FINAL
PRELIMINARY ENGINEERING REPORT

GANDY BOULEVARD (SR 694) PD&E STUDY
FROM WEST OF US 19 TO EAST OF 4th STREET
PINELLAS COUNTY

Work Program Item Segment No: 256931 1
Federal Aid Project No: F-295-1(1) (Old)

This project evaluated improvement alternatives for Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street Pinellas County, Florida.

Prepared for:

Florida Department of Transportation
District Seven
11201 North McKinley Drive
Tampa, Florida 33612-6456

August 2002

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(P.E. Number)

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SECTION 1
COMMITMENTS AND RECOMMENDATIONS

1.1 COMMITMENTS

To minimize the impacts of this project on local residents and business owners, and optimize the effectiveness of the improvements, the following commitments were made during the PD&E Study process:

1. Based on the noise evaluation performed to date, the FDOT is committed to further consideration of noise barriers during the final design process. During final design, noise barriers will be evaluated at the Gateway Mobile Home Park, Lauren Manor condominium complex, the designated recreational vehicle (RV) hookups in Robert's Mobile Home/RV Resort, and Pelican Sound Apartments. The traffic noise barrier evaluation for these locations will be refined using specific horizontal alignment and vertical elevation data along with other factors that are developed during final design. During final design, a commitment to construct feasible and reasonable noise abatement will be contingent upon the following conditions:

    - Detailed noise analysis during the final design process supports the need for abatement;
    - Detailed noise barrier analysis indicates that the cost of the barriers will not exceed the cost reasonableness criteria;
    - Community input regarding desires, types, heights and locations of barriers is received by the FDOT and supports the construction of noise barriers;
    - Preferences regarding compatibility with adjacent land uses, particularly as expressed by officials having jurisdiction over such lands, has been addressed;

- Safety and engineering aspects related to roadway users and adjacent property owners have been reviewed and any conflicts or issues resolved; and
- Any other mitigating circumstances revealed during final design have been analyzed and resolved.

2. The FDOT is committed to provide connectivity from sidewalks and bike lanes to any proposed trail within or adjacent to the study area.

3. The FDOT is committed that a Level II Contamination Assessment be conducted during the design and/or construction phases for the four sites that received a contamination risk rating of Medium. One site is located in Segment A on Park Boulevard and three sites are located in Segment D on 4th Street.

4. The FDOT is committed that further investigation be conducted during the design phase to determine if Riverine (fresh water) floodplain compensation is required at Tinney Creek and Sawgrass Lake Tributary. If compensation is required, mitigation of encroachment into the 100-year floodplain will be compensated through the construction of floodplain compensation ponds. These ponds will be addressed in the design phase.

1.2 RECOMMENDATIONS

The Florida Department of Transportation (FDOT) has conducted a Project Development and Environment (PD&E) Study to evaluate improvement alternatives along Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street in the cities of Pinellas Park and St. Petersburg in Pinellas County, Florida. The project location map in Figure 2-1 illustrates the location and limits of the study.

This report documented the need for the project and presented the procedures used to develop and evaluate various improvement alternatives as they relate to the transportation facility. Engineering data and information about the environmental characteristics of the

area, which are essential to the alignment and analytical decision-making process, has been collected as part of the 1996 Gandy Major Investment Study[1] (MIS) and was updated as necessary. Once sufficient data was available, alignment criteria was used to refine the alternatives. The comparison of alternatives was based on a variety of parameters using a matrix format outlined in the MIS[1] Screen Two Evaluation Report and other factors identified during this study effort. The MIS[1] identified the alternative that would have the least impact while providing the necessary improvements and was refined in the PD&E Study phase along with the No-Build option.

Through the PD&E Study process, the FDOT evaluated the improvement alternatives along the Gandy Boulevard (SR 694) Corridor. The Gandy Boulevard (SR 694) Corridor is primarily an east/west facility, which in its entirety, extends from a western terminus at Gulf Boulevard in Pinellas County to an eastern terminus at Bayshore Boulevard in Hillsborough County. The Gandy Boulevard (SR 694) Corridor is functionally classified as an east/west principal urban arterial highway and is part of the Florida Intrastate Highway System (FIHS). The facility also serves as a major hurricane evacuation route for residents in Pinellas County. The PD&E Study limits encompass the portion of Gandy Boulevard (SR 694) from west of the US 19/Gandy Boulevard (SR 694) interchange to east of 4th Street and include proposed interchanges at: 4th Street and Gandy Boulevard (SR 694); 9th Street and Gandy Boulevard (SR 694); and interchange improvements at I-275. The total length of the study is approximately 3.9 miles. This project has been evaluated in the MIS[1], which was initiated in 1996.

For this PD&E Study, the project was divided into segments based on the existing land use, interchange locations, and projected traffic volumes for the design year. Because the portion of Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street contains similar land use characteristics and projected traffic volumes, this project was divided into four segments based on the new interchanges that are proposed in the corridor. The segments of the project are identified as follows:

- Segment A: West of US 19 to west of Grand Avenue
- Segment B: West of Grand Avenue to west of I-275

- Segment C: West of I-275 to west of 9th Street
- Segment D: West of 9th Street to east of 4th Street

1.2.1 Proposed Typical Sections

This section of the report describes and presents graphically the proposed typical sections, lane configuration, and alignment developed in this PD&E Study. This study evaluated engineering and environmental issues associated with an urban arterial alternative along the Gandy Boulevard (SR 694) Corridor from west of the US 19/Gandy Boulevard (SR 694) interchange to east of 4th Street.

1.2.1.1 Segment A

The limits of Segment A are along Gandy Boulevard (SR 694) from west of US 19 to west of Grand Avenue. The existing typical sections (Figures 4-1 through 4-4) are a divided six-lane roadway with open drainage ditches on both sides of the roadway. The existing ROW width varies between 102 feet (ft.) and 380 ft. The existing land use in this section is a mix of commercial and residential uses.

As indicated in the Design Traffic Memorandum[2], an interchange modification is not needed by the design year 2025 for the US 19 interchange. This interchange is located within this project segment and will remain in its existing configuration. The associated proposed typical section will be discussed in this section.

Roadway Typical Section

Proposed Roadway Typical Section 1 (Figure 8-1) has been evaluated for Segment A along Gandy Boulevard (SR 694). This proposed typical section is a six-lane divided urban section with a 26 ft. median including a median barrier wall and 12 ft. shoulders. The median widens just west of Grand Avenue to allow for a dropped inside left turn lane from eastbound Gandy Boulevard (SR 694) to Grand Avenue. This typical section contains three 12 ft. travel lanes in each direction. The typical section also includes off-ramps with two

12 ft. travel lanes in each direction as a one-way loop, 5 ft. sidewalks and a 4 ft. bicycle lane along the outside of the off-ramp. The inside shoulder on the off-ramps is 8 ft. paved. The proposed design speed for the mainline for this typical section is 60 mph and requires a minimum right-of-way (ROW) width of 222 ft. The proposed design speed for the off-ramps is 50 miles per hour (mph).

Bridge Typical Section

No new structures are proposed for Segment A.

1.2.1.2 Segment B

The limits of Segment B are along Gandy Boulevard (SR 694) from west of Grand Avenue to west of I-275. The existing typical section (Figure 4-4) is a divided six-lane roadway with open drainage ditches and frontage roads on both sides of the roadway. The existing ROW width varies between 160 ft. and 380 ft. The existing land use in this section is a mix of commercial and residential uses.

As indicated in the Design Traffic Memorandum[2], an overpass is needed by the design year 2025 for the Grand Avenue intersection.

Roadway Typical Section

Proposed Roadway Typical Section 2 (Figure 8-2) has been evaluated for Segment B along Gandy Boulevard (SR 694). This proposed typical section is a six-lane divided section with a median width varying from 26 ft. (with median barrier) up to 40 ft. (with grassed drainage swales). This typical section contains three 12 ft. travel lanes in each direction. The typical section also includes two-lane two-way frontage roads with two 12 ft. travel lanes in each direction, a 5 ft. sidewalk and a 4 ft. bicycle lane along the outside of the roadway. Finally, the typical section contains two-lane one-way off-ramps. The off-ramps contain two 12 ft. travel lanes and 10 ft. inside and outside shoulders. From the end of Segment B (west of I-275) to the east of I-275, the proposed six-lane divided rural section continues under I-275

while the frontage roads and off-ramps terminate at I-275. The proposed design speed for this typical section is 60 mph along the mainline and 50 mph for the off-ramps and frontage roads. This section requires a minimum ROW width between 314 ft. and 328 ft.

Bridge Typical Section

Proposed Bridge Typical Section 3 (Figure 8-3) has been evaluated for Segment B along Gandy Boulevard (SR 694) over Grand Avenue. This typical section is a six-lane divided urban bridge section with a 40 ft. median. The required median width of 40 ft. is used to accommodate two 12 ft. median shoulders and open median space that is needed through the overpass area. Since the roadway median width approaching the bridge is also 40 ft., a transition area is not required for the median width between the roadway and bridge sections. This typical section contains three 12 ft. travel lanes in each direction. The proposed design speed for this typical section is 60 mph.

1.2.1.3 Segment C

The limits of Segment C are along Gandy Boulevard (SR 694) from west of I-275 to west of 9th Street. The existing typical sections (Figures 4-5 through 4-6) are a divided four-lane roadway with open drainage ditches on both sides of the roadway. This segment also contains two-way two-lane frontage roads on the north and south side of Gandy Boulevard (SR 694). The existing ROW width varies between 420 ft. and 550 ft. The existing land use in this section is a mix of commercial and residential uses.

As indicated in the Design Traffic Memorandum[2], an interchange modification is needed by the design year 2025 for the I-275 interchange in order to make the interchange fully accessible. The modification includes removing the signalized at-grade intersection between the northbound I-275 off-ramp and Gandy Boulevard (SR 694). The northbound I-275 to westbound Gandy Boulevard (SR 694) movement would be accomplished via a flyover connecting the existing northbound I-275 off-ramp with the existing southbound I-275 off-ramp to westbound Gandy Boulevard (SR 694). These modifications to the

I-275/Gandy Boulevard (SR 694) interchange do not require an Interchange Modification Report (IMR) since the access points on I-275 do not change.

Two additional movements were evaluated. The first movement included a new ramp from westbound Gandy Boulevard (SR 694) to northbound I-275. The second movement included a new ramp connecting southbound I-275 to eastbound Gandy Boulevard (SR 694). These additional movements require redesigning the entire interchange due to existing ramp conflicts and ROW impacts. This would require an IMR. The Design Traffic Memorandum[2] recommends not adding these two new additional movements for two reasons. First, the traffic volumes for those movements do not warrant the additional ramps. Second, the movements created by adding westbound Gandy Boulevard (SR 694) to northbound I-275 and southbound I-275 to eastbound Gandy Boulevard (SR 694) are accomplished at the I-275/Roosevelt interchange. As a result, the FDOT decided not to include the additional ramps to make the interchange fully accessible.

Finally, as indicated in the Design Traffic Memorandum[2], an overpass is needed by the design year 2025 for the relocated 16th Street intersection. The associated proposed typical sections are discussed in this section.

Roadway Typical Sections

Proposed Roadway Typical Section 4 (Figure 8-4) between I-275 and 16th Street and Proposed Roadway Typical Section 5 (Figure 8-5) between 16th Street and 9th Street were evaluated for Segment C along Gandy Boulevard (SR 694). Proposed Roadway Typical Section 4 contains three 12 ft. travel lanes in each direction, as well as frontage roads with two 12 ft. travel lanes in each direction, 5 ft. sidewalks and a 4 ft. bicycle lane along both sides of the roadway. The existing two-way frontage roads were revised to include the bike lane, sidewalks, curb and gutter, shoulders, and standard lane widths. From the beginning of Segment C (west of I-275) to the east of I-275, the six-lane divided rural section continues under I-275 while the frontage roads terminate at I-275.

Proposed Roadway Typical Section 5 contains two 12 ft. travel lanes in each direction as well as frontage roads with two 12 ft. travel lanes in one direction as a one-way loop, 5 ft. sidewalks and a 4 ft. bicycle lane along the outside of the roadway. The proposed design speed for this typical section is 60 mph for mainline and 50 mph for frontage roads and requires a ROW width of up to 236 ft.

Bridge Typical Sections

The east/west overpass for Gandy Boulevard (SR 694) over 16th Street requires a six-lane bridge typical section along Gandy Boulevard (SR 694). Proposed Bridge Typical Section 6 (Figure 8-6) has been evaluated for Segment C along Gandy Boulevard (SR 694) over 16th Street. This typical section is a six-lane divided urban bridge section with a 40 ft. median. The required median width of 40 ft. is used to accommodate two 12 ft. median shoulders and open median space that is needed through the overpass area. A transition area is not required for the median width between the roadway and bridge sections because full width shoulders will be utilized for both the roadway and bridge typical sections. This typical section contains three 12 ft. travel lanes in each direction.

Proposed Bridge Typical Section 7 (Figure 8-7) has been evaluated for the single-lane flyover from I-275 northbound to Gandy Boulevard (SR 694) westbound. This typical section contains a single 15 ft. lane with 6 ft. inside and outside shoulders; however, the minimum values may change if on a horizontal curve. The proposed design speed for these typical sections is 60 mph.

1.2.1.4 Segment D

The limits of Segment D are along Gandy Boulevard (SR 694) from west of 9th Street to east of 4th Street. The existing typical section (Figure 4-7) is a divided four-lane roadway with open drainage ditches on both sides of the roadway. The existing ROW width varies between 220 ft. to 520 ft. The existing land use in this section is a mix of commercial and residential use.

As indicated in the Design Traffic Memorandum[2], interchanges are needed by the design year 2025 for the intersections of Gandy Boulevard (SR 694)/9th Street, Gandy Boulevard (SR 694)/Roosevelt Boulevard, and Gandy Boulevard (SR 694)/4th Street. These interchanges are located within this project segment and were evaluated for east/west overpasses. The associated proposed typical sections are discussed in this section.

Roadway Typical Section

Proposed Roadway Typical Section 5 (Figure 8-5), previously discussed in Segment C, has also been evaluated for Segment D along Gandy Boulevard (SR 694). This proposed typical section is a four-lane divided section with drainage swales within a median which varies from 40 ft. to 64 ft. This typical section contains two 12 ft. travel lanes in each direction. The typical section also includes frontage roads with two 12 ft. travel lanes in each direction as a one-way loop, 5 ft. sidewalks and a 4 ft. bicycle lane along both sides of the roadway. The proposed design speed for this typical section is 60 mph and requires a ROW width which varies from 222 ft. to 236 ft.

Bridge Typical Section

The east/west overpasses will require a four-lane bridge typical section along Gandy Boulevard (SR 694). Proposed Bridge Typical Section 8 (Figure 8-8) has been evaluated for Segment D along Gandy Boulevard (SR 694) over 9th Street, Roosevelt Boulevard, and 4th Street. This typical section is a four-lane divided urban bridge section with a 64 ft. median and barriers. The required median width of 64 ft. is used to accommodate median shoulders and allow the addition of one lane in each direction beyond the PD&E Study's design year. A transition area is not required for the median width between the roadway and bridge sections. This typical section contains two 12 ft. travel lanes in each direction. The proposed design speed for this typical section is 60 mph. A north/south overpass has not been analyzed for this section.

1.2.2 Recommended Alternative

1.2.2.1 Segment A

The PD&E Recommended Alternative provides a six-lane divided controlled access facility with two-lane one-way off-ramps along the corridor between US 19 and Grand Avenue. Access between the off-ramps and the expressway is provided by an on-ramp for eastbound Gandy Boulevard (SR 694) and an on-ramp for westbound Gandy Boulevard (SR 694) (Figure 8-9). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access Grand Avenue via an inside drop-ramp (Figure 8-10).

1.2.2.2 Segment B

The PD&E Recommended Alternative provides a six-lane divided controlled access facility with two-lane one-way off-ramps and two-lane two-way frontage roads along the corridor between Grand Avenue and I-275. Access between the frontage roads and Gandy Boulevard (SR 694) is not provided. Traffic traveling westbound on Gandy Boulevard (SR 694) will access Grand Avenue and US 19 via an off-ramp prior to Grand Avenue (Figure 8-11). Traffic on Grand Avenue will access Gandy Boulevard (SR 694) westbound via the one-way off-ramp to the on-ramp west of Grand Avenue (Figure 8-12). Traffic on Grand Avenue will access Gandy Boulevard (SR 694) eastbound via the one-way off-ramp to US 19; make a u-turn at US 19 and head east on the one-way off-ramp to the Gandy Boulevard (SR 694) eastbound on-ramp (Figure 8-13). Traffic on Grand Avenue will access I-275 northbound and southbound via a two-lane one-way off-ramp (Figure 8-14). Traffic on northbound and southbound I-275 will access US 19 and Grand Avenue via a two-lane one-way off-ramp (Figure 8-15). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access northbound and southbound I-275 via an off-ramp prior to the I-275 interchange (Figure 8-16).

1.2.2.3 Segment C

Following the Public Hearing, the PD&E Recommended Alternative for Segment C was modified. The design changes included an on-ramp from 16th Street to westbound Gandy Boulevard (SR 694). Additional changes were made at the 9th Street interchange to improve LOS. The lane configuration at the interchange is as follows:

- Three southbound through lanes and a single left turn lane, (to provide an additional southbound through lane).
- Two northbound through lanes and dual left turn lanes, (additional left-turn lane).

The PD&E Recommended Alternative provides a six-lane divided controlled access facility with two-lane two-way frontage roads along the corridor between I-275 and 16th Street on the north and south side of Gandy Boulevard (SR 694), two-lane one-way frontage roads between 16th Street and 9th Street on the north side of Gandy Boulevard (SR 694), and two-lane two-way frontage roads between 16th Street and 9th Street on the south side of Gandy Boulevard (SR 694). Local access between the frontage roads and Gandy Boulevard (SR 694) is provided between 16th Street and 9th Street via an off-ramp from eastbound Gandy Boulevard (SR 694) and an on-ramp to westbound Gandy Boulevard (SR 694) from 16th Street (Figure 8-17). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access 16th Street via an off-ramp prior to 9th Street and make a u-turn at 9th Street onto a two-lane one-way frontage road to 16th Street (Figure 8-18). Traffic traveling westbound on Gandy Boulevard (SR 694) will access 16th Street via an off-ramp prior to 4th Street onto a two-lane one-way frontage road. Traffic will cross 4th Street, Roosevelt Boulevard, and 9th Street before reaching 16th Street (Figure 8-19). Traffic traveling on 16th Street will access Gandy Boulevard (SR 694) eastbound by traveling on the eastbound two-lane two-way frontage road, which becomes 94th Avenue, turn left (north) on 9th Street. Traffic will then turn right onto the eastbound two-lane one-way frontage road, through 4th Street, to the on-ramp (Figure 8-20). Traffic on 16th Street will access Gandy Boulevard (SR 694) westbound by traveling north or south on 16th Street to the on-ramp (Figure 8-29). Traffic on southbound I-275 will access US 19 and Grand Avenue via an off-ramp to a two-lane one-

way westbound collector road (Figure 8-22). Traffic on northbound I-275 will access US 19 and Grand Avenue via a new fly-over to a two-lane one-way westbound collector road (Figure 8-23). Traffic on southbound I-275 will access westbound Gandy Boulevard (SR 694) via an on-ramp (Figure 8-24). Traffic on northbound I-275 will access eastbound Gandy Boulevard (SR 694) via an on-ramp (Figure 8-25).

1.2.2.4 Segment D

The PD&E Recommended Alternative provides a four-lane divided controlled access facility with two-lane one-way frontage roads along the corridor between 9th Street and east of 4th Street. Access between the frontage roads and Gandy Boulevard (SR 694) is provided via an on-ramp to eastbound Gandy Boulevard (SR 694) east of 4th Street and an off-ramp from westbound Gandy Boulevard (SR 694) east of 4th Street (Figure 8-26). Traffic traveling westbound on Gandy Boulevard (SR 694) will access 4th Street and 9th Street via an off-ramp prior to 4th Street onto a two-lane one-way frontage road to 4th Street or 9th Street (Figure 8-27). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access 9th Street and 4th Street via an off-ramp prior to 9th Street onto a two-lane one-way frontage road to 9th or 4th Street (Figure 8-28).

The estimated cost of the Recommended Alternative roadway and pond improvements are summarized in Table 1-1 below:

Table 1-1
Evaluation Matrix -Recommended Alternative

EVALUATION FACTORS *	SEGMENTS				
	A	B	C	D	TOTAL
BUSINESS AND RESIDENTIAL RELOCATIONS					
Number of businesses estimated to be relocated	2	0	1	1	4
Number of residences estimated to be relocated	7	0	0	1	8
COMMUNITY FACILITY INVOLVEMENT					
Community Facilities	0	0	0	0	0
NOISE SENSITIVE SITES					
Number of noise sensitive sites affected	47	0	0	21	68
CULTURAL/HISTORIC RESOURCES AND PUBLIC PARKS INVOLVEMENT					
Number of historic sites/structures within or adjacent to ROW	0	0	0	0	0
Number of public parks within ROW	0	0	0	0	0
NATURAL ENVIRONMENT INVOLVEMENT					
Estimated total wetland involvement area in acres	1.12	2.29	0.42	5.97	9.80
FLOODPLAIN AND FLOODWAY ENCROACHMENT					
Area of base floodplain and floodway encroachment in acres	0	0	0	0	0
POTENTIAL PETROLEUM POLLUTANT AND HAZARDOUS MATERIAL CONTAMINATED SITES (within or adjacent to ROW)					
Number of potential petroleum pollutant contaminated sites	1	0	0	3	4
Number of potential hazardous material contaminated sites	0	0	0	0	0
ESTIMATED PROJECT COSTS (Present value in million $)					
Design cost	$2.17	$3.04	$3.12	$4.24	$12.57
ROW acquisition cost	$13.20	$1.75	$9.38	$6.86	$31.19
Construction cost	$14.43	$20.24	$20.77	$28.27	$83.71
Construction engineering and inspection cost	$2.17	$3.04	$3.12	$4.24	$12.57
TOTAL COST	**$31.97**	**$28.07**	**$36.39**	**$43.61**	**$140.04**

* Includes preferred ponds

1.3 REFERENCES

1. Major Investment Study; Florida Department of Transportation; 2001.

2. Design Traffic Memorandum; Gannett Fleming, Inc.; May 2002.

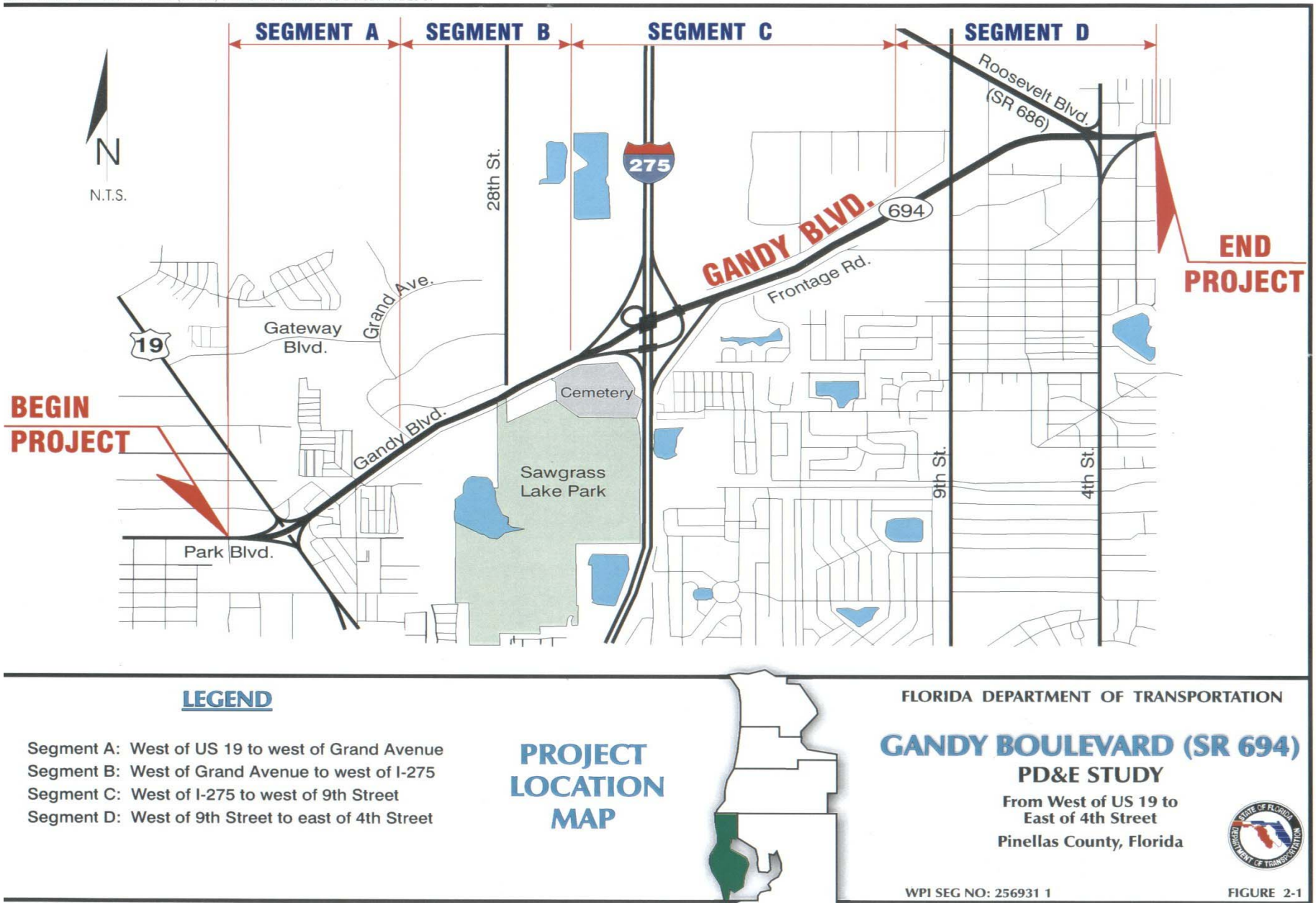
SECTION 2
INTRODUCTION

The Florida Department of Transportation (FDOT) has conducted a Project Development and Environment (PD&E) Study to evaluate improvement alternatives along Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street in the cities of Pinellas Park and St. Petersburg in Pinellas County, Florida. The project location map in Figure 2-1 illustrates the location and limits of the study.

2.1 PURPOSE

The objective of the PD&E Study was to provide documented environmental and engineering analyses, which would help the FDOT and the Federal Highway Administration (FHWA) reach a decision on the type, conceptual design, and location of the necessary improvements along the Gandy Boulevard (SR 694) Corridor to accommodate future transportation needs in a safe and efficient manner.

This report documented the need for the project and presented the procedures used to develop and evaluate various improvement alternatives as they relate to the transportation facility. Engineering data and information about the environmental characteristics of the area, which are essential to the alignment and analytical decision-making process, has been collected as part of the 1996 Gandy Major Investment Study[1] (MIS) and was updated as necessary. Once sufficient data was available, alignment criteria was used to refine the alternatives. The comparison of alternatives was based on a variety of parameters using a matrix format outlined in the MIS[1] Screen Two Evaluation Report and other factors identified during this study effort. The MIS[1] identified the alternative that would have the least impact while providing the necessary improvements and was refined in the PD&E Study phase along with the No-Build option.



LEGEND

Segment A: West of US 19 to west of Grand Avenue
Segment B: West of Grand Avenue to west of I-275
Segment C: West of I-275 to west of 9th Street
Segment D: West of 9th Street to east of 4th Street

PROJECT LOCATION MAP

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to
East of 4th Street

Pinellas County, Florida

WPI SEG NO: 256931 1

FIGURE 2-1

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2.2 PROJECT DESCRIPTION

Through the PD&E Study process, the FDOT evaluated improvement alternatives along the Gandy Boulevard (SR 694) Corridor. The Gandy Boulevard (SR 694) Corridor is primarily an east/west facility, which in its entirety, extends from a western terminus at Gulf Boulevard in Pinellas County to an eastern terminus at Bayshore Boulevard in Hillsborough County. The Gandy Boulevard (SR 694) Corridor is functionally classified as an east/west principal urban arterial highway and is part of the Florida Intrastate Highway System (FIHS). The facility also serves as a major hurricane evacuation route for residents in Pinellas County. The PD&E Study limits encompass the portion of Gandy Boulevard (SR 694) from west of the US 19/Gandy Boulevard (SR 694) interchange to east of 4th Street and include proposed interchanges at: 4th Street and Gandy Boulevard (SR 694); 9th Street and Gandy Boulevard (SR 694); and interchange improvements at I-275. The total length of the study is approximately 3.9 miles. This project has been evaluated in the MIS[1], which was initiated in 1996.

For PD&E Studies, projects are divided into segments based on the existing land use, interchange locations, and projected traffic volumes for the design year. Because the portion of Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street contained similar land use characteristics and projected traffic volumes, this project was divided into four segments based on the new interchanges that are proposed in the corridor. The segments of the project are identified as follows:

- Segment A: West of US 19 to west of Grand Avenue
- Segment B: West of Grand Avenue to west of I-275
- Segment C: West of I-275 to west of 9th Street
- Segment D: West of 9th Street to east of 4th Street

2.3 REFERENCES

1. Major Investment Study; Florida Department of Transportation; 2001.

SECTION 3
NEED FOR IMPROVEMENT

The need for improvement along the Gandy Boulevard (SR 694) Corridor was established based on the evaluation of the following:

- Current quality of traffic operations in the study area;
- The expected future quality of traffic operations along Gandy Boulevard (SR 694) under the No-Build Alternative;
- Traffic safety statistics for the period between 1994 and 1998; and
- The projected future socio-economic growth in the region of the project.

3.1 DEFICIENCIES

Capacity analyses were conducted to identify the intersections that presently or would in the future operate at a deficient Level-of-Service (LOS) if no improvements were constructed. The LOS standard specified by FDOT for future traffic conditions at intersections along Gandy Boulevard (SR 694) is LOS D. This effort was documented in the Design Traffic Memorandum[1] prepared for this PD&E Study.

3.1.1 Existing Deficiencies

The results of the capacity analysis of the existing (2000) traffic conditions performed for Gandy Boulevard (SR 694) reveals that eight of the nine signalized intersections are operating below the acceptable standard of LOS D during the AM and/or PM peak hours. The signalized intersections within the study area operating below the acceptable standard are:

- Gandy Boulevard (SR 694) at US 19, LOS F during AM and PM peak hours;
- Gandy Boulevard (SR 694) at Grand Avenue (28th Street), LOS F during PM peak hour;
- Gandy Boulevard (SR 694) at I-275 northbound off-ramp, LOS F during AM and PM peak hours;
- Gandy Boulevard (SR 694) at Frontage Road, LOS F during AM and PM peak hours;
- Eastbound Gandy Boulevard (SR 694) at 9th Street, LOS E during PM peak hour;
- Westbound Gandy Boulevard (SR 694) at 9th Street, LOS F during AM peak hour and LOS E during PM peak hour;
- Gandy Boulevard (SR 694) at 4th Street, LOS F during AM and PM peak hours; and
- Roosevelt Boulevard at 9th Street, LOS F during AM peak hour and LOS E during the PM peak hour.

3.2 SAFETY

To evaluate the safety of traffic operations in the study area, crash records for the five-year period between 1994 and 1998 were obtained for the following intersections and roadway segments located within the area. Crash data was only available for a few locations.

Intersections

- Gandy Boulevard (SR 694) at US 19
- Gandy Boulevard (SR 694) at I-275
- Gandy Boulevard (SR 694) at 4th Street
- Roosevelt Boulevard at 9th Street

Roadway Segments

- Gandy Boulevard (SR 694) from 40th Street to 34th Street
- Gandy Boulevard (SR 694) from 34th Street to I-275
- Gandy Boulevard (SR 694) from I-275 to 4th Street
- Roosevelt Boulevard from 9th Street to Gandy Boulevard (SR 694)

The crash records indicated that 819 crashes occurred during the five-year period between 1994 and 1998. Of the total number of crashes, 491 occurred at intersections and 328 occurred on roadway segments. In addition, during the five-year period there were 12 fatalities and 890 injuries. The majority of the total crashes occurred during daylight on dry roadway conditions and were due to disregarding other traffic and were classified as rear-end type crashes.

A review of the safety ratios for intersections and segments revealed that four intersections and one segment have safety ratios greater than 1.0. A safety ratio greater than one indicates that a segment or intersection is experiencing an abnormal amount of crashes compared to the statewide average of an intersection or roadway with similar characteristics. The intersections and segments experiencing safety ratios greater than one are:

Intersections

- Gandy Boulevard (SR 694) at US 19 (during years 1994 thru 1996)
- Gandy Boulevard (SR 694) at I-275 (during years 1995 thru 1998)
- Gandy Boulevard (SR 694) at 4th Street (during years 1994 thru 1998)
- Roosevelt Boulevard at 9th Street (during years 1994, 1995 and 1998)

Roadway Segments

- Gandy Boulevard (SR 694) from I-275 to 4th Street (during year 1997)

The anticipated growth for this area of Pinellas County will increase the traffic demand along the roadway. As the traffic volumes continue to increase on this roadway facility, the number of crashes can be expected to increase. Improvements considered as part of this PD&E included widening Gandy Boulevard (SR 694) to six-lanes and reconstructing it as a grade separated roadway. There were also proposed frontage roads and off-ramps that would service the properties adjacent to the roadway corridor. In addition, the proposed flyover serving the I-275 northbound to Gandy Boulevard (SR 694) westbound traffic would eliminate the signalized intersection that currently serves this traffic movement. These improvements would remove conflicting traffic movements from the roadway, therefore, greatly enhancing the corridor's safety and reducing potential for crashes.

3.3 CONSISTENCY WITH TRANSPORTATION PLAN

The Pinellas County Comprehensive Plan, Transportation Element[2] and the Pinellas County Metropolitan Planning Organizations (MPO) Adopted 2020 Long Range Transportation Plan[3] (LRTP) designate Gandy Boulevard (SR 694) as a principal arterial. Both the Transportation Element[2] and the LRTP[3] display Gandy Boulevard (SR 694) from US 19 to Grand Avenue as a future four-lane divided roadway, from Grand Avenue to 9th Street as a six-lane divided roadway, and from 9th Street to 4th Street as a four-lane controlled access roadway. The alternatives under consideration for the Gandy Boulevard (SR 694) Corridor were not consistent with these plans. The Pinellas County MPO recently updated 2020 LRTP[3] to Pinellas County MPO Adopted 2025 Long Range Transportation Plan[4]. The plan was adopted on December 12, 2001, but still shows Gandy Boulevard (SR 694) as a four-lane roadway in some areas.

3.4 SOCIAL AND ECONOMIC DEMANDS

Pinellas County, with 280 square miles (sq mi) is the second smallest county in the State. Its small land area and large population have made Pinellas County the most densely populated county in Florida. Presently, Pinellas County has more than 3,200 persons per sq mi. According to the 2000 Census of Population, Housing and Employment, the County's population was 921,482, which represents a 8.19% increase over the 1990 population of

851,659, while the State of Florida as a whole grew 23% over the same period. Projected permanent population for 2025, based on the 2000 Florida Statistical Abstract[5], is 1,036,000 which represents a 12.4% increase over 2000. Population growth has been fueled by tourism acquainting future residents with the area, an active second home market, and retirement plans. The nature of this growth has resulted in Pinellas County having a high percentage of retirement-age persons. Approximately 22.5% of the population is 65 years of age or older. The purchase price for homes in Pinellas County is among the highest in the State and an emerging issue is the availability of adequate and affordable housing for low and moderate-income populations. This and other socio-economic information is presented in Table 3-1.

Table 3-1
Pinellas County Socio-Economic Information

Statistic	Value
Population – 1990	851,659
Population – 2000	921,482
Projected population – 2025	1,036,000
% increase in population – 1990-2000	8.19 %
% increase in population – 2000-2025	12.4%
Median age	43.0
% 65 and older	22.5%
Persons per household	2.2
Average house purchase price (1998)	$106,079 (5th highest among FL counties)
Per capita income (1998)	$30,633

Source: 2000 Florida Statistical Abstract[5]
U.S. Census Bureau, Census 2000[6]

3.5 REFERENCES

1. Design Traffic Memorandum; Gannett Fleming, Inc.; May 2002.

2. Pinellas County Comprehensive Plan, Transportation Element; Pinellas County Planning Department; Clearwater, Florida; Adopted February 17, 1998, Last Amended 1999.

3. Pinellas County MPO Adopted 2020 Long Range Transportation Plan; Pinellas County MPO; Pinellas County, Florida; December 1998, Revised May 28, 1999.

4. Pinellas County MPO Adopted 2025 Long Range Transportation Plan; Pinellas County MPO; Pinellas County, Florida; December 2001.

5. 2000 Florida Statistical Abstract: Bureau of Economic and Business Research; University of Florida College of Business Administration; Gainesville, Florida, 2000.

6. US Census Bureau, Census 2000.

SECTION 4
EXISTING CONDITIONS

4.1 EXISTING ROADWAY CHARACTERISTICS

Gandy Boulevard (SR 694) is developed with mixed commercial, industrial, and residential land use along both sides of the roadway for the length of the project. Vacant land currently exists along the north side of Gandy Boulevard (SR 694) between Gateway Center and 9th Street; however, developments are planned for most of this area of the project. Several large commercial developments are scattered along the project corridor. The existing posted speed limits along the Gandy Boulevard (SR 694) Corridor vary between 40 miles per hour (mph) and 50 mph throughout the project limits. Aerials are provided in Appendix A for reference.

This section examines the existing roadway typical sections relevant during the analysis of the proposed alternatives for this PD&E Study along Gandy Boulevard (SR 694) and in the vicinity of the interchanges. These existing roadway and bridge typical sections describe or define the following facilities located within the project limits:

- Roadway sections along Gandy Boulevard (SR 694) between west of US 19 and east of 4th Street;
- Roadway sections for the cross roads where new interchange alternatives will be evaluated (US 19, Grand Avenue, 9th Street, Roosevelt Boulevard, and 4th Street);
- The I-275 roadway; and
- The existing ramps and bridges associated with the interchanges at 9th Street and I-275.

4.1.1 Functional Classification

Gandy Boulevard (SR 694) is functionally classified as a principal urban arterial from west of US 19 to east of 4th Street.

4.1.2 Typical Section

Gandy Boulevard (SR 694) throughout the project limits from west of US 19 to east of 4th Street displays many various types of typical sections. Since some project segments had a unique existing typical section, they were used to define the existing Gandy Boulevard (SR 694) within the project limits. It should be noted that pavement has been added to the roadway since the original construction to create right turn lanes along areas throughout the project. Right turn lanes were added along eastbound and westbound Gandy Boulevard (SR 694) at Grand Avenue and 16th Street.

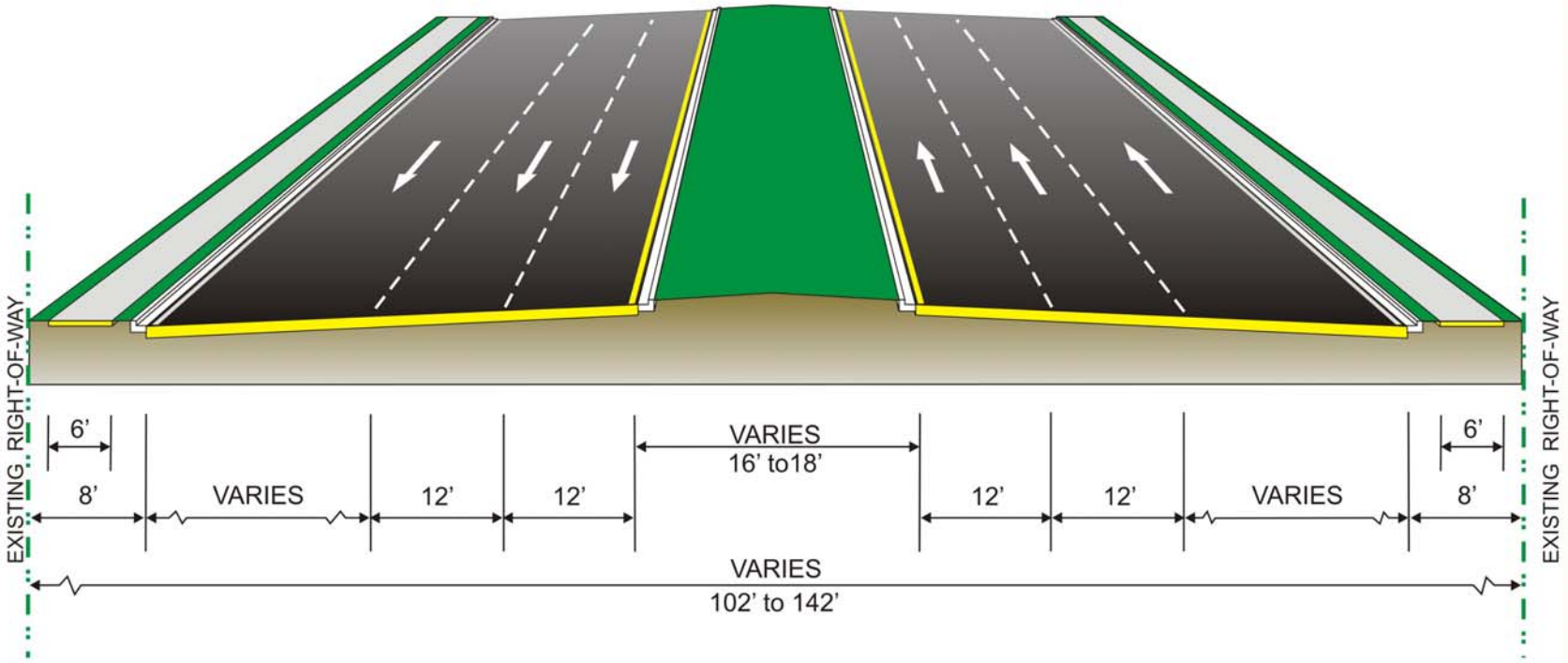
The City of St. Petersburg is currently in design to widen Gandy Boulevard (SR 694) from four-lanes to six-lanes. The design calls for an addition of one lane in each direction within the existing median from 28th Street to 9th Street.

4.1.2.1 Segment A

The existing roadway typical section along Gandy Boulevard (SR 694) from west of US 19 to east of US 19 varies. As shown in Figure 4-1, west of US 19, Gandy Boulevard (SR 694) is a divided six-lane roadway with curb and gutter on both sides of the roadway. This section contains three 12 foot (ft.) travel lanes in each direction and a raised median varying in width between 16 ft. and 18 ft. This section has 6 ft. sidewalks along the ROW. The existing ROW width varies between 102 ft. and 142 ft.

As shown in Figure 4-2, the Gandy Boulevard (SR 694) bridge section over US 19 consists of two 12 ft. travel lanes in each direction with a 7 ft. inside shoulder and a 7 ft. outside shoulder.

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-1 / 12/13/01



GANDY BOULEVARD (SR 694)
West of US 19

SEGMENT A

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

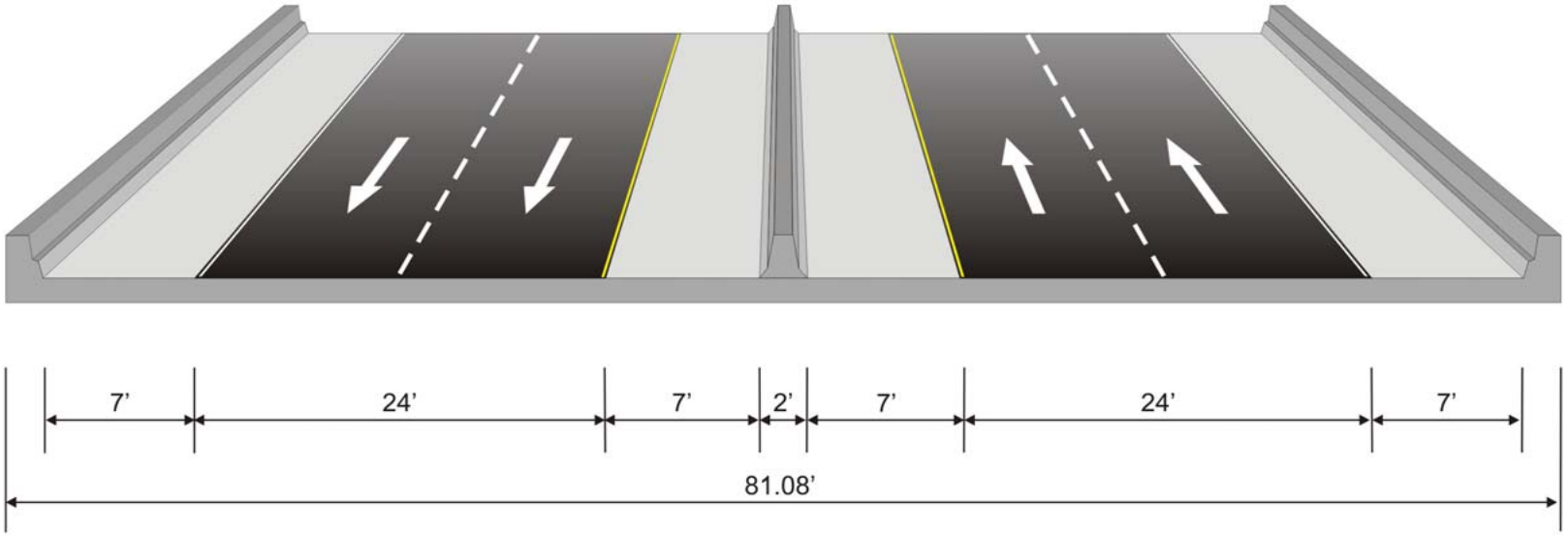
Pinellas County, Florida

EXISTING ROADWAY TYPICAL SECTION

WPI SEG NO: 256931 1

FIGURE 4-1

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-2 /12/13/01



GANDY BOULEVARD BRIDGE
over US 19
BRIDGE No: 150125

SEGMENT A

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

Pinellas County, Florida

EXISTING BRIDGE TYPICAL SECTION

WPI SEG NO: 256931 1

FIGURE 4-2

As shown in Figure 4-3, the east and west approaches to US 19 along Gandy Boulevard (SR 694) consisted of two 12 ft. travel lanes in each direction with inside paved shoulders and a concrete barrier wall in the median and outside paved shoulders with shoulder gutter and guardrail. The exit/entrance ramps are 15 ft. wide with curb and gutter. The existing ROW width varies between 142 ft. and 340 ft.

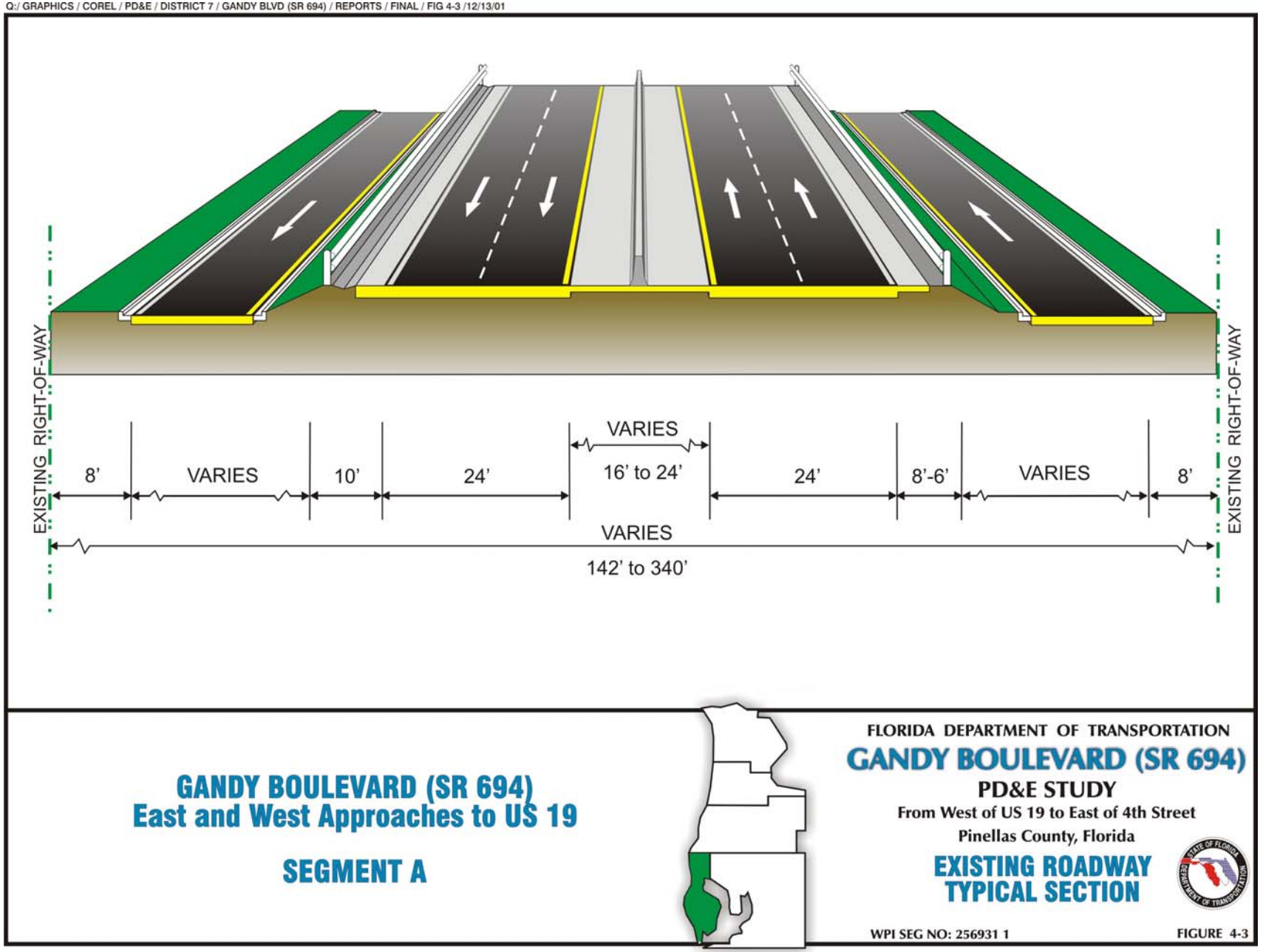
As shown in Figure 4-4, the existing typical section along Gandy Boulevard (SR 694) from east of US 19 to I-275 is a divided four-lane roadway with auxiliary lanes and open drainage ditches on both sides of the roadway. Segment A does not contain the two-way two-lane frontage roads on the north and south side of Gandy Boulevard (SR 694) between US 19 (SR 55) and Grand Avenue as depicted in the typical section and necessitated analyzing different proposed typical sections during this PD&E Study. For simplicity, one typical section (Figure 4-4) is shown for Segment A and Segment B. This section contains two 12 ft. travel lanes in each direction, one varying width auxiliary lane in each direction, and a depressed median varying in width from 24 ft. to 60 ft. The outside travel lanes in each direction serve as auxiliary lanes between US 19 on the west side and I-275 on the east side. The outside eastbound auxiliary lane was added at US 19 and dropped at I-275. The outside westbound auxiliary lane was added at I-275 and dropped at US 19. The existing ROW width varies between 160 ft. to 380 ft.

The existing land use in this section is generally a mix between residential and commercial. The Average Annual Daily Traffic (AADT) for these segments ranges from 51,300 vehicles per day (vpd) to 53,200 vpd. The existing posted speed in this segment varies between 45 mph and 50 mph.

4.1.2.2 Segment B

As shown in Figure 4-4, the existing typical section along Gandy Boulevard (SR 694) from west of Grand Avenue to west of I-275 is a divided six-lane roadway with open drainage ditches on both sides of the roadway. This section contains three 12 ft. travel lanes in each direction and a depressed median that varies between 24 ft. and 60 ft. This segment also

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-3 /12/13/01



GANDY BOULEVARD (SR 694)
East and West Approaches to US 19

SEGMENT A

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

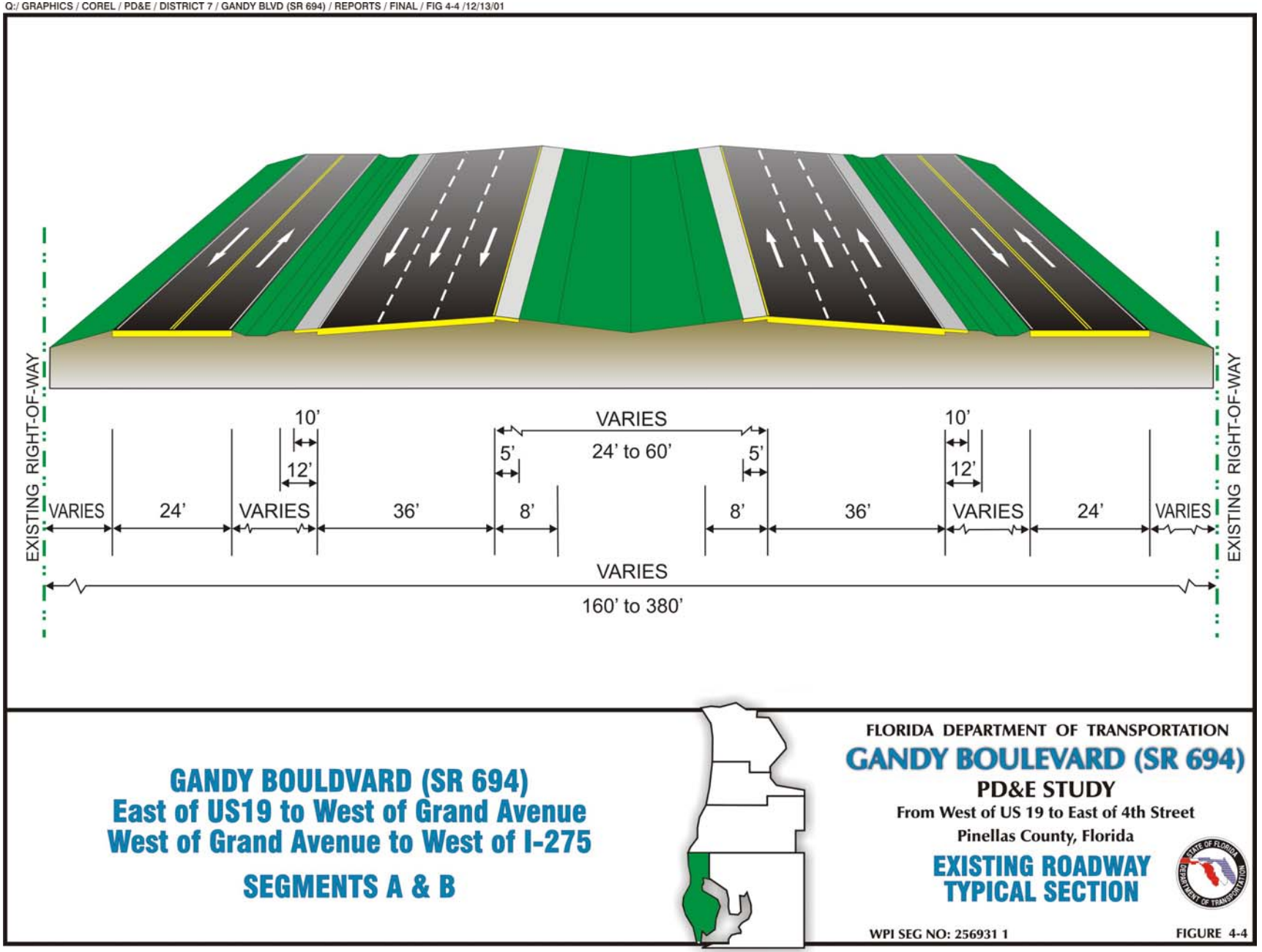
Pinellas County, Florida

EXISTING ROADWAY TYPICAL SECTION

WPI SEG NO: 256931 1

FIGURE 4-3

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-4 /12/13/01



GANDY BOULDVARD (SR 694)
East of US19 to West of Grand Avenue
West of Grand Avenue to West of I-275

SEGMENTS A & B

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

Pinellas County, Florida

EXISTING ROADWAY TYPICAL SECTION

WPI SEG NO: 256931 1

FIGURE 4-4

contains sections of two-way two-lane frontage roads on the north and south side of Gandy Boulevard (SR 694) between Grand Avenue and west of I-275. The existing ROW width varies between 160 ft. and 380 ft.

The existing land use in this section is generally a mix between residential and commercial. The AADT for this segment ranges from 53,200 vpd to 60,300 vpd. The existing posted speed in this segment is 50 mph.

4.1.2.3 Segment C

As shown in Figure 4-5, the existing typical section along Gandy Boulevard (SR 694) at I-275 is a divided four-lane roadway. This segment also contains sections of two-way two-lane frontage roads on the north and south side of Gandy Boulevard (SR 694) between east of I-275 and 9th Street as shown in Figure 4-6. This existing section has open drainage ditches on both sides of the roadway. Gandy Boulevard (SR 694) contains two 12 ft. travel lanes in each direction with a depressed median varying in width between 60 ft. and 92 ft. This section of Gandy Boulevard (SR 694) also contains a 10' paved outside shoulder, and drainage swales in the median. The existing ROW width varies between 420 ft. and 550 ft.

The existing land use in this section is generally a mix between residential and commercial. In addition, The City of St. Petersburg is currently designing improvements to portions of the existing four-lane section by widening within the existing median, adding one lane in each direction from 28th Street to 9th Street. The AADT for this segment ranges from 47,200 vpd to 60,300 vpd. The existing posted speed in this segment is 50 mph.

4.1.2.4 Segment D

As shown in Figure 4-7, the existing typical section along Gandy Boulevard (SR 694) from 9th Street to east of 4th Street is a divided four-lane roadway. This existing section has open drainage ditches on both sides of the roadway. Gandy Boulevard (SR 694) contains two 12 ft. travel lanes in each direction with a depressed median that varies in width between

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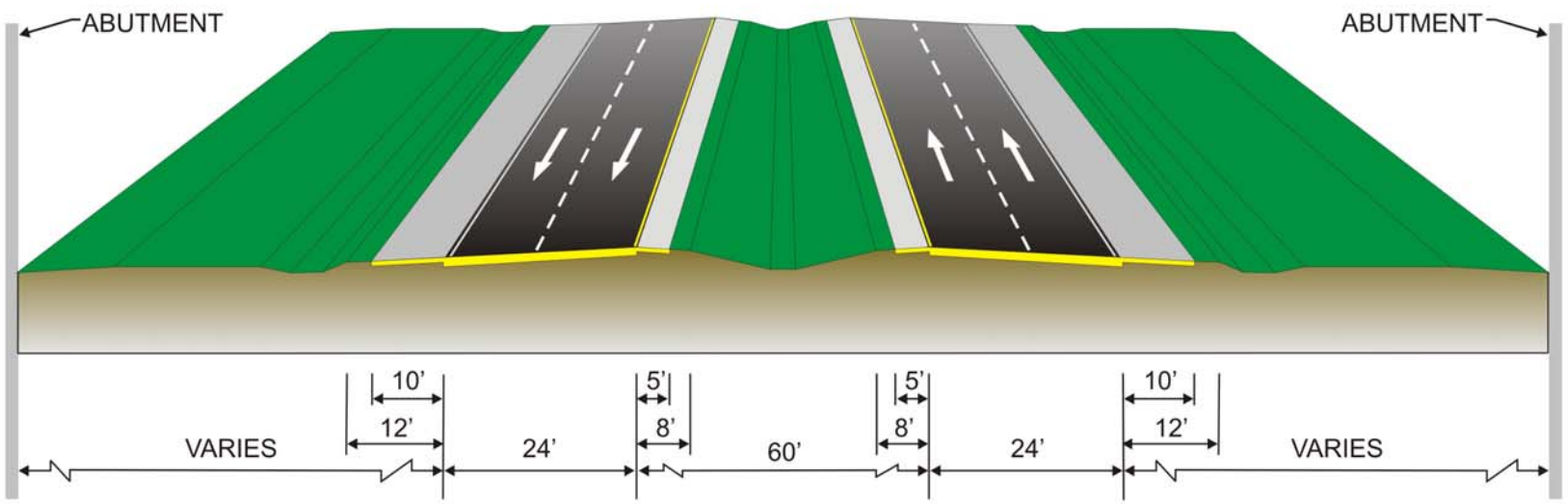


GANDY BOULEVARD (SR 694)
at I-275

SEGMENT C

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

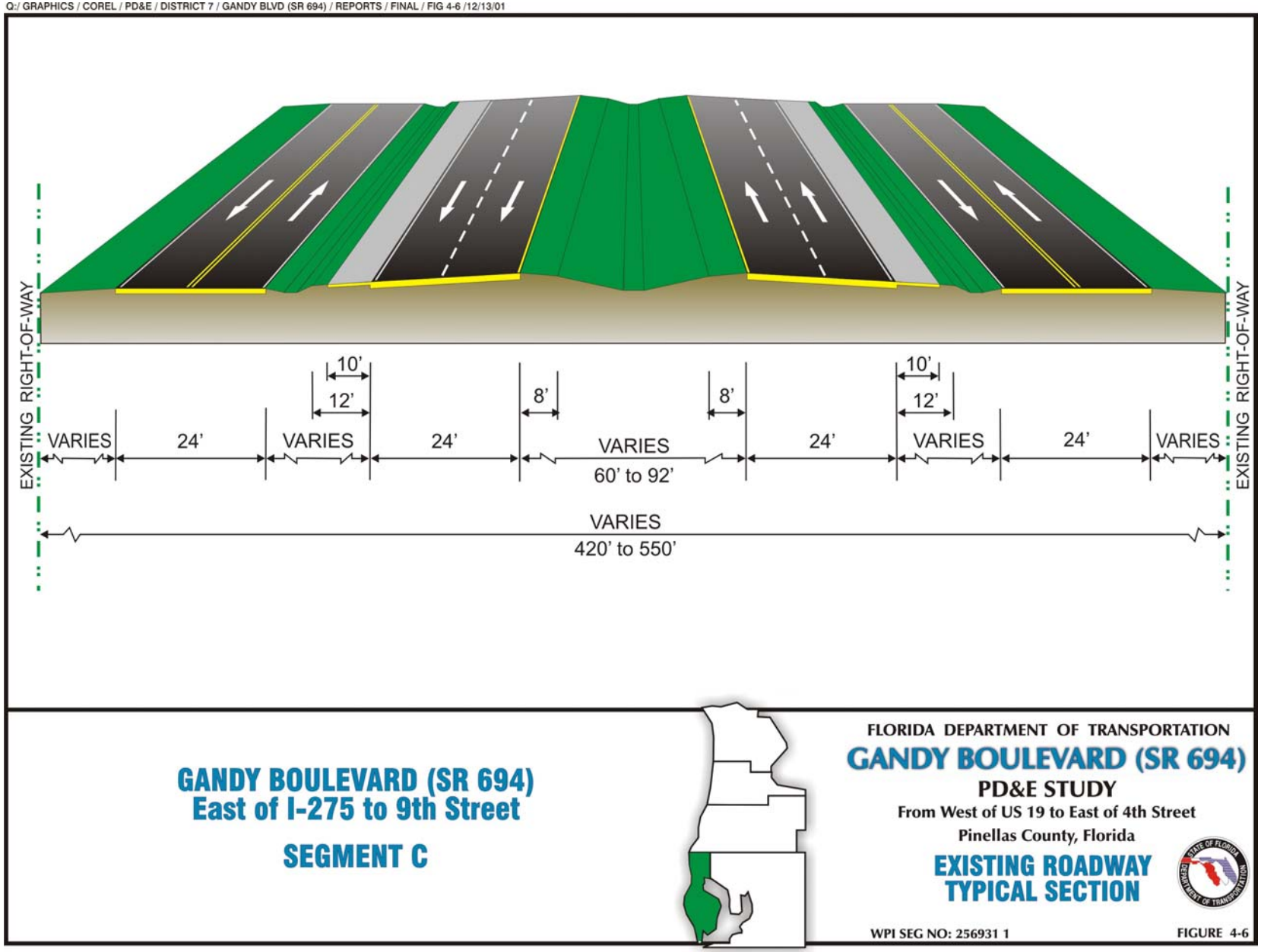
Pinellas County, Florida

EXISTING ROADWAY TYPICAL SECTION

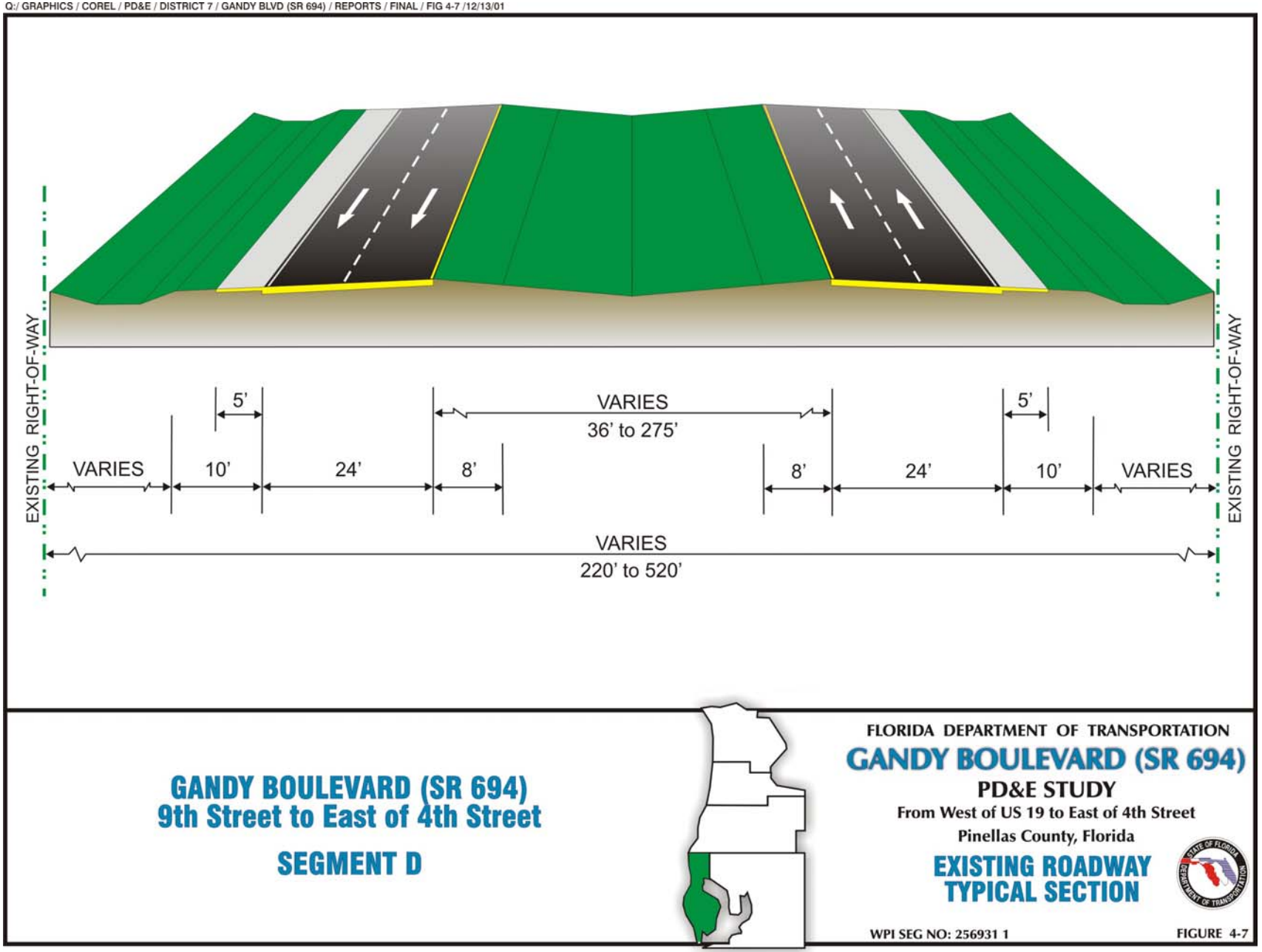
WPI SEG NO: 256931 1

FIGURE 4-5

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-6 /12/13/01



Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-7 /12/13/01



36 ft. and 275 ft. This section of Gandy Boulevard (SR 694) also contains swales in the median. The existing ROW width varies between 220 ft. and 520 ft.

The existing land use in this section is generally a mix between residential and commercial. The AADT for this segment ranges from 25,400 vpd to 34,100 vpd. The existing posted speed in this segment is 50 mph.

4.1.2.5 Existing Cross Road Typical Sections

The Design Traffic Memorandum[1] projected that the existing interchange at US 19 remains sufficient for design year 2020 traffic.

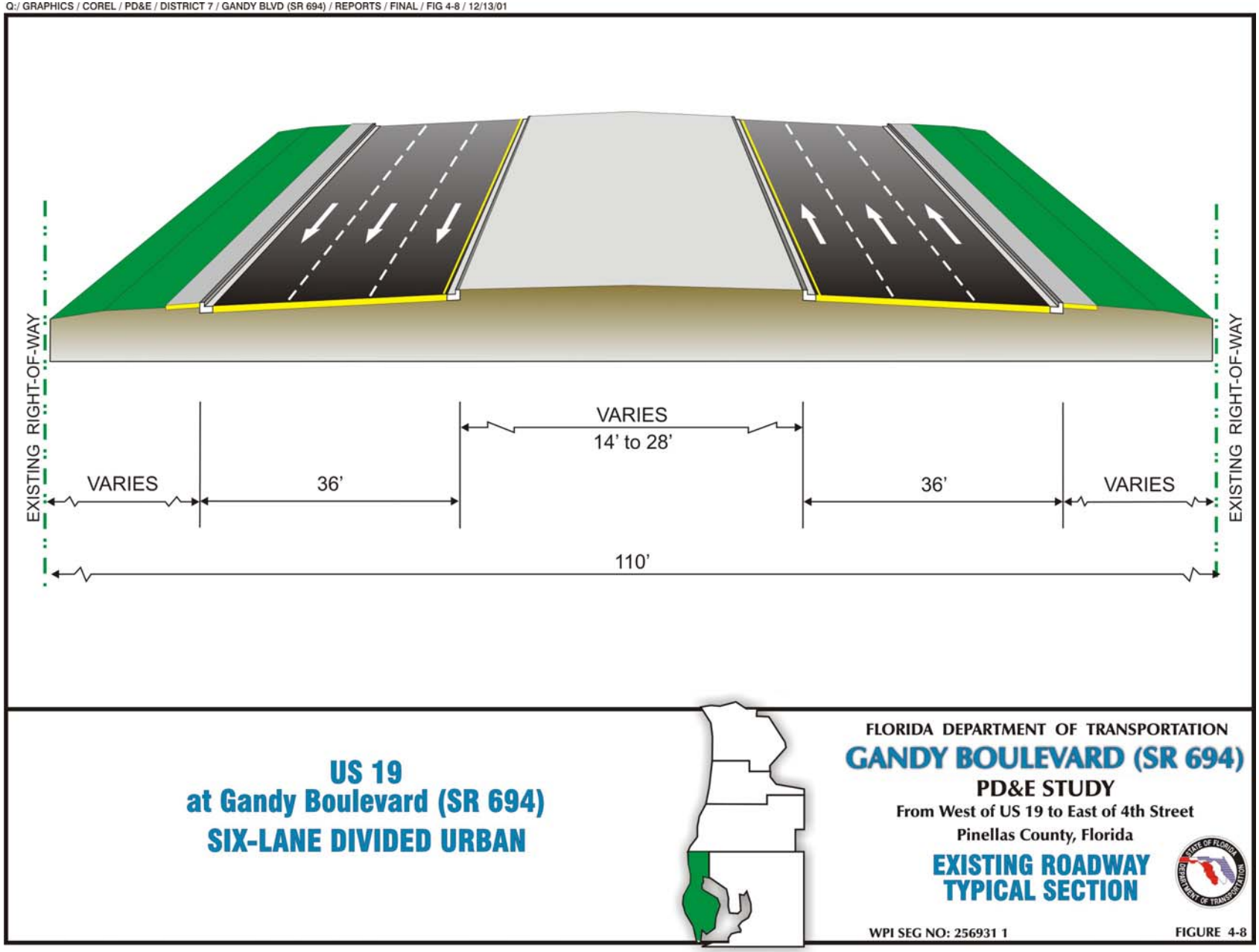
4.1.2.6 US 19

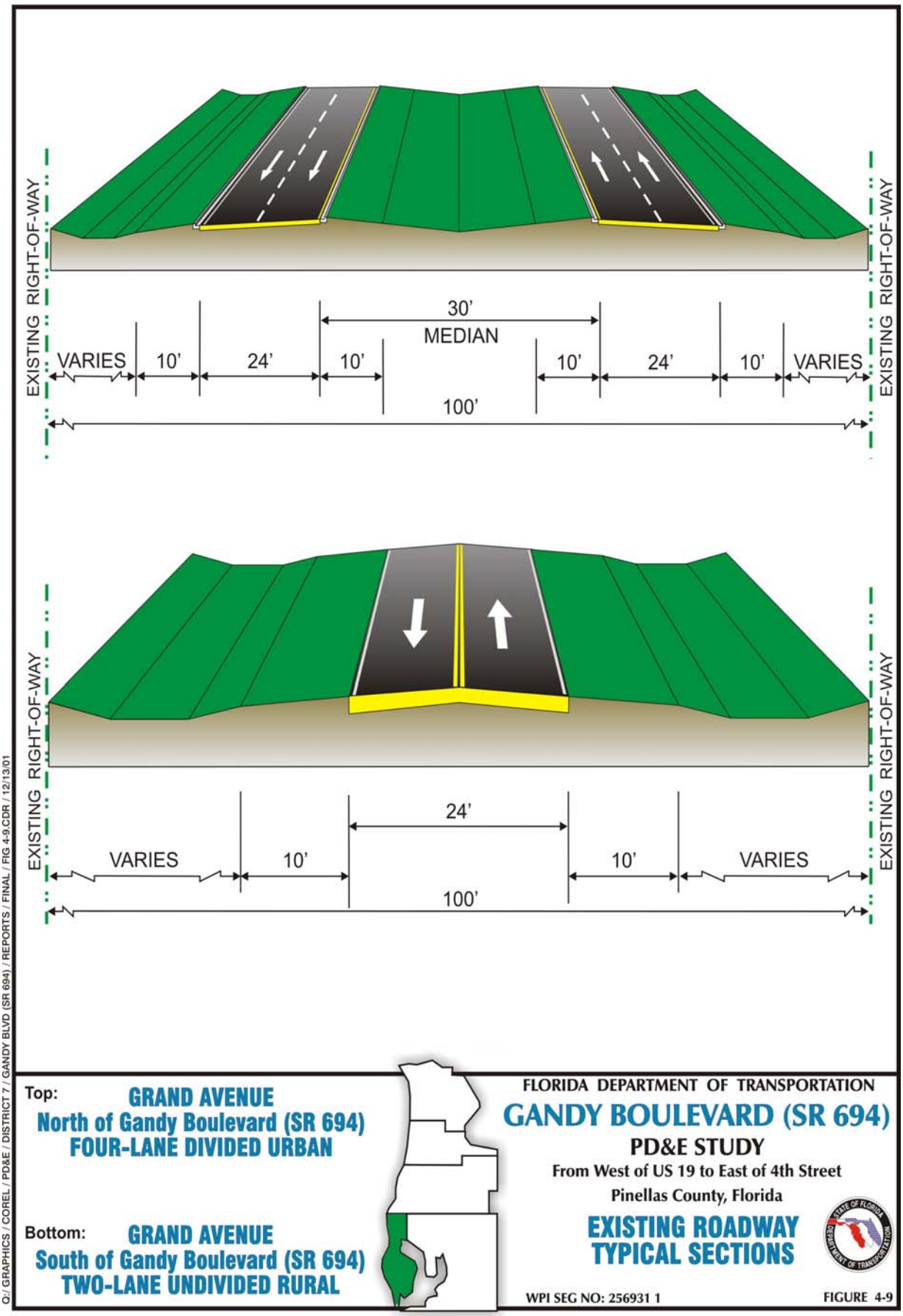
As shown in Figure 4-8, the existing typical section along US 19 both north and south of Gandy Boulevard (SR 694) is a divided six-lane urban roadway with curb and gutter on both sides of the roadway. This section contains three 12 ft. travel lanes in each direction. This section of US 19 currently traverses under a four-lane bridge for Gandy Boulevard (SR 694). Access to eastbound and westbound Gandy Boulevard (SR 694) is via signalized on-ramps and off-ramps. The existing ROW width is typically 110 ft. The existing land use for this section is a mix between residential and commercial.

4.1.2.7 Grand Avenue

As shown in Figure 4-9, the existing typical section along Grand Avenue north of Gandy Boulevard (SR 694) is a divided four-lane urban roadway. This section contains two 12 ft. travel lanes in each direction with a depressed median. The existing ROW width is approximately 100 ft. The existing land use for this section on the north side of Gandy Boulevard (SR 694) is commercial. The existing typical section along Grand Avenue south of Gandy Boulevard (SR 694) is an undivided two-lane roadway with 10 ft. of unpaved shoulders on both sides of the roadway. This section contains one 12 ft. travel lane in each direction. The existing ROW width is typically 100 ft. The existing land use in this section

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-8 / 12/13/01




EXISTING RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
30'
MEDIAN
VARIES
10'
24'
10'
10'
24'
10'
VARIES
100'
EXISTING RIGHT-OF-WAY
EXISTING RIGHT-OF-WAY
24'
VARIES
10'
10'
VARIES
100'
Top:
GRAND AVENUE
North of Gandy Boulevard (SR 694)
FOUR-LANE DIVIDED URBAN
Bottom:
GRAND AVENUE
South of Gandy Boulevard (SR 694)
TWO-LANE UNDIVIDED RURAL
FLORIDA DEPARTMENT OF TRANSPORTATION
GANDY BOULEVARD (SR 694)
PD&E STUDY
From West of US 19 to East of 4th Street
Pinellas County, Florida
EXISTING ROADWAY
TYPICAL SECTIONS
WPI SEG NO: 256931 1
FIGURE 4-9
Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-9.CDR / 12/13/01

on the south side of Gandy Boulevard (SR 694) is generally a mix between residential and commercial.

4.1.2.8 I-275

The existing typical section along I-275 north and south of Gandy Boulevard (SR 694) and over Gandy Boulevard (SR 694) is a six-lane divided rural roadway, a divided bridge section, and a ramp flyover as shown in Figures 4-10, 4-11, and 4-12 respectively. The roadway section contains three 12 ft. travel lanes in each direction and a 64 ft. depressed median. This section has 12 ft. inside and outside shoulders with 10 ft. paved and drainage swales in the median. As shown in Figure 4-11, the southbound bridge section contains three 12 ft. travel lanes with a 10 ft. inside shoulder and a 10 ft. outside shoulder. The northbound bridge section contains four 12 ft. travel lanes with a 10 ft. inside shoulder and a 6 ft. outside shoulder. The interchange currently does not provide access from I-275 south to Gandy Boulevard (SR 694) east and Gandy Boulevard (SR 694) west to I-275 north. As shown in Figure 4-12, the existing flyover Ramp B over Gandy Boulevard (SR 694) consists of two 12 ft. travel lanes with a 6 ft. inside shoulder and a 10 ft. outside shoulder. The existing ROW width along I-275 varies between 340 ft. and 375 ft. The existing land use for this section is generally a mix between residential and commercial.

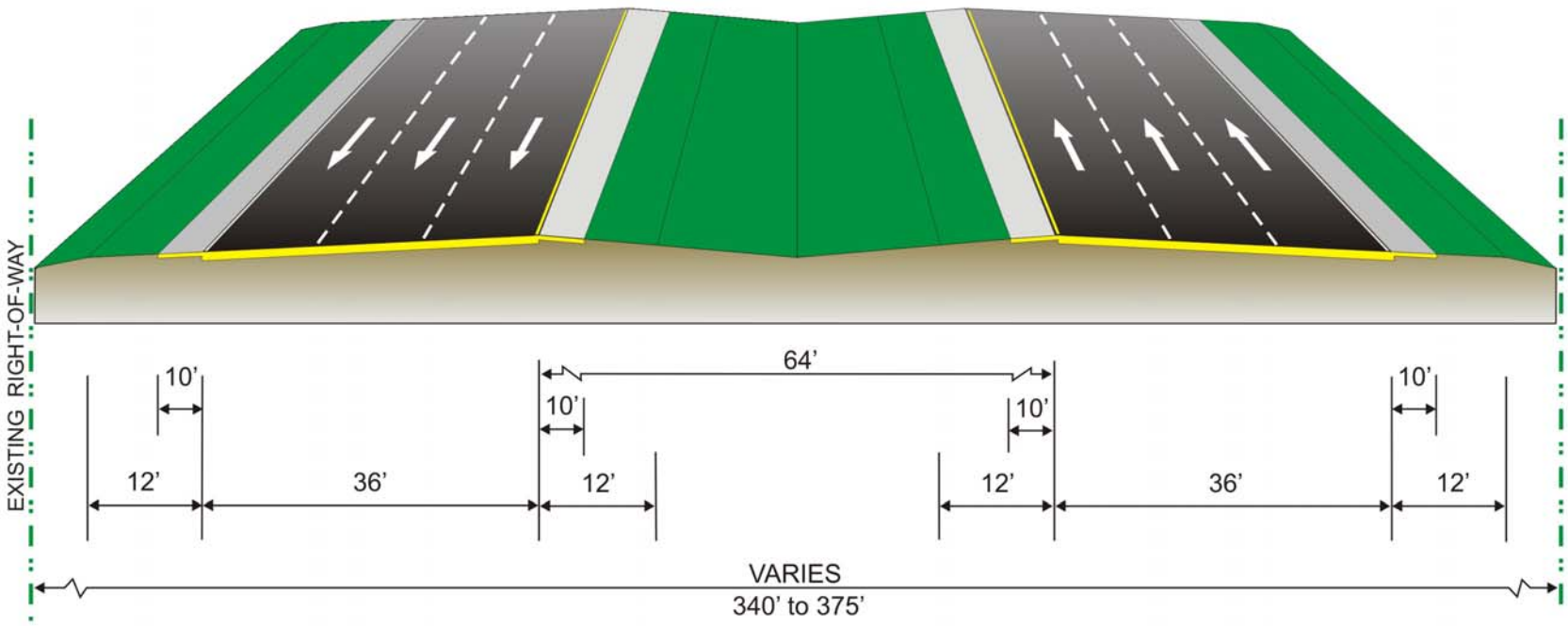
4.1.2.9 9th Street

The existing typical section along 9th Street consists of a four-lane divided rural roadway as shown in Figure 4-13. This section contains two 12 ft. travel lanes in each direction and a depressed median varying in width between 18 ft. and 40 ft. The existing ROW width varies between 200 ft. and 290 ft. The existing land use in this section is generally a mix between residential and commercial.

4.1.2.10 Roosevelt Boulevard

The existing typical section along Roosevelt Boulevard between Gandy Boulevard (SR 694) and 9th Street consists of a four-lane divided rural roadway section as shown in Figure 4-14.

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-10 / 12/13/01



I-275
North and South of Gandy Boulevard (SR 694)
SIX-LANE DIVIDED RURAL

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

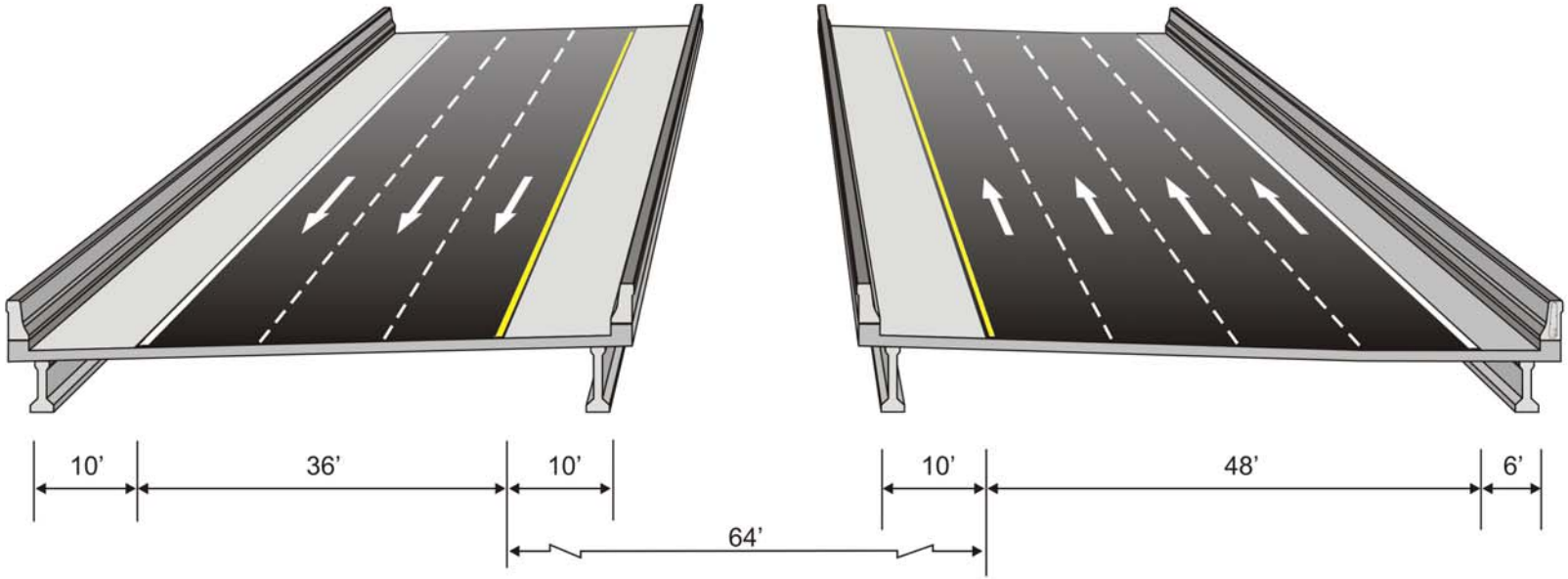
Pinellas County, Florida

EXISTING ROADWAY TYPICAL SECTION

WPI SEG NO: 256931 1

FIGURE 4-10

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-11 / 12/13/01



EXISTING I-275 BRIDGES
over Gandy Boulevard (SR 694)

Northbound Bridge No: 150101
Southbound Bridge No: 150100

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

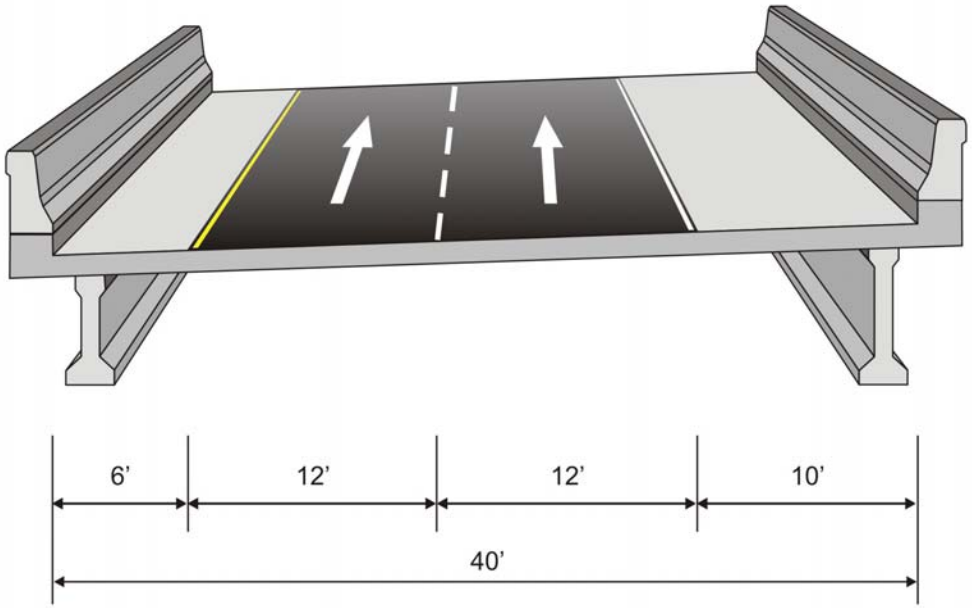
Pinellas County, Florida

EXISTING BRIDGE TYPICAL SECTION

WPI SEG NO: 256931 1

FIGURE 4-11

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-12 / 12/13/01



STRUCTURE "B" ON RAMP "B"
over Gandy Boulevard (SR 694)
Eastbound Gandy to I-275 Northbound

Bridge No: 150109

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

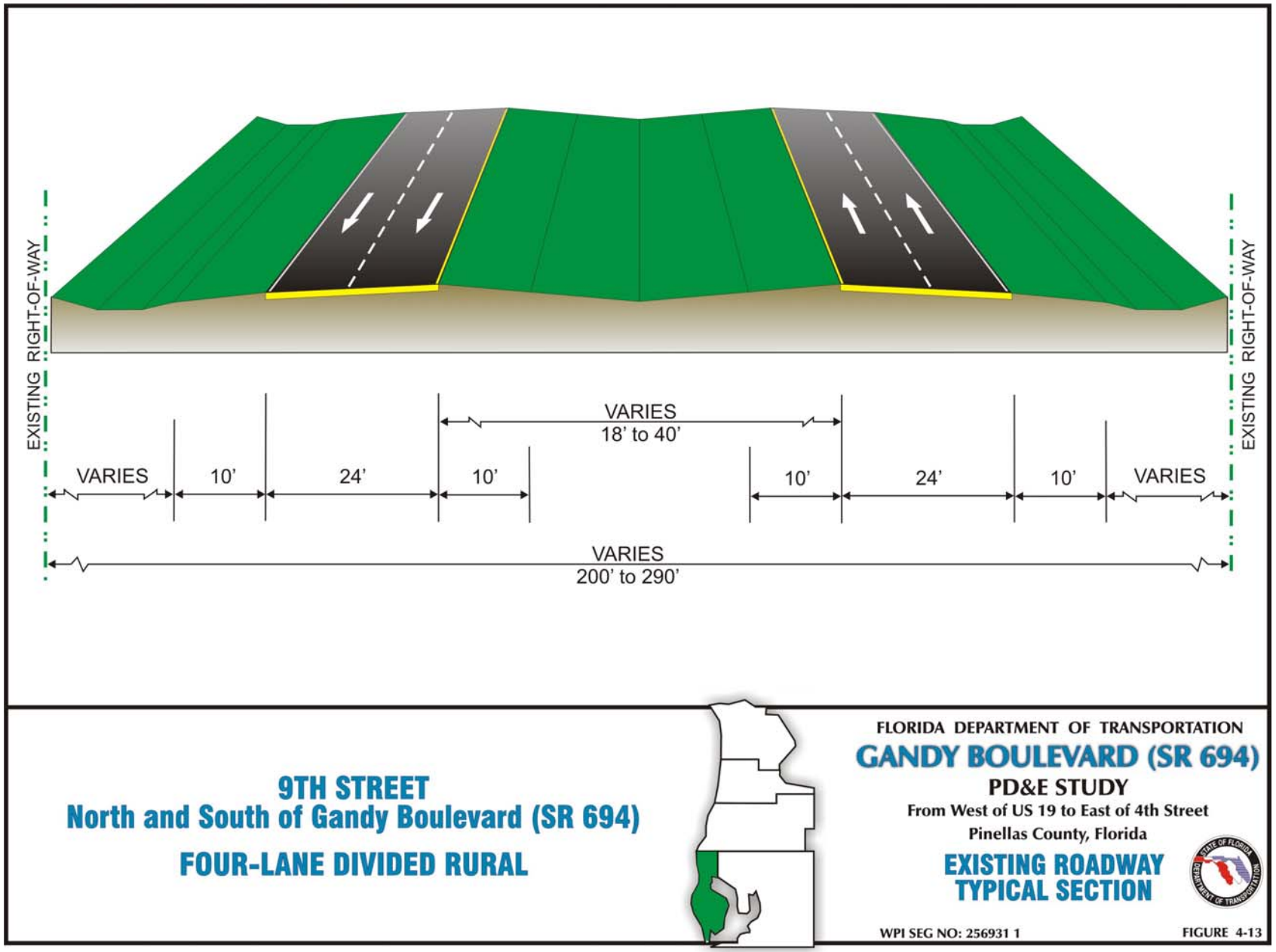
Pinellas County, Florida

EXISTING BRIDGE TYPICAL SECTION

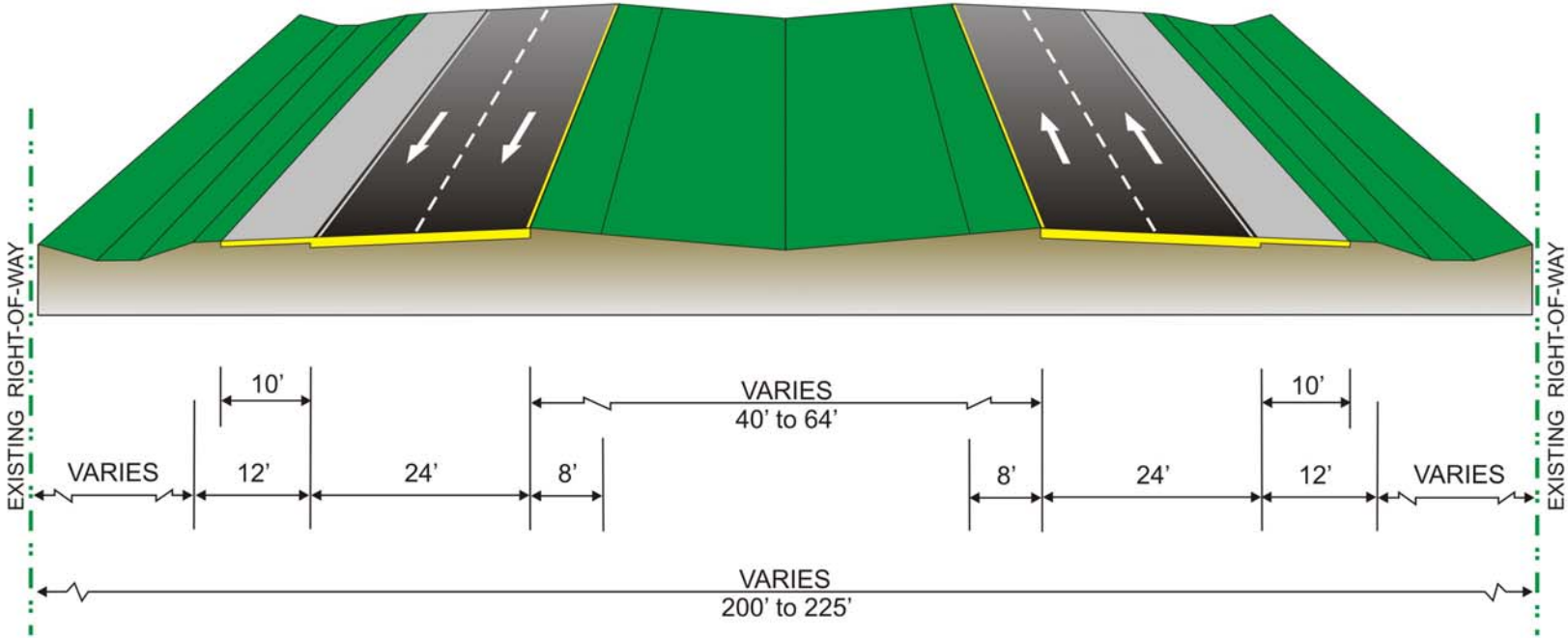
WPI SEG NO: 256931 1

FIGURE 4-12

G:/GRAPHICS / COREL / PD&E / D-7 / GANDY BLVD / REPORTS / PER FINAL / FIR 4-13 / 5-15-02



Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-14 / 12/13/01



ROOSEVELT BOULEVARD (SR 686)
Gandy Boulevard (SR 694) to 9th Street

FOUR-LANE DIVIDED RURAL

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

Pinellas County, Florida

EXISTING ROADWAY TYPICAL SECTION

WPI SEG NO: 256931 1

FIGURE 4-14

This section contains two 12 ft. travel lanes in each direction and a depressed median varying in width between 40 ft. and 64 ft. This section has an 8 ft. inside shoulder and a 12 ft. outside shoulder with 10 ft. of the outside shoulder paved. The existing ROW width varies between 200 ft. and 225 ft. The existing land use in this section is generally a mix between residential and commercial.

4.1.2.11 4th Street

The existing typical section along 4th Street consists of a six-lane divided urban roadway as shown in Figure 4-15. This section contains three 12 ft. travel lanes in each direction and a depressed median varying in width between 18 ft. and 40 ft. This section has curb and gutter with sections of sidewalk. The existing ROW width varies between 98 ft. and 152 ft. The existing land use in this section is generally a mix between residential and commercial.

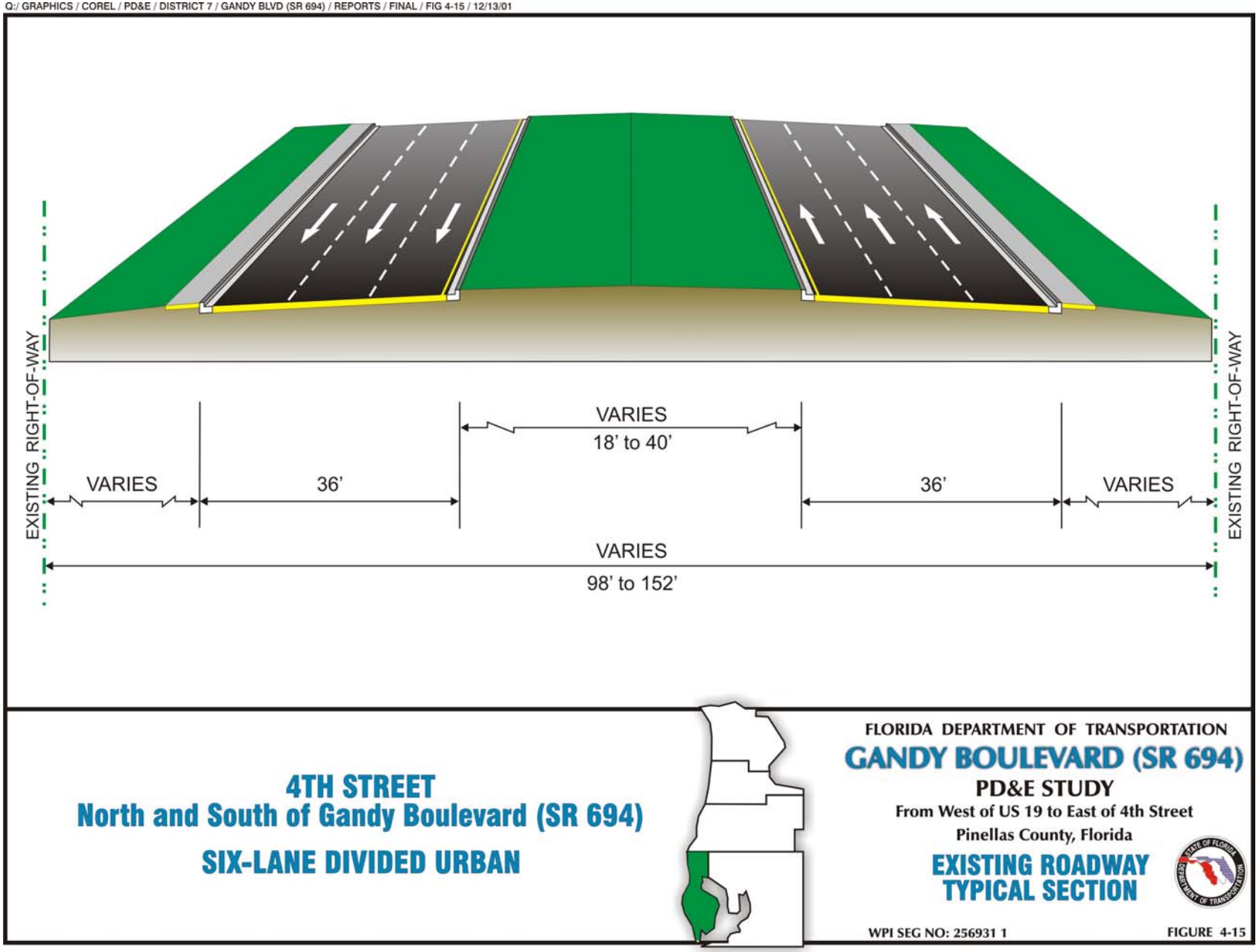
4.1.3 Pedestrian and Bicycle Facilities

The existing pedestrian facilities along the Gandy Boulevard (SR 694) Corridor were limited to the intersection of US 19. There are currently no designated bicycle facilities along the Gandy Boulevard (SR 694) Corridor. From east of US 19 to 9th Street, there are 10 ft. paved outside shoulders on both sides of Gandy Boulevard (SR 694) that accommodate bicyclists. From 9th Street to east of 4th Street, there are 5 ft. paved outside shoulders on both sides of Gandy Boulevard (SR 694) which also accommodate bicyclists. Florida Power Trail, a multi-use trail is currently planned in the vicinity of Gandy Boulevard (SR 694).

4.1.4 Right-of-Way (ROW)

The existing ROW for Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street ranges from a minimum of 102 ft. to a maximum of 550 ft.

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 4-15 / 12/13/01



4.1.5 Horizontal Alignment

The existing horizontal alignment was obtained from survey data. Gandy Boulevard (SR 694) contains five horizontal curves within the project limits. A GEOPAK printout of the horizontal geometry depicting the alignment characteristics of each curve is located in Appendix B.

4.1.6 Vertical Alignment

The existing vertical alignment was obtained from Southwest Florida Water Management District (SWFWMD) contour maps. The elevations along the roadway centerline range from a low point of 5.0 ft. above sea level at the east end to a high point of 12.5 ft. above sea level near the west end. The profile grade primarily consists of tangent sections with sag and crest vertical curves.

4.1.7 Drainage

A Final Pond Siting Report[2] (PSR) and a Final Location Hydraulic Report[3] (LHR) were prepared as part of this PD&E Study. The findings of the Final PSR[2] and Final LHR[3] have been incorporated by reference into this Report.

4.1.8 Geotechnical Data

A Preliminary Geotechnical Report[4] was prepared as part of this PD&E Study. The findings of the report have bben incorporated by reference into this Report.

4.1.9 Accident Data

Department crash data was available for four intersections and four roadway segments in the project area. To evaluate the safety of traffic operations in the study area, crash records for the five-year period between 1994 and 1998 were reviewed. The crash records indicated that

819 crashes occurred during the five-year period. Included in the total were 491 crashes at intersections and 328 along the segments. The five-year totals for intersections are shown in Table 4-1. In addition, 12 fatalities and 890 injuries occurred during the five-year period. More information on accident data can be found in the Design Traffic Memorandum[1].

Based on the five years of crash data, an average safety ratio was calculated for each intersection and segment displayed in Tables 4-1 and 4-2. The safety ratio calculations were based on the methodology outlined in the Highway Safety Improvement Program Guideline, Topic No. 500-000-100-C[5], prepared by the FDOT. Safety ratios above 1.0 indicate that the specific segment or intersection experiences vehicle collisions above statewide average for similar facilities and, therefore, traffic safety at these locations need to be improved. All four of the intersections and one of the roadway segments experienced a safety ratio greater than one.

Intersections with Safety Ratios Greater than 1.0

- Gandy Boulevard (SR 694) at US 19 (during years 1994 thru 1996)
- Gandy Boulevard (SR 694) at I-275 (during years 1995 thru 1998)
- Gandy Boulevard (SR 694) at 4th Street (during years 1994 thru 1998)
- Roosevelt Boulevard at 9th Street (during years 1994, 1995 and 1998)

Roadway Segment with Safety Ratio Greater than 1.0

- Gandy Boulevard (SR 694) from I-275 to 4th Street (during year 1997)

A majority (60%) of the crashes occurred at the intersections. A review of the information provided in Table 4-1 reveals that the majority of the crashes occurred during dry roadway conditions, and during the daylight off-peak hours. Approximately 42% of the crashes were classified as rear-end type crashes. The second major type of crash was classified as angle (17%). The majority of crashes were caused by disregarding other traffic (54%).

Table 4-1
Crash Summary for Intersections

Crash Characteristics	Gandy Boulevard (SR 694) at US 19					Gandy Boulevard (SR 694) at I-275				
	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998
Pavement Conditions										
Dry	22	26	22	17	14	15	21	22	17	34
Wet	0	6	3	2	0	4	6	3	7	8
Slippery	0	1	0	0	0	1	0	0	1	0
Unknown	0	0	0	1	1	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
Lighting Conditions										
Day	18	22	15	15	11	11	20	15	16	34
Night	3	10	10	3	2	7	7	9	9	2
Dawn	0	1	0	0	0	0	0	0	0	2
Dusk	1	0	0	1	1	0	0	0	0	3
Unknown	0	0	0	1	1	2	0	1	0	1
Time of Day										
7-9 a.m.	1	4	3	5	2	0	5	5	6	9
4-6 p.m.	8	11	4	4	4	4	6	7	6	12
Other	13	18	18	11	9	16	16	13	13	21
Severity of Crash										
Injuries	22	29	28	18	13	12	31	22	32	31
Fatalities	0	0	0	0	0	2	0	0	1	0
Property Damage Only	6	16	10	9	7	8	7	10	9	20
Type of Crash										
Rear-end	17	24	15	11	9	6	12	9	13	19
Left Turn	0	0	2	1	1	0	0	0	0	1
Right Turn	1	2	0	1	0	0	0	0	0	0
Angle	0	1	6	3	1	3	2	1	3	6
Sideswipe	0	3	1	2	1	0	0	2	0	1
Head-on	2	0	0	0	0	0	0	0	1	1
Utility/Light Pole	0	0	0	0	0	4	3	3	3	1
Other Non-Moving Object	0	1	1	0	2	3	3	3	0	5
Collision with Pedestrian	0	0	0	0	0	0	0	0	1	0
Collision with Bicyclist	1	0	0	1	0	0	1	0	0	0
Other	1	2	0	1	1	4	6	7	4	8
Cause of Crash										
No Improper Driving	0	1	0	0	0	1	0	0	0	1
Improper Lane Change	0	0	0	0	0	0	0	0	0	0
Careless Driving	0	0	0	0	0	0	0	0	0	0
Disregarded Traffic Signal	0	0	0	0	0	0	0	0	0	0
Failed to Yield ROW	0	0	0	0	0	0	0	0	0	0
Improper Parking	0	0	0	0	0	0	0	0	0	0
Drove Left of Center	0	0	0	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0	0	0	0
Alcohol and/or Drugs	0	1	0	1	0	0	1	0	0	2
Disregarded Other Traffic	16	23	14	12	10	14	18	17	17	30
Exceeded Safe Speed	0	0	0	0	0	0	0	0	0	0
Obstructing Traffic	0	0	0	0	1	0	0	0	0	0
Disregarded Stop Sign	0	0	0	0	0	0	0	0	0	0
Drive Wrong Side/Way	1	3	6	2	4	1	1	1	2	3
Other	5	5	5	5	0	4	7	7	6	6
Vehicles Involved										
Single	0	2	1	1	3	9	7	7	5	9
Multiple	22	31	24	19	12	11	20	18	20	33
TOTAL CRASHES	22	33	25	20	15	20	27	25	25	42
Safety Ratios	1.05	1.42	1.07	0.82	0.62	0.80	1.14	1.20	1.12	1.85

Table 4-2
Crash Summary for Segments

Crash Characteristics	Gandy Boulevard (SR 694) at 9th Street					Gandy Boulevard (SR 694) at 4th Street					TOTAL					
	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998	1994	1995	1996	1997	1998	1994-98
Pavement Conditions																
Dry	25	34	23	28	32	17	13	9	10	12	79	94	76	72	92	413
Wet	4	5	4	7	3	3	3	0	0	1	11	23	10	16	12	72
Slippery	0	0	0	0	0	1	0	0	0	0	2	1	0	1	0	4
Unknown	1	1	0	0	0	0	0	0	0	0	1	1	0	1	1	4
Other	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	1
Lighting Conditions																
Day	13	24	17	22	19	9	4	2	7	7	51	70	49	60	71	301
Night	12	13	9	11	15	9	11	7	3	6	31	41	35	26	25	158
Dawn	1	0	0	0	0	0	0	0	0	0	1	1	0	0	2	4
Dusk	2	2	2	0	1	1	1	0	0	0	4	3	2	1	5	15
Unknown	2	1	0	2	0	2	0	0	0	0	6	1	1	3	2	13
Time of Day																
7-9 a.m.	2	4	3	6	3	2	0	1	3	1	5	13	12	20	15	65
4-6 p.m.	4	10	8	6	6	2	6	0	3	6	18	33	19	19	28	117
Other	24	26	17	23	26	17	10	8	4	6	70	70	56	51	62	309
Severity of Crash																
Injuries	41	49	29	41	51	14	13	9	7	15	89	122	88	98	110	507
Fatalities	0	0	0	1	3	0	0	0	0	0	2	0	0	2	3	7
Property Damage Only	6	12	8	8	8	2	8	3	3	4	22	43	31	29	39	164
Type of Crash																
Rear-end	5	13	6	9	13	4	9	4	6	4	32	58	34	39	45	208
Left Turn	11	11	10	12	5	8	4	4	2	6	19	15	16	15	13	78
Right Turn	0	1	0	0	0	0	0	0	0	1	1	3	0	1	1	6
Angle	9	8	8	11	13	6	0	0	1	0	18	11	15	18	20	82
Sideswipe	0	0	3	2	0	2	1	0	0	0	2	4	6	4	2	18
Head-on	1	2	0	0	0	1	0	0	1	0	4	2	0	2	1	9
Utility/Light Pole	0	1	0	0	0	0	0	0	0	0	4	4	3	3	1	15
Other Non-Moving Object	0	1	0	1	0	0	0	0	0	2	3	5	4	1	9	22
Collision with Pedestrian	1	1	0	0	0	0	1	0	0	0	1	2	0	1	0	4
Collision with Bicyclist	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	3
Other	3	2	1	0	4	0	1	1	0	0	8	11	9	5	13	46
Cause of Crash																
No Improper Driving	1	0	0	0	0	0	0	1	0	0	2	1	1	0	1	5
Improper Lane Change	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
Careless Driving	0	0	0	0	0	5	9	3	6	7	5	9	3	6	7	30
Disregarded Traffic Signal	0	0	0	0	0	0	1	1	0	1	0	1	1	0	1	3
Failed to Yield ROW	0	0	0	0	0	13	1	3	1	2	13	1	3	1	2	20
Improper Parking	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1
Drove Left of Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	2
Improper Turn	0	0	0	0	0	0	1	0	0	2	0	1	0	0	2	3
Alcohol and/or Drugs	3	2	0	2	0	0	0	0	0	0	3	4	0	3	2	12
Disregarded Other Traffic	14	24	20	22	15	0	0	0	0	0	44	65	51	51	55	266
Exceeded Safe Speed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Obstructing Traffic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Disregarded Stop Sign	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drive Wrong Side/Way	7	11	5	9	12	0	0	0	0	0	9	15	12	13	19	68
Other	5	3	3	2	8	1	3	0	2	1	15	18	15	15	15	78
Vehicles Involved																
Single	2	3	0	0	2	0	2	0	0	1	11	14	8	6	15	54
Multiple	28	37	28	35	33	21	14	9	10	12	82	102	79	84	90	437
TOTAL CRASHES	30	40	28	35	35	21	16	9	10	13	93	116	87	90	105	491
Safety Ratios	2.12	2.40	1.67	1.87	1.68	2.25	1.48	0.84	0.86	1.13	Not Applicable					

4.1.10 Intersections and Signalization

There are nine signalized intersections along the project corridor, which are listed below:

- US 19
- Grand Avenue
- I-275 Northbound off-ramp
- 16th Street (Frontage Road)
- Eastbound Gandy Boulevard (SR 694) at 9th Street
- Westbound Gandy Boulevard (SR 694) at 9th Street
- Gandy Boulevard (SR 694) at Roosevelt Boulevard
- 4th Street
- Roosevelt Boulevard at 9th Street

The existing lane geometry of each signalized intersection along the project corridor is illustrated schematically in the Design Traffic Memorandum[1].

4.1.11 Railroad Crossings

There is no railroad that crosses Gandy Boulevard (SR 694) within the project limits.

4.1.12 Transit

The Pinellas Suncoast Transit Authority (PSTA) provides public transit service in the Gandy Boulevard (SR 694) Corridor. Route 74 serves the majority of the study corridor by traveling east/west via Park Boulevard and Gandy Boulevard (SR 694). Major stops along the route include the Indian Rocks Shopping Center, the Seminole Mall, Park 66 Shopping Center, the Pinellas Parkside Mall, and the Gateway Mall. Headways on Route 74 typically are 30 minutes in the peak periods and 60 minutes in the off-peak periods of the day. Hours of operation are from 5:15 a.m. to 8:45 p.m. Monday through Friday. Limited weekend service is also provided.

Other PSTA routes provide connections along the Gandy Boulevard (SR 694) Corridor. The Pinellas Parkside Mall on the east end of the corridor is served by PSTA Routes 11, 19, 52, 74, 75, and 444, which provide connections to Pinellas Park and north St. Petersburg. Route 96 provides peak period, weekday commuter service along I-275. Route 59 and 99 provide additional north-south service along 9th Street. Route 4 provides service along 4th Street to northeast St. Petersburg and Route 100X provides commuter service to Tampa from the Gateway Mall via Gandy Boulevard (SR 694) east of 4th Street.

4.1.13 Lighting

Highway lighting is currently provided within the project limits along both sides of Gandy Boulevard (SR 694) from West of US 19 to East of 4th Street. The approximate spacing of the existing street light poles is 200 ft.

4.1.14 Utilities

In order to evaluate potential surface and subsurface utility conflicts associated with the proposed project, information was obtained pertaining to the type, location and ownership of the existing utilities with the project area. Each utility owner was contacted via letter requesting they identify the type and location of any existing or proposed utilities within the project corridor. The following utility organizations with potential facilities within the study corridor did respond to requests for existing and proposed facility information.

- Intermedia Communications of Florida, Inc;
- Florida Power Corporation; and
- AT&T (P.E.A., Inc.).

The following utility organizations with potential facilities within the study corridor did not respond to requests for existing and proposed facility information:

- Verizon Florida, Inc.;
- Paragon/Time Warner Cable;
- Pinellas County Highway Engineering;
- KMC Telecom III, Inc.;
- Florida Power Corporation – BA Pipeline;
- Florida Gas Transportation;
- City of St. Petersburg; and
- City Pinellas Park.

4.1.15 Pavement Conditions

A flexible pavement condition survey is typically conducted by FDOT for certain sections of roadway. The pavement program provides ratings based on cracking, rideability, and rutting conditions. A scale of one to ten is used in rating the pavement condition of a roadway, with a rating of six or less considered deficient. Ratings for Gandy Boulevard (SR 694) are provided in Table 4-3.

Table 4-3
Pavement Condition Rating

Location	Milepost	Cracking Rating	Ride Rating	Rutting Rating
Gandy Boulevard (SR 694), R-2	0.000 – 3.351	10.0	8.3	10.0

4.2 EXISTING BRIDGES

The Gandy Boulevard (SR 694) Corridor includes six existing bridges between US 19 and 4th Street. These bridges are shown in Table 4-4.

Table 4-4
Existing Bridges

Bridge Name	Bridge Number	Mile Post
SR 55 (US 19)	150125	0.000
Sawgrass Creek	150217	0.692
I-275 southbound over Gandy Boulevard (SR 694)	150100	1.547
I-275 northbound over Gandy Boulevard (SR 694)	150101	1.570
Gandy Boulevard (SR 694) Eastbound off-ramp over I-275	150099	1.547
Gandy Boulevard (SR 694) Eastbound off-ramp over Gandy Boulevard (SR 694)	150109	1.689

4.2.1 Type of Structure

Gandy Boulevard (SR 694) over US 19

This four-span grade separation carries Gandy Boulevard (SR 694) over US 19. The superstructure consists of an 81.08 ft. wide deck and Type III American Association of State Highway and Transportation Officials (AASHTO) beams. The substructure consists of concrete endbents and bents founded on piles.

Gandy Boulevard (SR 694) over Sawgrass Creek

This concrete box culvert structure consists of three 8 ft. by 8 ft. cells with an overall width of 26 ft. The roadway carries Gandy Boulevard (SR 694) over Sawgrass Creek and consists of six lanes and a depressed median.

I-275 southbound over Gandy Boulevard (SR 694)

This four-span grade separation carries I-275 southbound over Gandy Boulevard (SR 694). The superstructure consists of three lanes separated by a concrete barrier wall atop a Type III

AASHTO girder with an overall width of 56 ft. The substructure consists of concrete endbents founded on concrete piles.

I-275 northbound over Gandy Boulevard (SR 694)

This four-span grade separation carries I-275 northbound over Gandy Boulevard (SR 694). The superstructure consists of four lanes separated by a concrete barrier wall atop Type III AASHTO girder with an overall width of 60 ft. The substructure consists of concrete endbents founded on concrete piles.

Gandy Boulevard (SR 694) eastbound off-ramp over Gandy Boulevard (SR 694)

This four-span grade separation carries eastbound Gandy Boulevard (SR 694) ramp traffic over I-275. The superstructure consists of a 40 ft. wide deck atop Type III AASHTO beams. The substructure consists of concrete endbents and bents founded on concrete piles.

Gandy Boulevard (SR 694) eastbound off-ramp over Gandy Boulevard (SR 694)

This four-span grade separation carries eastbound Gandy Boulevard (SR 694) ramp traffic over Gandy Boulevard (SR 694). The superstructure consists of a 40 ft. wide deck atop Type III AASHTO beams. The substructure consists of concrete endbents and bents founded on concrete piles.

4.2.2 Current Conditions and Year of Construction

The following bridges were evaluated using a sufficiency rating which is indicative of bridge sufficiency to remain in service. The result of this method is a percentage in which 100% would represent an entirely sufficient bridge and zero would represent an entirely insufficient or deficient bridge. The bridge rating summary is found in Table 4-5.

Table 4-5
Bridge Rating Summary

Bridge Name	Bridge Number	Sufficiency Rating
SR 55 (US 19)	150125	90.0
Sawgrass Creek	150217	70.0
I-275 southbound over Gandy Boulevard (SR 694)	150100	94.1
I-275 northbound over Gandy Boulevard (SR 694)	150101	95.1
Gandy Boulevard (SR 694) Eastbound off-ramp over I-275	150099	94.9
Gandy Boulevard (SR 694) Eastbound off-ramp over Gandy Boulevard (SR 694)	150109	96.2

4.2.3 Channel Data

There are no bridges along the Gandy Boulevard (SR 694) Corridor which are over navigable or non-navigable waterways within the project limits.

4.2.4 Bridge Openings

There are no bridges along the Gandy Boulevard (SR 694) Corridor which are over navigable or non-navigable waterways within the project limits.

4.2.5 Ship Impact Data

There are no bridges along the Gandy Boulevard (SR 694) Corridor which are over navigable or non-navigable waterways within the project limits.

4.3 ENVIRONMENTAL CHARACTERISTICS

4.3.1 Land Use Data

Generally, the existing land uses adjacent to the Gandy Boulevard (SR 694) Corridor consisted of commercial, residential, and industrial uses in an urban setting. An overview of existing land use is shown in Figure 4-16.

The project corridor was divided into four segments to effectively assess and compare project impacts. The existing land uses are described in the following paragraphs by study segment.

Segment A

Segment A, located west of US 19 to west of Grand Avenue, is heavily developed with little vacant land and features mixed land uses including residential, commercial, and public/semi-public. There are several residential facilities (mobile home parks or condominium units) and single-family residences in this area, some of which use Gandy Boulevard for primary access. Commercial uses include retail stores including the Parkside Mall and Home Depot, ANCO Anderson Nail Company, restaurants, automotive service establishments, storage facilities, a bike shop, an animal shelter, and a hotel. Public/semi-public uses include the Florida Highway Patrol (FHP) office located on the east side of US 19, north of Gandy Boulevard (SR 694).

Segment B

The existing land uses within Segment B, west of Grand Avenue to west of I-275, are mostly commercial and light industrial uses with limited residential development. Commercial uses include Johnson Sails, Inc., a storage facility, a printing facility, an automotive establishment, and telephone service facilities. Light industrial uses include Taco Metals, Inc., Coca Cola, Lindab Sign, and R.V. Money, Inc. Sawgrass Lake Park is a 390-acre

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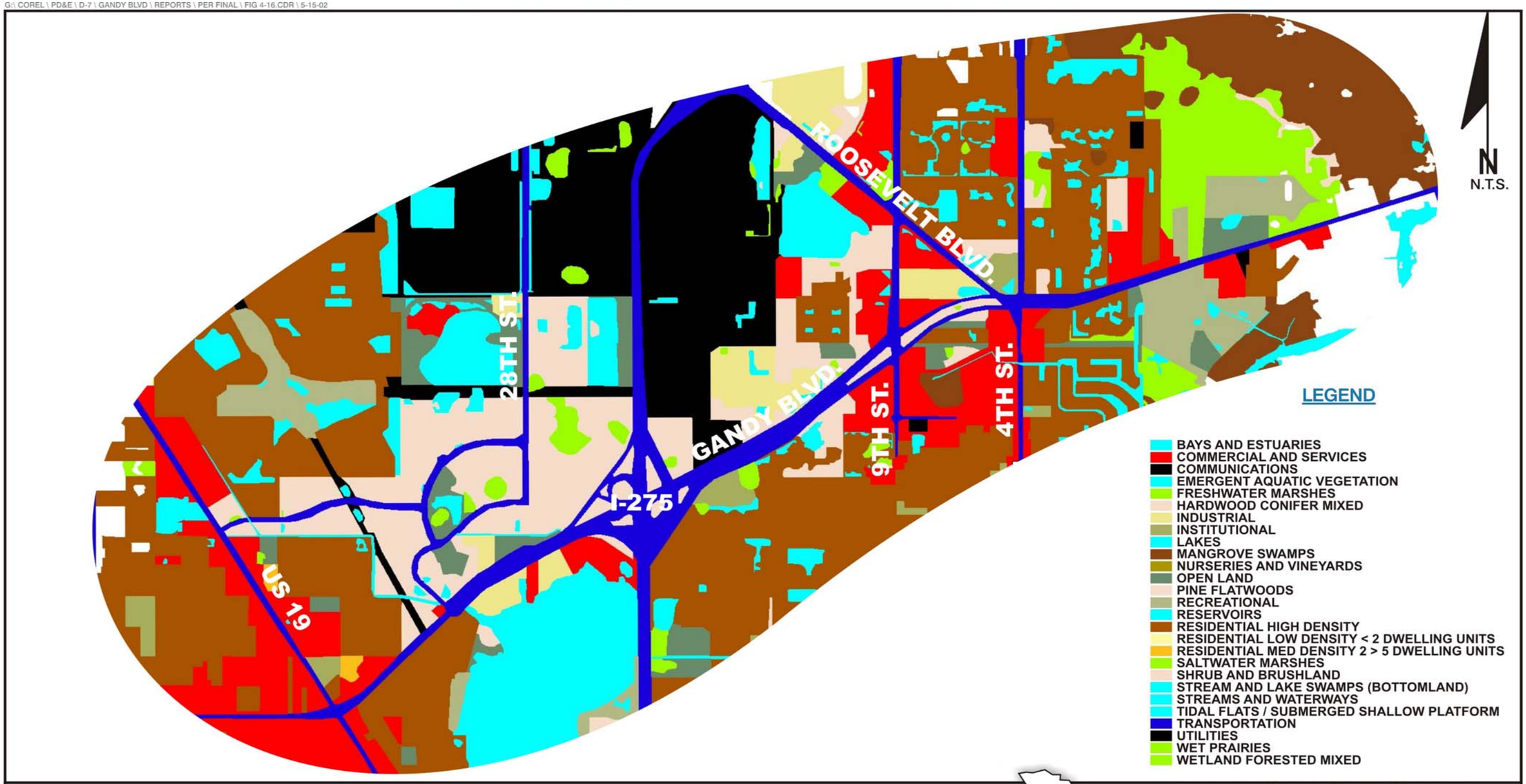

EXISTING LAND USE

Source: Pinellas Planning Council, 2001

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)
PD&E STUDY
From West of US 19 to
East of 4th Street
Pinellas County, Florida

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FIGURE 4-16

recreational and environmental educational park that lies to the south. The only part of the park adjoining the Gandy Boulevard (SR 694) Corridor is a service entrance in the vicinity of 28th Street.

Segment C

The existing land uses within Segment C, located west of I-275 to west of 9th Street, are commercial, light industrial, residential, public/semi-public, and public service/non-profit. Land uses in the I-275/Gandy Boulevard interchange area consist of the Florida Power Corporation northeast substation, an elementary school, a mobile home park, apartments, single-family residences, and the Royal Palm Cemetery and Funeral Chapel. The northwest quadrant of the interchange area is currently vacant, wooded land. Commercial uses within this segment include the R'Club, corporate centers, a self storage facility, K-Mart, a bank, and a computer store. Light industrial uses include The Murray Company, Jabil Circuit (3 Line Manufacturing), and a power substation. Residential uses include multi-family residential facilities (i.e., apartments) as well as single-family residential developments. Public/semi-public uses include the U.S. Post Office. Public service/non-profit uses include Florida Blood Services and American Heart Association. The First Baptist Church of St. Petersburg is also located in this study segment.

Segment D

The existing land uses within Segment D, located west of 9th Street to east of 4th Street, are mostly commercial and residential. Commercial uses are comprised of the Koger Executive Center office buildings, banks, restaurants, automotive service stations, insurance companies, retail shops, storage facilities, commercial centers (that house Primex Technologies, Paychex Business Solutions, MIDA Groups, Sunbelt Marketing Development Company, and Celotex), insurance offices, a shopping center, and a car wash. Residential uses include several multi-family facilities (condominium units, apartments, and mobile home parks). Bon Secours – Maria Manor, a retirement/nursing facility, is also located in this study segment. A Florida Power & Light power transmission line crosses the Gandy Boulevard (SR 694) Corridor at 9th Street.

Land uses in the vicinity of 4th Street and 9th Street consist of Koger Executive Center office buildings, Holy Cross Episcopal Church, automotive service stations, a GTE facility, restaurants, a bank, and shopping centers (which include Publix, Walgreens, etc.) as well as several multi-family residential developments.

Future Land Use

Local government comprehensive plans are developed to provide guidance in planning for the future. The adopted future land uses for the project corridor are shown in Figure 4-17.

Any planned or proposed large-scale development projects must be consistent with the designated future land use for the property. If the proposed project is not consistent, then the applicant would be required to obtain a land use plan amendment. The Development of Regional Impact (DRI) process is governed by Chapter 380.06 of the Florida Statutes (FS) and Rules 9J-2.001 through 9J-2.0256 of the Florida Administrative Code (FAC). By definition, a DRI is a development which, because of its character, magnitude, or location would have a substantial effect upon the health, safety, or welfare of citizens of more than one county. There are two large-scale planned development projects in the vicinity of the Gandy Boulevard/I-275 interchange (Gateway Areawide and Gateway Centre DRIs) both of these projects are undergoing the DRI process.

4.3.2 Cultural Features and Community Service

4.3.2.1 Cultural Resources Assessment Survey

A Final Cultural Resources Assessment Report[6] (CRAS) was prepared as part of this PD&E Study. The findings of the Final CRAS[6] are incorporated by reference into this Report.

G:\ COREL \ PD&E \ D-7 \ GANDY BLVD \ REPORTS \ PER FINAL \ FIG 4-17.CDR \ 5-15-02

FUTURE LAND USE

Source: Pinellas Planning Council, 1998

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)
PD&E STUDY
From West of US 19 to
East of 4th Street
Pinellas County, Florida

Work Program Item No : 256931 1

FIGURE 4-17

4.3.2.2 Cultural Features and Community Service

Community services located along the project corridor include the Royal Palm Cemetery and Funeral Chapel, the First Baptist Church of St. Petersburg, a US Post Office, and a cemetery. It is anticipated that there will be minor access changes to the First Baptist Church in order to improve safety conditions and improve traffic circulation. There will be no other disruption to community services. There are no schools, hospitals or other government facilities located adjacent to the project.

4.3.2.3 Section 4(f) Properties

In accordance with Section 4(f) of the DOT Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983), the project was examined for possible Section 4(f) properties. No Section 4(f) resources are involved with the proposed project.

4.3.3 Natural and Biological Features

4.3.3.1 Wetlands

A Final Wetland Evaluation Report[7] (WER) was prepared as part of this PD&E Study. The findings of the Final WER[7] are incorporated by reference into this Report.

4.3.3.2 Threatened and Endangered Species

A Final Endangered Species Evaluation Report[8] (ESER) was prepared as part of this PD&E Study. The findings of the Final ESER[8] are incorporated by reference into this Report.

4.3.4 Potential Hazardous Materials and Petroleum Products Contaminated Sites

A Final Contamination Screening Evaluation Report[9] (CSER) was prepared as part of this PD&E Study. The findings of the Final CSER[9] are incorporated by reference into this Report. Potential Contamination Sites are shown in Appendix A.

4.4 REFERENCES

1. Design Traffic Memorandum; Gannett Fleming, Inc.; August 2002.

2. Final Pond Siting Report (PSR); PBQD; August 2002.

3. Final Location Hydraulic Report (LHR); PBQD; August 2002.

4. Geotechnical Report; Williams Earth Sciences, Inc.; September 2001.

5. Highway Safety Improvement Program Guidelines; Topic No. 500-000-100-C; FDOT; December 1991.

6. Final Cultural Resources Assessment Report; ACI; August 2002.

7. Final Wetland Evaluation Report; PBQD; August 2002.

8. Final Endangered Species Evaluation Report; PBQD; August 2002.

9. Final Contamination Screening Evaluation Report; PBQD; August 2002.

SECTION 5
TYPICAL SECTION DESIGN CRITERIA

In order for the proposed roadway improvements to fulfill their objective of accommodating motorized vehicles, and where appropriate, pedestrians and bicyclists in a safe and efficient manner, the proposed typical sections must adhere to specific design standards. The FDOT's Plans Preparation Manual (PPM)[1], AASHTO – A Policy on Geometric Design of Highway Streets[2], and the District Seven Straight Line Diagram (SLD) were used as the reference for development of proposed typical section design criteria for this project. Table 5-1 presents the pertinent criteria used for this effort and their respective values or designations. A discussion of each criterion follows below.

5.1 FUNCTIONAL CLASSIFICATION

The functional classification of a roadway affects elements of design such as design speed, LOS requirements, and local access accommodations. According to the FDOT SLD, Gandy Boulevard (SR 694), SR 55 (US 19), SR 93 (I-275), and SR 687 (4th Street) are classified as urban principal arterials and SR 686 (Roosevelt Boulevard) is classified as an urban minor arterial. According to the Pinellas County Comprehensive Plan[3], 9th Street is classified as a minor arterial. Gandy Boulevard (SR 694) is included in the FIHS as a controlled access facility.

5.2 DESIGN SPEED

The design speed affects design elements such as horizontal and vertical alignments, super elevation, and typical section dimensions (clear zone, median width, etc.). The assumed design speed should be logical with respect to factors such as topography, adjacent land use, and the functional classification of the highway. As indicated in AASHTO-A Policy on Geometric Design of Highways and Streets[2], the design speed control applies to a lesser degree on arterial streets than on other type of facilities such as rural highways since

Table 5-1
Typical Section Design Criteria

Criteria	Value/Designation	Documentation
Functional Classification:		
Gandy Boulevard (SR 694)	Urban Principal Arterial	FDOT Straight Line Diagram
Frontage Road	Collector	Pinellas County Comprehensive Plan[3]
SR 55 (US 19)	Urban Principal Arterial	FDOT Straight Line Diagram
SR 93 (I-275)	Urban Principal Arterial-Interstate	FDOT Straight Line Diagram
9th Street	Minor Arterial	Pinellas County Comprehensive Plan[3]
SR 686 (Roosevelt Boulevard)	Urban Minor Arterial	FDOT Straight Line Diagram
SR 687 (4th Street)	Urban Principal Arterial	FDOT Straight Line Diagram
Design Speed:		
Gandy Boulevard (SR 694)	60 mph	FDOT PPM
Frontage Road	50 mph	Section 1.9
SR 55 (US 19)	50 mph	Tables 1.9.1 & 1.9.2
SR 93 (I-275)	70 mph	
9th Street	50 mph	
SR 686 (Roosevelt Boulevard)	50 mph	
SR 687 (4th Street)	50 mph	
Ramps	50 mph	
Collector Roads	50 mph	
Lane Width: (Gandy)		
Mainline Travel Lane	12.0 ft.	FDOT PPM[1]
Frontage Road	12.0 ft.	Table 2.1.1, 2.1.2, & 2.1.3
Single Lane Ramp	15.0 ft.	
Two Lane Ramp	24.0 ft.	
Bicycle Lane	4.0 ft.	
Median Width: (Gandy)		
Roadway (rural)	40.0 ft.	FDOT PPM[1]
Roadway with Median Barrier	26.0 ft. (Minimum)	Table 2.2.1
Raised Median	22.0 ft.	
Roadway Shoulder Width: (Gandy)		
Roadway		FDOT PPM[1]
Outside	12.0 ft. total with 5.0 ft. paved	Table 2.3.2
Median or Left	12.0 ft. total with 0.0 ft. paved	(Based on high volume roadway)
Frontage Road		
Outside	12.0 ft. total with 5.0 ft. paved	FDOT PPM[1]
Median or Left	8.0 ft. total with 0.0 ft. paved	Table 2.3.4
Ramp (Single Lane)		
Inside	6.0 ft. total with 2.0 ft. paved	FDOT PPM[1]
Outside	6.0 ft. total with 5.0 ft. paved	Table 2.3.2
Ramp (Two Lane)		
Inside	6.0 ft. total with 2.0 ft. paved	FDOT PPM[1]
Outside	10.0 ft. total with 5.0 ft. paved	Table 2.3.2

Table 5-1 (Cont'd.)
Typical Section Design Criteria

Criteria	Value/Designation	Documentation
Sidewalk Width: (Gandy)		
Standard	5.0 ft.	FDOT PPM[1]
Adjacent to Curb/Gutter	6.0 ft.	Section 8.3.1
Border Width: (Gandy)		
Travel Lane at Curb	14.0 ft.	FDOT PPM[1]
Bike Lane or Auxiliary Lane at Curb	12.0 ft.	Table 2.5.2
Flush Shoulder	40.0 ft. (Design Speed > 45 mph)	Table 2.5.1
	33.0 ft. (Design Speed ≤ 45 mph)	Table 2.5.1
Freeways and Interchange Ramps	94.0 ft. *	Table 2.5.1

* Measured from the edge of the outside travel lane.

the top speeds for several hours a day on arterial streets are limited or regulated to that which the recurring peak volumes can be handled. Speeds along these types of roadways are governed by the presence of other vehicles traveling in groups both in and across the through lanes. The speeds are also governed by traffic devices rather than by the physical characteristics of the street. During periods of low to moderate traffic volumes, speeds are governed by such factors as speed limits, intersectional frictions, and mid-block frictions such as a high density of driveways.

Within the project limits, the Gandy Boulevard (SR 694) Corridor is generally a rural and residential area with a small percentage of commercial and office uses. The area is highly developed with major generators including the Roberts Mobile Home/RV Center, Lauren Manor Condos, Gateway Center, First Baptist Church of St. Petersburg, Gateway Mobile Park, and a large number of apartments and condominiums. There is a substantial amount of vacant land available for future development. Redevelopment is anticipated in areas of strip malls with an intensification of uses anticipated. The Pinellas County Comprehensive Plan[3] designates Gandy Boulevard (SR 694) as a hurricane evacuation route.

As indicated in the Design Traffic Memorandum[4], a six-lane facility at a minimum is needed along Gandy Boulevard (SR 694) to achieve a LOS C based on the design year (2025) traffic analysis. Although Gandy Boulevard (SR 694) may be reconstructed to a six-lane facility

throughout the project limits as recommended, it is anticipated that the increasing traffic volumes and the expected future redevelopment will serve to further urbanize this environment which will influence the operating speed of Gandy Boulevard (SR 694). The existing posted speed limit on Gandy Boulevard (SR 694) ranges between 45 and 50 mph throughout the project limits. Field observations indicated that the posted speed appeared to be on the high end of the operating speed during much of the day. This was due primarily to the high traffic volume combined with the existing urban conditions and frequent traffic control devices. It is based on these factors that a proposed design speed of 60 mph was selected for this project along Gandy Boulevard (SR 694). This design speed conforms to the FDOT PPM[1] for an urban arterial FIHS highway. A design speed of 50 mph was selected for this project along the cross roads where proposed new interchanges will be located. This design speed selection was based on the same justification as for the Gandy Boulevard (SR 694) Corridor and conforms to the FDOT PPM[1] for an urban arterial type highway. A design speed of 50 mph was selected for proposed frontage roads. A design speed of 50 mph was selected for proposed ramps.

5.3 LANE WIDTHS

According to the FDOT PPM[1], Table 2.1.1, travel lanes widths for an urban arterial facility should be 12 ft.

For interchange ramps, FDOT PPM[1] Table 2.1.3 states that the standard width of a one-lane ramp should be 15 ft. and the standard width for a two-lane ramp should be 24 ft.

5.4 BIKE LANES

As indicated in the FDOT PPM[1], Section 8.4, a bike lane is an important element for consideration in the highway design process. A bike lane can be designated or undesignated. In the FDOT PPM[1], Table 2.1.2 lists the minimum width of a bike lane for an urban arterial to be 4 ft.

5.5 MEDIAN WIDTHS

According to the FDOT PPM[1], Table 2.2.1, the desirable raised median width for an arterial facility is 22 ft. This median width also applies to the cross roads where interchanges will be needed by the design year 2025 at 9th Street, Roosevelt Boulevard, and 4th Street and where overpasses are needed at Grand Avenue and 16th Street. Also, according to the FDOT PPM[1], Table 2.2.1, the desirable depressed median width for an arterial is 40 ft.

5.6 SHOULDER WIDTHS

According to the FDOT PPM[1], Table 2.3.2, the minimum shoulder width for a divided six-lane arterial facility varies between 8 ft. to 12 ft. depending on the projected design year traffic volumes. The Design Traffic Memorandum[4] indicated that the design year 2025 traffic projections along the Gandy Boulevard (SR 694) and Roosevelt Boulevard corridors vary between normal and high volume highway criteria as listed on page 2-22 of the FDOT PPM[1]. Therefore, the high volume shoulder width of 12 ft. was selected.

According to the FDOT PPM[1], Table 2.3.2, the minimum shoulder width for a single-lane interchange ramp is 6 ft., of which 2 ft. should be paved on the inside and 5 ft. should be paved on the outside. The minimum outside shoulder width for a two-lane interchange ramp is 10 ft. width 5 ft. paved, and the minimum left shoulder width should be 6 ft., of which 2 ft. should be paved.

5.7 SIDEWALK WIDTHS

As indicated in the FDOT PPM[1], Section 8.3.1, the minimum width of a sidewalk shall be 5 ft. when separated from the curb by at least a 2 ft. buffer strip and a minimum width of 6 ft. if constructed adjacent to the curb.

5.8 BORDER WIDTHS

The minimum border widths for highways with curb and gutter are listed in the FDOT PPM[1], Table 2.5.2. The minimum border width for an arterial with a design speed of 45 mph or greater is 14 ft. when the travel lanes are located at the curb. When a bike lane or other auxiliary lane is located at the curb, the border width may be reduced to 12 ft. As shown in FDOT PPM Table 2.5.1, the minimum border width for highways with a design speed of 45 mph or less and a flush shoulder is 33 ft. The standard border width for freeways (including interchange ramps) is 94 ft. measured from the edge of the outside travel lane.

5.9 BRIDGE SEPARATION DISTANCE

Section 2.2.3 of the PPM[1] recommends a minimum separation of 20 ft. between the decks of adjacent bridges. For bridges which are not adjacent to roadway sections utilizing retaining walls, the shoulder width may be 10 feet.

5.10 REFERENCES

1. Plans Preparation Manual (English); Florida Department of Transportation; Tallahassee, Florida; January 2000.

2. AASHTO-A Policy on Geometric Design of Highways and Streets; American Association of State Highway and Transportation Officials; 2001.

3. Pinellas County Comprehensive Plan; Pinellas County Board of County Commissioners; Adopted August 8, 1989, Amended October 1991.

4. Design Traffic Memorandum; Gannett Fleming, Inc.; May 2002.

SECTION 6
TRAFFIC

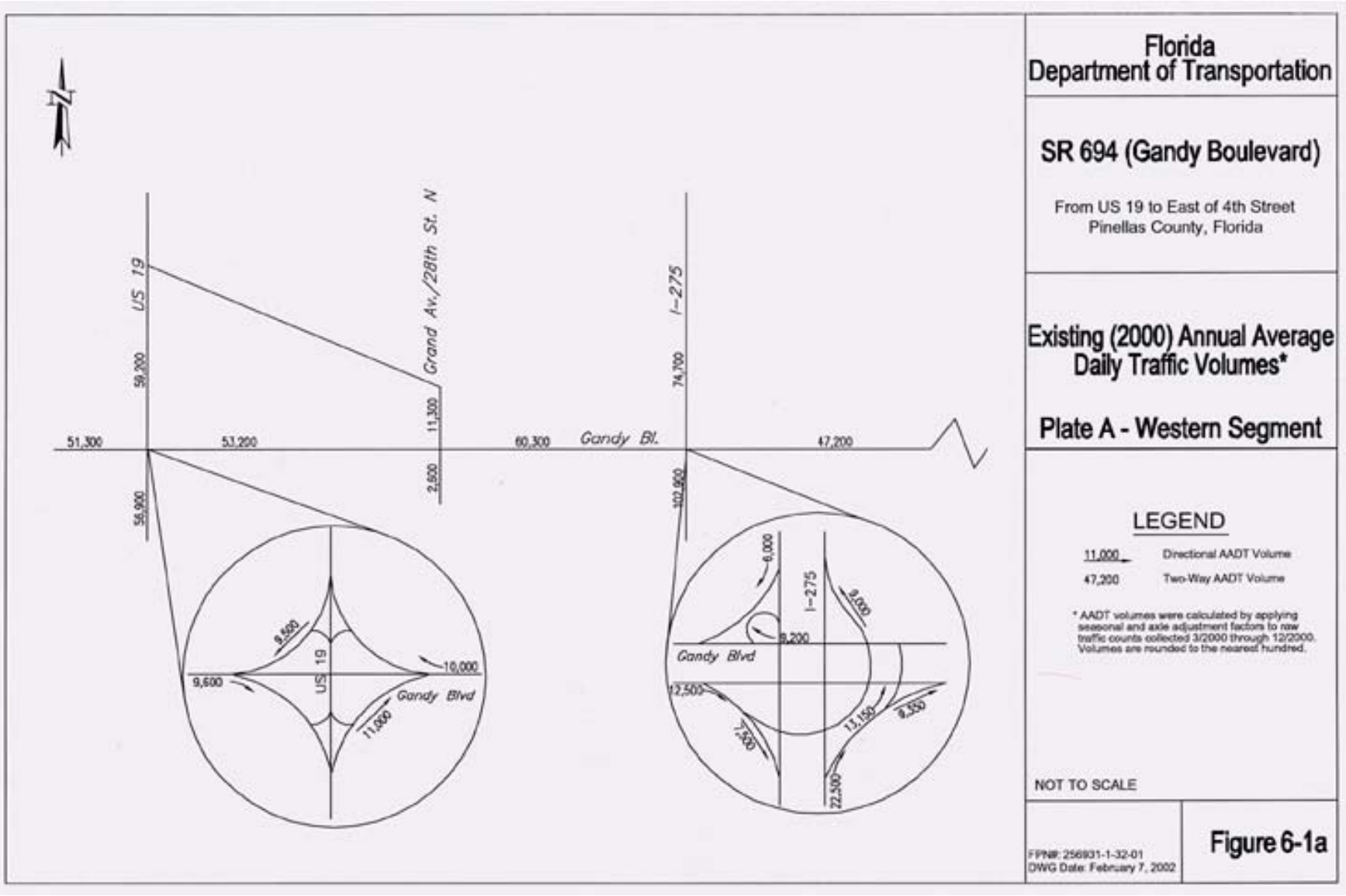
The existing traffic conditions, as well as the projected future (design year 2025) conditions in the study area, were addressed in the Design Traffic Memorandum[1] prepared for the Gandy Boulevard (SR 694) PD&E Study. The traffic projections for the design year (2025) were evaluated for three improvement scenarios: 1) No-Build, 2) At-grade Arterial, and 3) Build improving the continuity of through travel lanes, along Gandy Boulevard (SR 694) from US 19 to 4th Street, to a six-lane controlled access roadway with frontage roads and slip-ramps. The following sections present a summary of the findings from this report.

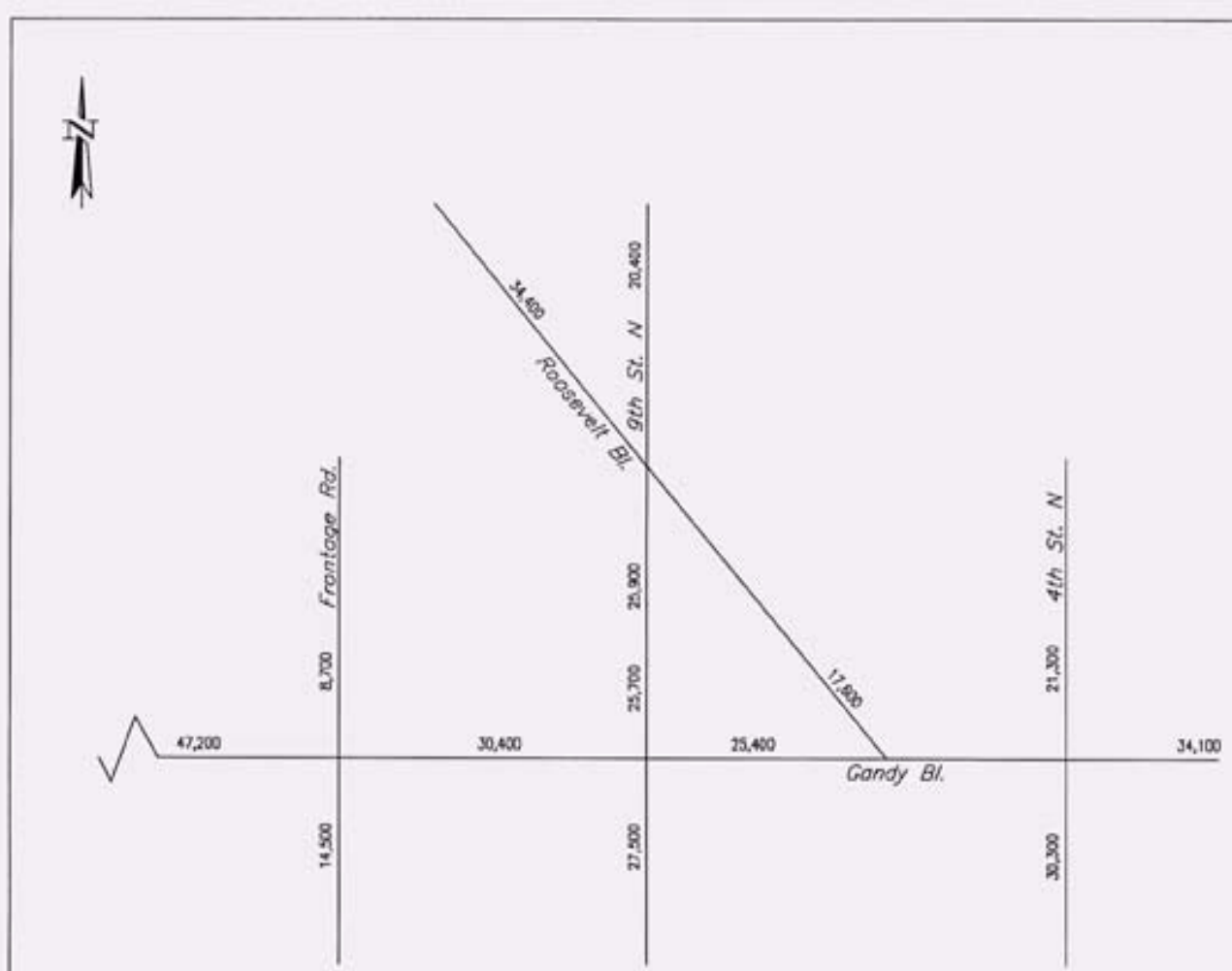
6.1 EXISTING TRAFFIC VOLUMES

6.1.1 Traffic Counts

Traffic counts were collected during the month of March 2000; additional counts were also collected over a period from September to December 2000. These counts included 3-day approach and 7-day machine counts on Gandy Boulevard (SR 694). In addition, peak period turning movement counts were collected at the major intersections located along the study corridor. The raw count data can be found in Appendix A of the Design Traffic Memorandum[1].

The daily traffic counts were multiplied by an axle adjustment factor and a weekly seasonal adjustment factor to determine the AADT volumes. The axle adjustment factor was 0.97 for all counts, except for those counts collected at I-275 where a factor of 0.96 was applied. The seasonal adjustment factor varied since it was dependent on the week the traffic count was conducted. The 1999 FDOT's Volume Factor Report for Pinellas County (see Appendix B of the Design Traffic Memorandum[1]) contains a list of factors for each week of the year. Therefore, this Volume Factor Report was used to determine the appropriate factor to seasonally adjust the raw traffic count data. As indicated in Figures 6-1 (a and b), the


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Existing (2000) Annual Average
Daily Traffic Volumes*
Plate A - Western Segment
US 19
Grand Av./28th St. N
I-275
Gandy Bl.
59,200
74,700
51,300
53,200
11,300
60,300
47,200
2,500
58,900
100,900
9,500
10,000
9,600
11,000
6,000
9,000
9,200
12,500
7,500
13,150
8,350
22,500
LEGEND
11,000 Directional AADT Volume
47,200 Two-Way AADT Volume
* AADT volumes were calculated by applying seasonal and axle adjustment factors to raw traffic counts collected 3/2000 through 12/2000. Volumes are rounded to the nearest hundred.
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-1a



Florida
Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Existing (2000) Annual Average Daily Traffic Volumes*

Plate B - Eastern Segment

LEGEND

25,400 Two-Way AADT Volume

* AADT volumes were calculated by apolying seasonal and axle adjustment factors to raw traffic counts collected 3/2000 through 12/2000. Volumes are rounded to the nearest hundred.

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: February 7, 2002

Figure 6-1b

existing AADT volumes for the Gandy Boulevard (SR 694) Corridor ranged between 25,400 vpd to 60,300 vpd.

The existing peak hour turning movement volumes were also seasonally adjusted by using the factors contained in the 1999 FDOT's Volume Factor Report for Pinellas County. The existing AM and PM peak hour turning movement volumes at major intersections within the study corridor are illustrated on Figures 6-2 (a and b) and Figures 6-3 (a and b).

6.1.2 Traffic Characteristics

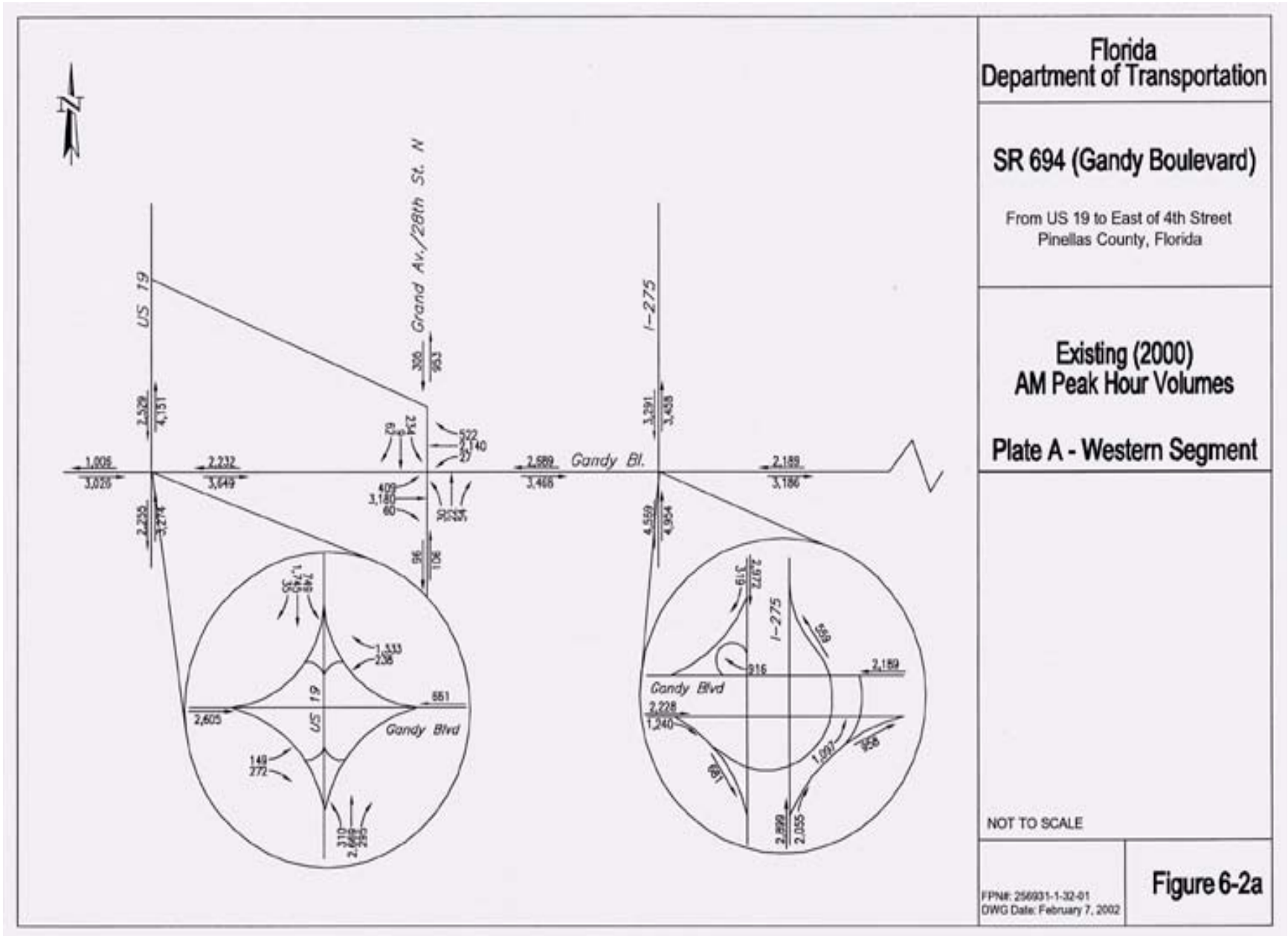
The factors displayed in Table 6-1 describe the peak hour traffic flow characteristics along the Gandy Boulevard (SR 694). The assumptions used to determine the factor for this study are documented in the Design Traffic Memorandum[1]. These characteristics were used for both the existing and future traffic analyses.

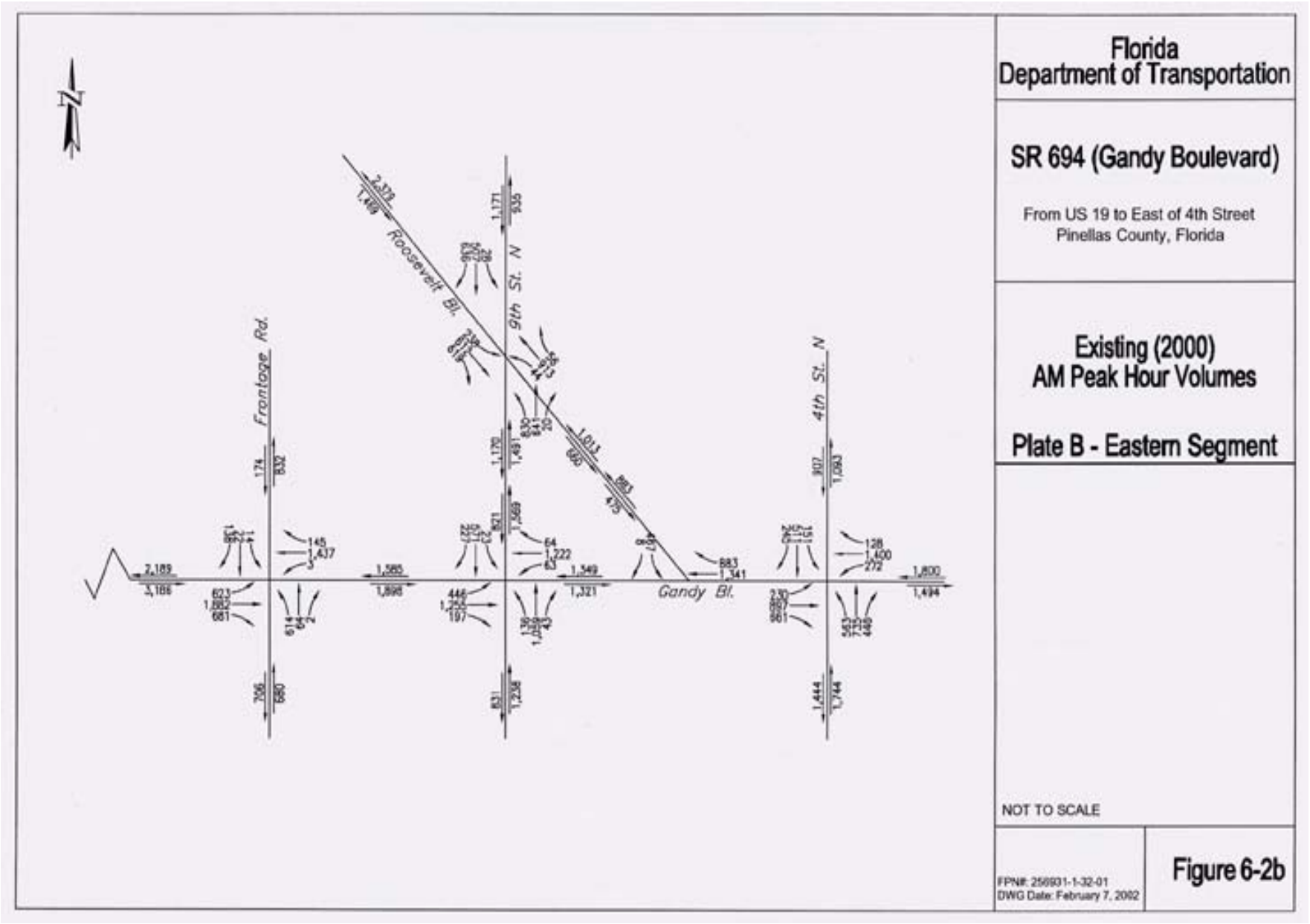
Table 6-1
Traffic Characteristics

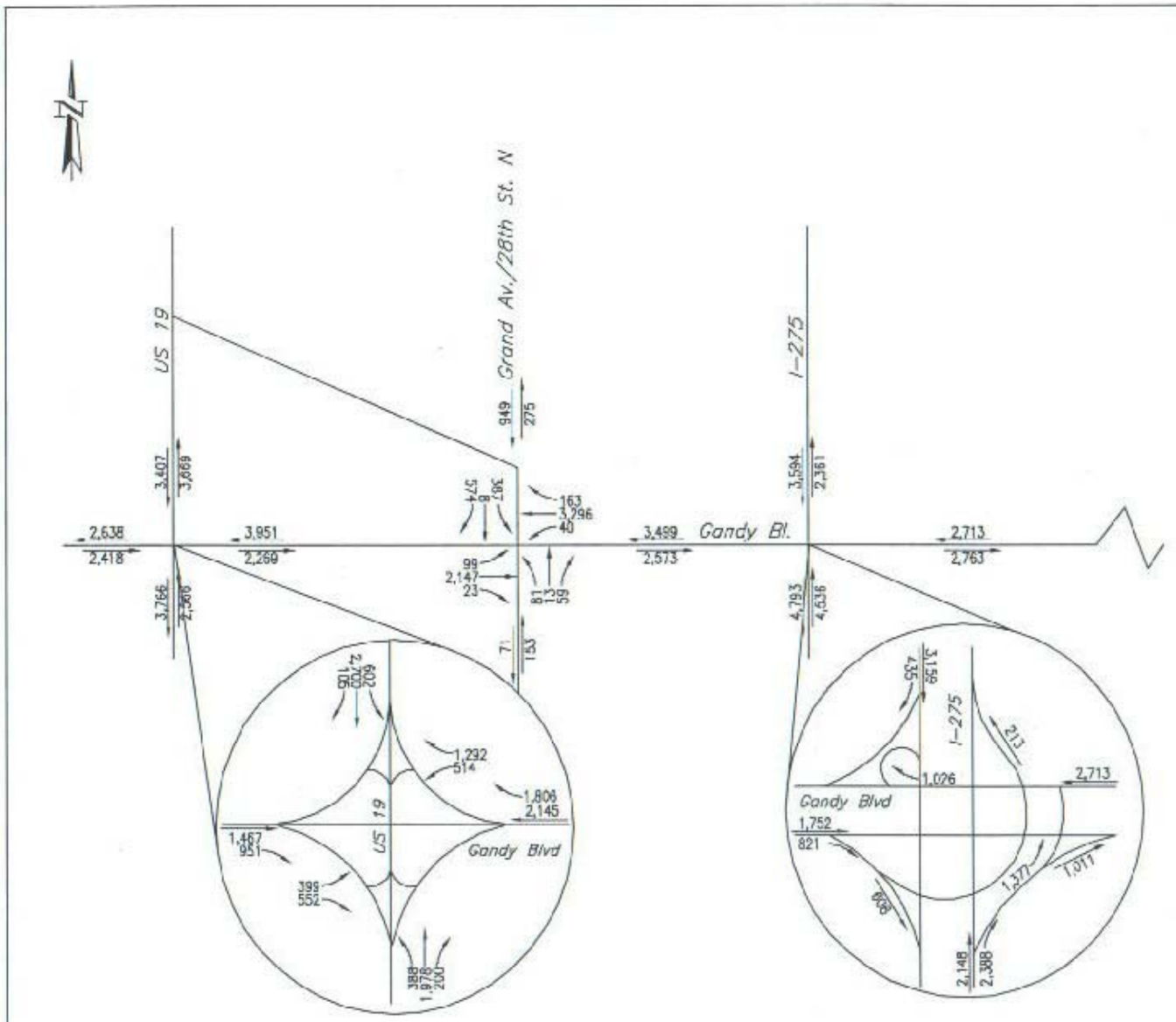
Travel Characteristics	Arterial	Interstate
Design Hour (K30) Factor	10.02%	9.22%
Directional (D) Factor	57.39%	52.21%
Peak Hour Factor (PHF)	0.95	0.95
24-Hour Truck (T24)Factor	7.00%	7.00%
Design Hour Truck (DHT) Factor	3.5%	3.5%

6.2 ROADWAY CHARACTERISTICS

Existing Gandy Boulevard (SR 694) from US 19 to the western I-275 ramps is two lanes plus one auxiliary lane in each direction. The auxiliary lanes become part of the on/off-ramps for the interchange. Two through lanes in each direction continue under the interstate until just west of the 4th Street intersection. Three lanes in each direction travel through the 4th Street intersection. These lanes taper to two in each direction near the St. Petersburg Kennel Club.


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Existing (2000)
AM Peak Hour Volumes
Plate A - Western Segment
US 19
Grand Av./28th St. N
I-275
Gandy Bl.
Gandy Blvd
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-2a


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Existing (2000)
AM Peak Hour Volumes
Plate B - Eastern Segment
Roosevelt Bl.
9th St. N
4th St. N
Frontage Rd.
Gandy Bl.
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-2b



Florida
Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Existing (2000)
PM Peak Hour Volumes

Plate A - Western Segment

NOT TO SCALE

FPN#: 256931-1-32-01
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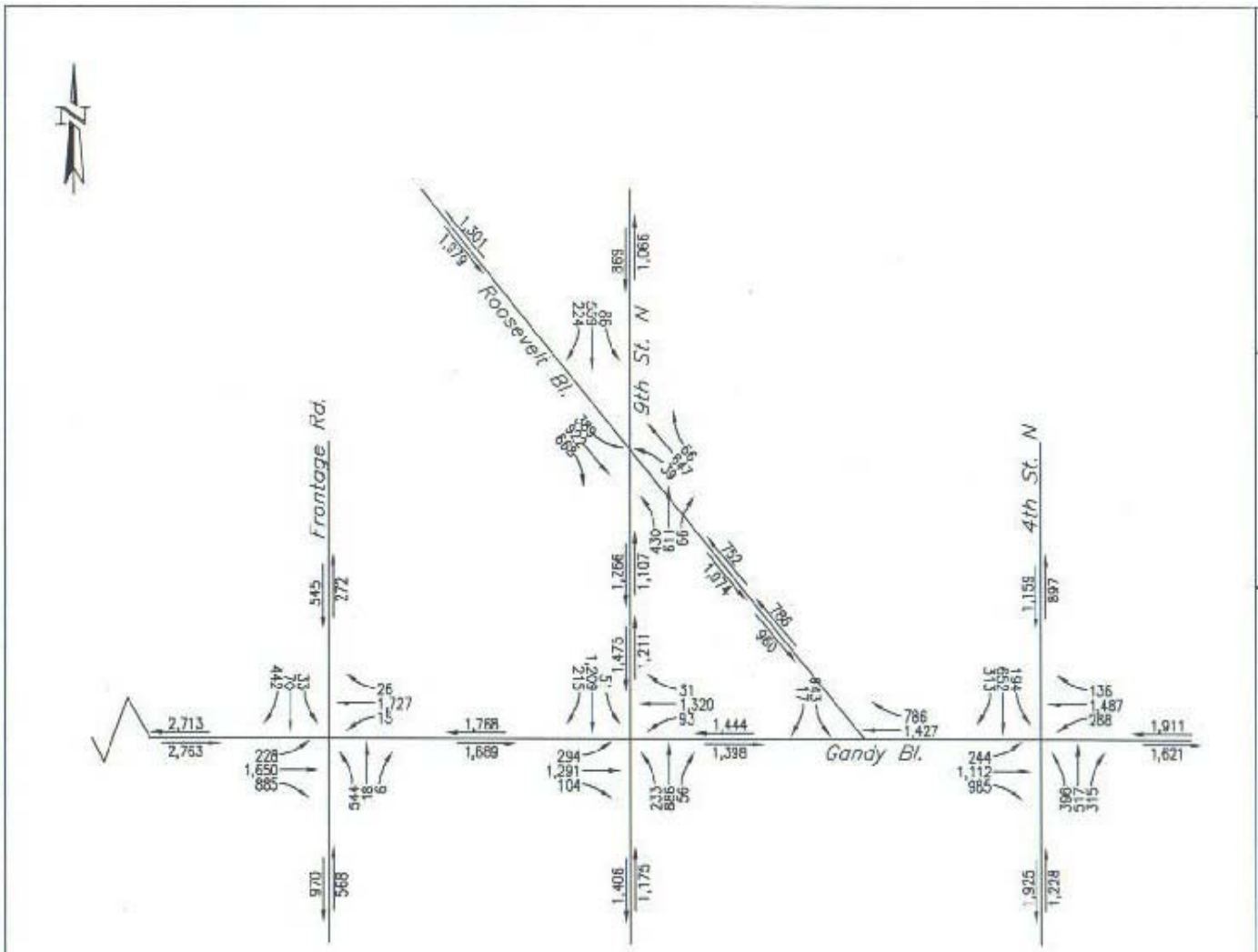
Figure 6-3a



NOT TO SCALE

Florida
Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Existing (2000)
PM Peak Hour Volumes

Plate B - Eastern Segment

FPN#: 256931-1-32-01
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Figure 6-3b

There are nine signalized intersections evaluated as part of this study. These intersections include:

- Gandy Boulevard (SR 694) at US 19
- Gandy Boulevard (SR 694) at Grand Avenue (28th Street)
- Gandy Boulevard (SR 694) at I-275 northbound off-ramp
- Gandy Boulevard (SR 694) at Frontage Road
- Eastbound Gandy Boulevard (SR 694) at 9th Street
- Westbound Gandy Boulevard (SR 694) at 9th Street
- Gandy Boulevard (SR 694) at 4th Street
- Gandy Boulevard (SR 694) at Roosevelt Boulevard
- Roosevelt Boulevard at 9th Street N

There are two existing interchanges located within the study corridor. The locations of the interchanges along Gandy Boulevard (SR 694) are listed below:

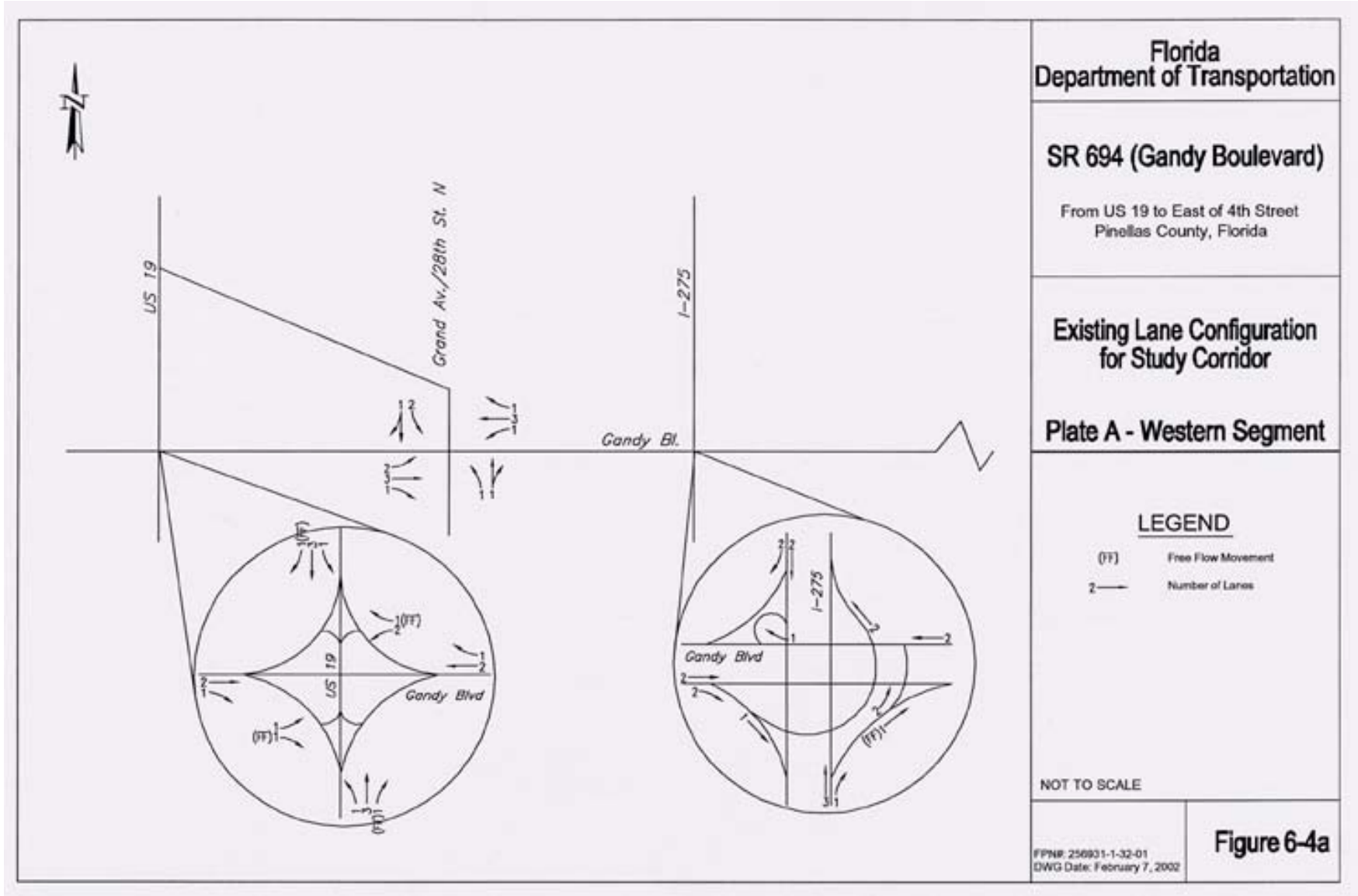
- US 19 (signalized single point urban interchange)
- I-275 (free-flowing for all ramps except Gandy Boulevard (SR 694) at I-275 northbound off-ramp)

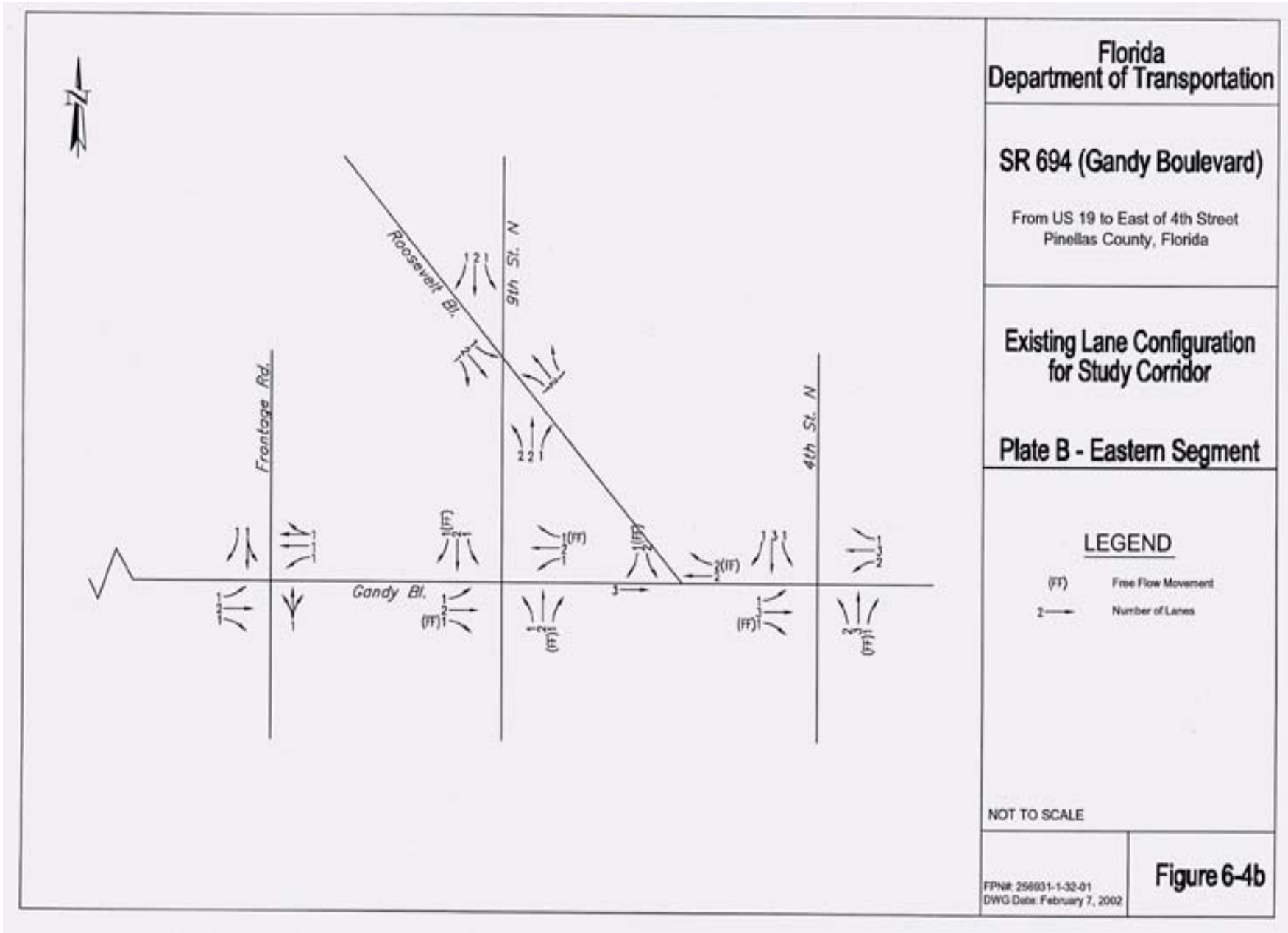
The existing intersection lane geometry is displayed in Figures 6-4 (a and b).

6.3 EXISTING ACCESS MANAGEMENT

This section addresses the issues concerning access management standards along Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street.

The FDOT has developed access management regulations to help achieve safer and more efficient traffic flow on the state highway system. The major documents on access management regulations are:


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Existing Lane Configuration
for Study Corridor
Plate A - Western Segment
US 19
Grand Av./28th St. N
I-275
Gandy Bl.
Gandy Blvd
LEGEND
(FF) Free Flow Movement
Number of Lanes
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-4a


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Existing Lane Configuration
for Study Corridor
Plate B - Eastern Segment
LEGEND
(FF) Free Flow Movement
2 Number of Lanes
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-4b
Roosevelt Bl.
9th St. N
4th St. N
Frontage Rd.
Gandy Bl.

- Florida Statute 335.18 - The Access Management Act (adopted 1988 and revised 1992),
- Administrative Rule 14-96 (regulating the access permitting process), and
- Administrative Rule 14-97 (the access management classification system and standards).

Administrative Rule 14-97 categorizes the state highways into seven access management classes, each class with its own standards. The most stringent standards apply to Access Class 1 which covers limited access freeways. Access Classes 2 through 7 covers controlled access highways and are organized from the most restrictive (Class 2) to the least restrictive (Class 7).

6.3.1 Access Standards

Gandy Boulevard (SR 694) has an adopted Access Class 3 classification and is also a controlled access FIHS facility. Table 6-2 describes the access spacing standards for an Access Class 3 roadway.

The question arises as to whether access management standards more stringent than Access Class 3 standards should be adopted for Gandy Boulevard (SR 694) in light of its FIHS classification. Table 6-3 summarizes the standards for controlled access FIHS facilities.

Table 6-2
Access Class 3 Standards

Facility Design Features (Median Treatment)	Restrictive
Minimum Connection Spacing - With posted speed over 45 mph - With posted speed at or less than 45 mph	 660 ft. 440 ft.
Minimum Directional Median Opening Spacing	1,320 ft.
Minimum Full Median Opening Spacing	2,640 ft.
Minimum Signal Spacing	2,640 ft.

Table 6-3
Standards for Controlled Access FIHS Facilities

Access Management Standards	The access management standards for controlled access segments of the FIHS shall be those contained in Access Class 2 or 3 as defined in Department Rule Chapter 14-97 F.A.C. and the FDOT's Plans Preparation Manual.
Other Access Management Classifications	Other access management standards may be assigned to a segment of the FIHS through a corridor access management plan developed as part of the Action Plan for the segment. The plan should define the highest standards attainable where Class 2 or 3 would not be feasible. In certain cases, a lower standard may lead to removal of the segment from the FIHS.
Design of Medians and Median Openings	The minimum median width standards for the FIHS should be those in the Department's latest Plans Preparation Manuals (Topic Nos. 625-000-005 and 625-000-101). Safe accommodation of left turns and U-turns to ensure minimum interference with through traffic on controlled access facilities shall be provided through greater than minimum median width to accommodate these movements or through other strategies. Other strategies may include the use of such techniques as flared approaches, jug-handle designs, or roundabouts when properly justified. Refer to the FDOT's Median Handbook and the Florida Roundabout Guide for additional details.
Deviation from Median Opening Standards	Deviation from median opening standards shall follow the Department's Median Opening Decision Process (Topic No. 625-010-020) which requires more analysis and justification when considering deviations from these standards on the FIHS.
Design Speed Standards	The design speed for controlled access facilities shall be at least 65 mph in rural areas and at least 50 mph in urban and urbanized areas.

Table 6-3 implies that the current Access Class 3 classification for Gandy Boulevard (SR 694) is stringent enough to suffice for Gandy Boulevard's (SR 694) classification as a controlled access FIHS facility.

6.3.2 Access Near Interchange Areas

Administrative Rule 14-97 addresses the importance of regulating access near interchange ramp intersections with at-grade arterial roadways. This rule indicates that on a controlled access facility, any area within 1,320 ft. of the interchange quadrant exit ramp or up to the first intersection with an arterial road, whichever is less, shall be regulated. The purpose of regulating this access within these specific parameters is to protect the safety and operational

efficiency of the limited access facility and the interchange area. The 1,320 ft. distance is measured from the end of the taper of the exit ramp farthest from the interchange. The following restrictions apply to interchange areas:

- Distance between the end of the exit ramp to the nearest connection will be at least (440 ft.) if the posted speed limit is 45 mph or less. However, if a property within this area is landlocked, then one permitted connection closer than this distance will be considered;
- Distance between the end of the exit ramp to the nearest connection will be at least 660 ft. if the posted speed limit is greater than 45 mph. However, if a property within this area is landlocked, then one permitted connection closer than this distance will be considered; and
- Minimum distance to the first median opening will be at least 1,320 ft. as measured from the end of the taper of the egress ramp.

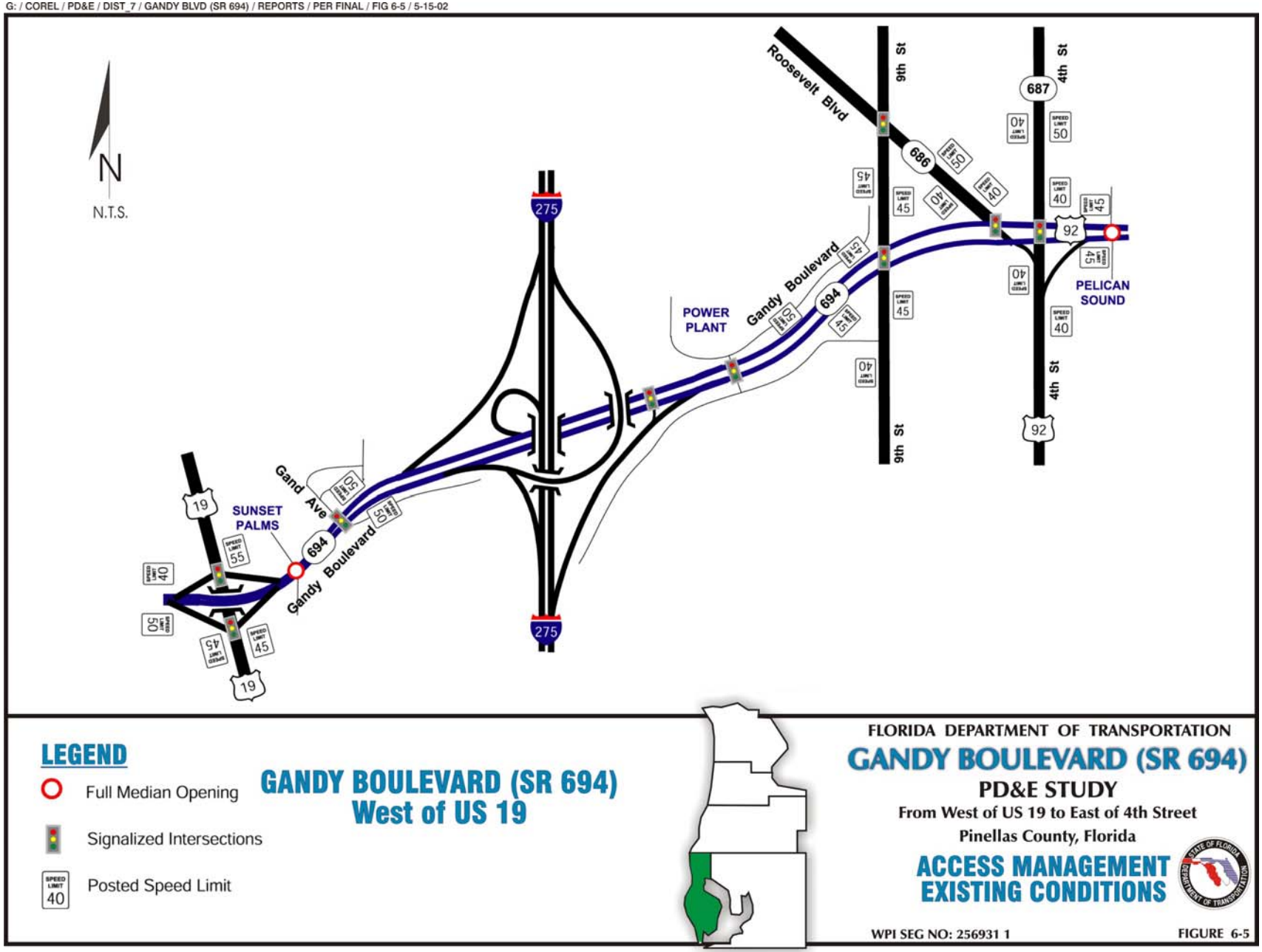
6.3.3 Access Management Under Existing (No-Build) Conditions

In order to study Gandy Boulevard's (SR 694) access management under No-Build conditions, it suffices to examine access management issues along Gandy Boulevard (SR 694) within the project limits and also at the interchanges with US 19 and I-275. Figure 6-5 presents the existing layout of Gandy Boulevard (SR 694) from US 19 to 4th Street. Also included on the figure are full median openings, signalized intersections, and posted speed limits.

6.3.3.1 Access Management along Gandy Boulevard (SR 694)

There are several median openings located along Gandy Boulevard (SR 694) within the project limits. These median openings and their relative spacing are summarized in Table 6-4.

G: / COREL / PD&E / DIST_7 / GANDY BLVD (SR 694) / REPORTS / PER FINAL / FIG 6-5 / 5-15-02



Five of the seven segments listed in Table 6-4 are deficient relative to Access Class 3 median opening spacing requirements. Of these five deficient segments, two have measured spacing within 11 percent of the minimum required spacing.

Table 6-4
Existing Median Openings along Gandy Boulevard (SR 694)

Description	Distance		Meets Access Management Standards
	Measured	Required	
From Sunset Palms full median opening (FMO) to Grand Avenue signalized FMO	1,440 ft.	2,640 ft.	No
From Grand Avenue signalized FMO to I-275 northbound off-ramp (signalized)	5,920 ft.	2,640 ft.	Yes
From I-275 northbound off-ramp (signalized) to signalized FMO at Power Substation	1,630 ft.	2,640 ft.	No
From signalized FMO at Power Substation to signalized FMO at 9th Street	3,740 ft.	2,640 ft.	Yes
From signalized FMO at 9th Street to signalized FMO at Roosevelt Boulevard	2,360 ft.	2,640 ft.	No
From signalized FMO at Roosevelt Boulevard to signalized FMO at 4th Street	560 ft.	2,640 ft.	No
From signalized FMO at 4th Street to FMO at Pelican Sound	2,350 ft.	2,640 ft.	No

* All distances are measured from west to east

6.3.3.2 US 19/Gandy Boulevard (SR 694) Interchange Access Management

In accordance with the adopted FDOT Access Management Classification system, US 19 is Access Class 5 south of Gandy Boulevard (SR 694) and Access Class 3 north of Gandy Boulevard (SR 694). The speed limit on US 19 south of Gandy Boulevard (SR 694) is 45 mph. North of Gandy Boulevard (SR 694), the speed limit on US 19 remains at 45 mph until approximately 650 ft. north of Gandy Boulevard (SR 694) (approximately at 76th Avenue/76th Terrace) where the posted speed changes to 55 mph. The posted speed limits and the standards in Section 6.3.1 were evaluated to develop the minimum spacing requirements in Table 6-5.

Table 6-5
Existing Median Opening/Connection Spacing at US 19/Gandy Boulevard (SR 694) Interchange

Access Description	Distance		Meets Interchange Access Management Standards
	Measured	Required	
Median Opening Spacing			
From westbound off-ramp to first median opening north of Gandy Boulevard (SR 694)	380 ft.	1,320 ft.	No
From eastbound off-ramp to first median opening south of Gandy Boulevard (SR 694)	710 ft.	1,320 ft.	No
Connection Spacing			
From westbound off-ramp to first connection north of Gandy Boulevard (SR 694) and on the east side of US 19	380 ft.	440 ft.	No
From eastbound off-ramp to first connection south of Gandy Boulevard (SR 694) and on the west side of US 19	710 ft.	440 ft.	Yes

6.3.3.3 Improvements by Others

The following improvements within the US 19/Gandy Boulevard (SR 694) Interchange area were documented in US 19 Access Management Study from 54th Avenue South to State Route 60[2] dated June 2001 by DKS Associates for FDOT:

- US 19 at 76th Avenue/76th Terrace – Close the median opening. Provide a striped median opening designed for emergency vehicles (only) at the FHP driveway.
- At the US 19/78th Avenue intersection – Construct a bi-directional median opening, extending the lengths of the left turn lanes as far as practical. Restripe the eastbound approach to eliminate the left turn lane.

These improvements on US 19 will increase the spacing between the westbound off-ramp to the first median opening north of Gandy Boulevard (SR 694) from 380 ft. to 1,200 ft.

6.3.3.4 I-275/Gandy Boulevard (SR 694) Interchange Access Management

The posted speed limit on Gandy Boulevard (SR 694) is 50 mph within the vicinity of the I-275 interchange. The posted speed limit and the standards in Section 6.3.1 were combined to develop the minimum spacing requirements in Table 6-6.

Table 6-6
Existing Median Opening/Connection Spacing at I-275/Gandy Boulevard (SR 694) Interchange

Access Description	Distance		Meets Interchange Access Management Standards
	Measured	Required	
Median Opening Spacing			
From northbound off-ramp to first median opening east of I-275 (signalized access to Power Substation)	940 ft.	1,320 ft.	No
From southbound off-ramp to first median opening west of I-275 at Grand Avenue	2,780 ft.	1,320 ft.	Yes
Connection Spacing			
From northbound off-ramp to first connection east of I-275 and on the south side of Gandy Boulevard	940 ft.	660 ft.	Yes
From southbound off-ramp to first connection west of I-275 and on the north side of Gandy Boulevard (SR 694)	2,780 ft.	660 ft.	Yes

The proximity of the median opening at the Power Substation access road and Gandy Boulevard (SR 694) intersection represents a deficiency in the existing access management plan for the I-275/Gandy Boulevard (SR 694) interchange.

6.4 EXISTING TRAFFIC CONDITIONS

The Highway Capacity Software (HCS), Version 3.2 was used to evaluate the quality of traffic flow currently experienced in the study area. The HCS is based on analysis procedures defined in the 1994 Highway Capacity Manual, Special Report 209[3] (HCM). The morning and evening peak hour LOS were determined for the nine signalized

intersections. The LOS standard specified by FDOT for Gandy Boulevard (SR 694) is LOS C. The following sections summarize the results of the existing capacity analyses.

6.4.1 Existing Signalized Intersections Level of Service Analysis

The LOS analysis for existing (2000) conditions, shown in Table 6-7, shows that six of the nine signalized intersections are currently operating below the acceptable standard of LOS D during the AM peak hour. During the PM peak hour eight of the nine signalized intersections are currently operating below LOS D.

Table 6-7
Existing (2000) Signalized Intersections LOS

Signalized Intersection	Existing (2000) Peak Hour	
	AM	PM
Gandy Boulevard (SR 694) at US 19	F	F
Gandy Boulevard (SR 694) at Grand Avenue (28th Street)	D	F
Gandy Boulevard (SR 694) at I-275 northbound off-ramp	F	F
Gandy Boulevard (SR 694) at Frontage Road	F	F
Eastbound Gandy Boulevard (SR 694) at 9th Street	D	E
Westbound Gandy Boulevard (SR 694) at 9th Street	F	E
Gandy Boulevard (SR 694) at Roosevelt Boulevard	C	D
Gandy Boulevard (SR 694) at 4th Street	F	F
Roosevelt Boulevard at 9th Street	F	E

6.4.2 Existing Arterial Level of Service Analysis

After the analysis of signalized intersection was completed, the results were used to determine the LOS for roadway segments within the study corridor. Each arterial segment along Gandy Boulevard (SR 694) was examined in both directions, as the LOS for a segment can vary depending on the direction analyzed. As noted in Table 6-8, four of five segments and the overall arterial in the westbound direction are operating below the LOS D standard during the AM peak hour. All five westbound segments and the overall arterial are operating

below LOS D during the PM peak hour. In the eastbound direction, two of the six segments plus the overall arterial are operating below the LOS D standard during the AM peak hour. Two of the eastbound segments are operating below LOS D during the PM peak hour. Overall, the eastbound arterial is operating at LOS D during the PM peak hour.

Table 6-8
Existing (2000) Arterial Segment LOS

Arterial Segment	Existing (2000) Peak Hour	
	AM	PM
Westbound Gandy Boulevard (SR 694)		
4th Street to Roosevelt Boulevard	F	F
Roosevelt Boulevard to 9th Street	E	F
9th Street to Frontage Road	F	F
Frontage Road to I-275	F	F
I-275 to Grand Avenue (28th Street)	B	F
Overall	E	F
Eastbound Gandy Boulevard (SR 694)		
US 19 to Grand Avenue (28th Street)	D	D
Grand Avenue to I-275	F	D
I-275 to Frontage Road	B	B
Frontage Road to 9th Street	D	E
9th Street to Roosevelt Boulevard	C	C
Roosevelt Boulevard to 4th Street	F	F
Overall	E	D

6.4.3 Existing Ramp Junctions Level of Service Analysis

Evaluation of the interchange ramp junctions at US 19 and I-275 were also analyzed as part of this study. The 12 ramp junctions identified within the study corridor are listed in Table 6-9. The existing LOS analysis reveals that one of the 12 is operating below the acceptable LOS D standard during the AM peak hour. During the PM peak hour four of the 12 ramp junctions are operating below the LOS standard.

Table 6-9
Existing (2000) Ramp Junctions LOS

Ramp Junction	Type	Existing (2000) Peak Hour	
		AM	PM
Eastbound Gandy Boulevard (SR 694) to I-275	Diverge	C	B
Eastbound Gandy Boulevard (SR 694) to Northbound I-275	Merge	B	B
Eastbound Gandy Boulevard (SR 694) to Southbound I-275	Merge	C	C
Northbound I-275 to Gandy Boulevard (SR 694)	Diverge	F	F
Southbound I-275 to Westbound Gandy Boulevard (SR 694)	Diverge	B	B
Southbound I-275 to Westbound Gandy Boulevard (SR 694)	Merge	C	D
Westbound Gandy Boulevard (SR 694) to Southbound I-275	Diverge	D	E
Westbound Gandy Boulevard (SR 694) to Southbound I-275	Merge	D	E
Eastbound Gandy Boulevard (SR 694) to US 19	Diverge	C	B
US 19 to Eastbound Gandy Boulevard (SR 694)	Merge	D	B
US 19 to Westbound Gandy Boulevard (SR 694)	Merge	A	B
Westbound Gandy Boulevard (SR 694) to US 19	Diverge	C	E

6.5 MULTIMODAL TRANSPORTATION SYSTEM CONSIDERATIONS

6.5.1 Transit

The PSTA provides public transit service in the Gandy Boulevard (SR 694) Corridor. Route 74 serves the majority of the study corridor by traveling east/west via Park Boulevard and Gandy Boulevard (SR 694). Major stops along the route include the Indian Rocks Shopping Center, Seminole Mall, Park 66 Shopping Center, Pinellas Parkside Mall, and Gateway Mall. Headways on Route 74 typically are 30 minutes in the peak periods and 60 minutes in the off-peak periods of the day. Hours of operation are from 5:15 a.m. to 8:45 p.m. Monday through Friday. Limited weekend service is also provided.

Other PSTA routes provide connections along the Gandy Boulevard (SR 694) Corridor. The Pinellas Parkside Mall on the east end of the corridor is served by PSTA Routes 11, 19, 52, 74, 75, and 444. These routes provide connections to Pinellas Park and north St. Petersburg. Route 96 provides peak period, weekday commuter service along I-275. Route 59 and 99 provide additional north-south service along 9th Street. Route 4 provides service

along 4th Street to northeast St. Petersburg and Route 100X provides commuter service to Tampa from the Gateway Mall via Gandy Boulevard (SR 694) east of 4th Street.

To plan for future transit service, PSTA continues to monitor and evaluate all routes to provide more efficient and effective service. As indicated in the Pinellas County Comprehensive Plan, Transportation Element[4], routes that fall below 75% of the system averages for passenger productivity and farebox recovery ratios, are monitored for two consecutive quarters. PSTA will then prepare recommendations on improving service such as route realignments or scheduling modifications. PSTA monitors routes for at least six months before adjustments, such as headway improvement or the consolidation of existing fixed routes, are implemented.

The Pinellas County MPO 2020 Long Range Transportation Plan[5] lists cost feasible transit enhancements proposed for the years 2004 through 2010. Review of the Plan revealed that transit service enhancements are only proposed for Routes 52 and 59, by the year 2005. The proposed enhancements are described below:

- The Route 74 proposed transit enhancements for the interim years 2004-2010 include the reduction of the headways from 30 minutes to 15 minutes during the peak period. There are currently six buses servicing this route. During the off-peak period, the headways are proposed to be reduced from the 60 minutes to 30 minutes.

6.5.2 Pinellas Mobility Major Investment Study

In 1997, the Pinellas County MPO initiated the Pinellas Mobility Major Investment Study[6] (MIS). The purpose of this study is to identify transportation and policy solutions to manage problems anticipated with future traffic congestion. As part of this study, multimodal transportation strategies were evaluated to determine their effects on land use patterns, local transportation policies, development regulations and environmental impacts. The multimodal strategies evaluated include: high occupancy vehicle (HOV) lanes, transportation system management (TSM), intelligent transportation systems (ITS),

transportation demand management (TDM), transit, rail, and bicycle/pedestrian facilities. The MPO approved the Locally Recommended Alternative (LPA) Report in October 2000. The LPA identifies Gandy Boulevard (SR 694) from US 19 to 4th Street as part of potential express bus route system. The Locally Recommended Alternatives will be evaluated as part of the next phase of the study, currently being initiated by the MPO.

6.5.3 Rail

There is no existing railroad that crosses Gandy Boulevard (SR 694) within the project limits.

6.5.4 Aviation

The St. Petersburg-Clearwater International Airport is located four miles northwest of the northern end of the study corridor in Pinellas County. This airport will not be affected by the proposed improvements of the study corridor.

6.6 TRAFFIC ANALYSIS ASSUMPTIONS

The design year (2025) traffic volumes were estimated using the Tampa Bay Regional Planning Model (TBRPM) Version 3.2. In addition, the traffic factors displayed in Table 6-1 were used to develop design year traffic volumes.

6.7 TRAFFIC VOLUME PROJECTIONS

The design year (2025) traffic volumes were estimated using the TBRPM Version 3.2. To refine the TBRPM model projections, a comparison of the validation results with observed volumes was undertaken. Where the 1995 model volumes were not within 10 percent of observed counts, the ratio of 1995 count /1995 volumes was applied to 2020 projections to correct for over/under assignment. After applying the model output conversion factor, the 2020 AADT volume was then inflated by one percent per year to account for traffic in the

year 2025. Projected volumes were then compared with year 2000 volumes to affirm that growth/decline in traffic was consistent with expectation for the area.

6.7.1 Design Year Annual Average Daily Traffic Volume Projections

For the design year (2025), traffic projections were developed for the No-Build Alternative and the Build Alternatives. The assumptions used to develop these alternatives in the model are described below.

6.7.1.1 No-Build Alternative

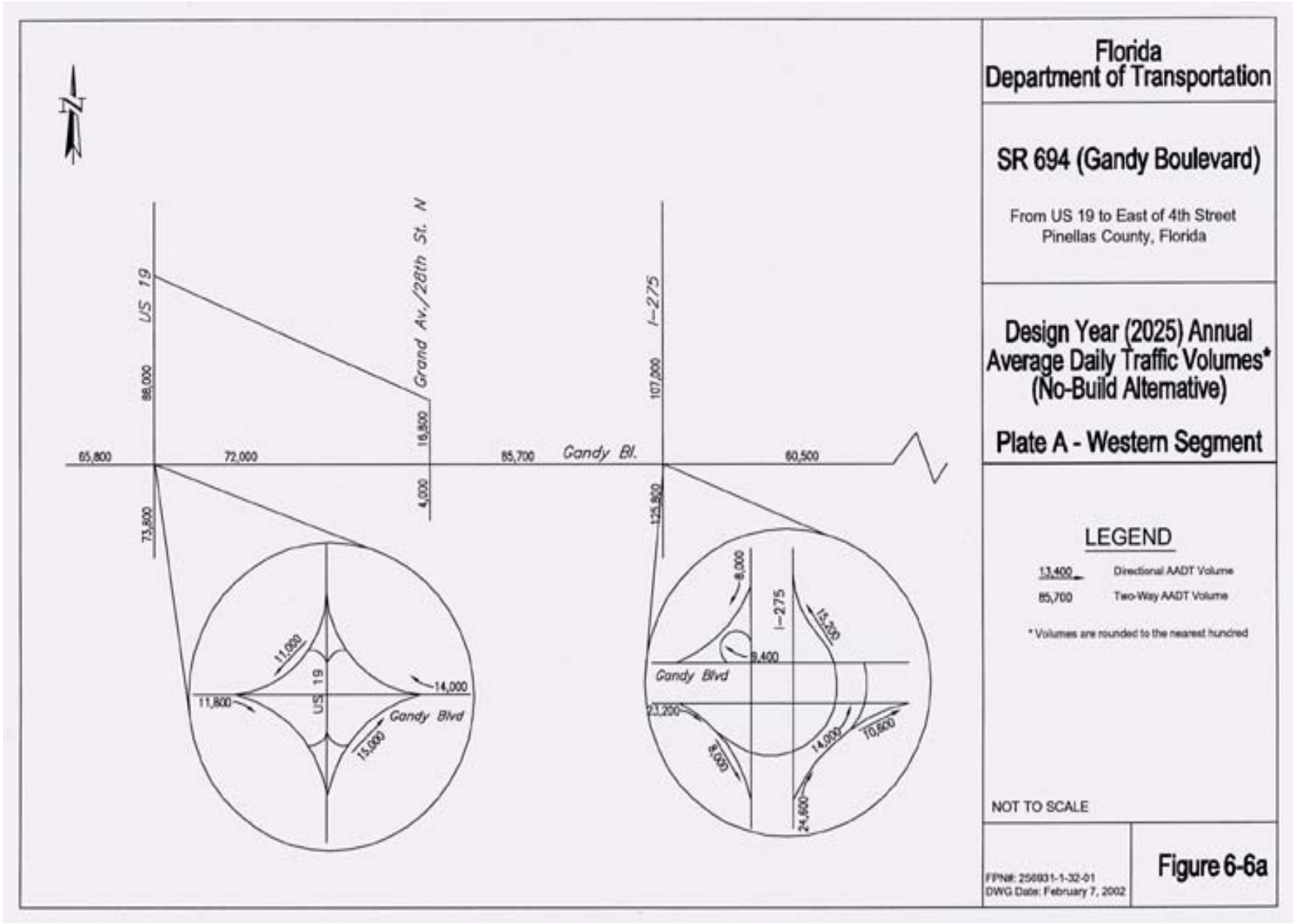
To establish a baseline against which to compare various alternative improvement scenarios for the Gandy Boulevard (SR 694) Corridor, the LRTP improvements for Gandy Boulevard (SR 694) in the study area, along with the improvements on Roosevelt Boulevard (east of I-275) were removed from the 2020 (20A) network and volumes were reassigned. Figures 6-6 (a and b) display the projected 2025 AADT volumes developed by using the TBRPM.

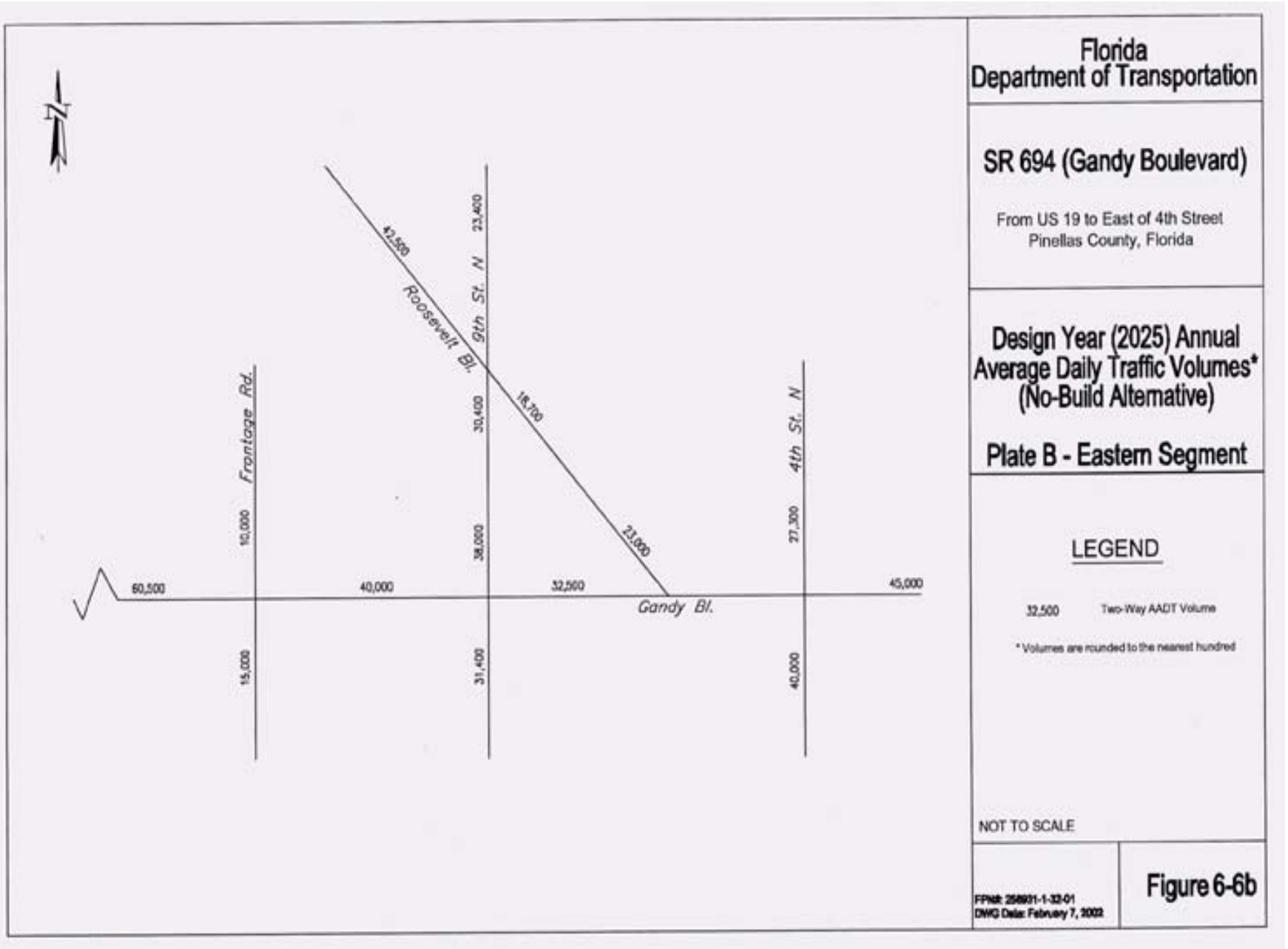
As shown in Figures 6-6 (a and b), the projected No-Build design year AADT volumes along the study corridor are expected to range between 32,500 vpd to 85,700 vpd. A comparison of the 2025 AADT volumes to the existing (2000) AADT volumes reveals the daily traffic is expected to increase between 28 and 42 percent by the design year 2025.

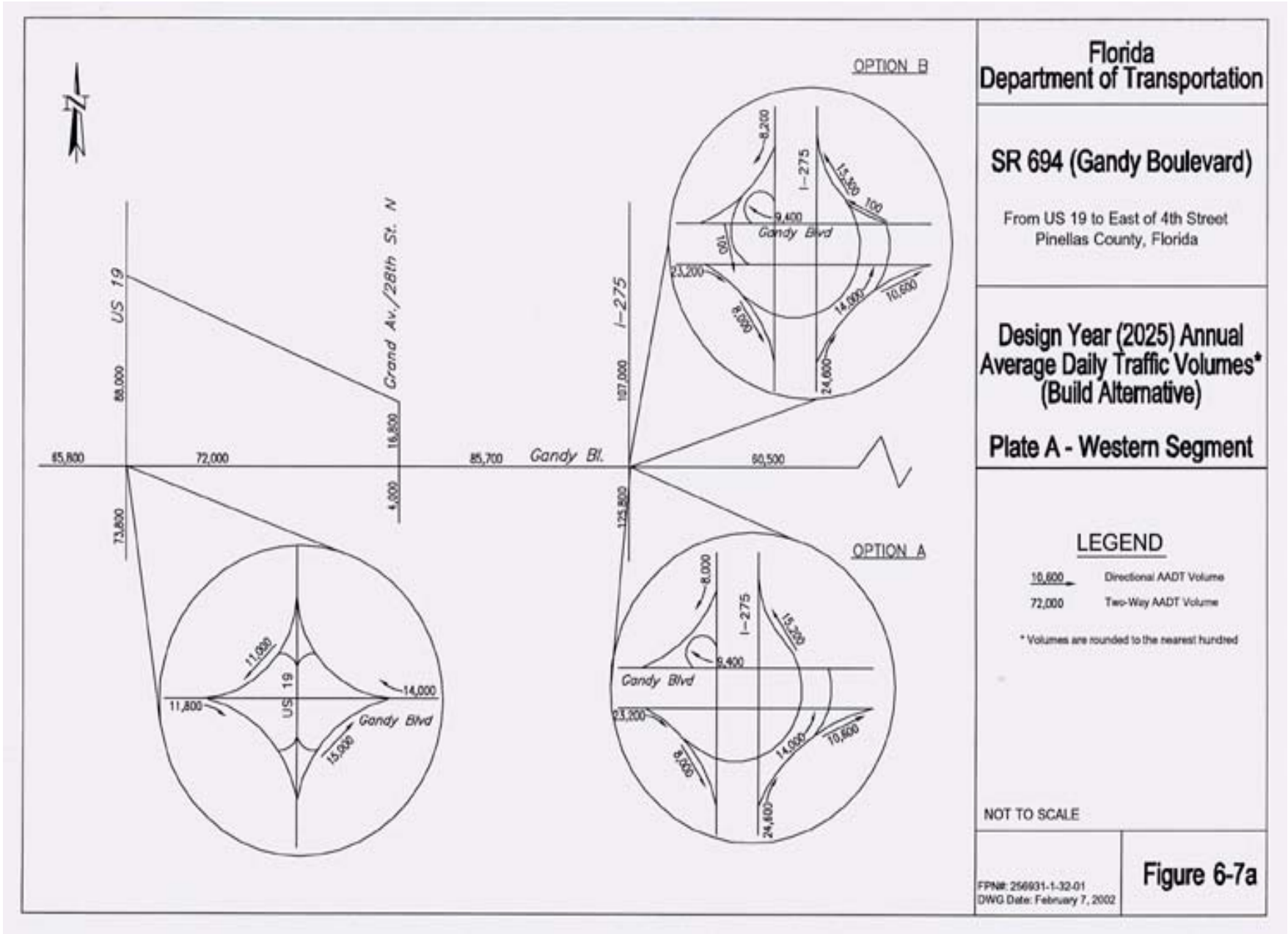
6.7.1.2 Build Alternatives

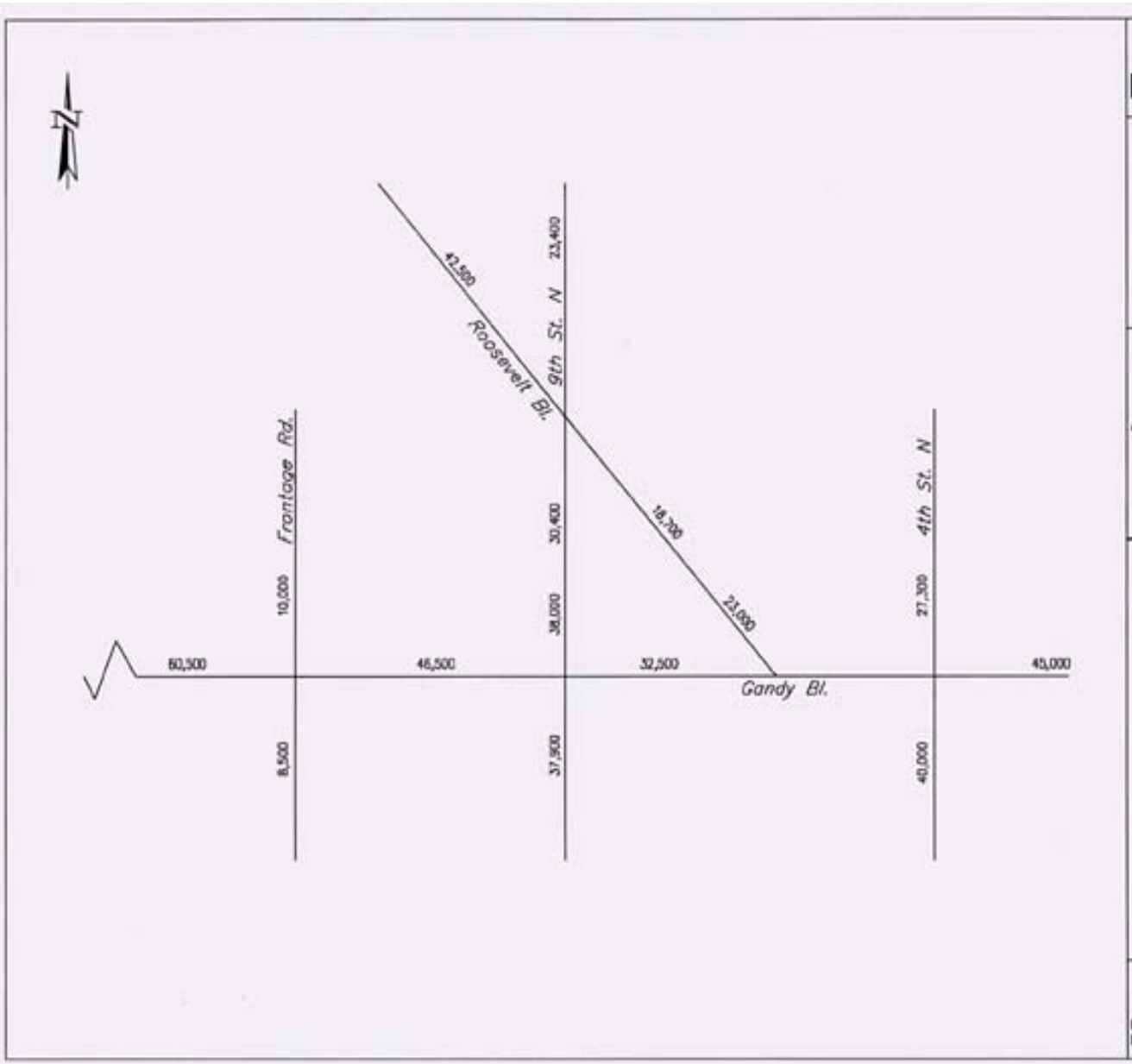
Build Alternative

The Build Alternative consists of a six-lane divided controlled access roadway with frontage roads and slip-ramps. The same amount of traffic is expected to flow through the corridor (32,500 vpd to 85,700 vpd) as the No-Build Alternative. However, the Build Alternative allows the traffic to be distributed between the mainline, frontage roads, and ramps. The projected Build design year AADT volumes are shown in Figures 6-7 (a and b).


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Design Year (2025) Annual Average Daily Traffic Volumes*
(No-Build Alternative)
Plate A - Western Segment
US 19
Grand Av./28th St. N
I-275
Gandy Bl.
65,800
72,000
85,700
60,500
88,000
16,800
107,800
4,000
73,800
125,800
LEGEND
13,400 Directional AADT Volume
85,700 Two-Way AADT Volume
* Volumes are rounded to the nearest hundred
NOT TO SCALE
11,000
11,800
14,000
15,000
Gandy Blvd
8,000
8,400
15,200
23,200
9,000
14,900
10,600
24,600
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-6a


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Design Year (2025) Annual Average Daily Traffic Volumes* (No-Build Alternative)
Plate B - Eastern Segment
LEGEND
32,500 Two-Way AADT Volume
* Volumes are rounded to the nearest hundred
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-6b
Roosevelt Bl.
42,500
18,700
23,000
Frontage Rd.
10,000
15,000
6th St. N
23,400
30,400
38,000
31,400
4th St. N
27,300
40,000
60,500
40,000
32,500
45,000
Gandy Bl.


OPTION B
OPTION A
US 19
Grand Av./28th St. N
I-275
Gandy Bl.
Gandy Blvd
65,800
72,000
85,700
80,500
88,000
73,800
16,800
4,800
107,000
125,800
8,200
15,300
100
9,400
23,200
8,600
14,600
10,600
24,600
8,000
11,800
14,000
15,000
Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Design Year (2025) Annual Average Daily Traffic Volumes* (Build Alternative)
Plate A - Western Segment
LEGEND
10,600 Directional AADT Volume
72,000 Two-Way AADT Volume
* Volumes are rounded to the nearest hundred
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
Figure 6-7a



Florida
Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) Annual Average Daily Traffic Volumes* (Build Alternative)

Plate B - Eastern Segment

LEGEND

32,500 Two-Way AADT Volume

* Volumes are rounded to the nearest hundred

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: February 7, 2002

Figure 6-7b

Revised Build Alternative

The Build Alternative was revised based on the results of the Public Hearing held on March 14, 2002. The revised Build Alternative reflects the addition of a slip-ramp from 16th Street to westbound Gandy Boulevard (SR 694). The same amount of traffic is expected to flow through the corridor as the Build Alternative. The only difference is the redistribution of traffic due to the addition of the slip-ramp.

6.7.2 2025 Design Hour Turning Movement Volumes

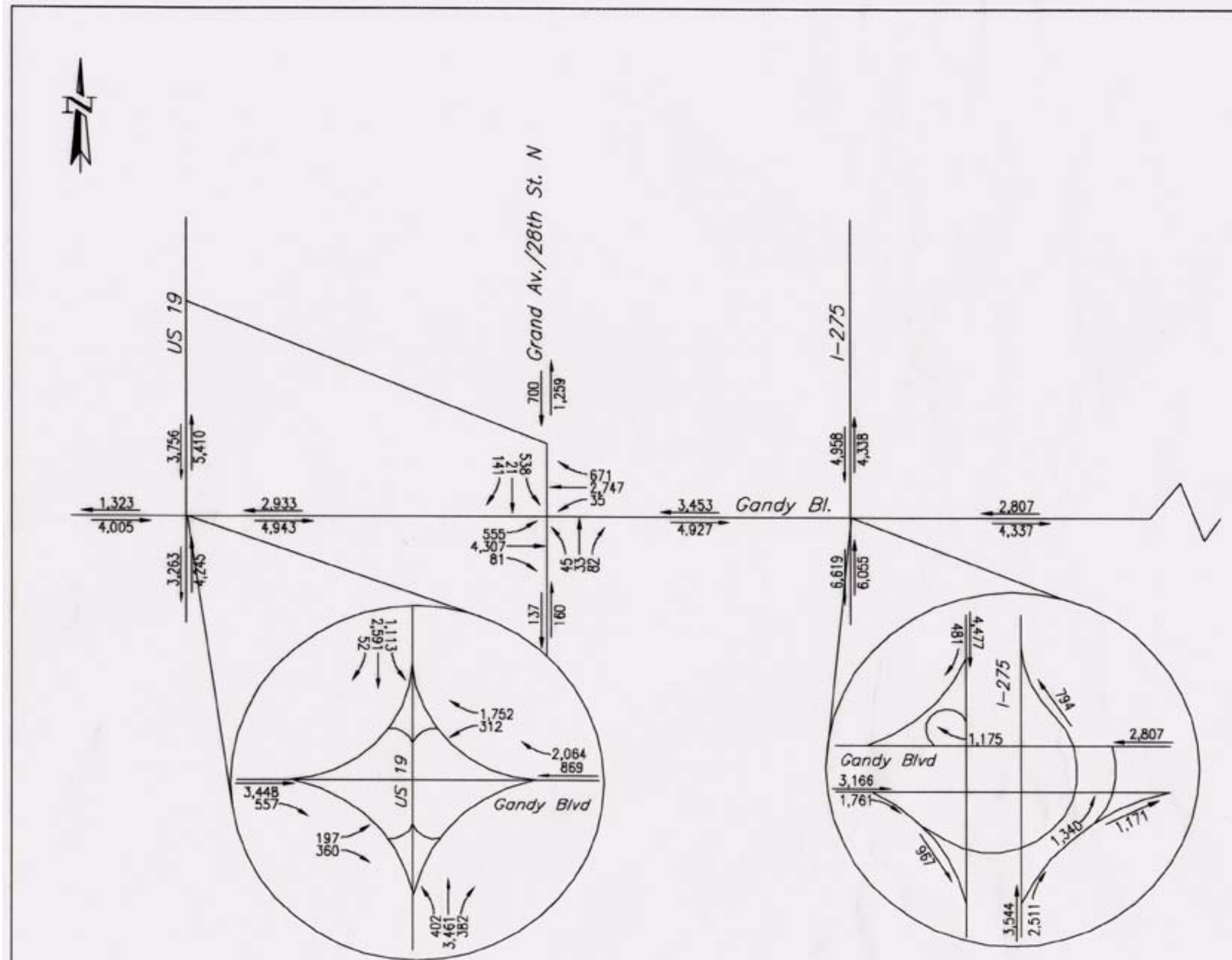
6.7.2.1 No-Build Alternative

The K_{30} and D factors reported in Table 6-1 were used to develop preliminary year 2025 AM and PM peak hour approach volumes for all intersections. Where there are no access points between intersections, approach/departure volumes from one intersection were reconciled (smoothed) with the next intersection. Because the observed traffic volumes on Gandy Boulevard (SR 694) were the highest near I-275, this was the control point against which other intersection approach volumes were calculated. The projected 2025 design hour turning movement volumes for AM peak hour are displayed in Figures 6-8 (a and b). Figure 6-9 (a and b) displays the 2025 PM peak hour volumes.

6.7.2.2 Build Alternatives

Build Alternative

The Build Alternative, which consists of a six-lane divided controlled access roadway with frontage roads and slip-ramps, results in redistribution of traffic along the study corridor. Once again, where there are no access points between intersections, approach/departure volumes from one intersection were reconciled (smoothed) with the next intersection. Also, for the build conditions, the observed traffic volumes on Gandy Boulevard (SR 694) were the highest near I-275; this was the control point against which other intersection approach



Florida
Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

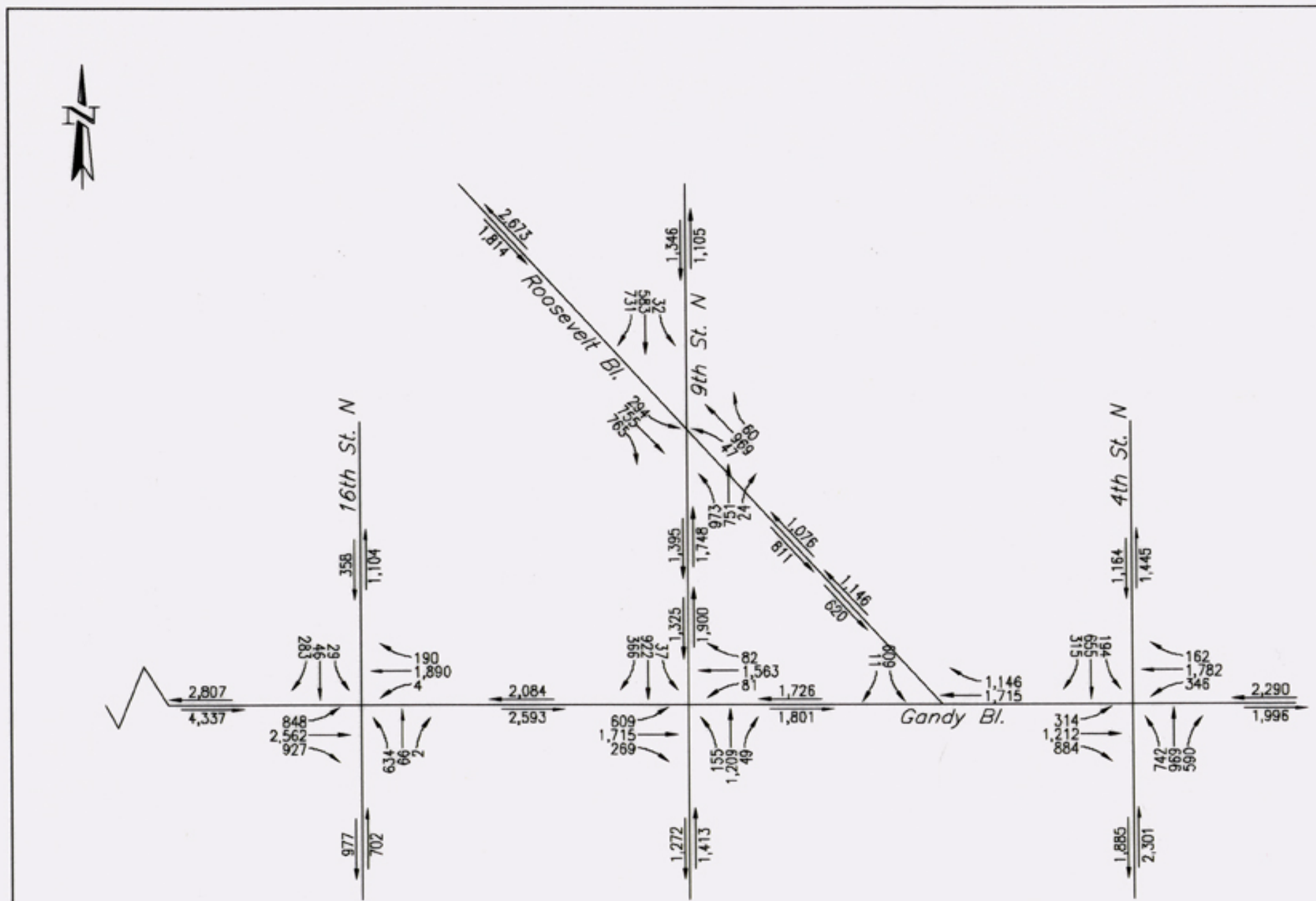
Design Year (2025)
AM Peak Hour Volumes
(No-Build Alternative)

Plate A - Western Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: February 12, 2002
REV Date: May 8, 2002

Figure 6.8a



Florida
Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

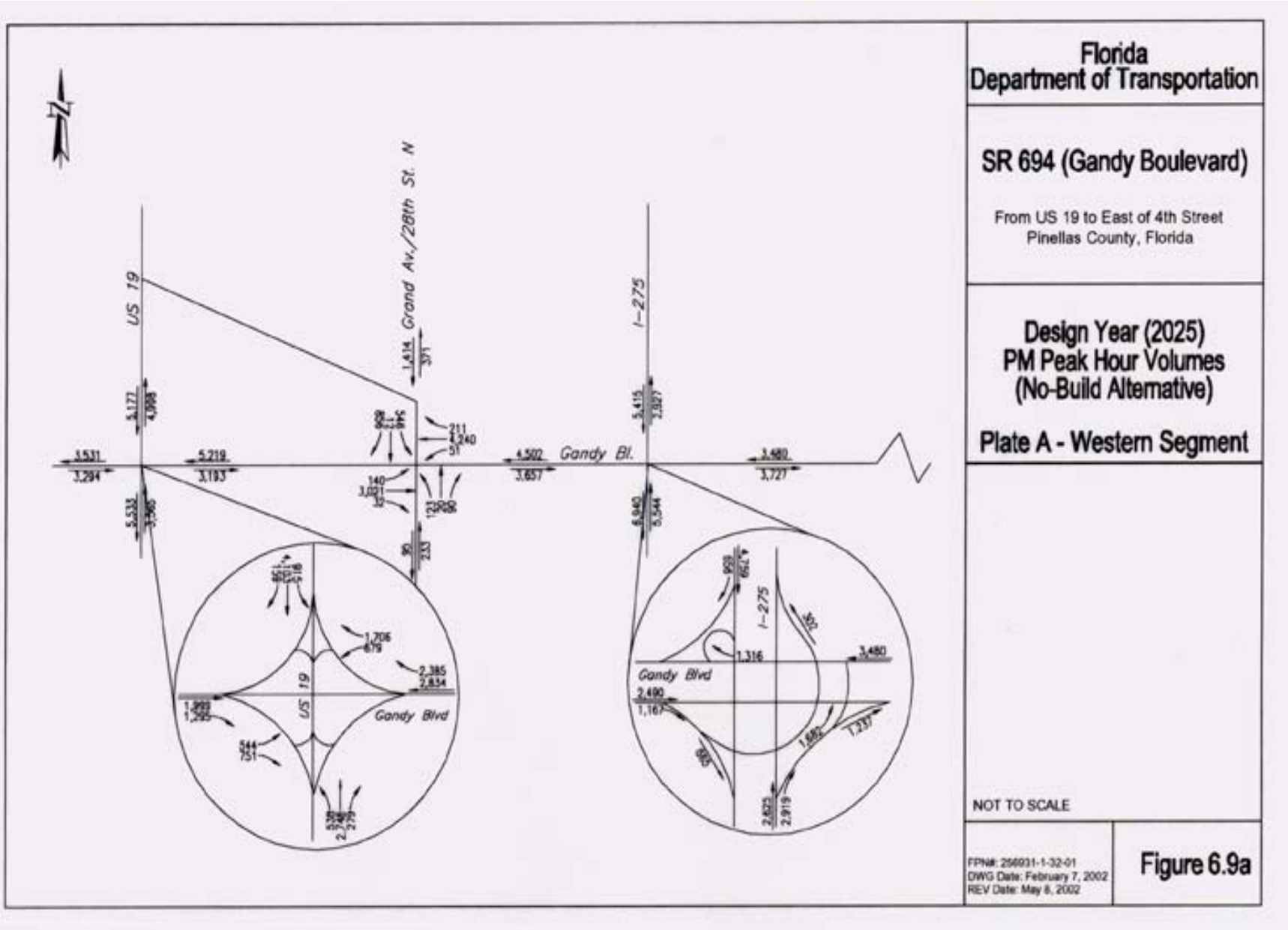
Design Year (2025) AM Peak Hour Volumes (No-Build Alternative)

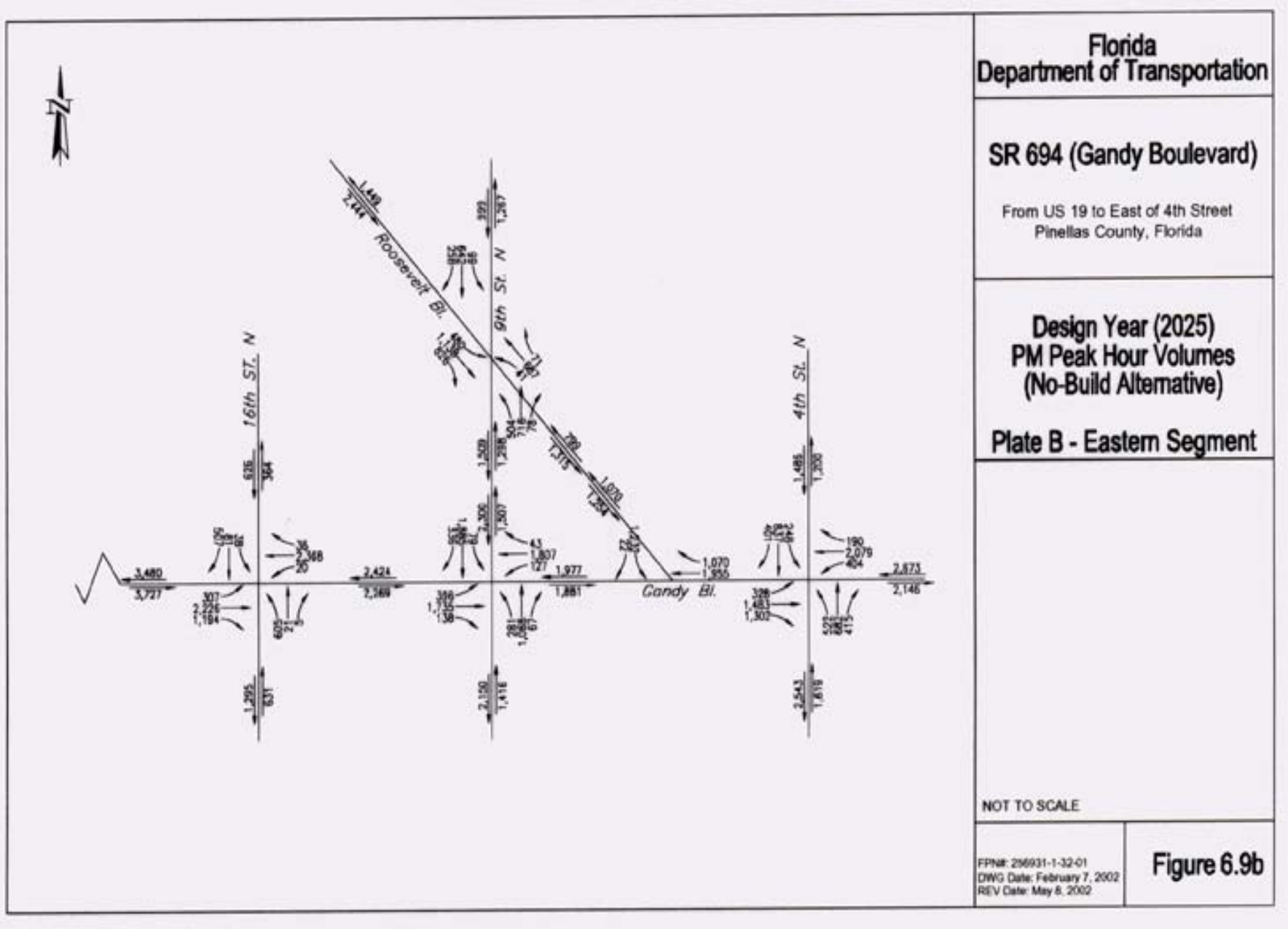
Plate B - Eastern Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: February 12, 2002
REV Date: May 8, 2002

Figure 6.8b


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Design Year (2025)
PM Peak Hour Volumes
(No-Build Alternative)
Plate A - Western Segment
US 19
Grand Av./28th St. N
I-275
Gandy Bl.
Gandy Blvd
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
REV Date: May 8, 2002
Figure 6.9a


Florida
Department of Transportation
SR 694 (Gandy Boulevard)
From US 19 to East of 4th Street
Pinellas County, Florida
Design Year (2025)
PM Peak Hour Volumes
(No-Build Alternative)
Plate B - Eastern Segment
Roosevelt Bl.
9th St. N
16th ST. N
4th St. N
Gandy Bl.
NOT TO SCALE
FPN#: 256931-1-32-01
DWG Date: February 7, 2002
REV Date: May 8, 2002
Figure 6.9b

volumes were calculated. The projected Build Alternative 2025 design hour turning movement volumes for AM peak hour are displayed in Figures 6-10 (a and b). Figure 6-11 (a and b) displays the 2025 PM peak hour volumes.

Revised Build Alternative

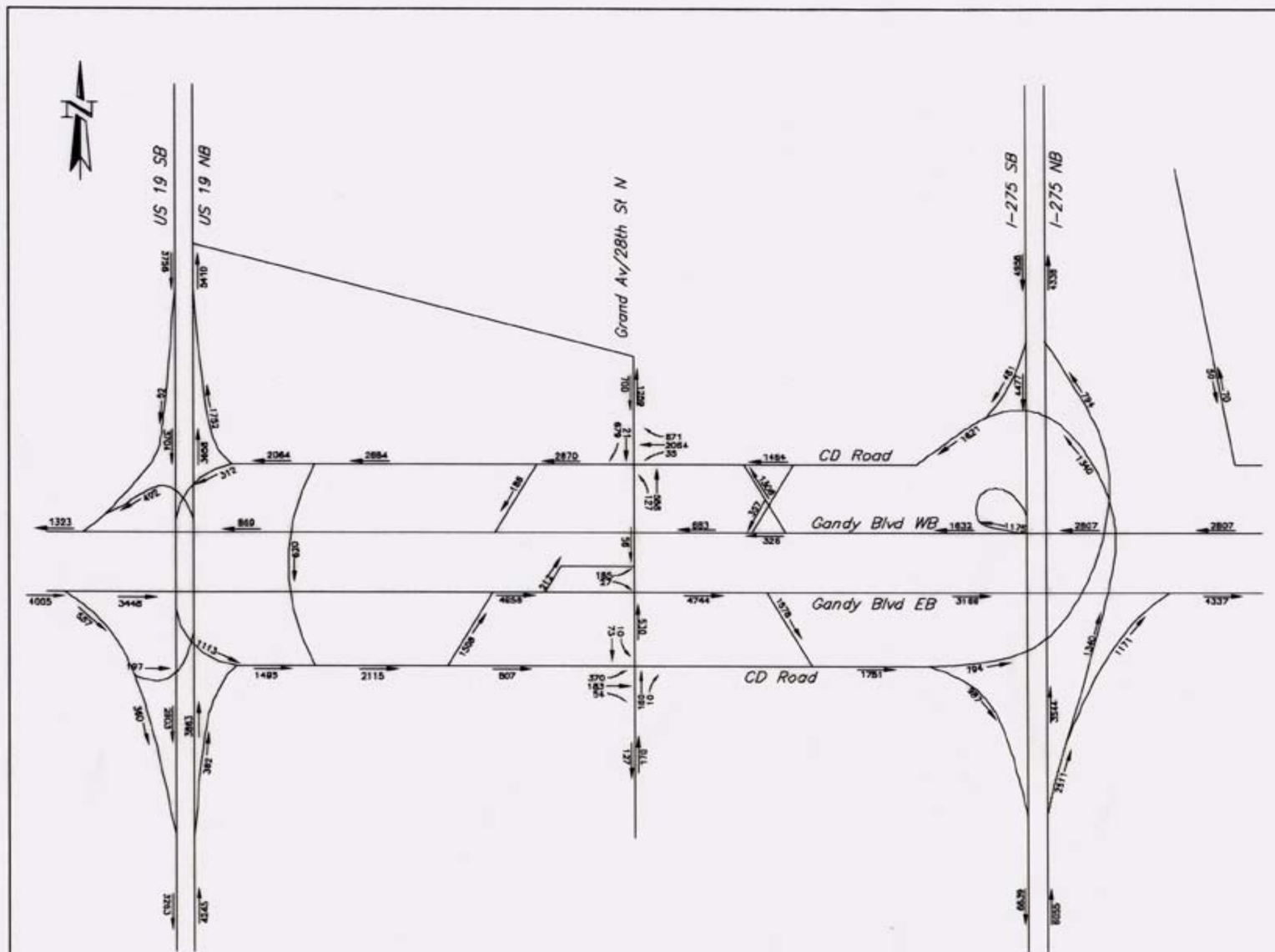
A revised Build Alternative with design changes was developed based on the results of the Public Hearing held on March 14, 2002. The revised Build Alternative reflects the addition of a slip-ramp from 16th Street to westbound Gandy Boulevard (SR 694). The slip-ramp allows traffic from the 16th Street area to travel westbound on Gandy Boulevard (SR 694) without using the circuitous route via the south frontage road and 9th Street. The same methodology used to develop design hour volumes for the Build Alternative was used for the revised Build Alternative. The 2025 AM and PM design hour turning movement volumes are displayed in Figures 6-12 (a and b) and Figures 6-13 (a and b), respectively.

6.8 LEVEL OF SERVICE

The 2025 design hour turning movement volumes discussed previously, were used as input to the LOS analyses. The LOS analyses were performed for the No-Build and Build Alternatives for AM and PM peak conditions. As mentioned in Section 6.4 of this report, the LOS standard specified by FDOT for the Gandy Boulevard (SR 694) Corridor is LOS D. The following subsections summarize the results of the design year (2025) LOS analyses conducted for signalized intersections, ramp junctions and roadway segments.

6.8.1 No-Build Alternative

The analysis for the No-Build Alternative includes evaluating the impact of the 2025 design hour traffic volumes on the existing lane geometry. The existing nine signalized intersections were evaluated using the same software (HCS Version 3.2) as was used to evaluate existing operational conditions described in Section 6.4.



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

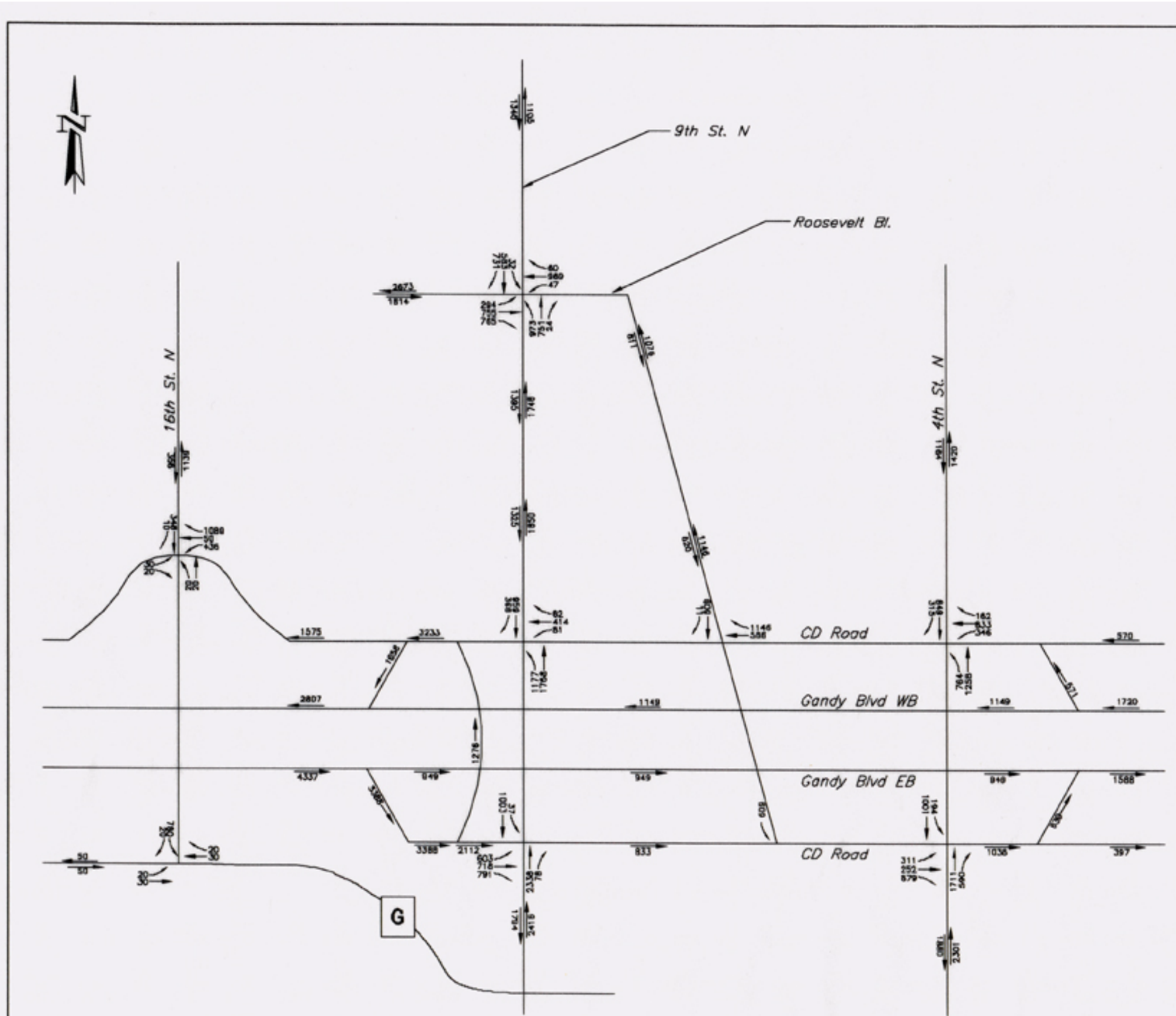
Design Year (2025) AM Peak Hour Volumes (Build Alternative)

Plate A - Western Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.10a



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) AM Peak Hour Volumes (Build Alternative)

Plate B - Eastern Segment

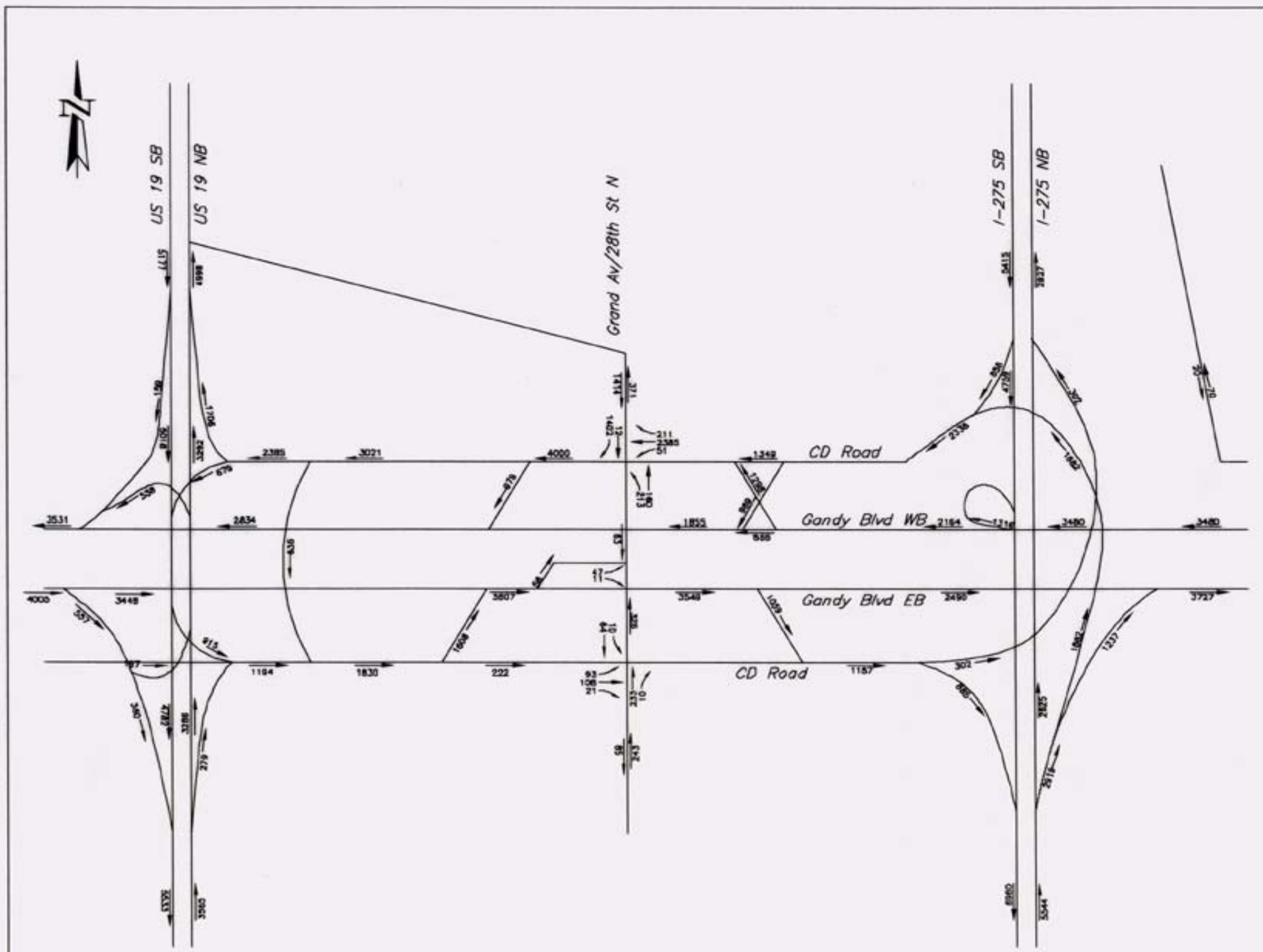
LEGEND

G - Trip Generator

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.10b



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

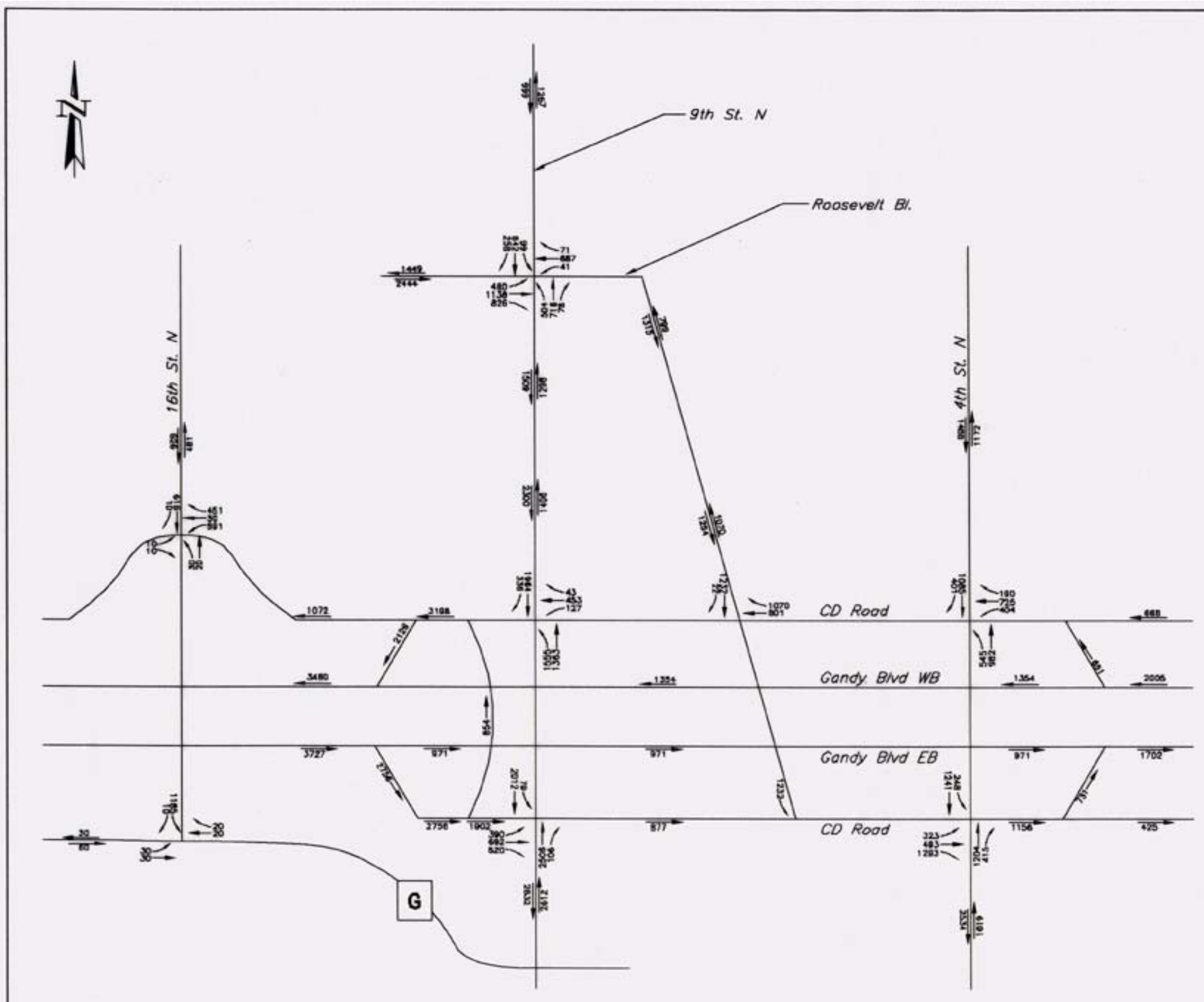
Design Year (2025) PM Peak Hour Volumes (Build Alternative)

Plate A - Western Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.11a



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) PM Peak Hour Volumes (Build Alternative)

Plate B - Eastern Segment

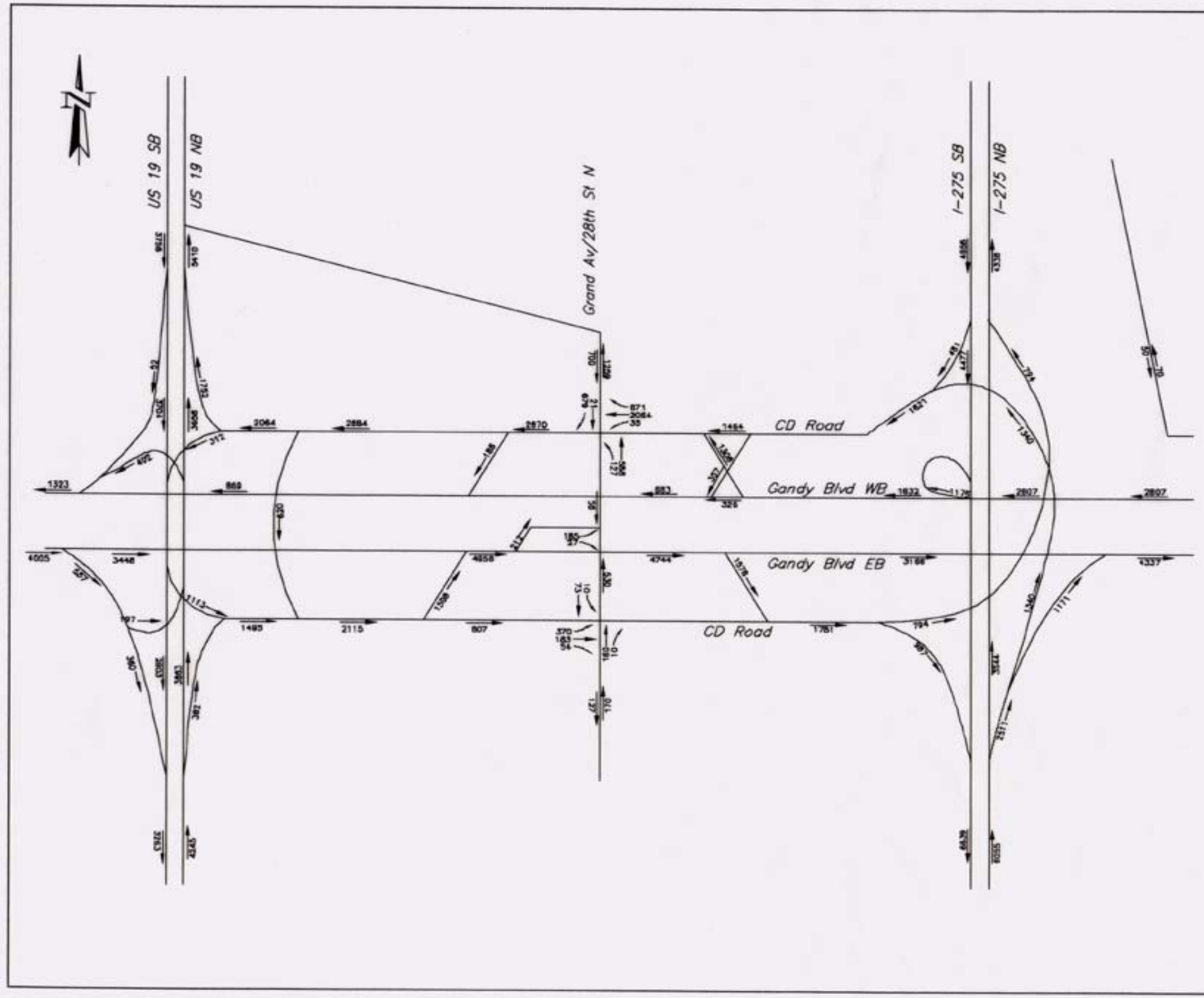
LEGEND

G - Trip Generator

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.11b



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

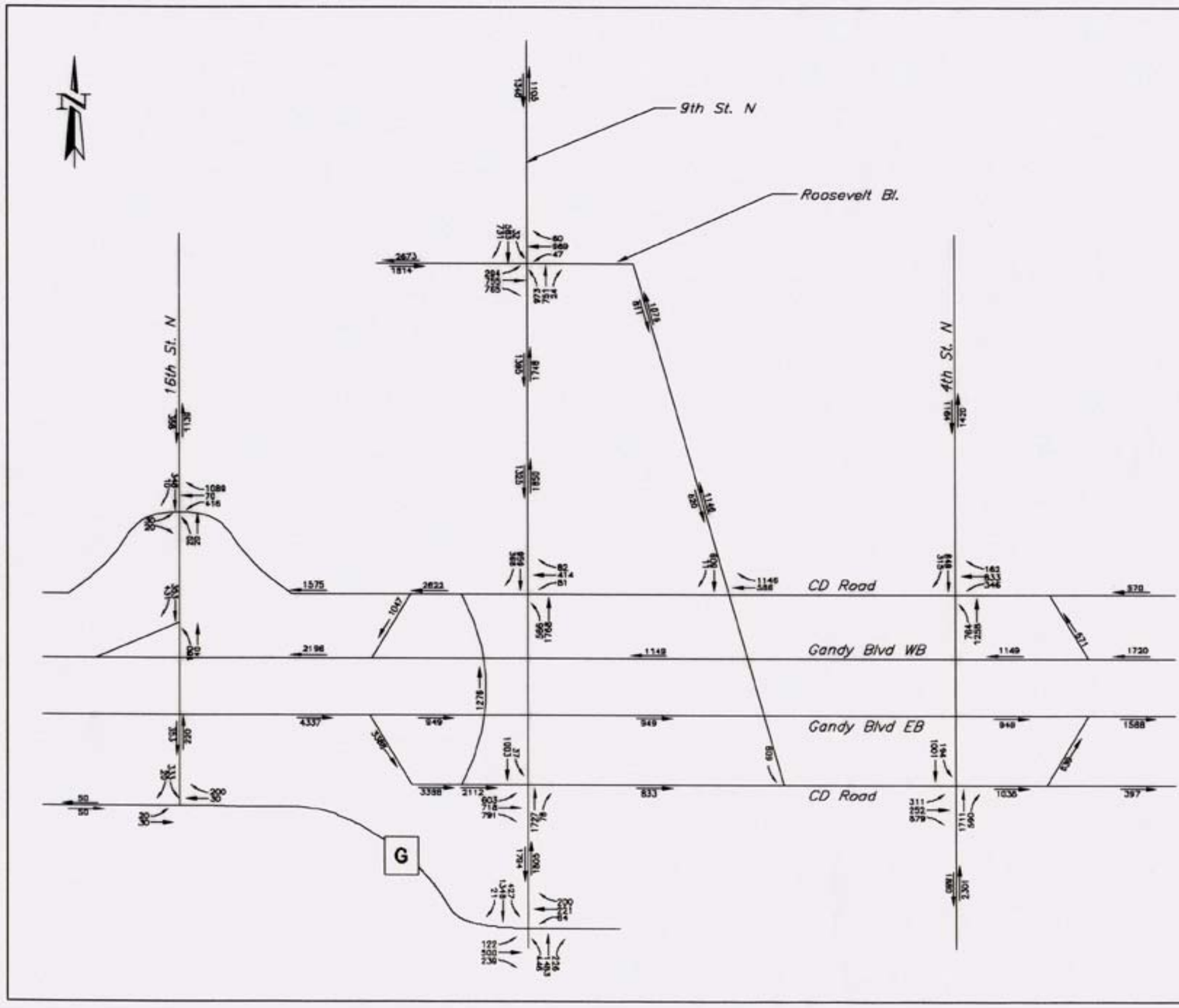
Design Year (2025) AM Peak Hour Volumes (Revised Build Alternative)

Plate A - Western Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.12a



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) AM Peak Hour Volumes (Revised Build Alternative)

Plate B - Eastern Segment

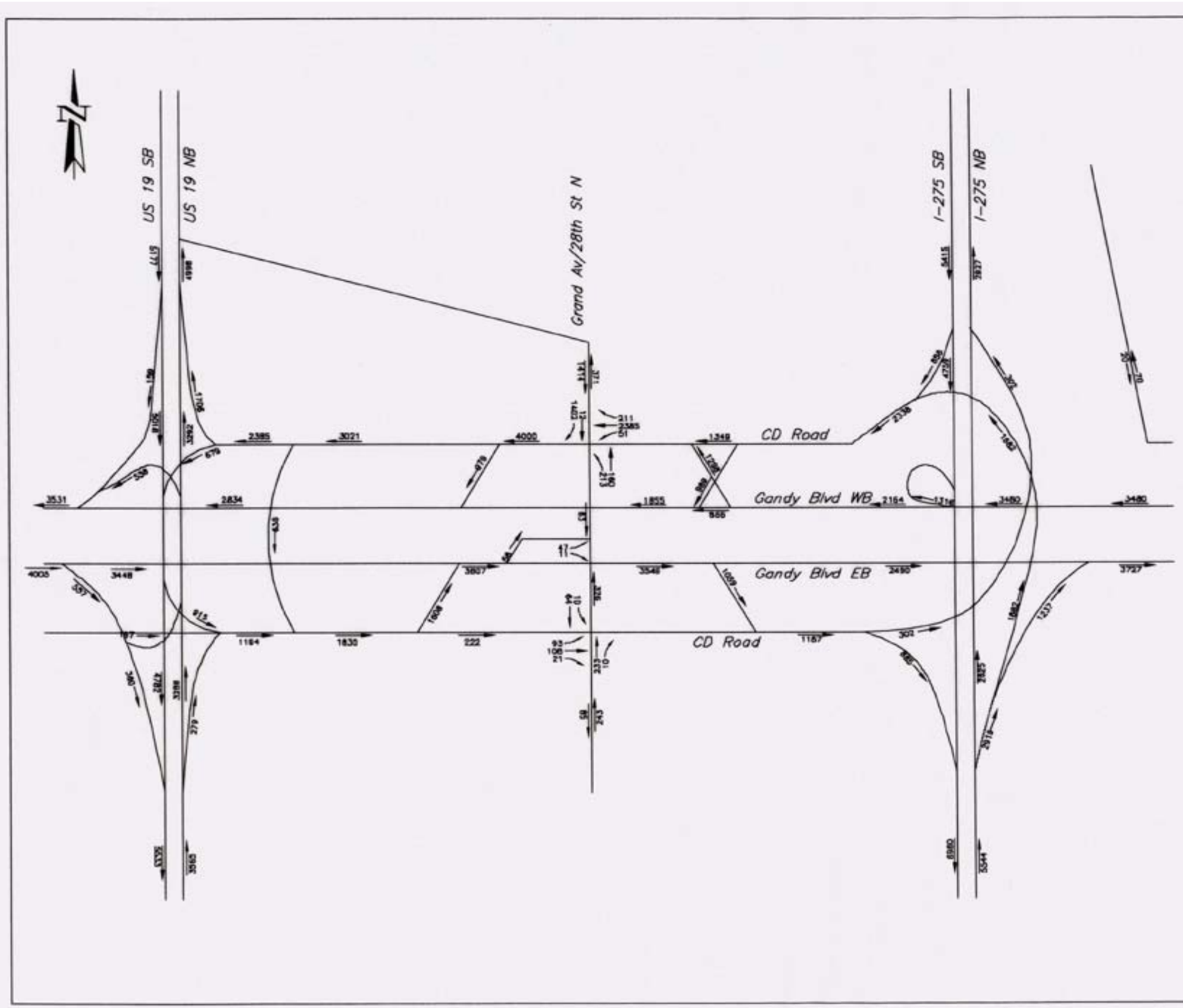
LEGEND

G - Trip Generator

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.12b



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

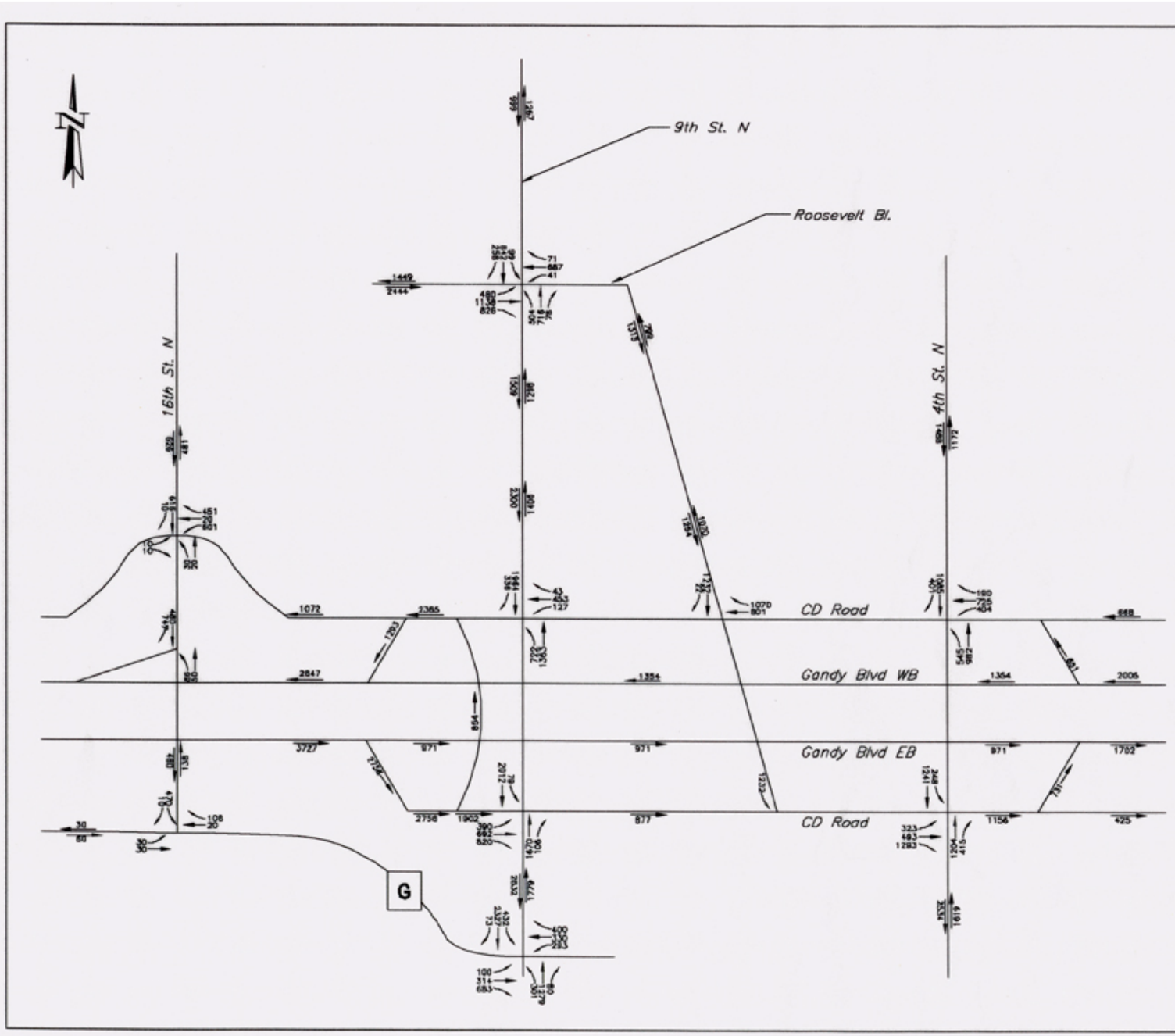
Design Year (2025) PM Peak Hour Volumes (Revised Build Alternative)

Plate A - Western Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.13a



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) PM Peak Hour Volumes (Revised Build Alternative)

Plate B - Eastern Segment

LEGEND

G - Trip Generator

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.13b

6.8.1.1 Design Year (2025) Signalized Intersection LOS Analysis (No-Build Alternative)

A capacity analysis was conducted for the nine intersections using the 2025 No-Build traffic volumes. The results of the analyses reveals that eight of the nine signalized intersections are expected to operate below the acceptable LOS D conditions during the AM peak hour. During the 2025 PM peak hour, all nine signalized intersections are expected to operate below LOS D. The result of the No-Build signalized intersections operation analyses are summarized in Table 6-10.

Table 6-10
Design Year (2025) Signalized Intersections LOS
No-Build Alternative

Signalized Intersection	No-Build (2025) Peak Hour	
	AM	PM
Gandy Boulevard (SR 694) at US 19	F	F
Gandy Boulevard (SR 694) at Grand Avenue (28th Street)	F	F
Gandy Boulevard (SR 694) at I-275 northbound off-ramp	F	F
Gandy Boulevard (SR 694) at Frontage Road	F	F
Eastbound Gandy Boulevard (SR 694) at 9th Street	F	F
Westbound Gandy Boulevard (SR 694) at 9th Street	F	F
Gandy Boulevard (SR 694) at Roosevelt Boulevard	D	F
Gandy Boulevard (SR 694) at 4th Street	F	F
Roosevelt Boulevard at 9th Street	F	F

6.8.1.2 Design Year (2025) Arterial LOS Analysis (No-Build Alternative)

After the analysis of signalized intersection was completed, the results were used to determine the LOS for roadway segments assuming the 2025 No-Build Alternative. Each arterial segment along Gandy Boulevard (SR 694) was examined in both directions, as the LOS for a segment can vary depending on the direction analyzed. As noted in Table 6-11, four of the five segments and overall in the westbound direction are expected to operate below the LOS D standard during the AM peak hour. All five westbound segments and

overall are projected to operate below LOS D during the PM peak hour. In the eastbound direction, five of the six segments plus overall are expected to operate below the LOS D standard during the AM peak hour. During the PM peak hour, five of the six eastbound segments plus overall are operating below LOS D standard.

Table 6-11
Design Year (2025) Arterial LOS
No-Build Alternative

Arterial Segment	No-Build (2025) Peak Hour	
	AM	PM
Westbound Gandy Boulevard (SR 694)		
4th Street to Roosevelt Boulevard	F	F
Roosevelt Boulevard to 9th Street	F	F
9th Street to Frontage Road	F	F
Frontage Road to I-275	F	F
I-275 to Grand Avenue (28th Street)	D	F
Overall	F	F
Eastbound Gandy Boulevard (SR 694)		
US 19 to Grand Avenue (28th Street)	F	F
Grand Avenue to I-275	F	F
I-275 to Frontage Road	F	E
Frontage Road to 9th Street	F	F
9th Street to Roosevelt Boulevard	C	D
Roosevelt Boulevard to 4th Street	F	F
Overall	F	F

6.8.1.3 Design Year (2025) Ramp Junctions LOS Analysis (No-Build Alternative)

Evaluation of the interchange ramp junctions at US 19 and I-275 were also conducted for design year (2025) No-Build Alternative. The 12 ramp junctions identified within the study corridor are listed in Table 6-12. The LOS analyses for the No-Build Alternative reveals that nine of the 12 ramp junctions are expected to operate below the acceptable LOS D standard during the AM peak hour. During the PM peak hour five of the 12 ramp junctions are expected to operate below the LOS D standard.

Table 6-12
Design Year (2025) Ramp Junctions LOS
No-Build Alternative

Ramp Junction	Type	No-Build (2025) Peak Hour	
		AM	PM
Eastbound Gandy Boulevard (SR 694) to I-275	Diverge	F	D
Eastbound Gandy Boulevard (SR 694) to northbound I-275	Merge	F	A
Eastbound Gandy Boulevard (SR 694) to southbound I-275	Merge	F	F
Northbound I-275 to Gandy Boulevard (SR 694)	Diverge	F	F
Southbound I-275 to westbound Gandy Boulevard (SR 694)	Diverge	F	F
Southbound I-275 to westbound Gandy Boulevard (SR 694)	Merge	D	C
Westbound Gandy Boulevard (SR 694) to southbound I-275	Diverge	F	D
Westbound Gandy Boulevard (SR 694) to southbound I-275	Merge	F	F
Eastbound Gandy Boulevard (SR 694) to US 19	Diverge	C	C
US 19 to eastbound Gandy Boulevard (SR 694)	Merge	F	C
US 19 to westbound Gandy Boulevard (SR 694)	Merge	B	C
Westbound Gandy Boulevard (SR 694) to US 19	Diverge	F	F

6.8.2 Build Alternative

The evaluation of the future traffic operations with the Build Alternative was conducted with CORSIM. CORSIM provides measures of effectiveness that are comparable to HCS. The software was used for the Build Alternative, since it evaluates the operation of the proposed roadway system as a whole. HCS only evaluates isolated elements of the roadway system (i.e., intersections, arterial segments). The animated simulation of future traffic conditions can assist in visually identifying congested areas and also can stimulate discussion to determine options to improve the operation of the area.

6.8.2.1 Design Year (2025) Signalized Intersection LOS Analysis (Build Alternative)

The Build Alternative consists of a six-lane divided controlled access roadway with frontage roads and slip ramps. Thirteen signalized intersection are included in the Build Alternative. These signalized intersections are listed in Table 6-13.

A summary of the operational analyses conducted for the signalized intersections is shown in Table 6-13. Two of the 13 signalized intersections are expected to operate below the LOS D standard during both 2025 AM peak hour. The intersections are Gandy Boulevard (SR 694) at 9th Street and Roosevelt Boulevard at 9th Street. In addition, Gandy Boulevard (SR 694) at US 19 and the westbound Frontage Road at Grand Avenue (28th Street) are expected to operate below the LOS standard only during the PM peak hour.

Table 6-13
Design Year (2025) Signalized Intersections LOS
Build Alternative

Signalized Intersection	Build (2025) Peak Hour	
	AM	PM
Gandy Boulevard (SR 694) at US 19	D	E
Westbound Gandy Boulevard (SR 694) slip ramp at Grand Avenue (28th Street)	B	A
Eastbound frontage road at Grand Avenue (28th Street)	B	A
Westbound frontage road at Grand Avenue (28th Street)	C	E
Eastbound frontage road at 16th Street	B	B
Westbound frontage road at 16th Street	F	F
Eastbound frontage road at 9th Street	C*	D*
Westbound frontage road at 9th Street	D*	D*
Eastbound frontage road at Roosevelt Boulevard	B	B
Westbound frontage road at Roosevelt Boulevard	B	B
Eastbound frontage road at 4th Street	B	B
Westbound frontage road at 4th Street	B	B
Roosevelt Boulevard at 9th Street	F	F

Note: *Further review revealed that CORSIM was under estimating the operation of the intersections. Therefore, HCS was used to evaluate these intersections. Based on the HCS analyses, the intersections are expected to operate at LOS F during the AM and PM peak hours.

6.8.2.2 Design Year (2025) Arterial LOS Analysis (Build Alternative)

The LOS results from the operational analysis are summarized in Table 6-14. During the design year (2025), Gandy Boulevard (SR 694) is expected to operate at or above the acceptable LOS D conditions. Table 6-14 also reveals that a few frontage road arterial segments are expected to operate below the LOS D standard in AM or PM peak hours.

Table 6-14
Design Year (2025) Arterial LOS
Build Alternative

Arterial Segment	Build (2025) Peak Hour	
	AM	PM
North Frontage Road		
4th Street to Roosevelt Boulevard	D	D
Roosevelt Boulevard to 9th Street	A	A
9th Street to U-turn	F	C
U-turn to Gandy Boulevard (SR 694) westbound on-ramp	F	F
Gandy Boulevard (SR 694) westbound on-ramp to 16th Street	F	F
16th Street	E	D
I-275 southbound off-ramp to Gandy Boulevard (SR 694) westbound on-ramp	B	B
Gandy Boulevard (SR 694) westbound on-ramp to Gandy Boulevard (SR 694) westbound off-ramp	B	C
Gandy Boulevard (SR 694) westbound off-ramp to Grand Avenue (28th Street)	E	F
Grand Avenue (28th Street) to Gandy Boulevard (SR 694) westbound on-ramp	B	B
Gandy Boulevard (SR 694) westbound on-ramp to U-turn	C	E
U-turn to US 19	F	F
Westbound Gandy Boulevard (SR 694)		
Westbound off-ramp (east of 4th Street) to westbound on-ramp (west of U-turn)	A	A
Westbound on-ramp (west of U-turn) to I-275 southbound on-ramp	A	A
I-275 southbound on-ramp to westbound off-ramp (west of I-275)	C	B
Westbound off-ramp (west of I-275) to westbound on-ramp (east of Grand Avenue [28th Street])	A	A
Westbound on-ramp (east of Grand Avenue [28th Street]) to westbound on-ramp (west of Grand Avenue [28th Street])	A	A
Westbound on-ramp to US 19	A	A
South Frontage Road		
US 19 to eastbound Gandy Boulevard (SR 694) on-ramp	D	D
Eastbound Gandy Boulevard (SR 694) on-ramp to Grand Avenue (28th Street)	A	A
Grand Avenue to Gandy Boulevard (SR 694) off-ramp	A	A
Gandy Boulevard (SR 694) off-ramp to I-275	B	B
Gandy Boulevard (SR 694) off-ramp to U-turn	D	B
U-turn to 9th Street	E	C
9th Street Roosevelt Boulevard	A	A
Roosevelt Boulevard to 4th Street	F	F

Table 6-14 (Cont'd.)
Design Year (2025) Arterial LOS
Build Alternative

Arterial Segment	Build (2025) Peak Hour	
	AM	PM
Eastbound Gandy Boulevard (SR 694)		
US 19 to on-ramp (east of US 19)	A	A
On-ramp [east of US 19] to off-ramp (west of Grand Avenue [28th Street])	A	A
Off-ramp ramp (west of Grand Avenue [28th Street] to off-ramp [west of I-275])	A	A
Off-ramp (west of I-275) to I-275 northbound off-ramp	A	A
I-275 northbound off-ramp to off-ramp (west of U-turn)	D	C
Off-ramp (west of U-turn) to on-ramp (east of 4th Street)	A	A

6.8.2.3 Level of Service Improvement Recommendations (Build Alternative)

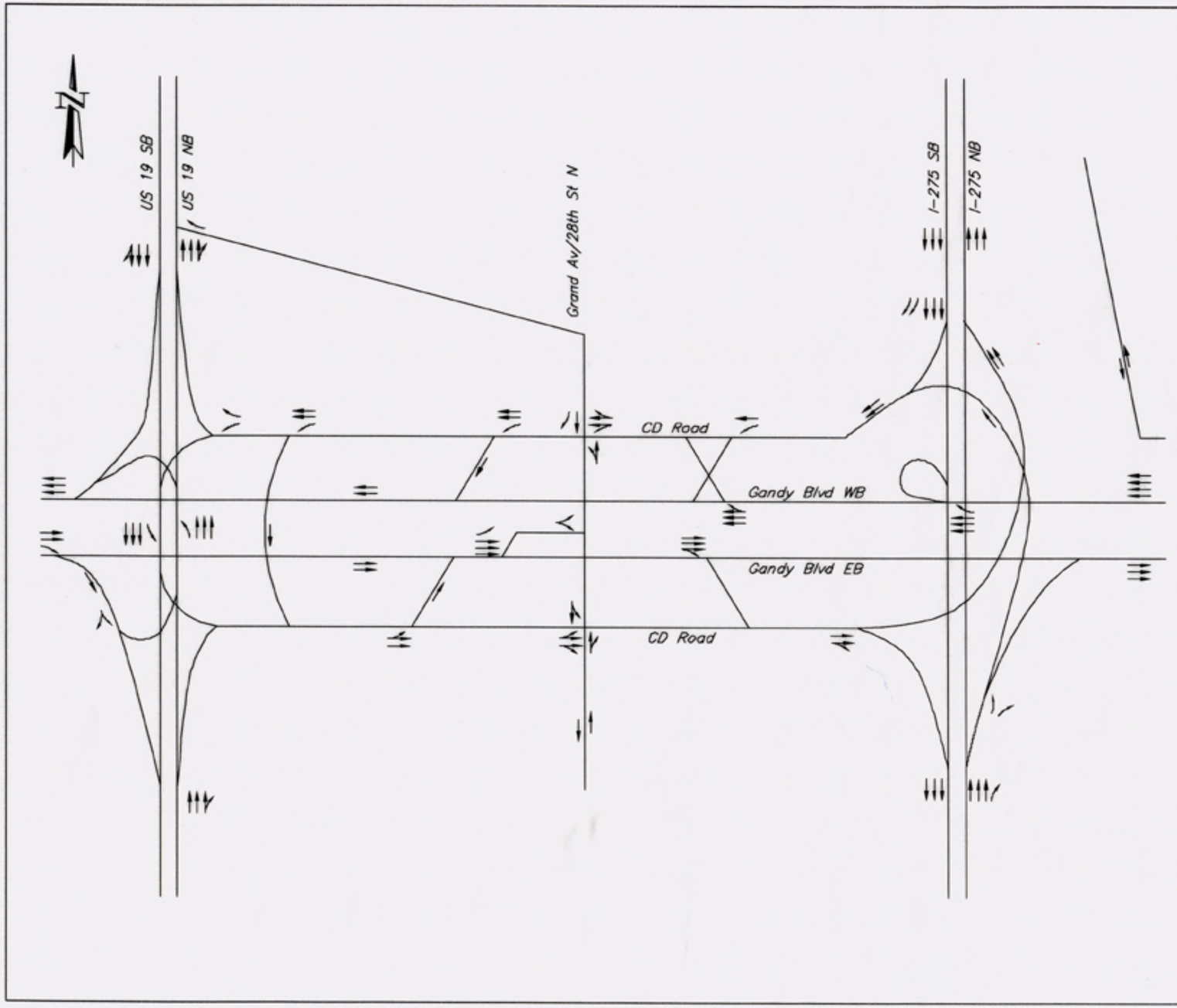
The following improvements are recommended to improve the operation of Gandy Boulevard (SR 694) in the design year (2025):

- Six-lane divided controlled access roadway
- Slip-ramps

The recommended lane geometry for Gandy Boulevard (SR 694) and the interchanges is reflected in Figures 6-14 (a and b).

6.8.3 Revised Build Alternative

As noted in Section 6.7.2.2, a public hearing was held in March 2002. Based on the comments received from the hearing a design change was incorporated into the Build Alternative. The design change was the addition of a slip-ramp from 16th Street to westbound Gandy Boulevard (SR 694). The slip-ramp allows traffic from the 16th Street area to travel westbound on Gandy Boulevard (SR 694) without using the circuitous route via the south frontage road and 9th Street. CORSIM was used to evaluate the future traffic



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) Lane Configuration (Build Alternative)

Plate A - Western Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
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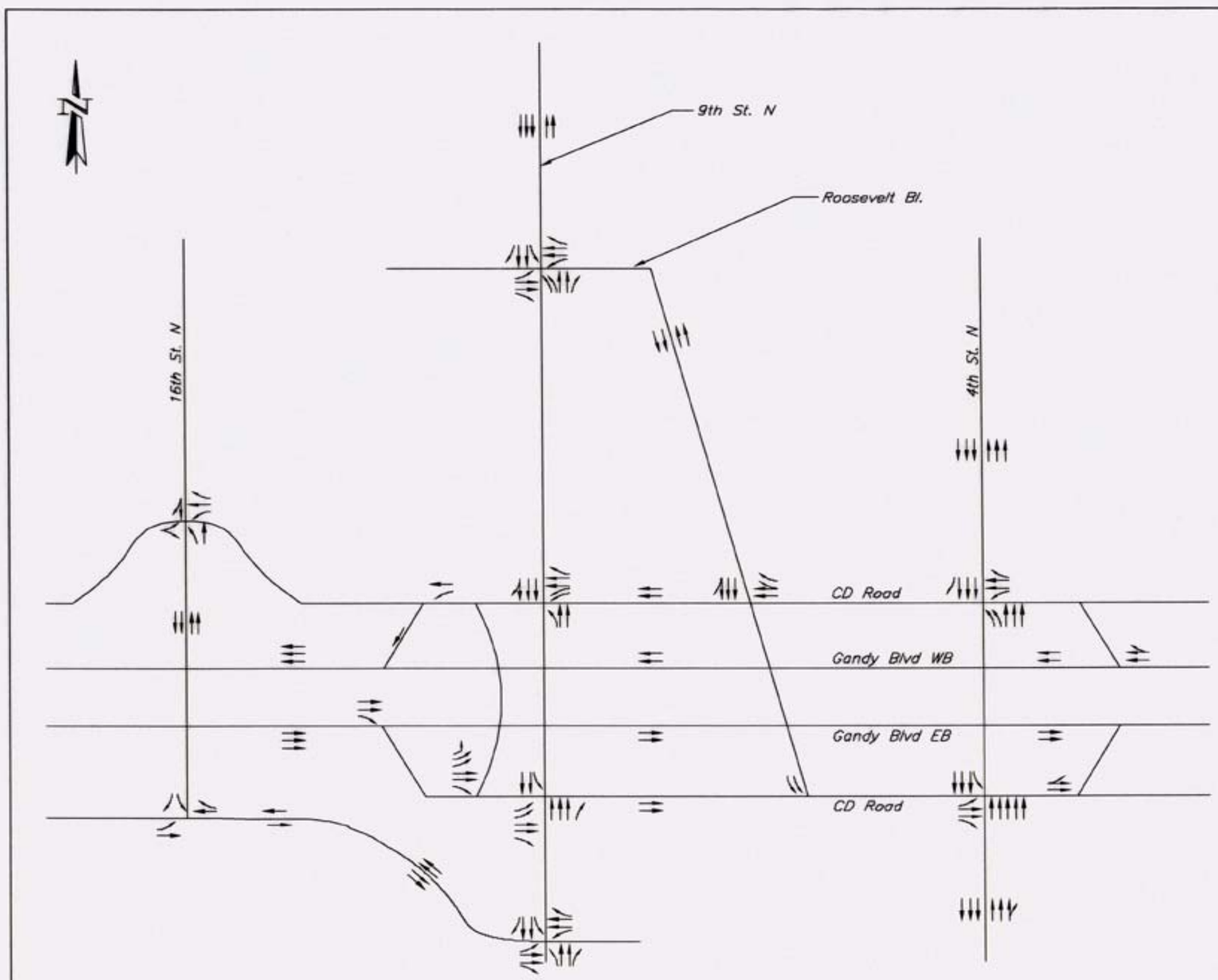
Figure 6.14a



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) Lane Configuration (Build Alternative)

Plate B - Eastern Segment

NOT TO SCALE

FPN#: 256931-1-32-01
DWG Date: January 12, 2001
REV Date: May 8, 2002

Figure 6.14b

operations for the Build Alternative. The following sections summarize the results of the CORSIM operational analyses for the revised Build Alternative. Please note only the intersections and arterial segments impacted by the design change are summarized for the operational analyses.

6.8.3.1 Design Year (2025) Signalized Intersection LOS Analysis (Revised Build Alternative)

A summary of the CORSIM operational analyses for the signalized intersections effected by the design change is provided in Table 6-15. The slip-ramp allows traffic from the 16th Street area to travel westbound on Gandy Boulevard (SR 694) without using the circuitous route via the south frontage road and 9th Street. As shown in Table 6-15, the intersections are expected to operate above the LOS D standard in 2025.

Table 6-15
Design Year (2025) Signalized Intersections LOS
Revised Build Alternative

Signalized Intersection	Revised Build (2025) Peak Hour	
	AM	PM
Westbound Frontage Road at 16th Street	B	B
Eastbound Frontage Road at 16th Street	B	B
Westbound Frontage Road at 9th Street	C	B
Eastbound Frontage Road at 9th Street	B	C

6.8.3.2 Design Year (2025) Arterial LOS Analysis (Build Alternative)

The LOS results of the operational analysis for the arterials effected by the revised Build Alternative are summarized in Table 6-16. As shown in Table 6-16, the arterial segments are expected to operate at LOS D or better during the year 2025.

Table 6-16
Design Year (2025) Arterial LOS
Revised Build Alternative

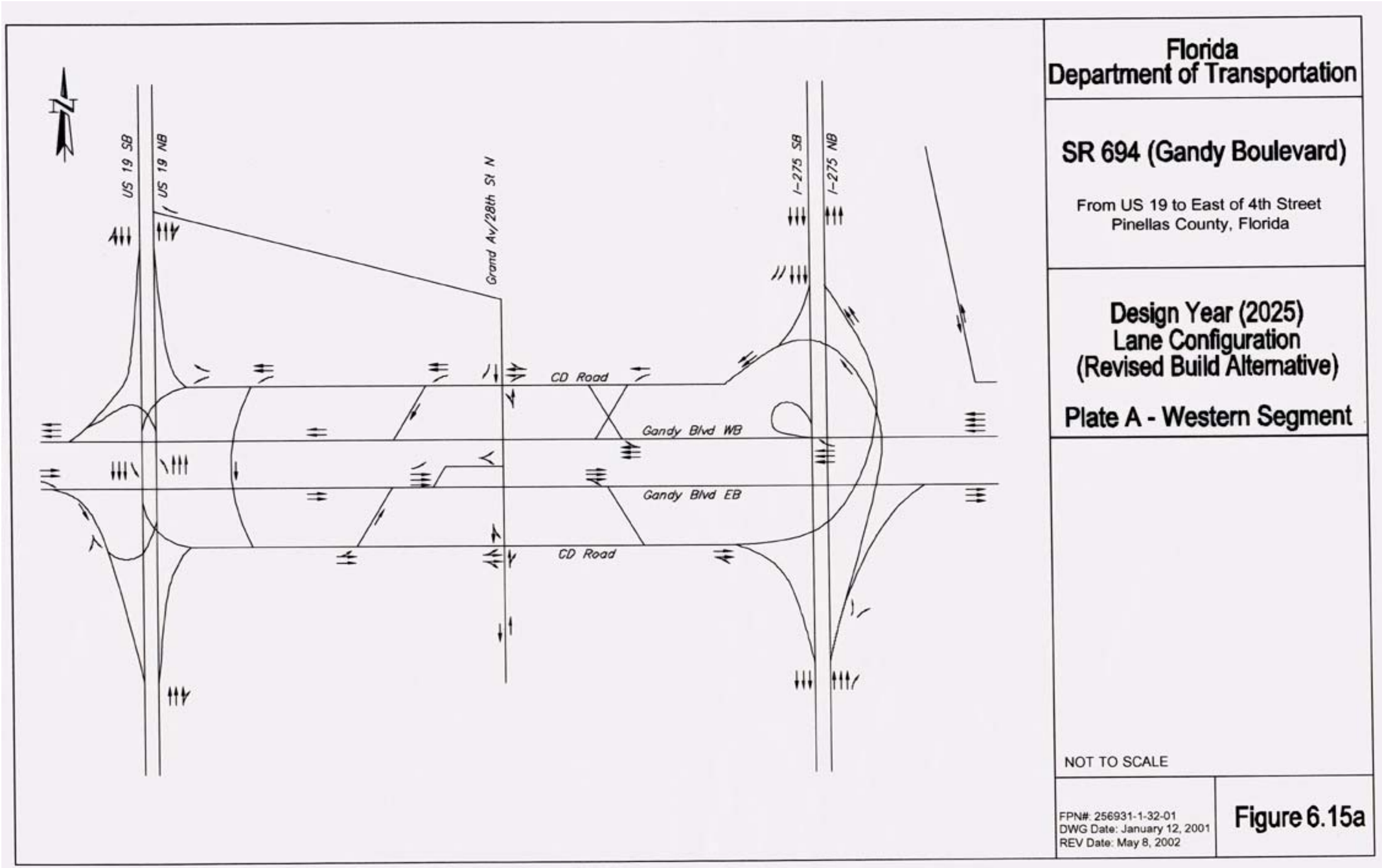
Arterial Segment	Revised Build (2025) Peak Hour	
	AM	PM
North Frontage Road		
9th Street to U-turn	D	C
U-turn to westbound Gandy Boulevard (SR 694) on-ramp	D	D
Westbound Gandy Boulevard (SR 694) on-ramp to 16th Street	D	D
Westbound Gandy Boulevard (SR 694)		
Westbound on-ramp west of 16th Street to I-275 southbound on-ramp	C	C
South Frontage Road		
16th Street to 9th Street	D	C

6.8.3.3 Level of Service Improvement Recommendations (Revised Build Alternative)

The following recommended improvements are the same as the Build Alternative with one exception, the addition of an on-ramp from 16th Street to westbound Gandy Boulevard (SR 694):

- Six-lane divided controlled access roadway
- Ramps (with additional ramp from 16th Street to Gandy Boulevard)

The recommended lane geometry and interchanges for the Gandy Boulevard (SR 694) are reflected in Figures 6-15 (a and b) and the alternative design concepts are located in Appendix A.



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025) Lane Configuration (Revised Build Alternative)

Plate A - Western Segment

NOT TO SCALE

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DWG Date: January 12, 2001
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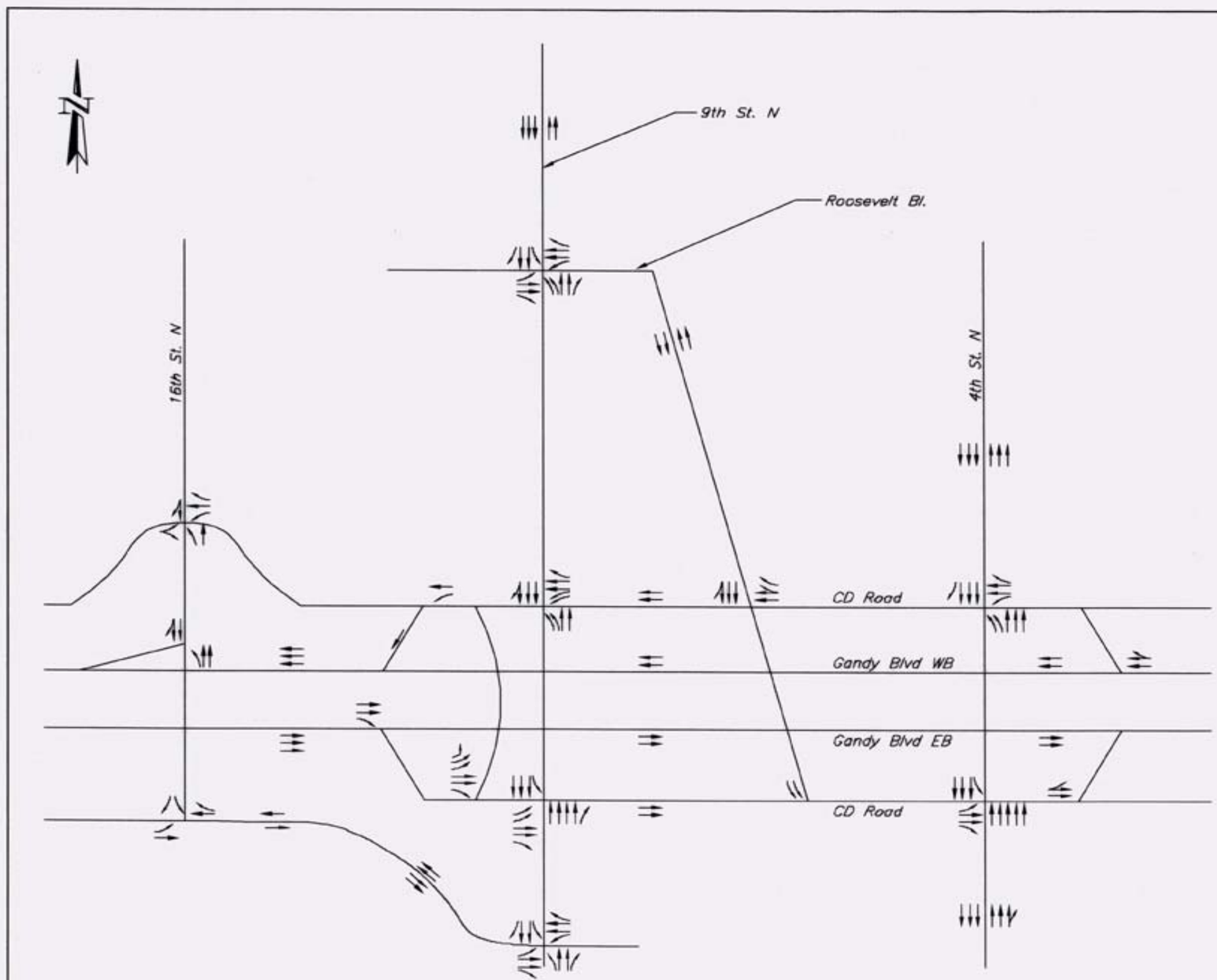
Figure 6.15a



Florida Department of Transportation

SR 694 (Gandy Boulevard)

From US 19 to East of 4th Street
Pinellas County, Florida

Design Year (2025)
Lane Configuration
(Revised Build Alternative)

Plate B - Eastern Segment

NOT TO SCALE

FPN#: 256931-1-32-01
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Figure 6.15b

6.9 ACCESS MANAGEMENT UNDER BUILD ALTERNATIVES

6.9.1 Build Alternative

In order to meet access management criteria as shown in Tables 6-2 and 6-3, an Access Management Plan was developed for the proposed improvements. Under the Build Alternative, the mainline of Gandy Boulevard (SR 694) has no at-grade intersections within the project limits. Consequently, access management concerns are localized at the following interchanges with Gandy Boulevard (SR 694):

- US 19 Interchange (existing),
- Modified I-275 Interchange,
- New 9th Street Interchange, and
- New Roosevelt Boulevard/4th Street Interchange.

6.9.1.1 US 19/Gandy Boulevard (SR 694) Interchange

The revised Build Alternative for Gandy Boulevard (SR 694) does not modify the geometry at the US 19/Gandy Boulevard (SR 694) interchange. Therefore the deficiencies listed in section 3.1.1 and Table 6-7 will still exist.

6.9.1.2 Modified I-275 Interchange

With the proposed raised vertical profile of Gandy Boulevard (SR 694), no median openings or connections will be within the influence area of the interchange. Consequently, no access conflicts are anticipated within the interchange area.

6.9.1.3 New 9th Street Interchange

The speed limit on 9th Street both north and south of Gandy Boulevard (SR 694) is 45 mph. The posted speed limit and the standards in section 6.3 were combined to develop the minimum spacing requirements in Table 6-17.

Table 6-17
Review of Median/Connection Opening Spacing at
New 9th Street Interchange

Access Description	Distance		Meets Interchange Access Management Standards
	Measured	Required	
Median Opening Spacing			
From eastbound off-ramp to first median opening south of Gandy Boulevard (SR 694)	310 ft.	1,320 ft.	No
From westbound frontage road to first median opening north of Gandy Boulevard (SR 694)	580 ft.	1,320 ft.	No
Connection Spacing			
From eastbound off-ramp to first connection south of Gandy Boulevard (SR 694) and on the west side of 9th Street	310 ft.	440 ft.	No
From westbound frontage road to first connection north of Gandy Boulevard (SR 694) and on the east side of 9th Street	220 ft.	440 ft.	No

6.9.1.4 New Roosevelt Boulevard/4th Street Interchange

The speed limit on 4th Street south of Gandy Boulevard (SR 694) is 40 mph. North of Gandy Boulevard (SR 694), the speed limit on 4th Street remains at 40 mph until approximately the first driveway connection on the east side of the roadway. North of this driveway connection the posted speed limit is 50 mph. The posted speed limits and the standards in section 6.3 were combined to develop the minimum spacing requirements in Table 6-18.

Table 6-18
Review of Median/Connection Opening Spacing at
New Roosevelt Boulevard/4th Street Interchange

Access Description	Distance		Meets Interchange Access Management Standards
	Measured	Required	
Median Opening Spacing			
From westbound off-ramp to first median opening north of Gandy Boulevard (SR 694)	815 ft.	1,320 ft.	No
From eastbound frontage road to first median opening south of Gandy Boulevard (SR 694)	430 ft.	1,320 ft.	No
Connection Spacing			
From westbound off-ramp to first connection north of Gandy Boulevard (SR 694) and on the east side of 4th Street	470 ft.	440 ft.	Yes
From eastbound frontage road to first connection south of Gandy Boulevard (SR 694) and on the west side of 4th Street	430 ft.	440 ft.	No

6.9.2 Revised Build Alternative

The access management conditions for the revised Build Alternative are the same as the Build Alternative conditions described in the previous section.

6.10 QUEUE LENGTHS

6.10.1 Build Alternative

The queue lengths were determined by using the computer program CORSIM. The program reports both average and maximum queue lengths. The maximum queue lengths were used to develop the conceptual design for the Gandy Boulevard (CR 694) Build Alternative. The maximum queue lengths for the signalized intersections during the 2025 AM peak hour are summarized in Table 6-19. The PM peak hour queue lengths are summarized in Table 6-20.

Table 6-19
Design Year (2025) Queue Lengths
Build Alternative – AM Peak Hour

Intersection	2025 AM Peak Hour Maximum Queue Length (feet)											
	Southbound			Westbound			Northbound			Eastbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Gandy Boulevard (SR 694) at US 19	880	1562	0	198	N/A	220	506	1386	110	220	N/A	88
Gandy Boulevard (SR 694) off-ramp at Grand Avenue (28th Street)	N/A	88	N/A	N/A	N/A	N/A	N/A	132	N/A	154	N/A	N/A
Westbound Frontage Road at Grand Avenue (28th Street)	N/A	154	110	N/A	572	154	44	110	N/A	N/A	N/A	N/A
Eastbound Frontage Road at Grand Avenue (28th Street)	0	110	N/A	N/A	N/A	N/A	N/A	44	N/A	22	22	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 16th Street	264	N/A	22	N/A	22	22	N/A	N/A	N/A	22	22	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 16th Street	N/A	286	N/A	594	638	N/A	44	44	N/A	44	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 9th Street	242	352	N/A	N/A	N/A	N/A	N/A	242	N/A	286	286	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 9th Street	N/A	176	N/A	0	220	N/A	484	440	N/A	N/A	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at Roosevelt Boulevard	88	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	242	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at Roosevelt Boulevard	N/A	176	N/A	N/A	88	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 4th Street	132	110	N/A	N/A	N/A	N/A	N/A	198	N/A	176	88	N/A

Table 6-19 (Cont.)
Design Year (2025) Queue Lengths
Build Alternative – AM Peak Hour

Intersection	2025 AM Peak Hour Maximum Queue Length (feet)											
	Southbound			Westbound			Northbound			Eastbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Westbound Gandy Boulevard (SR 694) off-ramp at 4th Street	N/A	110	198	176	176	66	220	132	N/A	N/A	N/A	N/A
Roosevelt Boulevard at 9th Street	88	286	1144	88	1540	88	484	594	396	374	1320	1276

Table 6-20
Design Year (2025) Queue Lengths
Build Alternative – PM Peak Hour

Intersection	2025 PM Peak Hour Maximum Queue Length (feet)											
	Southbound			Westbound			Northbound			Eastbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Gandy Boulevard (SR 694) at US 19	902	164	22	198	N/A	110	506	1364	0	220	N/A	88
Gandy Boulevard (SR 694) off-ramp at Grand Avenue (28th Street)	N/A	110	N/A	N/A	N/A	N/A	N/A	66	N/A	44	N/A	N/A
Westbound Frontage Road at Grand Avenue (28th Street)	N/A	770	264	N/A	726	66	44	110	N/A	N/A	N/A	N/A
Eastbound Frontage Road at Grand Avenue (28th Street)	0	132	N/A	N/A	N/A	N/A	N/A	44	N/A	22	22	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 16th Street	286	N/A	22	N/A	22	22	N/A	N/A	N/A	22	22	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 16th Street	N/A	946	N/A	22	462	N/A	44	22	N/A	22	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 9th Street	242	418	N/A	N/A	N/A	N/A	N/A	242	N/A	264	286	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 9th Street	N/A	176	N/A	0	220	N/A	484	440	N/A	N/A	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at Roosevelt Boulevard	110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	286	N/A

Table 6-20 (Cont'd.)
Design Year (2025) Queue Lengths
Build Alternative – PM Peak Hour

Intersection	2025 PM Peak Hour Maximum Queue Length (feet)											
	Southbound			Westbound			Northbound			Eastbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Westbound Gandy Boulevard (SR 694) off-ramp at Roosevelt Boulevard	N/A	176	N/A	N/A	132	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 4th Street	132	88	N/A	N/A	N/A	N/A	N/A	110	N/A	198	154	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 4th Street	N/A	132	176	176	176	88	176	88	N/A	N/A	N/A	N/A
Roosevelt Boulevard at 9th Street	110	264	132	132	924	66	198	308	286	594	1320	1254

6.10.2 Revised Build Alternative

As noted earlier CORSIM was used to reevaluate the operation analyses for the revised Build Alternative. The CORSIM output was compared for both Build Alternatives. The comparison revealed that the queue lengths provided in the previous section were the same for the revised Build Alternative except for the intersection listed in the following tables. The maximum queue lengths for the signalized intersections during the 2025 AM peak hour are summarized in Table 6-21. The PM peak hour queue lengths are summarized in Table 6-22. These maximum queue lengths were incorporated into the conceptual design for the Gandy Boulevard (SR 694) revised Build Alternative.

Table 6-21
Design Year (2025) Queue Lengths
Revised Build Alternative – AM Peak Hour

Intersection	2025 AM Peak Hour Maximum Queue Length (feet)											
	Southbound			Westbound			Northbound			Eastbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Eastbound Gandy Boulevard (SR 694) off-ramp at 16th Street	154	N/A	22	N/A	264	0	N/A	N/A	N/A	22	22	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 16th Street	N/A	110	N/A	154	132	N/A	88	66	N/A	22	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 9th Street	66	88	N/A	N/A	N/A	N/A	N/A	242	N/A	198	176	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 9th Street	N/A	176	N/A	44	132	N/A	308	264	N/A	N/A	N/A	N/A

Table 6-22
Design Year (2025) Queue Lengths
Revised Build Alternative – PM Peak Hour

Intersection	2025 PM Peak Hour Maximum Queue Length (feet)											
	Southbound			Westbound			Northbound			Eastbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Eastbound Gandy Boulevard (SR 694) off-ramp at 16th Street	198	N/A	22	N/A	220	0	N/A	N/A	N/A	22	22	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 16th Street	N/A	308	N/A	286	66	N/A	132	44	N/A	22	N/A	N/A
Eastbound Gandy Boulevard (SR 694) off-ramp at 9th Street	242	418	N/A	N/A	N/A	N/A	N/A	242	N/A	264	286	N/A
Westbound Gandy Boulevard (SR 694) off-ramp at 9th Street	N/A	198	N/A	88	198	N/A	352	198	N/A	N/A	N/A	N/A

6.11 REFERENCES

1. Design Traffic Memorandum; Gannett Fleming, Inc.; May 2002.

2 US 19 Access Management Study from 54th Avenue South to State Route 60; DKS Associates: Tampa, Florida; June 2001.

3. 1994 Highway Capacity Manual (HCM), Special Report 209; Transportation Research Board; Washington, D.C.; 1994, Updated 1998.

4. Pinellas County Comprehensive Plan, Transportation Element; Pinellas County Planning Department; Clearwater, Florida; Adopted February 17, 1998, Last Amended 1999.

5. Pinellas County MPO 2020 Long Range Transportation Plan; Pinellas County MPO; Pinellas County, Florida; December 1998, Revised May 28, 1999.

6. Major Investment Study; Florida Department of Transportation; 2001.

SECTION 7
CORRIDOR ANALYSIS

7.1 EVALUATION OF ALTERNATE CORRIDORS

In an effort to identify potential alternate corridors that could serve the future travel demand of the Gandy Boulevard (SR 694) Corridor, the following options were considered:

- Improvement to another east-to-west roadway within the region;
- Enhancement of transit service within the existing Gandy Boulevard (SR 694) Road Corridor; and
- Roadway improvement of the existing Gandy Boulevard (SR 694) Corridor.

7.1.1 Improvement of Parallel Roadways

The Gandy Boulevard (SR 694) Corridor is highly developed, primarily with office, light industrial, and residential land uses adjacent to the existing ROW. A review of the existing roadway network in the immediate vicinity of Gandy Boulevard (SR 694) revealed the presence of an east-west arterial roadway located approximately 2.0 mi north and south of Gandy Boulevard (SR 694). The arterial roadway to the north is 102nd Avenue/Bryan Dairy Road/118th Avenue (CR 296). Currently, the CR 296 Extension is being built as a six-lane partially controlled access roadway and will connect with I-275 at the I-275/Roosevelt Boulevard interchange. The roadway to the south of Gandy Boulevard (SR 694) connecting to I-275 is 54th Avenue. Fifty-fourth Avenue is planned to be improved to a six-lane divided roadway from I-275 to US 19. West of US 19 to 49th Street, 54th Avenue is planned to be improved to a four-lane divided facility to connect with the existing four-lane divided from 49th Street to 66th Street (SR 693).

Improvement to any of the parallel existing roadways, in lieu of improving Gandy Boulevard (SR 694), would not address the projected traffic demand along Gandy Boulevard (SR 694) and is, therefore, not considered viable.

7.1.2 Enhancement of Transit Service

PSTA provides existing transit service along the Gandy Boulevard (SR 694) Corridor. There is one route (Route 74) that provides regular transit service along the study corridor. A brief description of the route is provided in Section 4.1.12.

To plan for future transit service, PSTA continues to monitor and evaluate all routes in an effort to provide more efficient and effective service. As indicated in the Pinellas County Comprehensive Plan, Transportation Element[1], routes that fall below 75% of the system averages for passenger productivity and farebox recovery ratios, are monitored for two consecutive quarters. PSTA then prepares recommendations on improving service such as route realignments or scheduling modifications. PSTA monitors routes for at least six months before adjustments, such as headway improvement or the consolidation of existing fixed routes, are implemented.

The existing transit service was adopted for the 2015 Cost Feasible Plan; therefore, service levels will remain at current 1995 levels with no identified major service improvements other than bus and capital equipment replacements and enhancements. However, since the Pinellas County Comprehensive Plan, Transportation Element[1] and MPO policies provide for continued review of the transit operations to determine if changes to route structures can be made to enhance the existing operations, PSTA has already expanded its operations beyond the system included in the 2015 plan. Therefore, it appears that existing transit service along the Gandy Boulevard (SR 694) Corridor will not be changed significantly in the next 15 years. In addition, since transit passengers account for a minimal amount of person trips in the Gandy Boulevard (SR 694) Corridor, transit service enhancement alone would not be considered a viable alternative to roadway improvements.

7.1.3 Improvement of the Existing Corridor

The existing facility consists of a four-lane divided roadway. Much of the existing ROW along Gandy Boulevard (SR 694) is sufficient to accommodate a six-lane divided highway facility without purchasing additional ROW, with the exception of the proposed interchange locations, retention ponds, right turn lanes, and corner clips. The need for improvements along this corridor is also consistent with the Pinellas County Comprehensive Plan, Transportation Element[1] and complies with applicable design standards. Therefore, roadway improvements to the existing corridor are a viable corridor alternative.

7.2 CORRIDOR SELECTION

In summary, the foregoing evaluation of feasible alternative corridors focused on improvement of parallel roadways and enhancement of transit service, as compared with improvement of the existing corridor.

In conclusion, the existing corridor is the recommended corridor for further consideration, and a more detailed development and evaluation of alternative corridors, such as with an impacts evaluation matrix, appear to be unnecessary. Therefore, the most feasible corridor alternative for this PD&E Study is roadway improvements within the existing Gandy Boulevard (SR 694) Corridor.

7.3 REFERENCES

1. Pinellas County Comprehensive Plan, Transportation Element; Pinellas County Planning Department; Clearwater, FL; Adopted February 17, 1998, Last Amended 1999.

SECTION 8
ALTERNATIVES ANALYSIS

To develop an improved interstate facility for Gandy Boulevard (SR 694) that is in the best overall public interest, engineering, environmental, and economic factors must be taken into consideration. The improved facility should be designed to safely and efficiently accommodate the projected design year vehicular traffic. The alignment should be placed so as to optimize the possibilities for construction staging and traffic control. All of these criteria have a direct bearing on the selection of the preferred design concept.

Included in the following sections are descriptions of the alternate improvement concepts developed for this project and the evaluation methods used to compare the alternatives. These descriptions are preceded by a presentation of the advantages and disadvantages of the No-Build Alternative.

8.1 NO-BUILD ALTERNATIVE

The No-Build Alternative consists of canceling the project or postponing improvements of Gandy Boulevard (SR 694) beyond the design year 2020. Certain advantages associated with the implementation of the No-Build Alternative, include:

- No new construction or ROW costs,
- No disruption to the existing land uses due to construction activities,
- No disruption to traffic due to construction activities, and
- No ROW acquisitions or relocations.

The disadvantages of the No-Build Alternative include:

- Minimizing or preventing the increase of economic viability and community values,
- Unacceptable LOS on the existing facility,
- Increased traffic congestion causing increased road user cost due to travel delay,
- Deterioration of air quality caused by traffic congestions and delays,
- Deterioration of the existing safety deficiencies due to the increase in traffic,
- Deterioration in the emergency service response time, and
- Increased roadway maintenance costs.

Postponement of the project will increase the overall project cost due to the current escalation of construction and ROW costs.

8.2 TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVE

The Transportation System Management (TSM) alternative, which consists of low cost capital improvements that maximize the efficiency of the present system, was also considered for this project.

TSM activities currently in place within the Greater Tampa Bay Area, which may reduce single occupancy vehicular trips and improve operational efficiency within the project corridor, include the following:

- Active "Transportation Management Organizations" within Pinellas County, which provide car-pooling, van sharing, mass transit incentives, and flextime support services to businesses and the general public.
- Frequent bus service within the corridor, which is in compliance with the "Americans with Disabilities Act." Additionally, the transit system has implemented various improvements and/or incentives to increase ridership. Such measures include express service, bicycle carrying racks for the buses, a bus shelter program, bus turnouts, and reduced fares for students and the elderly.

However, in order to accommodate future travel demand along the Gandy Boulevard (SR 694) Corridor, TSM activities alone were not considered a viable alternative to roadway improvements.

8.3 ALTERNATIVES DEVELOPMENT

8.3.1 Project Background

In June 1988, the FDOT initiated a PD&E Study for improving Gandy Boulevard (SR 694) from US 19 to 4th Street in Pinellas County. A Draft Environmental Assessment (EA) for the PD&E Study was submitted to the FHWA in August 1995. The Draft EA was not approved, since the FHWA requested that a Gandy Corridor Major Investment Study[1] (MIS) be completed prior to the approval of any environmental documents. A byproduct of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, major investment studies were required for large-scale transportation projects of regional impact.

In August 1990, the FDOT initiated a separate PD&E Study evaluating Gandy Boulevard (SR 694) from 4th Street in Pinellas County east to Dale Mabry Highway in Hillsborough County, including the western terminus of the Lee Roy Selmon Expressway. A Final EA was submitted to the FHWA for the eastern PD&E Study in May 1993 and was approved in October 1993. After a Public Hearing was held in December 1993, the Draft Finding of No Significant Impact (FONSI) was prepared. However, the FONSI was not submitted to FHWA because the MIS[1] had not been completed.

To comply with the ISTEA requirements, FDOT initiated the MIS[1] in July 1996. The MIS[1] was one of three major investment studies that interrelate in the immediate region. The Hillsborough County MPO, jointly with the Hillsborough Area Regional Transit Authority (HARTline), initiated a mobility MIS[1] in mid-1996 examining issues related to mobility in and through Hillsborough County, including connections to Polk, Pasco, and Pinellas Counties. The MIS[1] was concluded in April 1998 and the results have been incorporated in the Hillsborough County 2020 Long Range Transportation Plan (LRTP). A 30-mile rail

corridor extending from the University of South Florida (USF) to Port Tampa, with extensions out to the Westshore business district, Tampa International Airport/Hillsborough Community College (TIA/HCC) and St. Joseph's Hospital has been advanced for further study.

Similarly, the Pinellas County MPO initiated a mobility MIS[1] to extend to US 19 in mid-1997. Recognizing that the individual MIS[1] cannot address regional transportation issues independently, the study sponsors developed and signed a Memorandum of Understanding (MOU) to coordinate regional improvements with a potential connection via the Gandy Corridor. Multi-modal strategies for inclusion in the MIS[1] were to be provided by both the Hillsborough and Pinellas studies.

A recommended strategy from the Pinellas MIS[1] was initially due in 1998 but the recommendations have been delayed until some future date. Therefore, to continue progress with the Gandy Boulevard (SR 694) Corridor, the concepts evaluated in the MIS[1] study were further developed to accommodate the potential future inclusion of rail transit, should the Pinellas MIS[1] select the Gandy Boulevard (SR694) Corridor as a transit connection to Hillsborough County. However, since the Gandy MIS[1] selection of the two reasonable and feasible strategies, the Pinellas MIS[1] concluded recently that the Gandy Boulevard (SR694) Corridor is not the preferred transit corridor. Therefore, transit was not evaluated for the Gandy Boulevard (SR 694) Corridor.

As mentioned previously, prior to conducting the MIS[1], a PD&E Study for the Gandy Boulevard (SR 694) Corridor in Pinellas County was initiated. The study's project limits were from west of US 19 in the City of Pinellas Park to a point just east of 4th Street.

Discontinued "Western" PD&E Study

In June 1988, the FDOT initiated the PD&E Study for improving Gandy Boulevard (SR 694) from US 19 to 4th Street in Pinellas County (western EA). The traffic study for the project considered three alternative configurations of expressway lanes, collector/distributor (C/D) roads, and ramps within the corridor. The preliminary concepts labeled "A", "B", and

"C" were refined during the study process to develop concepts "D", "E", and "F". Concepts "D", "E", and "F" were presented at the Alternatives Public Workshop on November 16, 1993. The concepts are described below.

Concept "D"

This concept provides C/D and/or frontage roads along the corridor except between I-275 and 9th Street. Access between the C/D roads and the expressway lanes is greater than in Concept "E" which in turn balances projected traffic volumes. Ramps at the I-275 interchange are provided for both the expressway lanes and the C/D roads of Gandy Boulevard (SR 694), a full diamond interchange is provided at 9th Street, and braided ramps are provided between the expressway lanes and frontage roads in the vicinity of the Gateway Centre entrance. Access to Roosevelt Boulevard is enhanced by providing a diamond interchange at 9th Street. Unlike Concept "F", a direct connection is not provided for the Roosevelt Boulevard frontage roads and 4th Street, which relieves congestion at the 4th Street intersection but reduces access to properties that are in the area.

Concept "E"

This concept provides C/D roads between US 19 and I-275 (and I-275 eastbound to 9th Street) and limits access to the expressway lanes, thus favoring the expressway through movements from US 19 and Roosevelt Boulevard to the Gandy Bridge. In most portions of the project, the projected traffic is greater on the C/D roads than on the expressway lanes. There is no direct interchange between I-275 and the expressway lanes; however, ramps are provided for all movements between I-275 and the C/D roads. Roosevelt Boulevard connects directly to the expressway lanes by flyovers, and contains frontage roads and a diamond interchange at 9th Street. There is no connection between Roosevelt Boulevard and 4th Street. Ramps are provided from the C/D roads to the expressway lanes of Gandy Boulevard (SR 694) to the east of US 19, and east of 9th Street.

Concept "F"

This concept provides C/D and/or frontage roads along the corridor except between I-275 and 9th Street. Access between the C/D roads and the expressway lanes is greater than in Concept "E" which in turn balances projected traffic volumes. Ramps at the I-275 interchange are provided for both the expressway lanes and the C/D roads of Gandy Boulevard (SR 694), a full diamond interchange is provided at 9th Street, and braided ramps are provided between the expressway lanes and frontage roads in the vicinity of the Gateway Centre entrance. Access to Roosevelt Boulevard is enhanced by providing a diamond interchange at 9th Street, and providing frontage roads that connect with 4th Street and Gandy Boulevard (SR 694). The direct connection of the Roosevelt Boulevard frontage roads to 4th Street differs from Concept "D", which improves access to properties in the area but requires two additional traffic signals.

These concepts meet the 2010 Long Range Plan requirements by providing a six-lane expressway, or a four-lane expressway with C/D roads and/or frontage roads, throughout the corridor. It should be noted that the three concepts create different volumes of projected year 2010 traffic, and are projected to operate at different LOS along portions of the corridor.

Following the Alternatives Public Workshop on November 16, 1993, the public's comments were reviewed and a Recommended Alternative was selected by FDOT. The Recommended Alternative selected was Alternative "F" with modifications described as follows:

- The northbound dual left turn lane at the Gandy Boulevard (SR 694)/4th Street intersection was increased to three lanes to better accommodate traffic (immediately after this left turn the traffic will split between Gandy Boulevard [SR 694] westbound and Roosevelt Boulevard northbound);
- The FDOT's Value Engineering Study (January 12, 1994) modified the proposed Gateway interchange to remove the braided ramps. The on ramps and off-ramps between the expressway and C/D roads crossed in a braided fashion west of the Gateway interchange area. By applying realignment, these ramps were combined with the interchange ramps so that the additional crossing movements were not

required (thus eliminating the need for long structures immediately outside of the interchange);

- The expressway alignment was slightly shifted to the north in a portion of the project to avoid a business impact (Taco Metals, east of the proposed Gateway interchange); and
- Adding an additional access point along the expressway (between the I-275 and 9th Street interchanges) was considered to provide direct access to a large proposed commercial development (Metropoint). However, due to the effect this access point would have on the nearby interchange movements, this consideration was omitted from the Recommended Alternative.

1996 Major Investment Study (MIS)

A MIS[1] was undertaken in 1996 by the FDOT to study ways to enhance mobility in the Gandy Corridor between the Dale Mabry Highway intersection in Hillsborough County and US 19 in Pinellas County.

The MIS[1] combined two separate PD&E studies along Gandy Boulevard (SR 694) in Hillsborough and Pinellas Counties that were underway in the early 1990s. The MIS[1] documented the results of the transportation study over a five-year period from 1996 to 2001.

As a result of the extensive public involvement and coordination associated with the MIS[1], Pinellas County selected a single strategy. The methodology for selecting the preferred strategy is described below.

Gandy Corridor MIS[1] Evaluation

A Draft Evaluation Report[2], documenting the development of the alternative concepts, was prepared as part of the documentation required to complete the MIS[1]. The limits of the MIS[1] were from the intersection of Dale Mabry Highway in Hillsborough County to just west of the US 19 interchange in Pinellas County. The study limits were divided into four corridor segments that consisted of the following:

- Lee Roy Selmon Expressway to Gandy Bridge (Hillsborough County);
- Gandy Bridge;
- Gandy Bridge to 4th Street (Pinellas County); and
- 4th Street to US 19 (Pinellas County).

The Draft Evaluation Report[2] described the pre-screening process; defined the Screen One and Screen Two measures of effectiveness criteria, analysis, and results; identified the conceptual alternatives technically reasonable for advancement to the development phase; and outlined the public involvement that assisted in shaping the results.

The evaluation criteria for the two-screen process were developed so that each alternative concept could be compared against the others in terms of potential impacts and/or performance. At the initiation of the study, a Problem Statement was developed by the MIS[1] Oversight Group (representative stakeholders) and then modified by the public. The three-part Problem Statement was identified as follows:

MIS[1] Problem Statement

- The existing transportation facilities (including roads, transit, bicycle, and pedestrian) in the Gandy Corridor are insufficient to meet the public's travel needs. The problem is intensified by the lack of transportation choices for those who travel through or within the corridor.

- The Gandy Corridor does not currently provide effective or efficient alternatives to I-275 across Tampa Bay, linking South Pinellas County with Hillsborough County, especially the Tampa Central Business District.
- There are unmet needs for improved emergency evacuation, especially for the South Pinellas County area.

Based upon the Problem Statement, the following four study goals were established:

- Maintain or improve the quality of life;
- Provide a transportation solution that minimizes adverse effects to the environment;
- Provide effective and efficient mobility for the forecasted travel demand; and
- Provide a cost-effective transportation investment strategy.

A total of 50 conceptual alternatives, divided among the four corridor segments, were initially developed as part of the MIS[1]. From the above goals, the following four principal measures of effectiveness (MOE) were established for the pre-screening, Screen One and Screen Two evaluations:

- Community MOE – Evaluates the potential effects of alternative concepts on community issues such as cohesion, access, relocations, noise, and visual elements.
- Environment MOE – Evaluates the potential effects on wetlands, floodplains, air, and stormwater runoff.
- Mobility MOE – Evaluates the potential effects on operational efficiency, regional congestion, pedestrians and bicyclists, intermodal connections, systems management, and trips diverted from I-275.
- Economy MOE – Evaluates the cost-effectiveness of the alternative concepts.

During the pre-screening process, the Oversight Group (representative stakeholders) reduced the set of 50 conceptual alternatives to 22. Due to the many-segmented concepts, modeling was not performed as a method of evaluation for the pre-screening, rather each concept was

qualitatively measured against the MOE criteria. Screen Two included modeling as well as more extensive quantitative assessments where appropriate.

The Screen One evaluation resulted in the reduction of the 22 conceptual alternatives to seven Build Alternatives, plus a No-Build Alternative. These conceptual alternatives were linked to form four individual, more comprehensive "strategies." Based on community input, a variation on one of the typical sections was developed for a total of five strategies to be evaluated during Screen Two and presented to the community. Each of the alternative concepts from Hillsborough County was coupled with the alternative concepts from Pinellas County. The No-Build Alternative was included as a separate strategy. In each Build strategy the Pinellas County alternative remained the same. The modified Alternative F was used for each strategy analyzed in Screen Two.

Preferred Strategy for Pinellas County

Utilizing the information developed in the PD&E studies and the MIS[1], a preferred strategy was previously selected. The strategy includes a four-lane freeway with frontage roads and an overpass at Gateway Center Parkway, between I-275 and 9th Street, and the Dog Track; a full interchange at I-275; half diamond interchanges at 4th Street, 9th Street, and Roosevelt Boulevard; a half diamond interchange at San Martin Boulevard and 3,000 ft. from the west end of the bridge; and an overpass at the west end of the causeway area.

This preferred strategy was advanced to the current PD&E phase along with the No-Build option. This is now referred to as the Recommended Alternative.

8.3.2 Project Segmentation

For PD&E Studies, projects are divided into segments based on the existing land use, interchange locations, and projected traffic volumes for the design year. Because the portion of Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street contained similar land use characteristics and projected traffic volumes, this project was divided into four segments

based on the new interchanges that were proposed in the corridor. The segments of the project are identified as follows:

Segment A: West of US 19 to west of Grand Avenue
Segment B: West of Grand Avenue to west of I-275
Segment C: West of I-275 to west of 9th Street
Segment D: West of 9th Street to east of 4th Street

8.3.3 Proposed Typical Sections

This section of the report describes and presents graphically the proposed typical sections, lane configuration, and alignment developed for the Recommended Alternative in this PD&E Study. This study evaluated engineering and environmental issues associated with an urban arterial alternative along the Gandy Boulevard (SR 694) Corridor from west of the US 19/Gandy Boulevard (SR 694) interchange to east of 4th Street.

8.3.4 Segment A

The limits of Segment A are along Gandy Boulevard (SR 694) from west of US 19 to west of Grand Avenue. The existing typical sections (Figures 4-1 through 4-4) are a divided six-lane roadway with open drainage ditches on both sides of the roadway. The existing ROW width varies between 102 ft. and 380 ft. The existing land use in this section is a mix of commercial and residential uses.

As indicated in the Design Traffic Memorandum[3], an interchange modification is not needed by the design year 2025 for the US 19 interchange. This interchange is located within this project segment and will remain as its existing configuration. The associated proposed typical section is discussed in this section.

Roadway Typical Section

Proposed Roadway Typical Section 1 (Figure 8-1) was evaluated for Segment A along Gandy Boulevard (SR 694). This proposed typical section is a six-lane divided urban section with a 26 ft. median including a median barrier wall and 12 ft. shoulders. The median widens just west of Grand Avenue to allow for a dropped inside left turn lane from eastbound Gandy Boulevard (SR 694) to Grand Avenue. This typical section contains three 12 ft. travel lanes in each direction. The typical section also includes off-ramps with two 12 ft. travel lanes in each direction as a one-way loop, 5 ft. sidewalks and a 4 ft. bicycle lane along the outside of the off-ramp. The inside shoulder on the off-ramps will be 8 ft. paved. The proposed design speed for the mainline for this typical section is 60 mph and requires a minimum ROW width of 222 ft. The proposed design speed for the off-ramps is 50 mph.

Bridge Typical Section

No structures were proposed for Segment A.

8.3.5 Segment B

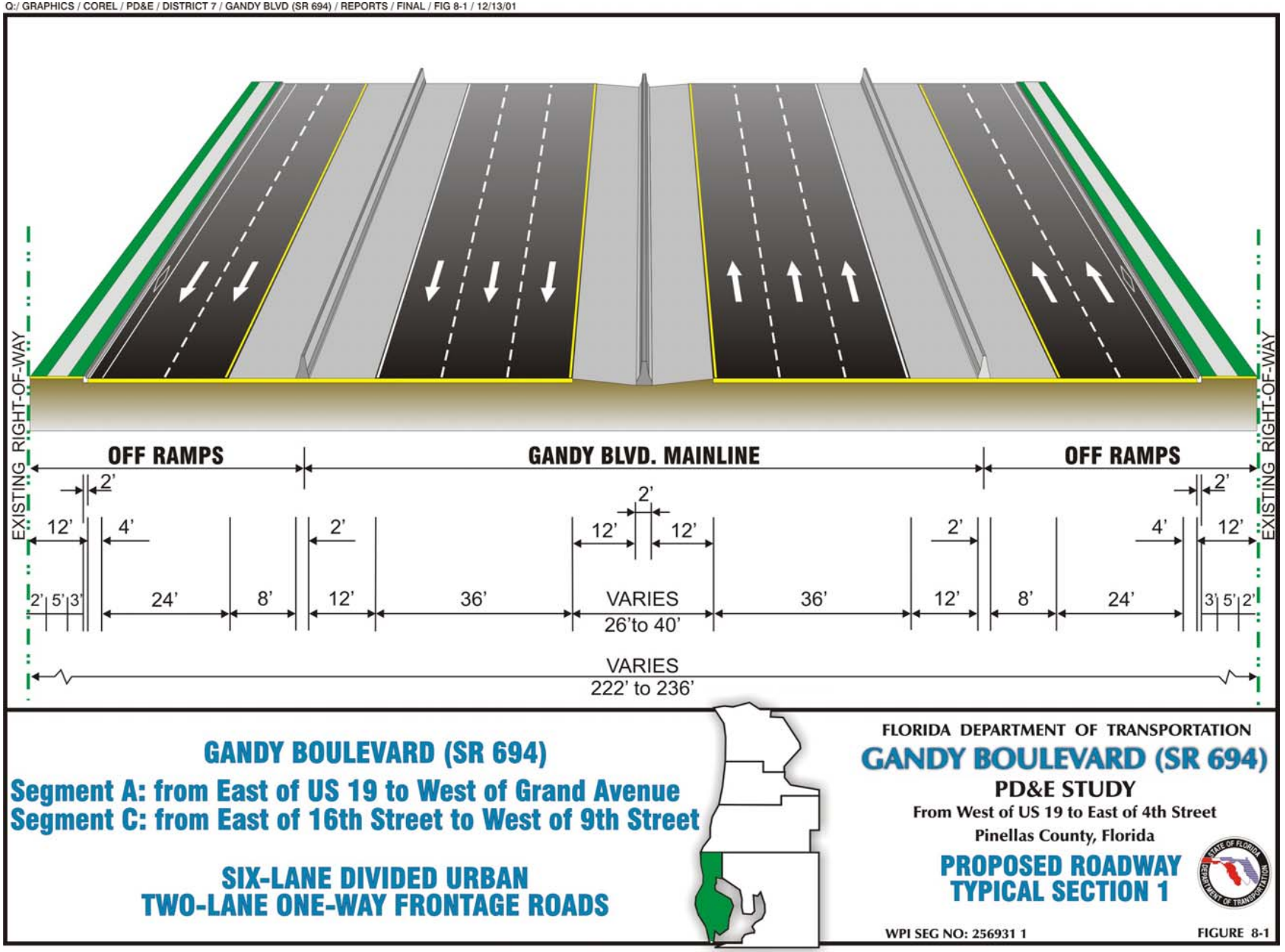
The limits of Segment B are along Gandy Boulevard (SR 694) from west of Grand Avenue to west of I-275. The existing typical section (Figure 4-4) is a divided six-lane roadway with open drainage ditches and frontage roads on both sides of the roadway. The existing ROW width varies between 160 ft. and 380 ft. The existing land use in this section is a mix of commercial and residential uses.

As indicated in the Design Traffic Memorandum[3], an overpass is needed by the design year 2025 for the Grand Avenue intersection.

Roadway Typical Section

Proposed Roadway Typical Section 2 (Figure 8-2) was evaluated for Segment B along Gandy Boulevard (SR 694). This proposed typical section is a six-lane divided section with

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 8-1 / 12/13/01



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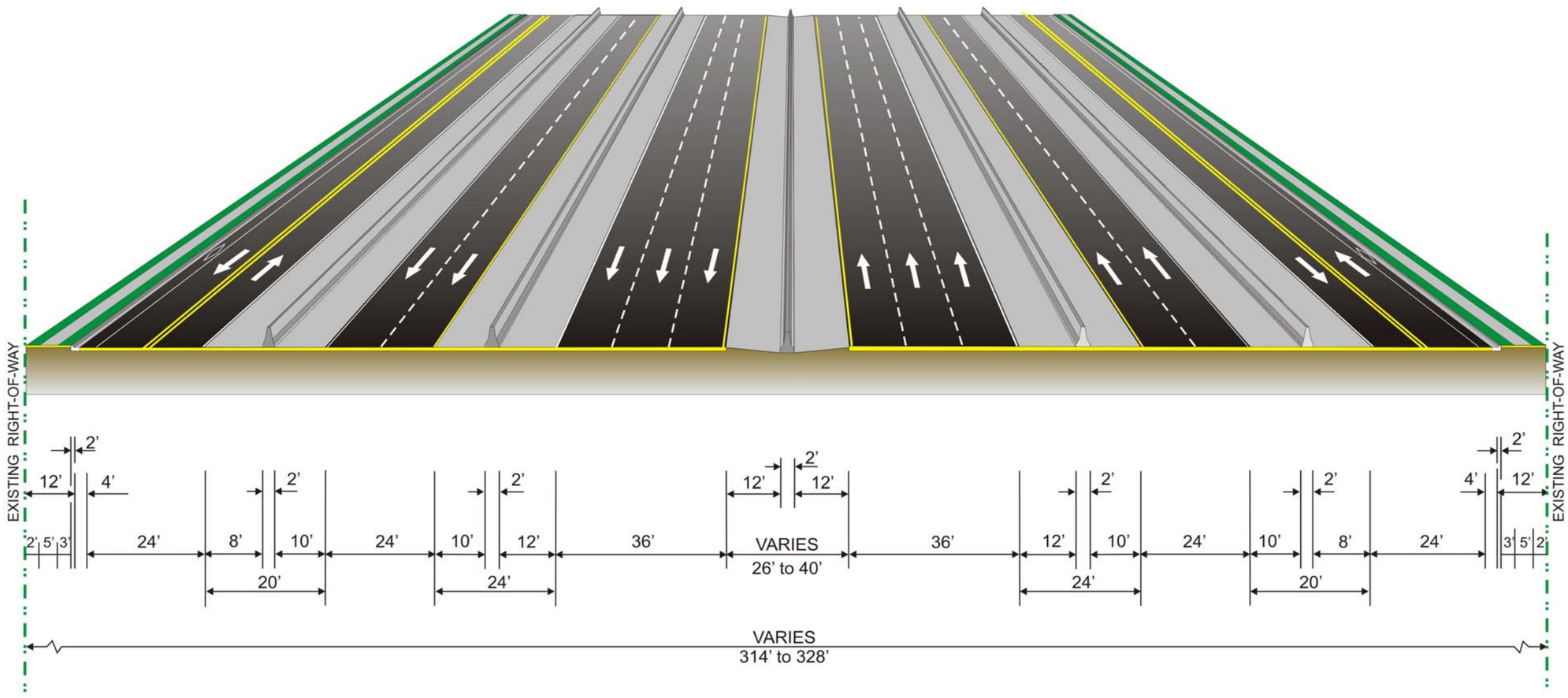

GANDY BOULEVARD (SR 694)
Segment B: from East of Grand Avenue to West of I-275

SIX LANE DIVIDED URBAN
TWO-LANE ONE-WAY COLLECTOR DISTRIBUTOR ROADS
TWO-LANE TWO-WAY FRONTAGE ROADS

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

Pinellas County, Florida

PROPOSED ROADWAY TYPICAL SECTION 2

WPI SEG NO: 256931 1

FIGURE 8-2

a median width varying from 26 ft. (with median barrier) up to 40 ft. (with grassed drainage swales). This typical section contains three 12 ft. travel lanes in each direction. The typical section also includes two-lane two-way frontage roads with two 12 ft. travel lanes in each direction, a 5 ft. sidewalk and a 4 ft. bicycle lane along the outside of the roadway. Finally, the typical section contains two-lane one-way off-ramps. The off-ramps contain two 12 ft. travel lanes and 10 ft. inside and outside shoulders. From the end of Segment B (west of I-275) to the east of I-275, the proposed six-lane divided rural section continues under I-275 while the frontage roads and off-ramps terminate at I-275. The proposed design speed for this typical section is 60 mph along the mainline and 50 mph for the off-ramps and frontage roads. This section requires a minimum ROW width between 314 ft. and 328 ft.

Bridge Typical Section

Proposed Bridge Typical Section 3 (Figure 8-3) was evaluated for Segment B along Gandy Boulevard (SR 694) over Grand Avenue. This typical section is a six-lane divided urban bridge section with a 40 ft. median. The required median width of 40 ft. is used to accommodate two 12 ft. median shoulders and open median space that is needed through the overpass area. Since the roadway median width approaching the bridge is also 40 ft., a transition area is not required for the median width between the roadway and bridge sections. This typical section contains three 12 ft. travel lanes in each direction. The proposed design speed for this typical section is 60 mph.

8.3.6 Segment C

The limits of Segment C are along Gandy Boulevard (SR 694) from west of I-275 to west of 9th Street. The existing typical sections (Figures 4-5 through 4-6) are a divided four-lane roadway with open drainage ditches on both sides of the roadway. This segment also contains two-way two-lane frontage roads on the north and south side of Gandy Boulevard (SR 694). The existing ROW width varies between 420 ft. and 550 ft. The existing land use in this section is a mix of commercial and residential uses.

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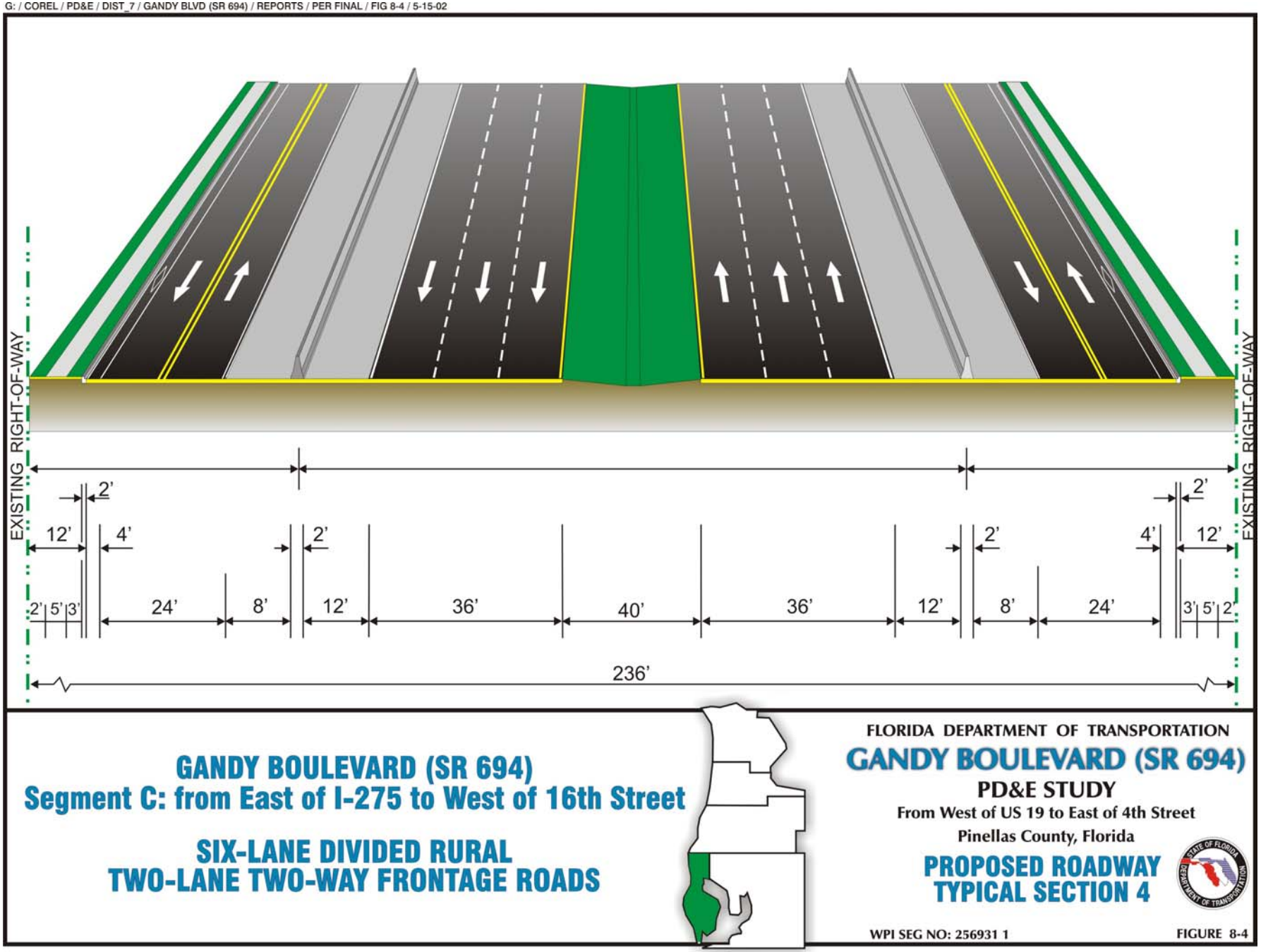


GANDY BOULEVARD (SR 694)
Segment C: from East of I-275 to West of 16th Street

SIX-LANE DIVIDED RURAL
TWO-LANE TWO-WAY FRONTAGE ROADS

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

Pinellas County, Florida

PROPOSED ROADWAY TYPICAL SECTION 4

WPI SEG NO: 256931 1

FIGURE 8-4

As indicated in the Design Traffic Memorandum[3], an interchange modification is needed by the design year 2025 for the I-275 interchange in order to make the interchange fully accessible. The modification includes removing the signalized at-grade intersection between the northbound I-275 off-ramp and Gandy Boulevard (SR 694). The northbound I-275 to westbound Gandy Boulevard (SR 694) movement would be accomplished via a flyover connecting the existing northbound I-275 off-ramp with the existing southbound I-275 off-ramp to westbound Gandy Boulevard (SR 694). These modifications to the I-275/Gandy Boulevard (SR 694) interchange do not require an Interchange Modification Report (IMR) since the access points on I-275 do not change.

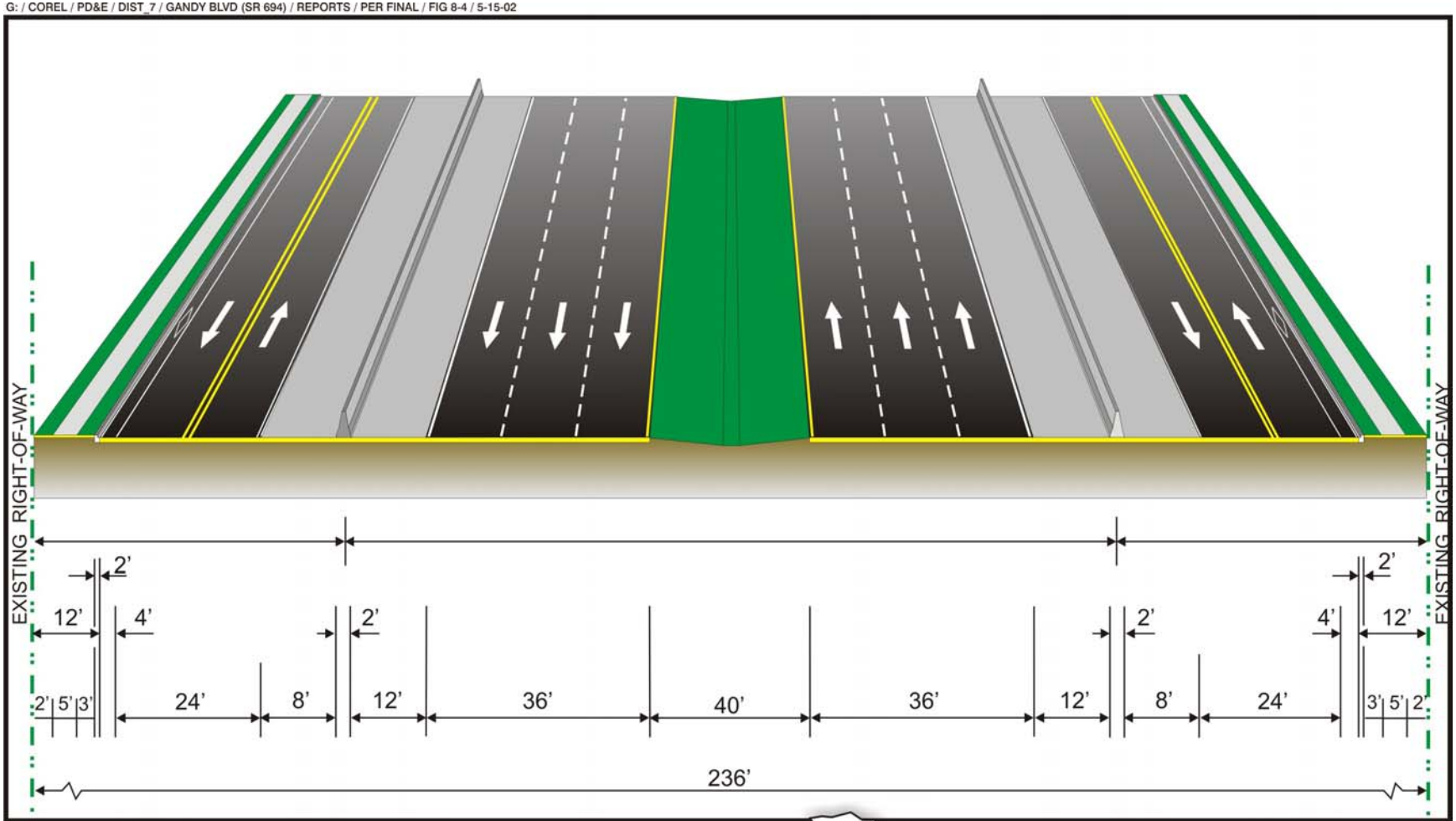
Two additional movements were evaluated. The first movement included a new ramp from westbound Gandy Boulevard (SR 694) to northbound I-275. The second movement included a new ramp connecting southbound I-275 to eastbound Gandy Boulevard (SR 694). These additional movements would require redesigning the entire interchange due to existing ramp conflicts and ROW impacts. This would require an IMR. The Design Traffic Memorandum[3] recommended not adding these two new additional movements for two reasons. First, the traffic volumes for those movements do not warrant the additional ramps. Second, the movements created by adding westbound Gandy Boulevard (SR 694) to northbound I-275 and southbound I-275 to eastbound Gandy are accomplished at the I-275/Roosevelt interchange. As a result, the FDOT decided not to include the additional ramps to make the interchange fully accessible.

Finally, as indicated in the Design Traffic Memorandum[3], an overpass is needed by the design year 2025 for the relocated 16th Street intersection. The associated proposed typical sections are discussed in this section.

Roadway Typical Sections

Proposed Roadway Typical Section 4 (Figure 8-4) between I-275 and 16th Street and Proposed Roadway Typical Section 5 (Figure 8-5) between 16th Street and 9th Street were evaluated for Segment C along Gandy Boulevard (SR 694). Proposed Roadway Typical Section 4 contains three 12 ft. travel lanes in each direction, as well as frontage roads with

G: / COREL / PD&E / DIST_7 / GANDY BLVD (SR 694) / REPORTS / PER FINAL / FIG 8-4 / 5-15-02



GANDY BOULEVARD (SR 694)
Segment C: from East of I-275 to West of 16th Street

SIX-LANE DIVIDED RURAL
TWO-LANE TWO-WAY FRONTAGE ROADS

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

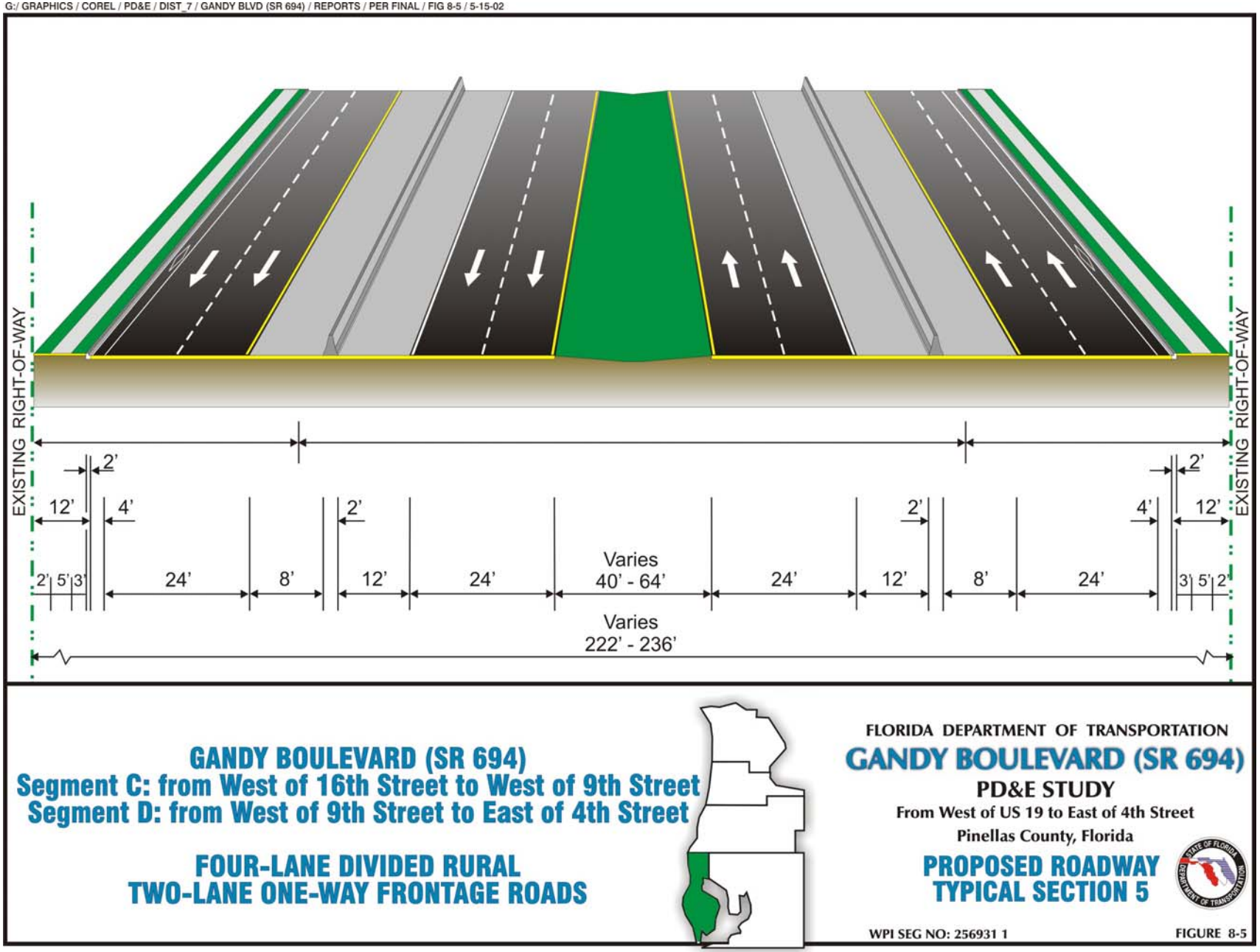
Pinellas County, Florida

PROPOSED ROADWAY TYPICAL SECTION 4

WPI SEG NO: 256931 1

FIGURE 8-4

G:/ GRAPHICS / COREL / PD&E / DIST_7 / GANDY BLVD (SR 694) / REPORTS / PER FINAL / FIG 8-5 / 5-15-02



two 12 ft. travel lanes in each direction, 5 ft. sidewalks and a 4 ft. bicycle lane along both sides of the roadway. The existing two-way frontage roads were revised to include the bike lane, sidewalks, curb and gutter, shoulders, and standard lane widths. From the beginning of Segment C (west of I-275) to the east of I-275, the six-lane divided rural section continues under I-275 while the frontage roads terminate at I-275.

Proposed Roadway Typical Section 5 contains two 12 ft. travel lanes in each direction as well as frontage roads with two 12 ft. travel lanes in one direction as a one-way loop, 5 ft. sidewalks and a 4 ft. bicycle lane along the outside of the roadway. The proposed design speed for this typical section is 60 mph for mainline and 50 mph for frontage roads and requires a ROW width of up to 236 ft.

Bridge Typical Sections

The east/west overpass for Gandy Boulevard (SR 694) over 16th Street will require the evaluation of a six-lane bridge typical section along Gandy Boulevard (SR 694). Proposed Bridge Typical Section 6 (Figure 8-6) were evaluated for Segment C along Gandy Boulevard (SR 694) over 16th Street. This typical section is a six-lane divided urban bridge section with a 40 ft. median. The required median width of 40 ft. is used to accommodate two 12 ft. median shoulders and open median space that are needed through the overpass area. A transition area is not required for the median width between the roadway and bridge sections because full width shoulders are utilized for both the roadway and bridge typical sections. This typical section contains three 12 ft. travel lanes in each direction.

Proposed Bridge Typical Section 7 (Figure 8-7) has been evaluated for the single-lane flyover from I-275 northbound to Gandy Boulevard (SR 694) westbound. This typical section contains a single 15 ft. lane with 6 ft. inside and outside shoulders; however, the minimum values may change if on a horizontal curve. The proposed design speed for these typical sections is 60 mph.

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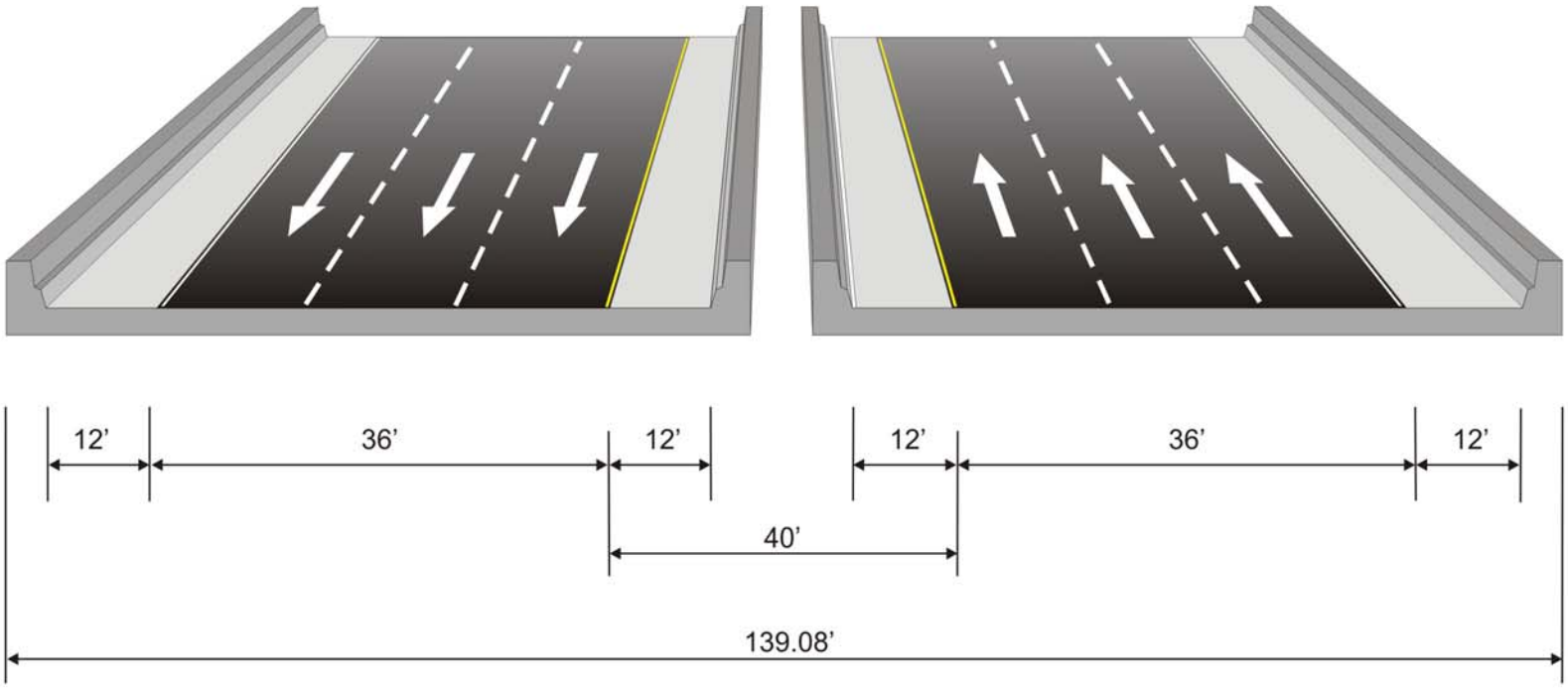


GANDY BOULEVARD (SR 694)
Segment C: Bridge over 16th Street

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street

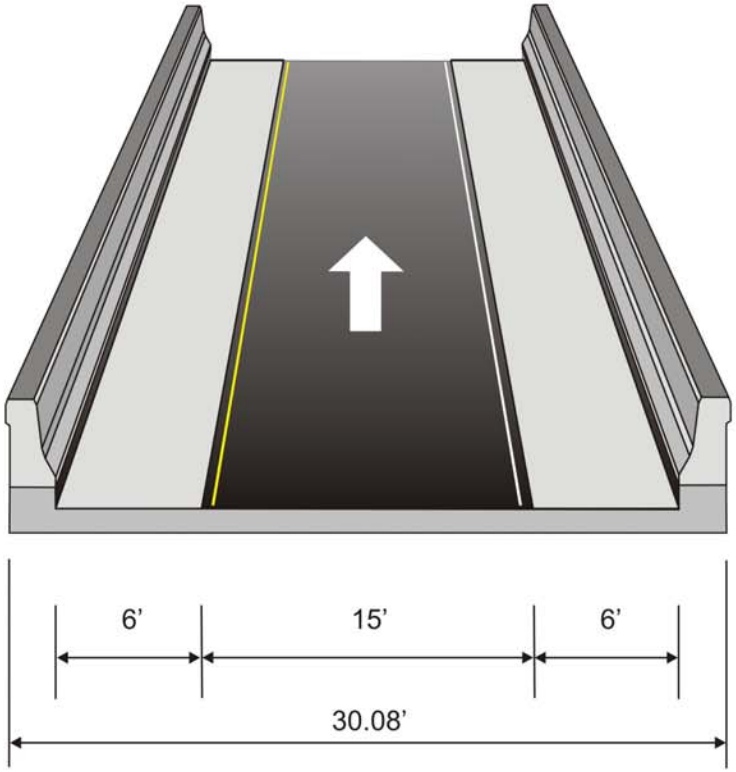
Pinellas County, Florida

PROPOSED BRIDGE TYPICAL SECTION 6

WPI SEG NO: 256931 1

FIGURE 8-6

Q:/ GRAPHICS / COREL / PD&E / DISTRICT 7 / GANDY BLVD (SR 694) / REPORTS / FINAL / FIG 8-7 /12/13/01



GANDY BOULEVARD (SR 694)
Segment C: Bridge flyover from Southbound I-275 to Westbound Gandy Boulevard

FLORIDA DEPARTMENT OF TRANSPORTATION

GANDY BOULEVARD (SR 694)

PD&E STUDY

From West of US 19 to East of 4th Street
Pinellas County, Florida

PROPOSED BRIDGE TYPICAL SECTION 7

WPI SEG NO: 256931 1

FIGURE 8-7

8.3.7 Segment D

The limits of Segment D are along Gandy Boulevard (SR 694) from west of 9th Street to east of 4th Street. The existing typical section (Figure 4-7) is a divided four-lane roadway with open drainage ditches on both sides of the roadway. The existing ROW width varies between 220 ft. to 520 ft. The existing land use in this section is a mix of commercial and residential use.

8-23 dicated in the Design Traffic Memorandum[3], interchanges are needed by the design 2025 for the intersections of Gandy Boulevard (SR 694)/9th Street, Gandy Boulevard (SR 694)/Roosevelt Boulevard, and Gandy Boulevard (SR 694)/4th Street. These interchanges are located within this project segment and have been evaluated for east/west overpasses. The associated proposed typical sections are discussed in this section.

Roadway Typical Section

Proposed Roadway Typical Section 5 (Figure 8-5), previously discussed in Segment C, was also be evaluated for Segment D along Gandy Boulevard (SR 694). This proposed typical section is a four-lane divided section with drainage swales within a median which varies from 40 ft. to 64 ft. This typical section contains two 12 ft. travel lanes in each direction. The typical section also includes frontage roads with two 12 ft. travel lanes in each direction as a one-way loop, 5 ft. sidewalks and a 4 ft. bicycle lane along both sides of the roadway. The proposed design speed for this typical section is 60 mph and requires a ROW width which varies from 222 ft. to 236 ft.

Bridge Typical Section

The east/west overpasses require a four-lane bridge typical section along Gandy Boulevard (SR 694). Proposed Bridge Typical Section 8 (Figure 8-8) was evaluated for Segment D along Gandy Boulevard (SR 694) over 9th Street, Roosevelt Boulevard, and 4th Street. This typical section is a four-lane divided urban bridge section with a 64 ft. median and barriers. The required median width of 64 ft. accommodates median shoulders and allows the addition

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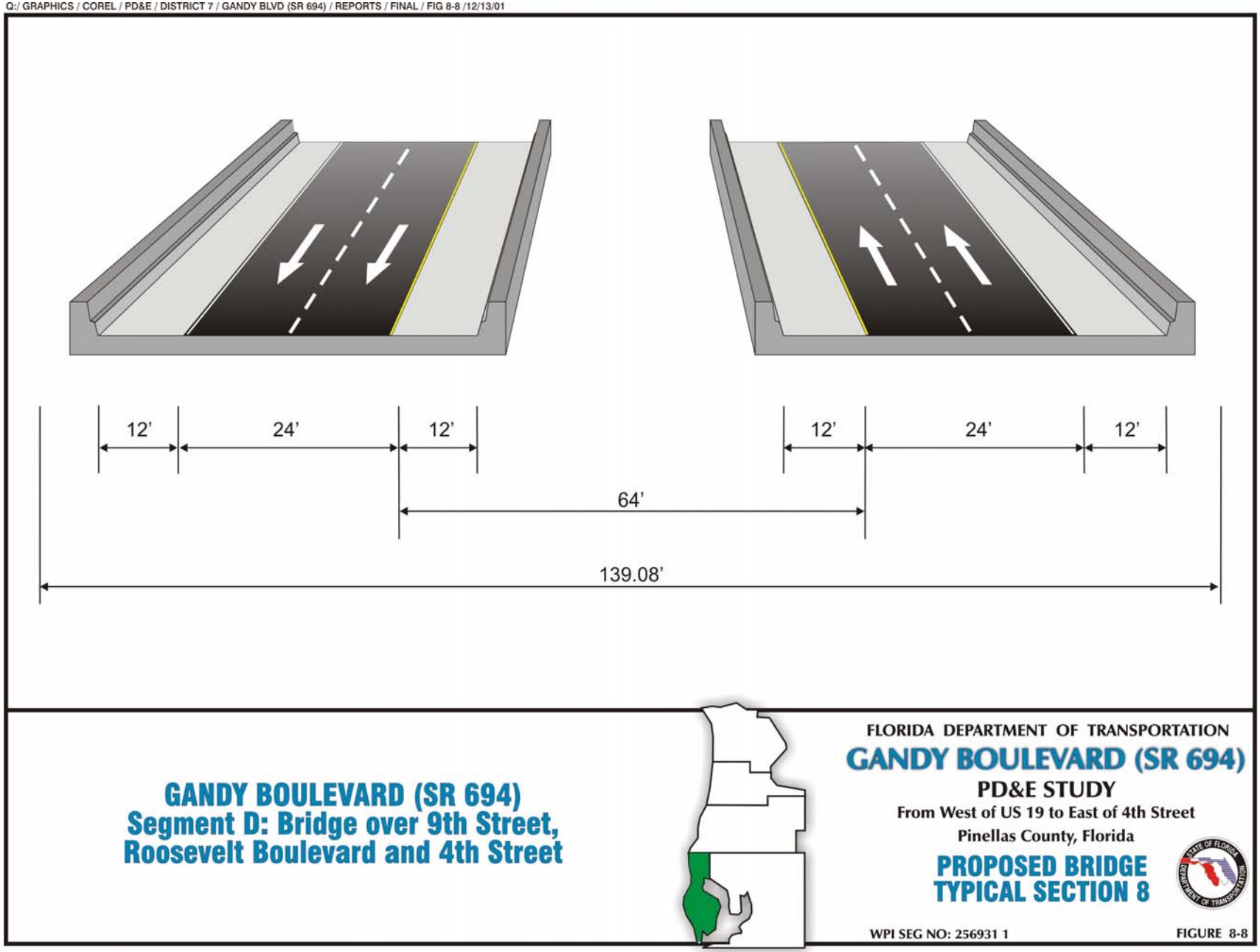

of one lane in each direction beyond the PD&E Study's design year. A transition area is not required for the median width between the roadway and bridge sections. This typical section contains two 12 ft. travel lanes in each direction. The proposed design speed for this typical section is 60 mph. A north/south overpass was not analyzed for this section.

8.4 RECOMMENDED ALTERNATIVE

The Design Traffic Memorandum[3] found unacceptable levels of service in the corridor under existing conditions for both the AM and PM peak hours. Of the nine intersections studied, only one currently operates at the LOS standard of D or better in both the AM and PM peak hour. Arterial analysis of the corridor revealed that the overall segment of Gandy Boulevard (SR 694) from US 19 to 4th Street currently meets or exceeds the acceptable LOS D only in the PM eastbound direction with exceptions in two segments (LOS E & F). Close signal spacing near 4th Street, combined with significant traffic volumes, currently results in long delays and a large number of traffic accidents. Furthermore, the increase of the land use development in the area and therefore the increase in traffic volumes along the corridor continue, especially in the Gateway area. For these reasons, the City of St. Petersburg, local residents/businesses, and FDOT have identified Gandy Boulevard (SR 694) as a regionally significant corridor in need of improvement.

Three possible alternatives for improving this corridor were examined for the design year (2025). These include a No-Build Alternative, a Build – At Grade Alternative, and a Build - Grade Separation Alternative. Analysis of the No-Build Alternative revealed that every signalized intersection in the corridor except for one will operate at LOS F in 2025. Most of the ramp merge and diverge areas will also fail. Arterial analysis of this alternative indicated that the corridor will operate at LOS F in both the eastbound and westbound directions in both the AM and PM peak hour under this alternative.

The two Build Alternatives yielded improvements in the LOS for the corridor. Under the Build – At Grade Alternative, most of the ramp merge and diverge areas operate at a satisfactory LOS in 2025. The signalized intersections analysis indicated some improvement in LOS under this alternative, but six of the study intersections still fail to meet the LOS D

standard for the AM peak hour, the PM peak hour, or both peak hours. Arterial analyses revealed an improvement with the corridor as a whole meeting the LOS D standard in both the eastbound and westbound directions in the AM peak hour, but failing in the PM peak hour.

The most significant improvement in LOS was produced by the Build – Grade Separation Alternative. Under this alternative, the majority of ramp merge and diverge areas operate at or better than the LOS D standard in 2025. The results of the Highway Capacity Software (HCS) analysis for signalized intersections indicated that all intersections except for one meet the LOS D standard in both the AM and PM peak hour in design year 2025. Analysis of the roadway segments revealed that three of the five roadway segments analyzed meet or exceed the LOS D in both the AM and PM peak hour.

Interim analysis was also performed in order to determine how long the at grade improvements would be effective at each intersection. This analysis revealed that at grade improvements would be effective throughout the entire study period for four of the intersections. This analysis was not performed for the intersection of Gandy Boulevard (SR 694) and US 19 as any improvements to this intersection would be grade separated.

This portion of Pinellas County remains at the core of the long-term economic development potential of the county. To support and enhance economic development in the area, the key intersections in the corridor need improvements to relieve the congestion. Analysis of three alternatives for the future of this corridor revealed that the Build - Grade Separation Alternative would be most effective at addressing this issue.

The Design Traffic Memorandum[3] projects that overpasses are needed at the intersections of Grand Avenue and 16th Street. Also, the Design Traffic Memorandum[3] projects that a split diamond interchange is needed by the design year 2025 for the intersections of 4th Street and 9th Street, while Roosevelt Boulevard remains as an at-grade intersection. Finally, the Design Traffic Memorandum[3] projects that a flyover is needed for the northbound I-275 to westbound Gandy Boulevard (SR 694) movement. Since each project segment was unique

and required the analysis of different typical sections, the project segments were used to define the proposed typical sections for the Gandy Boulevard (SR 694) Corridor analysis.

8.4.1 Segment A - Recommended Alternative

The PD&E Recommended Alternative provides a six-lane divided controlled access facility with two-lane one-way off-ramps along the corridor between US 19 and Grand Avenue. Access between the off-ramps and the expressway is provided by an on-ramp for eastbound Gandy Boulevard (SR 694) and an on-ramp for westbound Gandy Boulevard (SR 694) (Figure 8-9). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access Grand Avenue via an inside drop-ramp (Figure 8-10).

The Recommended Alternative developed in the MIS[1] included a four-lane freeway with frontage roads and a four-lane overpass with ramps at US 19. The PD&E Recommended Alternative in this section includes a six-lane freeway with off-ramps and a four-lane overpass with ramps at US 19. The MIS[1] and the PD&E both included a four-lane overpass with ramps at US 19; however, the PD&E Recommended Alternative includes a six-lane section for the rest of Segment A compared to a four-lane section proposed in the MIS[1]. A CORSIM analysis was run and confirmed that the six-lane section would accommodate the traffic at an acceptable LOS for design year 2025 conditions.

8.4.2 Segment B - Recommended Alternative

The PD&E Recommended Alternative provides a six-lane divided controlled access facility with two-lane one-way off-ramps and two-lane two-way frontage roads along the corridor between Grand Avenue and I-275. Access between the frontage roads and Gandy Boulevard (SR 694) is not provided. Traffic traveling westbound on Gandy Boulevard (SR 694) will access Grand Avenue and US 19 via an off-ramp prior to Grand Avenue (Figure 8-11). Traffic on Grand Avenue will access Gandy Boulevard (SR 694) westbound via the one-way off-ramp to the on-ramp west of Grand Avenue (Figure 8-12). Traffic on Grand Avenue will access Gandy Boulevard (SR 694) eastbound via the one-way off-ramp to US 19, make a u-turn at US 19 and head east on the one-way off-ramp to the Gandy Boulevard (SR 694)

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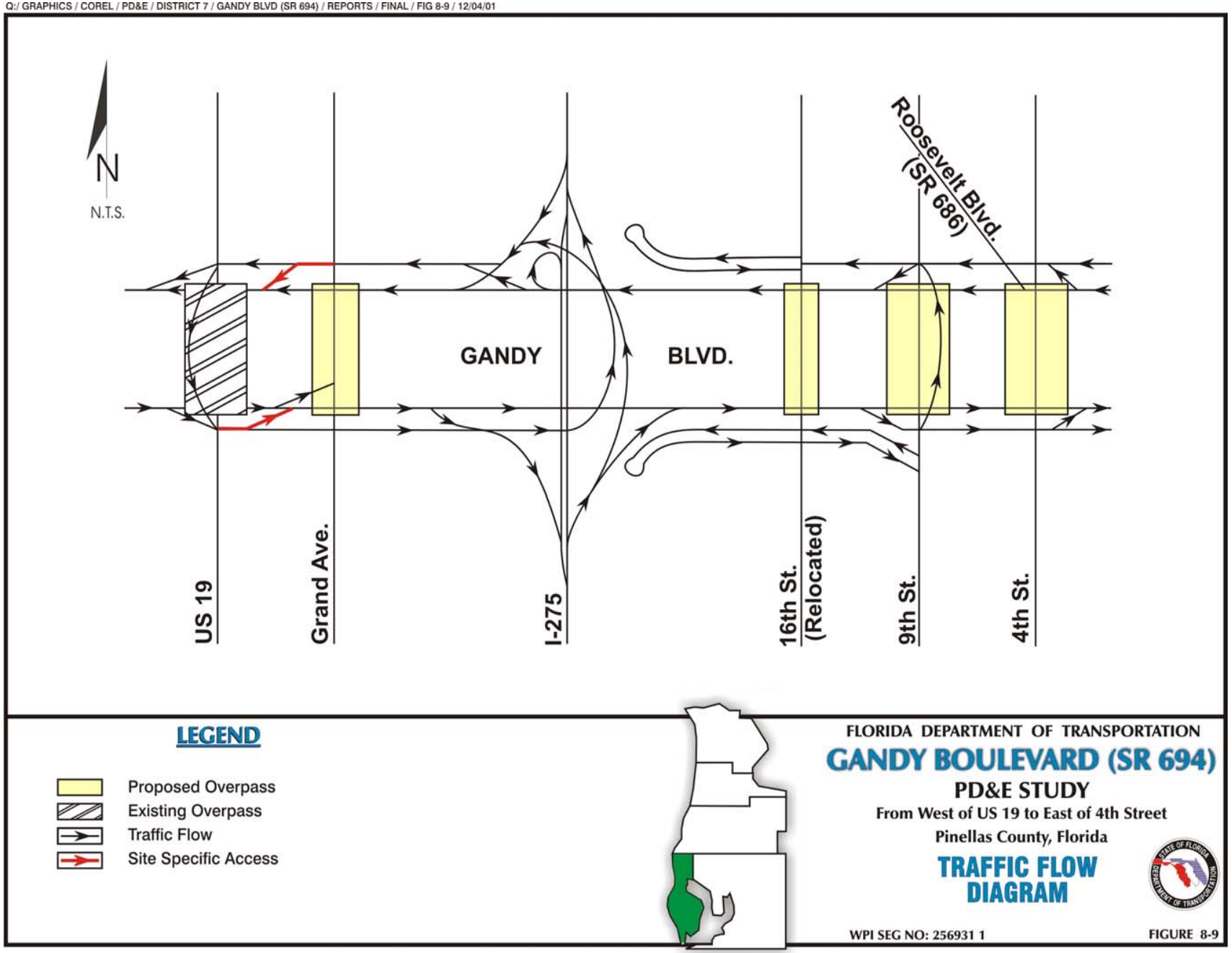

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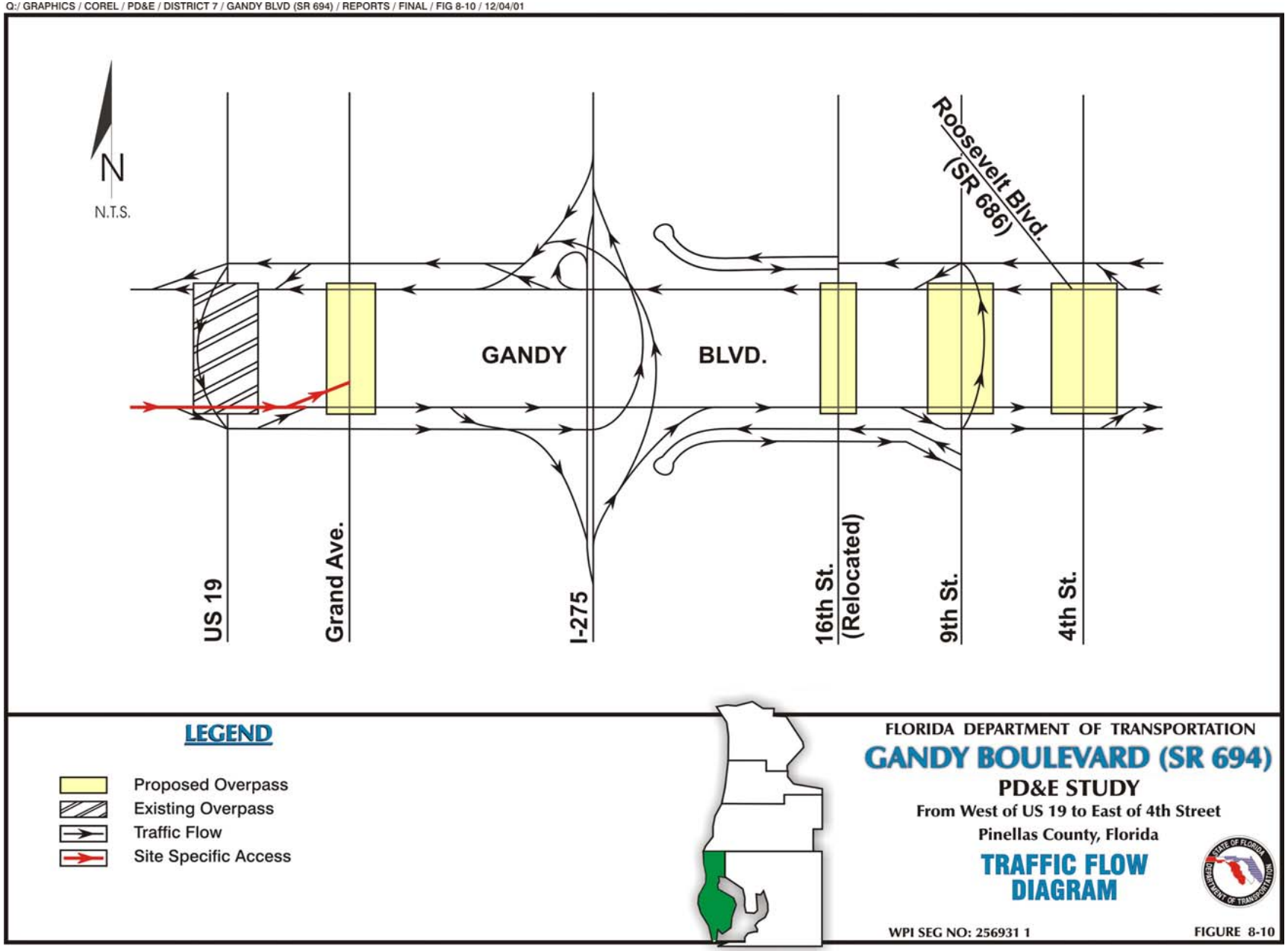

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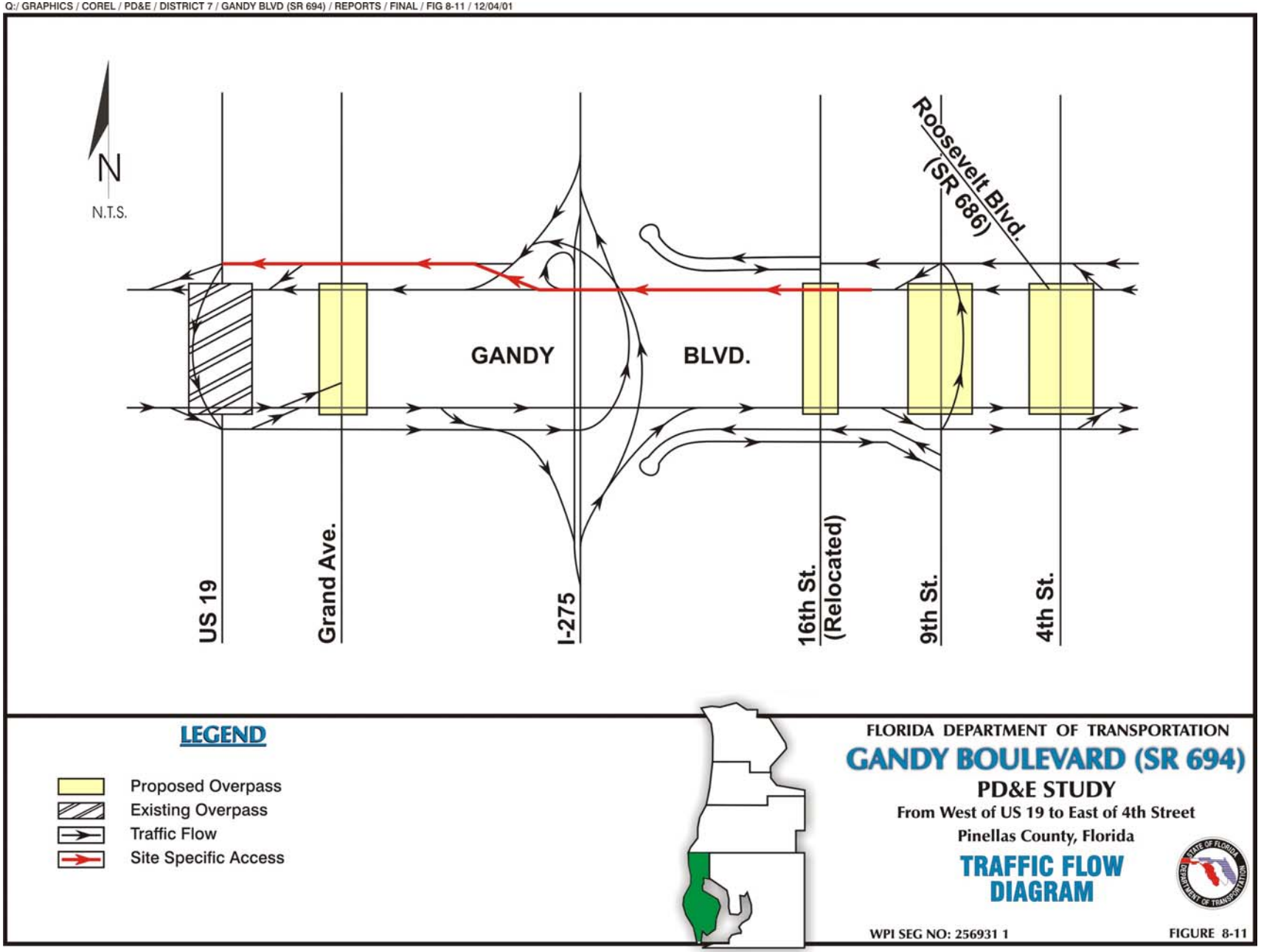

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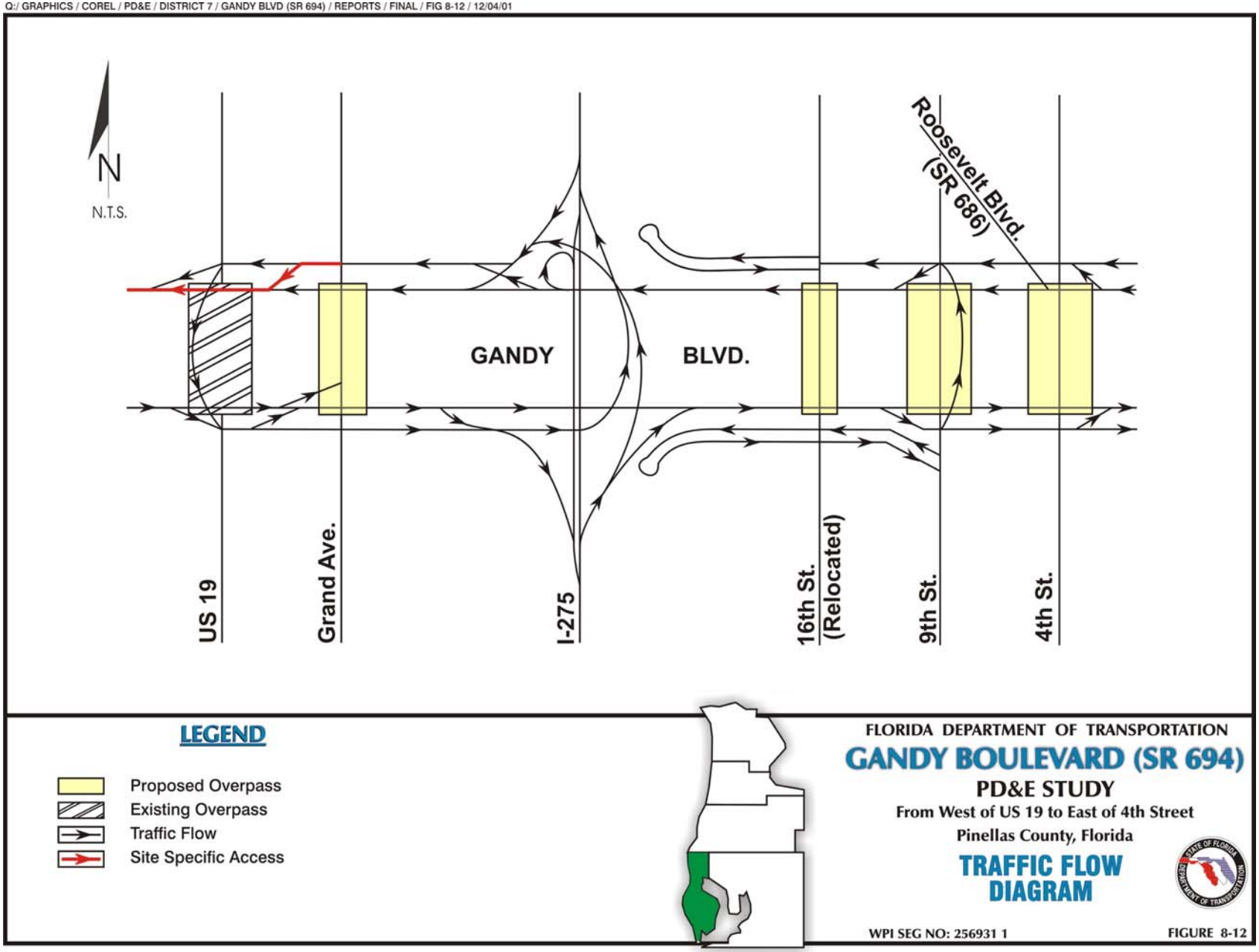

eastbound on-ramp (Figure 8-13). Traffic on Grand Avenue will access I-275 northbound and southbound via a two-lane one-way off-ramp (Figure 8-14). Traffic on northbound and southbound I-275 will access US 19 and Grand Avenue via a two-lane one-way off-ramp (Figure 8-15). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access northbound and southbound I-275 via an off-ramp prior to the I-275 interchange (Figure 8-16).

The Recommended Alternative developed in the MIS[1] included a four-lane freeway with frontage roads and a four-lane overpass at Grand Avenue. The PD&E Recommended Alternative in this segment includes a six-lane freeway with frontage roads, off-ramps and a six-lane overpass at Grand Avenue. The MIS[1] and the PD&E both included an overpass at Grand Avenue and frontage roads; however, the PD&E Recommended Alternative includes a six-lane section for all of Segment B, plus off-ramps, and access to both Gandy Boulevard (SR 694) and I-275 compared to a four-lane section without off-ramps proposed in the MIS[1]. A CORSIM analysis was run and confirmed that the six-lane section with selective direct access and indirect access to both Gandy Boulevard (SR 694) and I-275 would accommodate the traffic at an acceptable LOS for design year 2025 conditions.

8.4.3 Segment C - Recommended Alternative

The PD&E Recommended Alternative provides a six-lane divided controlled access facility with two-lane two-way frontage roads along the corridor between I-275 and 16th Street on the north and south side of Gandy Boulevard (SR 694), two-lane one-way frontage roads on the north side between 16th Street and 9th Street, and two-lane two-way frontage roads on the south side between 16th Street and 9th Street. Access between the frontage roads and Gandy Boulevard (SR 694) is not provided between I-275 and 16th Street. Access between the frontage roads and Gandy Boulevard (SR 694) is provided between 16th Street and 9th Street via an on-ramp for westbound Gandy Boulevard (SR 694) (Figure 8-17). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access 16th Street via an off-ramp prior to 9th Street and make a u-turn at 9th Street onto a two-lane one-way frontage road to 16th Street (Figure 8-18). Traffic traveling westbound on Gandy Boulevard (SR 694) will access 16th Street via an off-ramp prior to 4th Street onto a two-lane one-way frontage road to 16th Street

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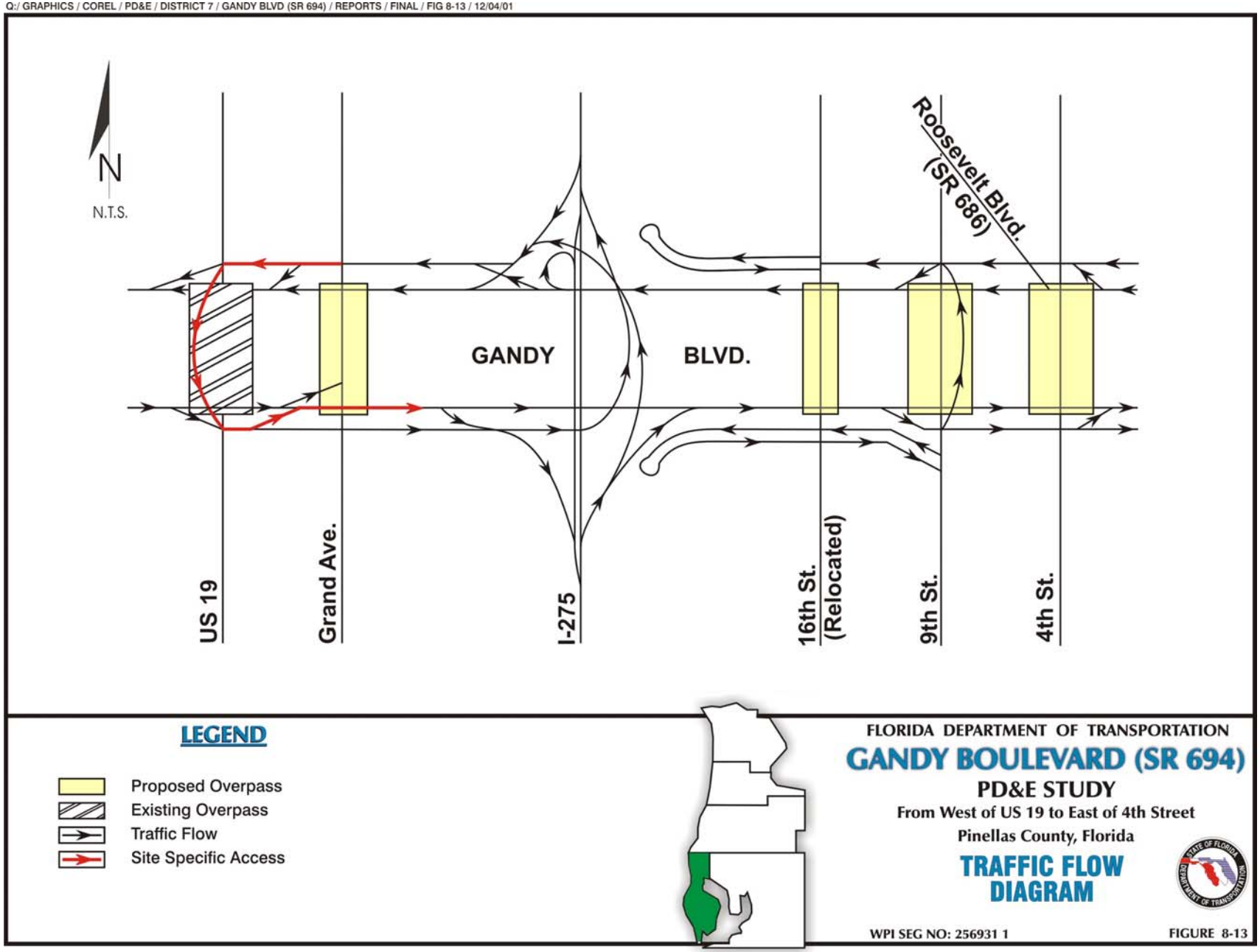

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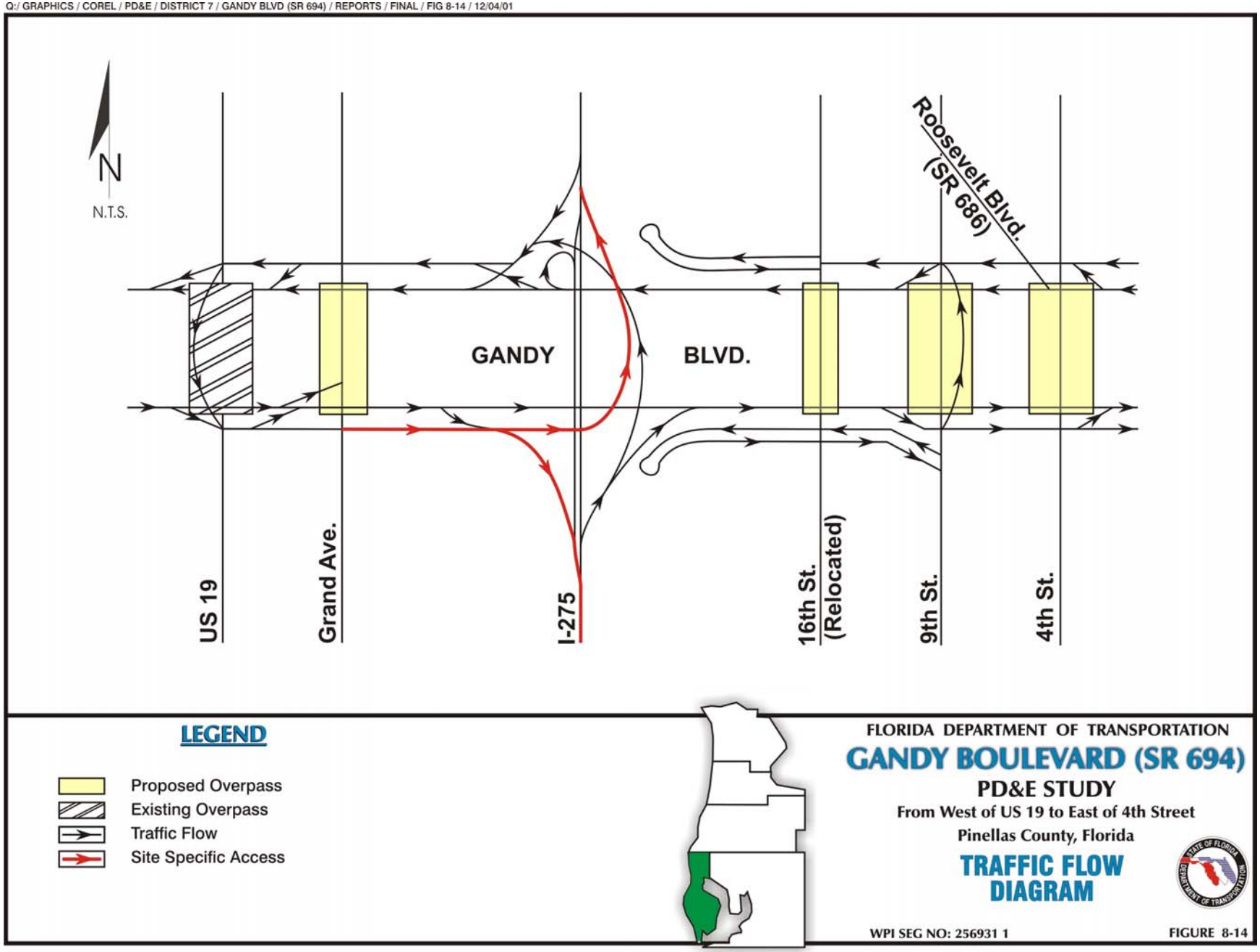

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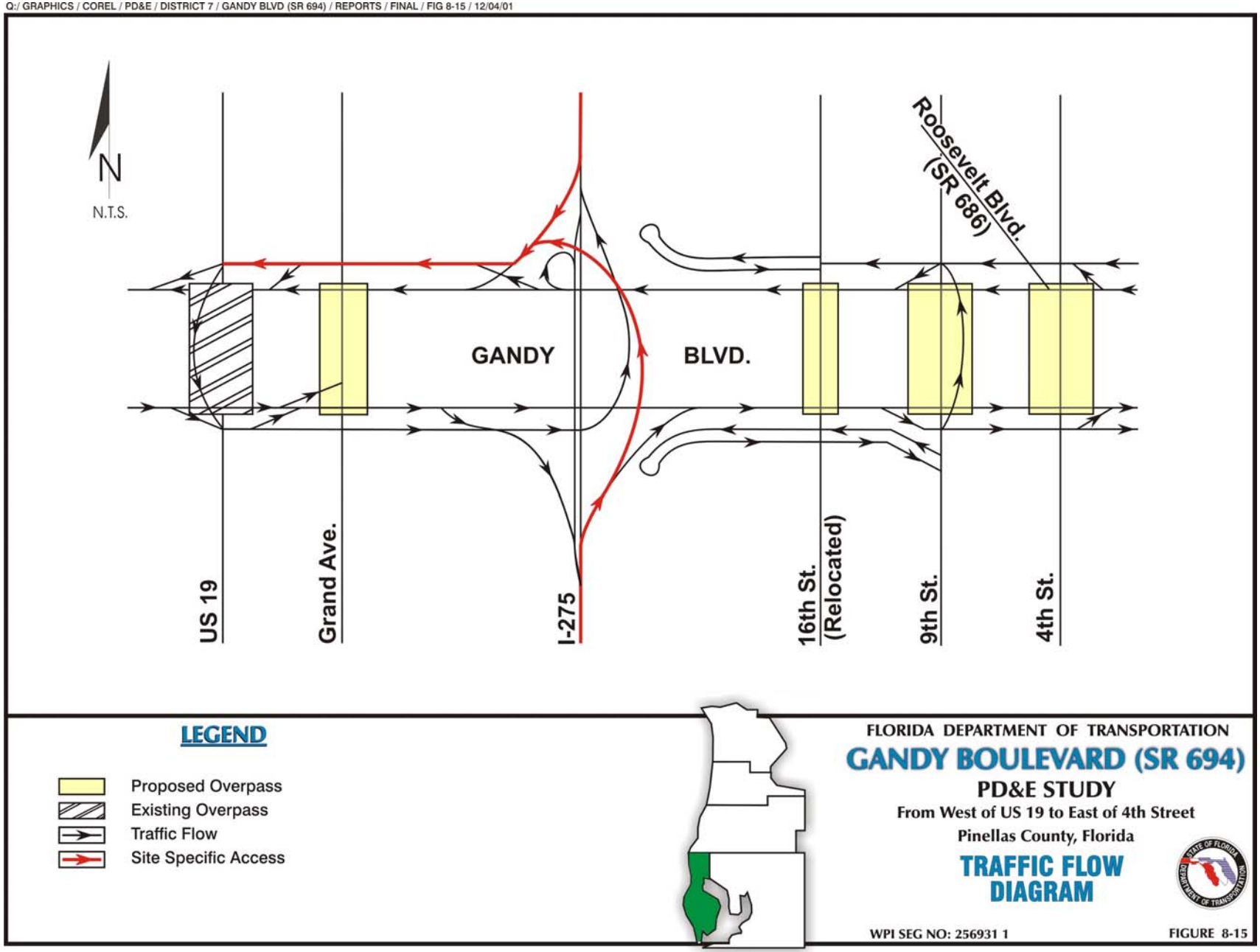

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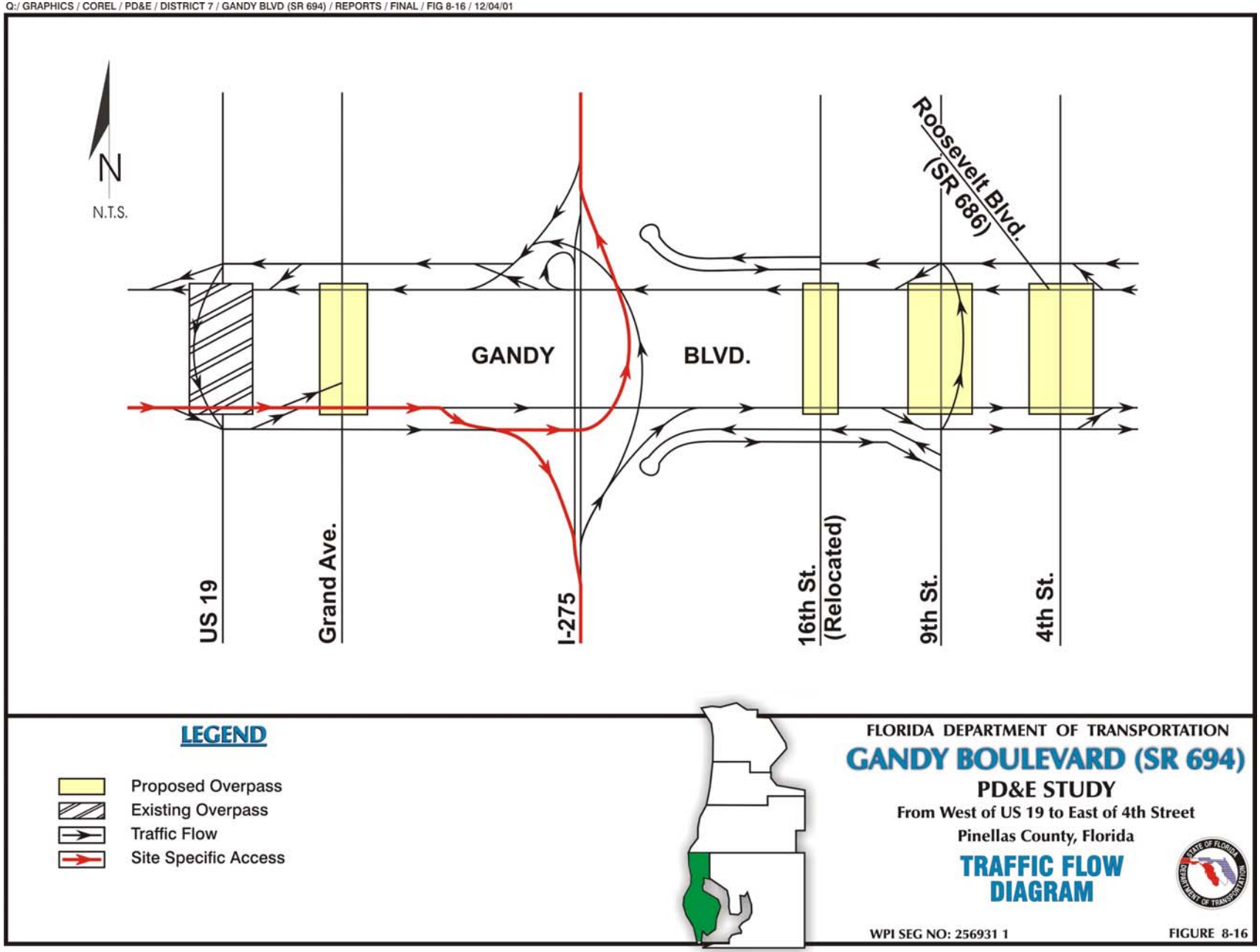

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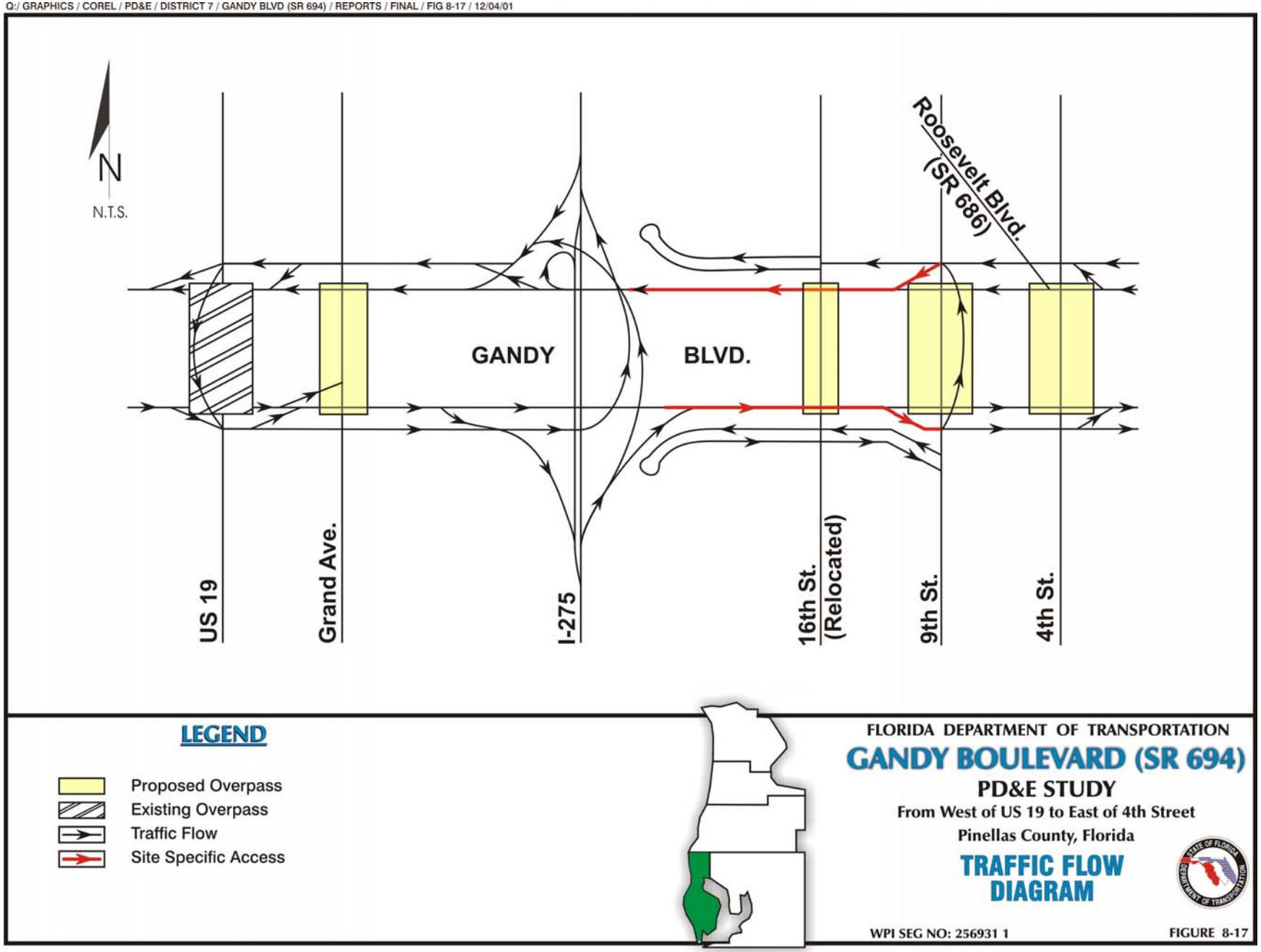

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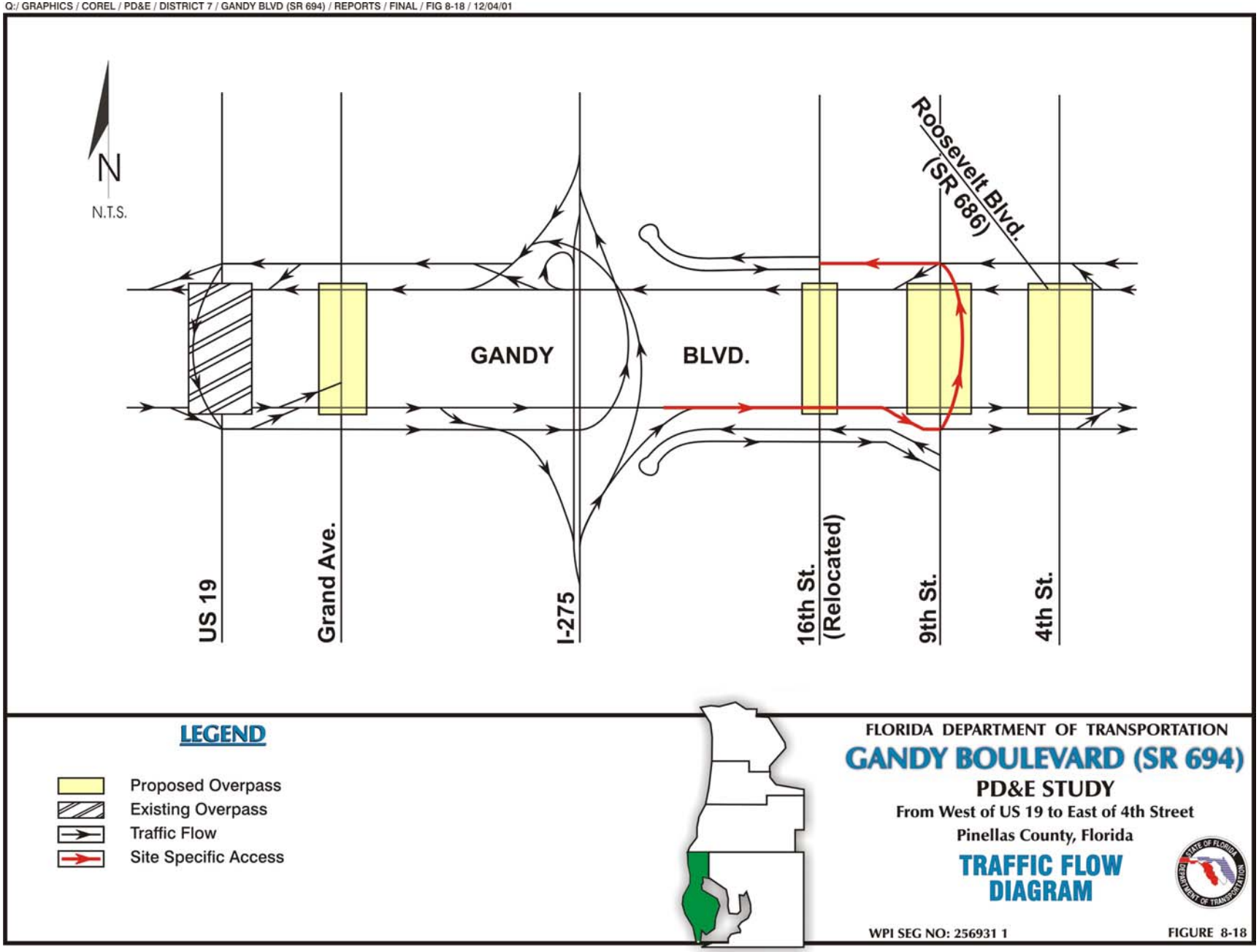

(Figure 8-19). Traffic traveling on 16th Street will access Gandy Boulevard (SR 694) eastbound by traveling on the eastbound two-lane two-way frontage road to 9th Street, then up to the eastbound two-lane one-way frontage road through 4th Street to the on-ramp (Figure 8-20). Traffic on 16th Street will access Gandy Boulevard (SR 694) westbound by traveling eastbound on the two-lane two-way frontage road to 9th Street, then north on 9th Street to the westbound two-lane one-way frontage road to the on-ramp (Figure 8-21). Traffic on southbound I-275 will access US 19 and Grand Avenue via an off-ramp to a two-lane one-way westbound collector road (Figure 8-22). Traffic on northbound I-275 will access US 19 and Grand Avenue via a new fly-over to a two-lane one-way westbound collector road (Figure 8-23). Traffic on southbound I-275 will access westbound Gandy Boulevard (SR 694) via an on-ramp (Figure 8-24). Traffic on northbound I-275 will access eastbound Gandy Boulevard (SR 694) via an on-ramp (Figure 8-25).

The Recommended Alternative developed in the MIS[1] included a four-lane freeway with frontage roads and a four-lane overpass at 16th Street. The PD&E Recommended Alternative in this segment includes a six-lane freeway with frontage roads and a six-lane overpass at 16th Street. The MIS[1] and the PD&E both included an overpass at 16th Street and frontage roads; however, the PD&E Recommended Alternative includes a six-lane section for all of Segment C, and two-way frontage roads compared to a four-lane section with one-way frontage roads proposed in the MIS[1]. A CORSIM analysis was run and confirmed that the six-lane section with selective direct and indirect access to both Gandy Boulevard (SR 694) and 16th Street would accommodate the traffic at an acceptable LOS for design year 2025 conditions.

8.4.4 Segment D – Recommended Alternative

The PD&E Recommended Alternative provides a four-lane divided controlled access facility with two-lane one-way frontage roads along the corridor between 9th Street and east of 4th Street. Access between the frontage roads and Gandy Boulevard (SR 694) is provided via an on-ramp to eastbound Gandy Boulevard (SR 694) east of 4th Street and an off-ramp from westbound Gandy Boulevard (SR 694) east of 4th Street (Figure 8-26). Traffic traveling westbound on Gandy Boulevard (SR 694) will access 4th Street and 9th Street via an off-ramp

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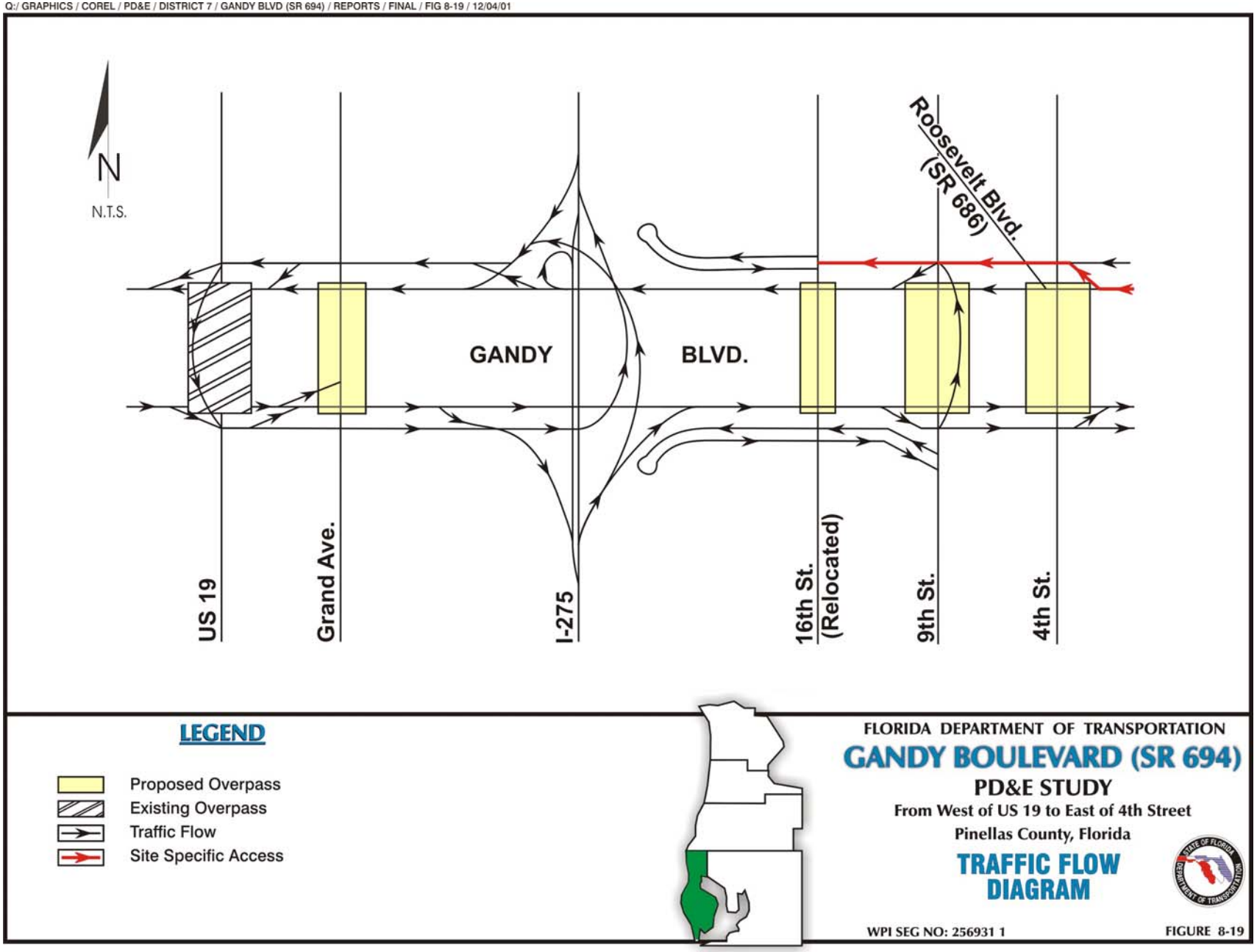

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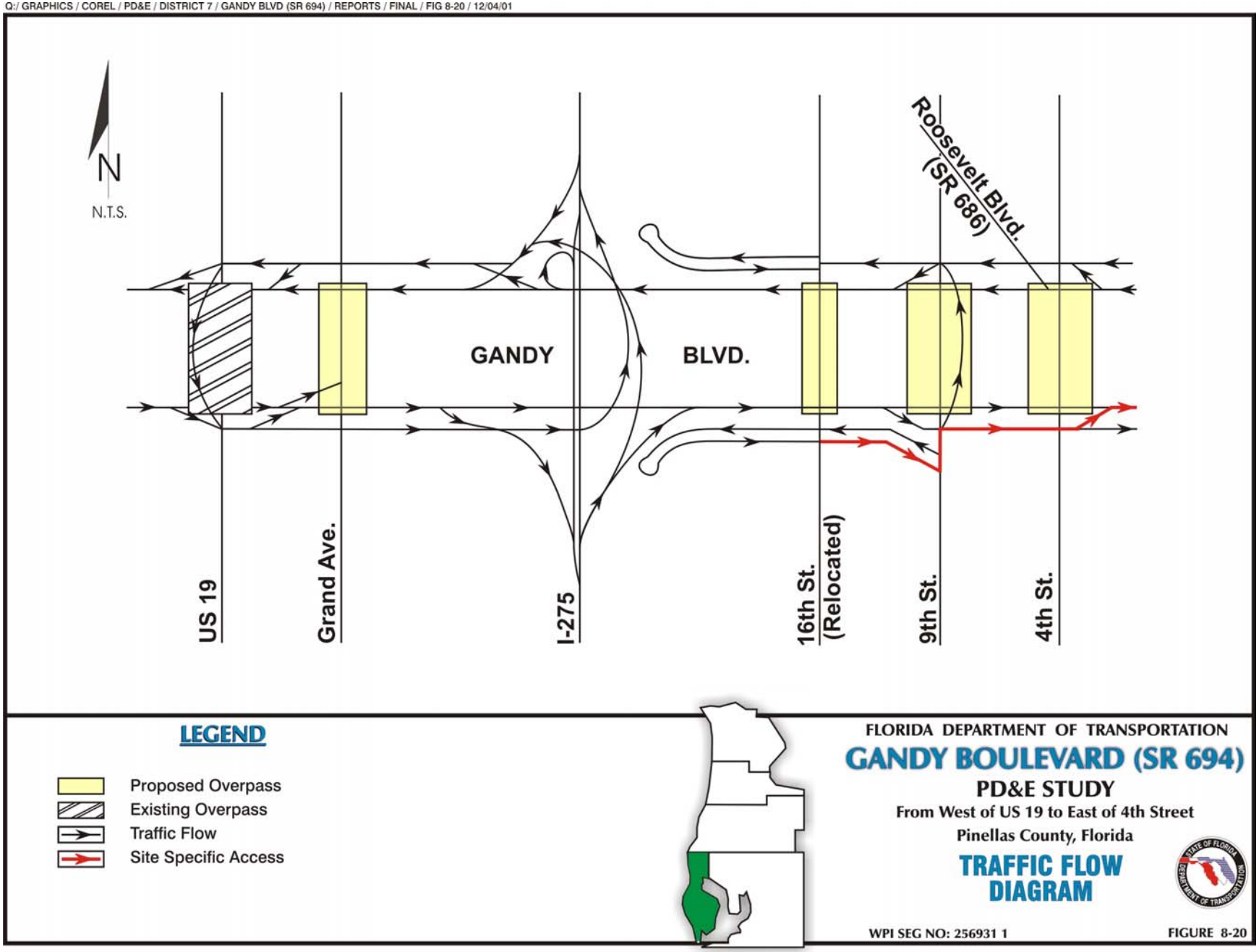

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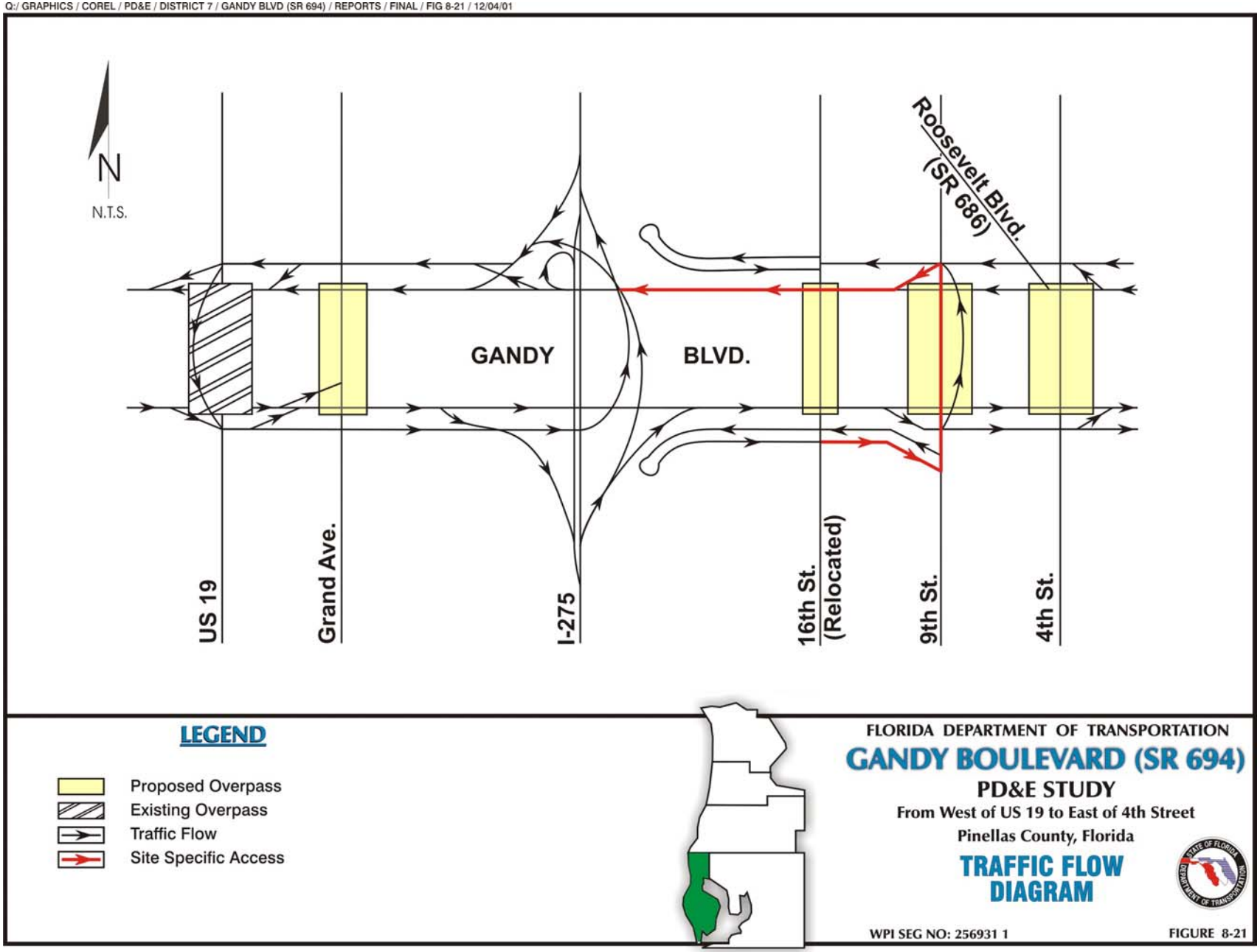

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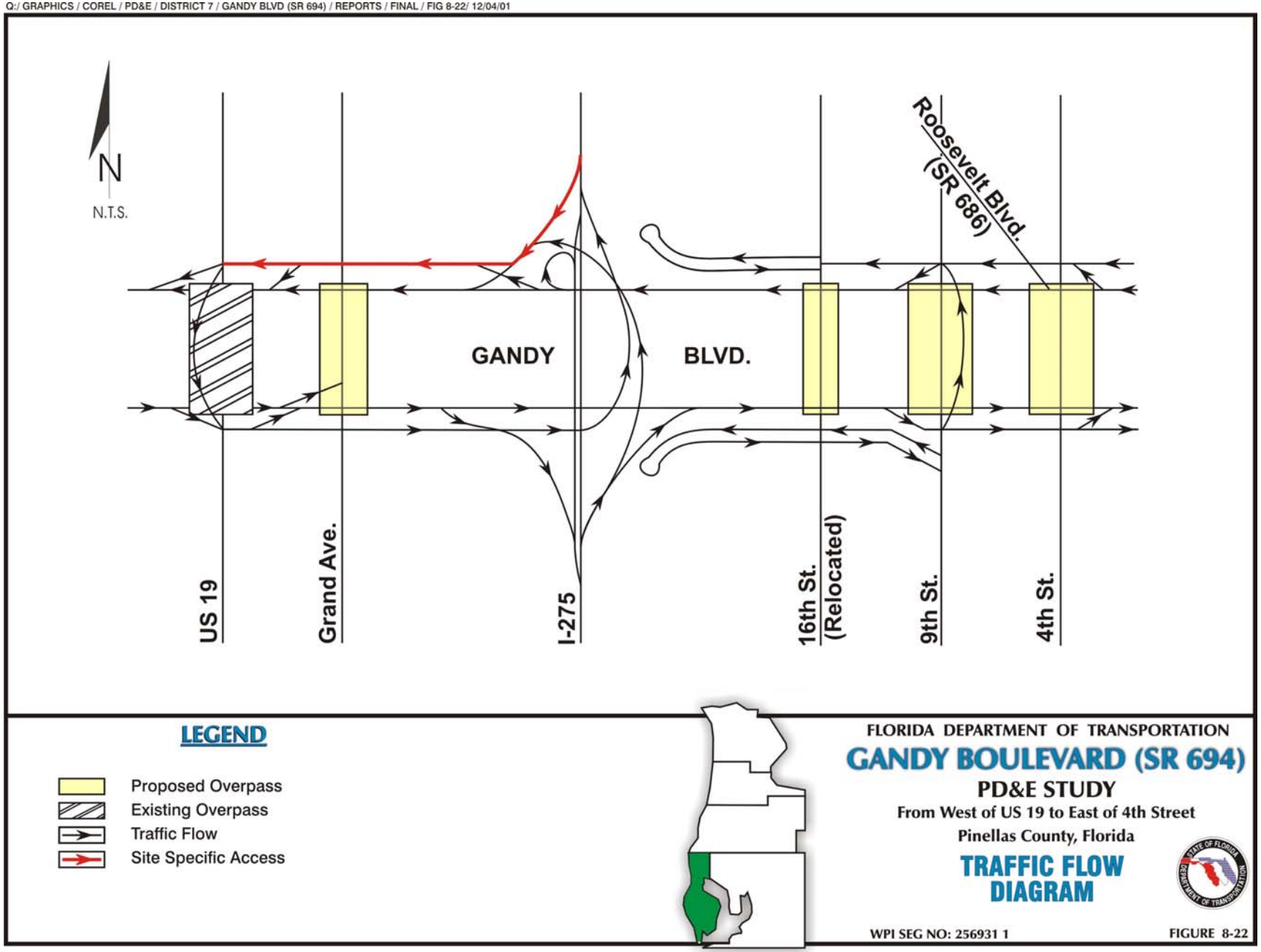

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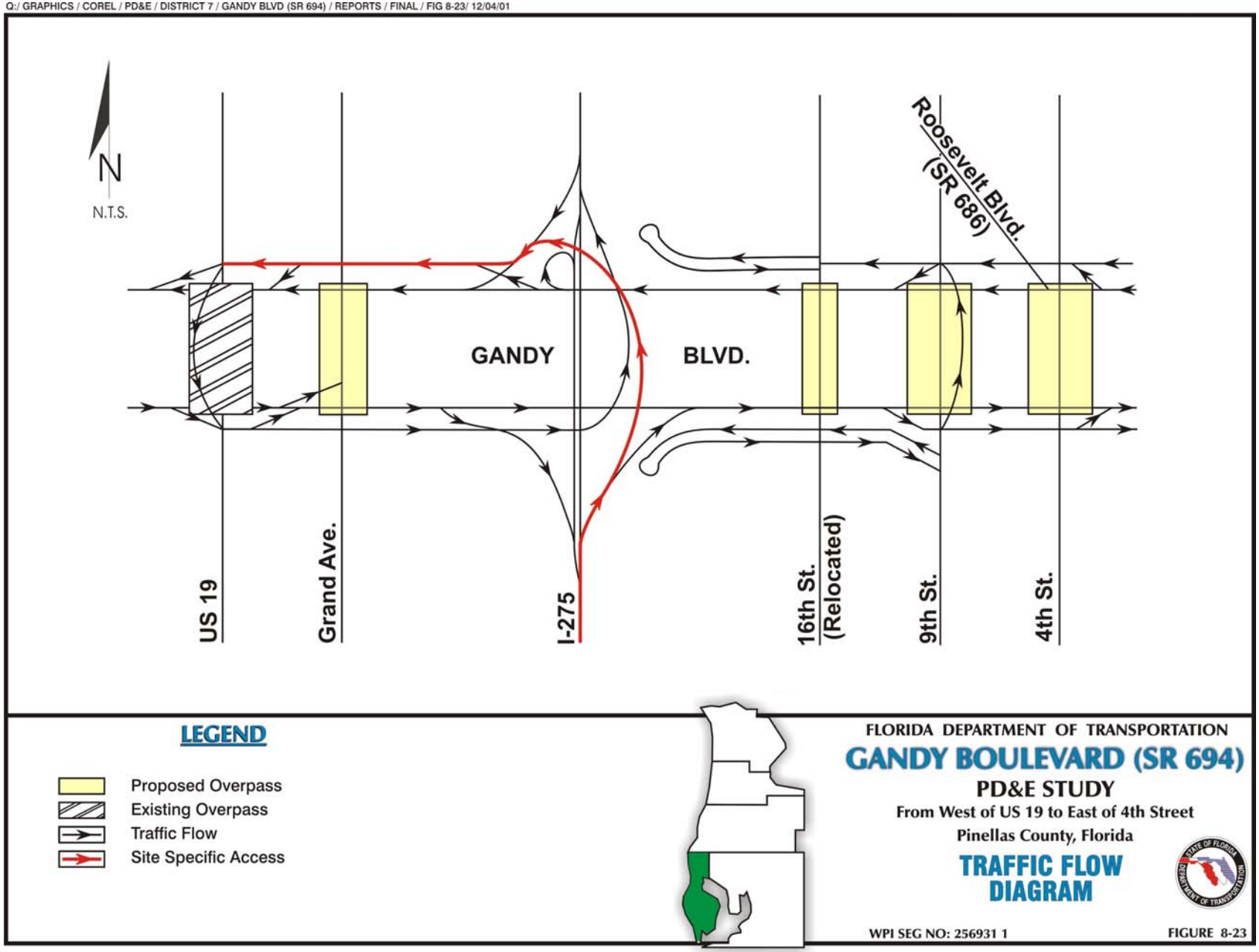

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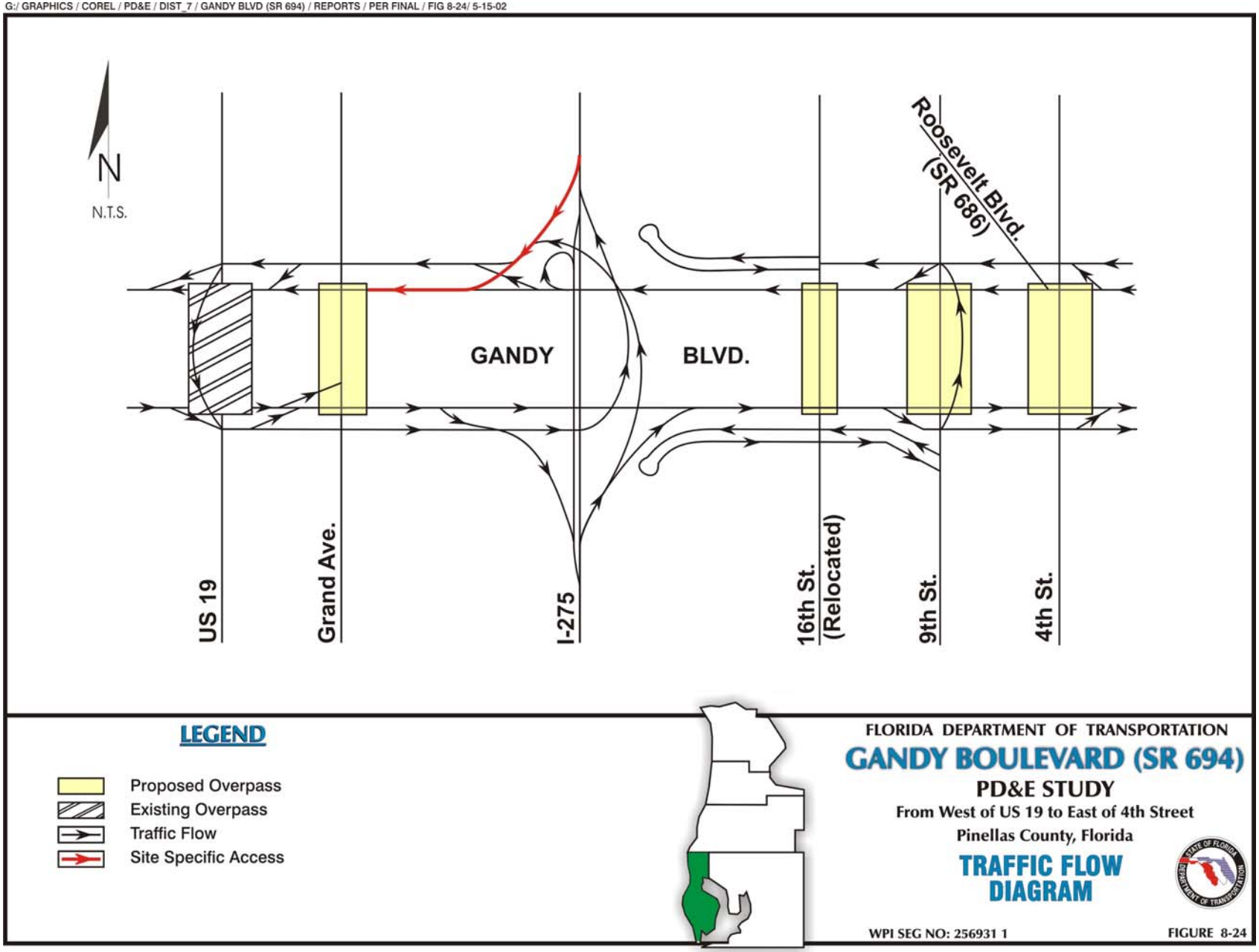

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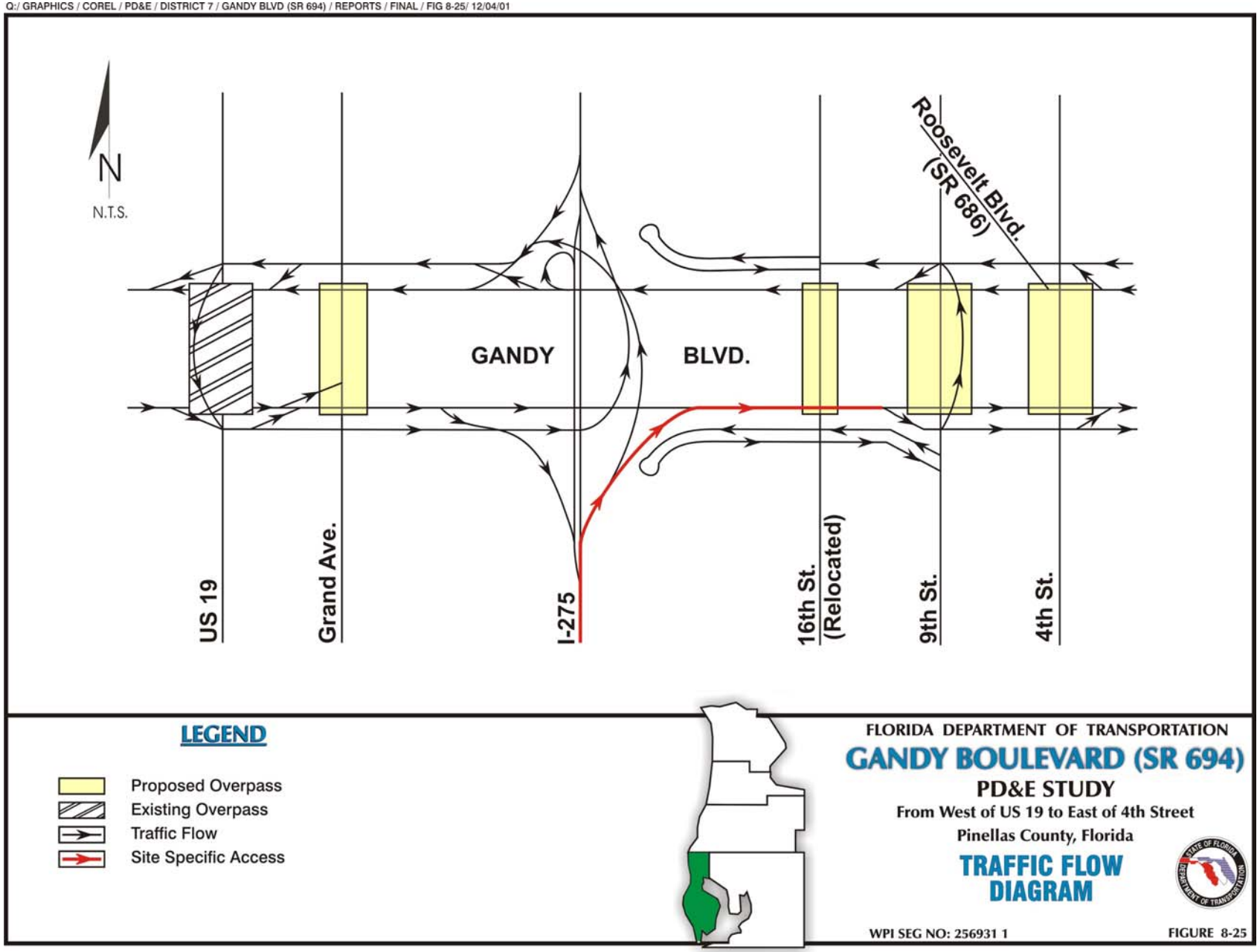

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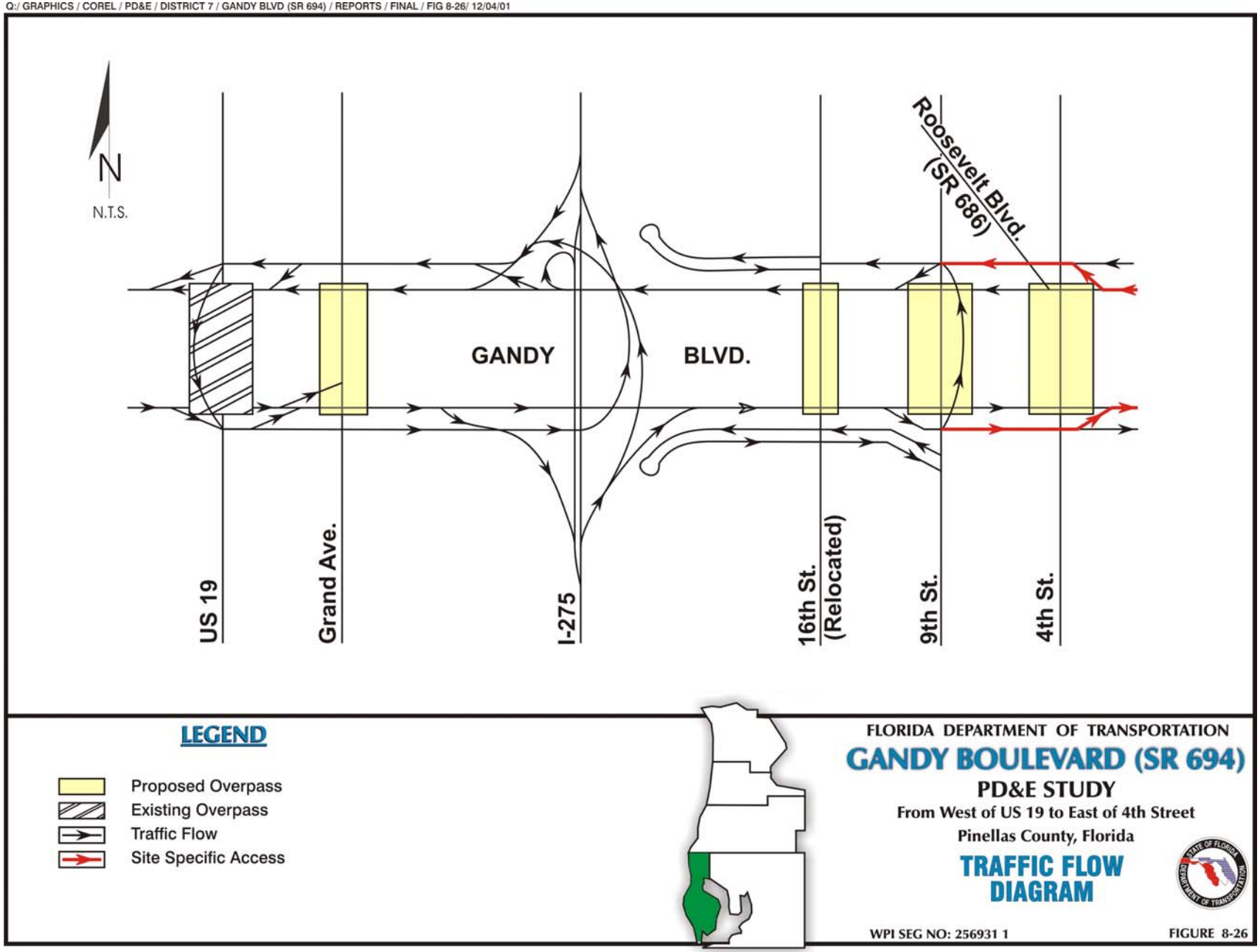

prior to 4th Street onto a two-lane one-way frontage road to 4th Street or 9th Street (Figure 8-27). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access 9th Street and 4th Street via an off-ramp prior to 9th Street onto a two-lane one-way frontage road to 9th or 4th Street (Figure 8-28).

The Recommended Alternative developed in the MIS[1] included a four-lane freeway with one-way frontage roads and four-lane overpasses at 9th Street and 4th Street with ramps. The PD&E Recommended Alternative in this segment includes a four-lane freeway with one-way frontage roads and four-lane overpasses at 9th Street and 4th Street with ramps. The MIS[1] and the PD&E both included a four-lane roadway and four-lane overpasses at 9th Street and 4th Street and one-way frontage roads with ramps. A CORSIM analysis was run and confirmed that the four-lane section with selective direct access and indirect access to Gandy Boulevard (SR 694), 9th Street, and 4th Street would accommodate the traffic at an acceptable LOS for design year 2025 conditions.

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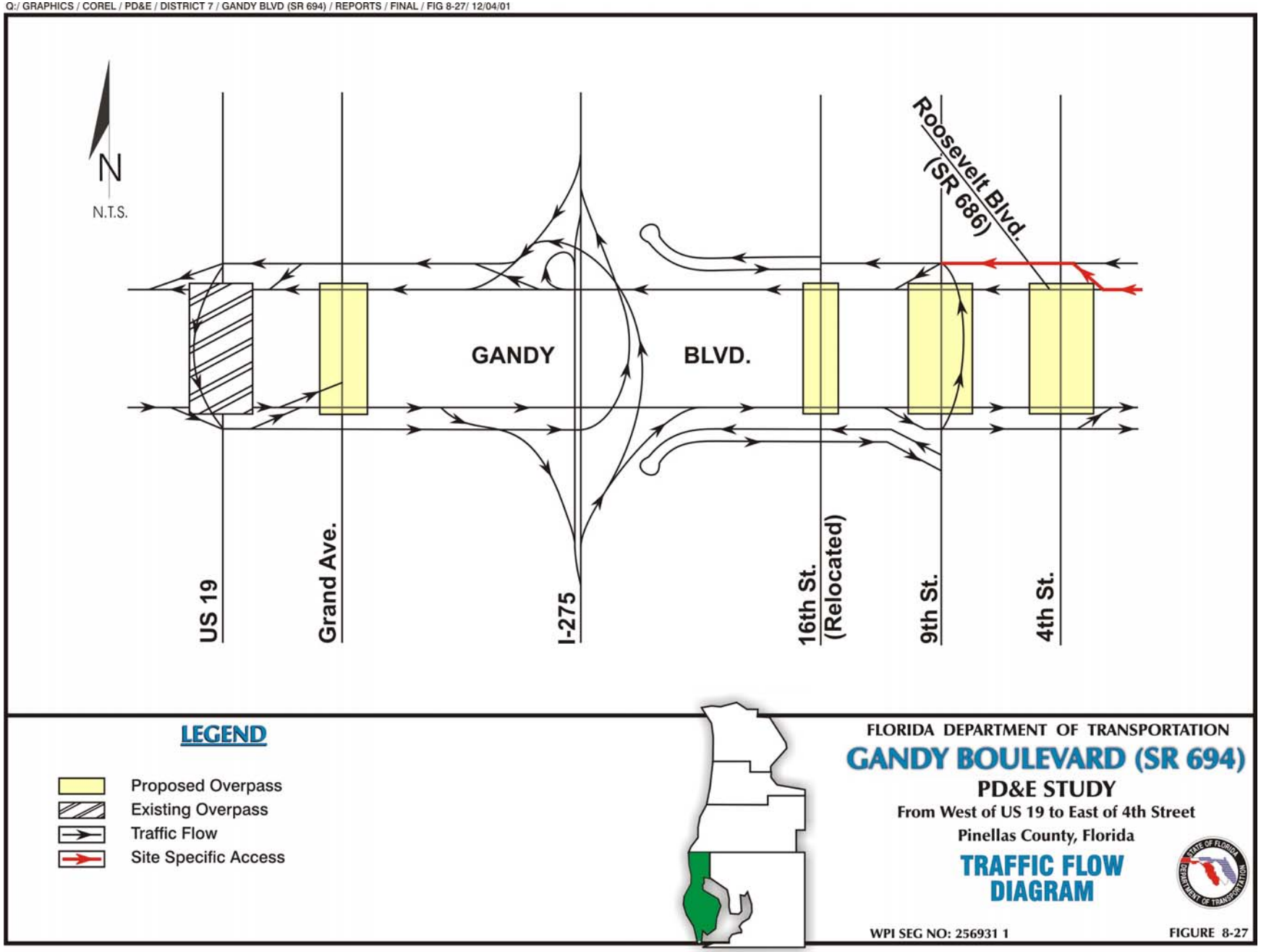

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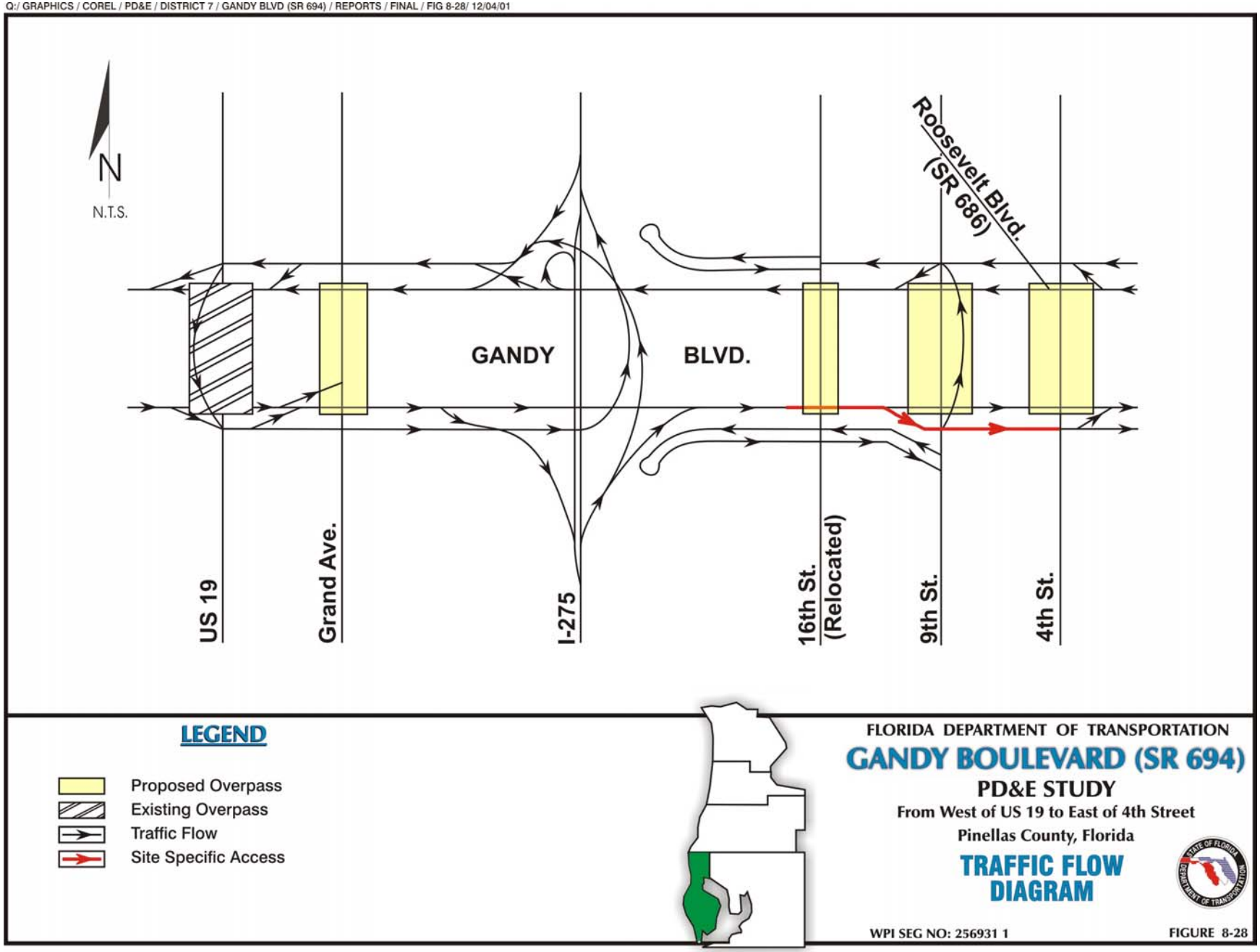

8.5 MATRIX

Table 8-1
Evaluation Matrix -Recommended Alternative

EVALUATION FACTORS *	SEGMENTS				
	A	B	C	D	TOTAL
BUSINESS AND RESIDENTIAL RELOCATIONS					
Number of businesses estimated to be relocated	2	0	1	1	4
Number of residences estimated to be relocated	7	0	0	1	8
COMMUNITY FACILITY INVOLVEMENT					
Community Facilities	0	0	0	0	0
NOISE SENSITIVE SITES					
Number of noise sensitive sites affected	47	0	0	21	68
CULTURAL/HISTORIC RESOURCES AND PUBLIC PARKS INVOLVEMENT					
Number of historic sites/structures within or adjacent to ROW	0	0	0	0	0
Number of public parks within ROW	0	0	0	0	0
NATURAL ENVIRONMENT INVOLVEMENT					
Estimated total wetland involvement area in acres	1.12	2.29	0.42	5.97	9.80
FLOODPLAIN AND FLOODWAY ENCROACHMENT					
Area of base floodplain and floodway encroachment in acres	0	0	0	0	0
POTENTIAL PETROLEUM POLLUTANT AND HAZARDOUS MATERIAL CONTAMINATED SITES (within or adjacent to ROW)					
Number of potential petroleum pollutant contaminated sites	1	0	0	3	4
Number of potential hazardous material contaminated sites	0	0	0	0	0
ESTIMATED PROJECT COSTS (Present value in million $)					
Design cost	$2.17	$3.04	$3.12	$4.24	$12.57
ROW acquisition cost	$13.20	$1.75	$9.38	$6.86	$31.19
Construction cost	$14.43	$20.24	$20.77	$28.27	$83.71
Construction engineering and inspection cost	$2.17	$3.04	$3.12	$4.24	$12.57
TOTAL COST	**$31.97**	**$28.07**	**$36.39**	**$43.61**	**$140.04**

* Includes Preferred Ponds

8.6 DESIGN CHANGES TO THE RECOMMENDED BUILD ALTERNATIVE

8.6.1 Segment C - Recommended Alternative

Following the Public Hearing, the PD&E Recommended Alternative for Segment C was revised. The design changes include an on-ramp from 16th Street to westbound Gandy Boulevard
(SR 694). Additional changes were made at the 9th Street interchange. The lane configuration at the interchange is as follows:

- Three southbound through lanes and a single left turn lane, (to provide an additional southbound through lane).
- Two northbound through lanes and dual left turn lanes, (additional left turn lanes).

The PD&E Recommended Alternative provides a six-lane divided controlled access facility with two-lane two-way frontage roads along the corridor between I-275 and 16th Street on the north and south side of Gandy Boulevard (SR 694), two-lane one-way frontage roads between 16th Street and 9th Street on the north side of Gandy Boulevard (SR 694), and two-lane two-way frontage roads between 16th Street and 9th Street on the south side of Gandy Boulevard (SR 694). Local access between the frontage roads and Gandy Boulevard (SR 694) will be provided between 16th Street and 9th Street via an off-ramp from eastbound Gandy Boulevard (SR 694) and an on-ramp to westbound Gandy Boulevard (SR 694) from 16th Street (Figure 8-17). Traffic traveling eastbound on Gandy Boulevard (SR 694) will access 16th Street via an off-ramp prior to 9th Street and make a u-turn at 9th Street onto a two-lane one-way frontage road to 16th Street (Figure 8-18). Traffic traveling westbound on Gandy Boulevard (SR 694) will access 16th Street via an off-ramp prior to 4th Street onto a two-lane one-way frontage road. Traffic will cross 4th Street, Roosevelt Boulevard, and 9th Street before reaching 16th Street (Figure 8-19). Traffic traveling on 16th Street will access Gandy Boulevard (SR 694) eastbound by traveling on the eastbound two-lane two-way frontage road to 94th Avenue, turn left (north) on 9th Street. Traffic will then turn right

onto the eastbound two-lane one-way frontage road, through 4th Street, to the on-ramp (Figure 8-20). Traffic on 16th Street will access Gandy Boulevard (SR 694) westbound by traveling north or south on 16th Street to the on-ramp (Figure 8-29). Traffic on southbound I-275 will access US 19 and Grand Avenue via an off-ramp to a two-lane one-way westbound collector road (Figure 8-22). Traffic on northbound I-275 will access US 19 and Grand Avenue via a new fly-over to a two-lane one-way westbound collector road (Figure 8-23). Traffic on southbound I-275 will access westbound Gandy Boulevard (SR 694) via an on-ramp (Figure 8-24). Traffic on northbound I-275 will access eastbound Gandy Boulevard (SR 694) via an on-ramp (Figure 8-25).

The Recommended Alternative developed in the MIS[1] included a four-lane freeway with frontage roads and a four-lane overpass at 16th Street. The PD&E Recommended Alternative in this segment includes a six-lane freeway with frontage roads and a six-lane overpass at 16th Street. The MIS[1] and the PD&E both included an overpass at 16th Street and frontage roads; however, the PD&E Recommended Alternative includes a six-lane section for all of Segment C, and two-way frontage roads compared to a four-lane section with one-way frontage roads proposed in the MIS[1]. A CORSIM analysis was run and confirmed that the six-lane section with selective direct and indirect access to both Gandy Boulevard (SR 694) and 16th Street would accommodate the traffic at an acceptable LOS for design year 2025 conditions. Additionally, CORSIM analysis was run and confirmed that 9th Street will accommodate the traffic at an acceptable LOS for design year 2025.

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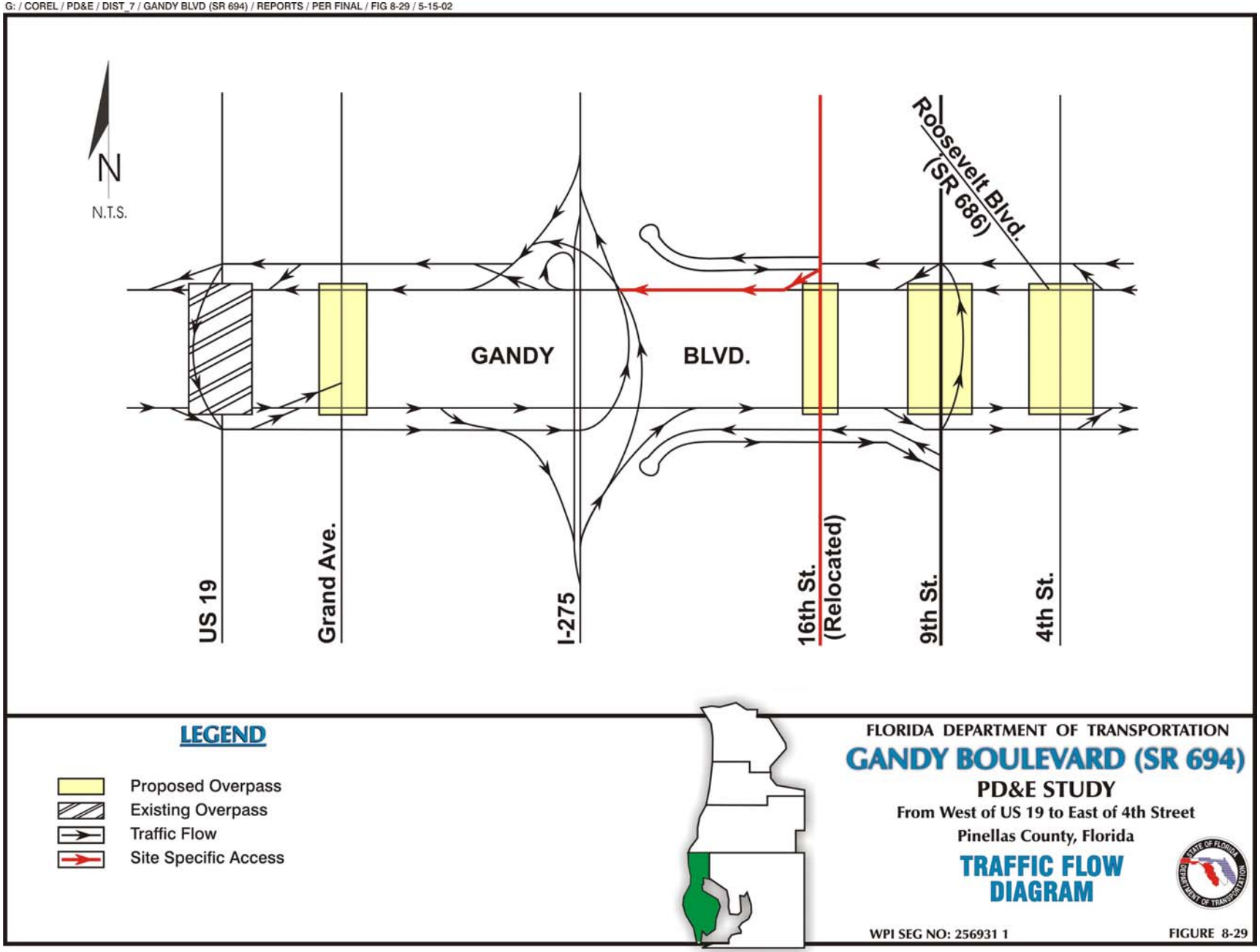

8.7 REFERENCES

1. Major Investment Study; Florida Department of Transportation; 2001.

2. Draft Evaluation Report; Florida Department of Transportation; 1998.

3. Design Traffic Memorandum; Gannett Fleming, Inc.; May 2002.

SECTION 9
PRELIMINARY DESIGN ANALYSIS

After selecting a Recommended Alternative, the next step in the study process was to define/refine the design parameters associated with that choice, including intersection design, drainage design, and maintenance of traffic during construction. The defining of these parameters allows for a more comprehensive and accurate evaluation of project impacts and costs.

9.1 DESIGN TRAFFIC VOLUMES

The average annual daily and directional design hour traffic volumes, AADT and DDHV respectively, were discussed previously in Section 6 of this report. Based on the DDHV and after consideration of the existing turning movements and the impacts of future developments on traffic flow, design hour traffic volumes were developed for the signalized and major unsignalized intersections along the project. Figures 6-9 (a and b) through 6-12 (a and b) depict the design hour volumes.

9.2 TYPICAL SECTIONS

9.2.1 Recommended Alternative

Segment A

The limits of Segment A are along Gandy Boulevard (SR 694) from west of US 19 to west of Grand Avenue. The Proposed Roadway Typical Section 1 for Segment A was previously discussed in Section 8.3.4 and shown in Figure 8-1.

Segment B

The limits of Segment B are along Gandy Boulevard (SR 694) from west of Grand Avenue to west of I-275. The Proposed Roadway Typical Section 2 and Proposed Bridge Typical Section 3 for Segment B were previously discussed in Section 8.3.5 and shown in Figure 8-2 and Figure 8-3.

Segment C

The limits of Segment C are along Gandy Boulevard (SR 694) from west of I-275 to west of 9th Street. The Proposed Roadway Typical Section 4, Proposed Roadway Typical Section 5, Proposed Bridge Typical Section 6, and Proposed Bridge Typical Section 7 for Segment C were previously discussed in Section 8.3.6 and shown in Figures 8-4 through 8-7.

Segment D

The limits of Segment D are along Gandy Boulevard (SR 694) from west of 9th Street to east of 4th Street. The Proposed Roadway Typical Section 5 and Proposed Bridge Typical Section 8 for Segment D were previously discussed in Section 8.3.7 and shown in Figure 8-5 and Figure 8-8.

9.3 INTERSECTION CONCEPTS AND SIGNAL ANALYSIS

The Design Traffic Memorandum[1] illustrates the recommended intersection lane geometry. The Design Traffic Memorandum[1] also provides detailed information about the operation of each signalized intersection during the design hour and the expected average vehicle-queue lengths. As shown in Table 6.14, during the design year 2025, with the recommended lane geometry, all signalized intersections in the study area are expected to provide overall LOS D or better, with the exception of 66th Street, which will operate at LOS E.

9.4 ALIGNMENT AND RIGHT-OF-WAY NEEDS

Appendix A includes aerial photography illustrating the Recommended Alternative for the project and the anticipated roadway ROW needs. As shown, the proposed roadway improvements are primarily accommodated within the existing ROW width.

9.5 RELOCATIONS

There is a possibility of four business and eight residential relocations.

9.6 RIGHT-OF-WAY COSTS

The estimated ROW acquisition costs by segment for the Recommended Alternative were presented earlier in Table 8-1. These costs included ROW acquisitions for improving the roadway facility along Gandy Boulevard (SR 694) from west of US 19 to east of 4th Street, and ROW for ponds. As shown in Table 8-1, the total estimated ROW acquisition cost is $31.19 million. The ROW costs were determined using 2000 dollars.

9.7 CONSTRUCTION COST

Table 8-1 includes the estimated construction costs by project segment for the Recommended Alternative. These costs were calculated with the use of the FDOT's Long Range Estimates (LRE) computer program method. As shown, the estimated total construction cost for the roadway and bridge construction is $83.71 million, and were generated using 2000 dollars.

9.8 PRELIMINARY ENGINEERING AND CONSTRUCTION ENGINEERING COSTS

The cost of engineering (final design) and the cost of Construction, Engineering and Inspection (CEI) were estimated as 15% each of the estimated $83.71 million construction

cost. Therefore, these efforts are expected to cost approximately $12.57 million each for a total of $25.14 million.

9.9 RECYCLING OF SALVAGEABLE MATERIALS

During construction of the project, recycling of re-usable materials will occur to the greatest extent possible. Where possible, removal and recycling of the existing pavement for use in the new pavement will be considered. This helps to reduce the volume of the materials that need to be hauled and disposed of away from the project and reduces the cost of purchasing materials suitable for pavement construction. Other materials such as signs, drainage concrete pipes, etc., will also be salvaged and re-used for regular maintenance operations if they are deemed to be in good condition.

9.10 USER BENEFITS

The public will realize numerous benefits after the Recommended Alternative is constructed. Savings in travel time, reduced vehicle operating costs, reduced traffic accident-related costs, and reduced emergency response times are the main benefits. Access to schools and community facilities, as well as the numerous commercial establishments and residences, will be enhanced. The creation of a motorist-friendly facility will contribute to the economic growth of the area adjacent to the project.

9.11 PEDESTRIAN AND BICYCLE FACILITIES

As noted in section 8.3, the proposed typical section in segments A, B, C, and D will provide 5 ft. wide sidewalks and 4 ft. wide bicycle lanes (or a paved shoulder serving as an undesignated bicycle lane along the frontage roads). Other facilities such as crosswalks and public sidewalk curb ramps at intersections will be designed to meet the Americans with Disabilities Act (ADA). The Florida Power Trail, a multi-lane trail, is currently planned in the vicinity of Gandy Boulevard (SR 694).

9.12 SAFETY

The proposed improvements will upgrade this portion of Gandy Boulevard (SR 694) to a safer and more efficient transportation facility. The increased roadway capacity is expected to result in less congestion and therefore, reduces the probability for accidents. The design and alignment of the roadway will meet applicable safety standards. Adherence to design speed as it applies to establishing and setting minimum values on critical roadway design features will be closely followed. Roadway design elements including curvature, sight distance, width and clearance will meet the applicable minimum roadway design standards. Access control techniques to promote safe and efficient traffic circulation will also be used.

9.13 ECONOMIC AND COMMUNITY DEVELOPMENT

As previously presented in Section 3, the Pinellas County Comprehensive Plan[2] and the Pinellas County MPO 2020 Long Range Transportation Plan[3], as well as the Cities of Largo and Pinellas Park comprehensive plans call for improvements along Gandy Boulevard (SR 694). These plans were developed after thorough evaluation of the future population and development growth in the region of the project. The proposed Gandy Boulevard (SR 694) improvements, developed through the process previously described in Section 8, respond to and fully accommodate the projected year 2025 traffic demand to the maximum extent feasible.

9.14 ENVIRONMENTAL EFFECTS

9.14.1 Land Use Data

9.14.1.1 Community Facilities and Established Land Uses

Community facilities provide a focal point for adjacent neighborhoods and communities, as well as serving the needs of surrounding areas. For the purpose of this study, community facilities included churches and other religious institutions, parks and recreation areas, other

neighborhood gathering places, fire stations, police stations, public and private schools, medical and emergency treatment facilities, cemeteries, and public buildings and facilities. Community services located along the project corridor include the Royal Palm Cemetery and Funeral Chapel, the First Baptist Church of St. Petersburg, a U.S. Post Office and a cemetery. It is anticipated that there will be minor access changes to the First Baptist Church in order to improve safety conditions and traffic circulation. Information for mapping the community facilities in the project vicinity was derived from on-site observation and conversations with county staff. No other disruption to community services is expected.

The existing land uses adjacent to the Gandy Boulevard (SR 694) Corridor are a mix of residential, commercial, office, and light industrial/warehouses. The proposed project is consistent with future land use plans. Future land uses are expected to follow the established trends.

9.14.2 Community Cohesion

The project involves expansion of an existing four-lane facility with limited expected ROW acquisition. No splitting or isolation of neighborhoods or any particular ethnic group will occur. The project is not anticipated to harm elderly persons, handicapped individuals, non-drivers and transit dependent individuals, or minorities. It is anticipated that the project improvements will not impact community cohesiveness.

Therefore, the proposed improvements are being developed to comply with Executive Order 12898, Environmental Justice, issued on February 11, 1994. The proposed improvements are considered to have no effect on community cohesiveness.

9.14.3 Cultural Features

A Final Cultural Resources Assessment Report[4] (CRAS) was prepared as part of this PD&E Study. The findings of the Final CRAS[4] are incorporated by reference into this Report.

9.14.4 Wetland Impact and Mitigation

A Final Wetland Evaluation Report[5] (WER) was prepared as part of this PD&E Study. The findings of the Final WER[5] are incorporated by reference into this Report.

9.14.5 Threatened and Endangered Species

A Final Endangered Species Evaluation Report[6] (ESER) was prepared as part of this PD&E Study. The findings of the Final ESER[6] are incorporated by reference into this Report.

9.14.6 Potential Hazardous Materials and Petroleum Products Contaminated Sites

A Final Contamination Screening Evaluation Report[7] (CSER) was prepared as part of this PD&E Study. The findings of the Final CSER[7] are incorporated by reference into this Report.

9.14.7 Noise Impacts

A Final Noise Report[8] was prepared as part of this PD&E Study. The findings of the Final Noise Report[8] are incorporated by reference into this Report.

9.14.8 Air Quality Impacts

A Final Air Quality Report[9] was prepared as part of this PD&E Study. The findings of the Air Quality Report[9] are incorporated by reference into this Report.

9.14.9 Water Quality Impacts

No adverse impacts to water quality are anticipated. The proposed stormwater facility design will include, at a minimum, the water quality requirements for water quality impacts as required by the SWFWMD in Chapter 373, F.S., and Rules 40E-1, 40E-4, and 40E-40 F.A.C. Therefore, no further mitigation for water quality impacts will be needed. A water Quality Impact Evaluation (WQIE) was completed for this project.

The impacts of the proposed project on the surface water quality will essentially be limited to the effects of erosion during construction. These impacts are considered temporary and will be minimized by strict adherence to Section 104 of the FDOT Standard Specifications for Road and Bridge Construction[10].

9.14.10 Aquatic Preserves

All of Pinellas County is designated as a State Aquatic Preserve and as such is designated as Outstanding Florida Waters (OFW). The project's Stormwater Management Facilities (SMF) sites have been evaluated assuming the facilities discharge directly to OFW and treatment of one inch of runoff for facilities not discharging directly to OFW.

9.14.11 Section 4(f) Lands

In accordance with Section 4(f) of the DOT Act of 1966 (Title 49, U.S.C., Section 1653 (f), amended and recodified in Title 49, U.S.C., Section 303, in 1983), the project was examined for possible Section 4(f) properties. It was determined that this project does not involve, nor will affect, any Section 4(f) properties.

9.14.12 Outstanding Florida Waters

See Section 9.14.10.

9.14.13 Floodplains

A Final Location Hydraulic Report[11] (LHR) was prepared as part of this PD&E Study. The findings of the Final LHR[11] are incorporated by reference into this Report.

9.15 UTILITY IMPACTS

Several utility distribution lines are located within the existing Gandy Boulevard (SR 694) ROW, including Florida Power Corporation, City of St. Petersburg, City of Pinellas Park, AT&T, Pinellas County, Verizon, Paragon/Time Warner Cable, KMC Telecom III, Inc., Florida Gas, and Intermedia Communications of Florida, Inc. A gas transmission line owned by Florida Power Corporation crosses Gandy Boulevard at 9th Street. In addition, there is a power substation located at the northeast quadrant of the Gandy Boulevard interchange with I-275. Depending on their location and depth, implementation of the recommended improvements for the project may require adjustment of some of these facilities. A set of plans identifying the recommended Recommended Alternative was sent by FDOT to the utility companies to provide utility relocation costs. These costs are not included in the total estimated project costs presented in Section 9.7, since they will be incurred by the utility owners.

9.16 TRAFFIC CONTROL PLAN

Gandy Boulevard (SR 694) provides access to numerous residences and businesses along this corridor. Due to its importance, Gandy Boulevard (SR 694) should remain functional throughout the duration of the construction activities. The existing number of travel lanes

should be maintained to the maximum extent possible. Lane closures, if necessary should occur during off-peak hours.

The following conceptual construction sequence will help maintain traffic operations along Gandy Boulevard (SR 694):

- Relocate existing utilities within the ROW.
- Construct stormwater ponds (if ponds are proposed in these areas).
- Construct ditches and sidewalks while maintaining two-way traffic on the existing or temporary pavement.
- Construct either the ultimate eastbound or westbound lanes (sidewalks, curb and gutter, travel lanes) while maintaining existing two-way traffic on a combination of the existing pavement and newly constructed or temporary pavement.
- Temporarily operate two-way traffic on the completed ultimate eastbound or westbound lanes, while constructing the remaining ultimate travel lanes.
- Shift eastbound and westbound traffic to their respective, completed roadways.

9.17 RESULTS OF PUBLIC INVOLVEMENT PROGRAM

An updated Public Involvement Program was approved for this PD&E Study on August 22, 2000. The purpose of the program was to outline the various mechanisms and opportunities the Department was using to inform and solicit responses from interested parties, including local residents, public officials and agencies, and business owners. The program, which included an Advance Notification (AN) Package; presentations to the Pinellas County Metropolitan Planning Organization's Citizens Advisory Committee (CAC); and Technical Coordination Committee (TCC); the Glen Lakes Estates Homeowner's Association; and a Public Hearing, are summarized in the Final Comments and Coordination Report[12]. A brief summary of the Public Involvement Program follows.

9.17.1 Advance Notification

An AN Package was prepared in accordance with Part 1, Chapter 2 of the FDOT PD&E Manual[13] and was transmitted to the Florida State Clearinghouse in the Governor's Office of Planning and Budgeting on March 30, 2000. While several agencies responded with no comments, the following had comments: Tampa Bay Regional Planning Council (TBRPC), Southwest Florida Water Management District (SWFWMD), Florida Department of Community Affairs (DCA), Florida Department of State Historic Preservation Office (SHPO), and the Florida Department of Environmental Protection (DEP).

Generally, the comments indicated either no anticipated impacts, consistency with applicable requirements, a request that standard protective measures be used, or a request for further coordination during the project's final engineering design phase. The full comments and corresponding responses are included in the Final Comments and Coordination Report[12].

9.17.2 Elected Official/Agency Kickoff Meeting

An Elected Official/Agency Kick-off Meeting was held on February 15, 2000, from 10:00 a.m. to 12:00 noon at the St. Petersburg City Council Chambers, 175 Fifth Street North, St. Petersburg, Florida. The purpose of the meeting was to introduce the project to local officials and staff and to obtain information regarding local issues and concerns. Information presented at the meeting included graphics depicting the project location map, existing typical section, and proposed project schedule. A brief project handout also included this information, discussed the proposed improvements, and provided a comment sheet that could be submitted at the meeting or by mail. A copy of the meeting materials may be found in Appendix B of the Final Comments and Coordination Report[12].

9.17.3 Newsletters / Presentations / Small Group Meetings

The FDOT issued two newsletters to elected officials, agencies, and property owners within 300 ft. of the centerline of proposed alternative throughout the course of the project.

The first was mailed in April 2001 and was introductory in nature. It acquainted the public with the PD&E process, the project history, project description, and upcoming activities. The second was issued in January 2002 and announced the upcoming Public Hearing, explained the Recommended Alternative, discussed various environmental considerations, and gave a schedule of upcoming activities.

The FDOT also gave a presentation to the Glen Lakes Estates Homeowner's Association on December 11, 2000. After a brief presentation on the project's status, upcoming milestones, and future public involvement opportunities, the FDOT answered questions regarding the project and the PD&E process. A project Fact Sheet was distributed to attendees.

Finally, a presentation was given to the Pinellas County MPO's CAC on February 28, 2002. This presentation updated members on the project and gave them an overview of what would be presented at the upcoming Public Hearing.

Follow-up presentations to present information on the Public Hearing were given to the Pinellas MPO Technical Coordinating Committee (TCC) on May 22, 2002, to the Pinellas MPO CAC on May 23, 2002, and to the Pinellas MPO Board on June 12, 2002.

9.17.4 Public Hearing

A Public Hearing was held on March 14, 2002, from 4:30 p.m. to 7:30 p.m. at the First Baptist Church of St. Petersburg, Heritage Hall, 1900 Gandy Boulevard, St. Petersburg, Florida. Elected officials, and various agency representatives were notified of the meeting by first class mail at least 25 to 30 days prior. Per Florida Statute and the FDOT's PD&E Manual[13], property owners within 300 ft. of any of the alternatives under study were notified of the meeting by first class mail at least 21 days prior. The meeting was advertised in the Florida Administrative Weekly on February 15, 2002, and in the St. Petersburg Times, South Edition on February 21 and March 7, 2002.

The meeting consisted of an informal session and a formal session. The informal session began at 4:30 p.m. and lasted until 6:00 p.m. During that time, the public could view a continuously looped project video, view the conceptual plans and project documents on display, speak to the court reporter in a one-on-one setting, or ask questions from FDOT representatives. Project handouts and a copy of the Evaluation Matrix were available to all attendees. At 6:00 p.m., the FDOT gave a formal presentation regarding the project and its associated environmental effects. An opportunity to provide formal public comment followed the presentation. The court reporter transcribed the entire formal portion. Following the formal portion of the Hearing, the informal portion resumed until 7:30 p.m.

Conceptual alignments and project reports were available for public review prior to and after the Hearing beginning February 21, 2002 through March 25, 2002 at the FDOT District Seven Headquarters and at the North Branch Library, Reference Desk, 861 70th Avenue North, St. Petersburg, Florida. Information brochures/handouts were offered to attendees at the Public Hearing. A copy of these materials, as well as all notification materials may be found in Appendix C of the Final Comments and Coordination Report[12].

Approximately 104 people attended the Public Hearing. One person gave a statement to the court reporter during the informal portion of the Hearing, and two spoke during the formal portion. A total of six written comments were received either at the Public Hearing or in the mail. Four of the comments requested that FDOT provide westbound access for Gandy Boulevard from 16th Street, one requested a copy of the conceptual plans, and another requested direct access for eastbound Gandy Boulevard from the Royal Palm Mobile Home Park. As stated previously, based upon this public comment, and additional engineering analysis, the FDOT will provide westbound access for Gandy Boulevard from 16th Street. A copy of the Official Public Hearing Transcript may be found in Appendix D of the Final Comments and Coordination Report[12].

9.18 VALUE ENGINEERING

The Gandy Boulevard (SR 694) improvement alternative was reviewed by a Value Engineering (VE) review team formed by FDOT staff. The review was performed from October 29, 2001 to November 2, 2001. A Value Engineering Study[14] has been prepared as part of this PD&E Study. The findings of the Value Engineering Study[14] are incorporated by reference into this Report. Refer to Appendix C for the recommendation and course of action.

9.19 DRAINAGE

A LHR[11] has been prepared as part of this PD&E Study. The findings of the LHR[11] are incorporated by reference into this Report.

9.20 STRUCTURES

The Gandy Boulevard (SR 694) Corridor includes 10 proposed bridges between west of US 19 to east of 4th Street.

9.21 ACCESS MANAGEMENT UNDER RECOMMENDED ALIGNMENT

In order to meet access management criteria as shown in Tables 6-2 and 6-3, an Access Management Plan was developed for the proposed improvements. Under the recommended alignment scenario, the mainline of Gandy Boulevard (SR 694) has no at-grade intersections within the project limits. Consequently, access management concerns are localized at the following interchanges with Gandy Boulevard (SR 694):

- US 19 Interchange (existing)
- Modified I-275 Interchange
- New 9th Street Interchange
- New Roosevelt Boulevard/4th Street Interchange

US 19/Gandy Boulevard (SR 694) Interchange

The new alignment for Gandy Boulevard (SR 694) does not modify the geometry at the US 19/Gandy Boulevard (SR 694) interchange. Therefore the deficiencies listed in section 3.1.1 and Table 6-7 will still exist.

Modified I-275 Interchange

With the removal of the signalized intersection with the northbound I-275 off-ramp, no median openings or connections will be within the influence area of the interchange. Consequently, no access conflicts are anticipated within the interchange area.

New 9th Street Interchange

The speed limit on 9th Street both north and south of Gandy Boulevard (SR 694) is 45 mph. The posted speed limit and the standards in section 6.3 were considered in the development of the minimum spacing requirements in Table 9-1.

Table 9-1
Median Openings

Review of Median/Connection Opening Spacing at New 9th Street Interchange			
Access Description	**Distance**		**Meets Interchange Access Management Standards**
	Measured	**Required**	
Median Opening Spacing			
From eastbound off-ramp to first median opening south of Gandy Boulevard (SR 694)	310 ft.	1,320 ft.	No
From westbound frontage road to first median opening north of Gandy Boulevard (SR 694)	580 ft.	1,320 ft.	No
Connection Spacing			
From eastbound off-ramp to first connection south of Gandy Boulevard (SR 694) and on the west side of 9th Street	310 ft.	440 ft.	No
From westbound frontage road to first connection north of Gandy Boulevard (SR 694) and on the east side of 9th Street	220 ft.	440 ft.	No

New Roosevelt Boulevard/4th Street Interchange

The speed limit on 4th Street south of Gandy Boulevard (SR 694) is 40 mph. North of Gandy Boulevard (SR 694), the speed limit on 4th Street remains at 40 mph until approximately the first driveway connection on the east side of the roadway. North of this driveway connection the posted speed limit is 50 mph. The posted speed limits and the standards in section 6.3 were considered in the development of the minimum spacing requirements in Table 9-2.

Table 9-2
Median Openings

Review of Median/Connection Opening Spacing at New Roosevelt Boulevard/4th Street Interchange			
Access Description	**Distance**		**Meets Interchange Access Management Standards**
	Measured	**Required**	
Median Opening Spacing			
From westbound off-ramp to first median opening north of Gandy Boulevard (SR 694)	815 ft.	1,320 ft.	No
From eastbound frontage road to first median opening south of Gandy Boulevard (SR 694)	430 ft.	1,320 ft.	No
Connection Spacing			
From westbound off-ramp to first connection north of Gandy Boulevard (SR 694) and on the east side of 4th Street	470 ft.	440 ft.	Yes
From eastbound frontage road to first connection south of Gandy Boulevard (SR 694) and on the west side of 4th Street	430 ft.	440 ft.	No

9.22 REGIONAL TRANSIT LOCATIONS

Provided in Section 4.1.12.

9.23 AESTHETICS AND LANDSCAPING

The placement and maintenance of any landscaping shall comply with the required clear zone and sight distance at intersections. No other provisions or commitments were made regarding special aesthetic features.

9.24 REFERENCES

1. Design Traffic Memorandum; Gannett Fleming, Inc.; May 2001.

2. Pinellas County Comprehensive Plan, Transportation Element; Pinellas County Planning Department; Clearwater, Florida; Adopted February 17, 1998, Last Amended April 21, 1999.

3. Pinellas County MPO 2020 Long Range Transportation Plan; Pinellas County MPO; Pinellas County, Florida; December 1998, Revised May 28, 1999.

4. Final Cultural Resources Assessment Report; ACI; May 2002.

5. Final Wetland Evaluation Report; PBQD; May 2002.

5. Final Endangered Species Evaluation Report; PBQD; May 2002.

7. Final Contamination Screening Evaluation Report; PBQD; May 2002.

8. Final Draft Noise Report; PBS&J; May 2002.

9. Final Air Quality Report; PBS&J; May 2002.

10. FDOT Standard Specifications for Road and Bridge Construction; 2000.

11. Final Location Hydraulic Report; PBQD; May 2002.

12. Draft Comments and Coordination Report; PBS&J; May 2002.

13. FDOT Project Development and Environment Guidelines; 1998.

14. Value Engineering Study; FDOT; December 2001.

APPENDICES

APPENDIX A **Alternative Design Concepts & Contamination Sites**
APPENDIX B **Geopak Output**
APPENDIX C **Correspondence**

APPENDIX A

Alternative Design Concepts & Contamination Sites

APPENDIX B

Geopak Output

==========
G E O P A K

Project: Gandy
Subject: Centerline Construction Output File
Job No. 694 Operator: RD
Date: Wednesday December 12, 2001 8:55 am
SYSTEM FIX 2 ASEC 2 BEAR PRI 0 RED NE STA 2 FILE: 'CLCON'

* 2 des cha clccn

Chain CLCON contains:
1000 CUR CLCON-1 CUR CLCON-2 CUR CLCON-3 CUR CLCON-4 CUR CLCON-5 1001

Beginning chain CLCON description
==========

Point 1000 N 1,274,883.37 E 433,549.76 Sta 10+00.00

Course from 1000 to PC CLCON-1 N 89^ 45' 17.92" E Dist 887.70

Curve Data

Curve CLCON-1					
P.I. Station	26+95.93	N	1,274,890.62	E	435,245.68
Delta =	44^ 41' 24.34"	(LT)			
Degree =	2^ 54' 50.19"				
Tangent =	808.23				
Length =	1,533.66				
Radius =	1,966.26				
External =	159.63				
Long Chord =	1,495.08				
Mid. Ord. =	147.64				
P.C. Station	18+87.70	N	1,274,887.16	E	434,437.46
P.T. Station	34+21.36	N	1,275,461.48	E	435,817.83
C.C.		N	1,276,853.41	E	434,429.05
Back = N	89^ 45' 17.92" E				
Ahead = N	45^ 03' 53.58" E				
Chord Bear = N	67^ 24' 35.75" E				

Course from PC CLCON-1 to PC CLCON-2 N 45^ 03' 53.58" E Dist 2,622.59

Curve Data

Curve CLCON-2					
P.I. Station	70+52.91	N	1,278,025.46	E	438,388.62
Delta =	18^ 56' 47.39"	(RT)			
Degree =	0^ 56' 51.24"				
Tangent =	1,008.96				
Length =	1,999.49				
Radius =	6,046.62				
External =	83.60				
Long Chord =	1,990.39				
Mid. Ord. =	82.46				
P.C. Station	60+43.95	N	1,277,313.83	E	437,674.38
P.T. Station	80+43.44	N	1,278,468.57	E	439,295.55
C.C.		N	1,273,033.38	E	441,945.14
Back = N	45^ 03' 53.58" E				

Ahead = N 64^ 00' 40.96" E
Chord Bear = N 54^ 32' 17.27" E

Course from PT CLCON-2 to PC CLCON-3 N 64^ 00' 40.96" E Dist 5,436.11

Curve Data

Curve CLCON-3					
P.I. Station	140+44.76	N	1,281,098.31	E	444,690.02
Delta =	12^ 48' 08.86"	(LT)			
Degree =	1^ 08' 14.19"				
Tangent =	565.21				
Length =	1,125.71				
Radius =	5,037.99				
External =	31.61				
Long Chord =	1,123.37				
Mid. Ord. =	31.41				
P.C. Station	134+79.55	N	1,280,850.64	E	444,181.97
P.T. Station	146+05.26	N	1,281,452.40	E	445,130.57
C.C.		N	1,285,379.19	E	441,974.36

Back = N 64^ 00' 40.96" E
Ahead = N 51^ 12' 32.10" E
Chord Bear = N 57^ 36' 36.53' E

Course from PT CLCON-3 to PC CLCON-4 N 51^ 12' 32.10" E Dist 3,113.81

Curve Data

Curve CLCON-4					
P.T. Station	187+30.10	N	1,284,036.54	E	448,345.62
Delta =	38^ 52' 39.90"	(RT)			
Degree =	1^ 59' 59.99"				
Tangent =	1,011.04				
Length =	1,943.89				
Radius =	2,864.79				
External =	173.17				
Long Chord =	1,906.81				
Mid. Ord. =	163.30				
P.C. Station	177+19.06	N	1,283,403.15	E	447,557.53
P.T. Station	196+62.95	N	1,284,035.01	E	449,356.65
C.C.		N	1,281,170.23	E	449,352.32

Back = N 51^ 12' 32.10' E
Ahead = S 89^ 54' 48.00' E
Chord Bear = N 70^ 38' 52.05" E

Course from PT CLCON-4 to PC CLCON-5 S 89^ 54' 48.00" E Dist 1,206.24

Curve Data

Curve CLCON-5					
P.I. Station	211+11.66	N	1,284,032.82	E	450,805.35
Delta =	17^ 16' 59.53"	(LT)			
Degree =	3^ 35' 28.75"				
Tangent =	242.47				
Length =	481.25				
Radius =	1,595.40				
External =	18.32				
Long Chord =	479.43				
Mid. Ord. =	18.11				

P.C. Station	208+69.19	N	1,284,033.19	E	450,562.89
P.T. Station	213+50.44	N	1,284,104.51	E	451,036.98
C.C.		N	1,285,628.58	E	450,565.30

Back = S 89^ 54' 48.00" E
Ahead = N 72^ 48' 12.47" E
Chord Bear = N 81^ 26' 42.23" E

Course from PT CLCON-5 to 1001 N 72^ 48' 12.47" E Dist 4,252.78

Point 1001 N 1,285,361.84 E 455,099.64 Sta 256+03.22

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Ending chain CLCON description

APPENDIX C

Corresponden

PBS&J

Memorandum

Date: **January 15, 2002**

To: **Gabor Farkasfalvy**

From: **John Cerreta, P.E.**

Subject: **Comments to the Value Engineering Report**
Work Program Item Segment No.: 256931 1
S.R. 694 (Gandy Boulevard) PD&E Study from U.S. 19 to East of 4th Street
Pinellas County

Comment: 1. Braided ramp to US 19 / Grand Avenue. The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative would eliminate the braided ramp by providing additional slip ramps.

If this recommendation can be implemented, there is a possible savings of $2,780,269.

Response: Removing the braided ramp and providing additional slip ramps is not a viable option. Geometric analysis prohibits consecutive slip ramps between US 19 and Grand Avenue. Due to the close proximity of the interchanges/overpasses, the acceleration and deceleration lengths needed for the slip ramps cannot be provided according to the criteria in the FDOT Plans Preparation Manual PPM and AASHTO. Without including these additional ramps, full access will not be provided; therefore, the braided ramp will remain.

Comment: 2. Reduce number of westbound lanes. The Value Engineering Team recommends that the Value Engineering Alternative be implemented.

This alternative would reduce the number of westbound lanes west of I-275 from three to two lanes.

If this recommendation can be implemented, there is a possible savings of $175,460.

Response: The number of westbound lanes provided in the preferred alternative west of I-275 was dictated by the traffic analysis performed by Gannet Flemming Inc. Therefore, the lane configuration will remain with three westbound lanes through Grand Avenue.

Comment: 3. Retain existing pavement. The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative would retain the existing pavement from the I-275 Interchange to the grade change to the proposed Frontage Road Interchange (16th Street).

If this recommendation can be implemented, there is a possible savings of $1,049,237.

Response: **As long as the existing pavement and subgrade is suitable, it is anticipated that a majority of the pavement along the existing frontage roads will be retained with improvements according to the typical section. The frontage roads will be widened and converted to a closed drainage system. However, since an overpass at 16th Street is proposed the proposed profile grade will separate from the existing grade just east of I-275 resulting in complete reconstruction of the Gandy mainline pavement. Similarly, due to several grade differences along the project, most of the existing mainline pavement cannot be salvaged.**

Comment: 4. Reduce eastbound lanes / widen 9th Street exit ramp. The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative would reduce the number of eastbound lanes from three to two and widen the exit ramps to 9th Street from one to two lanes.

If this recommendation can be implemented, there is a possible savings of $13,320.

Response: **The preferred alternative depicts reducing the number of eastbound lanes from three to two just prior to 9th Street. The preferred alternative was revised to include a two-lane off ramp in the eastbound direction at 9th Street. The traffic analysis**

supports the two-lane off-ramp. The preferred alternative was revised to drop the third eastbound lane by creating the second lane on the off-ramp.

Comment: 5. Roosevelt / 4th Street Bridge. The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative would reduce the length of the bridge spanning Roosevelt Boulevard and 4th Street.

If this recommendation can be implemented, there is a possible savings of $1,877,172.

Response: **The reduction in bridge length would require a relocation of a potential pond site. Relocation of the pond site was found to be less feasible due to very high right-of-way acquisition cost.**

Comment: 6. Grand Avenue. The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative would retain Grand Avenue in its current location.

If this recommendation can be implemented, there is a possible savings of $763,678.

Response: **During the old PD&E, the MIS, and the new PD&E, research found that a DRI presents Grand Avenue relocated. The preferred alternative is consistent with the approved DRI, and previous studies.**

dg
cc: File 100694.xx (5T)