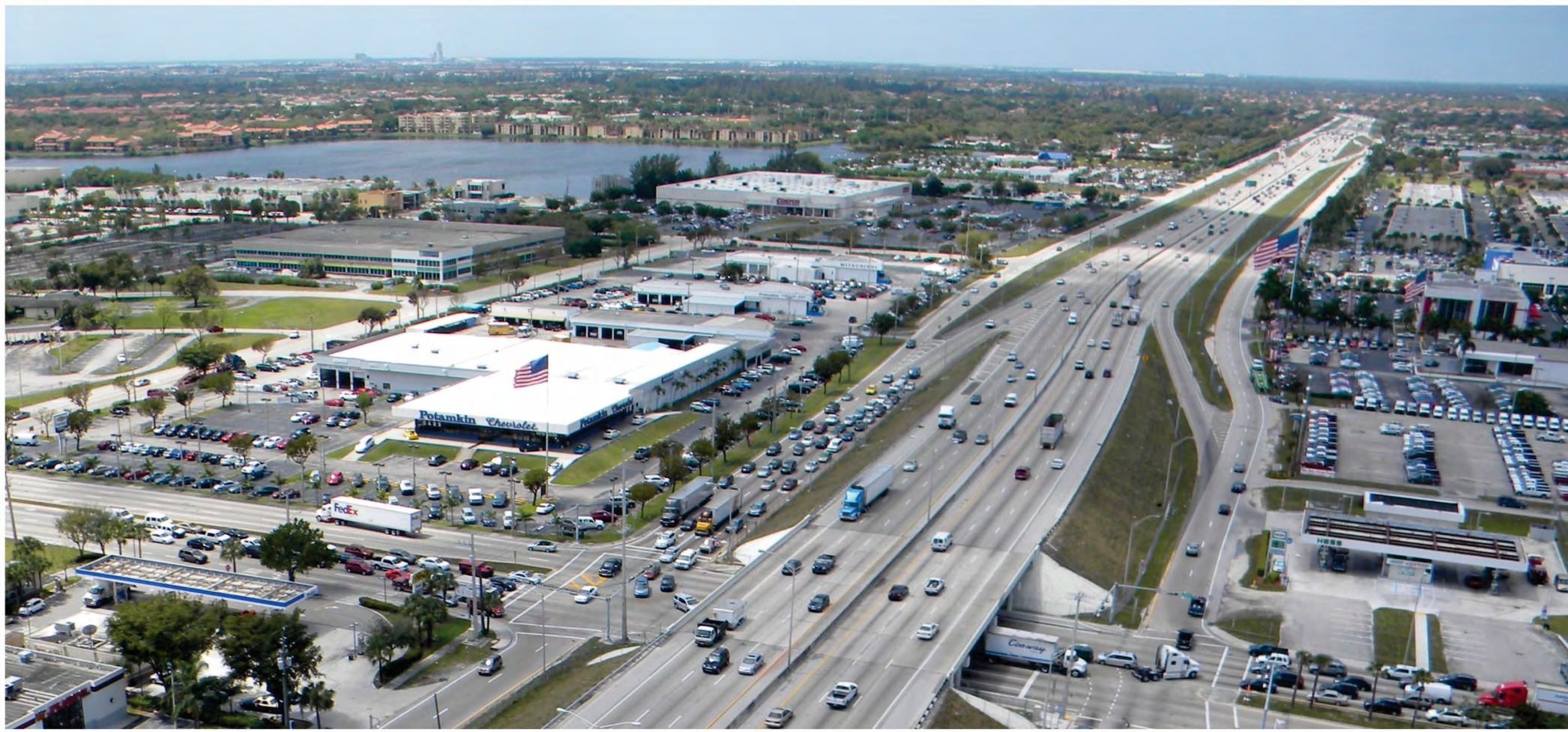
SR 826/Palmetto Expressway PD&E Study

From SR 93/I-75 to the Golden Glades Interchange

SFM #: 418423-1-22-01
FAP #: 4751 146 P
ETDM #: 11241



SYSTEMS INTERCHANGE MODIFICATION REPORT (SIMR)

Re-evaluation

May 2019

Systems Interchange Modification Report (SIMR) Re-evaluation

SR 826/Palmetto Expressway PD&E Study

From SR 99/I-75 to Golden Glades Interchange

FM #: 418423-1-22-01; FAP #: 4751 146 P; ETDM #: 11241

Florida Department of Transportation

Determination of Safety, Operational and Engineering Acceptability

Acceptance of this document indicates successful completion of the review and determination of safety, operational and engineering acceptability of the Interchange Access Request. Approval of the access request is contingent upon compliance with applicable Federal requirements, specifically the National Environmental Policy Act (NEPA) or Department's Project Development and Environment (PD&E) Procedures. Completion of the NEPA/PD&E process is considered approval of the project location design concept described in the environmental document.

Requestor	Dat Huynh, P.E. Project Manager	5/8/19 Date
Interchange Review Coordinator	Kenneth Jeffries District Six Transportation Planning Manager	5/8/19 Date
FDOT Central Office	Maria Overton, P.E. Systems Management Administrator	05/09/19 Date
Federal Highway Administration	Nick Finch, P.E. Associate Division Administrator – FL DIV	5/16/19 Date

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with RS&H, Inc., authorized under Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes, Certificate of Authorization (CA) No. 2294, by the State of Florida Department of Professional Regulation, Board of Professional Engineers, and that I prepared or approved the evaluation, findings, opinions, conclusions, or technical advice herby reported for:

Financial Project ID: 418423-1-22-01
Federal Aid Project No.: 4751 146 P
Project: Re-evaluation of SR 826 / Palmetto Expressway
Project Development and Environment (PD&E) Study
From SR 93/I-75 to the Golden Glades Interchange
County: Miami-Dade
FDOT Project Manager: Dat Huynh, P.E.

I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience.

SIGNATURE: _____

Name: Winston G. Harris, P.E., PTOE
P.E. No.: 50592
Firm: RS&H, Inc.
6303 Blue Lagoon Drive, Suite 325
Miami, Florida 33126

Date: 5/3/2019

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APPENDICES

1 PROJECT OVERVIEW

1.1 Introduction

In October 2016, the Florida Department of Transportation (FDOT) received approval from the Federal Highway Administration (FHWA) for the Systems Interchange Modification Report (SIMR) supporting the implementation of improvements along the segment of SR 826/Palmetto Expressway extending from I-75 to the Golden Glades Interchange (GGI) in Miami-Dade County, Florida (FM No. 418423-22-01). The SIMR was prepared as a component of the above referenced SR 826/Palmetto Expressway Project Development and Environment (PD&E) Study. The SR 826 SIMR included improvements resulting from the adjacent GGI PD&E Study (FM No. 428358-1-22-01). Proposed improvements identified in the PD&E Study involve the construction of new express lanes along the Palmetto Expressway mainline connecting to I-95 express lanes, capacity improvements at the SR 826 interchanges, a southbound express lane connector from Florida's Turnpike (Spur), and ramp improvements at the GGI.

Subsequent to the approval of the Palmetto Expressway SIMR in 2016, the FDOT identified additional network improvements within the GGI to further enhance traffic operations. These involve the introduction of a modified ramp to connect the existing NB I-95 express lanes directly to the Turnpike Spur, whereas in the existing configuration, the NB express lanes traffic merges with general use (GU) traffic before accessing the Turnpike Spur. Modifications are also proposed for the ramp systems providing connections between the NB I-95 Express Lanes (EL) and other destinations served at the GGI (these include: I-95 GU lanes; NW 167th Street; US 441 and SR 826 GU lanes). Further, safety and operational improvements to support the implementation of the ramp modifications will involve removing the existing NB I-95 Express Lanes egress at NW 151st Street. These ramps modifications are planned to be implemented in 2025 as part of the GGI Ultimate Improvements (the GGI Enhancements Projects).

In addition to these ramp modifications, the FDOT plans to relocate the proposed EL ingress/egress points on the Palmetto Expressway that were previously located to service traffic using the GGI Interchange. In the new proposed configuration, the ingress/egress point will be relocated to service traffic using the GGI in addition to serving NW 17th Avenue and NW 12th Avenue. This proposed relocation of the ingress/egress points will better serve the transportation needs for the industrial and commercial areas located west of the GGI.

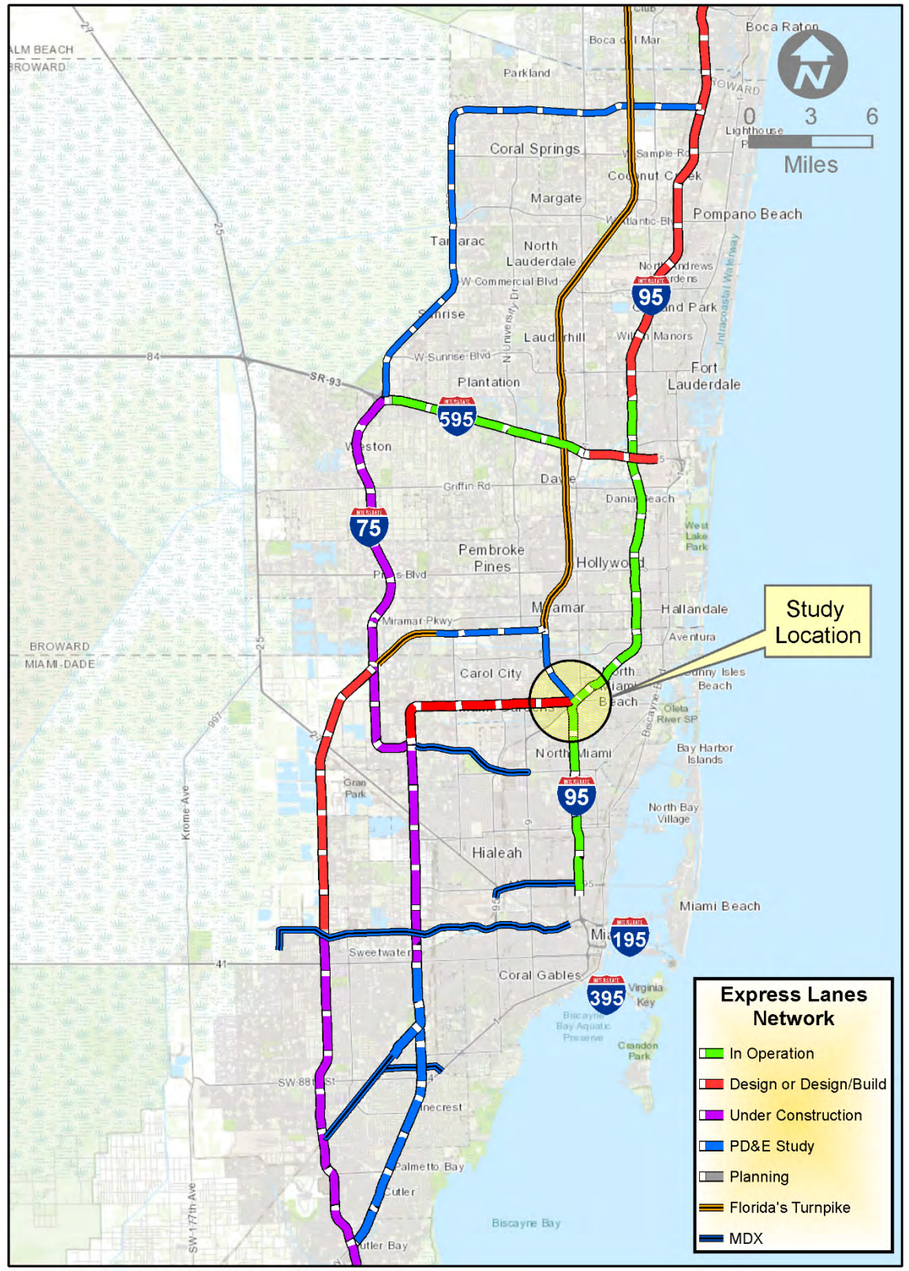
The FDOT has determined that the analysis and documentation of the aforementioned design modifications will require a re-evaluation of the previously approved 2016 SR 826/Palmetto Expressway/GGI SIMR, per FDOT's Interchange Access Request Guidelines. This addendum to the SIMR presents the re-evaluation of the traffic operations analyses for the proposed design changes (referenced herein as 2018 SIMR Re-evaluation Design Concept) in order to gain concurrence from the FHWA.

The SR 826 PD&E Preferred Alternative was approved in both the SR 826 SIMR and the SR 826 PD&E Study documents. Hence, the proposed design changes will be documented in both the SIMR and the Design Change Re-evaluations. The Project Location map in Figure 1-1 highlights the focus area for the SR 826 SIMR Re-evaluation.

1.2 Purpose of SR 826 SIMR Re-evaluation

This SR 826 SIMR Re-evaluation documents operations analyses for the proposed design modifications, referenced herein as the 2018 SIMR Re-evaluation Design Concept. This incorporates the NB I-95 Express to NB Turnpike Connector (also known as Design Concept 4.1B), and the relocation of the ingress and egress points along SR 826 Express. The SIMR Re-evaluation compares traffic operations for the 2018 SIMR Re-evaluation Design Concept and the previously approved 2016 SIMR Design Concept. The findings presented in the SIMR Re-evaluation demonstrate the operational benefits of the 2018 SIMR Re-evaluation Design Concept compared against the 2016 SIMR Design Concept. The findings provide the necessary justification for implementation of the 2018 SIMR Re-evaluation Design Concept.

Figure 1-1: Project Location Map



2 METHODOLOGY

The methodology applied for the SR 826/Palmetto Expressway SIMR Re-evaluation is described in detail in the following document:

- *Methodology Letter of Understanding (MLOU), SR 826/Palmetto Expressway from SR 93/I-75 to Golden Glades Interchange (GGI) Systems Interchange Modification Report (SIMR) Re-evaluation, June 7, 2018.*

This MLOU is included herein under Appendix A. The MLOU outlines the criteria, assumptions, processes, analyses and documentation requirements for the SIMR Re-evaluation. The MLOU was processed through the FDOT at the District, State and Federal level. The following summarizes some of the more prominent issues covered in the MLOU.

2.1 Area of Influence

The study area for the SR 826/Palmetto Expressway SIMR is depicted in Figure 2-1. The project study area is located within the Transportation Concurrency Exception Area (TCEA)/Urban Infill Area (UIA) established by Miami-Dade County and the Transportation Concurrency Management Area (TCMA) which was established by local municipalities (see Figure 2-1). The anticipated area of influence for the re-evaluation includes the following (see Figure 2-1):

- SR 826/Palmetto Expressway from west of NW 37th Avenue (MP 20.700) to the GGI. This incorporates the existing interchanges at NW 37th Avenue (MP 21.030), NW 27th Avenue (MP 22.034), NW 17th Avenue (MP 23.046) and NW 12th Avenue (MP 23.470).
- I-95 (Section 87270000) from Opa-Locka Boulevard (MP 10.9) to Miami Gardens Drive (MP 14.30). This includes the existing interchanges at Opa-Locka Boulevard, NW 151st Street, GGI and Miami Gardens Drive.

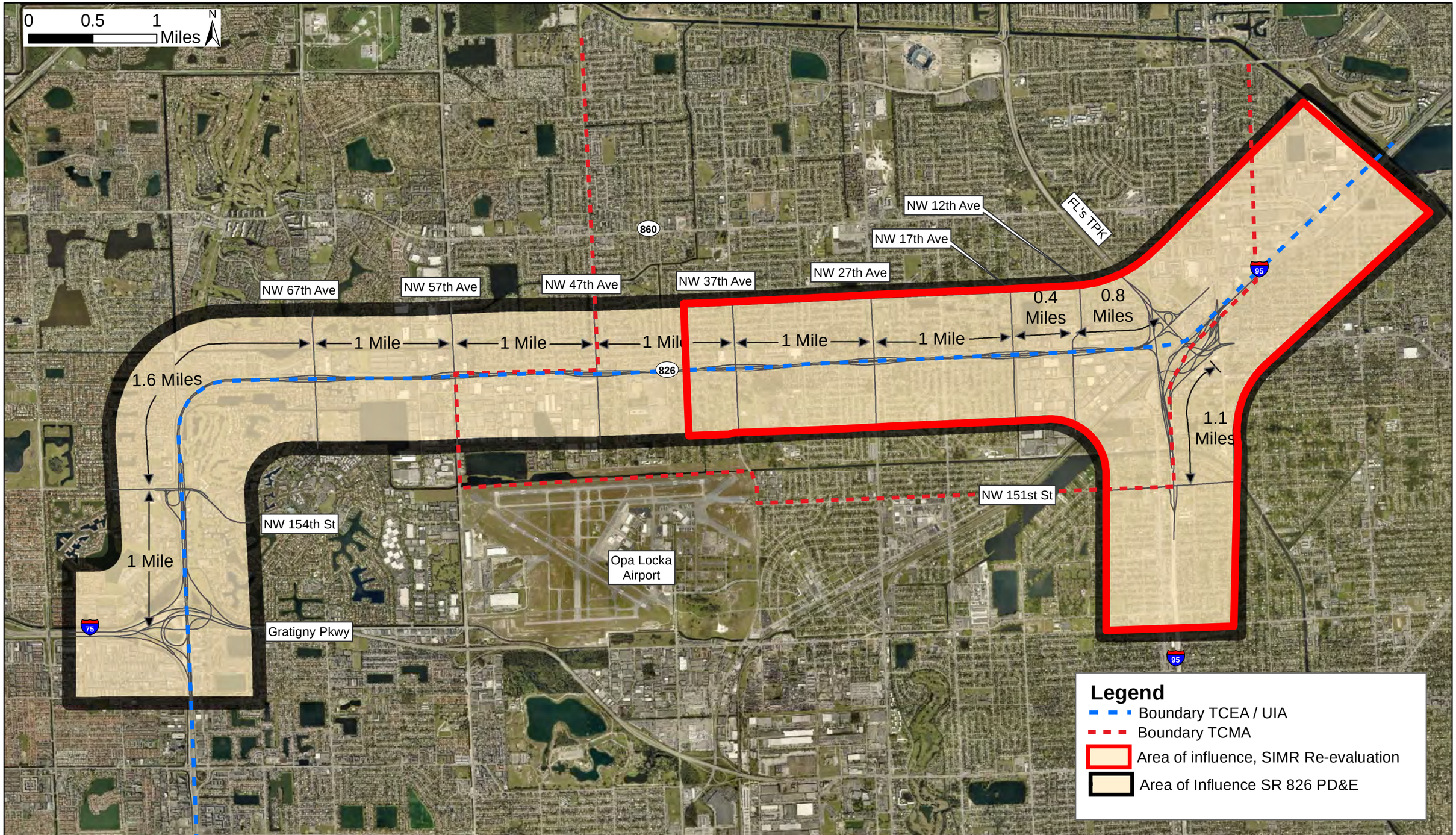
2.2 Analysis Years

The analysis years for the SIMR Re-evaluation were established as follows:

- Existing Year: 2011 (No analysis required)
- Opening Year: 2025 (No analysis required)
- Design Year: 2040

The existing year (2011) and design year (2040) for the Re-evaluation are all consistent with the previously approved 2016 SIMR. The opening year (2025) is consistent with current projections for the opening of the proposed NB GGI Express Lane Connector and other planned GGI improvements (currently in design) which are scheduled to open in 2025.

The SIMR Re-evaluation requires no analysis for the existing year (2011) which is documented in the approved 2016 SIMR. Operations analyses will be performed for the design year 2040 to demonstrate operational acceptance of the proposed design modifications. These proposed design modifications are expected to yield operational improvements from opening year 2025 through to the design year (2040). Hence, no analysis is required in the opening year 2025 for demonstrating operational acceptance of the proposed design modifications. It is further noted that the design modifications proposed in this Re-evaluation are being coordinated with the ongoing I-95 Master Plan which is developing the I-95 vision for conditions beyond 2040. Any further improvements that are necessary for conditions beyond 2040 will be incorporated in the I-95 Master Plan.



FDOT	SR 826/Palmetto Expressway from I-75 to GGI SIMR Re-evaluation	Area of Influence	FIGURE: 2-1

2.3 Travel Demand Forecasting

The SIMR Reevaluation utilized the travel demand forecast from the previously approved 2016 SR 826/Palmetto Expressway SIMR which included the GGI. Per FDOT's Interchange Access Request (IAR) User's Guide, it is required that the validity of traffic volumes be confirmed when performing a re-evaluation to determine if a significant change in traffic conditions is anticipated. The User's Guide states further that a comparison of traffic volumes from the forecasting model used in the original IAR with the new model can be made to determine if a significant change in traffic volumes is anticipated.

In keeping with the guidelines of the FDOT's IAR User's Guide, the validity of the traffic forecast from the 2016 SIMR was checked by comparing the 2040 AADT forecasts for each entry and exit point at the GGI using data from the 2016 SIMR and data from the current approved travel demand model (SERPM 7). Figure 2-2 shows the traffic count locations used for performing this comparison. The 2040 AADT forecast are compared in Table 2-1

The results in Table 2-1 indicate that the AADT forecasts from the 2016 SIMR are higher than the SERPM 7 forecast at all but one location (SR7/US 441 north of GGI). In order to check the significance of the difference in traffic forecasts, a lane call assessment was performed for each roadway based on the FDOT's Quality Level of Service Handbook, service volume thresholds. This assessment procedure is consistent with the FDOT's Project Traffic Forecasting Handbook which states the following:

"In general, model simulated link volumes are expected to be accurate enough to correctly determine the required number of lanes for roadway design. This means that the acceptable error should be no more than the service volume (at the design LOS) for one lane of traffic."

The lane call assessment comparison is shown in Table 2-1. As noted in the table, except for SR 826/Palmetto Expressway, the lane call for all road segments is the same when using the SIMR forecast and the SERPM 7 forecast. In the case of SR 826/Palmetto Expressway, the SIMR forecast results in a lane call of 12 lanes whereas the SERPM 7 forecast results in 10 lanes. The proposed improvements along SR 826/Palmetto Expressway (per SIMR forecast) incorporate a typical section consisting of 10 lanes (3 general use lanes + 2 express lanes). These results indicate that use of SERPM 7 forecast would not change the planned improvements for a 10-lane typical section along SR 826/Palmetto Expressway. In addition, the lane call along other facilities with planned improvements (I-95) is consistent. Hence, it can be concluded that the variance in design traffic forecast (2016 SIMR vs. SERPM 7) is not significant in consideration of the proposed roadway improvements.

Further validity checks for the traffic forecasts were performed by comparing estimated traffic forecasts from the 2016 SIMR and historical traffic counts collected at FDOT's traffic monitoring sites, located in the vicinity of the GGI. This comparison was performed using the most recent available FDOT traffic counts (year 2017) and the estimated traffic forecast from the 2016 SIMR for year 2017. The comparison is shown in Table 2-2 for all the entry and exit points at the GGI (count locations identified in Figure 2-2).

The comparison shows that the estimated 2017 AADTs along I-95 are within 5% of the traffic counts. Variances (SIMR forecasts vs. counts) are less than 15%, except at three locations (SR 7 North of GGI, NE 167th Street East of GGI and SR 9 South of GGI). For these three locations, the 2017 traffic counts are less than the SIMR forecast. It is further noted, that the 2017 traffic counts show no discrepancies when compared to the 2040 SIMR forecasts (i.e., all 2040 traffic forecasts are higher than the corresponding 2017 traffic counts). These results suggest that the SIMR forecast are reasonable and variances in forecasts are not significant to change the planned improvements.

The preceding travel demand forecast validity checks which were performed consistent with the FDOT's IAR User's Guide, Project Traffic Forecasting Handbook and the Quality Level of Service Handbook. Based on these validity checks, it was determined that performing a new travel demand forecast was not required for the SIMR Reevaluation. New network link flows were generated by manually reassigning traffic volumes in accordance with proposed design modifications and the origin-destination patterns. Traffic volumes reassigned to the NB GGI Express Lane Connector were estimated from traffic origin-destination patterns gathered from the existing I-95 Express Lanes System (see Table 2-3). Similarly, traffic volumes reassigned to the modified SR 826 ingress and egress points were estimated from traffic origin-destination patters that were gathered for the SR 826 PD&E Study. The traffic volumes assigned to the networks are depicted in the figures

shown under Section 3 of the report. Details of the travel demand forecasting procedures that were applied in the 2016 SIMR are documented in the attached MLOU (Attachment A), for reference.

Figure 2-2: Traffic Count Locations

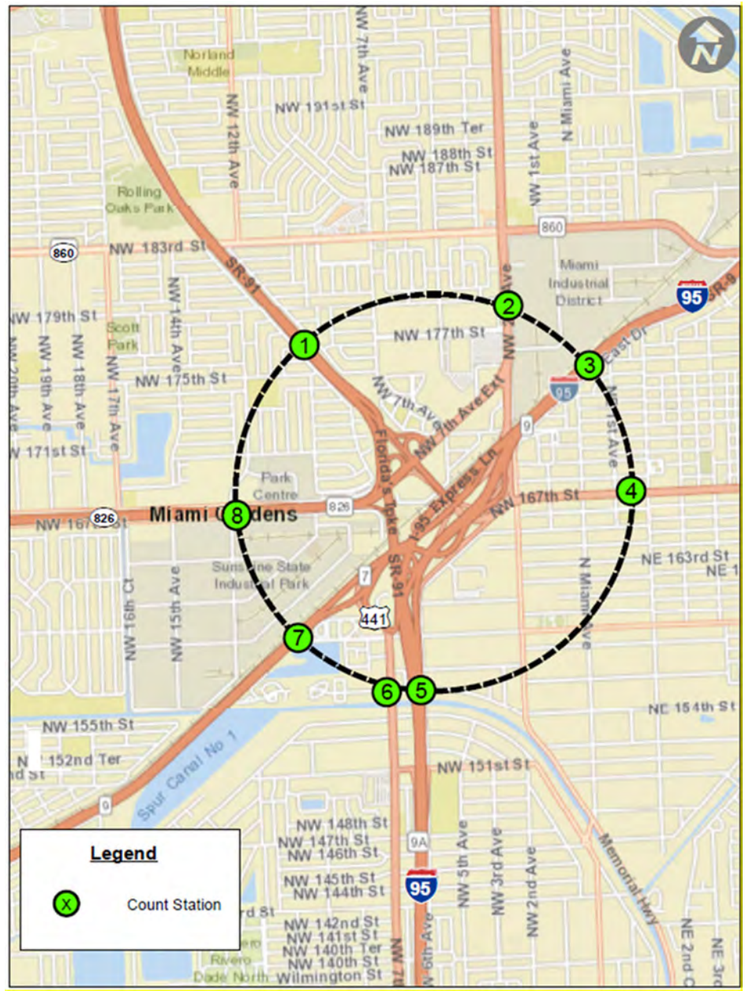


Table 2-1: Comparison of 2040 AADT Forecasts

STA	Location	SIMR 2040 AADT	SERPM 7 2040 AADT	2040 SERPM 7 vs. 2040 SIMR	Lane Call per SIMR AADT	Lane Call per SERPM 7
1	FL. Turnpike North of GGI	151800	126700	-17%	8	8
2	SR 7/US 441 North of GGI	81200	88600	9%	8+	8+
3	I-95 North of GGI	248200	213400	-14%	12	12
4	SR 826/NE 167 ST, East of GGI	86800	77400	-11%	8+	8+
5	I-95 South of GGI	308200	300500	-2%	12+	12+
6	SR 7 /US 441 South of GGI	32000	31100	-3%	4	4
7	SR 9 South of GGI	43100	41200	-4%	6	6
8	SR 826/Palmetto Expy West of GGI	230600	183000	-21%	12	10

Notes:

1. Lane Call based on FDOT LOS Handbook, LOS E Threshold, Urbanized Area
2. 8+, 12+ indicate maximum number of lanes for facility type specified in LOS Handbook

Table 2-2: Comparison of 2017 AADTs

STA	Location	FDOT Count 2017 AADT	SIMR 2017 AADT	2017 Count vs. 2017 SIMR
1	FL. Turnpike North of GGI	99600	107700	-8%
2	SR 7/US 441 North of GGI	61000	70500	-16%
3	I-95 North of GGI	218000	206200	5%
4	SR 826/NE 167 ST, East of GGI	65000	78400	-21%
5	I-95 South of GGI	299000	290800	3%
6	SR 7 /US 441 South of GGI	27500	25200	8%
7	SR 9 South of GGI	27800	37400	-35%
8	SR 826/Palmetto Expy. West of GGI	169000	186900	-11%

Table 2-3: Origin-Destination Survey, NB I-95 Express, South of GGI

Origin: NB I-95 EL, South of GGI Total AM Period (6:00 AM to 9:00 AM = 5,080 Total PM Period (4:00 PM to 7:00 PM) = 8,630											
Traffic Destinations											
GGI Park and Ride (PNR)		**NB I-95 EL** (to destinations north of Miami Gardens Drive via EL)		**WB SR 826**		**NB TPK**		**EB NW 167 ST. & NB US 441**		**NB I-95 GU (**to Miami Gardens Drive and destinations north via GU)	
1		2		3		4		5		6	
AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
50	150	2470	3290	510	950	1260	2370	180	250	610	1620
1%	2%	49%	38%	10%	11%	25%	27%	4%	3%	12%	19%

Source: Florida Turnpike Enterprise, December 2016 (Post Opening I-95 Express Phase 2)

2.4 Operations Analyses

Traffic operations analyses for the SR 826 SIMR Re-evaluation were performed utilizing CORSIM (version 6.3) models that were developed for the prior 2016 SR 826 SIMR. The CORSIM models developed for the 2016 SR 826 SIMR were calibrated to replicate the traffic operating conditions during the AM and PM peak periods in the existing year (2011). The calibration was performed in accordance with criteria specified in the *FHWA Traffic Analysis Toolbox Volume III and FDOT's Traffic Analysis Handbook*. Information related to the calibration of the CORSIM models is documented in detail in the CORSIM Model Manual which is included under Appendix F of the approved 2016 SIMR. Given the prior calibration effort that was performed for the 2016 SR 826 SIMR, a recalibration effort was not required for this SIMR Re-evaluation.

CORSIM microsimulation models were developed for design year 2040 conditions for the 2018 SIMR Re-evaluation Design Concept and the proposed relocation of the express lanes ingress/egress points along SR 826. The CORSIM models maintained the following spatial and temporal limits per the prior 2016 SR 826 SIMR models:

- Spatial limits extend along SR 826 from I-75 to the Golden Glades Interchange and along I-95 from south of Okeechobee Road Interchange to Miami Gardens Drive Interchange (see Figure 2-1).
- Temporal limits cover a total duration of 4 hours in the AM peak period and 4 hours in the PM peak period (which excludes the model initialization period). Multi-period analyses were performed using traffic volumes in 15-minute time increments.

The following MOEs gathered from the CORSIM models were used to evaluate and compare the performance of the proposed design modifications.

- *Operating speeds*
- *Densities*
- *Travel time*
- *Simulated volumes and demand volumes.*

The MOEs reported in the SIMR Re-evaluation are limited to an area of influence covered by the proposed design changes. This includes NB I-95 from south of Opa-Locka Boulevard to north of Miami Gardens Drive and SR 826 (eastbound and westbound) from west of NW 37th Avenue to GGI. Target performance measures for freeway operations are LOS D and operating speeds of 45 mph or higher for mainline segments.

3 DESIGN CONCEPTS

The SIMR Re-evaluation considers two design concepts for the project design year 2040: 1) the 2016 SIMR Design Concept and 2) 2018 SIMR Re-evaluation Design Concept. The two design concepts are described below.

3.1 2016 SIMR Design Concept

The design concept resulting from the 2016 SIMR is illustrated in the Line Diagram of Figure 3-1. The 2016 SIMR Design Concept Lane Schematic in Figure 3-2 includes geometric details for road segments along NB I-95, SR 826 and the GGI Ramp Connector (NB I-95 to NB Turnpike) which will be directly impacted by the design changes proposed in the SIMR Re-evaluation. The proposed improvements from the 2016 SIMR include the following:

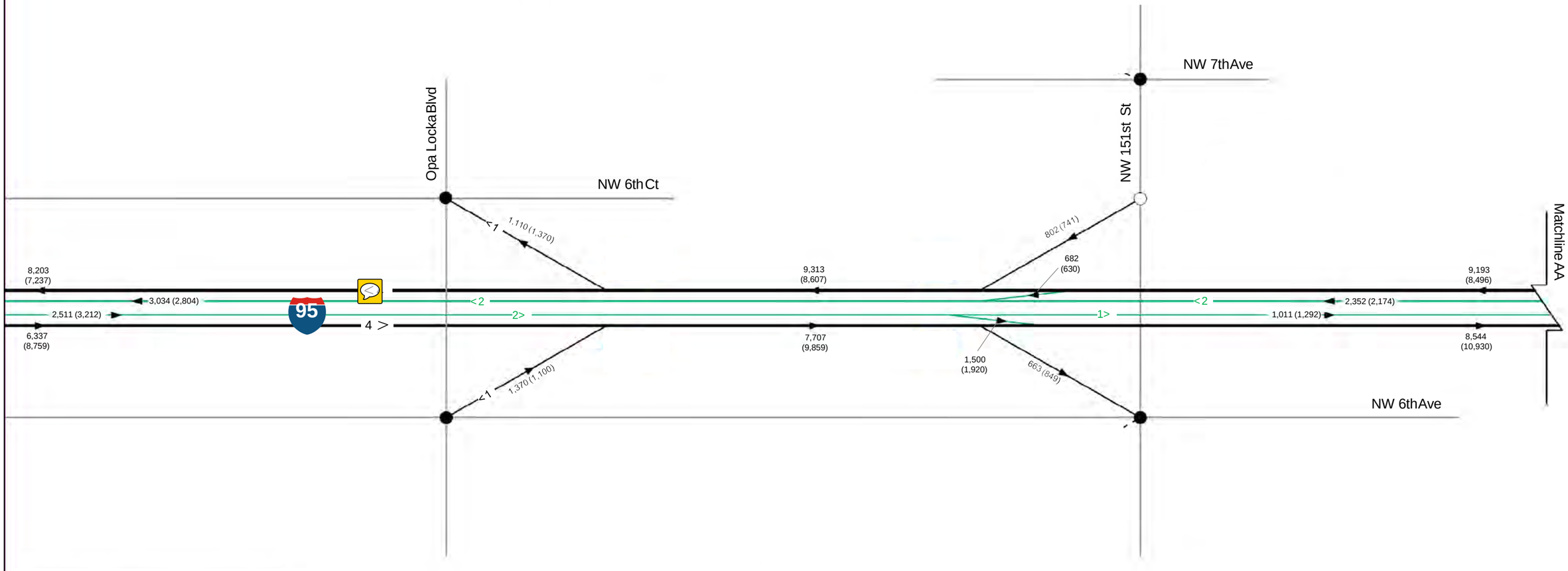
Improvements to SR 826/Palmetto Expressway Corridor

- Widening SR 826 mainline between I-75 and GGI to accommodate two express lanes along with three general purpose lanes throughout SR 826 corridor. In addition, auxiliary lanes are proposed between the interchanges.
- Modifying the service interchanges along SR 826 to increase capacity. Modifications are proposed at NW 154th Street, NW 67th Street, NW 47th Street, NW 37th Street, NW 27th Street and NW 17th Street. The modifications include converting existing diamond interchanges to single point urban interchanges (SPUI) at NW 67th Avenue and NW 27th Avenue. At other service interchanges, additional lanes are proposed to improve capacity.

Improvements at the Golden Glades Interchange

- Construction of a new direct system-to-system connection from the existing express lanes on I-95 (north) to the proposed express lanes on SR 826.
- Construction of a new express lanes connector between SB Florida's Turnpike and SB I-95 Express Lanes.
- Provision of a three lane off-ramp for SR 826/Palmetto Expressway eastbound (GU) to I-95 NB/SB.
- Relocation of the SR 826 eastbound on-ramp from NW 12th Avenue to SR 826 and connection to the three lane off-ramp to I-95 NB/SB. This design change is incorporated in recommendations for 2018, 2030 and 2040.
- New signalized intersection with double left turn lanes for SR 826/Palmetto Expressway eastbound to Turnpike northbound.
- Addition of an auxiliary lane to the Turnpike Connector southbound lanes and relocating off-ramp to SR 7/US 441 approximately 1,200 feet south of existing location.
- Addition of one northbound left turn lane at NW 2nd Avenue and NW 167th Street.

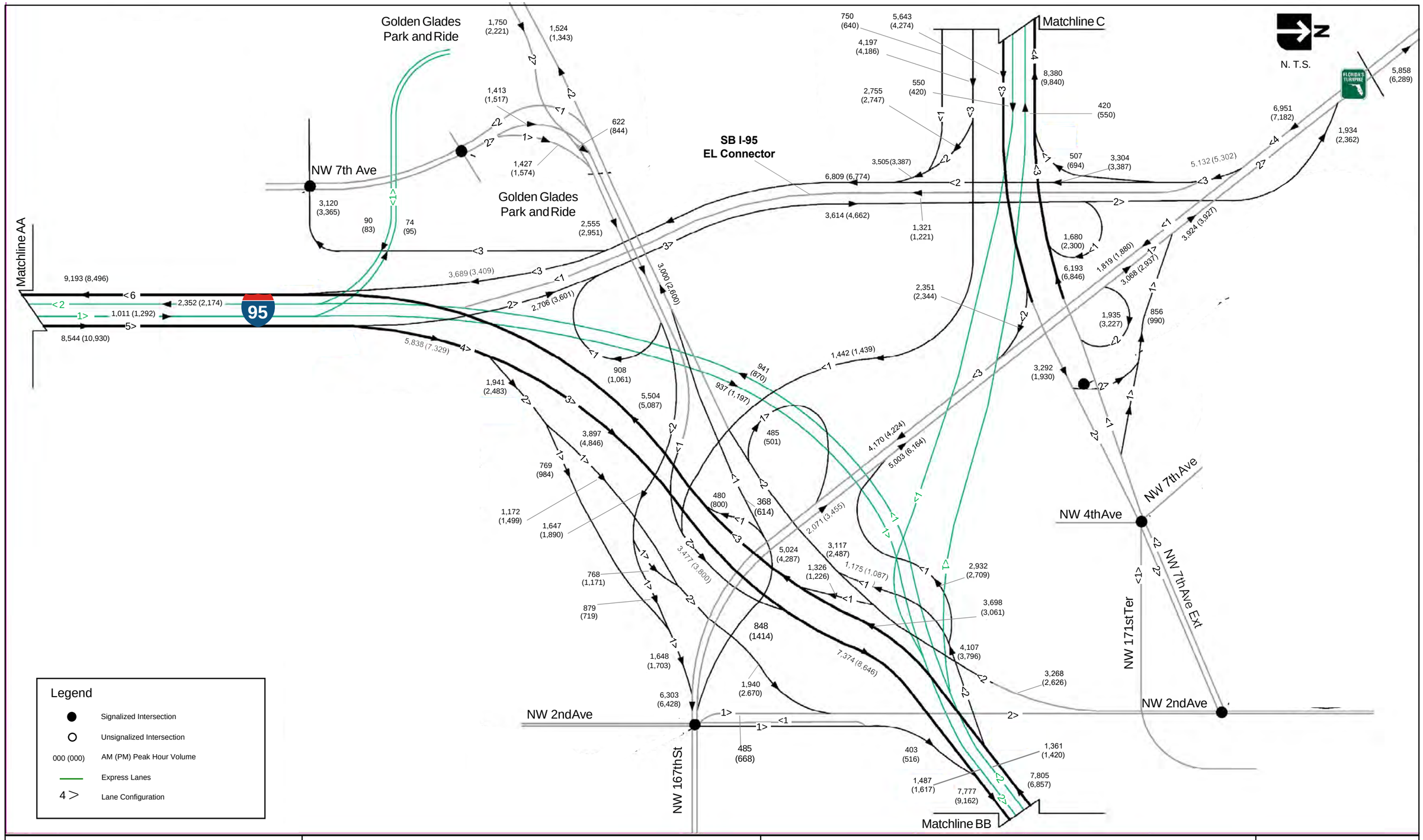
N.T.S



Legend

- Signalized Intersection
- Unsignalized Intersection
- 000 (000) — AM (PM) Peak Hour Volume
- Express Lanes
- 4 > — Lane Configuration

FDOT	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO:11241 FM.:418423-1-22-01	2016 SIMR Design Concept Line Diagram	Figure 3-1 Sheet 1 of 4

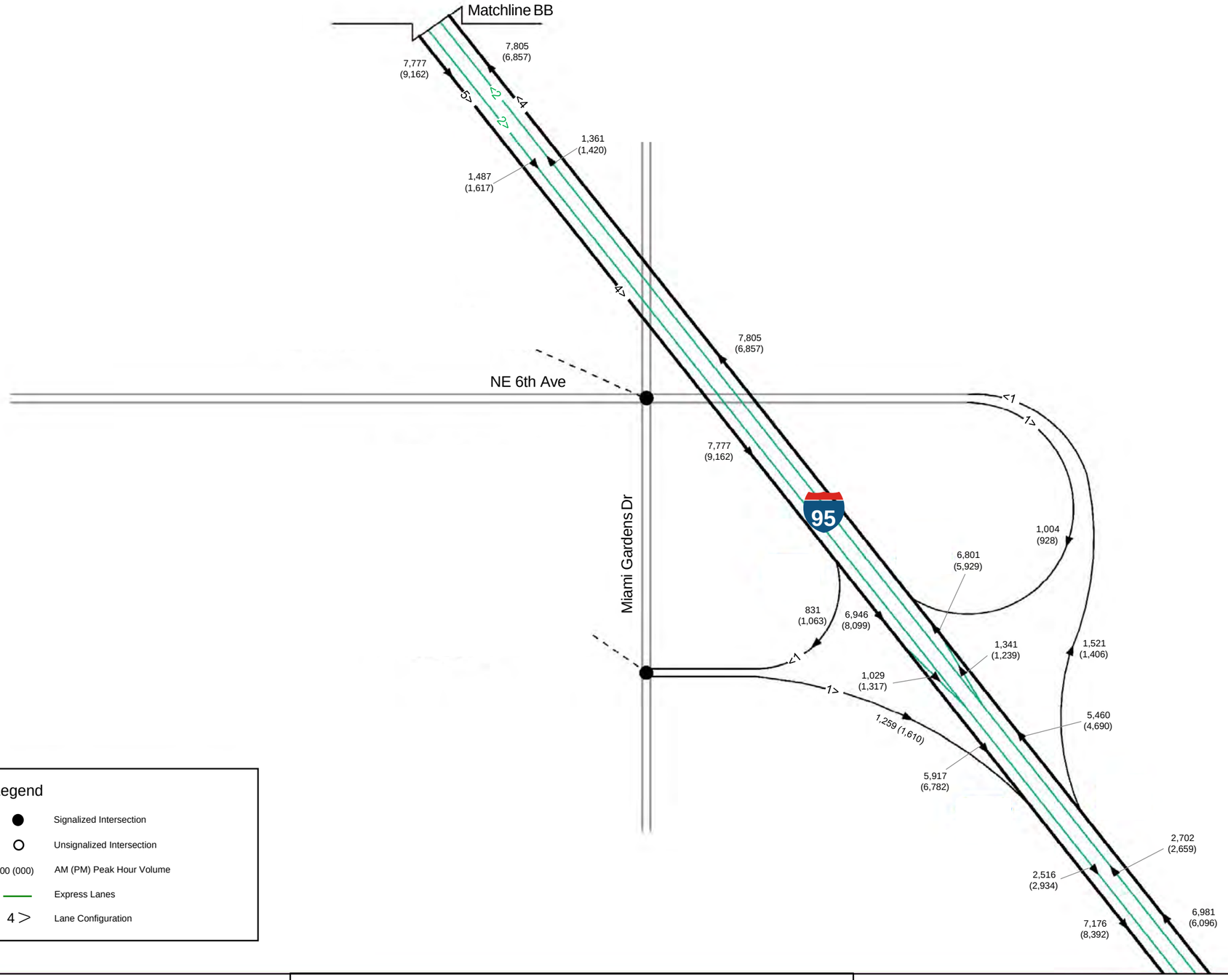


Legend

- Signalized Intersection
- Unsignalized Intersection
- 000 (000) AM (PM) Peak Hour Volume
- Express Lanes
- 4 > Lane Configuration

FDOT	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM.: 418423-1-22-01	2016 SIMR Design Concept Line Diagram	Figure 3-1 Sheet 2 of 4

N. T.S.



Legend

- Signalized Intersection
- Unsignalized Intersection
- 000 (000) AM (PM) Peak Hour Volume
- Express Lanes
- 4 > Lane Configuration

N. T. S.

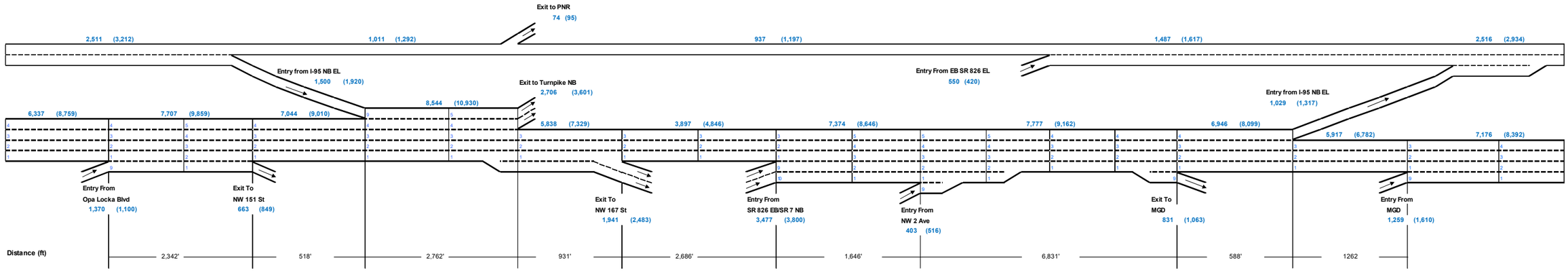
NW 27th Ave
NW 22nd Ave
NW 17th Ave
NW 12th Ave
NW 175th St
NW 167th St
NW 160th St
NW 13th Ave
Matchline B
Matchline C
826

6290 (7,380)
740 (880)
980 (1,160)
6,530(7,660)
1860 (2300)
7,380 (6,290)
870 (740)
1,150 (980)
7,660 (6,530)
880 (1,040)
1,440 (1,750)
2300 (1860)
310 (330)
1,750 (1,440)
860 (670)
1,290 (1,160)
7,400 (8,700)
9,840 (8,460)
980 (1,140)
8,380 (9,840)
420 (550)
550 (420)
5,643 (4,274)
4,197 (4,186)

Legend

- Signalized Intersection
- Unsignalized Intersection
- 000 (000) AM (PM) Peak Hour Volume
- Express Lanes
- 4 > Lane Configuration

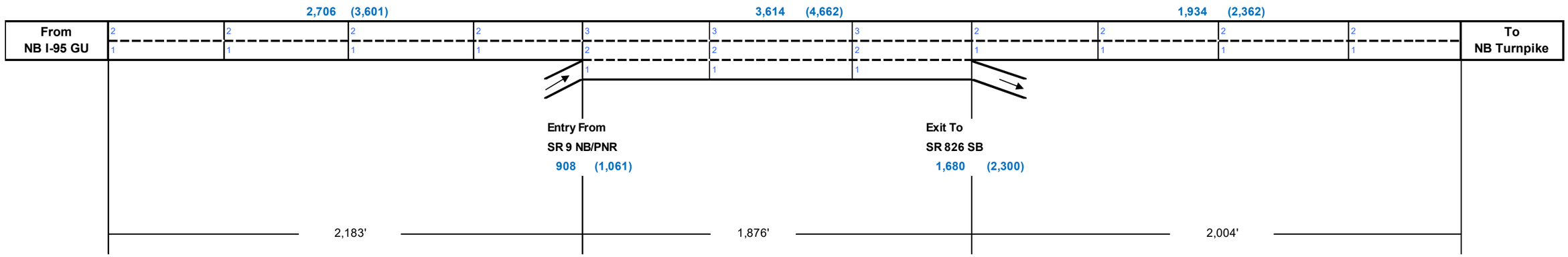
FDOT	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM.: 418423-1-22-01	2016 SIMR Design Concept Line Diagram	Figure 3-1 Sheet 4 of 4



Legend :

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volume

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2016 SIMR Design Concept Lane Schematic	Figure 3-2 Sheet 1 of 3

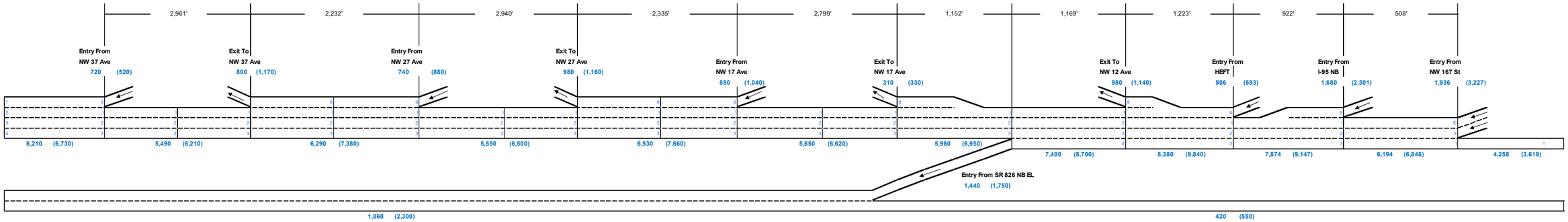


NB I-95 to NB TURNPIKE CONNECTOR ⟶

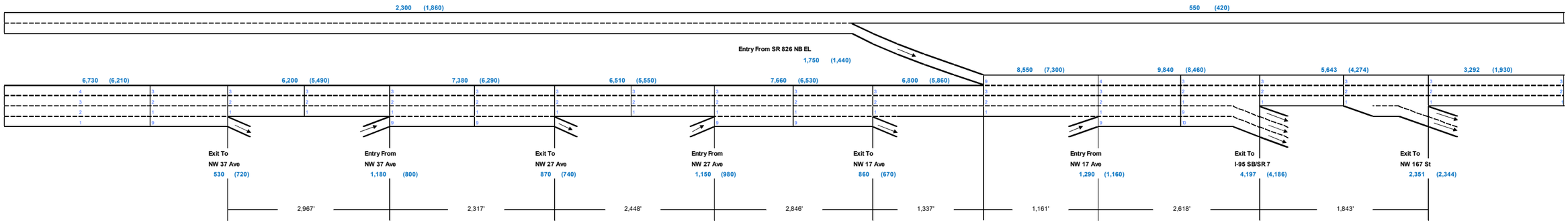
Legend :

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volume

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2016 SIMR Design Concept Lane Schematic	Figure 3-2 Sheet 2 of 3



← SR 826 - WESTBOUND



SR 826 - EASTBOUND →

Legend :

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volume

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2016 SIMR Design Concept Lane Schematic	Figure 3-2 Sheet 3 of 3

3.2 2018 SIMR Re-evaluation Design Concept

The proposed 2018 SIMR Re-evaluation Design Concept was developed in coordination with the FDOT and Florida Turnpike Enterprise. This coordination included numerous consultations and meetings with project design teams for the adjacent: 1) I-95 Master Plan Project; 2) Turnpike PD&E Study and 3) the GGI Improvement Projects (currently in design). Consequently, multiple alignments were considered and assessed by the design teams for the NB I-95 Express to Turnpike Connector. The alignment assessments considered several potential impacts including: safety, traffic operations, right-of-way, cost, constructability and consistency with the on-going adjacent projects. The 2018 SIMR Re-evaluation Design Concept that is presented herein, represents the design teams' collective recommendation for the alignment of the NB I-95 Express to Turnpike Connector. Similarly, the 2018 SIMR Re-evaluation Design Concept reflects proposed design changes to the SR 826 ingress and egress points that resulted from further coordination with the local community and stakeholders, after approval of the 2016 SIMR Design Concept.

The Line Diagram in Figure 3-3 illustrates the proposed 2018 SIMR Re-evaluation Design Concept. The Lane Schematic in Figure 3-4 includes geometric details for road segments along NB I-95, SR 826 and the GGI Ramp Connectors, including the NB I-95 Express Lane Connector to NB Turnpike which will be directly impacted by the proposed design changes. Preliminary design plans for the 2018 SIMR Re-evaluation Design Concept are included under Appendix B and Appendix C. A description of the proposed design changes and potential benefits are given below.

NB GGI Express Lanes Connector:

- The proposed connector consists of widening NB I-95 Express from two to three lanes for a short distance approximately 1,700 feet south of the GGI. The connector then splits (2:1) with one lane continuing north and merging with the existing I-95 Express Lanes flyover. The two-lane segment continues north and splits downstream into a network of ramps providing connections to Turnpike (north of GGI) and I-95 GU lanes. A direct connection is also provided to the ramps that service traffic movements from I-95 GU lanes to WB SR 826 and NB Turnpike.

- The proposed connector will provide a direct traffic movement from NB I-95 Express to NB Turnpike. These express lane users will not be required to merge with general use traffic, per the existing traffic flow conditions which are maintained in the 2016 SIMR Concept. In the existing condition, vehicles travelling from NB I-95 Express to NB Turnpike are required to exit the express lanes at NW 151st Street, continue north on I-95 GU lanes, and then exit at the GGI ramp connector for NB Turnpike and SR 826 (see Figure 3-4). Construction of the direct connect ramp will substantially improve operations and safety for this movement.

- The proposed design changes will remove the existing express lanes egress along NB I-95 Express at NW 151st Street (see Figure 3-1, Sheet 1). The segment of I-95 between NW 151st Street and the GGI is highly congested during peak periods and is a high crash location. Closing the egress at NW 151st Street will improve operations and reduce crashes along this segment of NB I-95. Furthermore, the congestion experienced at the existing NW 151st Street egress results in queues backing-up into the express lanes system during PM peak periods. This restricts the capacity of the express lanes system in addition to creating safety concerns. The proposed connector will mitigate this capacity restriction and provide a facility for express users to bypass traffic congestion south of the GGI by remaining in the express lanes until their designated exit. I-95 GU traffic will likewise benefit from reduced traffic congestion and conflicts in the GU lanes.

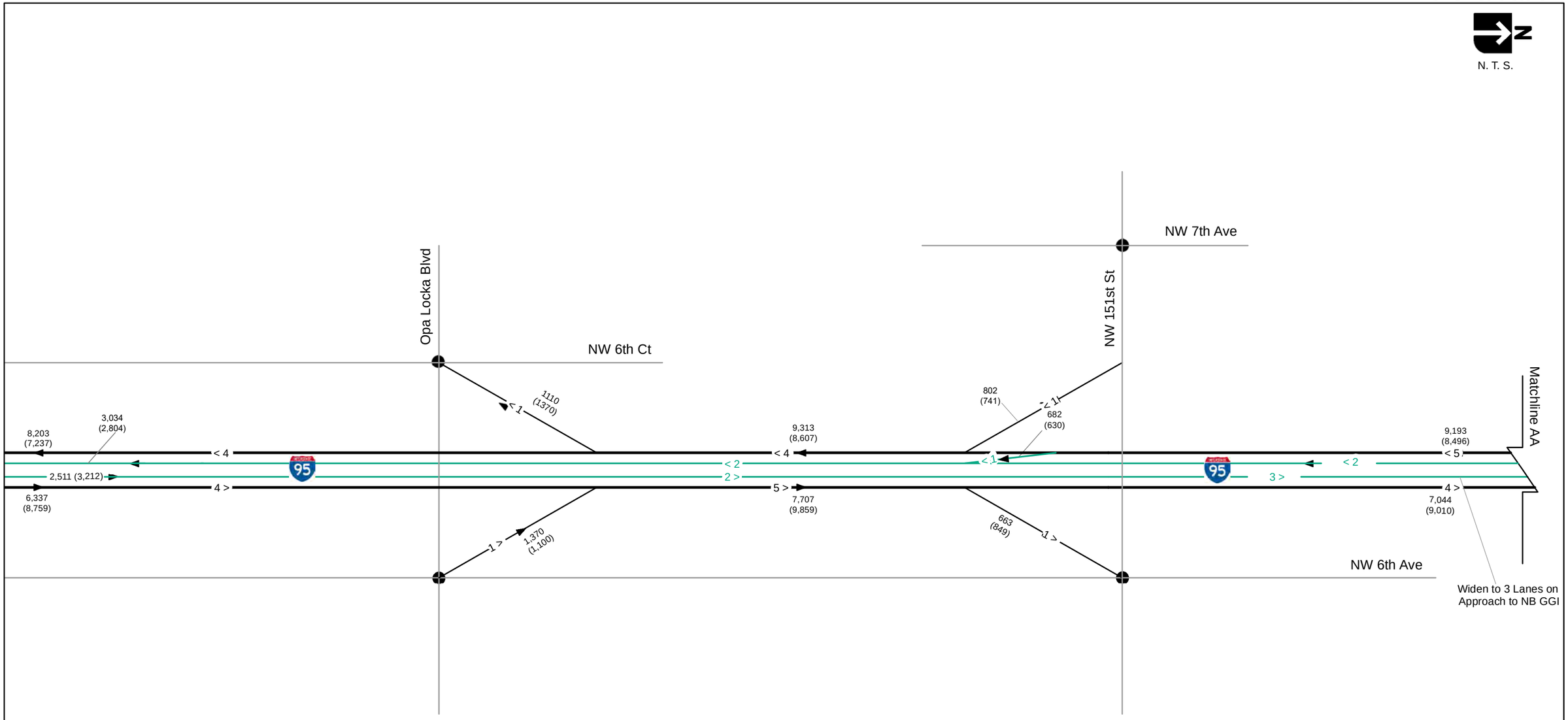
SR 826 Express Lanes Ingress/Egress Modifications:

- The proposed design changes incorporate the relocation of the express lanes' ingress/egress points along the Palmetto Expressway that were previously positioned to service traffic using the GGI Interchange. In the proposed design change, the ingress/egress point will be relocated approximately one mile west to service traffic using the GGI, in addition to NW 17th Avenue and NW 12th Avenue.

- The relocation of the proposed ingress/egress points will allow for better express lanes service for the industrial and commercial areas located west of the GGI. This will satisfy requests from the public which followed the completion of the SR 826 PD&E Study.

- The relocated egress point allows approximately 4,500 feet of spacing between the eastbound egress and the nearest downstream off-ramp located at NW 17th Avenue. Similarly, a spacing of approximately 4,500 feet is provided between the westbound ingress and the nearest on-ramp located at NW 17th Avenue. With four lane changes needed in both the eastbound and westbound directions, the spacing between these ramps satisfies the FDOT's minimum standard of 1,000 feet per lane change.

N. T. S.



Legend

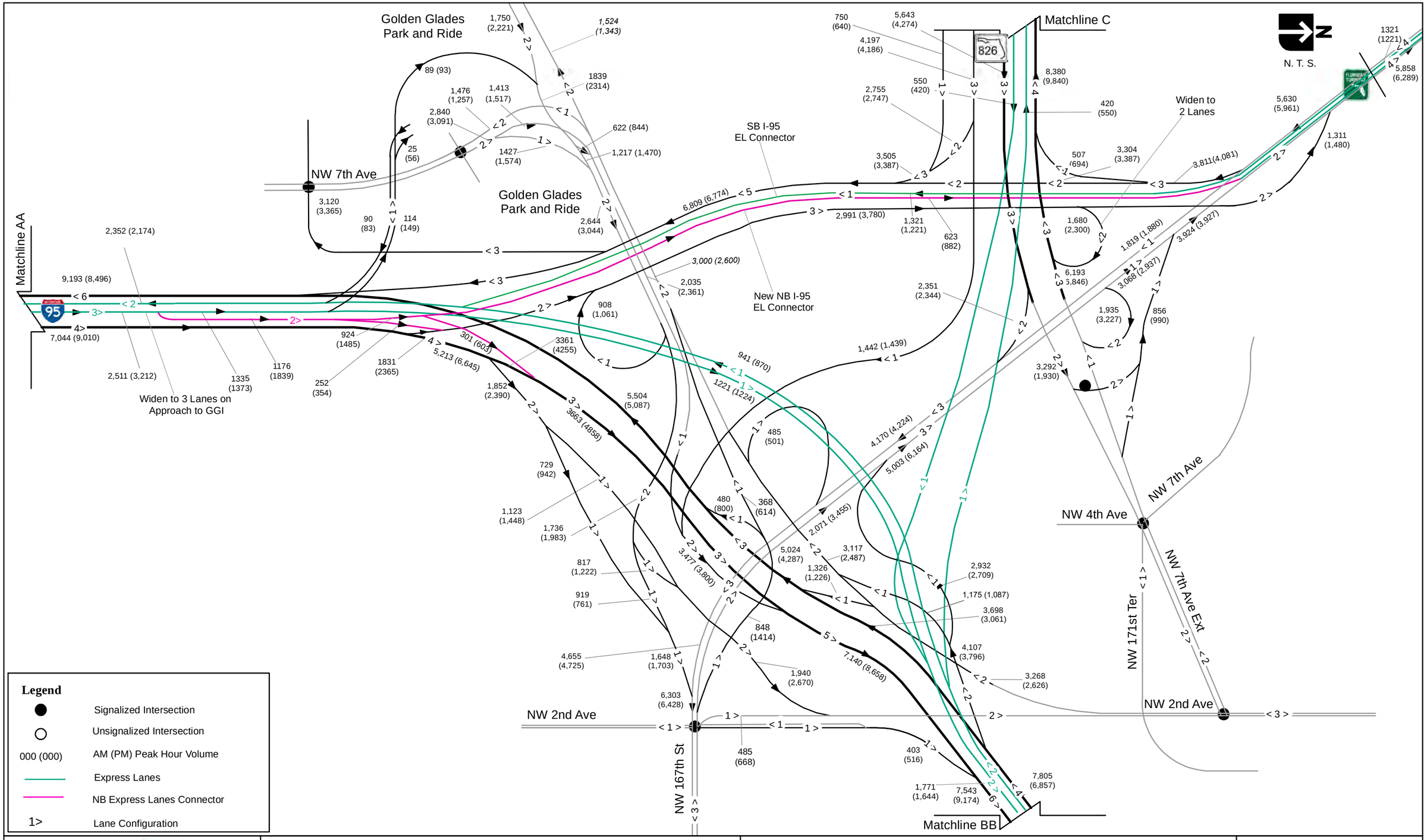
- Signalized Intersection
- Unsignalized Intersection
- 000 (000) — AM (PM) Peak Hour Volume
- Express Lanes
- NB Express Lanes Connector
- 1> — Lane Configuration

SR 826/Palmetto Expressway PD&E Study
From SR 93/I-75 to Golden Glades Interchange

ETDM NO:11241
FM.:418423-1-22-01

2018 SIMR Re-evaluation Design Concept
Line Diagram

Figure 3-3

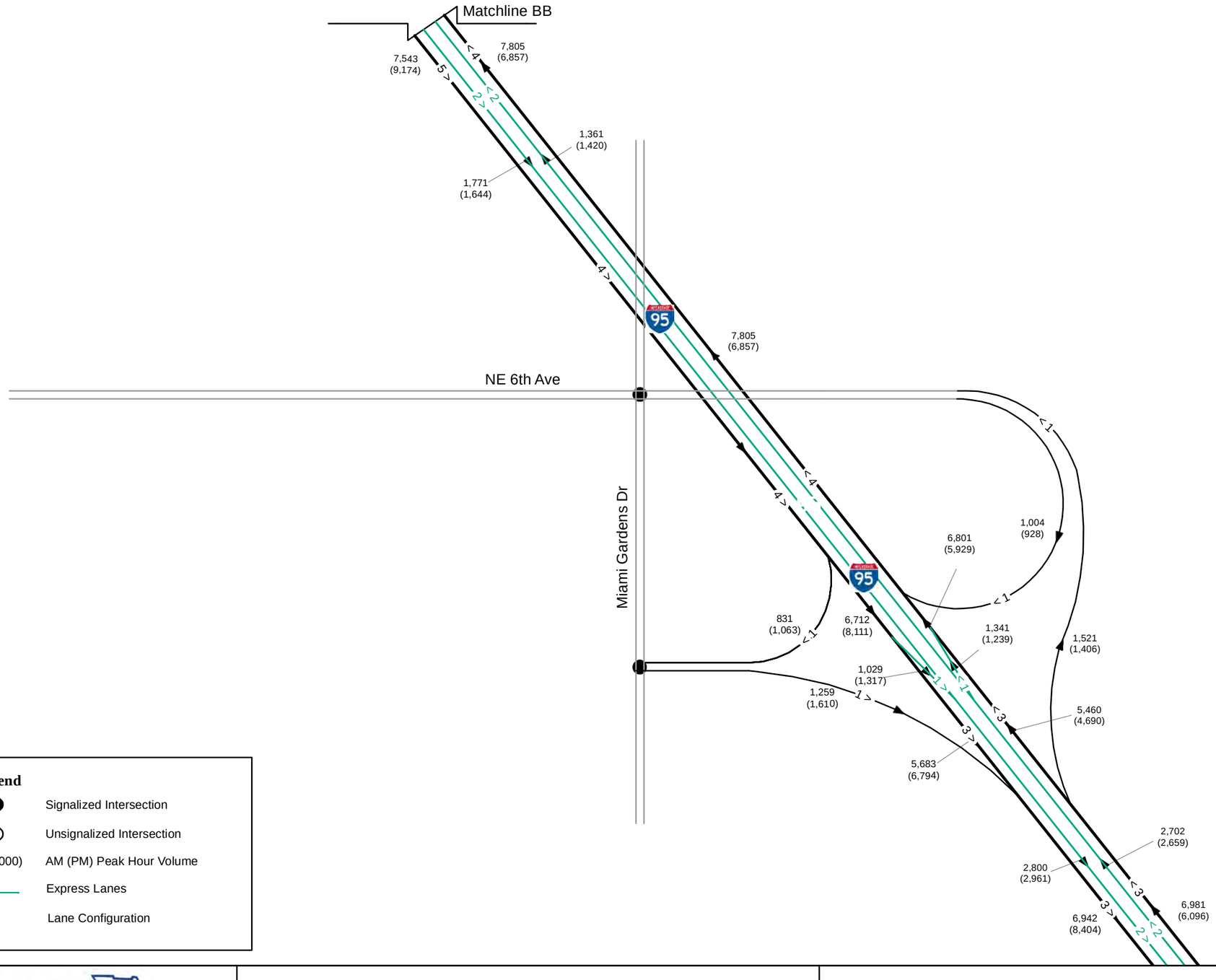


Legend

- Signalized Intersection
- Unsignalized Intersection
- 000 (000) — AM (PM) Peak Hour Volume
- Express Lanes
- NB Express Lanes Connector
- 1> — Lane Configuration

FDOT	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO:11241 FM.:418423-1-22-01	2018 SIMR Re-evaluation Design Concept Line Diagram	Figure 3-3 Sheet 2 of 4

N. T. S.



Legend

●	Signalized Intersection
○	Unsignalized Intersection
000 (000)	AM (PM) Peak Hour Volume
———	Express Lanes
1>	Lane Configuration

FDOT

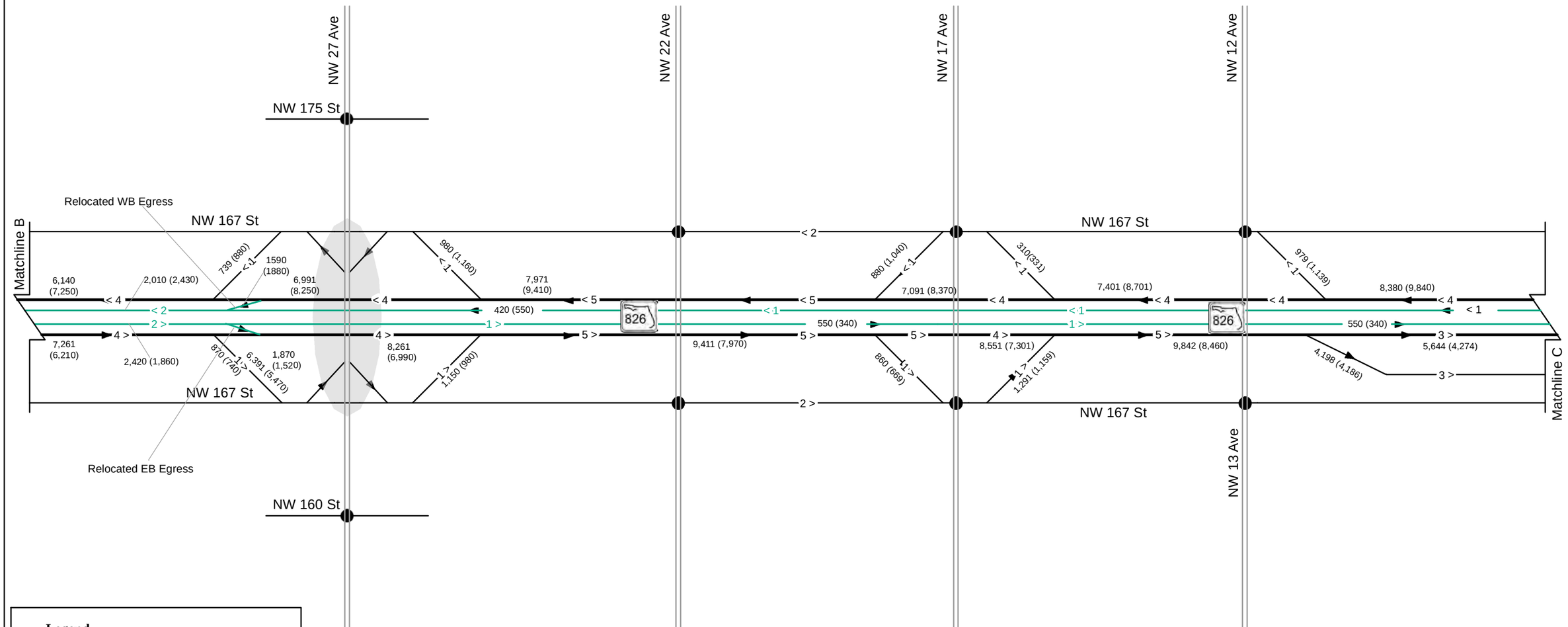
SR 826/Palmetto Expressway PD&E Study
From SR 93/I-75 to Golden Glades Interchange

ETDM NO: 11241
FM.: 418423-1-22-01

2018 SIMR Re-evaluation Design Concept
Line Diagram

Figure 3-3

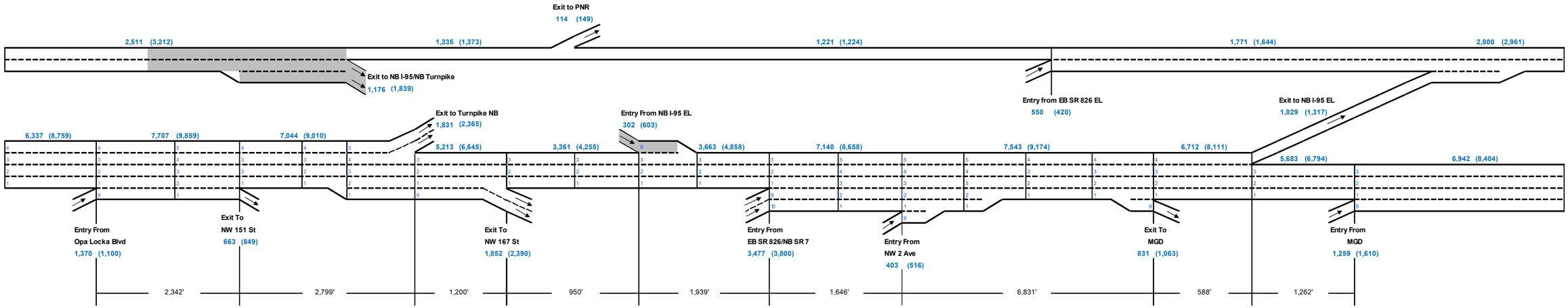
N. T. S.



Legend

- Signalized Intersection
- Unsignalized Intersection
- 000 (000) AM (PM) Peak Hour Volume
- Express Lanes
- 1> Lane Configuration

FDOT	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO:11241 FM.:418423-1-22-01	2018 SIMR Re-evaluation Design Line Diagram	Figure 3-3 Sheet 4 of 4



Legend :

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volume

Design Change

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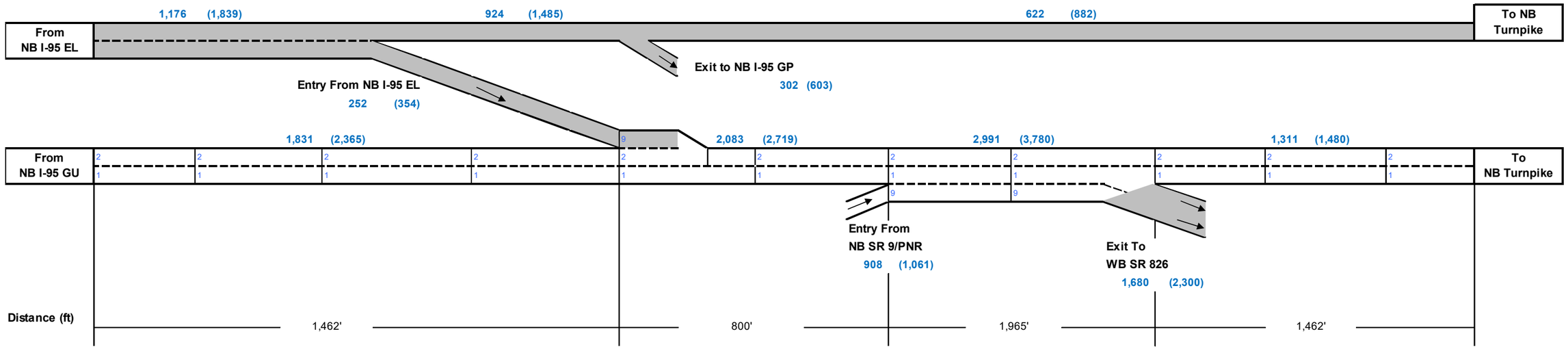


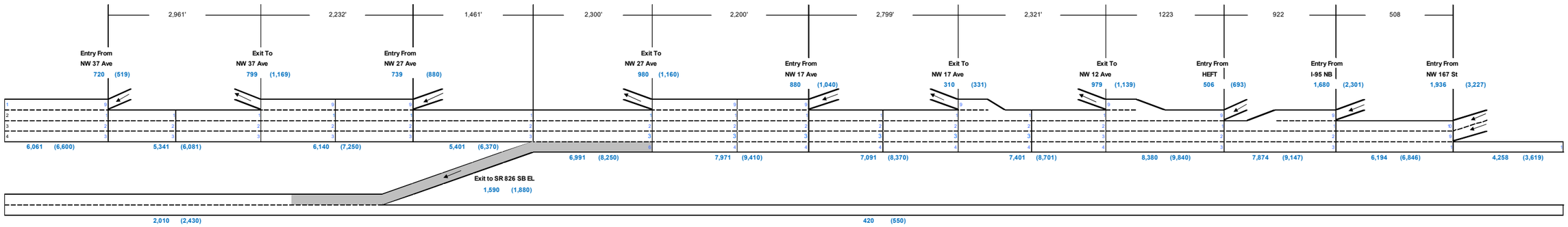
NB I-95 to NB TURNPIKE RAMP CONNECTORS

Legend :

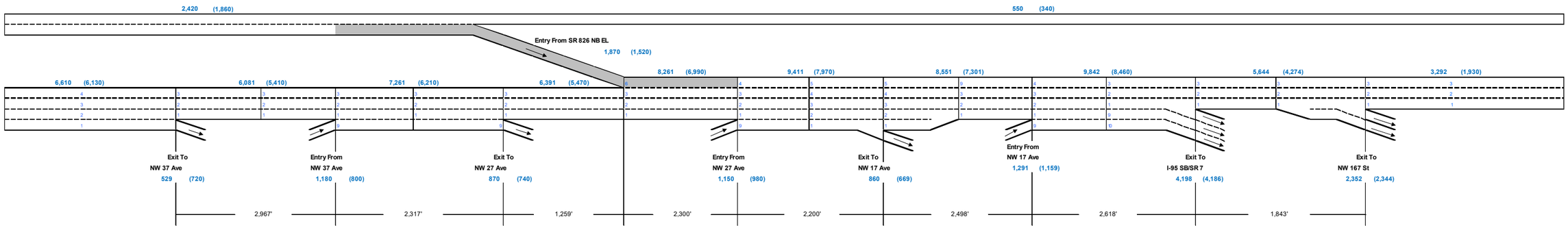
X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volume

Design Change

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2018 SIMR Re-evaluation Design Concept Lane Schematic	Figure 3-4 Sheet 2 of 3



SR 826 - WESTBOUND



SR 826 - EASTBOUND

Legend :

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volume

Design Change

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2018 SIMR Re-evaluation Design Concept Lane Schematic	Figure 3-4 Sheet 3 of 3

4 OPERATIONS ANALYSES

4.1 Highway Capacity Manual, Level of Service Analyses

Level of service (LOS) analyses were performed for the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept. The analyses were performed in accordance with the Highway Capacity Manual, 2010 (HCM 2010) procedures. Calculations were performed using the Highway Capacity Software (HCS), Version 6.7. The study corridor along I-95 and SR 826 were subdivided into freeway segments (basic, merge, diverge, and weaving) consistent with the HCM procedures. Traffic factors applied for the analysis were maintained consistent with the approved 2016 SIMR. These included the following traffic factors:

- Peak Hour Factor = 0.95 consistent for all study roads

- Free Flow Speeds
  - I-95 Mainline = 60 mph
  - SR 826 Mainline = 65 mph

- Truck Factors
  - I-95 GU lanes = 2%
  - SR 826 GU lanes = 4%
  - Express lanes (I-95 and SR 826) = 0%

Analyses for weaving segments required applying assumptions for traffic movements between upstream ramps/freeway segments and downstream ramps/freeway segments. A conservative approach was applied with ramp to ramp volumes between service interchanges assumed to be zero (0) vehicles. For traffic movements between freeway systems origin or destination points, a weighted average approach was applied for estimating weaving volumes. The HCS output sheets in Appendix D contain details of the weaving volumes assumed in the analyses. The lane schematics in Figure 3-2 and Figure 4-4 depict the lane geometry and freeway volumes used in the analyses.

Results from the HCM level of service analyses are depicted in Figure 4-1 for the 2016 SIMR Design Concept and Figure 4-2 for the 2018 SIMR Re-evaluation Design Concept (detailed output sheets are include under Appendix D). It should be noted that the HCM analyses includes freeway segments with multiple overlapping weaving movements and areas where the demand volumes exceed the roadway capacity. It is recognized that the HCM procedures cannot accurately assess all the complexities associated with these conditions. Microsimulation techniques are required to accurately assess these conditions and this is presented under Section 4.2 of the report. Notwithstanding, the results from the HCM analysis indicate that the 2018 SIMR Re-evaluation Design Concept generates more favorable operating conditions when compared to the 2016 SIMR Design Concept. Notable findings from the HCM analyses are discussed below:

- Northbound I-95: The freeway segment along NB I-95 between the off-ramp to NW 151st Street and the off-ramp to NB Turnpike is the area of most significant change when comparing the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept. In the 2016 SIMR Design Concept, this is a complex weaving segment with multiple overlapping movements. The segment operates at LOS F during both the AM and PM peak periods. It should further be noted that during the heavier PM peak period, HCM densities are not reported within this segment (2016 SIMR design Concept) as the volumes exceed the weaving segment capacity. These results indicate that severe congestion will be experienced along this segment under the 2016 SIMR Design Concept.

  In the 2018 SIMR Re-evaluation Design Concept, the HCM results show improved operating conditions within this segment of I-95, when compared to the 2016 SIMR Design Concept. Operations are simplified with the 2018 SIMR Re-evaluation Design Concept as it removes weaving movements from the express lanes egress to I-95 GU lanes and downstream off-ramps (per 2016 SIMR Design Concept). The 2018 SIMR Re-evaluation Design Concept generates LOS D in the AM and LOS F in the PM. Although LOS F is reported in the PM, these operating conditions are better than the 2016 SIMR Design Concept given that the volumes do not exceed the segment weaving capacity.

  In both the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept, LOS F conditions are reported along segments of I-95 mainline located north of the on-ramp from NW 2nd Avenue. The reported densities and LOS conditions are very similar for both concepts within this segment. These results suggest that both design concepts are

expected to generate similar operating conditions along the segment of I-95 north of the on-ramp from NW 2nd Avenue.

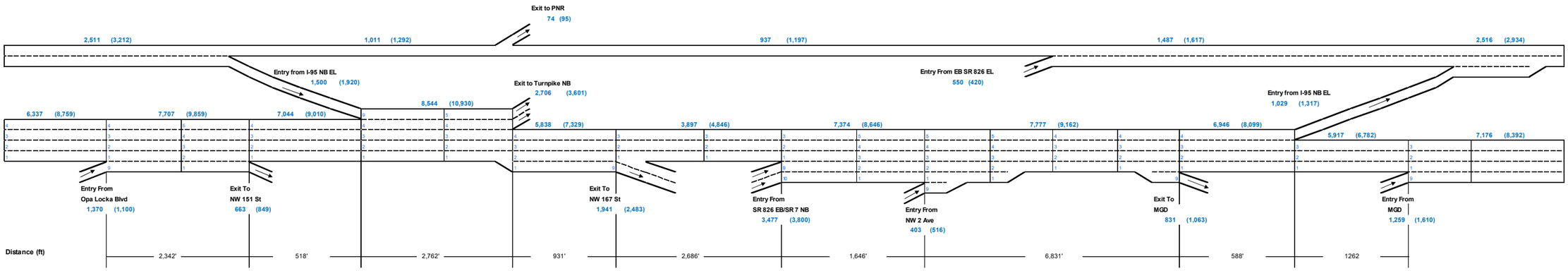
Operations along NB I-95 Express lanes are at LOS D or better under both the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept. Results indicate that the I-95 Express Lanes are expected to experience good operating conditions under both design concepts.

- NB I-95 to NB Turnpike Ramp Connector: The NB I-95 to NB Turnpike Ramp Connector operates at LOS F during the PM peak for future conditions with the 2016 SIMR Design Concept. As depicted in Figure 4-1, the weaving segment along the ramp connector fails as the demand volumes exceed the weaving segment capacity. This condition is significantly improved under the 2018 SIMR Re-evaluation Design Concept. The proposed 2018 SIMR Re-evaluation Design Concept increases the capacity for this movement by introducing an exclusive dedicated lane for express traffic. This results in good operating conditions along the connector for both GU traffic and express traffic.

- EB SR 826: The 2018 SIMR Re-evaluation Design Concept shows improved traffic operations along EB SR 826 when compared to the 2016 SIMR Design Concept. The results indicate the proposed relocation of the egress ramp provides a more favorable condition for traffic operations. In the 2016 SIMR Design Concept, LOS F conditions are generated in the AM peak for all but one of the GU segments located between NW 27th Avenue and the off-ramp to SB I-95. In the 2018 SIMR Re-evaluation Design Concept, this condition is improved with LOS E conditions generated between the off-ramp to NW 27th Avenue and the on-ramp from NW 17th Avenue. Traffic operations are generally similar for the two design concepts along other segments of EB SR 826.

- WB SR 826: The 2018 SIMR Re-evaluation Design Concept shows improved traffic operations along WB SR 826 when compared to the 2016 SIMR Design Concept. The results indicate the proposed relocation of the ingress ramp provides a more favorable condition for traffic operations. In the 2016 SIMR Design Concept, LOS F conditions are generated in the PM peak for all but two of GU segments located east of the NW 27th Avenue Off-Ramp. In the 2018 SIMR Re-evaluation Design Concept, this condition is improved with LOS E conditions generated between NW 12th Avenue and NW 17th Avenue. Traffic operations are generally similar for the two design concepts along other segments of WB SR 826.

	Basic					Ramp Roadway	Basic	Ramp Roadway	Basic	
LOS AM (Density)	C (22.0)	v/c = 0.73	v/c = 0.47	v/c = 0.04	v/c = 0.44	v/c = 0.27	B (13.1)	v/c = 0.50	C (22.1)	
LOS PM (Density)	D (28.3)	v/c = 0.93	v/c = 0.60	v/c = 0.05	v/c = 0.56	v/c = 0.20	B (14.2)	v/c = 0.64	C (25.7)	



I-95 NORTHBOUND ⟶

	Basic	Weave	Basic	Weave	Major Diverge	Basic	Major Merge	Basic	On Ramp	Basic	Basic	Off Ramp	Basic	Ramp Roadway	Basic	Ramp Roadway	Basic
LOS AM (Density)	D (28.1)	E (42.4)	D (31.9)	F (46.2)	v/c = 0.49	C (23.0)	v/c = 0.88	D (26.1)	C (21.1)	D (27.6)	E (36.9)	E (37.6)	D (31.3)	v/c = 0.50	E (37.8)	v/c = 0.64	D (32.7)
LOS PM (Density)	F (46.2)	F (57.3)	F (49.4)	F (v/c = 1.3)	v/c = 0.63	D (28.7)	v/c = 0.97	D (31.2)	C (25.4)	D (33.7)	F (51.4)	F (44.3)	E (39.5)	v/c = 0.64	F (49.8)	v/c = 0.82	E (42.3)

Note: v/c ratio is shown at locations where densities could not be calculated due to volumes exceeding the weaving segment capacity

Legend

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volumes

E LOS E

F LOS F

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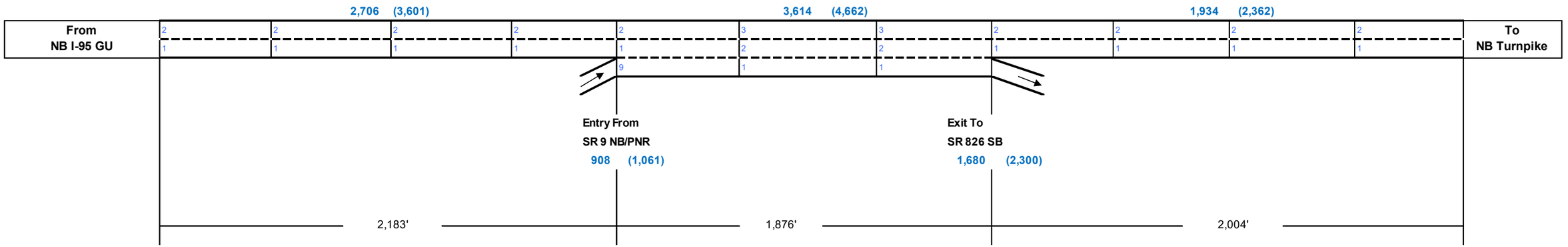
2040 HCM Analyses
2016 SIMR Design Concept

Figure 4-1



	Basic	Weave	Basic
LOS AM (Density)	C (24.0)	D (29.2)	B (17.1)
LOS PM (Density)	D (32.9)	F (v/c = 1.03)	C (20.9)

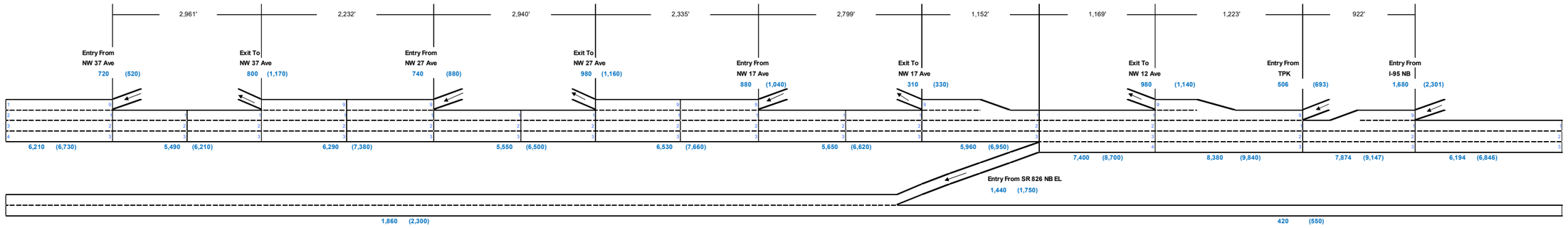
NB I-95 to NB TURNPIKE CONNECTOR →

Note: v/c ratio is shown at locations where densities could not be calculated due to volumes exceeding the weaving segment capacity

Legend

X,XXX (X,XXX)	2040 AM (PM) Peak Hour Volumes
E	LOS E
F	LOS F

	Basic	Ramp Roadway	Basic	Weave	Basic	Weave	Basic	Off Ramp	Basic	Off Ramp	Basic	Ramp Roadway	On Ramp	Basic
LOS AM (Density)	D (26.1)	v/c = 0.37	D (32.5)	E (36.3)	D (33.0)	E (39.3)	D (34.0)	E (36.1)	D (33.0)	E (41.3)	E (41.1)	v/c = 0.26	F (45.2)	E (39.9)
LOS PM (Density)	D (28.8)	v/c = 0.26	E (40.1)	F (47.0)	E (44.0)	F (50.0)	F (45.8)	F (43.7)	E (44.4)	F (48.0)	F (61.2)	v/c = 0.35	F (55.3)	F (49.6)

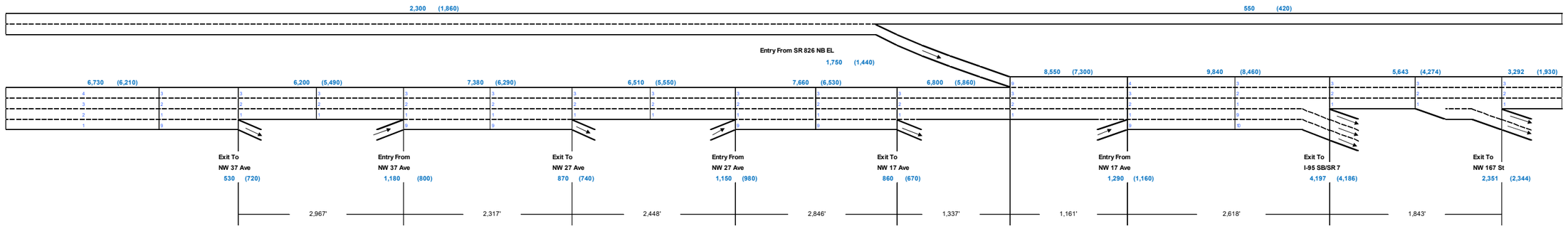


	Basic		
LOS AM (Density)	B (15.1)	v/c = 0.70	v/c = 0.19
LOS PM (Density)	C (18.6)	v/c = 0.85	v/c = 0.25

← SR 826 - WESTBOUND

SR 826 - EASTBOUND →

	Basic		
LOS AM (Density)	C (18.6)	v/c = 0.85	v/c = 0.25
LOS PM (Density)	B (15.1)	v/c = 0.70	v/c = 0.19



	Basic	Ramp Roadway	Basic	Weave	Basic	Weave	Basic	Basic	Weave	Basic	Off Ramp	Basic
LOS AM (Density)	D (28.8)	v/c = 0.27	E (40.0)	F (46.8)	E (44.2)	F (48.6)	F (48.8)	E (42.8)	F (v/c = 1.3)	D (33.9)	D (31.1)	C (18.1)
LOS PM (Density)	D (26.1)	v/c = 0.37	D (32.5)	E (36.2)	D (33.0)	E (38.2)	E (36.1)	D (32.3)	F (v/c = 1.3)	C (23.6)	C (25.4)	A (10.6)

Note: v/c ratio is shown at locations where densities could not be calculated due to volumes exceeding the weaving segment capacity

Legend

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volumes

E LOS E

F LOS F

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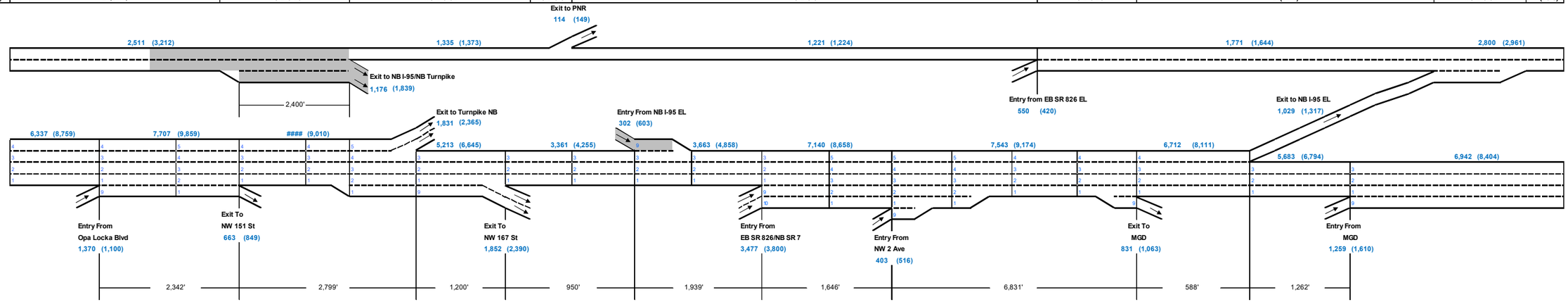
2040 HCM Analyses
2016 SIMR Design Concept

Figure 4-1

	Basic	Major Diverge				Ramp Roadway	Basic	Ramp Roadway	Basic
LOS AM (Density)	C (22.0)	v/c = 0.29	v/c = 0.62	v/c = 0.06	v/c = 0.57	v/c = 0.27	B (15.5)	v/c = 0.50	C (24.6)
LOS PM (Density)	D (28.3)	v/c = 0.45	v/c = 0.64	v/c = 0.07	v/c = 0.57	v/c = 0.20	B (14.4)	v/c = 0.64	C (26.0)



	Basic	Weave	Basic	Major Diverge	Major Diverge	Basic	On Ramp	Basic	Major Merge	Basic	On Ramp	Basic	Basic	Off Ramp	Basic	Ramp Roadway	Basic	Ramp Roadway	Basic
LOS AM (Density)	D (28.1)	E (42.4)	D (31.9)	v/c = 0.47	v/c = 0.47	C (19.9)	C (24.7)	C (21.6)	v/c = 0.88	C (25.3)	C (21.5)	D (26.7)	E (35.2)	E (36.6)	D (30.0)	v/c = 0.50	E (35.4)	v/c = 0.64	D (31.3)
LOS PM (Density)	F (46.2)	F (57.3)	F (49.4)	v/c = 0.60	v/c = 0.61	C (25.1)	D (31.9)	D (28.8)	v/c = 0.97	D (31.2)	C (26.3)	D (33.8)	F (51.6)	F (44.3)	E (39.6)	v/c = 0.64	F (50.0)	v/c = 0.82	E (42.4)

Note: v/c ratio is shown at locations where densities could not be calculated due to volumes exceeding the weaving segment capacity

Legend

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volumes

E LOS E

F LOS F

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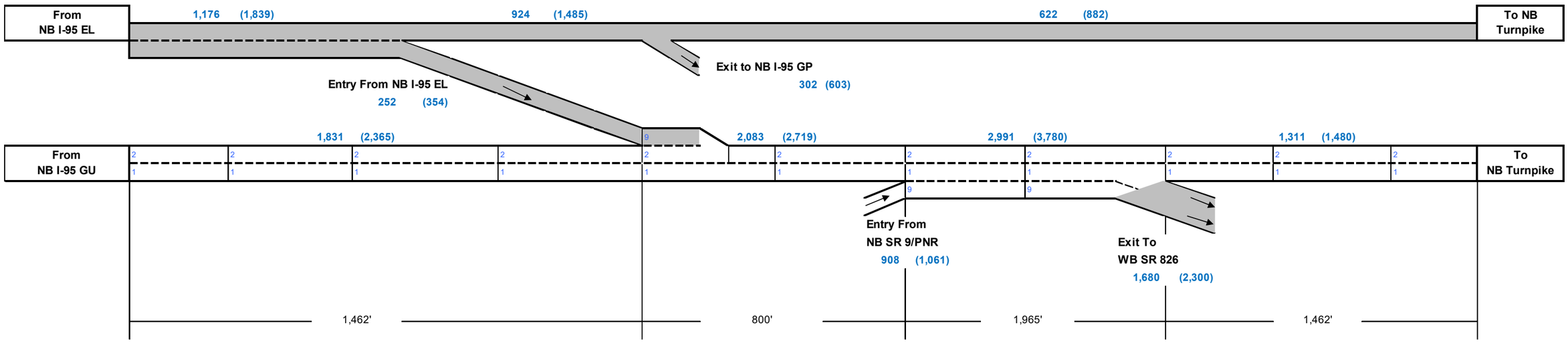
2040 HCM Analyses
2018 SIMR Re-evaluation Design Concept

Figure 4-2

	Basic				
LOS AM (Density)	A (10.3)	v/c = 0.12	v/c = 0.43	v/c = 0.15	v/c = 0.29
LOS PM (Density)	B (16.1)	v/c = 0.17	v/c = 0.69	v/c = 0.29	v/c = 0.41



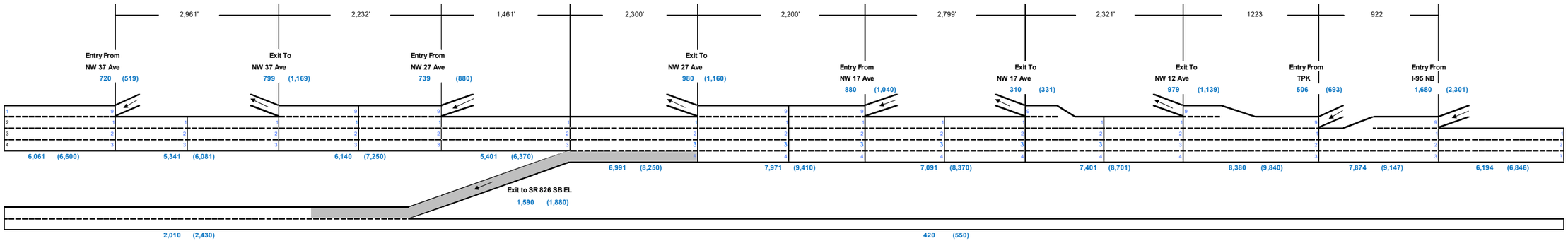
NB I-95 to NB TURNPIKE RAMP CONNECTORS

	Basic	On Ramp	Weave	Basic
LOS AM (Density)	B (16.2)	C (20.4)	C (20.2)	B (11.6)
LOS PM (Density)	C (21.0)	C (25.6)	C (25.9)	B (13.1)

Note: v/c ratio is shown at locations where densities could not be calculated due to volumes exceeding the weaving segment capacity

Legend
X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volumes
E LOS E
F LOS F

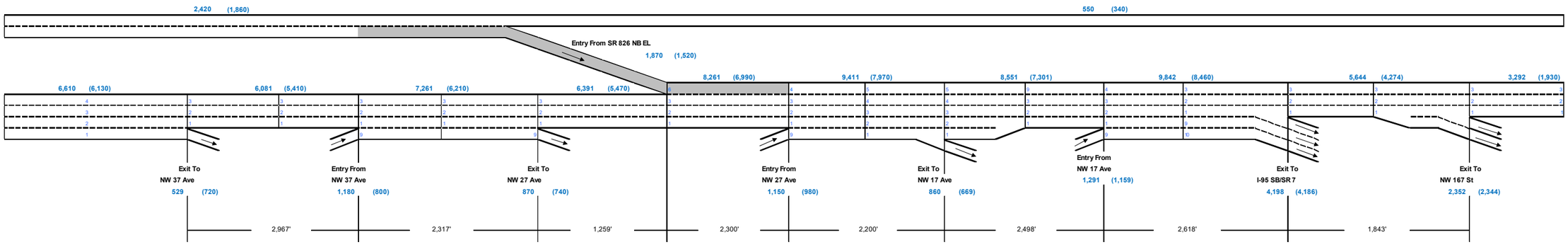
	Basic	Ramp Roadway	Basic	Weave	Basic	Basic	Weave	Basic	Off Ramp	Basic	Off Ramp	Basic	Ramp Roadway	On Ramp	Basic
LOS AM (Density)	C (25.3)	v/c = 0.37	D (31.2)	E (35.2)	D (31.7)	D (30.4)	E (38.9)	D (31.0)	D (34.1)	D (33.1)	E (41.3)	E (41.1)	v/c = 0.26	F (45.2)	E (39.9)
LOS PM (Density)	D (28.1)	v/c = 0.26	E (38.5)	F (45.9)	E (42.2)	E (39.8)	F (50.2)	E (41.0)	E (39.5)	E (44.4)	F (48.0)	F (61.2)	v/c = 0.35	F (55.3)	F (49.6)



	Basic		
LOS AM (Density)	B (16.3)	v/c = 0.77	v/c = 0.19
LOS PM (Density)	C (19.7)	v/c = 0.91	v/c = 0.25

← SR 826 - WESTBOUND

	Basic		
LOS AM (Density)	C (19.6)	v/c = 0.91	v/c = 0.25
LOS PM (Density)	B (15.1)	v/c = 0.74	v/c = 0.15



SR 826 - EASTBOUND →

	Basic	Ramp Roadway	Basic	Weave	Basic	Basic	Weave	Basic	Basic	Weave	Basic	Off Ramp	Basic
LOS AM (Density)	D (28.2)	v/c = 0.27	E (38.5)	F (45.8)	E (42.5)	E (39.9)	E (40.9)	D (29.5)	E (42.8)	F (v/c = 1.3)	D (33.9)	D (31.1)	C (18.1)
LOS PM (Density)	C (25.6)	v/c = 0.37	D (31.8)	E (35.6)	D (32.3)	D (30.4)	D (32.9)	C (24.3)	D (32.4)	F (v/c = 1.3)	C (23.6)	C (25.4)	A (10.6)

Note: v/c ratio is shown at locations where densities could not be calculated due to volumes exceeding the weaving segment capacity

Legend

X,XXX (X,XXX) 2040 AM (PM) Peak Hour Volumes

E LOS E

F LOS F

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2040 HCM Analyses
2018 SIMR Re-evaluation Design Concept

Figure 4-2

4.2 CORSIM Microsimulation Analyses

CORSIM microsimulation models were developed to assess and compare the anticipated future traffic operating conditions for the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept. The models were developed for design year 2040 conditions for four hours in the AM peak period (5:45 AM to 9:45 AM) and four hours in the PM peak period (3:00 PM to 7:00 PM). The development of the CORSIM microsimulation models and results from the analyses are provided in the following sections.

4.2.1 CORSIM Model Development

CORSIM models were developed in accordance with the methodology described under Section 2.4 of the SIMR Re-evaluation. CORSIM models were fully developed, calibrated and approved for the prior 2016 SIMR Design Concept. These models were used as the basis for developing the CORSIM models for the 2018 SIMR Design. Models developed for the 2018 SIMR Re-evaluation Design Concept maintained all prior calibration parameters, spatial limits, and temporal limits per the approved 2016 SIMR Design Concept. Network geometries were modified to match the proposed design changes. Traffic volumes were manually reassigned to the network in accordance with the network modifications and origin-destination patterns.

4.2.2 CORSIM Microsimulation Results

In evaluating the operational impacts of the proposed design changes, it is recognized that the 2016 SIMR Concept and the proposed 2018 SIMR Re-evaluation Design Concept are similar in geometry and traffic flows except for segments of the study network directly impacted by the design changes. The assessment of operations analyses, therefore, focuses on segments of the network directly impacted by the proposed design changes. These include:

- Northbound I-95 from Opa-Locka Boulevard to Miami Gardens Drive. This includes I-95 GU lanes and I-95 express lanes.
- Northbound I-95 to NB Turnpike ramp connectors. This includes the proposed NB GGI Express Lane Connector and the existing NB I-95 to NB Turnpike GU Lanes Connector.
- Eastbound SR 826 from NW 37th Avenue to GGI
- Westbound SR 826 from GGI to NW 37th Avenue

Details regarding traffic operations within the above impacted road segments are provided below. CORSIM microsimulation results for these road segments are depicted in the CORSIM Analyses in Figures 4-1 and 4-2 for the 2016 SIMR Design Concept and Figures 4-3 and 4-4 for the 2018 SIMR Re-evaluation Design Concept for 2040 AM and PM peak period conditions. The lane schematics summarize link operating speeds, demand volumes, simulated (processed) volumes, densities and approximate level of service (based on HCM criteria). Table 4-1 and Table 4-2 compare the operating speeds and travel times along the segments for the two design concepts.

Traffic Operations along NB I-95 and the GGI EL Connector:

- AM Peak Period: During the AM peak period, NB flow is the off-peak direction along I-95. Northbound traffic flow is modest in the AM peak period. CORSIM results indicate that during the AM peak period both design concepts generate comparable traffic operating conditions along NB I-95 Express lanes - with only four seconds difference in travel time (see Table 4-1). For travel along NB I-95 GU lanes, the 2018 SIMR Re-evaluation Design Concept generates better operating speeds (54 mph) when compared to the 2016 Design Concept (46 mph). In the 2016 SIMR Design Concept, congestion is experienced in the NB I-95 GU lanes along the segment from north of Opa-Locka Boulevard On-Ramp to Turnpike Off-Ramp – operating speeds are reduced to approximately 28 mph to 42 mph with LOS F conditions throughout most of the segment. The 2018 SIMR Re-evaluation Design Concept provides relief for this congested segment of I-95 mainline – operating speeds increase to approximately 45 mph to 55 mph with LOS D conditions throughout most of the segment. As a result, average operating speeds and travel times between I-95 Express and NB Turnpike are significantly improved under the 2018 SIMR Re-evaluation Design Concept (average speed 51 mph) when compared to the 2016 Design Concept (average speed 42 mph). These results indicate that the 2018 SIMR Re-evaluation Design Concept provides better traffic operations during the AM peak period for travel along I-95 GU lanes and for traffic flows from NB I-95 Express to NB Turnpike.

- PM Peak Period: During the PM peak period, NB flow is the peak direction along I-95. Northbound traffic flow is heavy during the PM peak period and substantial congestion is experienced. Results from the CORSIM analyses indicate that northbound travel along the

I-95 GU lanes are improved under the 2018 SIMR Re-evaluation Design Concept when compared to the 2016 SIMR Design Concept. As shown in Table 4-1, overall operating speeds in the GU lanes increase from approximately 30 mph (2016 SIMR Design Concept) to 36 mph (2018 SIMR Reevaluation Design Concept) for travel along NB I-95 from Opa-Locka Boulevard to Miami Gardens Drive.

The segment of I-95 GU lanes between Opa-Locka Road and the GGI is the most critical segment of the I-95 mainline. This segment of I-95 experiences the highest travel demand. It operates at LOS F in both the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept, as total demand exceeds capacity. However, traffic operations are improved along this segment under the 2018 SIMR Re-evaluation Design Concept. In the 2016 SIMR Design Concept operating speeds are approximately 14 mph to 38 mph. In the 2018 SIMR Re-evaluation Design Concept operating speeds are improved to approximately 20 mph to 45 mph. In addition, within this segment, the total throughput across I-95 GU lanes and I-95 express lanes is vastly improved under the 2018 SIMR Re-evaluation Design Concept. In the 2016 SIMR Design Concept total throughput (GU + express) is approximately 9,750 vehicles per hour, whereas, under the 2018 SIMR Re-evaluation Design Concept, total throughput is increased to approximately 11,020 vehicles per hour (an increase of approximately 1,270 vehicles per hour). This increased throughput is a substantial improvement towards meeting the travel demand along I-95.

The simulation results also indicate that the 2018 SIMR Re-evaluation Design Concept will generate substantial improvements in operating speeds and travel times for traffic travelling from NB I-95 Express to NB Turnpike. For this movement, average operating speeds increase from approximately 27 mph (2016 SIMR Design Concept) to approximately 50 mph (2018 SIMR Re-evaluation Design Concept). Furthermore, total throughput (GU + express) along the ramp connectors serving the Turnpike and WB SR 826 is increased from approximately 3,880 vehicles per hour (2016 SIMR Design Concept) to approximately 4,770 vehicles per hour (2018 SIMR Re-evaluation Design Concept) – an increase of approximately 890 vehicles per hour. This dramatic improvement in operating speeds and throughput is achieved by facilitating users of the I-95 express lanes system to bypass the congestion along the segment of I-95 GU lanes between NW 151st Street and the GGI. This was the primary objective of the modified NB GGI Express Lanes Connector.

It should be noted that the simulation results depict some reduction in operating speeds along I-95 GU lanes within the segment from north of EB SR 826 On-Ramp to Miami Gardens Drive Off-Ramp. Under the 2016 SIMR Design Concept, operating speeds within this segment range from approximately 38 mph to 54 mph, whereas, under the 2018 SIMR Re-evaluation Design Concept operating speeds are approximately 31 mph to 48 mph. This reduction in operating speed results from the increase in throughput along I-95 mainline within the segment. Within this segment, throughput is approximately 6,960 to 7,730 vehicles per hour under the 2016 SIMR Design Concept which is increased to approximately 7,130 to 7,850 vehicles per hour under the 2018 SIMR Re-evaluation Design Concept (an increase of 120 to 170 vehicles per hour). This tradeoff of increased throughput and reduced operating speeds is expected, given that there are no proposed design changes within this segment of I-95 and the relatively high travel demand exceeds the capacity of the segment.

The above results confirm that during the PM peak period, the 2018 SIMR Re-evaluation Design Concept provides overall better traffic operations along I-95 GU lanes, I-95 Express lanes, and traffic movements from NB I-95 Express to NB Turnpike.

Traffic Operations along EB and WB SR 826:

- Results from the CORSIM analysis indicate that the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept generate comparable operating conditions along EB SR 826 and WB SR 826 in the AM and PM peak periods. Both design concepts generate similar operating speeds and travel times during the AM and PM peak periods – average travel times in the GU and express lanes typically vary by less than 12 seconds between the two design concepts (see Table 4-2) and average operating speeds vary by no more than 2 mph. These results indicate that both design concepts generate similar operating conditions along SR 826 GU lanes and express lanes. The results confirm that relocating the ingress and egress points to NW 27th Avenue will not have any adverse impacts on traffic operations. Note that the primary goal for relocating the ingress and egress points

along SR 826 was to provide better access for local communities. The results demonstrate that this goal can be achieved without adversely impacting traffic operations.

It is noted that in both design concepts, traffic congestion is experienced in the AM peak period along EB SR 826 approaching the GGI. In the 2016 SIMR Design Concept, congestion occurs along the segment east of NW 27th Avenue while in the 2018 SIMR Re-evaluation Concept congestion occurs along the segment east of NW 17th Avenue (a modest improvement compared to the 2016 SIMR Design Concept). The congestion experienced along this segment of SR 826 is attributed to two conditions:

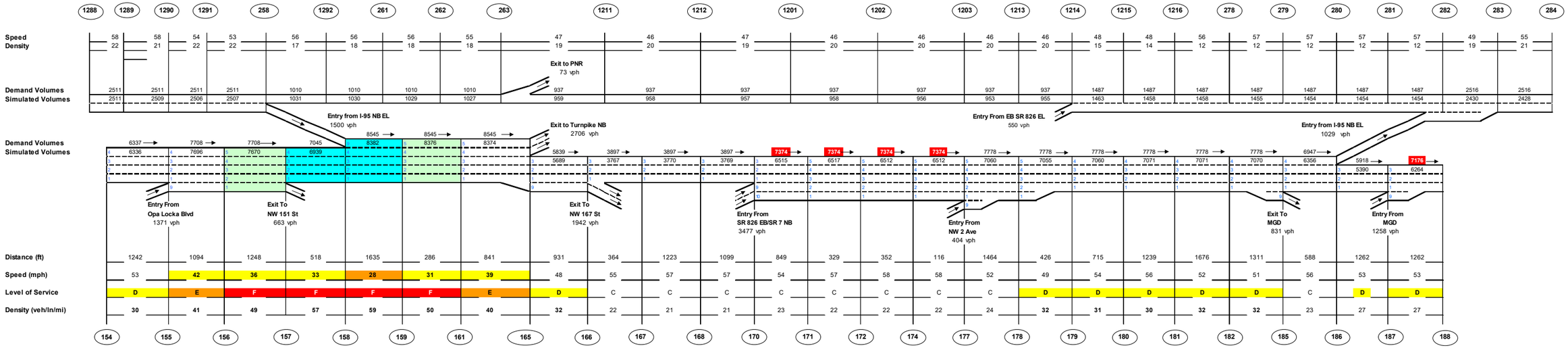
1. EB SR 826 freeway segment terminates at the GGI and transition to an arterial segment continuing north along NW 7th Avenue. The SR 826 freeway segment operates under uninterrupted flow conditions with a significantly higher capacity than the arterial segment (NW 7th Avenue) which operates under interrupted flow conditions, with multiple traffic signals providing right-of-way for conflicting movements. Hence, as the SR 826 freeway segment (with higher capacity) transitions into the arterial segment (with lower capacity), congestion builds along the transition segment, and this is reflected in the CORSIM results.
2. The ramp configuration in both design concepts generate weaving movements at the off-ramp to SB I-95. In the 2016 SIMR Design Concept a complex weaving segment is created due to the proximity of the EB egress at NW 17th Avenue. This condition generates congestion which spills back to NW 27th Avenue. In the 2018 SIMR Re-evaluation Design Concept this weaving condition is improved as the egress point is relocated upstream to NW 27th Avenue. This generates some congestion relief within the segment as congestion spills back only to NW 17th Avenue.

It should also be noted that along the segment of WB SR 826 immediately downstream from the I-95 on-ramp, operating speeds are higher (approximately 51 mph) in the 2016 SIMR Design concept when compared to the 2018 SIMR Re-evaluation Design Concept (approximately 28 mph), during the PM peak. This reduction in operating speeds results from the increase in throughput under the 2018 SIMR Design Concept (approximately 5,815 vehicles per hour) when compared to the 2016 SIMR design Concept (approximately 5,575 vehicles per hour). This tradeoff of increased throughput and reduced operating speeds is expected given the relatively high demand volumes within the segment.

Overall Network Performance

- The discussions presented above confirm that the 2018 SIMR Re-evaluation Design Concept provides better overall traffic operating conditions along I-95 mainline. The proposed design change significantly improves traffic operations for movements from NB I-95 Express to NB Turnpike – the primary goal of the design change. It also significantly improves total throughout along I-95, particularly along the most critical segment of the corridor – north of NW 151st Street. The 2018 SIMR Re-evaluation Design Concept provides comparable traffic operations along SR 826 while still meeting the goal of improving local access to the express lanes. These findings provide justification for implementing the 2018 SIMR Re-evaluation Design Concept.

Notwithstanding the notable operational benefits of the 2018 SIMR Re-evaluation Design Concept, it is acknowledged that the proposed improvements will not fully address all operational deficiencies within the study network. The results of the CORSIM analyses indicate that in both design concepts the simulated volumes are lower than the demand volumes in several locations. These deficiencies in throughput traffic primarily result from capacity constraints along the I-95 mainline. The capacity constraints along I-95 have been recognized by the FDOT and the on-going I-95 Master Plan Study is intended to develop recommendations for addressing them. Significant capacity constraints are also evident on the local arterials immediately adjacent to the study network – demand volumes at the arterial intersections exceed their capacity. These constraints on the local arterials meter the traffic entering the study network which result in lower simulated volumes when compared to the demand volumes. These arterial deficiencies are being addressed by on-going FDOT and County projects aimed at alleviating traffic congestion across the region. The deficiencies in throughput traffic do not undermine the benefits of the 2018 SIMR Re-evaluation Design Concept when compared to the 2016 SIMR Design Concept nor does it diminish the justification for the proposed improvements.



I-95 - NORTHBOUND ⟶

LEGEND

511 Node Number	**Freeway Geometric Coloring Density (Veh/LN/Hour)**		**Freeway LOS Coloring Density (Veh/Mi/Ln)**		
Speed (mph)				900	Demand volume highlighted if simulated falls below = **90%**
20 and below	Density above	75	LOS A to C	< 26	809 Simulated volume
20 - 30	Density above	55	LOS D	26 - 35	
30 - 45	Density above	45	LOS E	35 - 45	Density Calculations from CORSIM not equivalent to calculations from HCM
45 and above			LOS F	> 45	LOS Letter Grades based on density ranges specified in HCM

2016 DESIGN CONCEPT
AM PEAK HOUR

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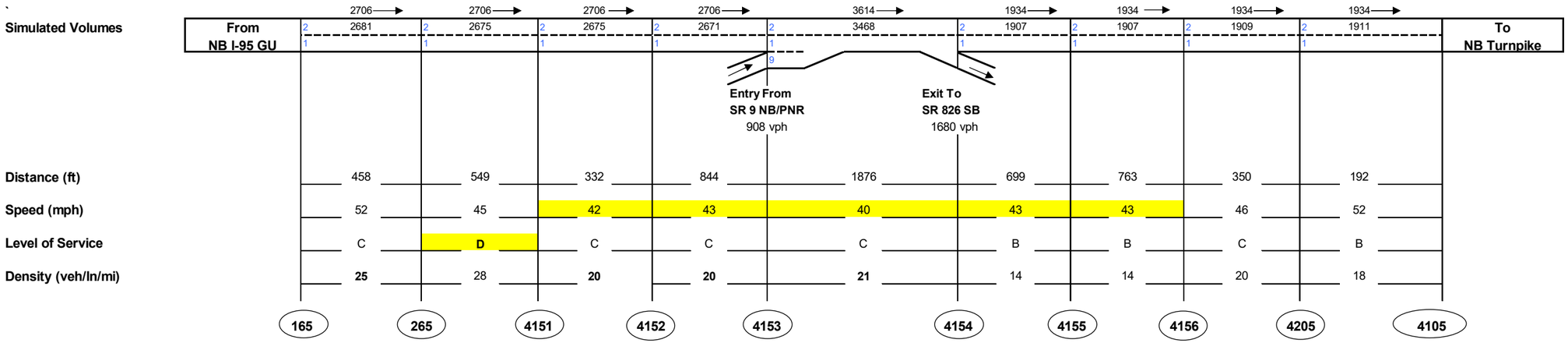
2040 CORSIM Analysis – AM Peak
2016 SIMR Design Concept

Figure 4-3



NB I-95 to NB TURNPIKE CONNECTOR →

LEGEND

511 Node Number

Speed (mph)

20 and below	
20 - 30	
30 - 45	
45 and above	

Freeway Geometric Coloring
Density (Veh/Mi/Ln)

Density above	75
Density above	55
Density above	45

Freeway LOS Coloring
Density (Veh/Mi/Ln)

LOS A to C	< 26
LOS D	26 - 35
LOS E	35 - 45
LOS F	> 45

900 Demand volume highlighted if simulated falls below = **90%**

809 Simulated volume

Density Calculations from CORSIM not equivalent to calculations from HCM

LOS Letter Grades based on density ranges specified in HCM

2016 DESIGN CONCEPT
AM PEAK HOUR

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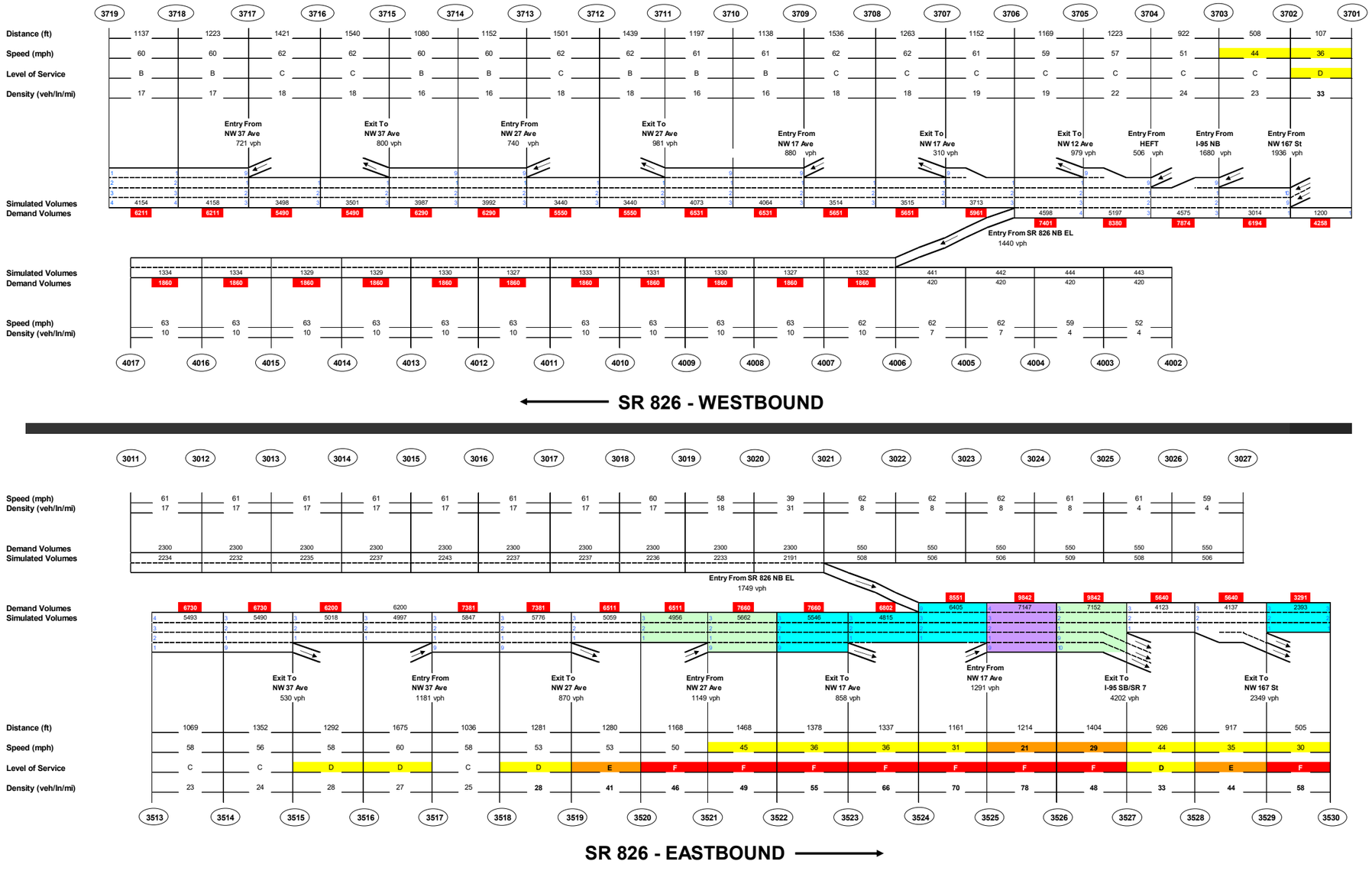
2040 CORSIM Analysis – AM Peak
2016 SIMR Design Concept

Figure 4-3



LEGEND

511 Node Number

Speed (mph)

20	and below	
20	-	30
30	-	45
45	and above	

Freeway Geometric Coloring Density (Veh/LN/Hour)

Density above	75
Density above	55
Density above	45

Freeway LOS Coloring Density (Veh/Mi/Ln)

LOS A to C	< 26
LOS D	26 - 35
LOS E	35 - 45
LOS F	> 45

900 / 809 — Demand volume highlighted if simulated falls below = **90%**; Simulated volume

Density — Calculations from CORSIM not equivalent to calculations from HCM

LOS — Letter Grades based on density ranges specified in HCM

2016 DESIGN CONCEPT AM PEAK HOUR

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From SR 93/I-75 to Golden Glades Interchange

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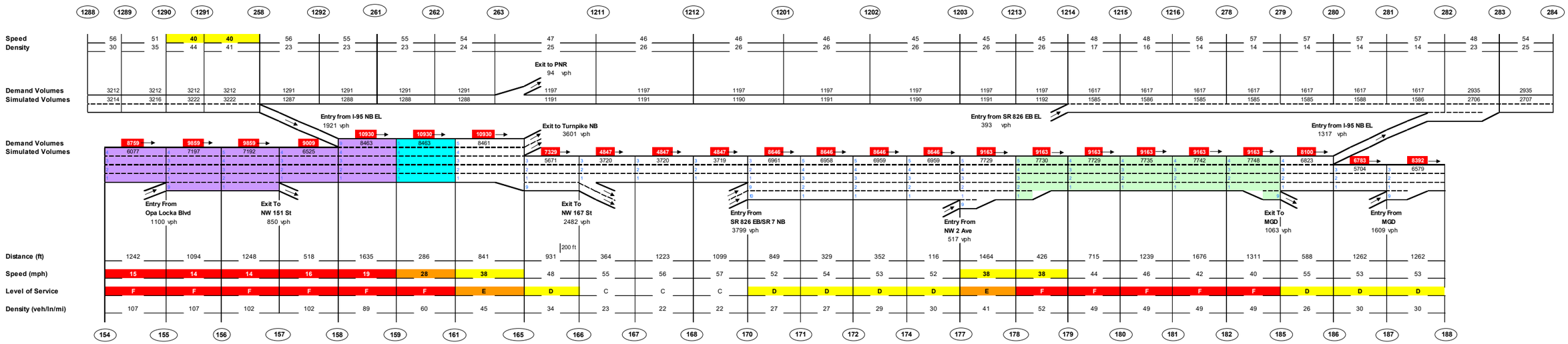
2040 CORSIM Analysis – AM Peak
2016 SIMR Design Concept

Figure 4-3
Sheet 3 of 3



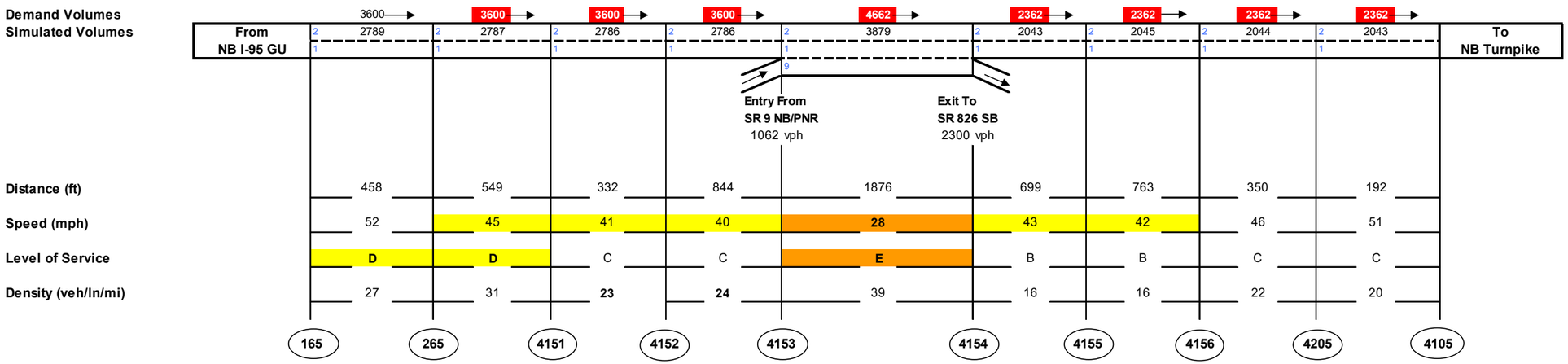
I-95 - NORTHBOUND ⟶

LEGEND

511 Node Number	**Freeway Geometric Coloring Density (Veh/LN/Hour)**		**Freeway LOS Coloring Density (Veh/Mi/Ln)**		900 / 809 Demand volume highlighted if simulated falls below = **90%** Simulated volume
Speed (mph)					
20 and below	Density above	75	LOS A to C	< 26	Density Calculations from CORSIM not equivalent to calculations from HCM
20 - 30	Density above	55	LOS D	26 - 35	LOS Letter Grades based on density ranges specified in HCM
30 - 45	Density above	45	LOS E	35 - 45	
45 and above			LOS F	> 45	

2016 DESIGN CONCEPT
PM PEAK HOUR

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2040 CORSIM Analysis – PM Peak 2016 SIMR Design Concept	Figure 4-4 Sheet 1 of 3



NB I-95 to NB TURNPIKE CONNECTOR →

LEGEND

511 Node Number

Speed (mph)

20 and below		
20	-	30
30	-	45
45 and above		

Freeway Geometric Coloring
Density (Veh/Mi/Ln)

Density above	75
Density above	55
Density above	45

Freeway LOS Coloring
Density (Veh/Mi/Ln)

LOS A to C	< 26
LOS D	26 - 35
LOS E	35 - 45
LOS F	> 45

900 Demand volume highlighted if simulated falls below = **90%**

809 Simulated volume

Density Calculations from CORSIM not equivalent to calculations from HCM

LOS Letter Grades based on density ranges specified in HCM

2016 DESIGN CONCEPT
PM PEAK HOUR

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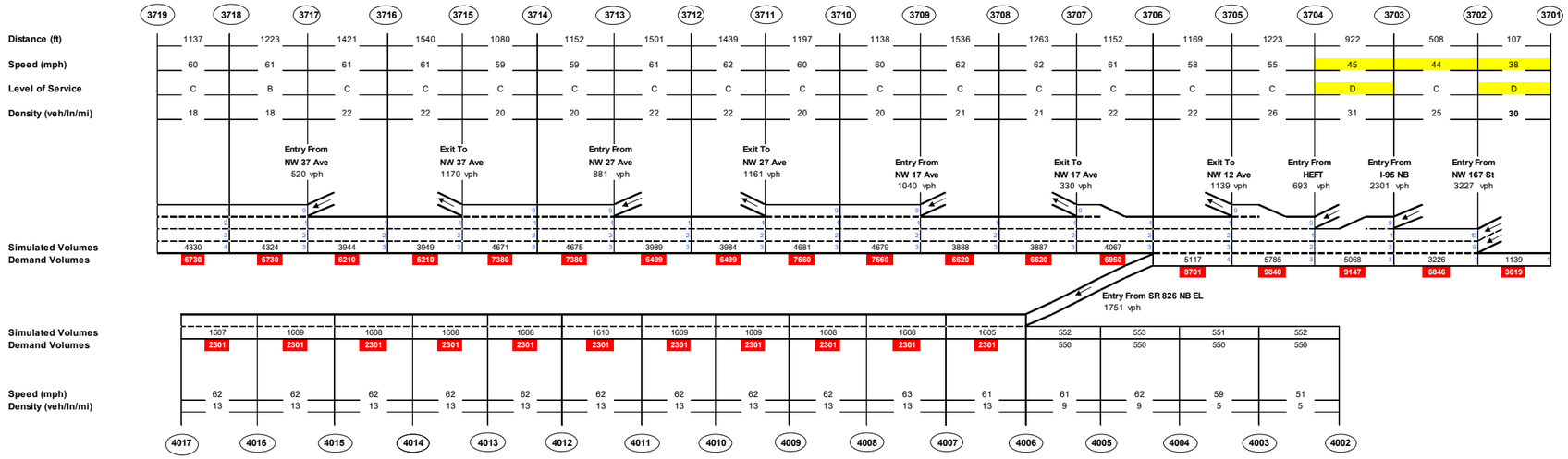
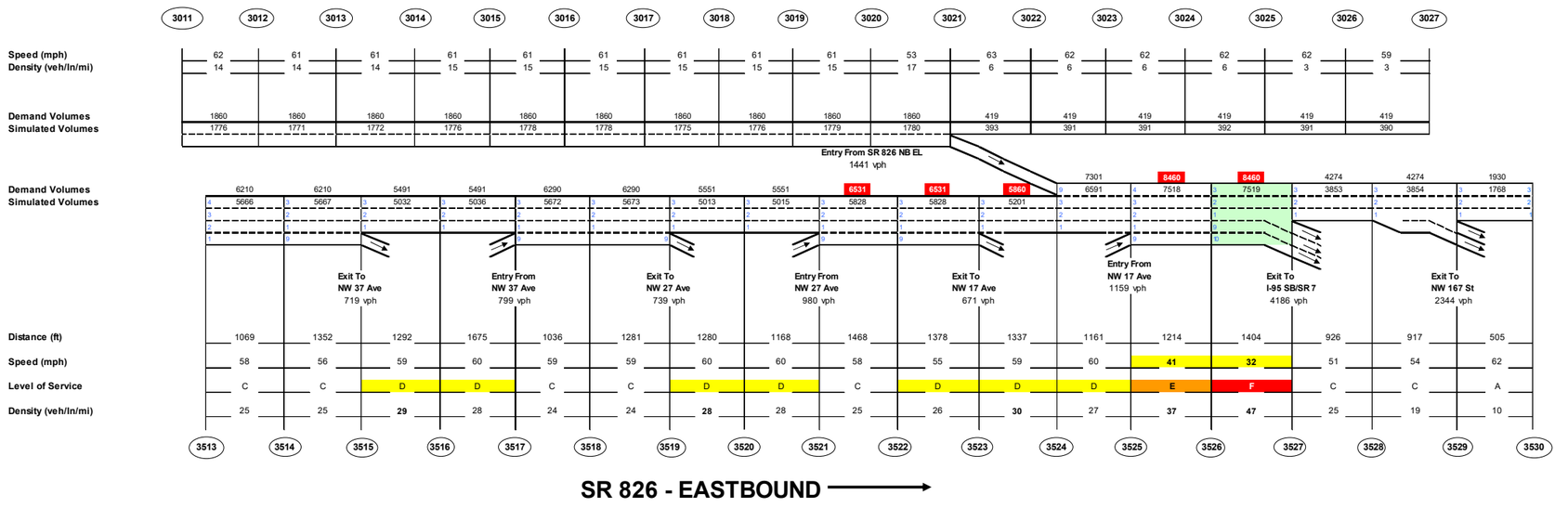
2040 CORSIM Analysis – PM Peak
2016 SIMR Design Concept

Figure 4-4





LEGEND

511 Node Number

Speed (mph)
- 20 and below
- 20 - 30
- 30 - 45
- 45 and above

Freeway Geometric Coloring Density (Veh/LN/Hour)
- Density above 75
- Density above 55
- Density above 45

Freeway LOS Coloring Density (Veh/Mi/Ln)
- LOS A to C < 26
- LOS D 26 - 35
- LOS E 35 - 45
- LOS F > 45

900 / 809 Demand volume highlighted if simulated falls below = 90% Simulated volume

Density Calculations from CORSIM not equivalent to calculations from HCM

LOS Letter Grades based on density ranges specified in HCM

2016 DESIGN CONCEPT PM PEAK HOUR

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From SR 93/I-75 to Golden Glades Interchange

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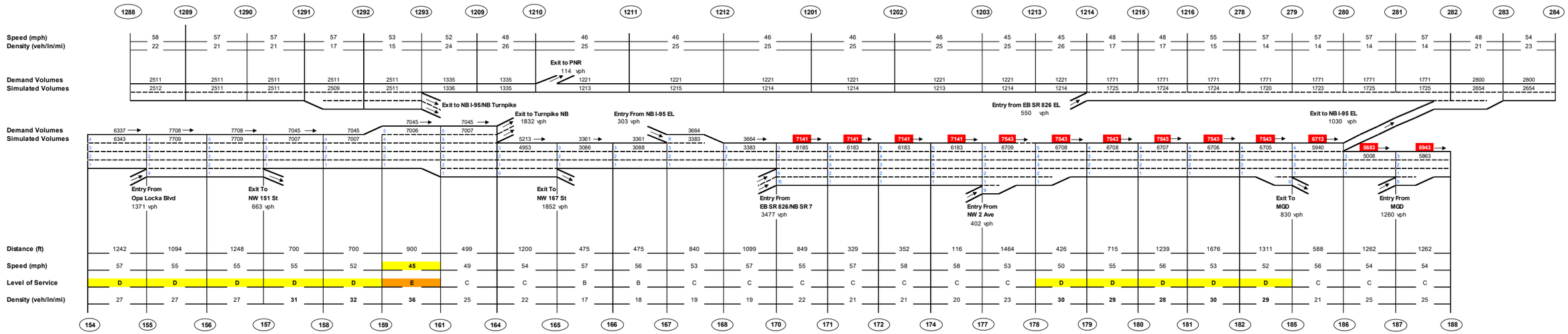
2040 CORSIM Analysis – PM Peak
2016 SIMR Design Concept

Figure 4-4



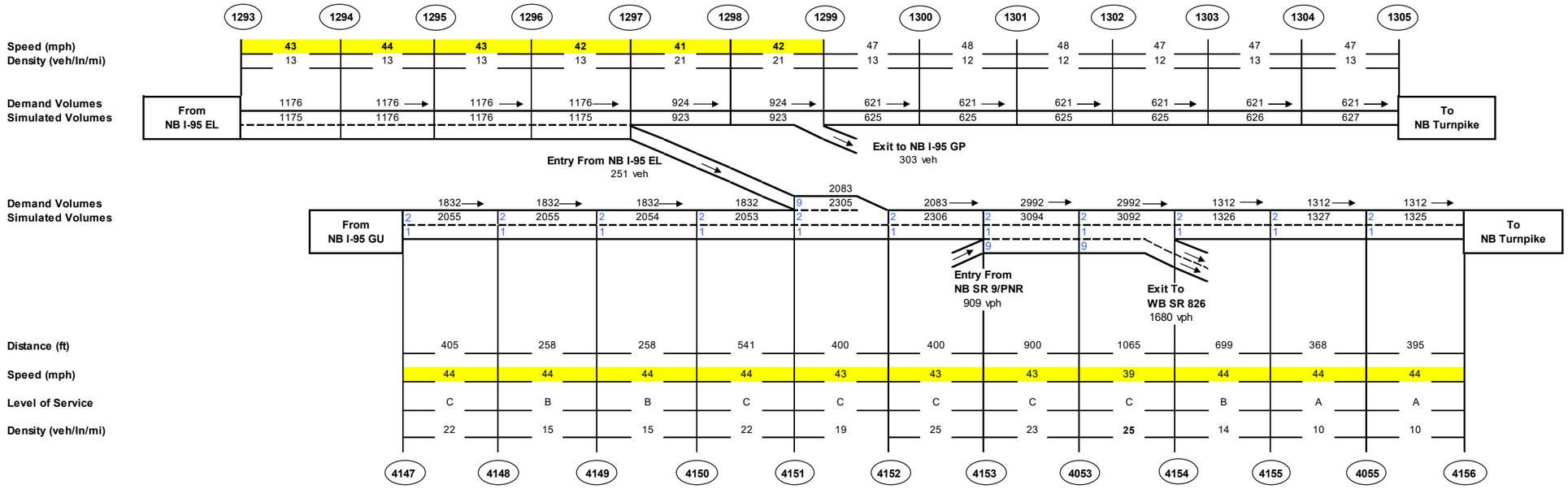
I-95 - NORTHBOUND ⟶

LEGEND

511 Node Number	**Freeway Geometric Coloring Density (Veh/LN/Hour)**		**Freeway LOS Coloring Density (Veh/Mi/Ln)**		900 / 809 Demand volume highlighted if simulated falls below = **90%**; Simulated volume
Speed (mph)	Density above	75	LOS A to C	< 26	
20 and below	Density above	55	LOS D	26 - 35	Density: Calculations from CORSIM not equivalent to calculations from HCM
20 - 30	Density above	45	LOS E	35 - 45	LOS: Letter Grades based on density ranges specified in HCM
30 - 45			LOS F	>45	
45 and above					

2018 DESIGN CONCEPT
AM PEAK HOUR

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2040 Build CORSIM - AM Peak 2018 SIMR Re-evaluation Design Concept	Figure 4-5 Sheet 1 of 3

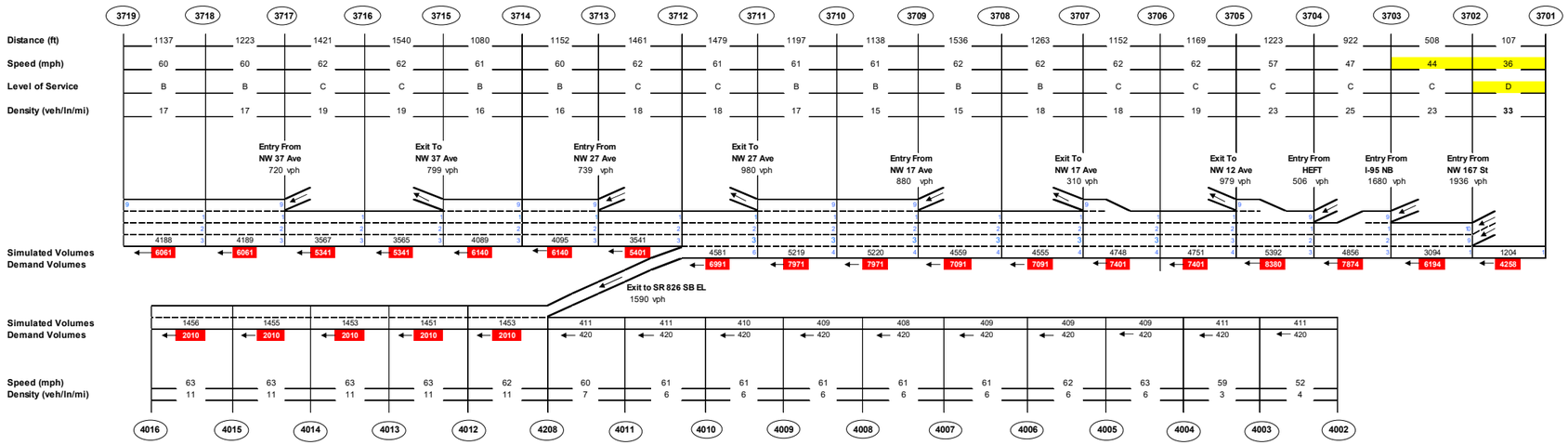


NB I-95 to NB TURNPIKE RAMP CONNECTORS →

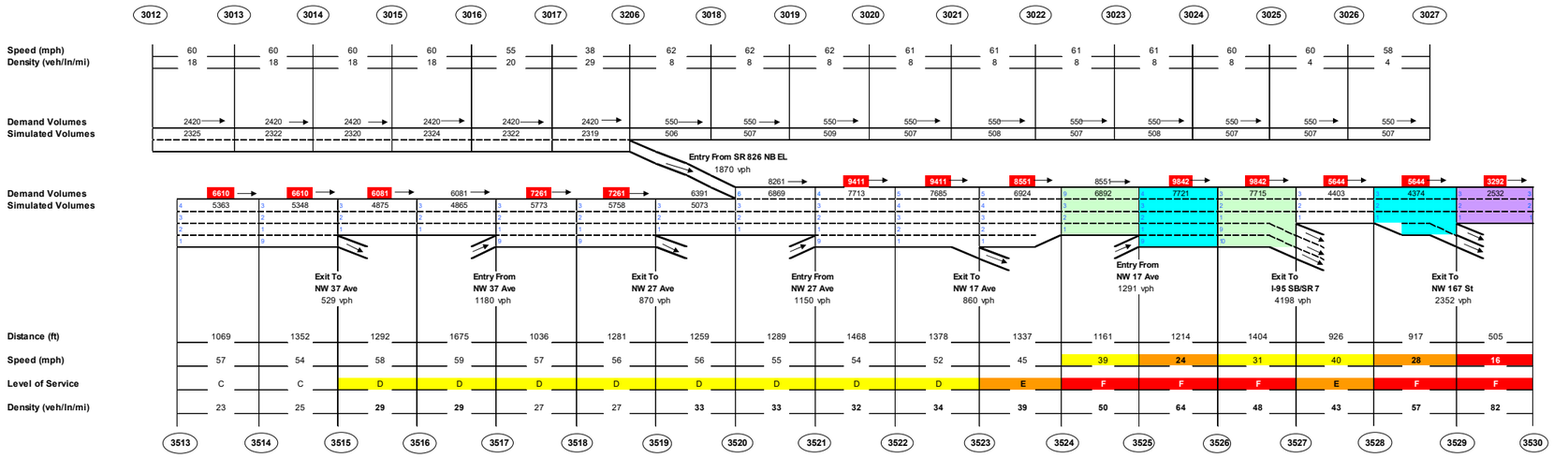
LEGEND

511 Node Number	**Freeway Geometric Coloring Density (Veh/Mi/Ln)**		**Freeway LOS Coloring Density (Veh/Mi/Ln)**		900 / 809 Demand volume highlighted if simulated falls below = **90%**; Simulated volume
Speed (mph)					
20 and below	Density above	75	LOS A to C	< 26	
20 - 30	Density above	55	LOS D	26 - 35	
30 - 45	Density above	45	LOS E	35 - 45	Density: Calculations from CORSIM not equivalent to calculations from HCM
45 and above			LOS F	> 45	LOS: Letter Grades based on density ranges specified in HCM

2018 DESIGN CONCEPT AM PEAK HOUR



SR 826 - WESTBOUND



SR 826 - EASTBOUND

LEGEND

511 Node Number

Speed (mph)
- 20 and below
- 20 - 30
- 30 - 45
- 45 and above

Freeway Geometric Coloring Density (Veh/LN/Hour)
- Density above 75
- Density above 55
- Density above 45

Freeway LOS Coloring Density (Veh/Mi/Ln)
- LOS A to C < 26
- LOS D 26 - 35
- LOS E 35 - 45
- LOS F > 45

900 / 809 Demand volume highlighted if simulated falls below = 90% Simulated volume

Density / LOS Calculations from CORSIM not equivalent to calculations from HCM. Letter Grades based on density ranges specified in HCM

2018 DESIGN CONCEPT AM PEAK HOUR

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From SR 93/I-75 to Golden Glades Interchange

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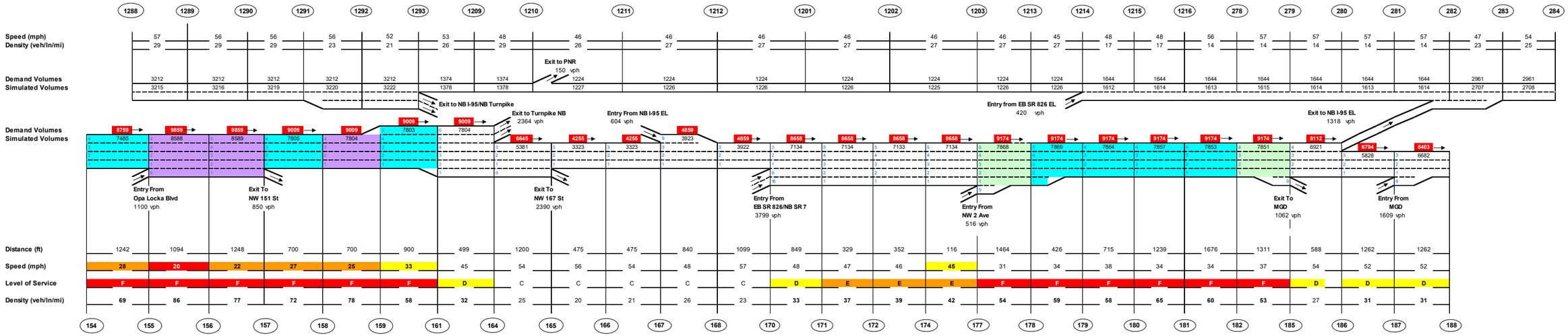
2040 Build CORSIM - AM Peak
2018 SIMR Re-evaluation Design Concept

Figure 4-5



I-95 - NORTHBOUND

LEGEND

511 Node Number

Speed (mph)

20 and below	
20 - 30	
30 - 45	
45 and above	

Freeway Geometric Coloring
Density (Veh/LN/Hour)

Density above	75
Density above	55
Density above	45

Freeway LOS Coloring
Density (Veh/Mi/Ln)

LOS A to C	< 26
LOS D	26 - 35
LOS E	35 - 45
LOS F	> 45

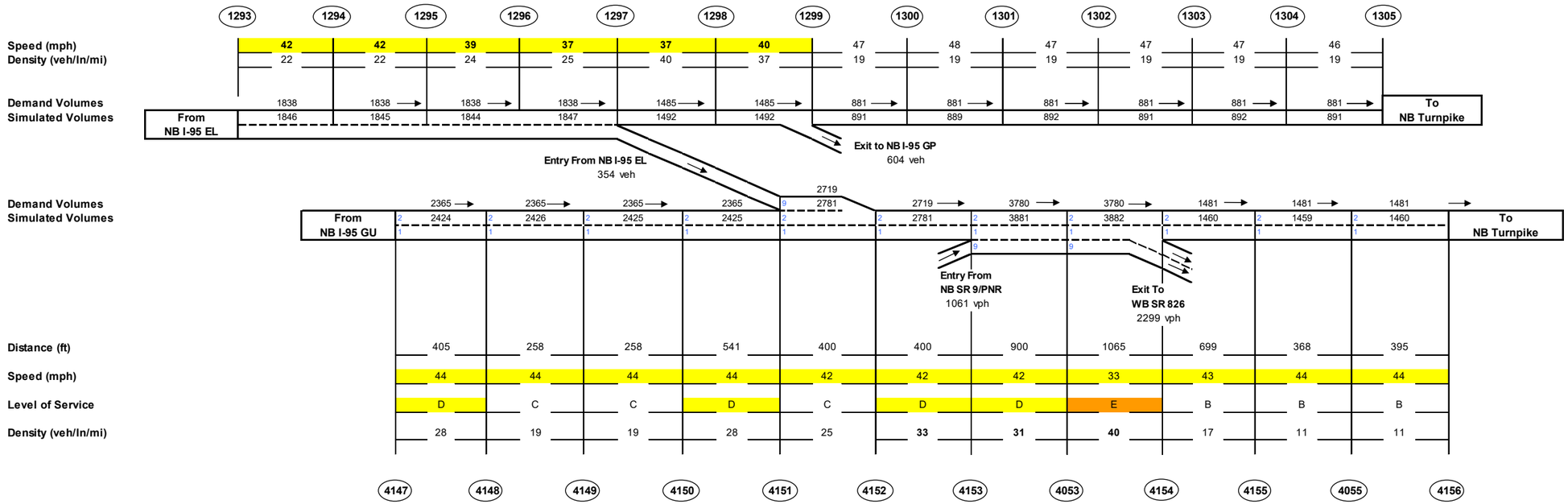
900 / 809 — Demand volume highlighted if simulated falls below = **90%**; Simulated volume

Density — Calculations from CORSIM not equivalent to calculations from HCM

LOS — Letter Grades based on density ranges specified in HCM

2018 DESIGN CONCEPT
PM PEAK HOUR

FDOT	RS&H, Inc 6303 Blue Lagoon Drive, Suite 325 Miami, Florida 33126	SR 826/Palmetto Expressway PD&E Study From SR 93/I-75 to Golden Glades Interchange ETDM NO: 11241 FM: 418423-1-22-01	2040 Build CORSIM - PM Peak 2018 SIMR Re-evaluation Design Concept	Figure 4-6 Sheet 1 of 3



NB I-95 to NB TURNPIKE CONNECTOR →

LEGEND

511 Node Number

Speed (mph)

20 and below
20 - 30
30 - 45
45 and above

Freeway Geometric Coloring
Density (Veh/Mi/Ln)

Density above	75
Density above	55
Density above	45

Freeway LOS Coloring
Density (Veh/Mi/Ln)

LOS A to C	< 26
LOS D	26 - 35
LOS E	35 - 45
LOS F	> 45

900 Demand volume highlighted if simulated falls below = **90%**
809 Simulated volume

Density Calculations from CORSIM not equivalent to calculations from HCM
LOS Letter Grades based on density ranges specified in HCM

2018 DESIGN CONCEPT
PM PEAK HOUR

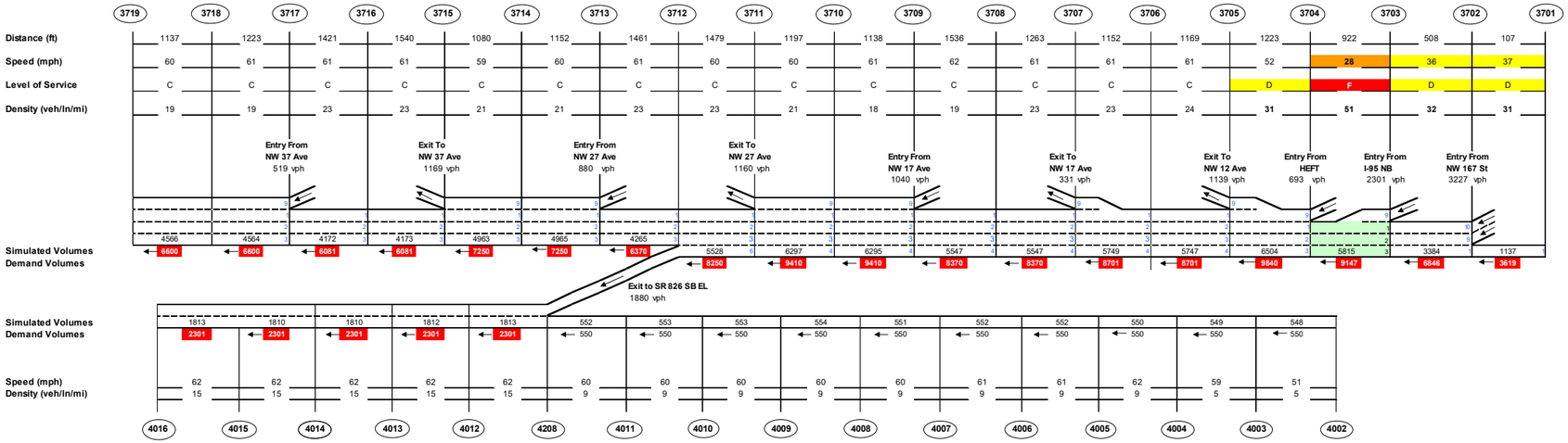
RS&H, Inc
6303 Blue Lagoon Drive, Suite 325
Miami, Florida 33126

SR 826/Palmetto Expressway PD&E Study
From SR 93/I-75 to Golden Glades Interchange

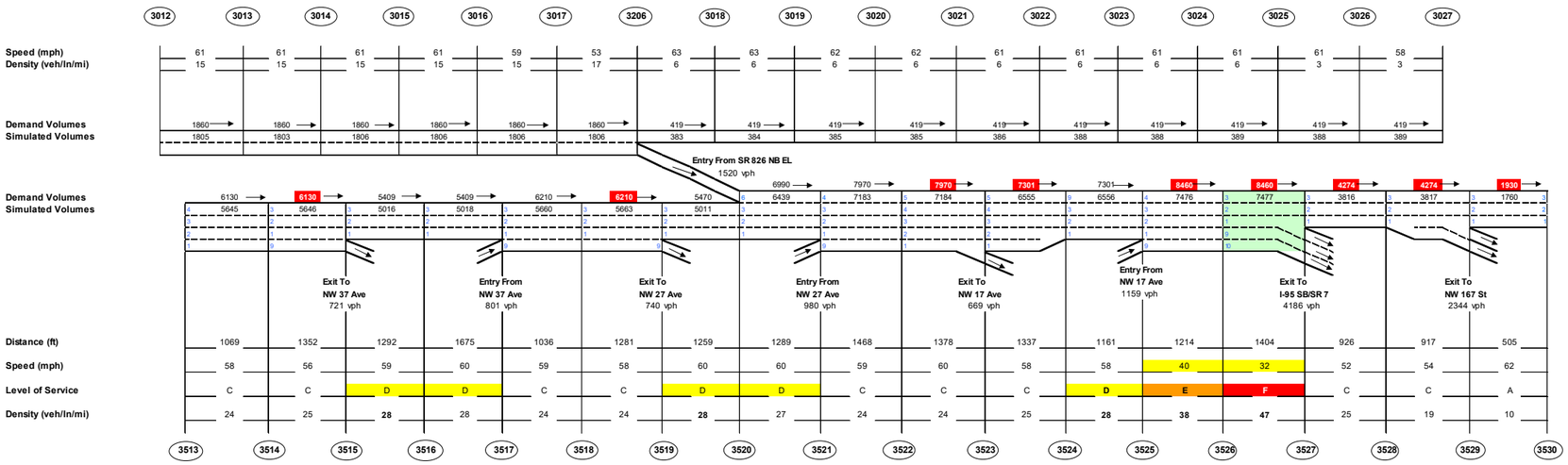
ETDM NO: 11241
FM: 418423-1-22-01

2040 Build CORSIM - PM Peak
2018 SIMR Re-evaluation Design Concept

Figure 4-6



SR 826 - WESTBOUND



SR 826 - EASTBOUND

LEGEND

- 511 — Node Number
- Speed (mph): 20 and below; 20 - 30; 30 - 45; 45 and above
- Freeway Geometric Coloring Density (Veh/LN/Hour): Density above 75; Density above 55; Density above 45
- Freeway LOS Coloring Density (Veh/Mi/Ln): LOS A to C < 26; LOS D 26 - 35; LOS E 35 - 45; LOS F > 45
- 900 / 809 — Demand volume highlighted if simulated falls below = 90%; Simulated volume
- Density / LOS — Calculations from CORSIM not equivalent to calculations from HCM; Letter Grades based on density ranges specified in HCM

2018 DESIGN CONCEPT PM PEAK HOUR

RS&H, Inc
6303 Blue Lagoon Drive, Suite 325
Miami, Florida 33126

SR 826/Palmetto Expressway PD&E Study
From SR 93/I-75 to Golden Glades Interchange

ETDM NO: 11241
FM: 418423-1-22-01

2040 Build CORSIM - PM Peak
2018 SIMR Re-evaluation Design Concept

Figure 4-6
Sheet 3 of 3

Table 4-1: CORSIM Analysis – NB I-95

NB I-95 AM PEAK HOUR					
Travel Route		Performance Measure	2016 SIMR	2018 SIMR Re-val	Comments
I-95 GU	From OpaLocka Blvd. to N of MGD	Travel Time (min:sec)	5:31	4:46	2018 SIMR Performs Better
		Avg. Speed (mph)	46	54	2018 SIMR Performs Better
I-95 EL	From OpaLocka Blvd. to N of MGD	Travel Time (min:sec)	4:45	4:49	Comparable Operations
		Avg. Speed (mph)	53	53	Comparable Operations
I-95 EL/TPK Connector	From OpaLocka Blvd. to Turnpike	Travel Time (min:sec)	3:32	2:40	2018 SIMR Performs Better
		Avg. Speed (mph)	42	51	2018 SIMR Performs Better
NB I-95 PM PEAK HOUR					
Travel Route		Performance Measure	2016 SIMR	2018 SIMR Re-val	Comments
I-95 GU	From OpaLocka Blvd. to N of MGD	Travel Time (min:sec)	8:25	7:10	2018 SIMR Performs Better
		Avg. Speed (mph)	30	36	2018 SIMR Performs Better
I-95 EL	From OpaLocka Blvd. to N of MGD	Travel Time (min:sec)	4:56	4:50	Comparable Operations
		Avg. Speed (mph)	51	52	Comparable Operations
I-95 EL/TPK Connector	From OpaLocka Blvd. to Turnpike	Travel Time (min:sec)	4:18	2:44	2018SIMR Performs Better
		Avg. Speed (mph)	27	50	2018 SIMR Performs Better

Table 4-2: CORSIM Analysis – SR 826

SR 826 AM PEAK HOUR					
Travel Route		Performance Measure	2016 SIMR	2018 SIMR Re-val	Comments
EB SR 826 GU Lanes	From NW 37 Avenue to GGI	Travel Time (min:sec)	5:46	5:11	Comparable Operations
		Avg. Speed (mph)	41	46	Comparable Operations
EB SR 826 EL	From NW 37 Avenue to GGI	Travel Time (min:sec)	4:01	4:00	Comparable Operations
		Avg. Speed (mph)	58	59	Comparable Operations
WB SR 826 GU Lanes	From GGI to NW 37 Avenue	Travel Time (min:sec)	4:03	4:03	Comparable Operations
		Avg. Speed (mph)	59	59	Comparable Operations
WB SR 826 EL	From GGI to NW 37 Avenue	Travel Time (min:sec)	3:36	3:39	Comparable Operations
		Avg. Speed (mph)	62	61	Comparable Operations
SR 826 PM PEAK HOUR					
Travel Route		Performance Measure	2016 SIMR	2018 SIMR Re-val	Comments
EB SR 826 GU Lanes	From NW 37 Avenue to GGI	Travel Time (min:sec)	4:26	4:27	Comparable Operations
		Avg. Speed (mph)	54	54	Comparable Operations
EB SR 826 EL	From NW 37 Avenue to GGI	Travel Time (min:sec)	3:51	3:51	Comparable Operations
		Avg. Speed (mph)	61	61	Comparable Operations
WB SR 826 GU Lanes	From GGI to NW 37 Avenue	Travel Time (min:sec)	4:06	4:17	Comparable Operations
		Avg. Speed (mph)	59	57	Comparable Operations
WB SR 826 EL	From GGI to NW 37 Avenue	Travel Time (min:sec)	3:38	3:41	Comparable Operations
		Avg. Speed (mph)	62	61	Comparable Operations

5 SAFETY

5.1 Safety Analysis

A safety analysis was performed for the segment of NB I-95 from south of NW 151st Street (MP 11.669) to the GGI Interchange (MP 12.256). This segment of I-95 was identified as the focus area for the safety analysis as it will be most impacted by the proposed design changes. FDOT's Crash Analysis Reporting System (CARS) was used to gather historical crash records for this segment of NB I-95. The proposed design changes in the 2018 SIMR Re-evaluation Design Concept are not expected to have any significant safety impacts along other segments of I-95 and SR 826 that are within study area. Hence, the safety analysis for the SIMR Re-evaluation was not expanded beyond the area along NB I-95 from south of NW 151 Street to the GGI Interchange.

CARS is a database maintained annually by the FDOT for crashes reported along state highway facilities. The database provides information on various characteristics associated with each crash including: collision type, severity, weather conditions, road surface conditions, and date/time information. The CARS database was researched to identify and extract crashes reported along the study segment during the five-year period from January 2011 through December 2015. The crashes were analyzed to assess safety conditions along the study segment of NB I-95. Major findings from the analysis are discussed below.

A crash summary of statistics for NB I-95 from south of NW 151st Street to the GGI Interchange are summarized in Table 5.1. A total of 622 crashes were reported during the five-year study period, which equates to an average of 124 crashes per year. Two hundred and twenty nine (or 37%) of the crashes involved injuries and five fatal crashes were reported during the five-year period – two in 2011, and one each in 2012, 2013 and 2015. A majority of the crashes experienced along the study corridor were rear end collisions accounting for 279 crashes (or 45%), followed by sideswipes accounting for 150 crashes (or 24%), and 84 fixed object collisions (or 13.5%). Approximately 62% of the crashes occurred during daylight conditions, and 34% of the crashes occurred during dark conditions. The remaining 4% of the crashes occurred during dusk or dawn. The proportion of crashes experienced during dark conditions (34%) is marginally higher than the county average of 29.5% through the period 2011 to 2015. Approximately 86% of the crashes occurred under dry roadway surface conditions, and 14% occurred under wet roadway surface conditions. The proportion of wet crashes is not significantly high when compared to Miami-Dade County average of 16% through the period 2011 to 2015.

Statistical tests were also performed, following FDOT's procedures, to determine if the crashes experienced along the study segment of NB I-95 were abnormally high when compared to similar freeway segments statewide. Results of the statistical test are summarized in the Table 5.2. The results indicate that the study segment of NB I-95 experienced an abnormally high number of crashes in each year 2011 through 2015 when compared to similar locations statewide. This statistical finding is calculated within a 99.99% confidence level.

The results of the crash analysis confirm that crashes experienced along the NB segment of I-95 from south of NW 151st Street to the GGI are abnormally high. The predominant crash patterns are rear-end collisions, sideswipes, and fixed object crashes. Excessive congestion and weaving activities within this segment are probable causes for the rear-end collisions and sideswipe crashes experienced along the segment. The proposed design changes will address these crashes and eliminate much of the existing weaving activities. In addition, the proposed design changes will increase the shoulder widths within the segment which will help to alleviate fixed object crashes.

Table 5-1: Crash Summary – NB I-95 from South of NW 151st Street to GGI

I95 from S of NW 151st Street(MP 11.669) to GGI (MP 12.256)		Number of Crashes Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2011	2012	2013	2014	2015			
CRASH TYPE	Rear End	79	27	46	49	78	279	56	44.9%
	Head On	1	0	0	0	0	1	0	0.2%
	Angle	13	8	7	8	6	42	8	6.8%
	Left Turn	0	0	0	0	0	0	0	0.0%
	Right Turn	0	0	0	0	0	0	0	0.0%
	Sideswipe	49	17	27	23	34	150	30	24.1%
	Backed Into	0	0	0	0	0	0	0	0.0%
	Pedestrian	1	1	0	0	0	2	0	0.3%
	Bicycle	0	0	0	0	0	0	0	0.0%
	Fixed Object	24	16	19	12	13	84	17	13.5%
	Other Non Fixed Object Collisions	7	6	3	5	5	26	5	4.2%
	Non Collisions	2	1	1	3	3	10	2	1.6%
	Others	6	5	4	8	5	28	6	4.5%
	Total Crashes	**182**	**81**	**107**	**108**	**144**	**622**	124	**100.0%**
SEVERITY	PDO Crashes	113	40	69	75	92	389	78	62.5%
	Fatal Crashes	2	1	1	0	1	5	1	0.8%
	Injury Crashes	67	40	37	33	51	228	46	36.7%
LIGHTING CONDITIONS	Daylight	118	51	68	74	77	388	78	62.4%
	Dusk	5	1	2	2	4	14	3	2.3%
	Dawn	1	1	3	3	2	10	2	1.6%
	Dark	58	28	34	29	61	210	42	33.8%
	Unknown	0	0	0	0	0	0	0	0.0%
SURFACE CONDITIONS	Dry	161	64	83	93	133	534	107	85.9%
	Wet	21	17	24	15	11	88	18	14.1%
	Others	0	0	0	0	0	0	0	0.0%
MONTH OF YEAR	January	21	6	4	11	7	49	10	7.9%
	February	19	7	6	5	9	46	9	7.4%
	March	18	5	11	9	13	56	11	9.0%
	April	16	3	9	10	13	51	10	8.2%
	May	15	9	4	12	6	46	9	7.4%
	June	9	8	9	12	13	51	10	8.2%
	July	20	6	8	10	13	57	11	9.2%
	August	13	4	11	9	16	53	11	8.5%
	September	15	7	14	7	9	52	10	8.4%
	October	11	9	12	8	14	54	11	8.7%
	November	12	9	5	4	19	49	10	7.9%
	December	13	8	14	11	12	58	12	9.3%
DAY OF WEEK	Monday	30	14	17	12	11	84	17	13.5%
	Tuesday	23	16	13	17	25	94	19	15.1%
	Wednesday	27	9	25	16	25	102	20	16.4%
	Thursday	21	10	11	13	20	75	15	12.1%
	Friday	29	12	13	19	24	97	19	15.6%
	Saturday	24	6	14	17	20	81	16	13.0%
	Sunday	28	14	14	14	19	89	18	14.3%
HOUR OF DAY	00:00-06:00	25	11	9	14	33	92	18	14.8%
	06:00-09:00	17	10	7	11	13	58	12	9.3%
	09:00-11:00	12	5	6	12	9	44	9	7.1%
	11:00-13:00	12	8	7	8	16	51	10	8.2%
	13:00-15:00	24	8	12	15	14	73	15	11.7%
	15:00-18:00	47	19	32	26	23	147	29	23.6%
	18:00-24:00	45	20	34	22	36	157	31	25.2%

Table 5-2: Crash Statistics – NB I-95 from South of SW 151st Street to GGI

Year	2011	2012	2013	2014	2015
Number of Crashes	182	81	107	108	144
Actual Crash Rate (ACR)	6.476	3.037	4.653	4.595	6.073
District 6 Average Crash Rate (A)	1.400	1.546	1.854	2.018	2.641
Critical Crash Rate (CCR)	2.117	2.320	2.767	2.961	3.718
Safety Ratio	3.059	1.309	1.682	1.552	1.633
Confidence Level	99.99%	99.99%	99.99%	99.99%	99.99%

6 DESIGN VARIATIONS AND EXCEPTIONS

6.1 Anticipated Design Variations and Exceptions

Based on current preliminary design plans, design exceptions and variations are anticipated to implement the proposed design changes associated with the SIMR Re-evaluation. Design variations are anticipated along I-95 and along the GGI ramp systems for: horizontal alignment (length of curve), shoulder width, border width, express lanes buffer separation, and height of noise walls. Design exceptions are anticipated for lane width along I-95 GU lanes and for horizontal curve radius and stopping sight distance along various ramps at the GGI. The anticipated design exceptions and variations will be processed for approval as the project advances through final design and construction.

7 PLANNING CONSISTENCY

7.1 Consistency with Other Plans/Projects

The proposed design changes are components of the GGI Interchange Improvement project and the SR 826 Express Lanes (East-West) Improvement Project. These on-going projects resulted from previously approved GGI PD&E Study and the SR 826 PD&E Study. The improvements resulting from these studies are consistent with improvement plans incorporated in Florida's Strategic Intermodal System (SIS) 2040 Long Rang Cost Feasible Plan and the Statewide Transportation Improvement Program (STIP). The proposed improvements are also included in the current 2040 Cost Feasible Long Range Transportation Plan (LRTP), adopted by Miami Dade County, Metropolitan Planning Organization (MPO). The improvements are also incorporated in the MPO's Transportation Improvement Program (TIP)

The 2018 SIMR Re-evaluation Design Concept was developed in coordination with the following adjacent Projects:

- I-95 Master Plan (Miami-Dade County): The FDOT's on-going I-95 Master Plan is evaluating long term improvements for I-95 mainline and interchanges throughout Miami-Dade County. This includes segments of I-95 mainline, the GGI and other interchanges within the area of influence for this project.
- Turnpike PD&E Study. Florida Turnpike Enterprise is performing a PD&E Study that is examining the potential for adding express lanes to the Turnpike System located immediately north of the GGI. The NB I-95 Express Lane Connector (described herein) may provide direct connections to a future express lanes along the Florida Turnpike System.

8 ASSESSMENT OF FHWA POLICY POINTS

The FHWA's Policy on Access to the Interstate System provides the requirements for the justification and documentation necessary to substantiate any proposed changes in access to the Interstate System. The policy is published under the Federal Register, Volume 74, Number 165, updated May 22, 2017. The current SR 826 SIMR (approved October 2016) incorporates an assessment of the two considered requirements that are specified in the current FHWA's Policy on Access to the Interstate System. The assessment compared the No Build Alternative and the 2016 SIMR Design Concept (Recommended Alternative). It demonstrated that the 2016 SIMR Design Concept satisfies the FHWA's Policy requirements on access to the interstate system. While the FHWA's Policy Assessments remain applicable, updates are necessary for approving and authorizing the design changes proposed for Design Concept 4.1 B. In this regard, the following updated responses are offered for Policy Item #1 (previously Item #3) and Policy Item #2 (previously #4): The policy item responses from the 2016 SIMR are included for reference.

Policy:

It is in the national interest to preserve and enhance the Interstate System to meet the needs of the 21st Century by assuring that it provides the highest level of service in terms of safety and mobility. Full control of access along the Interstate mainline and ramps, along with control of access on the crossroad at interchanges, is critical to providing such service. Therefore, FHWA's decision to approve new or revised access points to the Interstate System under Title 23, United States Code (U.S.C.), Section 111, must be supported by substantiated information justifying and documenting that decision. The FHWA's decision to approve a request is dependent on the proposal satisfying and documenting the following requirements

Considerations and Requirements

Policy Item: 1 (previously Item No. 3)
An operational and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility (which includes mainline lanes, existing, new, or modified ramps, ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections. The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 CFR 625.2(a), 655.603(d) and 771.111(f)). The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 CFR 625.2(a) and 655.603(d)). Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute and accommodate traffic on the Interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 CFR 625.2(a) and 655.603(d)). Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. 109(d) and 23 CFR 655.603(d)).

Response per prior approved 2016 SR 826 SIMR (References relate to 2016 SIMR)

The operational analysis conducted for the SIMR confirmed that the proposed interchange modifications are not expected to have any significant adverse impacts on safety and operations along SR 826 nor along I-95. When compared with the No Build Alternative, the Recommended Alternative significantly improves operations along SR 826 and the terminal intersections. In the Recommended Alternative, average operating speeds along SB I-95 GU lanes increase by approximately 20 mph (from 22 mph to 42 mph) and total throughput increases by approximately 820 vehicles (8.0% above No Build). In the northbound direction along I-95, average operating speeds show an increase of approximately 6 mph (from 25 mph to 31 mph) and throughput increases by approximately 620 vehicles (7.4% above No Build). SR 826 shows similar improvements in the Recommended Alternative when compared to the No Build Alternative. On eastbound SR 826 average operating speeds increase from 16 mph (No Build) to 51 mph (Recommended Alternative). Throughput along EB SR 826 increases by approximately 78% - from 4,512 (No Build) to 8,058 (Recommended Alternative). Modest improvements are shown along WB SR 826 – average speeds increase from 53 mph to 56 mph and throughput increases from 9,348 to 9,546. In addition, under the No Build Alternative, all terminal interchanges along SR 826 are expected to reach LOS F conditions by year 2040 whereas under the Recommended Alternative, these interchanges are expected to operate at LOS E or better. Furthermore, the express lanes along SR 826 will provide added operational benefits for Express Bus Services, Emergency Response Services and other users of the express lanes system.

Data from historical crash records identified multiple high crash segments and high crash spots along SR 826. Traffic congestion along SR 826 is a contributing factor for much of the crashes experienced along the corridor. Under the No Build Alternative, traffic congestion is expected to increase along SR 826 in future years with a corresponding increase in crash risk along the corridor. This potential for future increase in crash risk is largely alleviated by the improvements proposed in the Recommended Alternative. In addition, the vertical clearance is deficient at several of the existing bridge structures along SR 826. This deficiency in vertical clearance is a probable causal factor for reported collisions with the understructure of the bridges at several cross streets. The proposed SR 826 improvements will increase the vertical clearance at the cross streets and thereby reduce the risk for crashes resulting from inadequate vertical clearance.

The SR 826 Improvement Project will include the development of a comprehensive signing plan for the corridor. A conceptual signing plan was previously presented in the 2016 SIMR document. The signing plan will be fully coordinated with FHWA in advance of construction.

<u>Addendum to Policy Item No. 1 Response</u>

Detailed operations analyses were performed comparing the 2016 SIMR Design Concept and the 2018 SIMR Re-evaluation Design Concept (described under Section 2 of the SIMR Re-evaluation). The analysis focused on segments of I-95, SR 826, and GGI ramp systems that are within the area of influence and directly impacted by the proposed design changes, per the 2018 SIMR Re-evaluation Design Concept. The analyses confirmed that the 2018 SIMR Re-evaluation Design Concept will not have any adverse safety or operational impacts on I-95 and SR 826. The analyses demonstrated that the 2018 SIMR Re-evaluation Design Concept will provide better operating conditions along I-95 GU lanes and along I-95 Express Lanes when compared to the 2016 SIMR Design Concept. In the critical PM peak period (year 2040), average operating speeds for movements from NB I-95 Express to NB Turnpike increase from approximately 27 mph (2016 SIMR Design Concept) to approximately 50 mph (2018 SIMR Re-evaluation Design Concept). In addition, total throughput (GU + express traffic) along the NB I-95 to NB Turnpike ramp connector is increased by approximately 890 vehicles per hour during the PM peak. This improvement in traffic operations along the NB I-95 to NB Turnpike ramp connector was a primary goal of the proposed design change.

The 2018 SIMR Re-evaluation Design Concept also generates higher operating speeds and a substantial increase in throughput traffic along NB I-95. Overall operating speeds along I-95 GU lanes increase from approximately 30 mph to 36 mph during the PM peak period. Within the segment of highest demand (north of NW 151st Street) total throughput (GU + express) is increased from approximately 9,750 vehicles per hour (2016 SIMR Design Concept) to approximately 11,020 vehicles per hour – an increase of approximately 1,270 vehicles per hour.

Traffic operations along SR 826 GU lanes and SR 826 express lanes are comparable under the 2018 SIMR Re-evaluation Design Concept and the 2016 SIMR Design Concept. Microsimulation analyses indicate that operating speeds and level of service are similar along SR 826 mainline for both design concepts. However, the 2018 SIMR Re-evaluation Design Concept facilitates greater access to the express lanes for the local community which was a primary objective for the proposed design change.

An assessment of safety conditions along NB I-95 indicate that the segment from south of NW 151st Street to GGI is a high crash location. This segment of I-95 is highly congested with multiple complex weaving maneuvers. The traffic congestion and complex weaving activities are probable contributing causes for the high crash rates along this segment of I-95. The 2018 SIMR Re-evaluation Design Concept will reduce the crash risk along this segment of I-95 by providing congestion relief and reducing the complex weaving maneuvers. In addition, the 2018 SIMR Re-evaluation Design Concept will mitigate the risk of queue spillback from the GU lanes into the express lanes at the existing egress point at NW 151st Street. These safety benefits are not offered in the 2016 SIMR Design Concept.

Based on the above enhanced safety and operational benefit, The 2018 SIMR Re-evaluation Design Concept is offered as a replacement for the 2016 SIMR Design Concept. A master conceptual signing plan for 2018 SIMR Design is included with this SIMR Re-evaluation under Appendix E.

Policy Item #2 (previously Item No. 4)
The proposed access connects to a public road only and will provide for all traffic movements. Less than ``full interchanges'' may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)).

Response per prior Approved 2016 SIMR (References relate to 2016 SIMR)

The SIMR proposes no new interchanges along any of the freeway facilities within the project limits (SR 826, I-95, I-75 and SR 924). All existing interchanges provide access to public roads only. The improvements proposed at the interchanges will maintain full access to the existing interstate facilities and cross streets and accommodate all movements. The proposed access modifications will be designed to meet or exceed current design standards, to the extent possible. The preliminary design plans from PD&E Study reflect the following:

- Access control along the cross streets adhere to the FDOT's Access Management Standards, to the extent possible, in order to facilitate acceptable traffic operations and safety. The proposed improvements will not negatively impact existing median opening spacing nor driveway spacing.

- All proposed improvements have been developed with due consideration for all applicable FDOT and FHWA design criteria. No design exceptions are anticipated. It is anticipated that design variations will be required for border width, shoulder width, sidewalk and bike lane, as documented under Section 8.5 of the 2016 SIMR. These design variations will not have any adverse impacts on safety or traffic operations.

Adequate storage is provided on all off-ramps to accommodate anticipated queues and prevent spillback onto the mainline. This condition is confirmed in the results shown under Section 7 (Table 7.7) of the 2016 SIMR which compares the estimated queue lengths and the available storage of the off-ramps.

Addendum to Policy Item No. 2 Response

The design changes proposed per the 2018 SIMR Re-evaluation Design Concept have been developed with due consideration for all applicable FDOT and FHWA design criteria. Design exceptions are anticipated for lane width along I-95 GU lanes and for horizontal curve radius and stopping sight distance along various ramps at the GGI. Design variations are anticipated along I-95 and along the GGI ramp systems for: horizontal alignment (length of curve), shoulder width, border width, express lanes buffer separation and height of noise walls. These design exceptions and variations will not have any adverse impacts on safety or traffic operations and will be processed for approval as the project advances through final design and construction.

9 CONCLUSIONS AND RECOMMENDATIONS

In October 2016, the FDOT received approval from the FHWA for the SIMR supporting the implementation of improvements along the segment of SR 826/Palmetto Expressway extending from I-75 to the GGI in Miami-Dade County, Florida. The FDOT is proposing a design change (2018 SIMR Re-evaluation Design Concept) to the design concept that was approved under the 2016 SIMR. The proposed design change incorporates the following modifications:

- Construction of a direct connector ramp for existing movements from NB I-95 Express to NB Turnpike. The proposed design change also modifies connections from NB I-95 Express to I-95 GU lanes, WB SR 826, SR 7/US 441, and NW 167th Street. In addition, the construction of this connector involves removing the existing NB I-95 egress located at NW 151st Street.

- Relocation of the proposed express lanes ingress and egress points on SR 826 from NW 17th Avenue to NW 27th Avenue (approximately one mile west of the location proposed in the 2016 SIMR).

The FDOT determined that a re-evaluation of the prior 2016 SIMR was necessary to support the proposed design change. An analysis of the proposed design change (2018 SIMR Re-evaluation Design Concept) was performed in accordance with the related MLOU and the FDOT's Interchange Access Request (IAR) Users' Guide. Results from the analyses and conclusions reached are:

- The 2018 SIMR Re-evaluation Design Concept satisfies the FHWA's Policy on Access to the Interstate System. The design change will not result in any adverse impacts to safety or operations along I-95 and SR 826.

- The 2018 SIMR Re-evaluation Design Concept provides better traffic operations along NB I-95 GU lanes and I-95 Express Lanes when compared to the 2016 SIMR Design Concept. Improvements are particularly significant for traffic movements from NB I-95 Express to NB Turnpike. In the critical PM peak period (year 2040), average operating speeds for movements from NB I-95 Express to NB Turnpike increase from approximately 27 mph (2016 SIMR Design Concept) to 50 mph (2018 SIMR Re-evaluation Design Concept). Total throughput (GU + express traffic) is also increased by approximately 890 vehicles per hour along the NB I-95 to NB Turnpike ramp connectors. The operational improvements achieved for NB I-95 Express to NB Turnpike movements was a primary goal of the proposed design change.

- The 2018 SIMR Re-evaluation Design Concept generates higher operating speeds and throughput along the I-95 mainline. Overall operating speeds along I-95 GU lanes increase from approximately 30 mph (2016 SIMR Design Concept) to 36 mph (2018 SIMR Re-evaluation Design Concept). Total throughput (GU + express traffic) across the segment of I-95 with the highest travel demand (north of NW 151st Street) is increased from approximately 9,750 vehicles per hour (2016 SIMR Design Concept) to approximately 11,020 vehicles per hour – an increase of approximately 1,270 vehicles per hour.

- The 2018 SIMR Re-evaluation Design Concept and the 2016 SIMR Design Concept generate comparable traffic operating conditions along SR 826 during the 2040 AM and PM peak periods. In comparing the two design concepts, travel times along SR 826 segments vary by less than 12 seconds and operating speeds vary by no more than 2 mph.

- The proposed relocation of the SR 826 Express Lanes ingress and egress points, per the 2018 SIMR Re-evaluation Design Concept, will facilitate better access to the express lanes for the industrial and commercial areas located west of the GGI. This improvement in access to the express lanes was a primary objective of the proposed design change.

- An assessment of safety conditions along NB I-95 indicate that the segment from south of NW 151st Street to GGI is a high crash location. Traffic congestion and complex weaving activities are probable contributing causes for the high crash rates along this segment of I-95. The 2018 SIMR Re-evaluation Design Concept will reduce this crash risk by providing congestion relief and reducing the complex weaving maneuvers. In addition, the 2018 SIMR Re-evaluation Design Concept will mitigate the risk of queue spillback into the express lanes at the existing egress point at NW 151st Street. These safety benefits are not offered in the 2016 SIMR Design Concept

- The design changes proposed per the 2018 SIMR Re-evaluation Design Concept have been developed with due consideration for all applicable FDOT and FHWA design criteria. Design exceptions are anticipated for lane width along I-95 GU lanes and for horizontal curve radius and stopping sight distance along various ramps at the GGI. Design variations are anticipated along I-95 and along the GGI ramp systems for: horizontal alignment (length of curve), shoulder width, border width, express lanes buffer separation, and height of noise walls. These design exceptions and variations will not have any adverse impacts on safety or traffic operations and will be processed for approval as the project advances through final design and construction.

Based on the above findings, the 2018 SIMR Re-evaluation Design Concept is offered as a partial replacement for the previously approved 2016 SIMR Design Concept.

Commitment for Before and After Safety Study:

Per the FDOT District Six, Interchange Coordination Meeting of March 20, 2019, FDOT District 6, FDOT Central Office and FHWA reached consensus to move forward with the 2018 SIMR Re-evaluation Design Concept. This consensus was reached, in part, as a result of a commitment from FDOT to perform a Before and After Safety Study to evaluate the change in crashes experienced along NB I-95 (from NW 151 Street to Miami Gardens Drive) for the pre-construction and post construction periods. The Before and After Safety Study will be conducted by FDOT to include the following:

- Pre-construction Crash Analysis: Analysis of crash records for NB I-95, from NW 151 Street to Miami Gardens Drive, for a period of five (5) years prior to the commencement of construction of the 2018 SIMR Re-evaluation Design Concept. To facilitate a fair comparison of crash records, the pre-construction period will not include crashes experienced during the construction of the planned improvements which is anticipated to begin in mid-2021 and last approximately five years.

- Post Construction Crash Analysis: Analysis of crash records for NB I-95, from NW 151 Street to Miami Gardens Drive, for a period of five (5) years commencing approximately six (6) months after the opening date of the 2018 SIMR Re-evaluation Design Concept. To facilitate a fair comparison of crash records, the post construction period will commence approximately six (6) months after the opening date of the planned improvements. This approach will allow sufficient time for normalization of traffic conditions in response to the new travel patterns resulting from the 2018 SIMR Re-evaluation Design Concept.

If it is determined from the Before and After Safety Study that there is a statistically significant increase in crashes in the post construction period as compared to the pre-construction period, the FDOT will, at that time, consider implementation of further design modifications to address the safety concerns. Design modifications that may be considered will include, but not be limited to, the removal of the express lanes egress serving Miami Gardens Drive as proposed in the 2018 SIMR Re-evaluation Design Concept. The requirement for FDOT to conduct a Before and After Safety Study will be included as a project Commitment in the re-evaluation documents.

APPENDICES

Appendix A: MLOU – SR 826 SIMR Re-evaluation

Appendix B: 2018 SIMR Re-evaluation Design Concept – NB I-95 Express to NB Turnpike

Appendix C: 2018 SIMR Re-evaluation Design Concept – SR 826 Express Modified Ingress/Egress Points

Appendix D: HCS Output Sheets

Appendix E: Master Conceptual Signing Plan