



Interchange Modification Report

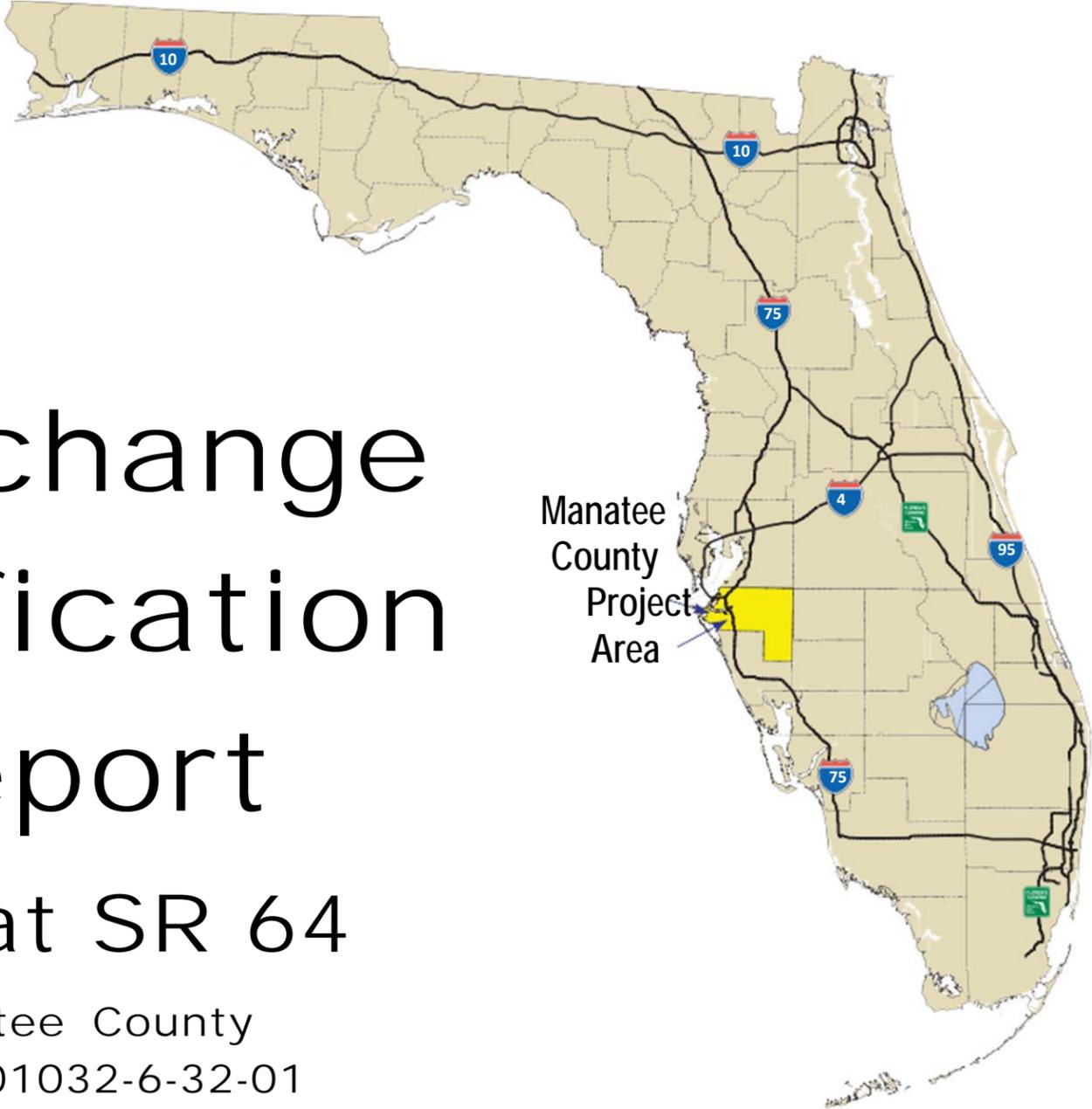
I-75 at SR 64

Manatee County
FPID: 201032-6-32-01



**Florida Department of Transportation
District One**

September 2015



Interchange Modification Report (IMR)

I-75 at SR 64

Manatee County, Florida

FPID: 201032-6-32-01

Prepared for:



Florida Department of Transportation
District One

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September
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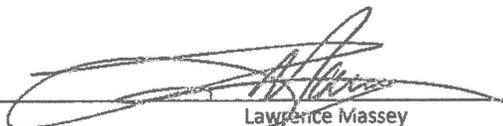
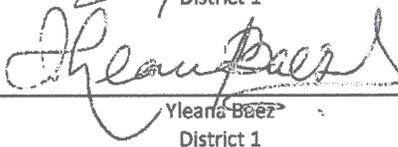
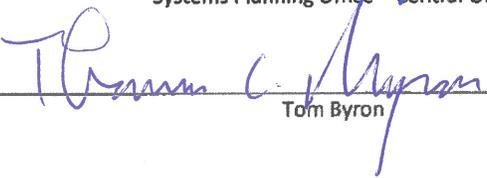


I-75 at SR 64 Interchange

201032-6-32-01

Florida Department of Transportation Determination of Engineering and Operational Acceptability

Acceptance of this document indicates successful completion of the review and determination of engineering and operational 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	 _____ Lawrence Massey District 1	8/3/15 _____ Date
Interchange Review Coordinator	 _____ Yleana Baez District 1	8/3/2015 _____ Date
State Interchange Review Coordinator	 _____ Martha Hodgson Systems Planning Office - Central Office	9/10/15 _____ Date
State Chief Engineer	 _____ Tom Byron	9/10/15 _____ Date

Executive Summary

Florida Department of Transportation District 1 has requested that the interchange of SR 64 at Interstate 75(I-75) be modified. This modification replaces the previously approved 2012 System Interchange Modification Report (SIMR) Recommended Diamond Interchange to a NW Loop Only interchange. The study area along I-75 extends from north of SR 70 to south of US 301, a distance of approximately 7.3 miles, and along SR 64 from 66th St Ct/64th St Ct to Grand Harbour Parkway, a distance of approximately 0.91 miles.

The purpose of this Interchange Modification Report (IMR) is to reevaluate the future traffic operations at the I-75/SR 64 interchange based on the revised population/traffic growth projections and reevaluate the need for the diamond interchange configuration recommended by the Project Development and Environmental (PD&E) study and the System Interchange Modification Report (SIMR). The need for this IMR is to identify the most suitable interchange configuration to meet the demands of future travelers while minimizing project costs and impacts.

A Methodology Letter of Understanding (MLOU) was prepared to document the methodology for the analysis and evaluation for this Interchange Modification Report (IMR). The MLOU was approved by the District Interchange Review Committee, FDOT Systems Planning Office and Federal Highway Administration (FHWA) in March 2014. A signed copy of the MLOU is provided in Appendix A. The following sections summarize the methodology stated in the MLOU.

The adopted 2007 Sarasota/Manatee Counties (SMC) Validation Model and 2035 SMC Cost Feasible Model have been utilized for the purposes of forecasting future travel demand. Other currently approved development plans that may impact the study area were obtained from Manatee County. The recently adopted 2035 SMC Cost Feasible Model was used to perform a sub-area validation for the defined project study area. The sub-area validation meets the requirements of the Florida Standard Urban Transportation Modeling System (FSUTMS) Model Update Task Force. This procedure is also consistent with the recommendations from the Interchange Handbook Technical Resource Document (TRD) 8 – Travel Demand Model Selection. If required, adjustments to the model are made as noted within the Interchange Handbook TRD Section 8. This is also consistent with Section 3.8.2 of 2012 Project Traffic Forecasting Handbook (Figures 3.3 and 3.4) and the FSUTMS-Cube Framework Phase II Model Calibration and Validation Standards dated October 2, 2008.

The travel demand forecasts from the sub-area validated 2035 cost feasible model were extrapolated using growth rates to obtain design year (2040) traffic projections. The growth rates were developed based on comparison of historic trends, 2012 existing traffic counts and forecasted model output volumes.

The interchange modifications recommended in this IMR are intended to provide improved interchange operations at the SR 64 interchange. Additional recommendations enhance the arterial operations of SR 64. The following two alternatives have been developed and analyzed for this IMR, Alternative 1: 2012 SIMR Recommended Diamond Interchange and Alternative 2) NW Loop Only Interchange. The alternatives were analyzed to assess their effectiveness in meeting the future travel demand of the study area as well as the physical and social impacts, and safety and environmental considerations associated with each alternative.

The I-75/SR 64 interchange (MP 7.076) is approximately 3.6 miles north of the I-75/SR 70 interchange and 3.7 miles south of the I-75/US 301 interchange. The study area along I-75 is from north of the I-75 & SR 70 interchange (MP 3.719) to south of the I-75 & US 301 Interchange (MP 11.012) and along SR 64 from 66th St Ct/64th St Ct (to the west-MP 5.932) to Grand Harbour Parkway (to the east- MP 6.842). The following intersections and segments are included in the study area.

Signalized Intersections (from west to east):

SR 64 & 66th St Ct/64th St Ct
 SR 64 & I-75 SB Ramps
 SR 64 & I-75 NB Ramps
 SR 64 & Grand Harbour Parkway

Roadway Segments (from west/south to east/north):

SR 64 from 66th St Ct/64th St Ct to Grand Harbour Parkway
 I-75 south of SR 64
 I-75 north of SR 64

The proposed improvements to the interchange will enhance traffic operations on SR 64 and have no adverse impacts to I-75. The proposed interchange will remain inside the existing SR 64 interchange right-of-way thereby eliminating any additional environmental impacts.

Compliance with FHWA Policy

The following requirements serve as the primary decision criteria used in approval of interchange projects. Each of the eight policy points from the FHWA is described briefly and the detailed description is provided below in italic text. The justification response to each point follows.

Existing system is incapable of accommodating the traffic

The need being addressed by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands (23 CFR 625.2(a)).

The I-75 PD&E study identified the need to make improvements at the SR 64 interchange. With population growth projected to occur within Sarasota and Manatee Counties and the region the I-75 corridor continues to be vital. Traffic in the study area is expected to increase based on the projected population growth in the region. According to 2010 U.S. Census, Manatee County's population was 322,833 persons, which was a 22.3 percent increase over the 2000 population of 264,002 persons. Similarly the 2010 U.S. Census showed Sarasota County's population was 379,448 persons, which was a 16.4 percent increase over the 2000 population of 325,957 persons. The population growth in the region can be attributed to tourism related activities, an influx of retirees, abundant developable land and the overall growth in west central Florida. The lack of other regional North/South corridors in the area has made I-75 an attractive route for local trips, thus increasing traffic load at the interchanges.

In addition to I-75 at SR 64 interchange improvements, the PD&E study recommends addition of two special use lanes in each direction along I-75. Initially, the interstate mainline would be increased from a six-lane to eight-lane facility. Ultimately the Interstate configuration would consist of four special use (express) lanes with six general use lanes, creating a ten-lane facility.

All reasonable alternatives to a new interchange have been considered

The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the Interstate without the proposed change(s) in access (23 CFR 625.2(a)).

This IMR serves as an update to the alternatives considered in the I-75 PD&E for Sarasota and Manatee Counties. The alternatives consistent with the PD&E ultimate improvements have been evaluated as part of this IMR.

Proposal does not adversely impact operational safety of the existing freeway

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)).

The operational analyses of opening year 2020 and design year 2040 were conducted to confirm that the proposed interchange modifications do not adversely impact the operations of the freeway general use lanes, interchange ramps and cross road ramp terminal intersections.

The freeway segment and ramp merge/diverge area configurations for Alternative 2: NW Loop Only Interchange is the same as Alternative 1: 2012 SIMR Recommended Diamond Interchange and therefore, there is no adverse safety or operational impacts.

Alternative 2: NW Loop Only Interchange improves the operation (LOS) of the intersections along SR 64 when compared to Alternative 1: 2012 SIMR Recommended Diamond Interchange. Alternative 2: NW Loop Only Interchange reduces the number of lanes turning onto ramps which allows the lane drop distances to be shorter on the ramps.

A full interchange with all traffic movements at a public road is provided

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)).

The proposed modifications to the study interchanges provide for full access to I-75. In addition, the interchange provides full access to the local street system and accommodates traffic movements in all directions. The access provided by the proposed interchange modifications and special use lanes meets or exceeds AASHTO standards regarding minimum ramp terminal spacing.

The proposal is consistent with local and regional plans

The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate, and as specified in 23 CFR part 450, and the transportation conformity requirements of 40 CFR parts 51 and 93.

Based on long range planning, projected population and employment growth and projected traffic volumes the Sarasota/Manatee Metropolitan Planning Organization (MPO) has made improving I-75 a priority in the region. The recommended improvements and future network in this study are consistent with Sarasota/Manatee MPO's 2035 Long Range Transportation Plan (LRTP).

Consistency with State Highway Master Plans

In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan (23 U.S.C. 109(d), 23 CFR 625.2(a), 655.603(d), and 771.111).

The proposed interchange modifications are consistent with the recently completed PD&E study for Manatee County in 2009, I-75 SIMR, and the Sarasota/Manatee MPO's 2035 LRTP.

Coordinated with the area's development

When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements (23 CFR 625.2(a) and 655.603(d)). The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point (23 CFR 625.2(a) and 655.603(d)).

The need for the interchange modifications was identified as part of the transportation planning process. As part of that planning process various alternative development and transportation system improvements were tested in a regional context. Particularly, the new developments, developable land and proximity to major employment centers such as St. Petersburg, Tampa, Sarasota and Bradenton are the driving force behind the need for modified access and were considered during the development of alternatives as well as selection of the recommended improvement.

Request needs to consider planning and environmental constraints

The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing (23 CFR 771.111).

Environmental, land use, and right-of-way considerations were an important source of information. A summary of considerations is presented in the IMR.

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 Appendix B – Raw Traffic Counts
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1.0 INTRODUCTION

1.1 Background

The Florida Department of Transportation (FDOT) proposes to reconstruct the interchange at I-75 & SR 64 to accommodate future general use lanes and to add auxiliary lanes to I-75 (SR 93) from north of SR 70 to north of US-301 (SR 43). Interchange improvements at this location were previously studied in the Final Interchange Alternatives Analysis Addendum and the Traffic Technical Memorandum as part of the I-75 FDOT District I Project Development and Environmental (PD&E) Study completed in July 2009, FPID No. 201032-1-22-01. In addition to this PD&E study, interchange improvements at this interchange were studied as part of the I-75 System Interchange Modification Report (SIMR) from Laurel Road to Moccasin Wallow Road, which was approved in May 2012.

This IMR, required by the Federal Highway Administration (FHWA) and the FDOT, is used to justify the need for modifications to the approved 2012 SIMR Recommended Diamond Interchange Alternative at I-75 and SR 64. It has been developed in accordance with FDOT Policy No. 000-525-015-f: Approval of New or Modified Access to Limited Access Facilities, FDOT Procedure No. 525-030-160: New or Modified Interchanges and the FDOT Traffic Forecasting Handbook (Procedure No. 525-030-120-g).

1.2 Purpose and Need

I-75, a north/south facility, is an integral part of the SIS providing for high-speed, high-volume traffic movements within the State. The Project Development Summary Report (PDSR) that was submitted in July 2009 as part of the I-75 Manatee County PD&E Study from south of University Parkway to north of Moccasin Wallow Road, recommended improvements to the SR 64 interchange. This included modifying its current partial cloverleaf configuration to a diamond interchange, as well as adding additional turn lanes to the ramp terminal intersections. Auxiliary lanes were also recommended both north and south of the SR 64 interchange.

The Final I-75 Systems Interchange Modification Report (SIMR) from Laurel Road to North of Moccasin Wallow Road dated May 2012, re-analyzed the I-75/SR 64 interchange and also recommended modifying it from its current partial cloverleaf configuration to a diamond configuration (2012 SIMR Recommended Diamond Interchange) by year 2040. As documented in the PD&E study, the previously adopted 2030 cost feasible model considered an average growth rate of 4.5 percent per year along the intersecting cross streets of I-75. However, based on review of the traffic forecasts from the currently adopted 2035 Sarasota-Manatee Charlotte (SMC) model, the traffic projections are significantly lower than the previous estimates.

The purpose of this IMR is to reevaluate the future traffic operations at the I-75/SR 64 interchange based on the revised population/traffic growth projections and reevaluate the need for the diamond interchange configuration recommended by the PD&E study and the SIMR. The need for this IMR is to identify the most suitable interchange configuration to meet the demands of future travelers while minimizing project costs and impacts.

1.3 Project Location

Figure 1-1 provides an overview of the study interchange location and assumed area of influence. The project is located in Manatee County, Florida. SR 64 interchange (MP 7.076) is between the interchanges at SR 70 to the south and US 301 to the north. The study area along I-75 is from north of the I-75 & SR 70 interchange (MP 3.719) to south of the I-75 & US 301 Interchange (MP 11.012) and along SR 64 from 66th St Ct/64th St Ct (to the west-MP 5.932) to Grand Harbour Parkway (to the east- MP 6.842). The following intersections and segments are included in the study area. The adjacent interchanges are located more than three miles (US 301 interchange is approximately 3.7 miles to the north and SR 70 interchange is approximately 3.6 miles to the south) and hence should not affect the traffic operations at the study interchange at I-75 & SR 64.

Signalized Intersections (from west to east):

SR 64 & 66th St Ct/64th St Ct
 SR 64 & I-75 SB Ramps
 SR 64 & I-75 NB Ramps
 SR 64 & Grand Harbour Parkway

Roadway Segments (from west/south to east/north):

SR 64 from 66th St Ct/64th St Ct to Grand Harbour Parkway
 I-75 south of SR 64
 I-75 north of SR 64

1.4 Applicant Information

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FIGURE 1-1: PROJECT STUDY AREA



2.0 METHODOLOGY

2.1 Overview

The scope, approach, and methodologies applied in the IMR strictly follow the proposal and Methodology Letter of Understanding (MLOU) and are documented in this section.

A MLOU was prepared to document the methodology for the analysis and evaluation for this IMR. The MLOU was approved by the District Interchange Review Coordinator, FDOT Systems Planning Office and FHWA in March 2014. A signed copy of the MLOU is provided in Appendix A. The following sections summarize the methodology stated in the MLOU.

The methodology used for development of design hour traffic is consistent with the FDOT Project Traffic Forecasting Handbook.

2.2 Analysis Year

The analysis years proposed for this project are as follows:

- Existing Year – 2012/2013
- Opening Year – 2020
- Design/Horizon Year – 2040

2.3 Area of Influence

Figure 1-1 provides the area of influence for this study. The I-75/SR 64 interchange (MP 7.076) is approximately 3.6 miles north of the I-75/SR 70 interchange and 3.7 miles south of the I-75/US 301 interchange. The study area along I-75 is from north of the I-75 & SR 70 interchange (MP 3.719) to south of the I-75 & US 301 Interchange (MP 11.012) and along SR 64 from 66th St Ct/64th St Ct (to the west-MP 5.932) to Grand Harbour Parkway (to the east- MP 6.842). The following intersections and segments are included in the study area.

Signalized Intersections (from west to east):

- SR 64 & 66th St Ct/64th St Ct
- SR 64 & I-75 SB Ramps
- SR 64 & I-75 NB Ramps
- SR 64 & Grand Harbour Parkway

Existing Roadway Segments (from west/south to east/north):

- SR 64 from 66th St Ct/64th St Ct to Grand Harbour Parkway
- I-75 south of SR 64
- I-75 north of SR 64

2.4 Data Collection

Data collection for the study consisted of information from various sources. It is comprised of existing information and field collected data. Sources of information collected included but were not limited to:

FDOT:

- Straight Line Diagrams (SLD's)
- Roadway Characteristic Inventory
- Latest Five Year Crash History
- Traffic Count Information
- Highway Data
- Florida Geographic Data Library (FGDL) Geographic Information System (GIS) Data
- SMC 2007 and 2035 FSUTMS Cost Feasible Model
- Manatee County Comprehensive Plan
- Manatee County Adopted Long Range Transportation Plan
- Other PD&E studies, master plans, approved Development of Regional Impacts (DRI's) within the area

Field Data (Traffic Counts):

Bi-directional classification and volume counts, turning movement counts were collected for the study. The following traffic information (including synopsis reports) was obtained from the Florida Transportation Information (FTI) 2012 DVD.

1. SR 64 east of I-75 (FDOT Station # 130050)
2. SR 64 west of I-75 (FDOT Station # 130049)
3. I-75 north of SR 64 (FDOT Station # 130041)
4. I-75 south of SR 64 (FDOT Station # 130040)
5. I-75 NB Off Ramp to SR 64 EB (FDOT Station # 137021)
6. I-75 SB On Ramp from SR 64 EB (FDOT Station # 137022)
7. I-75 NB Off Ramp to SR 64 WB (FDOT Station # 137023)
8. I-75 SB On Ramp from SR 64 WB (FDOT Station # 137024)
9. I-75 NB On Ramp to SR 64 (FDOT Station # 137025)
10. I-75 SB Off Ramp to SR 64 (FDOT Station # 137026)

In accordance with the Manual on Uniform Traffic Studies (MUTS) and the Project Traffic Forecasting Handbook, field traffic count data was collected at the following count locations:

- 72-hour weekday (Tuesday - Thursday) classification counts for the following two (2) locations:

1. SR 64 west of 64th St Ct
2. SR 64 east of Grand Harbour Parkway

- 72-hour weekday (Tuesday - Thursday) volume counts for the following three (3) locations:

1. Grand Harbour Parkway north of SR 64
2. 64th St Ct south of SR 64
3. 66th St Ct north of SR 64

- Eight-hour weekday (Tuesday, Wednesday or Thursday) Turning Movement counts covering am and pm peak hours for the following four intersections:

1. SR 64 & 66th St Ct/64th St Ct
2. SR 64 & I-75 SB Ramps
3. SR 64 & I-75 NB Ramps
4. SR 64 & Grand Harbour Parkway

Copies of all traffic count data are provided in Appendix B. Year 2012 FDOT axle and seasonal adjustment factors for Manatee County are provided in Appendix C.

Traffic Control Data:

The traffic signal timing information for intersections on SR 64 was obtained from the FDOT. Table 2-1 summarizes the cycle length and intersection offset for each intersection within the study area. In addition to the data mentioned above, existing traffic parameters such as lane geometries were observed during the field review.

Table 2-1: Year 2013 Cycle Lengths and Offsets of Signalized Intersections

Intersection	Cycle Length (sec)		Offsets (sec)	
	AM	PM	AM	PM
SR 64 @ 66 th St Ct/64 th St Ct	130	140	54	84
SR 64 @ I-75 SB Ramp	130	140	60	109
SR 64 @ I-75 NB Ramp	130	140	36	66
SR 64 @ Grand Harbour Parkway	130	140	15	38

2.5 Traffic Factors

The traffic factor tables from the 2012 FDOT Project Traffic Handbook provide a summary of peak to daily factors or Standard K factors and acceptable ranges for direction distribution factors or D factors. Peak hour traffic volumes for the analysis years 2020 and 2040 were obtained from the Peak Season Weekday Average Daily Traffic (PSWADT). The PSWADT forecasts generated by the updated SMC travel demand model were multiplied by three factors to obtain Directional Design Hour Volume (DDHV). The first factor is a Model Output Conversion Factor (MOCF) which was applied to PSWADT to obtain Annual Average Daily Traffic (AADT).

The AADT volumes were then converted to DDHV by applying the Standard K factor and directional distribution factor (D). The Standard K factor is the proportion of AADT occurring during the peak hour of the design year, depending upon the area type and facility type. The directional distribution factor, D, is the proportion of traffic traveling in the peak direction. The adopted traffic factors are tabulated in Table 2-2 below:

Table 2-2: IMR Traffic Factors

MOCF		
Facility	Adopted MOCF	
I-75 and Ramps	0.90	
SR 64 and Side Streets	0.90	
Standard K Factor ¹		
Area Type	Standard K Factors	
I-75 (Other Urbanized)	9.0	
SR 64 and Side Streets (Other Urbanized)	9.0	
Adopted K Factor	9.0	
D Factor ¹		
D(%)	Urban Arterial	Urban Freeway
Low	50.8	50.4
Average	57.9	55.8
High	67.1	61.2
Adopted D Factor	54	

Notes:

1. FDOT Acceptable Range of Values for Freeways from 2012 Project Traffic Forecasting Handbook, Figures 2.4 and 2.9.

The T24 factor is the adjusted, annual 24-hour percentage of truck traffic. The T factor is the percentage of truck traffic during the peak hour and can be estimated as half of the T24 factor. The Peak Hour Factor (PHF) is applied to convert hourly flow to peak 15-minute flow rate for capacity analysis.

Table 2-3: Truck Percentages and PHF

Segments	T ₂₄	DHT
I-75 North of SR 64	10.9%	5.0%
I-75 South of SR 64	10.0%	5.0%
I-75 Ramps	5.8%	3.0%
SR 64	7.4%	4.0%
PHF		
All study intersections	0.95	

2.6 Traffic Demand Model and Future Traffic Forecasts

The adopted 2007 Sarasota Manatee & Charlotte (SMC) Validated Model and 2035 SMC Cost Feasible Model were utilized for the purposes of forecasting future travel demand. The recently adopted 2035 SMC Cost Feasible Model is used to perform a sub-area validation for the defined project study area. The final sub-area validation technical memorandum was submitted on 1/24/2014 and approved by FDOT on 1/27/2014 (see Appendix D the approved document). The sub-area validation meets the requirements of the model validation criteria set forth in the latest Project Traffic Forecasting Handbook.

The travel demand forecasts from the sub-area validated 2035 cost feasible model were used in the forecast process. As the first step, the validation adjustments that were applied to the base year 2007 model were carried over to the year 2035 model. As the next step, the 2035 model network was reviewed to make sure that it included programmed and planned capacity improvements near the study corridor. Based on 2035 model network, I-75 mainline within the study area is shown as a ten-lane section, with six general use lanes (GUL) and four special use lanes (SUL). SR 64 within the study limits is shown as a six-lane section.

Table 2-4 summarizes the growth rates derived from the year 2035 model volumes. Model plots showing number of lanes and volumes (PSWADT) are provided in Appendix E.

Table 2-4: Model Volumes Growth Rate Summary

Roadway Segment	Location	2007 PSWADT	2007 AADT ¹	2035 PSWADT	2035 AADT ²	Model Growth Rate ³
I-75	N of SR 64	104,221	94,841	215,549	193,994	3.73%
	S of SR 64	102,429	93,210	210,727	189,654	3.70%
SR 64	W of 64th Ct	40,505	36,049	71,053	63,948	2.76%
	W of I-75	44,745	39,823	80,960	72,864	2.96%
	E of I-75	35,209	31,336	58,308	52,477	2.41%
	E of Grand Harbour Parkway	28,667	25,514	45,967	41,370	2.22%
I-75 Ramps	SB off	11,651	10,602	26,003	23,403	4.31%
	SB On from SR 64 EB	5,973	5,435	12,661	11,395	3.92%
	SB On from SR 64 WB	4,553	4,143	9,475	8,528	3.78%
	NB Off to EB SR 64	4,470	4,068	10,109	9,098	4.42%
	NB Off to WB SR 64	5,848	5,322	10,995	9,896	3.07%
	NB On	10,985	9,996	22,059	19,853	3.52%
Grand Harbour Parkway	N of SR 64	6,543	5,823	12,766	11,489	2.70%
66th St Ct/ 64th St Ct	N of SR 64	8,184	7,284	7,047	6,342	-0.80%
	S of SR 64	3,656	3,254	6,177	5,559	2.50%

Notes:

1. 2007 AADT volumes are derived using 2007 MOCF values (I-75 & Ramps: 0.91; other roadways: 0.89)
2. 2035 AADT volumes are derived using 2012 MOCF values (0.9 for all roadways)
3. Simple annual growth rates are derived using AADT volumes.

2.7 Level of Service (LOS) Criteria

The FDOT LOS criteria used in this analysis are in accordance with *Procedure No. 525-000-006, Level of Service Standards and Highway Capacity Analysis for the State Highway System* (for urbanized areas) as summarized below:

- I-75: Mainline and Ramps: LOS D
- SR 64: LOS D
- Study Intersections: LOS D

The operational analysis compares defined Measures of Effectiveness (MOEs) for the analysis of Alternative 1: 2012 SIMR recommended Diamond Interchange and Alternative 2: North-West Loop Only Interchange to quantify potential betterment or non-significant degradation of alternative improvements.

2.8 Operational Analysis Procedures

A detailed operational analysis has been performed for the two 'Build' scenarios (opening year 2020 and design year 2040). The operational analysis has taken into account all the relevant FDOT design standards and determination of the LOS by using the latest version (2010) of Highway Capacity Software (HCS) and Synchro, Version 8. The HCS analysis has been performed for the mainline, ramps and weaving segments for existing year (2012) and future years 2020 and 2040. The Synchro analysis was performed for the study intersections.

Based on the results of the macroscopic analysis conducted (presented in the Project Traffic Report dated September 2014), it was determined that this extent (of analysis) is adequate for the purpose of this study. Due to the rural nature of the I-75 corridor and the substantial distance (approximately four miles) between I-75/SR 64 interchange and adjacent interchanges (I-75/US 301 to the north and I-75/SR 70 to the south), a more complex analysis (micro-simulation analysis) using CORSIM is not required. This was also discussed in the MLOU meeting that was conducted in November 2013.

MOEs used to evaluate and compare the 'Build' alternatives are as follows:

- Signalized intersections – LOS, Control Delay (Synchro)
- Arterial Segments – LOS, Travel Speed (Synchro)
- Ramps Merge/Diverge – LOS, Density (HCS)
- Freeway Segments – LOS, Density, Travel Speed (HCS)
- Interchange – Queue lengths and back up queue on ramps (Synchro)

The following components within the area of influence are included in the operational analysis:

- I-75 mainline through movements
- Ramp merge and diverge areas
- Queuing analysis for ramps at cross-streets and on mainline
- Mainline weaving sections
- Queuing analysis along arterial (SR 64) at ramp termini intersections
- Intersections
 - 66th Street at SR64
 - Grand Harbour Parkway at SR 64
 - I-75 SB off ramp/I-75 SB on ramp at SR 64
 - I-75 NB off ramp/I-75 NB on ramp at SR 64

3.0 EXISTING CONDITIONS

This section provides a discussion and evaluation of the existing conditions within the area of influence for this IMR study. This discussion includes existing land use data, transportation network data, existing traffic data, safety information, known environmental constraints, and existing operating conditions.

3.1 Existing Land Use

The land uses nearby to the I-75/SR 64 interchange include the commercial/residential parcels in the northwest quadrant, vacant land in the southeast quadrant, and residential in the southwest quadrant. Heritage Harbor Development of Regional Impact (DRI), which contains residential, commercial, and retail usage is located in the northeast quadrant of the interchange.

3.2 Existing Transportation Network

The existing transportation network consists of a six-lane interstate highway, and controlled access arterial streets.

I-75: I-75 is currently a six-lane, north-south limited access freeway facility that is part of the Strategic Intermodal System (SIS). It is functionally classified as an urban principal arterial-interstate facility within the project influence area. I-75 within the area of influence has a posted speed limit of 70 miles per hour (mph).

SR 64: SR 64 east of 66th Street to west of Grand Harbour Parkway is a divided six-lane urban principal arterial with a posted speed limit of 50 mph. It transitions to a four-lane facility 0.80 miles west of the I-75 interchange.

SR 70: SR 70 is a divided six-lane urban principal arterial. The speed limit along this segment of SR 70 is 50 mph.

US 301: US 301 (SR 43) is classified as a divided four-lane urban principal arterial. It transitions to six lanes west of the I-75 interchange.

The lane configuration of the arterial SR 64 in the study area is shown in Figure 3-1. There are four signalized intersections within the area of influence, among which two are located at the I-75 interchange.

3.3 Existing Operational Performance

This section summarizes the detailed operational analysis performed within the area of influence to assess the traffic and mobility conditions.

3.3.1 Existing Traffic Data

Daily Traffic

Traffic count information as collected was used to develop existing traffic characteristics for the study roadways. The adjusted Annual Average Daily Traffic (AADT) volumes for the individual roadway segments are provided in Table 3-1. Figure 3-2 provides the existing AADT's for the study roadways. The AADTs along I-75 mainline were balanced assuming daily 50% directional split along the mainline and equal complimentary volumes on the ramps.

Peak Hour Turning Movement Counts

Based on the bi-directional 72-hour traffic counts on SR 64 and I-75, weekday turning movement counts were collected at the study intersections between the peak hours of 6:30 AM – 10:30 AM and 3:00 PM – 7:00 PM. The morning and evening peak hours within the entire study area occurred between 7:15 – 8:15 AM and 5:00- 6:00 PM, respectively. The weekday turning movement counts were adjusted using the latest (year 2012) FDOT seasonal adjustment factors to estimate average traffic conditions.

Since vehicles cannot be lost or gained between interchanges along I-75 mainline, or between study intersections along SR 64 (there are no driveways between SR 64 between 66th St Ct/64th St Ct and I-75 southbound ramps and between I-75 NB ramps and Grand Harbour Parkway), the peak season adjusted I-75 mainline volumes and the intersection turning movement volumes along SR 64 were balanced. The resultant balanced freeway volumes along I-75 and turning movement volumes along SR 64 are shown in Figure 3-3, respectively.

FIGURE 3-1: EXISTING GEOMETRY

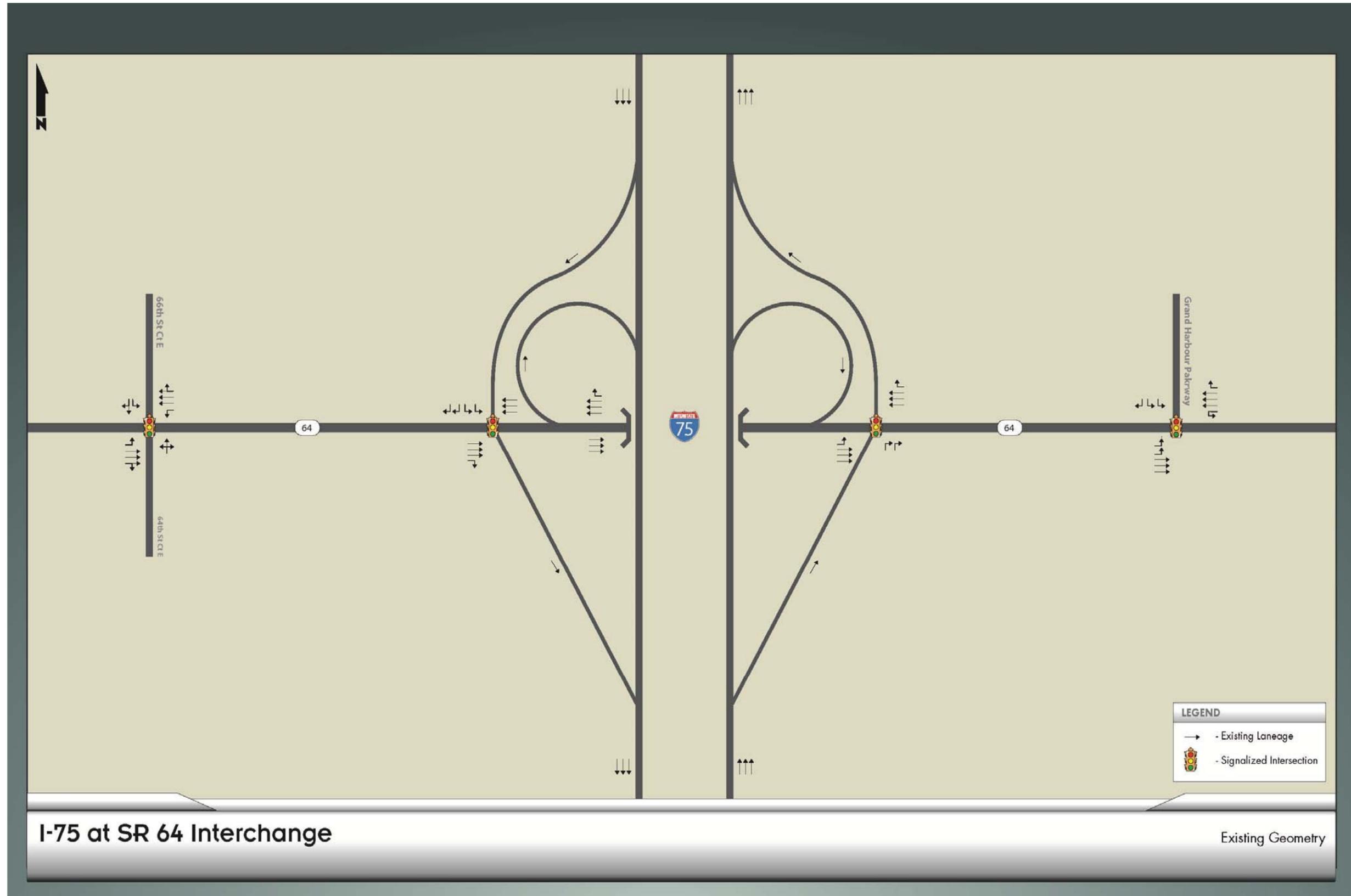


Table 3-1: Existing Year 2012/13 Traffic Volumes

Roadway / Segment	Start Date of Count	Type of Count	ADT Measured/Reported Characteristics				Axle Adj. ²	Seasonal Adj. ¹	Adjusted AADT ³
			ADT	"K"	"D"	"T"			
Mainline Characteristics									
SR 64									
West of 64th St	9/24/2013	72-Hour Classification	37,497	9.0%	50.2%	6.2%	1.00	1.04	39,000
Between 64th St and I-75 ⁴				9.0%	55.8%	5.5%			43,500
East of I-75 ⁴				9.0%	55.8%	7.4%			34,500
East of Grand Harbour Parkway	9/24/2013	72-Hour Classification	28,001	9.9%	58.9%	7.4%	1.00	1.04	29,000
I-75									
South of SR 64 ⁴				9.0%	54.0%	10.0%			101,000
North of SR 64 ⁴				9.0%	54.0%	10.9%			93,500
Side Street Characteristics									
66th St Ct/64th St Ct									
South of SR 644	8/27/2013	72-Hour Volume	3,286	9.2%	50.8%		0.99	1.13	3,700
North of SR 64	8/27/2013	72-Hour Volume	8,043	7.6%	60.7%		0.99	1.13	9,000
Grand Harbour Parkway									
North of SR 64	8/27/2013	72-Hour Volume	4,697	9.2%	82.2%		0.99	1.13	5,300
I-75 Ramps									
SB On Ramp from EB SR 64 ⁴				9.0%	99.9%	5.8%			6,700
SB On Ramp from WB SR 64 ⁴				9.0%	99.9%	5.8%			4,700
NB Off Ramp to EB SR 64 ⁴				9.0%	99.9%	5.8%			4,500
NB Off Ramp to WB SR 64 ⁴				9.0%	99.9%	5.8%			6,500
SB Off Ramp ⁴				9.0%	99.9%	5.8%			8,900
NB On Ramp ⁴				9.0%	99.9%	5.8%			8,600

Notes:

1. Most recent seasonal adjustment factors were obtained from FDOT 2012 Florida Transportation Information (FTI)
2. Most recent axle adjustment factors were obtained from FDOT 2012 FTI
3. Measured ADT * Axle Adjustment * Seasonal Adjustment = Adjusted AADT
4. Data was obtained from the 2012 FTI DVD

FIGURE 3-2: EXISTING AADT VOLUMES

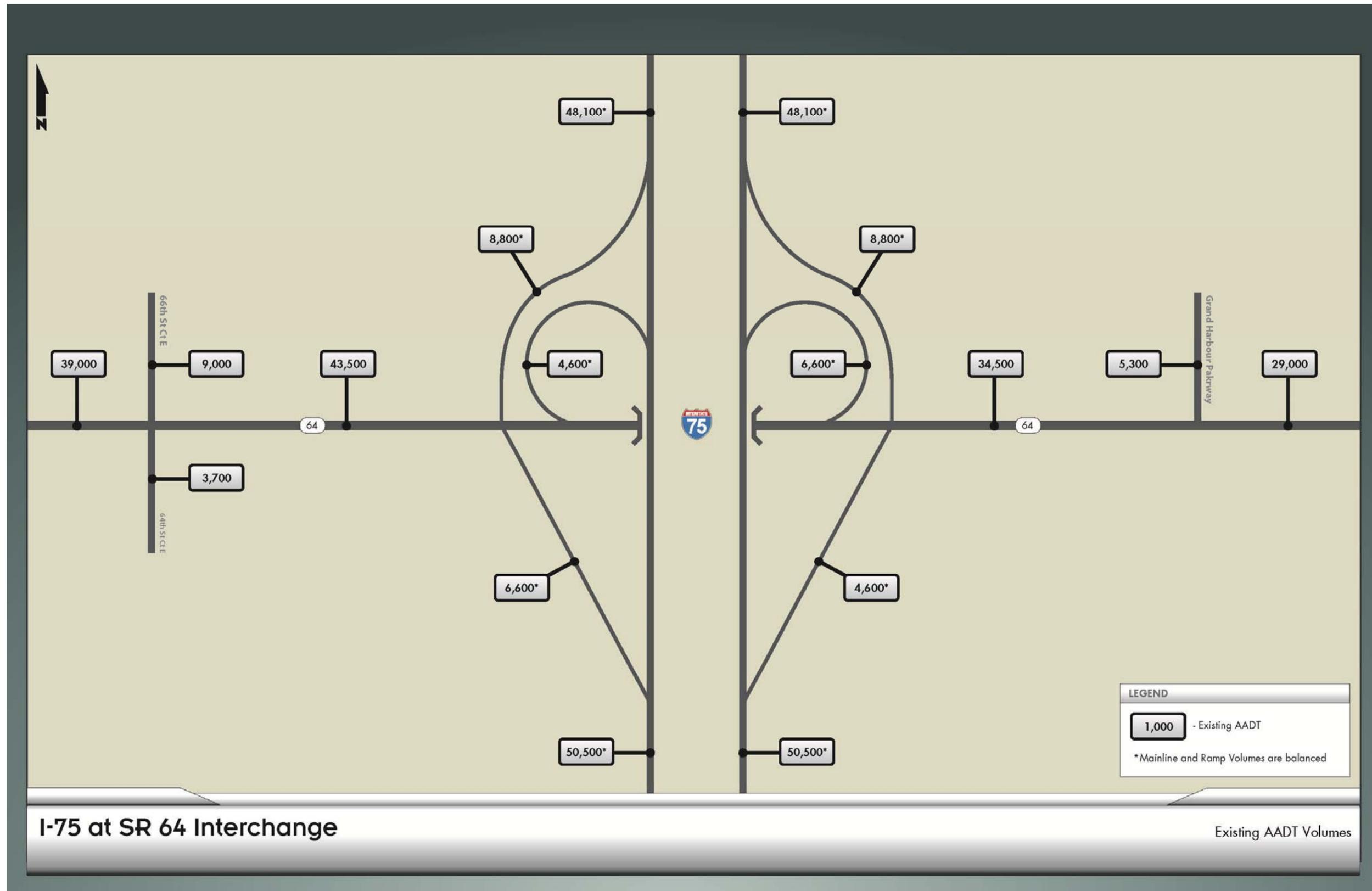
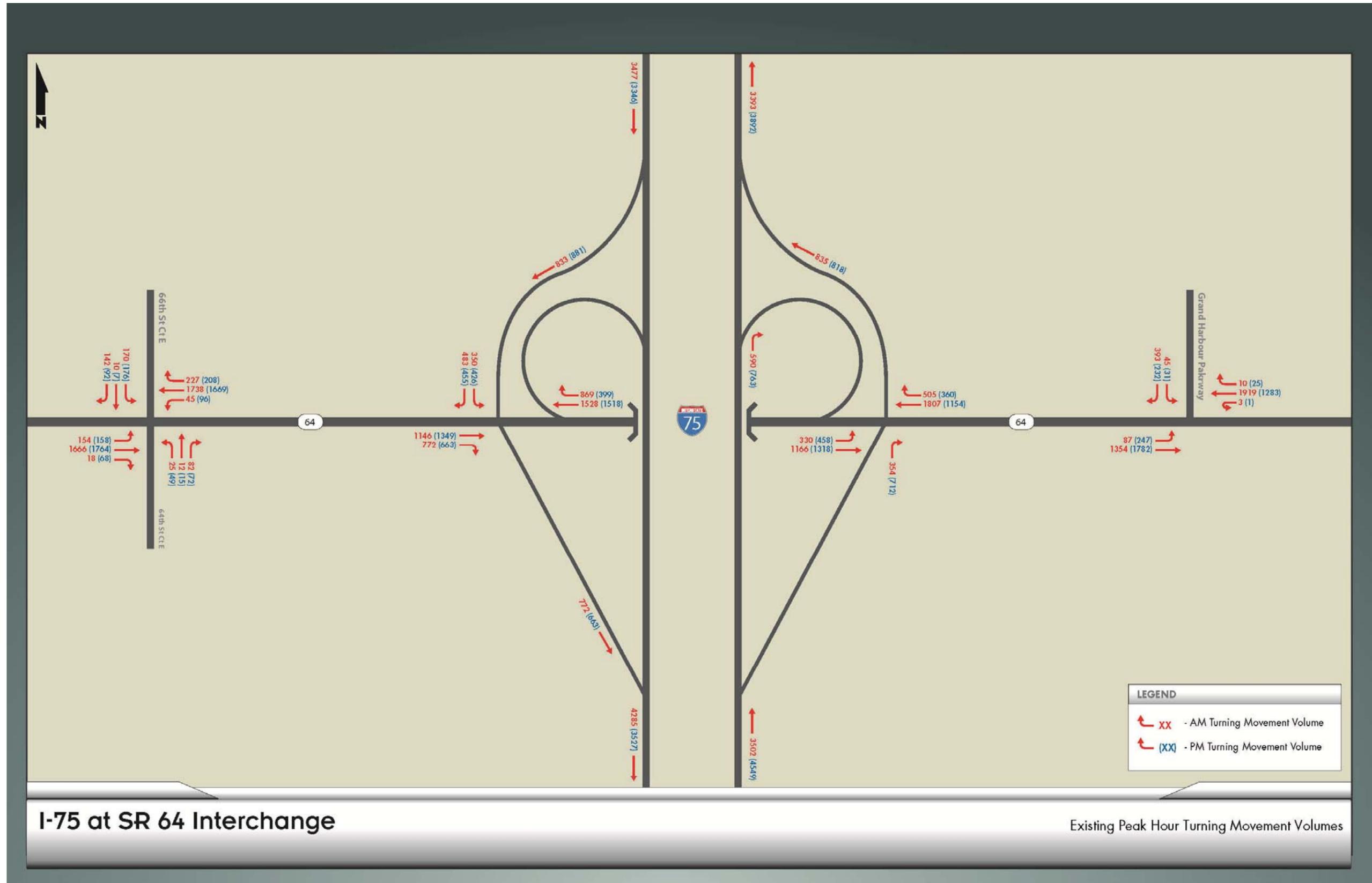


FIGURE 3-3: EXISTING PEAK HOUR TURNING MOVEMENT VOLUMES



3.3.2 Historical Crash Analysis

Historical crash data along the I-75 and SR 64 corridors within specified project limits were obtained from FDOT Crash Analysis & Reporting (CAR) System for a period of 5 years (January 1, 2008 – December 31, 2012) and reviewed for this study. The spatial limits on SR 64 were between 66th St Ct/64th St Ct and Grand Harbour Parkway. The spatial limits on I-75 were one-mile north and south of the interchange.

Brief summaries of the historical crash analysis (segment-based summary as are provided by the CAR system) are shown in Table 3-2. 135 crashes were reported on I-75 within the crash limits for a 5-year period, with an average of 27 crashes per year. 128 crashes were reported along SR 64 within the study limits for 5-year period, with an average of 26 crashes per year.

Table 3-2: Historical Crash Summaries for 2008 - 2012

Segment Limits (From MP – To MP)	Total Crashes	Injury Crashes/ Total Injuries	Fatal Crashes/ Total Fatalities	Total Property Damage Only Crashes	Economic Loss	Actual Crash Rate ¹	Average Crash Rate ²
I-75: 6.039 - 8.115	135	52/90	4/4	79	\$44,479,530	0.370	0.347
SR 64: 5.932 – 6.842	128	62/121	0/0	66	\$26,231,168	2.053	1.176

Notes:

1. Crash rate is expressed as crashes per million vehicle miles travelled (CMVM) for segments. Crash Rate = (# Total Crashes * 10⁶) / (365 * # years * AADT * Segment Length)
2. Average Crash Rate is based on the districtwide segment based crash rate statistics for similar facilities between 2008 and 2012.

As illustrated in Table 3-2, both I-75 and SR 64 segments within the above-defined limits have actual crash rates higher than the corresponding average crash rates for similar facilities in District 1. Historical crash data including statewide crash rate summaries extracted from the CAR System are provided in Appendix F.

Figures 3-4 through 3-6 illustrate crash occurrences along SR 64 study corridor by type, lighting condition and road surface condition. As shown in Figure 3-4, rear end (63) and angle (32) crashes were the major crash types that have occurred along SR 64 study corridor. As shown in Figure 3-5, 22 crashes occurred during dark conditions, and the remaining 106 crashes occurred in daylight conditions. As shown in Figure 3-6, 14 crashes occurred on wet pavement and the remaining 114 crashes were reported to have occurred on dry pavement conditions.

FIGURE 3-4: CRASH SUMMARY BY TYPE FOR SR 64

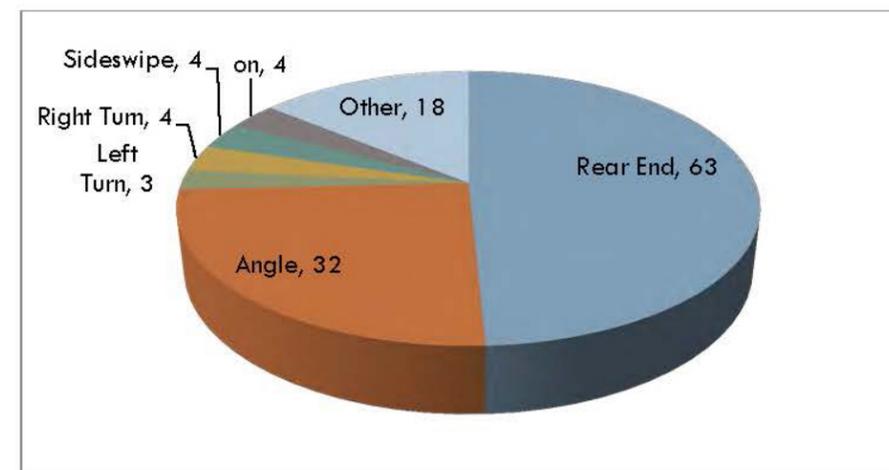


FIGURE 3-5: CRASH SUMMARY BY LIGHTING CONDITIONS FOR SR 64

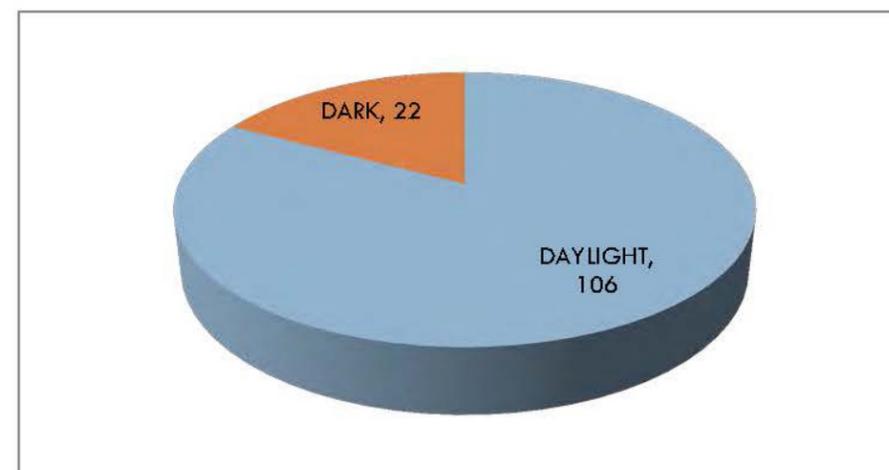
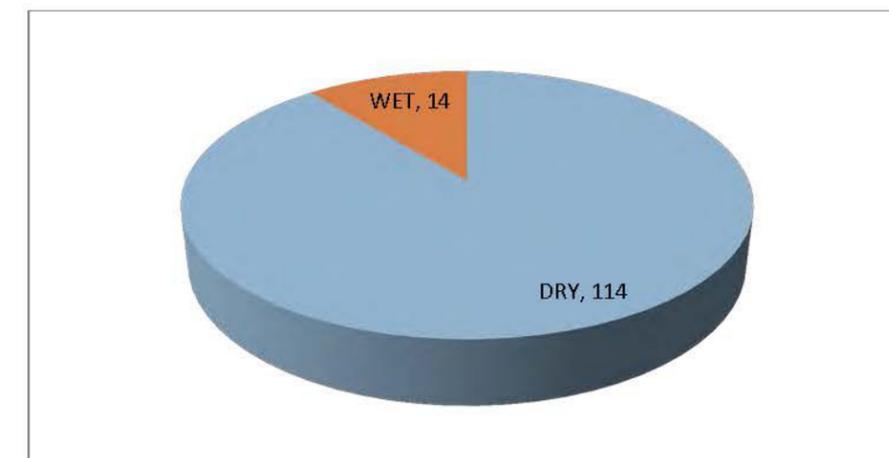


FIGURE 3-6: CRASH SUMMARY BY ROAD SURFACE CONDITIONS FOR SR 64



Figures 3-7 through 3-9 illustrate crash occurrences along I-75 study corridor by type, lighting condition and road surface condition. As shown in Figure 3-7, rear end (42) and hit fixed object (21) crashes were the major crash types that have occurred along the freeway corridor. As shown in Figure 3-8, 46 crashes occurred during dark conditions, and the remaining 89 crashes occurred in daylight conditions. As shown in Figure 3-9, 25 crashes occurred on wet pavement and the remaining 110 crashes were reported to have occurred on dry pavement conditions.

FIGURE 3-7: CRASH SUMMARY BY TYPE FOR I-75

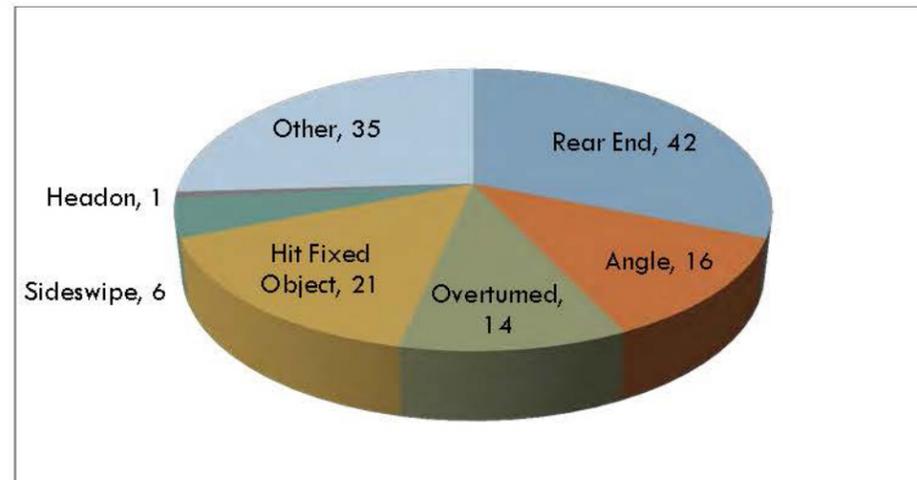


FIGURE 3-8: CRASH SUMMARY BY LIGHTING CONDITIONS FOR I-75

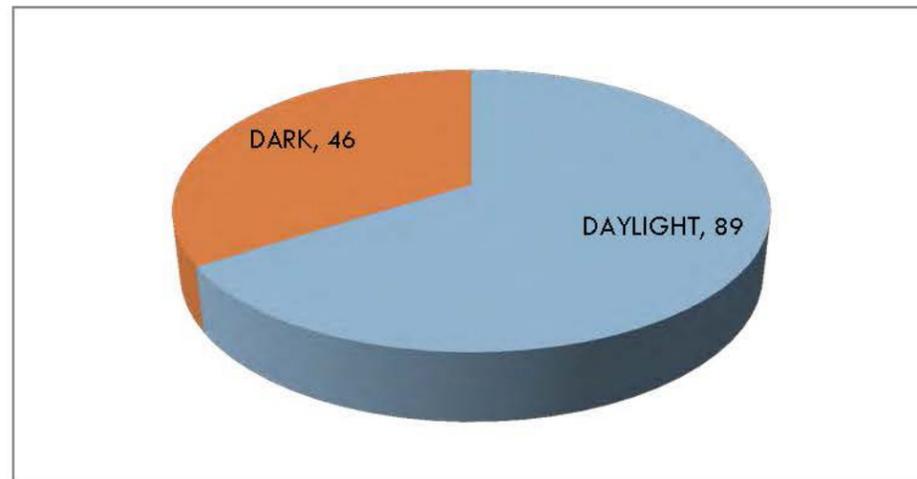
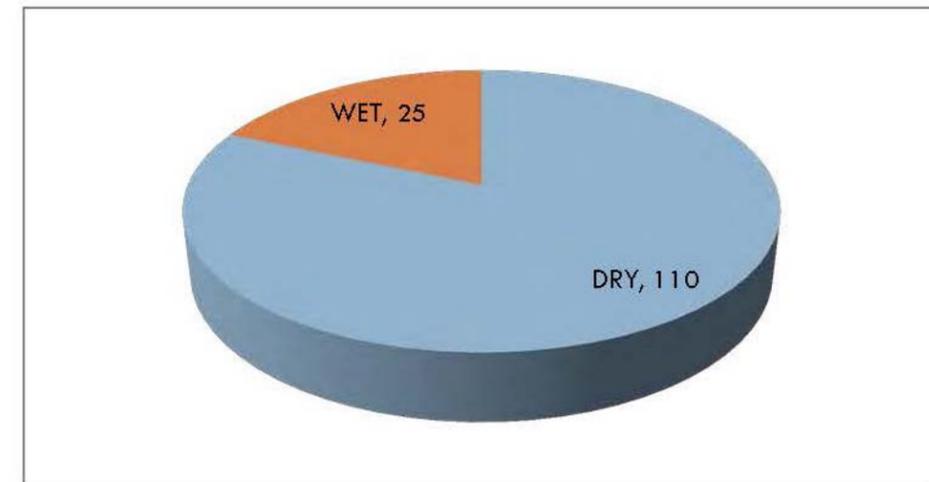


FIGURE 3-9: CRASH SUMMARY BY ROADWAY SURFACE CONDITIONS FOR I-75



3.3.3 Existing Level of Service

The existing operational performance (both AM and PM peak hours) of the freeway ramps and mainline segments in the study area were evaluated using HCS 2010. The HCS outputs for freeway basic segments and ramps are provided in Appendix G. The density, speed, and LOS of the freeway facilities under the existing traffic demand are summarized in Tables 3-3 and 3-4. Freeway weaving analysis was not conducted as the distance between the adjacent interchanges to I-75 & SR 64 interchange is more than 9,999 feet. The required input data for the freeway and ramp analyses was obtained from the FDOT RCI (Roadway Characteristics Inventory), field visits and Google aeriels.

According to the FDOT Level of Service Standards and Highway Capacity Analysis for the State Highway System for urbanized areas, the study arterial and its intersections as well as the freeway and its ramps need to meet the requirement of LOS D.

Table 3-3: Existing Freeway Ramp Density, Speed, and LOS

I-75 & SR 64 Ramps	# Lanes (mainline/ramp)	AM Peak Hour			PM Peak Hour		
		Density (pc/mi/ln)	Speed (mph)	LOS	Density (pc/mi/ln)	Speed (mph)	LOS
NB Off to EB	3/1	20.2	57.1	C	26.0	56.1	C
NB Off to WB	3/1	19.2	56.4	B	23.1	56.0	C
NB On	3/1	21.6	61.2	C	23.9	60.7	C
SB Off	3/1	22.3	55.8	C	21.8	55.6	C
SB On from EB	3/1	24.8	60.8	C	20.7	61.8	C
SB On from WB	3/1	19.5	61.4	B	14.9	62.1	B

Table 3-4: Existing Freeway Mainline Density, Speed, and LOS Summary

I-75 Mainline		AM Peak Hour			PM Peak Hour		
Direction	Segment	Density (pc/mi/ln)	Speed (mph)	LOS	Density (pc/mi/ln)	Speed (mph)	LOS
NB	North of SR 64	16.4	74.5	B	19.1	73.2	C
NB	South of SR 64	17.0	70.0	B	24.1	67.5	C
SB	North of SR 64	16.8	74.3	B	16.1	74.5	B
SB	South of SR 64	22.4	68.7	C	18.1	69.9	C

Based on the HCS analysis results shown in Tables 3-3 and 3-4, both freeway ramp and mainline segments operate above the acceptable LOS “D” during the AM and PM peak hours.

The existing operational performance (both AM and PM peak hours) of all intersections on the study arterial were evaluated using Synchro 8. The Synchro outputs for intersection analysis are included in Appendix H. The intersection LOS is summarized in Table 3-5. Because of the closely spaced study intersections, arterial operational performance is measured using the intersection operation performance. The existing signal timing information for the study intersections was provided by FDOT.

Table 3-5: Existing Intersection LOS Summary

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SR 64 & 66 th St Ct/64 th St Ct	26.7	C	30.0	C
SR 64 & I-75 SB Ramps	17.3	B	18.1	B
SR 64 & I-75 NB Ramps	13.2	B	18.7	B
SR 64 & Grand Harbour Parkway	22.8	C	16.9	B

Based on the intersection analysis results shown in Table 3-5, all the study intersections operate above acceptable LOS “D” during AM and PM peak hours.

3.4 Existing Environmental Conditions

To remain consistent, this IMR utilizes the results from the I-75 Manatee County PD&E Study approved Project Development Summary Report (PDSR) from north of University Parkway to North of Moccasin Wallow Road. Federal Location and Design Concept Acceptance (LDCA) was provided through the FHWA December 8, 2011 approval of the Type 2 Categorical Exclusion. The PD&E study summarized various information pertaining to community data and socioeconomics, cultural resources, natural environment and air quality, as well as the potential project impacts to these elements.

Section 4.0, Summary of Environmental Impacts within the PD&E PDSR documented the expected involvement/impact extent of the project for various natural, cultural, community and physical resources within and adjacent to the overall corridor. The PD&E study states that the proposed action (including the subject I-75/SR 64 interchange improvements) is expected to have no involvement with prime/unique farmlands, recreation areas and potential Section 4(f) sites. Minimal to no project involvement is expected (depending on location) with contamination, infrastructure, navigation, special designation, historical and archaeological sites, aesthetics, land use, relocation, social, noise, construction and secondary and cumulative resource elements. Minimal impacts generally entail minor adverse effect and require routine agency coordination and/or low-cost options or mitigation to address resource concerns. Moderate to no involvement/impacts are expected (depending on location) to coastal and marine, floodplain, water quality and quantity and wildlife and habitat resource elements. A moderate impact generally means that agency resources are affected by the proposed project, but avoidance and minimization options are available and can be addressed with a moderate amount of agency involvement and moderate cost impact. Substantial involvement/impacts to wetlands were identified during the PD&E Study and will require further avoidance and minimization evaluation, slightly more intensive agency coordination and mitigation efforts. As is frequently the case with transportation improvement projects, economic and mobility resource elements are expected to be enhanced through the subject project.

For the purpose of this IMR document, the Department is reevaluating the limits of the I-75/SR 64 interchange (FPID# 201032-6) design project segment, which extends along I-75 from *just north of SR 70 (MP 3.719) to south of US 301 (MP 11.012), a distance of approximately 7.293 miles*, and along SR 64 from *66th St Ct/64th St Ct (MP 5.932) to Grand Harbour Parkway (MP 6.842), a distance of 0.910 miles*. There is no right-of-way acquisition associated with either interchange alternative. Off-site ponds are not expected to be necessary for either alternative as well. A summary of the community and cultural conditions sections, along with the natural environment sections within these limits, follows.

3.4.1 Community Data and Socioeconomics

Within a one-mile project buffer (of the entire PD&E limits), the population has a lower percentage of minority residents (Hispanic 3.7%, Black 2%) than Manatee County as a whole (Hispanic 9.3%, Black 8.2%). Conversely, the percentage of the study area population 65 years of age or older represents approximately 35% of the population, while the same statistic for the county is 24.9%. Displacement of these segments of the population or the population in general are not anticipated as a result of the project since residential areas are set back a considerable distance from the roadway. These population demographics are not expected to be significantly different within or adjacent to the I-75/SR 64 interchange. No impacts to economically disadvantaged populations are expected from this project.

Land use within a one-mile project buffer (of the entire PD&E limits) is primarily rural in character, consisting of open space/conservation areas and residential associated with planned unit and large lot developments with residential uses.

The 2000 land use data shows sporadic residential developments at various points along the I-75 corridor; however, vacant lands typically buffer these areas from the roadway. There is a commitment to reevaluate the project area for changes in land use and to further evaluate three communities (River Place, Tara Preserve and Westbrook) as project design progresses in order to determine reasonable/feasible noise abatement measures. As such, the addition of travel lanes to the existing I-75 and SR 64 roadways is not expected result in any segregation of neighborhoods or affect community cohesion.

The dominant land uses within and adjacent to the project limits are: Transportation; Residential; Commercial; Industrial; Vacant; and Recreational (golf course). No community focal points such as churches, schools, community centers, etc. are anticipated to be affected by this project segment. The more intensive commercial and industrial areas are generally located near University Parkway, SR 70, and SR 64. Various businesses are adjacent to the NW quadrant of I-75 and SR 64. Since the likelihood of the project substantially changing the planned development patterns and land use within the study area (for both corridors) is low, the project is considered to have a minimal impact on land use or land use policies. The PD&E further states that, *“Based on the limited acquisition of right-of-way, the use of existing interchange locations and the fact the I-75 is an existing facility, the project is not anticipated to appreciably change the character or aesthetics of the existing landscape”*. No relocations are expected for either of the I-75 at SR 64 interchange alternatives. With regard to economic conditions, improvements to I-75 within the study area are generally expected to help the area meet local and regional social/economic demands and provide improved accessibility to commercial centers.

3.4.2 Cultural Resources

During the I-75 PD&E Study, a Cultural Resource Assessment Survey resulted in the identification of two archeological sites and four previously historic (pre-1960) resources within or adjacent to the project corridor. No resources listed or eligible for listing under the *National Register of Historic Places* have been identified within or adjacent to the project limits. Impacts (if any) to previously identified resources, as well as any new historic resources identified as design progresses will be coordinated further with the FHWA and State Historic Preservation Office. There is no involvement within any public recreation areas, Section 4(f) lands within or adjacent to the project limits.

3.4.3 Natural Environment

This section summarizes expected project involvement with/impacts to natural environment resource elements. The current project will have no involvement with air quality; conservation lands; various “Special Designation” features (including aquatic preserves; Outstanding Florida Waters; Wild and Scenic Rivers; Coastal Zone Consistency; coastal barrier islands; Essential Fish Habitat; Prime/Unique Farmlands) or significant visual/aesthetic features. Minimal impacts are expected for the contamination, infrastructure and navigation (Foley Creek, Braden River above Ward Lake) elements.

Moderate impacts are expected for water quality and quantity and these will be addressed through the coordination and permitting of project design with the Southwest Florida Water Management District, Florida Department of Environmental Protection and other entities as applicable. The proposed project is not expected to result in adverse secondary or cumulative environmental impacts.

Floodplains

For floodplains, evaluation cited within the I-75 PD&E studies finds that the project is expected to have a moderate involvement/impact. There are potential floodplain encroachments on established FEMA flood zones for locations along the project limits. Both Alternative 1: 2012 SIMR Recommended Diamond Interchange and Alternative 2: NW Loop Only Interchange will have the same floodplain impacts. Also, floodplain compensation storage and/or minimization/avoidance measures are being evaluated within the current project design to avoid adverse floodplain impacts in order for the project to receive a “no-rise” certification.

Wetlands

The PD&E Study identified substantial wetland impacts estimated at approximately 24.1 acres of wetlands (within PD&E Segments 4-5). Design alternatives are being reviewed to avoid and minimize these wetland impacts to the greatest extent practicable. Updated design-phase estimates suggest that approximately 6.25 acres of unavoidable wetland impacts and 1.84 acres of surface water impacts will result from the I-75/SR 64 interchange improvements project. Final mitigation needs will be determined by performing a detailed UMAM assessment of unavoidable wetland impacts. The FDOT will coordinate further with the necessary environmental and other agencies (such as the Southwest Florida Water Management District, U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service) during project design to develop compensatory mitigation for proposed wetland and wetland-dependent species habitat impacts. Based on mitigation, no net loss of wetlands is anticipated from this project.

Threatened and Endangered Species

For threatened and endangered species, evaluation cited within the I-75 PD&E Study finds that the project is expected to have a moderate involvement/impact. The U.S. Fish and Wildlife Service has determined that this project “may affect, but is not likely to adversely affect” the Gulf sturgeon, eastern indigo snake, wood stork and West Indian manatee. There are also project commitments specific to conducting design-phase resurveys for gopher tortoise and Florida sandhill crane. Based upon evaluation cited in the I-75 PD&E Study, ongoing agency coordination, and with the implementation of commitments and standard protection measures (i.e., for the eastern indigo snake), the proposed project is not likely to adversely affect the existence of any threatened or endangered species, even though they are known or expected to occur within or adjacent the project limits.

Air Quality

The I-75 IMR study area is currently in compliance with the federal (Environmental Protection Agency) air quality standards for carbon monoxide, ozone and particulate matter. The current proposed design and potential associated design changes are not expected to have a negative impact on air quality.

Contamination

There are eight potential contamination sites identified within the vicinity of the I-75/SR 64 interchange. The identified sites are as follows:

- Harley Davidson, 67th Street Circle – use and storage of hazardous materials
- Wal-Mart Super Store, 6225 SR 64 – use and storage of hazardous materials
- Citgo, 6581 SR 64
- Shell, 6575 SR 64
- Country Junction (Sturdy Built Trailers) 6511 SR 64
- Sunset Car Wash, 6415 SR 64
- Race Trac retail fuel, 6319 SR 64
- Circle K (Redbox) retail fuel, 6410 SR 64

Each of these facilities are located outside, but adjacent to, the interchange right-of-way. None of these sites are directly impacted by the proposed NW Loop Only Interchange construction. However, some sites may require Level II screening based on their proximity to the proposed improvements. During the development of the stormwater management facilities, a Level II field screening will be required for arsenic and evaluation for buried debris. Any bridges that are scheduled for removal or modification as part of this design will require an asbestos assessment by a licensed asbestos consultant (LAC) in accordance with FDOT Directive 625-020-020-c, dated July 21, 2009. This effort will be included in the final design project.

3.5 Consistency with Master Plans, LRTP, LGCP, and DRIs

This IMR maintains consistency with the I-75 Master Plan, Manatee County’s Comprehensive Plan and any approved DRIs within the area of influence.

This IMR considers all programmed and planned roadway improvements in the area. These capacity improvements are consistent with those specified in the regional transportation plans including the following:

- I-75 PD&E Study completed in 2009
- I-75 SIMR completed in 2012
- FDOT five year work program
- FDOT Strategic Intermodal System (SIS) plan
- FDOT Cost Feasible Plan (CFP)
- Manatee County Long Range Transportation Plan (LRTP)
- Manatee County Transportation Improvement Program (TIP)
- Manatee County Unified Planning Work Program
- Manatee County Comprehensive Plan

4.0 Need

I-75, a north/south facility, is part of the primary Federal Highway System (National Highway System) and Interstate System. In the state of Florida, I-75 is a key component of the FHHS and SIS, providing for high-speed and high-volume traffic movements within the state. I-75 is a major route for freight and through traffic and also provides access to regional centers and corridors. The interstate plays a critical role in both the regional and state-wide economy and in emergency evacuation plans. The study interchange included in this IMR is located within Manatee County.

The purpose of this IMR is to reevaluate the future traffic operations at the I-75/SR 64 interchange based on the revised population/traffic growth projections and reevaluate the need for the diamond interchange configuration recommended by the PD&E study and the SIMR. The need for this IMR is to identify the most suitable interchange configuration to meet the demands of future travelers while minimizing project costs and impacts. The ultimate improvements recommended in the PD&E studies for the corridor include the addition of two special use lanes in each direction along I-75 and interchange modifications at study interchanges within the study area. This IMR study considers two alternatives, Alternative 1: 2012 SIMR Recommended Diamond Interchange and Alternative 2: North-West Loop Only Interchange which are discussed in detail in Chapter 6: Alternatives.

The recently completed I-75 PD&E study identified the need to make improvements at the study interchange. There is tremendous population growth projected to occur within the region. Traffic in the study corridor is expected to increase given the population growth projected to occur in the region. According to 2010 U.S. Census, Manatee County’s population was 322,833 persons, which was a 22.3 percent increase over the 2000 population of 264,002

persons. Similarly the 2010 U.S. Census showed Sarasota County's population was 379,448 persons, which was a percent increase over the 2000 population of 325,957 persons. The lack of other regional North/South corridors in the area have led to I-75 being used for local trips, thus increasing traffic load at the interchanges. Without capacity improvements on I-75 from Moccasin Wallow Road to Laurel Road, operating conditions along the corridor will deteriorate to an unacceptable level of service (LOS).

The improvements at the SR 64 interchange will address safety and projected future capacity deficiencies of the interstate system while facilitating future growth and development projected in the region, enhancing hurricane and other emergency evacuation and improving transportation system connectivity in the study area. This IMR project will support the Department's effort in achieving broader statewide goals that have been established in the FDOT Mission Statement. Included among these goals are:

- Develop, operate and preserve the State Highway System.
- Coordinate and integrate the transportation facilities and services of all government entities and the private sector.
- Provide safe and efficient transportation facilities and services for the movement of people and goods at a reasonable cost.
- Develop and continuously maintain a comprehensive policy plan and modal system plan for a multimodal Statewide Transportation System.

5.0 FUTURE CONDITIONS

5.1 Future Land use

The generalized future land use information within a one-mile project buffer (of the entire PD&E limits) shows the following allocation of future land uses: single family 49%, multi-family 41%, estate residential 3%, commercial 2%, and industrial 1%. The study area is a transitioning rural area experiencing tremendous development pressure. A significant amount of residential development has been approved east of I-75.

The 2020 Manatee County Comprehensive Plan controls growth in the urban and rural areas of the county. The plan's Future Transportation Map series shows I-75 as a ten-lane facility. The project as proposed is consistent with both the transportation and future land use elements of the plan. The widening of I-75, an existing limited access expressway facility, would not appreciably change the character or aesthetics of the existing landscape. Reductions in recreation and open space are also not anticipated for the project.

5.2 Future Transportation Network

The future roadway network utilized in this IMR is consistent with Sarasota/Manatee County Metropolitan Planning Organization's Long Range Transportation Plan dated December 2010 (amended January 28, 2013). A special use lane (SUL) will be built on the left of the existing freeway lanes. The SUL has two lanes on each direction. The rest of lanes on I-75 will function as general use lane (GUL).

5.3 Future Traffic Forecasts

The traffic demands projected for the opening year 2020 and design year 2040 are studied in this IMR for the future conditions. The development of traffic projections for the study area requires the examination of historical growth,

proposed development levels within the corridor vicinity, and a basic understanding of local traffic circulation patterns and travel characteristics of the corridor. As such, the travel demand models, and Bureau of Economic and Business Research (BEBR) population projections were used to derive reasonable future traffic forecasts for the study corridor.

5.4 Year 2035 Travel Demand Model

The travel demand forecasts from the sub-area validated 2035 cost feasible model were used in the forecast process. As the first step, the validation adjustments that were applied to the base year 2007 model were carried over to the year 2035 model. As the next step, the 2035 model network was reviewed to make sure that it included programmed and planned capacity improvements near the study corridor. Based on 2035 model network, I-75 mainline within study area is shown as a ten-lane section, with six general use lanes (GUL) and four special use lanes (SUL). SR 64 within the study limits is shown as a six-lane section. Table 5-1 summarizes the growth rates derived from the year 2035 model volumes. Model plots showing number of lanes and volumes (PSWADT) are provided in Appendix E.

Table 5-1: Model Volumes Growth Rate Summary

Roadway Segment	Location	2007 PSWADT	2007 AADT ¹	2035 PSWADT	2035 AADT ²	Model Growth Rate ³
I-75	N of SR 64	104,221	94,841	215,549	193,994	3.73%
	S of SR 64	102,429	93,210	210,727	189,654	3.70%
SR 64	W. of 64 th Ct.	40,505	36,049	71,053	63,948	2.76%
	W. of I-75	44,745	39,823	80,960	72,864	2.96%
	E. of I-75	35,209	31,336	58,308	52,477	2.41%
	E. of Grand Harbour Parkway	28,667	25,514	45,967	41,370	2.22%
I-75 Ramps	SB Off	11,651	10,602	26,003	23,403	4.31%
	SB On from SR 64 EB	5,973	5,435	12,661	11,395	3.92%
	SB On from SR 64 WB	4,553	4,143	9,475	8,528	3.78%
	NB Off to EB SR 64	4,470	4,068	10,109	9,098	4.42%
	NB Off to WB SR 64	5,848	5,322	10,995	9,896	3.07%
	NB On	10,985	9,996	22,059	19,853	3.52%
Grand Harbour Parkway	N of SR 64	6,543	5,823	12,766	11,489	2.70%
66 th St. Ct./ 64 th St. Ct.	N of SR 64	8,184	7,284	7,047	6,342	-0.80%
	S of SR 64	3,656	3,254	6,177	5,559	2.50%

Notes:

1. 2007 AADT volumes are derived using 2007 MOCF values (I-75 & Ramps: 0.91; other roadways: 0.89)
2. 2035 AADT volumes are derived using 2012 MOCF values (0.9 for all roadways)
3. Simple annual growth rates are derived using AADT volumes.

5.5 Recommended Growth Rates

The growth rates obtained from travel demand model and population estimates were compared to arrive at the recommended growth rates.

Given the regional importance of I-75 mainline and to be consistent with ongoing studies for the adjacent interchanges, 2040 traffic forecasts were derived using the model growth rates (annual growth of 3.7% between 2007 and 2035 model volumes).

For SR 64 and I-75/SR 64 Ramps, the model growth rates (annual growth between 2007 and 2035 model volumes) were also used. However, based on the input from the District's Consultant, the following additional growth rate adjustments were made to 1) SR 64 west of I-75 and 2) I-75 southbound off and northbound on ramps:

The lower growth rate (3.5%) between 1) northbound on ramp and 2) southbound off ramp was used to forecast these future ramp volumes. Since there is a reduction of 2,000 vehicles per day in the combined northbound on ramp and southbound off ramp volume, 2,000 were deducted from 75,000 (west of I-75) and 66,500 (west of 66th St. Ct./64th St. Ct.).

The model growth rate was used for Grand Harbor Parkway. Since the growth rate (using model volumes) was negative for 66th St. Ct. and since this segment serves a build-out area, the existing AADT volume was used as the 2040 forecast. For 64th St. Ct., the model growth rate was used.

Table 5-2 and Figure 5-1 illustrate the future traffic forecasts for the study corridors. The opening year 2020 traffic forecast were derived by interpolating between existing and 2040 AADT volumes.

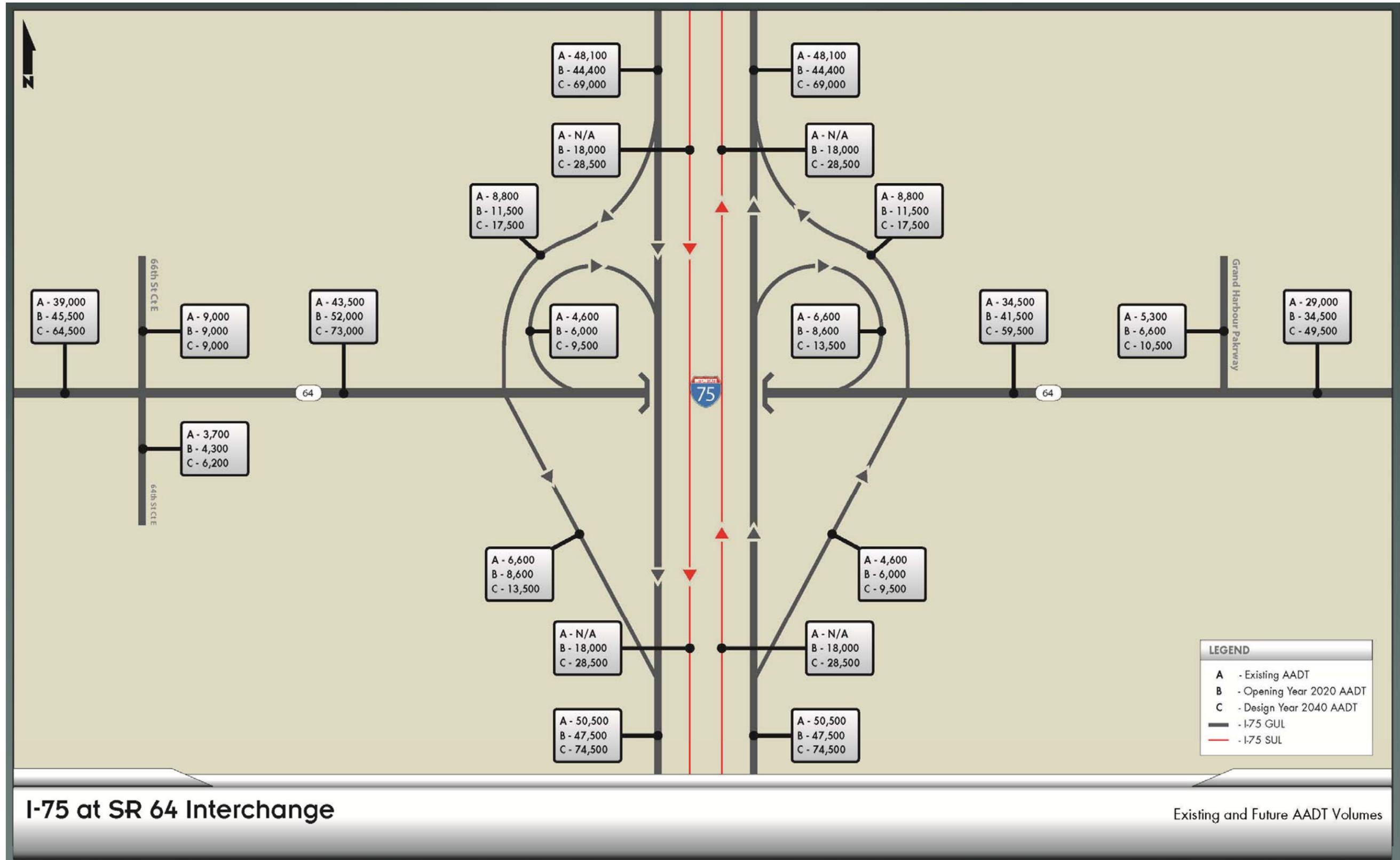
Table 5-2: Future Traffic Forecasts

Roadway Segment	Location	Growth Rate	Existing AADT	2020 AADT	2040 AADT
I-75	N. of SR 64	3.7%	96,200	125,000	195,000
	S. of SR 64	3.7%	101,000	131,000	206,000
	N. of SR 64 (GUL)	-	-	88,800	138,000
	S. of SR 64 (GUL)	-	-	95,000	149,000
	N. of SR 64 (SUL)	-	-	36,000	57,000
	S. of SR 64 (SUL)	-	-	36,000	57,000
SR 64	W. of 64 th St. Ct.	-	39,000	45,500	64,500
	W. of I-75	-	43,500	52,000	73,000
	E. of I-75	2.6%	34,500	41,500	59,500
	E. of Grand Harbour Parkway	2.6%	29,000	34,500	49,500
I-75 Ramps	SB Off	3.5%	8,800	11,500	17,500
	SB On from SR 64 EB	3.8%	6,600	8,600	13,500
	SB On from SR 64 WB	3.8%	4,600	6,000	9,500
	NB Off to EB SR 64	3.8%	4,600	6,000	9,500
	NB Off to WB SR 64	3.8%	6,600	8,600	13,500
	NB On	3.5%	8,800	11,500	17,500
Grand Harbour Parkway	N. of SR 64	3.5%	5,300	6,600	10,500
66th St. Ct./64th St. Ct.	N. of SR 64	-	9,000	9,000	9,000
	S. of SR 64	2.5%	3,700	4,300	6,200

Notes:

1. GUL – General Use Lane; SUL – Special Use Lane. SUL forecast for 2040 was obtained using 3.7% growth rate from 2035 Model reported SUL estimate.
2. The SUL for 2020 for I-75 was derived by applying the percentage (SUL to Total Volume) in 2040 to the 2020 total volume on I-75.
3. 2020 forecasts are interpolated between existing and 2040 volumes.

FIGURE 5-1: EXISTING AND FUTURE AADT VOLUMES



I-75 at SR 64 Interchange

Existing and Future AADT Volumes

6.0 ALTERNATIVES

The following two 'Build' alternatives have been developed, analyzed, and compared for this IMR:

- Alternative 1: 2012 SIMR Recommended Diamond Interchange
- Alternative 2: North-West Loop Only Interchange

The alternatives were analyzed and compared to assess their effectiveness in meeting the future travel demand of the study area as well as the physical and social impacts, and safety and environmental considerations associated with each alternative.

6.1 Alternative 1: 2012 SIMR Recommended Diamond Interchange

The diamond interchange configuration was recommended by the I-75 Systems Interchange Modification Report (SIMR) from Laurel Road to North of Moccasin Wallow Road dated May 2012.

The lane geometries of Alternative 1: 2012 SIMR Recommended Diamond Interchange are shown in Figure 6-1. The interchange configuration is a traditional diamond interchange with ramps in all four quadrants (two southbound ramps and two northbound ramps). As a result, the intersection of the I-75 southbound ramp with SR 64 consists of a six lane westbound section (three thru lanes and triple lefts). The diamond interchange creates a need for wide sections at the intersections with the I-75 ramps in order to accommodate the turn movements. With the diamond interchange configuration, the current observed weaving issue between the traffic using two loop ramps can be solved. The lane configuration of the diamond interchange was approved through the I-75 System Interchange Modification Report in 2012.

The HCS outputs for the Diamond Interchange alternative are provided in Appendix I: Future Freeway Analysis (HCS 2010). The Synchro outputs for this alternative are provided in Appendix J: Future Intersection Analysis (Synchro).

6.2 Alternative 2: North-West Loop Only Interchange

Shown in Figure 6-2, the North-West Loop Only Interchange studied in this IMR consists of eliminating the westbound SR 64 to south I-75 triple left turn and accommodating the movement by introducing a loop ramp in the north-west quadrant of I-75 and SR 64. With a loop ramp only in the NW quadrant, the weaving maneuvers that exist currently are eliminated. This alternative also reduces the number of lanes turning onto the ramps. The reduction allows the lane drop distances to be shorter on the ramps. This improves the operation of the intersections on SR 64.

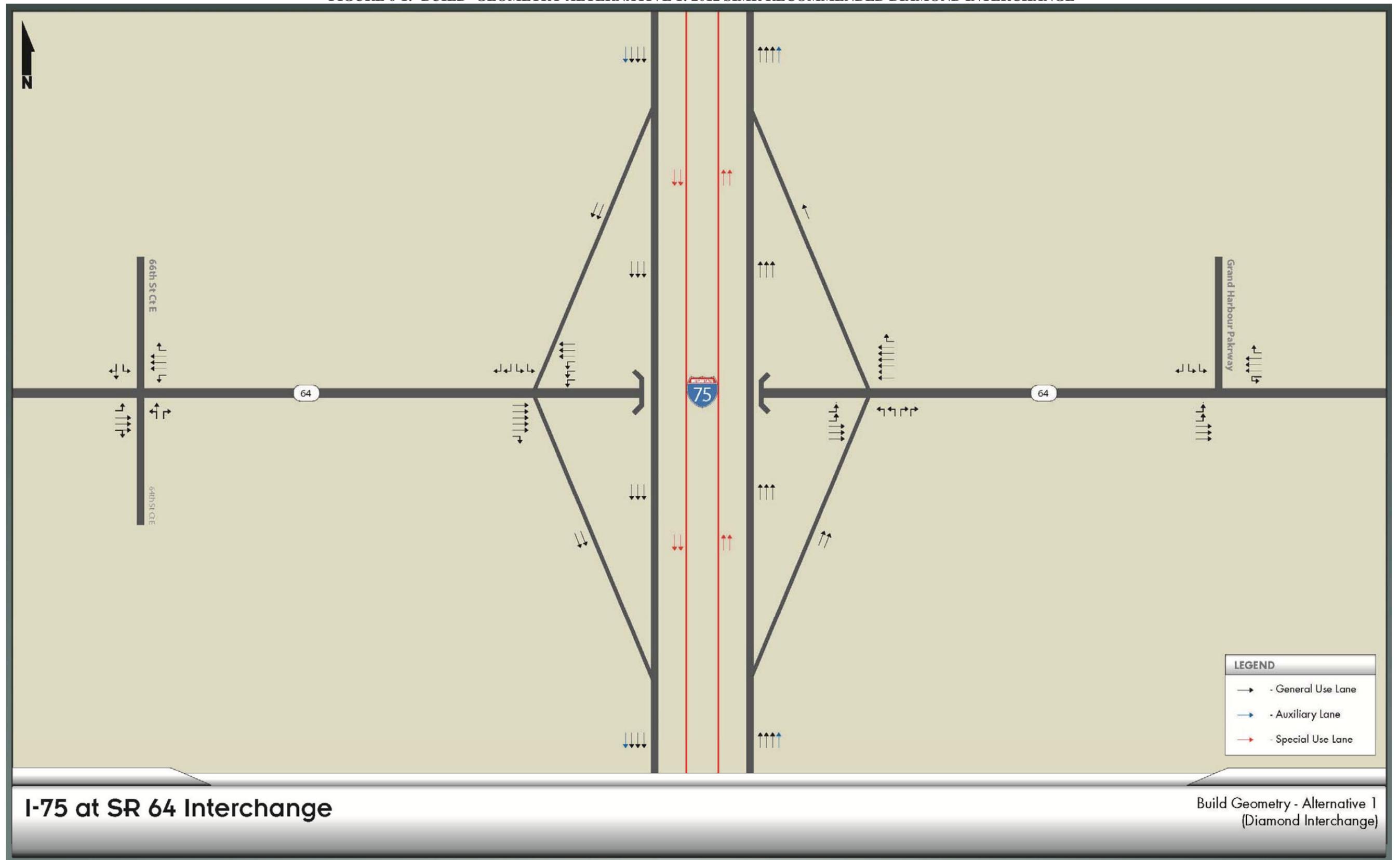
The HCS outputs for the North-West Loop Only Interchange alternative are provided in Appendix I: Future Freeway Analysis (HCS 2010). The Synchro outputs for this alternative are provided in Appendix J: Future Intersection Analysis (Synchro).

6.3 'Build' Alternatives Design Traffic

The development of the 'Build' alternatives Design Traffic was completed by simply redirecting the westbound to southbound movement in the interchange based on Alternative 1: 2012 SIMR Recommended Diamond Interchange compared to Alternative 2: North-West Loop Only Interchange. Because the two interchange alternatives provide the same movement to and from SR 64, there is no change in the traffic patterns of the traffic forecast.

The traffic projections for the build alternatives in the analysis years are shown in Figures 6-3 to 6-6. Figure 6-3 and 6-4 present Alternative 1: 2012 SIMR Recommended Diamond Interchange and Figures 6-5 and 6-6 show Alternative 2: North-West Loop Only Interchange.

FIGURE 6-1: 'BUILD' GEOMETRY ALTERNATIVE 1: 2012 SIMR RECOMMENDED DIAMOND INTERCHANGE



I-75 at SR 64 Interchange

Build Geometry - Alternative 1
(Diamond Interchange)

FIGURE 6-2: 'BUILD' GEOMETRY ALTERNATIVE 2: NW LOOP ONLY INTERCHANGE

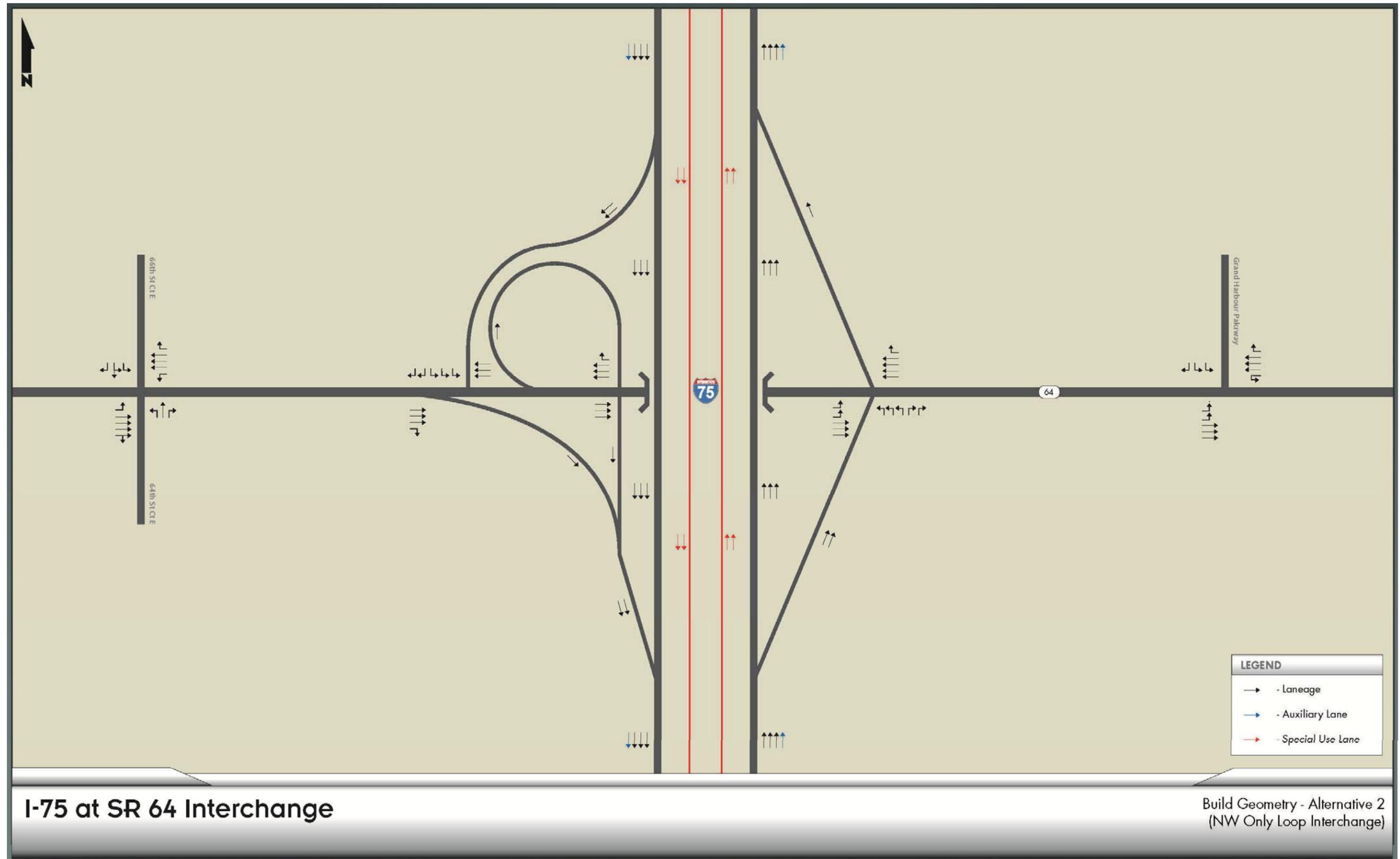


FIGURE 6-3: ALTERNATIVE 1: 2012 SIMR RECOMMENDED DIAMOND INTERCHANGE - YEAR 2020 TRAFFIC PROJECTIONS

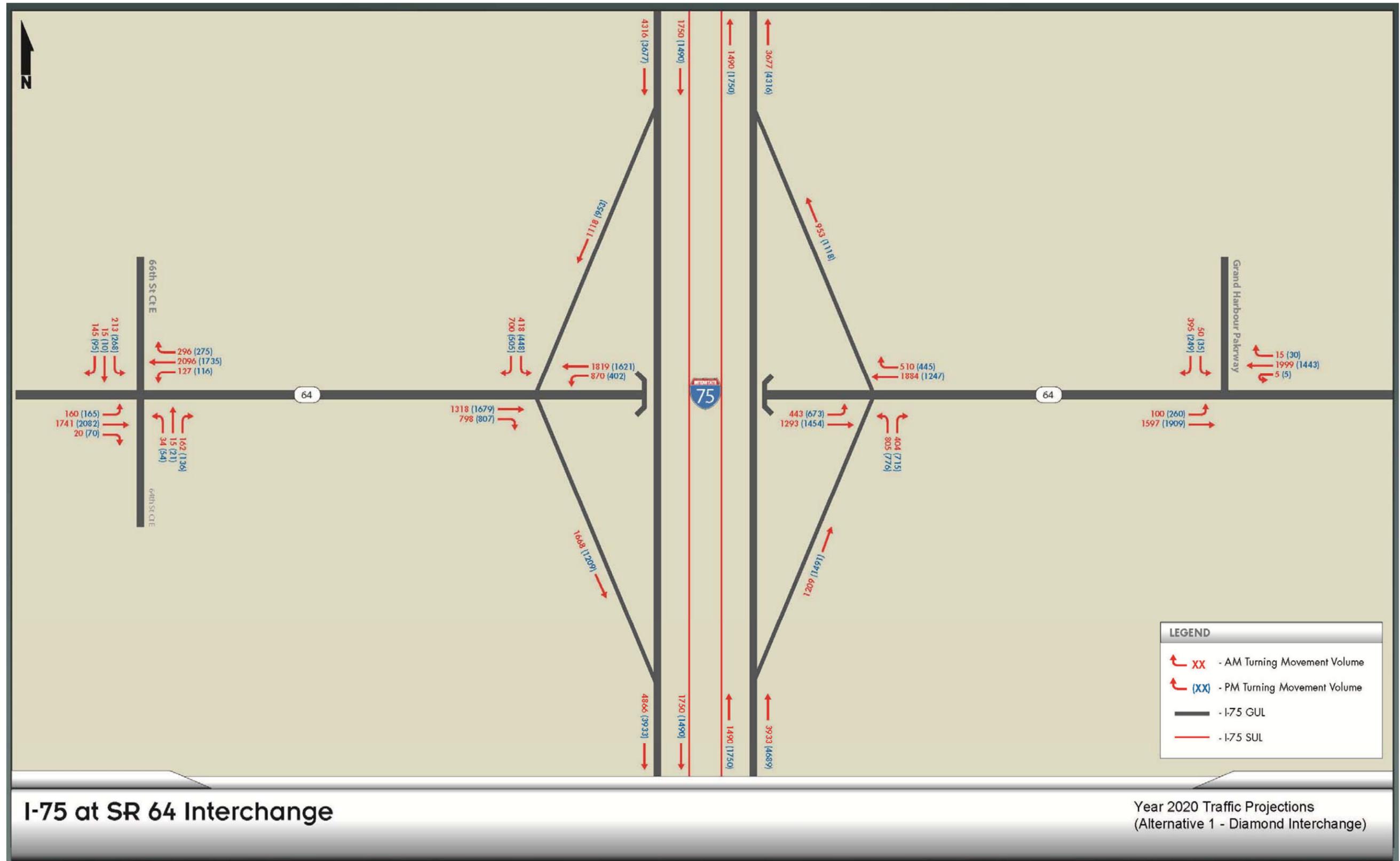


FIGURE 6-4: ALTERNATIVE 1: 2012 SIMR RECOMMENDED DIAMOND INTERCHANGE - YEAR 2040 TRAFFIC PROJECTIONS

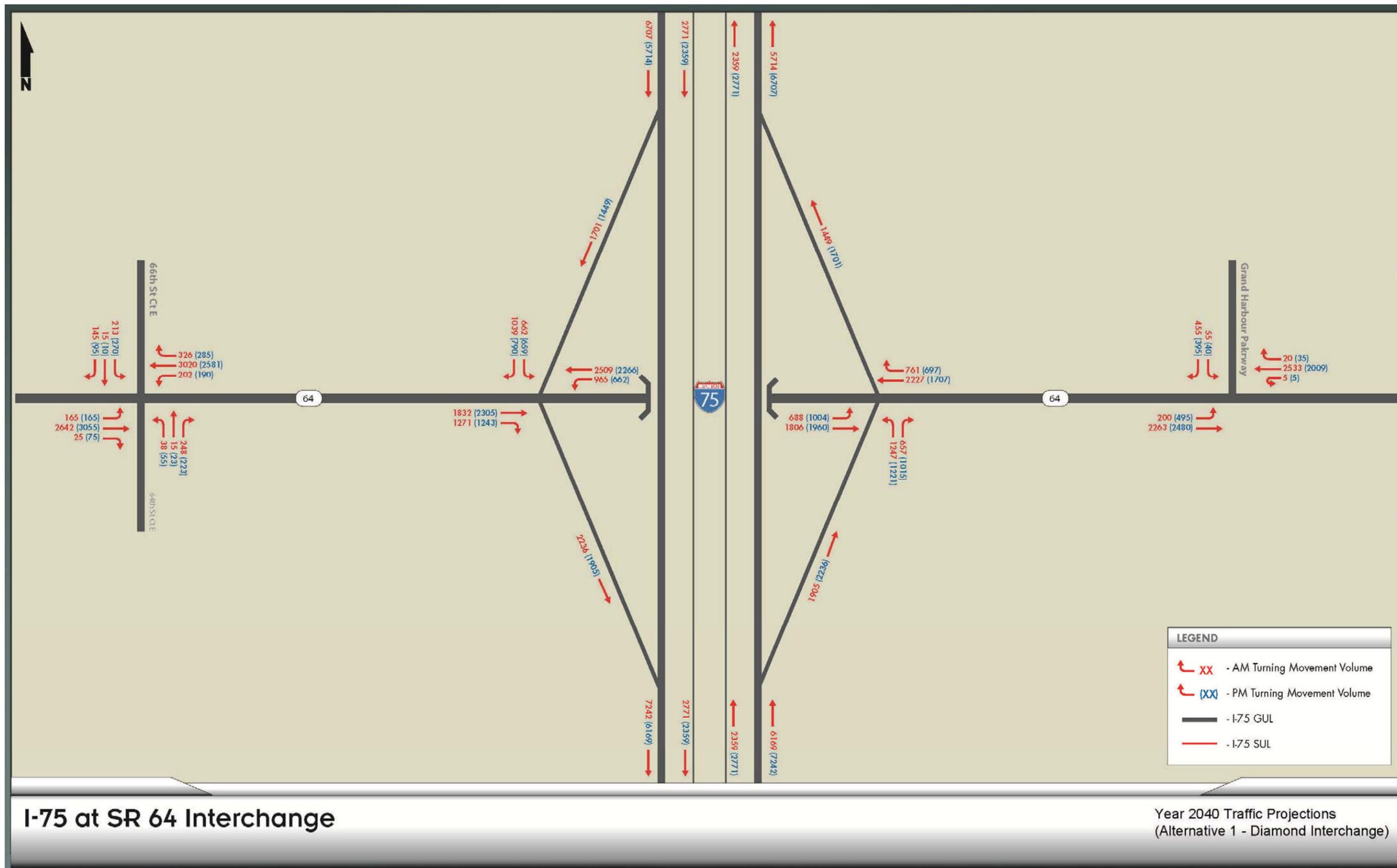
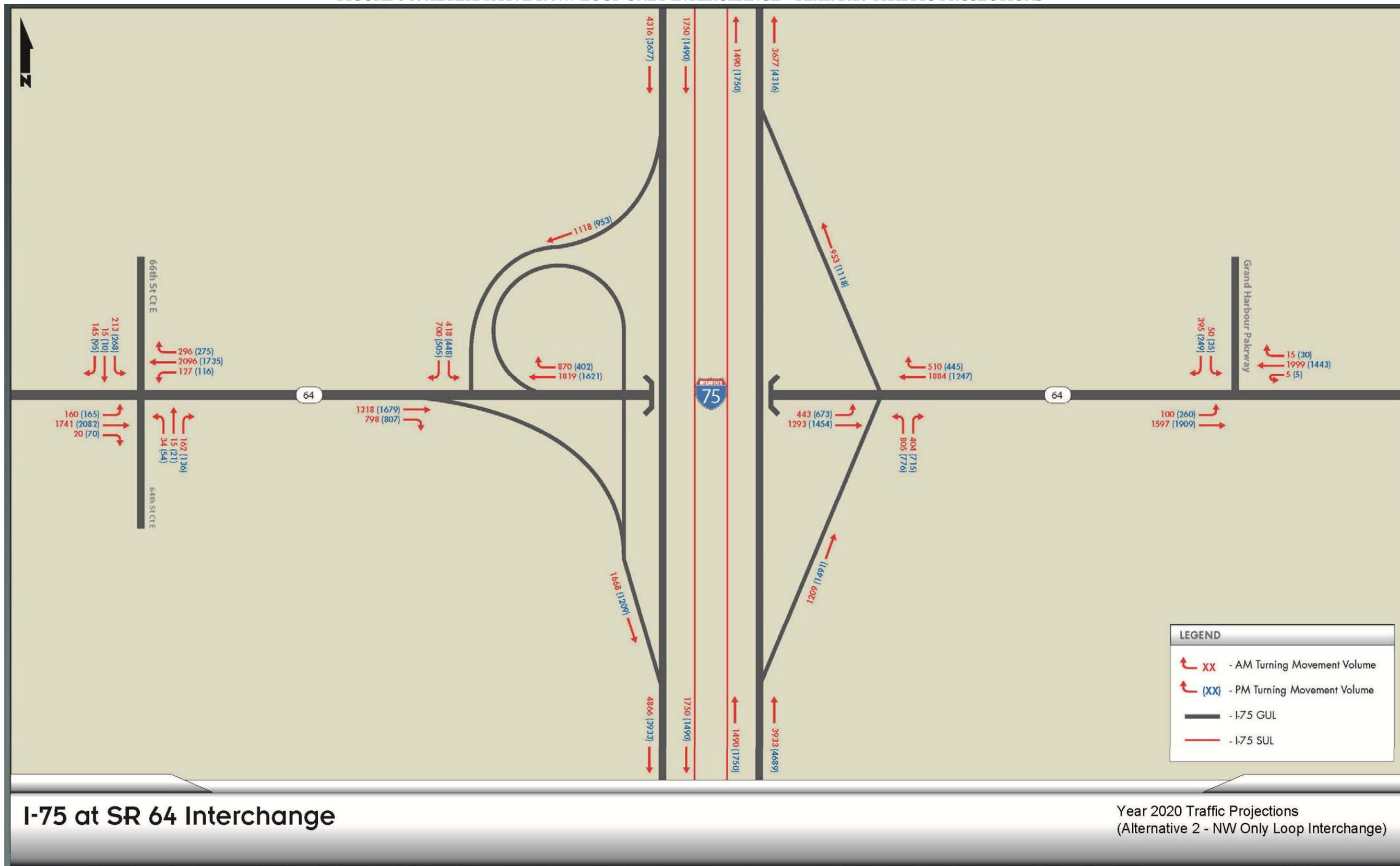


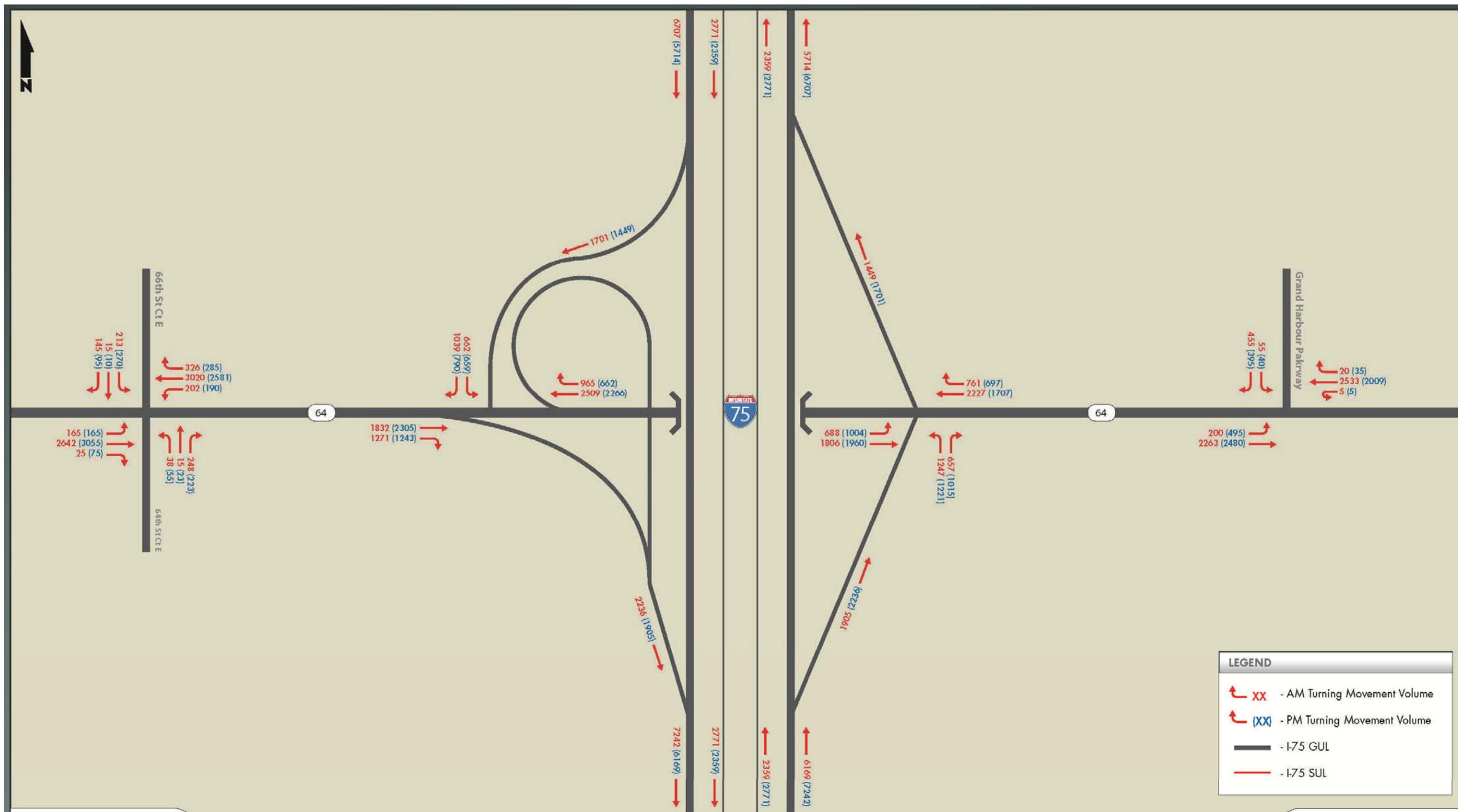
FIGURE 6-5: ALTERNATIVE 2: NW LOOP ONLY INTERCHANGE - YEAR 2020 TRAFFIC PROJECTIONS



I-75 at SR 64 Interchange

Year 2020 Traffic Projections
(Alternative 2 - NW Only Loop Interchange)

FIGURE 6-6: ALTERNATIVE 2: NW LOOP ONLY INTERCHANGE - YEAR 2040 TRAFFIC PROJECTIONS



I-75 at SR 64 Interchange

Year 2040 Traffic Projections
(Alternative 2 - NW Only Loop Interchange)

7.0 EVALUATION OF ALTERNATIVES

This section presents the evaluation of the two alternatives based on engineering, environmental and financial factors. A comparison of Alternative 1: 2012 SIMR Recommended Diamond Interchange and Alternative 2: North-West Loop Only Interchange is also provided. The evaluation criteria used in this section is as follows:

- Conformance with regional and state transportation plans
- Compliance with FHWA criteria
- Traffic Operations
- Environmental Impacts
- Safety
- Alternatives Comparison

7.1 Conformance with Regional and State Transportation Plans

This IMR is consistent with the State Transportation Improvement Program (STIP) and the FIHS Plan for the area. Several improvements are listed as cost feasible projects in the Sarasota/Manatee MPO 2035 Adopted Cost Feasible Plan.

7.2 Compliance with Policies and Engineering Standards

Both alternative interchange concepts for the I-75/SR 64 interchange IMR comply with all FHWA geometric design criteria and requirements. The modified interchange under the Alternative 2: NW Loop Only Interchange will operate at acceptable LOS or better than Alternative 1: 2012 SIMR Recommended Diamond Interchange through Design Year 2040.

7.3 Future Traffic Operational Analysis

7.3.1 Basic Freeway Segment Analysis – 2020 & 2040

The freeway analysis results for I-75 south and north of SR 64 are presented in this section. The freeway segment configurations for both Alternative 1 and 2 are the same. Therefore, a single set of analysis results are provided in this section for the freeway segments.

The LOS for each direction of travel was determined using the freeway module of the HCS 2010. The output obtained from the application is provided in Appendix I. Tables 7-1 and 7-2 summarize the MOEs calculated for the a.m. and p.m. design hours for 2020 and 2040, respectively.

The freeway capacity analysis shows that both I-75 GUL and SUL segments (north and south of SR 64) are projected to operate at LOS B or above for the Opening Year 2020 traffic conditions under both Alternatives 1 and 2. I-75 GUL segments (north and south of SR 64) are projected to operate at LOS D or above for the Design Year 2040 traffic conditions under both Alternatives 1 and 2. I-75 SUL segments (north and south of SR 64) are projected to operate at LOS C or above for the Design Year 2040 traffic conditions under both Alternatives 1 and 2.

Table 7-1: Basic Freeway Segment Analysis Summary of Alternatives 1 & 2 – Year 2020

I-75 Mainline Segment	# of Lanes	Direction	AM Peak Hour			PM Peak Hour		
			Density (pc/mi/ln)	Speed (mph)	LOS	Density (pc/mi/ln)	Speed (mph)	LOS
GUL North of SR 64	4	NB	13.2	75.0	B	15.6	74.7	B
		SB	15.6	74.7	B	13.2	75.0	B
GUL South of SR 64	4	NB	14.2	75.0	B	17.0	74.2	B
		SB	17.8	73.9	B	14.2	75.0	B
SUL North of SR 64	2	NB	10.7	75.0	A	12.6	75.0	B
		SB	12.6	75.0	B	10.7	75.0	A
SUL South of SR 64	2	NB	10.7	75.0	A	12.6	75.0	B
		SB	12.6	75.0	B	10.7	75.0	A

Table 7-2: Basic Freeway Segment Analysis Summary of Alternatives 1 & 2 – Year 2040

I-75 Mainline Segment	# of Lanes	Direction	AM Peak Hour			PM Peak Hour		
			Density (pc/mi/ln)	Speed (mph)	LOS	Density (pc/mi/ln)	Speed (mph)	LOS
GUL North of SR 64	4	NB	21.5	71.8	C	26.7	67.8	D
		SB	26.7	67.8	D	21.5	71.8	C
GUL South of SR 64	4	NB	23.7	70.1	C	30.1	64.9	D
		SB	30.1	64.9	D	23.7	70.1	C
SUL North of SR 64	2	NB	17.2	74.2	B	20.7	72.3	C
		SB	20.7	72.3	C	17.2	74.2	B
SUL South of SR 64	2	NB	17.2	74.2	B	20.7	72.3	C
		SB	20.7	72.3	C	17.2	74.2	B

7.3.2 Ramp Merge/Diverge Analysis – 2020 & 2040

The ramp merge/diverge area configurations for both Alternative 1 and 2 are the same. Therefore, a single set of analysis results are provided in this section for the ramp merge/diverge areas.

Four (4) ramps were analyzed within the I-75/SR 64 Interchange under this alternative. Two (2) ramps were identified along I-75 in the northbound direction and two in the southbound direction. Tables 7-3 and 7-4 summarize the MOEs calculated for the a.m. and p.m. design hours for 2020 and 2040, respectively.

HCM 2010 defines the maximum length of an influence area for merge/diverge areas as 1,500. Therefore, theoretically, the HCM 2010 methodology cannot define density or LOS for acceleration or deceleration lanes greater than 1,500 feet in length. HCM 2010 suggests, in such cases (where a ramp junction involves lane additions or lane drops), to use the freeway capacity checks immediately upstream and downstream of the ramp influence area to check for traffic operational deficiencies. In both Alternatives 1 and 2, the condition with an acceleration lane of more than 1,500 feet occurs for the northbound and southbound on ramps. For the northbound on ramp, a single lane ramp continues as an auxiliary lane until the adjacent interchange. For the southbound on ramp, the two lane ramp initially becomes a single lane ramp and then continues as an auxiliary lane until the adjacent interchange. Therefore, in both these cases, approximately a three-mile auxiliary lane is available to merge onto the freeway. Similarly, approximately a three-mile auxiliary lane is available for the two lane northbound and southbound off ramps to diverge from the freeway.

For all the system diverge and merge areas, the Flowrate over Capacity (V/C) ratios are well below 1.00 for the opening year 2020 and design year 2040. None of the v/c ratios exceed 1.00, which rule out any operational deficiencies for the merge/diverge areas.

Table 7-3: Ramp Influence Area Capacity Checks for Alternatives 1 & 2 – Year 2020

I-75 & SR 64 Ramps	Location	# of Lanes	AM				PM			
			Freeway Volume (veh/hr)	Flow Rate (pc/hr) {V}	Capacity	V/C	Freeway Volume (veh/hr)	Flow Rate (pc/hr) {V}	Capacity	V/C
NB Off	Upstream	4	3,933	4,244	9,600	0.44	4,689	5,059	9,600	0.53
	Downstream	3	2,724	2,939	7,200	0.41	3,198	3,450	7,200	0.48
SB Off	Upstream	4	4,316	4,657	9,600	0.49	3,677	3,967	9,600	0.41
	Downstream	3	3,198	3,450	7,200	0.48	2,724	2,939	7,200	0.41
NB On	Upstream	3	2,724	2,939	7,200	0.41	3,198	3,450	7,200	0.48
	Downstream	4	3,677	3,967	9,600	0.41	4,316	4,657	9,600	0.49
SB On	Upstream	3	3,198	3,450	7,200	0.48	2,724	2,939	7,200	0.41
	Downstream	4	4,866	5,250	9,600	0.55	3,933	4,244	9,600	0.44

- Notes:
1. Flow rate calculated using Equation 13-1 from HCM 2010
 2. Freeway Capacity per lane is 2,400 pc/h (HCM 2010)

Table 7-4: Ramp Influence Area Capacity Checks for Alternatives 1 & 2 – Year 2040

I-75 & SR 64 Ramps	Location	# of Lanes	AM				PM			
			Freeway Volume (veh/hr)	Flow Rate (pc/hr) {V}	Capacity	V/C	Freeway Volume (veh/hr)	Flow Rate (pc/hr) {V}	Capacity	V/C
NB Off	Upstream	4	6,169	6,656	9,600	0.69	7,242	7,814	9,600	0.81
	Downstream	3	4,264	4,601	7,200	0.64	5,006	5,401	7,200	0.75
SB Off	Upstream	4	6,707	7,237	9,600	0.75	5,714	6,165	9,600	0.64
	Downstream	3	5,006	5,401	7,200	0.75	4,265	4,602	7,200	0.64
NB On	Upstream	3	4,265	4,602	7,200	0.64	5,006	5,401	7,200	0.75
	Downstream	4	5,714	6,165	9,600	0.64	6,707	7,237	9,600	0.75
SB On	Upstream	3	5,006	5,401	7,200	0.75	4,264	4,601	7,200	0.64
	Downstream	4	7,242	7,814	9,600	0.81	6,169	6,656	9,600	0.69

- Notes:
1. Flow rate calculated using Equation 13-1 from HCM 2010
 2. Freeway Capacity per lane is 2,400 pc/h (HCM 2010)

7.3.3 Intersection Analysis – 2020 & 2040

This section presents the results of the intersection analysis conducted using Synchro 8 for Alternatives 1 and 2. Because of the closely spaced study intersections, arterial operational performance is measured using the intersection operational performance. The Synchro outputs for intersection analyses are included in Appendix J.

Alternative 1 – 2012 SIMR Recommended Diamond Interchange

The intersection LOS for Alternative 1: 2012 SIMR Recommended Diamond Interchange is summarized in Tables 7-5 and 7-6 for years 2020 and 2040, respectively.

Table 7-5: Intersection LOS Summary – Year 2020 Alternative 1: 2012 SIMR Recommended Diamond Interchange

Intersection	AM Design Hour		PM Design Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SR 64 & 66 th St. Ct./64 th St. Ct.	30.8	C	34.7	C
SR 64 & I-75 SB Ramps	37.0	D	26.6	C
SR 64 & I-75 NB Ramps	35.6	D	34.3	C
SR 64 & Grand Harbour Parkway	22.5	C	15.7	B

**Table 7-6: Intersection LOS Summary –
Year 2040 Alternative 1: 2012 SIMR Recommended Diamond Interchange**

Intersection	AM Design Hour		PM Design Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SR 64 & 66 th St. Ct./64 th St. Ct.	54.7	D	83.0	F
SR 64 & I-75 SB Ramps	81.8	F	62.6	E
SR 64 & I-75 NB Ramps	75.4	E	78.8	E
SR 64 & Grand Harbour Parkway	32.9	C	22.1	C

Based on the intersection analysis results shown in Table 7-5 (Year 2020), all the study intersections operate at or above acceptable LOS “D” during the AM and PM design hours. By the design year 2040 (Table 7-6), with the exception of SR 64 and Grand Harbor Parkway intersection, all other study intersections operate below LOS “D” for the PM design hour.

Alternative 2 – NW Loop Only Interchange

The intersection LOS for Alternative 2: NW Loop Only Interchange is summarized in Tables 7-7 and 7-8 for years 2020 and 2040, respectively.

Table 7-7: Intersection LOS Summary – Year 2020 Alternative 2: NW Loop Only Interchange

Intersection	AM Design Hour		PM Design Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SR 64 & 66 th St. Ct./64 th St. Ct.	23.4	C	23.5	C
SR 64 & I-75 SB Ramps	10.1	B	7.4	A
SR 64 & I-75 NB Ramps	18.3	B	23.4	C
SR 64 & Grand Harbour Parkway	22.7	C	13.1	B

Table 7-8: Intersection LOS Summary – Year 2040 Alternative 2: NW Loop Only Interchange

Intersection	AM Design Hour		PM Design Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
SR 64 & 66 th St. Ct./64 th St. Ct.	34.4	C	32.3	C
SR 64 & I-75 SB Ramps	12.5	B	12.9	B
SR 64 & I-75 NB Ramps	32.1	C	34.6	C
SR 64 & Grand Harbour Parkway	32.6	C	21.8	C

Based on the intersection analysis results shown in Tables 7-7 and 7-8, all the study intersections operate above acceptable LOS “D” during the AM and PM design hours through the design year 2040.

7.4 Operational Comparison of Alternatives

A comparison of Alternative 1: 2012 SIMR Recommended Diamond Interchange and Alternative 2: NW Loop Only Interchange is provided in this section.

7.4.1 Planning and Environmental Comparison

The need for capacity improvements along I-75 was established in the I-75 PD&E Study for Manatee County. Both Alternatives 1 and 2 provide improved mobility with in the area of influence when compared to the No-build option.

The 2012 SIMR Recommended Diamond Interchange alternative was the preferred alternative from the PD&E study. The NW Loop Only Interchange alternative provides the same access as the 2012 SIMR Recommended Diamond Interchange and is therefore, in conformance with the Sarasota/Manatee MPO Long Range Transportation Plan and the PD&E study. A ‘No-Build’ alternative would not conform to either of these plans.

The NW Loop Only Interchange alternative falls within the same right-of-way as the 2012 SIMR Recommended Diamond Interchange alternative and therefore, no additional impacts are expected as neither alternative requires additional right-of-way.

The PD&E study indicated that there will be no impacts to schools or churches, navigation or air quality. There could be wetland impacts that will require mitigation for both Build alternatives.

7.4.2 Operational Comparison

I-75 Mainline

As discussed in Section 7.3.1, freeway traffic operations are the same for both alternatives. There are no differences in the number of lanes in each alternative. By 2040, the freeway continues to operate at LOS D or better under both alternatives.

I-75 Ramps

As discussed in Section 7.3.2, ramp merge/diverge traffic operations are the same for both alternatives. There are no differences in the number of lanes in each alternative. Under both alternatives, approximately a three-mile auxiliary lane is available to merge onto the freeway. Similarly, approximately a three-mile auxiliary lane is available for the two-lane northbound and southbound off ramps to diverge from the freeway. For all system diverge and merge areas under both alternatives, the Flowrate over Capacity (V/C) ratios are well below 1.00 for opening year 2020 and design year 2040.

Intersections

Section 7.3.3 compares the operations of the project intersections for each of the analysis years and alternatives. Three (3) of the four study intersections along SR 64 are expected to operate at LOS E or worse under Alternative 1: 2012 SIMR Recommended Diamond Interchange by the design year 2040. However, under Alternative 2: NW Loop Only Interchange, all four study intersections are expected to operate at LOS C or better through the design year 2040.

7.5 Environmental Impacts

The I-75 IMR study area is currently in compliance with the federal (Environmental Protection Agency) air quality standards for carbon monoxide, ozone and particulate matter. The current proposed design and potential associated design changes are not expected to have a negative impact on air quality.

The PD&E Study identified substantial wetland impacts estimated at approximately 24.1 acres of wetlands (within PD&E Segments 4-5). Design alternatives are being reviewed to avoid and minimize these wetland impacts to the greatest extent practicable. Updated design-phase estimates suggest that approximately 6.25 acres of unavoidable wetland impacts and 1.84 acres of surface water impacts will result from the I-75/SR 64 interchange improvements project. Final mitigation needs will be determined by performing a detailed UMAM assessment of unavoidable wetland impacts. The FDOT will coordinate further with the necessary environmental and other agencies (such as the Southwest Florida Water Management District, U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service) during project design to develop compensatory mitigation for proposed wetland and wetland-dependent species habitat impacts. Based on mitigation, no net loss of wetlands is anticipated from this project.

For threatened and endangered species, evaluation cited within the I-75 PD&E studies finds that the project is expected to have a moderate involvement/impact. The U.S. Fish and Wildlife Service has determined that this project “may affect, but is not likely to adversely affect” the Gulf sturgeon, eastern indigo snake, wood stork and West Indian manatee. There are also project commitments specific to conducting design-phase resurveys for gopher tortoise and Florida sandhill crane. Based upon evaluation cited in the I-75 PD&E studies, ongoing agency coordination, and with the implementation of commitments and standard protection measures (i.e., for the eastern indigo snake), the proposed project is not likely to adversely affect the existence of any threatened or endangered species, even though they are known or expected to occur within or adjacent the project limits.

There will be no impacts to community focal points such as schools and church buildings under either ‘Build’ alternative and minimal impacts to any archaeological or historical sites are anticipated. There are no navigable waterways within the study area.

7.6 Safety

In order to obtain a better understanding of the safety concerns in the study area, an analysis of crash data was conducted. Within the study boundary, there were 263 crash records from January 1, 2008 to December 31, 2012, including 128 crashes (26 crashes/year average) on SR 64 and 135 crashes (27 crashes/year average) on I-75. This information is detailed in Section 3.3.2. The recommended alternative (Alternative 2: NW Loop Only Interchange) from this study will not have a negative impact on safety as the access points to the mainline will remain the same and the intersections and movements are similar to the existing condition.

7.7 Recommended Alternative

Based on the results identified in Section 7, Alternative 2: NW Loop Only interchange accommodates the design year traffic better than Alternative 1: 2012 SIMR Recommended Diamond Interchange. In addition, the configuration identified under Alternative 2 will make the existing configuration more salvageable. With a loop ramp only in the NW quadrant, the weaving maneuvers that exist currently are eliminated. Alternative 2 also reduces the number of lanes turning onto ramps. This reduction allows the lane drop distances to be shorter on the ramps. In addition to the above improvements, this study developed the queue length requirements at the study intersections based on Synchro analysis (See Appendix K for output) for the design year 2040 traffic conditions.

Table 7-9 illustrates the critical queue lengths at the signalized intersections. Please note that the queue lengths for southbound right turn (at SR 64/I-75 SB Ramps) and northbound right turn (at SR 64/I-75 NB Ramps) movements are assumed equal to the corresponding left turn queue lengths to avoid left turning vehicles blocking the right turning vehicles.

**Table 7-9: Year 2040 Recommended Queue Lengths –
NW Loop Only Interchange (Preferred Alternative)**

Intersection	Approach	Recommended Queue Length (feet)	
		Left Turn	Right Turn
SR 64 & 66 th St. Ct./64 th St. Ct.	EB	200	-
	WB	250	100
	NB	100	175
	SB	175	100
SR 64 & I-75 SB Ramps	SB	275	275
SR 64 & I-75 NB Ramps	EB	525	-
	WB	-	100
	NB	525	525
SR 64 & Grand Harbour Parkway	EB	225	-
	WB	100	100
	SB	100	475

It should be noted that the specific lengths do not include the taper or deceleration distance (refer to FDOT index 301 to determine the appropriate specific taper and deceleration length). These queue lengths are recommended at locations where these lengths can be achieved. Actual design and implementation of these queue length requirements will be a function of design and the physical practicality of their construction.

8.0 Justification for Project

The following requirements serve as the primary decision criteria used in approval of interchange projects. Each of the eight policy points from the FHWA is described briefly and the detailed description is provided below in italic text. The justification response to each point follows.

8.1 Existing system is incapable of accommodating the traffic

The need being addressed by the request cannot be adequately satisfied by existing interchanges to the Interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays or lengthening storage) to satisfactorily accommodate the design-year traffic demands (23 CFR 625.2(a)).

The I-75 PD&E study identified the need to make improvements at the SR 64 interchange. With population growth projected to occur within the Counties and the region, the I-75 corridor becomes vital. Traffic in the study area is expected to increase based on the projected population growth in the region. According to 2010 U.S. Census, Manatee County's population was 322,833 persons, which was a 22.3 percent increase over the 2000 population of 264,002 persons. Similarly, the 2010 U.S. Census showed Sarasota County's population was 379,448 persons, which was a 16.4 percent increase over the 2000 population of 325,957 persons. The population growth in the region can be attributed to tourism related activities, an influx of retirees, abundant developable land and the overall growth in west Central Florida. The lack of other regional north/south corridors in the area has made I-75 an attractive route for local trips, thus increasing traffic load at the interchanges.

In addition to interchange improvements, the PD&E study recommends addition of two special use lanes in each direction along I-75. Initially the interstate mainline would be increased from a six-lane to eight-lane facility. Ultimately the interstate configuration would consist of four special use (express) lanes with six general use lanes, creating a ten-lane facility.

As noted in Section 7.4.2, the operations of the project intersections in Alternative 2 function at a higher LOS than Alternative 1. Three (3) of the four study intersections along SR 64 are expected to operate at LOS E or worse under Alternative 1: 2012 SIMR Recommended Diamond Interchange by the design year 2040. However, under Alternative 2: NW Loop Only Interchange, all four study intersections are expected to operate at LOS C or better through the design year 2040.

The primary issue with Alternative 2 is a physical constraint. The need for triple left turn lanes on westbound SR 64 onto the I-75 southbound entrance ramp will not fit under the existing I-75 bridge. This will require the complete replacement of the I-75 bridge and the reconstruction of approximately one mile of I-75 including major disruption to traffic during construction. The loop ramp in Alternative 1 only requires a single lane and will fit under the existing bridge. This alternative eliminates the major reconstruction of I-75 and saves approximately \$9 million dollars in associated roadway, bridge and maintenance of traffic costs.

8.2 All reasonable alternatives to a new interchange have been considered

The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and HOV facilities), geometric design, and alternative improvements to the Interstate without the proposed change(s) in access (23 CFR 625.2(a)).

This IMR serves as an update to the alternatives considered in the I-75 PD&E for Sarasota and Manatee Counties. The alternatives consistent with the PD&E ultimate improvements have been evaluated as part of this IMR.

8.3 Proposal does not adversely impact operational safety of the existing freeway

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)).

The operational analyses of opening year 2020 and design year 2040 were conducted to confirm that the proposed interchange modifications do not adversely impact the operations of the freeway general use lanes, interchange ramps and cross road ramp terminal intersections.

The freeway segment and ramp merge/diverge area configurations for Alternative 2: NW Loop Only Interchange is the same as Alternative 1: 2012 SIMR Preferred Diamond Interchange and therefore, there is no adverse safety or operational impacts.

Alternative 2: NW Loop Only Interchange improves the operation (LOS) of the intersections along SR 64 when compared to Alternative 1: 2012 SIMR Recommended Diamond Interchange. Alternative 2: NW Loop Only Interchange reduces the number of lanes turning onto ramps which allows the lane drop distances to be shorter on the ramps. It also improves safety by eliminating the weaving maneuvers that currently exist.

8.4 A full interchange with all traffic movements at a public road is provided

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)).

The proposed modification to the study interchange provides for full access to I-75. In addition, the interchange provides full access to the local street system and accommodates traffic movements in all directions. The access provided by the proposed interchange modifications and special use lanes meets or exceeds AASHTO standards regarding minimum ramp terminal spacing.

8.5 The proposal is consistent with local and regional plans

The proposal considers and is consistent with local and regional land use and transportation plans. Prior to receiving final approval, all requests for new or revised access must be included in an adopted Metropolitan Transportation Plan, in the adopted Statewide or Metropolitan Transportation Improvement Program (STIP or TIP), and the Congestion Management Process within transportation management areas, as appropriate, and as specified in 23 CFR part 450, and the transportation conformity requirements of 40 CFR parts 51 and 93.

Based on long range planning, projected population and employment growth, and projected traffic volumes, the Sarasota/Manatee Metropolitan Planning Organization (MPO) has made improving I-75 a priority in the region. The recommended improvements and future network in this study are consistent with Sarasota/Manatee MPO's 2035 Long Range Transportation Plan (LRTP).

8.6 Consistency with State Highway Master Plans

In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan (23 U.S.C. 109(d), 23 CFR 625.2(a), 655.603(d), and 771.111).

The proposed interchange modifications are consistent with the recently completed PD&E study for Manatee County in 2009 and the Sarasota/Manatee MPO's 2035 LRTP.

8.7 Coordinated with the area's development

When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements (23 CFR 625.2(a) and 655.603(d)). The request must describe the commitments agreed upon to assure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and Interstate access point (23 CFR 625.2(a) and 655.603(d)).

The need for the interchange modifications was identified as part of the transportation planning process. As part of that planning process, various alternative development and transportation system improvements were tested in a regional context. Particularly, the new developments, buildable land and proximity to major employment centers such as St. Petersburg, Tampa, Sarasota and Bradenton are the driving force behind the need for modified access and were considered during the development of alternatives as well as selection of the recommended improvement.

8.8 Request needs to consider planning and environmental constraints

The proposal can be expected to be included as an alternative in the required environmental evaluation, review and processing. The proposal should include supporting information and current status of the environmental processing (23 CFR 771.111).

Environmental, land use, and right-of-way considerations (no right-of-way acquisition associated with Alternative 2: NW Loop Only Interchange) were an important source of information. A summary of considerations is presented in the IMR. A more detailed investigation of these items was performed.

9.0 Conceptual Funding Plan

The 2035 Sarasota Manatee LRTP lists (pg. 167 of 2035 LRTP) I-75 at SR 64 interchange upgrade as a funded project through the State SIS funds. The construction phase of the project is considered to be funded between years 2026-2030. The MPO's SIS Unfunded Needs Plan shows the need to add two special use lanes to I-75 from SR 70 (south of SR 64) to US 301 (north of SR 64). The widening of SR 64 from I-75 to 39th Street East is to be funded by Federal/State funds.

Appendices

Appendix A – Methodology Letter of Understanding (MLOU)

Appendix B – Raw Traffic Counts

Appendix C – Axle & Seasonal Factors (FTI 2012)

Appendix D – Approved Base Year 2007 Model (SMC) Validated Document

Appendix E – Year 2035 Volume & #Lanes Model Plot (SMC)

Appendix F – Historical Crash Data (2008-2012)

Appendix G – Existing Freeway & Ramp Analysis (HCS 2010)

Appendix H – Existing Intersection Analysis (Synchro)

Appendix I – Future Freeway Analysis (HCS 2010)

Appendix J – Future Intersection Analysis (Synchro)

Appendix K – Queue Lengths Output (Synchro)

Appendix L – Conceptual Signing Plan