	P	Q	R	T	U	CC			
8	A	B	J	P	V	W	BB	U	CC			
9	A	B	J	P	V	X	Y	Z	AA	BB	U	CC
10	A	B	J	P	V	X	Y	Z	JJ	SS	TT	CC
11	A	B	J	P	V	X	Y	Z	JJ	SS	UU	EEE
12	A	B	J	P	V	X	Y	Z	JJ	SS	UU	HHH
13	A	B	J	P	V	X	Y	QQ	YY	CCC	DDD	FFF
14	A	B	J	P	V	X	Y	QQ	YY	CCC	GGG	III
15	A	LL	O	R	S	N						
16	A	LL	O	R	T	U	CC					
17	A	LL	EE	GG	XX	BBB	CCC	DDD	FFF			
18	A	LL	EE	GG	XX	BBB	CCC	GGG	III			
19	A	LL	EE	GG	WW	AAA	BBB	CCC	DDD	FFF		
20	A	LL	EE	GG	WW	AAA	BBB	CCC	GGG	III		
21	A	LL	EE	HH	II	Y	QQ	YY	CCC	DDD	FFF	
22	A	LL	EE	HH	II	Y	QQ	YY	CCC	GGG	III	
23	A	LL	EE	MM	PP	VV	YY	CCC	DDD	FFF		
24	A	LL	EE	MM	PP	VV	YY	CCC	GGG	III		
25	A	LL	EE	HH	II	Y	Z	AA	BB	U	CC	
26	A	LL	EE	HH	II	Y	Z	JJ	SS	TT	CC	
27	A	LL	EE	HH	II	Y	Z	JJ	SS	UU	EEE	FFF
28	A	LL	EE	HH	II	Y	Z	JJ	SS	UU	HHH	III
29	A	LL	EE	MM	PP	RR	SS	TT	CC			
30	A	LL	EE	MM	PP	RR	SS	UU	EEE	FFF		
31	A	LL	EE	MM	PP	RR	SS	UU	HHH	III		
32	DD	FF	II	Y	Z	AA	BB	U	CC			
33	DD	FF	II	Y	Z	JJ	SS	TT	CC			
34	DD	FF	II	Y	Z	JJ	SS	UU	EEE	FFF		
35	DD	FF	II	Y	Z	JJ	SS	UU	HHH	III		
36	DD	FF	II	Y	QQ	YY	CCC	DDD	FFF			
37	DD	FF	II	Y	QQ	YY	CCC	GGG	III			
38	DD	KK	NN	XX	BBB	CCC	DDD	FFF				
39	DD	KK	NN	XX	BBB	CCC	GGG	III				
40	DD	KK	NN	WW	AAA	BBB	CCC	DDD	FFF			
41	DD	KK	NN	WW	AAA	BBB	CCC	GGG	III			
42	DD	KK	OO	PP	RR	SS	UU	HHH	III			
43	DD	KK	OO	PP	RR	SS	TT	CC				
44	DD	KK	OO	PP	RR	SS	UU	EEE	FFF			
45	DD	KK	OO	PP	VV	YY	CCC	DDD	FFF			
46	DD	KK	OO	PP	VV	YY	CCC	GGG	III			
47	ZZ	AAA	BBB	CCC	DDD	FFF						
48	ZZ	AAA	BBB	CCC	GGG	III						
49	A	B	J	P	Q	R	JJJ	I	E			
50	A	LL	O	R	JJJ	I	E					
51	A	B	J	LLL	I	E						

TABLE 5.2-6
SUMMARY OF ALTERNATIVES 1-14

	ALTER.1	ALTER.2	ALTER.3	ALTER.4	ALTER.5	ALTER.6	ALTER.7	ALTER.8	ALTER.9	ALTER.10	ALTER.11	ALTER.12	ALTER.13	ALTER.14
BUSINESS & ECONOMIC DEVELOPMENT														
Total Businesses Displaced (No.)	31	36	27	20	3	11	12	0	0	0	0	0	0	0
Total Businesses Displaced (SF)	86,200	142,675	149,500	127,725	58,750	21,250	31,250	0	0	0	0	0	0	0
Vacant Business Locations (No.)	5	5	4	5	0	3	3	0	0	0	0	0	0	0
Occupied Business Locations(No.)	26	31	23	15	3	8	9	0	0	0	0	0	0	0
Planned Developments Impacted (No.)	1	1	1	1	1	3	2	2	3	3	4	4	5	6
PARKS/RECREATION FACILITIES														
Parks Displaced (No.)	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Parks Encroached (No.)	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	7	7	0	0	0	0	0	0	0	0	0	0	0	0
HISTORIC STRUCTURES														
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES														
Archeological Sites Impacted (No.)	1	1	0	0	0	0	0	0	0	0	0	0	1	0
RESIDENTIAL														
Single Family Homes Displaced (No.)	149	118	9	79	114	66	60	153	128	108	107	108	109	111
Multi-Family Units Displaced (No.)	16	16	4	56	56	56	0	0	0	0	0	0	8	8
Mobile Homes Displaced (No.)	6	5	5	5	85	88	2	2	2	3	0	0	0	0
Undeveloped Lots Displaced (No.)	27	0	0	0	0	0	0	0	3	16	30	30	0	0
Single Family Homes w/i 300 Ft. (No.)	224	176	39	98	135	125	139	291	279	280	298	272	266	240
Multi-Family Units w/i 300 Ft. (No.)	158	158	16	158	238	40	0	0	0	0	0	0	64	64
Mobile Homes w/i 300 Ft. (No.)	20	98	89	89	180	217	0	0	1	1	1	7	3	3
Neighborhoods Divided (No.)	2	2	0	1	3	4	1	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	2	2	1	2	4	2	1	1	3	3	3	3	5	5
COMMUNITY FACILITIES														
Community Facilities Displaced (No.)	3	3	0	1	1	3	3	1	0	1	1	1	0	0
Community Facilities w/i 300 Ft. (No.)	5	6	2	5	3	0	0	3	3	4	4	4	1	1
PROJECT COSTS														
Length (Centerline miles)	8.55	8.37	7.89	7.82	7.75	8.10	8.22	9.49	9.41	11.76	13.11	16.09	17.68	18.37
Construction Cost ($1989)	$175.32	$165.12	$203.28	$149.29	$154.11	$133.90	$132.80	$163.46	$164.89	$172.57	$162.64	$175.88	$155.59	$158.03
Right of Way ($1989)	$88.17	$97.91	$59.21	$78.80	$67.39	$66.67	$64.03	$61.34	$61.15	$66.58	$60.56	$64.04	$72.00	$71.92
Right of Way (Acres)	289.30	267.84	174.74	251.68	288.84	286.06	280.10	339.02	336.19	434.99	482.89	622.72	649.30	706.83
TOTAL PROJECT COST	$263.48	$263.02	$262.49	$228.09	$221.50	$200.57	$196.83	$224.80	$226.04	$239.16	$223.20	$239.92	$227.60	$229.95
NATURAL ENVIRONMENT IMPACTS														
Wetlands (AC)	9.30	9.30	10.30	14.70	16.50	22.20	25.00	34.30	30.50	45.10	78.60	56.20	159.30	110.80
Hazardous Waste Sites (No.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Significant Wildlife Habitat (Ac.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.80	51.80

- TABLE 5.2-6

SUMMARY OF ALTERNATIVES 15-26

	ALTER.15	ALTER.16	ALTER.17	ALTER.18	ALTER.19	ALTER.20	ALTER.21	ALTER.22	ALTER.23	ALTER.24	ALTER.25	ALTER.26
BUSINESS & ECONOMIC DEVELOPMENT												
Total Businesses Displaced (No.)	11	12	0	0	0	0	0	0	42	42	0	0
Total Businesses Displaced (SF)	21,250	31,250	0	0	0	0	0	0	166,000	166,000	0	0
Vacant Business Locations (No.)	3	3	0	0	0	0	0	0	15	15	0	0
Occupied Business Locations(No.)	8	9	0	0	0	0	0	0	27	27	0	0
Planned Developments Impacted (No.)	2	1	5	6	5	6	6	7	5	6	4	4
PARKS/RECREATION FACILITIES												
Parks Displaced (No.)	0	0	1	1	1	1	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0	0	23	23	23	23	0	0	0	0	0	0
HISTORIC STRUCTURES												
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES												
Archeological Sites Impacted (No.)	0	0	1	0	2	1	1	0	1	0	0	0
RESIDENTIAL												
Single Family Homes Displaced (No.)	78	72	39	41	56	58	126	128	105	107	145	125
Multi-Family Units Displaced (No.)	56	0	32	32	32	32	40	40	32	32	32	32
Mobile Homes Displaced (No.)	88	2	52	52	26	26	0	0	0	0	2	3
Undeveloped Lots Displaced (No.)	0	0	35	35	38	38	84	84	14	14	87	100
Single Family Homes w/i 300 Ft. (No.)	290	304	145	119	181	155	393	367	336	310	406	407
Multi-Family Units w/i 300 Ft. (No.)	104	64	80	80	80	80	144	144	168	168	80	80
Mobile Homes w/i 300 Ft. (No.)	217	0	106	106	11	11	2	2	2	2	0	0
Neighborhoods Divided (No.)	4	1	0	0	0	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	4	3	2	2	2	2	6	6	5	5	4	4
COMMUNITY FACILITIES												
Community Facilities Displaced (No.)	3	3	0	0	0	0	0	0	0	0	0	1
Community Facilities w/i 300 Ft. (No.)	0	0	3	3	3	3	1	1	2	2	3	4
PROJECT COSTS												
Length (Centerline miles)	8.03	8.15	17.61	18.30	17.82	18.51	17.58	18.27	17.28	17.97	10.16	11.66
Construction Cost ($1989)	$140.55	$139.45	$171.48	$173.92	$165.96	$168.40	$154.01	$156.45	$157.29	$159.73	$168.34	$170.99
Right of Way ($1989)	$69.17	$66.53	$69.27	$69.18	$56.70	$56.61	$72.62	$72.54	$90.14	$90.05	$63.85	$67.20
Right of Way (Acres)	265.35	259.39	666.49	724.02	673.96	731.49	664.70	722.23	630.28	687.81	382.41	450.39
TOTAL PROJECT COST	$209.72	$205.98	$240.75	$243.10	$222.66	$225.01	$226.64	$228.99	$247.43	$249.79	$232.18	$238.20
NATURAL ENVIRONMENT IMPACTS												
Wetlands (AC)	14.9	17.7	170.1	119.9	149.3	99.1	142.6	92.4	140.6	90.4	16.7	26.7
Hazardous Waste Sites (No.)	0	0	0	0	0	0	0	0	0	0	0	0
Significant Wildlife Habitat (Ac.)	0	0	87.4	87.4	87.4	87.4	51.8	51.8	51.8	51.8	0	0

TABLE 5.2-6

SUMMARY OF ALTERNATIVES 27-39

	ALTER.27	ALTER.28	ALTER.29	ALTER.30	ALTER.31	ALTER.32	ALTER.33	ALTER.34	ALTER.35	ALTER.36	ALTER.37	ALTER.38	ALTER.39
BUSINESS & ECONOMIC DEVELOPMENT													
Total Businesses Displaced (No.)	0	0	60	60	60	0	0	0	0	0	0	0	0
Total Businesses Displaced (SF)	0	0	228,025	228,025	228,025	0	0	0	0	0	0	0	0
Vacant Business Locations (No.)	0	0	23	23	23	0	0	0	0	0	0	0	0
Occupied Business Locations(No.)	0	0	37	37	37	0	0	0	0	0	0	0	0
Planned Developments Impacted (No.)	5	5	3	4	4	3	3	4	4	5	6	5	6
PARKS/RECREATION FACILITIES													
Parks Displaced (No.)	0	0	0	0	0	1	1	1	1	1	1	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0	0	0	0	0	0	0	0	0	0	0	0	0
HISTORIC STRUCTURES													
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES													
Archeological Sites Impacted (No.)	0	0	0	0	0	0	0	0	0	1	0	1	0
RESIDENTIAL													
Single Family Homes Displaced (No.)	124	125	88	87	88	141	121	120	121	122	124	31	33
Multi-Family Units Displaced (No.)	32	32	78	78	78	0	0	0	0	8	8	0	0
Mobile Homes Displaced (No.)	0	0	3	0	0	10	11	8	8	8	8	60	60
Undeveloped Lots Displaced (No.)	114	114	18	32	32	107	120	134	134	104	104	0	0
Single Family Homes w/i 300 Ft. (No.)	425	399	265	283	257	347	348	366	340	334	308	95	69
Multi-Family Units w/i 300 Ft. (No.)	80	80	254	254	254	0	0	0	0	64	64	0	0
Mobile Homes w/i 300 Ft. (No.)	0	6	0	0	6	6	6	6	12	8	8	112	112
Neighborhoods Divided (No.)	0	0	0	0	0	0	0	0	0	0	0	0	0
Neighborhoods Encroached (No.)	4	4	5	5	5	3	3	3	3	5	5	1	1
COMMUNITY FACILITIES													
Community Facilities Displaced (No.)	1	1	2	2	2	0	1	1	1	0	0	0	0
Community Facilities w/i 300 Ft. (No.)	4	4	6	6	6	3	4	4	4	1	1	0	0
PROJECT COSTS													
Length (Centerline miles)	13.01	15.99	11.76	13.11	16.09	11.92	13.42	14.77	17.75	19.34	20.03	18.79	19.48
Construction Cost ($1989)	$161.06	$174.30	$184.98	$175.05	$188.29	$181.07	$183.73	$173.80	$187.03	$166.75	$169.19	$160.87	$163.30
Right of Way ($1989)	$61.18	$64.66	$107.42	$101.40	$104.87	$65.78	$69.14	$63.12	$66.60	$74.56	$74.47	$68.22	$68.14
Right of Way (Acres)	498.29	638.12	410.29	458.19	598.02	433.82	501.80	549.70	689.53	716.11	773.64	696.92	754.45
TOTAL PROJECT COST	$222.24	$238.96	$292.40	$276.44	$293.16	$246.85	$252.87	$236.91	$253.63	$241.31	$243.66	$229.09	$231.44
NATURAL ENVIRONMENT IMPACTS													
Wetlands (AC)	60.20	37.80	26.00	59.50	37.10	25.30	35.30	68.80	25.30	151.20	101.00	178.60	128.40
Hazardous Waste Sites (No.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Significant Wildlife Habitat (Ac.)	0	0	0	0	0	0	0	0	0	51.8	51.8	87.4	87.4

TABLE 5.2-6

SUMMARY OF ALTERNATIVES 40-50

	ALTER.40	ALTER.41	ALTER.42	ALTER.43	ALTER.44	ALTER.45	ALTER.46	ALTER.47	ALTER.48	ALTER.49	ALTER.50
BUSINESS & ECONOMIC DEVELOPMENT											
Total Businesses Displaced (No.)	0	0	60	60	60	42	42	0	0	50	50
Total Businesses Displaced (SF)	0	0	228,025	228,025	228,025	166,000	166,000	0	0	204475	204475
Vacant Business Locations (No.)	0	0	23	23	23	15	15	0	0	12	12
Occupied Business Locations(No.)	0	0	37	37	37	27	27	0	0	38	38
Planned Developments Impacted (No.)	5	6	3	2	3	4	5	3	4	2	1
PARKS/RECREATION FACILITIES											
Parks Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0
Parks Encroached (No.)	0	0	0	0	0	0	0	0	0	0	0
Parkland Displaced (AC)	0	0	0	0	0	0	0	0	0	0	0
HISTORIC STRUCTURES											
Historic Structures Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0
ARCHEOLOGICALLY SIGNIFICANT SITES	0	0	0	0	0	0	0	0	0	0	0
Archeological Sites Impacted (No.)	2	1	0	0	0	1	0	1	0	0	0
RESIDENTIAL											
Single Family Homes Displaced (No.)	48	50	94	94	93	111	113	23	25	43	55
Multi-Family Units Displaced (No.)	0	0	46	46	46	0	0	0	0	0	0
Mobile Homes Displaced (No.)	34	34	8	11	8	8	8	3	3	7	7
Undeveloped Lots Displaced (No.)	3	3	18	4	18	0	0	12	12	0	0
Single Family Homes w/i 300 Ft. (No.)	131	105	215	223	241	294	268	103	77	99	264
Multi-Family Units w/i 300 Ft. (No.)	0	0	174	174	174	88	88	0	0	16	80
Mobile Homes w/i 300 Ft. (No.)	17	17	12	6	6	8	8	21	21	112	112
Neighborhoods Divided (No.)	0	0	0	0	0	0	0	0	0	1	1
Neighborhoods Encroached (No.)	1	1	6	6	6	6	6	1	1	1	3
COMMUNITY FACILITIES											
Community Facilities Displaced (No.)	0	0	2	2	2	0	0	0	0	3	3
Community Facilities w/i 300 Ft. (No.)	0	0	6	6	6	2	2	1	1	2	2
PROJECT COSTS											
Length (Centerline miles)	19.00	19.69	17.80	13.47	14.82	18.99	19.68	15.39	16.08	8.36	8.29
Construction Cost ($1989)	$155.35	$157.79	$199.97	$196.66	$186.73	$168.97	$171.41	$114.21	$116.65	$133.77	$140.43
Right of Way ($1989)	$55.65	$55.56	$110.38	$112.93	$106.91	$95.65	$95.56	$32.66	$32.58	$81.53	$84.03
Right of Way (Acres)	704.39	761.92	635.28	447.55	495.45	667.54	725.07	518.77	576.30	266.00	245.29
TOTAL PROJECT COST	$211.00	$213.35	$310.35	$309.59	$293.63	$264.62	$266.98	$146.88	$149.23	$215.31	$224.46
NATURAL ENVIRONMENT IMPACTS											
Wetlands (AC)	157.80	107.60	43.50	32.40	65.90	147.00	96.80	136.80	86.60	20.4	13.1
Hazardous Waste Sites (No.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Significant Wildlife Habitat (Ac.)	87.4	87.4	0	0	0	51.8	51.8	87.4	87.4	0	0

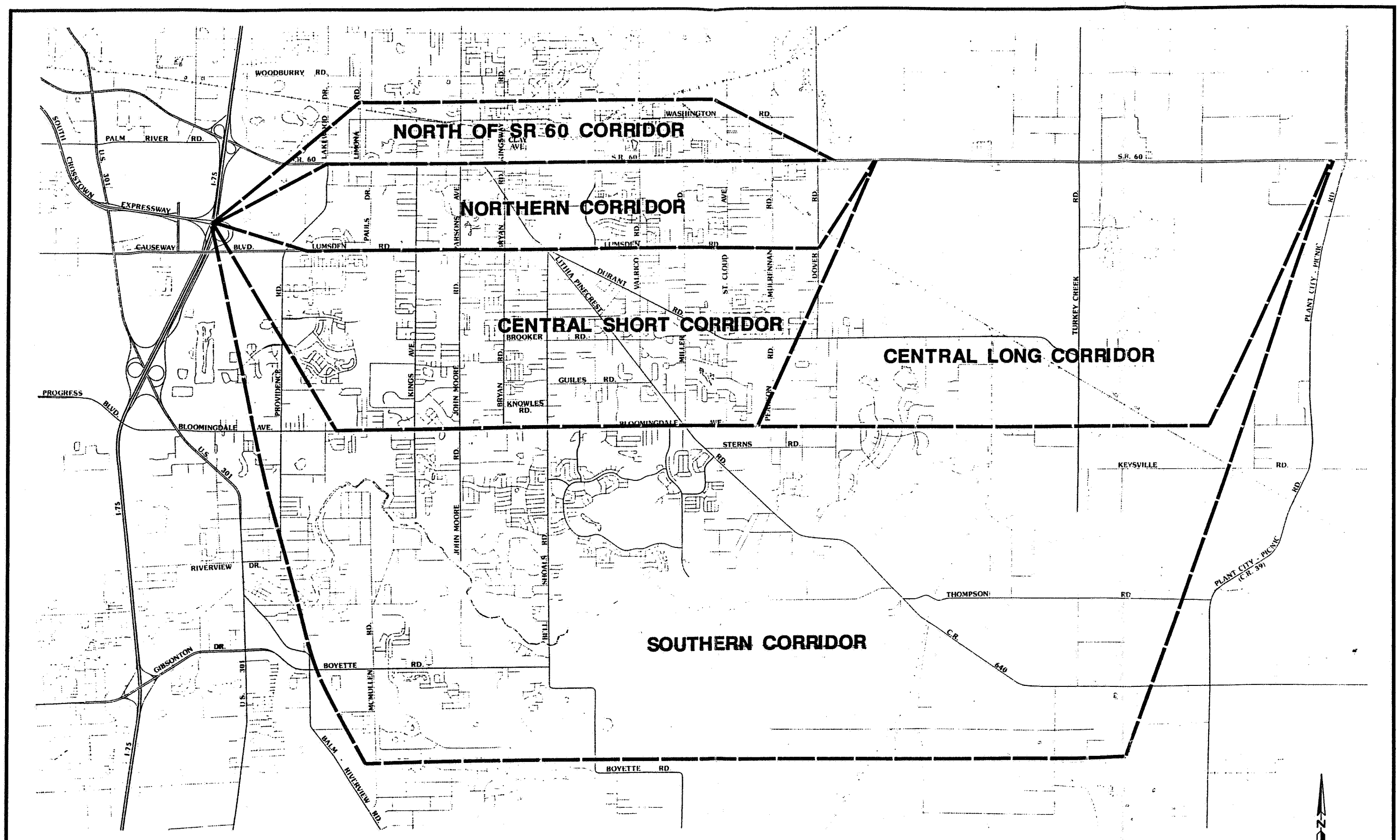
2. Based on a review of the data in Table 5.2-6, Summary of Alternatives (Impact Data by Alignment), only the following evaluation measures made a difference in determining if any alignments were superior to others. These are the residential impacts, community impacts, wetland acres and cost.

5.3.1 Traffic Analysis by Corridor

Travel Demand Forecasts

For the purpose of travel forecasting, the array of alignments shown in Figure 5.1-2 was consolidated into five basic corridor alternatives (Figure 5.3.1-1). Comparable alignments within a corridor will generate similar travel patterns on the roadway network. The five corridors are described below.

A. North of SR 60 Corridor: This corridor is located north of SR 60, generally following the alignment of the existing CSX Railroad. In this location, the extension would serve as an alternative route to SR 60, but would offer only a minor improvement in access to the Brandon area south of SR 60.



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HDR

Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

CORRIDORS SELECTED FOR TRAVEL FORECASTING

Figure 5.3.1-1

of access to the residential concentration in the northern part of Brandon, and good access to the southern part of Brandon.

C. Central (Short) Corridor: This corridor is located between Lumsden Road and Bloomingdale Avenue. At its eastern end, the corridor turns northward and meets SR 60 near Dover Road. Alignments in this corridor serve as attractive, although slightly circuitous alternatives to SR 60, and directly serve the center of population in the Brandon area.

D. Central (Long) Corridor: This corridor is similar to the Central (Short) Corridor, as described above. However, the eastern end of this corridor intersects SR 60 near County Road 39, approximately 5 miles to the east of the SR 60/Central (Short) Corridor intersection.

E. Southern Corridor: This corridor is located to the south of the Alafia River, along the Boyette Road alignment. The eastern end of this corridor turns northward and intersects SR 60 near County Road 39.

Travel Forecasting Model

The travel forecasts for the Crosstown Extension PD&E study were obtained from runs of the Florida Standardized Urban Transportation Model System (FSUTMS) currently in use by the Hillsborough County City/County Planning Commission (HCCCPC).

The FSUTMS model was delivered to the Crosstown Extension Consultant team on October 10, 1989. This delivery included Year 1980 Socioeconomic (SE) data, Year 2010 SE data and the adopted Year 2010 highway plan network.

HCCCPC staff confirmed that the delivered model inputs were the latest adopted by the MPO, as well as the best versions of input data. It was agreed that they were the appropriate materials to be using for the Extension study, given its schedule. The resulting Traffic Technical Memorandum was issued March 30, 1990, and approved July 20, 1990.

Socioeconomic (SE) data includes vital county information such as population and employment figures. The Year 1980 figures are actual, while the Year 2010 numbers are projections based on historical growth trends and business/economic trends. SE data is reported by

traffic analysis zones (TAZ's).

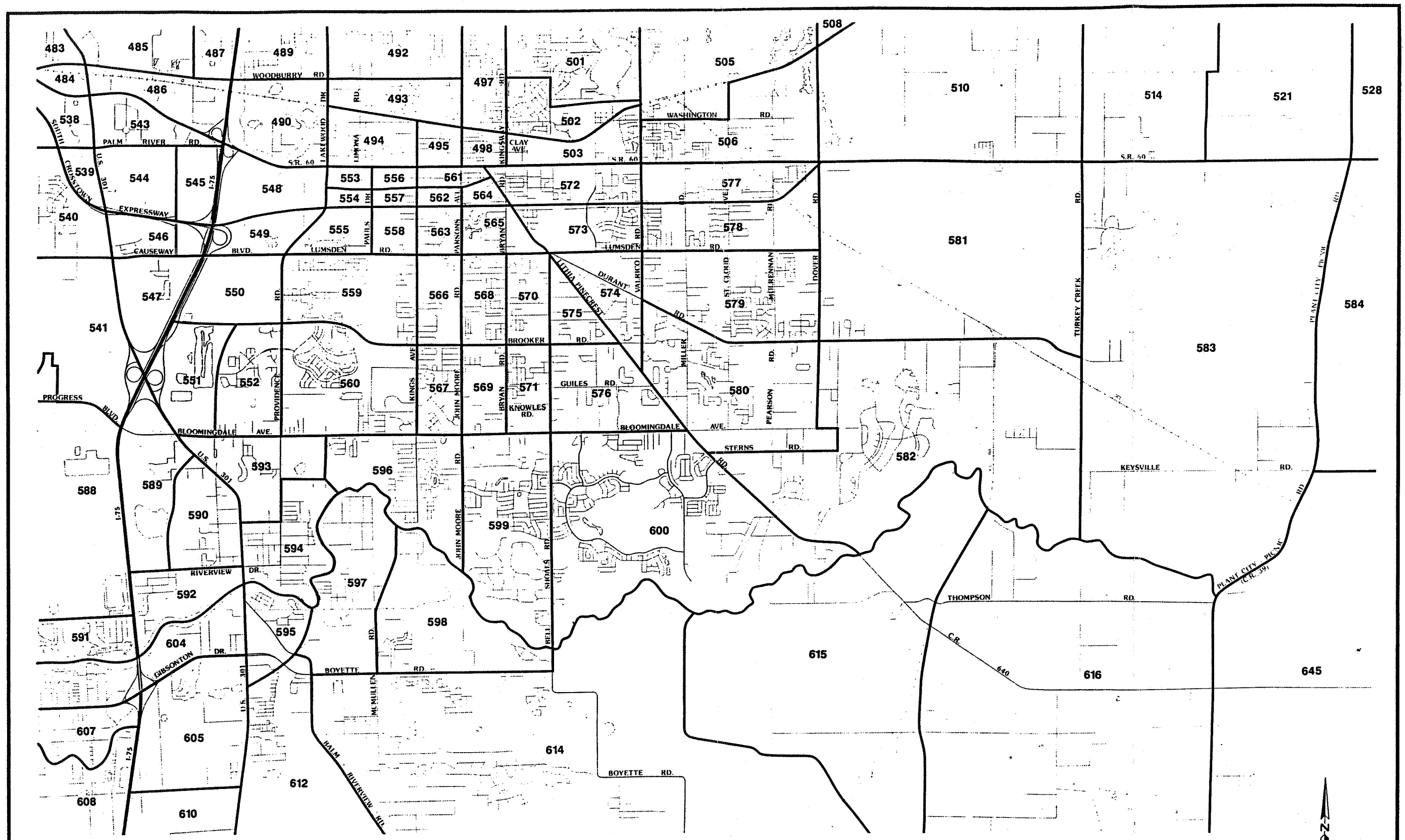
The traffic analysis zones (TAZ's) for the Extension study area are shown in Figure 5.3.1-2.

The study area includes 70 TAZ's. The TAZ structure is sufficiently detailed for analysis of major road corridors, and no further subdivision of TAZ's was needed.

For this study, travel forecasting model runs were made for Year 1995 and Year 2010 conditions. The zonal SE data for the 1995 model runs was obtained by the interpolation of the Year 1980 and Year 2010 SE data.

The 1995 SE data for the TAZ's outside the study area was interpolated linearly. To more accurately project 1995 conditions within the study area, the zonal data for the TAZ's within the study area was interpolated using one of two routines:

A. The "infill" routine, which projects that the TAZ's growth will be largely accomplished before the year 1995, and



Brown&Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa–Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	TRAFFIC ANALYSIS ZONES	Figure 5.3.1-2

B. The "long range" routine, which projects that the TAZ's growth will be largely accomplished after the year 1995.

The TAZ's in the study area north of the Alafia River were interpolated using the "infill" routine. Table 5.3.1-1 lists these zones.

The TAZ's in the study area south of the Alafia River were interpolated using the "long range" routine. Table 5.3.1-2 lists these zones.

Networks

The networks used in the Crosstown Extension travel forecast are summarized in the approved Traffic Report.

Year 1995 No-Build Network - The Year 1995 No-Build network is based on the existing network plus committed improvements. (Figure 5.3.1-3) The 1995 committed improvements in the Crosstown Extension study area are listed in Table 5.3.1-3.

Year 2010 No-Build Network - The Year 2010 No-Build network is based on the HCCCPC's Year 2010 Long Range Plan. The 2010

Table 5.3.1-1

TRAFFIC ANALYSIS ZONES WITHIN THE CROSSTOWN EXTENSION STUDY AREA, NORTH OF THE ALAFIA RIVER, INTERPOLATED USING THE "INFILL" ROUTINE TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

486	506	543	553	563	573	583	599
490	510	544	554	564	574	584	600
493	514	545	555	565	575	588	
494	521	546	556	566	576	589	
495	528	547	557	567	577	590	
497	538	548	558	568	578	591	
498	539	549	559	569	579	592	
502	540	550	560	570	580	593	
503	541	551	561	571	581	594	
505	542	552	562	572	582	596	

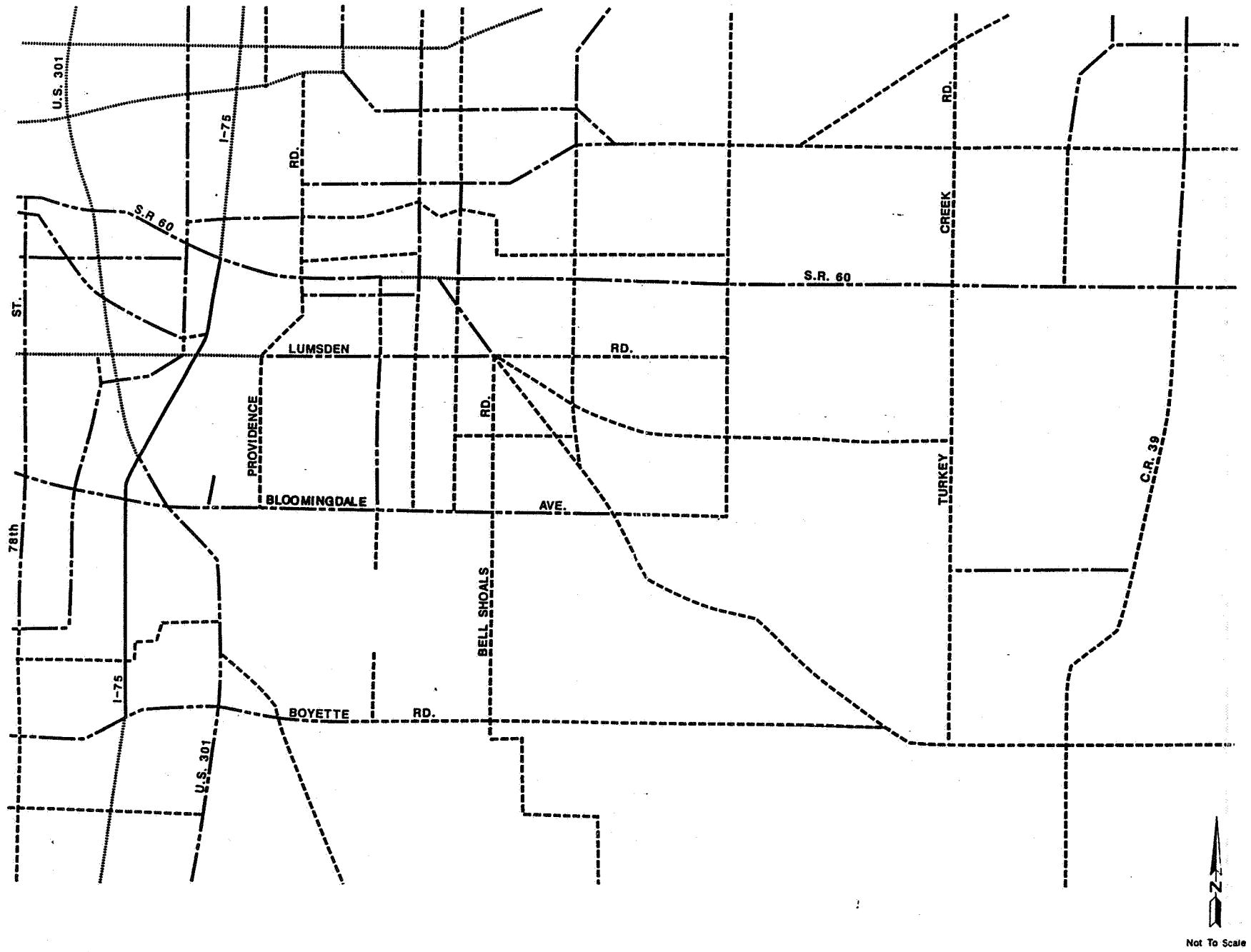
Sources: Tampa Urban Area Metropolitan Planning Organization
Glatting Lopez Kercher Anglin, Inc.

Table 5.3.1-2

TRAFFIC ANALYSIS ZONES WITHIN THE CROSSTOWN EXTENSION STUDY AREA, SOUTH OF THE ALAFIA RIVER, INTERPOLATED USING THE "LONG-RANGE" ROUTINE TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

595	605	612	645
597	607	614	
598	608	615	
604	610	616	

Sources: Tampa Urban Area Metropolitan Planning Organization
Glatting Lopez Kercher Anglin, Inc



Brown&Root-Genesis Engineering Company; GLATTING LOPEZ KERCHER ANGLIN; HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	MODEL NETWORK, YEAR 1995 NO-BUILD ALTERNATIVE	Figure 5.3.1-3

TABLE 5.3.1-3

1995 MODEL NETWORK COMMITTED ROADWAY IMPROVEMENT

Road	Boundaries	Improvement
Lumsden Road	From Providence to Lithia Road	Widen to 4 lanes
Bloomingdale Avenue	From I-75 to Lithia Road	Widen to 4 lanes
Kings Avenue	From Bloomingdale to Lumsden	Widen to 4 lanes
Lithia Pinecrest	From Lumsden Road to SR 60	Widen to 4 lanes

Source: HCCCPC

committed improvements in the Long Range Plan in the Crosstown Extension study area are presented in Table 5.3.1-4. The improvements included in this plan were screened for cost feasibility, and those elements not meeting the cost feasibility criteria were deleted from the network. Criteria for assessing feasibility are:

A. Service to Tampa Urban Area

B. Need: Improvements to existing roadways already operating at unsatisfactory levels of service were determined to be cost feasible for the Year 2010. New roadway segments that directly alleviate a current capacity deficiency were assumed to be cost feasible by the year 2010.

C. High Growth areas: Surface (i.e. non-freeway) improvements that provide access to TAZ's projected to experience growth rates of greater than 100 percent over the 1980-2010 span were determined to be cost feasible.

D. Continuity of arterial grid: Extensions to arterial streets that serve to connect to complete the street network and provide alternative travel paths were determined to be cost feasible by

TABLE 5.3.1-4

2010 MODEL NETWORK COMMITTED ROADWAY IMPROVEMENTS

Road	Boundaries	Improvement
SR 60	From I-75 to Polk Co. Line	Widen to 6 lanes
Lumsden Road	From Providence Road To Kings Avenue	Widen to 6 lanes
	From Lithia Road To Valrico Road	Widen to 4 lanes
Bloomingdale Avenue	From Lithia Road To CR 39	Widen to 4 lanes
Kings Avenue	From Lumsden Road To SR 60	Widen to 4 lanes
John Moore/ Parsons Road	From Bloomingdale Avenue To SR 574	Widen to 4 lanes
Bryan Road	From Lumsden Road To Windhorst Road	Widen to 4 lanes
Lithia-Pinecrest Road	From Polk County Line To Lumsden Road	Widen to 4 lanes
Brandon E/W	From Kings Avenue To US 301	New 4 lane road

Source: HCCCPC

the Year 2010.

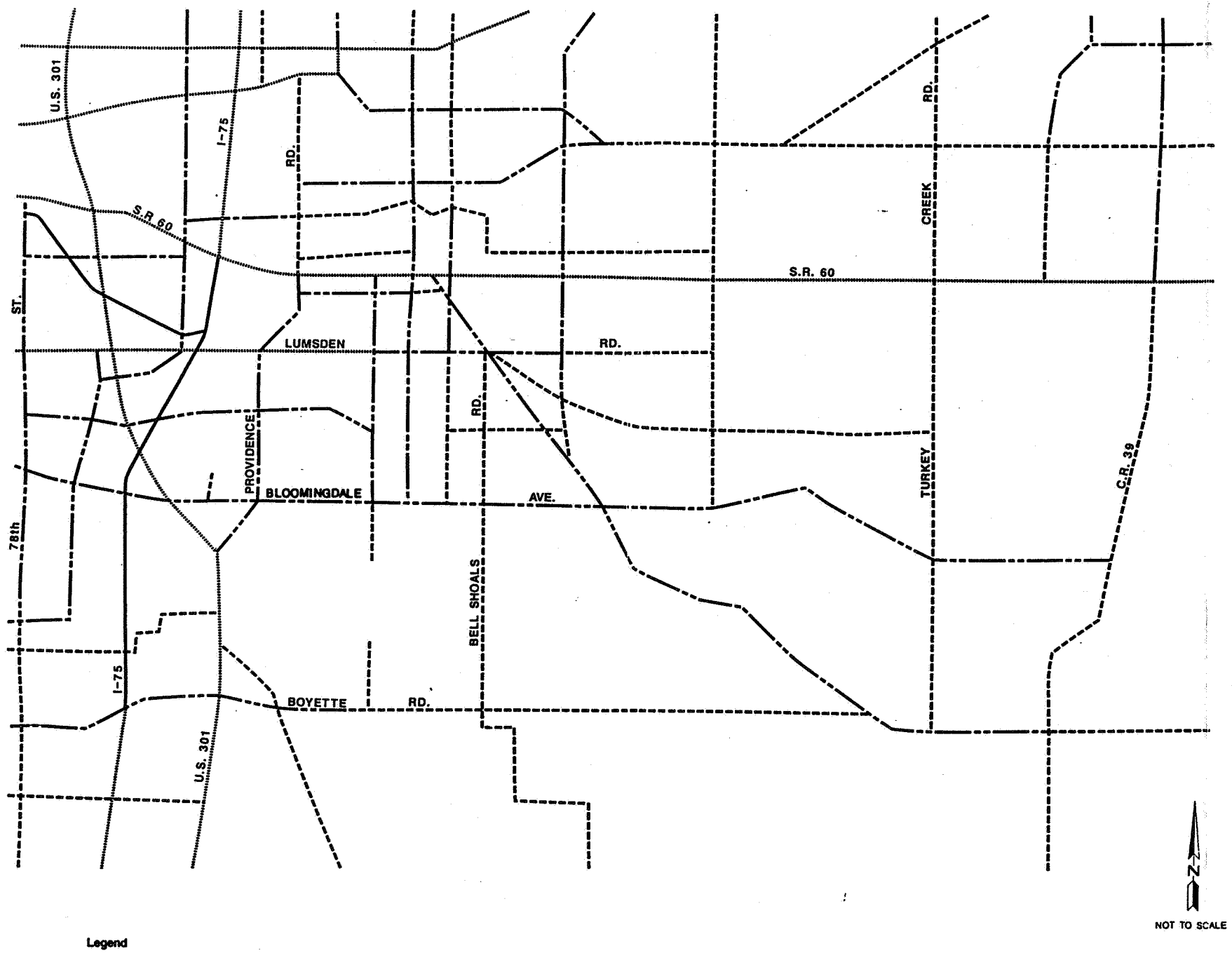
E. Public Acceptance: During the course of the 2010 published plan, community action has resulted in removing proposed improvements to Lakewood Drive and Brooker Drive. These conditions were considered in developing the model.

The above criteria were applied to all network links within the study area, and the links of regional significance (freeways, principal arterials) outside the Crosstown Extension Study Area.

Using the above criteria, two projects included on the 2010 highway network plan were deleted from the model network for the 2010 runs. The two projects included a two-lane extension of Brooker Road from Bryan Road to Kings Avenue and a two-lane north/south road near the eastern boundary of the study area which extended from Interstate 4 to the Hillsborough/Manatee County line. The proposed Year 2010 No-build network is summarized in Figure 5.3.1-4.

Analysis

The TUATS travel model was used to project 2010 travel demands for



Brown&Root-Genesis Engineering Company; GLATTING LOPEZ KERCHER ANGLIN; HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	MODEL NETWORK, YEAR 2010 NO-BUILD ALTERNATIVE	Figure 5.3.1-4

each of the five corridor alternatives (North of SR 60, Northern, Central Short, Central Long, and Southern) as well as the No-Build alternative.

Travel service characteristics were generated by each of the six, Year 2010 model runs and are summarized in Table 5.3.1-5. These travel service characteristics provide a means of comparing travel benefits associated with each alternative. The vehicle miles of travel per day (VMT) range from 45.21 million to 45.23 million. The vehicle hours of travel per year (VHT) range from 462.86 million to 465.11 million. The Central (Short) Corridor provided the greatest savings in vehicle hours of travel (VHT) when compared to the no-build alternative.

To better understand the 2010 traffic conditions for the east/west movement through the entire study area, five corridor north/south "cut-lines" were established at the following locations.

1. West of Providence Road
2. West of Kings Avenue
3. West of John Moore Road
4. West of Bryan Road
5. West of Dover Road

Table 5.3.1-5

2010 SYSTEMWIDE TRAVEL SERVICE CHARACTERISTICS
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Evaluation Measure	No Build	North of SR 60	Northern	Central Short	Central Long	Southern
Total Trips/Day (mil)	4.57	4.57	4.57	4.57	4.57	4.57
Vehicle Miles of Travel/Day (mil)	45.23	45.22	45.21	45.21	45.22	45.20
Vehicle Hours of Travel/Year (mil)	465.11	464.93	464.09	462.86	464.40	463.79
Annual Savings Relative to No Build (mil. of hours)	--	0.18	1.02	2.25	0.71	1.32
Average Daily Travel Speed (mph)	29.18	29.18	29.23	29.30	29.21	29.24
Vehicle Miles of Travel/Day on Crosstown Extension (× 1,000)	--	327.10	377.30	378.40	372.10	376.50

Source: Glatting Lopez Kercher Anglin, Inc.

NOTE: **Characteristics are presented for the entire Hillsborough County roadway system.**

The total east/west movement (traffic volume) through each cut-line was compared to the total east/west roadway capacity at LOS E, by means of the volume to capacity (V/C) ratio. Capacity refers to the combined total service volumes of all east-west roadways in the study area for the 2010 LRTP. Table 5.3.1-6 presented the results.

Finally, the individual links on the three major east/west roads in the study area SR 60, Lumsden Road and Bloomingdale Avenue were analyzed to determine the level-of-service of each major link. Again, the V/C ratio was calculated. The results of this analysis are presented in Table 5.3.1-7.

Conclusions

Based on this traffic analysis, the following conclusions have been reached. The analysis upon which these conclusions are based are provided in Sections 5.3.3 through 5.3.6.

1. The Central (Short) and Central (Long) corridors provide comparable travel benefits and therefore, for the sake of simplicity, will collectively be referred to as the Central Corridor Alignments.

Table 5.3.1-6

2010 "CUT-LINE" V/C RATIOS
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

Corridor V/C "Cut-Line" Location	No Build	North of SR 60	Northern	Central Short	Central Long	Southern
West of Providence	1.26	0.97	0.96	0.94	0.94	0.96
West of Kings	1.01	0.82	0.81	0.84	0.84	0.81
West of John Moore	1.05	0.83	0.82	0.78	0.78	0.77
West of Bryan	1.19	0.86	0.89	0.71	0.71	0.94
West of Dover	0.63	0.66	0.47	0.46	0.46	0.46

NOTE: V/C = Volume to Capacity

Source: Glatting Lopez Kercher Anglin, Inc

Table 5.3.1-7

2010 LINK V/C RATIOS FOR EAST/WEST ROADS
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

State Road 60

Link	No Build	North of SR 60	Northern	Central Short	Central Long	Southern
I-75 to Providence	1.71	1.64	1.47	1.42	1.42	1.56
Providence to Kings	1.27	1.28	1.32	1.32	1.32	1.40
Kings to John Moore	1.22	1.26	1.33	1.29	1.28	1.35
John Moore-Lithia-Pinecrest	1.42	1.26	1.39	1.32	1.35	1.37
Lithia-Pinecrest-Bryan	1.12	0.54	0.86	1.04	1.07	1.08
Bryan to Valrico	1.12	0.74	0.79	1.01	1.04	1.07

Lumsden Avenue

Link	No Build	North of SR 60	Northern	Central Short	Central Long	Southern
I-75 to Providence	1.48	1.18	1.26	1.23	1.23	1.36
Providence to Kings	1.55	1.25	1.33	1.31	1.31	1.38
Kings to John Moore	1.16	0.96	1.16	1.20	1.20	1.18
John Moore to Bryan	1.01	0.79	0.88	0.98	0.99	1.01
Bryan to Valrico	0.62	0.47	0.45	0.73	0.99	0.60

Bloomingdale Avenue

Link	No Build	North of SR 60	Northern	Central Short	Central Long	Southern
I-75 to Providence	1.05	0.84	0.64	0.46	0.43	0.45
Providence to Kings	1.10	0.86	0.77	0.74	0.67	1.17
Kings to John Moore	1.00	0.77	0.60	0.29	0.29	1.15
John Moore to Bryan	1.00	0.76	0.70	0.46	0.43	1.13
Bryan to Valrico	0.60	0.44	0.34	0.18	0.17	0.63

NOTE: V/C = Volume to Capacity

Source: Glatting Lopez Kercher Anglin, Inc.

2. The Northern and North of SR 60 corridors provide comparable travel benefits and therefore, for the sake of simplicity, will collectively be referred to as the Northern Corridor Alignments.

3. As is determined by the approved traffic technical memorandum, and as shown on Figure 6.4-4, alignments in the Southern Corridor would not carry sufficient traffic, or provide significant relief to existing roads, to justify constructing an expressway.

4. Central Corridor Alignments would carry sufficient traffic to justify an expressway; provide relief to Lithia-Pinecrest Road, Bloomingdale Avenue and provide minor relief to Lumsden Road.

5. Northern Corridor Alignments would carry sufficient traffic to justify an expressway; provide relief to SR 60 east of Lithia-Pinecrest Road, provide relief to Bloomingdale Avenue and minor relief to Lumsden Road.

Following completion of the corridor analysis, the HCCCPC

significantly revised the 2010 projections of population employment in Hillsborough County. The prior changes were a reduction of regional employment levels, as in the Tampa CBD and the I-75 corridor. These revised projections were used to prepare an update of travel forecasts, which were presented in a January 2, 1991 memorandum "Travel Forecast Review". The results of this update were presented in Section 4.

5.3.2 Natural/Environmental Analysis

The Alafia River, and its surrounding wetlands, and upland wildlife habitat areas are the major natural environmentally sensitive features of the study area. Upon analyzing the individual wetland system values and individual wildlife habitat provided in Tables 5.2-3 and 5.2-4 respectively, it can be determined the Southern Corridor alignments have more natural environmental impacts than alternatives within the Northern and Central Corridors.

5.3.3 Evaluation of Eastern and Western Connections

As shown in Figure 5.1-2 there are eastern and western connections for all of

the alternative alignments. The first step of the evaluation was to examine these connections to determine if any were clearly superior to others. The remaining number of alignments could be reduced should any of the connections drop from further consideration.

A review of the data in Table 5.3.3-1 indicates that all eastern connections to SR 60 have similar impacts, and no one connection is superior to another. Therefore, the eastern connections were determined to be studied in the subsequent steps of the evaluation.

In reviewing the western connections, the two connections to the existing Crosstown Expressway were evaluated.

As a result of this review, it was determined that the western connection to the Crosstown Expressway at I-75 is superior to the "DD" connection, because:

- An interchange at I-75 can be accommodated. The "DD" connection cannot include an I-75 interchange because of close spacing to the US 301 interchange and the existing Crosstown interchange.

- It is more convenient for travel to/from I-75, using the existing connection.

- There is equivalent convenience for travel to/from the Crosstown Expressway.

- It has a lower cost than the "DD" connection.

Table 5.3.3-1

COMPARISON OF IMPACTS OF ALTERNATIVE ALIGNMENTS WITH SEGMENT "DD" CONNECTION TO THE CROSSTOWN EXPRESSWAY
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

	ALTERNATIVE ALIGNMENTS														
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
RESIDENTIAL IMPACTS															
Displaced (No.)															
Single Family Homes	141	121	120	121	122	124	31	33	48	50	94	94	93	111	113
Multi-Family Units	0	0	0	0	8	8	0	0	0	0	46	46	46	0	0
Mobile Homes	10	11	8	8	8	8	60	60	34	34	8	11	8	8	8
TOTAL	151	132	128	129	138	140	91	93	82	84	148	151	147	119	121
Within 300 Feet (No.)															
Single Family Homes	347	348	366	340	334	308	95	69	131	105	215	223	241	294	268
Multi-Family Units	0	0	0	0	64	64	0	0	0	0	174	174	174	88	88
Mobile Homes	6	6	6	12	8	8	112	112	17	17	12	6	6	8	8
TOTAL	353	354	372	352	406	380	207	181	148	122	401	403	421	390	364
FACILITY IMPACTS															
Community Facilities															
Displaced (No.)	0	1	1	1	0	0	0	0	0	0	2	2	2	0	0
Within 300 Feet (No.)	3	4	4	4	1	1	0	0	0	0	6	6	6	2	2
Parks Displaced (No.)	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
WETLAND ACRES	25.3	35.3	68.8	25.3	151.2	101.6	178.6	129.0	157.8	108.2	44.1	32.4	65.9	147.0	97.5
TOTAL COST ($1989 mil)	**246.9**	**252.9**	**236.9**	**253.6**	**241.3**	**243.7**	**229.1**	**231.4**	**211.0**	**213.4**	**310.4**	**309.6**	**293.6**	**264.6**	**267.0**

Note: Alignments 36-41, 45 and 46 are Southern Corridor alternatives. All other alignments are Central Corridor Alternatives.

Source: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.
HDR Engineering, Inc.

Therefore, the 15 alignments containing the "DD" connection were dropped from further study. These alignments are mapped in Figure 5.3.3-1 with the accompanying data found in Table 5.3.3-1.

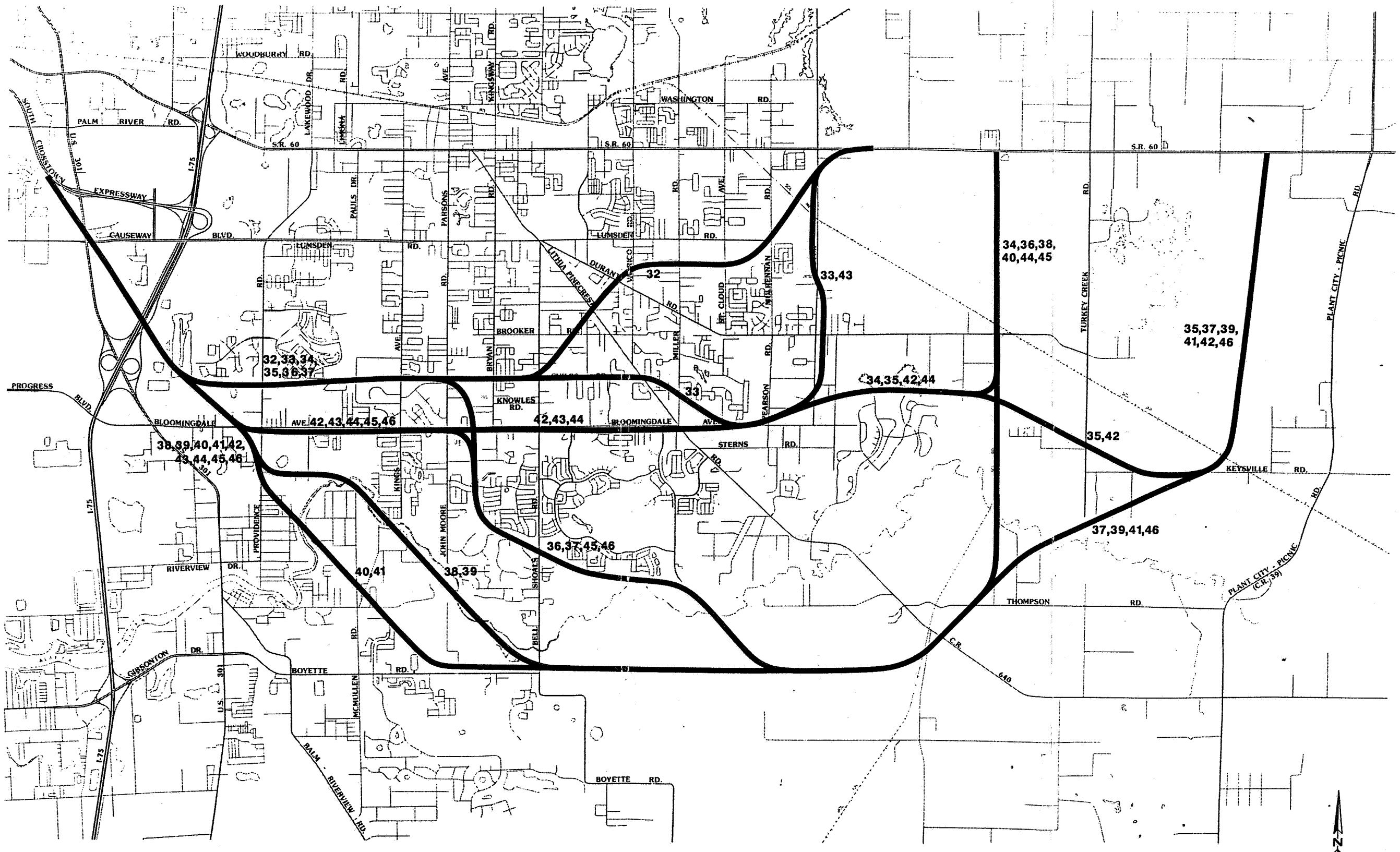
5.3.4 Evaluation of Southern Corridor Alignments

The alignments within the Southern Corridor are generally south of Bloomingdale Avenue, as shown in Figure 5.3.4-1. The data for the 12 alignments are found in Table 5.3.4-1. By reviewing this information, it was determined that:

- All Southern Corridor alignments have similar travel service characteristics, with:
  - Little or no reduction in volumes on SR 60;
  - Little or no reduction in volumes on Lumsden Road; and
  - Increased volumes on Bloomingdale Avenue.

- Projected 2010 volumes are not sufficient for expressway construction. (See Figure 6.4-4).

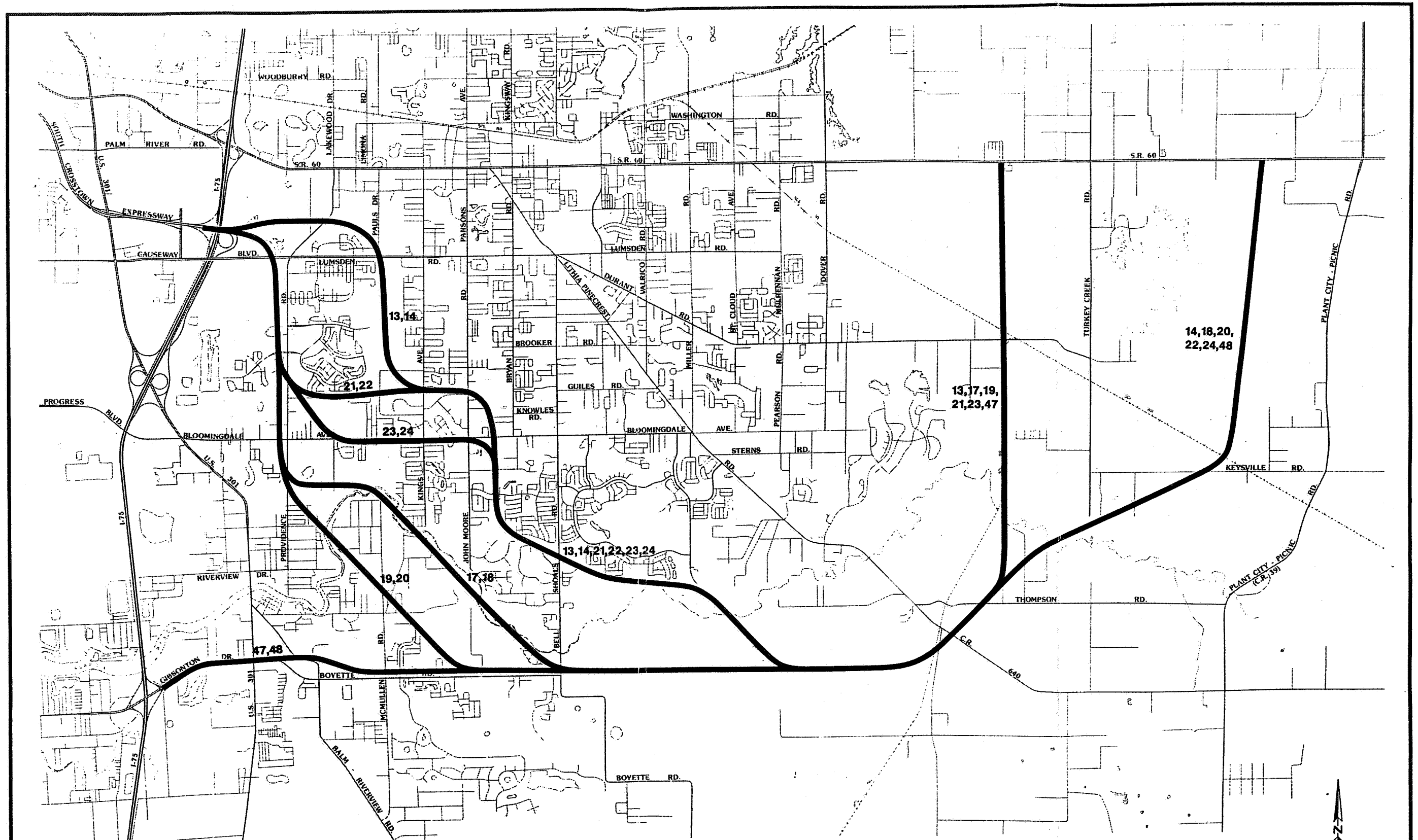
- Alignments 13, 14 and 17-24 have community impacts greater than the best Central Corridor alignments and the best Northern Corridor



Legend

15, 16 ALIGNMENT NUMBERS

Brown&Root-Genesis Engineering Company; GLATTING LOPEZ KERCHER ANGLIN; HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	ALTERNATIVE ALIGNMENTS WITH "DD" CONNECTION TO CROSSTOWN EXPRESSWAY	Figure 5.3.3-1



Brown&Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa–Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	SOUTHERN CORRIDOR ALIGNMENTS	Figure 5.3.4-1

Table 5.3.4-1

COMPARISON OF IMPACTS FOR SOUTHERN CORRIDOR ALIGNMENTS TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

	ALTERNATIVE ALIGNMENTS											
	13	14	17	18	19	20	21	22	23	24	47	48
RESIDENTIAL IMPACTS												
Displaced (No.)												
Single Family Homes	109	111	39	41	56	58	126	128	105	107	23	25
Multi-Family Units	8	8	32	32	32	32	40	40	32	32	0	0
Mobile Homes	0	0	52	52	26	26	0	0	0	0	3	3
TOTAL	117	119	123	125	114	116	166	168	137	139	26	28
Within 300 Feet (No.)												
Single Family Homes	266	240	145	119	181	155	393	367	336	310	103	77
Multi-Family Units	64	64	80	80	80	80	144	144	168	168	0	0
Mobile Homes	3	3	106	106	11	11	2	2	2	2	21	21
TOTAL	333	307	331	305	272	246	539	513	506	480	124	98
COMMUNITY IMPACTS												
Community Facilities												
Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0	0
Within 300 Feet (No.)	1	1	3	3	3	3	1	1	2	2	1	1
Parks Displaced (No.)	0	0	1	1	1	1	0	0	0	0	0	0
WETLAND ACRES	159.3	111.4	170.1	120.5	149.3	99.7	142.6	93.0	140.6	91.1	136.8	87.2
TOTAL COST ($1989 mil)	**227.6**	**230.0**	**240.8**	**243.1**	**222.7**	**225.0**	**226.6**	**229.0**	**247.4**	**249.8**	**146.9**	**149.2**

Note: Alignments 47 and 48 connect to I-75 at Gibsonton Road and do not connect directly to the Crosstown Expressway.

Source: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.
HDR Engineering, Inc.

alignments.

- Alignments 47 and 48 have community impacts similar to those of the best Central Corridor alignments and the best Northern Corridor alignments, but do not connect directly to the Crosstown Expressway.

- Southern Corridor alternatives have more significant natural environmental impacts than alternatives in Northern and Central Corridors.

- Travel service benefits of the Central Corridor and the Northern Corridor are superior to travel service benefits of the Southern Corridor, as discussed in Section 5.3.1.

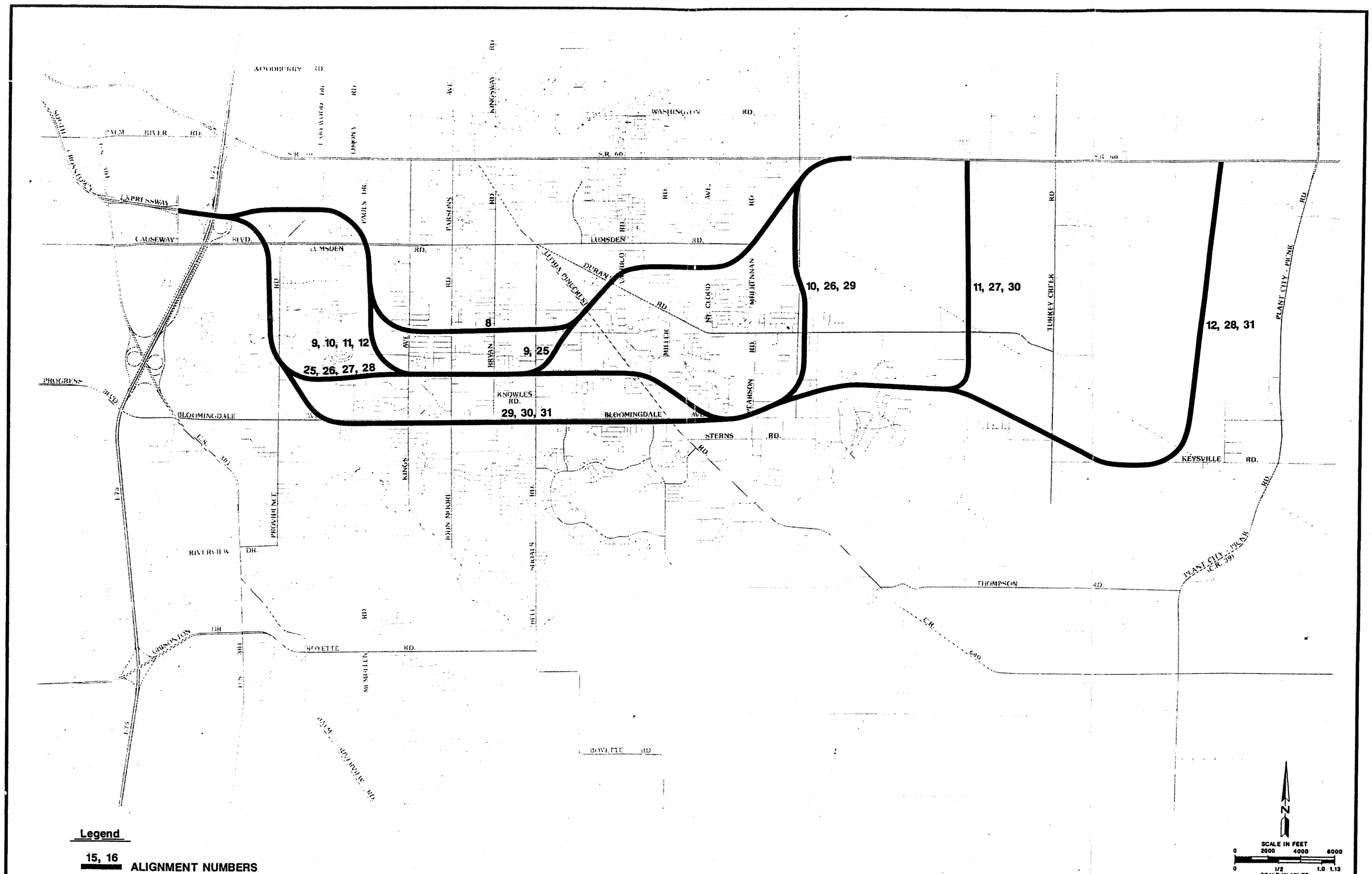
- Southern Corridor alignments may serve future travel needs after the year 2010.

- Southern Corridor alignments do not provide a superior alternative and are deleted from further study.

5.3.5 Evaluation of Central Corridor Alignments

All of the alignments within the Central Corridor are generally between Lumsden Road and Bloomingdale Avenue, and include the three eastern connections to SR 60, as shown in Figure 5.3.5-1. The data for the 12 alignments are found in Table 5.3.5-1. Based on this information, it was determined that:

- When compared to the "No-Build" (Figure 6.4-1) all Central Corridor alignments (Figure 6.4-3) have similar travel service benefits, with:
  - Slightly reduced volumes on SR 60;
  - Slightly reduced volumes on Lumsden Road;
  - Reduced volumes on Bloomingdale; and
  - Reduced volumes on Lithia-Pinecrest Road, north of Bloomingdale Avenue.
- Alignments 8, 9, 10, 11, and 12 clearly have significantly lower community impacts than other alignments, as shown in Figures 5.3.5-2 and 5.3.5-3.
- Cost of alignments 8, 9, 10, 11, and 12 are equivalent to, or somewhat lower than, costs of other alignments.



Legend

15, 16 **ALIGNMENT NUMBERS**

Brown&Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	CENTRAL CORRIDOR ALIGNMENTS	Figure 5.3.5-1

COMPARISON OF IMPACTS
CENTRAL CORRIDOR ALIGNMENTS

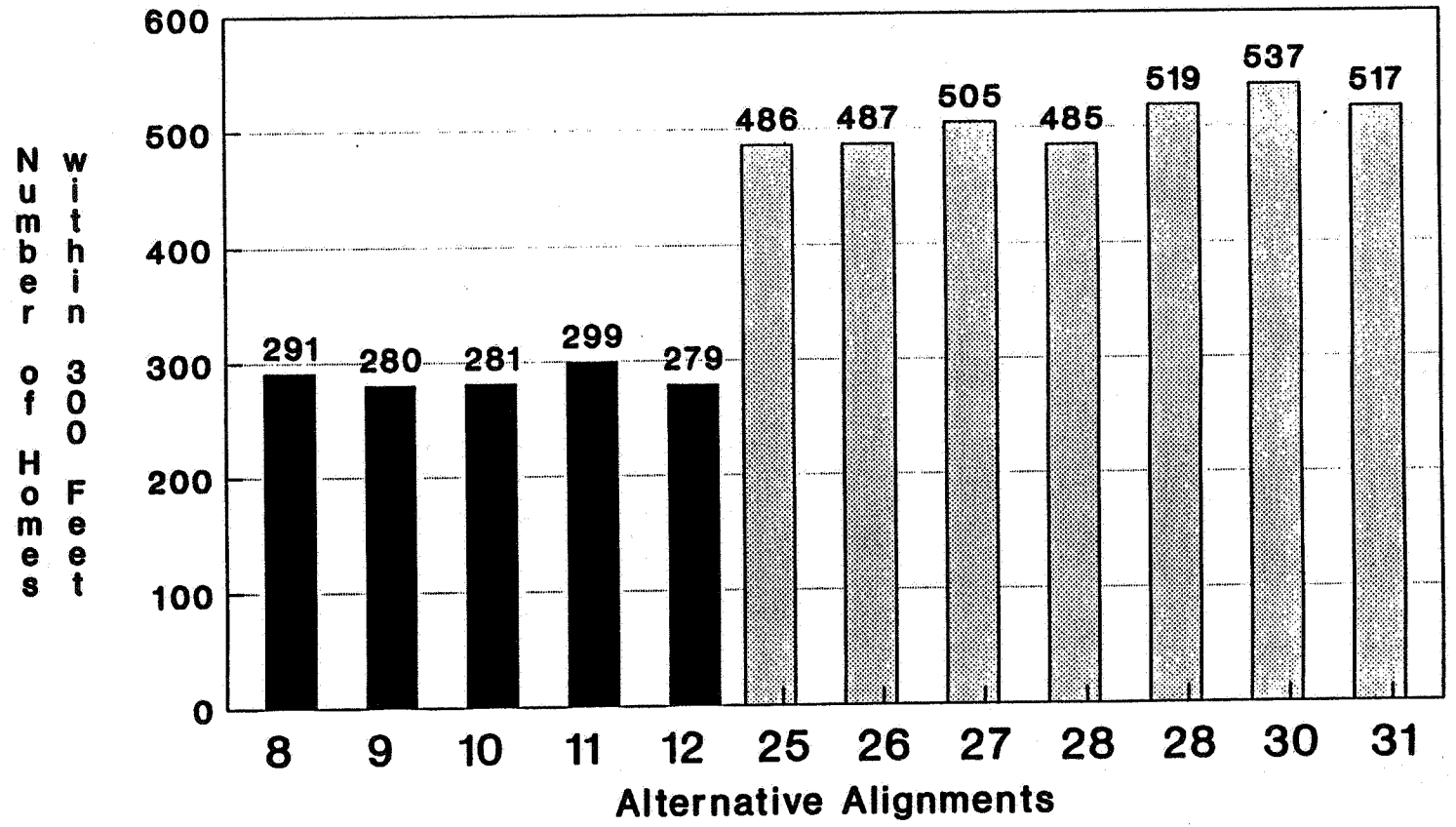
CROSSTOWN EXTENSION PD & E STUDY

	ALTERNATIVE ALIGNMENTS											
	8	9	10	11	12	25	26	27	28	29	30	31
RESIDENTIAL IMPACTS												
Displaced (No.)												
Single Family Homes	153	128	108	107	108	145	125	124	125	88	87	88
Multi-Family Units	0	0	0	0	0	32	32	32	32	78	78	78
Mobile Homes	2	2	3	0	0	2	3	0	0	3	0	0
TOTAL	155	130	111	107	108	179	160	156	157	169	165	166
Within 300 Feet (No.)												
Single Family Homes	291	279	280	298	272	406	407	425	399	265	283	257
Multi-Family Units	0	0	0	0	0	80	80	80	80	254	254	254
Mobile Homes	0	1	1	1	7	0	0	0	6	0	0	6
TOTAL	291	280	281	299	279	486	487	505	485	519	537	517
FACILITY IMPACTS												
Community Facilities												
Displaced (No.)	0	0	1	1	1	0	1	1	1	2	2	2
Within 300 Feet (No.)	3	3	4	4	4	3	4	4	4	6	6	6
Parks Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0	0
WETLAND ACRES	34.3	30.5	45.1	78.6	56.8	16.7	26.7	60.2	38.4	26.0	59.5	37.7
TOTAL COST ($1989 mil)	**224.8**	**226.0**	**239.2**	**223.2**	**239.9**	**232.2**	**238.2**	**222.2**	**239.0**	**292.4**	**276.4**	**293.2**

Source: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.
HDR Engineering, Inc.

TABLE 5.3.5-1

TAMPA SOUTH CROSSTOWN EXPRESSWAY
PD&E STUDY
Central Corridor Residential Impacts

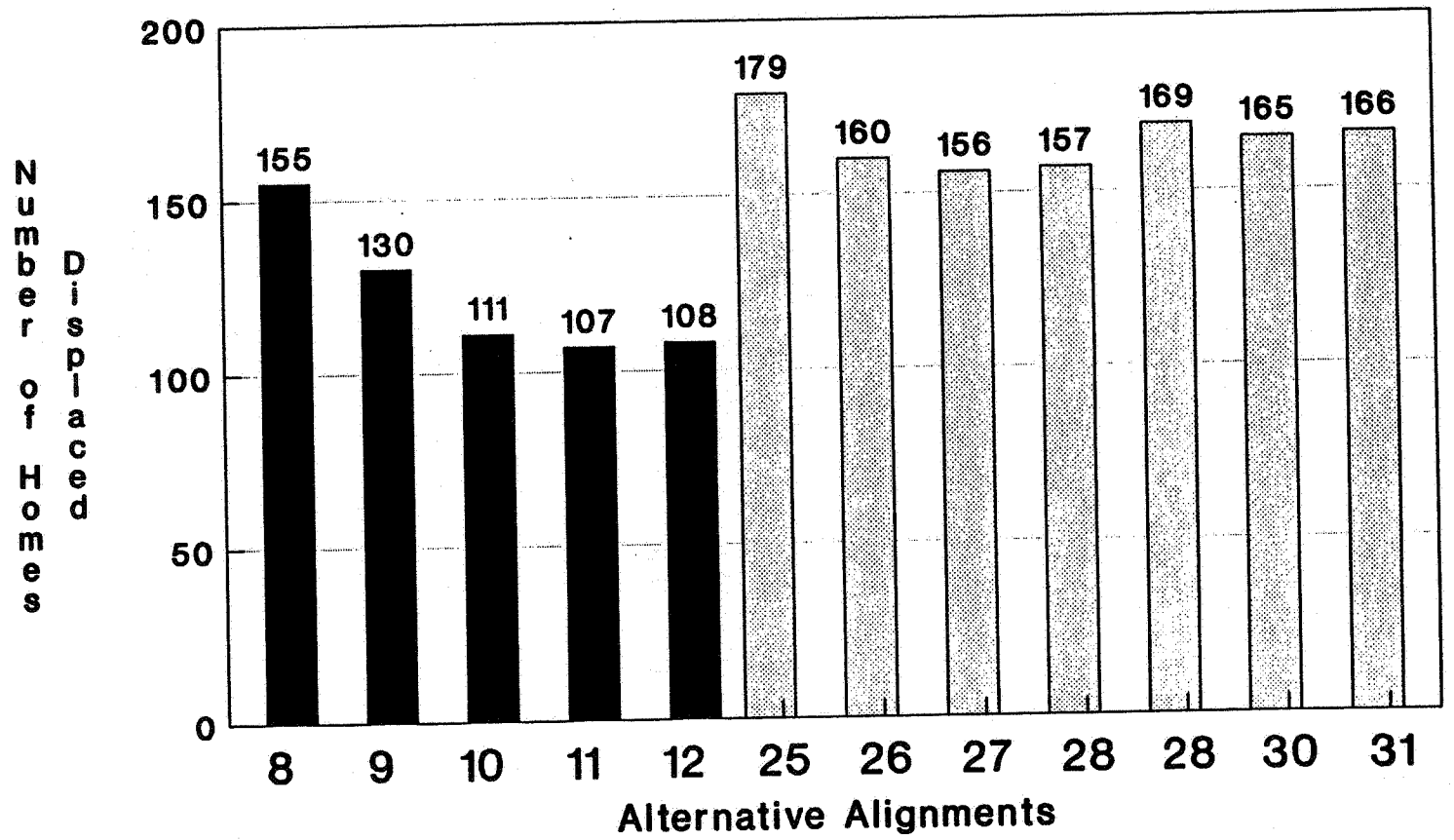


Clearly Alignments 8, 9, 10, 11 & 12
Offer Lower Impact

(Source: Glatting Lopez Kercher Anglin)

Figure 5.3.5-2

TAMPA SOUTH CROSSTOWN EXPRESSWAY
PD&E STUDY
Central Corridor Residential Impacts



Clearly Alignments 8, 9, 10, 11 & 12
Offer Lower Impact

(Source: Glatting, Lopez, Kercher, Anglin)

Figure 5.3.5-3

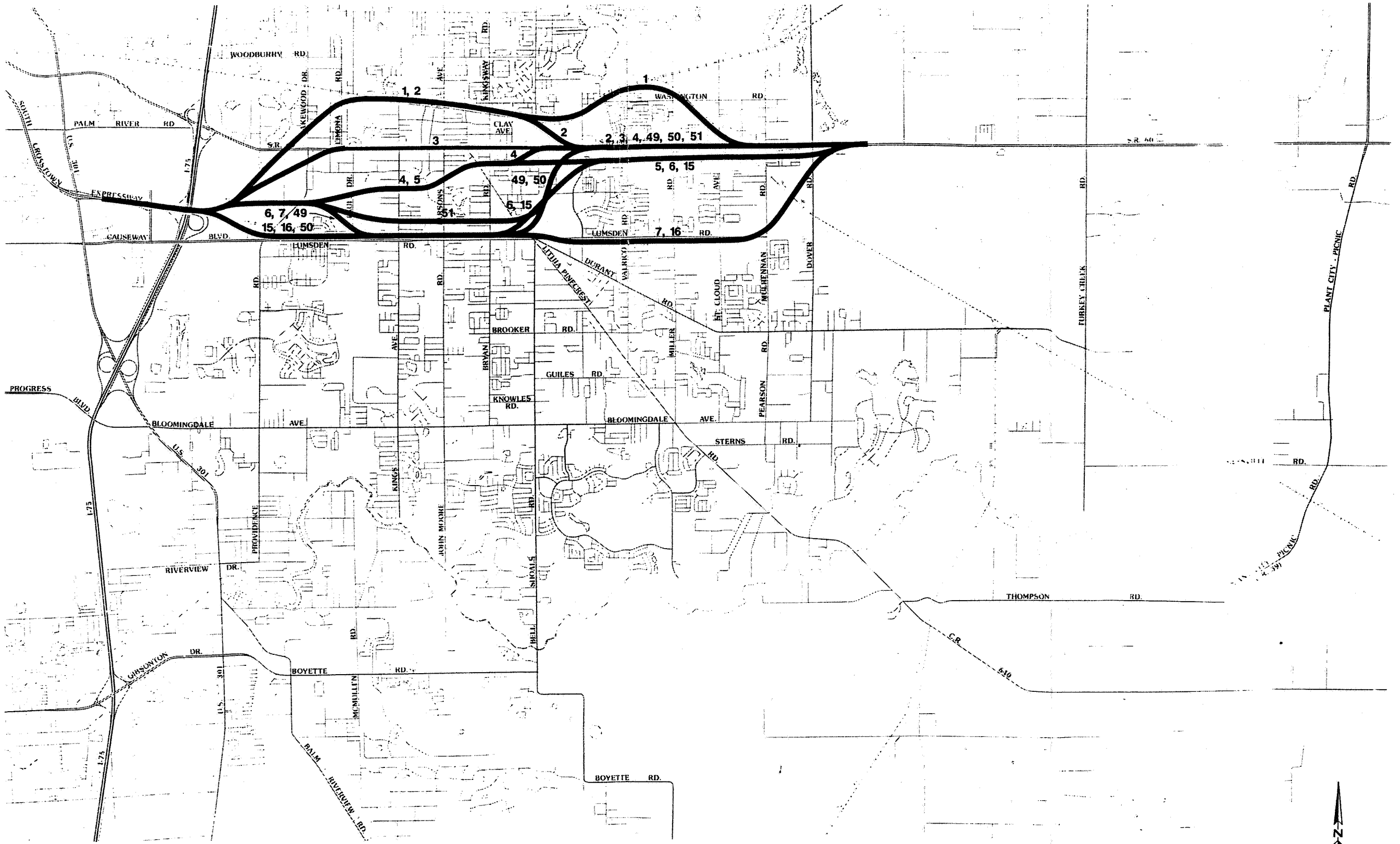
- Natural environmental impacts of all alignments are acceptable and can be mitigated.

Clearly, alignments 8, 9, 10, 11 and 12 are the best alignments within the Central Corridor. Therefore, these alignments were kept for comparison to the best alignments from the Northern Corridor, and alignments 25, 26, 27, 28, 29, 30 and 31 were dropped from further consideration.

5.3.6 Evaluation of Northern Corridor Alignments

The alignments within the Northern Corridor are located in an area from Lumsden Road to north of SR 60, as shown in Figure 5.3.6-1. Data for these 11 alignments are shown in Table 5.3.6-1. Based on this information, it was determined that:

- When compared to the "no-build" (Figure 6.4-1) all Northern Corridor alignments (Figure 6.4-2) have similar travel benefits, with:
    - Reduced volumes on State Road 60, east of Bryan Road;
    - Slightly reduced volumes on Lumsden Road; and
    - Reduced volumes on Bloomingdale Avenue.



Brown&Root-Genesis Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

NORTHERN CORRIDOR ALIGNMENTS

Figure 5.3.6-1

COMPARISON OF IMPACTS
NORTHERN CORRIDOR ALIGNMENTS

CROSSTOWN EXTENSION PD & E STUDY

	ALTERNATIVE ALIGNMENTS											
	1	2	3	4	5	6	7	15	16	49	50	51
RESIDENTIAL IMPACTS												
Displaced (No.)												
Single Family Homes	149	118	9	79	114	66	60	78	72	43	55	56
Multi-Family Units	16	16	4	56	56	56	0	56	0	0	0	0
Mobile Homes	6	5	5	5	83	88	2	88	2	7	7	11
TOTAL	171	139	18	140	253	210	62	222	74	50	62	67
Within 300 Feet (No.)												
Single Family Homes	224	176	39	98	135	125	139	290	304	99	264	128
Multi-Family Units	158	158	16	158	238	40	0	104	64	16	80	64
Mobile Homes	20	98	89	89	180	217	0	217	0	112	112	112
TOTAL	402	432	144	345	553	382	139	611	368	227	456	304
FACILITY IMPACTS												
Community Facilities												
Displaced (No.)	3	3	0	1	1	3	3	3	3	3	3	0
Within 300 Feet (No.)	5	5	3	4	3	1	1	1	1	2	2	3
Parks Displaced (No.)	1	1	0	0	0	0	0	0	0	0	0	0
WETLAND ACRES	9.3	9.3	10.3	14.7	16.5	22.2	25.0	14.9	17.7	20.4	13.1	22.2
TOTAL COST ($1989 mil)	263.5	263.0	262.5	228.1	221.5	200.6	196.8	209.7	206.0	215.3	224.5	208.1

Note: Alignment 51 was added as a result of public comment received at the January 31, 1990 Public Information Meeting.

Source: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.
HDR Engineering, Inc.

TABLE 5.3.6-1

- Alignment 3 (SR 60) clearly has lowest residential impact as shown in Figures 5.3.6-2 and 5.3.6-3.

- Alignments 7 and 49 have significantly lower residential impacts than alignments 1, 2, 4, 5, 6 and 15.

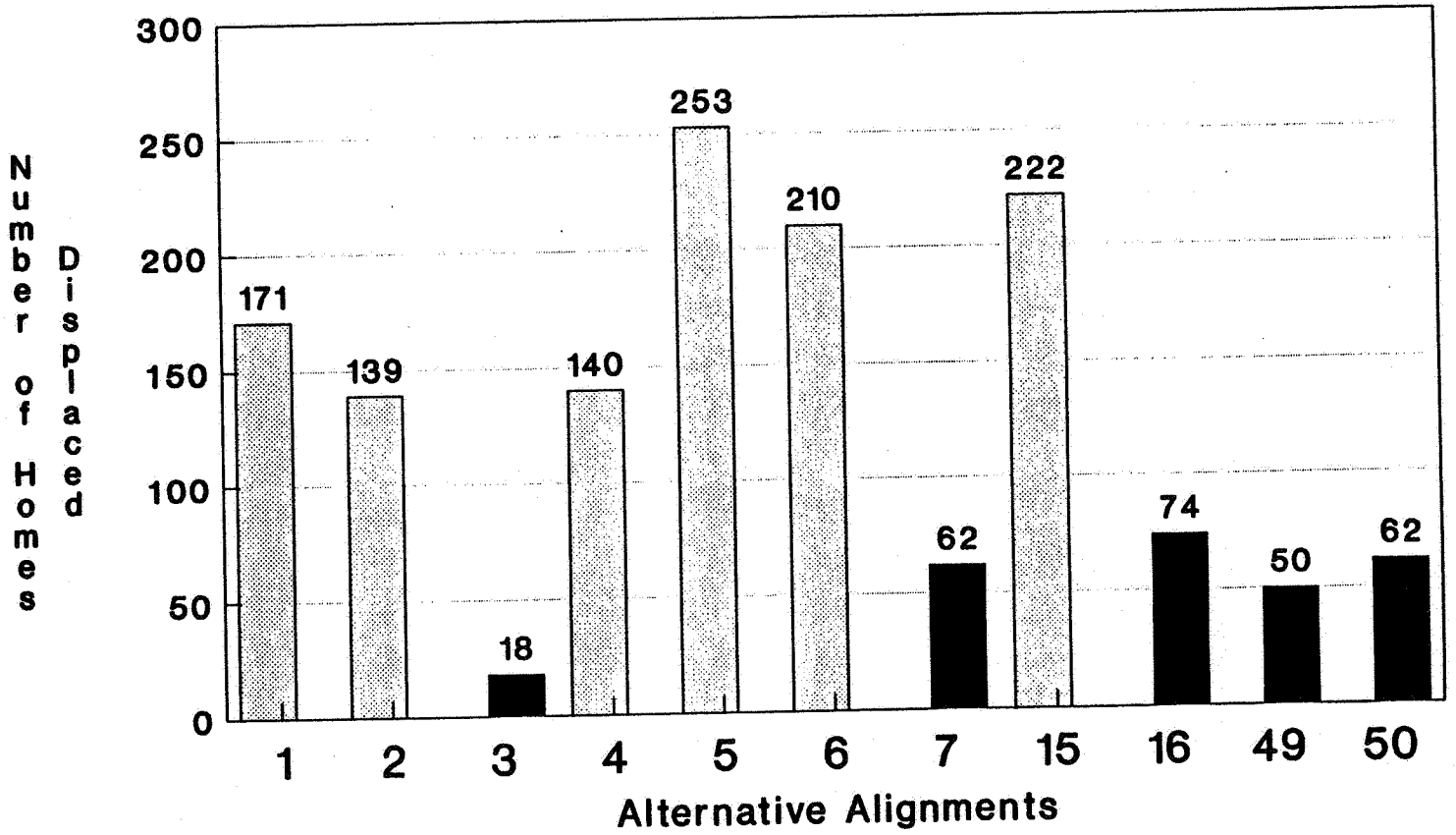
- Alignment 7 has lower cost than alignments 1, 2, 4, 5, 6 and 15. Alignment 49 has lower cost than alignments 1, 2, 4, and 5, and not substantially higher cost than alignments 6 and 15.

- Natural environmental impacts of all alignments are acceptable and can be mitigated.

- Alignments 16 and 50 have somewhat lower residential impacts than alignments 1, 2, 4, 5, 6 and 15, and are reasonable design alternatives to alignments 7 and 49.

Clearly, alignments 3, 7 and 49 are the best alignments within the Northern Corridor and should remain for comparison to the best alignments from the Central Corridor. Likewise, alignments 16 and 50 should remain for comparison as design alternatives to alignments 7 and 49.

TAMPA SOUTH CROSSTOWN EXPRESSWAY
PD&E STUDY
Northern Corridor Residential Impacts

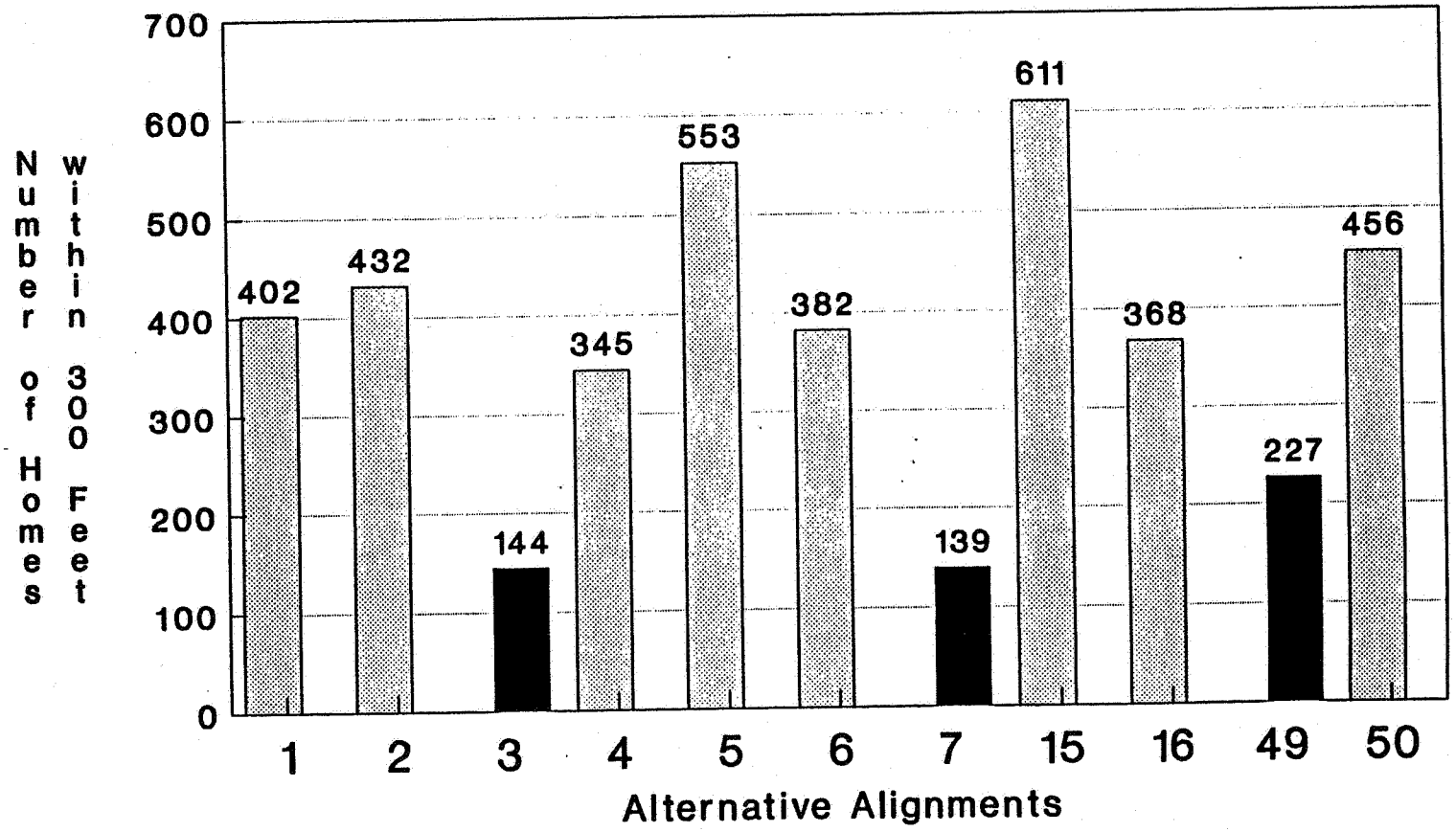


Clearly Alignments 3, 7, 16, 49 & 50
Offer Lower Impact

(Source: Glatting Lopez Kercher Anglin)

Figure 5.3.6-2

TAMPA SOUTH CROSSTOWN EXPRESSWAY
PD&E STUDY
Northern Corridor Residential Impacts



Clearly Alignments 3, 7, & 49
Offer Lower Impact

(Source: Glatting Lopez Kercher Anglin)

Figure 5.3.6-3

Consequently, alignments 1, 2, 4, 5, 6 and 15 were dropped from further consideration.

Comparison of the Best Northern and Central Corridor Alignments

The data for each of the alignments retained from the Central and Northern Corridors are shown in Table 5.3.7-1. Residential impacts are shown in Figure 5.3.7-2. Based on comparison of this information in a manner similar to the previous sections it was concluded that:

* Clearly Alignment 3 offers lowest residential impact, but has highest cost.

* Alignments 7 and 49 have clearly lower community impacts than alignments 8, 9, 10, 11 and 12.

* Alignments 7 and 49 have slightly lower costs than alignments 8, 9, 10, 11, and 12.

* Alignments 3, 7, and 49 impact fewer wetland acres than alignments 8, 9, 10, 11 and 12.

COMPARISON OF IMPACTS
NORTHERN AND CENTRAL CORRIDOR ALIGNMENTS

CROSSTOWN EXTENSION PD & E STUDY

	ALTERNATIVE ALIGNMENTS										
	3	7	8	9	10	11	12	16	49	50	51
RESIDENTIAL IMPACTS											
Displaced (No.)											
Single Family Homes	9	60	153	128	108	107	108	72	43	55	56
Multi-Family Units	4	0	0	0	0	0	0	0	0	0	0
Mobile Homes	5	2	2	2	3	0	0	2	7	7	11
TOTAL	18	62	155	130	111	107	108	74	50	62	67
Within 300 Feet (No.)											
Single Family Homes	39	139	291	279	280	298	272	304	99	264	128
Multi-Family Units	16	0	0	0	0	0	0	64	16	80	64
Mobile Homes	89	0	0	1	1	1	7	0	112	112	112
TOTAL	144	139	291	280	281	299	279	368	227	456	304
FACILITY IMPACTS											
Community Facilities											
Displaced (No.)	0	3	0	0	1	1	1	3	3	3	0
Within 300 Feet (No.)	3	1	3	3	4	4	4	1	2	2	3
Parks Displaced (No.)	0	0	0	0	0	0	0	0	0	0	0
WETLAND ACRES	10.3	25.0	34.3	30.5	45.1	78.6	56.8	17.7	20.4	13.1	22.2
TOTAL COST ($1989 mil)	262.5	196.8	224.8	226.0	239.2	223.2	239.9	206.0	215.3	224.5	208.1

Note: Alignment 51 was added as a result of public comment received at the January 31, 1990 Public Information Meeting.

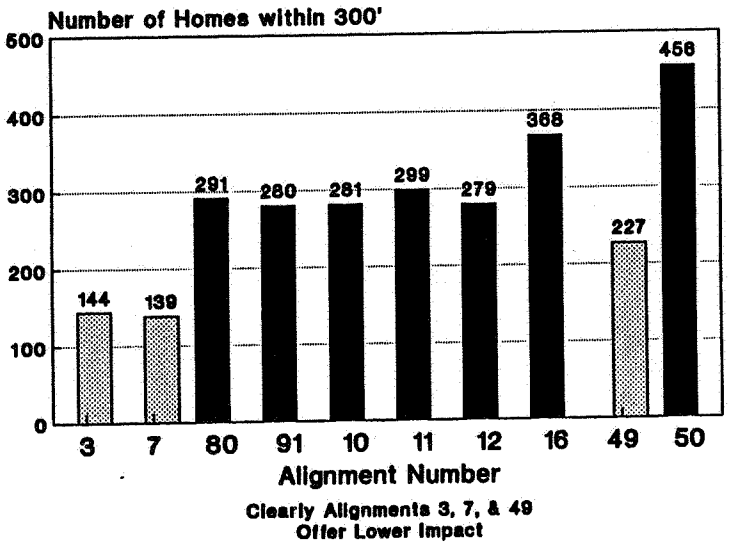
Source: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.
HDR Engineering, Inc.

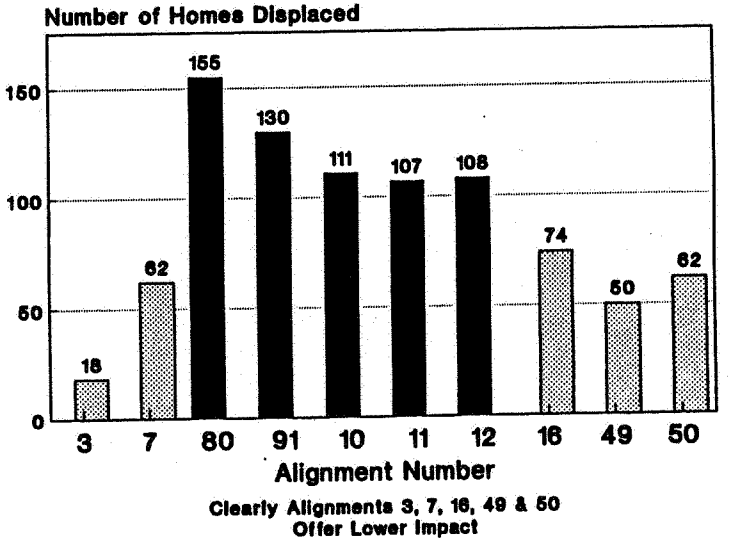
Costs for 3, 7, 16, 49, 50 and 51 were updated during Preliminary Design Analysis, see Sections 8.6 and 8.7.

TABLE 5.3.7-1

TAMPA SOUTH CROSSTOWN EXPRESSWAY
PD&E STUDY

Best of Northern & Central Residential Impacts





(Source: Glatting Lopez Kercher Anglin)

Figure 5.3.7-2

* Due to relatively lower displacements it was determined to also retain alignments 16 and 50 as alternatives to alignments 3, 7 and 49.

Conclusion

As described earlier, the alignments 3, 7, 49 and 16 and 50 were proposed to the Technical Review Committee and Environmental Advisory Groups who concurred with the findings of the study team. During the January 31, 1990 public information meeting, a group of citizens presented an alignment, within the northern corridor, which is shown on Figure 5.1-2. This alignment was designated number 51 and was fully evaluated prior to meeting with the Technical Review Committee and Environmental Advisory Group. The findings of the study team concluded:

* Residential displacement of the alignment 51 are similar to those of alignments 7 and 49.

* The number of residential units within 300 feet were similar to alignments 8, 9, 10, 11 and 12, greater than 3, 7 and 49.

* Alignment 51 is nearest in comparison to Alignment 49. Alignment 51:

-Avoids displacing 3 churches

-Displaced 17 more residential units

-Has 77 more residential units within 300 feet

-Is an additional corridor rather than expansion of existing corridors

-Is not contiguous with established school boundaries

-Will create a remnant area of existing residential character sandwiched between two major corridors, i.e. alignment 51 and Lumsden Road approximately 1000 feet to the south.

The study team determined, based upon its analysis, not to recommend alignment 51 be retained for further study. The Technical Review Committee and Environmental Advisory Group, concurred.

On February 26, 1990, the study team recommended alignments 3, 7 and 49, and alternatives 16 and 50 be retained for further study. The Expressway Authority concurred in the recommendation; however, upon hearing comments of the citizens group proposal for alignment 51, amended their resolution to include it in the alignments retained

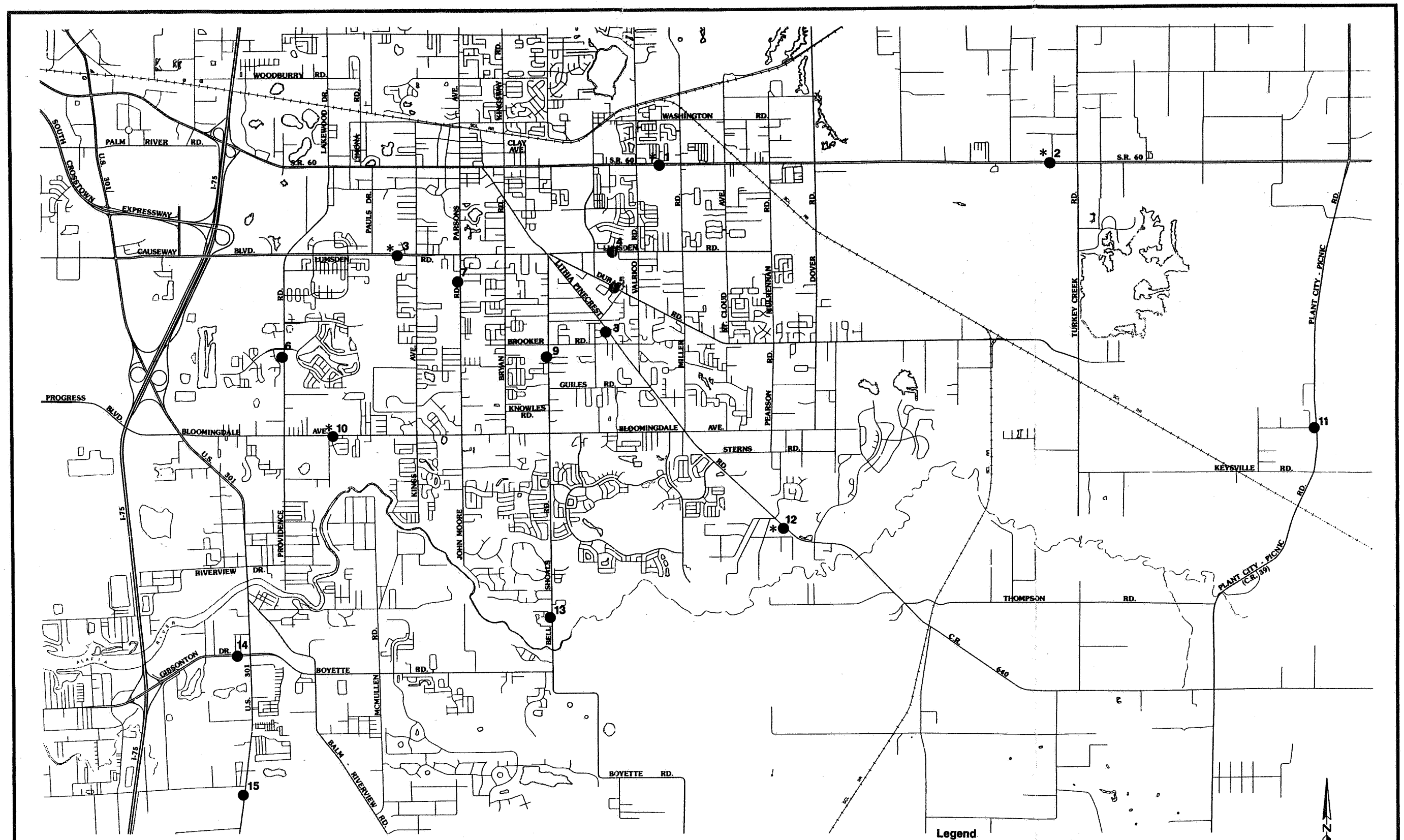
for further study. The project continued with further analysis, public involvement and performed conceptual design, and environmental impact analysis on alignments 3, 7, 49, 16, 50 and 51. The conceptual alignments retained for further study are shown in Figure 7.0-1. These alignments were presented to the public at a workshop during July 1990 and at the Public Hearing held September 23, 1991.

SECTION 6

6.0 Traffic

The approved Traffic Technical Memorandum provides traffic projections used in determining the number of lanes and other geometric requirements of the Crosstown Extension.

The traffic characteristics of existing roadways within the study area have been summarized and evaluated to determine current traffic conditions. Available traffic data were obtained from the Florida Department of Transportation and Hillsborough County. To supplement this information five 7-day and ten 24-hour count stations were established in the study area as shown in Figure 6.0-1. The data collected at these stations or derived from the results includes average daily traffic (ADT), the peak hour factor (K), the peak hour directional factor (D) and the percent trucks (T), as summarized in Table 6.0-1. Figure 6.0-2, Existing Average Daily Traffic, presents 1988 and 1989 ADT counts on selected facilities within the Crosstown Extension study area. This information, shown for those major roadways which parallel the Extension, was collected to determine the operational characteristics of these facilities whose current traffic could be serviced by the expressway in the future.



Brown&Root-Genesis Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

Tampa–Hillsborough County Expressway Authority

RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM E. McLEAN, JR., ATTORNEY

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

1989 TRAFFIC COUNT LOCATIONS

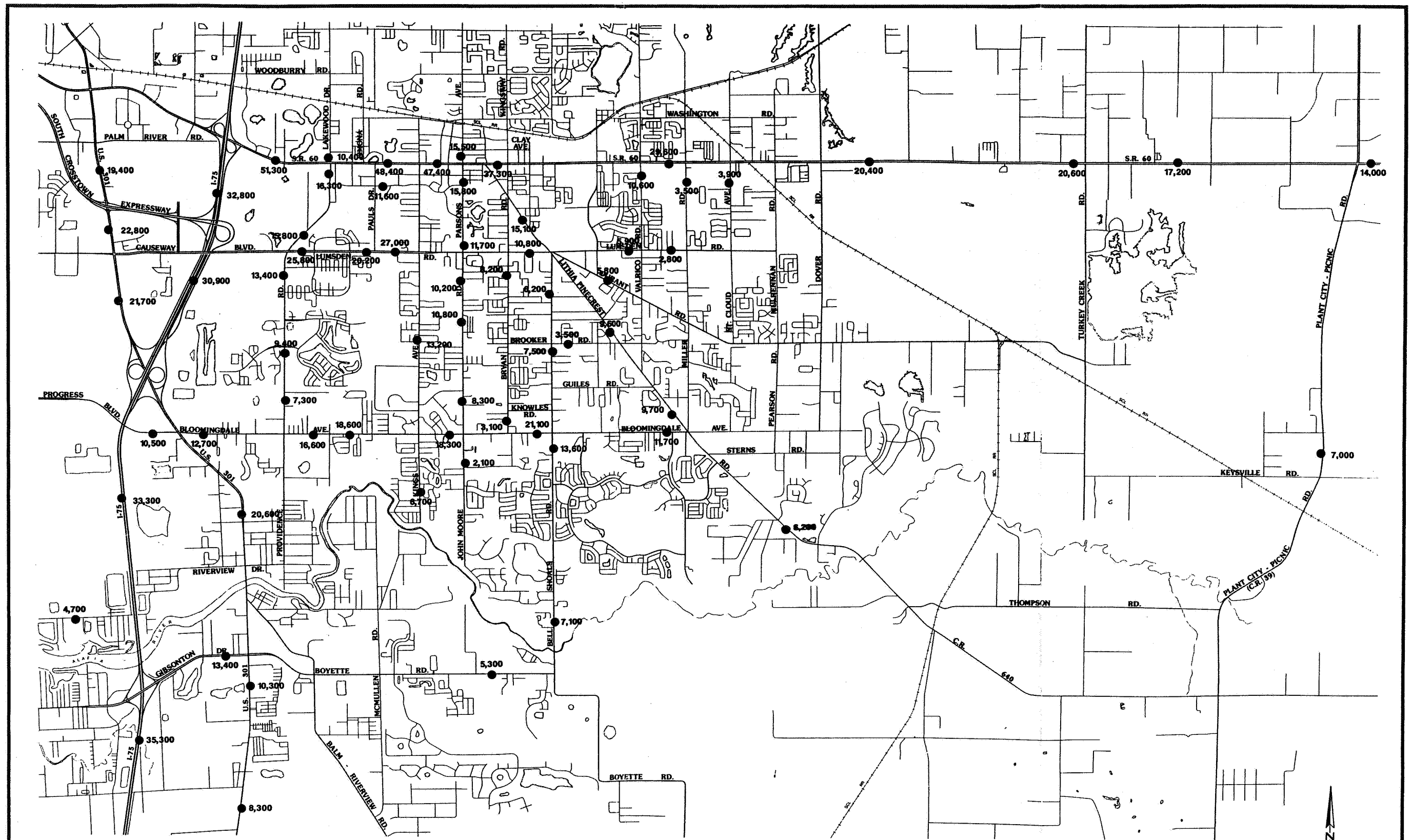
Figure 6.0-1

TABLE 6.0-1

SUMMARY OF 1989 TRAFFIC COUNTS

Station	ADT	"K"	"D"	"T"
1	29,566	0.075	0.55	0.15
2	20,599	0.075	0.53	0.07
3	26,960	0.103	0.73	0.04
4	5,857	0.092	0.56	N/A
5	5,844	0.091	0.60	N/A
6	9,368	0.093	0.57	N/A
7	10,169	0.081	0.63	N/A
8	9,639	0.081	0.61	N/A
9	7,519	0.086	0.60	N/A
10	18,591	0.088	0.67	0.03
11	6,990	0.078	0.51	N/A
12	6,203	0.081	0.50	0.06
13	7,056	0.101	0.53	N/A
14	13,425	0.093	0.64	N/A
15	8,290	0.077	0.55	N/A

Sources: Control Specialists
Glatting Lopez Kercher Anglin, Inc.



Brown & Root-Genesis Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

Tampa–Hillsborough County Expressway Authority

RAY SPIER, EXECUTIVE DIRECTOR — WILLIAM E. MCLEAN, JR., ATTORNEY

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

EXISTING AVERAGE DAILY TRAFFIC

Figure 6.0-2

Traffic growth in the study area is summarized in Table 6.0-2, Historic Daily Traffic Volumes. Growth in traffic volumes over the past few years on these facilities has ranged from a low rate of -1.7 percent per year on County Road 39, to a high rate of 33.6 percent per year on Brooker Road. The lower growth rates (less than 10 percent per year) are likely to continue to occur at a comparable level in the near future, while the higher growth rates (greater than 15 percent per year) are generally the result of intensive development of previously vacant land; the high growth rates do not usually continue for more than a few years, depending on development activities in the immediate vicinity. The significant decreases in the traffic volume on US 301 between 1986 and 1987 is attributed to the completion of Interstate 75 which diverted traffic for US 301 to the Interstate.

6.1 Multimodal Transportation Considerations

The Year 2010 Transportation Plan of the Tampa Urban Area Metropolitan Planning Organization includes the eastern extension of the Crosstown Expressway, a proposed mass transit rail corridor parallel to SR 60 to Brandon, as well as additional bus service throughout east Hillsborough County. The Plan concludes, therefore, that mass transit improvements alone cannot adequately serve future travel demands in eastern Hillsborough County, and that the extension of the Crosstown Expressway is an appropriate transportation improvement for the region. For this reason, multi-modal alternatives of an expressway have been rejected. Provisions of

* The Hillsborough County Metropolitan Planning Organization (MPO) formed a task force group responsible for developing alternative solutions to extending the Crosstown Expressway and held a public hearing on May 26, 1993. The MPO voted to accept the recommendation to delete the limited access extension of the Crosstown Expressway from the 2010 Long Range Transportation Plan.

TABLE 6.0-2

HISTORIC DAILY TRAFFIC VOLUMES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD & E STUDY

	1984	1985	1986	1987	1988	Average Growth Rate (Percent Per Year)
State Road 60						
US 301 to I-75	40,046	42,048	41,256	34,633	37,066	-1.5
I-75 to Providence Road	40,625	44,492	43,834	46,781	51,283	6.1
Providence Rd. to Kings Ave.	43,693	49,723	46,079	47,165	48,435	2.9
Kings Ave. to Lithia-Pinecrest	39,460	41,433	43,118	46,167	47,414	4.7
Lithia-Pinecrest to Kingsway Rd.	31,297	33,740	36,192	36,703	37,227	4.5
Kingsway Rd. to Turkey Creek Rd.	16,534	17,623	19,010	19,354	20,385	5.4
Turkey Creek Rd. to County Rd. 39	14,124	14,639	15,698	16,384	17,192	5.1
Lumsden Avenue						
Providence Rd. to Kings Ave.	11,830	9,180	16,600	18,097	20,221	19.8
Kings Ave. to Lithia-Pinecrest	5,670	N/A	9,258	N/A	10,835	18.0
Brooker Road						
Bryan Rd. to Miller Rd.	N/A	1,551	1,796	1,988	3,465	33.6
Bloomingdale Avenue						
I-75 to US 301	6,430	5,260	5,690	6,546	10,458	16.2
US 301 to Providence Rd.	9,320	11,430	11,010	10,933	12,700	8.6
Providence Rd. to Bell Shoals Rd.	9,630	11,980	15,170	N/A	16,605	15.1

Sources: Florida Department of Transportation
Hillsborough County

TABLE 6.0-2

HISTORIC DAILY TRAFFIC VOLUMES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD & E STUDY

	1984	1985	1986	1987	1988	Average Growth Rate (Percent Per Year)
Bell Shoals Rd. to Lithia-Pinecrest Rd.	5,920	7,330	8,440	9,889	11,676	18.6
Interstate 75						
Gibsonton Rd. to US 301	N/A	21,715	20,999	32,136	33,329	17.8
US 301 to Tampa Crosstown	N/A	N/A	N/A	28,392	30,944	9.0
Tampa Crosstown to SR 60	N/A	N/A	N/A	29,719	32,846	10.5
US 301						
Gibsonton to I-75	16,520	17,077	16,156	19,043	20,585	6.0
I-75 to Tampa Crosstown	14,614	15,345	17,750	19,995	21,709	10.5
Tampa Crosstown to SR 60	N/A	30,905	29,849	18,849	19,383	-12.5
Providence Road						
SR 60 to Bloomingdale Ave.	10,080	10,840	15,420	N/A	15,768	13.0
Bloomingdale Ave. to Riverview Dr.	7,240	6,160	7,090	6,210	7,312	1.4
Kings Avenue						
SR 60 to Lumsden Ave.	16,990	17,270	18,980	N/A	17,407	0.8
Lumsden Ave. to Bloomingdale Ave.	10,520	9,625	12,550	13,112	13,241	6.8
Bloomingdale Ave. to Alafia Blvd.	N/A	5,850	6,240	6,353	6,668	4.5
John Moore Rd./Parsons Ave.						

Sources: Florida Department of Transportation
Hillsborough County

TABLE 6.0-2

HISTORIC DAILY TRAFFIC VOLUMES
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION PD & E STUDY

	1984	1985	1986	1987	1988	Average Growth Rate (Percent Per Year)
SR 60 to Lumsden Ave.	12,865	13,925	15,650	N/A	15,800	5.4
Lumsden Ave. to Bloomingdale Ave.	11,620	11,560	13,030	N/A	10,800	-1.4
Bell Shoals Road						
Lumsden Ave. to Bloomingdale Ave.	N/A	3,930	3,850	4,539	6,192	17.4
Bloomingdale Ave. to Boyette Rd.	N/A	6,870	7,970	9,123	13,567	26.4
Lithia-Pinecrest Road						
SR 60 to Lumsden Ave.	15,160	14,590	14,860	11,858	15,068	1.2
Lumdsen Ave. to Alafia River	5,020	5,210	5,560	5,969	9,085	17.5
Turkey Creek Road						
SR 60 to Durant Road	2,980	3,170	3,460	3,509	6,200	23.4
County Road 39						
SR 60 to Keysville Road	7,620	7,000	6,370	7,283	7,000	-1.7
Keysville Rd. to CR 640	5,640	5,280	5,140	5,490	N/A	-0.7

Sources: Florida Department of Transportation
Hillsborough County

such facilities would further enhance the future transportation service needs in the area.

6.2 Travel Forecast Basis

The travel forecasts for the study area were obtained from computer projections using the Florida Standard Urban Transportation Model Structure (FSUTMS) software, verified and currently in use by the Hillsborough County City/County Planning Commission (HCCCPC).

The model socio-economic (SE) data were described previously in Section 5 of this report under the heading 5.3.1, Traffic Analysis by Corridor. All SE data are available for review in the Tampa South Crosstown Extension PD&E Study Traffic Report.

6.3 Development of Design Year Factors

Five 7-day traffic counts and ten 24-hour traffic counts were conducted at stations throughout the study area in October, 1989, as shown in Figure 6.0-1. A peak hour factor, "K", and a peak hour directional factor, "D", were then calculated at each of the 15 stations. The "K" factors ranged from a low of 0.075 on SR 60 to a high of 0.103 on Lumsden Road. A plot of the "K" factors versus total daily volume is

presented in Figure 6.3-1. The "D" factors ranged from a low of 0.50 on Lithia-Pinecrest Road to a high of 0.73 on Lumsden Avenue. Figure 6.3-2 shows a plot of the "D" factors versus total daily volume.

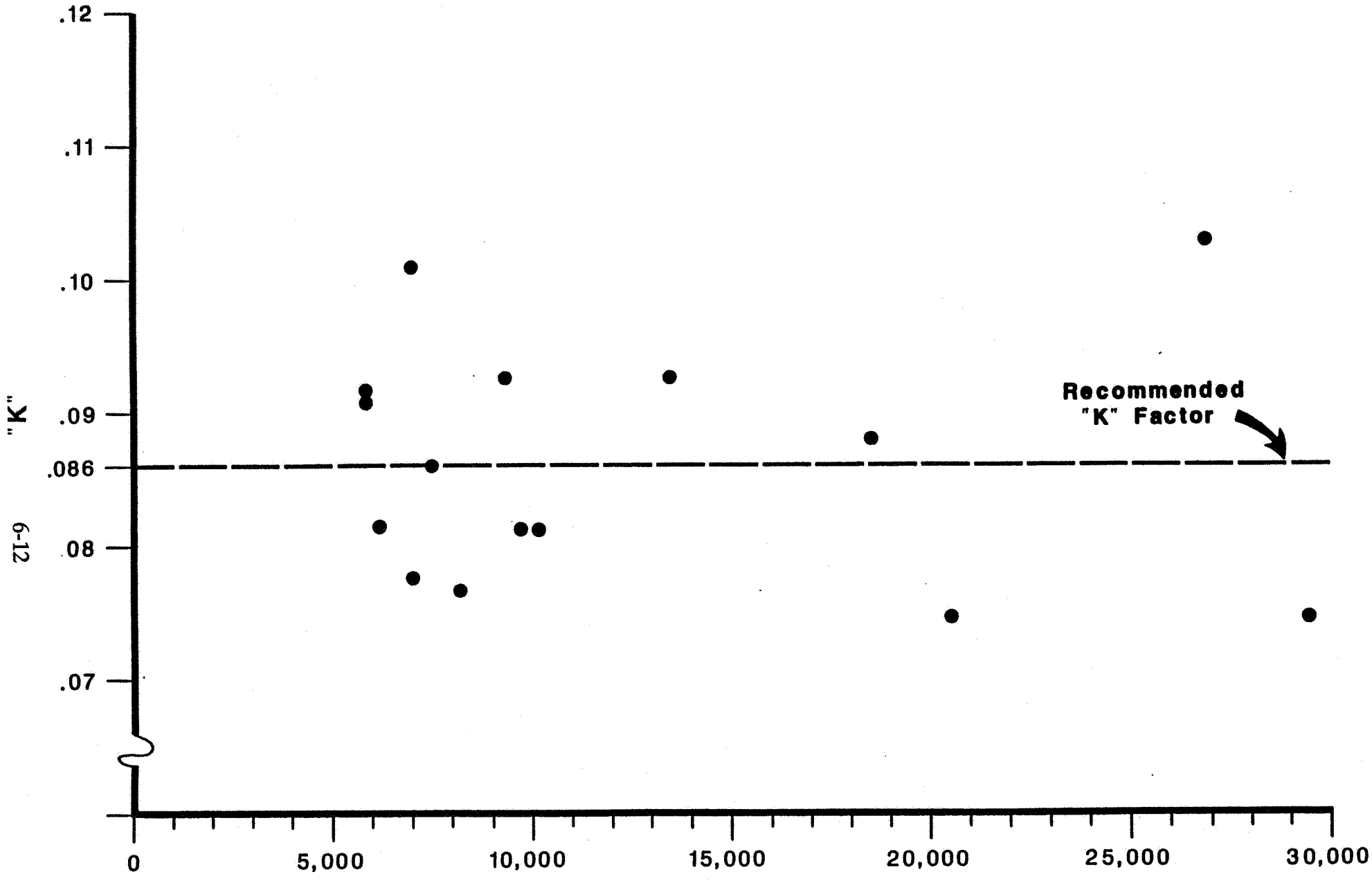
The "K" and "D" factors used in calculating the design hour volumes for the alternative expressway corridors are arithmetic averages of the 15 "K" and "D" factors. The "K" factor used equals 0.086 and the "D" factor equals 0.58. (See Traffic Technical Memorandum).

Traffic classification studies were also conducted at the five, 7-day count stations to determine the percentage of traffic volume made up of trucks. The percent trucks at these stations ranges from a low of 3% on Bloomingdale Avenue to a high of 15% on SR 60 near Turkey Creek Road. Figure 6.3-3 shows a plot of the "T" factors versus total daily volume. It was determined that a "T" factor equal to 0.08 will be used for the 1995 and 2010 design years. (See Traffic Technical Memorandum).

6.4 Design Year Traffic Volumes

The average daily traffic (ADT) volumes projected by the model for the no-build case, and for a proposed Crosstown Extension in each of the Northern Corridors, Central Corridors and Southern Corridors are shown in Figures 6.4-1 through 6.4-4.

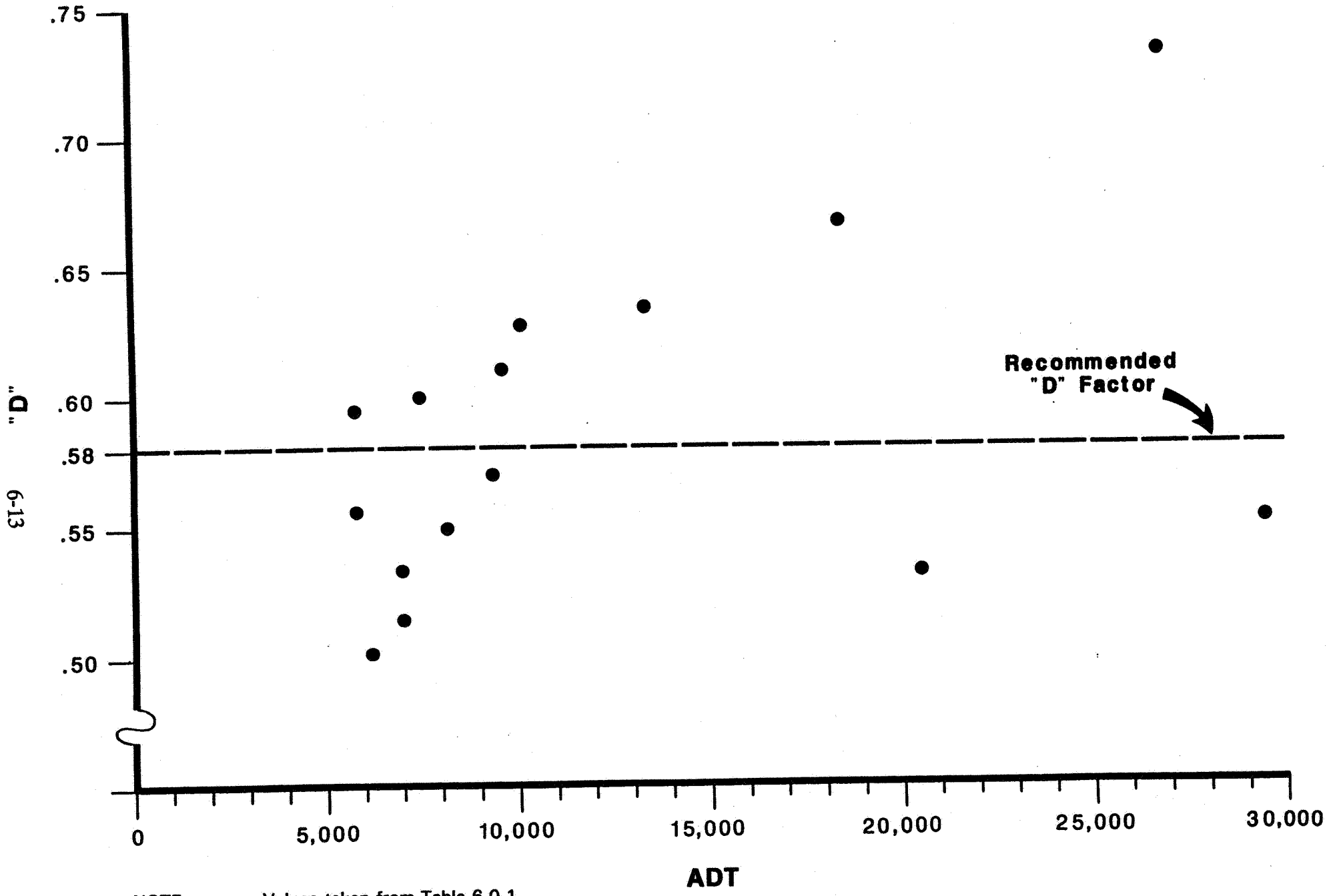
The Traffic Volumes on Figure 6.4-1, 2010 No-Build Daily Traffic Volumes includes planned improvements as outlined in the Hillsborough County City/County Planning Commission's (HCCCPC) Year 2010 Long Range Plan. The proposed Year 2010 No-build network is summarized in Figure 5.3.1-4.



NOTE: Values taken from Table 6.0-1

DESIGN YEAR "K" FACTOR

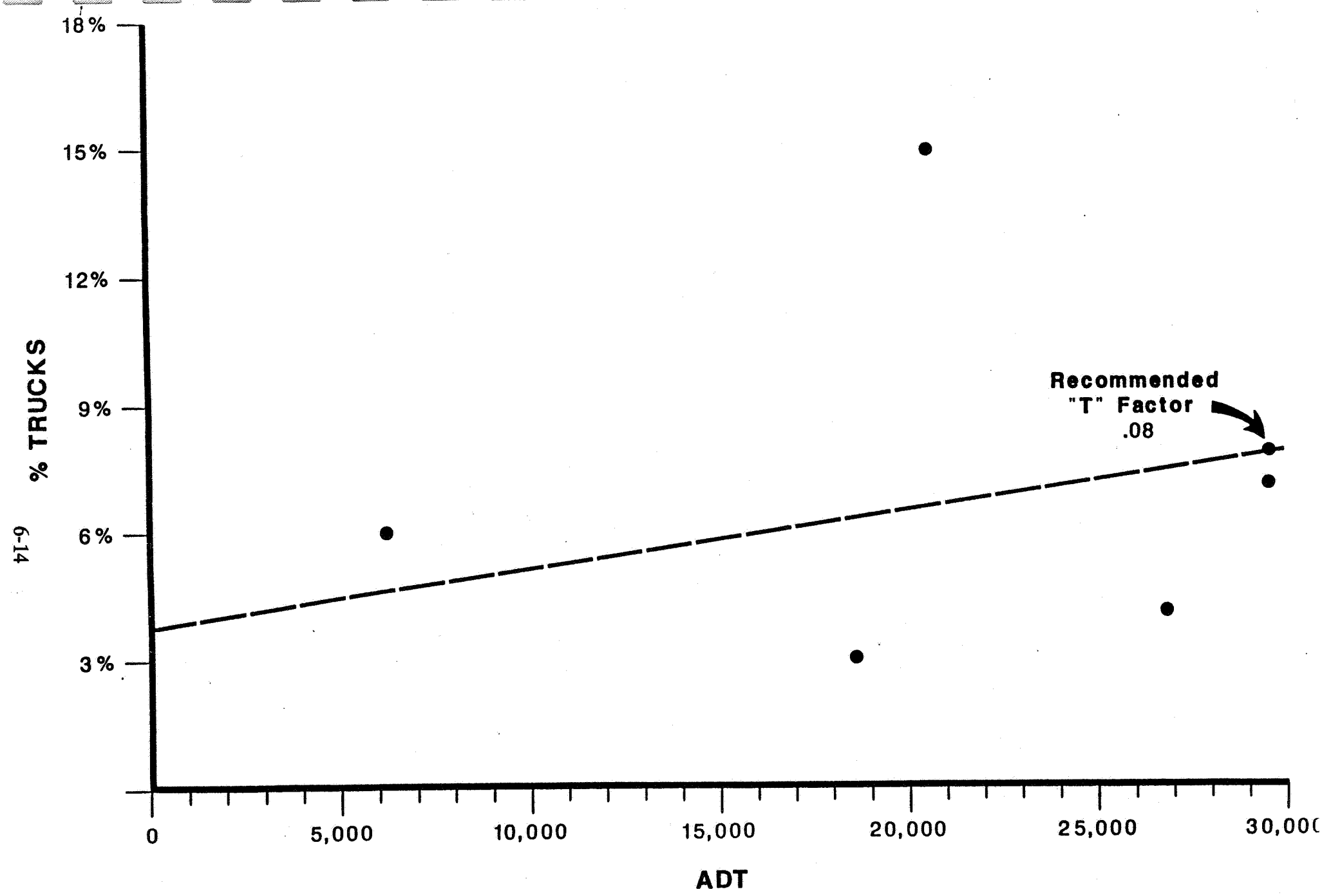
Figure 6.3-1



NOTE: Values taken from Table 6.0-1

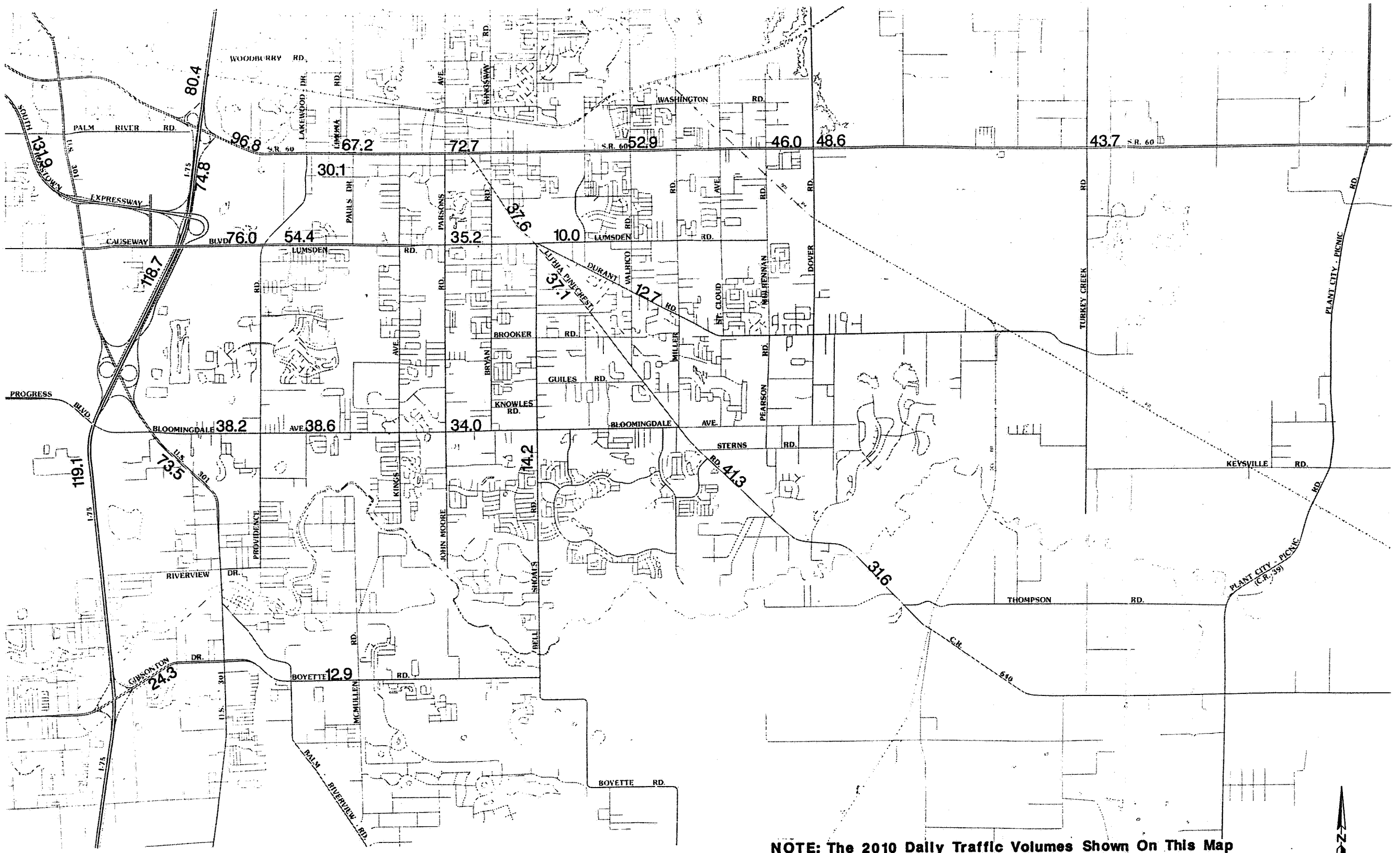
DESIGN YEAR "D" FACTOR

Figure 6.3-2



DESIGN YEAR "T" FACTOR
% TRUCKS vs ADT

FIGURE 6.3-3



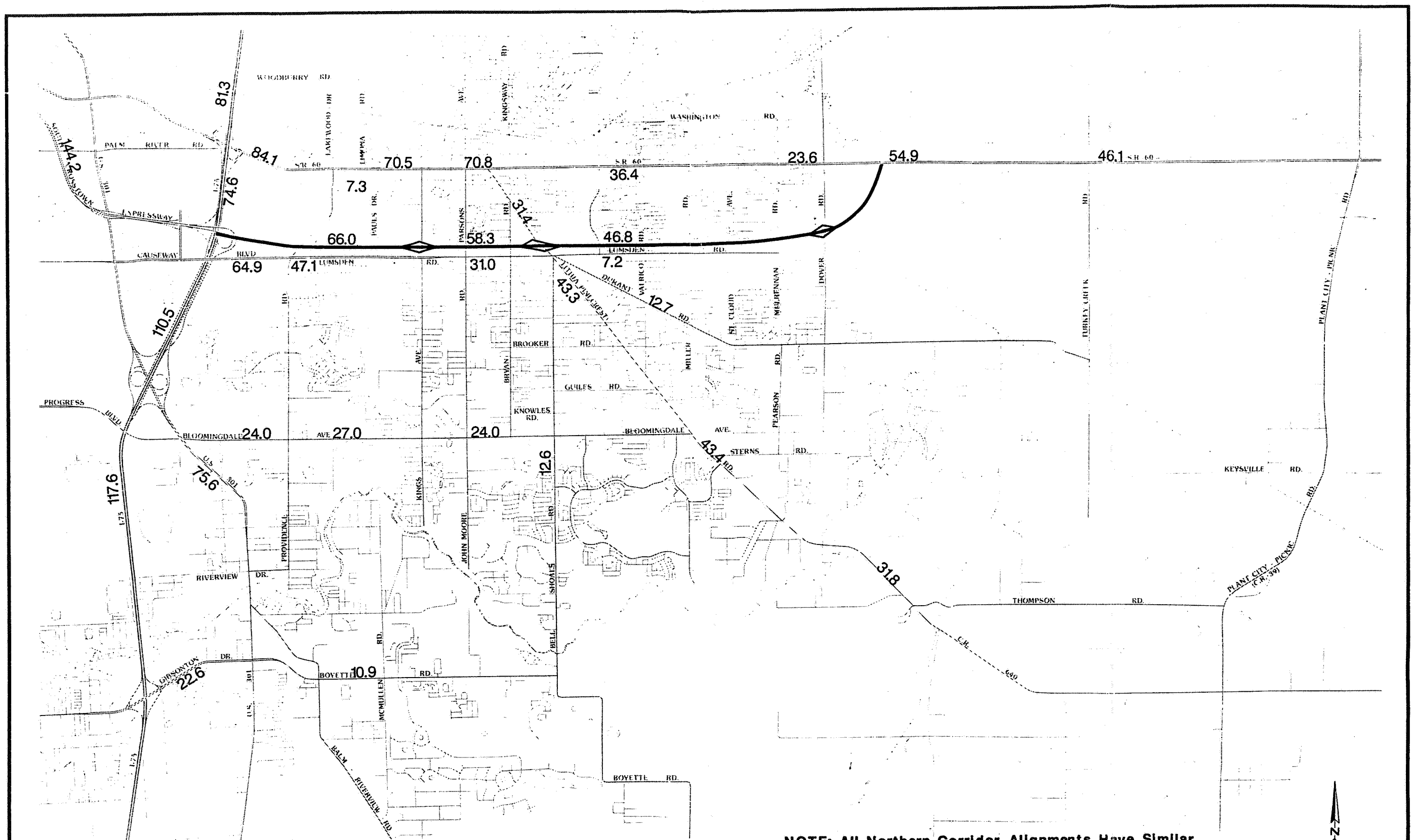
Volumes in 1000's

NOTE: The 2010 Daily Traffic Volumes Shown On This Map Represent Projections Without Building The Crosstown Extension, And Includes Planned Improvements As Outlined In The 2010 Transportation Plan Adopted By the MPO.

N

SCALE IN FEET
0 2000 4000 8000
0 1/2 1.0 1.13
SCALE IN MILES

Brown&Root-Genesis Engineering Company / GLATTING LOPEZ KERCHER ANGLIN / HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	2010 NO-BUILD DAILY TRAFFIC VOLUMES	Figure 6.4-1



Volumes in 1000's

NOTE: All Northern Corridor Alignments Have Similar Travel Service Benefits. Therefore, 2010 Daily Traffic Volumes Were Determined For One Representative Alignment Within The Corridor.

Brown&Root-Genesis Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

Tampa-Hillsborough County Expressway Authority

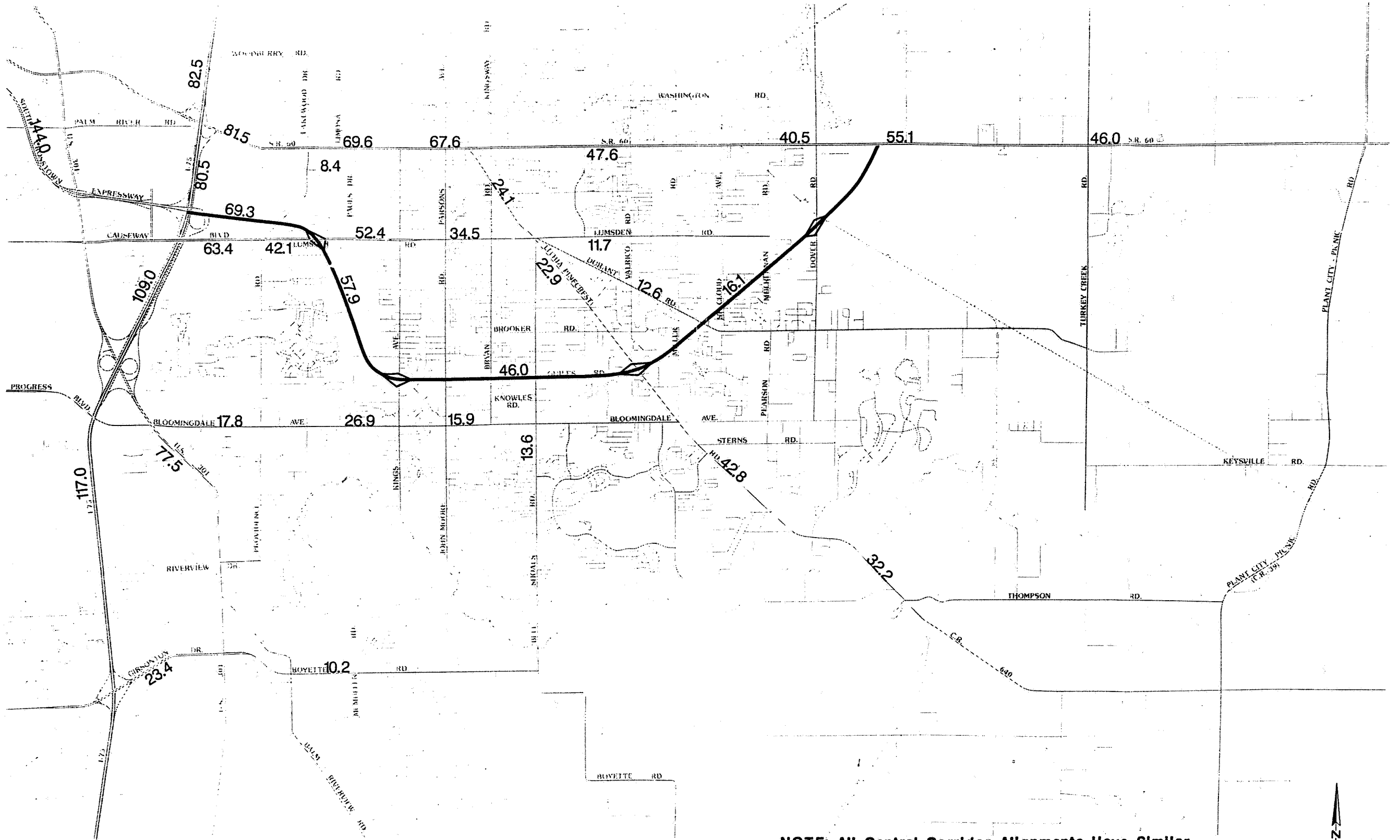
GAY DIXON, EXECUTIVE DIRECTOR — WILLIAM C. BOLEAN, JR., ATTORNEY

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Project Development and Environmental Study

2010 NORTHERN CORRIDOR DAILY TRAFFIC VOLUMES

Figure 6.4-2



Brown&Root-Genesis Engineering Company

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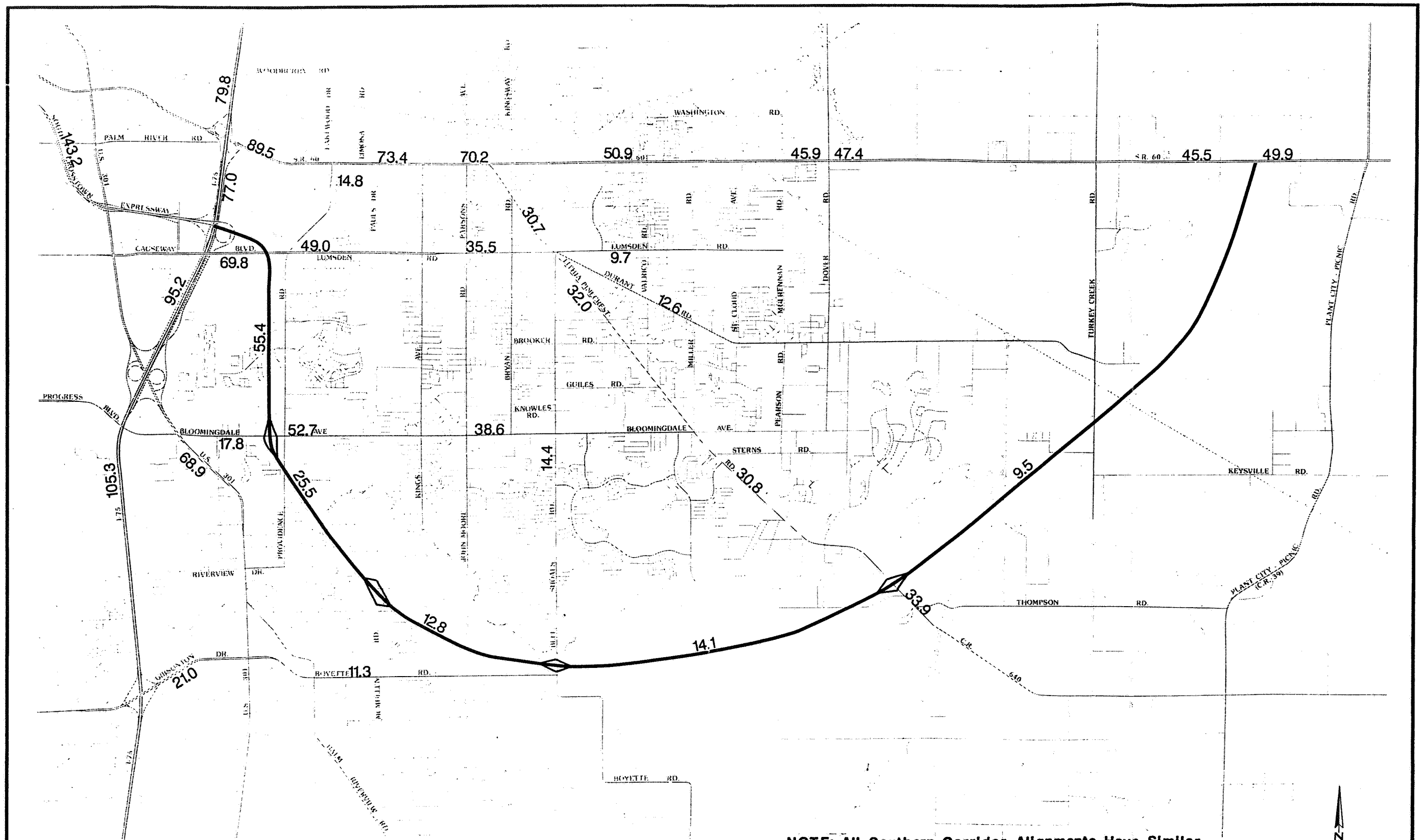
HDR

Tampa–Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

2010 CENTRAL CORRIDOR DAILY TRAFFIC VOLUMES

Figure 6.4-3



Volumes in 1000's

NOTE: All Southern Corridor Alignments Have Similar Travel Service Benefits. Therefore, 2010 Daily Traffic Volumes Were Determined For One Representative Alignment Within The Corridor.

N

SCALE IN FEET
0 2000 4000 8000

0 1/2 1.0 1.13
SCALE IN MILES

Brown&Root-Genesis Engineering Company; GLATTING LOPEZ KERCHER ANGLIN; HDR	Tampa–Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	2010 SOUTHERN CORRIDOR DAILY TRAFFIC VOLUMES	Figure 6.4-4

It is noted that all the "No-Build", Year 2010 Long Range Plan improvements are also included in the development of projected traffic volumes for the northern, central and southern corridors (Figures 6.4-2 through 6.4-4).

SECTION 7

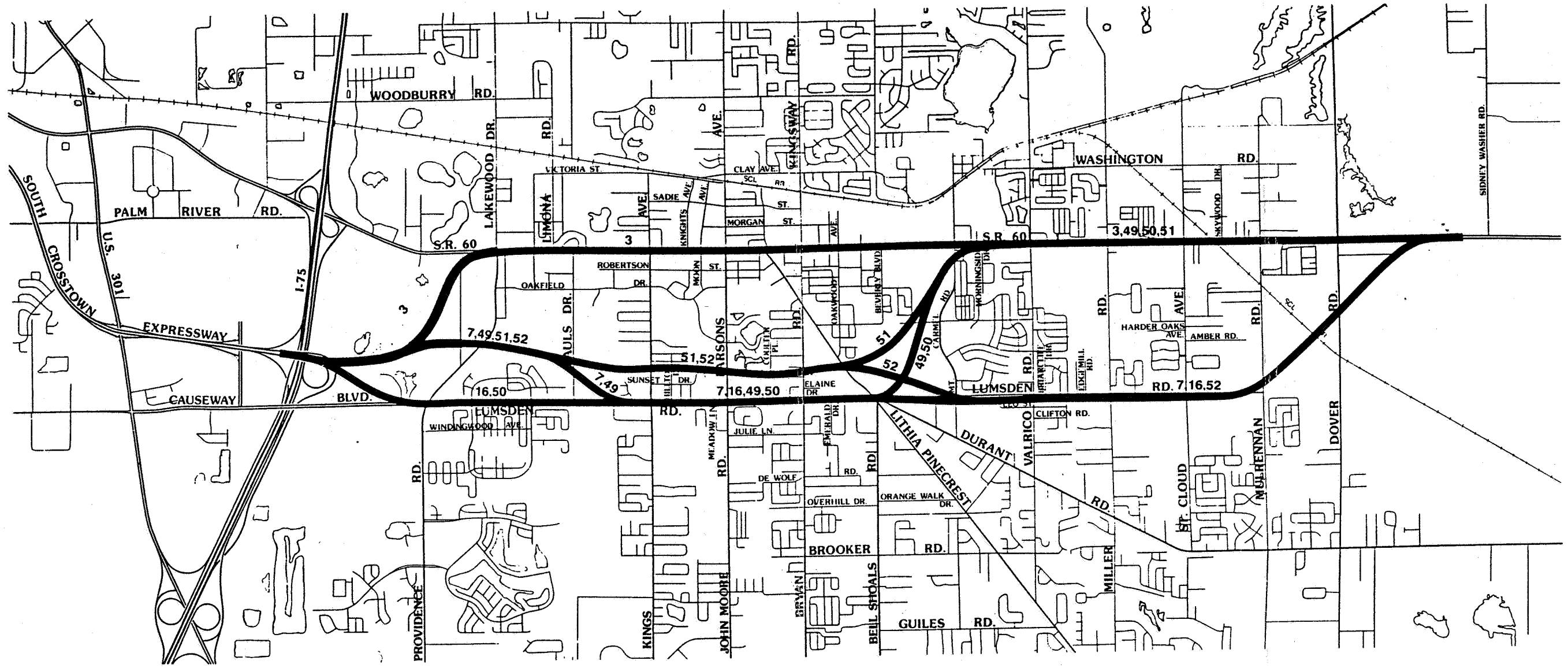
7.0 Alternative Alignment Analysis

This section addresses the alternatives retained for further study and builds on the findings determined in Section 5.0, "Corridor Analysis".

At the February 1990 meeting of the THCEA, the study team was directed to evaluate, in further detail, the following alignments: 3, 7, 16, 49, 50 and 51, along with the "no-build" option. As the alignments were adjusted and mapped on new aerial photography (1" = 200' scale), Alignment 52 was developed as a design option to Alignment 51. Consequently, seven alternative alignments, as well as the "no-build" option, were evaluated during conceptual design analysis. These alignments are presented in Figure 7.0-1.

7.1 No Build Alternative

The "No Build" alternative is included to evaluate the effect of not building an extension of the Crosstown Expressway. In addition, it provides a basis of comparison for the "Build" alternatives. The "No Build" alternative includes roadway



Legend

15, 16 ALIGNMENT NUMBERS

Brown&Root-Genesis Engineering Company; GLATTING LOPEZ KERCHER ANGLIN; HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	**SEVEN ALIGNMENTS EVALUATED DURING CONCEPTUAL DESIGN ANALYSIS**	Figure 7.0-1

improvements planned prior to the year 2010 according to the Comprehensive Plan of Hillsborough County and the Tampa Urban Area MPO Long Range Transportation Plan.

The first of the three primary purposes of the project is to serve inter-regional east-west through traffic. The "No-Build" alternative would serve this traffic by widening SR 60 to six lanes east of Bryan Road and to eight lanes west of Bryan Road. This improved facility would serve both local traffic and through traffic. Based on the traffic analysis presented earlier in Section 4.0, overall operating conditions on the east-west roadways in the south Brandon area will be below level of service "D" unless four additional lanes of capacity are added. With this additional capacity, the average operating speed on all east-west arterial will be about 17 miles per hour, which reflects level of service "D" operating conditions. Therefore, with the "No-Build" alternative, inter-regional traffic through the Brandon area will be accommodated on SR 60 at an average operating speed of less than 17 miles per hour during peak travel hours. This roadway will also serve local traffic and local access needs of the Brandon business district.

The second primary purpose of the project is to serve local traffic in the Brandon area. The "No-Build" alternative will serve this traffic by widening local roadways including SR 60, Lumsden Road, and Bloomingdale Avenue. Based on the traffic analysis presented earlier in Section 4, overall operating conditions on the east-west

roadways in the south Brandon area will be below level of service "D" unless four additional lanes of capacity are added. With this additional capacity, overall east-west traffic, including local traffic, would be accommodated at level of service "D".

The third primary purpose of the project is to provide mobility between the Brandon residential community and regional employment centers. The "No-Build" alternative would provide this mobility by widening the existing roadways which provide connections between the Brandon community and the Crosstown Expressway and I-75. These roadways are: SR 60, which interchanges with I-75; Lumsden Road, which connects to the Crosstown Expressway by way of Faulkenburg Road; and Bloomingdale Avenue, which connects to I-75 and to the Crosstown Expressway by way of interchanges on US 301. As presented earlier, these local arterial roadways would operate at an average speed of 17 miles per hour (overall level of service "D") if four additional lanes of arterial roadway capacity are added to the currently planned roadway improvements.

The traffic analysis, as reported in Section 4 of this document, presents the results of impacts to the roadway system when the "No-Build" option is selected, as well as a number of variations of the "build" option. Based on this analysis, about four new arterial lanes of capacity will be needed in addition to the widening already planned in order to serve projected year 2010 volumes at level of service "D" without an extension of the Crosstown Expressway. Therefore, a total of six to ten new lanes

of arterial roadway would need to be added to the existing east-west arterial in the corridor. The analysis is based on the adopted Future Land Use Plan for Hillsborough County with an anticipated buildout of only 50% of the designated land uses.

The advantages of not building the proposed Crosstown Expressway extension are:

- The only construction costs would be the arterial improvements required by the 2010 Long Range Transportation Plan;
- No effect on existing land use and development as a result of construction operations;
- No right-of-way acquisitions or relocations; and
- No environmental impacts due to construction.

The disadvantages of not building the expressway include:

- Unacceptable levels of service (below level of service "D" which is the minimum acceptable LOS designated in the Hillsborough County

Comprehensive Plan) on the existing east-west arterial including SR 60, Lumsden Road and Bloomingdale Avenue;

- Increased traffic congestion causing increased road user and accident costs;
- Increased accidents due to increased congestion;
- Decreased mobility between the Brandon residential community and regional employment centers;
- No enhancement in emergency service response time; and
- Deterioration of existing air quality.

Based on these considerations, the proposed action will continue to remain a viable design alternative. The no-build alternative will also continue to be a valid alternative through the Public Hearing.

7.2 Design Alternatives

Aerial mapping which depicts the remaining alternatives is provided in Appendix B, "Preliminary Design Plans".

Construction Alternatives

The construction alternatives being considered include at-grade, grade separated, elevated and depressed expressway sections. Many of the alignments will use combinations of all four methods. Grade separations and proposed interchanges are shown in Table 7.2-1. Construction alternatives are shown on Figure 7.0-1 and described below.

Alternative Alignment 3, which is generally aligned along State Road 60 is planned to be constructed at-grade from near I-75 northeasterly to near Providence, with grade separations only at all major intersecting streets. As the alignment approaches State Road 60, the construction will provide elevated mainline eastbound and westbound structures from near Providence and continuing approximately 2 miles until east of Bryan. From Bryan, the expressway would return to at-grade excepting grade separated bridges at Valrico, Miller Road, St. Cloud Road, Mulrennan and Dover Roads. State Road 60 would be retained parallel to the expressway as a 6-lane, at-grade, urban arterial frontage road from Lakewood to east of Dover. This would be consistent with the adopted Hillsborough County Comprehensive Plan.

Alignments 51 and 52 propose similar construction. Located parallel to Lumsden, the expressway would be constructed at-grade as it extends easterly from I-75, except for grade separations at Providence and Kings. Continuing easterly, the expressway

TABLE 7.2-1
GRADE SEPARATIONS

Cross Street	Alignment						
	3	7	16	49	50	51	52
Brandon Town Center Mall West Access Road from Causeway Boulevard	O	O	O	O	O	O	O
East Access Road from Causeway Boulevard	O	O	O	O	O	O	O
Access Road from Providence Road	O	O		O		O	O
Providence Road	O	O	O	O	O	O	O
Lakewood Drive	O	O		O		O	O
Pauls Drive	O	O	O	O	O	O	O
Kings Avenue	●	●	●	●	●	●	●
John Moore Road/Parsons Avenue	O	O	O	O	O	O	O
Lithia-Pinecrest Road	O	●	●	●	●	●	●
Bryan Road/Kingsway Road	●	O	O	O	O	O	O
Mt. Carmel Road	O	O	O	O	O	O	O
Valrico Road	O	●	●	●	●	●	●
Miller Road	O	O	O	O	O	O	O
St. Cloud Road	●	O	O	O	O	O	O
CSX Railroad	O	O	O	O	O	O	O
Mulrennan Road	●	O	O	O	O	O	O
Dover Road	O	O	O	O	O	O	O

O Indicates Grade Separation
● Indicates Grade Separation with Interchange

Source: Brown & Root-Genesis Engineering Company

would be grade separated at John Moore Road but then it would make transition to a depressed section between John Moore and Bryan. Alignment 51 would re-emerge to an at-grade section near Mount Carmel Road proceeding northeasterly to State Road 60. Continuing east, Alignment 51 would be at-grade and grade separated as described for Alternative 3. Alternative 52 would remain depressed from John Moore as it extends southeasterly to Lumsden and would proceed in a depressed section until near Mulrennan Road where it would re-emerge to a grade separated intersection with State Road 60.

Alignments 7, 16, 49 and 50 are similar from I-75 to Lithia Pinecrest. The roadways would be constructed at-grade except for grade separations at Providence and Kings. Just east of Kings, the roadway would make a transition to a depressed section and continue easterly. John Moore Road, Bryan Road, and Lithia Pinecrest Roads would all pass over the expressway generally at their existing profile grade. Alignments 49 and 50 would then re-emerge to at-grade as they extend northerly to State Road 60 where the construction would consist of at-grade and grade separated structures as described for Alignment 3. Alignment 7 and 16 would continue easterly, in depressed section, as described for Alignment 52. It is noted that Alignments 7, 16, 49 and 50 include provision for Lumsden Road to be retained, parallel to the proposed expressway, as 6 lane and 4 lane urban arterial per the 2010 Long Range Transportation Plan.

All alignments are envisaged to be of flexible pavement and base with asphalt wearing surface. Bridges will be concrete sub-structure, superstructure and deck (see Section 8.21). Concrete retaining walls would be used for approaches to grade separations and for all depressed section retaining walls.

7.3 Evaluation of Alternatives

The Public Hearing required for this project was held following FHWA approval of the Draft Environmental Impact Statement. Approximately 600 people attended the September 23, 1991 Public Hearing. Court reporters were available throughout the hearing to take attendees testimony and comment forms were available for comment on the night of the Hearing or for mail-in within 10 days. A total of 1,300 comments were received either on written comment forms (1216) or via statement to the court reporters.

Following the Hearing all comments and the responses by local, state and federal agencies were considered. The comments from the public are detailed in the Comment Coordination report. The most frequently stated comments questioned the need for the extension, especially noted was opposition to alternatives that went through residential areas. While the No-Build option was the preference of most comments, there was a strong indication that, should a build alternative be preferred,

it should be built on SR 60. It is also noted that 20 Tampa Bay area groups submitted letters of support for the extension. (see Table 7.3-1)

Federal and State agency comments regarding the DEIS were also considered. The Environmental Protection Agency reviewers comments included:

- from a noise perspective alignment 3 is most desirable,
- alignments 3 and 50 have fewest wetland impacts, and
- alignment 3 has the most contaminated sites for remediation.

The Department of the Interior expressed:

- alignments 3, 16 and 50 minimize wetland impacts,
- concerns regarding threatened and endangered species, and
- clarification was requested regarding statements made in the DEIS regarding mineral resources.

The Florida Game and Fresh Water Fish Commission asked for:

- more data on threatened and endangered species and
- requested enhancement of existing wetlands versus creating new wetlands

TABLE 7.3-1 - TAMPA SOUTH CROSSTOWN EXTENSION STUDY

BAY AREA GROUPS IN FAVOR OF BUILD ALTERNATE

Greater Brandon Chamber of Commerce*
St. Petersburg Area Chamber of Commerce
Westshore Alliance
Floridians for Better Transportation
Greater Clearwater Chamber of Commerce
Pinellas County Tourist Development Council
Assoc. General Contractors of Mid-Florida, Inc.
St. Petersburg Progress, Inc.
Greater Tampa Chamber of Commerce
Pasco Builders Association
Tampa Port Authority
West Pasco Chamber of Commerce
Tampa Downtown Partnership
Builders Association of Greater Tampa
Suncoast Utility Contractors Association
Pinellas Sports Authority
District VII Transportation
Pinellas Economic Development Council
Contractors and Builders Assoc. of Pinellas County, Inc.
Creater Tampa Association of Realtors

* Greater Brandon Chamber of Commerce issued resolution dated February 22, 1993 against Crosstown Extension on SR60 and in favor of removal of Crosstown Extension from MPO 2010 Long Range Transportation Plan.

The comments addressed to threatened and endangered species were immediately responded to and the agencies later concurred that no impacts to such species are expected given the urban setting of the project. Other comments were received, but were less specific. All comments are addressed in the Final EIS.

The FDOT and the THCEA met in consultation to consider the findings of the study and the results of public and agency comments.

As in the past, the remaining alternatives were evaluated on the basis of travel service, socio-economic factors, natural environment and cost. The purpose and need for the extension was concurred to still apply as follows:

- serve inter-regional, east/west mobility through the Brandon area, including trucks,
- serve to relieve east/west traffic mobility within the Brandon area, and
- provide mobility between the Brandon community and the Tampa central business district (CBD), the Westshore area business district, the University of South Florida, Pinellas County, Polk County, and other regional centers served by way of the existing Crosstown Expressway or via connection to I-75.

It was concurred that an important facet of the project was to include a full interchange with I-75.

7.3.1 Travel Service

Each of the "Build" Alternatives will meet the project purpose of serving interregional through trips in east Hillsborough County. The Florida Intrastate Highway System Plan identifies the need for a controlled-access facility between the Tampa urban area and the east coast of Florida within the SR 60 corridor. The "No-Build" Alternative will not meet this project purpose. The most appropriate interregional facility is SR-60.

Each of the seven "Build" Alternatives will meet the project purpose of providing mobility between the Brandon residential community and regional employment centers.

The most significant transportation improvement need in the Crosstown Extension corridor is mobility between the Brandon residential community and regional employment centers (by way of I-75 and by way of the Crosstown Expressway). This finding is supported by two facts: 1) The projected east-west capacity deficiency in Year 2010 west of Lithia-Pinecrest Road is about 40,000 vehicles per day. This deficiency drops considerably east of Lithia-Pinecrest Road. Currently there is no projected east-west capacity deficiency east of Valrico Road. 2) The ratio of travel service benefits to project costs is higher for partial project options which end at Kings Avenue or Lithia-Pinecrest Road, than for the full project alternatives. This

ratio is about 0.018 (vehicle hours of travel saved in Year 2010 per dollar of project cost) for the partial project options compared to about 0.0055 for the full project alternatives. The most appropriate facility to serve mobility needs to and from Brandon is an alternative that connects to Lumsden Road. The "No-Build" Alternative will not meet the project purpose of mobility between the Brandon residential community and regional employment centers.

Each of the "Build" Alternatives will meet the project purpose of serving local trips within Brandon. This purpose is met by providing a limited access facility for some of the longer local trips and by diverting through-trips from the local arterials to the expressway. The "No-Build" Alternative will partially meet this purpose since it includes improvements to local east-west arterials; however, the "No-Build" Alternative does not divert the through-trips off of the local arterials.

Alternative #3 provides higher savings in Year 2010 vehicle hours of travel (VHT) than the Lumsden Road Alternatives (#7, 16, 49, 50, 51, 52). Alternative #3 is projected to save 2.25 million VHT in Year 2010, and the Lumsden Road Alternatives are projected to save about 1.6 million VHT in Year 2010.

7.3.2 Socioeconomic Impacts

The community impacts of Alternatives #51 and 52, primarily neighborhood

disruption, are significant and cannot be adequately mitigated. These alternatives divide several individual neighborhoods, and would isolate several neighborhoods between the expressway and the existing four-lane Lumsden Road. Therefore, Alternatives #51 and 52 should not be considered prudent and viable and should be eliminated from further consideration.

The community impacts of Alternatives #7, 16, 49, and 50 can be adequately mitigated. Mitigation actions required include depressing the expressway mainline, acquisition of right-of-way sufficient for pedestrian and landscape features outside of the frontage roads, consideration of alternative access for neighborhoods with no alternative to their current access to Lumsden Road, and provisions for pedestrian and bicycle crossings of the expressway and frontage roads.

The community impacts of Alternative #3 can be adequately mitigated. Mitigation actions required include provisions for many cross-streets to preserve traffic circulation within the business district, and minimizing right-of-way acquisition west of Knights Avenue within the business district.

7.3.3 Natural Environmental Impacts

The overall environmental impacts of each "Build" Alternative can be adequately mitigated. The wetland impacts of Alternatives #3, 16 and 50 (14-18 acres

displaced) are much less than the wetland impacts of all other "Build Alternatives" (24 to 33 acres displaced). No endangerment of threatened or endangered species is expected. The potential for impacts to historic resources along Alternative 3 can be minimized by alignment adjustments and there is no direct taking of any historic resource eligible for National Register of Historic Places.

7.3.4 Cost

The cost of Alternative #3 ($422 million) is higher than the cost of the Lumsden Road Alternatives ($267 to $309 million).

The ratio of travel service benefits to project costs for each of the alternatives is generally equivalent. The ratio for Alterative #3 is about .0054 (vehicle hours of travel saved in Year 2010 per dollar of project cost). The ratio for Alternatives #7, 16, 49 and 50 ranges from .0052 to .0059. Therefore, each of the alternatives is essentially equivalent in terms of benefit to cost comparison.

7.3.5 Recommended Crosstown Extension Alternative

Considering the findings discussed above, and in consultation with the FDOT the following recommendation was submitted to the Tampa Hillsborough County Expressway Authority (THCEA) on November 25, 1991.

In consideration of the purpose and need determined for this project, and the findings discussed above, the appropriate Expressway improvement in east Hillsborough County is a four-lane Intrastate Highway extension of the Crosstown Expressway from I-75 to SR 60 east of Brandon located within the SR 60 corridor previously referred to as Alternative 3. Alternative 3, based on the findings of the study and consideration of public comment, is modified and has been designated 3A, includes a direct connection from the I-75/Crosstown Expressway interchange to tie to Lumsden Road west of the Pauls Drive intersection with Lumsden Road.

The recommended extension includes provisions for an interchange at Lakewood Drive, an interchange at Bryan Road, an interchange at Valrico Road and a terminal interchange east of Dover Road.

In addition the recommendation includes a direct controlled access arterial connection between Lumsden Road and the Expressway extension, generally located along the alignment of Alternative 7 between Providence Road and Pauls Drive.

The recommended alternative is shown in Figure 7.3.5-1 and Appendix B.

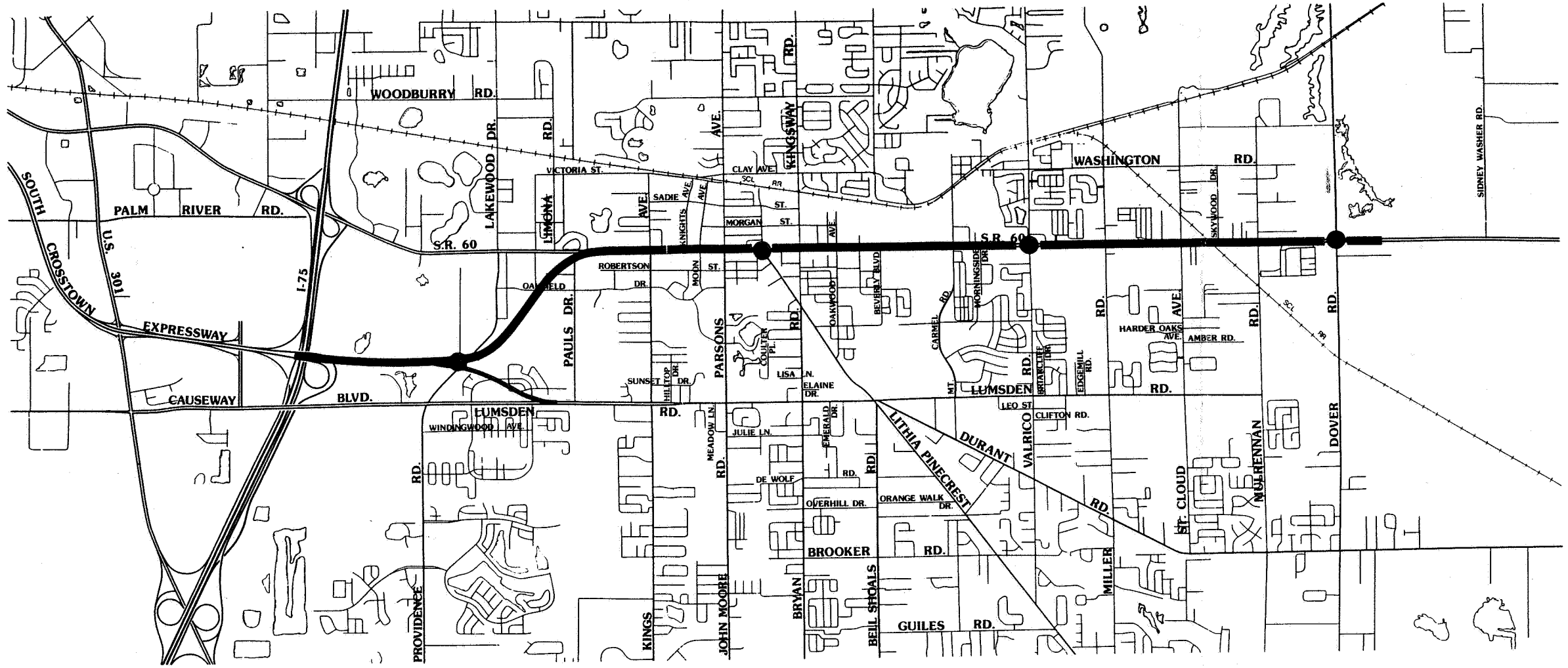
The recommended alternative meets the purpose and need identified for this project by:

- Providing an interregional, intrastate facility with minimum community impact,

- Providing maximum mobility between the Brandon residential community and regional employment centers, with minimum community impact, and

- Providing consistency with the I-75 corridor land use plan of the Hillsborough County Comprehensive Plan.

Consistency with the land use plan is assured by providing direct access from the I-75 commercial corridor to I-75 and the Crosstown. Furthermore the recommended alternative diverts Brandon commuter trips from Lumsden Road within the commerical corridor so that Lumsden Road can serve local access needs exclusively. The recommendation included revised traffic forecasts for Alternative 3 with a spur connection to Lumsden. The spur is forecast to carry approximately 33,000 vehicles per day (VPD). The spur connection does not appreciably affect the forecast



Legend

INTERCHANGE LOCATION

N

SCALE IN FEET
0 1000 2000 4000 6000

SCALE IN MILES
0 0.25 0.50 1.00 1.14

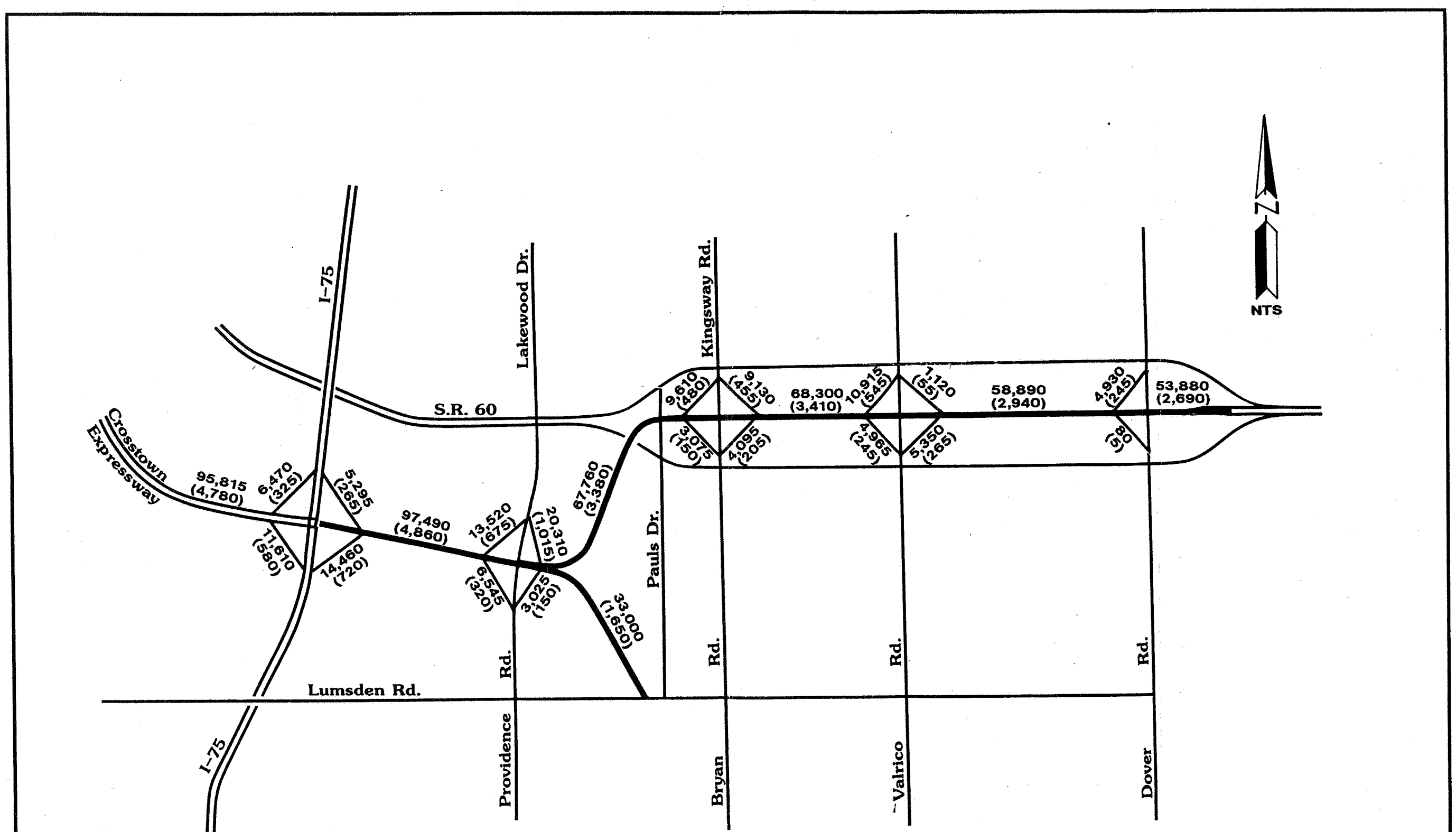
Brown&Root-Genesis Engineering Company / GLATTING JACKSON / HDR	Tampa–Hillsborough County Expressway Authority RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. MCLEAN JR., ATTORNEY	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	**RECOMMENDED ALTERNATIVE**	Figure 7.3.5-1

volumes for the mainline expressway with up to 67,000 VPD east of Lakewood Drive. On the other hand the spur increases the total volume on the expressway near I-75 to approximately 97,000 VPD. The regional trips are served by the expressway as intended, the spur facilitates access to and from Brandon. The forecast year 2010 daily traffic volumes and design hourly volumes are shown on figure 7.3.5-2.

The recommendation was considered by the THCEA at the November 25, 1991 meeting. However, due to the recognized public interest, the THCEA deferred a determination to December 2, 1991 to enable a degree of participation by the public in the decision regarding the recommendation.

The resulting public hearing was held the evening of December 2, 1991. Approximately 240 people attended the meeting, which was held in a formal manner, as a special called meeting of the THCEA. A court reporter was on hand to transcribe the meeting and the transcript of the meeting is available from the project files, and at the THCEA offices.

Following consideration of the recommendation and public comment, the THCEA voted in favor of the recommended build alternative. The THCEA also directed that public comment regarding newly constructed facilities, and facilities to be constructed



Brown&Root-Genesis Engineering Company

GLATTING JACKSON KERCHER ANGLIN LOPEZ RINEHART

HDR

Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

YEAR 2010 TRAFFIC FORCASTS
RECOMMENDED ALTERNATIVE
NOVEMBER 24, 1992

Figure 7.3.5-2

in the immediate future be evaluated. The general alignment on SR 60 (Alternative 3) was approved.

7.4 Preferred Alternative

7.4.1 Development of Modified Alternative

Following the Public Hearing for this Project held in accordance with the National Environmental Policy Act (NEPA) in September, 1991 it was determined that a new apartment complex and several new business establishments were planned, were under construction, or were in operation within the proposed right-of-way of the SR 60 alignment (Alignment 3). Prior to the Public Hearing, completed and occupied facilities were counted and the project data was adjusted, incomplete projects were not included in the adjustments. At the time of the Public Hearing six other alignments were also under consideration and related information adjustments were made for all other alternatives.

At the time of the December 2, 1991 special called meeting of the Authority, several business interests located in the vicinity of Providence Road, SR 60 and Lakewood Drive requested the Authority investigate other potential alternatives to the tie in to SR 60 called for between Providence Road and Lakewood Drive (Alternative 3).

The study team presented alternative alignment 3A at the February, 1992 Authority meeting. The Authority and FDOT concurred with evaluating the alternative as a possible replacement to the originally recommended tie to SR 60 between Providence and Lakewood. The alternative alignment 3A tied to SR 60 near Pauls Drive offered the following minor design differences in addition to the obvious location adjustment:

- The interchange with Lakewood was a simple diamond type as opposed to the more complex interchange geometrics required for interchange in the Providence Road to Lakewood Drive area on SR60 as proposed with the Alignment 3 alternative,
- The spur to Lumsden is located more westerly, closer to the existing Heather Lakes north complex, and crosses Lakewood near the proposed expressway alignment obviating the need to intersect with Lakewood,
- No interchange is provided at the tie in to SR 60, and
- The length of elevated structure is reduced by approximately 3600 feet.

7.4.2 Comparison of Alignment 3 and Modified Alternative 3A

The results of comparing the original Alternative 3 alignment and the modified Alternative 3A were reviewed in consultation with the FDOT and the THCEA on June 22, 1992.

During May and June, 1992 the alternatives were evaluated to enable a selection of the better of the alignments under consideration. Both alternatives were evaluated for comparative differences in socioeconomic considerations, natural environment considerations, costs and travel service benefits.

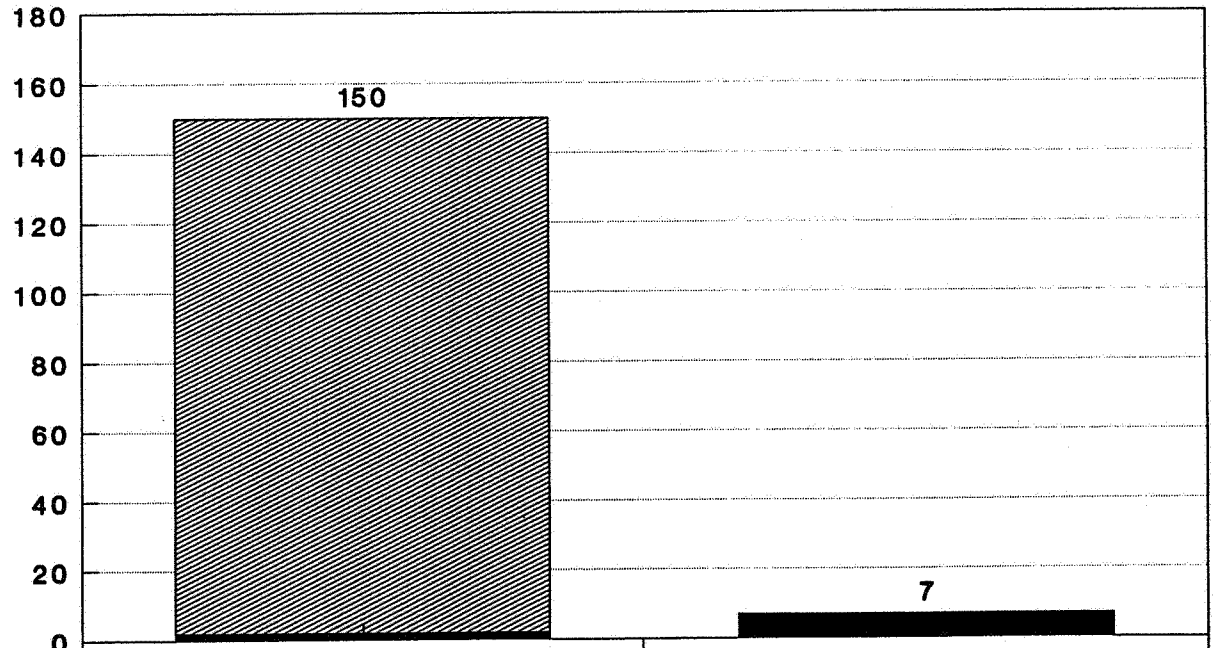
The travel service benefits of the two alternatives are considered to be identical. Both alternates carry the same volume of traffic, provide essentially the same access and are of similar length. While the geometrics of each alternate varies, they both meet the same design criteria. The travel service benefits of each alternate do not offer any advantages or disadvantages that would differentiate between one or the other. It is noted that the Lakewood Drive interchange geometric design is less complex for the modified alternative 3A, which ties to SR 60 at Pauls Drive.

The socioeconomic factors evaluated were identical to that used to evaluate previous alternatives. The data used for this review were updated in May, 1992 and included the number of businesses located in the proposed right-of-way, the number of businesses partially within the right-of-way, the number of residences in the right-of-way and the number of residences located within 300 feet of the proposed right-of-way. The results of comparing both alternates between I-275 and Pauls Drive are depicted on Figures 7.4.2-1 thru 7.4.2-3. It was determined from review of the data that the new apartment complex located west of Providence results in substantial residential impacts that did not exist at the time of the Public Hearing.

Tampa South Crosstown Extension Study

Residential Impacts

Homes w/i ROW of a Proposed Alignment



	Align #3	Modified Align #3A
Mobile Homes	0	0
Multi-Family Res	148	0
Single Family Homes	2	7

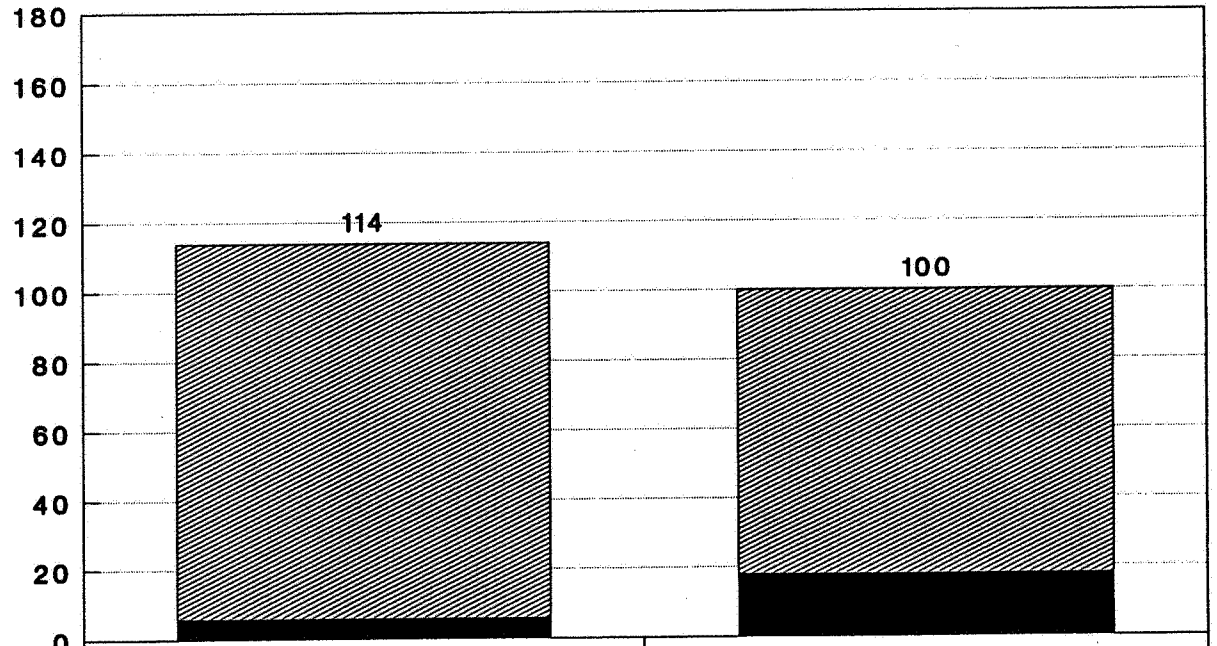
Single Family Homes Multi-Family Res Mobile Homes

Figure 7.4.2-1

(Comparative Data for Segment from I-275 to Paula Drive Only)

Tampa South Crosstown Extension Study

Residences within 300 feet of the Right-of-Way of a Proposed Alignment



	Align #3	Modified Align #3A
Mobile Homes	0	0
Multi-Family Res	108	82
Single Family Homes	6	18

Figure 7.4.2-2

(Comparative Data for Segment from I-275 to Paula Drive Only)

Tampa South Crosstown Extension Study

Business Impacts

Partially w/i ROW Means Less Than 30%

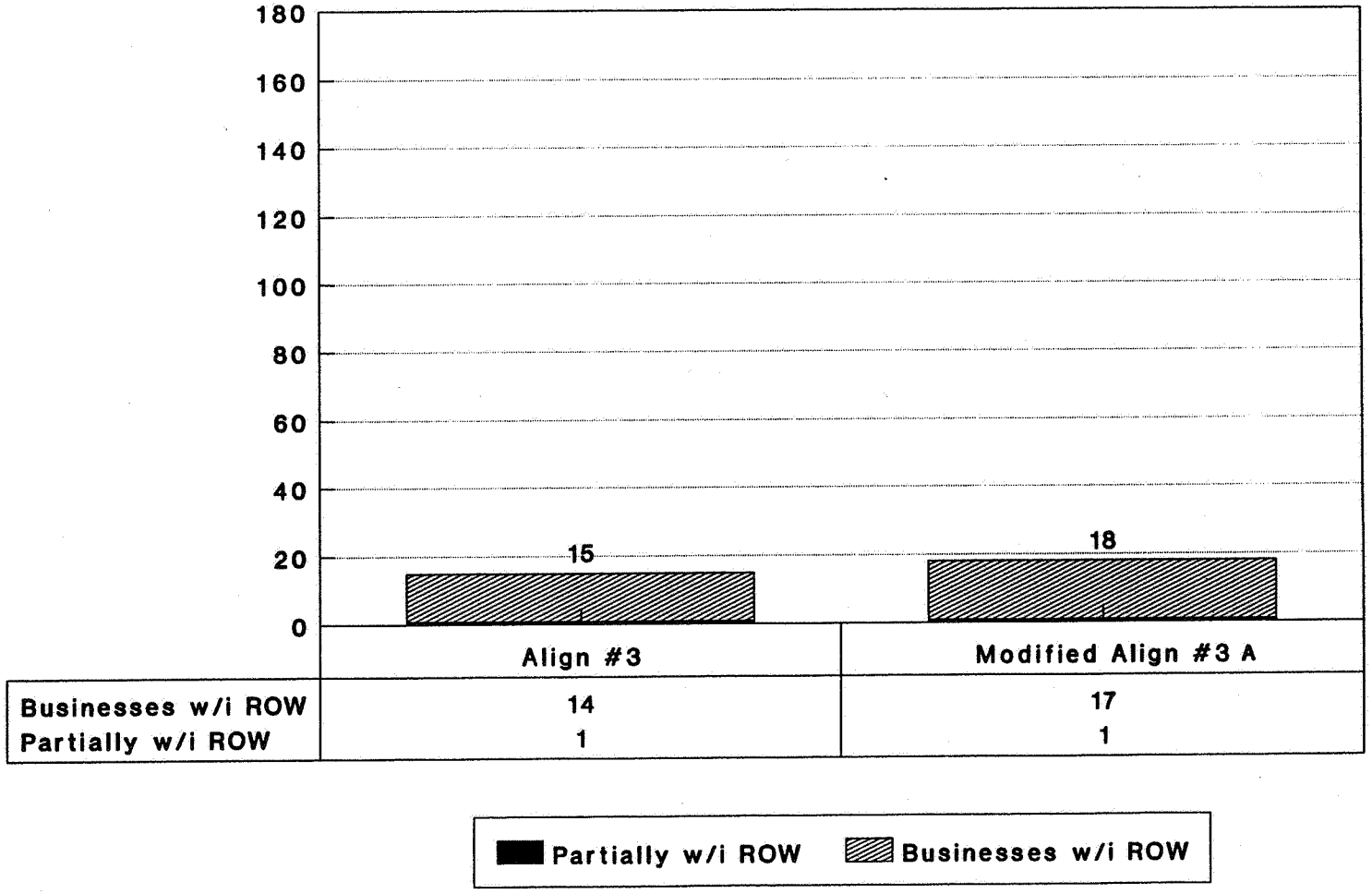


Figure 7.4.2-3

(Comparative Data for Segment from I-275 to Paula Drive Only)

Business impacts are similar for either alternative for this segment. Based on the revised data the alternative 3A tie to SR 60 near Pauls Drive has fewer socioeconomic impacts.

The natural environmental impacts used for this evaluation were limited to the comparison of wetland acres as shown on Figure 7.4.2-4. Based on this comparison there are fewer wetland impacts with the alignment 3A tie to SR 60 near Pauls. It is further noted that the difference is relatively small and consists of impacts to previously disturbed wetland areas or wetlands created by man. No significant advantage was determined for either alternative based on wetland criteria. Based on results of additional field work conducted during July and August, 1992 the selection of the alignment 3A tie to SR 60 at Pauls Drive reduces the number of affected historic properties since the Mosely homestead area is bypassed. No archaeological sites were found along the modified alignment 3A to Pauls Drive. The modified alternative 3A has less wetland impacts than the original Alternative 3 recommendation. The Modified Alternative 3A has no air quality impact, as determined previously. The noise impacts were determined to include 6 receptors. Noise abatement at these locations is not feasible due to high cost and the nature of the vertical profile required for the segment evaluated.

Tampa South Crosstown Extension Study

Wetland Impacts

Area w/i ROW of a Proposed Alignment

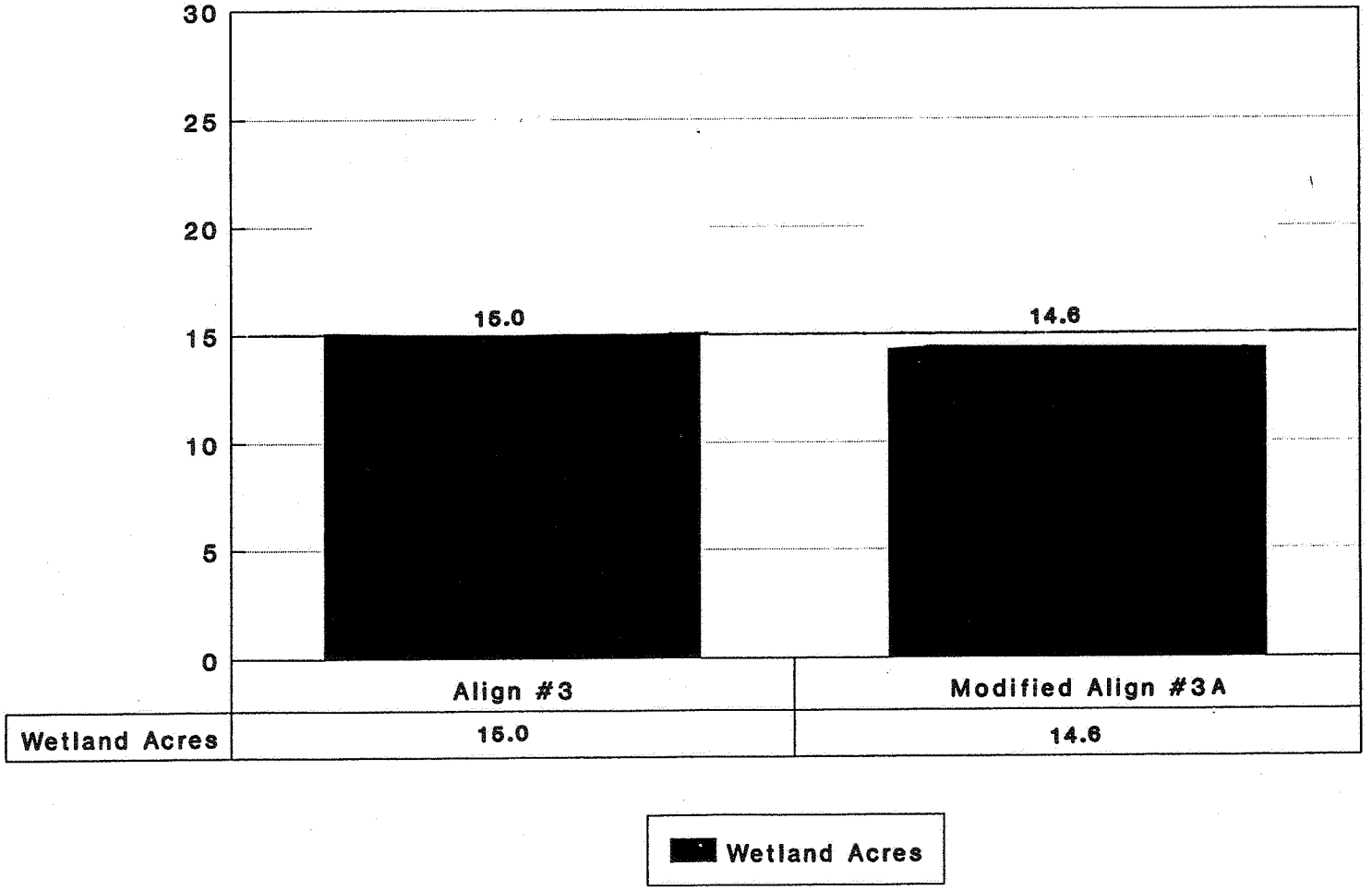


Figure 7.4.2-4

(Comparative Data for Segment from I-275 to Paula Drive Only)

The final evaluation factor considered was the cost of engineering, construction and right-of-way. The right-of-way costs were revised and updated to reflect current market conditions, property improvement valuations and the revised alignment considerations included in the December, 1991 recommendation. The construction cost estimate was similarly updated to reflect revised bridge construction cost and current construction pricing and practice. The results of the cost estimates for each alternative are shown on Figure 7.4.2-5. Clearly the cost of the alignment 3A tie to SR 60 near Pauls is considerably lower.

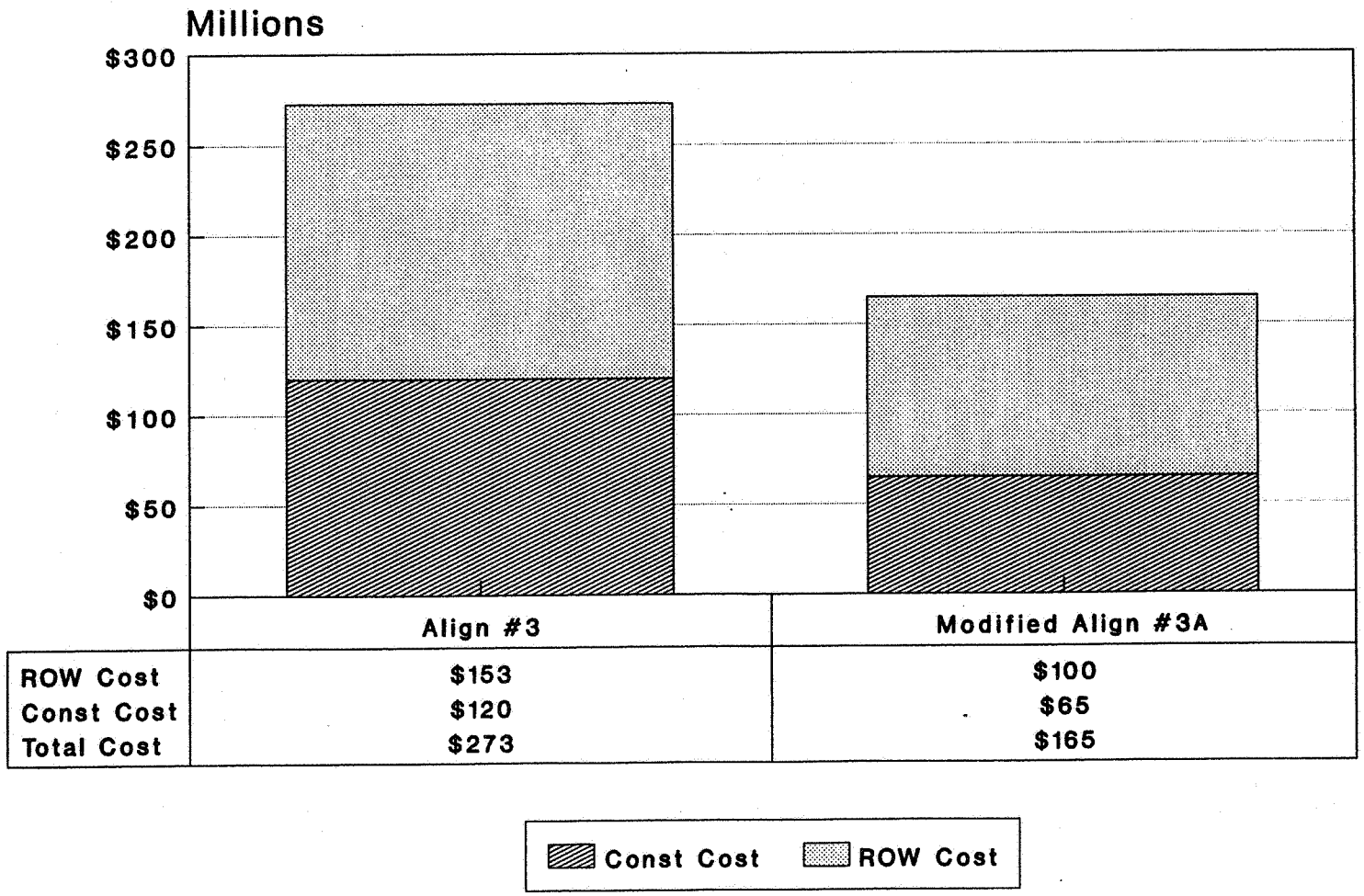
7.4.3 Recommendation

Based on the data evaluated and the revised and updated project costs, taking into account the progress of land development in the Brandon area, the alignment 3A tie to SR 60 near Pauls Drive offers fewer residential disruptions, less wetland disruption and lower cost. The 3A tie to SR 60 near Pauls Drive also reduces the potential impact upon historic facilities. The original alignment alternative which tied to SR 60 between Providence and Lakewood is recommended to be abandoned. The revised alternative 3A is subject to possible development prior to the opportunity to purchase right-of-way, and there are development plans on record for nearly all available land in the path of the project.

Tampa South Crosstown Extension Study

Estimated Costs

Comparison of Proposed Alignments



	Align #3	Modified Align #3A
ROW Cost	$153	$100
Const Cost	$120	$65
Total Cost	$273	$165

(Comparative Data for Segment from I-275 to Paula Drive Only)

Figure 7.4.2-5

7.4.4 Authority Action

At the regularly scheduled meeting of the Expressway Authority on June 22, 1992 the findings discussed above were presented. After deliberation by the Authority members, the Authority concurred in the study team's recommendation to revise the approved Alignment 3 to the alternative 3A which ties to SR 60 near Pauls Drive. The FDOT concurred in the recommendation to accept the modified alternative 3A tieing to SR 60 near Pauls Drive.

The comparative data provided by Figures 7.4.4-1 through 7.4.4-4 includes the associated data for the full alignment from I-275 to the eastern terminus of the project on SR 60 near Dover Road. The original Alignment 3 data is taken from the approved DEIS and does not include provision for the Spur connection to Lumsden. The revised alignment 3A data includes current data for the recommended modified alignment and the spur to Lumsden Road.

It is noted that the data for the original Alignment 3 would increase in nearly all categories if the data were adjusted for the spur provision. The data allow the reader an overview comparison of the improvement offered by the revised alternative, especially the overall reduction in business impacts.

Tampa South Crosstown Extension Study

Residential Impacts

Homes w/i ROW of a Proposed Alignment

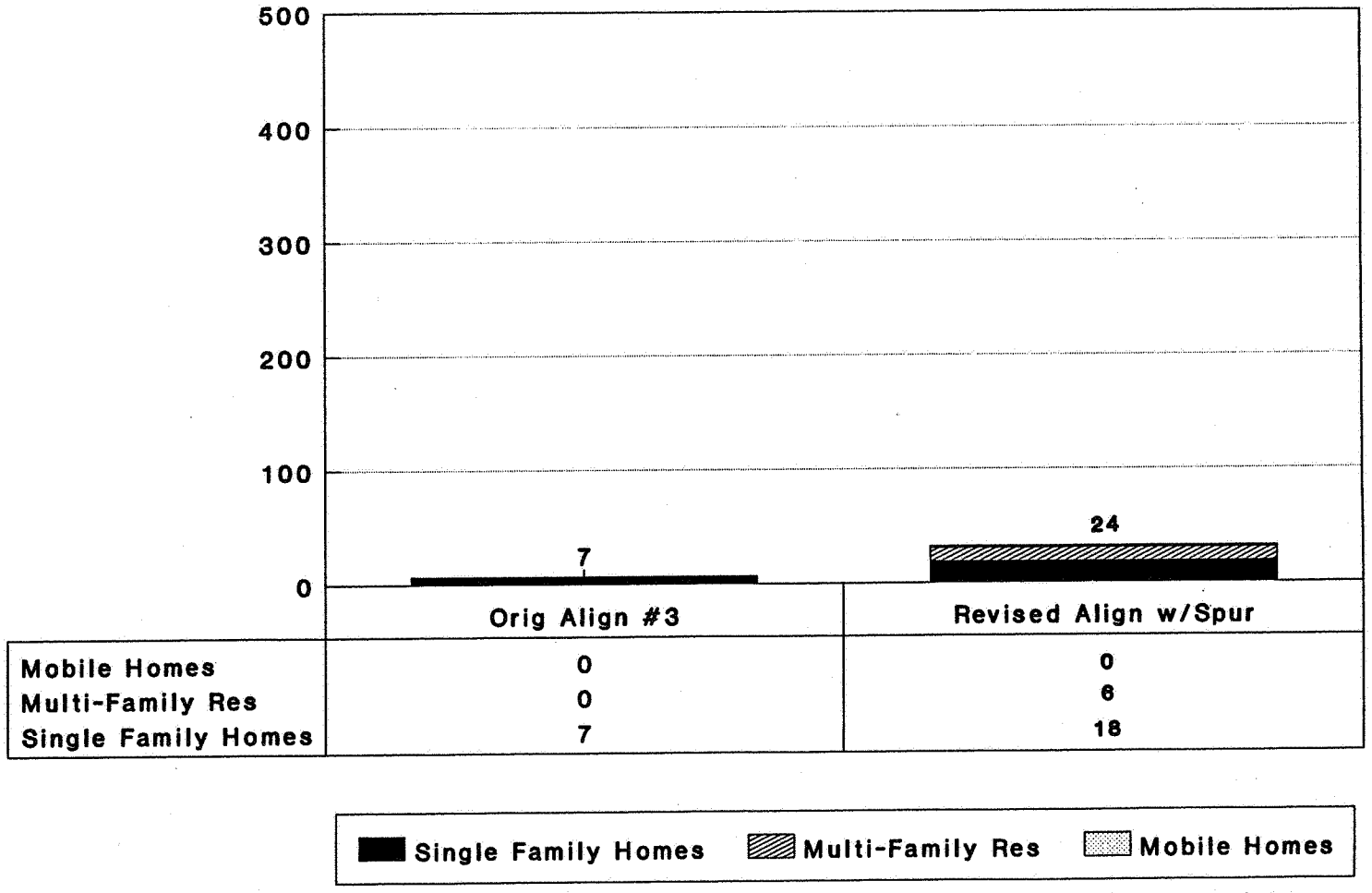
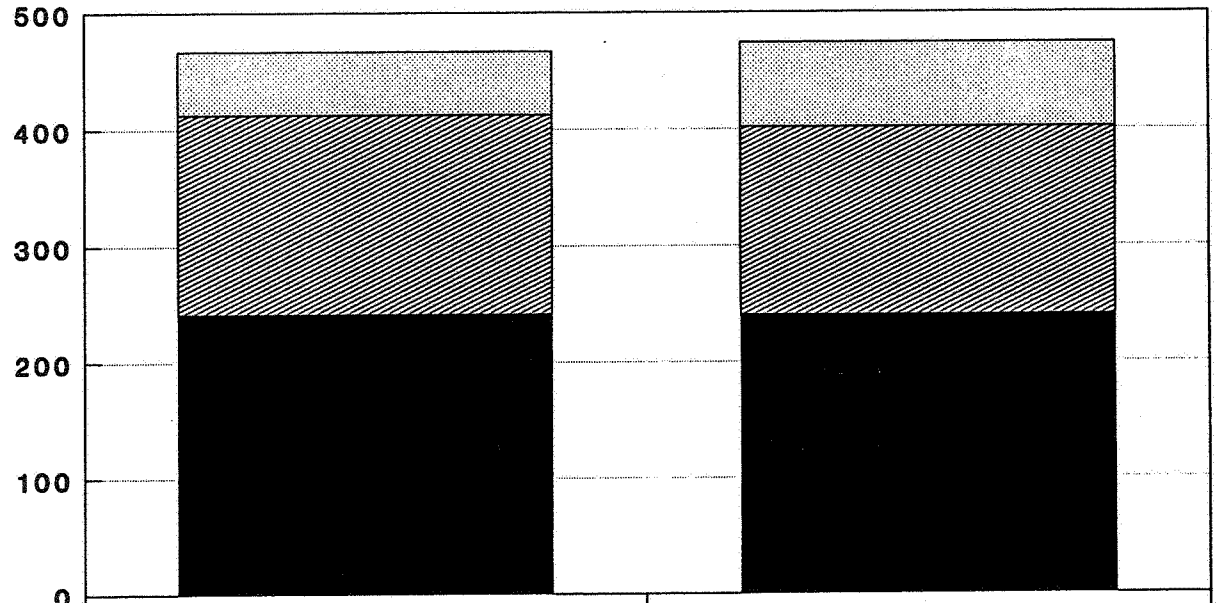


Figure 7.4.4-1
Full Alignment Comparison

Original Align 3 is w/o Spur per DEIS

Tampa South Crosstown Extension Study

Residences within 300 feet of the Right-of-Way of a Proposed Alignment



	Orig Align #3	3A Revised Align w/Spur
Single Family Homes	54	72
Mobile Homes	171	161
Multi-Family Res	242	241
Total	467	474

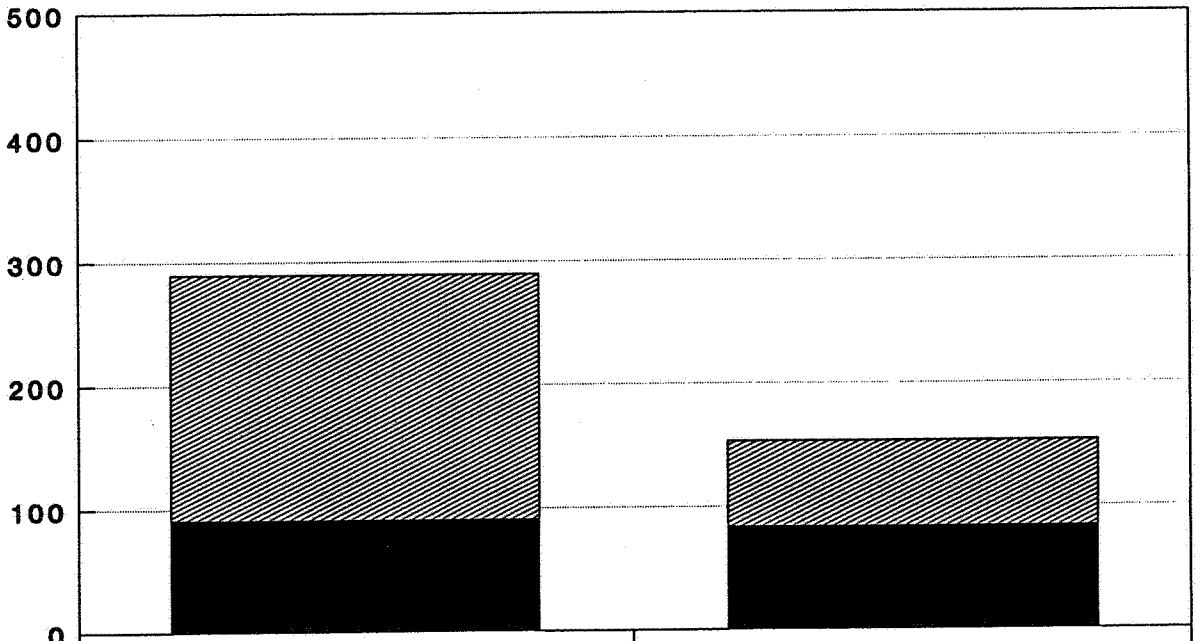
Figure 7.4.4-2
Full Alignment Comparison

Original Align is w/o Spur per DEIS

Tampa South Crosstown Extension Study

Business Impacts

Partially w/i ROW Means Less Than 30%



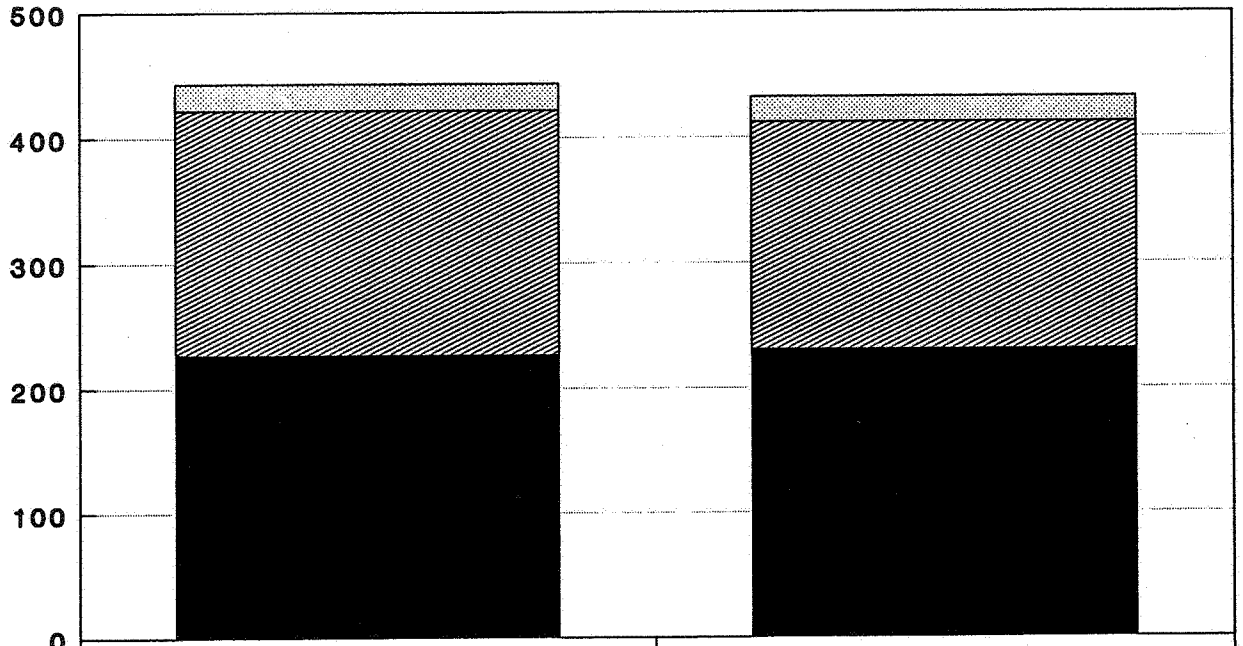
	Orig Align #3	3A Revised Align w/Spur
Partial Busines Disp	199	69
Businesses Displaced	91	83
Total	290	152

Businesses Displaced Partial Busines Disp

Figure 7.4.4-3
Full Alignment Comparison

Original Align is w/o Spur per DEIS

Tampa South Crosstown Extension Study
Estimated Cost



	Orig Align #3	3A Revised Align w/Spur
Engineering Cost	21	19
Right-of-Way Cost	195	181
Construction Cost	227	223
Total	443	423

Construction Cost Right-of-Way Cost Engineering Cost

Figure 7.4.4-4
Full Alignment Comparison

Original Align is w/o Spur per DEIS

SECTION 8

8.0 Preliminary Design Analysis

8.1 Design Traffic Volumes

Alignment 3A, selected for further analysis, is located within the "Northern Corridor" (Figure 6.4-2). Consequently, the demand traffic obtained for the Northern Corridor is the basis for the design-hour traffic for alignment 3A. Traffic volumes for analysis are summarized in Section 4.0 and 5.0 as well as the Traffic Technical Memorandum. The "No-Build" alternative is also evaluated as being the result of building the 2010 Long Range Transportation Plan, without an extension of the Crosstown. The "No-Build" is also discussed in Section 7.1.

For alignment 3A, the demand traffic obtained for the Northern Corridor FSUTMS run was adjusted to reflect the interchange location differences.

A Design-Year ("K") factor of 0.086, a Directional ("D") factor of 0.58, and a Design-Year ("T") factor of 0.080, were applied to 2010 ADT's to yield a year 2010 design-hour volumes.

These factors were developed in the approved traffic report for this project and are shown in Figure 6.3-1 through Figure 6.3-3 of this report. The design-hour volume was obtained for alignment 3A by applying the "K" and "D" factors to the average daily traffic projections. The design hour volume is shown in Figures 7.3.5-2.

8.2 Preferred Typical Sections

Following the Public Hearing, the analysis of Alternative 3A continued as described in Sections 7.3 and 7.4. To support revised right-of-way and construction cost estimates, the preferred typical sections were developed. Revised right-of-way and construction costs were then determined for the preferred alternate discussed in Section 7.4.

An elevated roadway segment was chosen for that portion of Alignment 3 where it encounters the Brandon business district.

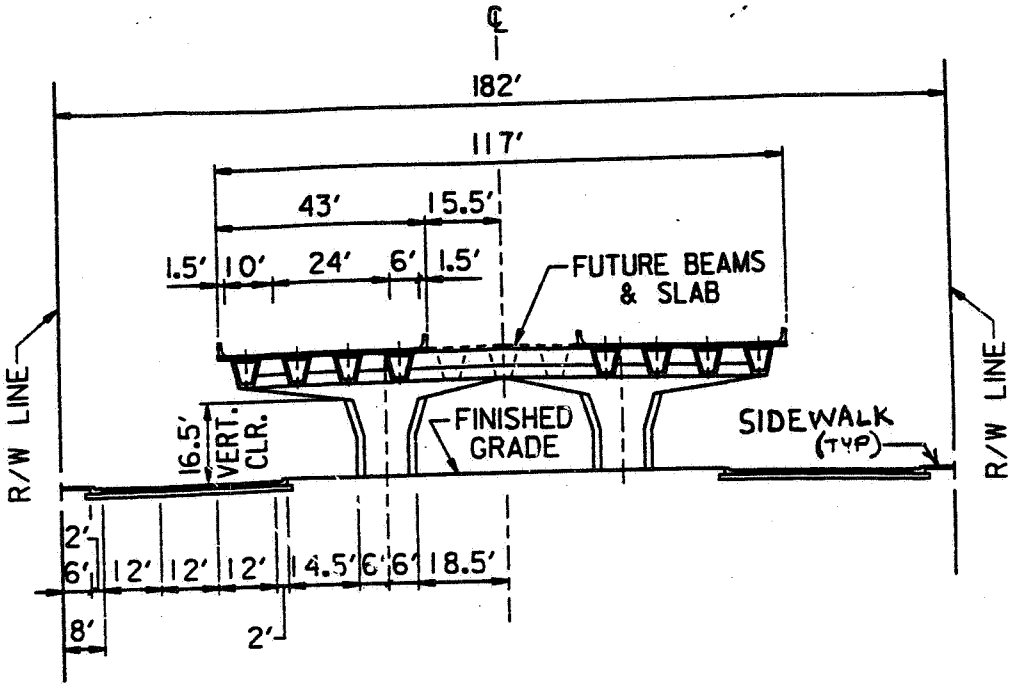
Collector/distributor service roads will be provided adjacent to the Crosstown Extension with the exception of those segments designated Typical Section 4. Segments designated Typical Section 4 will be limited access without collector/distributor service roads. It is anticipated that collector/distributor roads will be provided adjacent to the proposed Crosstown Extension in areas where the extension would use existing SR60 right-of-way.

The Preferred Alternative Typical Sections are shown in Figure 8.2-1. Typical section locations are presented in Table 8.2-1.

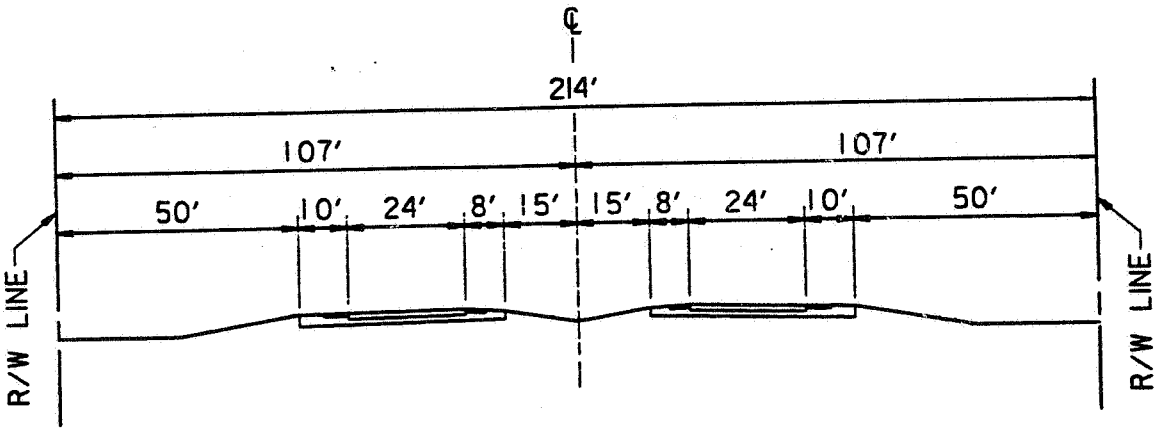
8.3 Intersection Concepts

8.3.1 Interchange

Alignment 3A will have a western terminus at the existing I-75/Crosstown Interchange. The proposed interchange modifications are shown on the preliminary design plans located in the Appendix. Figure 7.3.5-2 show projected 2010 one way design hour ramp volumes from the extension. Volume to and from I-75 vary from a low of 265 and a high of 720.

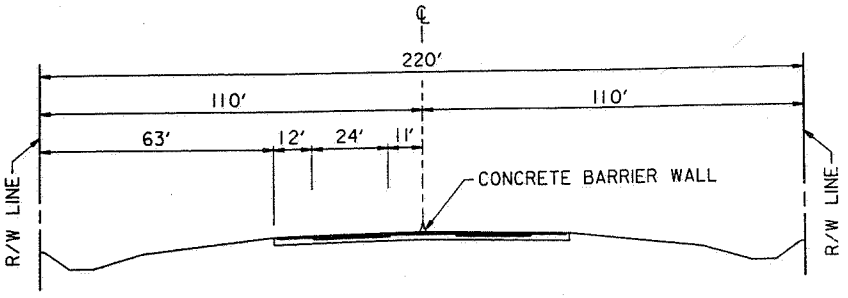


ELEVATED ROADWAY SECTION (2)

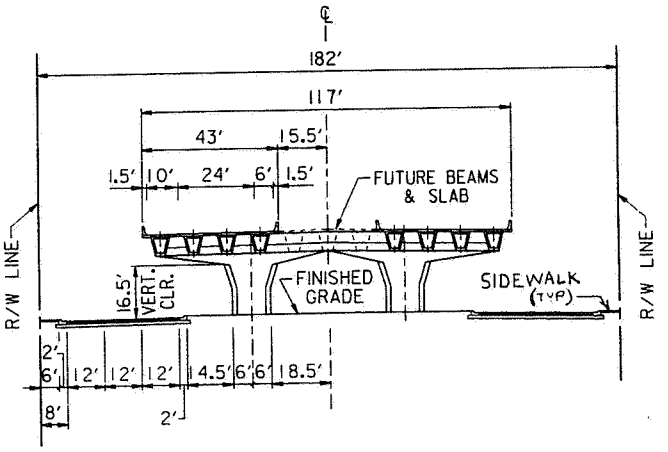


SPUR SECTION (4)

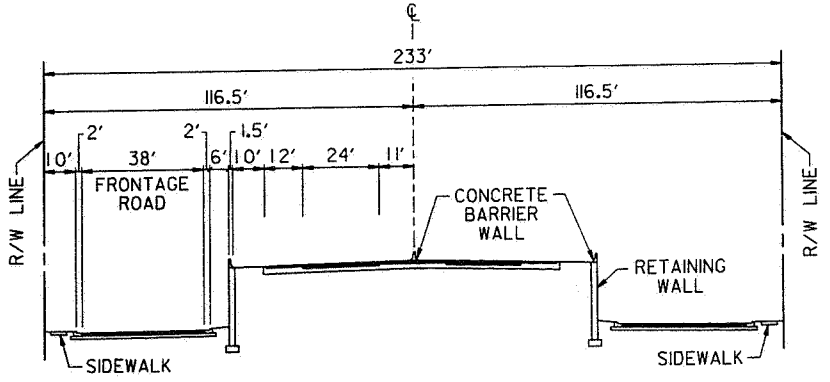
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION ect Development and Environmental Study	PREFERRED ALTERNATIVE TYPICAL SECTIONS	*Figure* 8.2-1



COMPACT ROAD SECTION (1)

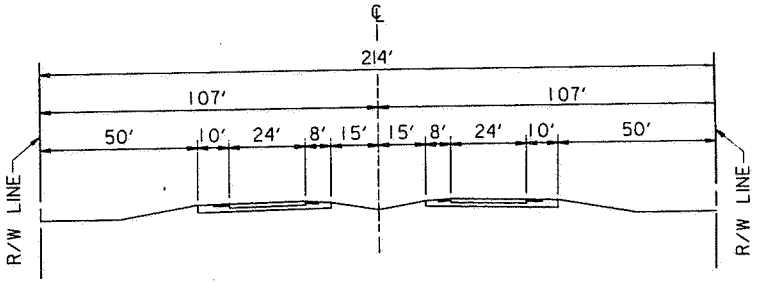


ELEVATED ROADWAY SECTION (2)



RETAINING WALL SECTION (3)

(38' FRONTAGE ROAD)



SPUR SECTION (4)

Brown & Root-Genesis Engineering Company / GLATTING JACKSON / HDR	Tampa–Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	PREFERRED ALTERNATIVE TYPICAL SECTIONS	*Figure* 8.2-1

v16_s/usr08a/hcivil/cross/sr60via24.dgn-01

TABLE 8.2-1
Typical Sections By Alignment

	Alignment	
Cross Street	3A	Lumsden Spur
Existing Crosstown Terminus	1	
Providence Road	1	4
Lakewood Drive	1	4
Pauls Drive	2	
Kings Avenue	2	
John Moore Road/Parsons Avenue	2	
Bryan Road/Kingsway Road	2	
Lithia-Pinecrest Road	2/3	
Mt. Carmel Road	3	
Valrico Road	3	
Miller Road	3	
St. Cloud Road	3	
Mulrennan Road	3	
Dover Road	3	
S.R. 60 Tie-In		

Refer to Figure 8.2-1 for Typical Sections

Based upon these projected design hour volumes and the ramp design speed of 40 mph, LOS C is projected for all interchange ramps and single lane ramps and will be adequate in the design year.

8.3.2 Slip Ramp

Exit and entrance ramp locations for the expressway extension are shown in the Appendix on the preliminary design plans. Table 8.3.2-1 also shows grade separation locations and interchange locations. In areas with frontage roads, these ramps will be single lane slip ramps, with departure angles of 2 to 4 degrees. In areas without frontage roads, a similar departure angle would be used, but the ramp termini would intersect with the adjacent north-south street. Projected design hour volumes for these ramps are shown in Figure 7.3.5-2. Based on these volumes, preliminary design computations indicate that the single lane expressway entrance ramps, exit ramps and the merge areas can be designed to operate at LOS "D" or above.

8.3.3 Major Intersecting Streets

The MPO's 2010 Long Range Plan was used to determine intersecting street laneages.

TABLE 8.3.2-1
GRADE SEPARATIONS

Cross Street	ALIGNMENT 3A
Brandon Town Center Mall West Access Road from Causeway Boulevard	O
East Access Road from Causeway Boulevard	O
Access Road from Providence Road	O
Providence Road	O
Lakewood Drive	●
Oakfield	O
Pauls Drive	O
Kings Avenue	O
John Moore Road/Parsons Avenue	O
Lithia-Pinecrest Road	O
Bryan Road/Kingsway Road	●
Mt. Carmel Road	O
Valrico Road	O
Miller Road	O
St. Cloud Road	●
CSX Railroad	O
Mulrennan Road	●
Dover Road	O

O Indicates Grade Separation
● Indicates Grade Separation with Interchange

Source: Brown & Root-Genesis Engineering Company

The Long Range Plan was used to set the number of through lanes and in cases where a left turn movement was possible, a single left turn lane was provided. Proposed lane arrangements are shown in Table 8.3.3-1. Proposed signal locations are shown in Table 8.3.3-2. Signal locations will be verified by traffic signal warrants to be developed during final design.

Turning movement volumes and analysis have not been prepared for individual intersections. The projected volumes anticipated at each intersection can be accommodated with at-grade improvements.

8.4 Alignment and ROW Needs

The preliminary design of alignment 3A has taken into account the requirements of *A Policy on Geometric Design of Highways and Streets, 1990; DOT Plans Preparation Manual, 1990; Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Green Book), 1989 Edition; Roadway and Traffic Design Standards, 1994;* and *FDOT Drainage Manual, 1987 and 1992.*

TABLE 8.3.3-1
Proposed Lane Arrangement at Intersections

Tampa South Crosstown Frontage Road with	Align-ment	South Approach			North Approach			East Approach			West Approach		
		Lt. Turn Lane	Thru Lane	Rt. Turn & Thru Lane	Lt. Turn Lane	Thru Lane	Rt. Turn & Thru Lane	Lt. Turn Lane	Thru Lane	Rt. Turn & Thru Lane	Lt. Turn Lane	Thru Lane	Rt. Turn & Thru Lane
Providence	3A	---	1	1	1	1	---	1	1	1	---	---	---
Lakewood	3A	1	1	1	1	---	1	1	2	1	1	2	1
Pauls	3A	1	1	1	---	---	---	1	2	1	1	2	1
Kings	3A	1	1	1	1	1	1	1	2	1	1	2	1
Parsons	3A	1	1	1	1	1	1	1	2	1	1	2	1
Lithia-Pinecrest	3A	1	---	1	1	---	1	1	2	1	1	2	1
Bryan	3A	1	1	1	1	1	1	1	2	1	1	2	1
Mt. Carmel	3A	1	---	1	1	---	1	1	2	1	1	2	1
Valrico	3A	1	1	1	1	1	1	1	2	1	1	2	1
Miller	3A	1	---	1	1	---	1	1	2	1	1	2	1
St. Cloud	3A	1	---	1	1	---	1	1	2	1	1	2	1
Mulrennan	3A	1	---	1	1	---	1	1	2	1	1	2	1
Dover	3A	1	---	1	1	---	1	1	2	1	1	2	1

TABLE 8.3.3-2

PROPOSED SIGNAL LOCATIONS ALIGNMENT 3A

	Alignment
Cross Street	3A
Providence Road	O
Lakewood Drive	●
Pauls Drive	●
Kings Avenue	●
Parsons Avenue	●
Lithia-Pinecrest Road	●
Bryan Road/Kingsway Road	●
Mt. Carmel Road	X
Valrico Road	●
Miller Road	X
St. Cloud Road	X
CSX Railroad	●
Mulrennan Road	X
Dover Road	X

X Indicates 2-Way Stop
● Indicates Signalized Intersection
O Indicates Grade Separation

Source: Brown & Root-Genesis Engineering Company

Applicable to frontage road systems.

8.4.1 Design Speed

A 60 mph design speed was used for the preliminary design expressway extension, and 45 mph was used for the frontage roads. Forty-five mph was used for the design speed of exit slip ramps to the frontage roads.

At the I-75/Crosstown Interchange a design speed of 40 miles per hour was used for the connecting ramps. Horizontal and vertical criteria for the expressway, ramps and frontage roads were established taking into account the study terrain, functional classification of the existing roads where frontage roads acting as one way pairs would replace them, MPO 2010 long range plan functional classification, and surrounding development.

A summary of the geometric design criteria used in preparing the preliminary design plans are shown in Tables 8.4.1-1 and 8.4.1-2.

8.4.2 Right-of-Way Needs

Right-of-way widths shown on Table 8.4.2-1 were established with provisions for taking into account the future expansion of the expressway to a six lane facility, and providing one way pair frontage roads.

TABLE 8.4.1-1

Expressway Design Criteria

DESIGN SPEED:	Mainline	60 mph
	Ramps	40-45 mph
TYPE OF ACCESS:	Limited	
HORIZONTAL ALIGNMENT:	Maximum Dc on Mainline	2° 30'
	Maximum Dc on Ramps	13° 00'
VERTICAL ALIGNMENT:		
60 mph		
	Minimum Vertical Curve Length (Sag)	300'
	Minimum "K" (Sag)	120
	Minimum Vertical Curve Length (Crest)	400'
	Minimum "K" (Crest)	190
	Maximum Grade (Mainline)	3%
	Maximum Change in Grade w/o Vertical Curve	0.4%
	Maximum Grade (40 mph)	6%
	Maximum Grade - Ramps (45 mph)	6%
	Minimum Grade	0.2%
SIGHT DISTANCE (Mainline)		
	Minimum Stopping	525 feet
	Desirable Stopping	650 feet

■ NOTE:

4% grade used on Alignment A east of Dover

TABLE 8.4.1-2

Frontage Road Design Criteria

Design Speed:	45 mph
Horizontal Alignment	
Max Degree of Curve:	6°
Vertical Alignment:	
Minimum Vertical Curve Length (Sag)	200'
Minimum "K" (Sag)	70
Desirable "K" (Sag)	90
Minimum Vertical Curve Length (Crest)	300'
Minimum "K" (Crest)	80
Desirable "K" (Crest)	120
Maximum Grade	4%
Minimum Desirable Grade	0.3%
Sight Distance:	
Minimum Stopping	400 ft.
Desirable Stopping	475 ft.
Super elevation	0.02/ft/ft max.
Maximum Change in Grade (w/o V.C.)	0.70

TABLE 8.4.2-1

EXISTING AND PROPOSED ROW WIDTH
S.R. 60

	Existing	Proposed Typical ROW
I-75 to Providence		
Providence to Pauls	182' **	Varies 202' to 226'
Pauls to Kings	182'	Varies 214' to 295'
Kings to Parsons	Varies 182' to 106'	Varies 226' to 295'
Parsons to Lithia-Pinecrest	Varies 106' to 93.5'	Varies 226' to 295'
Lithia-Pinecrest to Bryan	Varies 102.5' to 150.72'*	Varies 226' to 295'
Bryan to Beverly Boulevard	Varies 161.19' to 182'*	Varies 226' to 290'
Beverly Boulevard to Mt. Carmel	182'	Varies 243' to 267'
Mt. Carmel to Valrico	182'	Varies 243' to 267'
Valrico to Miller	182'	Varies 243' to 267'
Miller to St. Cloud	182'	Varies 243' to 295'
St. Cloud to Mulrennan	182'	Varies 243' to 267'
Mulrennan to Dover	182'	Varies 243' to 295'

* Includes ROW acquisition shown in SPN 10110-2556
** Shown for original Alternative 3, the preferred alternative does not have existing right-of-way available between Providence Road and Pauls Drive.

Proposed Typical ROW Width includes widening for intersections and interchanges.

which would have the same number of lanes as called for in the MPO 2010 Long Range Plan.

Right-of-way has also been widened at the intersecting north-south streets to take into account turn lane requirements and slip ramp requirements.

Aerial mapping showing the alignment 3A and associated right-of-way widths are presented in the appendix on the preliminary design plans.

Potential floodplain compensation areas, detention/retention ponds and wetland restoration areas are also shown on the preliminary design plans.

8.5 Relocation Plan

Relocation

Part of the relocation impact of alignment 3A is residential, consisting of 18 single family homes and 6 multi-family displaced dwelling units. The dwelling units that would be displaced are located in established neighborhoods as well as scattered throughout the study area. Other relocation impacts include community services facilities and businesses.

In order to minimize the unavoidable effects of right-of-way acquisition and displacement of people, the Florida Department of Transportation (FDOT) will carry out a right-of-way and relocation program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Public Law 91-646).

The Florida Department of Transportation provides advance notification of impending right-of-way acquisition. Before acquiring right-of-way, all properties are appraised on the basis of comparable sales and land use values in the area. Owners of property to be acquired will be offered and paid fair market value for their property rights.

No person lawfully occupying real property will be required to move without at least 90 days written notice of the intended vacation date and no occupant of residential property will be required to move until decent, safe, and sanitary replacement housing is made available. "Made available" means that the affected person has either by himself obtained and has the right of possession of replacement housing or that the Florida Department of Transportation has offered the relocatee decent, safe, and sanitary housing which is within his financial means and available for immediate occupancy.

At least one relocation specialist is assigned to each highway project to carry out the relocation assistance and payments program. A relocation specialist will contact each person to be relocated to determine individual needs and desires, and to provide information, answer questions, and give help in finding replacement property. Relocation services and payments are provided without regard to race, color, religion, sex, or national origin.

All tenants and owner-occupied displacees will receive an explanation regarding all options available to them, such as 1) varying methods of claiming reimbursements for moving expenses; 2) rental of replacement housing, either private or publicly subsidized; 3) purchase of replacement housing; 4) moving owner-occupied housing to another location.

Financial assistance is available to the eligible relocatee to:

1. reimburse the relocatee for the actual reasonable costs of moving from homes, businesses, and farm operations acquired for a highway project;

2. make up the difference, if any, between the amount paid for the acquired dwelling and the cost of a comparable decent, safe, and sanitary dwelling on the private market;

3. provide reimbursements of expenses, such as legal fees and other eligible closing costs incurred in buying a replacement dwelling; or,

4. make payment for eligible increased interest cost resulting from having to get another mortgage at a higher interest rate. Replacement housing payments, increased interest payments, and closing costs are limited to $22,500 combined total.

A displaced tenant may be eligible to receive a payment, not to exceed $5,250, to rent a replacement dwelling or room, or to use as down payment, including closing costs, on the purchase of a replacement dwelling. Brochures which describe in detail the Department's relocation assistance program and right-of-way acquisition program are distributed at all public hearings and are made available upon request to any interested persons.

Mitigation of Impacts

Alignment 3A would displace a variety of single family units and multi-family units. Displaced homeowners will be compensated for the loss of their property, and would

relocate to another residence. While no two houses are identical in terms of structure and location, a variety of residential units and undeveloped areas exist within the study area to which these individuals can relocate. The variety of rental units is more limited; however, renters who are dislocated also can find similar accommodations within the area. Most of the residential impacts occur on the fringes of the neighborhoods.

Most of the dwelling units affected are concentrated in neighborhoods with some units scattered throughout the study area. (A summary of units impacted is found in Table 4-1, Approved, Final Environmental Impact Statement.)

This project has been developed in accordance with the Civil Rights Act of 1964, as amended by the Civil Rights Act of 1968.

Archaeological Sites and Historical Structures

A letter from the State Historical Preservation Office (SHPO) addressing impacts to cultural resources listed, determined eligible for a listing, and considered potentially eligible for listing, on the *National Register* is addressed in the Environmental Impact

Statement for this project. Any requirements to address impacts to National Register facilities are addressed in the EIS and include disposition of the Section 106 Case Study required by the National Historic Preservation Act.

Section 4(f)

FHWA has determined section 4(f) does not apply.

Pedestrian and Bicycle Facilities

The proposed Tampa South Crosstown Expressway is proposed to be a limited access expressway. No provisions for bicycles or pedestrian traffic is anticipated on the expressway itself. In compliance with Section 109(n) of 23 U.S.C., the proposed project will provide bicyclists a reasonable alternative to the existing facility.

At each overpass of a local roadway, alignment 3A would provide sufficient space for sidewalks on the local road. In addition, sidewalks would be provided along both sides of the frontage roads for the entire project corridor. (See Preferred Alternative Typical Sections, Figure 8.2-1); these would replace existing sidewalks which currently exist along SR 60. Along the portion of the alignment served by frontage or collector/distributor roads from west of Mt. Carmel Road to the eastern terminus, the right or outside lane will be 14 feet wide. The extra width can accommodate use

by experienced bicyclists. From Pauls Drive to West of Mt. Carmel Road, the right or outside lanes will be 12 feet wide. 12 foot lanes were used in this area, the Brandon business district, to minimize acquisition cost of prime commercial real estate.

8.6 Right-of-Way Costs

Right-of-way (ROW) costs were estimated by first developing the preliminary design plans. The ROW costs associated with alignment 3A is shown in Table 8.7-1. Horizontal alignment was established to minimize impacts to residential, commercial, wetland and cultural features as well as community facilities. Cultural features and Community facilities are described in Section 3.3.2. Special effort was taken in locating floodplain compensation areas and retention/detention away from existing ROW frontage of existing streets to minimize acquisition cost of prime commercial real estate.

Right-of-way costs include land, severance, court awards, settlements, business damages and relocation costs.

The ROW costs shown in Table 8.7-1 are significantly higher than those used during the corridor analysis estimate of the study. One reason for this is floodplain compensation storage areas and retention/detention ponds are included in this

estimate and were not included in the corridor estimate. The Florida Department of Transportation has also revised its method of preparing ROW estimates in response to rapidly escalating acquisition costs. This has resulted in an acquisition multiplier of approximately 120% to 150% instead of the 50% utilized during the corridor analysis phase of the study. (The right-of-way cost shown in Figure 7.4.4-4 reflect further revisions and update following selection of a preferred alternative in June, 1992.)

8.7 Construction Cost

The construction cost estimate was developed utilizing unit prices supplied by FDOT District 7, the FDOT Historical Unit Price List, FDOT Long Range Estimates Training and Reference Guide and experience gained in designing and constructing major urban freeways similar in nature to the proposed Crosstown Extension.

Costs for major items such as embankment, excavation, retaining walls, and bridges were developed by designing a preliminary profile grade to determine the limits and extent of each of these items.

Cost for items such as asphaltic concrete pavement, friction course, base, stabilized subbase, curb and gutter, sidewalk, concrete median barrier, storm sewer system,

signing and pavement marking, and lighting were developed on a linear foot cost for each typical section.

The remaining items, such as large and small overhead signs; stormwater pump stations; toll plaza; traffic signals; high mast lighting; slip ramps; noise walls; clearing and grubbing; excavation for floodplain compensation areas; retention and detention ponds; and intersection improvements were individually counted and/or calculated and incorporated into the cost estimate. The maintenance of traffic and work zone control efforts were estimated to be 10% of the construction cost.

The construction cost estimate for alignment 3A and the Spur to Lumsden is shown in Table 8.7-1.

8.8 Engineering Cost

Engineering cost for design and construction engineering inspection was estimated to be 10% of the construction cost. This cost is shown in Table 8.7-1.

8.9 Recycling Salvageable Materials

The most prevalent salvageable materials in the study area would be asphaltic cement pavement (ACP), roadway base, and excavated material from floodplain

TABLE 8.7-1
CONSTRUCTION COST ESTIMATE OF TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION

Alignment	Mainlane Construct. Cost	Frontage Road Cost	Estimated Construct. Cost	15% Contin-gency	10% Eng.	Right-of-Way		Estimated Total Cost
						Roadway	Ponds	
3A	169.56	13.24	182.80	27.43	18.29	159.74	15.51	403.77
Spur	10.70	0.00	10.70	1.60	1.07	5.55	0.00	18.92
Total	180.26	13.24	193.50	29.03	19.36	165.29	15.51	422.69
							USE	423

NOTE: All costs are in millions

compensation areas and detention/retention ponds. Reuse of the ACP is dependent upon its age, composition and quality of aggregate originally used. The same is true of existing roadway base material. Any reuse of ACP could be determined prior to design through laboratory testing of core samples, to determine suitability for reuse.

Laboratory testing would also determine the suitability of excavated material from floodplain compensation areas and detention/retention ponds.

8.10 User Benefits

User benefits of the Tampa South Crosstown Expressway extension include the opportunity for through traffic to by-pass the local road system in Brandon, thereby alleviating congestion. The addition of interchanges to and from the Expressway at approximately 1.5 to 2 mile intervals in the Brandon area would provide relief on the existing east-west arterial roadways by enabling use of a controlled access roadway.

Table 8.10-1, Summary of 2010 Traffic Evaluation Measures, illustrates systemwide travel benefits provided by the Crosstown Extension, the countywide vehicle miles of travel per day (VMT) and vehicle hours of travel per day (VHT). The systemwide VMT is essentially equal for all runs.

Vertical "cut lines" were established to examine total east-west travel demand through the Brandon area at six locations: (1) West of Providence, (2) West of Kings, (3) West of John Moore, (4) West of Bryan, (5) West of Valrico, and (6) West of Dover. The daily trips assigned by the model at these locations on the major east-west roadways were summed. This sum was then compared to the total roadway capacity, at level-of-service D, at the same cutline by means of the volume to capacity (v/c) ratio.

Table 8.10-1 shows that the v/c ratio for the No-Build alternative was above 1.0 at all locations west of Bryan Road. Alignment 3A shows a substantially reduced v/c ratio at all cutlines.

This information was generated using the MPO's financial feasible plan with modifications made to the network as shown in Figure 5.3.1-4.

Information presented in Section 3.1.9 indicates that higher accident and injury rates occur in the study area due to existing capacity deficiencies. Alignment 3A shows a dramatic decrease in the projected v/c ratio at each of the corridor cutlines, which should in turn translate into a lower accident rate. This would provide an economic benefit in the form of fewer damages, less lost work time due to injuries and fatalities. Injury and fatality accidents have a severe economic and emotional impact on both businesses and families.

TABLE 8.10-1

Summary of 2010 Traffic Evaluation Measures

EVALUATION MEASURE	NO BUILD	ALIGNMENT 3A
SYSTEM CHARACTERISTICS		
Total Trips/Day	4,704,378	4,704,378
Vehicle Miles of Travel/Day	45,310,220	45,309,160
Vehicle Hours of Travel/Year (300 days)	581,545,800	579,298,500
Savings Relative to No-Build	—	2,247,300
CORRIDOR V/C RATIOS @ LOS D		
CORRIDOR v/c west of Providence	1.22	0.94
CORRIDOR v/c west of Kings	1.08	0.86
CORRIDOR v/c west of John Moore	1.15	0.89
CORRIDOR v/c west of Bryan	1.26	0.91
CORRIDOR v/c west of Valrico	0.80	0.63
CORRIDOR v/c west of Dover	0.81	0.59

Source: Glatting Lopez Kercher Anglin, Inc.

Traffic counts conducted in the study area on SR 60 during the study indicate "T" value of approximately .15 between Kingsway and Dover. It is likely a substantial portion of through truck traffic would utilize an extension of the Expressway to avoid the traffic signals and congestion of SR 60.

Other benefits users and residents would receive as a result of the extension of the Tampa South Crosstown Expressway would include:

- Improved emergency response times,
- Improvement by extending an existing evacuation route,
- Improved bicycle and pedestrian facilities (at frontage roads),
- Improved lighting conditions for night-time use of the corridor by vehicles, bicycles and pedestrians,
- Improved mobility with a reduction in travel times to and from the University of South Florida, Westshore business area, Tampa Airport, Downtown Tampa, MacDill Air Force Base, Tampa Stadium, Suncoast Dome in St. Petersburg and Pinellas County itself.
- Improved mobility to and from Brandon from the rest of Hillsborough County.

8.11 Pedestrian and Bicycle Facilities

The proposed extension to the Tampa South Crosstown Expressway is a limited access roadway. The existing expressway does not currently provide for bicyclists. The extension envisioned in this report includes portions of alignments served by frontage or collector/distributor roads. The right or outside lanes will be 14 feet wide. This additional 2 feet of width is provided for use by bicycles. This would be an improvement over existing conditions as described in Section 3.1.3. As discussed in Section 8.5 under pedestrian and bicycle facilities, the right or outside lanes of the frontage road would be 12' foot wide from Pauls Drive to west of Mt. Carmel Road.

The existing expressway does not currently provide for pedestrians. Sidewalks will be provided along those portions served by frontage or collector/distributor roads. This would provide an increase in the number of sidewalks in the study area.

Pedestrians and bicycles would be able to cross the expressway extension at major north/south streets where overpasses/underpasses are proposed. It is recommended that pedestrian/bicycle operated crossing signals and crosswalks be provided at proposed signalized intersections listed in Table 8.3.3-2.

8.12 Safety

The addition of a limited access expressway through the study area will improve mobility in the Brandon area. This will provide an improvement over the existing stop/start rush hour traffic in which the motorist must sit through several traffic signal cycles. The smooth flow of traffic facilitated by a limited access expressway reduces potential conflict points and helps prevent driver boredom and impatience which is the cause of many accidents. The spacing of entrance and exit ramps at 1½ and 2 mile intervals provides sufficient weaving space for those utilizing the expressway.

The expressway extension and associated frontage or collector/distributor roads are expected to warrant continuous lighting. This will provide a safer night-time transportation corridor for vehicles, bicycles and pedestrians.

For a large portion of the project, frontage roads or collector/distributors will provide a wider outside lane to accommodate use by bicycles. Sidewalks will be provided for pedestrians in many areas where currently none exist.

In addition, the Expressway will provide an alternative emergency escape route during periods of heavy flooding resulting from a hurricane. Much of the vicinity of the project, including urbanized coastal areas of Tampa, Hillsborough County and

Pinellas Counties are in coastal flood hazard zones. Many of the local roads and streets would be flooded in the early stages of a major storm event and the expressway could provide an important escape route to safer haven.

8.13 Economic and Community Development

The construction of the Expressway will have an immediate and direct impact on economic activity and employment. At the peak of construction activity and depending on construction schedules, as many as 200-250 construction workers would likely be employed at the project location. In addition, employment would be generated in local transport companies, suppliers, and technical service firms engaged in the project. The "No Build" alternative would not create additional employment.

The Expressway would remove commercial and residential properties from the City and County tax rolls, thereby reducing those existing local ad valorem tax revenues. At most, these reductions in taxes represent an insignificant amount of the total property tax billed for Hillsborough County. The improved mobility and travel time savings afforded by the proposed action will offset the reduced ad valorem tax revenues by increased revenues from other tax sources.

Continued development in the Brandon area without improved traffic circulation can be expected to dampen the commercial/industrial potential for development. As

existing thoroughfares, including SR 60, continue to receive more traffic, new or expanding businesses will seek other more accessible locations, possibly outside Brandon and Hillsborough County. The "No Build" alternative can, in our opinion, be expected to restrict economic growth and employment in this area.

Business impacts were counted either as a total displacement or a partial displacement. Total displacement occurred when either a building was located within the alignment right-of-way, or more than 30 percent of an establishment's parking was within the right-of-way, which could impede the accessibility to a business. A partial displacement would occur when less than 30 percent of an establishment's parking was within the right-of-way. Businesses within 300 feet of the proposed right-of-way were not counted because they are not as greatly affected by the other impacts (noise and visual intrusion) as residences and community facilities are perceived to be.

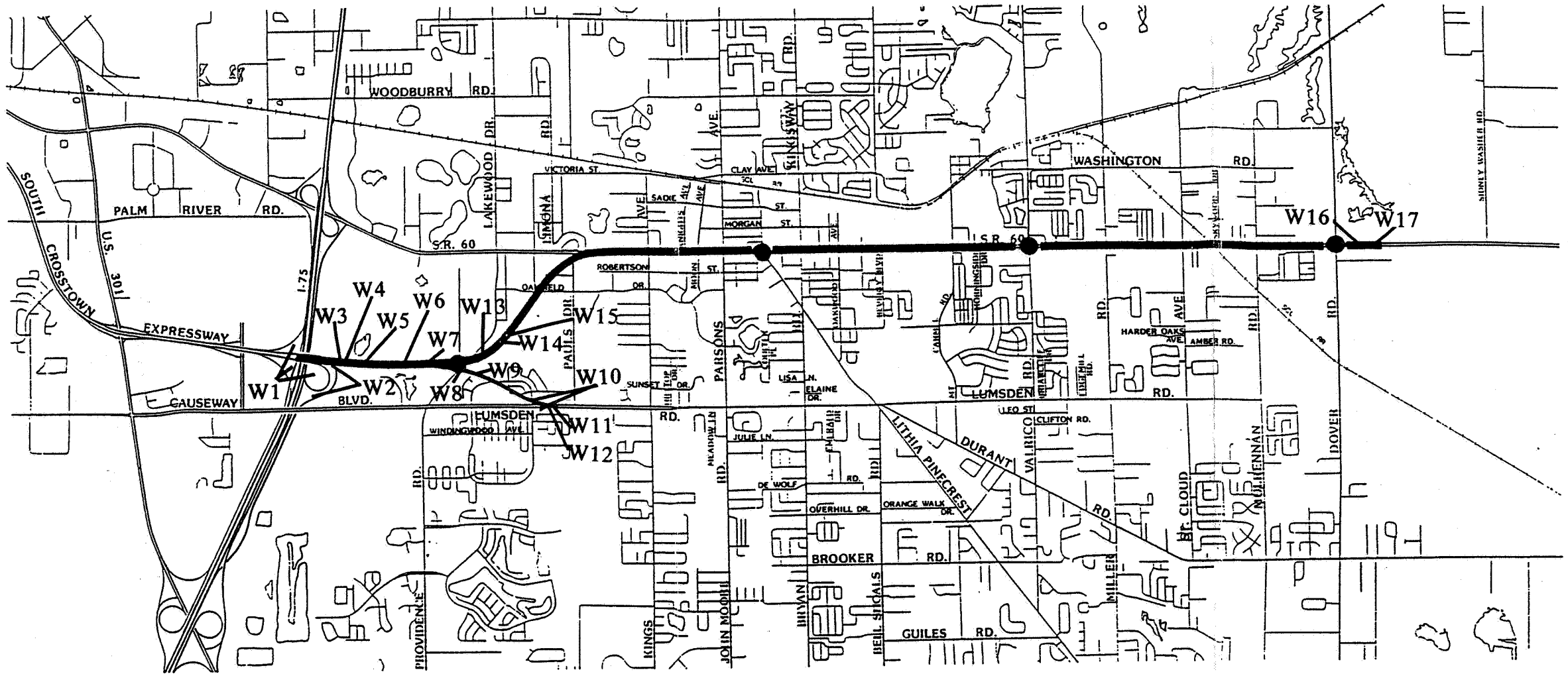
8.14 Environmental Impact

The environmental impacts of the alignment 3A has been reviewed with regard to impact on wetlands, contaminated sites, air and noise. These impacts are described below.

8.14.1 Wetlands

Wetlands occupy only a very small portion of the project area. There are several categories or types of wetlands in the area, all of which fall under three broad groupings: forested, wetlands, scrub-shrub wetlands, and herbaceous wetland systems. Within the forested group, the majority are hardwood seeps with a lesser number of transitional mixed hardwood areas. The majority of the scrub-shrub type of wetlands found in the project area is in unreclaimed phosphate mine pits. Within the herbaceous group, six categories have been identified including isolated marsh, contiguous marsh, lakes, ponds, channelized streams/ditches and man-made marshes or mitigation areas.

Figure 8.14.1-1 identifies wetland locations. Table 8.14.1-1 provides analysis of the wetland impacts of proposed alignment 3A.



Legend

INTERCHANGE LOCATION

Brown & Root-Genesis Engineering Company / GLATTING JACKSON / HDR	Tampa–Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	WETLAND LOCATIONS	FIGURE 8.14.1-1

TABLE 8.14.1-1

WETLAND IMPACTS
ALIGNMENT 3A

Wetland	Impact Acreage
1	3.1
2	1.0
3	0.4
4	2.8
5	0.2
6	1.6
7	0.1
8	0.3
9	1.3
10	0.8
11	0.8
12	0.8
13	0.2
14	0.1
15	0.6
16	0.4
17	0.1
TOTAL	14.6

alignments. Alignment 3A, which generally follows State Road 60, has direct wetland impacts of 14.6 acres.

It is important to note that the wetland impacts utilized in this report are based on preliminary engineering design of the proposed alignment. During design of the preferred alignment, it may be possible to further reduce the total wetlands impact through minor adjustments of the roadway design. Adjustments may include small shifts in the alignment, alteration of sideslopes, and narrowing of median areas in the vicinity of wetlands.

Hardwood seeps are the most prevalent wetland group in the project area. These systems are generally located around the periphery of uplands that are composed of sandy soils. The soils of these areas are usually saturated due to the discharge of water from the shallow surface aquifer. The majority of these systems have been altered to some extent by existing residential and commercial developments. In the western portion of the project area, the nature of the alterations includes ditching and draining as well as filling of portions of the seeps for development. Near the eastern end of the project area, phosphate mining operations are responsible for major alterations of these seeps.

The majority of the altered streambeds and man-made ditches are located within the Delaney Creek drainage basin in the western portion of the project area. This area was originally a slough system in which water was supplied by the seepage features. An extensive system of drainage ditches was constructed to alleviate flooding in the area with the majority of the water being routed to the west through the channelized streambed of Delaney Creek. Following the draining of this area, pasture was the primary land use within the last 20 years. Commercial and residential land uses have replaced most of the agricultural uses. This development trend has accelerated in the last several years to meet the demands of the growing population of the area.

A small number of ponds and lakes exist across the project area, most of which are man-made. These artificial systems were created either as stock ponds, stormwater treatment systems, or floodplain storage compensation. The water levels in these ponds are fairly constant due to the shallow depth to the surface aquifer.

The Wetland Evaluation Technique (WET II) (FHWA Report Number FHWA-IP-88-029) was employed to provide a standardized evaluation of all wetlands impacted by the project. This analysis evaluates the following functions and values: groundwater recharge, groundwater discharge,

floodflow alteration, sediment stabilization, sediment/toxicant retention, nutrient removal/transformation, product export, wildlife diversity/ abundance, uniqueness/heritage, and recreation. Each of these factors is evaluated in terms of social significance, effectiveness, and opportunity. Complete discussion and mitigation commitments are contained in the Permit Coordination Report available in the District 7 offices of FDOT. (WET II analysis is also addressed in the Environmental Impact Statement.)

8.14.2 Contaminated Materials

A study was conducted in accordance with guidelines which allow the proposed alignment to be evaluated for potential project impacts based on known or potential risks associated with past and existing contaminated material and petroleum handling facilities.

Alignment 3A has potential for contamination at 66 sites. Ten sites were evaluated as "No", 49 sites were evaluated as "Low", and seven sites were evaluated as "Medium". None of the sites identified in this investigation were evaluated as "High". All seven of the "Medium" rated sites were recommended for additional qualification prior to the start of acquisition

or construction activities. Additionally, 14 sites rated as "Low", i.e., Sites 35, 40, 43, 44, 51, 52, 55, 60, 65,70, 71, 74, 77, and 82 are recommended for additional qualification prior to acquisition or construction due to information developed during this investigation. Site 46 has had underground storage tanks removed, but removal of contaminated soil was not verified. Further investigation is recommended prior to acquisition.

The proposed ROW has been assessed to determine potential hazardous material sites. When design of the preferred alignment is initiated, a level two evaluation will be performed to determine levels of contamination and, if necessary, evaluate the options to remediate along with the associated costs.

Based on the information developed, the contaminated material evaluation has identified that potential petroleum and contaminated material issues impact this project. Table 8.14.2-1 provides a summary of the numbers and types of sites associated with alignment 3A.

Table 8.14.2-1

SUMMARY COMPARISON OF PROPOSED ALIGNMENT TAMPA CROSSTOWN EXPRESSWAY EXTENSION

ALIGNMENT	TYPE OF SITES			TOTAL	SITES WITH RECOMMENDATIONS FOR FURTHER STUDY
	NO	LOW	MEDIUM		
3A	10	49	7	66	7

More detailed examination of Contaminated Materials Information may be found in Hazardous Materials Report and Environmental Impact Statement (EIS) for this project, which are on file at District Seven offices.

8.14.3 Air Quality

The "Build" alternative will have even less impact than the "No-Build" alternative since the "Build" critical distance does not come as close to the nearest receptor as it does for the "No-Build" alternative. This is a result of improved air quality with the proposed facility creating improved traffic flow in the project area with less congestion and fewer cold starts.

The worst-case intersection was the interchange with the largest forecasted peak-hour traffic volumes - the interchange with SR 60 near Pauls Drive. The Screening Test (incorporating results of MOBILE 2 and CALINE 3) indicated the Critical Distance was 16 feet for the No-Build, 13 feet for 2010 Build and 13.6 feet for 2015 Build. Since the closest receptor (the front yard of a home 46 feet north of Lumsden Boulevard before it is widened) is always farther away than the critical distance, this project will not have a significant impact on air quality.

Construction activities will cause minor short-term air quality impacts in the form of dust from earthwork and unpaved roads and smoke from permitted open burning. These impacts will be minimized by adherence to all state and local regulations and to DOT Standard Specifications for Road and Bridge Construction.

All local and state agencies were provided an opportunity to comment on this project. There were no adverse comments regarding air quality.

This is an area which has been designated as nonattainment for the ozone standards under the criteria provided in the Clean Air Act Amendments of 1990. The State Implementation Plan (SIP) does not contain any transportation control measures (TCMs) in this area. Therefore, the EPA's Final Conformity Rule, which was issued on November 24, 1993, regarding TCMs does not apply to this project. This project is in conformance with the SIP because it will not cause violations of any air quality standards. This project is included in the urban area's currently approved conforming TIP which was signed by the Secretary of the FDOT on September 17, 1993. This project is included in the area's Conformity Determination Report which was approved by FHWA on September 2, 1993 and has not significantly changed in project design or scope since that conformity analysis.

The proposed design and scope of the Tampa South Crosstown Expressway extension are the same as the project analyzed in the Hillsborough County's 2010 Long Range Plan and Hillsborough County's TIP (1992-1996). Additionally, the project will not divert or generate traffic which would in turn, negatively impact the future attainment of the NAAQS in Hillsborough County.

8.14.4 Noise

Noise Evaluation

A separate Noise Study Report (NSR) is available in the Florida Department of Transportation District Seven Offices. In addition, a NSR addendum discusses alignment 3A between I-75 and SR 60 and is available as well. This report contains the specific methods, data sheets, and findings of the study. Additional information may also be found in the project's Environmental Impact Statement (EIS).

Representative receptor sites along the proposed alignment were established from aerial photography and field reconnaissance. Existing noise sensitive sites along the alignments 3A include: Nativity Catholic Church/School, First Baptist Church, and apartments, mobile homes and

single-family residences adjacent to Brandon Boulevard (SR 60), Lakewood Drive and Oakfield Drive. Eleven (11) receptor sites were selected to represent all of the noise sensitive areas along alignment 3A.

Using a computer model Stamina 2.0, noise levels at representative receptor sites were predicted for each alternative in the design year (2010). Noise impacts in the design year were established by comparing land use, existing noise levels and future noise levels with established criteria which considered exceedance and substantial increase. For schools, churches, residential areas and parklands, noise abatement must be considered if noise levels approach or exceed 67 decibels (dBA) (FHWA Noise Abatement Criteria (NAC)). (Decibel is a unit for measuring the relative loudness of sound.)

The total number of receptors impacted is 26. Table 8.14.4-1 is a summary results for Alignment 3A.

It is recognized that while mitigation of noise impacts will be possible, many will not be reasonable based on cost, or relative reduction of noise. In some instances, there will remain several sites where noise impacts will be an unavoidable impact should the "Build" alternative be chosen.

Noise Abatement Techniques

In accordance with Federal Aid Policy Guide issuances, alternative noise abatement measures for reducing or eliminating noise impacts were evaluated. Abatement measures included traffic management, alignment modifications, land use and zoning controls, and the construction of noise barriers.

Traffic management techniques such as reducing operating speeds and restricting truck traffic on the South Crosstown Expressway would not be practicable as it would not be consistent with the function of the expressway as a high speed facility in the regional transportation system.

Selection of an alignment significantly different would be impractical as Alignment 3A was selected based on feasibility, minimization of impacts and cost. During the identification of alternative alignments, one primary consideration was the avoidance of noise sensitive areas to the greatest extent possible.

Land use and zoning controls will be appropriate as noise abatement techniques in areas which are mostly undeveloped. However, in developed

areas where noise sensitive sites currently exist, land use and zoning controls will have little effect.

Noise barriers are one potential solution for abatement. To determine whether noise barriers are a valid solution, a computer model, STAMINA 2.0/OPTIMA is used. The OPTIMA portion of this model is applied to determine insertion losses, approximate heights and lengths, construction materials, and approximate costs in current dollars for structural barriers.

In order for a noise barrier to be potentially feasible, a minimum of 5 dBA insertion loss with a desired insertion loss of 10 dBA should be seen and the barrier should be economically reasonable. A formula developed by FDOT to determine economic reasonableness is based on a maximum cost of $25,000 per receiver. Noise barriers will be recommended when they achieve the desired insertion loss and cost $25,000 or less per benefitted received. Noise barriers were modeled at a number of potential locations for alignment 3A (See Table 8.14.4-1).

TABLE 8.14.4–1
NOISE BARRIER DESIGN SUMMARY

DESCRIPTION	LOCATION	NO. OF RECEIVERS IMPACTED	BARRIER LENGTH	DIMENSIONS HEIGHT	INSERTION LOSS	TOTAL COST	COST PER RECEIVER
1. Russelwood Apts.		0					
2. Nativity Catholic School		0					
3. Nativity Catholic Church*		0					
4. Brandon Trailer Park	R/W Line	6	650'	19'	5 dba	$172,900	$28,800
5. Feather Rock MHP**	R/W Line	9	580'	9'	5 dba	$73,080	$14,600
6. Oakhill Village MHP	R/W Line	2	850	10'	5 dba	$119,000	$59,500
7. First Baptist Church		0					
8. Vairico Station Apts.		0					
9. Stawberry Ridge MHP		0					
35. Lakewood Dr./Morrison Rd.	R/W Line	3	1350'	14'	5 dba	283,500	94,500
36. Oakfield Drive	R/W Line	6	1470'	15'	6 dba	330,750	55,125

* Limitations to barrier configurations created by driveway openings and intersection sight distance makes structural barriers non-feasible at this location.
** Satisfies reasonable cost criteria.

Noise barriers were considered at Nativity Catholic Church (#3) along SR 60, as noise levels are expected to approach FHWA noise abatement criteria (65 dBA) by 2010. The noise level increases (0-5 dBA) are due primarily to increased traffic along the existing roadways. Limitations to barrier configurations created by driveway openings and intersection sight distance makes structural barriers non-feasible at these locations.

Based on current criteria, noise barriers will be appropriate for noise mitigation at 1 noise sensitive site in the project area: Feather Rock MHP.

The Florida Department of Transportation is committed to the construction of feasible noise abatement measures at the noise impacted locations, contingent upon the following conditions:

- Detailed noise analyses during the final design process;
- Reasonable cost analyses;
- Community input regarding desires, types, heights, and locations;
- Preferences regarding compatibility with adjacent land uses, particularly as addressed by officials having jurisdiction over such land uses; and

- Safety and engineering aspects as related to the roadway use and the adjacent property owner.

It is likely that the noise abatement measure for the identified impacted area will be construction of noise barriers, if they are found to be feasible based on the contingencies listed above.

Construction Noise

The construction of the proposed project would result in temporary noise increases within the study area. The noise would be generated primarily from heavy equipment used in hauling materials and building the roadway. Sensitive areas close to the construction site may temporarily experience increased noise levels; however, no areas where quiet is of extraordinary significance would be impacted by construction noise (i.e. Activity Category A).

Construction noise will be minimized to the greatest extent practicable through the adherence to controls listed in the latest edition of FDOT's Standard Specifications for Road and Bridge Construction.

8.15 Utility Impacts

8.15.1 Utilities

The major utility corridors associated with this project utilize SR 60 and Lumsden Road rights-of-way. Utilities within these corridors include electric power transmission lines, power substations, major water transmission and distribution lines and telephone fiber optic and trunk lines.

North/south streets in the study area also serve as utility corridors, although to a lesser degree than SR 60 and Lumsden Road. These streets are Providence Road, Kings Avenue, Lithia-Pinecrest Road, Mt. Carmel Road and Miller Road.

Utilities shown in Table 8.15-1 in each of these corridors are described and are quantified in Table 8-15-2. Utility Contacts are listed in Table 8.15-3. The cost estimate, Table 8.7-1, includes provision of utility.

TABLE 8.15-1

MAJOR UTILITIES BY COMPANY AND RIGHT-OF-WAY CORRIDOR

	East-West Corridors			North-South Corridors			
	SR 60	Lumsden Road	Providence Rd.	Kings Ave.	Lithia-Pinecrest Rd.	Mt. Carmel	Miller Rd.
Tampa Electric Co.	O		O				
GTE Florida Inc.	O	O			O		
U.S. Sprint	O						
Hillsborough Cty. (Water)	O	O	O		O	O	O
Hillsborough Cty. (Wastewater)	O	O		O			O
People's Gas System	O						

Source: GTE, U.S. Sprint, TECO, People's Gas System, Hillsborough County Planning and Zoning Department, Brown & Root-Genesis Engineering Company

TABLE 8.15- 2

MAJOR UTILITY IMPACTS

Utility	Units	Alignment 3A		
GAS Main 6" or larger	LF	8700		
ELECTRIC Transmission Line	LF	37200		
WATER Main 12" or larger	LF	16600		,0
WASTEWATER Interim WWTP	EA	1		2
Wastewater Pump Station	EA	0		0
Force Main 10" or larger	LF	5600		450
TELEPHONE Fiber Optic Line	LF	36400	,700	1300

Source: GTE, U.S. Sprint, TECO, People's Gas System, Hillsborough County Planning and Zoning Department, Brown & Root-Genesis Engineering Company

TABLE 8.15-3

UTILITY CONTACTS

Gardinier, Inc.
Mr. Dean Keinshindt
8813 Highway 41 South
Riverview, FL 33569

Tampa Electric Company
Mr. Mike Capparelli
P.O. Box 111
Tampa, FL 33601

AT&T
Mr. Bill Mercer
2261 Massaro Boulevard
Tampa, FL 33619

Paragon Cable
Mr. Charles Simard
5908 Breckenridge Parkway
Tampa, FL 33604

Central Florida Pipeline
Corporation
1904 Hemlock Avenue
Tampa, FL 33604

GTE Florida, Inc.
Mr. Jim Bates
Systems Engineer
Liaison-Right-of-Way
Joint Use
P.O. Box 110 (MC-39)
Tampa, FL 33601

Tampa Pipeline Limited
Partnership
Mr. Warren R. McDonald
P.O. Box 19201
Tampa, FL 33686

Hillsborough County
Planning and Zoning Department
Mr. Jeff Miller
800 E. Twiggs Street
Tampa, FL 33602

U.S. Sprint
Mr. Ron Black
925 Semoran Boulevard, Suite 106
Winter Park, FL 32792

Tampa Electric Company
Mr. Larry Claxon
P.O. Box 111
Tampa, FL 33601

People's Gas System, Inc.
Mr. Steve Tidwell
1200 N. 13th Street
Tampa, FL 33605

Tampa Bay Pipeline Company
Mr. Bruce Helms
5802 Hartford Street, P.O. Box 5526
Tampa, FL 33675

CSX Rail Transport
Mr. Charles W. Hutchinson
5656 Adamo Drive
Tampa, FL 33619

relocation costs, estimated to be paid by the project, in the 15% contingency factor. This is believed to be reasonable since no major utility impacts outside those normal to roadway corridors are expected to be affected. Utilities within the existing roadway right-of-way are relocated by the affected utility, at their cost. Utilities located outside of the existing right-of-way will be relocated at cost to the project.

8.15.2 Railroads

Alignment 3A has one rail crossing. The alignment crosses the CSX railbed at SR 60 between St. Cloud Avenue and Mulrennan Road.

CSX officials have indicated that they have no plans to remove this particular rail line from services. Reportedly, there are 9 trains, each way, each day. The line is operated on a 24-hour schedule. It is planned that the expressway would overpass the railroad, frontage roads would remain at grade.

The railroad contact is listed in Table 8.15-3.

8.16 Maintenance of Traffic

Alignments 3A can be constructed while maintaining traffic through the work zone. With the exception of the alignment on SR 60 between Pauls Drive and Knights Avenue, the proposed right-of-way (ROW) is substantially wider than the existing ROW.

8.16.1 I-75/Crosstown Interchange

Alignment 3A will require improvement to the interchange with I-75. Construction of bridges over the existing ramps could be completed during the night-time hours with a short ramp closure time to facilitate placing bridge beams. Traffic could either be stopped for a very short period by a flagman as each beam is placed, or detoured for an entire night-time period during which all the beams would be placed. For construction of the Crosstown Expressway ramps and bridges over I-75 traffic, temporary pavement could be constructed and northbound I-75 traffic diverted to the southbound lanes with temporary concrete median barrier separating southbound and northbound traffic. This would be reversed when constructing over southbound I-75.

8.16.2 Areas of All New ROW Acquisition

In areas where the expressway is constructed on new ROW, there would be little impact on traffic patterns, with exception of the construction of overpasses at cross streets. These areas include the expressway from I-75 to Pauls Drive and the spur from the expressway to Lumsden Road. Overpasses could have beams placed during night-time hours, with flagmen temporarily stopping traffic.

8.16.3 SR 60 West of Kings Avenue

Existing roadway along SR 60 west of Valrico Road is generally a rural section with wide existing borders containing drainage ditches. As a result, the proposed closed drainage system could be installed during the initial phases of construction and the frontage road or collector/distributor roads constructed in the newly acquired ROW and existing border. The expressway viaduct section would then be constructed during night-time hours when it would have the least impact on travel in the business center of Brandon, as could the expressway on embankment on the eastern reaches of SR 60.

The area between Knights Avenue and Bryan Road has a narrower existing ROW and also has a closed storm sewer system. The ROW acquisition will be to the south of the existing ROW in the area between Knights Avenue and Bryan Road. This would allow construction of the eastbound frontage road or collector distributor. Existing eastbound traffic could be transferred to the new eastbound lanes and existing westbound traffic could be transferred to the existing eastbound lanes. This would allow construction of the new westbound frontage road or collector/distributor. A possible construction sequence from Pauls Drive to Knights Avenue is shown in Figure 8.21-8.

8.17 Summary of Advance Notification, Agency Comments and Public Meetings

8.17.1 Advance Notification

The Advance Notification Process is a means through which other Federal, State and local agencies are informed of a proposed action. The advanced notification was given on this project at the commencement of the Preliminary Engineering Phase of the study. The recipients of the Advance Notification Package are listed in the Environmental Impact Statement prepared for this study. A Comment Coordination Report has also been prepared to address the comments received from the Advance Notification process.

8.17.2 Public Participation

As part of the planning process, the Tampa-Hillsborough County Expressway Authority implemented and administered a comprehensive public participation program, the purpose of which was to inform, and solicit responses from, residents and property owners, particularly those located within the study area. Numerous meetings were held with neighborhoods, civic groups and advisory committees to achieve this purpose. A list of these meetings is presented in Table 8.17.2-1. Major components of the public participation program are briefly described herein.

8.17.2.1 Mailing List

An extensive mailing list was prepared and updated continuously throughout the study. This list included elected officials and staff members of local governing bodies, leaders of homeowner groups in the study area, leaders of other interested groups such as chambers of commerce, and individual property owners. The list included:

TABLE 8.17.2-1

MEETING SCHEDULE
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

DATE	LOCATION	GROUP	PURPOSE
8/16/89	THCEA Office	THCEA Staff	Notice to proceed meeting
8/25/89	Tampa	Tampa Tribune	Introduce project
8/25/89	St. Petersburg	St. Petersburg Time	Introduce project
8/25/89	Brandon	Brandon News	Introduce project
9/6/89	Brandon	BCAC	Introduce project
9/6/89	Tampa	Signet Capital Corp.	Introduce project
9/28/89	MPO Office	MPO Staff	Introduce project
10/11/89	Hillsborough County	County Staff	Introduce project
10/16/89	Tampa	Commissioner Selvey	Project overview
10/25/89	BSHS	Public	Present data collected for study area and initial alignments
10/30/89	THCEA	THCEA	Project update
11/1/89	Hillsborough County	BCC	Introduce project; summary of information meeting
11/11/89	--	TRC/EAG	Overview of project, including highlights of information meeting
11/27/89	THCEA	THCEA	Project update
12/14/89	Tampa	Tampa Tribune Editorial Staff	Project overview
12/18/89	FDOT	FDOT	Briefing
12/20/89	Information Center	Brooker Road Residents	Receive comments on alternative alignments
1/9/90	--	TRC/EAG	Review evaluation process
1/17/90	Brandon	BCAC	Project update
1/19/90	FDOT	FDOT	Briefing

Notes:
MPO = Metropolitan Planning Organization
THCEA = Tampa-Hillsborough County Expressway Authority
BCC = Board of County Commissioners
BSHS = Bloomingdale Senior High School
FDOT = Florida Department of Transportation
CATCH = Committee Against the Crosstown Hook-Up (by the way of Lumsden Road)
HCCCPC = Hillsborough County City-County Planning Commission
BCAC = Brandon Crosstown Action Committee

SOURCE: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.

TABLE 8.17.2-1 (continued)

MEETING SCHEDULE
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

DATE	LOCATION	GROUP	PURPOSE
1/22/90	THCEA	THCEA	Project update
1/29/90	Tampa	Mayor Freedman	Project overview
1/30/90	Tampa	Brentwood Hills Developers	Project overview
1/31/90	BSHS	Public	Present results of corridor analysis
2/7/90	Information Center	CATCH	Receive comments on alternative alignments
2/19/90	HCCCPC	TRC/EAG	Review recommendation of THCEA
2/20/90	Brandon	La Viva Homeowners Association	Project Review
2/21/90	Kingswood Elementary School	CATCH	Review methodology used in identifying Alignment 51 impacts
2/26/90	THCEA	THCEA	Recommendation of alignments for conceptual design analysis
3/12/90	HCCCPC	HCCCPC	Project update
3/20/90	HCCCPC	MPO	Project update
3/24/90	Brandon	BCAC	Discussion on noise
3/26/90	THCEA	THCEA	Project update
4/4/90	Brandon	CATCH	Discuss Alignment 51
4/5/90	Brandon	Westminster Presbyterian Church	Project update
4/12/90	Brandon	Brandon Kiwanis	Project update
4/23/90	THCEA	THCEA	Project update
5/10/90	Brandon	CATCH	Discuss Alignment 41
5/15/90	Brandon	Heather Lakes Homeowners Association	Project update
5/21/90	THCEA	TCHEA	Project update

Notes:
MPO = Metropolitan Planning Organization
THCEA = Tampa-Hillsborough County Expressway Authority
BCC = Board of County Commissioners
BSHS = Bloomingdale Senior High School
FDOT = Florida Department of Transportation
CATCH = Committee Against the Crosstown Hook-Up (by the way of Lumsden Road)
HCCCPC = Hillsborough County City-County Planning Commission
BCAC = Brandon Crosstown Action Committee

SOURCE: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.

TABLE 8.17.2-1 (continued)

MEETING SCHEDULE
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

DATE	LOCATION	GROUP	PURPOSE
6/25/90	TCHEA	THCEA	Project update
6/28/90	BSHS	Public	Present results of conceptual design analysis
7/2/90	Tampa	Rep. of Brandon Town Center	Discuss impacts to project
7/30/90	THCEA	THCEA	Project update
8/27/90	THCEA	THCEA	Project update
9/24/90	THCEA	THCEA	Project update
10/17/90	Brandon	Brandon Chamber of Commerce	Update Chamber of Commerce Transportation Council
10/22/90	THCEA	THCEA	Project update
10/25/90	THCEA	THCEA	Project update
12/7/90	Tampa	Tampa Chamber of Commerce	Update Chamber of Commerce Transportation Council
12/17/90	THCEA	THCEA	Project update
1/21/91	THCEA	THCEA	Project update
1/22/91	Brandon	Residents Home (BCACA)	Discussion of alternatives with local residents group
2/25/91	THCEA	THCEA	Project update
3/13/91	Tampa	Local resident	Discussion of alternative routes
3/25/91	THCEA	THCEA	Project update
3/28/91	THCEA	HART	Discussion of project with HART representatives
4/22/91	THCEA	THCEA	Project update

Notes:
- MPO = Metropolitan Planning Organization
- THCEA = Tampa-Hillsborough County Expressway Authority
- BCC = Board of County Commissioners
- BSHS = Bloomingdale Senior High School
- FDOT = Florida Department of Transportation
- CATCH = Committee Against the Crosstown Hook-Up (by the way of Lumsden Road)
- HCCCPC = Hillsborough County City-County Planning Commission
- BCAC = Brandon Crosstown Action Committee

SOURCE: Brown & Root-Genesis Engineering Company
Glatting Lopez Kercher Anglin, Inc.

TABLE 8.17.2-1 (continued)

MEETING SCHEDULE
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

DATE	LOCATION	GROUP	PURPOSE
4/25/91	Tampa Tribune Office	Editorial Board	Project Update and informational exchange
4/26/91	FDOT District Office	CATCH Representatives	Discussion of alternative proposed by CATCH
5/7/91	Brandon	Builders Assoc/Trade Expo	Project presentation
6/3/91	Brandon	CATCH	Review of project alternative
6/6/91	Brandon	Chamber of Commerce/Transportation Committee	Project update
6/14/91	Brandon	CATCH	Review of alternative proposed by CATCH
6/24/91	THCEA	THCEA	Project update
6/26/91	THCEA	Chris Corr/State Representative	Project overview
7/2/91	HCCCPC	SR 60 Scenic Corridor Task Force	Project overview
7/10/91	Brandon	Local residents/BCACAlliance	Review of citizen comments on draft reports
7/22/91	THCEA	THCEA	Project update
8/1/91	Brandon	Brandon Chamber of Commerce/Transportation Committee	Project update
8/15/91	Brandon	Chamber of Commerce/Transportation Day	Displays for public review
8/15/91	Brandon	Local residents	Project overview
8/26/91	THCEA	THCEA	Project update
9/23/91	BSHS	Public	Public hearing
10/28/91	THCEA	THCEA	Prlject update
10/29/91	Brandon	Tau Bay Realty	Project overview and discussion
11/25/91	THCEA	THCEA	Progress report and alternative recommendation
12/2/91	BSHS	Public	Public meeting regarding alternative recommendation

* See notes from page 1.

TABLE 8.17.2-1 (continued)

MEETING SCHEDULE
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

DATE	LOCATION	GROUP	PURPOSE
12/6/91	HCCCPC	Bill Booth	Project briefing for Booth'spresentation for HCCCPC
12/10/91	Project offices	Local residents	Review of alternative recommendation
12/16/91	THCEA	THCEA	Project update
1/3/92	Project offices	Local residents	Review of alternative recommendation
1/9/92	THCEA	Property owner representatives	Review of alternative recommendation
1/22/92	Brandon	Rotary Club of Tampa East	Project overview
1/27/92	THCEA	THCEA	Project update
1/28/92	Project offices	Local residents	Review of alternative recommendation
2/4/92	MPO Board room	MPO	Respond to questions regarding alternative recommendation
2/20/92	BCC	Commissioner Joe Chillura	Project briefing
2/24/92	THCEA	THCEA	Project update
2/25/92	Brandon	Chamber of Commerce/full membership	Project presentation and overview
3/5/92	Brandon	Public meeting by Commissioner Chillura	Assistedquestion and answer by Commissioner
3/10/92	Project offices	Local residents	Project review
3/11/92	Project offices	Local residents	Project review
3/23/92	THCEA	THCEA	Project update
4/13/92	HCCCPCBoard room	HCCCPC	Project presentation and overview
4/27/92	THCEA	THCEA	Project update
4/27/92	HCCCPC	HCCCPCstaff	Project overview
5/18/92	THCEA	THCEA	Project update

* See notes on page 1.

TABLE 8.17.2-1 (continued)

MEETING SCHEDULE
TAMPA SOUTH CROSSTOWN EXTENSION PD&E STUDY

DATE	LOCATION	GROUP	PURPOSE
5/20/92	Brandon	HCCCPC	Project review meeting by HCCCPC
6/22/92	THCEA	THCEA	Recommended preferred alternative (revised)
7/27/92	THCEA	THCEA	Project update
8/20/92	Brandon	Chamber of Commerce/Transportation Day	Project presentation
8/24/92	THCEA	THCEA	Project update
9/28/92	THCEA	THCEA	Project update
10/26/92	THCEA	THCEA	Project update
2/16/93	BSHS	PUBLIC	PUBLIC HEARING

* See notes on page 1.

- Homeowner associations of neighborhoods located within the study area;

- Elected and appointed officials and appropriate staff of Hillsborough County, Polk County, the Tampa Port Authority, and Tampa Urban Area Metropolitan Planning Organization, the City of Tampa and Plant City;

- State and Federal Agencies such as Florida Department of Environmental Regulation, Florida Department of Transportation, Southwest Florida Water Management District, Florida Division of Historical Resources, Florida Department of Natural Resources, Florida Game & Freshwater Fish Commission, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency and Tampa Bay Regional Planning Council;

- Environmental groups, including the Florida Audubon Society, Tampa Audubon Society, Sierra Club, Hillsborough Wildlife Federation, Citizens for Alafia River Preservation, and Alafia River Basin Board;

- Civic and professional groups such as the Greater Brandon Chamber of Commerce, Hillsborough Association of Chambers of Commerce,

Kiwanis, Rotary, Retail Merchant Associations, Bar Association of Hillsborough County, Board of Realtors, Home Builders Association, Brandon Area Citizens Council, Brandon Crosstown Action Committee, Brandon Crosstown Action Committee Alliance, and the Citizens Against the Crosstown Hook-Up (CATCH);

- Media, including newspapers, radio stations, television stations, and magazines which cover Hillsborough County and the Brandon area;

- Hillsborough County Public School System, and private schools within the study area; and

- Tampa-Hillsborough County Expressway Authority's Technical Review Committee and Environmental Advisory Group.

8.17.2.2 Monthly Newsletter

A monthly newsletter describing progress of the study and announcing upcoming public meetings was prepared and distributed to every person, association, and organization on the mailing list. An average of 2,600 newsletters were mailed out each month over the period of October 1989 through November 1990. Additional mailings were made just prior to and

after the September, 1991 Public Hearing. A sample newsletter is provided in the Appendix.

8.17.2.3 Neighborhood and Small Group Meetings

Several neighborhood and small group meetings were held throughout the planning period (see Table 8.17.2-1). These meetings allowed more personal involvement by the individuals most directly affected by the alignments under study. Meetings were also held with the leaders of these neighborhoods and small groups, and when requested by each group. Meetings were held after normal working hours to enhance participation.

During 1992 the Hillsborough County Area MPO initiated a Brandon Task force to consider transportation issues focused on the Brandon unincorporated area including the proposed expressway extension. The MPO held a public hearing on May 26, 1993. After the hearing, the MPO voted to accept the task force recommendation and remove the limited access extension of the Crosstown Expressway from the 2010 Long Range Transportation Plan.

8.17.2.4 Response to Public Questions

The project's consultant, Brown & Root-Genesis Engineering Company, was available during regular working hours to respond to questions from the public. A record of telephone conversations and meetings was maintained. In addition, the public could review maps and other data collected (as available) at the offices of Brown & Root-Genesis Engineering Company. The availability of the consultant provided another opportunity for the public to keep informed about the study.

8.17.2.5 Information Center

To facilitate the flow of information, an information center was opened in the Brandon area located at Bloomingdale Plaza (southeast corner of Bloomingdale Avenue and John Moore Road). The center was open every Tuesday, Wednesday and Thursday from 4:00 p.m. to 8:00 p.m. This arrangement provided a more convenient location and time for reviewing information, especially for those individuals affected by the extension. The center attracted an average of 50 visitors each month. The center was operated from November 1989 through November 1990.

8.17.2.6 Public Information Meetings

Three public information meetings were held in October 1989, January 1990 and June 1990. These meetings were publicized through the monthly newsletter and press releases. They were held in an informal setting, providing an opportunity to inform the public about the study and to receive public comment. The purpose of each meeting is described below:

October 25, 1989	Present data collected for study area and initial alternative corridors. Approximately 800 people attended.
January 31, 1990	Present results of corridor analysis for 50 alternative alignments. Approximately 1,000 people attended.
June 28, 1990	Present results of conceptual design analysis for seven alternative alignments. Approximately 300 people attended.

8.17.2.7 Alternative Public Meetings

The alternatives public meeting was held on June 28, 1990 to present analysis of the final seven alignments. Approximately 300 people attended.

8.17.2.8 Public Hearing

The Public Hearing was held on September 23, 1991 to collect formal public comment on the preferred alignment. Approximately 600 people attended the Public Hearing. On December 2, 1991 a second public hearing, called for by action of the THCEA, was held to present the preferred alternative. Approximately 200 people attended. On February 16, 1993, a third public hearing was held to present to the public the change in the western terminus, as a result of comments received at the December 2, 1991 pubic hearing, and to fulfill a special public hearing requirement for the Expressway Authority as outlined in Florida Statute 348.52. Approximately 150 people attended. The preferred alternative is described in Section 7, and Section 8..

8.17.3 Advisory Committees

Two advisory committees were formed to assist the Tampa-Hillsborough County Expressway Authority in making decisions during the study, and they are described below.

- Technical Review Committee - formed to provide third party input on concerns of a technical nature, represented by governing jurisdictions and other expertise, such as: Hillsborough County (Engineering Services, Public Utilities, Parks and Recreation and Planning and Zoning), Greater Tampa Chamber of Commerce, Tampa Urban Area Metropolitan Planning Organization, Hillsborough County Public School System, CSX Railroad, Brandon Chamber of Commerce, Hillsborough County City-County Planning Commission, Hillsborough County Sheriff's Department, Florida Trucking Association, Tampa Port Authority, Florida Highway Patrol and Florida Department of Transportation.

- Environmental Advisory Group - formed to provide third party input on environmental concerns, represented by state and federal permitting agencies and other expertise, such as: Florida Department of Environmental Regulation, Florida Game and Freshwater Fish

Commission, Florida Natural Areas Inventory, Southwest Florida Water Management District, US Army Corps of Engineers, Florida Defenders of the Environment, Florida Audubon Society, Tampa Audubon Society, Sierra Club, Gopher Tortoise Council, Alafia River Basin Board, Florida Wildlife Federation, Citizens for Alafia River Preservation, and Florida Department of Transportation.

8.17.4 Concluding Statement

The Tampa-Hillsborough County Expressway Authority, the Florida Department of Transportation and the Federal Highway Administration, will not make a final decision on the proposed action, or any alternative, until a public hearing has been held on this project and all comments received have been taken into consideration. The Public Hearing for this project was held September 23, 1991. Following consultation with FDOT, the THCEA, and after a second public hearing in December, 1991 a preferred alternative was selected. Further responding to public comment the preferred alternative was amended by FDOT and the THCEA in June 1992. This preferred alternative was presented to the public during a public hearing held February 16, 1993. The preferred alternative is addressed in Section 7, and Section 8.

8.18 (Section Deleted)

8.19 Drainage

8.19.1 Floodplains

The current terminus of the Tampa South Crosstown Expressway at I-75 is located within the 100-year floodplain of the Delaney Creek Basin. As a result, alignment 3A encroaches upon this floodplain.

The proposed eastern terminus is located in the Turkey Creek Watershed. Alignment 3A does not encroach upon this floodplain. The 100-year floodplains are shown on Figure 3.1.7-2. Flood Insurance Rate Maps (FIRM) issued by the Federal Emergency Management Agency (FEMA) were used to ascertain each alignment's relationship with the floodplain. Table 8.19.1-1 shows the total volume of encroachment of alignment 3A.

The transverse and longitudinal encroachment length for alignment 3A is shown in Table 8.19.1-2.

FEMA has designated a floodway for Delaney Creek west of US 301. The portion of Delaney Creek east of US 301, including the Expressway Extension study area, does not have a FEMA designated floodway. Regulatory Criteria recommended in the Delaney Creek, Stormwater Management Master Plan (SMMP) prepared for the Southwest Florida

Water Management District (SWFWMD) and the Alafia River Basin Board in 1986, have been adopted by Hillsborough County and SWFWMD.

It was recommended new development meet these criteria:

- Compensating storage must be provided for any encroachment into the 100-year floodplain.

TABLE 8.19.1-1

Volumes Displaced by 100-Year Floodplain Encroachments

Alignment	Delaney Creek Basin (AF)	Turkey Creek Watershed (AF)	Total Displaced (AF)*
3 A	83	---	83

*** NOTE: 1 acre foot (AF) = 43,560 cubic feet**

Source: Brown & Root-Genesis Engineering Company

TABLE 8.19.1-2

Summary of Floodplain Linear Encroachments

Alignment	Delaney Creek Basin (LF)	Turkey Creek Watershed (LF)	Total (LF)
3A	6400	---	6400

*** NOTE: All encroachments are longitudinal with the exception of Alignment 3A which crosses the main channel of Delaney Creek.**

- The peak rate of discharge resulting from the 100-year 24-hour storm under post-development conditions must not exceed the pre-development peak rate of runoff from the 10-year 24-hour storm.

- The volume of runoff discharged from the 100-year 24-hour storm under post-development conditions must not exceed that amount of runoff produced from the pre-development 100-year 24-hour storm.

Hillsborough County has changed its requirements with regard to peak discharge since the SMMP was prepared. SWFWMD regulation states that with regard to quantity, requirements are to be the same as Hillsborough County. Hillsborough County now requires that the peak rate of discharge shall not exceed 0.18 cubic feet per second (CFS)/acre.

The conceptual design of the Tampa South Crosstown Extension within the Delaney Creek Basin was prepared to meet these criteria. Compensating storage of 83 acre feet (AF) has been proposed for the project floodplain encroachments. This compensation would be provided adjacent to Delaney Creek itself as recommended in the Delaney Creek SMMP, and this proposed compensation area would utilize an offline storage concept. The large offline storage system would be separated from the creek by a linear maintenance berm. The berm would be elevated above the 100-year

flood elevation. A large (low velocity) connection will be provided at the upstream end through which flood flows can pass. A small channel would be used to move a portion of low flows through the storage area. The low-flow channel should be shallow and meandered where possible and its flow line should be placed such that it does not create a full diversion of water from the creek channel. A small discharge pipe should be used on the down stream end for low flow discharge back to the Creek. Under flood conditions, flow through this pipe would be inconsequential. Therefore, flood waters would enter the system and be detained.

In addition to provision of compensating storage, these facilities present a unique opportunity for environmental enhancement of beneficial floodplain values through creation of diverse habitat (that currently does not exist) as well as improvements to water quality. Therefore, as part of their design, consideration should be given to grading in the storage area that would produce variations in water depth and establishment of a diversity of native wetland vegetation. Impacts on existing floodplain values are shown in Table 8.19.1-3.

The regulatory criteria implemented for the Delaney Creek Basin prevent the support of incompatible, floodplain development by requiring that new development provide compensating floodplain storage and that the peak

TABLE 8.19.1-3

Natural and Beneficial Floodplain Values Impacted

Category	Alignment 3 A
Fish	0
Wildlife	1
Plants	1
Open Space	4
Natural Beauty	0
Scientific Study	0
Outdoor Recreation	0
Agriculture	0
Aquaculture	0
Forestry	0
Flood Moderation	0
Water Quality Maintenance	0
Ground Water Recharge	2

NOTE: Numerical Range of Impact - 0 = Negligible
1-2 = Slight
3-4 = Moderate
5-6 = Heavy

Open Space and Ground Water Recharge cannot be restored since the alignment will occupy the same space. Impact on wildlife and plants are minimal.

Source: Brown & Root-Genesis Engineering Company

rate of discharge under post-development conditions must not exceed 0.18 cfs/acre.

Based on the analysis of the alignment 3A in regard to the study area and the impact on floodplain values, a risk assessment is assigned. Table 8.19.1-4 shows the risk categories and evaluation level for alignment 3A. All risk assessments and risk evaluation levels are based on the FDOT Drainage Manual criteria.

The following assumptions apply to formulating the risk category assignment. Alignment 3A is viewed as having a negligible effect on the rise of backwater and 100-year floodplain elevations. This is due to the requirement that there will be no increase in runoff to the positive outfall. This will be achieved by design for attenuation of the difference of pre- and post-development runoff as determined by the critical storm duration and the volumetric displacement of floodplain encroachment and will be stored in a compensation area.

TABLE 8.19.1-4

Comparison of Risk Categories and Evaluation Levels for the Individual Alignments

Risk Categories	Alignment 3A
1	
2	
3	*
4	

Risk Evaluation Levels	Alignment 3A
1	
2	
3	*

Source: Brown & Root-Genesis

Alignment 3A was classified by the impact upon existing drainage structures, since modifications to these structures are necessitated. A further assumption is made, stating that only hydraulically equivalent structures would be utilized, thus negating headwater/tailwater elevation changes.

A more thorough discussion of floodplains and associated structures is presented in the Location Hydraulic Report and addendum prepared as part of this study.

8.19.2 Delaney Creek Bridge Hydraulics

Alignment 3A would have a transverse crossing of the Delaney Creek channel. The Delaney Creek Basin is considered by Hillsborough County to be an inadequate outfall. Consequently, flooding conditions do occur in this basin. The following is a description of the Pre-Development condition of the Delaney Creek Basin constituent areas shown in Figure 8.19.2-1. Areas which flood occasionally during heavy rain storms are listed in Table 8.19.2-1.

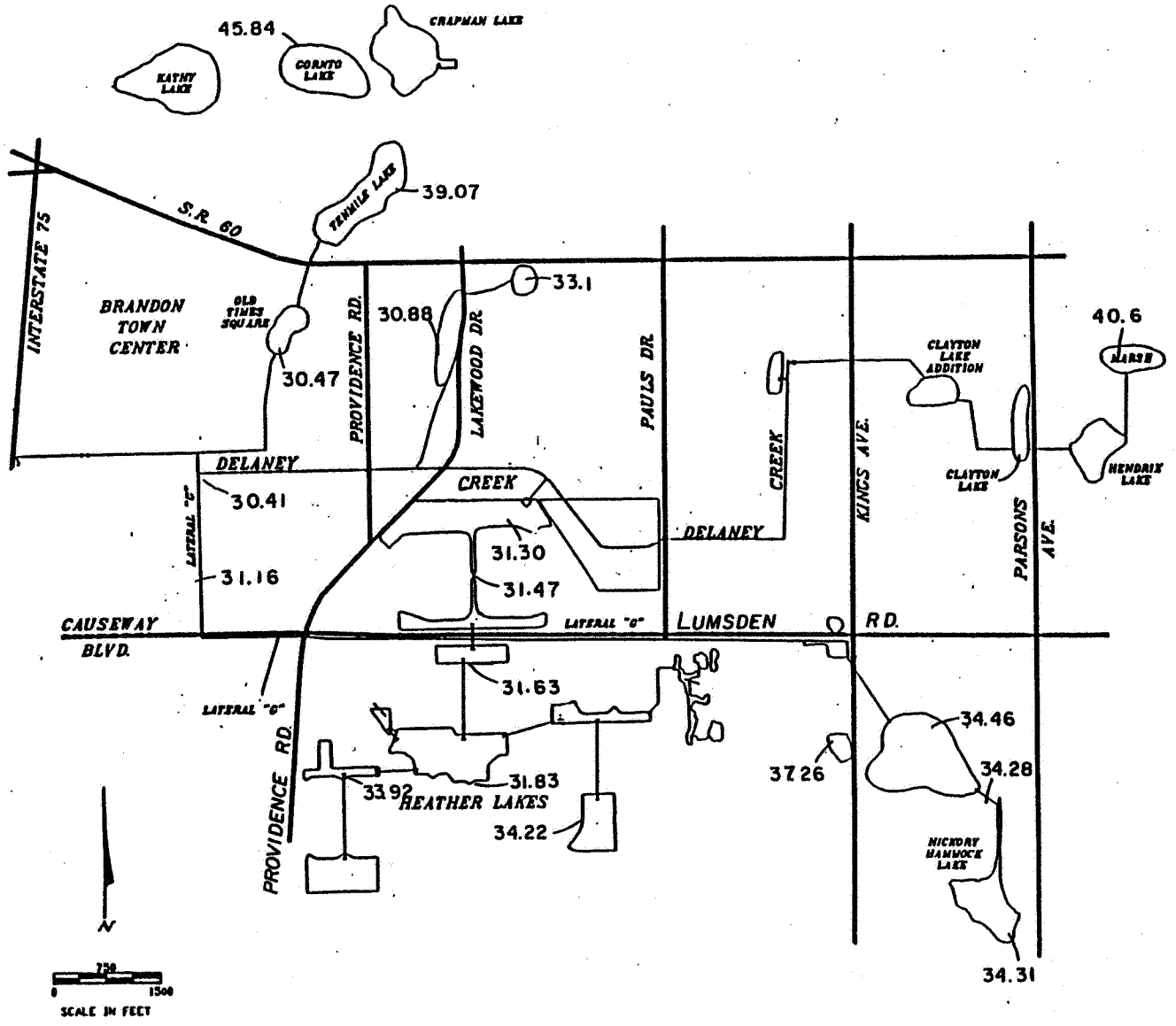
TABLE 8.19.2-1

FLOODING IN THE STUDY AREA

These areas indicated below have high incidences of flooding in heavy, short duration rainstorms that occasionally occur.

	Location	Flood Impact
1	Southeast Corner of Lumsden Avenue and Providence Road	Long duration flooding of South Brandon Center Shopping Plaza parking lot. Residential units have front yards flooded.
2	SR 60 - North side just east of Limona Road	High water levels reported on Sand Pond during heavy rain storms. Residents report that pond water flows over the sea walls. This pond was originally severed when the existing SR 60 was built.
3	Robertson Drive, just west of Parsons Avenue	Long term standing water

Source: Brown & Root-Genesis



NOTE: ALL ELEVATIONS IN FEET (MSL)

Source: Ghioto, Sinhofen & Associates

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Existing Delaney Creek 100-Year Stormwater

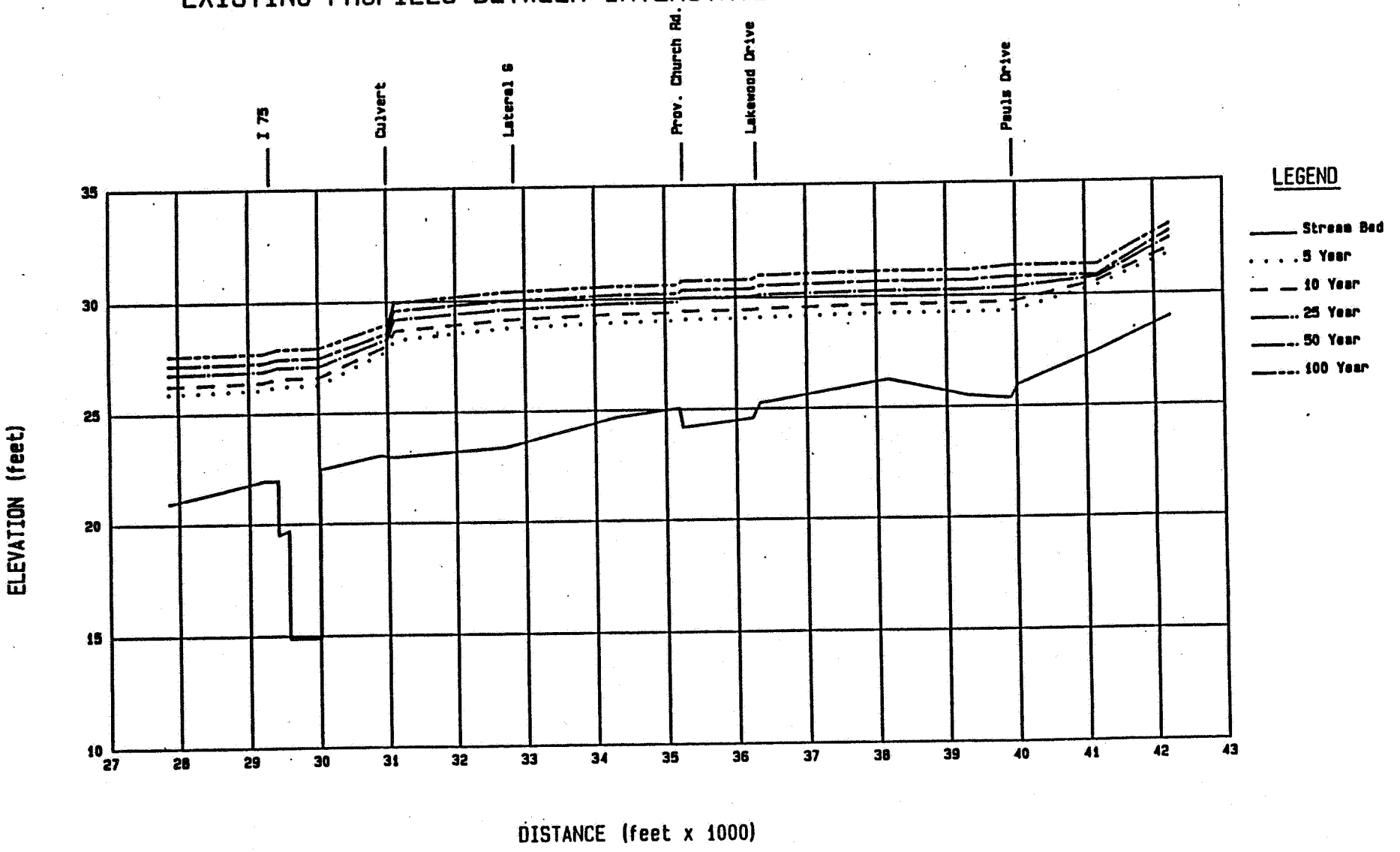
Fig. 3.10-1

The extent of the Delaney Creek Floodplain is based on the FIRM. Information available from Hillsborough County has been used to establish the floodwater elevations in the floodplain.

Figure 8.19.2-1 indicates the 100-year flood elevations of the Delaney Creek watershed. These flood elevations were derived from the Hillsborough County's proprietary computer program that is used to determine effects of floodplain development on Delaney Creek. Delaney Creek's headwaters originate just east of Pauls Drive. Figure 8.19.2-2 indicates the water surface profile from the headwaters to I-75. Frequent and long duration flooding occurs between Interstate 75 and Pauls Drive. Spoil material has been placed on either side of Delaney Creek forming berms. There are existing gaps in the berms that allow flood waters to inundate low lying areas.

Pasture areas just east of I-75 experience approximately 2 feet of flooding during the 100 year, 24-hour storm. Flooding is predicted to continue for over 40 hours in this area, following the 100 year, 24-hour storm event. In the area just west of Providence Road, the flooding ranges from 2 to 3 feet with a flood duration of over 48 hours. Flooding between Providence Road and Lakewood Drive is about 1 foot for the 100 year, 24-hour storm.

EXISTING PROFILES BETWEEN INTERSTATE 75 AND PAULS DRIVE



Source: Ghioto, Singhofen & Associates, Inc.

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Delaney Creek Water Surface Profiles

Fig. 19.2

There is a relatively large wetland in this area just north of Delaney Creek which is connected by a small swale ditch. The wetland is typically inundated under normal conditions. Flood level elevation in this wetland is 29.5 feet for the 100 year storm. Flooding will continue for over 40 hours in this area.

The Ten Mile Lake system is located north of SR 60, east of I-75 and west of Lakewood Drive. The outfall for the system flows south under SR 60 via a 60 inch circular culvert into a lake located within the Old Times Square Development. Stormwater leaves this lake and flows into the

Delaney Creek system via Lateral "G". The 100 year, 24-hour Flood Level for Ten Mile Lake is 39.08 feet. No apparent flooding problems occur between Ten Mile Lake and the confluence with Delaney Creek.

The lateral "G" system joins the Delaney Creek Basin approximately 200 feet south of the Ten Mile Lake system. Lateral "G" flows from east to west for a distance of 9,500 feet from Kings Avenue to a crossing under Causeway Boulevard. Flood levels in lateral "G" are influenced by the Hickory Hammock area which is located east of Kings Avenue and ties into lateral "G". Kings Avenue will overtop at elevation 34.0 feet. The

100 year flood level for Hickory Hammock is 32.13 feet. There are no apparent flooding problems along Lateral "G".

Heather Lakes is a residential development located north and south of Lumsden Road between Pauls Drive and Providence Road. The drainage system is comprised of a series of interconnected lakes. The lakes are connected by a system of storm sewers and culverts. A series of lakes in the residential area south of Lumsden Road flows to a collection lake and then is conveyed north through a 68" x 43" elliptical pipe under Lumsden Road. Flow continues north to another lake which has a controlled outfall to Delaney Creek. The 100 year, 24-hour storm elevation is 31.63 feet for the area immediately south of Lumsden Road and 31.47 feet for the area immediately north of Lumsden Road.

Flooding of commercial and residential properties occurs in the southeastern quadrant of Lumsden Road and Providence Road. This occurs after a storm event. The Brandon Center South Shopping Plaza experiences flooding of most of the parking lot area during a storm event.

The Clayton Lake System begins east of Parsons Avenue in the Hendrix Lake area shown on Figure 8.19.2-1. A freshwater marsh located north of Hendrix Lake is connected to the lake by a small ditch. Hendrix Lake is

connected to Clayton Lake by a 36 inch circular concrete culvert. Clayton Lake is then interconnected with the Clayton Lake addition located to the northwest. Drainage enters a storm sewer system at the Clayton Lake addition. The storm sewer flows 200 feet in an east to west direction to a small retention/detention pond. A control structure then regulates outfall into Delaney Creek. The Clayton Lake System has no apparent flooding problem.

As can be seen in the above descriptions, major problem areas occur within the Delaney Creek proper basin and its associated Heather Lakes system.

The Delaney Creek channel does not have dedicated ROW or easement for either the channel itself or for maintenance berms. Hillsborough County has plans to acquire such, but has postponed these plans indefinitely. Future studies planned by Hillsborough County may be available to assist final design.

The SMMP referenced previously recommends Hillsborough County obtain maintenance rights-of-way consisting of the improved top width of the creek plus 20 feet on both sides for maintenance access. The SMMP recommended that for all bridges west of the Crosstown Expressway,

should replacement be necessary that the allowable head loss should be set at 0.1 feet for all storm analysis. Hillsborough County has indicated that due to the chronic flooding conditions in this portion of the basin, that an increase in the 100 year flood elevation of more than 0.1 foot is considered significant. Should an alignment be selected, an analysis of the Delaney Creek floodplain will be required during final design. Design will need to ensure that the cross drain capacity provided by the project for longitudinal and transverse encroachments is sufficient to meet the criteria stated above. A proprietary program, maintained by Hillsborough County should be used to determine the impact on the Delaney Creek 100 year floodplain. It is not anticipated that the crossing of Delaney Creek, nor the future provisions of Hillsborough County, will affect accommodation of Alternative 3A via use of an appropriate bridge.

8.19.3 Storm Drainage

Closed storm sewer systems are proposed for those typical sections with frontage roads. Areas of limited access right-of-way will be drained and provide treatment via drainage swales and ditches with ditch blocks and detention/retention ponds where required.

Based upon the Tampa South Crosstown Expressway's importance as an evacuation route and transportation corridor, it is recommended that Interstate design flood frequencies be used. These frequencies and those for the frontage roads are summarized in attached Table 8.19.3-1.

Also of major importance is establishment of the design high water (DHW) for setting the profile grade. The roadway base would be set 3 feet above the DHW. A formal hydraulic analysis was not undertaken for this PD&E study to ascertain DHW levels. 100 year flood plain elevations, as shown on the FIRM maps, were used as a reference to set the preliminary profile grades allowing for one half of a travel lane to be dry for the 100 year flood. Grades for the proposed action will be determined during final design.

8.19.4 Retention/Detention Ponds

The preliminary retention/detention ponds are shown on the preliminary design plans in the Appendix. Several factors regarding the ponds were considered in their placement. Minimal residential and commercial unit taking was done. Whenever possible, the pond locations were located in open field areas. The ponds are also set back from commercial frontage

TABLE 8.19.3-1

DESIGN FREQUENCIES

Facility Type	Frequency (yr.)
Culverts (Expressway)	50 (minimum)
Bridges (Expressway in Delaney Creek Basin)	50
Bridges & Culverts (High use or essential highways)	50
Storm Drainage System (Expressway)	10
Storm Drainage System (Frontage Road System)	3

areas whenever possible to minimize high real estate costs. Ponds located in the 100 year floodplain will be bermed to avoid infiltration of flood waters.

The lowest lying areas around alignment 3A were selected as candidate locations for the ponds. The ponds will serve two primary functions. First, the net storm runoff will be directed to the ponds to accomplish quality and quantity storage requirements. Secondly, the ponds will aid in floodplain compensating storage since stormwater entering the ponds after the storm peak can be credited for floodplain compensation. To arrive at the peliminary pond sizes, an estimate using the SCS method was made to ascertain the net stormwater runoff.

A comparison was made between historic runoff and project runoff. A 25-year, 24-hour storm event was used for areas with a positive outfall. A 100-year, 24-year storm event was used for areas in a closed basin.

8.20 Soils

The western portion of the study area from the existing Crosstown/I-75 Interchange, generally within the 100 year floodplain shown in Figure 3.1.7-2, consist of poorly to

very poorly drained soils with the seasonal high groundwater levels ranging from 0.0 to 1.0 feet below the ground surface.

As alignment 3A progresses towards the east out of the floodplain, the upper soil conditions are generally well to excessively drained. The Soil Conservation Service Soil series for Hillsborough County shows seasonal high groundwater levels greater than 6.0 feet. Hand auger borings conducted to depth of 13 feet along Lumsden Road between Parsons Avenue and St. Cloud Avenue in conjunction with the geotechnical report did not encounter ground water. Subsequent installation of piezometers along this stretch of Lumsden Road indicated initial groundwater readings between 11.9' to 14.3'.

Readings in these piezometers subsequently varied between 15.7' to 23.5' below the existing ground surface. More detail with regard to geotechnical information is provided in the Geotechnical Report in the appendix.

8.20.1 Pavement Design

In the western portion of the study area, the groundwater level is near or above the natural ground surface during the summer months. The roadway section will need to be elevated on embankment fill to provide the proper separation between the pavement base and the groundwater

level. Underdrains could also be used to provide the separation. In areas where roadway cuts are planned, the groundwater elevations should also be considered.

The relatively clean sands from the highlands areas in the central portion of the study area are favorable for use as embankment fill. However, they will probably need to be stabilized using limerock or shell when they are used as pavement subgrade. The existing LBR of these soils is estimated in the range of 10 to 20. An LBR of 40 is needed for FDOT Type B stabilization.

8.20.2 Retention/Detention Areas

The majority of the soils east of Kings Avenue and west of Mulrennan Road have a high infiltration rate. The majority of the soils located west of Kings Avenue and east of US 301 have moderate to very slow infiltration rates. At the very eastern end of the study area, infiltration rates are unpredictable due to the phosphate mining activities. Soil test borings and infiltration tests (such as the double-ring infiltration test) should be performed at each proposed retention/detention area to determine site specific capabilities. The percolation rates in the Soil Survey Report were used to determine preliminary pond sizes. Actual

pond sizes and locations will be determined as part of the hydraulic analysis to be performed during final design.

8.20.3 Retaining Walls

The soil condition in the study area is generally favorable for support to above-grade proprietary walls. Unfavorable conditions may be encountered in any muck areas in the western portion of the study area. These areas, if affected, will require special techniques beyond the scope of this study.

8.20.4 Construction Excavations

Due to the anticipated loose natural soils across the study area, the walls of any construction excavation may be unstable. Shoring or laying the walls back to a slope of at least 2 horizontal to 1 vertical will be necessary. Also, due to the high seasonal high water levels in the western portion of the study area, dewatering of the construction excavations may be necessary. When dewatering is necessary, wellpoints or perimeter trenches could be utilized to dewater the area. The deep water levels encountered in the piezometers along Lumsden Road alignments indicate that

dewatering may not be necessary for excavations less than 10 feet deep in the highlands associated with the western portion of the study area.

8.20.5 Foundations

The soil conditions across the study area indicate that three foundation alternatives are feasible for the support of the Interstate 75 interchange bridges, and overpass bridges. These alternatives include:

- Shallow foundations
- Pile foundations
- Drilled shaft foundations

Shallow foundations would be the most favorable option in the central highlands portion of the study area. Shallow foundations may also be feasible in the west end of the study area. Near Interstate 75, dewatering may be needed. The shallow foundation alternative would consist of using shallow spread footings to support the bridge structures. Maximum allowable net bearing pressure values of 2,000 to 4,000 pounds per square foot may be available for design of spread footings. Footings should generally bear at least 2 to 4 feet below the finished grade. This

embedment is necessary to provide confinement of the bearing soils, and to achieve the recommended bearing pressure.

The pile foundation alternative would include precast concrete or H-piles driven into the Tampa Limestone Formation. Driven piles would be intended to transfer the structural loads through the looser upper soils to competent portions of the limestone formation. Individual piles may have capacities of 80 to 100 tons, based on total load. Pile sections capable of being driven with up to 100-ton capacity in this stratigraphy include:

- 14-inch by 14-inch prestressed precast concrete piles;
- 18-inch by 18-inch prestressed precast concrete piles;
- 24-inch by 24-inch prestressed precast concrete piles;
- 12 HP 53 H-piles.

Typically, the Tampa limestone is interbedded with seams of hard crystalline limestone "cap rock" and soft silts and clays. For the pile group to develop the required 100 tons per pile capacity, it is critical that no piles are tipped in the seamy limestone cap rock. Even though the cap rock may develop the required resistance for a single pile test, the group efficiency of a pile group bearing in the seamy cap rock could be greatly

reduced. Therefore, we recommend hard driving of the piles to minimize the risk of group punching.

The drilled shaft alternative would consist of drilled shafts embedded or "socketed" into the limestone. The table below is a summary of preliminary capacity estimates for drilled shaft foundations, with the accompanying limestone embedment requirements:

ROCK SOCKET	30-INCH SHAFT (TONS)	36-INCH SHAFT (TONS)	48-INCH SHAFT (TONS)
5-Foot Embedment	145	175	235
10-Foot Embedment	290	350	470
15-Foot Embedment	435	525	705

The above capacity estimates assume a limestone shear strength of 7.5 ksf. The maximum embedment depth of the shaft into the limestone should be 15 feet. The shafts would be installed using wet methods.

8.21 Structures

8.21.1 Overview

This section describes the various options available and recommendations for the bridge structures required for the Tampa Crosstown Expressway.

The intent of this section is to group all of the possible layouts into two general categories.

1. SR 60 Elevated Segment
2. Typical Overpass

Each general category was studied using multiple substructure and superstructure options ensuring uniformity in design criteria, material requirements and unit costs. Structural designs were based on FDOT structural design guidelines, AASHTO standard specifications for highway bridges, and Brown & Root's in-house structural design data base.

8.21.2 SR 60 Elevated Segment

The elevated roadway segment will consist of twin, parallel structures with an overall width of 43'-0" for each structure. The eastbound and westbound sections include two 12'-0" lanes with a 6'-0" inside shoulder and 10'-0" outside shoulder.

There is a wide range of structural types suited for an elevated freeway. Several preliminary schemes were reviewed and preliminary concepts laid

out for the proposed elevated segment. The superstructure options proposed include the following:

1. Florida Bulb-T 72" beams
2. AASHTO Type VI beams
3. Prestressed, precast trapezoidal box beams
4. Steel trapezoidal box girders
5. Steel plate girders
6. Cast-in-place, post tensioned-box
7. Segmental post tensioned-box

The overall viaduct aesthetics and minimizing construction cost and maintenance, dominated the study goals.

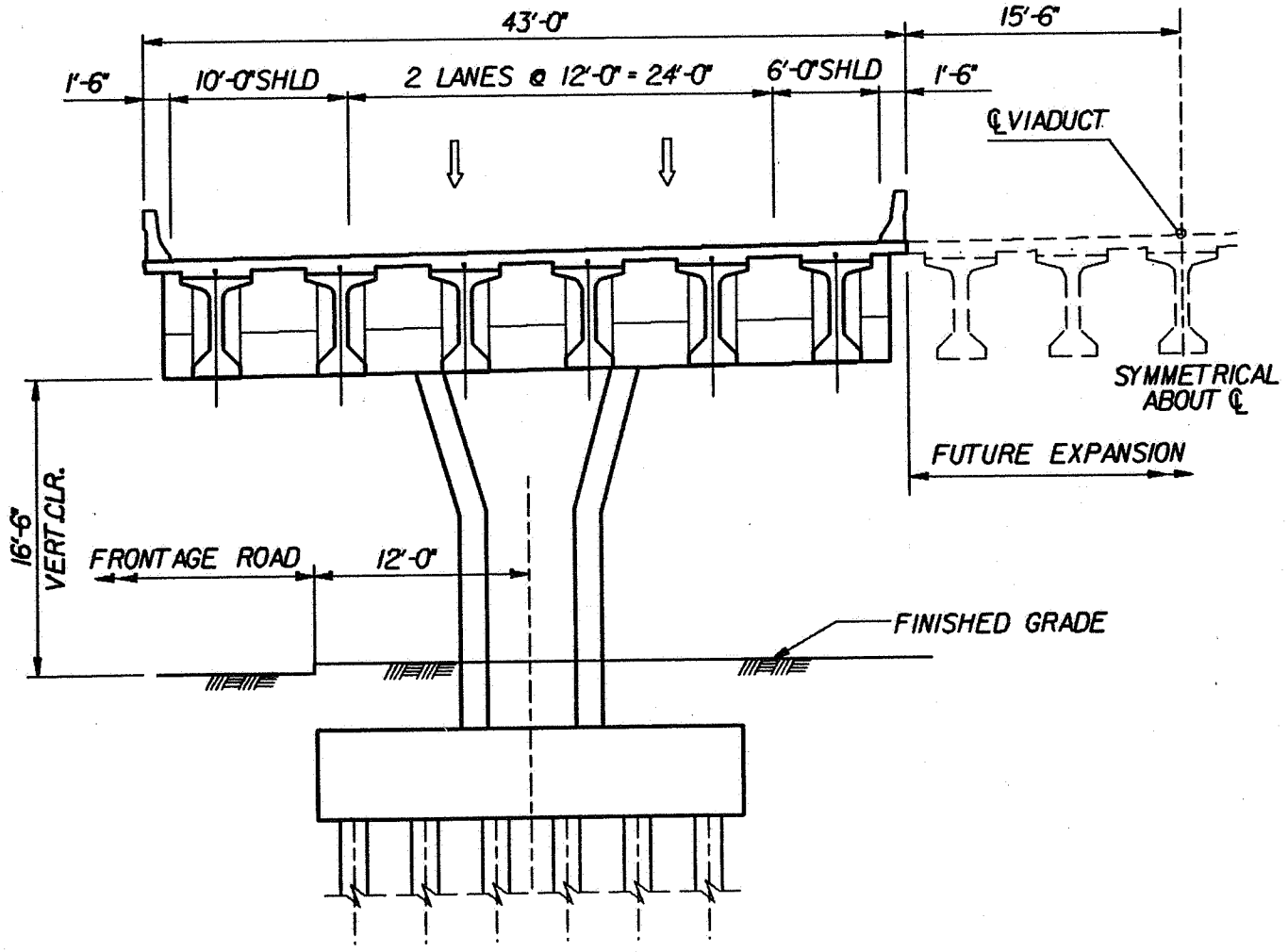
The seven basic superstructure options listed were examined for compatibility with the study goals and objectives.

Initially, it was determined that for the elevated segment a minimum span length of 112 feet is required. This span length would accommodate all the various cross street widths to pass under the viaduct. The design of each superstructure option resulted in the span lengths being adjusted to optimize cost effectiveness.

Option 1 - Florida Bulb-T 72" Beams

The design of this concept, shown by Figure 8.21-1, required 6 beams per span, spaced at 7'-0", with an 8" minimum slab thickness. A simple span design for both dead and live loads was utilized to determine an optimal span length of 128 feet. A minimum concrete strength of 6500 psi was used for the analysis.

Concern for substructure aesthetics resulted in the bent being evaluated as an inverted-T bent cap with a single flared type reinforced concrete



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FLORIDA BULB-T 72" BEAMS

Figure 8.21-1

column. The geotechnical study for the area, results in three types of possible foundation alternatives. As discussed in Section 8.20.5, these alternatives include shallow foundations, pile foundations, and drilled shaft foundations.

Shallow foundations would be the most favorable option in the sandy upland portion of the study area. The proposed viaduct will be located in the uplands; therefore, two types of foundations are possible. For the purpose of this report, a preliminary design for shallow spread footings and pile footings was investigated.

The spread footing foundation would require a footing approximately 36 feet wide by 25 feet long by 5 feet deep. The pile foundation would require a pile cap approximately 24 feet wide by 20 feet long by 5 feet deep with approximately 30-18 inch square prestressed concrete piles 50 feet long. The following table provides a cost comparison of the two foundation types described above.

Spread Footing Foundation

Item	Unit	Quantity	Unit Price	Amount
Class II conc (sub)	cy	187	$400	$74,800
Reinforcing steel (sub)	lb	37,400	$.45	$16,830
		Total for one footing =		$91,630

Pile Foundation

Item	Unit	Quantity	Unit Price	Amount
Class II conc (sub)	cy	89	$400	$35,600
Reinforcing steel (sub)	lb	17,800	$.45	$ 8,010
Prestressed pile (furnish)	lf	1,500	$ 45	$67,500
Prestressed pile (drive)	lf	1,500	$ 2	$ 3,000
		Total for one footing =		$114,110

The approximate cost difference between spread footing foundations and pile foundations is $22,480 per footing. The resulting cost difference per square foot of bridge is in a range from $3 to $4. Another consideration relates to the additional width required for spread footings which could affect right-of-way costs and maintenance of traffic. For the purpose of this report, pile foundations will be utilized since it is a more conservative approach.

Option 2 - AASHTO Type VI Beams

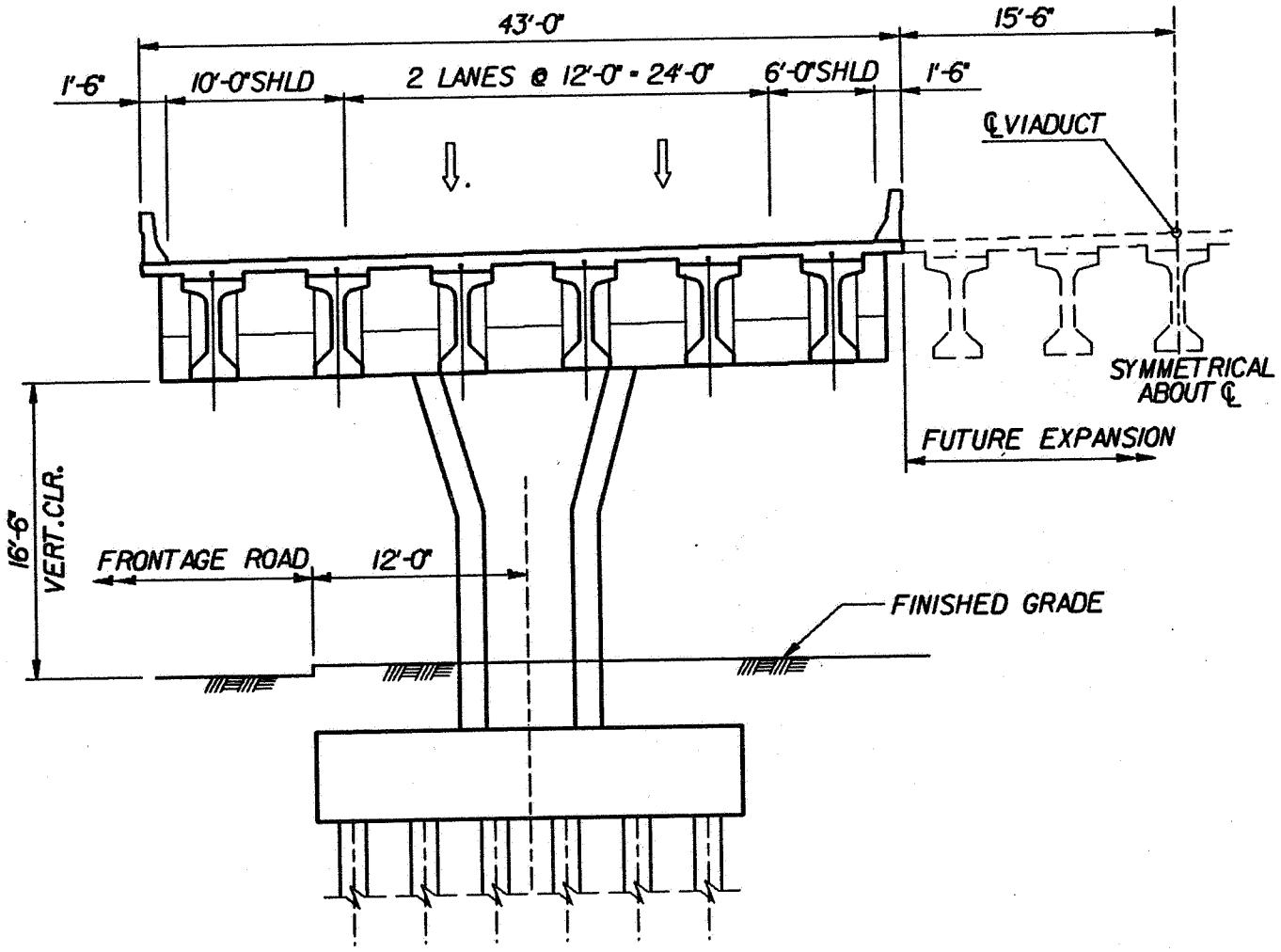
The design of this concept, shown by Figure 8.21-2, also required 6 beams per span, spaced at 7'-0", with an 8" minimum slab thickness. It was determined by design, to have an optimal span length of 143 feet (measured from center to center of bent), resulting in a beam length of 137' with minimum concrete strength of 6500 psi.

The same inverted T-bent was evaluated for Option 2 as described previously in Option 1.

Transporting the 137-foot long AASHTO-VI beams to the project site could be difficult. It may be feasible to use "spliced" beams which could be shipped in pieces and post-tensioned when erected. Spliced beams have been successful in numerous projects in Florida, and are feasible for spans up to 200 feet.

Option 3 - Prestressed Precast Trapezoidal Box Beams

The design of this concept, shown by Figure 8.21-3, required 4 beams per span, spaced at 10'-6", with an 8" minimum slab thickness. A simple span design for both dead and live loads was utilized to determine an optimal



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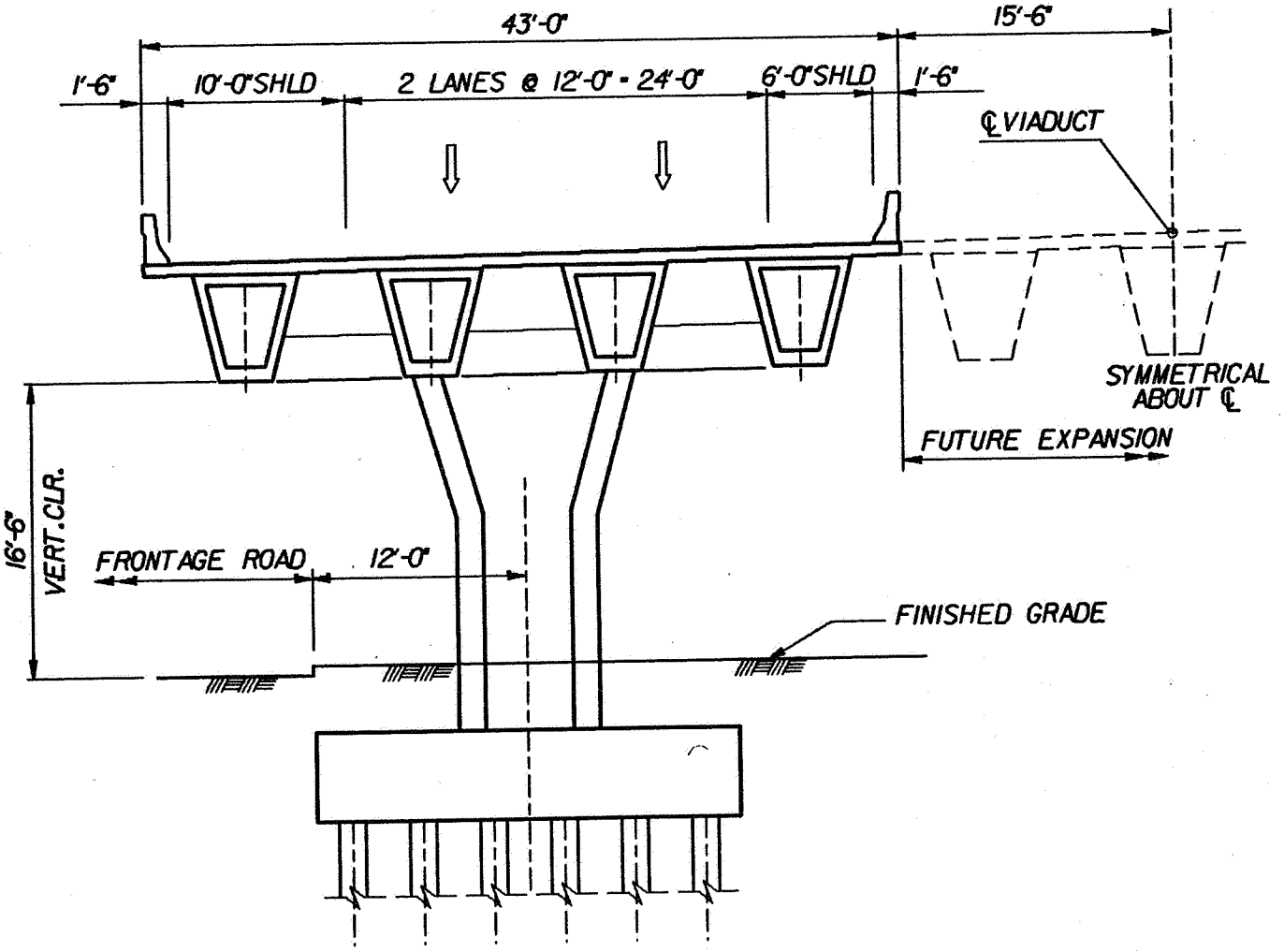
AASHTO - VI BEAMS

Figure 8.2.1-2



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PRESTRESSED TRAPEZOIDAL BOX BEAMS

Figure 8.21-3

span length of 145 feet resulting in a minimum concrete strength of 5500 psi. To assure uniformity, the superstructure depth was kept consistent with Options 1 and 2 resulting in a 72" deep box.

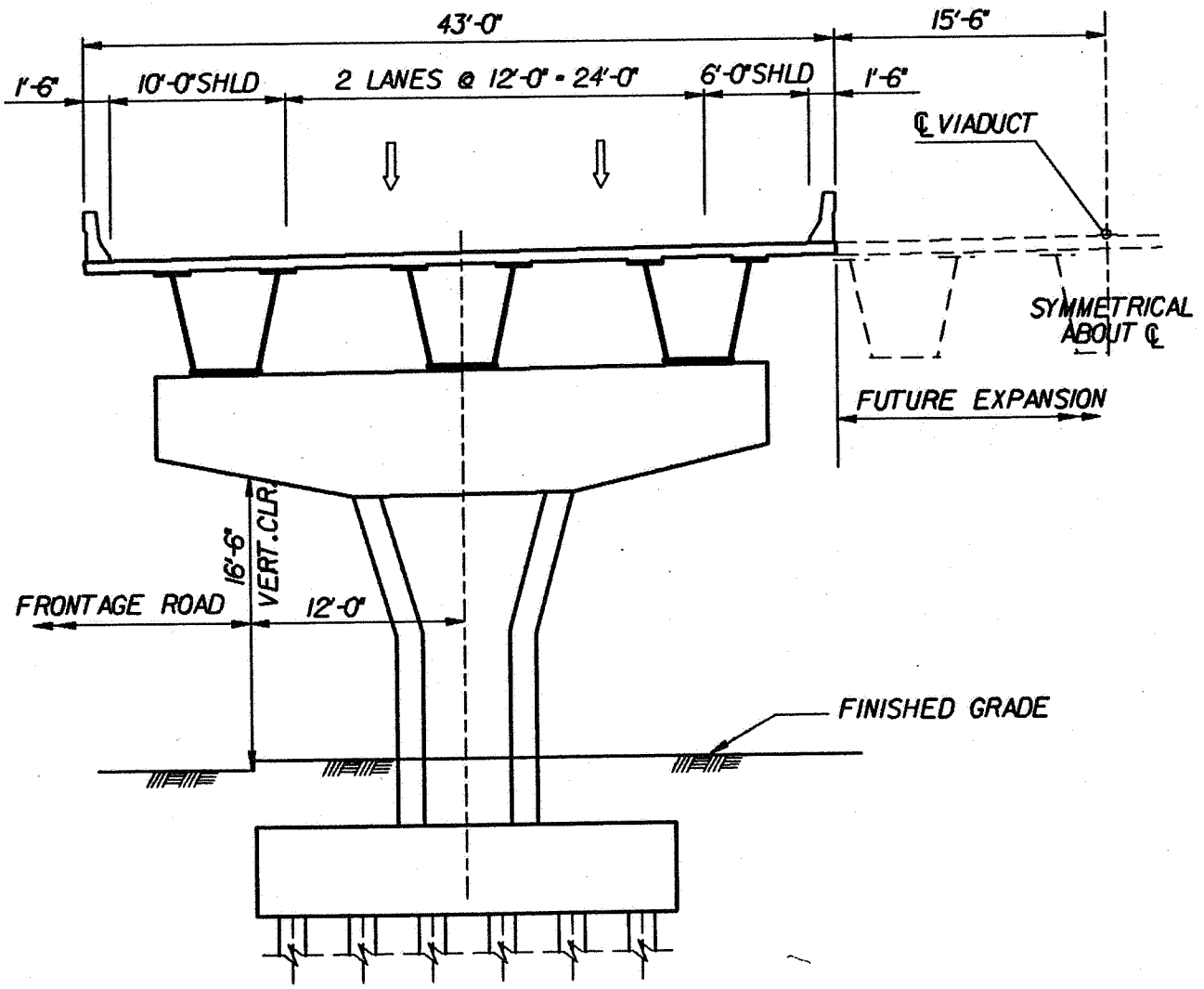
The same inverted-T bent was evaluated for Option 3 as described previously in Options 1 and 2.

Transporting the 145-foot box beam could also be difficult. Again, the beam could be shipped in pieces and post-tensioned when erected.

Option 4 - Steel Trapezoidal Box Girders

The design of this concept, shown by Figure 8.21-4, required 3 girders per span, spaced 13'-6", with an 8" minimum slab thickness.

Designing the girder using 3 span continuous design versus simple support resulted in the most economical section. Utilizing a continuous design over 3 spans and 50 ksi painted steel, it was determined that an optimal span length of 175 feet should be used. To assure uniformity, the superstructure depth was also kept consistent with the previous options.



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STEEL TRAPEZOIDAL BOX GIRDERS

Figure 8.21-4

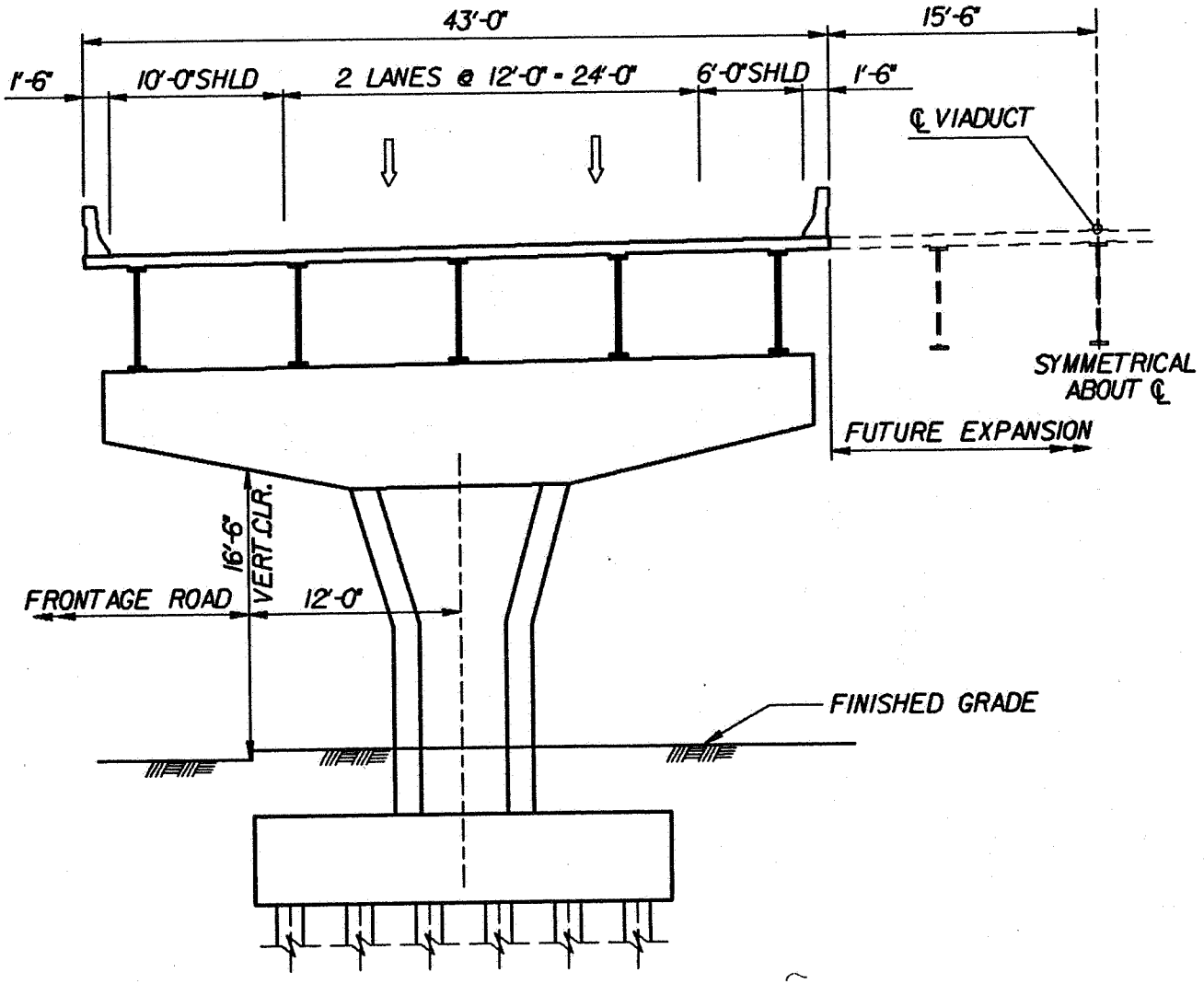
Transportation of the girders is not expected to pose a problem. The use of bolted field splices can reduce the beam segments into easily transported pieces.

The substructure was evaluated utilizing hammer-head bent cap due to the need for beam continuity, an inverted-T bent cap is not desirable. The remainder of the substructure should be consistent in type and size, as described in previous options.

Option 5 - Steel Plate Girders

The design of this concept, shown by Figure 8.21-5, required 5 girders per span, spaces at 9'-3", with an 8" minimum slab thickness. Utilizing the same continuous span arrangement as described Option 4 and 50 ksi painted steel, it was also determined that the optimal span length is 175 feet. As discussed in Option 4, transportation of the girders is not expected to pose a problem.

To assure uniformity, the same hammer-head bent was evaluated as in Option 4.



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STEEL PLATE GIRDERS

Figure 8.21-5

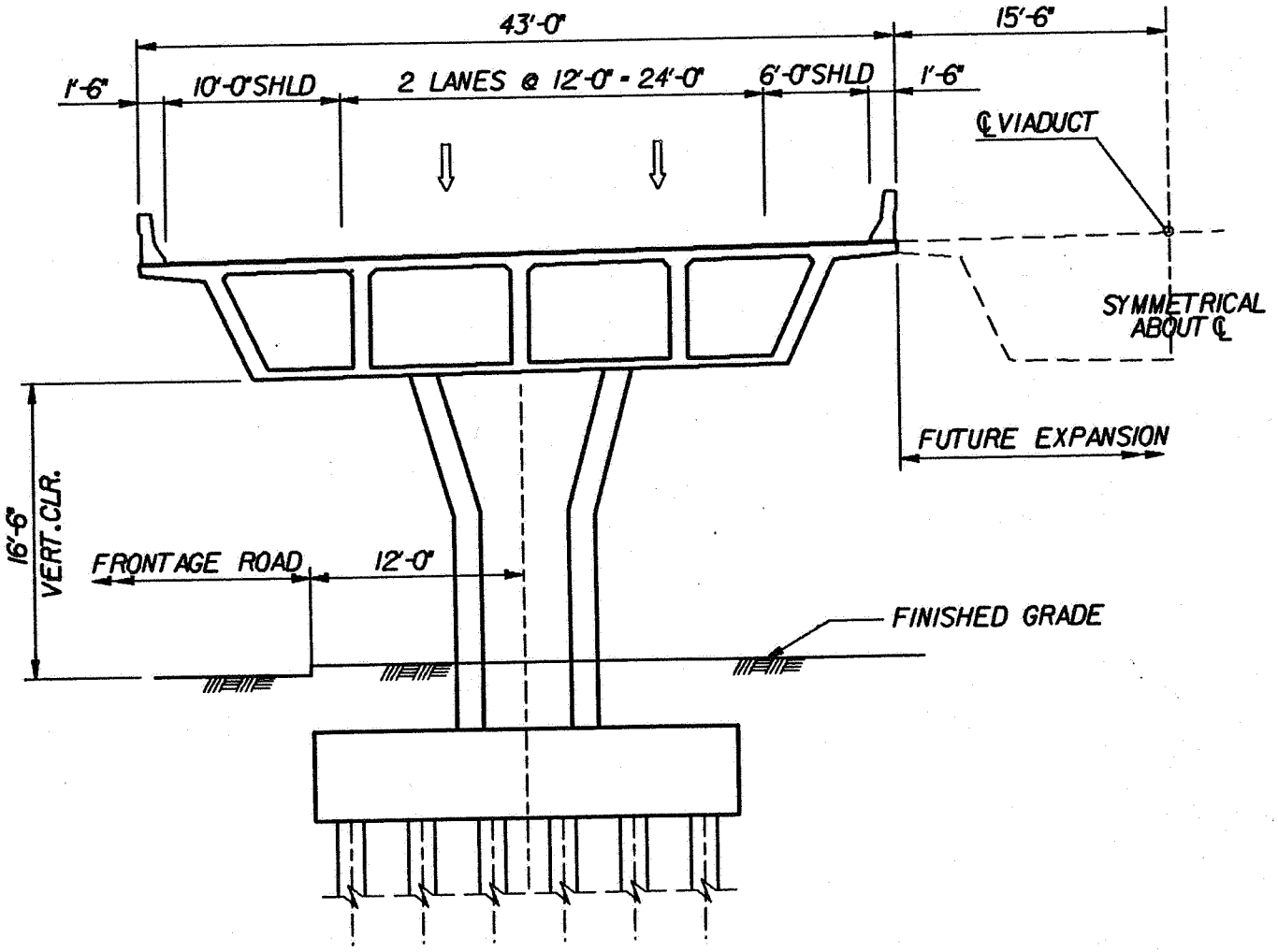
Option 6 - Cast-in-Place Post Tensioned Box

The design of this concept, shown by Figure 8.21-6, required a four-cell, 7-foot deep box with a top slab thickness of 8". The superstructure depth was kept consistent with the previous options to assure uniformity. To develop the most economical section, a continuous design over 3 spans was utilized. It was determined that the optional span length is 175 feet.

The extensive false work required for cast-in-place construction could be placed utilizing the unused area under the viaduct. The substructure consist of an integral diaphragm type bent cap with a column and foundation as described in the previous options.

Option 7 - Segmental Post-Tension Box

The design of this concept, shown by Figure 8.21-7, required a two cell 10-foot long, 8-foot deep precast segment. To assure uniformity, it also was determined that the optimal span length was 175 feet. Uniformity of cross-sections and the use of a precast interior web, allows the use of a single form for casting each segment. Special considerations to segment shapes and cross slopes must be taken into account at entrance and exit ramp locations.



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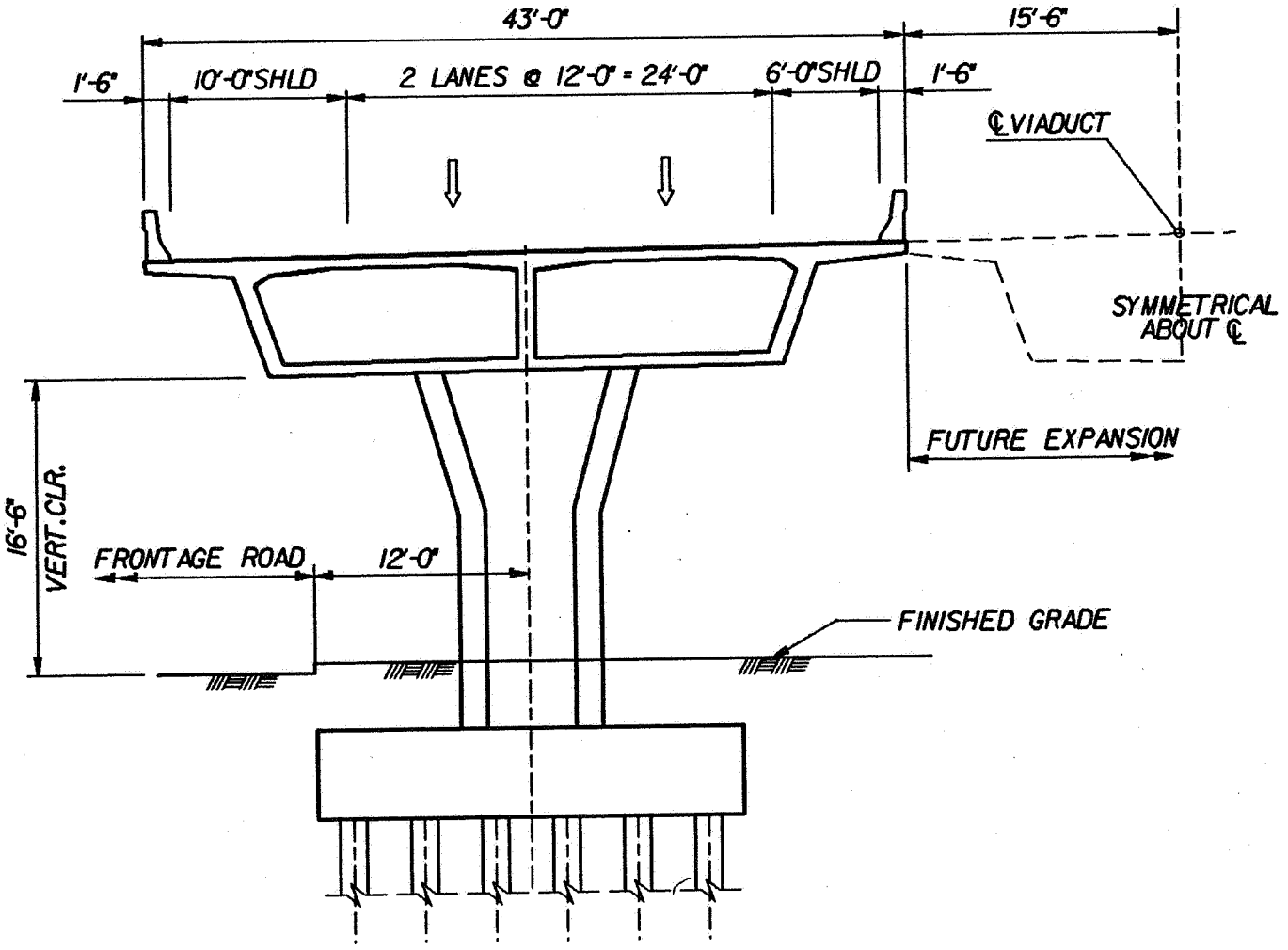
CAST-IN-PLACE POST TENSIONED BOX

Figure 8.21-6



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Project Development and Environmental Study

SEGMENTAL POST-TENSIONED BOX

Figure 8.21-7

One requirement for a precast, segmental structure is a nearby staging yard where a casting yard could be set up. Transportation of each segment to the site is a potential concern because the typical segment would be 43 feet wide and 10 to 20 feet long weighing as much as 60 tons. The substructure should consist of a three point bearing device between the precast diaphragm section and support column. To assure uniformity, the column and foundation should be the same as described in previous options.

Structural Evaluation

The seven bridge options described previously were evaluated on the basis of cost, constructability, maintenance, and aesthetics. Table 8.21-1 provides a summary of quantities, unit cost, and total cost per square foot of structure. As discussed in Option 1 of the viaduct, pile foundations were utilized for all options. The cost in Table 8.21-1 reflects the use of pile foundations. Where soil conditions permit the use of spread footings, the cost of bridge could be reduced by an estimated range of $3 to $4 per square foot. The resulting cost difference will be consistent for all superstructure options and will not affect the option ranking table. Table 8.21-2 provides a ranking for each viaduct option. The option with the highest score was considered to be the most desirable.

SR 60 VIADUCT
Table 8.21-1
Page 1 of 3

OPTION 1 – FLORIDA BULB-T (72") SPAN = 128 FT

QUANTITIES FOR THREE SPAN UNIT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	497	$400.00	$198,800
400 - 4 - 4	CLASS IV CONC (SUPERSTRUCTURE)	CY	438	$325.00	$142,350
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	768	$30.00	$23,040
400 - 7 -	BRIDGE FLOOR GROOVING	SY	1835	$2.40	$4,404
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	98530	$0.45	$44,339
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	110175	$0.45	$49,579
450 - 1 - 72	PRESTRESSED BEAMS (FLORIDA BULB T(72")	LF	2196.0	$120.00	$263,520
455 - 3 - 2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	4500	$45.00	$202,500
455 - 4 - 2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	4500	$2.00	$9,000
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	43	$20.00	$860
				SUB TOTAL=	$938,391
				10% MOBILIZATION=	$93,839
				COST PER SF=	$62.51

OPTION 2 – AASHTO TYPE VI SPAN = 143 FT

QUANTITIES FOR THREE SPAN UNIT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	497	$400.00	$198,800
400 - 4 - 4	CLASS IV CONC (SUPERSTRUCTURE)	CY	486	$325.00	$157,950
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	858	$30.00	$25,740
400 - 7 -	BRIDGE FLOOR GROOVING	SY	2050	$2.40	$4,920
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	109350	$0.45	$49,208
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	110175	$0.45	$49,579
450 - 1 - 5	PRESTRESSED BEAMS (TYPE VI)	LF	2466.0	$130.00	$320,580
455 - 3 - 2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	4500	$45.00	$202,500
455 - 4 - 2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	4500	$2.00	$9,000
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	43	$20.00	$860
				SUB TOTAL=	$1,019,136
				10% MOBILIZATION=	$101,914
				COST PER SF=	$60.77

OPTION 3 – PRESTRESSED TRAP. BOX BEAM SPAN = 145 FT

QUANTITIES FOR THREE SPAN UNIT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	497	$400.00	$198,800
400 - 4 - 4	CLASS IV CONC (SUPERSTRUCTURE)	CY	497	$325.00	$161,525
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	870	$30.00	$26,100
400 - 7 -	BRIDGE FLOOR GROOVING	SY	2078	$2.40	$4,987
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	111825	$0.45	$50,321
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	110175	$0.45	$49,579
450 - 1 - 7	PRESTRESSED BEAMS (SPECIAL)	LF	1668.0	$200.00	$333,600
455 - 3 - 2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	4500	$45.00	$202,500
455 - 4 - 2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	4500	$2.00	$9,000
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	43	$20.00	$860
				SUB TOTAL=	$1,037,272
				10% MOBILIZATION=	$103,727
				COST PER SF=	$61.00

OPTION 4 – STEEL TRAP BOX GIRDER SPAN = 175 ft
QUANTITIES FOR THREE SPAN UNIT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	471	$400.00	$188,400
400 - 4 - 4	CLASS IV CONC (SUPERSTRUCTURE)	CY	577	$325.00	$187,525
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	1050	$30.00	$31,500
400 - 7 -	BRIDGE FLOOR GROOVING	SY	2508	$2.40	$6,019
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	129825	$0.45	$58,421
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	106305	$0.45	$47,837
455 - 3 - 2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	4500	$45.00	$202,500
455 - 4 - 2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	4500	$2.00	$9,000
460 - 1 - 17	STRUCTURAL STEEL (GRADE 50 YIELD)	LB	767025	$1.00	$767,025
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	43	$20.00	$860
				SUB TOTAL=	$1,499,088
				10% MOBILIZATION=	$149,909
				COST PER SF=	$73.05

OPTION 5 STEEL PLATE GIRDER SPAN = 175 FT
QUANTITIES FOR THREE SPAN UNIT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	471	$400.00	$188,400
400 - 4 - 4	CLASS IV CONC (SUPERSTRUCTURE)	CY	643	$325.00	$208,975
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	1050	$30.00	$31,500
400 - 7 -	BRIDGE FLOOR GROOVING	SY	2508	$2.40	$6,019
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	144675	$0.45	$65,104
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	106305	$0.45	$47,837
455 - 3 - 2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	4500	$45.00	$202,500
455 - 4 - 2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	4500	$2.00	$9,000
460 - 1 - 17	STRUCTURAL STEEL (GRADE 50 YIELD)	LB	512950	$1.00	$512,950
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	43	$20.00	$860
				SUB TOTAL=	$1,273,145
				10% MOBILIZATION=	$127,315
				COST PER SF=	$62.04

OPTION 6 – CAST-IN-PLACE POST-TENSIONED BOX SPAN = 175 FT
QUANTITIES FOR THREE SPAN UNIT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	341	$400.00	$136,400
400 - 4 - 18	CLASS IV CONC (BOX GIRDER)	CY	1584	$450.00	$712,800
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	1050	$30.00	$31,500
400 - 7 -	BRIDGE FLOOR GROOVING	SY	2508	$2.40	$6,019
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	356625	$0.45	$160,481
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	86820	$0.45	$39,069
455 - 3 - 2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	4500	$45.00	$202,500
455 - 4 - 2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	4500	$2.00	$9,000
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	43	$20.00	$860
460 - 111 - 1	POST-TENSIONING TENDONS (LONG. SUPER. STRAND)	LB	108665	$1.50	$162,998
				SUB TOTAL=	$1,461,627
				10% MOBILIZATION=	$146,163
				COST PER SF=	$71.22

OPTION 7 – SEGMENTAL POST-TENSIONED BOX SPAN = 175 FT

QUANTITIES FOR THREE SPAN UNIT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	341	$400.00	$136,400
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	1050	$30.00	$31,500
400 - 7 -	BRIDGE FLOOR GROOVING	SY	2508	$2.40	$6,019
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	86820	$0.45	$39,069
455 - 3 - 2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	4500	$45.00	$202,500
455 - 4 - 2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	4500	$2.00	$9,000
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	43	$20.00	$860
				SUB TOTAL=	$425,348
	* SEGMENTAL UNITS =	$42	PER SF OF DECK =		$948,150
				10% MOBILIZATION=	$137,350
				COST PER SF=	$66.93

* COST FOR SEGMENTAL UNITS BASED ON HISTORICAL DATA (COST INCLUDES CONCRETE, REINFORCEMENT, POST-TENSIONING TENDONS, FORMWORK, AND ERECTION)

TABLE 8.21-2 SR 60 ELEVATED ROADWAY BRIDGE OPTION RANKING								
		OPTIONS						
Evaluation Criteria	**Weight**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Total Cost	4	6	6	6	5	6	5	5
Constructability	2	5	5	5	6	6	4	4
Maintenance	1	6	6	6	4	4	6	6
Aesthetics	3	4	4	5	5	4	6	6
Weight X Ranking		52	52	55	51	52	52	52

NOTE: Ranking of 60 is maximum score. Weight based on Brown & Root Structural Design Sensitivity Analysis.

Options 1, 2, 3, and 5 have approximately the same cost per square foot and therefore have the same cost ranking. All precast concrete options (1, 2, and 3) rank high in constructability but show potential concern for beam transportation. Steel options (4 and 5) rank highest in constructability due to the bolted field splices. All concrete options (1, 2, 3, 6, and 7) have favorable rankings with regard to maintenance. Steel options (4 and 5) score low maintenance rankings due to need for painting and inspection. Option 3, 6, & 7 have the highest aesthetics ranking due to their use of trapezoidal box shapes.

Option 3, the prestressed, precast trapezoidal box beams with inverted-T bent caps, is recommended based on the highest ranking.

Stage Construction

By the ability to relocate the existing roadway first, traffic could be maintained during the construction of the elevated structure. Ramps could be constructed using retained earth. The relocation of the existing roadway

would also provide a large construction staging area because of the increased median width. All utilities to be relocated, signing and sign support construction and temporary and final drainage construction can occur within the stage which allows the best opportunity.

The staging concepts developed are shown on Figure 8.21-8.

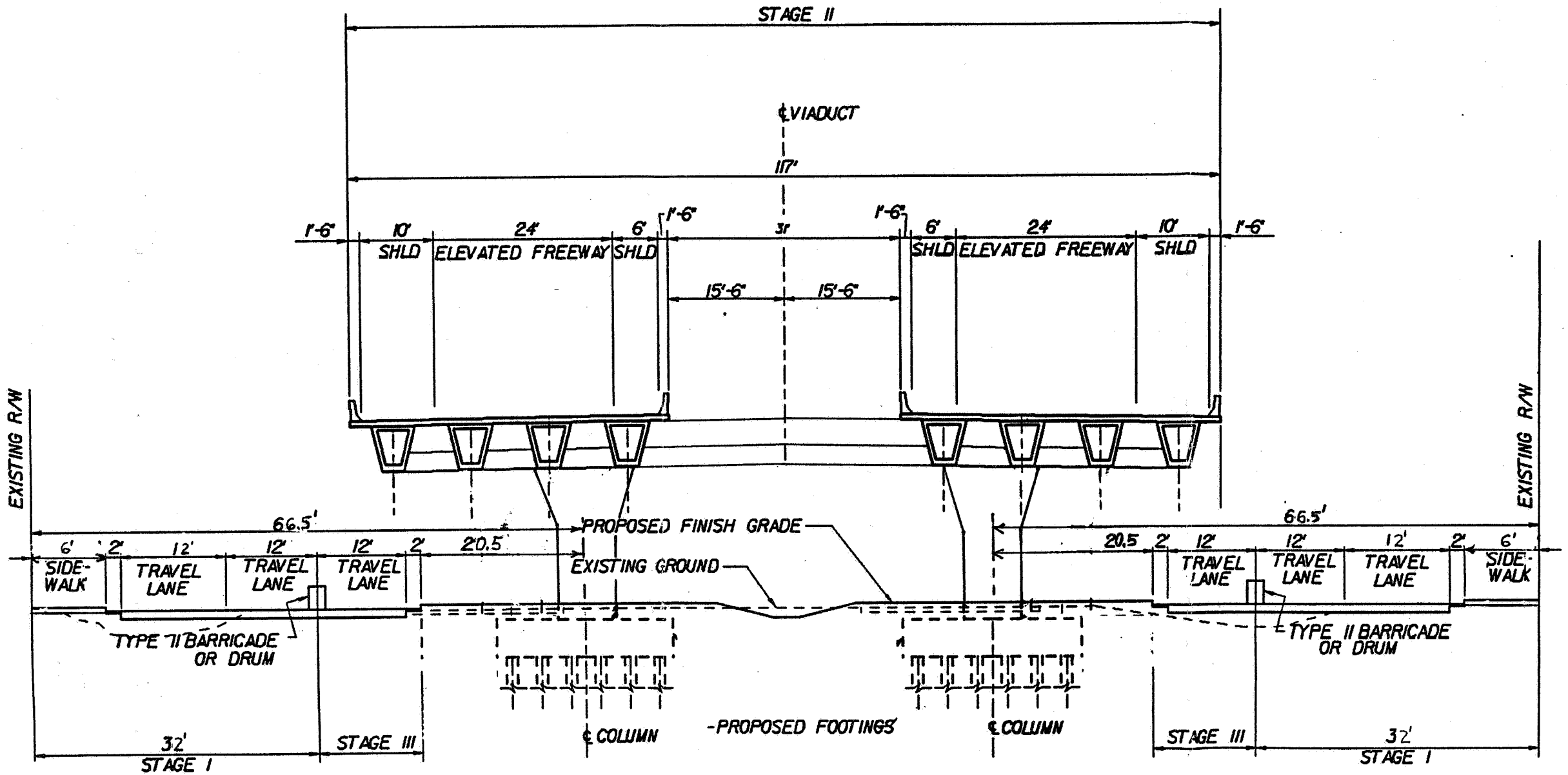
Additional Considerations

The typical section of the elevated roadway suggests an ultimate bridge section of 117'-0". The required future widening can be accomplished by constructing an additional single column bent located along the centerline of the project.

Finally, the area under the elevated roadway structure offers some potential land use. Parks, parking lots, U-turns, and additional cross streets could use this land.

8.21.3 Typical Overpass

For the purpose of this section, a typical overpass location was selected to represent the majority of all overpasses along the various alternate alignments. The location selected was Valrico Road on alignment 3A. This location requires twin three span bridges, each with an overall width of 43 feet and spans of 70'-91'-70' totaling 231 feet in the length. Proprietary retaining walls will rap around each end of bridge. The walls produce a vertical face at the abutments that allows proper site distance for proposed U-turns and minimizes bridge length. Figure 8.21-9 provides a bridge layout of the typical overpass.



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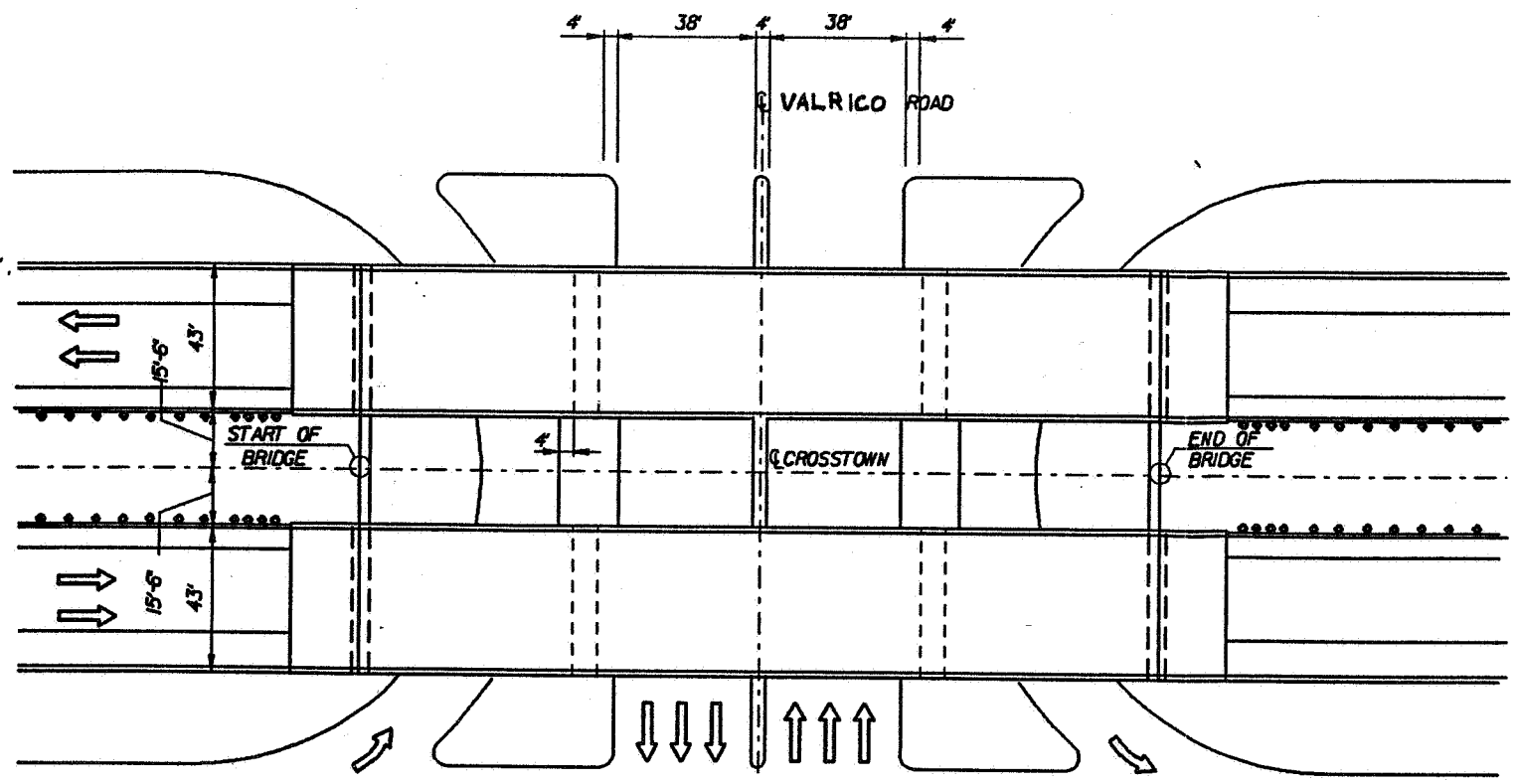
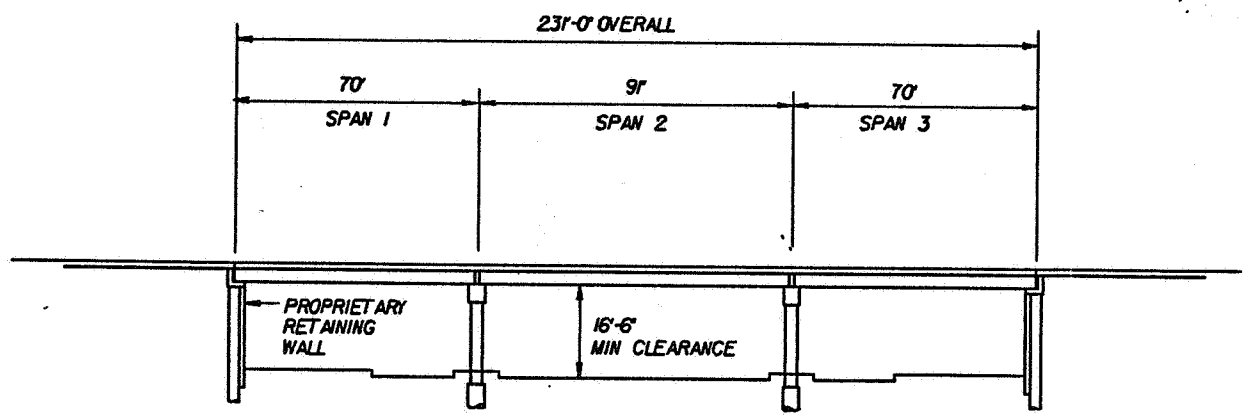
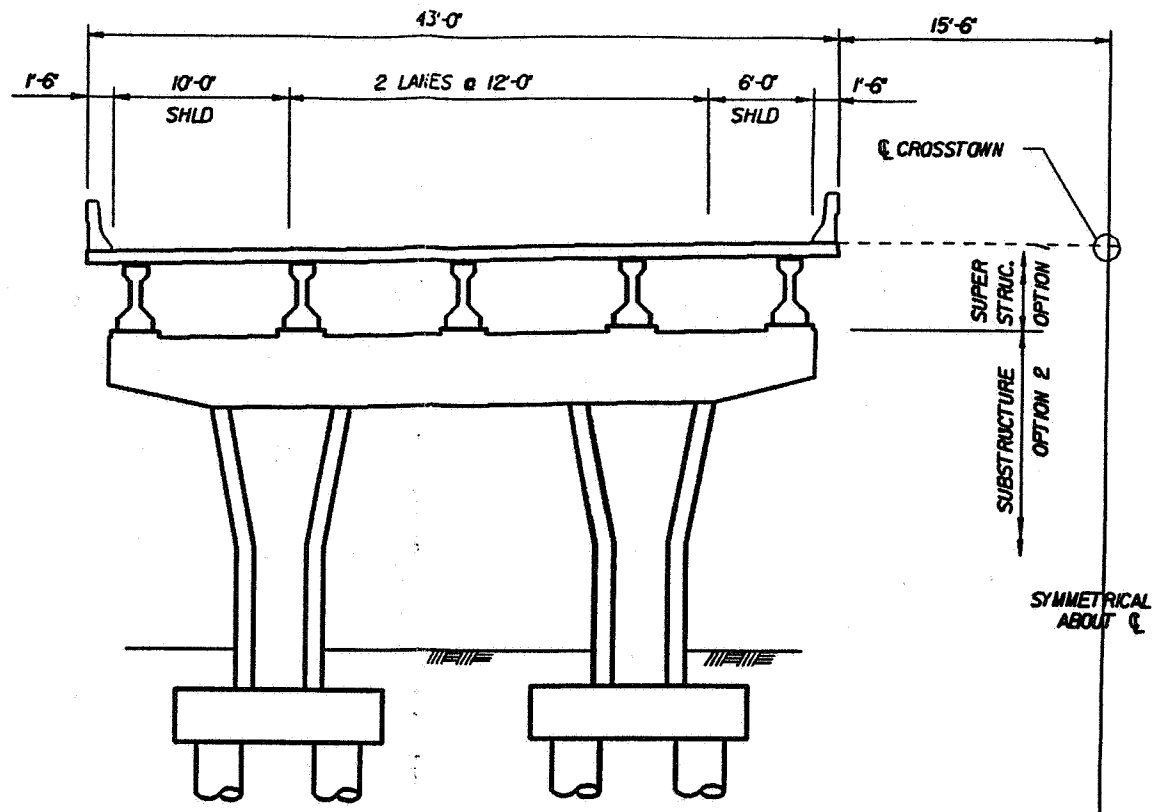
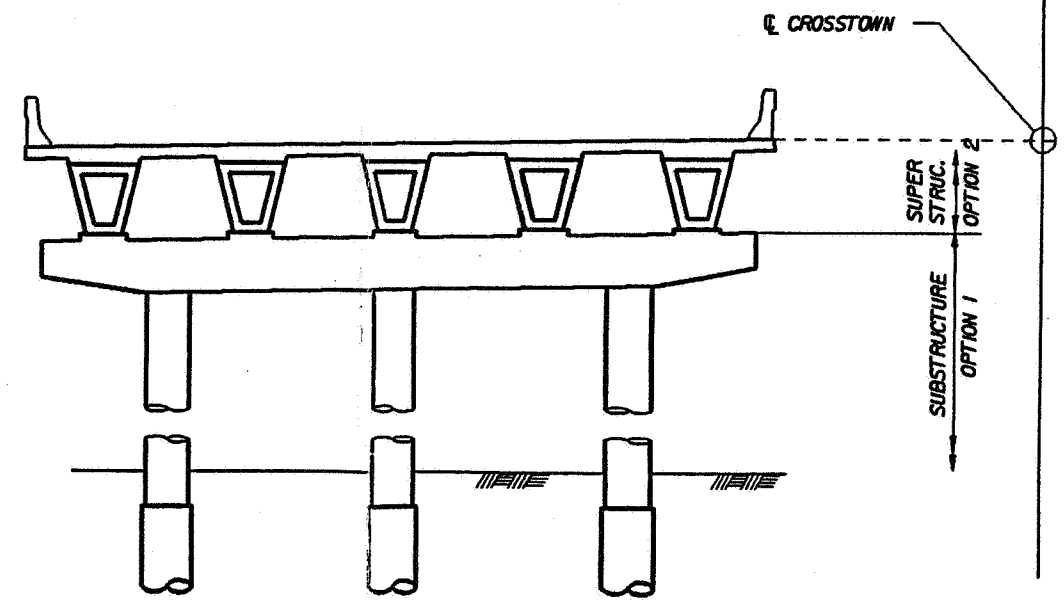


PLAN



ELEVATION





TYPICAL SECTION OPTIONS

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Project Development and Environmental Study

TYPICAL OVERPASS

Figure 8.21-9

Two options are proposed for both the superstructures and substructure. Steel and cast-in-place options were omitted based on the limited quantity involved and the cost per square foot results of Section 8.21.2. The superstructure options proposed include the following:

1) AASHTO Beams
2) Prestressed, Precast Trapezoidal Box Beams

The substructure options proposed include the following:

1) Multiple Round Columns
2) Flared Type Columns

The four basic superstructure and substructure options listed were examined for compatibility with the study goals and objectives.

SUPERSTRUCTURE OPTION 1 - AASHTO Beams

The design of this option required five AASHTO-IV Beams, spaced at 9'-4", with an 8" minimum slab thickness. A simple span design was utilized for both dead and live loads.

SUPERSTRUCTURE OPTION 2 - Prestressed, Precast Trapezoidal Box

The design of this option was examined using four-60" deep boxes or five-48" deep boxes. It was determined that five-48" deep boxes have the lower cost per square foot of bridge. Also, with minimum superstructure depth, embankment fill is reduced. The results dictate that all spans require five-48" deep box beams, spaced at 8'-6", with a minimum slab thickness of 8".

SUBSTRUCTURE OPTION 1 - 30" Round Columns

The bent design of this option required three-30" round columns spaced at 14'-6". To be consistent with the abutment, the foundation should utilize drilled shafts.

The abutment was designed to coincide with the proprietary retaining wall. Drilled shafts and 30" columns should be in place before the construction of the walls. The straps and backfill of the walls can then be placed around the abutment columns.

SUBSTRUCTURE OPTION 2 - Flared Columns

The bent design of this option required two-5' X 2'-6" flared columns spaced at 21'-6". To assure uniformity, the foundation should consist of the same type as described in Option 1. The design utilized two-10' X 3' pile caps with two-30" drilled square shafts.

STRUCTURAL EVALUATION

The two superstructure and substructure options described previously were evaluated on the basis of cost, constructability, maintenance, and aesthetics. Table 8.21-3 provides a summary of quantities, unit cost, and cost per square foot for both superstructure and substructure. The proprietary wall cost is included in the overall construction project cost estimates only. Table 8.21-4 provides the cost per square foot of the four possible combinations. Table 8.21-5 provides a ranking table to rank each possible combination. The combination with the highest ranking was considered to have the most desirable options.

TYPICAL OVERPASS
Table 8.21-3

SUPERSTRUCTURE OPTION 1 LENGTH = 231 FT
AASHTO GIRDERS WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS					
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 4 - 4	CLASS IV CONC (SUPERSTRUCTURE)	CY	251	$325.00	$81,575
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	462	$30.00	$13,860
400 - 7 -	BRIDGE FLOOR GROOVING	SY	1104	$2.40	$2,650
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	56475	$0.45	$25,414
450 - 1 - 2	PRESTRESSED BEAMS (TYPE IV)	LF	1140	$75.00	$85,500
450 - 1 - 3	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	86	$20.00	$1,720
				SUB TOTAL=	$210,718
				10% MOBILIZATION=	$21,072
				SUPERSTRUCTURE PER SF=	$23.34

SUPERSTRUCTURE OPTION 2 LENGTH = 231 FT
PRESTRESSED TRAP. BOX BEAMS WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS					
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 4 - 4	CLASS IV CONC (SUPERSTRUCTURE)	CY	260	$325.00	$84,500
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	462	$30.00	$13,860
400 - 7 -	BRIDGE FLOOR GROOVING	SY	1104	$2.40	$2,650
415 - 1 - 4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	58500	$0.45	$26,325
450 - 1 - 7	PRESTRESSED BEAMS (SPECIAL)	LF	1140.0	$110.00	$125,400
460 - 7 - 2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	86	$20.00	$1,720
				SUB TOTAL=	$254,455
				10% MOBILIZATION=	$25,445
				SUPERSTRUCTURE PER SF=	$28.18

SUBSTRUCTURE OPTION 1 LENGTH = 231 FT
3-30" ROUND COLUMNS PER BENT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS					
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	95	$400.00	$38,000
400 - 2 - 9	CLASS IV CONC (APPROACH SPANS)	CY	64	$325.00	$20,800
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	80	$30.00	$2,400
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	51967	$0.45	$23,385
455 - 88 - 3	DRILLED SHAFT (36")	LF	620	$77.00	$47,740
				SUB TOTAL=	$132,325
				10% MOBILIZATION=	$13,233
				SUBSTRUCTURE PER SF=	$14.65

SUBSTRUCTURE OPTION 2 LENGTH = 231 FT
2-FLARED COLUMNS PER BENT WIDTH = 43 FT

SUMMARY OF BRIDGE PAY ITEMS					
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400 - 2 - 5	CLASS II CONC (SUBSTRUCTURE)	CY	115	$400.00	$46,000
400 - 2 - 9	CLASS IV CONC (APPROACH SPANS)	CY	64	$325.00	$20,800
400 - 5 - 4	CONC HANDRAIL (BARRIER)	LF	80	$30.00	$2,400
415 - 1 - 5	REINFORCING STEEL (SUBSTRUCTURE)	LB	58922	$0.45	$26,515
455 - 88 - 3	DRILLED SHAFT (36")	LF	920	$77.00	$70,840
				SUB TOTAL=	$166,555
				10% MOBILIZATION=	$16,655
				SUBSTRUCTURE PER SF=	$18.44

TABLE 8.21-4 Cost Per Square Foot					
	Superstructure		Substructure		
Combination	Option 1	Option 2	Option 1	Option 2	Total Cost
1-1	$23.35	----	$14.65	----	$37.99
1-2	$23.34	----	----	$18.44	$41.78
2-1	----	$28.18	$14.65	----	$42.83
2-2	----	$28.18	----	$18.44	$46.62

TABLE 8.21-5 Typical Overpass Combination Ranking					
		Combinations			
Evaluation Criteria	Weight	1-1	1-2	2-1	2-2
Cost	4	6	6	5	5
Constructability	2	6	6	6	6
Maintenance	1	6	6	6	6
Aesthetics	3	4	5	5	6
Weight X Ranking		54	57	53	56

NOTE: Ranking of 60 is maximum score. Weight based on Brown & Root Structural Design Sensitivity Analysis.

Round column and flared column substructures have relatively the same cost per square foot but flared columns have a higher aesthetics ranking. Prestressed trapezoid boxes have a higher cost per square foot than AASHTO beams but score higher with aesthetics. All options have the same constructability and maintenance ranking.

Combination 1-2, AASHTO beams with flared column bents, is recommended based on the highest ranking.

8.21.4 (Deleted)

8.21.5 Alternative Elevated Roadway

The structural alternatives presented in Section 8.21.2, "SR 60 Elevated Segment" were developed to use a 202 feet wide cross sectional width, with minimal overhang above the frontage roads. In response to public comment, and to enable reduced business impacts and lower right-of-way costs, three additional structural alternatives were developed.

The goal of this analysis was to develop a structure that could carry the ultimate 6 lane expressway, accommodate 6 lanes of frontage road (SR 60) and fit within the existing right-of-way width of 180 feet. This goal necessitated eliminating the previously proposed Kings Avenue interchange in favor of a Lakewood interchange. Traffic analysis was performed that confirmed the relocation of the interchange had minimal impact on expressway and/or frontage road traffic volumes. It is also noted that between Knights and Bryan Road the existing SR 60 right-of-way is only 100 feet wide. The Brandon family cemetery which abuts the north right-of-way line of SR 60 near Lithia Pinecrest precludes widening to the north. Accordingly, it was not possible to obtain an appreciable savings by

eliminating the proposed Bryan/Kingsway interchange. Relocating the interchange westerly from Bryan/Kingsway increased impacts to the historic Brandon Residence (Stowers Funeral Home).

The findings indicated that any of the three structural alternatives evaluated do allow the ultimate section to be constructed within the existing 180 feet wide right-of-way between the tie-in at Pauls Drive and SR 60 to near Knights Avenue where the roadway right-of-way narrows.

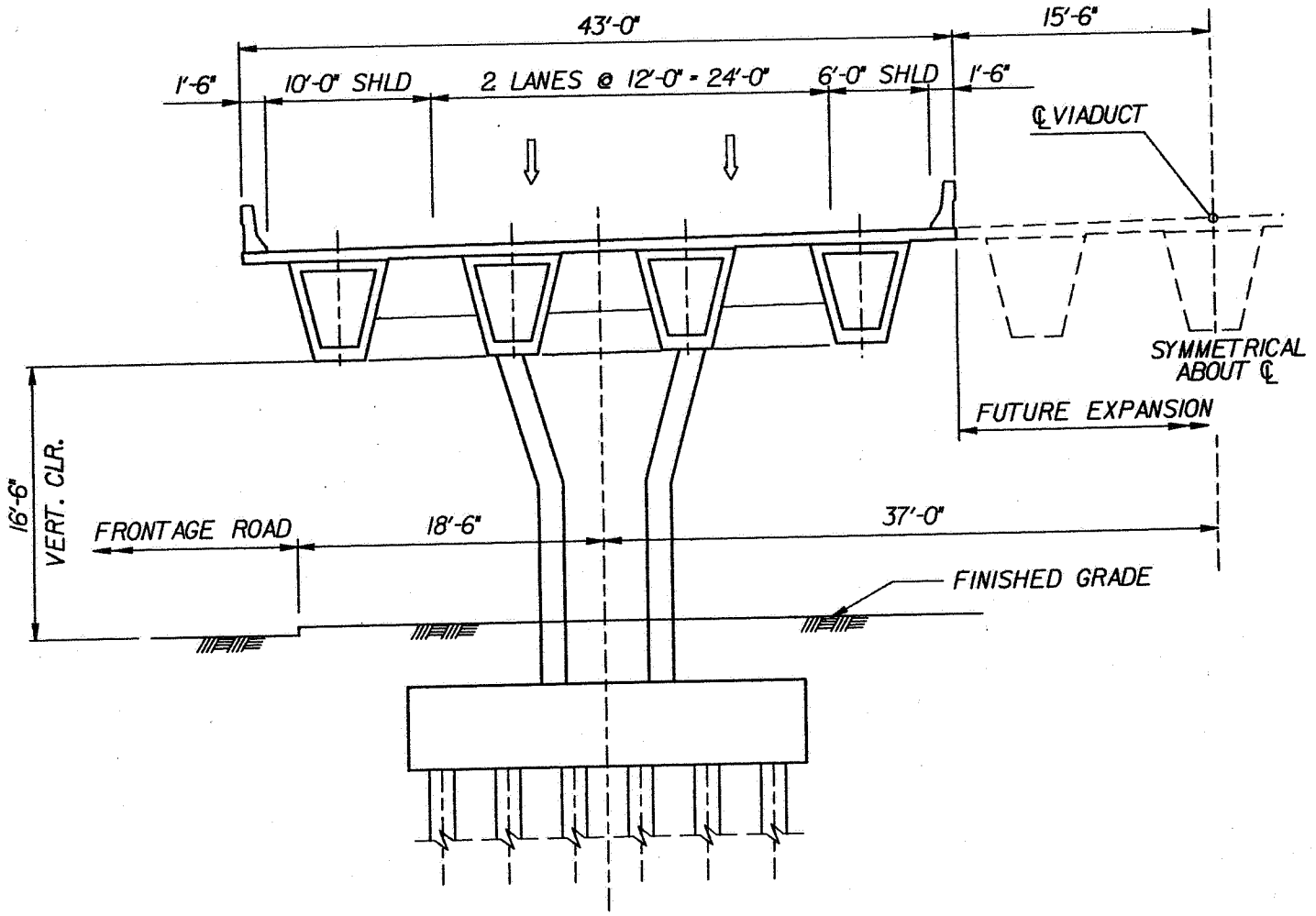
The findings also show that there will be a higher initial structure cost since the geometry of the structure is cantilevered over a greater width of the underlying frontage road. The total structural cost is also greater due to the more massive substructure, and to enable post-tension construction.

The results clearly indicate that the right-of-way savings of approximately $40 million offsets the estimated higher cost of the bridge. In addition the number of business impacts are reduced, especially with respect to partial business impacts. The cost impacts are further reduced by the Alternative 3A alignment which reduces the total length of bridge on the SR 60 elevated roadway segment by approximately 3600 feet.

The structural alternates investigated for the proposed Tampa Crosstown elevated roadway segment to be within existing 180 feet wide right-of-way are described below as alternates B, C and D. Only prestressed precast trapezoidal beams and segmental post-tensioned box girders were evaluated. This is based on the analysis presented in Section 8.21.2 and builds upon the result of that analysis.

Alternate "A" utilizes two 43 ft. wide bridge decks to accommodate two traffic lanes in each direction. The superstructure consists of prestressed trapezoidal box beams and the substructure consists of a single column bent centered under the proposed superstructure. This alternate would require additional R/W in the areas of the cross street interchanges. Future widening would consist of a 25 ft. wide structure down the center of S.R. 60 supported on a future independent substructure. Refer to Figures 8.21.5-1 and 8.21.5-3.

Alternate "B" also utilizes two 43 ft. wide bridge decks with prestressed trapezoidal box beams as in Alternative "A". In order to minimize right-of-way acquisition, the columns were shifted towards the center-line of S.R. 60 resulting in a substantial column eccentricity. Future widening would be accomplished with the same 25 ft. wide independent structure as noted in Alternative A. Refer to Figures 8.21.5-2 and 8.21.5-3.



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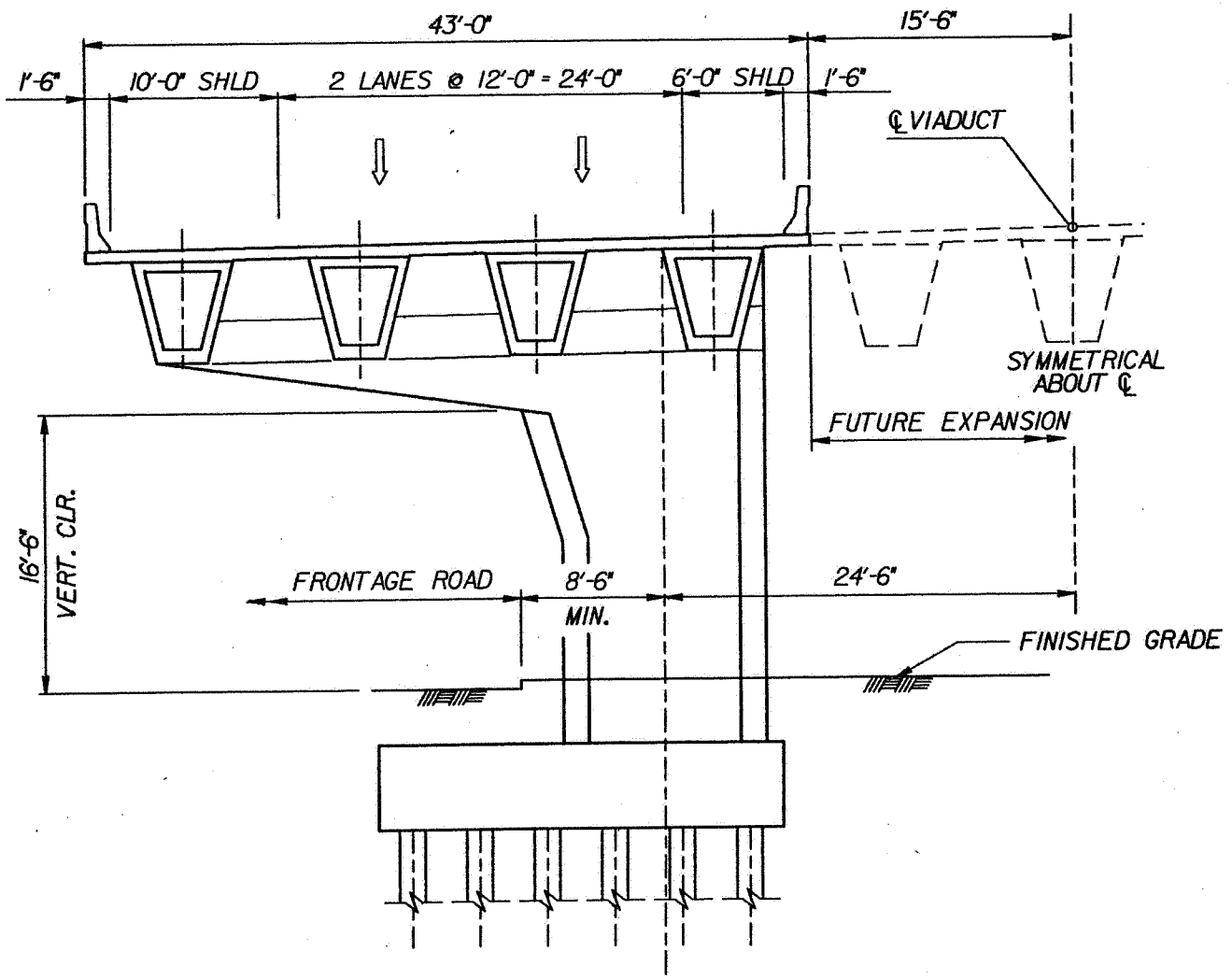
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

ALTERNATIVE A
PRESTRESSED TRAPEZOIDAL BOX GIRDER

Figure 8.21.5-1



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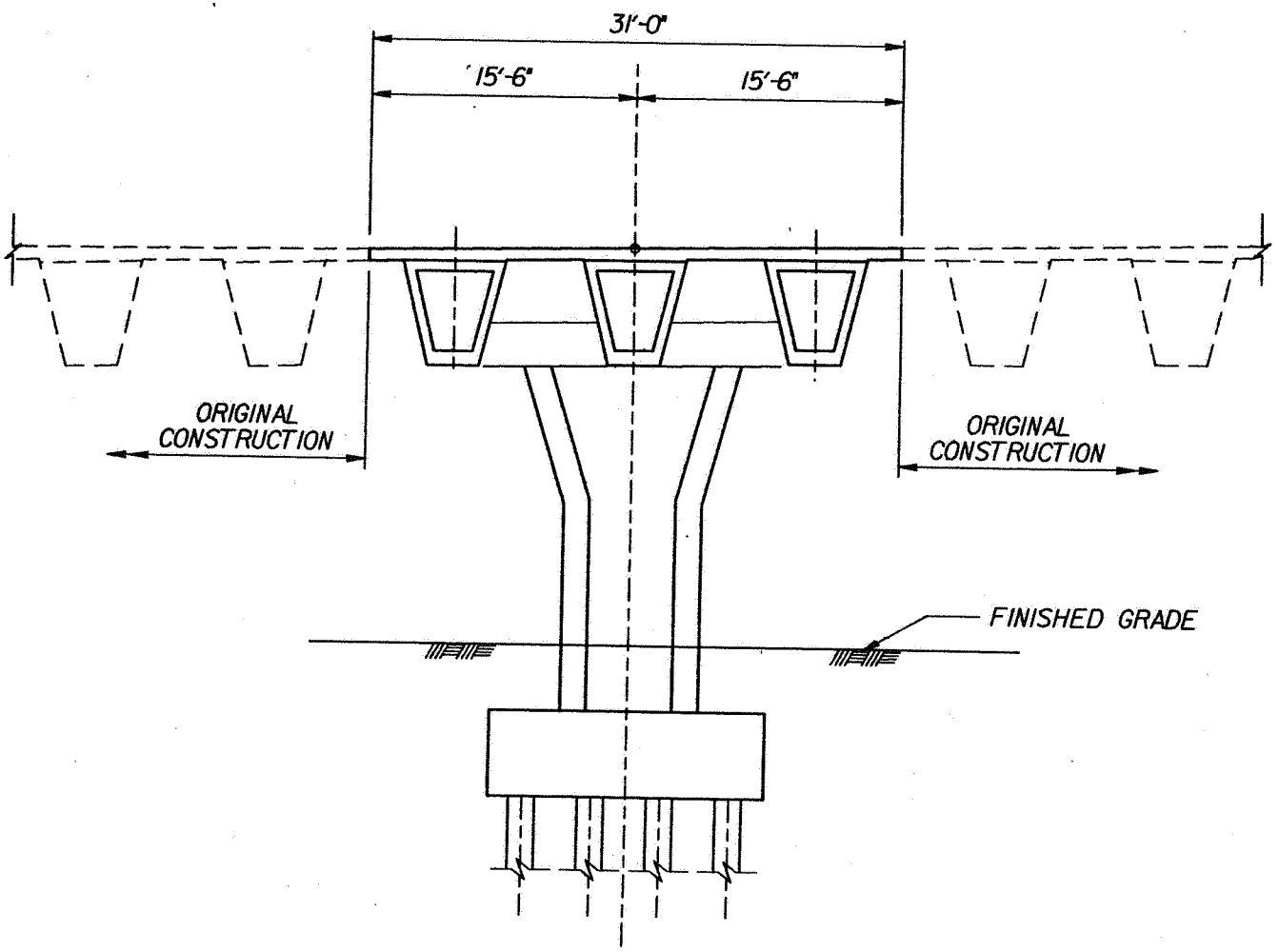
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

ALTERNATIVE B
PRESTRESSED TRAPEZOIDAL
BOX GIRDERS - OFFSET COLUMNS

Figure 8.21.5-2



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TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

PRESTRESSED TRAPEZOIDAL BOX GIRDERS FUTURE CONSTRUCTION

Figure 8.2.1.5-3

Alternate "C" also utilizes two 43 ft. wide bridge decks with prestressed trapezoidal box beams but the substructure would consist of a two column bent built to the ultimate width. The bent would be designed to accommodate the proposed future widening. The location of the bent columns would be the same as in Alternate B thus minimizing the required right-of-way. Refer to Figure 8.21.5-4.

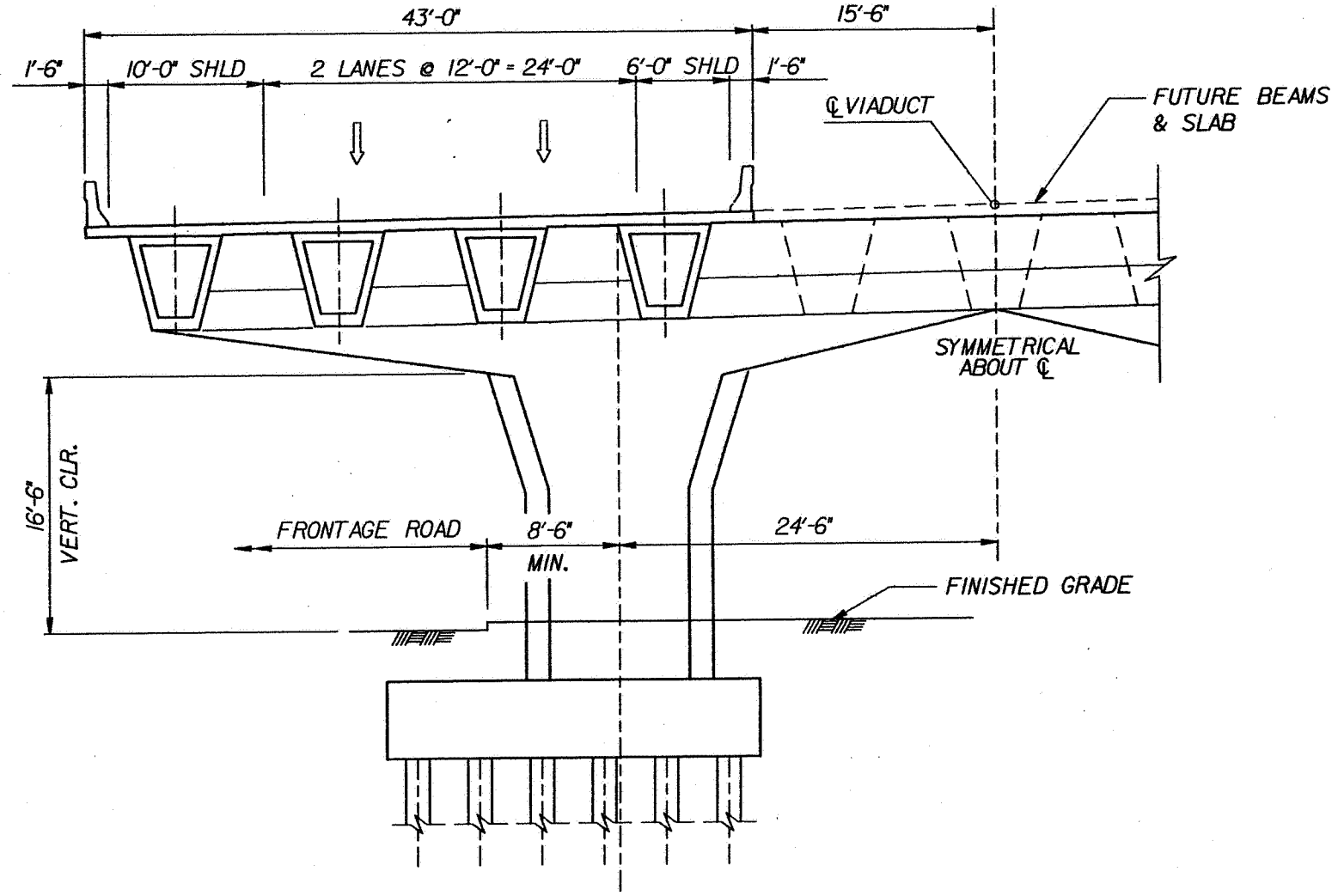
Alternate "D" would consist of two 58.5 ft. wide bridge structures utilizing segmental post-tensioned concrete box beam construction (Spine type). The initial bridge width would accommodate three traffic lanes in each direction and would not require any future construction. The substructure columns would be located as discussed in Alternative "B" and Alternative "C" thus minimizing required right-of-way. Refer to Figure 8.21.5-5.

The estimated quantities, cost per square foot of structure, and cost per linear foot of structure are tabulated for each alternate. Tables 8.21.5-1 through 8.21.5-4 include both initial and future construction.

Conclusions and Recommendations

Alternate A

- Simple and easy to build,
- Initial cost of bridge structure is minimum,



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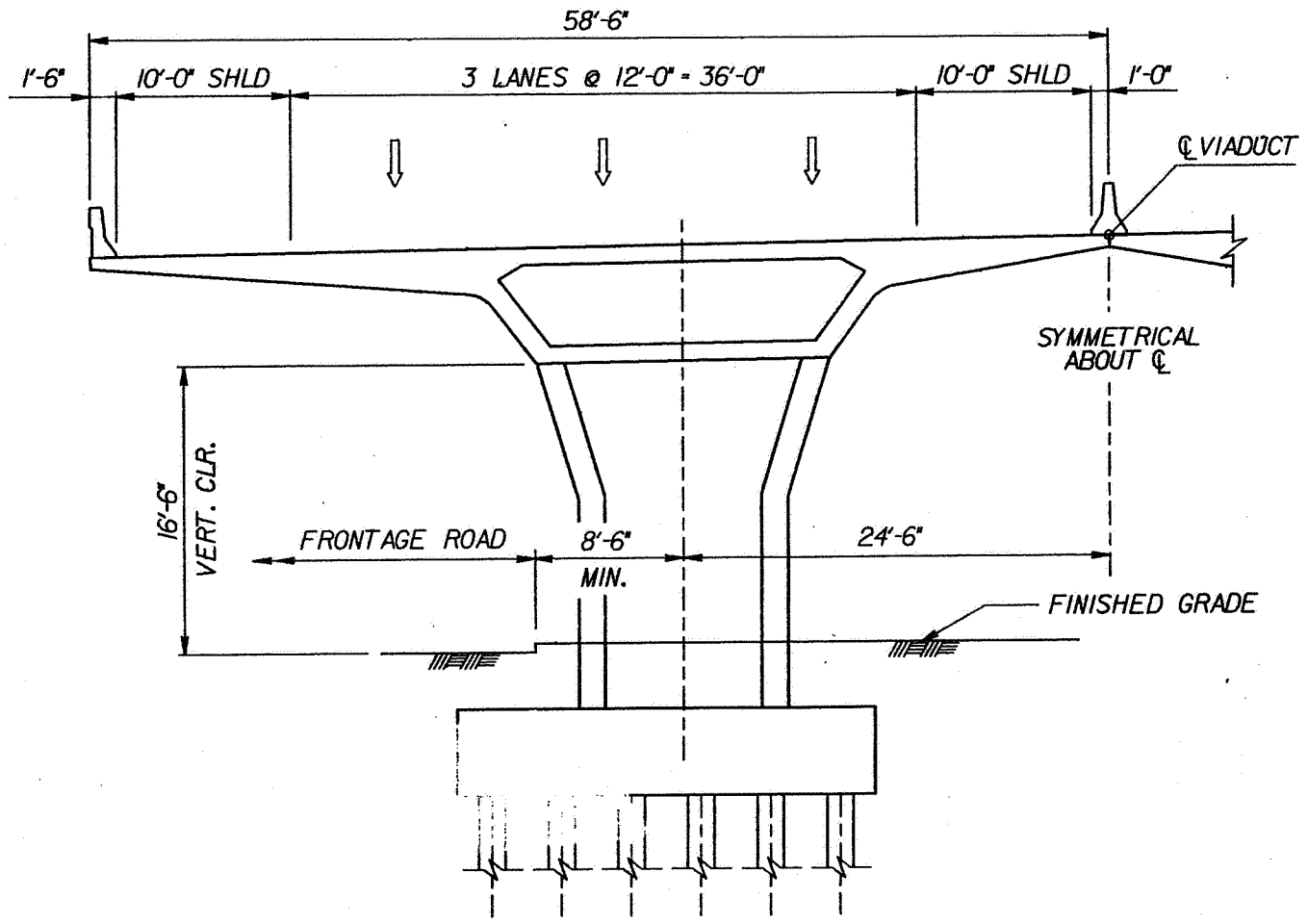
TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

ALTERNATIVE C
PRESTRESSED TRAPEZOIDAL BOX GIRDERS - TWO COLUMN BENT

Figure 8.21.5-4



Brown & Root-Genesis Engineering Company | GLATTING LOPEZ KERCHER ANGLIN | HDR | Tampa-Hillsborough County Expressway Authority

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

ALTERNATIVE D
SEGMENTAL POST-TENSIONED SPINED BOX BEAMS

Figure 8.2.1.5-5

SR 60 ELEVATED SEGMENT
ALTERNATE STRUCTURES TABULATION
TABLE 8.21.5-1

Alternate A - PRESTRESSED TRAPEZOIDAL BOX GIRDERS
SINGLE COLUMN BENTS UNDER PROPOSED 2-LANE ROADWAY (ADDITIONAL R/W REQUIRED)
REQUIRES FUTURE SUBSTRUCTURE FOR FUTURE WIDENING
QUANTITIES FOR THREE SPAN UNIT (FULL BRIDGE WIDTH)

SPAN: 145 FT
WIDTH: 86 FT INITIAL
31 FT FUTURE

INITIAL CONSTRUCTION

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400-2-5	CLASS II CONC (SUBSTRUCTURE)	CY	994	$400.00	$397,600
400-4-4	CLASS II CONC (SUPERSTRUCTURE)	CY	994	$325.00	$323,050
400-5-4	CONC HANDRAIL (BARRIER)	LF	1740	$30.00	$52,200
400-7-	BRIDGE FLOOR GROOVING	SY	4156	$2.40	$9,974
415-1-4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	223650	$0.45	$100,643
415-1-5	REINFORCING STEEL (SUBSTRUCTURE)	LB	220350	$0.45	$99,158
450-1-1	PRESTRESSED BEAMS (SPECIAL)	LF	3336	$200.00	$667,200
455-3-2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	9000	$45.00	$405,000
455-4-2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	9000	$2.00	$18,000
460-7-2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	86	$20.00	$1,720

SUB TOTAL	$2,074,544
10% MOBILIZATION =	$207,454
COST PER SF =	$61.00
COST PER LF =	$5,246

FUTURE CONSTRUCTION

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400-2-5	CLASS II CONC (SUBSTRUCTURE)	CY	397	$400.00	$158,800
400-4-4	CLASS IV CONC (SUPERSTRUCTURE)	CY	358	$325.00	$116,350
400-5-4	CONC HANDRAIL (BARRIER)	LF	435	$30.00	$13,050
400-7-	BRIDGE FLOOR GROOVING	SY	1500	$2.40	$3,600
415-1-4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	80564	$0.45	$236,254
415-1-5	REINFORCING STEEL (SUBSTRUCTURE)	LB	102690	$0.45	$46,211
450-1-7	PRESTRESSED BEAMS (SPECIAL)	LF	1251	$200.00	$250,200
455-3-2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	800	$45.00	$36,000
455-4-2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	800	$2.00	$1,600
460-7-2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	31	$20.00	$620

SUB TOTAL	$662.684
10% MOBILIZATION =	$66,268
FUTURE UNIT COST INCREASE 10% =	$72,895
COST PER SF =	$59.46
COST PER LF =	$1,843

COST OF INITIAL CONSTRUCTION PLUS FUTURE CONSTRUCTION	COST PER SF =	$60.59
	COST PER LF =	$7,089

SR 60 ELEVATED SEGMENT
ALTERNATE STRUCTURES TABULATION
TABLE 8.21.5-2

Alternate B - PRESTRESSED TRAPEZOIDAL BOX GIRDERS, OFFSET COLUMNS
SINGLE COLUMN ECCENTRIC BENTS UNDER PROPOSED 2-LANE ROADWAY (NO R/W REQUIRED)
REQUIRES FUTURE SUBSTRUCTURE FOR FUTURE WIDENING
QUANTITIES FOR THREE SPAN UNIT (FULL BRIDGE WIDTH)

SPAN: 145 FT
WIDTH: 86 FT INITIAL
31 FT FUTURE

INITIAL CONSTRUCTION

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400-2-5	CLASS II CONC (SUBSTRUCTURE)	CY	1992	$450.00	$896,400
400-4-4	CLASS IV CONC (SUPERSTRUCTURE)	CY	994	$325.00	$323,050
400-5-4	CONC HANDRAIL (BARRIER)	LF	1740	$30.00	$52,200
400-7-	BRIDGE FLOOR GROOVING	SY	4156	$2.40	$9,974
415-1-4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	223650	$0.45	$100,643
415-1-5	REINFORCING STEEL (SUBSTRUCTURE)	LB	443170	$0.45	$199,427
450-1-7	PRESTRESSED BEAMS (SPECIAL)	LF	3336	$200.00	$667,200
455-3-2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	12800	$45.00	$576,000
455-4-2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	12800	$2.00	$25,600
460-7-2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	86	$20.00	$1,720
460-111-5	POST-TENSIONING TENDONS (VERT SUBSTR BAR)	LB	22422	$1.25	$28,028
460-111-6	POST-TENSIONING TENDONS (HORIZ SUBSTR STRAND)	LB	23820	$1.25	$29,775

SUB TOTAL	$2,910,016
10% MOBILIZATION =	$291,002
COST PER SF =	$85.57
COST PER LF =	$7,359

FUTURE CONSTRUCTION

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400-2-5	CLASS II CONC (SUBSTRUCTURE)	CY	397	$400.00	$158,800
400-4-4	CLASS II CONC (SUPERSTRUCTURE)	CY	358	$325.00	$116,350
400-5-4	CONC HANDRAIL (BARRIER)	LF	435	$30.00	$13,050
400-7-	BRIDGE FLOOR GROOVING	SY	1500	$2.40	$3,600
415-1-4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	80564	$0.45	$36,254
415-1-5	REINFORCING STEEL (SUBSTRUCTURE)	LB	102690	$0.45	$46,211
450-1-7	PRESTRESSED BEAMS (SPECIAL)	LF	1251	$200.00	$250,200
455-3-2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	800	$45.00	$36,000
455-4-2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	800	$2.00	$1,600
460-7-2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	31	$20.00	$620

SUB TOTAL	$662,684
10% MOBILIZATION =	$66,268
FUTURE UNIT COST INCREASSE 10% =	$72,895
COST PER SF =	$59.46
COST PER LF =	$1,843

COST OF INITIAL CONSTRUCTION PLUS FUTURE CONSTRUCTION — COST PER SF = $78.65

SR 60 ELEVATED SEGMENT
ALTERNATE STRUCTURES TABULATION
TABLE 8.21.5-3

Alternate C - PRESTRESSED TRAPEZOIDAL BOX GIRDERS, TWO COLUMN BENT FULL SUBSTRUCTURE BUILT INITIALLY (NO ADDITIONAL R/W REQUIRED) DOESN'T REQUIRE FUTURE SUBSTRUCTURE FOR FUTURE WIDENING

QUANTITIES FOR THREE SPAN UNIT (FULL BRIDGE WIDTH)

SPAN: 145 FT
WIDTH: 86 FT INITIAL
31 FT FUTURE
31 FT FUTURE

INITIAL CONSTRUCTION

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400-2-5	CLASS II CONC (SUBSTRUCTURE)	CY	1868	$400.00	$747,200
400-4-4	CLASS II CONC (SUPERSTRUCTURE)	CY	994	$325.00	$323,050
400-5-4	CONC HANDRAIL (BARRIER)	LF	1740	$30.00	$52,200
400-7-	BRIDGE FLOOR GROOVING	SY	4156	$2.40	$9,974
415-1-4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	223650	$0.45	$100,643
415-1-5	REINFORCING STEEL (SUBSTRUCTURE)	LB	404970	$0.45	$182,237
450-1-7	PRESTRESSED BEAMS (SPECIAL)	LF	3336	$200.00	$667,200
455-3-2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	12000	$45.00	$540,000
455-4-2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ.)	LF	12000	$2.00	$24,000
460-7-2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	86	$20.00	$1,720
460-111-6	POST-TENSIONING TENDONS (HORIZ SUBSTR STRAND)	LB	32392	$1.25	$40,490

SUB TOTAL	$2,688,713
10% MOBILIZATION =	$268,871
COST PER SF =	$79.06
COST PER LF =	$6,799

FUTURE CONSTRUCTION

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400-4-4	CLASS IV CONC (SUPERSTRUCTURE)	CY	358	$325.00	$116,350
400-5-4	CONC HANDRAIL (BARRIER)	LF	435	$30.00	$13,050
400-7-	BRIDGE FLOOR GROOVING	SY	1500	$2.40	$3,600
415-1-4	REINFORCING STEEL (SUPERSTRUCTURE)	LB	80564	$0.45	$36,254
450-1-7	PRESTRESSED BEAMS (SPECIAL)	LF	1251	$200.00	$250,200
460-7-2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LF	31	$20.00	$620

SUB TOTAL	$420,074
10% MOBILIZATION =	$42,007
FUTURE UNIT COST INCREASSE 10% =	$46,208
COST PER SF =	$37.69
COST PER LF =	$1,168

COST OF INITIAL CONSTRUCTION PLUS FUTURE CONSTRUCTION	COST PER SF =	$68.10
	COST PER LF =	$7,968

SR 60 ELEVATED SEGMENT
ALTERNATE STRUCTURES TABULATION
TABLE 8.21.5-4

Alternate D - SEGMENTAL POST-TENSIONED SPINE BOX BEAMS
FULL SUPER AND SUBSTRUCTURE BUILT INITIALLY (NO ADDITIONAL R/W REQUIRED)
NO FUTURE CONSTRUCTION
QUANTITIES FOR THREE SPAN UNIT (FULL BRIDGE WIDTH)

SPAN: 145 FT
WIDTH: 117 FT

SUMMARY OF BRIDGE PAY ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
400-2-5	CLASS II CONC (SUBSTRUCTURE)	CY	1246	$400.00	$498,400
400-5-4	CONC HANDRAIL (BARRIER)	LF	1035	$30.00	$31,050
400-7-	BRIDGE FLOOR GROOVING	SY	5655	$2.40	$13,572
415-1-5	REINFORCING STEEL (SUBSTRUCTURE)	LB	311700	$0.45	$140,265
455-3-2	PRESTRESSED CONCRETE PILING FURNISHED (18" SQ.)	LF	12000	$45.00	$540,000
		LF	12000	$2.00	$24,000
455-4-2	PRESTRESSED CONCRETE PILING DRIVEN (18" SQ)	LF	171	$20.00	$3,420
460-7-2	EXPANSION JOINT SEAL (COMPRESSION ELAST)	LB	20384	$1.00	$20,384
460-111-5	POST-TENSIONING TEMDONS (VERT SUBSTR BAR)				

* SEGMENTAL UNITS = $42

SUB TOTAL	$1,271,091
PER SQ OF DECK =	$2,137,590
10% MOBILIZATION =	$340,686
COST PER SF =	$73.67
COST PER LF =	$8,620

* COST OFR SEGMENTAL UNITS BASED ON HISTORICAL DATA
(COST INCLUDES CONCRETE, REINFORCEMENT, POST-TENSIONING TENDONS, FORMWORK, AND ERECTION)

- Future construction will require utilizing existing structure for stage construction, and
  - Overall cost would be more due to required R/W.

Alternate B

- Minimizes right-of-way requirements,
- High initial cost for bridge structure, and
- The construction of columns and bent caps, because of the high column eccentricity, will require the extensive use of post-tensoning and of specialty contractors. The increase in cost due to the construction difficulty may not be reflected by the estimated cost.

Alternate C

- Minimizes right-of-way requirements,
- Minimizes final construction costs, and
- Future construction is easier than for Alternates A and B but would also require the use of the existing structure for stage construction.

Alternate D

- Minimizes right-of-way requirements,
- Builds the ultimate section therefore higher initial cost of construction,
- No future disruptions, and
- Pleasing aesthetics.

Based on the above discussions, and review of Table 8.21.5-1 throught 8.21.5-4 Alternate C is the most desirable alternate; however, based on local contractors experience with segmental construction, Alternate D might prove to be more aesthetically pleasing and less costly than we have estimated. Alternate C or D should be considered for further development during final design.

APPENDIX A

STRUCTURE INVENTORY AND APPRAISAL FORMS

STRUCTURE INVENTORY AND APPRAISAL

09/20/90

93.0 SUFFICIENCY RATING (NOT DEF)

IDENTIFICATION

(1)	STATE	FLORIDA
(2)	HIGHWAY DISTRICT	07
(3)	COUNTY 057 (4) CITY/TOWN	0000
(5)	INVENTORY ROUTE	1 3 7006130
(6)	FEATURE INTERSECTED I-75/SR 93A	S
(7)	FACILITY CARRIED X-TOWN RAMP D	
(8)	STRUCTURE NUMBER	100437
(9)	LOCATION 0.9 MI S OF SR 60	
(10)	VERT CLEARANCE	16 FT 04 IN
(11)	MILEPOINT	21.92
(12)	ROAD SECTION NO	2120
(13)	DEFENSE BRIDGE LETTER	
(14)	DEFENSE MILEPOINT	31.48
(15)	DEFENSE SECTION LENGTH	33.5
(16)	LATITUDE 270 58.0" (17) LONGITUDE 082	D 19.0"
(18)	PHYSICAL VULNERABILITY	2
(19)	BYPASS DETOUR LENGTH	00 MI
(20)	TOLL	ON TOLL ROAD
(21)	CUSTODIAN	1 H DEPT
(22)	OWNER	1 H DEPT
(23)	FEDERAL AID PROJECT NUMBER	7571414

CLASSIFICATION

(24)	HIGHWAY SYSTEM	FA URBAN
(25)	ADMINISTRATIVE	STATE
(26)	FUNCTIONAL CLASS	INTERSTATE URBAN

STRUCTURE DATA

(27)	YEAR BUILT	8500
(28)	LANES ON STR 01 UNDER	11
(29)	ADT ON STR	001500
(30)	YEAR OF ADT	1990
(31)	DESIGN LOAD	HS-20M
(32)	APP RDWY WDTH W/SHLD	30 FT
(33)	BRIDGE MEDIAN	NONE
(34)	SKEW	00
(35)	STRUCTURE FLARED	NO
(36)	TRAFFIC SAFETY FTRS.	1111
(37)	HISTORICAL SIGNIFICANCE	0
(38)	NAV CONTROL	NO
(39)	NAV VERT CLEARANCE	000 FT
(40)	NAV HORIZ CLEARANCE	0000 FT
(41)	OPEN OR CLOSED	OPEN
(42)	TYPE SERVICE	HIGHWAY HWY W/WD PD
(43)	STRUCTURE TYPE MAIN	PRS CONC / STR/MB GR
(44)	STRUCTURE TYPE APP	OTHER / OTHER
(45)	NO OF SPANS MAIN	004
(46)	NO OF APPROACH SPANS	0000
(47)	TOTAL HORIZ CLEARANCE	28.2 FT
(48)	MAX SPAN LENGTH	0133 FT
(49)	STRUCTURE LENGTH	000508 FT
(50)	SIDEWALK LEFT 0.8 FT RIGHT	0.8 FT
(51)	BRIDGE RDWY WIDTH CURB TO CURB	27.0 FT
(52)	DECK WIDTH OUT TO OUT	30.0 FT
(53)	VERT CLEARANCE OVER DECK	99 FT 99 IN
(54)	MIN VERT UNDERCLEARANCE	16 FT 04 IN
(55)	MIN LAT UNDERCLEARANCE RIGHT	30.0 FT
(56)	MIN LAT UNDERCLEARANCE LEFT	30.0 FT
(57)	WEARING SURFACE	CONCRETE

CONDITION RATING

(58)	DECK	8
(59)	SUPERSTRUCTURE	8
(60)	SUBSTRUCTURE	8
(61)	CHANNEL & CHANNEL PROTECTION	N
(62)	CULVERT & RETAINING WALLS	N
(63)	ESTIMATED REMAINING LIFE	47 YRS
(64)	OPERATING RATING	261 HS 34T
(65)	APPROACH ROADWAY ALIGNMENT	9
(66)	INVENTORY RATING	240 HS 22T

APPRAISAL RATING

(67)	STRUCTURE CONDITION	8
(68)	DECK GEOMETRY	8
(69)	UNDERCLEARANCE VERTICAL & LATERAL	8
(70)	SAFE LOAD CAPACITY	9
(71)	WATERWAY ADEQUACY	N
(72)	APPROACH ROADWAY ALIGNMENT	9

PROPOSED IMPROVEMENTS

(73)	YEAR NEEDED	1900
(74)	TYPE OF SERVICE	0
(75)	TYPE OF WORK	000
(76)	IMPROVEMENT LENGTH	000000 FT
(77)	DESIGN LOADING	UNKWN
(78)	ROADWAY WIDTH	0000 FT
(79)	NUMBER OF LANES	00
(80)	ADT 000000 (81) YEAR	1900
(82)	PROPOSED RDWY IMPROVEMENT YEAR	1900
(83)	APPROACH IMPROVEMENT	NOT APP
(84)	COST OF IMPROVEMENTS	$0
(85)	P E COST	$0
(86)	DEMOLITION COST	$0
(87)	SUBSTRUCTURE COST	$0
(88)	SUPERSTRUCTURE COST	$0
(89)		
(90)	DATE OF LAST INSPECTION	08/16/90

STRUCTURE INVENTORY AND APPRAISAL 09/20/90

61.0 SUFFICIENCY RATING (NOT DEF)

IDENTIFICATION

(1) STATE FLORIDA
(2) HIGHWAY DISTRICT 07
(3) COUNTY 057 (4) CITY/TOWN 0000
(5) INVENTORY ROUTE 1 3 7 0C6 1 3 0
(6) FEATURE INTERSECTED I-75/SR-93A 5
(7) FACILITY CARRIED X TOWN RAMP C
(8) STRUCTURE NUMBER 100498
(9) LOCATION 0.8 MI S OF SR 60
(10) VERT CLEARANCE 16 FT 04 IN
(11) MILEPOINT 22.00
(12) ROAD SECTION NO 2120
(13) DEFENSE BRIDGE LETTER
(14) DEFENSE MILEPOINT 32.53
(15) DEFENSE SECTION LENGTH 33.5
(16) LATITUDE 270 56.9" (17) LONGITUDE 0810 19.5" 2
(18) PHYSICAL VULNERABILITY 99 MI
(19) BYPASS DETOUR LENGTH
(20) TOLL ON TOLL ROAD
(21) CUSTODIAN 5 H DEPT
(22) OWNER 5 H DEPT
(23) FEDERAL AID PROJECT NUMBER 7571414

CONDITION — RATING

(58) DECK 6
(59) SUPERSTRUCTURE 8
(60) SUBSTRUCTURE 8
(61) CHANNEL & CHANNEL PROTECTION N
(62) CULVERT & RETAINING WALLS N
(63) ESTIMATED REMAINING LIFE 49 YRS
(64) OPERATING RATING 252 HS 29T 9
(65) APPROACH ROADWAY ALIGNMENT
(66) INVENTORY RATING 237 HS 21T

APPRAISAL — RATING

(67) STRUCTURE CONDITION 8
(68) DECK GEOMETRY 9
(69) UNDERCLEARANCE VERTICAL & LATERAL 8
(70) SAFE LOAD CAPACITY 7
(71) WATERWAY ADEQUACY N
(72) APPROACH ROADWAY ALIGNMENT 9

CLASSIFICATION

(24) HIGHWAY SYSTEM FA URBAN
(25) ADMINISTRATIVE STATE
(26) FUNCTIONAL CLASS OTHER FWY - EXPY URBAN

STRUCTURE DATA

(27) YEAR BUILT 8500
(28) LANES ON STR 02 UNDER 11
(29) ADT ON STR 001500
(30) YEAR OF ADT 1990
(31) DESIGN LOAD HS 20M
(32) APP ROWY WIDTH W/SHLD 30 FT
(33) BRIDGE MEDIAN NONE
(34) SKEW 00
(35) STRUCTURE FLARED NO
(36) TRAFFIC SAFETY FTRS. 1111
(37) HISTORICAL SIGNIFICANCE 0
(38) NAV CONTROL NO
(39) NAV VERT CLEARANCE 000 FT
(40) NAV HORIZ CLEARANCE 0000 FT
(41) OPEN OR CLOSED OPEN

(42) TYPE SERVICE OVP/2ND LVL HWY W/WD PD
(43) STRUCTURE TYPE MAIN PRS CONC / STR/MB GR
(44) STRUCTURE TYPE APP OTHER / OTHER
(45) NO OF SPANS MAIN 004
(46) NO OF APPROACH SPANS 0000
(47) TOTAL HORIZ CLEARANCE 41.5 FT
(48) MAX SPAN LENGTH 0132 FT
(49) STRUCTURE LENGTH 000494 FT
(50) SIDEWALK LEFT 0.8 FT RIGHT 0.8 FT
(51) BRIDGE RDWY WIDTH CURB TO CURB 40.3 FT
(52) DECK WIDTH OUT TO OUT 43.1 FT
(53) VERT CLEARANCE OVER DECK 99 FT 99 IN
(54) MIN VERT UNDERCLEARANCE 16 FT 04 IN
(55) MIN LAT UNDERCLEARANCE RIGHT 30.0 FT
(56) MIN LAT UNDERCLEARANCE LEFT 30.0 FT
(57) WEARING SURFACE CONCRETE

PROPOSED IMPROVEMENTS

(73) YEAR NEEDED 1900
(74) TYPE OF SERVICE 0
(75) TYPE OF WORK 000
(76) IMPROVEMENT LENGTH 000000 FT
(77) DESIGN LOADING UNKWN
(78) ROADWAY WIDTH 0000 FT
(79) NUMBER OF LANES 00
(80) ADT 000000 (81) YEAR 1900
(82) PROPOSED RDWY IMPROVEMENT YEAR 1900
(83) APPROACH IMPROVEMENT NOT APP

(84) COST OF IMPROVEMENTS $0
(85) P E COST $0
(86) DEMOLITION COST $0
(87) SUBSTRUCTURE COST $0
(88) SUPERSTRUCTURE COST
(89)
(90) DATE OF LAST INSPECTION 06/16/90

STRUCTURE INVENTORY AND APPRAISAL

09/20/90

96.6 SUFFICIENCY RATING (NOT DEF)

IDENTIFICATION

(1)	STATE	FLORIDA
(2)	HIGHWAY DISTRICT	07
(3)	COUNTY 057 (4) CITY/TOWN	0225
(5)	INVENTORY ROUTE	1 3 1 0 0 6 7 5 0
(6)	FEATURE INTERSECTED I75/SR93A	C
(7)	FACILITY CARRIED SR 675	
(8)	STRUCTURE NUMBER	100497
(9)	LOCATION 1.283 MI S OF SR 50	
(10)	VERT CLEARANCE	99 FT 99 IN
(11)	MILEPOINT	21.58
(12)	ROAD SECTION NO	00000
(13)	DEFENSE BRIDGE LETTER	
(14)	DEFENSE MILEPOINT	0.00
(15)	DEFENSE SECTION LENGTH	0.0
(16)	LATITUDE 27D 57.9" (17) LONGITUDE 082D 17.8"	3
(18)	PHYSICAL VULNERABILITY	
(19)	BYPASS DETOUR LENGTH	03 MI
(20)	TOLL	ON FREE ROAD
(21)	CUSTODIAN	3 H DEPT
(22)	OWNER	3 H DEPT
(23)	FEDERAL AID PROJECT NUMBER	75 7-14

CLASSIFICATION

(24)	HIGHWAY SYSTEM	FA PRIMARY, URBAN
(25)	ADMINISTRATIVE	STATE
(26)	FUNCTIONAL CLASS	OTHER PRINCIPAL ARTERIAL URBAN

STRUCTURE DATA

(27)	YEAR BUILT	8500
(28)	LANES ON STR 06 UNDER	12
(29)	ADT ON STR	014915
(30)	YEAR OF ADT	1988
(31)	DESIGN LOAD	HS-20M
(32)	APP RDWY WIDTH W/SHLD	115 FT
(33)	BRIDGE MEDIAN	CLOSED
(34)	SKEW	00
(35)	STRUCTURE FLARED	NO
(36)	TRAFFIC SAFETY FTRS.	1111
(37)	HISTORICAL SIGNIFICANCE	0
(38)	NAV CONTROL	NO
(39)	NAV VERT CLEARANCE 000	FT
(40)	NAV HORIZ CLEARANCE 0000	FT
(41)	OPEN OR CLOSED	OPEN

(42)	TYPE SERVICE	HIGHWAY HWY W/WC PD
(43)	STRUCTURE TYPE MAIN	STEEL / BXBM-MULT
(44)	STRUCTURE TYPE APP	OTHER / OTHER
(45)	NO OF SPANS MAIN	005
(46)	NO OF APPROACH SPANS	0000
(47)	TOTAL HORIZ CLEARANCE	11.4 FT
(48)	MAX SPAN LENGTH	0188 FT
(49)	STRUCTURE LENGTH	000731 FT
(50)	SIDEWALK LEFT 0.8 FT	RIGHT 0.8 FT
(51)	BRIDGE RDWY WIDTH CURB TO CURB	114.0 FT
(52)	DECK WIDTH OUT TO OUT	117.0 FT
(53)	VERT CLEARANCE OVER DECK	99 FT 99 IN
(54)	MIN VERT UNDERCLEARANCE	20 FT 11 IN
(55)	MIN LAT UNDERCLEARANCE RIGHT	41.8 FT
(56)	MIN LAT UNDERCLEARANCE LEFT	30.0 FT
(57)	WEARING SURFACE	CONCRETE

CONDITION

		RATING
(58)	DECK	7
(59)	SUPERSTRUCTURE	7
(60)	SUBSTRUCTURE	8
(61)	CHANNEL & CHANNEL PROTECTION	N
(62)	CULVERT & RETAINING WALLS	N
(63)	ESTIMATED REMAINING LIFE	50 YRS
(64)	OPERATING RATING 277 HS	43T
(65)	APPROACH ROADWAY ALIGNMENT	9
(66)	INVENTORY RATING 236 HS	20T

APPRAISAL

		RATING
(67)	STRUCTURE CONDITION	7
(68)	DECK GEOMETRY	8
(69)	UNDERCLEARANCE VERTICAL & LATERAL	9
(70)	SAFE LOAD CAPACITY	9
(71)	WATERWAY ADEQUACY	N
(72)	APPROACH ROADWAY ALIGNMENT	8

PROPOSED IMPROVEMENTS

(73)	YEAR NEEDED	1900
(74)	TYPE OF SERVICE	0
(75)	TYPE OF WORK	000
(76)	IMPROVEMENT LENGTH	000000 FT
(77)	DESIGN LOADING	UNKWN
(78)	ROADWAY WIDTH	0000 FT
(79)	NUMBER OF LANES	00
(80)	ADT 000000 (81) YEAR	1900
(82)	PROPOSED RDWY IMPROVEMENT YEAR	1900
(83)	APPROACH IMPROVEMENT	NOT APP
(84)	COST OF IMPROVEMENTS	$0
(85)	P E COST	$0
(86)	DEMOLITION COST	$0
(87)	SUBSTRUCTURE COST	$0
(88)	SUPERSTRUCTURE COST	$0
(89)		
(90)	DATE OF LAST INSPECTION	08/28/90

STRUCTURE INVENTORY AND APPRAISAL

09/20/90

100.0 SUFFICIENCY RATING (NOT DEF)

IDENTIFICATION

(1)	STATE	FLORIDA
(2)	HIGHWAY DISTRICT	07
(3)	COUNTY 057 (4) CITY/TOWN	0000
(5)	INVENTORY ROUTE	1L7000000
(6)	FEATURE INTERSECTED RAMP S RAMP E	S
(7)	FACILITY CARRIED	100498
(8)	STRUCTURE NUMBER	
(9)	LOCATION 1.17 MI S OF I75& R60	99 FT 99 IN
(10)	VERT CLEARANCE	1.54
(11)	MILEPOINT	00000
(12)	ROAD SECTION NO	
(13)	DEFENSE BRIDGE LETTER	
(14)	DEFENSE MILEPOINT	0.00
(15)	DEFENSE SECTION LENGTH	0.0
(16)	LATITUDE 27D 53.1" (17) LONGITUDE 082D 17.3"	3
(18)	PHYSICAL VULNERABILITY	
(19)	BYPASS DETOUR LENGTH	00 MI
(20)	TOLL	ON TOLL ROAD
(21)	CUSTODIAN	5 H DEPT
(22)	OWNER	5 H DEPT
(23)	FEDERAL AID PROJECT NUMBER	7571414

CLASSIFICATION

(24)	HIGHWAY SYSTEM	INTERSTATE, URBAN
(25)	ADMINISTRATIVE	STATE
(26)	FUNCTIONAL CLASS	INTERSTATE URBAN

STRUCTURE DATA

(27)	YEAR BUILT	8700
(28)	LANES ON STR 02 UNDER	02
(29)	ADT ON STR	001000
(30)	YEAR OF ADT	1990
(31)	DESIGN LOAD	HS-20M
(32)	APP RDWY WIDTH W/SHLD	40 FT
(33)	BRIDGE MEDIAN	NONE
(34)	SKEW	00
(35)	STRUCTURE FLARED	NO
(36)	TRAFFIC SAFETY FTRS.	1111
(37)	HISTORICAL SIGNIFICANCE	0
(38)	NAV CONTROL	NO
(39)	NAV VERT CLEARANCE 000 FT	
(40)	NAV HORIZ CLEARANCE 0000 FT	
(41)	OPEN OR CLOSED	OPEN

(42)	TYPE SERVICE	HIGHWAY HWY W/WD PD
(43)	STRUCTURE TYPE MAIN	STEEL / BXBM-MULT
(44)	STRUCTURE TYPE APP	OTHER / OTHER
(45)	NO OF SPANS MAIN	001
(46)	NO OF APPROACH SPANS	0000
(47)	TOTAL HORIZ CLEARANCE	40.0 FT
(48)	MAX SPAN LENGTH	00236 FT
(49)	STRUCTURE LENGTH	000236 FT
(50)	SIDEWALK LEFT 0.8 FT RIGHT	0.8 FT
(51)	BRIDGE RDWY WIDTH CURB TO CURB	40.0 FT
(52)	DECK WIDTH OUT TO OUT	42.9 FT
(53)	VERT CLEARANCE OVER DECK	99 FT 99 IN
(54)	MIN VERT UNDERCLEARANCE	16 FT 05 IN
(55)	MIN LAT UNDERCLEARANCE RIGHT	29.0 FT
(56)	MIN LAT UNDERCLEARANCE LEFT	32.5 FT
(57)	WEARING SURFACE -	CONCRETE

CONDITION

		RATING
(58)	DECK	8
(59)	SUPERSTRUCTURE	8
(60)	SUBSTRUCTURE	6
(61)	CHANNEL & CHANNEL PROTECTION	N
(62)	CULVERT & RETAINING WALLS	N
(63)	ESTIMATED REMAINING LIFE	50 YRS
(64)	OPERATING RATING 297 HS 54T	8
(65)	APPROACH ROADWAY ALIGNMENT	
(66)	INVENTORY RATING 236 HS 20T	

APPRAISAL

		RATING
(67)	STRUCTURE CONDITION	8
(68)	DECK GEOMETRY	9
(69)	UNDERCLEARANCE VERTICAL & LATERAL	N
(70)	SAFE LOAD CAPACITY	9
(71)	WATERWAY ADEQUACY	N
(72)	APPROACH ROADWAY ALIGNMENT	8

PROPOSED IMPROVEMENTS

(73)	YEAR NEEDED	1900
(74)	TYPE OF SERVICE	0
(75)	TYPE OF WORK	000
(76)	IMPROVEMENT LENGTH	000000 FT
(77)	DESIGN LOADING	UNKWN
(78)	ROADWAY WIDTH	0000 FT
(79)	NUMBER OF LANES	00
(80)	ADT 000000 (81) YEAR	1900
(82)	PROPOSED RDWY IMPROVEMENT YEAR	1900
(83)	APPROACH IMPROVEMENT	NOT APP

(84)	COST OF IMPROVEMENTS	$0
(85)	P E COST	$0
(86)	DEMOLITION COST	$0
(87)	SUBSTRUCTURE COST	$0
(88)	SUPERSTRUCTURE COST	
(89)		
(90)	DATE OF LAST INSPECTION	03/28/90

APPENDIX B

CONCEPTUAL DESIGN PLANS

Brown & Root - Geneals
Engineering Company

CLAITUD
LOPEZ
KERCHER
ANDOLINA
INC.

HDR Engineering, Inc.

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

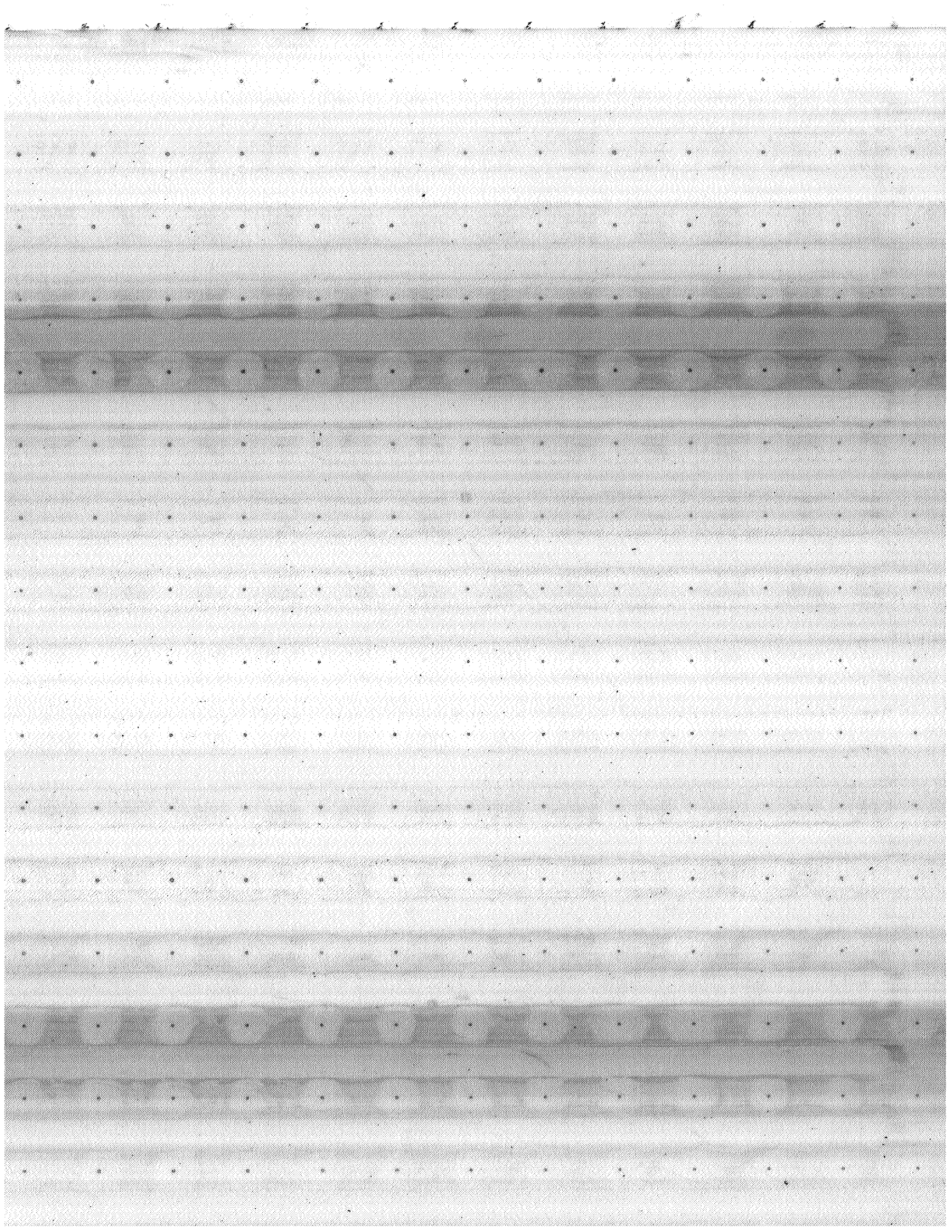
Tampa-Hillsborough County Expressway Authority
BAY AREA EXECUTIVE DIRECTOR WILLIAM C. MCKAY JR. ATTORNEY

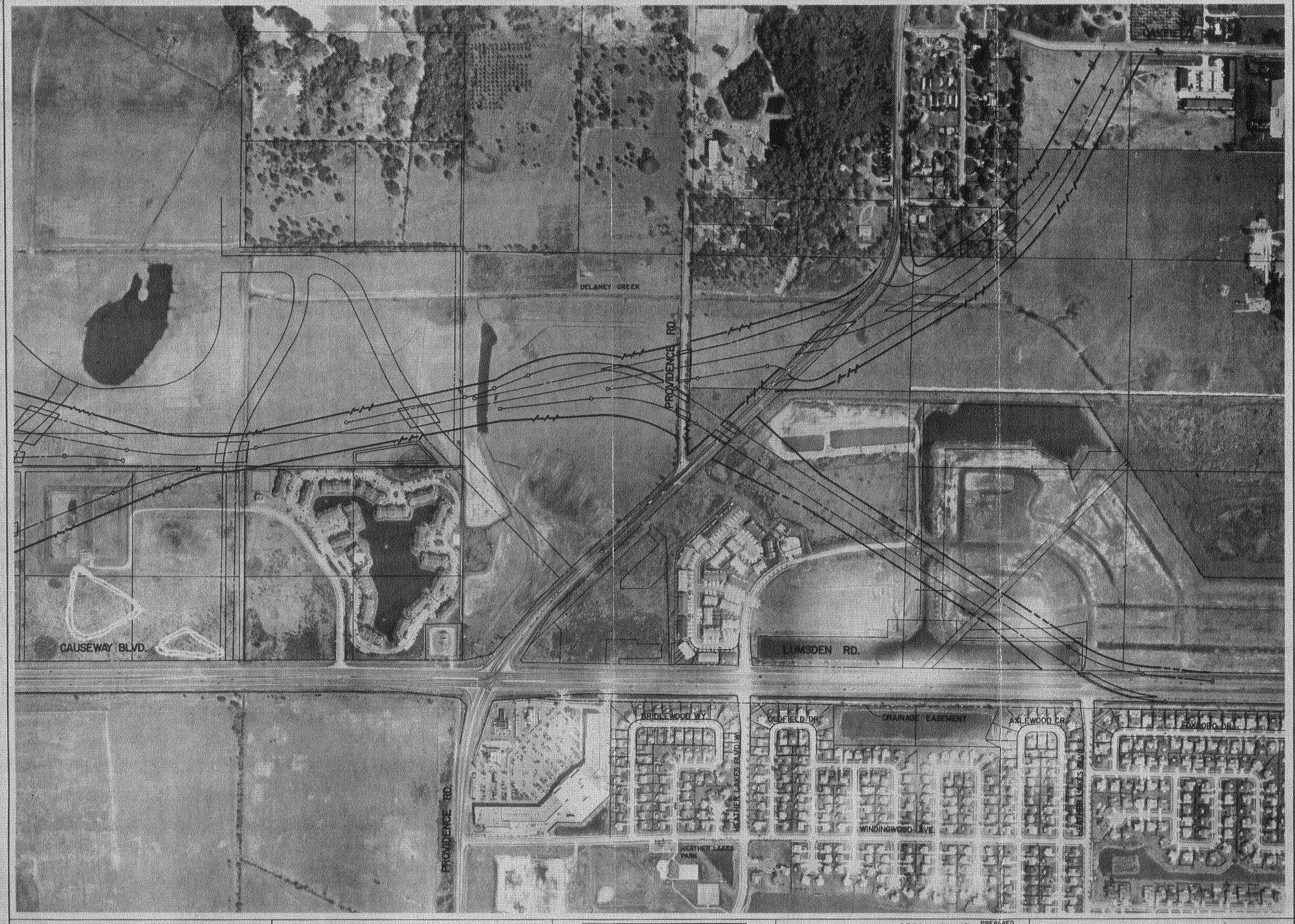
PRELIMINARY DESIGN PLANS
PREPARED 1/92

STATE PROJECT NO. 10002-1544 SHEET 1

200'

PHOTO DATE: FEBRUARY 8, 1990 SHEET INDEX 3 4 5 6 7 8





Brown & Root - Genesis Engineering Company

GLATTING JACKSON KERCHER ANGLIN INC.

HDR Engineering, Inc.

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

Tampa-Hillsborough County Expressway Authority
RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. MCLEAN JR., ATTORNEY

PRELIMINARY DESIGN PLANS — PREPARED 1/92
STATE PROJECT No. 10002-1544 — SHEET 2

N

200'

PHOTO DATE: FEBRUARY 8, 1990

SHEET INDEX 3 4 5 6 7 8 1 2

Brown & Root - Genesis
Engineering Company

GLATTING JOPER KERCHER ANGLIN INC.

HDR Engineering, Inc.

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

Tampa-Hillsborough County Expressway Authority
RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. WOLEAK, JR. ATTORNEY

CONCEPTUAL DESIGN PLANS
STATE PROJECT No. 10002-1544 — SHEET 3 OF 8

N

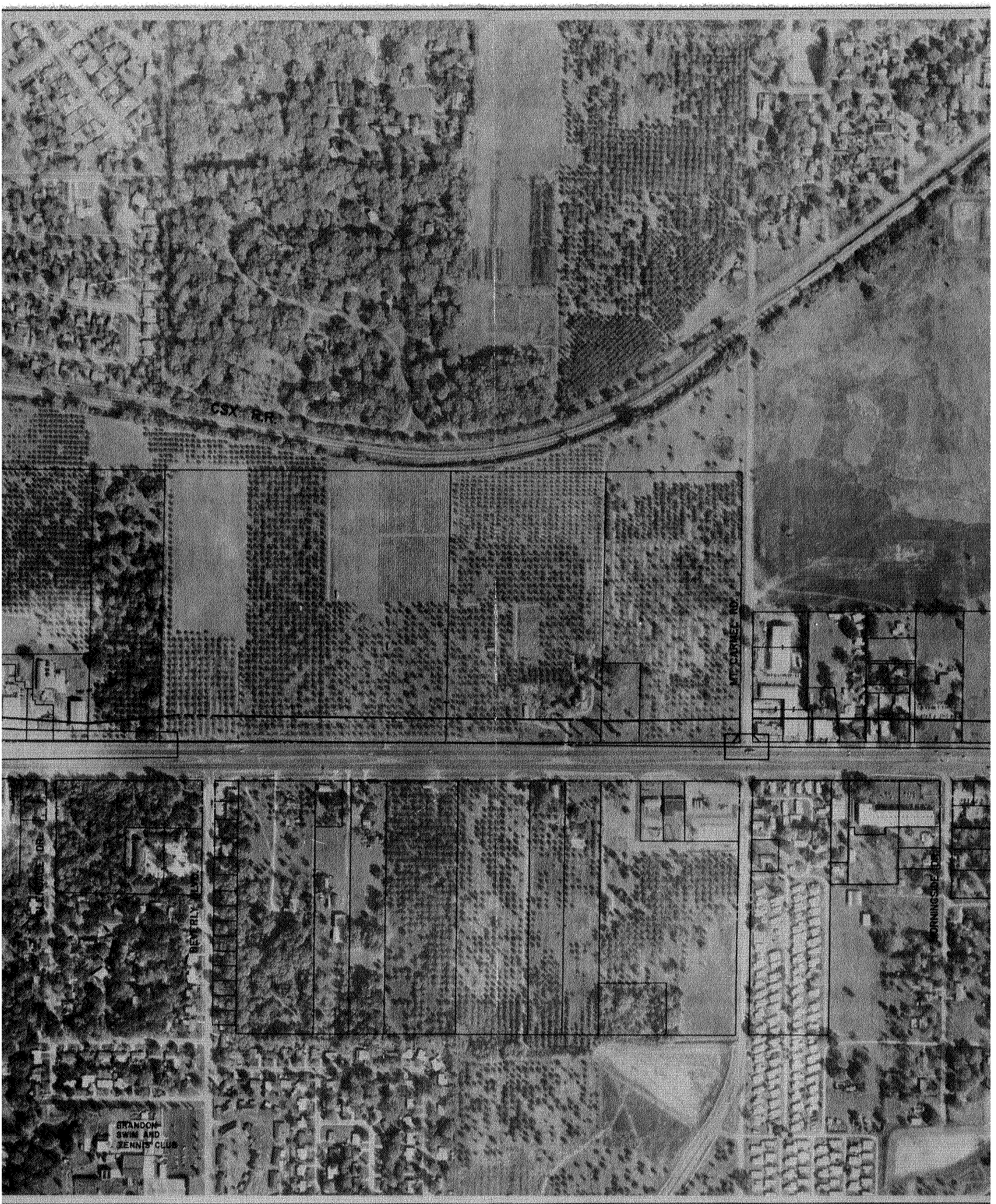
200'

PHOTO DATE: FEBRUARY 8, 1990

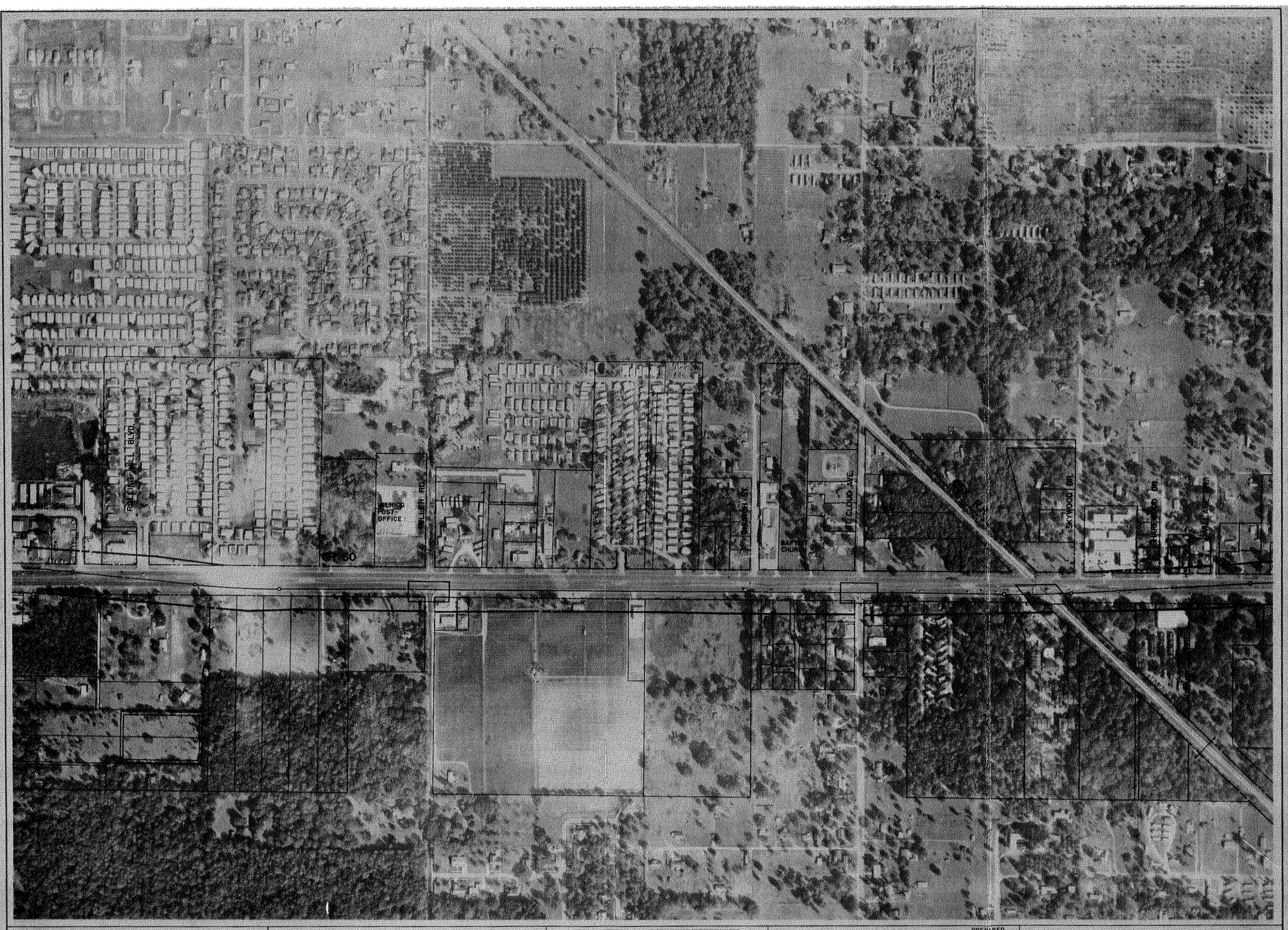
SHEET INDEX: 3 4 5 6 7 8 / 1 2

ering, Inc.	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	Tampa-Hillsborough County Expressway Authority RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. WOLFE, JR. ATTORNEY	PRELIMINARY DESIGN PLANS STATE PROJECT No. 10002-1544 — SHEET 4

Brown & Root - Genesis Engineering Company; GLATTING LOPEZ KERCHER ANGLIN INC.; HDR Engineering, Inc.	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	Tampa-Hillsborough County Expressway Authority RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. WOLEVER, JR., ATTORNEY	PRELIMINARY DESIGN PLANS PREPARED 1/92 STATE PROJECT No. 10002-1544 — SHEET 5	N — 200' — PHOTO DATE: FEBRUARY 8, 1990 — SHEET INDEX 3 4 5 6 7 8 / 1 2



ring, Inc.	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	Tampa-Hillsborough County Expressway Authority RAY ROPER, EXECUTIVE DIRECTOR WILLIAM C. WOLFE JR., ATTORNEY	PRELIMINARY DESIGN PLANS PREP 1/ STATE PROJECT No. 10002-1544 SHEET 6



Brown & Root - Genesis Engineering Company

GLATTING JACKSON KERCHER ANGLIN INC.

HDR Engineering, Inc.

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

Tampa-Hillsborough County Expressway Authority

RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. MCLEAN, JR., ATTORNEY

PRELIMINARY DESIGN PLANS

PREVIEWED 1992

STATE PROJECT No. 10002-1544

SHEET 7

N

200'

PHOTO DATE: FEBRUARY 8, 1990

SHEET INDEX 3 4 5 6 7 8 / 1 2

Brown & Root - Genesis Engineering Company

GLATTING LOPEZ KERCHER ANDERSON INC.

HDR Engineering, Inc.

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Project Development and Environmental Study

Tampa-Hillsborough County Expressway Authority
RAY SPEER, EXECUTIVE DIRECTOR — WILLIAM C. MOLLER, JR., ATTORNEY

PRELIMINARY DESIGN PLANS PREPARED 1/92

STATE PROJECT No. 10002-1544 — SHEET 8

N — 200'

PHOTO DATE: FEBRUARY 8, 1990

SHEET INDEX 3 4 5 6 7 8 / 1 2

APPENDIX C

REPORT OF GEOTECHNICAL STUDY

LAW ENGINEERING

REPORT

OF

GEOTECHNICAL STUDY

Tampa South Crosstown Expressway Extension

HILLSBOROUGH COUNTY, FLORIDA

STATE PROJECT NO. 10002-1544

FEDERAL REVIEW NO. M-4047(48)

WORK PROGRAM NO. 7113891

LAW ENGINEERING PROJECT NO. T-5687

December 28, 1990

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

Brown & Root/Genesis
5660A West Cypress Street
Tampa, Florida 33607

ATTENTION: Mr. Scott Hopman

SUBJECT: Report of Geotechnical Study
Tampa South Crosstown Expressway Extension
Hillsborough County, Florida
State Project No. 10002-1544
Federal Review No. M-4047(48)
Work Program No. 7113891
Law Engineering Project No. T-5687

Dear Mr. Hopman:

Law Engineering is pleased to submit this report of the geotechnical portion of the PD&E Study of the Tampa South Crosstown Expressway Extension. Our services were performed in general accordance with our Revised Proposal No. 2633-S dated March 22, 1990 and your Subcontract No. BRG-89-S00022 dated August 16, 1989; and more specifically, with Brown & Root/Genesis Work Order No. 1, dated July 30, 1990. The subcontract was signed by Mr. Joseph A. Amon of Law Engineering on February 23, 1990 and Mr. Greg Janes of Brown & Root/Genesis on February 27, 1990.

This report presents the purpose and scope of this study, the pertinent project information, site and subsurface conditions, as well as our evaluation and recommendations. This report incorporates the comments presented in a letter dated December 11, 1990 by Mr. Donald J. Skelton of the Florida Department of Transportation. Study area and proposed alignment maps, as well as soil maps and soil profiles are presented in the Appendix of this report. A piezometer location map is also presented in the Appendix.

We will be happy to discuss our evaluations and recommendations with you, and would welcome the opportunity to provide any additional studies or services necessary to complete this project. We look forward to serving as your geotechnical consultant on the remainder of this project and on future projects.

Sincerely,

Law Engineering, Inc.

Jonathan W. Sink, E.I.(SX)
Geotechnical Engineer

Curtis J. Roos, P.E.
Chief Engineer
Registered Florida No. 27570

JWS:JWS

Copies Submitted: 2 - Addressee

4919 W. LAUREL ST.
P. O. BOX 24183
TAMPA, FL 33623
813-289-0750

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Study Area Location Map (Fig. 1)
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Record of Hand Auger Borings
Provided Soil Profiles

Geotechnical Study

1.0 PROPOSED EXTENSION

The Tampa-Hillsborough County Expressway Authority is considering various options to extend the existing Crosstown Expressway through eastern Hillsborough County. At least 52 possible roadway alignments have been presented and considered. The number of options has been narrowed to 7 different possible extension alignments. Each of these proposed extension alignments will begin where the Crosstown Expressway ends, near Interstate 75. The proposed alignments will extend through Brandon, Florida before connecting with State Road 60 (Brandon Boulevard) east of Dover Road. A depressed section along Lumsden Road is being considered. A Study Area Location Map (Fig. 1) is presented in the Appendix of this report.

2.0 PURPOSE AND SCOPE OF STUDY

The purpose of the PD&E Study by the Brown & Root-Genesis team is to provide the information necessary to the Tampa-Hillsborough County Expressway Authority to reach a decision on the type, design, and location of multi-lane improvements and major intersections and/or interchanges. Factors relating to the design and location of the Crosstown Expressway Extension are being considered, including transportation needs, social impacts, economic factors, environmental impacts, and engineering analyses.

Law Engineering's scope of work includes the geotechnical services required for the project development and environmental (PD&E) study for the Crosstown Expressway Extension project. Our scope of services for this project consisted of the following:

- A review of the available literature describing soil conditions at and surrounding the study areas, including U.S.G.S. Survey Maps, Soil Conservation Services Soil Survey Report of Hillsborough County, Florida, and aerial photographs;
- Several site visits by engineers to document present site conditions;
- Preparation of a conceptual geotechnical report discussing anticipated groundwater conditions, surface and subsurface soil conditions, problem soil conditions, as well as possible recommendations for the treatment of problem areas.

The assessment of site environmental conditions for the presence of pollutants in the soil, rock, or groundwater at this site was beyond the scope of this exploration.

3.0 BACKGROUND/REVIEW OF EXISTING DATA

Project information was provided by Mr. Scott Hopman of Brown & Root-Genesis. Information provided included:

- Pond location and groundwater information from Lumsden Road improvement plans;
- Soil boring information from I-75/Crosstown Expressway interchange;
- Location and map of central potable/raw water wells;
- Profile grade plans for proposed Alignment Nos. 3, 16, 49, 51, and 52, dated July 1990;
- Conceptual Design Plans, dated February 8, 1990.

Several sources of information not provided by Brown & Root-Genesis were reviewed. These sources included:

- Map of Greater Brandon, Florida, published for the AAA Motor Club, dated 1989;
- Soil Survey Report of Hillsborough County, Florida, published by the U.S. Soil Conservation Service, dated May 1989;
- U.S. Geological Survey Map, Brandon Quadrangle, Florida, dated 1956 and photo-revised 1969;
- Groundwater level measurements from 7 Lumsden Road piezometers.

4.0 SITE CONDITIONS

Seven proposed expressway alignments are currently being considered for the Crosstown Expressway Extension. These alignments include Alignment Nos. 3, 7, 16, 49, 50, 51, and 52. Each proposed alignment will begin where the current Crosstown Expressway ends, east of Interstate 75. The proposed expressway alignments will generally follow one of two major roadways: Brandon Boulevard (State Road 60) or Lumsden Road. Proposed Alignment Plans (Figs. 2 through 8) for each of the proposed expressway alignments are presented in the Appendix.

Alignment No. 3, which is generally aligned along Brandon Boulevard, is planned to be constructed at-grade from near Interstate 75 to Providence Road. From Providence Road to approximately east of Bryan Road, this proposed alignment will be elevated. From Bryan Road, Alignment No. 3 will continue at-grade to its end east of Dover Road. Alignment Nos. 7 and 49 follow a similar path (beginning east of Interstate 75), each of which would be constructed at-grade and run eastward past Providence Road. From east of Providence Road, these alignments would run at-grade southeast to Lumsden Road and follow Lumsden Road to Kings Avenue. Alignment Nos. 7 and 49 would continue eastwards, as depressed sections, to Bryan Road. Alignment No. 7 would continue along Lumsden Road, as a depressed section, to Dover Road, where it would continue at-grade to the intersection of Brandon Boulevard. Alignment No. 49 would continue northeastwards from Bryan Road, towards the intersection of Mt. Carmel Road and Brandon Boulevard. From Mt. Carmel Road, the alignment would run at-grade along Brandon Boulevard to east of Dover Road.

Alignment Nos. 16 and 50 would generally follow Lumsden Road at-grade from Interstate 75 to Kings Avenue. From east of Kings Avenue, these alignments would continue as depressed sections to Bryan Road. Alignment No. 16 would run from Bryan Road to Dover Road before intersecting with Brandon Boulevard, and continue at-grade. Alignment No. 50 would continue northeastwards from Bryan Road towards the intersection of Mt. Carmel Road and Brandon Boulevard. From Mt. Carmel Road, this alignment would run at-grade along Brandon Boulevard to east of Dover Road.

Alignment Nos. 51 and 52 would run at-grade parallel and north of Lumsden Road, from Interstate 75 to Parsons Avenue. These alignments would become depressed between Parsons Avenue and Lithia-Pinecrest. From Lithia-Pinecrest, Alignment No. 51 would run northeast towards Mt. Carmel Road and Brandon Boulevard, and continue at-grade along Brandon Boulevard east of Dover Road. Alignment No. 52 would run southeast towards Lumsden Road and follow Lumsden Road to St. Cloud Avenue. From St. Cloud Avenue, this alignment would run northeast towards Brandon Boulevard before emerging as an at-grade section along Brandon Boulevard.

The majority of the proposed alignments will run through residential properties, cultivated land, and undeveloped land. A large part of the land along Brandon Boulevard, and some of the land along Lumsden Road, consists of commercial properties. The area located west of Kings Avenue (south of Brandon Boulevard and north of Lumsden Road) is made up of undeveloped land and residential properties. The area located between Kings Avenue and Mt. Carmel Road (south of Brandon Boulevard and north of Lumsden Road) is a mixture of residential properties and some commercial properties. The majority of the area located east of Mt. Carmel Road consists of cultivated land, with some undeveloped land and residential properties. The majority of the land located east of Dover Road consists of land once used by the phosphate industry.

5.0 SITE GEOLOGY

Hillsborough County, Florida is located within the Lower Atlantic Coastal Plain. Below a depth of 400 feet are limestones of the Crystal River Formation (Eocene Epoch). This is overlain by the Suwannee Limstone of the Oligocene Epoch. In Hillsborough County, this formatioin is generally 250 feet in thickness and is part of the Floridian Aquifer, which is a significant water supply source. The overlying deposits of the Miocene Epoch are known as the Tampa or St. Marks Formation. Limestones in this formation are interbedded with indurated silts and clays. The top of this formation typically is found 30 feet or more below existing grades. Clays of the Hawthorne Formation overly the Tampa Formation. The sandy terraces of the Pleistocene Formation form the surface topography of the Hillsborough County area.

6.0 SOIL CONDITIONS

A detailed geotechnical exploration along the proposed expressway alignments are not part of the scope of our services. Subsurface soil conditions along the proposed alignments have been evaluated based on information obtained during our review of the Soil Survey Report of Hillsborough County, Florida, the soil conditions observed during the installation of seven piezometers along Lumsden Road, and soil test boring data for the Interstate 75/Crosstown Expressway interchange provided by Brown & Root-Genesis.

6.1 General Soil Conditions

The upper general soil conditions across the study area are indicated on the General Soil Map of Hillsborough County, Florida (Fig. 9) presented in the Appendix. This map characterizes the upper 6 to 7 feet of soil profile.

The general soil conditions in the western portion of the study area include the soils in the flatwoods. Undeveloped flatwoods is an area which is broad, nearly level, with low ridges of predominantly poorly drained soils characteristically vegetated with open forests of pines and ground cover of saw palmettos. This area is typically made up of soils from the Myakka, Basinger, and Holopaw Series. These soils are poorly to very poorly drained sands to silty sands. Some of the low areas near streams or wetlands may consist of muck or organic silt.

The general soil conditions in the central portion of the study area include soils of the uplands. Undeveloped uplands is an area which is nearly level to strongly sloping, with higher elevations than the alluvial plains or stream terrace. This area is typically made up of Chandler Series soils, which are excessively drained sands and slightly silty sands.

The easternmost portion of the study area includes soils reworked by man. These soils were reworked by phosphate mining operations. The remaining soils are generally sands, but some pits of slime may also be found.

The soils between the upper 6 to 7 feet summarized above and the limestone formation typically encountered at a depth of 30 feet or more generally consist of alternating sequences of sands and clays. The sands are typically loose to firm, while the clays are generally very soft to soft.

The Tampa Limestone Formation includes hard cemented calcareous layers alternating with layers of sands and clay. The surface of the limestone is very irregular as a result of erosion in the geologic past. The average elevation of the top of the formation is at approximately mean sea level at the west end of the study area, then gradually rises to the east.

A detailed soil corrosion analysis is beyond the scope of this study. In general, we would not anticipate that any of the natural soils would be classified as "extremely aggressive" by the FDOT procedures. The reworked soils by the phosphate operations may be somewhat corrosive.

6.2 Alignment Soil Conditions

Each proposed alingment begins at the Interstate 75/Crosstown Expressway interchange. Alignment No. 3 runs northeast towards the intersection of Brandon Boulevard and Providence Road. The upper soil conditions in this area consist of poorly to very poorly drained soils with seasonal high groundwater levels ranging between 0.0 and 1.0 feet below the ground surface, along with well to excessively drained soils with seasonal high groundwater levels greater than 6.0 feet below the ground surface. The upper soil conditions along Brandon Boulevard, between Providence Road and Mt. Carmel Road, are generally well to excessively drained soils with seasonal high groundwater levels greater than 6.0 feet.

Alignment Nos. 7, 49, 51, and 52 run easterly toward Pauls Drive. The upper soil conditions in this area generally consist of poor to poorly drained soils with seasonal high groundwater levels ranging between 0.0 and 1.0 feet below the ground surface. Alignment Nos. 16 and 50 run southeasterly towards Lumsden Road, then follow Lumsden Road to Lithia-Pinecrest. The upper soil conditions south of the Interstate 75/Crosstown Expressway interchange and easterly towards Pauls Drive also consist of poorly to very poorly drained soils with seasonal high groundwater levels ranging between 0.0 and 1.0 feet below the ground surface. Alignment Nos. 7 and 49 connect with Alignment Nos. 16 and 50 east of Pauls Drive, and follow Lumsden Road eastward to Lithia-Pinecrest. The upper soil conditions in this area are generally well to excessively drained, with seasonal high groundwater levels greater than 6.0 feet.

Seven hand auger borings were performed along Lumsden Road. These hand auger borings were located as follows:

BORING NO.	LOCATION
HA-1	Northeast corner of Parsons Avenue/Lumsden Road intersection
HA-2	Southeast corner of Bryan Road/Lumsden Road intersection
HA-3	Southwest corner of Lithia-Pinecrest/Lumsden Road intersection
HA-4	Northwest corner of Mt. Carmel Road/Lumsden Road intersection
HA-5	Northeast corner of Valrico Road/Lumsden Road intersection
HA-6	Southeast corner of Miller Road/Lumsden Road intersection
HA-7	Southwest corner of St. Cloud Avenue/Lumsden Road intersection

The subsurface soil conditions encountered along Lumsden Road (between Parsons Avenue and St. Cloud Avenue) consisted of fine sands and slightly silty to slightly clayey fine sands. These soils generally extended from the ground surface to the boring termination depths of 13 feet. Clayey fine sands were encountered in hand auger boring Nos. HA-2 and HA-3. These clayey fine sands were encountered below 11 feet. The results are shown on the Record of Hand Auger Borings sheets in the Appendix of this report.

Alignment Nos. 51 and 52 continue easterly to Lithia-Pinecrest, north of Lumsden Road. These alignments encounter upper soil conditions which are generally well to excessively drained and have seasonal high groundwater levels greater than 6.0 feet. On the east side of Lithia-Pinecrest, Alignment Nos. 49, 50, and 51 turn towards the northeast and Brandon Boulevard. Alignment Nos. 49, 50, and 51 connect with Brandon Boulevard east of Mt. Carmel Road. Alignment Nos. 49, 50, and 51, as well as Alignment No. 3, follow Brandon Boulevard to Mulrennan Road. The upper soil conditions which these alignments travel through consist of generally well to excessively drained soils, with seasonal high groundwater levels greater than 6.0 feet. Alignment No. 52 turns toward the southeast to connect with Lumsden Road, near Mt. Carmel Road. Alignment Nos. 7, 16, and 52 all follow Lumsden Road to Mulrennan Road. These alignments also travel through an area where the upper soil conditions consist of well to excessively drained soils, with seasonal high groundwater levels of greater than 6.0 feet.

Alignment Nos. 3, 49, 50, and 51 continue to follow Brandon Boulevard to the end of the proposed expressway extension. Alignment Nos. 7, 16, and 52 turn towards the northeast and connect with Brandon Boulevard east of Dover Road. These alignments follow Brandon Boulevard to the end of the proposed expressway extension. The upper soil conditions east of Mulrennan Road generally consist of soils which were formed through phosphate mining operations. These soils consist of two typical soil types. One soil type is made up of sands which are moderately well drained, with seasonal high groundwater levels between 1.7 and 6.0 feet below the ground surface. The second soil type is made up of clays which are very poorly drained, with seasonal high groundwater levels ranging between 0.0 and 0.8 feet below the ground surface. A Soil Survey Map (Fig. 10) is presented in the Appendix.

7.0 GROUNDWATER CONDITIONS

7.1 Review of Existing Data

General groundwater information relating to anticipated seasonal high groundwater levels across the study area was obtained from the Soil Survey Report of Hillsborough County, Florida. Groundwater information for three pond areas along Lumsden Road was provided by Brown & Root/Genesis. Brown & Root/Genesis also provided soil test boring data with measured groundwater levels for the Interstate 75/Crosstown Expressway interchange. This soil test boring data is presented in the Appendix of this report. Law Engineering has installed seven piezometers along Lumsden Road, between Parsons Avenue and St. Cloud Avenue, which have been monitored to measure the fluctuation of groundwater levels.

7.2 Anticipated Seasonal Fluctuation

The anticipated seasonal high groundwater levels across the study area, as indicated in the soil survey report, range from above the ground surface to greater than 6.0 feet below grade. The area located in the vicinity of the Interstate 75/Crosstown Expressway interchange has anticipated seasonal high groundwater levels ranging from the ground surface to approximately 1.0 feet below natural grade. The area eastwards to approximately Pauls Drive and southwards to south of Lumsden Road also has seasonal high groundwater levels between 0.0 and 1.0 feet below the natural ground surface. The seasonal high groundwater levels in the area located between Interstate 75/Crosstown Expressway interchange and the intersection of Providence Road and Brandon Boulevard typically range between 1.0 and 6.0 feet below the natural ground surface.

The seasonal high groundwater level in the area located along Brandon Boulevard and Kings Avenue is anticipated to be below 6.0 feet. The portion of the study area located between Kings Avenue and Mulrennan Road is also expected to have seasonal high groundwater levels below 6.0 feet. The anticipated seasonal high groundwater levels for the area located east of Mulrennan Road ranges between 0.0 and 6.0 feet below the ground surface.

7.3 Measured Groundwater Levels

Soil test boring information for 3 bridge structures in the Interstate 75/Crosstown Expressway interchange was provided. Groundwater levels were measured in 18 of the 23 soil test borings performed for the construction of Interstate 75/Crosstown Expressway interchange in 1980. Thirteen soil test borings were performed for the Crosstown Expressway bridge structure over Interstate 75. The groundwater levels measured in this area ranged between 2.5 and 5.0 feet below the existing ground surface. The second set of soil test borings was performed at the Crosstown Expressway overpass over ramp "B". Groundwater levels in all six of the soil test borings were measured at 7.1 feet below the ground surface. The third set of soil test borings was performed at the Crosstown Expressway overpass over Causeway Boulevard (Lumsden Road). Groundwater levels were measured at 2.5 feet below the ground surface in each of the 4 soil test borings.

Groundwater information along Lumsden Road was obtained from 7 piezometers installed by Law Engineering on May 22, 1990. These piezometers were installed on May 22, 1990 along Lumsden Road, between Parsons Avenue and St. Cloud Avenue. No soils data was obtained at the time of installation. This is the area where a depressed roadway section is being considered. A Piezometer Location Map (Fig. 11) is presented in the Appendix of this report. The measured groundwater levels are as follows:

PIEZOMETER NO.	GROUNDWATER LEVELS (FT.)			
	05/22/90	06/06/90	08/01/90	09/05/90
P-1	13.1	>23.5*	>23.5*	21.5
P-2	14.3	>22.1*	15.7	17.1
P-3	12.1	>22.3*	>22.3*	>22.3*
P-4	11.9	>21.8*	20.0	>21.8*
P-5	13.9	>23.2*	>23.2*	>23.2*
P-6	17.2	>22.6*	>22.6*	>22.6*
P-7	12.1	>23.0*	>23.0*	>23.0*

*Depth of piezometer, no groundwater encountered.

Groundwater levels were initially encountered in all 7 of the piezometers during their installation. However, when the groundwater levels were measured approximately 2 weeks later, no groundwater was encountered. It is our opinion that the water levels encountered during the installation of the piezometers was the result of perched groundwater. This perched groundwater, which was trapped above a layer of clayey soils with a low permeability, flowed into the piezometers.

Additional groundwater information along Lumsden Road was from the Pond Location and Groundwater Information provided by Brown & Root/Genesis. Data for three ponds was provided. Pond No. 1 is located southeast of the Kings Avenue and Lumsden Road intersection. The seasonal high groundwater level at this pond was found to be at elevation +32.5 feet. Pond No. 2 is located south of Lumsden Road and west of Bryan Road. The seasonal high groundwater level in this pond was also measured to be at elevation +32.5 feet. This elevation is 2.5 feet above the pond bottom, which is at elevation +30.0 feet. Pond No. 3 is located north of Lumsden Road and west of Lithia-Pinecrest. The seasonal high groundwater level was measured to be 3.0 feet below the pond bottom, which is at elevation +22.0 feet. The locations of these ponds are presented on the Piezometer Location Map (Fig. 11) in the Appendix.

8.0 EVALUATION AND RECOMMENDATIONS

8.1 Sinkhole Proneness

The Brandon, Florida area historically has not been prone to extensive sinkhole activity; however, there is always a possibility a sinkhole may occur. Most naturally occurring sinkholes in Hillsborough County are usually 5 to 10 feet in diameter and 5 to 10 feet in depth. The cylindrical depressions usually occur rapidly and are associated with long dry spells, excessive rainfall, and changes in groundwater flow (such as during the installation of underground exfiltration systems, etc.).

The size of the sinkhole is proportional to the depth to the limestone formation. The depth to limestone in the study area is typically greater than that found in the area where most sinkholes occur in Hillsborough County. Therefore, any sinkholes that would occur would generally be greater than 10 foot in diameter. The sinkholes that have occurred in Bartow, Florida, 20 miles east of the study area, ranged between 50 and 100 feet in diameter.

There are specific subsurface conditions which may signal an increased likelihood of sinkhole development. These indicators may include voids in the limestone formation and a non-existent or thin clay cap over the limestone formation, which facilitates raveling of non-cohesive soils into voids in the limestone formation. During a geotechnical exploration, additional indicators which may signal an increased likelihood of sinkhole development are losses of drilling circulation in the sand overburden and decreasing standard penetration resistance values (blow counts) with depth.

Site specific data related to the potential for sinkhole development was unavailable. However, our review of available subsurface data has indicated that a relatively thick clay layer is present above the limestone formation and voids in the limestone formation were not generally encountered. A review of the U.S. Geological Survey Map of the Brandon, Florida area has indicated that few cylindrical depressions, which are possible sinkhole developments, are present. A Topographic Survey Map (Fig. 12) is presented in the Appendix.

8.2 Feasible Foundation Alternatives

The soil conditions across the study area indicate that three foundation alternatives are feasible for the support of the Interstate 75 interchange bridges, overpass bridges, and depressed section bridges. These alternatives include:

- Shallow foundations
- Pile foundations
- Drilled shaft foundations

We anticipate that shallow foundations would be the most favorable option in the central highlands portion of the study area. Shallow foundations may also be feasible in the west end of the study area. Near Interstate 75, dewatering may be needed. The shallow foundation alternative would consist of using shallow spread footings to support the bridge structures. Maximum allowable net bearing pressure values of 2 to 4 ksf may be available to design the spread footings. The footings should generally bear at least 2 to 4 feet below the finished grade. This embedment is necessary to provide confinement of the bearing soils, and to achieve the recommended bearing pressure.

The pile foundation alternative would include precast concrete or H-piles driven into the Tampa Limestone Formation. Driven piles would be intended to transfer the structural loads through the looser upper soils to competent portions of the limestone formation. It is our opinion that a pile foundation could be designed using individual pile capacities of 80 to 100 tons, based on total load. Pile sections capable of being driven with up to 100-ton capacity in this stratigraphy include:

- 14-inch by 14-inch prestressed precast concrete piles;
- 18-inch by 18-inch prestressed precast concrete piles;
- 24-inch by 24-inch prestressed precast concrete piles;
- 12 HP 53 H-piles.

Typically, the Tampa limestone is interbedded with seams of hard crystalline limestone "cap rock" and soft silts and clays. For the pile group to develop the required 100 tons per pile capacity, it is critical that no piles are tipped in the seamy limestone cap rock. Even though the cap rock may develop the required resistance for a single pile test, the group efficiency of a pile group bearing in the seamy cap rock could be greatly reduced. Therefore, we recommend hard driving of the piles to minimize the risk of group punching.

The drilled shaft alternative would consist of drilled shafts embedded or "socketed" into the limestone. The table below is a summary of our preliminary capacity estimates for drilled shaft foundations, with the accompanying limestone embedment requirements:

ROCK SOCKET	30-INCH SHAFT (TONS)	36-INCH SHAFT (TONS)	48-INCH SHAFT (TONS)
5-Foot Embedment	145	175	235
10-Foot Embedment	290	350	470
15-Foot Embedment	435	525	705

The above capacity estimates assume a limestone shear strength of 7.5 ksf. The maximum embedment depth of the shaft into the limestone should be 15 feet. The shafts would be installed using wet methods.

8.3 Borrow Suitability and Locations

The soil survey report for Hillsborough County, Florida, which includes the study area, indicated that the soil types which may be encountered during the construction of the Crosstown Expressway Extension are adaptable for borrow and fill material. The most favorable soils are the relatively clean sands found in the highlands areas.

The following fill material recommendations are based on FDOT Material Usage Guidelines, as well as our experience with the local soils available for fill construction. The materials are specified according to the AASHTO Classification system.

PLACEMENT LOCATION	CLASSIFICATIONS
Material may be used for subgrade and embankment fill	(A-3) (A-2-4)
Material may be used for fill 12 inches below finished foundation grade	(A-3) (A-2-4)
Material may be used for foundation and embankment fill for 4 feet below subgrade	(A-3) (A-4) (A-6) (A-2-4) (A-2-6)
Material not suitable for either foundation fill or subgrade (organics and muck)	(A-8)

The proposed expressway alignment should be cleared and grubbed of all organics, roots, construction debris, and deleterious materials in the surficial soil prior to the initiation of embankment fill placement, as described in Section 110 of the FDOT Standard Specifications. Areas with high organic contents encountered during clearing operations should be inspected by a geotechnical engineer during construction to evaluate the excavation requirements.

Embankment fill should be placed in 8-inch loose lifts and compacted to 100 percent of the Standard Proctor maximum dry density, as described by AASHTO Standard T-99, Method C, as specified in FDOT Standard Specifications, Section 120, "Excavation and Embankment". Moisture contents of the fill soils should be adjusted by the addition of water, or by disk dry to that necessary to attain the specific density.

8.4 Pavement Design

The two main geotechnical considerations for pavement design are:

- The need for separation of the pavement base and the groundwater level;
- The probable need for stabilization of the subgrade portion of the pavement section.

In the western portion of the study area, the groundwater level is near or above the natural groundsurface during the wetter time of the year. The roadway section will need to be elevated on embankment fill to provide the proper separation between the pavement base and the groundwater level. Underdrains could also be used to provide the separation. In areas were roadway cuts are planned, the groundwater elevations should also be considered.

The relatively clean sands from the highlands areas in the central portion of the study area are favorable for use as embankment fill. However, they will probably need to be stabilized using limerock or shell when they are used as pavement subgrade. Based our past experience in the area, the existing LBR of these soils is in the range of 10 to 20. An LBR of 40 is needed for FDOT Type B stabilization.

8.5 Retaining Walls

8.5.1 Above-Grade Proprietary Walls

The soil condition in the study area are generally favorable for support to above-grade proprietary walls. Unfavorable conditions may exist in any muck areas in the western portion of the study area or in former slime ponds in portions of the phosphate mined area at the east end of the study area. We recommend the design of the above grade proprietary retaining walls be analyzed by means of external stability analysis. The external stability analyses of the retaining system will include the evaluation of several potential modes of retaining wall instability, as well as settlement potential. The evaluation and analyses should be performed:

1. **Sliding** - an evaluation of the factor of safety for horizontal slippage between the bottom of the reinforced earth wall mass and underlying supporting soils. For design purposes, the soils containing reinforcement are assumed to act as a mass;

2. **Rotational Instability** - an evaluation of the factor of safety against rotational slip circle instability in the soils supporting and behind the reinforced earth mass;

3. **Differential Settlement** - an evaluation of the differential settlement potential along the length of the walls.

The following criteria on minimum factors of safety are considered to be appropriate:

CONDITION	MINIMUM FACTOR OF SAFETY
Sliding	1.5
Rotational Instability	1.5

The proprietary earth retaining walls should use construction techniques similar to the "reinforced earth" concept. The exterior face of the wall consists of precast concrete panels attached to horizontal metal strips. We recommend that these strips extend horizontally into the retained backfill soils for distances of at least 20 to 30 feet, reinforcing the soil.

8.5.2 Depressed Section

The depressed section appears to be a geotechnically favorable alternative along the highland area of Lumsden Road. The geotechnical considerations for this area include:

- Excavated Material - The excavated material should generally be favorable for embankment fill elsewhere along the alignment. Most of the soils are anticipated to be relatively clean sands. When clayey soils are encountered, their compaction capability maybe sensitive to moisture content. The plasticity characteristics of any clayey soils encountered should also be evaluated and correlated to shrink-swell potential.

- Perched Groundwater - The piezometers installed along Lumsden Road encountered perched water conditions. This is a result of downward percolation surface water being temporarily trapped on low permeability clayey soils. This perched groundwater will need to be controlled using underdrains or other measures, just like a permanent water-table.

- Excavation Stability - The relatively clean sands that will probably be found in the area to be excavated for the depressed section can not stand vertically. Therefore, a retaining system will be needed during excavation or the side slopes will probably need to be 2:1 (H:V) or shallower.

- Permanent Retaining Wall - The permanent retaining wall could consist of conventionally reinforced concrete, proprietary wall, keystone block or other methods designed to resist the earth pressure induced along the sides of the depressed section. The basefill adjacent to the wall should be free draining to minimize hydrostatic pressures.

8.6 Construction Excavations

Due to the anticipated loose natured soils across the study area, the walls of any construction excavation may be unstable. Shoring or laying the walls back to a slope of at least 2 horizontal to 1 vertical will be necessary. Also, due to the high seasonal high water levels in the western portion of the study area, dewatering of the construction excavations may be necessary. When dewatering is necessary, we recommend that wellpoints or perimeter trenches be utilized to dewater the area. The low water levels encountered in the piezometers along the proposed depressed section of the proposed Lumsden Road alignments indicate that dewatering may not be necessary for excavations less than 10 feet deep in the highlands along Lumsden Road.

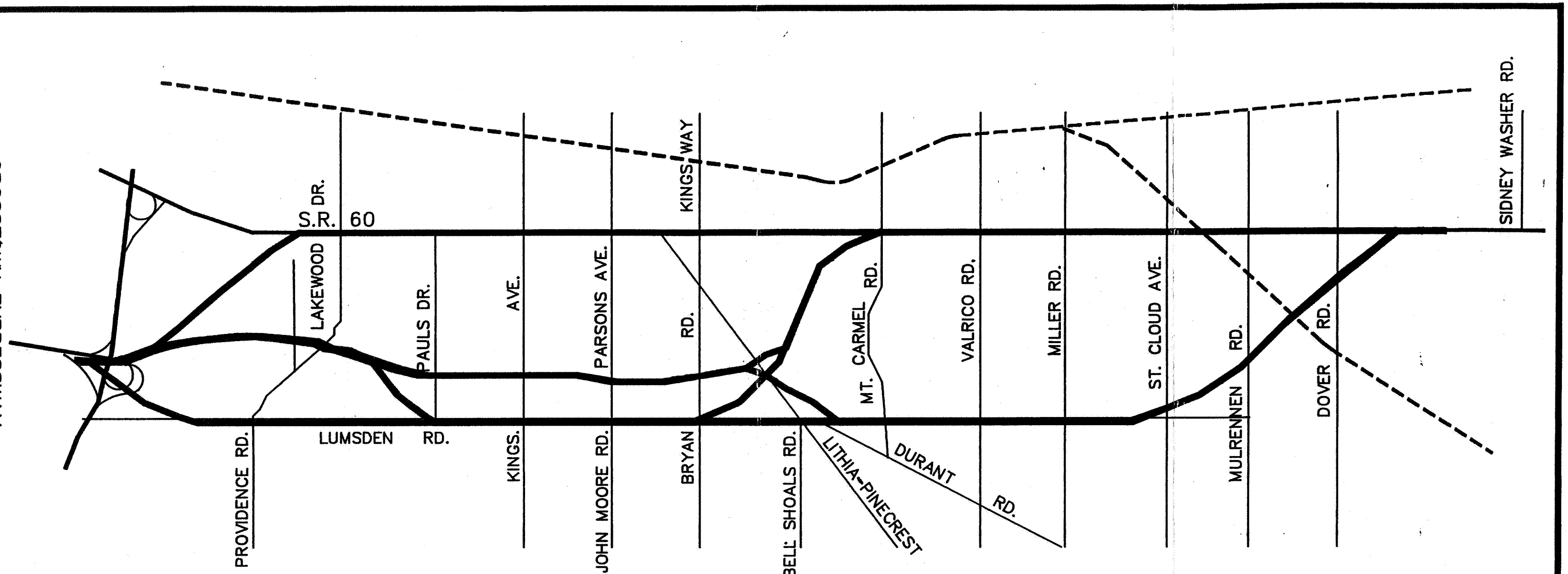
8.7 Retention/Detention Areas

The soil survey report for Hillsborough County, Florida has indicated that the majority of the soils east of Kings Avenue and west of Mulrennan Road have a high infiltration rate. The majority of the soils located west of Kings Avenue and east of Mulrennan Road have moderate to very slow infiltration rates. A the very eastern end of the study area, infiltration rates are unpredictable due to the phosphate mining activities. Soil test borings and infiltration tests (such as the double-ring infiltration test) should be performed at each proposed retention/detention area to determine site specific capabilities.

9.0 BASIS FOR EVALUATION

The findings of this study are based on the project information provided to us and our experience in the area. Please contact us if new information becomes available so that we can review our evaluation. The soil conditions will vary considerably along the study area. We suggest that soil test borings and auger borings be drilled along the final alignment to establish specific soil conditions.

APPENDIX



LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

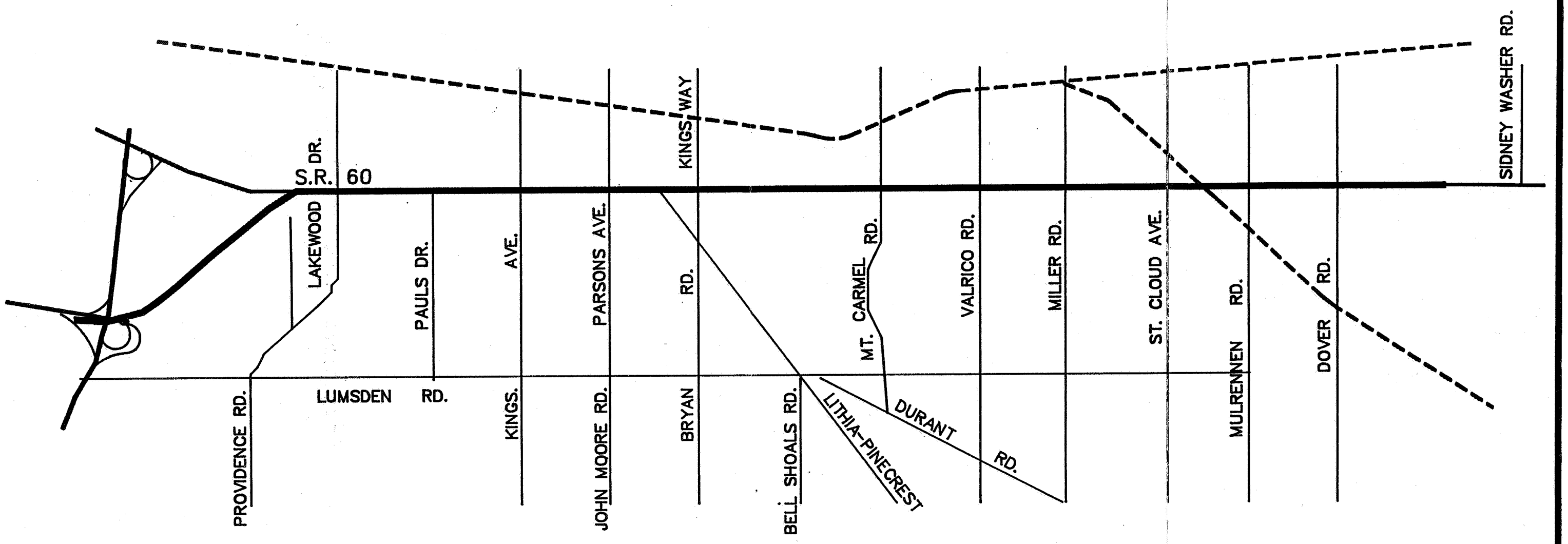
STUDY AREA LOCATION MAP
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 1



ALTERNATIVE ALIGNMENT 3

LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

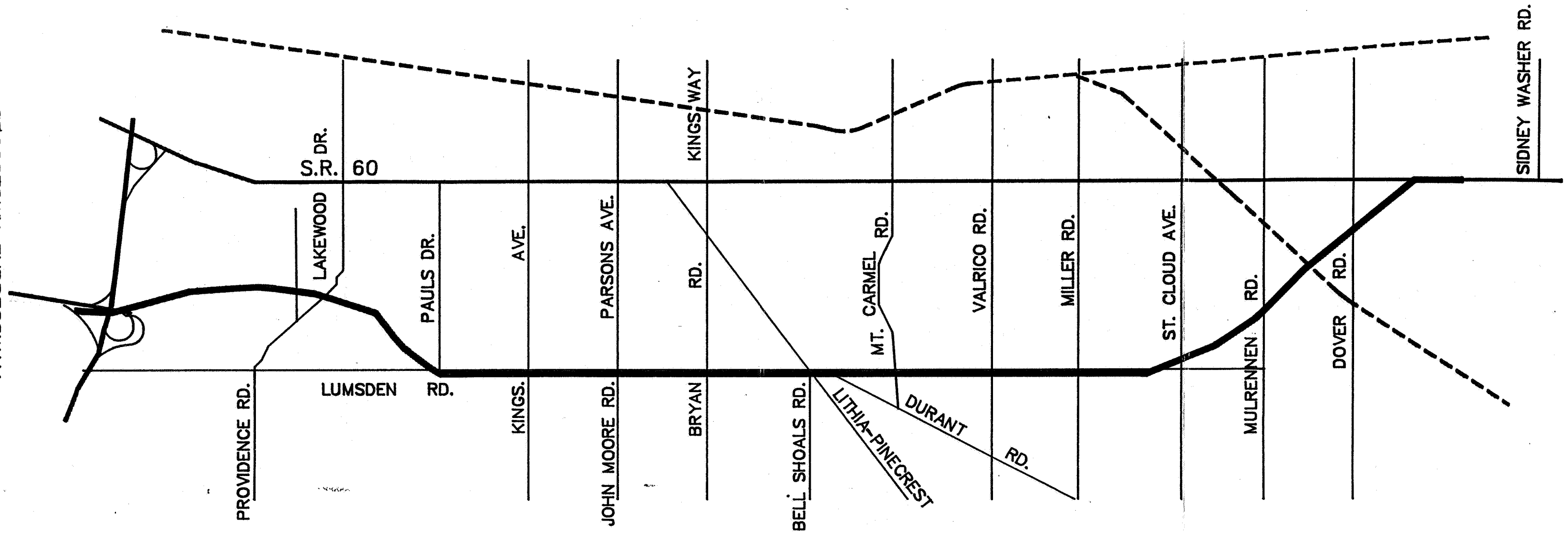
PROPOSED ALIGNMENT
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 8/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 2



ALTERNATIVE ALIGNMENT 7

LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

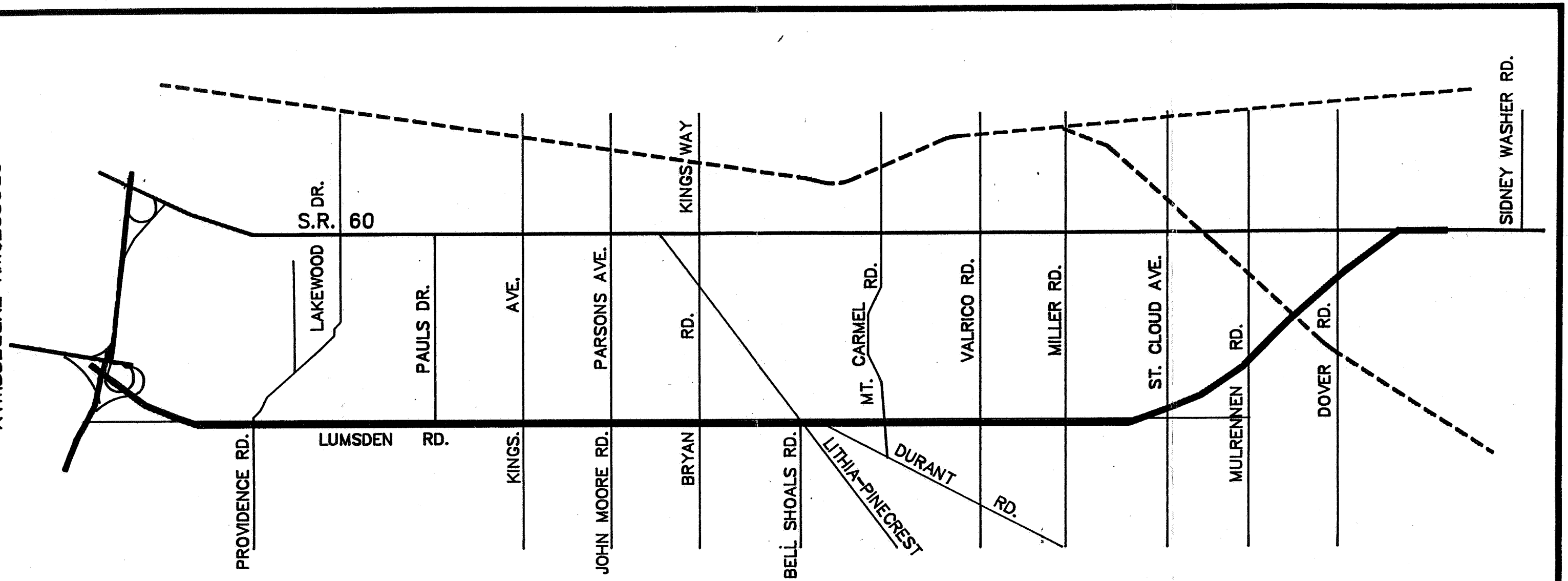
PROPOSED ALIGNMENT
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 8/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 3



ALTERNATIVE ALIGNMENT 16

LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

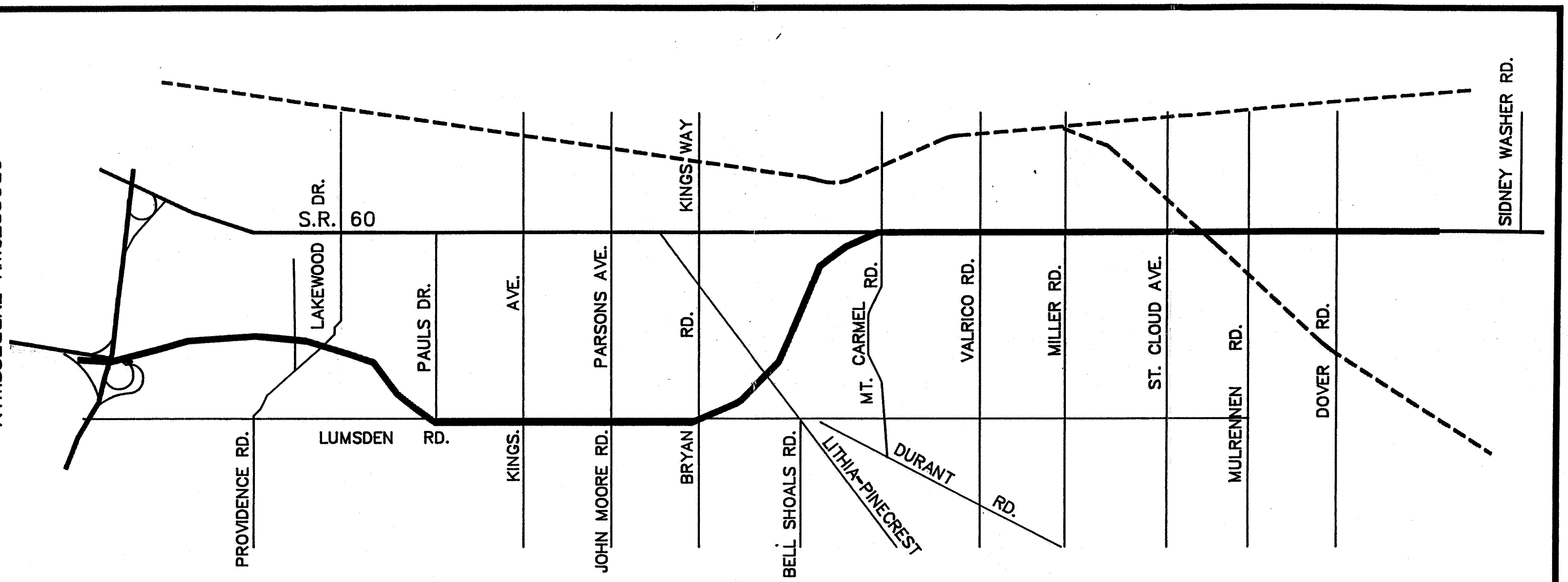
PROPOSED ALIGNMENT
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 8/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 4



ALTERNATIVE ALIGNMENT 49

LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

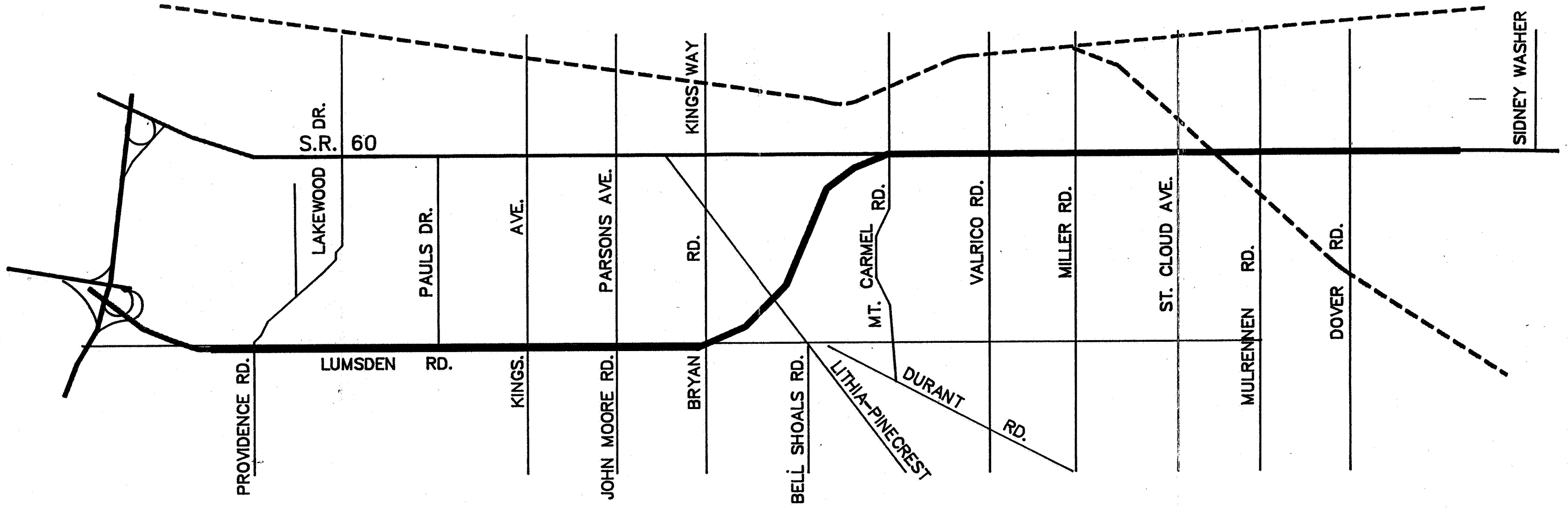
PROPOSED ALIGNMENT
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 5



ALTERNATIVE ALIGNMENT 50

LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

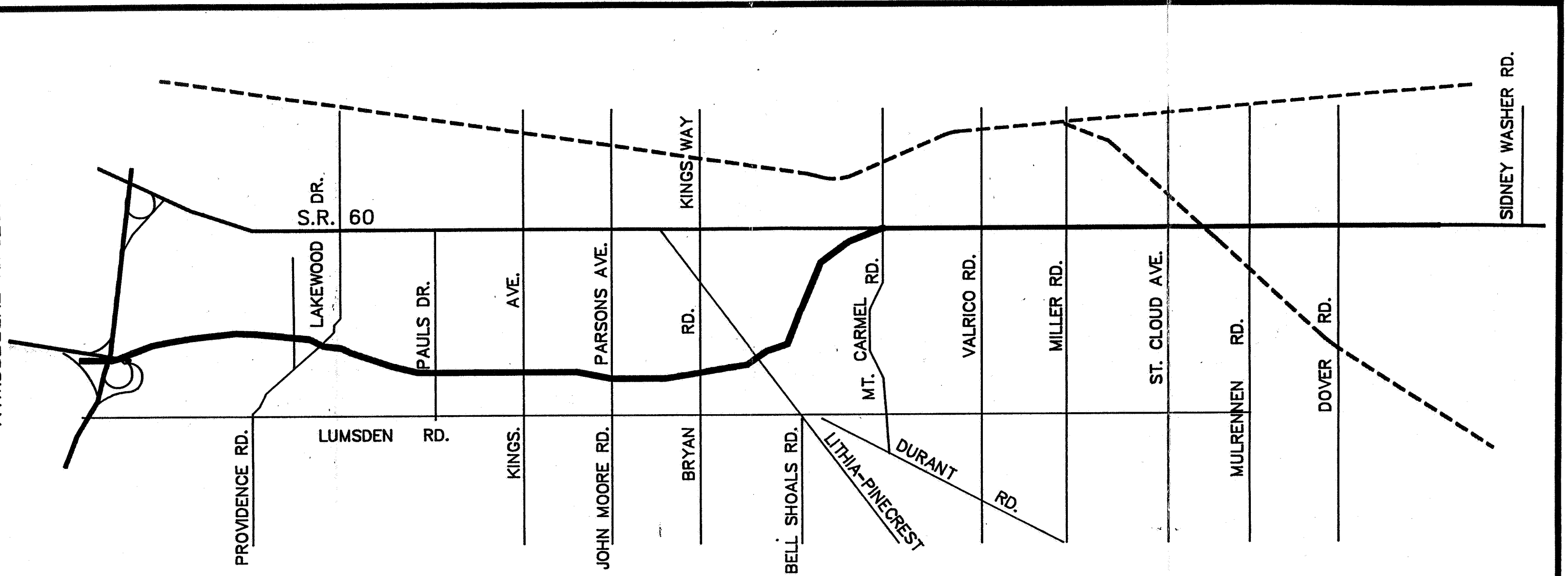
PROPOSED ALIGNMENT
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 6



ALTERNATIVE ALIGNMENT 51

LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

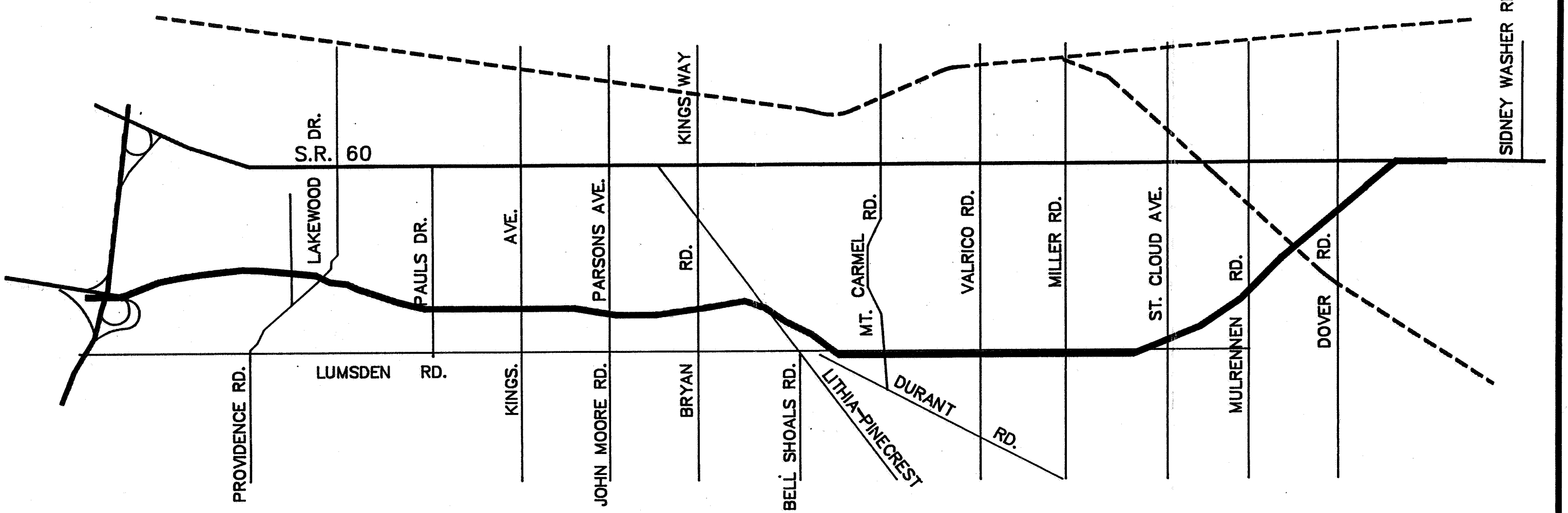
PROPOSED ALIGNMENT
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 7



ALTERNATIVE ALIGNMENT 52

LEGEND

PROPOSED ALIGNMENT

RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000

APPROXIMATE SCALE IN FEET

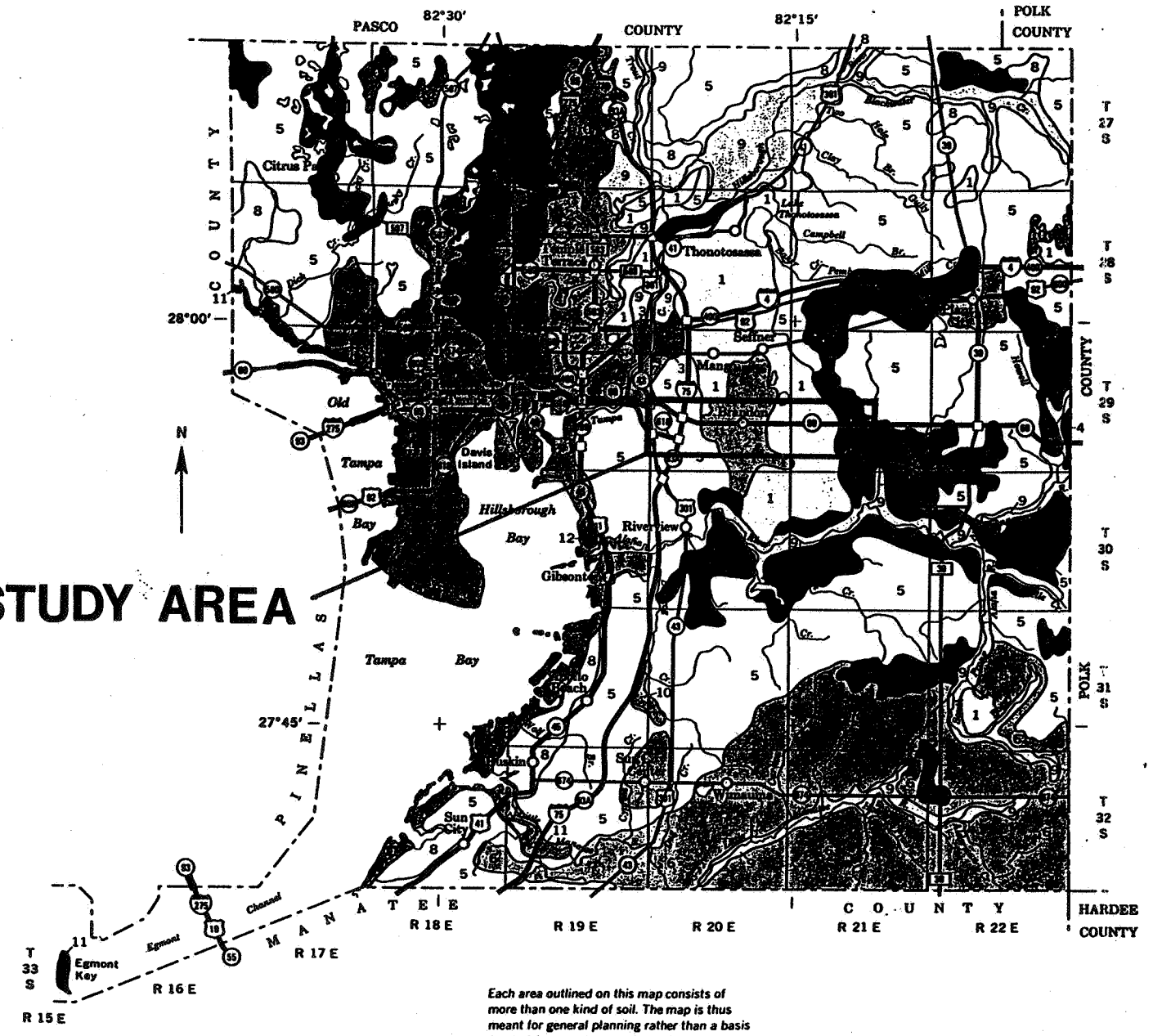
PROPOSED ALIGNMENT
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 8



STUDY AREA

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

LEGEND

SOILS OF THE UPLANDS AND LOW RIDGES

1 — Candler-Lake: Nearly level to strongly sloping, excessively drained soils that are sandy throughout

2 — Urban land-Candler: Nearly level to strongly sloping, excessively drained soils that are sandy throughout and have thin lamellae below 66 inches of the surface; most areas have been modified for urban use

Urban land-Tavares: Nearly level to sloping, moderately well drained soils that are sandy throughout; most areas have been modified for urban use

Zolfo-Seffner-Tavares: Nearly level to moderately sloping, moderately well drained and somewhat poorly drained soils that have a sandy subsoil or are sandy throughout

SOILS OF THE FLATWOODS

5 — Myakka-Basinger-Holopaw: Nearly level, poorly drained and very poorly drained soils that have a sandy subsoil, are sandy throughout, or have a loamy subsoil

6 — Myakka-Immokalee-Pomello: Nearly level to gently sloping, poorly drained and moderately well drained soils that have a sandy subsoil

7 — Urban land-Myakka-Smyrna: Nearly level, poorly drained soils that have a sandy subsoil; most areas have been modified for urban use

8 — Malabar-Wabasso-Basinger: Nearly level, poorly drained and very poorly drained soils that have a loamy subsoil, or have a sandy and loamy subsoil, or are sandy throughout

SOILS OF THE WETLANDS AND COASTAL AREAS

9 — Winder-Chobee-St. Johns: Nearly level, poorly drained and very poorly drained soils that have a loamy or a sandy subsoil

10 — Samsula-Basinger: Nearly level, very poorly drained soils that are mucky in the upper part and sandy in the lower part or are sandy throughout

Myakka-Urban land-St. Augustine: Nearly level, very poorly drained to somewhat poorly drained soils that have a sandy subsoil or are sandy throughout; many areas have been modified for urban use

SOILS OF THE MANMADE AREAS

Arents-Haplaquents-Quartzipsamments: Very steep, heterogenous soils; nearly level, very poorly drained soils that are clayey throughout; and moderately well drained to excessively drained soils that are sandy throughout

COMPILED 1986

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES
AGRICULTURAL EXPERIMENT STATIONS
SOIL SCIENCE DEPARTMENT
FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

GENERAL SOIL MAP

HILLSBOROUGH COUNTY, FLORIDA

Scale 1:316,800

1 0 1 2 3 4 5 Miles

1 0 · 5 10 Km

REFERENCE: SOIL SURVEY OF HILLSBOROUGH COUNTY, FLORIDA
U.S. SOIL CONSERVATION SERVICE
DATED: MAY 1989

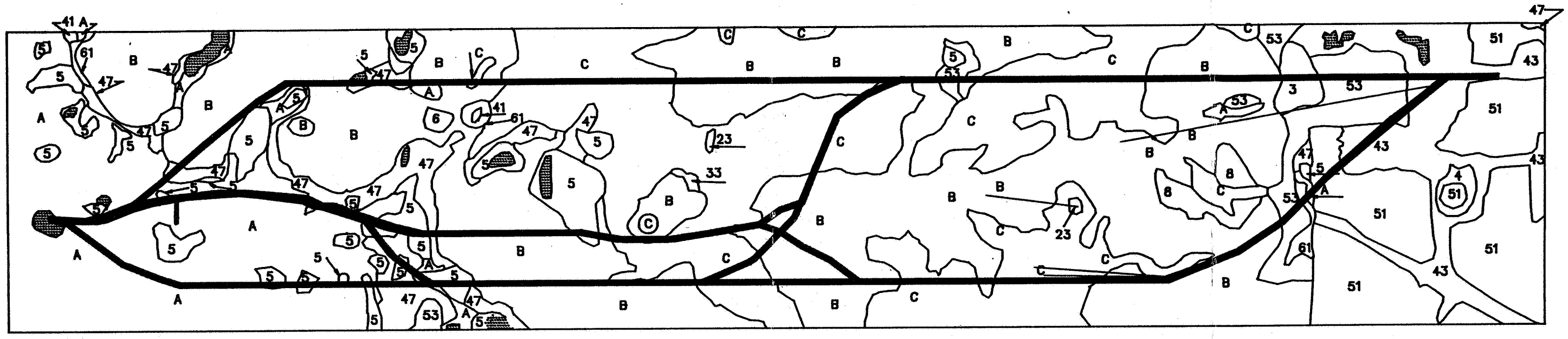
GENERAL SOIL MAP
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T-5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 9



LEGEND

A – 21,27,29,33,46,52
B – 7,9,25,35
C – 18,19

REFERENCE: SOIL SURVEY OF HILLSBOROUGH COUNTY, FLORIDA
PROVIDED BY U.S. SOIL CONSERVATION SERVICE
DATED MAY 1989

0 2000 4000 6000
APPROXIMATE SCALE IN FEET

SOIL SURVEY MAP
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T-5687

Drawn: CLK, 12/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 10

ARGHBOLD SERIES
SOIL INDEX–3
SEASONAL HIGH WATER LEVEL
3.5'–6.0'
MODERATELY WELL DRAINED
TYPICALLY ON LOW RIDGES ON THE FLATWOODS
REACTION RANGES FROM EXTREMELY ACID TO STRONGLY ACID
INFILTRATION RATE: HIGH

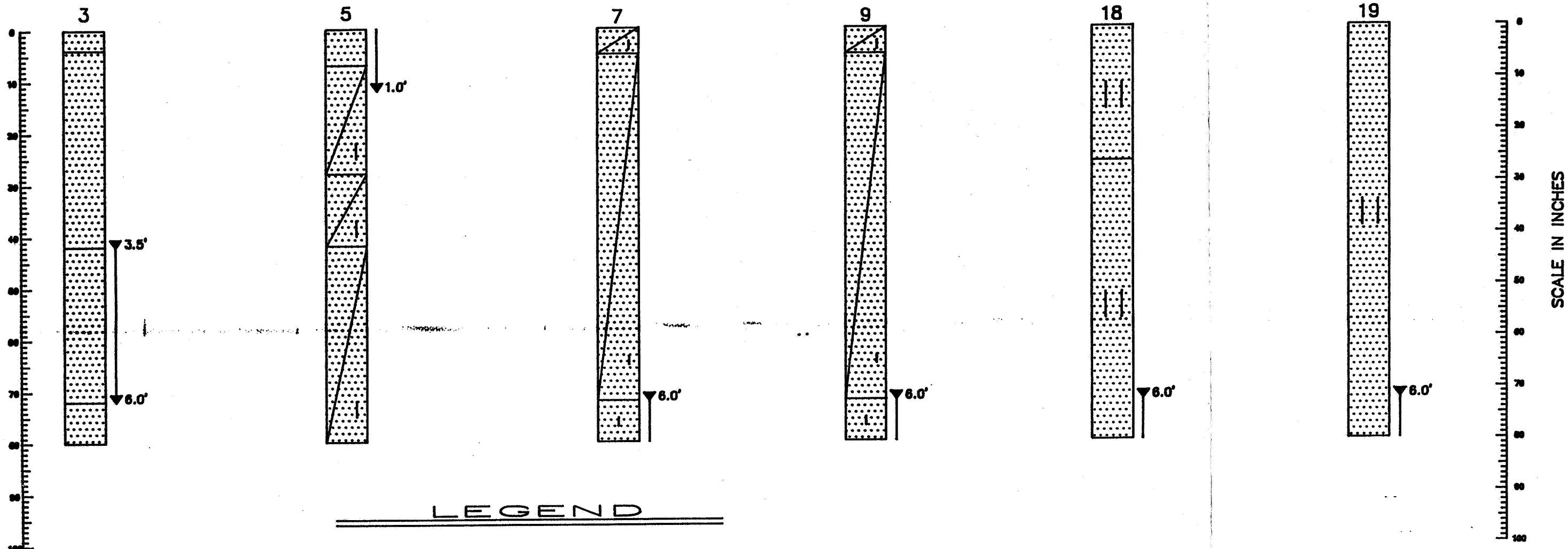
BASINGER SERIES
SOIL INDEX–5
SEASONAL HIGH WATER LEVEL
+2.0'–1.0'
VERY POORLY DRAINED
TYPICALLY IN SWAMPS AND DEPRESSIONS AND ALONG DRAINAGEWAYS ON THE FLATWOODS
REACTION RANGES FROM EXTREMELY ACID TO NEUTRAL
INFILTRATION RATE: VERY SLOW

CANDLER SERIES
SOIL INDEX–7
SEASONAL HIGH WATER LEVEL
> 6.0'
EXCESSIVELY DRAINED
TYPICALLY ON THE UPLANDS
REACTION RANGES FROM VERY STRONGLY ACID TO MEDIUM ACID
INFILTRATION RATE: HIGH

CANDLER SERIES
SOIL INDEX–9
SEASONAL HIGH WATER LEVEL
> 6.0'
EXCESSIVELY DRAINED
TYPICALLY ON THE UPLANDS
REACTION RANGES FROM VERY STRONGLY ACID TO MEDIUM ACID
INFILTRATION RATE: HIGH

FORT MEADE SERIES
SOIL INDEX–18
SEASONAL HIGH WATER LEVEL
> 6.0'
WELL DRAINED
TYPICALLY ON THE UPLANDS
REACTION RANGES FROM STRONGLY TO NEUTRAL IN HORIZON A
REACTION RANGES FROM VERY STRONGLY ACID TO MEDIUM ACID IN HORIZON C
INFILTRATION RATE: HIGH

GAINESVILLE SERIES
SOIL INDEX–19
SEASONAL HIGH WATER LEVEL
> 6.0'
WELL DRAINED
TYPICALLY ON THE UPLANDS
REACTION RANGES FROM VERY STRONGLY ACID TO SLIGHTLY ACID
INFILTRATION RATE: HIGH



LEGEND

- SANDS AND FINE SANDS (A–3)
- SLIGHTLY SILTY FINE SANDS (A–2–4)
- SILTY FINE SANDS (A–2–4, A–4)
- SLIGHTLY CLAYEY FINE SANDS (A–2–6)
- CLAYEY FINE SANDS (A–2–6, A–6)
- CLAYS (A–7)
- FINE SANDS TO SLIGHTLY SILTY FINE SANDS (A–2–4)
- FINE SANDS TO SILTY FINE SANDS (A–2–4)
- SLIGHTLY SILTY FINE SANDS TO SILTY FINE SANDS (A–2–4, A–4)
- CLAYEY FINE SANDS TO SILTY FINE SANDS (A–2–4, A–2–6)

SOIL SURVEY PROFILES
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 10A

MIMOKALEE SERIES
SOIL INDEX–21
SEASONAL HIGH WATER LEVEL
0 – 1.0'
POORLY DRAINED
TYPICALLY ON THE BROAD PLAINS ON THE FLATWOODS
REACTION RANGES FROM EXTREMELY ACID TO MEDIUM ACID
INFILTRATION RATE: MODERATE TO VERY SLOW

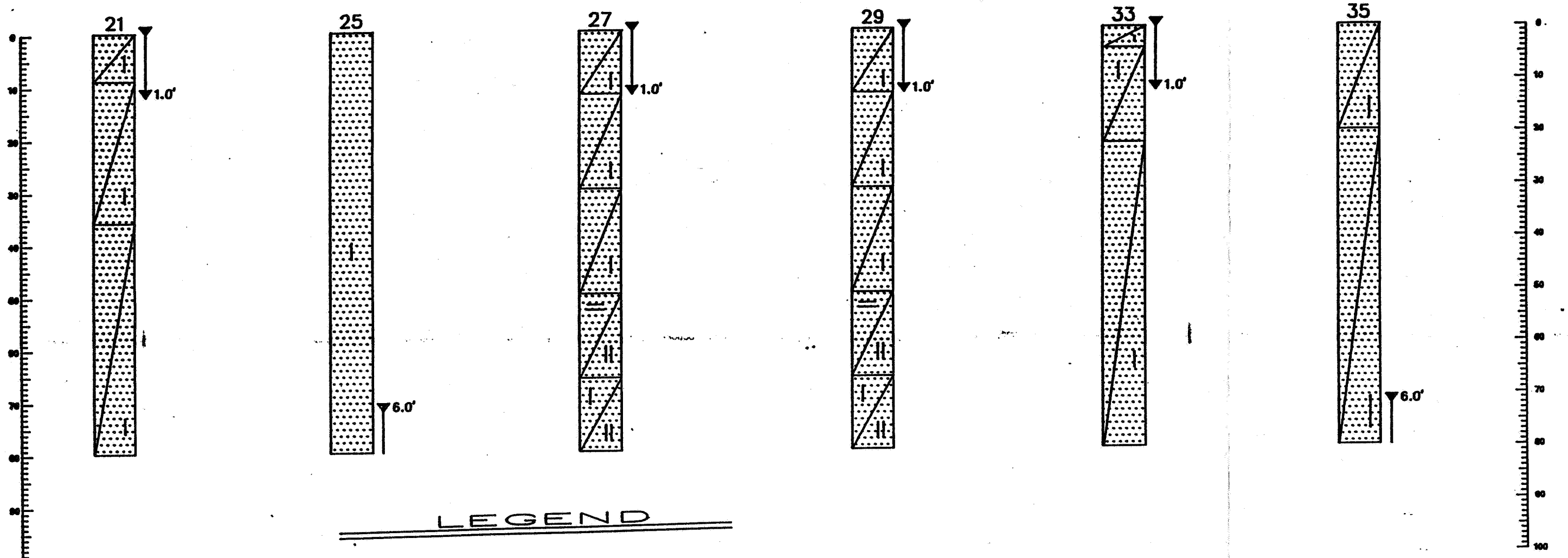
LAKE SERIES
SOIL INDEX–25
SEASONAL HIGH WATER LEVEL
> 6.0'
POORLY DRAINED
TYPICALLY ON THE UPLANDS
REACTION RANGES FROM VERY STRONGLY ACID TO STRONGLY ACID
INFILTRATION RATE: HIGH

MALABAR SERIES
SOIL INDEX–27
SEASONAL HIGH WATER LEVEL
0 – 1.0'
POORLY DRAINED
TYPICALLY ON BROAD, LOW–LYING FLAT AND IN SHALLOW DEPRESSIONS ON THE FLATWOODS
REACTIONS RANGE FROM STRONGLY ACID TO MODERATELY ALKALINE
INFILTRATION RATE: MODERATE TO VERY SLOW

MYAKKA SERIES
SOIL INDEX–29
SEASONAL HIGH WATER LEVEL
0 – 1.0'
POORLY TO VERY POORLY DRAINED
TYPICALLY ON BROAD PLAINS ON THE FLATLANDS
REACTIONS RANGE FROM EXTREMELY ACID TO SLIGHTLY ACID
INFILTRATION RATE: MODERATE TO VERY SLOW

ONA SERIES
SOIL INDEX–33
SEASONAL HIGH WATER LEVEL
0 – 1.0'
POORLY DRAINED
TYPICALLY ON BROAD PLAINS ON THE FLATWOOD
REACTIONS RANGE FROM EXTREMELY ACID TO MEDIUM ACID
INFILTRATION RATE: MODERATE TO VERY SLOW

ORLANDO SERIES
SOIL INDEX–35
SEASONAL HIGH WATER LEVEL
> 6.0'
WELL DRAINED
TYPICALLY ON THE UPLANDS
REACTION RANGES FROM VERY STRONGLY ACID TO SLIGHTLY ACID IN HORIZON A
REACTION RANGES FROM VERY STRONGLY ACID TO MEDIUM ACID IN HORIZON C
INFILTRATION RATE: HIGH



LEGEND

- SANDS AND FINE SANDS (A–3)
- SLIGHTLY SILTY FINE SANDS (A–2–4)
- SILTY FINE SANDS (A–2–4, A–4)
- SLIGHTLY CLAYEY FINE SANDS (A–2–6)
- CLAYEY FINE SANDS (A–2–6, A–6)
- CLAYS (A–7)
- FINE SANDS TO SLIGHTLY SILTY FINE SANDS (A–2–4)
- FINE SANDS TO SILTY FINE SANDS (A–2–4)
- SLIGHTLY SILTY FINE SANDS TO SILTY FINE SANDS (A–2–4, A–4)
- CLAYEY FINE SANDS TO SILTY FINE SANDS (A–2–4, A–2–6)

SOIL SURVEY PROFILE
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 10B

QUARTZIPSAMMENTS SERIES
SOIL INDEX–43
SEASONAL HIGH WATER LEVEL
1.7' – 6.0'
MODERATELY WELL DRAINED
FORMED IN ACCUMULATIONS OF SAND FROM PHOSPHATE MINING OPERATIONS

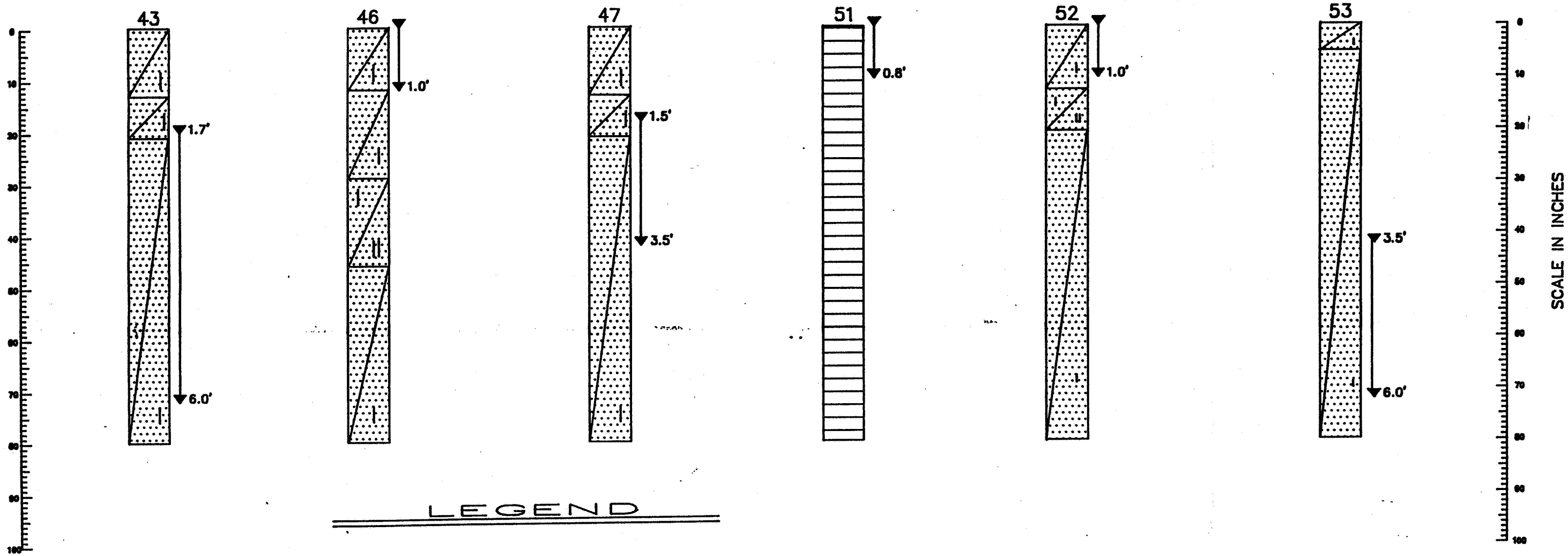
ST. JOHNS SERIES
SOIL INDEX–46
SEASONAL HIGH WATER LEVEL
0 – 1.0'
POORLY DRAINED
TYPICALLY ON BROAD, LOW–LYING PLAINS ON THE FLATLANDS
REACTION RANGES FROM SLIGHTLY ACID TO MODERATELY ALKALINE
INFILTRATION RATE: MODERATE TO VERY SLOW

SEFFNER SERIES
SOIL INDEX–47
SEASONAL HIGH WATER LEVEL
1.5' – 3.5'
SOMEWHAT POORLY DRAINED
TYPICALLY ON LOW RIDGES AND RIMS OF DEPRESSIONS ON THE FLATWOODS
REACTION RANGES FROM VERY STRONGLY ACID TO NEUTRAL
INFILTRATION RATE: MODERATE TO VERY SLOW

HAPLAQUENTS SERIES
SOIL INDEX–51
SEASONAL HIGH WATER LEVEL
0 – 0.8'
FORMED IN ACCUMULATIONS OF FINE TEXTURED MATERIAL FROM PHOSPHATE MIXING OPERATIONS

SMORNA SERIES
SOIL INDEX–52
SEASONAL HIGH WATER LEVEL
0 – 1.0'
POORLY DRAINED
TYPICALLY ON BROAD, LOW–LYING, CONVEX SWELLS ON THE FLATWOODS
REACTION RANGES FROM EXTREMELY ACID TO NEUTRAL IN HORIZON A,E, AND BH
REACTION RANGES FROM VERY STRONGLY ACID TO STRONGLY ACID IN HORIZON C

TAVARES SERIES
SOIL INDEX–53
SEASONAL HIGH WATER LEVEL
3.5' – 6.0'
MODERATELY WELL DRAINED
TYPICALLY ON LOW–LYING AREAS ON THE UPLANDS
REACTION RANGES FROM EXTREMELY ACID TO MEDIUM ACID



LEGEND

- SANDS AND FINE SANDS (A–3)
- SLIGHTLY SILTY FINE SANDS (A–2–4)
- SILTY FINE SANDS (A–2–4, A–4)
- SLIGHTLY CLAYEY FINE SANDS (A–2–6)
- CLAYEY FINE SANDS (A–2–6, A–6)
- CLAYS (A–7)
- FINE SANDS TO SLIGHTLY SILTY FINE SANDS (A–2–4)
- FINE SANDS TO SILTY FINE SANDS (A–2–4)
- SLIGHTLY SILTY FINE SANDS TO SILTY FINE SANDS (A–2–4, A–4)
- CLAYEY FINE SANDS TO SILTY FINE SANDS (A–2–4, A–2–6)

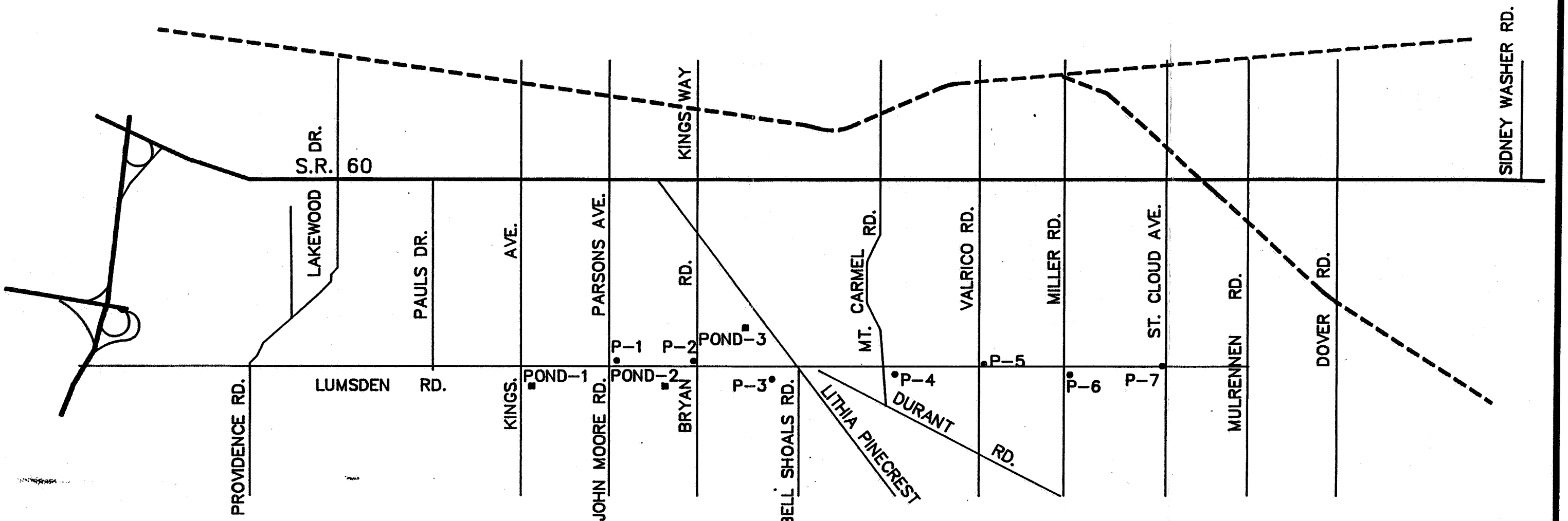
SOIL SURVEY PROFILE
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 10C



REFERENCE: (ALTERNATE ALIGNMENTS)
PLAN PROVIDED BY GLATTING LOPEZ, KERCHER, AND ANGLIN; BROWN & ROOT–GENESIS; AND HDR ENGINEERING COMPANIES
DATED MARCH 1990

- • PIEZOMETER LOCATION
- ▪ POND LOCATION

LEGEND

- PROPOSED ALIGNMENT
- RAILROAD

REFERENCE: ALTERNATIVE ALIGNMENTS
BROWN & ROOT–GENESIS
DATED JUNE 1990

0 2000 4000 6000
APPROXIMATE SCALE IN FEET

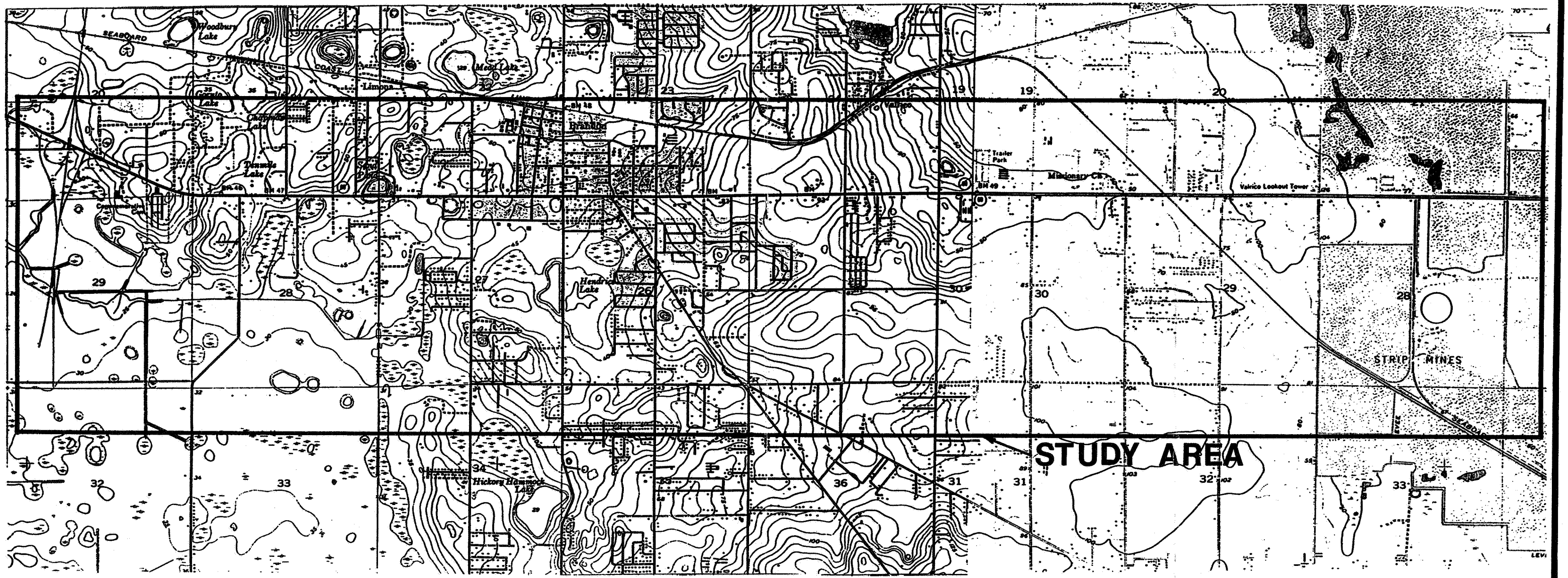
PIEZOMETER LOCATION MAP
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

FIG. 11



REFERENCE: BRANDON QUADRANGLE, FLORIDA
US GEOLOGICAL SURVEY MAP
DATED: 1956, PHOTO–REVISED 1969

0 1000 2000 3000
APPROXIMATE SCALE IN FEET

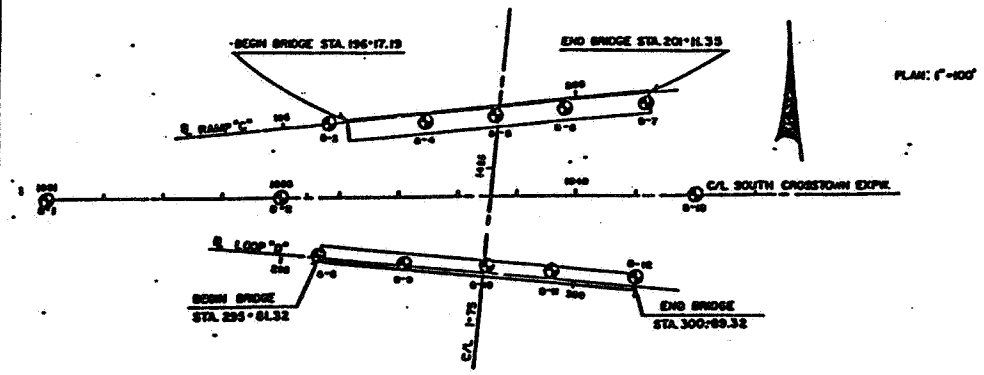
TOPOGRAPHIC SURVEY MAP
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T–5687

Drawn: SJJ, 9/18/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

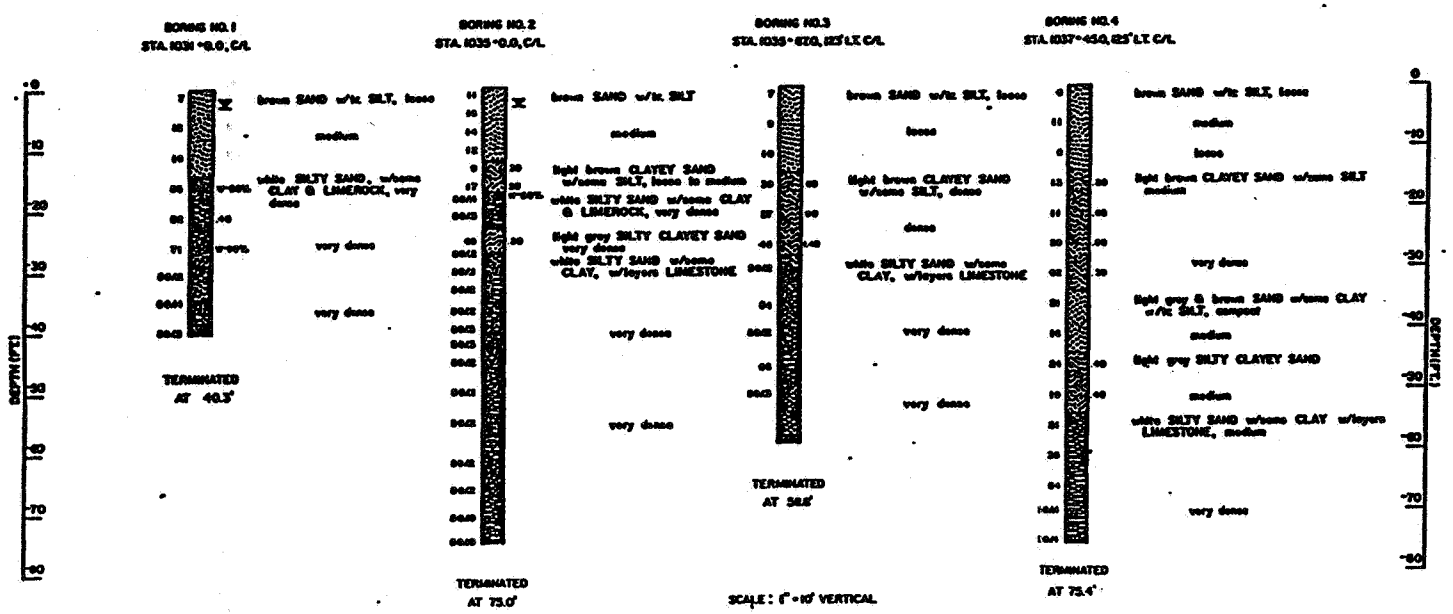
FIG. 12



PLAN: 1"=100'

LOCATION
TOWNSHIP = 29 S
RANGE = 20 E
SECTION = 29

LEGEND
- SAND
- SILTY SAND
- CLAYEY SAND
- CLAY
- CLAYEY SILT



SCALE: 1"=10' VERTICAL
HORIZONTAL NOT TO SCALE

NOTES

Numbers to the left of borings indicate blows on spoon for 12" penetration. (Unless otherwise noted.)

Numbers to the right of borings indicate vane shear test in tons per square foot.

Due to unknown elevations, borings were made from an assumed elevation of 0'.

Due to core boring locations and procedures, strata may differ with true profile.

▽ = Water table ⊓ = Casing used

B = Drilled

W = 100% Loss of circulating water, (Unless otherwise noted.)

SPOON

Inside diameter = 1 3/8"

Outside diameter = 2"

Weight of hammer = 140 lbs.

Average drop of hammer = 30"

BORING DATA (ALTERNATES A & B)
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
REPORT OF CORE BORINGS FOR STRUCTURES

SOUTH CROSSTOWN EXPWY. OVER I-75

PROJ. NO.: 10075-3422 — BORING DATE: 4/22-5/12/80
ROAD NO.: X-TOWN EXPW. — BORINGS BY: BROWN
COUNTY: HILLSBOROUGH — SUBMITTED BY: J. J. BUCKLEY 20837 P.E. NO. & FOUND ENGR.

APPROVED BY: [signature] — DRAWING NO.: 41 OF 163 — INDEX NO.: 13367

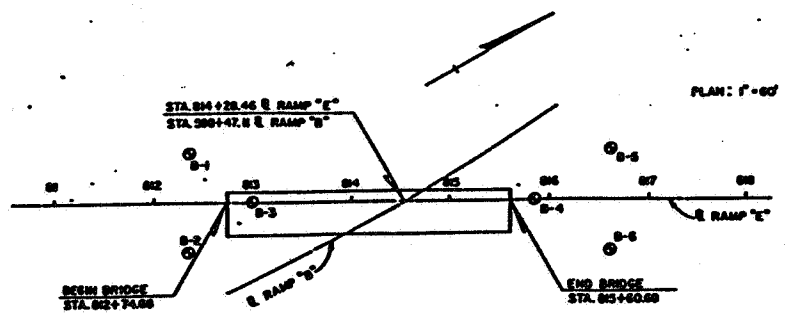
SOIL PROFILES
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T-5687

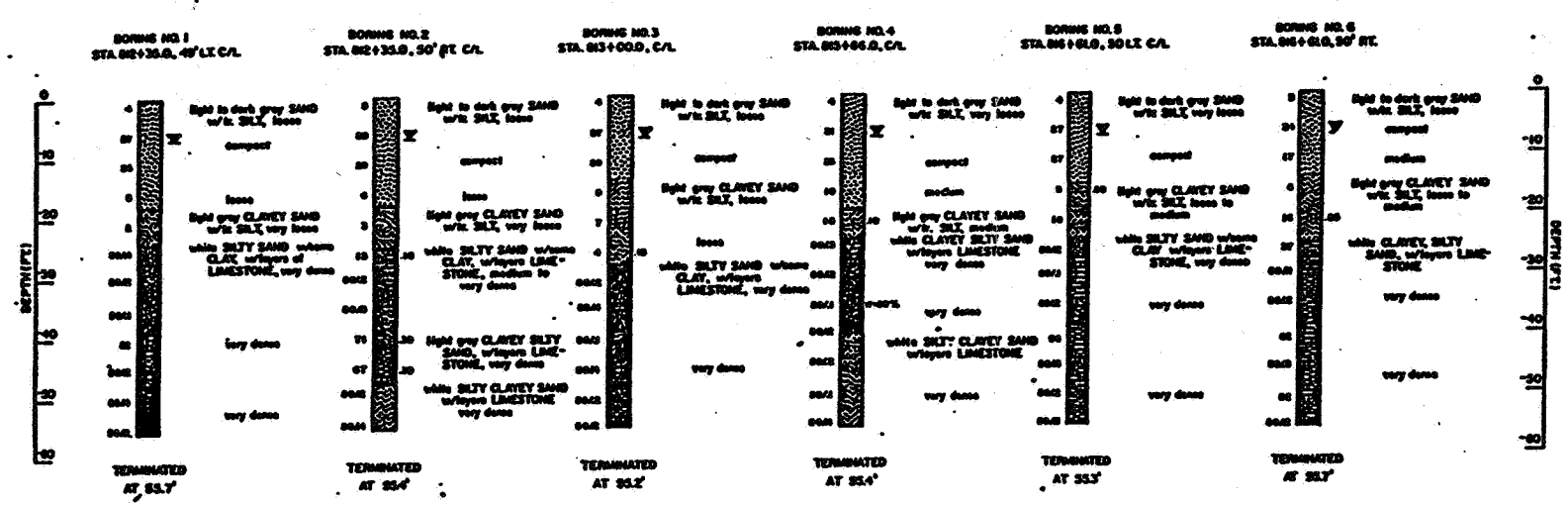
Drawn: CLK, 12/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

SP-1



LOCATION
TOWNSHIP 29 S
RANGE 20 E
SECTION 29



SCALE: 1" = VERTICAL
HORIZONTAL IS TO SCALE

LEGEND

- SAND
- CLAYEY SAND
- SILTY SAND

NOTES

Numbers to the left of borings indicate blows on spoon for 12" penetration. (Unless otherwise noted)

Numbers to the right of borings indicate tons shear test in tons per square foot.

Due to unknown elevations, borings were made from an assumed elevation of 0'.

Due to core boring locations and procedures, strata may differ with auto profile.

▼ = Water table

SPOON

Inside diameter = 1 3/8"

Outside diameter = 2"

Weight of hammer = 140 lbs.

Average drop of hammer = 30"

BORING DATA
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
REPORT OF CORE BORINGS FOR STRUCTURES

RAMP "E" OVER RAMP "B"

PROJ. NO.: 10075-3422 BORING DATE: 5/14-21/90
ROAD NO.: 93 & X-TWN EXP BORINGS BY: BROWN
COUNTY: HILLSBOROUGH SUBMITTED BY: J.J. BUCKLEY SOILS & FOUND. ENG.

APPROVED BY | DRAWING NO. 97 OF 153 | STATE NO. 13367

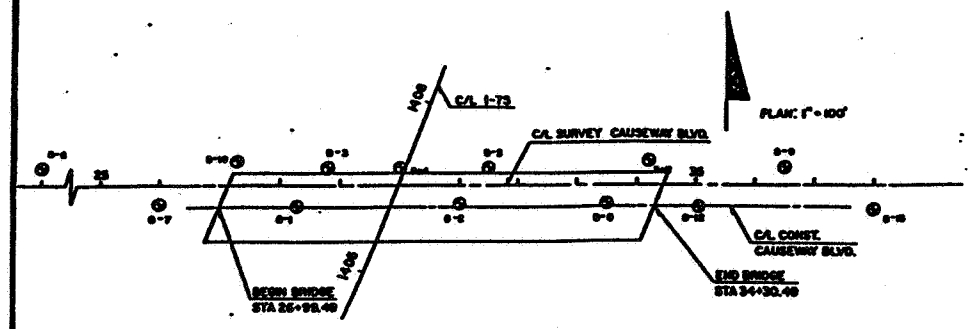
SOIL PROFILES
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T-5687

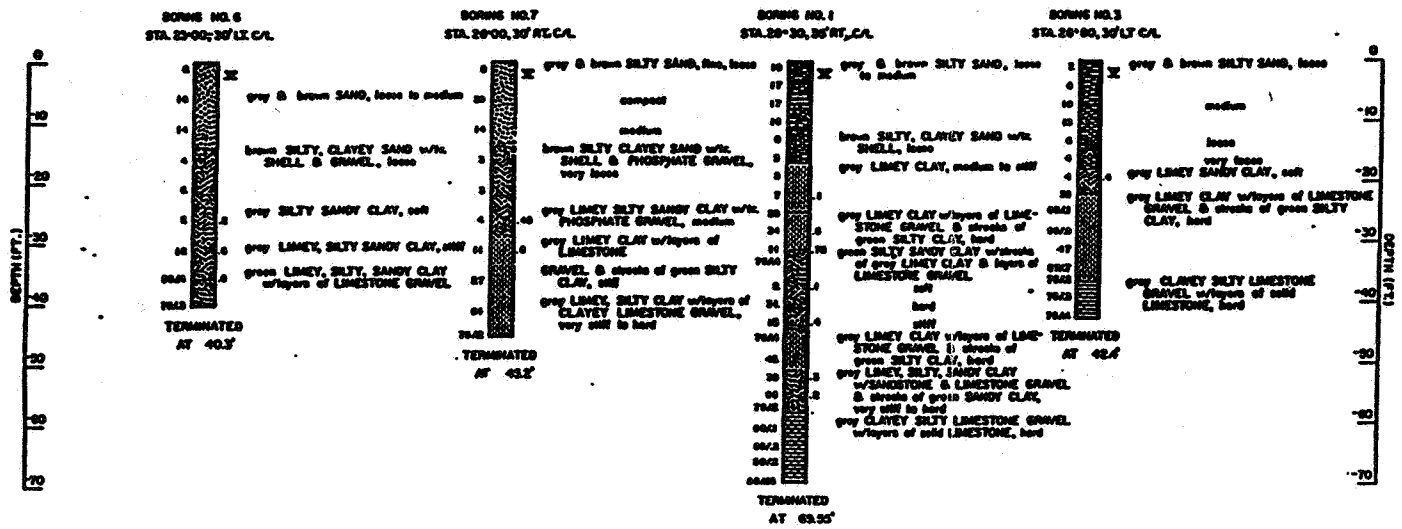
Drawn: CLK, 12/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

SP-2



LOCATION
TOWNSHIP - 29-S
RANGE - 20-E
SECTION - 32



SCALE : 1"=10' VERTICAL
HORIZONTAL NOT TO SCALE

LEGEND

- SAND
- SILTY SAND, SANDY SILT
- CLAY
- SILTY CLAY
- SANDY CLAY (CLAYEY SAND)
- LIMESTONE

NOTES

Numbers to the left of borings indicate blows on spoon for 12" penetration. (Unless otherwise noted)

Numbers to the right of borings indicate vane shear test in tons per square foot.

Due to varied elevations borings were made from an assumed elevation of 0'.

Due to core borings locations and procedure strata may differ with soils profiles.

▽ = Water table

D = Drilled

⊓ = Casing used

W = 100% Loss of circulating water (Unless otherwise noted.)

SPOON

Inside diameter = 1 3/8"

Outside diameter = 2"

Weight of hammer = 140 lbs.

Average drop of hammer = 30"

PAGE 1 OF 3

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
REPORT OF CORE BORINGS FOR STRUCTURES

CAUSEWAY BLVD. (S.R. 676) OVER I-75

PROJ. NO.: 10075-3422
ROAD NO.: 676
COUNTY: HILLSBOROUGH

BORING DATE: 1/29-2/18/75, 2/80
BORINGS BY: MERRITT & BROWN
SUBMITTED BY: J.J. BUCKLEY
SOILS & FOUND. ENG.

APPROVED BY

DRAWING NO. 223 OF 163

STATE NO. 13147

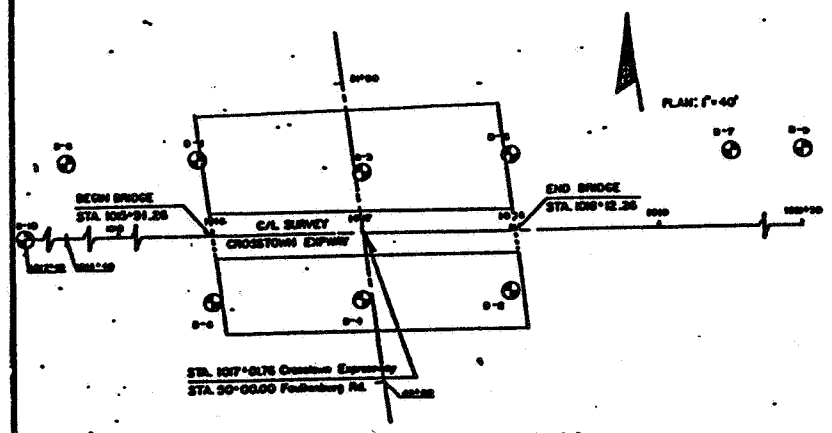
SOIL PROFILES
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T-5687

Drawn: CLK, 12/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

SP-3



LOCATION

TOWNSHIP = 29° S
RANGE = 20° E
SECTION = 30

NOTES

Numbers to the left of borings indicate blows on spoon for 12" penetration. (Unless otherwise noted.)

Numbers to the right of borings indicate vane shear test in tons per square foot.

Due to unknown elevations borings were made from an assumed elevation of 0'.

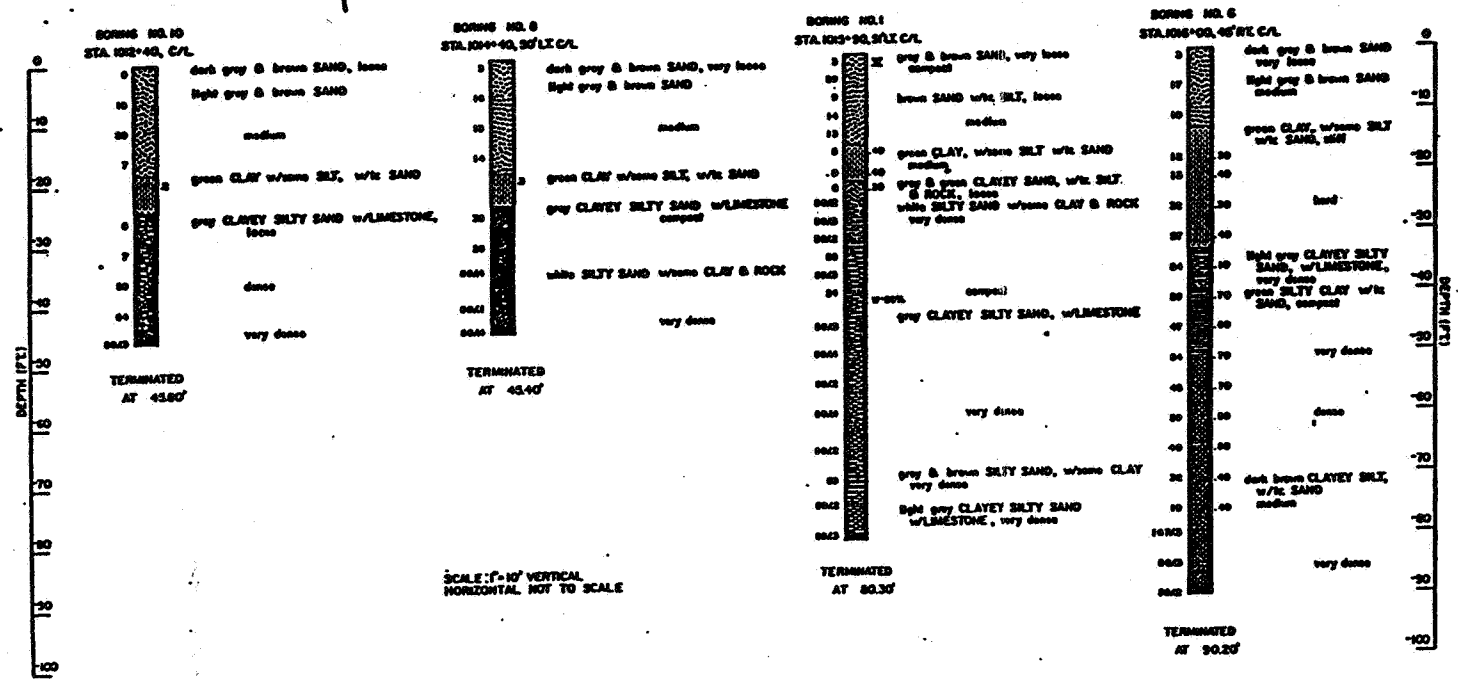
Due to core boring locations and procedure strata may differ with soils profile.

W = 100% Loss of circulating water (Unless otherwise noted.)

▽ = Water table

SPOON

Inside diameter = 1 3/8"
Outside diameter = 2"
Weight of hammer = 140 lbs.
Average drop of hammer = 30"



LEGEND

- SAND
- CLAY
- SILTY SAND
- CLAYEY SAND, SANDY CLAY
- SILTY CLAY, CLAYEY SILT

BORING DATA (ALTERNATES A & B)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
REPORT OF CORE BORINGS FOR STRUCTURES

CROSSTOWN EXPRESSWAY OVER FAULKENBURG ROAD

PROJ. NO.: 10075-3422
ROAD NO.: 618
COUNTY: HILLSBOROUGH

BORING DATE: 2/25/80-3/12/80
BORINGS BY: BROWN
SUBMITTED BY: J.J. BUCKLEY SOILS & FOUND. ENGR.

APPROVED BY: [signature]
DRAWING NO.: 6 OF 163
STATE NO.: [illegible]

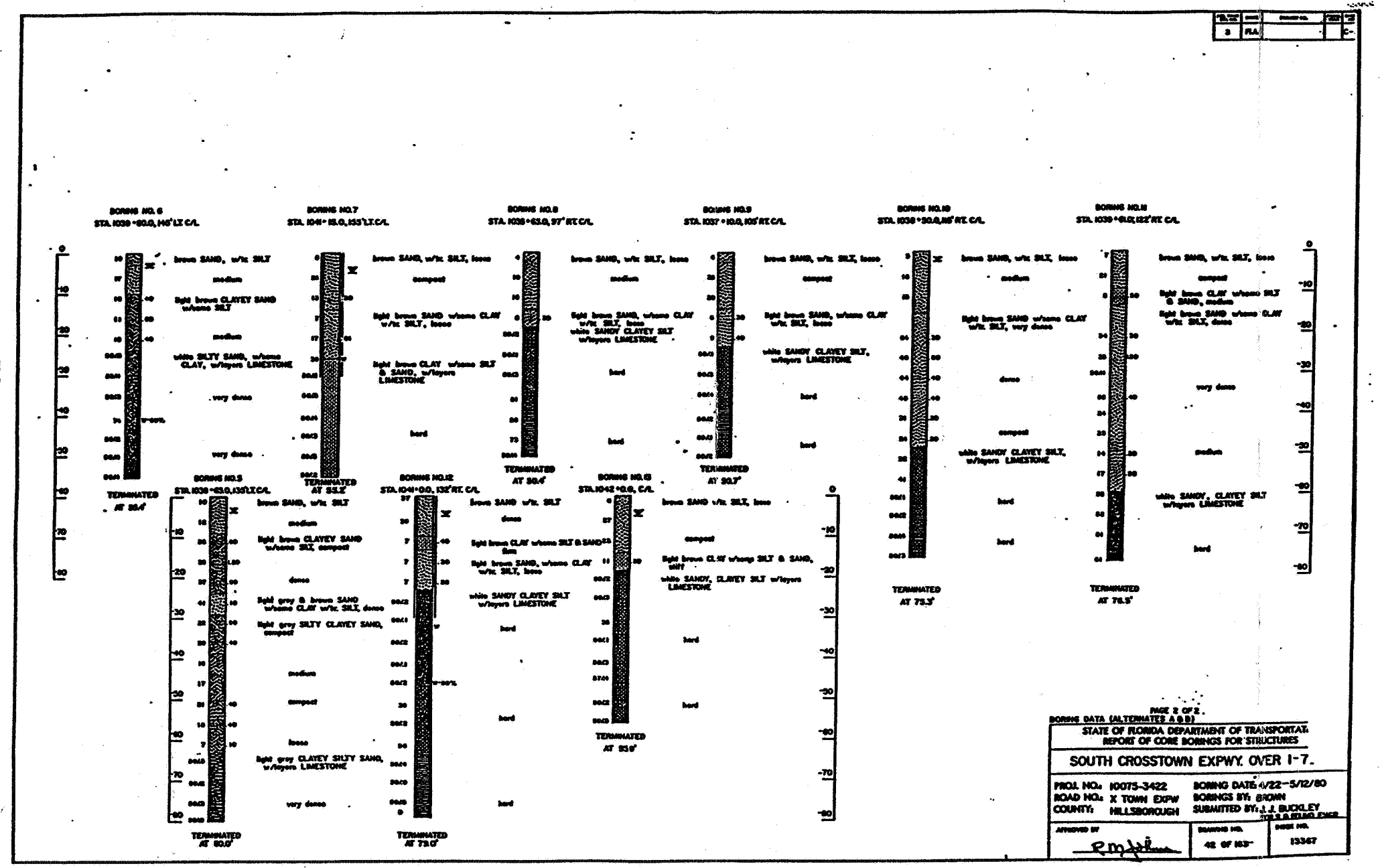
SOIL PROFILES
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T-5687

Drawn: CLK, 12/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

SP-4



PAGE 2 OF 2

BORING DATA (ALTERNATES A & B)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
REPORT OF CORE BORINGS FOR STRUCTURES

SOUTH CROSSTOWN EXPWY. OVER I-7.

PROJ. NO.: 10075-3422 — BORING DATE: 4/22-5/12/80
ROAD NO.: X TOWN EXPW — BORINGS BY: BROWN
COUNTY: HILLSBOROUGH — SUBMITTED BY: J.J. BUCKLEY
TYPE S & BRIDGE ENDS

APPROVED BY: R.M. Williams — DRAWING NO.: 42 OF 103 — STATE NO.: 13367

SOIL PROFILES
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

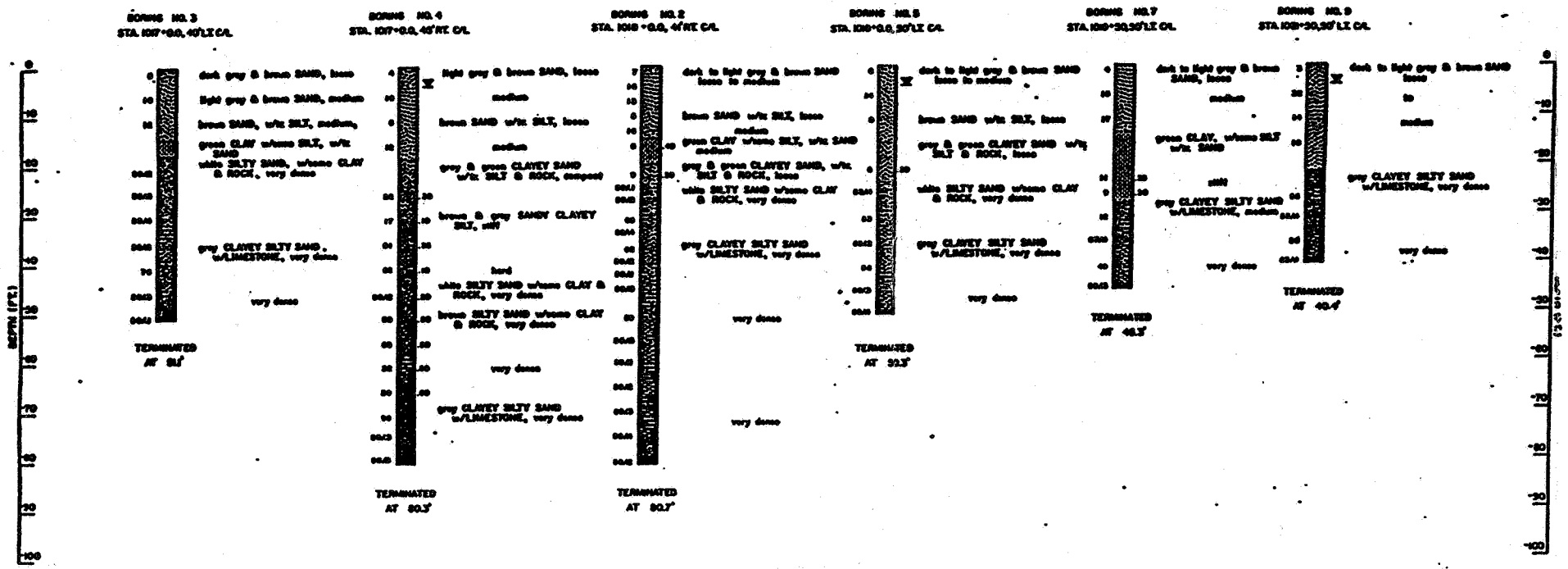
LAW ENGINEERING PROJECT NO. T-5687

Drawn: CLK, 12/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

SP-5

NO.	BY	REVISION	DATE
3	RLA		



BORING DATA (ALTERNATES (A & B))

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
REPORT OF CORE BORINGS FOR STRUCTURES

CROSSTOWN EXPRESSWAY OVER FAULKENBURG ROAD

PROJ. NO.: 10075-3422 — BORING DATE: 2/25/90-3/2/90
ROAD NO.: 618 — BORINGS BY: BROWN
COUNTY: HILLSBOROUGH — SUBMITTED BY: J.J. BICKLEY SOILS & FOUND. ENGR.

APPROVED BY: [signature] — DRAWING NO.: 6 OF 123 — INDEX NO.: 22227

SOIL PROFILES
CROSSTOWN EXPRESSWAY EXTENSION
HILLSBOROUGH COUNTY, FLORIDA

LAW ENGINEERING PROJECT NO. T-5687

Drawn: CLK, 12/28/90 | Checked: JWS

LAW ENGINEERING
TAMPA, FLORIDA

SP-6

Record of Hand Auger Borings

TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION
Hillsborough County, Florida

State Project No. 10002-1544
Federal Review No. M-4047(48)
Work Program No. 7113891
Law Engineering Project No. T-5687
Date Performed: May 14, 1990

BORING NO.	DEPTH (FT.) FROM - TO	DESCRIPTION
HA-1	0.0 - 8.0	Tan fine SAND
	8.0 - 13.0	Orange slightly clayey fine SAND
		Boring terminated.
		Groundwater level not encountered.
HA-2	0.0 - 1.5	Brown slightly silty fine SAND with some roots
	1.5 - 8.5	Tan to dark tan fine SAND with some brown fine sand
	8.5 - 11.0	Orange slightly clayey fine SAND
	11.0 - 13.0	Orange and tan clayey fine SAND
		Boring terminated.
		Groundwater level not encountered.
HA-3	0.0 - 2.0	Brown and tan fine SAND
	2.0 - 6.0	Dark tan and orange fine SAND
	6.0 - 11.0	Orange slightly clayey fine SAND
	11.0 - 13.0	Orange and light tan clayey fine SAND
		Boring terminated.
		Groundwater level not encountered.
HA-4	0.0 - 2.0	Tan and orange slightly clayey fine SAND with some brown fine sand
	2.0 - 3.0	Brown fine SAND
	3.0 - 9.0	Tan fine SAND
	9.0 - 13.0	Orange slightly clayey fine SAND
		Boring terminated.
		Groundwater level not encountered.

BORING NO.	DEPTH (FT.) FROM - TO	DESCRIPTION
HA-5	0.0 - 2.0	Brown fine SAND
	2.0 - 4.0	Light brown and orange fine SAND
	4.0 - 11.5	Orange slightly silty fine SAND
	11.5 - 13.0	Orange and tan fine SAND
		Boring terminated.
		Groundwater level not encountered.
HA-6	0.0 - 1.0	Brown fine SAND
	1.0 - 3.0	Light brown orange fine SAND
	3.0 - 11.5	Orange slightly silty fine SAND
	11.5 - 13.0	Tan and orange clayey fine SAND
		Boring terminated.
		Groundwater level not encountered.
HA-7	0.0 - 1.0	Brown slightly silty fine SAND with traces of shell fragments
	1.0 - 8.5	Tan fine SAND
	8.5 - 13.0	Orange slightly silty fine SAND
		Boring terminated.
		Groundwater level not encountered.

Field Testing Procedures

AUGER BORINGS - ADVANCED MECHANICALLY - Auger borings were advanced mechanically by a continuous flight auger attached to the drill rig. The soils encountered were identified in the field, from cuttings brought to the surface by the augering process. Representative soil samples were placed in glass jars and transported to our laboratory, where they were examined by an engineer in order to verify the field classifications.

APPENDIX D

SAMPLE NEWSLETTER

CROSSTOWN UPDATE

A Newsletter of the Tampa-Hillsborough County Expressway Authority
412 E. Madison Street, Suite 802, Tampa, Florida 33602

Ray Speer, Executive Director

DOCUMENT PREPARATION UNDERWAY

The collection of revised and updated data necessary for the Crosstown Extension Project Development and Environmental (PD&E) Study is complete. The final seven alignments, along with the "no-build" option, are being evaluated based on: community impacts, natural environmental impacts (including detailed air and noise analyses), travel service benefits, roadway engineering standards and cost. The revised and updated data are included in analysis necessary to produce the following documents: Draft Environmental Impact Statement, Hazardous Materials and Pollutants Evaluation Report, Permit Coordination Package, Air Quality Report, and Noise Impact Report. Revised draft copies of these documents have been submitted to the Florida Department of Transportation and the Federal Highway Administration (FHWA) for review. The Federal Highway Administration must approve the Draft Environmental Impact Statement before a final public hearing can be scheduled, and a decision made.

STUDY SCHEDULE

Data Collection	August-October 1989
Public Information Meeting	October 1989
Develop & Evaluate Alternatives	October 1989-January 1990
Public Information Meeting	January 1990
Select Best Alternatives	February 1990
Evaluate Best Alternatives	March-September 1990
Public Information Meeting	June 1990
Report Preparation and Review	June 1990-May 1991
Public Hearing	July 1991
Recommended Alignment	August 1991
Expressway Authority Action	August 1991

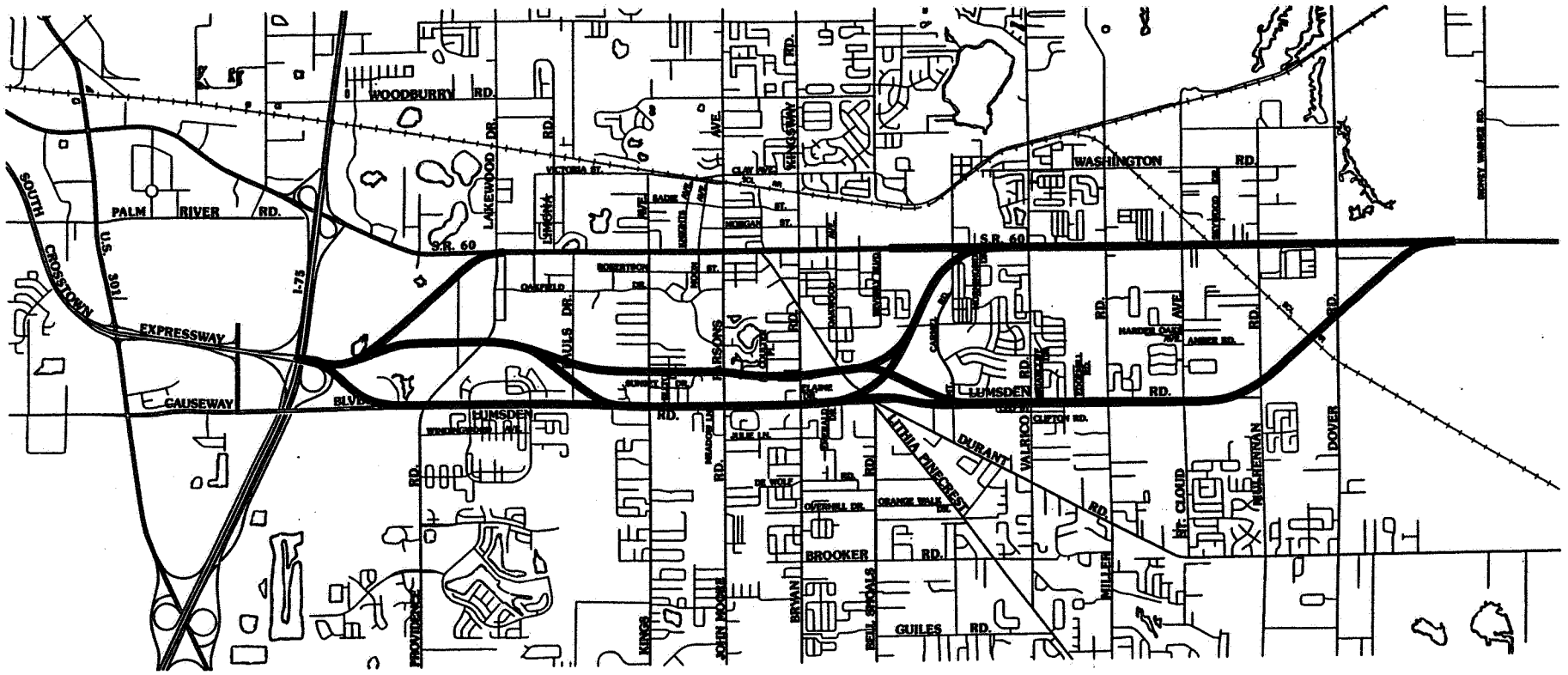
NEWSLETTER MAILING LIST

If your name is not on the current mailing list, and you would like to receive copies of future **Crosstown Updates**, please call or write:

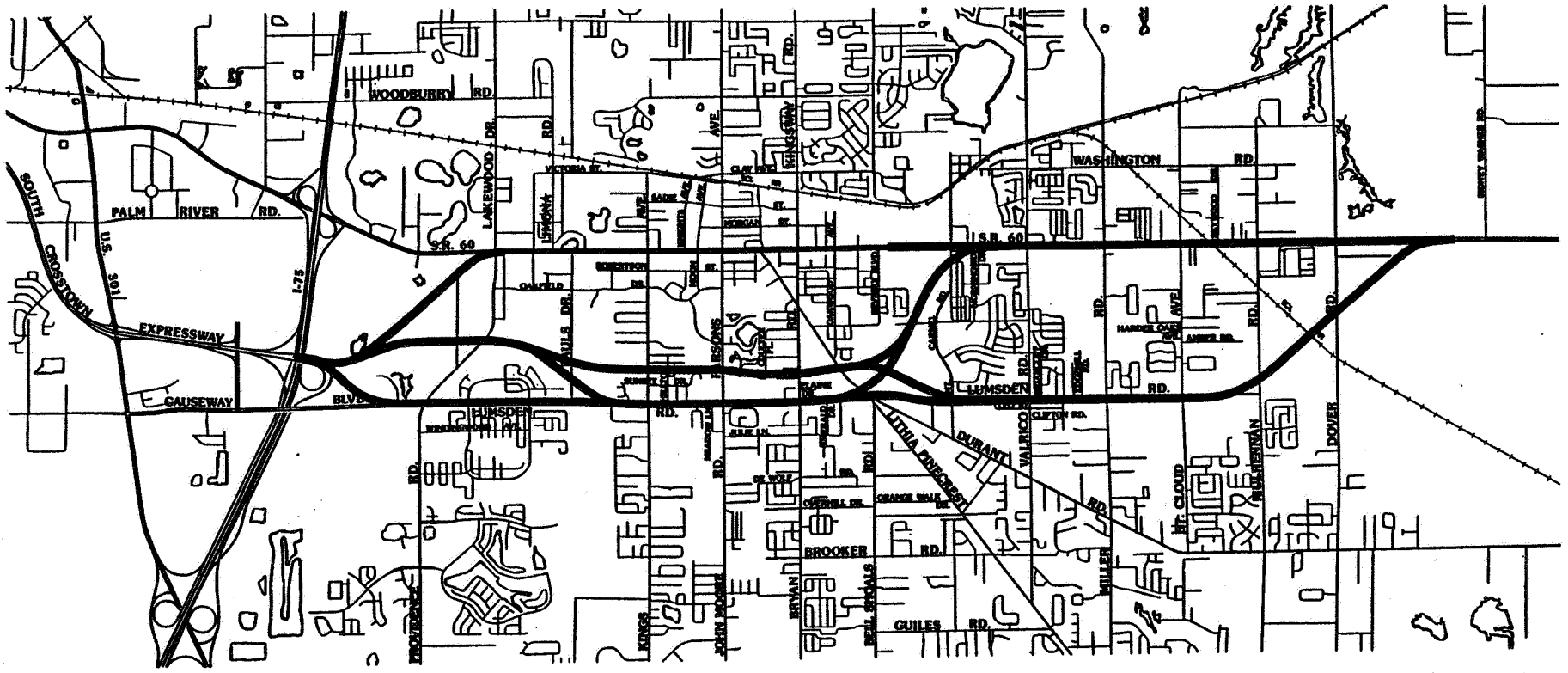
Mr. Greg Janes, P.E.
Brown & Root-Genesis Engineering Company
Bay West Commerce Park
5660-A West Cypress Street
Tampa, Florida 33607
(813) 289-0390

AUTHORITY MEMBERS

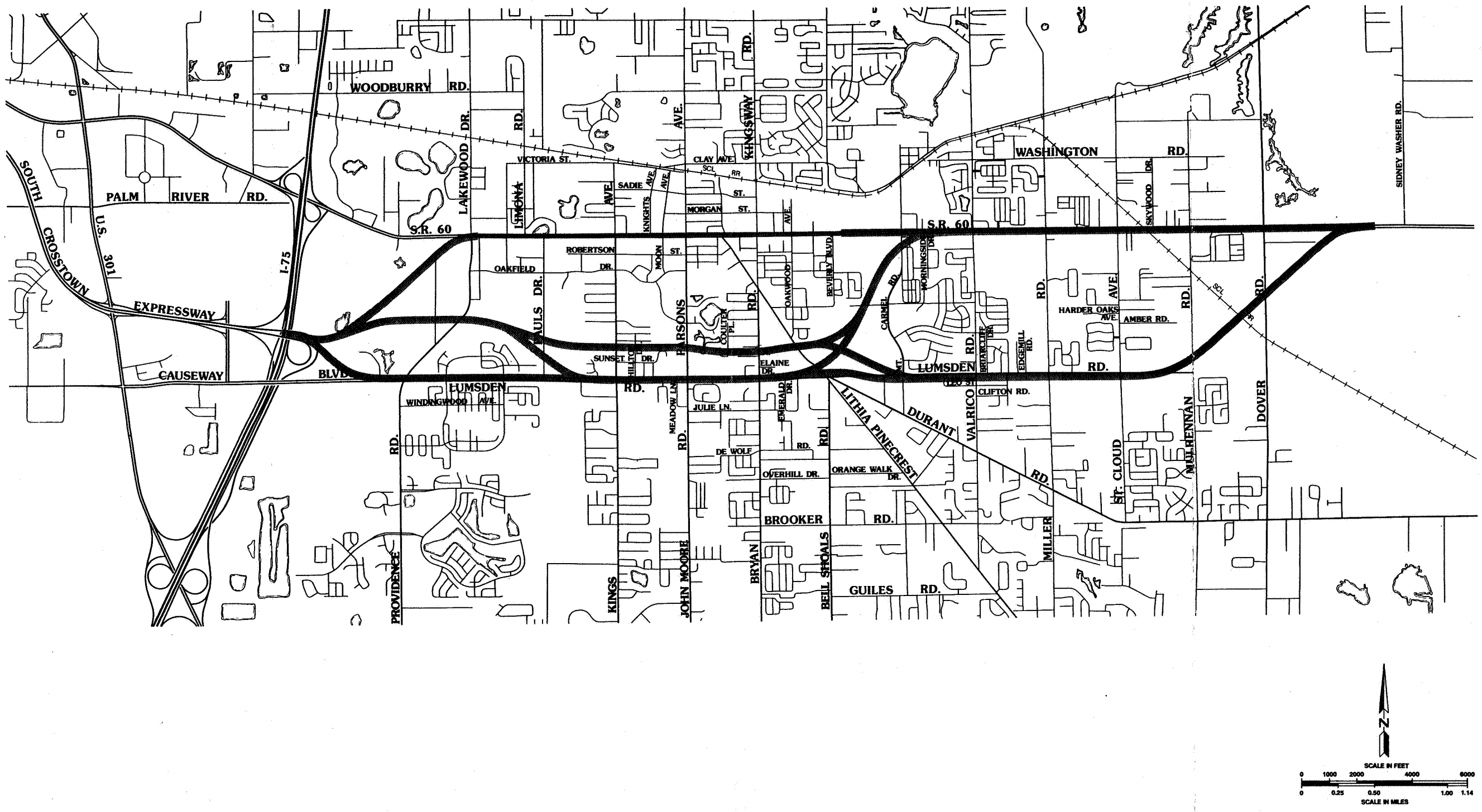
Laura C. Blain, Chairman
Frank V. Campisi
Sandra Freedman
David McClain
William McDaniel
Ed Turanchik



Brown&Root-Genesis Engineering Company / GLATTING JACKSON KERCHER ANGLIN / HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	**ALTERNATIVE ALIGNMENTS**	JUNE, 1990



Brown&Root-Genesis Engineering Company; GLATTING JACKSON KERCHER ANGLIN; HDR	Tampa-Hillsborough County Expressway Authority	TAMPA SOUTH CROSSTOWN EXPRESSWAY EXTENSION Project Development and Environmental Study	**ALTERNATIVE ALIGNMENTS**	JUNE, 1990



Brown & Root-Genesis
Engineering Company

GLATTING LOPEZ KERCHER ANGLIN

HDR

Tampa–Hillsborough County Expressway Authority
GAY SPEER, EXECUTIVE DIRECTOR
WILLIAM C. McLEAR, JR., ATTORNEY

TAMPA SOUTH CROSSTOWN
EXPRESSWAY EXTENSION
Project Development and Environmental Study

ALTERNATIVE ALIGNMENTS

JUNE, 1990

CROSSTOWN UPDATE 6/90

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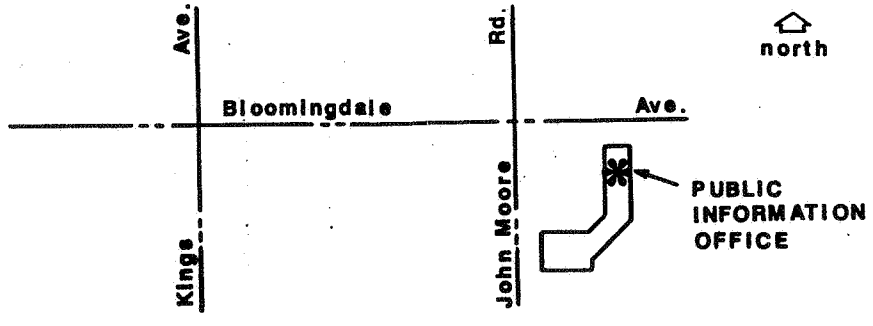
PUBLIC INFORMATION CENTER OPEN IN BRANDON AT BLOOMINGDALE PLAZA

The information center for the Crosstown Expressway Project Development and Environmental (PD&E) Study is open at Bloomingdale Plaza, Suite 151 **(LOCATED AT THE SOUTHEAST CORNER OF BLOOMINGDALE AVENUE AND JOHN MOORE ROAD)**. The center is open every Tuesday, Wednesday, and Thursday from 4:00 p.m. to 8:00 p.m. **Revised and updated alignments, mapped on 1" = 200' scale aerial photography, are available for review.** For more information about the center, please call Mr. Greg Janes, Brown & Root-Genesis Engineering Company, at (813) 289-0390.



CROSSTOWN UPDATE 6/90

A Newsletter of the Tampa-Hillsborough County Expressway Authority
412 E. Madison Street, Suite 802, Tampa, Florida 33602

Ray Speer, Executive Director

PUBLIC INFORMATION MEETING SCHEDULED

The Tampa-Hillsborough County Expressway Authority has scheduled a public information meeting for **Thursday, June 28, 1990** to provide information and receive public comment about the conceptual design analysis for the proposed Crosstown Extension. The meeting will be held at:

Bloomingdale Senior High School Cafeteria
1780 East Bloomingdale Avenue (Valrico)
5:00 p.m. - 9:00 p.m.

The meeting will provide the public the opportunity to:

- Review the final alternative alignments along with the "no build" option; and
- Review proposed design features, such as: interchange locations, frontage road designs, bridges, and intersections.

Comments received as a result of the Public Information Meeting will be considered by the consultant and the Expressway Authority, before any recommendations are presented after the public hearing in October 1990.

The meeting will be held in an informal, open-house format, with no formal presentation. Authority staff and consultants will be available to explain the information and to hold informal discussions with residents and other interested citizens.

STUDY SCHEDULE

Data Collection	August-October 1989
Public Information Meeting	October 1989
Develop & Evaluate Alternatives	October 1989-January 1990
Public Information Meeting	January 1990
Select Best Alternatives	February 1990
Evaluate Best Alternatives	March-September 1990
Public Information Meeting	June 1990
Report Preparation	June-September 1990
Public Hearing	October 1990
Recommended Alignment	November 1990
Expressway Authority Action	November 1990

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Tampa, Florida 33607
(813) 289-0390

AUTHORITY MEMBERS

Laura C. Blain, Chairman
Frank V. Campisi
Sandra Freedman
Sidney Levy
David McClain
William McDaniel
Rubin Padgett

APPENDIX E

RECOMMENDATION OF NOVEMBER 25, 1991

Tampa South Crosstown Easterly Extension

Review and Recommendation Regarding the Originally Proposed
Alignment 3 tie to SR 60 between Providence Road and Lakewood Drive

and

Proposed Alternate Alignment tie to SR 60 near Pauls Drive

Background

Following the Public Hearing for this Project held in accordance with the National Environmental Policy Act (NEPA) in September, 1991 it was determined that a new apartment complex and several new business establishments were planned, were under construction, or were in operation within the proposed right-of-way of the SR 60 alignment (Alignment 3). Prior to the Public Hearing, completed and occupied facilities were counted and the project data was adjusted, incomplete projects were not included in the adjustments. At the time of the Public Hearing six other alignments were also under consideration and related information adjustments were made for all other alternatives

The project recommendation was made in late November and early December 1991. The recommendation was to select the SR 60 (Alignment 3) alternative as the least disruptive alternative and as the most appropriate regional facility. The SR 60 alternative was considered to have impacts which could be mitigated by the design features proposed for the project. At the time of the December 2, 1992 special called meeting of the Authority, several business interests located in the vicinity of Providence Road, SR 60 and Lakewood Drive requested the Authority investigate other potential alternatives to the tie in to SR 60 called for between Providence Road and Lakewood Drive.

The study team presented an alternative alignment at the February, 1992 Authority meeting. The Authority concurred with evaluating the alternative as a possible replacement to the originally recommended tie to SR 60 between Providence and Lakewood. The alternative tied to SR 60 near Pauls Drive offered minor design differences in addition to the obvious location adjustment:

- The interchange with Lakewood was a simple diamond type as opposed to the more complex interchange geometrics required with the Alignment 3 alternative,
- The spur to Lumsden is located more westerly, closer to the existing Heather Lakes north complex, and crosses Lakewood near the proposed expressway alignment obviating the need to intersect with Lakewood,
- No interchange is provided at SR 60, and
- The length of elevated structure is reduced by approximately 3600 feet.

The attached maps provide the relative locations of the alternates, for greater detail refer to the available 1"=200' scale aerial mapping.

Analysis and Evaluation

During May and June, 1992 the alternatives were evaluated to enable a selection of the better of the two alignments under consideration. Both alternatives were evaluated for comparative differences in socioeconomic considerations, natural environment considerations, costs and travel service benefits.

The travel service benefits of the two alternatives are considered to be identical. Both alternates carry the same volume of traffic, provide essentially the same access and are of similar length. While the geometrics of each alternate varies, they both meet the same design criteria. The travel service benefits of each alternate do not offer any advantages or disadvantages that would differentiate between one or the other. It is noted that the Lakewood Drive interchange geometric design is less complex for the Pauls Drive alternative.

The socioeconomic factors evaluated were identical to that used to evaluate previous alternatives. The data used for this review included the number of businesses located in the proposed right-of-way, the number of businesses partially within the right-of-way, the number of residences in the right-of-way and the number of residences located within 300 feet of the proposed right-of-way. The results comparing the two alternates between I-275 and Pauls Drive are depicted on figures 1 thru 3 attached to this analysis. It was determined from review of the data that the new apartment complex located west of Providence results in substantial residential impacts that did not exist at the time of the public hearing. Business impacts are similar for either alternative for this segment. Based on the revised data the alternative tie to SR 60 near Pauls Drive has fewer socioeconomic impacts.

The natural environmental impacts used for this evaluation were limited to the comparison of wetland acres as shown on figure 4. Based on this comparison there are fewer wetland impacts with the tie to SR 60 near Pauls. It is further noted that the difference is relatively small and consists of impacts to previously disturbed wetland areas or wetlands created by man. No significant advantage was determined for either alternative based on wetland criteria. It is noted that the tie to SR 60 near Pauls requires further noise, air and archaeological evaluation. Based on results of additional field work conducted during July and August, 1992 the selection of the tie to SR 60 at Pauls Drive reduces the number of affected Historic properties and has less wetland impacts than the original alternative 3 recommendation.

The final evaluation factor considered was the cost of engineering, construction and right-of-way. The right-of-way costs were revised and updated to reflect current market conditions, property improvements and valuations and the revised alignment considerations included in the December, 1991 recommendation. The construction cost estimate was similarly updated to reflect revised bridge construction costs and current construction pricing and practise. The results of the cost estimates for each alternative are shown on figure 5. Clearly the cost of the tie to SR 60 near Pauls is considerably lower.

Recommendation

Based on the data evaluated and the revised and updated project costs, taking into account the progress of land development in the Brandon area, the tie to SR

60 near Pauls Drive offers fewer residential disruptions, less wetland disruption and lower cost. The tie to SR 60 near Pauls Drive also reduces the potential impact upon historic facilities. Accordingly the study team recommended the selection of the revised alignment and recommended the original alignment alternative which tied to SR 60 between Providence and Lakewood be abandoned. It was noted that the revised alternative is subject to possible development prior to the opportunity to purchase right-of-way, and that there are development plans on record for nearly all available land in the path of the project. The study team is not informed of any immediate development plans along the alternative which ties to SR 60 near Pauls Drive.

It was noted that the new alternative affects properties which, although within the project corridor, were not previously affected by any alternative. Accordingly selection of the alternative requires notification by mail to the affected property owners of record (FS 339.155). A workshop with affected parties is desirable and could be combined with a regularly scheduled Expressway Authority meeting.

Authority Action

At the regularly scheduled meeting of the Expressway Authority on June 22, 1992 the findings discussed above were presented. After deliberation by the Authority members, the Authority concurred in the study team's recommendation to revise the approved Alignment 3 to the alternative which ties to SR 60 near Pauls Drive. The study was authorized to proceed with Section 106 review as required by the National Historic Preservation Act, and to proceed with preparation of final reports.

Other Considerations

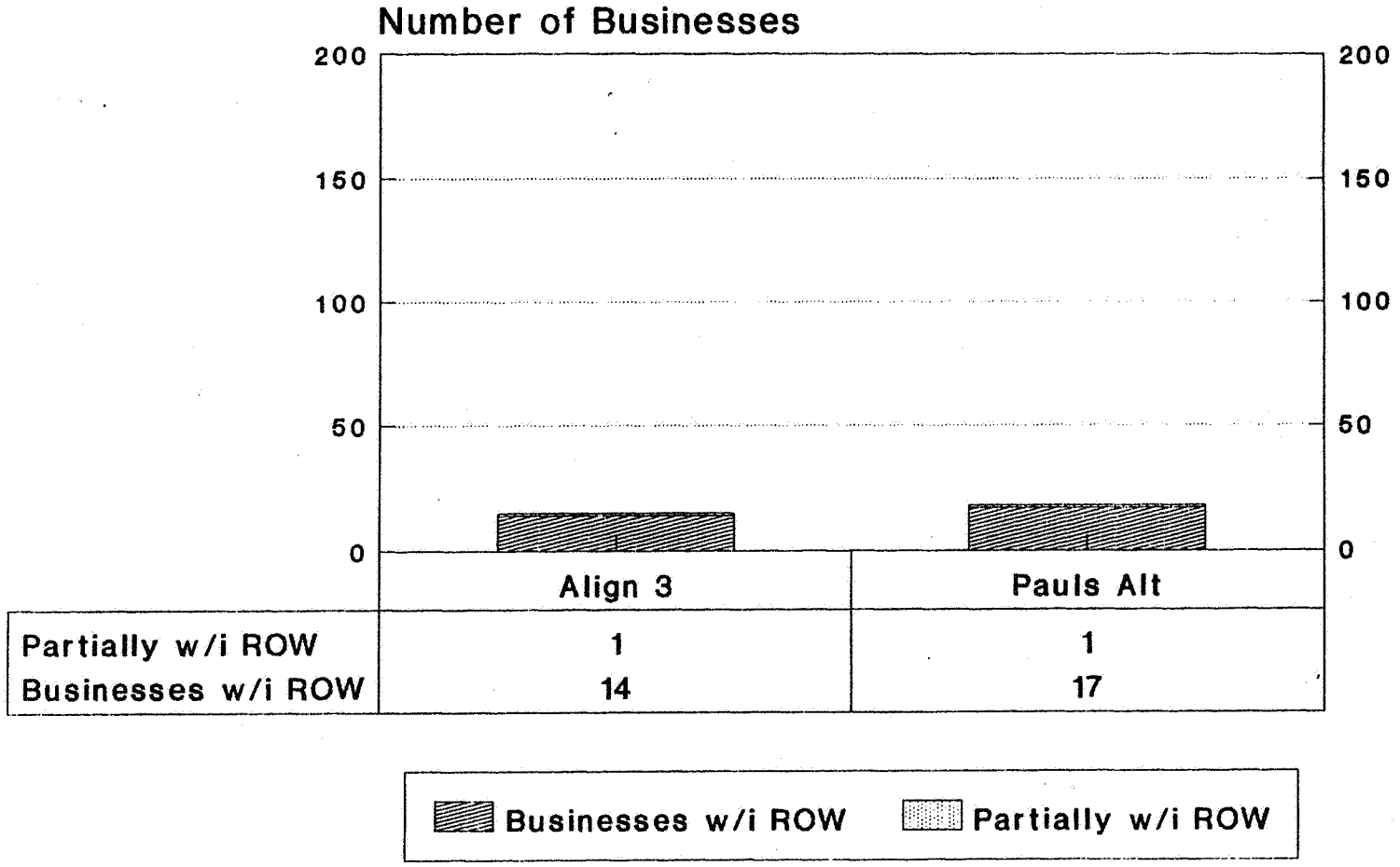
Comparison of the original alignment 3 alternative with the revised alternative approved on June 22, 1992 is provided on Figures 6 thru 10. Figures 1 thru 5 are comparisons of the data pertinent to the alternatives between I-275 and Pauls Drive. The comparison provided by Figures 6 thru 10 includes the associated data for the full alignment from I-275 to the eastern terminus of the project on SR 60 near Dover Road. The original alignment 3 data is taken from the approved DEIS and does not include provision for the Spur connection to Lumsden. The revised alignment data includes current data for the recommended alignment and the spur to Lumsden Road.

It is noted that the data for the original alignment 3 would increase in nearly all categories if the data were adjusted for the spur provision. The data allow the reader an overview comparison of the improvement offered by the revised alternative, especially the overall reduction in business impacts.

Tampa South Crosstown Extension Study

Business Impacts

Partially w\i ROW Means Less Than 30%

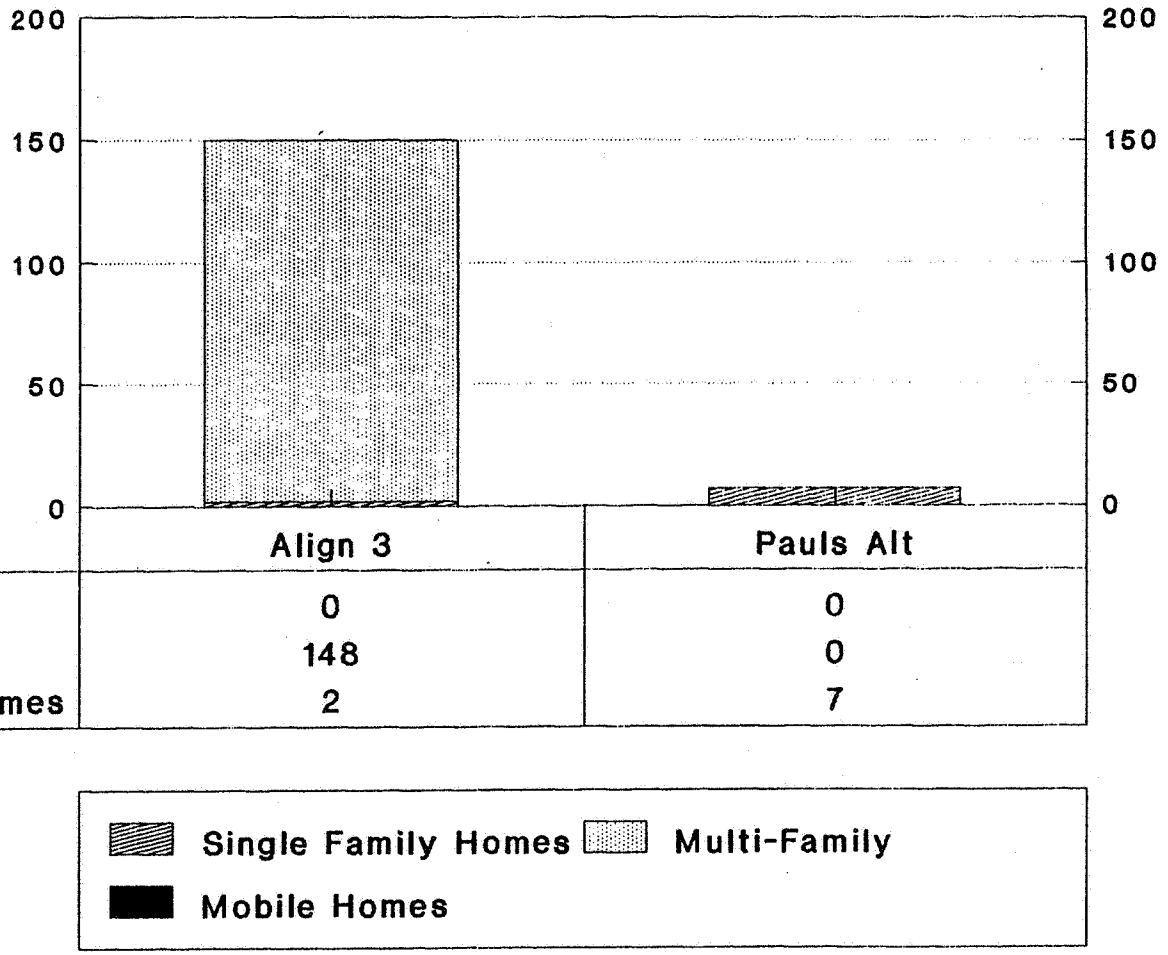


	Align 3	Pauls Alt
Partially w/i ROW	1	1
Businesses w/i ROW	14	17

June, 1992
Figure 1

Note: Align 3 is to Pauls w/Spur

Tampa South Crosstown Extension Study
Residential Impacts

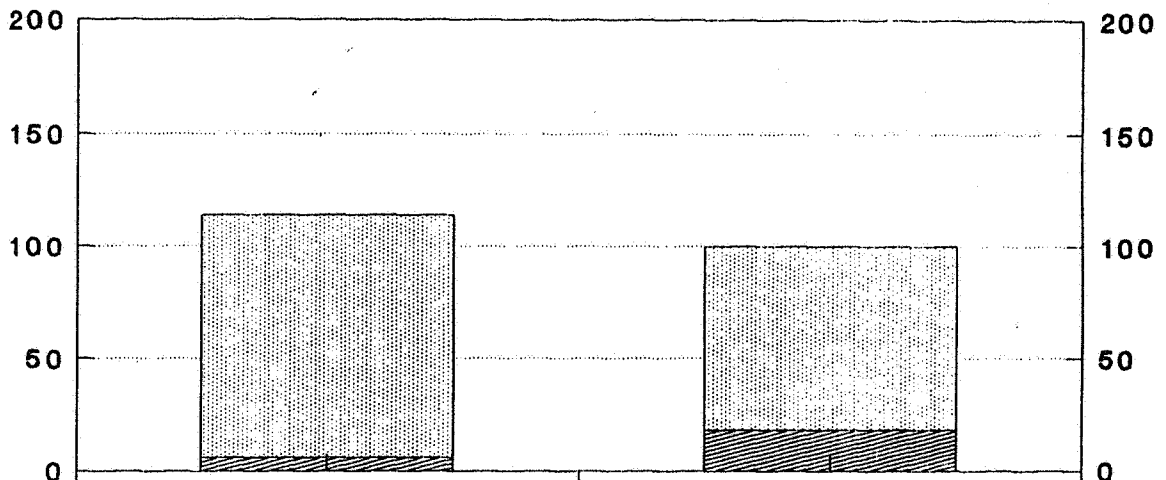


	Align 3	Pauls Alt
Mobile Homes	0	0
Multi-Family	148	0
Single Family Homes	2	7

June, 1992
Figure 2

Note: Align 3 is to Pauls w/Spur

Tampa South Crosstown Extension Study
Residents within 300 feet of the Right-of-Way of an Alternative Alignment



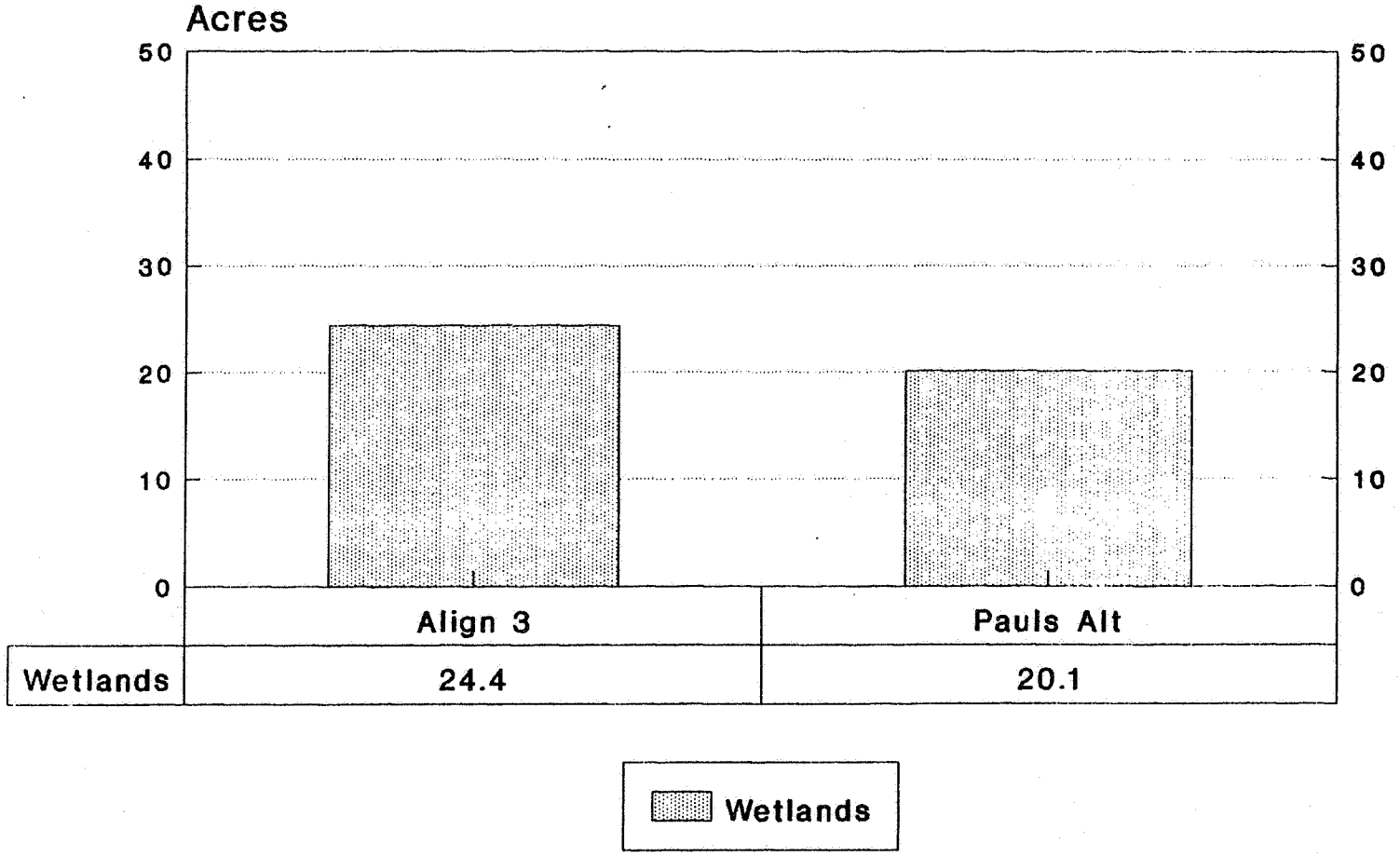
	Align 3	Pauls Alt
Mobile Homes	0	0
Multi-Family	108	82
Single Family Homes	6	18

Single Family Homes
Multi-Family
Mobile Homes

June, 1992
Figure 3

Note: Align 3 is to Pauls w/Spur

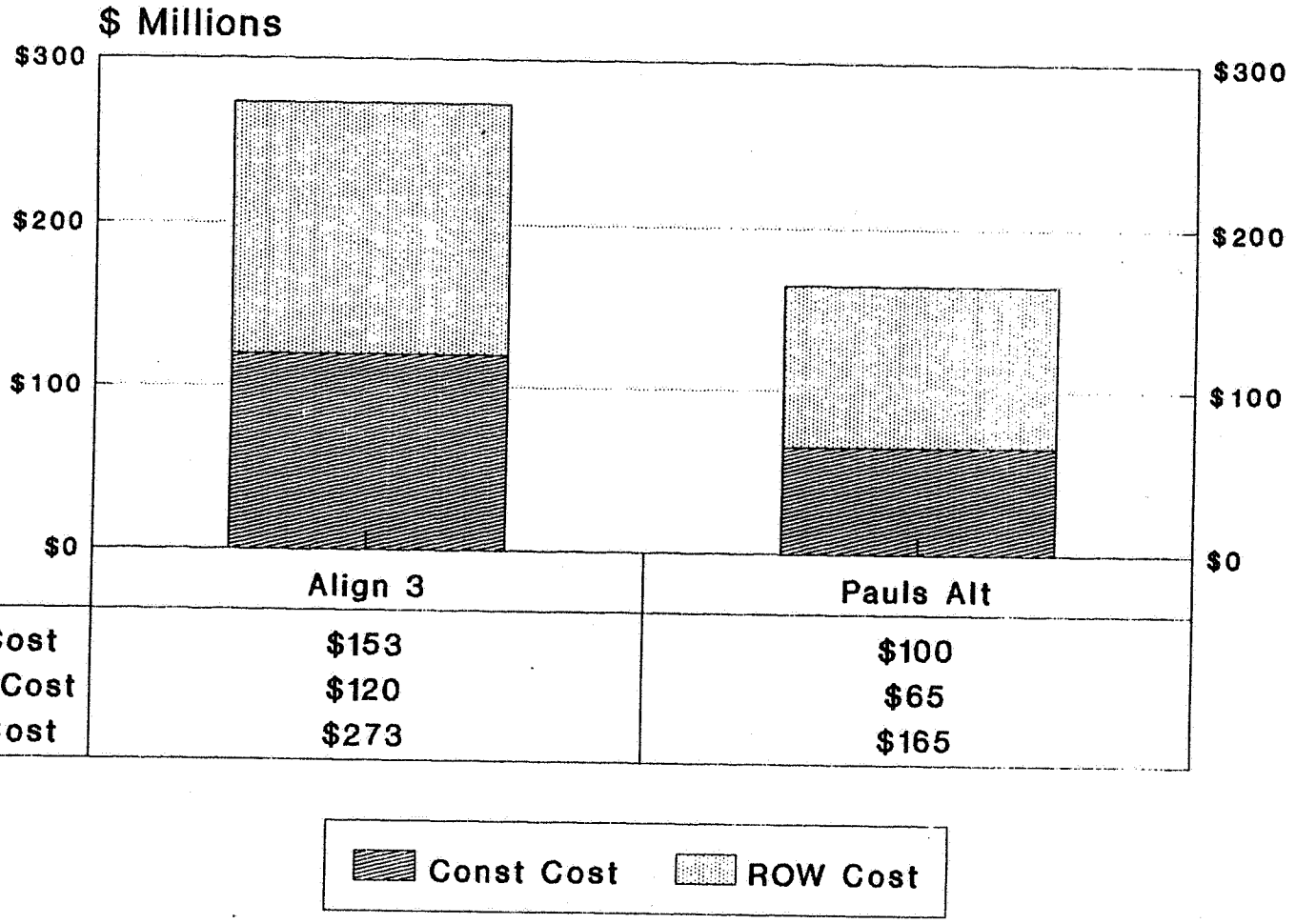
Tampa South Crosstown Extension Study
Wetland Acreage within the Right-of-Way



June, 1992
Figure 4

Note: Align 3 is to Pauls w/Spur

Tampa South Crosstown Extension Study
Cost Estimates

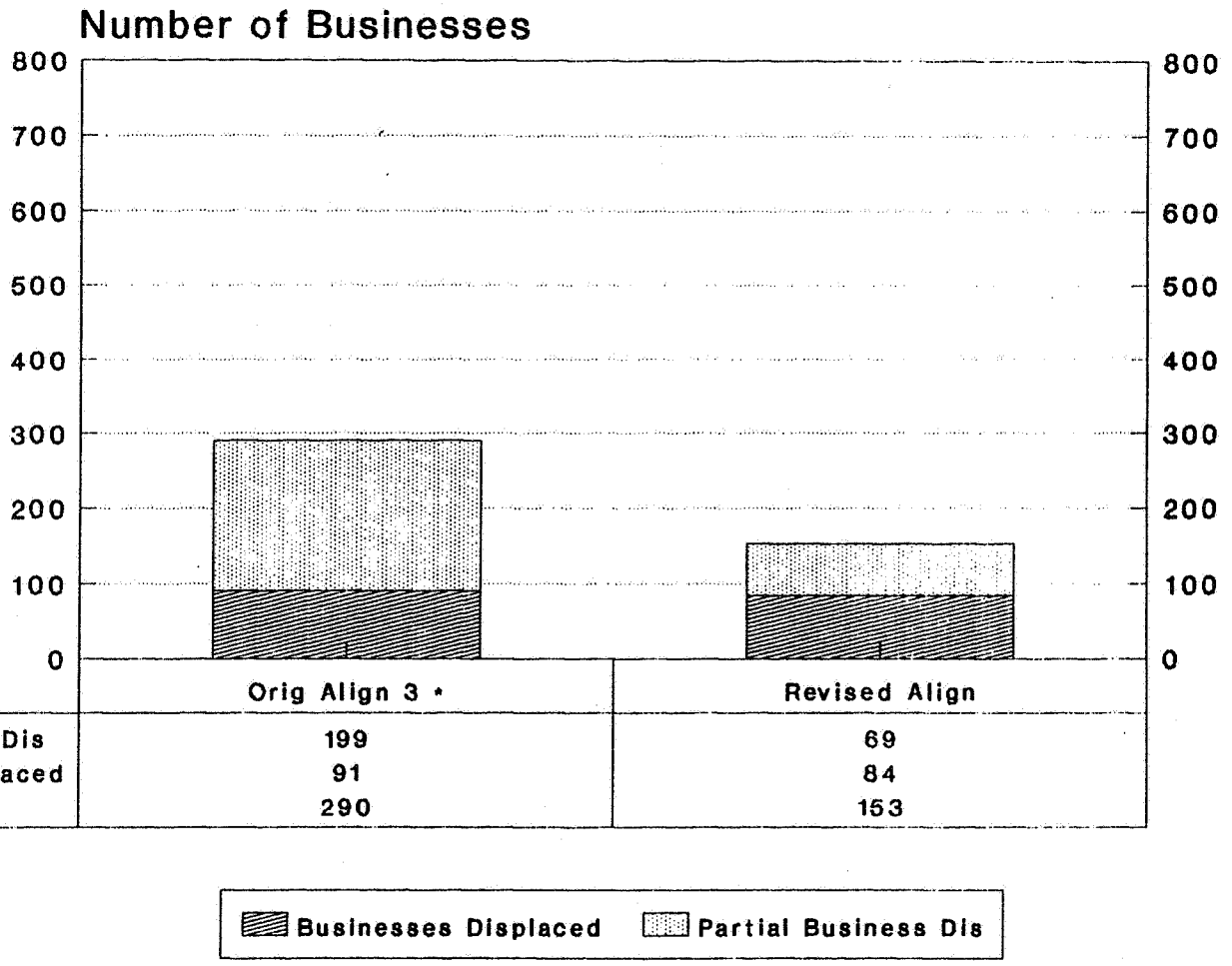


	Align 3	Pauls Alt
ROW Cost	$153	$100
Const Cost	$120	$65
Total Cost	$273	$165

Note: Align 3 is to Pauls w/Spur

June, 1992
Figure 5

Tampa South Crosstown Extension Study
Business Displacements

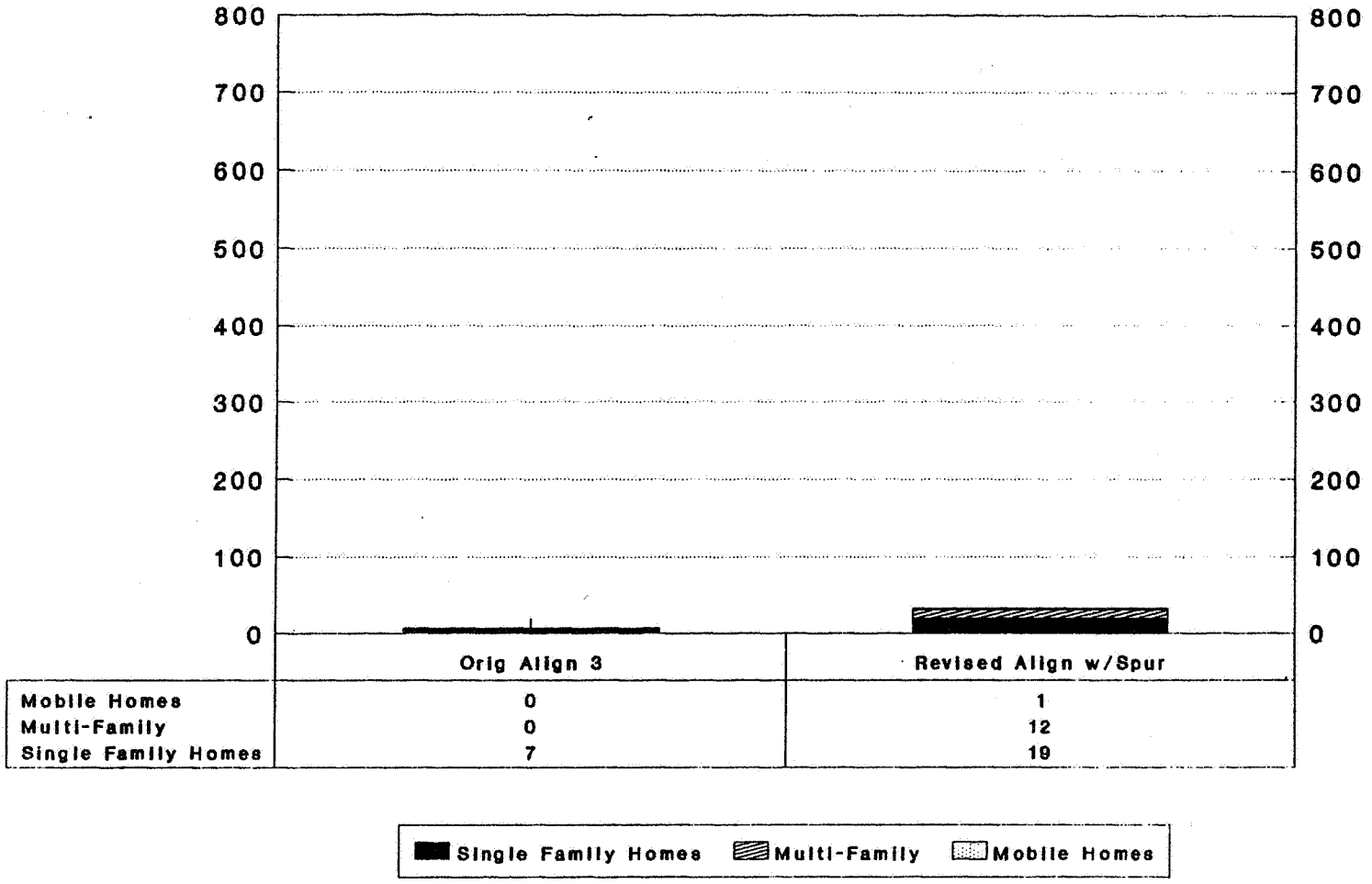


	Orig Align 3 *	Revised Align
Partial Business Dis	199	69
Businesses Displaced	91	84
Total	290	153

June, 1992
Full Alignment Comparison
Figure 6

Note: Orig Align 3 is w/o Spur (DEIS)

Tampa South Crosstown Extension Study
Residential Displacements

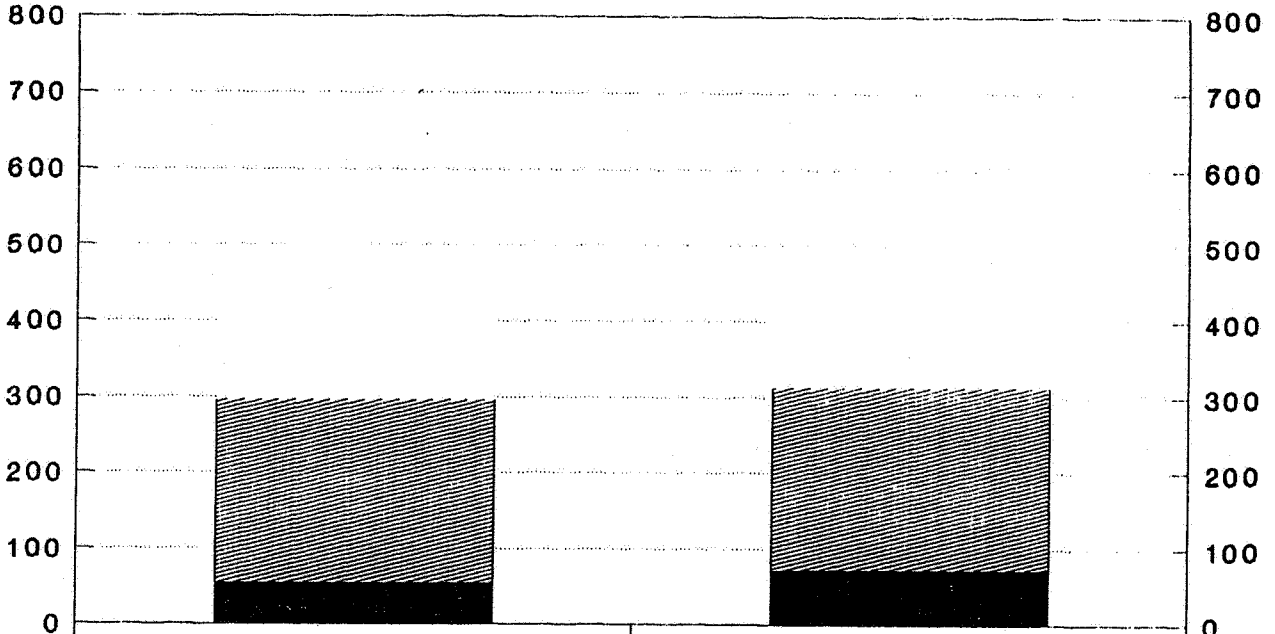


	Orig Align 3	Revised Align w/Spur
Mobile Homes	0	1
Multi-Family	0	12
Single Family Homes	7	19

June, 1992
Full Alignment Comparison
Figure 7

Note: Orig Align 3 is w/o Spur (DEIS)

Tampa South Crosstown Extension Study
Residential within 300 feet of the Right-of-Way of an Alternative Alignment



	Orig Align 3	Revised Align w/Spur
Mobile Homes	171	161
Multi-Family	242	241
Single Family Homes	54	72
Total	467	474

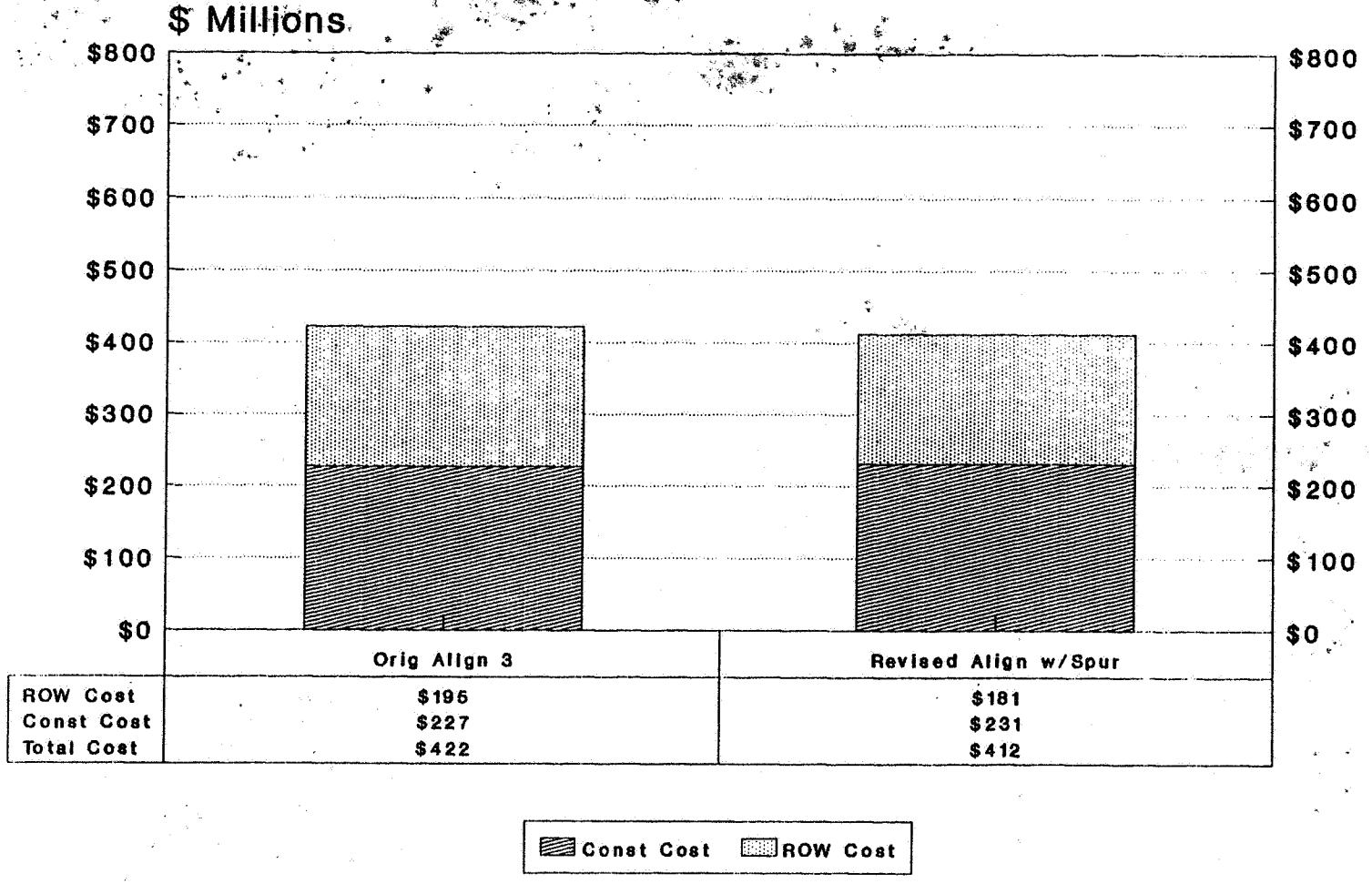
Single Family Homes | Multi-Family | Mobile Homes

June, 1992
Full Alignment Comparison
Figure 8

Note: Orig Align 3 is w/o Spur (DEIS)

Tampa South Crosstown Extension Study

Cost Estimates



June, 1992
Full Alignment Comparison
Figure 10

Note: Orig Align 3 is w/o Spur (DEIS)