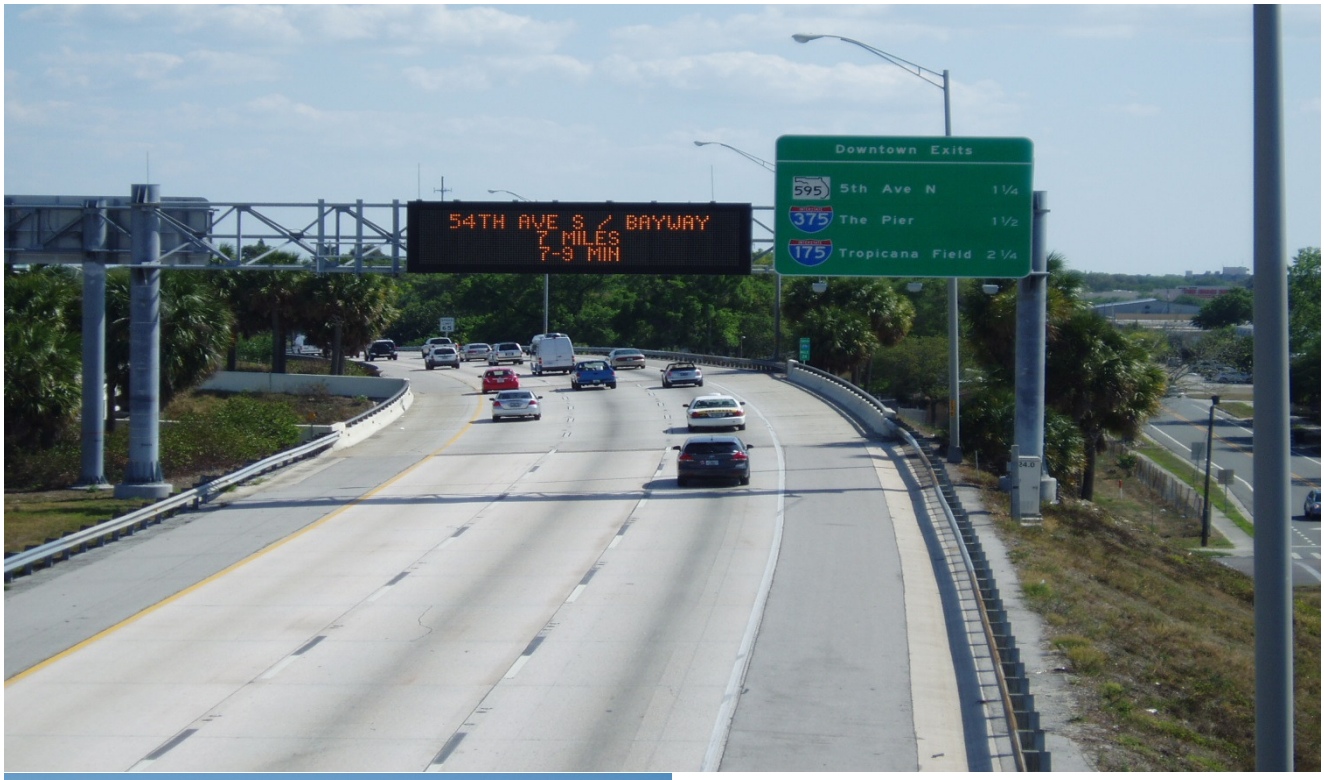

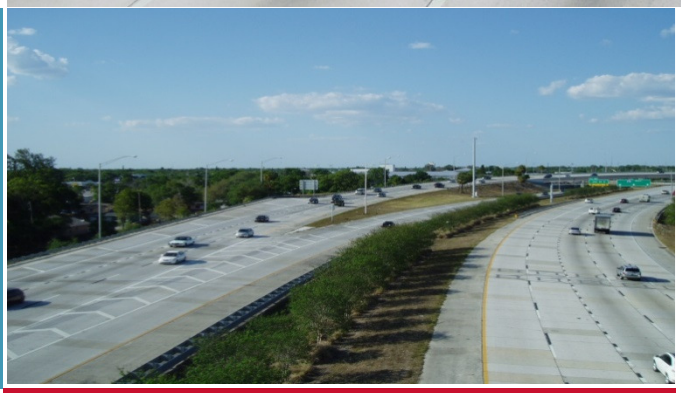

PROJECT DEVELOPMENT & ENVIRONMENT (PD&E) STUDY

Work Program Item Segment No.: 424501-1

Final Preliminary Engineering Report (FPER)

Project Development and Environment (PD&E) Study

I-275/SR 93
From South of 54th Avenue South
to North of 4th Street North

Pinellas County, Florida

July 2016

FDOT

FINAL PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

ETDM Project Number: 12556

Work Program Item Segment Number: 424501-1

Federal-Aid Project Number: Not Available

This final preliminary engineering report contains detailed engineering and environmental information for the I-275 (SR 93) Project Development and Environment Study from south of 54th Avenue South to north of 4th Street North in Pinellas County, Florida.

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Date

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Kent McWaters, P.E.
Florida Professional Engineer Number: 45443

Executive Summary

The Florida Department of Transportation (FDOT), District Seven, conducted a Project Development and Environment (PD&E) Study to evaluate the need for capacity and operational improvements along 16.3 miles of Interstate 275 (I-275) (State Road (SR) 93) from south of 54th Avenue South to north of 4th Street North in Pinellas County, Florida.

The objective of this PD&E Study was to assist the FDOT and the Federal Highway Administration (FHWA) in reaching a decision on the type, location, and conceptual design of the necessary improvements for I-275 to safely and efficiently accommodate future travel demand. This study documented the need for the improvements as well as the procedures utilized to develop and evaluate various improvements including elements such as proposed typical sections, special designation of travel lanes, preliminary horizontal alignments, and interchange enhancement alternatives. The anticipated social, physical, and natural environmental effects and costs of these improvements were identified. The alternatives were evaluated and compared based on a variety of parameters utilizing a matrix format. This process identified the alternative that best balanced the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs).

The PD&E Study satisfies all applicable federal and state requirements, including the National Environmental Policy Act (NEPA), in order for this project to qualify for federal-aid funding of subsequent development phases (design, right of way acquisition, and construction). The project was evaluated through the FDOT's Efficient Transportation Decision Making (ETDM) process. This project is designated as ETDM Project #12556. An ETDM Final Programming Screen Summary Report was published on July 26, 2013, containing comments from the Environmental Technical Advisory Team (ETAT) on the project's effects on various natural, physical, and social resources. Based on the ETAT comments, the FHWA determined that this project qualifies as a Type 2 Categorical Exclusion.

This Final Preliminary Engineering Report (FPER) has been prepared as a component of the PD&E Study. The FPER documents the technical engineering and environmental information required to support the decisions made related to the proposed project alternatives. The FPER was prepared in accordance with the FDOT PD&E Manual, Topic No. 650-000-001, Part 1, Chapter 4 and includes information to be used in the design phase of this project.

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Glossary of Terms

Term	Definition
AA	Alternatives Analysis
AADT	Annual Average Daily Traffic
BGEPA	Bald and Golden Eagle Protection Act
CBD	Central Business District
CCC	Chairs Coordinating Committee
CRAS	Cultural Resources Assessment Survey
CSER	Contamination Screening Evaluation Report
DDHV	Directional Design Hour Volumes
ETDM	Efficient Transportation Decision Making
ETAT	Environmental Technical Advisory Team
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FPER	Final Preliminary Engineering Report
FTA	Federal Transit Administration
FWC	Florida Fish and Wildlife Conservation Commission
FY	Fiscal Year
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
LDCA	Location Design Concept Acceptance
LPA	Locally Preferred Alternative
LRFR	Load Resistance and Factor Rating
LRTP	Long Range Transportation Plan
LOS	Level of Service
MBTA	Migratory Bird Treaty Act
MOE	Measure of Effectiveness
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
MWWP	Marine Wildlife Watch Plan
NMFS	National Marine Fisheries Service
NEPA	National Environmental Policy Act
PD&E	Project Development and Environment
PIP	Public Involvement Plan
PSTA	Pinellas Suncoast Transit Authority
SAV	Submerged Aquatic Vegetation
SIS	Strategic Intermodal System
TBARTA	Tampa Bay Area Regional Transportation Authority
TBX	Tampa Bay Express
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WEBAR	Wetlands and Biological Assessment Report
WQIE	Water Quality Impact Evaluation

1 Summary of Project

1.1 Summary Statement

This Final Preliminary Engineering Report (FPER) contains detailed engineering and environmental information for the proposed capacity and operational improvements along Interstate 275 (I-275) (State Road (SR) 93) from south of 54th Avenue South to north of 4th Street North in Pinellas County, a distance of approximately 16.3 miles (mi). The study map is shown on **Figure 1-1**. The objective of this Project Development and Environment (PD&E) study was to provide documented environmental and engineering analyses which assisted the Florida Department of Transportation (FDOT) and the Federal Highway Administration (FHWA) in reaching a decision on the type, conceptual design and location of the necessary improvements within the I-275 PD&E Study limits.

To effectively describe and evaluate the unique transportation characteristics of the project, the study corridor was divided into three segments as listed below, and graphically displayed on **Figure 1-1**:

- Segment A: From south of 54th Avenue South to I-175, a distance of 4.6 miles;
- Segment B: From I-175 to south of Gandy Boulevard, a distance of 6.0 miles; and
- Segment C: From south of Gandy Boulevard to north of 4th Street North, a distance of 5.7 miles.

The study corridor is contained within the townships, ranges, and sections listed in **Table 1-1** (United States Geological Survey [USGS] Pass-A-Grille Beach, Fla. 1956; St. Petersburg, Fla. 1956; Safety Harbor, Fla. 1956).

Table 1-1. Township, Range, and Section Coordinates

Township	Range	Sections
32 South	16 East	2, 3, 10, and 11
31 South	16 East	1, 2, 11, 12, 13, 24, 26, 27, 34, and 35
30 South	16 East	6, 12, 13, 14, 23 through 26, 35, and 36

1.2 Commitments and Recommendations

In order to assure that adverse environmental and sociocultural impacts will not occur within the vicinity of the project corridor, and the multimodal needs of the involved communities are sufficiently addressed, the FDOT will abide by standard protection measures and adhere to FDOT Procedure #700-011-035 for tracking the following commitments throughout the life of the project:

- Endangered Species Act Section 7 informal consultation will be re-initiated with the National Marine Fisheries Service (NMFS) for smalltooth sawfish and swimming sea turtles during the future project's design phase once more detailed information is known for this project. The FDOT will continue informal coordination with NMFS on potential impacts associated with any pile driving activities that could be required to widen the I-275 fixed vertical clearance bridge over Big Island Gap.

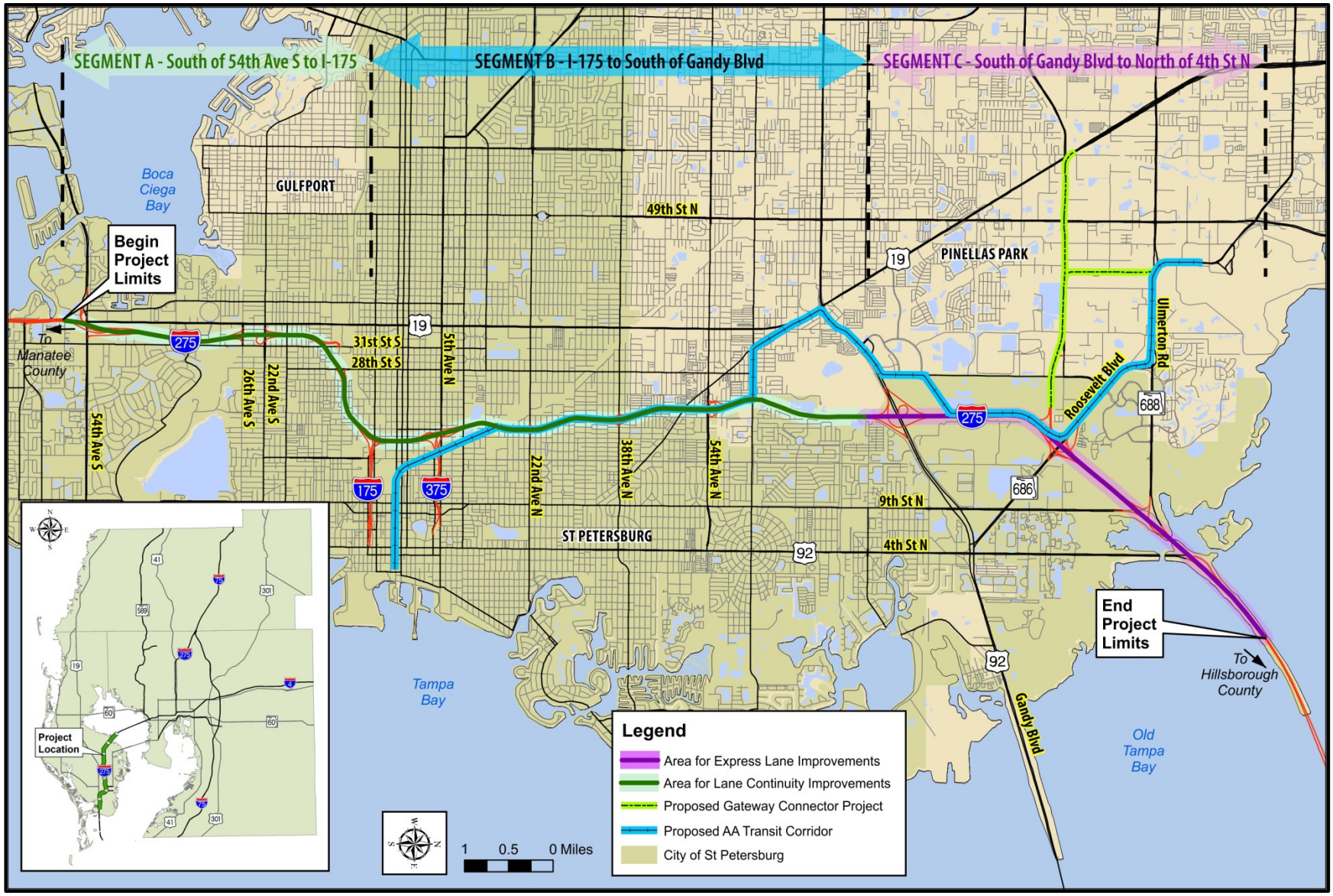


Figure 1-1. Project Location Map

- The FDOT will adhere to the NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* during construction of the project's required widening of the I-275 Big Island Gap Bridge.
- The FDOT will continue informal Endangered Species Act Section 7 consultation with the US Fish and Wildlife Service (USFWS) for the Gulf Sturgeon during the future project's design phase for the required widening of the I-275 Big Island Gap Bridge.
- FDOT will incorporate the *Construction Special Conditions for the protection of the Gulf Sturgeon* during the future construction of the I-275 Big Island Gap Bridge.
- To assure the protection of wildlife during construction of the I-275 Big Island Gap Bridge, the FDOT will implement a Marine Wildlife Watch Plan (MWWP), which includes the Florida Fish and Wildlife Conservation Commission (FFWCC) *Standard Manatee Conditions for In-Water Work*. The FDOT will require the construction contractor to abide by these guidelines during the future construction of the I-275 Big Island Gap Bridge.
- Special conditions for manatees will be addressed during construction of the I-275 Big Island Gap Bridge and include the following:
    - No nighttime in water work will be performed. In-water work can be conducted from official sunrise until official sunset times;
    - Two dedicated (minimum one primary), experienced manatee observers will be present when in-water work is performed. Primary observers should have experience observing manatees in the wild on construction projects similar to this one;
    - All siltation barriers or coffer dams should be checked at least twice a day, in the morning and in the evening, for manatees that may become entangled or entrapped at the site;
    - Barges will be equipped with fender systems that provide a minimum standoff distance of four feet between wharves, bulkheads and vessels moored together to prevent crushing manatees. All existing slow speed or no wake zones will apply to all work boats and barges associated with construction; and
    - Although culverts are unlikely for the portion of the project in the vicinity of the Big Island Gap waterway, any culverts larger than eight inches and less than eight feet in diameter should be grated to prevent manatee entrapment. When the I-275 Big Island Gap bridge is widened, the spacing (if feasible) between the new pilings will be at least 60 inches to allow for manatee movement in between the pilings. If a minimum of 60-inch spacing is not provided between the new piles, further coordination will be conducted with the USFWS. The existing bridge piling spacing will not need to be altered.
- No blasting is authorized for this project as part of this PD&E study. If blasting is required, informal Section 7 Consultation will be initiated with the USFWS for the manatee and with the NMFS for swimming sea turtles and the smalltooth sawfish. A blast plan and MWWP would be developed and submitted to the USFWS, NMFS and FFWCC for their approval prior to beginning blasting activities.
- No dredging is authorized for this project. If dredging is required, informal Section 7 Consultation will be re-initiated with the USFWS for the manatee.

- The FDOT is committed to the construction noise barriers contingent upon the following:
  - Detailed noise analysis during the final design process supports the need for, and the feasibility and reasonableness of providing the barriers as abatement;
  - The detailed analysis demonstrates that the cost of the noise barrier will not exceed the cost effective limit;
  - The residents/property owners benefitted by the noise barrier desire that a noise barrier be constructed; and
  - All safety and engineering conflicts or issues related to construction of a noise barrier are resolved.

1.3 Description of the Proposed Action

The proposed action involves the provision of capacity and operational improvements along 16.3 miles of I-275 from south of 54th Avenue South to north of 4th Street North in Pinellas County, Florida. This evaluation considered the operational and highway safety benefits of implementing capacity improvements and compares them to the cost savings and minimization of adverse impacts associated with a No Build Alternative. The No Build and Build Alternatives were evaluated and compared based on a variety of parameters utilizing a matrix format. This process identified the alternative that best balances the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs). In addition to capacity and operational improvements, the proposed action also considered the multimodal transportation needs of the I-275 project corridor, specifically incorporation of a multimodal envelope as part of the proposed improvements in order to be consistent with the Locally Preferred Alternative (LPA) of the Federal Transit Administration (FTA) approved Pinellas Alternatives Analysis (AA).

The Preferred Build Alternative consists of providing lane continuity improvements within Segments A and B (from south of 54th Avenue South to south of Gandy Boulevard), and express lane improvements in Segment C (from south of Gandy Boulevard to north of 4th Street North). The lane continuity improvements consist of intermittent widening and restriping of existing lanes in order to provide two continuous lanes in each direction of I-275, and to accommodate a 40-ft multimodal transportation envelope within the I-275 median for future transit use in Segment B. The express lanes proposed in Segment C are part of the Tampa Bay Express (TBX) Master Plan, which consists of an integrated system of managed lanes identified for the Tampa Bay Region.

The proposed express lane improvements initially considers (prior to the design year 2040) one express lane (EL) in each direction of I-275 from south of Gandy Boulevard to north of 4th Street North. This near-term express lanes project is known as the Starter Project. The longer-term Master Plan Project shall provide for one EL in each direction of I-275 from south of Gandy Boulevard to 118th Avenue North/Roosevelt Boulevard and two ELs in each direction of I-275 from 118th Avenue North/Roosevelt Boulevard to north of 4th Street North. This FPER documents the engineering and environmental analyses conducted to assess the environmental and sociocultural effects of implementing the No Build and Build Alternatives.

2 Introduction

2.1 Project Development & Environment Study Process

Prior to the beginning of the PD&E Study phase, the project was entered into the Environmental Screening Tool (EST) of FDOT's Efficient Transportation Decision Making (ETDM) process. An ETDM Final Programming Screen Summary Report was published on July 26th, 2013 as ETDM Project #12556. A Type 2 Categorical Exclusion class of action was assigned by the FHWA during the programming screen phase of the ETDM process for this proposed project's PD&E Study.

The objective of this PD&E Study was to help the FDOT and the FHWA reach a decision on the type, location, and conceptual design for the proposed improvements that maximize the corridor's capacity, and improve the overall safety and operating conditions of the facility within the project limits. Transportation improvements are needed along I-275 from south of 54th Avenue South to north of 4th Street North in order to relieve current capacity deficiencies, improve safety and help alleviate future traffic congestion within the I-275 corridor. Alternative transportation improvements were evaluated based on several factors that include, but are not limited to: the proposed alternative's ability to meet the transportation needs, socioeconomic and environmental impacts, engineering requirements, and cost estimates. In general terms, the process involved the following five primary steps:

1. Verification of the project's purpose and need developed during the ETDM screening process;
2. The gathering and analysis of detailed information regarding the environmental features of the study area in addition to engineering data;
3. Development and evaluation of alternatives to address the project need;
4. Selection of a Preferred Alternative, and
5. Documentation of the entire process in a series of engineering and environmental reports.

During the process, communication with the affected public was accomplished through an interaction with elected officials and agency representatives. The PD&E Study process is designed to satisfy all applicable state and federal requirements, including the National Environmental Policy Act (NEPA), in order for this project to qualify for federal-aid funding of subsequent project phases (design, right of way acquisition and construction).

2.2 Project Background

Several multimodal transportation planning studies for the I-275 PD&E Study Corridor within Pinellas County have been completed while others are presently underway. The findings from these studies are assisting the FDOT in identifying transportation improvements needed to adequately meet local and regional travel demands, as well as to support the development of the PD&E Study's Preferred Build Alternative. The following sections describe the relevant multimodal planning studies prepared for the I-275 corridor in Pinellas County.

2.2.1 Tampa Bay Express Master Plan Overview

FDOT District Seven developed the TBX Master Plan that indicates on which interstate facilities, and specific freeway segments of these facilities, it would be cost feasible to implement express lanes.

This Plan ensures that the impacts of implementing express lanes on the Tampa Bay interstate system would be evaluated on a system-wide basis in lieu of treating each corridor as its own stand-alone project. The I-275 PD&E Study incorporates the TBX Master Plan improvements proposed for the I-275 study corridor as part of the Preferred Build Alternative along with the lane continuity improvements which would occur generally between 54th Avenue South to south of Gandy Boulevard.

Realizing a potential shortfall in funding for implementation of the Plan's ultimate capacity improvements planned for the Tampa Bay Region, the FDOT underwent an evaluation to identify a series of lower cost express lane projects that can be funded in the FDOT's Five-Year Work Program. These initial projects could be built within a five-year or less time period and then later be incorporated into the Master Plan projects at minimal additional costs. The shorter-term, lower-cost improvements are considered the "Starter Projects."

Further information regarding the development of the Master Plan and its proposed projects are documented in the TBX Master Plan document.

2.2.2 Pinellas Alternative Analysis (AA)

In addition to addressing highway capacity deficiencies, this PD&E Study also considered multimodal accommodations envisioned for the I-275 study corridor and its regional connections to the rest of Tampa Bay. The Tampa Bay Area Regional Transportation Authority (TBARTA) adopted a Transportation Master Plan for Citrus, Hernando, Hillsborough, Manatee, Pasco, Pinellas, and Sarasota Counties in May 2009. While considering all modes of transportation, the TBARTA Master Plan focused on providing the framework for an integrated transit system to serve all parts of the region. In 2009, the Hillsborough, Pinellas, Pasco, and Hernando County Metropolitan Planning Organizations (MPOs) and Citrus County all adopted the TBARTA Mid Term (2035) Networks in their 2035 Needs plans and included several key elements of the Master Plan in their 2035 Cost Affordable Long Range Transportation Plans (LRTPs).

As a first step in moving toward implementation of this Plan, the Hillsborough Area Regional Transit Authority (HART) had undertaken an AA for a light rail transit corridor running from the University of South Florida, through downtown Tampa, to the Westshore area. This HART analysis included a service connection to a proposed High Speed Rail station in downtown Tampa. A second AA has been completed by the FDOT, TBARTA, the Pinellas County MPO and the Pinellas Suncoast Transit Authority (PSTA) for a premium transit corridor from downtown St. Petersburg, through the Pinellas Gateway area, to downtown Clearwater. In addition, the FDOT, local transit agencies, and MPOs have planned several Regional Transit Corridor Evaluations for other elements of the TBARTA Master Plan.

The 2012 Pinellas AA evaluated transit options connecting major residential, employment and activity centers in Pinellas County to Hillsborough County via the Howard Frankland Bridge corridor. The study identified a 24-mile light rail Locally Preferred Alternative (LPA) for its ability to offer transportation options that are safe, sustainable, affordable, and efficient. Significant countywide local bus enhancements were recommended to support the LPA, nearly doubling the existing local bus service with portions being implemented before the light rail.

A key element of the TBARTA Master Plan is to provide a transit linkage across Upper Tampa Bay linking Hillsborough and Pinellas Counties. Specifically, both the TBARTA Master Plan and the MPO LRTPs call for the linkage to be provided across the Howard Frankland Bridge (I-275/SR 93)

corridor. This linkage would run from Hillsborough County's proposed Westshore Regional Multimodal Center (service connection to the proposed High Speed Rail Station in downtown Tampa) to Pinellas County's proposed Gateway Station. These stations would not serve as termini, but would allow uninterrupted transit movements from the St. Petersburg and Clearwater areas across the Howard Frankland Bridge to and through Tampa's Central Business District (CBD) and vice versa. However, for this linkage to be possible, the Howard Frankland Bridge corridor must be able to accommodate the appropriate transit provisions. The FDOT plans to replace the northbound Howard Frankland Bridge in the future since it is approaching the end of its useful service life. Therefore, the I-275 PD&E Study will provide recommended improvements that provide the transit accommodations envisioned by TBARTA and the needed highway improvements consistent with the planned northbound bridge replacement.

2.2.3 Lane Continuity Study

Completed in October 2008, the I-275 Lane Continuity Study evaluated operational improvements on I-275 from the Sunshine Skyway Bridge North Toll Plaza to Gandy Boulevard in Pinellas County. The study documented existing and future operational and safety conditions within the corridor for the purposes of recommending possible improvements to alleviate identified deficiencies. The study addressed both short-term traffic operational type improvements and longer-term major geometric improvements. As a long range improvement, the study recommended providing lane improvements to achieve one additional continuous lane on I-275 in each direction from 54th Avenue South to Gandy Boulevard.

The I-275 Pinellas PD&E Study incorporated and updated the Lane Continuity Study recommendations. Currently, I-275 from south of 54th Avenue South to 4th Street North has one continuous lane in the northbound direction and no continuous lanes in the southbound direction. According to the previous Lane Continuity Study recommendations, proposed lane additions to I-275 are anticipated to provide three continuous lanes in the northbound direction and two continuous lanes in the southbound direction between 54th Avenue South and 4th Street North. These new lane connections will improve the safety for motorists traveling the I-275 corridor by substantially reducing the number of lane changes for both directions of travel. The study also recommended modifications to certain interchanges within the study limits, allowing for a more refined analysis of those locations.

2.3 Purpose of Report

This FPER has been prepared as a component of the PD&E Study. The FPER documents the technical engineering and environmental information required to support the decisions made related to the proposed project alternatives. The FPER has been prepared in accordance with the FDOT PD&E Manual, Topic No. 650-000-001, Part 1, Chapter 4 and includes information to be used in the design phase of this project.

The purpose of this report is to document all of the engineering-and environmental related aspects associated with the proposed capacity improvement needed along I-275 from south of 54th Avenue South to north of 4th Street North. Separate reports have been prepared to document environmental effects and public involvement efforts (see **Section** 9 for list).

3 Purpose and Need for Project

The purpose of this project is to provide for operational and safety improvements that maximize capacity within the I-275 corridor, improve lane continuity and connect I-275 within Pinellas County to the future network of express lanes planned for the Tampa Bay Region. Improvements are needed within the I-275 corridor to help alleviate existing traffic congestion, enhance safety and better accommodate future travel demands associated with projected growth in employment and population. The addition of special use/express lanes is included in the FDOT's Approved SIS Highway Component 2040 Cost Feasible Plan.

In 2012, Annual Average Daily Traffic (AADT) volumes on I-275 ranged from a low of 82,000 vehicles per day north of 54th Avenue South to a high of 142,500 vehicles per day north of 4th Street North. Under these existing traffic loadings, several sections along the I-275 mainline operate deficiently (Level of Service – LOS E) during both the morning and afternoon peak travel periods and does not meet the minimum LOS standard D for SIS highway facilities. Without improvements, the operating conditions along I-275 will continue to deteriorate, resulting in unacceptable levels of service throughout the entire study corridor.

The following information supports the proposed project's purpose and need:

Safety/Crash Rate Issues

Crash data from the Florida Department of Highway Safety and Motor Vehicles indicated there were 2,082 crashes recorded in the project limits during the five year period of 2009 through 2013. There were a total of 976 injuries and 18 fatalities. The crash rates were higher than the average statewide crash rate for urban interstates within the vicinity of certain interchanges within the project limits, and along mainline sections between 22nd Avenue and 54th Avenue North.

Safety within the project limits will be enhanced due to maximizing capacity that will be provided by the proposed lane continuity improvements on I-275. The lane continuity improvements will reduce driving decisions related to lane changes, thereby decreasing potential conflicts among vehicles.

Lane Continuity Issues

Currently, I-275 from south of 54th Avenue South to 4th Street North has one continuous lane in the northbound direction and no continuous lanes in the southbound direction. The proposed intermittent widening and restriping of existing lanes within I-275 Segments A and B comprise the lane continuity improvements that will form two continuous lanes on I-275 in each direction between 54th Avenue South and 4th Street North; thereby improving the safety of motorists by reducing driving decisions which relate to lane changes and the incidence of associated crashes.

Managed/Special Use Lanes Intent

I-275 Segment C is a component of the Tampa Bay Express (TBX) toll lanes. As part of the TBX Master Plan, one tolled lane is to be added to I-275 in each direction from Gandy Boulevard to 118th Avenue North. From 118th Avenue North to north of 4th Street North, two tolled lanes will be provided in each direction on I-275. Access will be provided between the tolled and non-tolled lanes near Gandy Boulevard, at 118th Avenue North, and between 4th Street North and the Howard Frankland Bridge.

Proposed Improvements

The proposed action involves the provision of capacity and operational improvements along 16.3 miles of I-275 from south of 54th Avenue South to north of 4th Street North in Pinellas County, Florida. This evaluation considers the operational and highway safety benefits of implementing capacity improvements and compares them to the cost savings and minimization of adverse impacts associated with a No Build Alternative. The No Build and Build Alternatives are evaluated and compared based on a variety of parameters utilizing a matrix format. This process identifies the alternative that best balances the benefits (such as improved traffic operations and safety) with the impacts (such as environmental effects and construction costs). In addition to capacity and operational improvements, the proposed action also considers the multimodal transportation needs of the I-275 project corridor, specifically incorporation of a multimodal envelope as part of the proposed improvements in order to be consistent with the Locally Preferred Alternative (LPA) of the Pinellas Alternatives Analysis (AA).

The Preferred Build Alternative consists of providing lane continuity improvements within Segments A and B (from south of 54th Avenue South to south of Gandy Boulevard), and express lane improvements in Segment C (from south of Gandy Boulevard to north of 4th Street North). The lane continuity improvements consists of intermittent widening and restriping of existing lanes on I-275 to form two continuous lanes in each direction. In Segment B, a 40-foot (ft) multimodal transportation envelope within the I-275 median is preserved for the future implementation of light rail transit use envisioned as part of the Federal Transit Administration (FTA) approved Pinellas AA. The express lanes proposed in Segment C are part of the Tampa Bay Express (TBX) Master Plan, which consists of an integrated system of express lanes identified for the Tampa Bay Region.

The I-275 interchange modifications proposed within the project segments are as follows, these future interchange improvements will be further analyzed in appropriate interchange analysis documents:

Segment A

- 31st Street South – moving SB on ramp from a left hand merge to a right hand merge

Segment B

- 5th Avenue North – SB off ramp contains a new auxiliary lane (connected with 22nd Avenue North)
- 22nd Avenue North – SB on ramp contains a new auxiliary lane with connection to 5th Avenue North
- 38th Avenue North – Additional lane on NB off ramp (from 1 to 2).

Segment C

- 118th Avenue – new GUL and SUL ramps
- Roosevelt Boulevard – new GUL NB on ramp
- MLK Boulevard – NB on ramp widening
- Ulmerton Boulevard – NB on ramp widening
- 4th Street North – NB on ramp and SB off-ramp widening

The proposed express lane improvements initially considers (prior to the design year 2040) one express lane (EL) in each direction of I-275 from south of Gandy Boulevard to north of 4th Street North. This near-term express lanes project is known as the Starter Project. The longer-term Master Plan Project shall provide for one EL in each direction of I-275 from south of Gandy Boulevard to 118th Avenue North/Roosevelt Boulevard and two ELs in each direction of I-275 from 118th Avenue North/Roosevelt Boulevard to north of 4th Street North. The separately prepared Final Preliminary Engineering Report (PER) documents the engineering and environmental analyses conducted to assess the environmental and sociocultural effects of implementing the No Build and Build Alternatives.

3.1 System Linkage

I-275 is a vital link in the local and regional transportation network and serves as a critical evacuation route. As a major north-south corridor through Pinellas County, I-275 links the Tampa Bay Region with the remainder of the state and the nation supporting commerce, trade, and tourism. I-275 is part of the Strategic Intermodal System (SIS), a statewide transportation network of highways, railways, waterways, and transportation hubs that provides for the movement of goods and people at high speeds and high traffic volumes. As an SIS facility and part of the regional roadway network, I-275 is included in the 2040 Regional LRTP developed by the West Central Florida MPO's Chairs Coordinating Committee (CCC) and the TBARTA Master Plan. Preserving the operational integrity and regional functionality of I-275 is critical to mobility and economy of the Tampa Bay Region.

3.2 Transportation and Socioeconomic Demand

In 2012, Annual Average Daily Traffic (AADT) volumes on I-275 ranged from a low of 82,000 vehicles per day north of 54th Avenue South to a high of 142,500 vehicles per day north of 4th Street North. Under these existing traffic loadings, several sections along the I-275 mainline operate deficiently (Level of Service – LOS E) during both the morning and afternoon peak travel periods and does not meet the minimum LOS standard D for SIS highway facilities.

Population and employment in Pinellas County are projected to grow with aggressive redevelopment programs and infill potential. The University of Florida's Bureau of Economic and Business Research (BEBR) projects the 2040 population in Pinellas County to be as much as 1,143,400 (the high projection, which is an increase of 23% from the existing 2013 estimation of 926,610). Based on the Pinellas County MPOs 2035 LRTP, employment in 2006 was 565,400 and is projected to be 671,000 in 2035, an increase of 18.7%. This reflects an average annual increase of 3,641 employees, or about 0.6 percent per year from the 2006 estimate. These population and employment increases will result in increased future traffic volumes on I-275 that are projected to range from a low of 132,000 vehicles per day north of 54th Avenue South to a high of 274,000 vehicles per day north of 4th Street North in the design year (2040). Without improvements, the operating conditions along I-275 and connecting roadways will continue to deteriorate, resulting in unacceptable levels of service throughout the entire study corridor.

3.3 Consistency with Transportation Plans

The addition of express lanes on I-275 is included in the FDOT's Approved SIS First Five Year Plan (Fiscal Year (FY) - FY 2015/2016 through FY 2019/2020) dated July 2015, which indicates funding for preliminary engineering and construction in FY 2016 and FY 2020, respectfully. In addition, the Pinellas MPO's 2040 LRTP adopted on December 10, 2014 identifies the construction of express

lanes on I-275 from 118th Avenue North to north of 4th Street North as cost affordable in FY 2020-2025. As an SIS facility and part of the regional roadway network, lane continuity improvements on I-275 from 54th Avenue South to south of Gandy Boulevard is included as a future priority project in the TBARTA Master Plan adopted on June 12, 2015.

3.4 Modal Relationships

Existing transit service in Pinellas County within the project limits is operated by PSTA. There are 20 bus transit routes located within a 500-foot buffer of the I-275 project limits. Future transit service within and/or adjacent to the project limits is planned according to the Pinellas County MPO's 2040 LRTP, the PSTA Transit Development Plan (FY 2015 - FY 2024), and the Pinellas County AA. In addition to these plans, the FDOT is presently evaluating potential premium express bus service operating within proposed toll interstate express lanes as part of the TBX Master Plan. Moreover, the FDOT, in coordination with PSTA, initiated a feasibility study to evaluate operating buses on existing I-275 shoulders between downtown St. Petersburg and 4th Street North.

The Pinellas County MPO’s Goods Movement Study identified I-275, I-175 and I-375 as regional freight mobility corridors and indicates that it is essential to maintain adequate capacity and efficient operations within these corridors. I-275 is part of the highway network that provides access to regional intermodal facilities/freight activity centers such as the Dome Industrial Center, South Central CSXT Corridor, Saint Petersburg Seaport, Port Tampa Bay, Gateway Triangle, Tampa International Airport and Saint Petersburg-Clearwater International Airport. Improvements to I-275 within the project limits will enhance access to activity centers in the area, and movement of goods and freight in the greater Tampa Bay region.

4 Existing Conditions

4.1 Existing Roadway Characteristics

4.1.1 Roadway Classification and Access Management

I-275 is functionally classified as an urban interstate from south of 54th Avenue South to north of 4th Street North in Pinellas County. The Interstate System is a subset of the National Highway System. I-275 is also included in the SIS, as mentioned in **Section 3.1**. The project corridor is also designated as an emergency evacuation route for portions of Pinellas County. The access management classification is Class 1, which consists exclusively of limited access facilities.

4.1.2 Typical Sections

I-275 is a limited access freeway facility that runs in a north and south direction through Pinellas County. The posted speed limit is 65 miles per hour (mph). Within the project limits, I-275 is comprised of a four-lane divided typical section with auxiliary lanes from south of 54th Avenue South to I-175. From I-175 to north of 4th Street North, I-275 is comprised of a six-lane divided typical section with auxiliary lanes.

The existing roadway typical sections, as shown on **Figure 4-1(a-f)**, are described as follows:

- Segment A (from south of 54th Avenue South to I-175): consists of four 12-foot general purpose travel lanes, zero to two 12-foot auxiliary travel lanes, 12-foot inside and outside shoulders (10-foot paved) and generally open drainage with a median width that varies from 64 to 212 feet;
- Segment B (from I-175 to south of Gandy Boulevard): consists of six 12-foot general purpose travel lanes, zero to four 12-foot auxiliary travel lanes, 12-foot inside and outside shoulders (10-foot paved) and generally open drainage with a median width that varies from 64 to 204 feet; and
- Segment C (from south of Gandy Boulevard to north of 4th Street North): There are four separate typical sections within Segment C (labeled separately as C1-C4).
    - C-1 (from south of Gandy Boulevard to Roosevelt Boulevard) consists of six 12-foot general purpose travel lanes, zero to four 12-foot auxiliary travel lanes, 12-foot inside and outside shoulders (10-foot paved) and generally open drainage with a median width that varies from 64 to 204 feet;
    - C-2 (from Roosevelt Boulevard to south of 9th Street North): consists of six 12-foot general purpose travel lanes, zero to four 12-foot auxiliary travel lanes, 12-foot inside and outside shoulders (10-foot paved) and generally open drainage with a median width of 40 feet;
    - C-3 (from south of 9th Street North to north of 4th Street North): consists of six 12-foot general purpose travel lanes, two to four 12-foot auxiliary travel lanes, 12-foot inside and outside shoulders (10-foot paved) with a 26-foot wide median with a two-foot concrete traffic barrier used to separate northbound and southbound traffic on I-275;
    - C-4 (from north of 4th Street North to 1.0 mile south of the Howard Frankland Bridge): the I-275 causeway consists of six 12-foot general purpose travel lanes, two 12-foot auxiliary

lanes, 10-foot paved inside and outside shoulders, and a 22-foot median. The face of the outside barrier mounted on the sea walls is approximately 40 feet from the travel lanes.

Figure 4-1. Existing Typical Sections

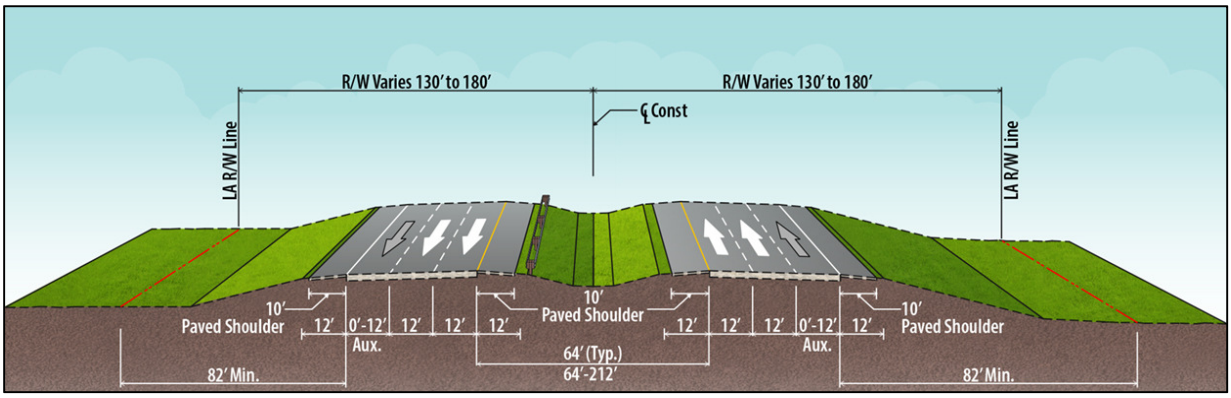


Figure 4-1a. Existing I-275 Mainline Typical Section from 54th Avenue South to I-175 (Segment A)

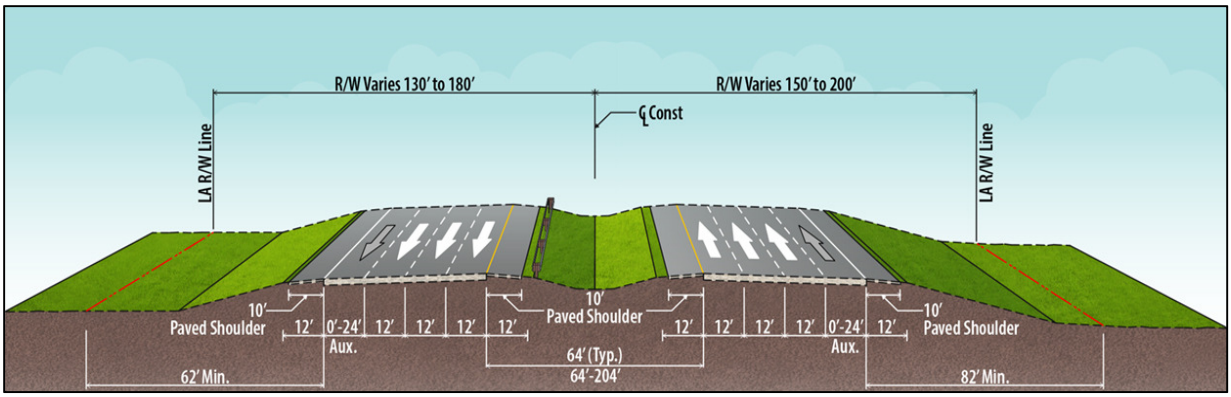


Figure 4-1b. Existing I-275 Mainline Typical Section from I-175 to south of Gandy Boulevard (Segment B)

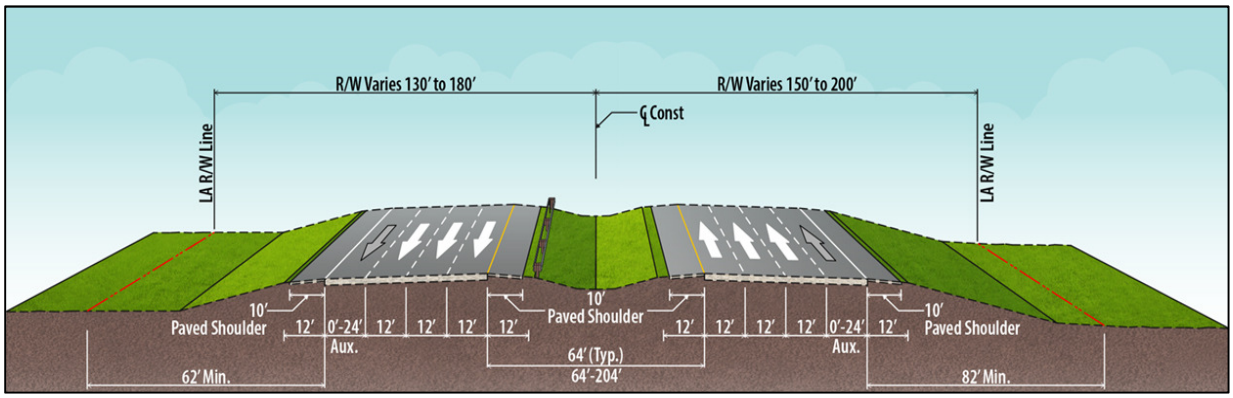


Figure 4-1c. Existing I-275 Mainline Typical Section from south of Gandy Boulevard to Roosevelt Boulevard (Segment C-1)

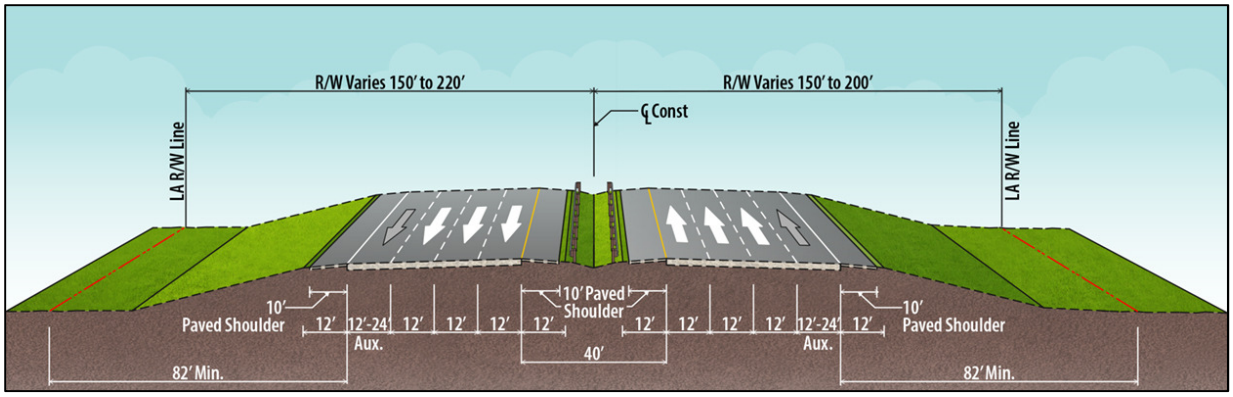


Figure 4-1d. Existing I-275 Mainline Typical Section from Roosevelt Boulevard to south of 9th Street North (Segment C-2)

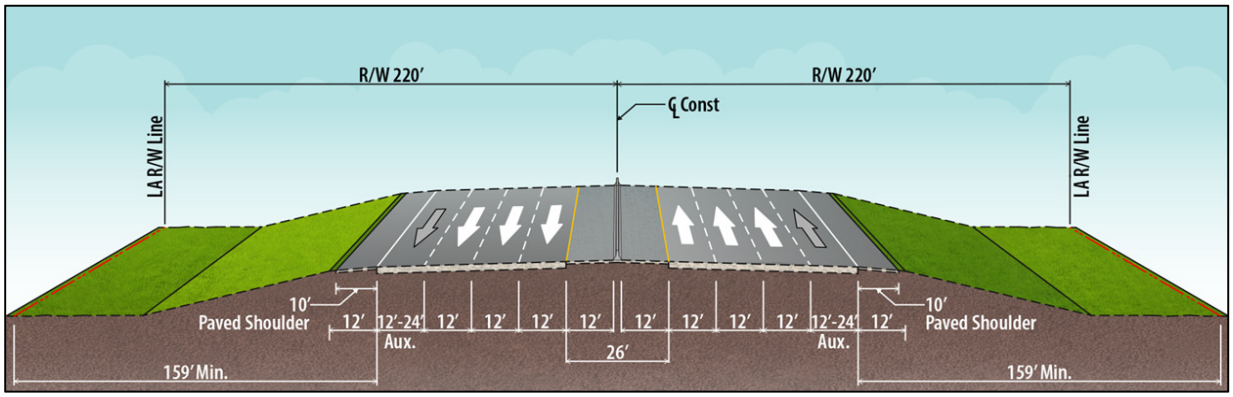


Figure 4-1e. Existing I-275 Mainline Typical Section from south of 9th Street North to south of 4th Street North (Segment C-3)

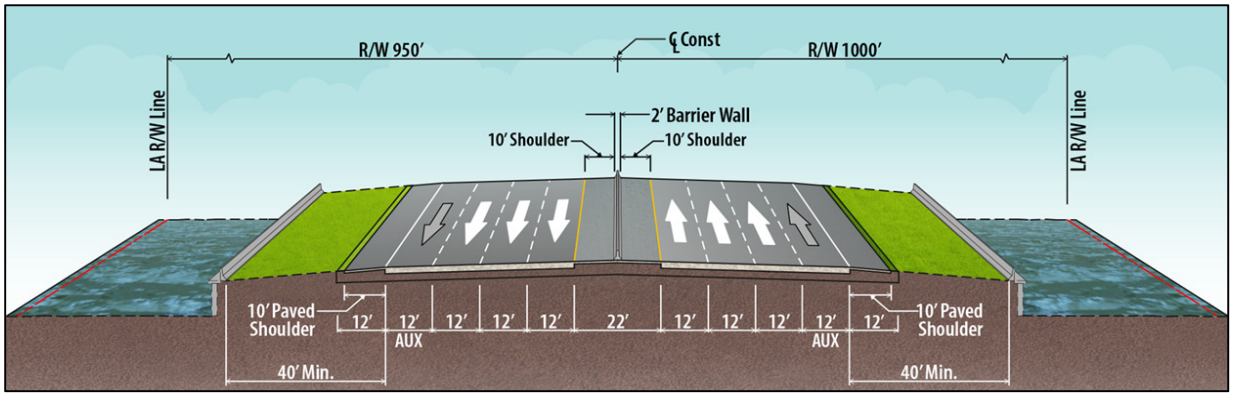


Figure 4-1f. Existing I-275 Mainline Typical Section from south of 4th Street North to 1.0 mile south of Howard Frankland Bridge (Segment C-4)

4.1.3 Pedestrian and Bicycle Facilities

There are no provisions for pedestrians or bicyclists on the project portion of I-275 or its roadway approaches. Both user groups are prohibited by state law (Florida Statutes 316.091) to use this limited-access Interstate highway. Any enhancements proposed for the I-275 ramp terminal intersections will accommodate pedestrians and bicyclists.

4.1.4 Right of Way

Existing right of way in the vicinity of the project limits of I-275 varies from 280 ft to 440 ft in width. The widening of I-275, under both lane continuity and Starter and Master Plan express lane mainline alternatives, can be constructed within the existing right of way. Additional right of way is likely to be required, however, for selected stormwater management facilities.

4.1.5 Horizontal Alignment

There are a total of 42 horizontal curves within the study limits, as shown in **Table 4-1**. Sixteen of these curves do not meet the required minimum curve length as described in the FDOT *Plans Preparation Manual* (PPM) Volume 1, Table 2.8.2a. The minimum curve length is dictated by 15 times the design speed, which varies along the corridor from 50 mph to 70 mph. Five of these curves are in sections with a design speed of 70 mph; the other 11 curves are in sections with 50 mph design speeds. Twelve curves had incomplete data on the radius, length, and deflection angles. The horizontal curves that do not meet the minimum curve length as described in the PPM may be reviewed during the design phase, but reconstruction may be cost prohibitive and therefore not feasible.

4.1.6 Vertical Alignment

Within the project limits, I-275 contains 78 vertical curves. The original design speed of the project corridor fluctuates between 50 mph and 70 mph. **Table 4-2** presents the minimum K standards per the FDOT PPM Volume 1, Tables 2.8.5 and 2.8.6 (January 2014) for design speeds of 70 mph, 55 mph, and 50 mph. Twenty-two of the curves do not meet current PPM standards for minimum K values. Out of the 78 vertical curves, 48 do not meet the current PPM standards for minimum length of curve. FDOT requires a minimum vertical curve length of 1800 ft for crest vertical curves within an interchange, and 1000 ft for crest vertical curves not within an interchange. FDOT requires a minimum vertical curve length of 800 ft for sag vertical curves regardless of location and design speed. The vertical curves that do not meet the minimum curve length as described in the PPM may be reviewed during the design phase, but reconstruction may be cost prohibitive and therefore not feasible.

Table 4-1. Summary of Existing Horizontal Alignment

Horizontal Curve Stationing			Design Speed	Radius	DELTA (Deflection Angle)	DELTA (RT or LT)	Degree of Curve	Tangent Length	Length	Min Length Per PPM*	Is PPM Min Length Met
P.C.	P.I.	P.T.									
NB											
105+62.38	108+88.51	112+10.33	50	2303.86	16° 06' 51.00"	LT	2° 29' 13.00"	326.13	647.95	750	No
121+73.84	126+08.26	130+40.08	50	4583.66	10° 49' 41.00"	RT	1° 15' 00.00"	434.42	866.24	750	Yes
195+90.01	198+95.90	201+97.05	50	1990.00	17° 28' 40.00	RT	2° 52' 45.00"	305.89	607.04	750	No
201+97.05	205+11.98	208+23.25	50	2370.88	15° 07' 59.00"	RT	2° 25' 00.00"	314.93	626.20	750	No
208+23.25	209+95.74	211+66.60	50	1436.39	13° 41' 45.00"	RT	3° 59' 20.00"	172.50	343.35	750	No
218+89.62	220+88.44	222+87.11	50	5729.43	3° 58' 30.00"	LT	1° 00' 00.00"	198.82	397.48	750	No
256+26.04	257+66.70	259+06.87	50	1941.67	8° 17' 13.00"	LT	2° 57' 03.00"	140.66	280.83	750	No
271+83.82	277+11.99	281+95.86	50							750	No
289+74.05	291+44.15	293+14.04	50	3819.73	5° 05' 59.00"	RT	1° 30' 00.00"	170.11	339.99	750	No
297+62.23	303+00.65	308+32.02	50	3819.73	16° 02' 48.00"	LT	1° 30' 00.00"	538.42	1069.79	750	Yes
321+73.43	325+40.67	329+07.80	50	17188.78	2° 26' 52.00"	LT	0° 20' 00.00"	367.24	734.37	750	No
SB											
91+42.73	98+26.11	104+55.27	50	1909.86	39° 22' 34.00"	LT	3° 00' 00.00"	683.38	1312.54	750	Yes
107+87.36	116+71.41	125+34.02	50	4583.66	21° 50' 00.00"	RT	1° 15' 00.00"	884.06	1746.67	750	Yes
301+34.02	306+70.92	311+61.39	50	1432.39			4° 00' 00.04"		1027.37	750	Yes
320+72.77	320+90.17	321+07.57	50	2291.83	10° 44' 51.00"		2° 30' 00.00"	215.58	29.39	750	No
258+93.28	261+35.29	263+74.55	50	1841.87	14° 58' 16.00"	LT	3° 06' 39.00"	242.01	481.27	750	No
276+97.87	279+91.41	282+76.93	50							750	No
280+74.83	283+68.37	286+53.89	50							750	No
297+55.78	300+69.85	303+81.42	50							750	No
313+46.83	314+55.10	315+63.27	50							750	No
322+36.98	325+82.72	329+26.58	50	3819.73	10° 20' 38.00"	LT	1° 30' 00.00"	345.74	689.60	750	No
Centerline											
149+42.50	160+04.41	170+42.50	50	5729.58	21° 00' 00.00"	LT	1° 00' 00.00"	1061.91	2100.00	750	Yes
182+67.20	188+09.09	193+47.76	50	5729.58	10° 48' 20.00"	RT	1° 00' 00.00"	541.88	1080.56	750	Yes
229+07.57	233+79.11	238+32.16	50	1909.86	39° 44' 5.00"		3° 00' 00.00"		924.49	750	Yes
249+12.19	254+04.17	258+75.21	50	1909.86	34° 43' 45.00"		3° 00' 00.00"		957.64	750	Yes
341+20.16	343+06.98	344+92.20	70							1050	No
357+72.20	358+16.64	358+61.06	70							1050	No
377+05.53	377+97.85	378+90.03	70							1050	No
396+92.89	397+86.36	398+79.67	70							1050	No
426+93.48	428+02.43	429+11.22	70							1050	No
448+28.19	450+09.78	451+90.87	70							1050	No
484+84.17	485+71.08	486+57.87	70							1050	No
325+13.25	333+44.93	341+08.87	70	2291.83	39° 53' 26.00"	RT	2° 30' 00.00"	831.68	1595.62	1050	Yes
356+27.76	367+00.74	377+49.15	70	5729.58	21° 12' 50.00"	LT	1° 00' 00.00"	1072.98	2121.39	1050	Yes
488+92.51	496+06.95	502+59.83	70	1909.86	41° 01' 10.00"	RT	3° 00' 00.00"	714.44	1367.32	1050	Yes

Table 4-1. (Continued) Summary of Existing Horizontal Alignment

Horizontal Curve Stationing			Design Speed	Radius	DELTA (Deflection Angle)	DELTA (RT or LT)	Degree of Curve	Tangent Length	Length	Min Length Per PPM*	Is PPM Min Length Met
P.C.	P.I.	P.T.									
545+03.81	548+66.87	552+29.87	70	22918.30	1° 48' 55.00"	LT	0° 15' 00.00"	363.06	726.06	1050	No
552+29.87	555+92.93	559+55.93	70	22918.30	1° 48' 55.00"	RT	0° 15' 00.00"	363.06	726.06	1050	No
572+68.55	575+89.72	579+10.85	70	22918.39	1° 36' 21.00"	RT	0° 15' 00.00"	321.17	642.31	1050	No
579+10.85	582+32.03	585+53.16	70	22918.39	1° 36' 21.00"	LT	0° 15' 00.00"	321.17	642.31	1050	No
629+86.42	633+26.80	636+67.13	70	22918.31	1° 42' 06.00"	RT	0° 15' 00.00"	340.38	680.71	1050	No
640+00.00	651+31.85	662+61.83	70	22679.88	5° 42' 50.00"	RT	0° 15' 09.00"	1131.85	2261.83	1050	Yes
662+72.00	674+92.73	687+11.06	70	22499.94	6° 12' 40.00"	RT	0° 15' 17.00"	1220.73	2439.06	1050	Yes

Table 4-2. Summary of Existing Vertical Alignment

Vertical Curve Stationing			Crest or Sag	Design Speed	Vertical Curve Length (ft)	Grade		K Value	50 MPH Design Criteria		55 MPH Design Criteria		70 MPH Design Criteria		Min. Length per PPM	Is PPM Min Length Met?
PVC	PVI	PVT				In	Out		Min. K per PPM	Is PPM Min Std K Met?	Min. K per PPM	Is PPM Min Std K Met?	Min. K per PPM	Is PPM Min Std K Met?		
NB																
75+00.00	79+50.00	84+00.00	S	50	900	-3.0000	2.2650	171	115	Yes					800	Yes
93+00.00	99+00.00	105+00.00	C	50	1200	2.2650	-1.5011	319	185	Yes					1000	Yes
118+00.00	121+00.00	124+00.00	S	50	600	-1.5011	0.6535	278	115	Yes					800	No
132+75.00	135+75.00	138+75.00	S	50	600	0.6535	2.0000	446	115	Yes					800	No
141+50.00	146+50.00	151+50.00	C	50	1000	2.0000	-2.0000	250	185	Yes					1000	Yes
207+05.00	208+45.00	210+85.00	S	50	280	0.2310	3.2752	92	115	No					800	No
211+00.00	213+50.00	216+00.00	C	50	500	3.2752	0.3000	168	185	No					1000	No
261+00.00	263+50.00	266+00.00	S	50	500	-0.4700	2.2801	182	115	Yes					800	No
265+50.00	267+50.00	269+50.00	C	50	400	2.2801	-0.2000	161	185	No					1000	No
286+60.00	289+10.00	291+60.00	S	50	500	-1.0000	-0.6000	1250	115	Yes					800	No
302+50.00	306+50.00	310+50.00	S	50	800	-0.6000	0.5700	684	115	Yes					800	Yes
313+50.00	316+50.00	319+50.00	C	50	600	0.5700	-0.6800	480	185	Yes					1800	No
323+50.00	325+50.00	327+50.00	C	50	400	-0.6800	-0.4000	1429	185	Yes					1000	No
409+77.50	413+77.50	417+77.50	S	70	800	-2.0000	2.0000	200					206	No	800	Yes
420+00.00	426+25.00	432+50.00	C	70	1250	2.0000	-3.0000	250					506	No	1000	Yes
434+55.00	437+05.00	439+55.00	S	55	500	-3.0000	0.2081	156			136	Yes			800	No
447+29.25	448+79.25	449+78.21	C	55	300	0.2081	-0.2000	735			245	Yes			1000	No
478+00.00	483+00.00	488+00.00	S	70	1000	-0.0270	0.2420	3717					206	Yes	800	Yes
488+00.00	493+00.00	498+00.00	C	70	1000	0.2420	-0.1000	2924					506	Yes	1000	Yes
558+31.83	563+31.83	568+31.83	S	70	1000	-0.1460	-0.0856	16556					206	Yes	800	Yes
568+31.83	573+31.83	578+31.83	S	70	1000	-0.0856	0.2000	3501					206	Yes	800	Yes
SB																
79+50.00	85+50.00	91+50.00	C	50	1200	1.8207	-2.7097	265	185	Yes					1800	No
98+00.00	101+00.00	104+00.00	S	50	600	-2.7097	0.0000	221	115	Yes					800	No
107+00.00	110+00.00	113+00.00	S	50	600	0.0000	1.2660	474	115	Yes					800	No
114+00.00	118+00.00	122+00.00	C	50	800	1.2660	0.2000	750	185	Yes					1000	No
132+75.00	135+75.00	138+75.00	S	50	600	0.2000	2.0000	333	115	Yes					800	No
141+50.00	146+50.00	151+50.00	C	50	1000	2.0000	-2.0000	250	185	Yes					1000	Yes
269+40.00	295+40.00	296+40.00	S	50	200	-0.5200	0.5364	189	115	Yes					800	No
298+90.00	300+90.00	302+90.00	S	50	400	0.5364	3.0000	162	115	Yes					800	No
266+00.00	268+00.00	270+00.000	S	50	400	-1.2136	0.7000	209	115	Yes					800	No
285+50.00	288+00.00	290+50.00	C	50	500	0.3750	-0.6000	513	185	Yes					1000	No
309+00.00	311+00.00	313+00.00	S	50	400	-0.6000	1.0000	250	115	Yes					800	No
319+90.06	324+00.00	328+10.00	C	50	820	1.0000	-2.1570	260	185	Yes					1800	No
328+10.00	329+35.00	330+60.00	S	50	250	-2.1570	-0.4000	142	115	Yes					800	No
410+10.00	415+10.00	420+10.00	S	70	1000	-2.0000	2.0000	250					206	Yes	800	Yes

Table 4-2. (Continued) Summary of Existing Vertical Alignment

Vertical Curve Stationing			Crest or Sag	Design Speed	Vertical Curve Length (ft)	Grade		K Value	50 MPH Design Criteria		55 MPH Design Criteria		70 MPH Design Criteria		Min. Length per PPM	Is PPM Min Length Met?
PVC	PVI	PVT				In	Out		Min. K per PPM	Is PPM Min Std K Met?	Min. K per PPM	Is PPM Min Std K Met?	Min. K per PPM	Is PPM Min Std K Met?		
421+35.00	427+60.00	433+96.16	C	70	1250	2.0000	-3.0000	250					506	No	1000	Yes
435+10.00	437+60.00	440+10.00	S	55	500	-3.0000	0.2274	155			136	Yes			800	No
446+50.00	448+00.00	449+50.00	C	55	300	0.2274	-0.2000	702			245	Yes			1000	No
479+75.00	483+00.00	486+25.00	S	70	650	-0.0270	0.5400	1146					206	Yes	800	No
488+00.00	491+50.00	495+00.00	C	70	700	0.5400	-0.0630	1161					506	Yes	1000	No
498+00.00	501+50.00	505+00.00	C	70	700	-0.0630	-0.4980	1609					506	Yes	1800	No
505+00.00	507+50.00	510+00.00	S	70	500	-0.4980	-0.1000	1256					206	Yes	800	No
558+31.83	563+31.83	568+31.83	S	70	1000	-0.1460	0.0817	4392					206	Yes	800	Yes
568+31.83	573+31.83	578+31.83	S	70	1000	0.0817	0.0878	163934					206	Yes	800	Yes
Centerline																
153+00.00	155+50.00	158+00.00	S	50	500	-2.0000	-0.2358	283	115	Yes					800	No
162+50.00	165+00.00	167+50.00	C	50	500	-0.2358	-0.9300	720	185	Yes					1000	No
175+00.00	178+00.00	181+00.00	S	50	600	-0.9300	3.0000	153	115	Yes					800	No
183+00.00	186+00.00	189+00.00	C	50	600	3.0000	0.8286	276	185	Yes					1000	No
197+50.00	200+00.00	202+50.00	S	50	500	0.8286	1.1500	1556	115	Yes					800	No
210+00.00	213+00.00	216+50.00	C	50	650	1.1500	-1.0000	302	185	Yes					1000	No
228+25.00	232+37.50	236+50.00	C	50	825	0.3000	-3.0000	250	185	Yes					1000	No
236+50.00	240+00.00	243+50.00	S	50	700	-3.0000	1.5000	156	115	Yes					800	No
253+00.00	257+00.00	261+00.00	C	50	800	1.5000	-1.2136	295	185	Yes					1000	No
276+00.00	278+00.00	280+00.00	C	50	400	0.7000	0.3750	1231	185	Yes					1000	No
338+26.48	341+13.24	344+00.00	S	70	573.52	-0.4000	3.0000	169					206	No	800	No
344+00.00	350+25.00	356+50.00	C	70	1250	3.0000	-1.9961	250					506	No	1000	Yes
359+20.00	363+20.00	367+20.00	S	70	800	-1.9961	2.0000	200					206	No	800	Yes
367+20.00	372+20.00	377+20.00	C	70	1000	2.0000	-2.0000	250					506	No	1000	Yes
380+60.00	386+45.00	392+30.00	S	70	1170	-2.0000	3.0000	234					206	Yes	800	Yes
392+30.00	398+55.00	404+80.00	C	70	1250	3.0000	-2.0000	250					506	No	1000	Yes
454+00.00	456+50.00	459+00.00	S	70	500	-0.2000	3.0000	156					206	No	800	No
460+25.00	466+25.00	472+25.00	C	70	1200	3.0000	-4.0000	171					506	No	1000	Yes
476+50.00	479+00.00	481+50.00	S	70	500	-4.0000	-0.2000	132					206	No	800	No
494+54.23	497+54.23	500+54.23	S	70	600	-0.2000	2.3491	235					206	Yes	800	No
326+00.00	334+00.00	342+00.00	C	70	1600	2.3491	-3.0000	299					506	No	1000	Yes
342+25.00	344+75.00	347+25.00	S	70	500	-3.0000	-0.1000	172					206	No	800	No
356+00.00	361+00.00	366+00.00	C	70	1000	-0.1000	-0.4400	2941					506	Yes	1000	Yes
370+00.00	375+00.00	380+00.00	S	70	1000	-0.4400	0.0000	2273					206	Yes	800	Yes
407+71.78	410+27.78	412+71.78	S	70	500	0.0000	3.0000	167					206	No	800	No
413+17.45	421+17.45	429.17.45	C	70	1600	3.0000	-3.0000	267					506	No	1000	Yes
429+24.00	431+64.00	434+04.00	S	70	480	-3.0000	-0.0270	161					206	No	800	No

Table 4-2. (Continued) Summary of Existing Vertical Alignment

Vertical Curve Stationing			Crest or Sag	Design Speed	Verical Curve Length (ft)	Grade		K Value	50 MPH Design Criteria		55 MPH Design Criteria		70 MPH Design Criteria		Min. Length per PPM	Is PPM Min Length Met?
PVC	PVI	PVT				In	Out		Min. K per PPM	Is PPM Min Std K Met?	Min. K per PPM	Is PPM Min Std K Met?	Min. K per PPM	Is PPM Min Std K Met?		
505+11.00	512+61.00	515+11.00	S	70	500	-0.1000	2.7500	175					206	No	800	No
515+54.79	523+04.79	530+54.79	C	70	1500	2.7500	-2.7500	273					506	No	1000	Yes
532+34.79	534+84.79	537+34.79	S	70	500	-2.7500	0.0000	182					206	No	800	No
543+00.00	548+00.00	553+00.00	C	70	1000	0.0000	-0.1460	6849					506	Yes	1000	Yes
580+86.18	585+86.18	588+86.18	S	70	800	0.0000	1.6850	475					206	Yes	800	Yes
589+06.48	598+50.24	607+94.00	C	70	1887.52	1.6850	-0.8560	743					506	Yes	1000	Yes
614+00.00	618+00.00	622+00.00	S	70	800	-1.0560	-0.3470	1128					206	Yes	800	Yes

4.1.7 Existing Land Use

The current land uses along the I-275 study corridor are highly variable, with land uses consisting of residential, commercial, industrial, public/semi-public, recreational/open, vacant and conservation/preservation. From south of 54th Avenue South to 22nd Avenue North all of the above mentioned land uses are represented. From 22nd Avenue North to Gandy Boulevard the majority of the land use is residential with some commercial and recreational/open space. From Gandy Boulevard to Roosevelt Boulevard the land use is primarily industrial, vacant (closed landfill) and public/semi-public land (active landfill). From Roosevelt Boulevard to north of 4th Street North land use is primarily conservation/preservation lands. A graphical depiction of the existing land uses can be found on **Figure 4-2**.

4.1.8 Drainage and Flood Plains

There are no areas within the project limits of I-275 which would allow sufficient space for ponds. The project corridor is primarily positioned within the AE and X Flood Zones according to GIS data developed by the Federal Emergency Management Agency (FEMA) (**Figure 4-3**). Zone AE is defined as "Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods." Zone X is defined as "Areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood." X zones are minimal-risk areas where flood insurance is not mandatory. Zone VE is defined as "Areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves." These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones. The following information is from the Final Location Hydraulics Memorandum (LHM) prepared for this PD&E study, to document that the floodplain encroachment will be minimal. Information related to involvement by the proposed improvement can be found in **Section 8.15.2**.

- History of Flooding: Abu Nazmurreza, the FDOT Assistant Maintenance Engineer for Pinellas County was contacted to determine the history of flooding problems in the project area. At his direction, Matt Kuecker of Infrastructure Corporation of America (Project Manager for the I-275 Pinellas Maintenance Contract) was contacted, and he identified areas of flooding within the project limits. None of the flooding issues identified were in the areas of Base flood elevation (BFE).
- Emergency Services and Evacuations: The existing roadway is elevated above the 100-year floodplain along the entire project corridor. Therefore, the roadway will continue to provide flood-free access and will not adversely impact the operation of emergency services and evacuation routes.
- Regulatory Floodway: There are no regulatory floodways within the limits of this project.
- Floodplain/FIRM: The Project Floodplains Map and FEMA Flood Insurance Rate Maps (FIRM) are included in Appendixes C and D of the LHM, respectively and Floodplain Impact Maps and Calculations are included in Appendix H. The project is located within FIRM 12103C0143G, 12103C0144G, 12103C0206H, 12103C0208H, 12103C0216H, 12103C0218H, 12103C0281H, and 12103C0283H for Pinellas County. The project is located in Zone A, Zone AE (a special flood hazard area inundated by 100-year flooding where the base flood elevation has been determined to be 9-ft North American Vertical Datum (NAVD) of 1988), Zone VE (a special flood hazard area inundated by 100-year flooding with velocity hazard and where the base flood

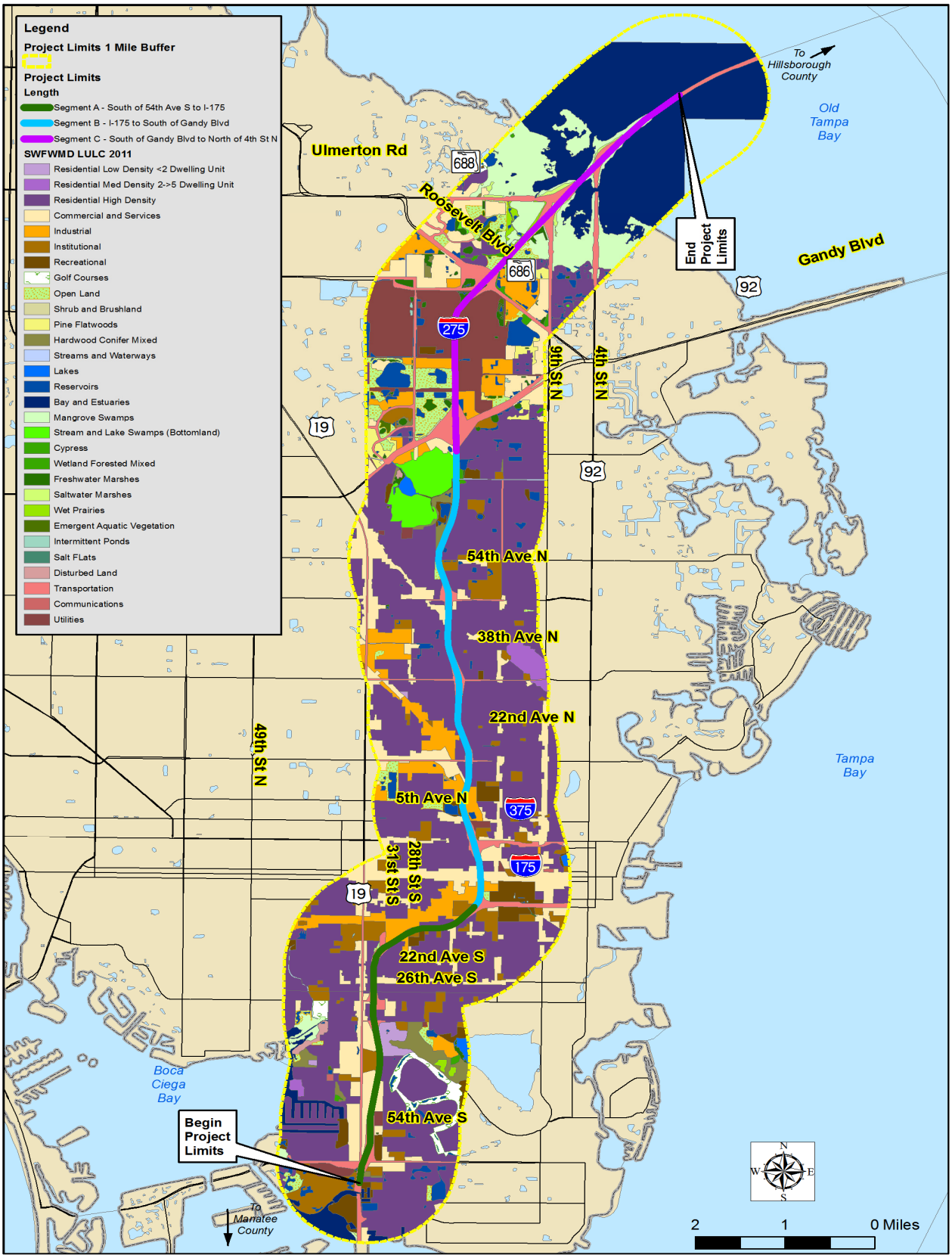


Figure 4-2. Existing Land Uses

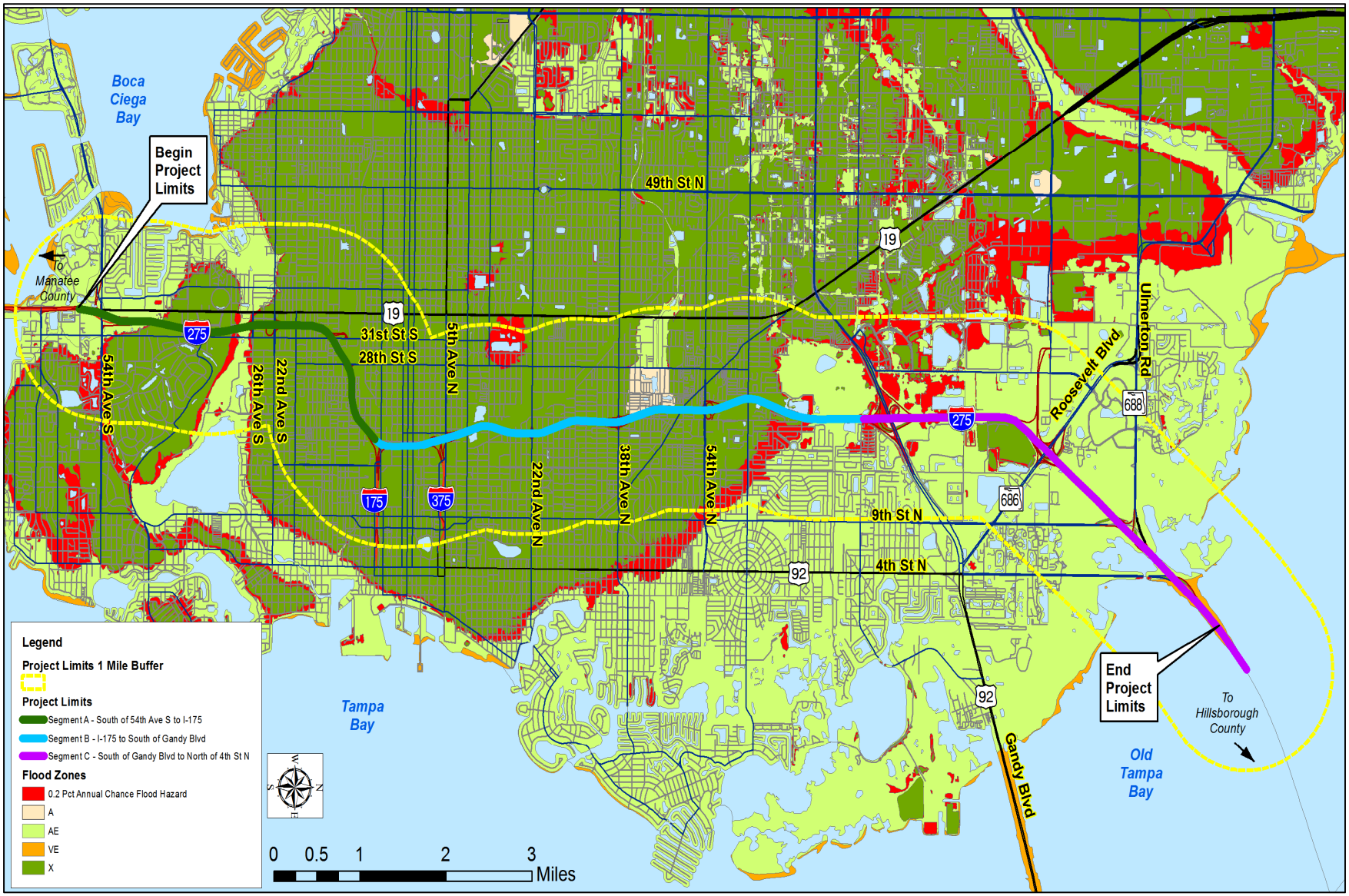


Figure 4-3. Floodplains

elevation has been determined to be 9-ft NAVD of 1988), Zone X (shaded) and Zone X (unshaded). Therefore, there will be floodplain involvement with the Preferred Build Alternative.

4.1.9 Geotechnical Data

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) "Soil Survey of Pinellas County, Florida" issued in September 1972 and the Web Soil Survey were reviewed for general climate and near surface soil information. The USDA classifications are based on an interpretation of aerial photographs and widely-spaced hand auger borings. Borders between mapping units are approximate and the transition between soil types may be very gradual. Areas of dissimilar soils can occur within a mapped unit.

According to the Soil Survey, the mean annual rainfall for the county is approximately 55 inches with 60 percent falling in the summer months, June through September. The climate of the area is generally subtropical with an annual average temperature of about 73 degrees. The general soil units can be described as:

- The Astatula-Adamsville soils are nearly level and gently sloping deep sandy soils on broad low ridges that occur throughout the county.
- The Myakka-Immokalee-Pomello soils are nearly level and gently sloping, poorly drained and moderately well drained sandy soil that have layer weakly cemented with organic matter at depth of 40 inches or less.
- The Urban Land component of the soils consists of areas where most of the soil surface is covered with impervious materials, such as buildings and paved areas. This land type consists of areas where the original soil has been modified through cutting, grading, filling, and shaping or has been generally altered for urban development.

The Soil Survey indicates that there are seventeen (17) soil-mapping units along the project corridor. Their general engineering properties are summarized in **Table 4-3** and their locations are indicated on the soil map on **Figure 4-4**.

Table 4-3. Summary of USDA Soil Survey

USDA Map Unit and Soil Name	Depth (in)	Soil Classification		Permeability (in/hr)			pH	Seasonal High Water Table		Risk of Corrosion	
		USCS	AASHTO					Depth (feet)	Months	Uncoated Steel	Concrete
(2) Adamsville-Urban Land	0-6	SP-SM	A-2-4, A-3	6.0	-	20.0	4.5-6.0	2.0-3.5	June-Nov	Low	Moderate
	6-17	SP-SM	A-2-4, A-3	6.0	-	20.0	5.1-6.5				
	17-80	SP, SP-SM	A-2-4, A-3	6.0	-	20.0	5.1-6.5				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(3) Anclote	0-16	SP, SP-SM	A-2-4, A-3	6.0	-	20.0	5.6-7.8	0	June-Dec	High	Moderate
	16-80	SM, SP, SP-SM	A-2-4, A-3	6.0	-	20.0	5.6-7.8				
(4) Astatula-Urban land	0-3	SP, SP-SM	A-3	20.0	-	49.9	4.5-6.5	---	Jan-Dec	Low	High
	3-80	SP, SP-SM	A-3	20.0	-	49.9	4.5-6.5				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---

Table 4-3. (Continued) Summary of USDA Soil Survey

USDA Map Unit and Soil Name	Depth (in)	Soil Classification		Permeability (in/hr)			pH	Seasonal High Water Table		Risk of Corrosion	
		USCS	AASHTO					Depth (feet)	Months	Uncoated Steel	Concrete
(6) Basinger-Urban land	0-5	SP	A-3	6.0	-	20.0	3.5-7.3	0.0-1.0	Jan-Feb, June-Dec	High	Moderate
	5-14	SP, SP-SM	A-2-4, A-3	6.0	-	20.0	3.5-7.3				
	14-36	SP, SP-SM	A-2-4, A-3	6.0	-	20.0	3.5-7.3				
	36-80	SP, SP-SM	A-2-4, A-3	6.0	-	20.0	3.5-7.3				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(7) Samsula	0-36	PT	A-8	6.0	-	20.0	4.5-5.5	0.0-1.0	June-Oct	High	High
	36-80	SM, SP, SP-SM	A-2-4, A-3	6.0	-	20.0	3.5-5.5				
(11) Felda-Urban Land	0-3	SP, SP-SM	A-3	6.0	-	20.0	4.5-7.3	0.0-1.0	Jan-Mar, June-Dec	High	Moderate
	3-26	SP, SP-SM	A-3	6.0	-	20.0	4.5-7.3				
	26-34	SC, SC-SM, SM	A-2-4	0.6	-	2.0	6.1-7.8				
	34-38	SC-SM, SM	A-2-4, A-3	6.0	-	20.0	6.1-8.4				
	38-80	SM, SP-SM	A-2-4, A-3	6.0	-	20.0	6.1-8.4				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(12) Felda	0-3	SP, SP-SM	A-3	6.0	-	20.0	4.5-7.3	0.0-1.0	June-Dec	High	High
	3-26	SP, SP-SM	A-3	6.0	-	20.0	4.5-7.3				
	26-34	SC, SC-SM, SM	A-2-4	0.6	-	2.0	6.1-7.8				
	34-38	SC-SM, SM	A-2-4, A-3	6.0	-	20.0	6.1-8.4				
	38-80	SM, SP-SM	A-2-4, A-3	6.0	-	20.0	6.1-8.4				
(13) Immokalee-Urban Land	0-6	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.0	0.5-1.5	June-Nov	High	High
	6-35	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.0				
	35-50	SM, SP-SM	A-2-4, A-3	0.6	-	6.0	3.5-6.0				
	50-80	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.0				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(16) Matlacha- St. Augustine-Urban land	0-42	SP, SP-SM	A-3	2.0	-	6.0	6.1-8.4	2.0-3.0	June-Oct	High	Low
	42-80	SP, SP-SM	A-3	6.0	-	20.0	6.1-8.4				
	0-8	SP, SP-SM	A-3	6.0	-	20.0	6.1-8.4	1.5-3.0	June-Oct	High	High
	8-33	SP-SM	A-2-4	2.0	-	20.0	6.1-8.4				
	33-48	SP, SP-SM	A-3	6.0	-	20.0	6.1-8.4				
	48-63	SM, SP-SM	A-2-4	2.0	-	20.0	6.1-8.4				
	63-80	SP, SP-SM	A-3	6.0	-	20.0	6.1-8.4				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(17) Myakka-Urban Land	0-4	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.5	0.5-1.5	June-Nov	High	High
	4-22	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.5				
	22-36	SM, SP-SM	A-2-4, A-3	0.6	-	6.0	3.5-6.5				
	36-80	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.5				
	---	---	---	0.0	-	0.0	--	---	Jan-Dec	---	---

Table 4-3. (Continued) Summary of USDA Soil Survey

USDA Map Unit and Soil Name	Depth (in)	Soil Classification		Permeability (in/hr)			pH	Seasonal High Water Table		Risk of Corrosion	
		USCS	AASHTO					Depth (feet)	Months	Uncoated Steel	Concrete
(18) Okeechobee	0-26	PT	A-8	6.0	-	20.0	5.6-7.8	0.0-1.0	Jan-Apr, June-Dec	High	Low
	26-80	PT	A-8	6.0	-	20.0	5.6-7.8				
(22) Pineda-Urban Land	0-4	SP, SP-SM	A-3	6.0	-	20.0	4.5-7.3	0.0-1.0	June-Oct	High	Low
	4-37	SP, SP-SM	A-3	6.0	-	20.0	4.5-7.3				
	37-55	SC, SC-SM, SM	A-2-4, A-2-6	0.1	-	0.2	5.1-8.4				
	55-80	SM, SP, SP-SM	A-2-4, A-3	2.0	-	6.0	5.6-8.4				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(23) Pinellas-Urban Land	0-3	SP	A-3	6.0	-	20.0	5.1-7.8	0.5-1.5	June-Oct	HIgh	Low
	3-18	SP	A-3	6.0	-	20.0	5.1-7.8				
	18-35	SP-SM	A-2-4, A-3	6.0	-	20.0	7.4-9.0				
	35-54	SC, SC-SM	A-2-4, A-2-6	0.6	-	2.0	7.4-8.4				
	54-80	SP, SP-SM	A-2-4, A-3	6.0	-	20.0	7.4-8.4				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(24) Pits	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(26) Pomello-Urban Land	0-3	SP, SP-SM	A-3	6.0	-	20.0	4.5-6.0	2.5-3.5	June-Nov	Low	High
	3-44	SP, SP-SM	A-3	6.0	-	20.0	4.5-6.0				
	44-59	SM, SP-SM	A-2-4, A-3	2.0	-	6.0	4.5-6.0				
	59-80	SP, SP-SM	A-3	6.0	-	20.0	4.5-6.0				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(29) Tavares-Urban Land	0-5	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.5	3.5->6.0	June-Dec	Low	High
	5-80	SP, SP-SM	A-3	6.0	-	20.0	3.5-6.5				
	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---
(30) Urban land	---	---	---	0.0	-	0.0	---	---	Jan-Dec	---	---

(1) American Association of State Highway and Transportation Officials (AASHTO) and Unified Soil Classification System (USCS) do not provide classification for weathered/unweathered bedrock.

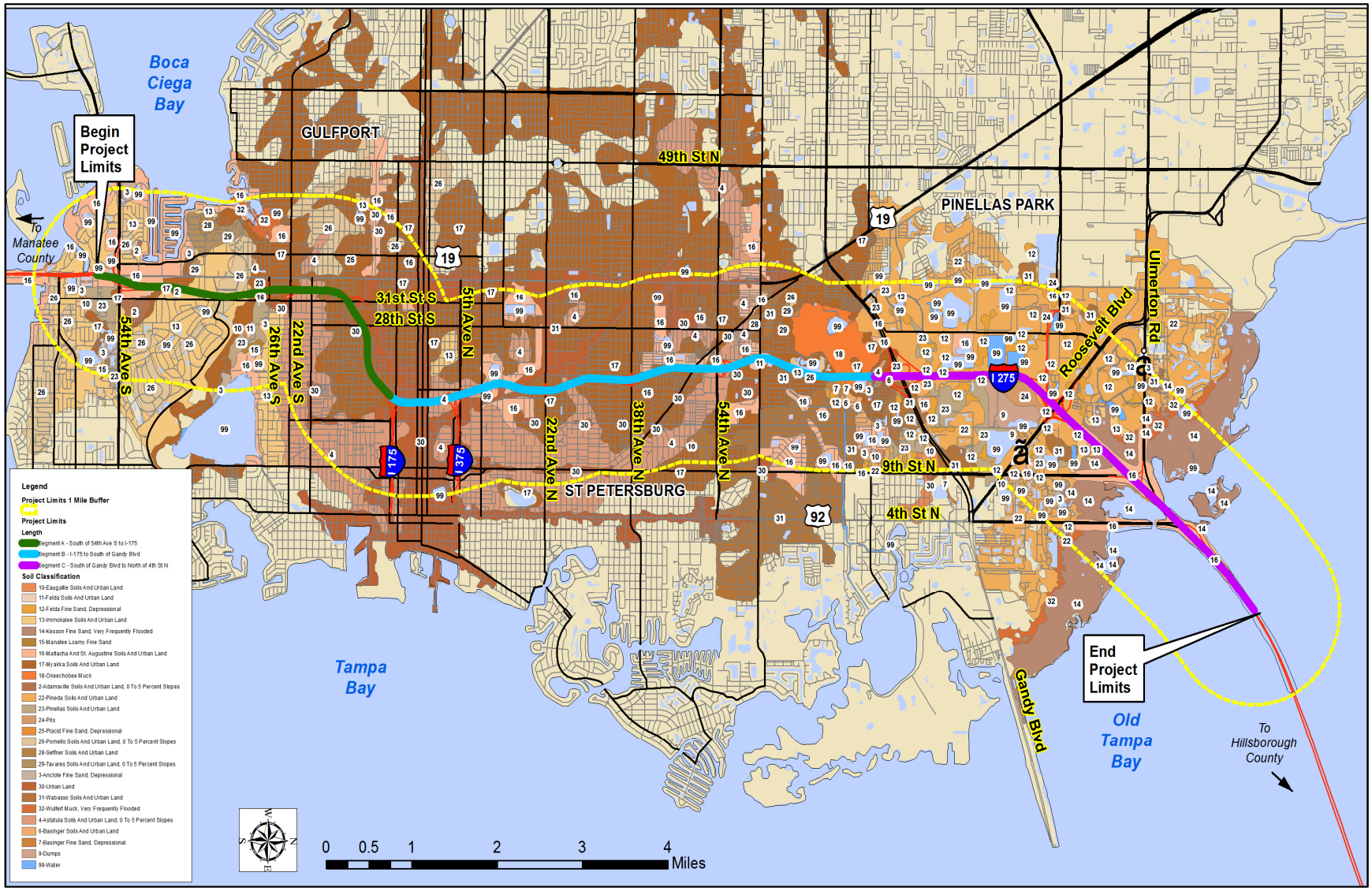


Figure 4-4. Soils Map

4.1.10 Crash Data and Safety Analysis

Crash data within the I-275 project limits for the years 2009 through 2013 were obtained from the FDOT Crash Analysis Reporting System (CARS) database. The data were compiled and analyzed for the project corridor. A total of 2082 crashes were reported during the five-year period, for an average of 416 crashes per year. This translates to 26 crashes per mile per year along the 16.3 mile project corridor. **Figure 4-5** shows the total number of crashes within the project area involving property damage, injury, or fatality. There were 1088 crashes that involved property damage, 976 crashes that involved injury, and 18 crashes that involved a fatality within the project limits for the years 2009 through 2013.

For the purpose of this crash analysis, the corridor has been divided into three segments as described in **Section 1.1**. Segment B had the highest total number of crashes (1149). **Figure 4-6** shows the crash totals and crash percentages by segment.

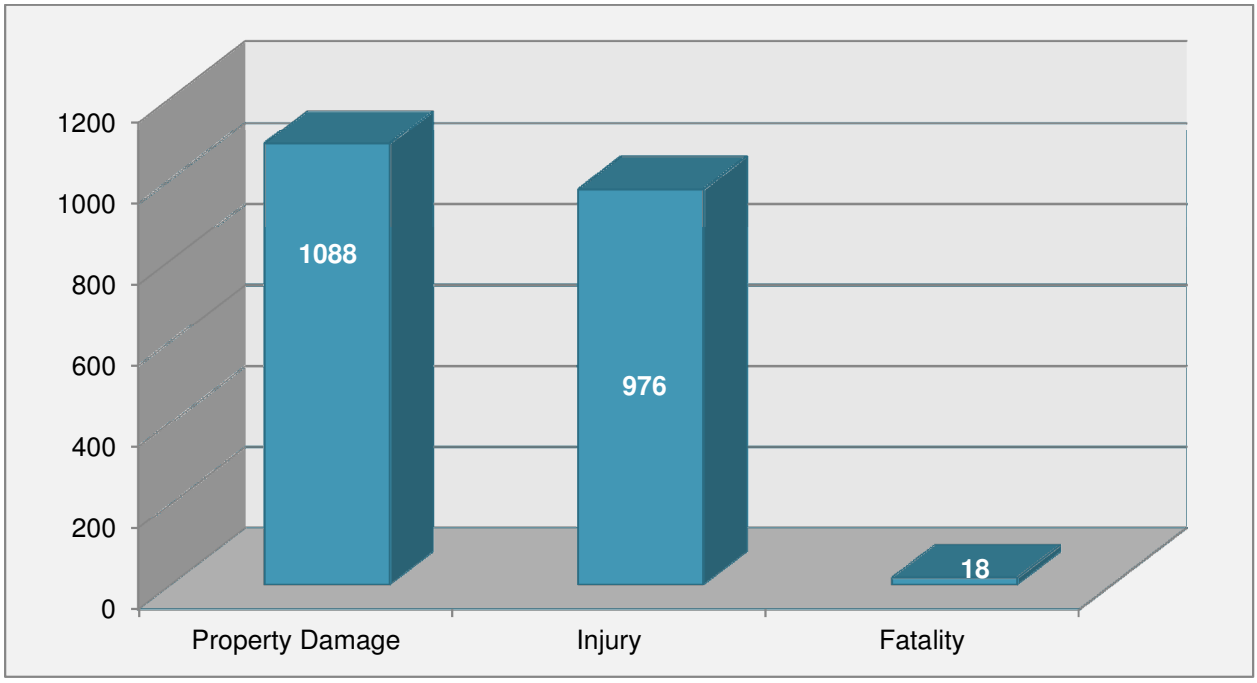


Figure 4-5. Number of Crashes Involving Property Damage, Injury, or Fatality (2009-2013)

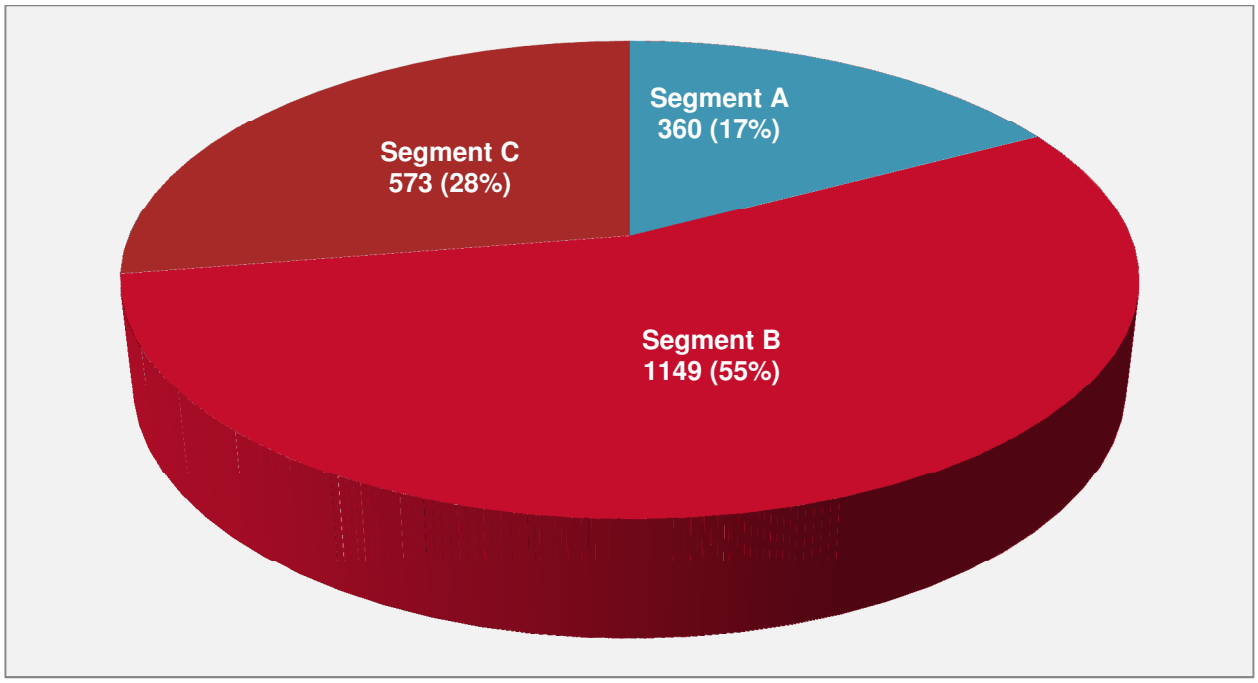


Figure 4-6. Number of Crashes by Segment (2009 – 2013)

The higher crash rates were observed within the following freeway segments and interchanges: Segment A - 22nd Avenue South; Segment B - I-175 to Gandy Boulevard; and Segment C - Roosevelt Boulevard, and from north of 4th Street North to 1.0 mile south of the Howard Frankland Bridge. These segments typically involve a significant number of weaving and lane changing movements as drivers position their vehicles to enter or exit the I-275 mainline. Based on unit costs from the National Safety Council for 2012, the economic loss, or cost to society of these crashes, is estimated to be approximately $112.07 million over the 5 year period, as shown in **Table 4-4.**

Table 4-4. Estimated Economic Loss from Crashes

Crash Type	Estimated 2012 Unit Cost	Estimated Number 2009 thru 2013*	Economic Loss
Fatality	$1,410,000	18	$25,380,000
Nonfatal Disabling Injury	$78,900	976	$77,006,400
Property Damage	$8,900	1088	$9,683,200
Totals			$112,069,600

Note: *Within the project study limits

4.1.11 Intersections/Interchanges

Within the project limits, I-75 currently has interchanges at the following fifteen (15) crossroads (listed from south to north):

- 54th Avenue South;
- 26th Avenue South;
- 22nd Avenue South;

- 31st Street South;
- 28th Street South;
- I-175;
- I-375;
- 5th Avenue North;
- 22nd Avenue North;
- 38th Avenue North;
- 54th Avenue North;
- Gandy Boulevard;
- Roosevelt Boulevard/118th Avenue North;
- Ulmerton Road/9th Street North; and
- 4th Street North.

4.1.12 Lighting

This project segment of I-275 has conventional corridor lighting. High mast lighting is utilized at major interchanges. Luminaires are located on the outside shoulder for both the northbound and southbound directions of travel; poles are typically parallel. Overhead signs have external lighting.

4.1.13 Utilities, ITS and Railroads

Several utilities are located within the study area, as listed, along with contact information in **Table 4-5**. In addition to the utilities listed in the table, there is currently full Intelligent Transportation Systems (ITS) coverage in the project corridor. This includes dynamic message signs (DMS), closed-circuit television (CCTV) and detectors, and related conduit, fiber and power. CCTVs are installed at approximately one-mile intervals, DMS at every interchange and detectors at ½-mile intervals. In addition, "Highway advisory radio (HAR) is to be installed in the next two or more years", according to the ITS Operations Manager for FDOT District Seven. There is one active railroad (CSX Railroad) within the project limits that bisects I-275 north of 5th Street North. At this location, the CSX rail line traverses beneath the I-275 mainline bridge structures.

Table 4-5. Existing Utilities and Contact Information Within the Study Area

Utility Agency/Owner	Address	City	State	Zip Code	Contact Name	Contact Number
Fiberlight	792 S. Military Trail	Deerfield Beach	FL	33442	Chris Pancione	954-596-2559
TWTelecom	3030 N. Rocky Point Dr. Suite 850	Tampa	FL	33607	James McVeigh	813-316-7763
American Traffic Solutions	86 W. Industry Ct.	Deer Park	NY	11729	Kimberly Greis	631-242-4100
AT&T	6304 Benjamin Rd. Suite 501	Tampa	FL	33634	Michael Gamboa	813-888-8300 ext. 202
City of Pinellas Park	6051 78th Ave. N.	Pinellas Park	FL	33781	Scott Pinheiro	727-541-0754
Florida Gas Transmission	2405 Lucien Way Suite 200	Maitland	FL	32751	Joseph Sanchez	407-838-7171

Table 4-5. (Continued) Existing Utilities within the Study Area

Utility Agency/Owner	Address	City	State	Zip Code	Contact Name	Contact Number
Duke Energy Distribution	2501 25th St. N	St. Petersburg	FL	33713	Art Gilmore	727-893-9255
Duke Energy Transmission UC Synergetics	20525 Amberfield Dr. Suite 201	Land O lakes	FL	34638	Jenny Williams	813-909-1210
Duke Energy BA Pipeline	1601 Weedon Island Dr.	St. Petersburg	FL	33702	Andy Dempsey	727-827-6104
FPL Fibernet	9250 W. Flagler St.	Miami	FL	33174	Danny Haskett	305-552-2931
Verizon	1280 Cleveland St. MCFLCW 5034	Clearwater	FL	33755	Raul Rivera	727-562-1130
Wide Open West	3001 Gandy Blvd. N	Pinellas Park	FL	33782	Jay Feeley	727-329-9928
Level 3 Communications Corporate	1025 Eldorado Blvd.	Broomfield	CO	80021	Network Relations	877-366-8344 ext. 4
Level 3 Communications	3923 Coconut Palm Suite 113	Tampa	FL	33619	Bob Priestap	813-382-8753
Verizon Business	1701 Ringling Blvd.	Sarasota	FL	34240	Chuck Czumak	941-906-6703
Crown Castle NG	2000 Corporate Dr.	Canonsburg	PA	15317	Randy Oliver	724-416-2725
Pinellas County Utilities	14 S. Fort Harrison Ave. 6th Floor	Clearwater	FL	33756	Jay Perkins	727-464-3536
Pinellas County Traffic	22211 U.S. 19 N.	Clearwater	FL	33765	Tyson Evatz	727-464-8900
TECO Peoples Gas	1920 9th Ave. N. Bldg. 1	St. Petersburg	FL	33713	Jasmin Grimard	727-423-7140
Bright House Networks	700 Carillon Pkwy. Suite 6	St. Petersburg	FL	33716	Scott Creasy	727-329-2817
City of St. Petersburg Locates	1650 3rd Ave. N	St. Petersburg	FL	33712	Mark Green	727-892-5646
City of St. Petersburg	175 5th St. N	St. Petersburg	FL	33701	Marty Sorrentino	727-893-7495
Tampa Bay Times	490 1st Ave. S.	St. Petersburg	FL	33701	Jimmy Lingo	727-893-8994

4.1.14 Pavement Conditions

A flexible pavement condition survey was conducted by FDOT in 2014 for the project corridor. Each section of pavement is rated for cracking, ride and rutting on a 0-10 scale with 0 the worst and 10 the best. Any rating of 6.4 or less is considered deficient pavement. **Table 4-6** identifies the existing pavement condition ratings for I-275 in the northbound and southbound directions, divided into the three study segments. The surface type is concrete from south of 54th Avenue South to south of 4th Street North, at which point the surface type becomes open asphalt (FC5M) until 1.0 mile south of the Howard Frankland Bridge. The existing pavement is in good condition for all segments, except for Segment A. The southern portion of the project area (roughly from south of 54th Avenue South to I-175) experiences deficient cracking ratings. No ratings for rutting were provided.

Table 4-6. Pavement Condition Survey Results

Segment	Beginning Mile Post	Ending Mile Post	Condition Category	Year 2014 Rating (0-10)
Northbound I-275				
A	0.5	2.287	Cracking	6.3*
			Ride	6.9
	2.287	4.429	Cracking	6.3*
			Ride	6.9
B	5.284	8.867	Cracking	9.3
			Ride	7.4
	8.867	10.961	Cracking	9.3
			Ride	7.4
C	10.961	12.456	Cracking	9.3
			Ride	7.4
	12.456	13.451	Cracking	9.3
			Ride	7.4
	13.451	14.357	Cracking	10.0
			Ride	8.4
	14.357	16.649	Cracking	10.0
			Ride	9.0
Southbound I-275				
C	14.357	16.649	Cracking	10.0
			Ride	8.4
	13.451	14.357	Cracking	10.0
			Ride	8.6
	12.456	13.451	Cracking	8.8
			Ride	7.2
	10.961	12.456	Cracking	8.8
			Ride	7.2
B	8.867	10.961	Cracking	8.8
			Ride	7.2
	5.284	8.867	Cracking	8.8
			Ride	7.2
A	2.287	4.429	Cracking	6.2*
			Ride	6.9
	0.5	2.287	Cracking	6.2*
			Ride	6.9

*Indicates pavement is deficient

4.2 Existing Structures

There are 53 bridges located along I-275 within the project limits. Of these bridges, 45 are I-275 mainline bridges over roadways, water bodies, railroads or pedestrian walkways; 8 bridges are overpasses over I-275. **Table 4-7** provides a comprehensive list of existing data for these bridges including year built, span lengths, and minimum vertical clearance. **Table 4-8** provides information on the horizontal clearance of these bridges.

Table 4-7. Existing Bridge Conditions

Begin Milepost	End Milepost	Location Description (Structures from South to North)	Structure Number	Year Built (Widened/ Deck Replaced)	Structure Type	Skew Angle (deg.)	Structure Length (ft)	Spans	Span Lengths	Beam/Girder/Box Depth	Out to Out Width (ft)	Travel Lane Widths (ft)	Inside Shoulder Width (ft)	Outside Shoulder Width (ft)	Minimum Vertical Clearance (ft)	Structural Ratings Operating (HS20)	Structural Ratings Inventory (HS20)	Sufficiency Rating
0.529	0.772	I-275 SB to SR-679 WB over US-19 SR-679 SR-55	150186	1984	Steel girder	99	1284.80	7	Min: 162.781' to Max: 228.75'	5'-3"	43.60	2 x 12'	6.00	10.00	14.7	1.27	0.98	94.9
0.500	0.535	I-275NB over 54th Avenue South	150184	1984	Prestressed girder	9	181.80	3	32' -109.9'- 39.89'	Ext. (5'-3") & Int. (3'-0")	50.80	3 x 12'	6.00	6.00	16.4	1.93	1.15	94.0
0.503	0.541	I-275 SB over 54th Avenue South	150183	1984	Prestressed girder	30	202.80	3	50.01' -118.17'- 34.62'	Ext. (5'-3") & Int. (3'-0")	42.90	2 x 12'	6.00	10.00	16.7	1.75	1.05	95.1
0.726	0.799	I-275 NB over I-275 SB & Ramp to 54th Avenue South	150185	1983	Steel girder	65	384.81	2	184.92'-199.89'	5'-3"	71.20	4 x 12'	6.00	10.00	16.7	2.42	1.44	90.2
0.985	0.996	I-275 NB and Ramp over Pedestrian Walkway	150179	1983	Prestressed girder	13	58.00	1	58'	3'-0"	86.00	4 x 12'	6.00	10.00	11.2	1.67	1.50	95.1
0.990	1.000	I-275SB over Pedestrian Walkway	150178	1983	Prestressed girder	8	54.01	1	54.01'	3'-0"	42.90	2 x 12'	6.00	10.00	10.0	1.36	1.17	95.1
1.526	1.553	Ramp I-275 SB to SR 679 WB (over pedestrian walkway)	150180	1983	Prestressed girder	8	53.29	1	53.29'	3'-0"	42.90	2 x 12'	6.00	10.00	10.6	1.61	1.42	99.0
1.526	1.555	I-275 SB over 38th Ave. South	150150	1982	Prestressed girder	10	150.50	3	34'-82.5'-34'	Ext. (4'-6") & Int. (3'-0")	59.30	3 x 12'	10.00	10.00	15.0	1.75	1.50	95.1
1.528	1.557	I-275 NB over 38th Ave. South	150151	1982	Prestressed girder	10	150.50	3	34'-82.5'-34'	Ext. (4'-6") & Int. (3'-0")	59.30	3 x 12'	10.00	10.00	15.0	1.75	1.50	96.1
2.287	2.321	I-275 SB over 26th Ave. South	150152	1982	Prestressed girder	10	177.20	3	35.05'-101.5'-40.06	Ext. (4'-6") & Int. (3'-0")	58.00	3 x 12'	10.00	10.00	16.0	1.75	1.36	96.1
2.288	2.322	I-275 NB over 26th Ave. South	150153	1982	Prestressed girder	10	158.97'	3	30.76'-101.5'-36.71	Ext. (4'-6") & Int. (3'-0")	58.00	3 x 12'	10.30	10.30	15.1	2.08	1.61	98.0
2.534	2.571	I-275 SB over 22nd Ave. South	150154	1982	Prestressed girder	0	203.00	2	105.5'-97.5'	4'-6"	71.20	4x 12'	10.29	10.29	16.4	2.78	1.72	96.1
2.535	2.572	I-275 NB over 22nd Ave. South	150155	1982	Prestressed girder	0	196.00	2	102'-94'	4'-6"	71.60	4 x 12'	10.29	10.29	15.3	1.78	1.53	96.1
2.787	2.819	I-275 SB over 18th Ave. South	150156	1982	Prestressed girder	0	167.25	3	37.25'-94'-36'	Ext. (4'-6") & Int. (3'-0")	78.80	5 x 12'	10.29	6.00	16.7	1.81	1.39	98.0
2.788	2.818	I-275 NB over 18 Ave. South	150157	1982	Prestressed girder	0	159.50	3	32.75'-94'-32.75'	Ext. (4'-6") & Int. (3'-0")	79.30	5 x 12'	10.29	6.00	15.3	1.81	1.39	97.0

Table 4-7. (Continued) Existing Bridge Conditions

Begin Milepost	End Milepost	Location Description (Structures from South to North)	Structure Number	Year Built (Widened/ Deck Replaced)	Structure Type	Skew Angle (deg.)	Structure Length (ft)	Spans	Span Lengths	Beam/Girder/Box Depth	Out to Out Width (ft)	Travel Lane Widths (ft)	Inside Shoulder Width (ft)	Outside Shoulder Width (ft)	Minimum Vertical Clearance (ft)	Structural Ratings Operating (HS20)	Structural Ratings Inventory (HS20)	Sufficiency Rating
3.165	3.267	I-275 SB over 31st St. South	150149	1980	Steel girder	99	792.28	5	Min: 67.79' to Max: 226.34'	5'-3"	61.30	3 x 12'	10.25	10.25	16.3	1.66	1.00	94.7
3.205	3.252	I-275 NB over 31st St. South	150174	1980	Steel girder	45	259.50	3	63.5'-129.5'-66.5'	5'-3	57.70	3 x 12'	10.00	10.00	16.3	1.65	1.00	95.8
3.528	3.571	I-275 NB over 28th St. South	150132	1980	Prestressed girder	32	188.00	3	49'-91'-48'	Ext. (4'-6") & Int. (3'-9")	59.00	3 x 12'	10.29	10.29	17.0	2.11	1.14	94.8
3.540	3.580	I-275 SB over 28th St. South	150131	1980	Prestressed girder	32	218.70	3	49'-91'-48'	Ext. (4'-6") & Int. (3'-9")	59.00	3 x 12'	10.29	10.29	19.4	2.17	1.44	95.8
4.050	4.089	I-275 NB over 22nd St. South	150130	1979	Prestressed girder	30	182.00	3	51'-79'-52'	4'-6"	59.00	3 x 12'	10.29	10.29	19.3	1.61	1.39	95.8
4.059	4.099	I-275 SB over 22nd St. South	150129	1979	Prestressed girder	30	182.00	3	51'-79'-52'	4'-6"	59.00	3 x 12'	10.29	10.29	16.0	1.61	1.39	95.8
4.429	5.284	I-275 NB over 5th Ave. North and South	150122	1980	Steel girder	99	178.20	3	174' -176' - 174'	5'-3"	47.50	4 x 12'	10.00	10.60	16.4	1.56	1.28	92.8
4.456	5.289	I-275 SB over 5th Ave. North and South	150121	1980	Prestressed girder	99	4360.20	45	Min: 45.5' to Max:112.5'	Ext. (4'-6") & Int. (3'-9")	60.00	4 x 12'	10.00	10.60	15.3	1.47	1.22	93.8
5.237	5.250	I-275 SB to I-375 EB	150124	1977	Steel girder	99	1215.12	5	Min: 86' to Max: 189'	5'-3"	42.60	2 x 12'	10.00	10.60	17.5	1.58	1.33	91.6
5.517	5.547	I-275 NB over 9th Ave. North	150120	1975	Prestressed girder	18	156.00	3	39'-79'-38'	Ext. (3'-9") & Int. (3'-0")	87.40	4 x12'	12.00	12.00	15.8	1.47	1.25	97.0
5.518	5.549	I-275 SB over 9th Ave. North	150119	1975	Prestressed girder	18	156.00	3	39'-79'-38'	Ext. (3'-9") & Int. (3'-0")	91.90	4 x 12'	12.00	12.00	15.3	1.47	1.25	98.0
5.769	5.805	I-275 NB over 13th Ave. North	150118	1975	Prestressed girder	8	191.27	3	52'-79'-58.5'	3'-9"	72.20	4 x 12'	10.02	10.02	17.0	1.39	1.22	94.5
5.772	5.808	I-275 SB over 13th Ave. North	150117	1975	Prestressed girder	8	191.27	3	52'-79'-58.5'	3'-9"	72.20	4 x 12'	10.02	10.02	21.1	1.39	1.22	94.5
5.860	5.942	I-275 NB over CSX RR	150116	1975	Prestressed girder	99	461.30	5	Min:81.407' to Max: 91.652'	4'-6"	71.20	4 x 12'	10.00	10.00	22.1	1.97	1.69	92.4
5.883	5.965	I-275 SB over CSX RR	150115	1975	Prestressed girder	99	461.30	5	Min:81.407' to Max: 91.652'	4'-6"	71.20	4 x 12'	10.00	10.00	19.5	1.92	1.61	90.4
6.277	6.316	I-275 SB over 22nd Ave. North	150090	1974	Steel girder	0	207.75	3	37'-131.5'-39.25'	5'-3"	59.40	4 x 12'	10.00	10.00	15.5	1.42	0.86*	94.1
6.277	6.316	I-275 NB over 22nd Ave. North	150091	1974	Steel girder	0	207.75	3	37'-131.5'-39.25'	5'-3"	71.20	4 x 12'	10.00	10.00	19.0	2.55	1.53	98.0

Table 4-7. (Continued) Existing Bridge Condition

Begin Milepost	End Milepost	Location Description (Structures from South to North)	Structure Number	Year Built (Widened/ Deck Replaced)	Structure Type	Skew Angle (deg.)	Structure Length (ft)	Spans	Span Lengths	Beam/Girder/Box Depth	Out to Out Width (ft)	Travel Lane Widths (ft)	Inside Shoulder Width (ft)	Outside Shoulder Width (ft)	Minimum Vertical Clearance (ft)	Structural Ratings Operating (HS20)	Structural Ratings Inventory (HS20)	Sufficiency Rating
6.628	6.630	Pedestrian Crossing over I-275	159003	1974	Prestressed girder	0	447.80	2	106.75'-106.75'	4'-6"	11.40	0	0.00	0.00	16.6	N/A	N/A	N/A
6.802	6.835	I-275 SB over 30th Ave. North	150088	1974	Prestressed girder	99	173.50	3	48.25'-79.5'-45.75'	Ext. (3'-9") & Int. (3'-0")	59.70	3 x 12'	10.00	10.00	18.2	1.53	1.31	91.8
6.802	6.835	I-275 NB over 30th Ave. North	150089	1974	Prestressed girder	99	173.50	3	48.25'-79.5'-45.75'	Ext. (3'-9") & Int. (3'-0")	60.00	3 x 12'	10.00	10.00	15.5	1.53	1.31	91.8
7.301	7.342	I-275 NB over 38th Ave. North	150093	1974	Steel girder	10	218.45	3	49.388'-121.121'-41.952'	5'-3"	59.70	3 x 12'	10.00	10.00	19.4	2.49	1.49	94.6
7.310	7.352	I-275 SB over 38th Ave. North	150092	1974	Steel girder	5	202.68	3	41.076'-12.02'-41.584	5'-3"	59.70	3 x 12'	10.00	10.00	15.2	2.53	1.51	94.6
8.089	8.118	I-275 SB over 50th Ave. North	150094	1974	Prestressed girder	0	156.25	3	38.75'-81.5'-36'	Ext. (3'-9") & Int. (3'-0")	79.70	4 x 12'	10.00	6.00	15.4	1.86	1.44	97.0
8.089	8.118	I-275 NB over 50th Ave. North	150095	1974	Prestressed girder	0	156.25	3	38.75'-81.5'-36'	Ext. (3'-9") & Int. (3'-0")	79.90	4 x 12'	10.00	6.00	16.3	1.92	1.47	97.0
8.342	8.366	54th Ave. North over I-275	150096	1972	Steel girder	0	297.50	4	36.5'-102'-126'-33'	5'-3"	127.60	7 x 12'	8.25	6.00	15.7	2.89	1.73	94.2
8.852	8.890	I-275 SB over 62nd Ave. North	150097	1972	Prestressed girder	0	187.75	3	46.58'-94.58'-46.58'	Ext. (4'-6") & Int. (3'-0")	58.62	3 x 12'	8.00	10.00	18.4	1.82	1.09	96.0
8.852	8.890	I-275 NB over 62nd Ave. North	150098	1972	Prestressed girder	0	187.75	3	46.58'-94.58'-46.58'	Ext. (4'-6") & Int. (3'-0")	58.65	3 x 12'	10.00	8.00	15.6	1.82	1.09	96.0
10.421	10.429	SR-694 EB over I-275	150099	1971	Prestressed girder	18	326.10	4	Min: 18.1' to Max: 101.8'	Ext. (4'-6") & Int. (3'-9")	42.60	2 x 12'	8.00	4.00	16.2	1.51	1.15	97.2
10.521	10.578	I-275 SB over Gandy Blvd.	150100	1971	Prestressed girder	25	314.60	4	Min: 45.542' to Max: 110.375'	Ext. (4'-6") & Int. (3'-0")	67.50	4 x 12'	10.00	4.00	15.5	2.01	1.20	94.0
10.527	10.588	I-275 NB over Gandy Blvd.	150101	1971	Prestressed girder	25	314.60	4	Min: 45.542' to Max: 110.375'	Ext. (4'-6") & Int. (3'-0")	58.50	3 x 12'	10.00	8.00	15.5	1.97	1.17	96.0
12.328	12.339	118th Ave. North (EB) ramp to I-275	150241	2002	Steel girder	99	1309.91	8	Min: 117.16' to Max: 193.57'	5'-3"	48.20	2 x 12'	11.80	10.00	16.8	1.90	1.14	98.5
12.456	12.503	I-275 SB over Roosevelt Blvd.	150102	1970	Prestressed girder	0	246.00	4	Min: 36' to Max: 87.5'	Ext. (3'-9") & Int. (3'-0")	59.00	2 x 12'	4.00	8.00	15.4	1.47	1.22	96.3
12.456	12.503	I-275 NB over Roosevelt Blvd.	150103	1970	Prestressed girder	0	246.70	4	Min: 36' to Max: 87.5'	Ext. (3'-9") & Int. (3'-0")	59.00	2 x 12'	4.00	8.00	15.5	1.50	1.25	96.3
12.579	12.589	118th Ave. to SR 686 Ramp over I-275	150104	1970	Prestressed girder	99	483.60	6	Min: 68.08 to Max: 86.33'	Ext. (4'-6") & Int. (3'-9")	62.00	2 x 12'	4.00	8.00	16.3	1.12	1.00	97.0
13.596	13.610	Ramp F (9th Street N) over I-275	150250	2004	Prestressed girder	49	322.20	2	161.25'-161.25'	Ext. (4'-6") & Int. (3'-9")	49.40	1 x 15'	6.00	6.00	16.8	3.06	1.32	99.2
13.780	13.790	SR-688/Ramp H to I-275 NB	150251	2004	Steel girder	45	347.00	2	147'-200'	5'-3"	43.10	2 x 12'	6.00	10.00	15.6	1.78	1.07	94.7
14.082	14.139	I-275 over Big Island Gap	150252	2004	Prestressed girder	0	260.00	3	85.66'-86.66'-86.66'	4'-6"	208.30	8 x 12'	12.00	10.00	0.0	2.21	1.33	85.0
14.380	14.388	SR-687 (4th St.) over I-275	150224	1995	Prestressed girder	55	413.50	2	205.5'-208'	8'-8"	30.50	1 x 15'	6.00	6.00	16.5	2.33	1.39	96.8

Table 4-8. Existing Bridge Horizontal Clearances

Begin Milepost	End Milepost	Location Description (Structures from North to South)	Structure Number	Left Minimum Horizontal Clearance (ft)	Right Minimum Horizontal Clearance (ft)	Bottom Roadway Type: Rural vs. Curb & Gutter	Bottom Roadway Posted Speed or Est. Design Speed	Min. Req'd Horiz Clearance per PPM1 (ft)	Is the minimum standard met?	Comments Regarding the Existing Conditions
0.529	0.772	I-275 SB to SR-679 WB over US-19 SR-679 SR-55	150186	17.60	6.20	Curb & Gutter	45 MPH	4	Y	
0.500	0.535	I-275NB over 54th Avenue South	150184	9.75	13.50	Curb & Gutter	45 MPH	4	Y	
0.503	0.541	I-275 SB over 54th Avenue South	150183	13.00	13.25	Curb & Gutter	45 MPH	4	Y	
0.726	0.799	I-275 NB over I-275 SB & Ramp to 54th Avenue South	150185	28.40	29.70	Rural	65 MPH	36	N	Guardrail/barrier may need to be considered on the east side of the Southbound I-275 travel lanes.
0.985	0.996	I-275 NB and Ramp over Pedestrian Walkway	150179	0.00	0.00	N/A	N/A	N/A	N/A	
0.990	1.000	I-275SB over Pedestrian Walkway	150178	0.00	0.00	N/A	N/A	N/A	N/A	
1.526	1.553	Ramp I-275 SB to SR 679 WB (over pedestrian walkway)	150180	0.00	0.00	N/A	N/A	N/A	N/A	
1.526	1.555	I-275 SB over 38th Ave. South	150150	25.50	25.50	Curb & Gutter	30 MPH	4	Y	
1.528	1.557	I-275 NB over 38th Ave. South	150151	25.50	25.50	Curb & Gutter	30 MPH	4	Y	
2.287	2.321	I-275 SB over 26th Ave. South	150152	13.50	13.70	Curb & Gutter	30 MPH	4	Y	
2.288	2.322	I-275 NB over 26th Ave. South	150153	13.50	13.80	Curb & Gutter	30 MPH	4	Y	
2.534	2.571	I-275 SB over 22nd Ave. South	150154	6.70	23.10	Curb & Gutter	35 MPH	4	Y	
2.535	2.572	I-275 NB over 22nd Ave. South	150155	6.70	23.30	Curb & Gutter	35 MPH	4	Y	
2.787	2.819	I-275 SB over 18th Ave. South	150156	18.50	24.00	Curb & Gutter	35 MPH	4	Y	
2.788	2.818	I-275 NB over 18 Ave. South	150157	18.50	25.00	Curb & Gutter	35 MPH	4	Y	
3.165	3.267	I-275 SB over 31st St. South	150149	5.90	14.00	Curb & Gutter	35 MPH	4	Y	
3.205	3.252	I-275 NB over 31st St. South	150174	14.50	19.00	Curb & Gutter	35 MPH	4	Y	
3.528	3.571	I-275 NB over 28th St. South	150132	22.70	12.50	Curb & Gutter	35 MPH	4	Y	
3.540	3.580	I-275 SB over 28th St. South	150131	22.10	12.50	Curb & Gutter	35 MPH	4	Y	
4.050	4.089	I-275 NB over 22nd St. South	150130	19.30	19.20	Curb & Gutter	30 MPH	4	Y	
4.059	4.099	I-275 SB over 22nd St. South	150129	19.70	19.00	Curb & Gutter	30 MPH	4	Y	
4.429	5.284	I-275 NB over 5th Ave. North and South	150122	13.60	11.80	Curb & Gutter	35 MPH	4	Y	Guardrail
4.456	5.289	I-275 SB over 5th Ave. North and South	150121	12.50	12.70	Curb & Gutter	35 MPH	4	Y	
5.237	5.250	I-275 SB to I-375 EB	150124	10.00	10.00	Rural	65 MPH	36	N	Guardrail
5.517	5.547	I-275 NB over 9th Ave. North	150120	19.70	13.80	Curb & Gutter	35 MPH	4	Y	
5.518	5.549	I-275 SB over 9th Ave. North	150119	19.00	15.60	Curb & Gutter	35 MPH	4	Y	
5.769	5.805	I-275 NB over 13th Ave. North	150118	26.40	25.00	Curb & Gutter	30 MPH	4	Y	
5.772	5.808	I-275 SB over 13th Ave. North	150117	24.20	25.50	Curb & Gutter	30 MPH	4	Y	
5.860	5.942	I-275 NB over CSX RR	150116	>10	10.10	N/A	N/A	N/A	N/A	
5.883	5.965	I-275 SB over CSX RR	150115	>10	10.10	N/A	N/A	N/A	N/A	

Table 4-8. (Continued) Existing Bridge Horizontal Clearances

Begin Milepost	End Milepost	Location Description (Structures from North to South)	Structure Number	Left Minimum Horizontal Clearance (ft)	Right Minimum Horizontal Clearance (ft)	Bottom Roadway Type: Rural vs. Curb & Gutter	Bottom Roadway Posted Speed or Est. Design Speed	Min. Req'd Horiz Clearance per PPM1 (ft)	Is the minimum standard met?	Comments Regarding the Existing Conditions
6.277	6.316	I-275 SB over 22nd Ave. North	150090	29.00	12.60	Curb & Gutter	40 MPH	4	Y	
6.277	6.316	I-275 NB over 22nd Ave. North	150091	12.00	12.20	Curb & Gutter	40 MPH	4	Y	
6.628	6.630	Pedestrian Crossing over I-275	159003	29.80	14.00	N/A	N/A	N/A	N/A	
6.802	6.835	I-275 SB over 30th Ave. North	150088	19.70	21.80	Curb & Gutter	35 MPH	4	Y	
6.802	6.835	I-275 NB over 30th Ave. North	150089	27.90	28.20	Curb & Gutter	35 MPH	4	Y	
7.301	7.342	I-275 NB over 38th Ave. North	150093	12.30	12.50	Curb & Gutter	40 MPH	4	Y	
7.310	7.352	I-275 SB over 38th Ave. North	150092	12.30	12.30	Curb & Gutter	40 MPH	4	Y	
8.089	8.118	I-275 SB over 50th Ave. North	150094	24.60	16.20	Curb & Gutter	25 MPH	4	Y	
8.089	8.118	I-275 NB over 50th Ave. North	150095	24.30	13.30	Curb & Gutter	25 MPH	4	Y	
8.342	8.366	54th Ave. North over I-275	150096	29.80	32.00	Rural	65 MPH	36	N	Barrier West, Guardrail East
8.852	8.890	I-275 SB over 62nd Ave. North	150097	21.60	21.60	Curb & Gutter	40 MPH	4	Y	
8.852	8.890	I-275 NB over 62nd Ave. North	150098	22.00	22.00	Curb & Gutter	40 MPH	4	Y	
10.421	10.429	SR-694 EB over I-275	150099	29.80	11.80	Rural	65 MPH	36	N	Guardrail
10.521	10.578	I-275 SB over Gandy Blvd.	150100	29.00	29.61	Rural	45 MPH	4	Y	
10.527	10.588	I-275 NB over Gandy Blvd.	150101	29.00	17.70	Rural	45 MPH	4	Y	
12.328	12.339	118th Ave. North (EB) ramp to I-275	150241	14.00	24.70	Rural	65 MPH	36	N	Guardrail
12.456	12.503	I-275 SB over Roosevelt Blvd.	150102	20.50	29.10	Rural	55 MPH	36	N	Guardrail inside
12.456	12.503	I-275 NB over Roosevelt Blvd.	150103	18.50	29.50	Rural	55 MPH	36	N	Guardrail inside
12.579	12.589	118th Ave. to SR 686 Ramp over I-275	150104	8.20	10.90	Rural	65 MPH	36	N	Guardrail, Barrier
13.596	13.610	Ramp F (9th Street N) over I-275	150250	12.20	37.00	Rural	65 MPH	36	N	Barrier inside
13.780	13.790	SR-688/Ramp H to I-275 NB	150251	10.20	37.40	Rural	65 MPH	36	N	Guardrail inside
14.082	14.139	I-275 over Big Island Gap	150252	0.00	0.00	N/A	N/A	N/A	N/A	
14.380	14.388	SR-687 (4th St.) over I-275	150224	9.90	23.80	Rural	65 MPH	36	N	Guardrail NB North Side, Barrier inside

4.2.1 Bridge Conditions

Bridge sufficiency ratings are used to help determine whether a bridge that is structurally or functionally obsolete should be repaired or replaced. This rating considers a number of factors, of which approximately half relate to the condition of the bridge itself. **Table 4-7** catalogs the condition ratings and load ratings of the bridges within the project limits along I-275. All bridges have Operating Load ratings greater than 1.0. The Inventory Rating on all the bridges are greater than 1.0 as required in Section 7.1.1 in the *FDOT Structures Design Guidelines*, except for the following:

- Southbound I-275 to westbound SR-679 (Pinellas Bayway) over US-19 (150186; steel girder); and
- Southbound I-275 over 22nd Avenue North (150090; steel girder).
    - This structure was recently reviewed and passed inspection with no issues/concerns.

During the design phase a Load and Resistance Factor Rating (LRFR) will need to be completed as required by the Structures Design Guidelines to ensure that the bridges are suitable for widening and if current design standards are met.

4.2.2 Bridge Clearances

The minimum vertical clearance over various facility types, based on standards from FDOT's PPM (Section 2.10), is presented below in **Table 4-9**. Within the project limits, existing bridge clearances over roadways range from 14.7 to 22.1 feet. A list of structures along the project corridor that do not meet minimum vertical clearance standards is provided in **Table 4-10**.

Table 4-9. Minimum Vertical Clearance for Existing Bridges

Facility Type (Freeways, Arterials, Collectors & Others)	Vertical Clearance
Existing Roadway or Railroad Over Roadway	16.0 ft
Roadway Over Railroad[1]	23.5 ft
Pedestrian Over Roadway[1]	17.5 ft
Pedestrian Over Railroad[1]	23.5 ft

1 From the Plan Preparation Manual, Volume 1, Revised January 1, 2014, Table 2.10.1

Table 4-10. Existing Bridges Minimum Vertical Clearance

Bridge Number	Location	Vertical Clearance (ft)		
		Minimum Existing	Minimum Required	Difference
Segment A (from south of 54th Avenue to I-175)				
150151	NB I-275 at 38th Ave S	15.00	16.50	1.50
150150	SB I-275 at 38th Ave S	15.00	16.50	1.50
150153	NB I-275 at 26th Ave S	15.10	16.50	1.40
150152	SB I-275 at 26th Ave S	16.00	16.50	0.50
150155	NB I-275 at 22nd Ave S	15.30	16.50	1.20
150154	SB I-275 at 22nd Ave S	16.40	16.50	0.10
150157	NB I-275 at 18th Ave S	15.30	16.50	1.20

Table 4 10. (Continued) Existing Bridges Minimum Vertical Clearance

Bridge Number	Location	Vertical Clearance (ft)		
		Minimum Existing	Minimum Required	Difference
150174	NB I-275 at 31st St S	16.27	16.50	0.23
150149	SB I-275 at 31st St S	16.30	16.50	0.20
150129	SB I-275 at 22nd St S	16.00	16.50	0.50
150122	NB I-275 at EB I-175	16.31	16.50	0.19
150121	SB I-275 at 4th Ave S	15.69	16.50	0.81
Segment B (from I-175 to south of Gandy Boulevard)				
150120	NB I-275 at 9th Ave N	15.80	16.50	0.70
150119	SB I-275 at 9th Ave N	15.30	16.50	1.20
150116	NB I-275 at CSX Rail Line	22.10	23.50	1.40
150115	SB I-275 at CSX Rail Line	19.50	23.50	4.00
150090	SB I-275 at 22nd Ave N	15.50	16.50	1.00
159003	27th Ave N Ped. Overpass	16.50	17.00	0.50
150089	NB I-275 at 30th Ave N	15.58	16.50	0.92
150092	SB I-275 at 38th Ave N	15.17	16.50	1.33
150095	NB I-275 at 50th Ave N	16.30	16.50	0.20
150094	SB I-275 at 50th Ave N	15.17	16.50	1.33
150096	NB I-275 at 54th Ave N	16.08	16.50	0.42
150096	SB I-275 at 54th Ave N	16.33	16.50	0.17
150098	NB I-275 62nd Ave N	15.67	16.50	0.83
Segment C (from south of Gandy Boulevard to north of 4th Street North)				
150099	I-275 at EB Gandy Blvd	16.38	16.50	0.12
150101	NB I-275 at Gandy Blvd	15.33	16.50	1.17
150100	SB I-275 at Gandy Blvd	15.50	16.50	1.00
150103	NB I-275 at Roosevelt Blvd	15.49	16.50	1.01
150102	SB I-275 at Roosevelt Blvd	15.49	16.50	1.01
150104	WB Roosevelt Blvd Flyover	16.30	16.50	0.20
150251	NB/SB I-275 at Ulmerton Rd	15.60	16.50	0.90

4.2.3 Summary

In general, all of the bridges within the project limits are in good condition. Two bridges have a substandard inventory load; however, the southbound I-275 bridge over 22nd Avenue North was recently reviewed and passed inspection with no issues/concerns. Twenty-two bridges are considered deficient per FDOT vertical clearance standards. An LRFR will be performed during the design phase on all the bridges that are proposed to be widened to verify they meet the current code requirements. Those that meet these requirements can be considered suitable for widening in the future but appropriate protection will still be needed to meet the horizontal clearance requirements outlined in the PPM. Bridges not meeting the appropriate minimum vertical clearance will be

reviewed during the design phase, but reconstruction may be cost prohibitive and therefore not feasible.

4.3 Existing Traffic and Levels of Service

A Design Traffic Technical Memorandum (DTTM) was prepared as part of this PD&E Study to document existing and future traffic operations with and without the proposed improvements. A summary of the existing year (2012) traffic analysis is provided in the following sections.

Traffic operational analyses of the I-275 study corridor were completed for I-275 basic freeway segments, merge/diverge areas of the mainline/ramp junctions and ramp terminal intersections. The Highway Capacity Software (HCS) 2010 was utilized to evaluate existing freeway operations on the I-275 mainline within the lane continuity section of I-275 (i.e., Segments A and B, from south of 54th Avenue South to south of Gandy Boulevard). Due to the unique traffic characteristics associated with the express lane section of I-275 (i.e., Segment C, from south of Gandy Boulevard to north of 4th Street North), CORSIM microsimulation was employed to evaluate the operations of the ELs and general use lanes (GULs). The AM and PM peak period CORSIM models were calibrated for use in determining existing and future traffic operations. The following sections present the key measures of effectiveness (MOEs) obtained from the use of the HCS 2010 and CORSIM software to assess the operations of the I-275 study corridor.

The existing year (2012) AADT and AM and PM peak-hour traffic volumes were provided by FDOT District Seven for the I-275 mainline and ramps. **Figure 4-7** and **Figure 4-8** show the existing year (2012) AADT and AM/PM peak hour traffic volumes, respectively.

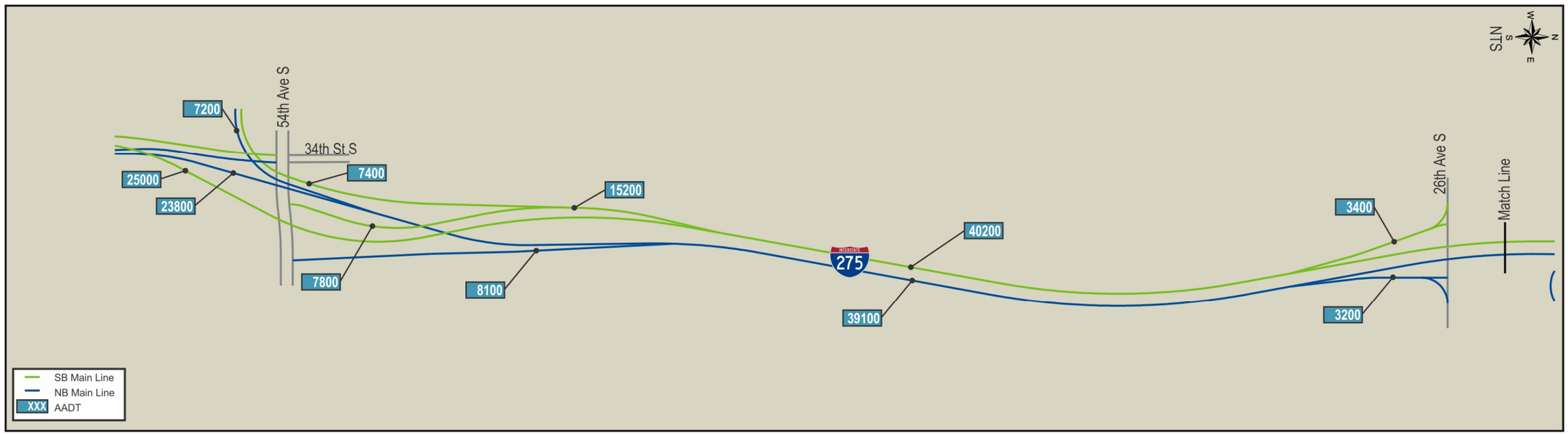
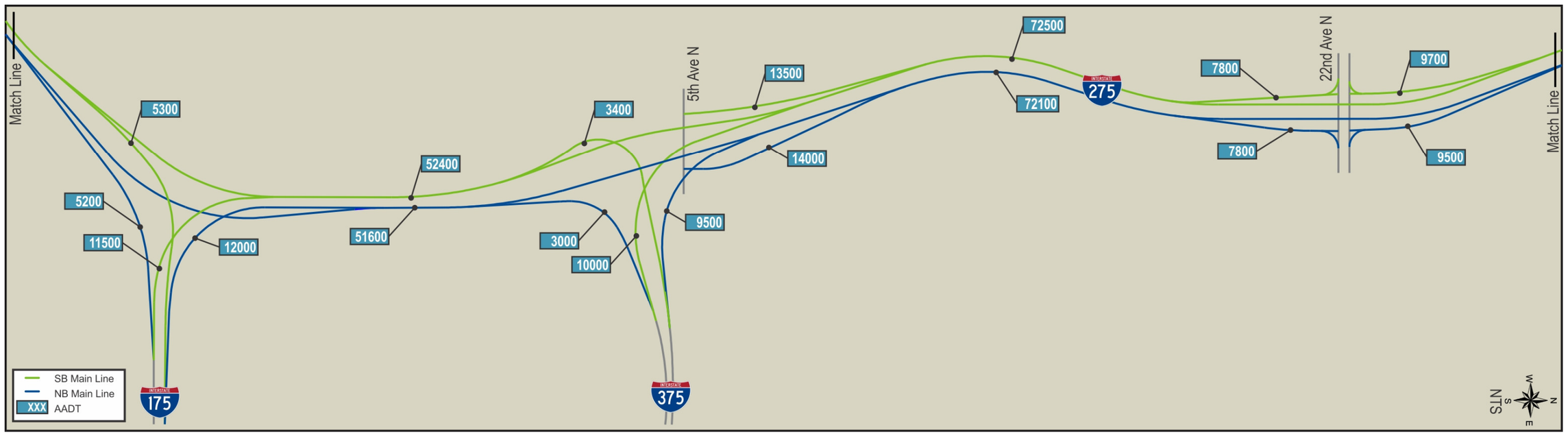


Figure 4-7. Existing Year (2012) AADT – Existing Configuration



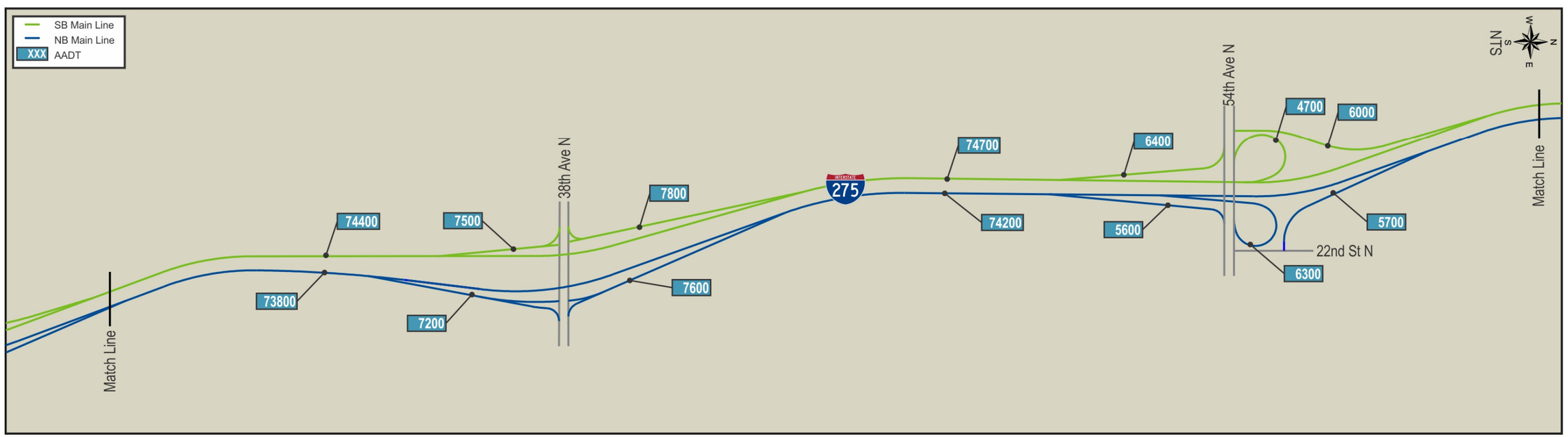
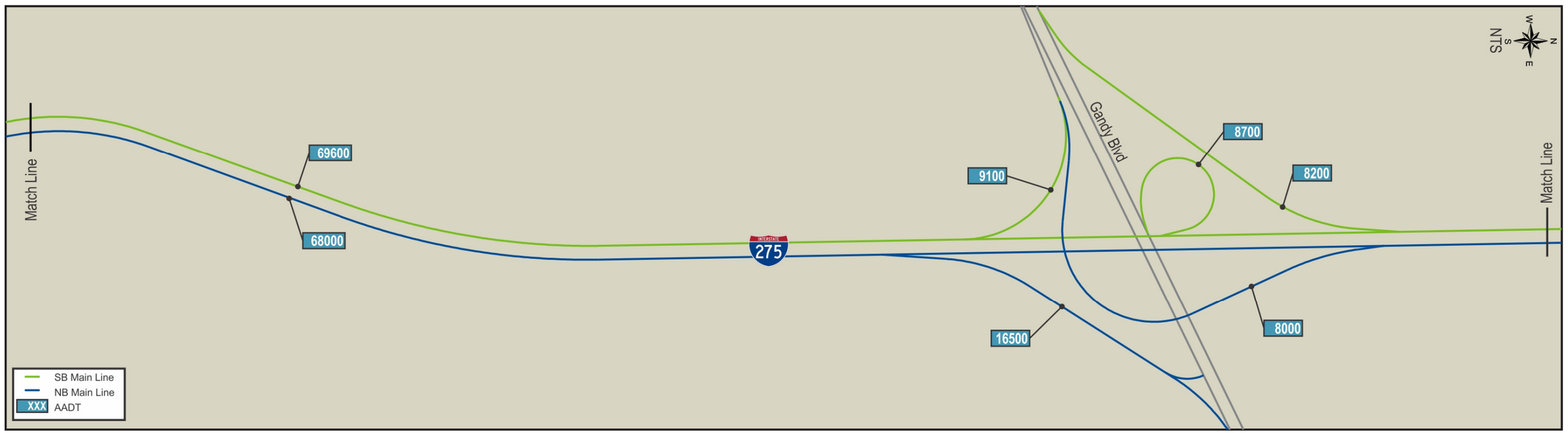


Figure 4-7. (Continued) Existing Year (2012) AADT – Existing Configuration



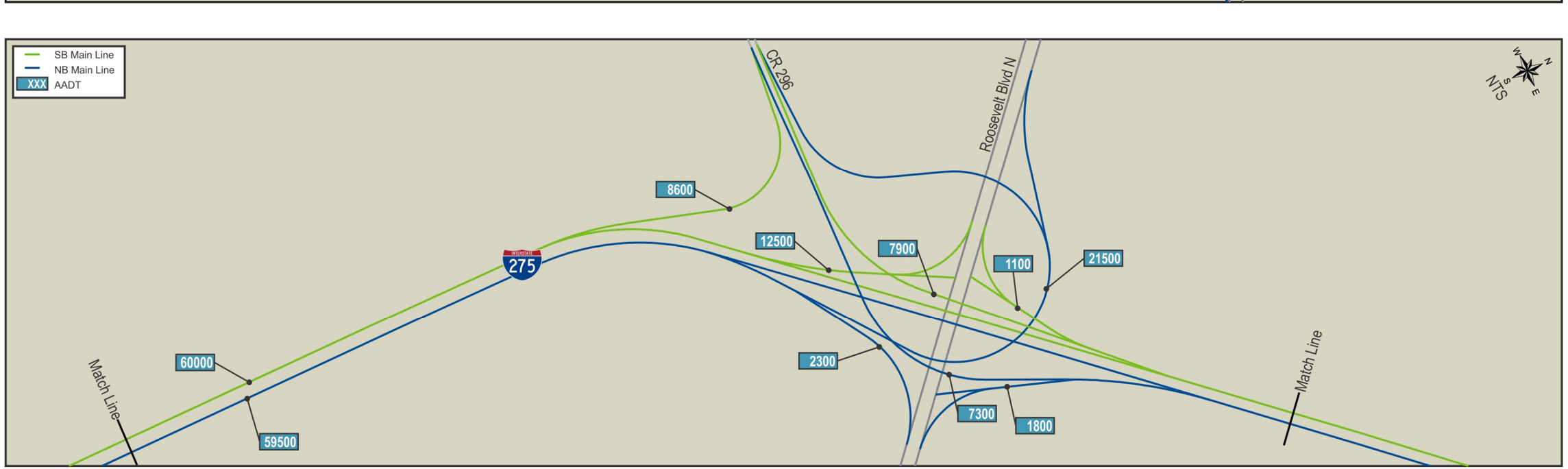


Figure 4-7. (Continued) Existing Year (2012) AADT – Existing Configuration

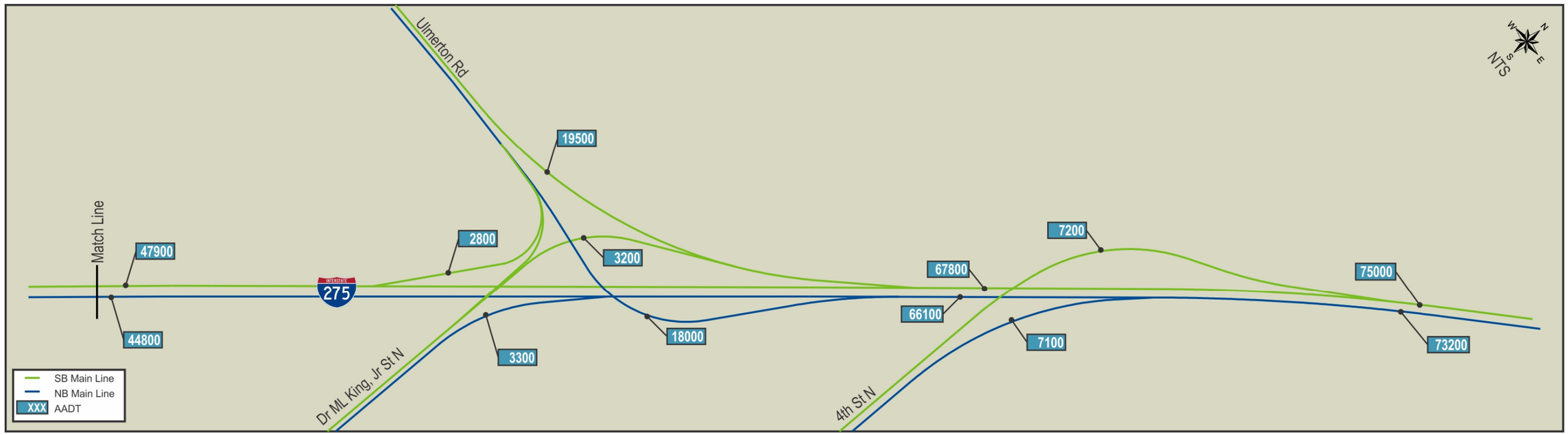


Figure 4-7. (Continued) Existing Year (2012) AADT – Existing Configuration

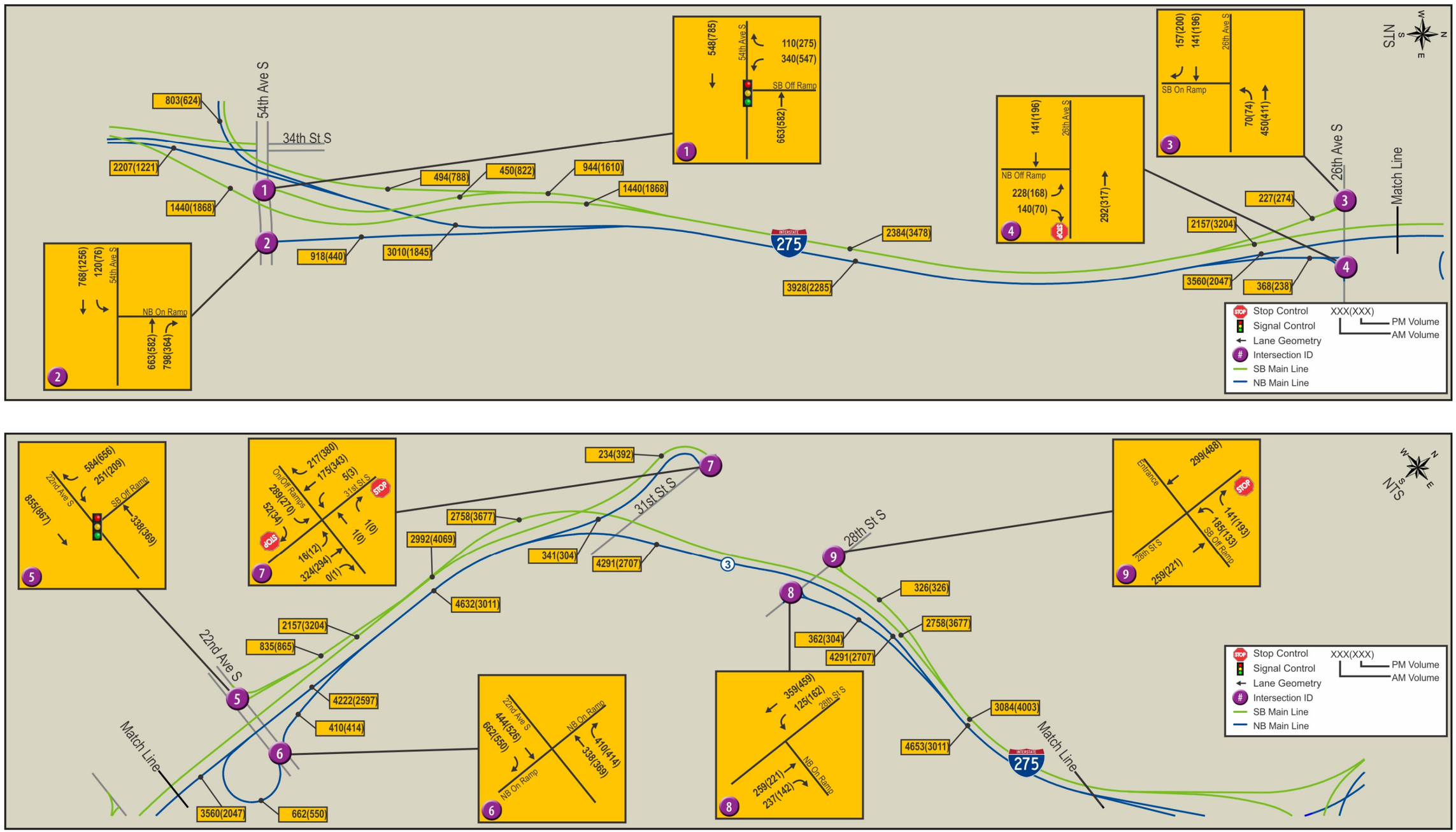
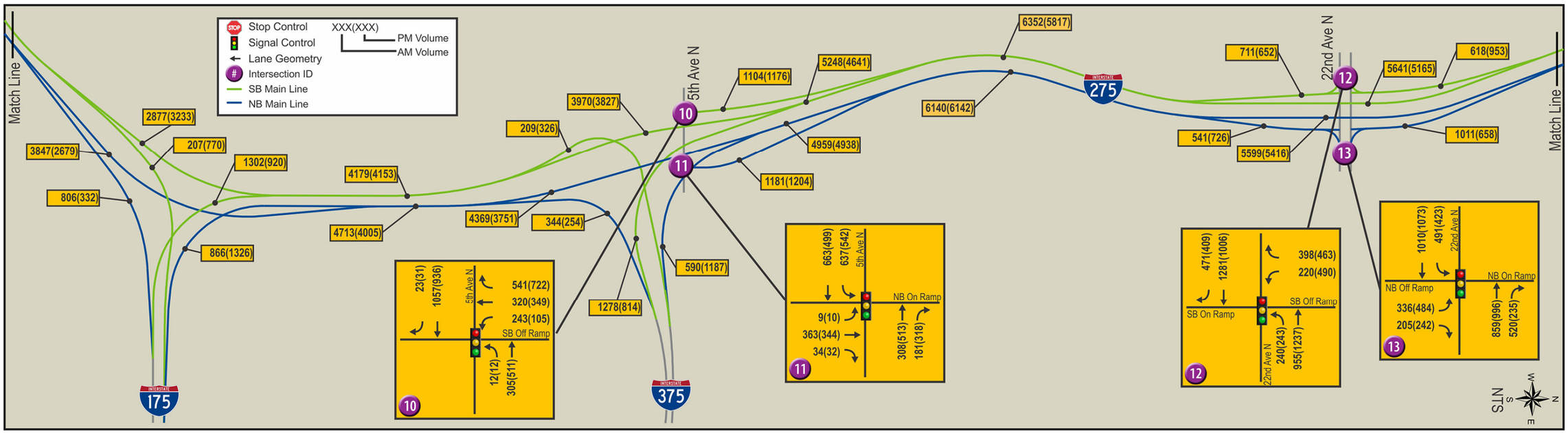


Figure 4-8. Existing Year (2012) Peak-Hour Volumes – Existing Configuration



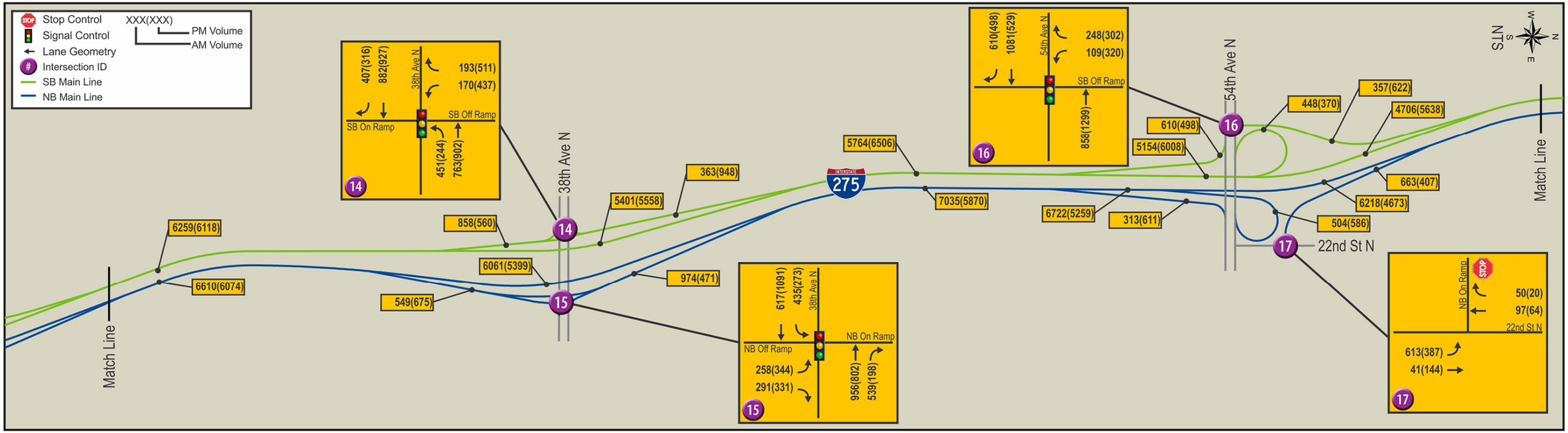
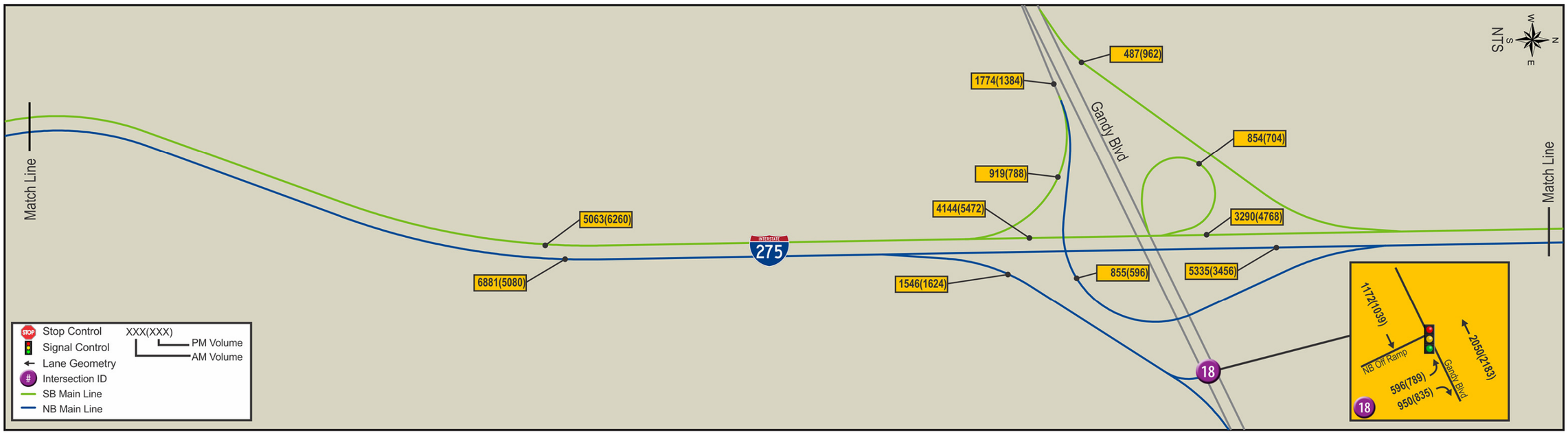


Figure 4-8. (Continued) Existing Year (2012) Peak-Hour Volumes – Existing Configuration



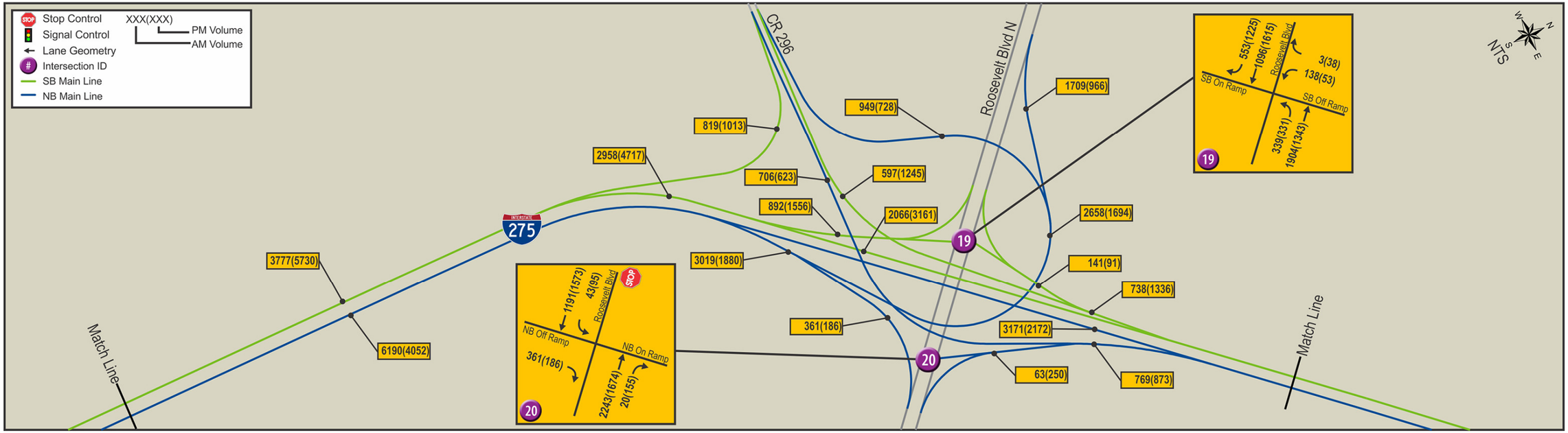


Figure 4-8. (Continued) Existing Year (2012) Peak-Hour Volumes – Existing Configuration

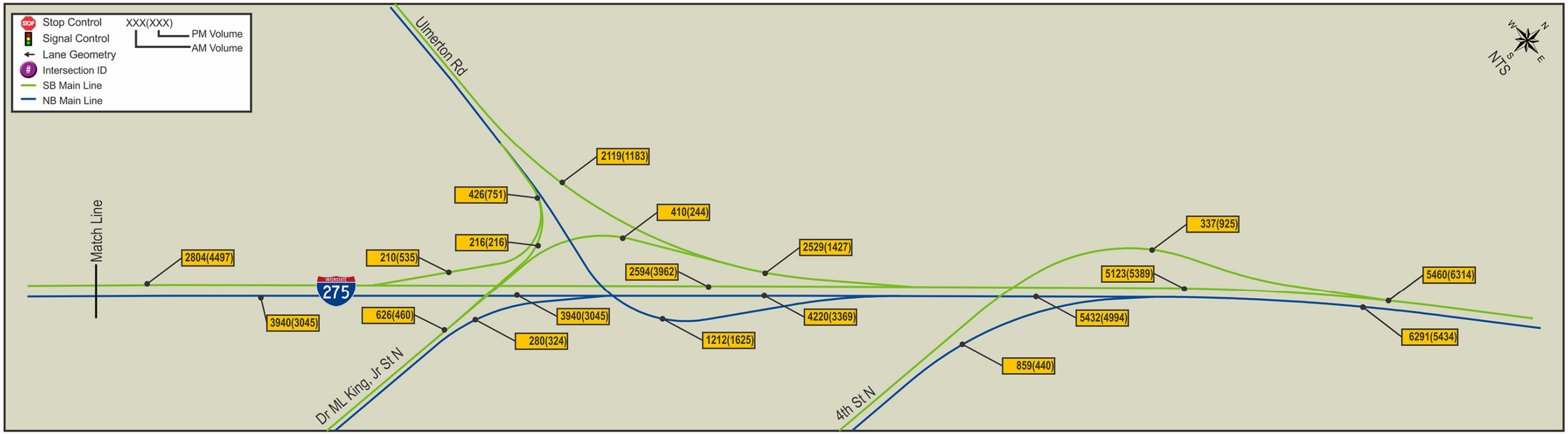


Figure 4-8. (Continued) Existing Year (2012) Peak-Hour Volumes – Existing Configuration

4.3.1 Existing Year (2012) I-275 Mainline Operations

The I-275 mainline was analyzed in HCS 2010 using density thresholds specified in Exhibit 11-5 of the Highway Capacity Manual (HCM 2010) to determine the LOS. The results of the existing year (2012) HCS 2010 basic freeway analysis for the AM and PM peak periods are shown in **Table 4-11** and **Table 4-12**, respectively. The results of the analysis indicate that five segments currently do not meet the adopted LOS standard in the AM peak hour and two segments currently do not meet the adopted LOS standard in the PM peak hour.

Table 4-11. Existing Year (2012) HCS I-275 Mainline MOEs and LOS – AM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
Northbound I-275 Mainline			
South of 54th Ave S EB On	2207	17.2	B
54th Ave S EB On to 54th Ave S WB On	3010	15.6	B
54th Ave S On to 26th Ave S Off	3928	20.6	C
26th Ave S Off to 22nd Ave S EB On	3560	18.5	C
22nd Ave S EB On to 22nd Ave S WB On	4222	16.4	B
22ndAveS WB On to 31st St S Off	4632	14.4	B
31st St S Off to 28th St S On	4291	22.8	C
28th St S On to I-175 Off	4653	25.2	C
I-175 Off to I-175 On	3847	34.6	D
I-175 On to I-375 Off	4713	18.4	C
I-375 Off to I-375 On	4369	23.3	C
I-375 On to 5th Ave N On	4959	19.4	C
5th Ave N On to 22nd Ave N Off	6140	24.8	C
22nd Ave N Off to 22nd Ave N On	5599	32.9	D
22nd Ave N On to 38th Ave N Off	6610	45.1	F
38th Ave N Off to 38th Ave N On	6061	37.8	E
38th Ave N On to 54th Ave N EB Off	7035	29.9	D
54th Ave N EB Off to 54th Ave N WB Off	6722	28.0	D
54th Ave N Off WB to 22nd St N On	6218	39.7	E
22nd St N On to Gandy Blvd Off	6881	47.3	F
Southbound I-275 Mainline			
54th Ave N Off to 54th Ave N WB On	4706	25.5	C
54th Ave N WB On to 54th Ave N EB On	5154	20.2	C
54th Ave N EB On to 38th Ave N Off	5764	23.0	C
38th Ave N Off to 38th Ave N On	5401	31.0	D
38th Ave N On to 22nd Ave N Off	6259	40.2	E
22nd Ave N Off to 22nd Ave N On	5641	33.3	D
22nd Ave N On to 5th Ave N Off	6352	25.9	C

Table 4-11 (Continued). Existing Year (2012) HCS I-275 Mainline MOEs and LOS – AM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
5th Ave N Off to I-375 Off	5248	20.6	C
I-375 Off to I-375 On	3970	20.8	C
I-375 On to I-175 Off	4179	22.1	C
I-175 Off to I-175 On	2877	22.9	C
I-175 On to 28th St S Off	3084	16.0	B
28th St S Off to 31st St S On	2758	14.3	B
31st St S On to 22nd Ave S Off	2992	11.6	B
22nd Ave S Off to 26th Ave S On	2157	11.2	B
26th Ave S On to 54th Ave S Off	2384	12.4	B
South of 54th Ave S Off	1440	11.2	B

Table 4-12. Existing Year (2012) HCS I-275 Mainline MOEs and LOS – PM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
Northbound I-275 Mainline			
South of 54th Ave S EB On	1221	9.5	A
54th Ave S EB On to 54th Ave S WB On	1845	9.6	A
54th Ave S On to 26th Ave S Off	2285	11.9	B
26th Ave S Off to 22nd Ave S EB On	2047	10.6	A
22nd Ave S EB On to 22nd Ave S WB On	2597	10.1	A
22ndAveS WB On to 31st St S Off	3011	9.4	A
31st St S Off to 28th St S On	2707	14.1	B
28th St S On to I-175 Off	3011	15.6	B
I-175 Off to I-175 On	2679	21.1	C
I-175 On to I-375 Off	4005	15.6	B
I-375 Off to I-375 On	3751	19.6	C
I-375 On to 5th Ave N On	4938	19.3	C
5th Ave N On to 22nd Ave N Off	6142	24.8	C
22nd Ave N Off to 22nd Ave N On	5416	31.2	D
22nd Ave N On to 38th Ave N Off	6074	37.9	E
38th Ave N Off to 38th Ave N On	5399	31.0	D
38th Ave N On to 54th Ave N EB Off	5870	23.5	C
54th Ave N EB Off to 54th Ave N WB Off	5259	20.7	C
54th Ave N Off WB to 22nd St N On	4673	25.3	C
22nd St N On to Gandy Blvd Off	5080	28.3	D

Table 4-12 (Continued). Existing Year (2012) HCS I-275 Mainline MOEs and LOS – PM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
Southbound I-275 Mainline			
54th Ave N Off to 54th Ave N WB On	5638	33.2	D
54th Ave N WB On to 54th Ave N EB On	6008	24.2	C
54th Ave N EB On to 38th Ave N Off	6506	26.8	D
38th Ave N Off to 38th Ave N On	5558	32.5	D
38th Ave N On to 22nd Ave N Off	6118	38.4	E
22nd Ave N Off to 22nd Ave N On	5165	29.0	D
22nd Ave N On to 5th Ave N Off	5817	23.2	C
5th Ave N Off to I-375 Off	4641	18.1	C
I-375 Off to I-375 On	3827	20.0	C
I-375 On to I-175 Off	4153	21.9	C
I-175 Off to I-175 On	3233	26.6	D
I-175 On to 28th St S Off	4003	21.0	C
28th St S Off to 31st St S On	3677	19.1	C
31st St S On to 22nd Ave S Off	4069	15.8	B
22nd Ave S Off to 26th Ave S On	3204	16.6	B
26th Ave S On to 54th Ave S Off	3478	18.1	C
South of 54th Ave S Off	1868	14.5	B

4.3.2 Existing Year (2012) I-275 Merge/Diverge Operations

The I-275 ramp merge/diverge areas were analyzed in HCS 2010 using density thresholds specified in Exhibit 13-2 of the HCM 2010. Ramp capacities were also checked. The results of the existing year (2012) HCS 2010 ramp merge/diverge analysis for the AM and PM peak periods are shown in **Table 4-13** and **Table 4-14**, respectively. The results of the analysis indicate that nine merge/diverge areas currently do not meet the adopted LOS standards in the AM peak hour and five merge/diverge areas currently do not meet the adopted LOS standards in the PM peak hour. This may be attributed to substandard freeway operations as, the ramps all operate well under capacity as shown in **Table 4-15**. Ramp capacities are based on Exhibit 13-10 of the HCS 2010, and consider the number of lanes and free-flow speed of the ramp.

Table 4-13. Existing Year (2012) HCS I-275 Ramp Merge/Diverge MOEs and LOS – AM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
Northbound I-275			
54th Ave S EB On	803	11.9	B
54th Ave S WB On	918	25.4	C
26th Ave S Off	368	28.0	D

Table 4-13. (Continued) Existing Year (2012) HCS I-275 Ramp Merge/Diverge MOEs and LOS – AM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
22nd Ave S EB On	662	23.8	C
22nd Ave S WB On	410	13.7	B
31st St S Off	341	4.2	A
28th St S On	362	29.1	D
I-175 Off	806	20.9	F
I-175 On	866	35.7	F
I-375 Off	344	26.6	C
I-375 On	590	3.2	A
5th Ave N On	1181	26.9	C
22nd Ave N Off	541	25.5	C
22nd Ave N On	1011	38.7	F
38th Ave N Off	549	41.5	F
38th Ave N On	974	40.0	F
54th Ave N EB Off	313	27.4	C
54th Ave N WB Off	504	30.6	F
22nd St N On	663	39.0	F
Southbound I-275			
54th Ave N Off	357	32.8	D
54th Ave N WB On	448	24.4	C
54th Ave N EB On	610	23.5	C
38th Ave N Off	363	23.8	C
38th Ave N On	858	37.9	E
22nd Ave N Off	618	26.2	C
22nd Ave N On	711	34.4	D
5th Ave N Off	1104	47.3	E
I-375 Off	1278	7.4	A
I-375 On	209	23.4	C
I-175 Off	1302	16.4	B
I-175 On	207	22.2	C
28th St S Off	326	22.9	C
31st St S On	234	24.2	C
22nd Ave S Off	835	11.5	B
26th Ave S On	227	14.0	B
54th Ave S Off	944	2.6	A

Table 4-14. Existing Year (2012) HCS I-275 Ramp Merge/Diverge MOEs and LOS – PM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
Northbound I-275			
54th Ave S EB On	624	2.0	A
54th Ave S WB On	440	15.8	B
26th Ave S Off	238	17.8	B
22nd Ave S EB On	550	15.2	B
22nd Ave S WB On	414	10.3	B
31st St S Off	304	*	*
28th St S On	304	18.1	B
I-175 Off	332	5.5	A
I-175 On	1326	29.5	D
I-375 Off	254	23.0	C
I-375 On	1187	5.0	A
5th Ave N On	1204	27.0	C
22nd Ave N Off	726	25.8	C
22nd Ave N On	658	35.7	E
38th Ave N Off	675	37.4	E
38th Ave N On	471	33.7	D
54th Ave N EB Off	611	24.2	C
54th Ave N WB Off	586	22.0	C
22nd St N On	407	29.2	D
Southbound I-275			
54th Ave N Off	622	38.3	E
54th Ave N WB On	370	28.7	D
54th Ave N EB On	498	25.5	C
38th Ave N Off	948	28.5	D
38th Ave N On	560	38.0	E
22nd Ave N Off	953	26.1	C
22nd Ave N On	652	31.6	D
5th Ave N Off	1176	40.9	E
I-375 Off	814	3.4	A
I-375 On	326	27.3	C
I-175 Off	920	16.2	B
I-175 On	770	29.7	D
28th St S Off	326	27.4	C
31st St S On	392	34.2	D
22nd Ave S Off	865	17.1	B
26th Ave S On	274	20.9	C
54th Ave S Off	1610	12.8	B

*LOS results using HCM 2010 could not be determined due to geometry and magnitude of volume

Table 4-15. Existing Year (2012) I-275 Ramp Capacity

I-275 On/Off Ramp	AM Peak-Hour Volume-to-Capacity Ratio	PM Peak-Hour Volume-to-Capacity Ratio
Northbound I-275		
54th Ave S EB On	0.19	0.15
54th Ave S WB On	0.44	0.21
26th Ave S Off	0.18	0.11
22nd Ave S WB On	0.33	0.28
22nd Ave S EB On	0.20	0.20
31st St S Off	0.08	0.07
28th St S On	0.17	0.14
I-175 Off	0.19	0.08
I-175 On	0.41	0.63
I-375 Off	0.16	0.12
I-375 On	0.14	0.28
5th Ave N On	0.56	0.57
22nd Ave N Off	0.26	0.35
22nd Ave N On	0.48	0.31
38th Ave N Off	0.26	0.32
38th Ave N On	0.46	0.22
54th Ave N EB Off	0.15	0.29
54th Ave N WB Off	0.25	0.29
22nd St N On	0.32	0.19
Southbound I-275		
54th Ave N Off	0.17	0.30
54th Ave N WB On	0.22	0.19
54th Ave N EB On	0.29	0.24
38th Ave N Off	0.17	0.45
38th Ave N On	0.41	0.27
22nd Ave N Off	0.29	0.45
22nd Ave N On	0.34	0.31
5th Ave N Off	0.53	0.56
I-375 Off	0.30	0.19
I-375 On	0.10	0.16
I-175 Off	0.31	0.22
I-175 On	0.10	0.37
28th St S Off	0.16	0.16
31st St S On	0.11	0.19
22nd Ave S Off	0.40	0.41
26th Ave S On	0.11	0.13
54th Ave S Off	0.22	0.38

4.3.3 Existing Year (2012) I-275 Ramp Terminal Intersection Operations

The results of the existing year (2012) HCS 2010 signalized ramp terminal intersections analysis for the AM and PM peak periods are shown in **Table 4-16** and **Table 4-17**, respectively. Similarly, the

results of the existing year (2012) HCS 2010 unsignalized ramp terminal intersections analysis for the AM and PM peak periods are shown in **Table 4-18** and **Table 4-19**, respectively. The results of the analysis indicate that one intersection (both signalized and unsignalized) currently does not meet the adopted LOS standards in the AM peak hour and one intersection (both signalized and unsignalized) currently do not meet the adopted LOS standards in the PM peak hour. The deficient intersection is located at Gandy Boulevard and the northbound I-275 off ramp. The northbound to eastbound right-turn lane volume is greater than the capacity that is provided by a single lane yield-controlled right turn movement.

Table 4-16. Existing Year (2012) I-275 Signalized Ramp Terminal Intersection MOEs and LOS – AM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
54th Ave S SB Off	4.8	A	5.1	A	--	--	31.5	C	12.1	B
22nd Ave S SB Off	19.0	B	12.8	B	--	--	40.2	D	26.7	C
5th Ave N SB Off	24.5	C	11.5	B	--	--	40.1	D	29.7	C
5th Ave N NB On	38.7	D	20.7	C	61.7	E	--	--	39.0	D
22nd Ave N SB On/Off	17.5	B	13.9	B	--	--	50.3	D	22.0	C
22nd Ave N NB On/Off	19.9	B	11.6	B	52.0	D	--	--	21.6	C
38th Ave N SB On/Off	9.6	A	13.4	B	--	--	51.7	D	16.6	B
38th Ave N NB On/Off	28.5	C	17.4	B	54.0	D	--	--	27.7	C
54th Ave N SB Off	7.1	A	5.2	A	--	--	38.5	D	10.4	B
Gandy Blvd NB Off	16.9	B	26.6	C	404.8	F	--	--	146.8	F

Table 4-17. Existing Year (2012) I-275 Signalized Ramp Terminal Intersection MOEs and LOS – PM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
54th Ave S SB Off	23.3	C	7.8	A	--	--	44.7	D	27.2	C
22nd Ave S SB Off	19.5	B	13.1	B	--	--	65.3	E	37.2	D
5th Ave N SB Off	34.6	C	17.5	B	--	--	57.9	E	41.5	D
5th Ave N NB On	52.6	D	25.3	C	60.7	E	--	--	43.9	D
22nd Ave N SB On/Off	20.1	C	14.6	B	--	--	54.2	D	26.4	C
22nd Ave N NB On/Off	19.0	B	9.6	A	54.5	D	--	--	23.1	C
38th Ave N SB On/Off	26.6	C	20.5	C	--	--	40.2	D	28.4	C
38th Ave N NB On/Off	8.8	A	9.3	A	54.2	D	--	--	19.0	B
54th Ave N SB Off	7.6	A	7.6	A	--	--	39.5	D	14.3	B
Gandy Blvd NB Off	16.3	B	24.5	C	291.1	F	--	--	112.1	F

Table 4-18. Existing Year (2012) I-275 Unsignalized Ramp Terminal Intersection MOEs and LOS – AM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay[2] (sec/veh)	LOS
54th Ave S NB On	9.7	A[1]	--	--	--	--	--	--	0.7	A
26th Ave S SB On	--	--	7.7	A[1]	---	--	--	--	0.8	A
26th Ave S NB Off	--	--	--	--	11.9	B	--	--	5.5	A
31st St S SB On/NB Off	19.2	C	11.4	B	7.6	A[1]	--	--	7.8	A
28th St S SB Off	--	--	13.8	B	--	--	--	--	5.1	A
28th St S NB On	--	--	--	--	--	--	8.1	A[1]	1.0	A
Roosevelt Blvd SB Off	--	--	--	--	--	--	5610.4	F	224.6	F
Roosevelt Blvd NB On	28.0	D[1]	--	--	--	--	--	--	0.4	A

1 Control delay reported for left-turn movement from cross street onto I-275 on ramp
2 Overall intersection delay calculated as the weighted average delay for all intersection movements

Table 4-19. Existing Year (2012) I-275 Unsignalized Ramp Terminal Intersection MOEs and LOS – PM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay[2] (sec/veh)	LOS
54th Ave S NB On	9.1	A[1]	--	--	--	--	--	--	0.3	A
26th Ave S SB On	--	--	7.8	A[1]	--	--	--	--	0.9	A
26th Ave S NB Off	--	--	--	--	12.2	B	--	--	3.9	A
31st St S SB On/NB Off	28.3	D	--	--	8.1	A[1]	--	--	9.1	A
28th St S SB Off	--	--	13.0	B	--	--	--	--	4.1	A
28th St S NB On	--	--	--	--	--	--	8.1	A[1]	1.3	A
Roosevelt Blvd SB Off	--	--	--	--	--	--	10553.9	F	180.5	F
Roosevelt Blvd NB On	19.6	C[1]	--	--	--	--	--	--	0.5	A

1 Control delay reported for left-turn movement from cross street onto I-275 on ramp
2 Overall intersection delay calculated as the weighted average delay for all intersection movements

4.3.4 Existing Year (2012) CORSIM Analysis

The I-275 freeway operations of the existing configuration from south of Gandy Boulevard to north of 4th Street North were analyzed in CORSIM. The on and off ramps within these limits were also analyzed. The peak-hour results for different MOEs were extracted from the existing year (2012) CORSIM model output and averaged over the ten runs for the appropriate links and time periods. Note that the peak-hour output was used for determining the operational analysis. The results of the existing year (2012) CORSIM analysis for the AM and PM peak periods are shown in **Table 4-19**.

Table 4-20. Existing Year (2012) I-275 CORSIM Results

Segment	Average Speed (mph)		Density (veh/mi/ln)	
	AM	PM	AM	PM
Freeway				
NB I-275 from South of Gandy to Gandy Off Ramp	62.4	65.0	35.0	25.6
NB I-275 from Gandy Off Ramp to Gandy On Ramp	65.1	66.9	26.3	17.1
NB I-275 from Gandy On Ramp to Roosevelt/118th Off Ramp	64.0	66.2	22.4	14.6
NB I-275 from Roosevelt/118th Off Ramp to Roosevelt/118th On Ramp	66.8	67.8	14.8	10.4
NB I-275 from Roosevelt/118th Off Ramp to MLK On Ramp	67.0	67.2	13.2	10.5
NB I-275 from MLK On Ramp to Ulmerton On Ramp	66.7	66.9	13.7	11.3
NB I-275 from Ulmerton On Ramp to 4th On Ramp	65.8	64.7	15.3	19.7
NB I-275 from 4th On Ramp to South of the Howard Frankland Bridge	62.8	63.5	21.7	19.0
SB I-275 from South of the Howard Frankland Bridge to 4th Off Ramp	67.4	64.9	20.4	24.6
SB I-275 from 4th Off Ramp to Ulmerton/MLK Off Ramp	64.2	65.2	15.0	20.5
SB I-275 from Ulmerton/MLK Off Ramp to Ulmerton On Ramp	68.1	67.2	9.5	14.7
SB I-275 from Ulmerton On Ramp to Roosevelt/118th Off Ramp	66.9	64.6	15.4	21.2
SB I-275 from Roosevelt/118th Off Ramp to Roosevelt On Ramp	68.1	67.0	16.1	21.3
SB I-275 from Roosevelt On Ramp to 118th On Ramp	65.4	63.6	9.9	16.1
SB I-275 from 118th On Ramp to Gandy Off Ramp	66.0	63.3	13.9	21.9
SB I-275 from Gandy Off Ramp to Gandy Loop On Ramp	66.9	65.0	15.9	23.4
SB I-275 from Gandy Loop On Ramp to Gandy On Ramp	61.9	62.0	17.6	23.0
SB I-275 from Gandy On Ramp to South of Gandy	64.9	63.4	23.5	29.6
Arterials				
EB Gandy from West of I-275 to I-275 On Ramp	48.1	48.7	17.0	13.8
EB Gandy from I-275 On Ramp to NB I-275 Off Ramp	48.6	49.1	8.4	7.2
EB Gandy from NB to WB I-275 Off Ramp to NB to EB I-275 Off Ramp	43.7	43.8	10.2	8.8
EB Gandy from NB to EB I-275 Off Ramp to East of I-275	46.2	46.4	14.4	13.2
WB Gandy from East of I-275 to SB I-275 Loop On Ramp	46.2	46.7	16.5	18.1
WB Gandy from SB I-275 Loop On Ramp to SB I-275 Off Ramp	53.2	53.0	11.3	14.2
WB Gandy from SB I-275 Off Ramp to West of I-275	53.0	51.9	21.7	26.3
EB Roosevelt from West of I-275 to SB I-275 On Ramp	58.4	57.4	8.2	14.4
EB Roosevelt from SB I-275 On Ramp to NB I-275 Off Ramp	58.8	58.1	9.3	13.9
EB Roosevelt West of NB I-275 Off Ramp	57.8	56.9	11.0	14.8
EB Roosevelt from NB I-275 Off Ramp to East of I-275	57.4	57.5	11.4	12.9
WB Roosevelt from East of I-275 to NB I-275 On Ramp	58.7	58.8	18.3	14.8
WB Roosevelt West of NB I-275 On Ramp	58.4	58.9	19.2	14.3
WB Roosevelt from NB I-275 On Ramp to NB I-275 Off Ramp	57.2	58.0	16.7	12.1
WB Roosevelt from NB I-275 Off Ramp to West of I-275	57.0	57.7	15.4	10.2
WB 118th from SB I-275 Off Ramp to West of I-275	57.4	56.7	9.1	12.1
EB 118th from West of I-275 to SB I-275 On Ramp	57.1	56.6	13.5	14.6
EB Ulmerton from West of I-275 to I-275 On Ramp	57.9	57.7	9.5	13.9
WB Ulmerton West of I-275	55.7	56.9	19.1	10.5

Table 4-20. (Continued) Existing Year (2012) I-275 CORSIM Results

Segment	Average Speed (mph)		Density (veh/mi/ln)	
	AM	PM	AM	PM
Ulmerton to SB I-275 On Ramp/MLK	47.3	45.9	8.9	16.2
EB Ulmerton to SB MLK	43.8	43.8	4.8	4.6
SB MLK	49.1	49.3	6.2	4.5
Ramps				
NB I-275 Off Ramp to Gandy	46.9	44.3	29.8	35.4
NB I-275 Off Ramp to EB Gandy	41.3	40.7	23.0	23.4
I-275 On Ramp from EB Gandy	38.2	42.9	22.8	16.0
NB I-275 On Ramp from EB Gandy	48.8	48.9	8.8	6.3
SB I-275 Off Ramp to Gandy	49.0	48.4	6.3	12.5
SB I-275 On Ramp from EB Gandy	45.9	45.9	19.3	16.8
SB I-275 Loop On Ramp Loop from WB Gandy	32.9	33.4	25.1	20.1
NB I-275 Off Ramp to Roosevelt/118th	47.9	50.3	31.1	19.0
NB I-275 Off Ramp to Roosevelt/118th	46.7	47.7	26.6	16.7
NB I-275 Off Ramp to EB Roosevelt	49.1	49.5	7.4	3.7
NB I-275 Off Ramp to WB Roosevelt	48.1	48.6	17.1	10.0
NB I-275 On Ramp from WB Roosevelt	53.4	52.4	0.4	2.8
NB I-275 On Ramp from Roosevelt/118th	47.9	48.1	8.3	9.3
SB I-275 Off Ramp to Roosevelt/118th	49.5	48.6	7.7	14.3
SB I-275 On Ramp from Roosevelt	46.5	43.1	9.3	17.0
SB I-275 On Ramp from EB Roosevelt	49.5	49.0	5.6	12.5
NB I-275 Off Ramp to WB Roosevelt/118th	47.6	48.3	21.5	14.0
NB I-275 Off Ramp to 118th	49.2	49.3	9.8	7.6
NB I-275 On Ramp from 118th	48.9	49.0	10.8	9.5
SB I-275 Off Ramp to 118th	46.9	45.3	13.1	29.1
SB I-275 On Ramp from 118th	47.8	47.4	16.9	21.3
NB I-275 On Ramp from Ulmerton	49.0	48.5	12.5	17.0
SB I-275 Off Ramp to Ulmerton/MLK	47.7	48.7	26.4	14.7
SB I-275 On Ramp from Ulmerton	41.9	41.2	5.0	13.1
NB I-275 On Ramp from NB MLK	49.5	49.4	5.7	6.6
SB I-275 Off Ramp to MLK	48.5	48.8	8.5	5.0
NB I-275 On Ramp from 4th	58.3	58.9	9.8	5.0
SB I-275 Off Ramp to 4th	59.0	57.6	4.1	11.1

5 Planning Phase/Corridor Analysis

A planning screen was not processed for this proposed project in FDOT's ETDM system. This PD&E Study builds upon the preliminary recommendations of the *Lane Continuity Study* completed in October 2008, and is consistent with the alternative conceptual design documented in the ongoing *TBX Master Plan*. Alternative corridors are not applicable for this proposed interstate enhancement project. Alternative corridors that are capable of providing equivalent roadway capacity as the existing I-275 study corridor would likely lead to a high number of detrimental environmental and sociocultural effects to local habitats and communities within the densely-populated urbanized area of Pinellas County. Therefore, the evaluation of alternative corridors is not applicable to this PD&E Study.

The objective of this PD&E Study is to maximize the existing roadway capacity of the I-275 study corridor in Pinellas County without incurring significant costs due to right-of-way acquisition and major interstate reconstruction. Enhanced capacity along I-275 can be accomplished through implementing the combination of lower-cost TSM improvements, and longer-term revenue sustainable managed lanes improvements. TSM improvements proposed in this PD&E Study include: lane continuity improvements that connect existing auxiliary lanes to form continuous travel lanes on I-275, ramp widening improvements to minimize vehicle queue spillback onto the I-275 mainline, turn lane and traffic control improvements at ramp terminal intersections, and multimodal improvements. Premium transit service within the I-275 study corridor is proposed through the study of bus operation on shoulders between I-375 and the proposed southern limit of the express lanes south of Gandy Boulevard, preservation of a 40-ft multimodal envelope for possible light rail transit (LRT) between the CSX rail corridor north of 5th Avenue North and 62nd Avenue North, and express bus operated within the proposed express lanes from south of Gandy Boulevard to north of 4th Street North.

6 Project Design Standards

Design criteria were developed based on the *FDOT PPM* (January 2014); and *A Policy on Geometric Design of Highways and Streets* (American Association of State Highway and Transportation Officials (AASHTO), 2011) and others. **Table 6-1** summarizes the design criteria used for this project. The I-275 corridor was originally designed using varying design speeds between 50 and 70 mph and is currently posted a consistent 65 mph. A consistent design speed of 70 was used for this project. A range of design criteria **Table 6-2** includes standards for managed/express lanes.

Table 6-1. Project Design Controls

Design Element	I-275 Mainline	I-275 Ramps	Reference
Existing Functional Classification	Urban Principal Arterial – Interstate and SIS Highway Facility	N/A	Straight Line Diagram
Access Management Classification	Access Class 1	N/A	State Highway System Acess Management Classification System and Standards
Design Speed	70 mph	35 mph to 50 mph	PPM Volume 1, Table 1.9.2; AASHTO - Geometric Design of Highway and Streets
Design Vehicle			
- General Use	WB-62FL	WB-62FL	PPM Volume 1, Figure 1.12.1
- Express Lane	SU-30/BUS-45	N/A	
Horizontal Alignment			
- Max deflection w/o curve	0° 45’ 00”	0° 45’ 00”	PPM Volume 1, Table 2.8.1a
- Min curve length in full superelevation	200’	200’	PPM Volume 1, Table 2.8.2a
- Length of curve	2,100’(1,050’min)	525’ (400’ min) 35 mph 750’ (400’ min) 50 mph	PPM Volume 1, Table 2.8.2a
- Max curvature	3° 00’ 00”	17° 45’00” (35 mph) 8° 15’00” (50 mph)	PPM Volume 1, Table 2.8.3
- Max superelevation	0.10 ft/ft	0.10 ft/ft	PPM Volume 1, Table 2.8.3
- Max curvature with NC	0° 15’ 00”	1° 30’ 00” (35 mph) 0° 30’ 00” (50 mph)	PPM Volume 1, Table 2.8.4
Vertical Alignment			
- Max Grade	3%	6% (35-40 mph) 5% (45-50 mph)	PPM Volume 1, Table 2.6.1
- Max change in grade w/o curve	0.2%	0.9% (35 mph, interpolated) 0.6% (50 mph)	PPM Volume 1, Table 2.6.2

Table 6-1. (Continued) Project Design Controls

Design Element	I-275 Mainline	I-275 Ramps	Reference
- Min stopping sight distance [1]	820’	250’ (35 mph) 425’ (50 mph)	PPM Volume 1, Table 2.7.1
- Min “K” for crest curve	506'	47' (35 mph) 136' (50 mph)	PPM Volume 1, Table 2.8.5
- Min crest curve length	1,000’ open highway 1,800’ within interchanges	105’ (35 mph) 150’ (50 mph)	PPM Volume 1, Table 2.8.5
- Min “K” for sag curve	206'	49' (35 mph) 96' (50 mph)	PPM Volume 1, Table 2.8.6
- Min sag curve length	800’	105’ (35 mph) 150’ (50 mph)	PPM Volume 1, Table 2.8.6
Cross Section Elements			
- Travel lane width	12’	15’ (1-lane ramp) 24' (2-lane ramp)	PPM Volume 1, Table 2.1.1 and Table 2.14.1
- Auxiliary lane	12’	N/A	PPM Volume 1, Table 2.1.1
- Outside shoulder width (GUL)	12’ (10’ paved)	6’ (4’ paved) (1-lane ramp) 12’ (10’ paved) (2-lane ramp)	PPM Volume 1, Table 2.3.1
- Outside shoulder width (bridge)	10’	6’ (1-lane ramp) 10’ (2-lane ramp)	PPM Volume 1, Figure 2.0.1
- Buffer between EL & GUL	4’ desirable (2’ min.)	N/A	Consistency with the Tampa Bay Interstate (TIS) Final Environmental Impact Statement (FEIS)
- Inside shoulder width (GUL)	12’ (10’ paved)	6’ (2’ paved) (1-lane ramp) 8’ (4’ paved) (2-lane ramp)	PPM Volume 1, Figure 2.3.1
- Inside shoulder width (EL)	12' (10' min.)	N/A	FHWA State of the Practice and Recommendations on Traffic Control Strategies at Toll Plazas
- Inside shoulder width (bridge)	10’ (6’ min.)	6’	PPM Volume 1, Figure 2.0.1
- Median width	64’ (26’ w/ barrier wall)	N/A	PPM Volume 1, Table 2.2.1
- Travel lane cross slope	2.0% (3.0% max)	2.00%	PPM Volume 1, Figure 2.1.1
- Outside shoulder cross slope	6.00%	6.00%	PPM Volume 1, Table 2.3.1
- Inside shoulder cross slope	5.0% (2- or 3-lanes) 6.0% (4-lanes)	5.00%	PPM Volume 1, Table 2.3.1
- Max rollover at ramp terminal	5.00%	5.00%	PPM Volume 1, Table 2.1.4
- Max rollover between travel lanes	4.00%	N/A	AASHTO - Geometric Design of Highway and Streets

Table 6-1. (Continued) Project Design Controls

Design Element	I-275 Mainline	I-275 Ramps	Reference
Border Width	94’	94’	PPM Volume 1, Table 2.5.3
Clear Zone/Recoverable Terrain			
- Travel lane	36’	14’ (1-lane ramp) 24’(2-lane ramp)	PPM Volume 1, Table 2.11.11
- Auxiliary lane	24’	N/A	PPM Volume 1, Table 2.11.11
Vertical Clearance			
- Roadway over roadway	16.5’	16.5’	PPM Volume 1, Table 2.10.1
- Pedestrian over roadway	17.5’	17.5’	PPM Volume 1, Table 2.10.1
- Roadway over Railroad	23.5’	23.5’	PPM Volume 1, Table 2.10.1
- Overhead signs (2)	17.5’	17.5’	PPM Volume 1, Table 2.10.2
- Dynamic message sign (2)	19.5’	19.5’	PPM Volume 1, Table 2.10.2
Structural Capacity(3)	HL-93	HL-93	AASHTO LRFD (Load and Resistance Factor Design) Specifications

(1) Lengths to be adjusted for grade (PPM, Table 2.7.1)
(2) Clearance over the entire width of pavement and shoulder to the lowest sign component
(3) HL-20 for existing bridges to be widened that do not pass the HL-93 and FL-120 load rating.

Table 6-2. District Seven Design Standards for Express Lanes

Design Criteria	Proposed Express Lane Master Plan Criteria			PPM (2014)		AASHTO (2004)		AASHTO (2011)	
	Desirable	Minimum	Comments	Minimum	Ref./Page #	Minimum	Ref./Page #	Minimum	Ref./Page #
Express Lanes									
Design Speed	70 mph	50 mph	Desirable - SIS Urbanized Freeway Minimum Non SIS Urban Freeway						
Minimum Design Speed (System Ramps)	50 mph	35 mph	Policy					35 mph	p. 10-89
Design Vehicle	SU-30/BUS-45	SU-30/BUS-45	Policy						
Mainline (Paved Buffer and Barrier Separated)									
Lane Width	12'	11'	Policy - requires Design Exception	12'	Table 2.1.2	12'	p. 504	12'	p. 4-7
Left Shoulder Width - Paved Buffer (Full/Paved)	12'/10'	8'/6'	Policy	14'/10'	Table 2.3.1	10'	p. 505	10'	p. 4-10 & 4-11
Buffer from General Lanes (Paved Separation)	4'	4'	Policy						
Left Shoulder Width - Barrier Separated (Full/Paved)	6'/6'	6'/6'	2-Lane Barrier-Separated	6'/6'	Table 2.3.1	10'	p. 505	10'	p. 4-10 & 4-11
Right Shoulder Width (Barrier Wall Separation)	10'/10'	10'/10'	Provides refuge for stalled vehicle	10'/10'	Table 2.3.1	10'	p. 505	10'	p. 4-10 & 4-11
Profile	Match Existing General Lanes		Policy						
Single-Lane Slip Ramp/Scramble Lane									
Lane Width	15'	11'	Policy	15'	Table 2.1.3				
Left Shoulder Width	10'	2'	Policy (see attached Figure 6-5)	6'/2'	Table 2.3.1	2'	p. 838	2	p. 10-102
Right Shoulder Width (Buffer)	4'	4'	Policy						
Single-Lane Ramp									
Lane Width	15'	11'	Combination of Minimum lane and shoulder width values allows Passing Stalled Vehicle On Tangent. See PPM Table 2.14.1	15'	Table 2.1.3				
Left Shoulder Width (Full/Paved)	6'/2'	4'/2'		6'/2'	Table 2.3.1	2'	p. 838	2'	p. 10-102
Right Shoulder Width (Full/Paved)	6'/4'	4'/2'		6'/4'	Table 2.3.1	8'	p. 838	8'	p. 10-102

Table 6-2. (Continued) District Seven Design Standards for Express Lanes

Design Criteria	Proposed Express Lane Master Plan Criteria			PPM (2014)		AASHTO (2004)		AASHTO (2011)	
	Desirable	Minimum	Comments	Minimum	Ref./Page #	Minimum	Ref./Page #	Minimum	Ref./Page #
Dual-Lane Ramp									
Lane Width	12'	11'	Combination of Minimum lane and shoulder width values allows Passing Stalled Vehicle On Tangent. See PPM Table 2.14.1	12'	Table 2.1.3				
Left Shoulder Width	8'/4'	4'/2'		8'/4'	Table 2.3.1	4'	p. 840	4'	p. 10-102
Right Shoulder Width	12'/10'	10'/8'		12'/10'	Table 2.3.1	6'	p. 840	6'	p. 10-102
General Lanes									
Design Speed	70 mph	50 mph		70 mph	Table 1.9.2	50 mph	p. 503	50 mph	p. 8-1
Design Vehicle	WB-62FL	WB-62FL		WB-62FL	Section 1.12	WB-62	Exhibit 2-1 p. 17		
Mainline									
Lane Width	12'	11'	Policy-provide one 12' wide lane in each direction. Requires a Design Exception	12'	Table 2.1.1	12'	p. 504	12'	p. 4-7
Buffer from Managed Lanes	4'	4'	Policy						
Right Shoulder Width (Full/Paved)	12'/10'	10'/8'	Provides refuge for stalled vehicle full width and depth pavement within 1 mile each way of interchange for EMS	12'/10'	Table 2.3.1	10'	p. 505	10'	p. 4-10 & 4-11
Other Critical Criteria									
Stopping Sight Distance	PPM Interstate	AASHTO		820’ (2%)	Table 2.7.1	730’	Exhibit 3-1 p. 112	730’	p. 3-4
Lane Balance at Exit Terminal	Desirable, Not Required		Policy						
Transit Corridors	44' including barriers		Policy						
Border Width	94'	10' from face of retaining wall	Minimum 10' for maintenance	94'	Table 2.5.3	80'-150'	p. 508	80'-150'	p. 8-5
Vertical Clearance - Roadway Over Transit[1]	23'6"	23'-3"		23'-6"	Table 2.10.1	23'	p. 522		
Vertical Clearance over roadway	16'-6" (new)	16' (existing)		16'-6"	Table 2.10.1	16'	p. 506, 507, 763	16'	p. 8-4
Horizontal Clearances									
Bridges Piers & Abutments	Approach road + shoulder width		Stopping Sight Distance to be met	CZ	Table 2.11.6				
Setbacks-discontinuous attachments to barriers			PPM Figure 7.1.2.1 (Toll gantries, luminaires, bridge piers, ITS, etc.)						

Note: The criteria listed in this table meets the criteria outlined in the AASHTO Guide for High-Occupancy Vehicle Facilities.
1 The LPA for the Pinellas AA provides for a minimum vertical clearance of 15 feet and a desired vertical clearance of 18 feet plus the depth of the overhead catenary system, which is based on Utah Transit Authority Light Rail Design Criteria.

7 Alternatives Analysis

To develop an improved freeway facility for I-275 that is in the best overall public interest, engineering, environmental, and economic factors must be taken into consideration. The improved facility should be designed to safely and efficiently accommodate the projected design year vehicular traffic and address multimodal transportation needs of the traveling public. The design and alignment of the improved facility must also consider environmental conditions.

Included in the following sections are descriptions of the No Build and the Preferred Build alternative improvement concepts developed for this project, and the methods used to compare the alternatives.

7.1 No Build Alternative

The No Build Alternative assumes that, with the exception of the improvements that are already planned and funded, the existing conditions would remain for I-275 within the project limits. Certain advantages would be associated with the implementation of the No Build Alternative, including:

- No new construction costs;
- No disruption to the existing land uses during construction;
- No disruption to traffic due to construction activities;
- No right-of-way acquisitions or relocations due to the possible need for additional; stormwater management or floodplain compensation facilities; and
- No environmental degradation or disruption of natural resources.

The disadvantages of the No Build Alternative include, but are not limited to, the following:

- Reduced economic vitality and increased delays for freight and goods movement;
- Unacceptable levels of service on the existing roadway network;
- Increased traffic congestion causing higher road user costs due to travel delay;
- Deterioration of air quality caused by traffic congestion and delays;
- Deterioration of existing safety deficiencies;
- Elevated emergency response times; and
- Increased roadway maintenance costs.

Although there are numerous disadvantages associated with the No Build Alternative, the No Build Alternative will remain under consideration throughout the alternatives analysis and evaluation process. In addition to existing lane geometry, projects currently programmed in the FDOT's Adopted Five Year Work Program such as Gandy Boulevard Work Program Item Segment No.: 257086-1 were considered in the No Build Alternative.

7.2 Preferred Build Alternative

For this PD&E Study, a single Preferred Build Alternative is being evaluated along side the No Build Alternative. The Preferred Build Alternative consists of providing TSM and lane continuity improvements in Segments A and B and express lanes improvements in Segment C.

7.2.1 Transportation Systems Management

TSM improvements were considered as part of the lane continuity improvements from south of 54th Avenue South to south of Gandy Boulevard. TSM improvements are low cost capital improvements that maximize the efficiency of the current roadway system. TSM improvements may include adding lanes to on and off ramps, restriping to change lane designations, signal retiming, modifying stop-controlled intersections to signalized intersections, and addition of new or lengthening of existing right/left turn lanes.

7.2.2 Express Lane Improvements

Tolled express lanes are proposed in Segment C to increase capacity on I-275, while serving as a mechanism to generate revenue to fund the capital, operating and maintenance costs associated with this larger scale/longer-term interstate improvement. As previously mentioned, the proposed I-275 express lanes are part of the TBX Master Plan, which develops an integrated system of express lanes within the Tampa Bay Region. The express lanes would be constructed adjacent to the existing GULs; and access to these lanes would be controlled through varying toll prices to ensure that traffic would operate at a desired level of service (i.e., typically LOS C or better). This method of managing traffic is termed congestion pricing. Motorists willing to pay a toll to avoid traffic congestion on the I-275 GULs would experience a user benefit of reduced travel time and delay using the express lanes.

7.3 Traffic Evaluation of Alternatives

The following sections present the key MOEs obtained from the use of the HCS 2010 and CORSIM to assess the operations of the I-275 study corridor. The capability of an alternative to meet existing and future travel demand of the study corridor is one of the primary evaluation criteria in the selection of a preferred alternative. The following sections describe the future operational characteristics of the No Build and Preferred Build Alternatives.

7.3.1 Projected Traffic Volumes and Level of Service

The Tampa Bay Time of Day (TBTOD) Model with express lanes included was developed from the Tampa Bay Regional Planning Model (TBRPM) and used as a source to forecast future year (2020, 2030, and 2040) traffic projections within the I-275 PD&E study limits. The Model's validated Base Year is 2006 and the most-recently adopted Cost Affordable (CA) model has a Horizon Year of 2035. The Tampa Bay Regional Planning Model is based on the Florida Standard Urban Transportation Modeling Structure (FSUTMS) and is recognized by the FDOT as the accepted travel demand forecasting model for Pinellas County.

The design year (2040) AADT and Directional Design Hour Volumes (DDHV) on the freeway and ramps were provided by FDOT as developed from the TBTOD Model. **Figure 7-1** and **Figure 7-2** show the design year (2040) No Build AADT and AM and PM DDHV, respectively. **Figure 7-3** and **Figure 7-4** show the design year (2040) Master Project AADT and AM and PM DDHV, respectively.

Traffic operational analyses of the I-275 study corridor were completed for I-275 basic freeway segments, merge/diverge areas of the mainline/ramp junctions and ramp terminal intersections. The HCS 2010 was utilized to evaluate existing freeway operations on the I-275 mainline within the lane continuity section of I-275 (i.e., Segments A and B, from south of 54th Avenue South to south of Gandy Boulevard). Due to the unique traffic characteristics associated with the express lane section of I-275 (i.e., Segment C, from south of Gandy Boulevard to north of 4th Street North), CORSIM microsimulation was employed to evaluate the operations of the ELs and GULs.

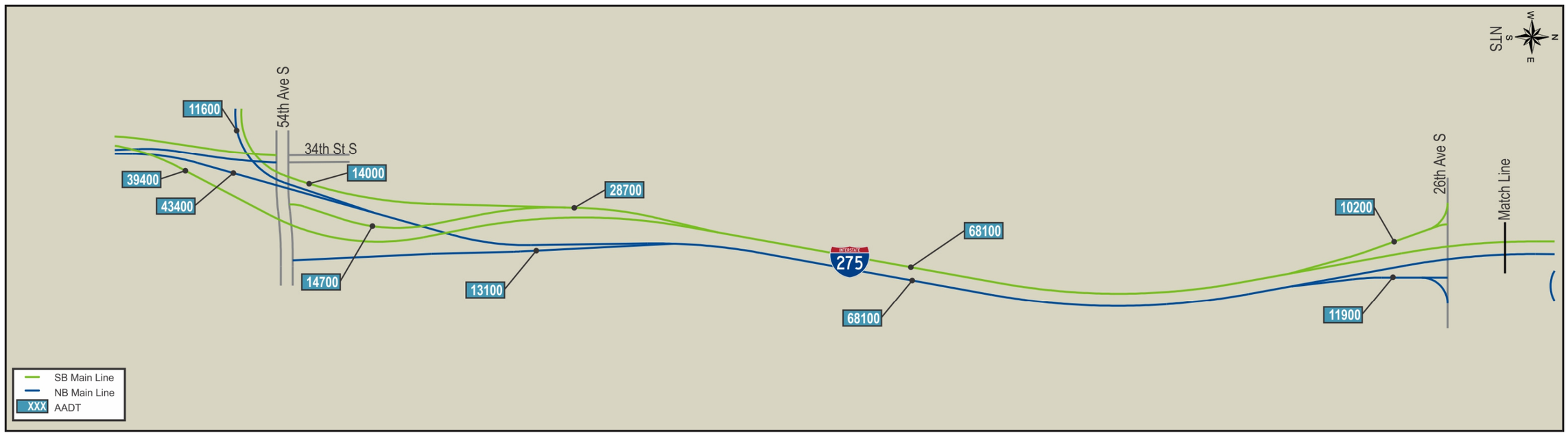
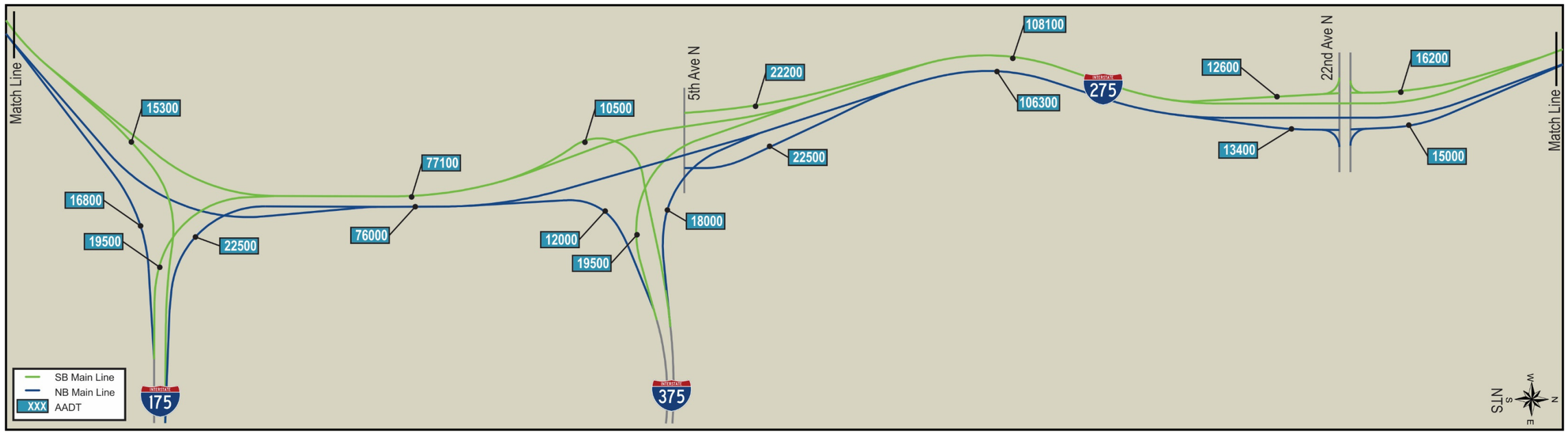


Figure 7-1. Design Year (2040) AADT – No Build



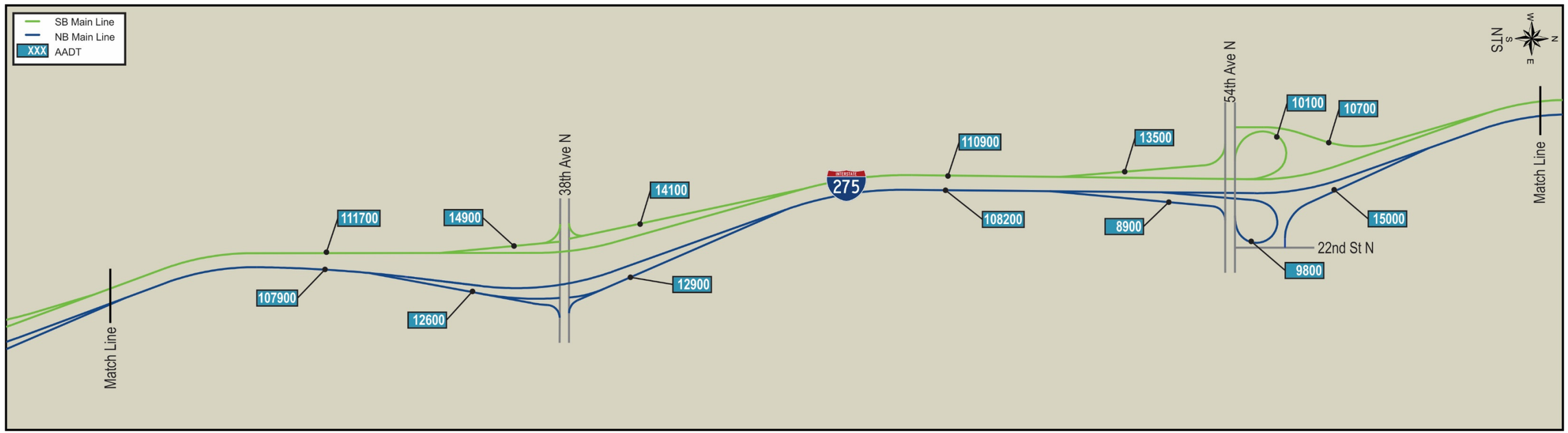


Figure 7-1. (Continued) Design Year (2040) AADT – No Build

Figure 7-1. (Continued) Design Year (2040) AADT – No Build

Figure 7-1. (Continued) Design Year (2040) AADT – No Build

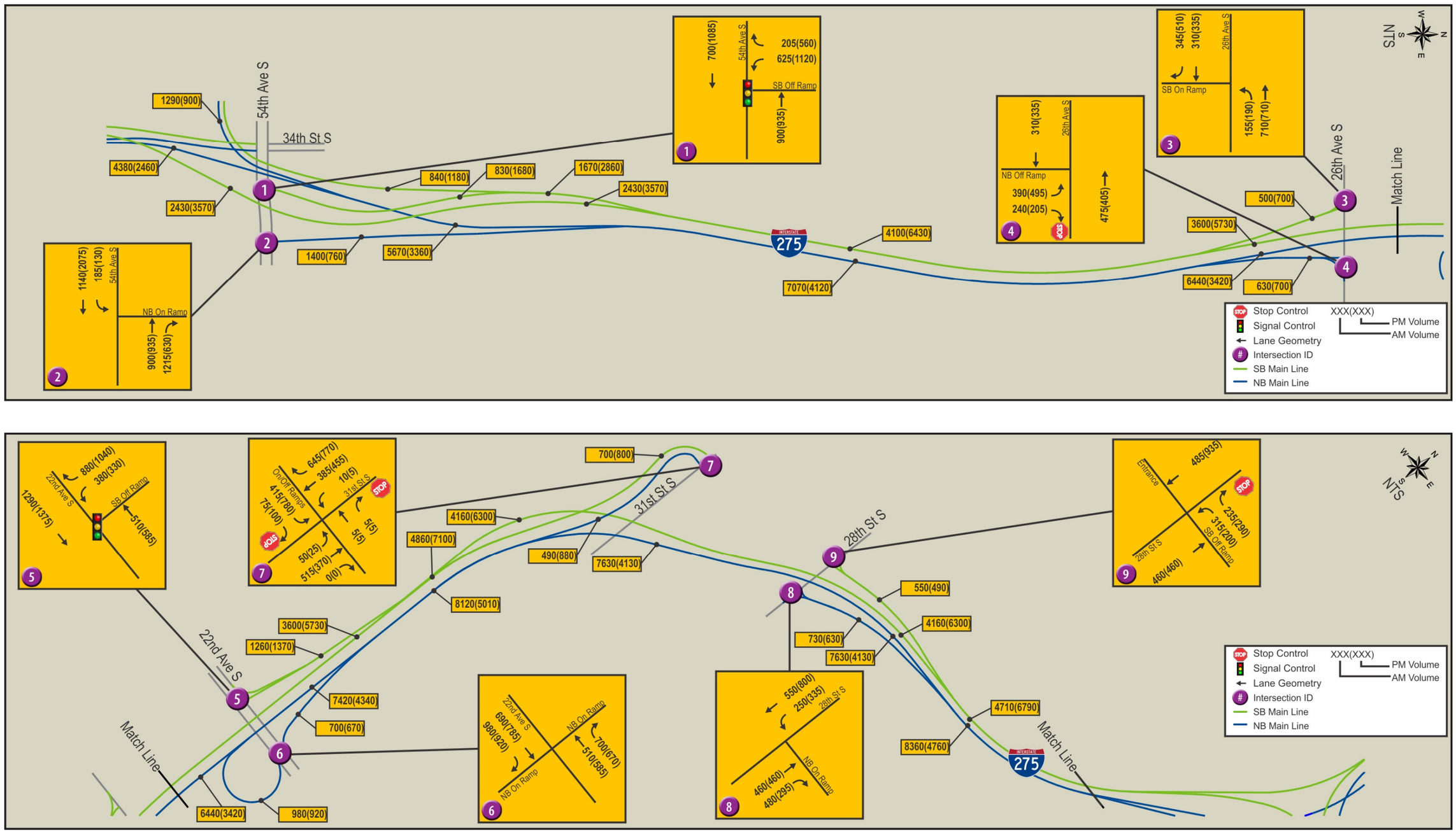


Figure 7-2. Design Year (2040) DDHV – No Build

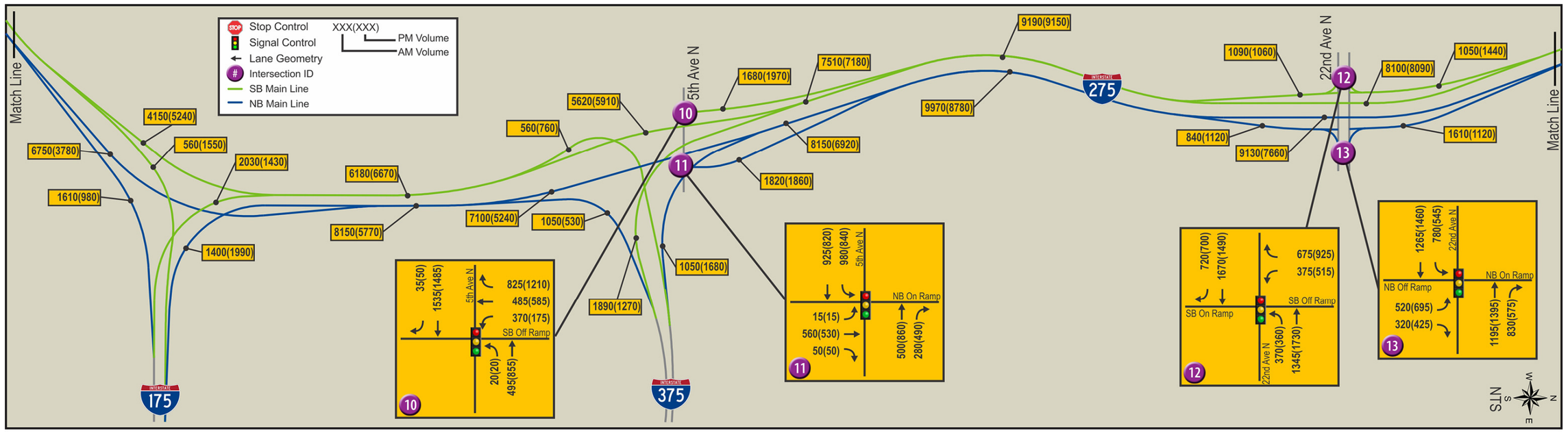


Figure 7-2. (Continued) Design Year (2040) DDHV – No Build

Figure 7-2. (Continued) Design Year (2040) DDHV – No Build

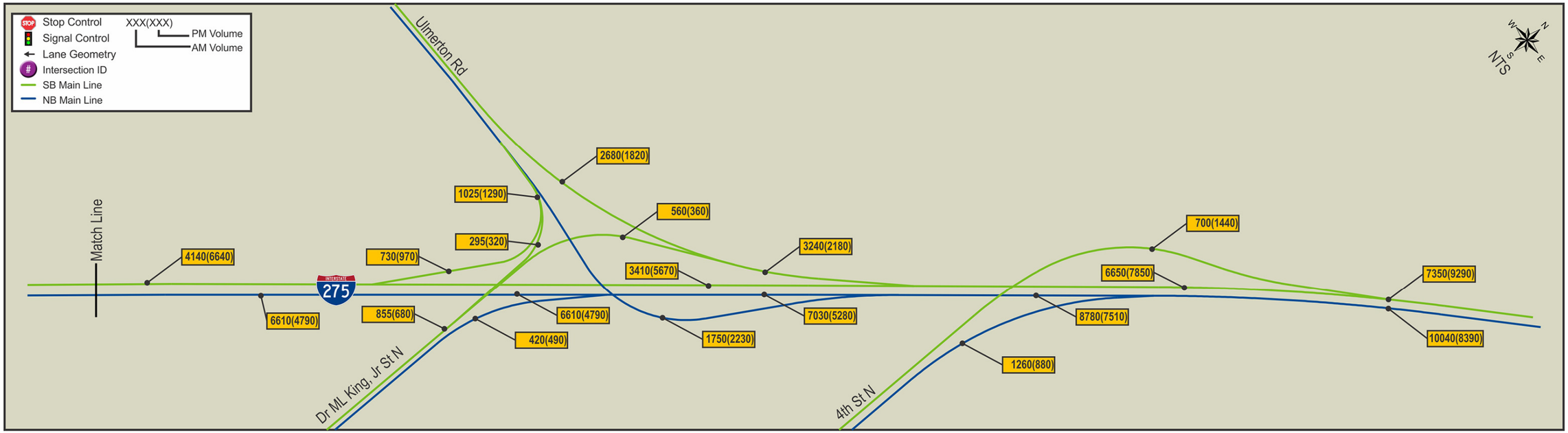


Figure 7-2. (Continued) Design Year (2040) DDHV – No Build

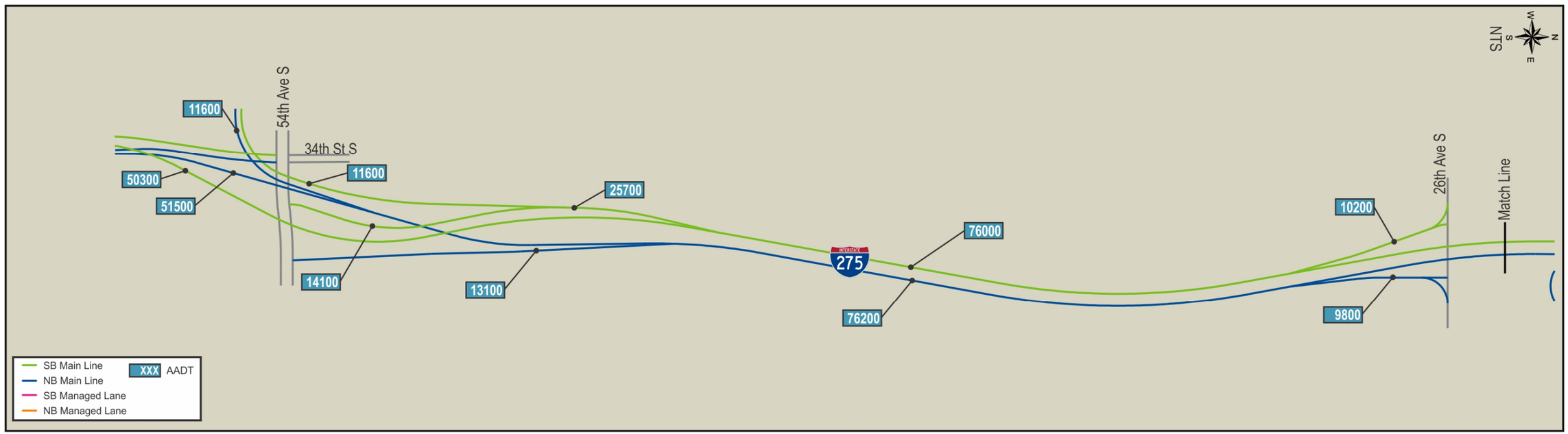


Figure 7-3. Design Year (2040) AADT – Master Project

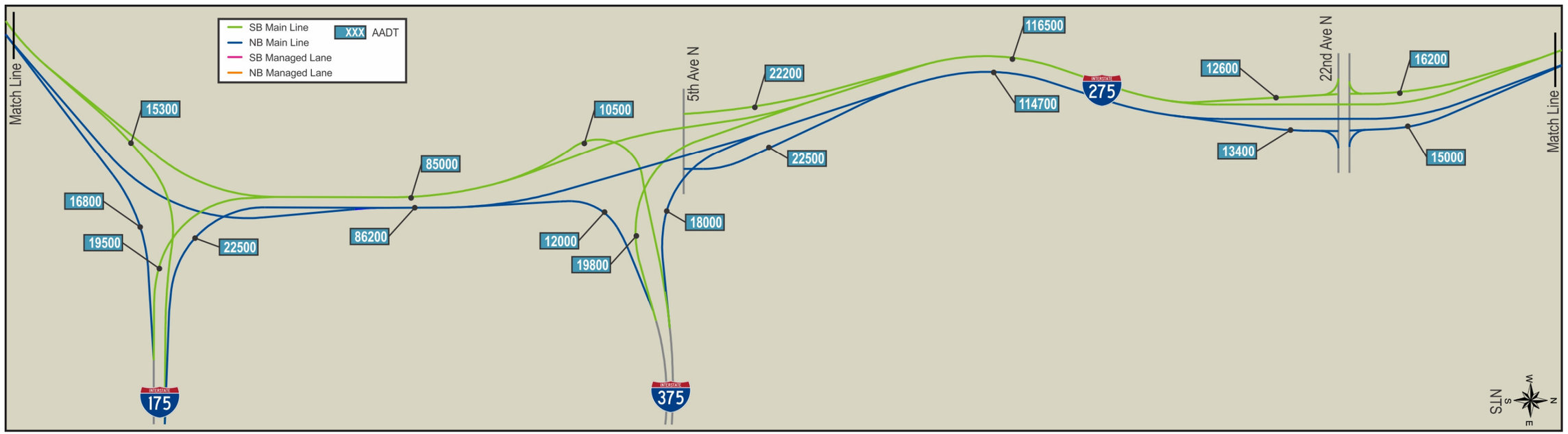


Figure 7-3. (Continued) Design Year (2040) AADT – Master Project

Figure 7-3. (Continued) Design Year (2040) AADT – Master Project

Figure 7-3. (Continued) Design Year (2040) AADT – Master Project

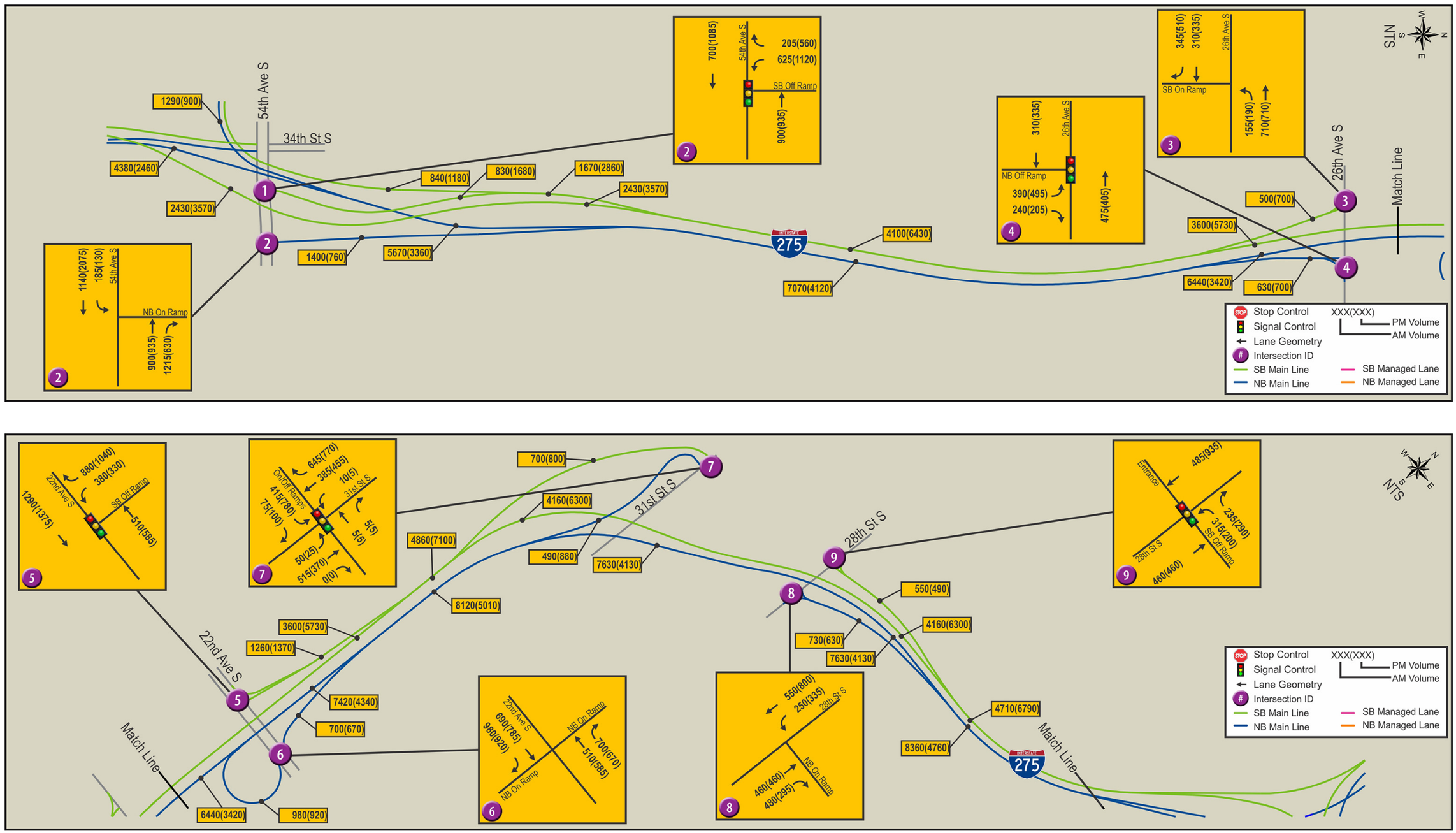


Figure 7-4. Design Year (2040) DDHV – Master Project

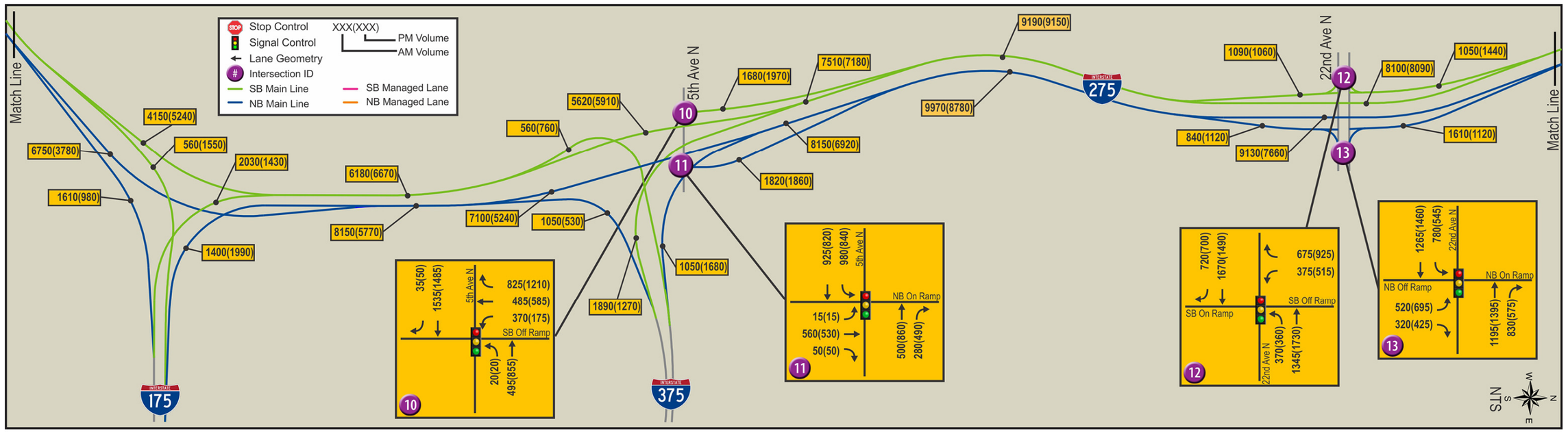
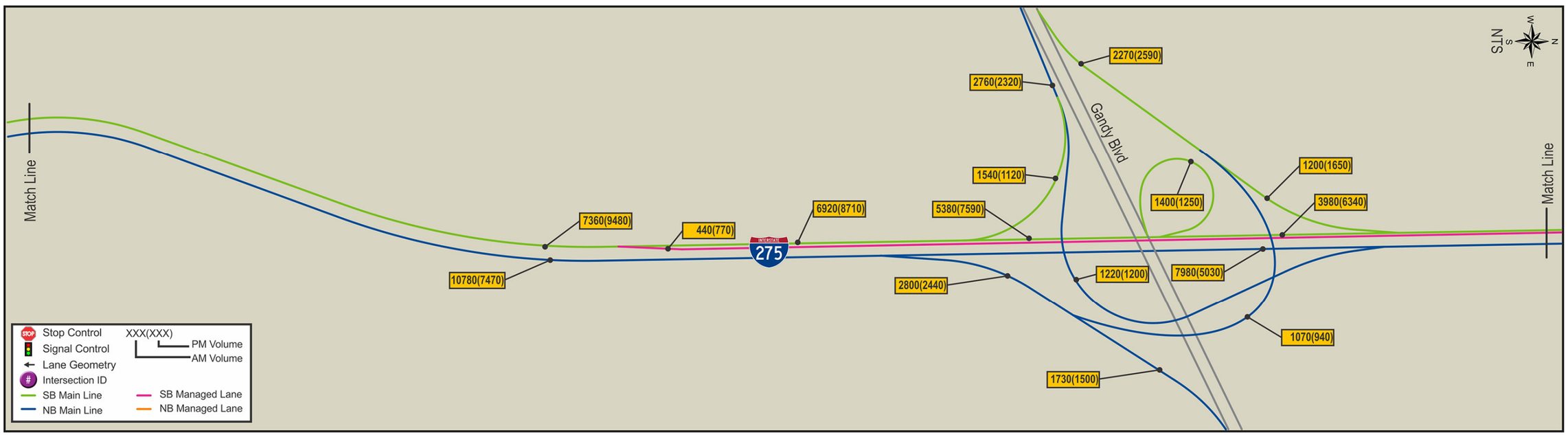


Figure 7-4. (Continued) Design Year (2040) DDHV – Master Project



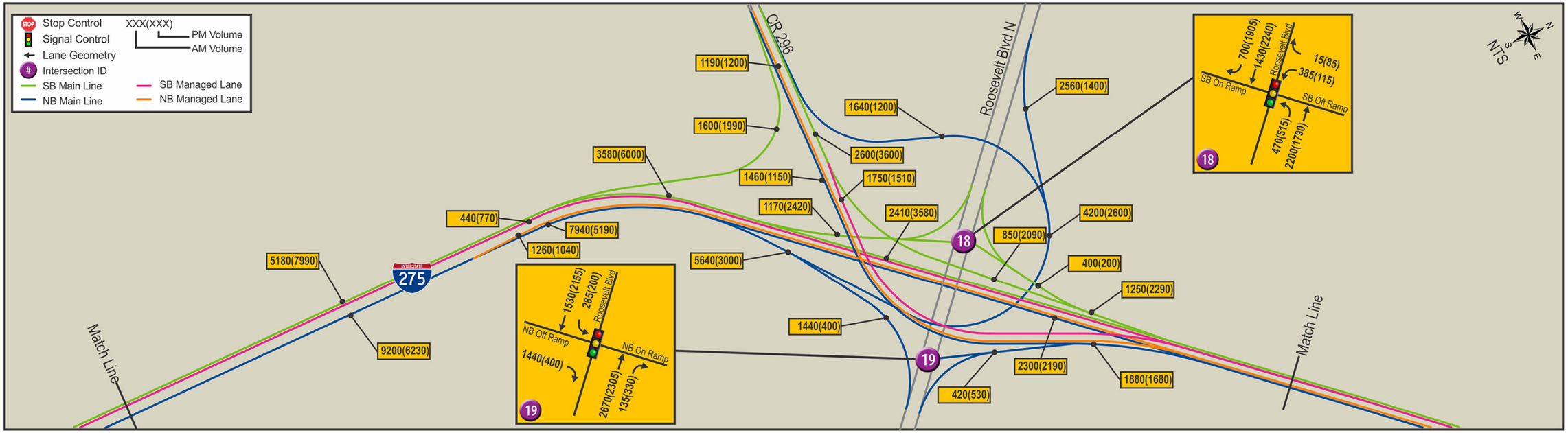
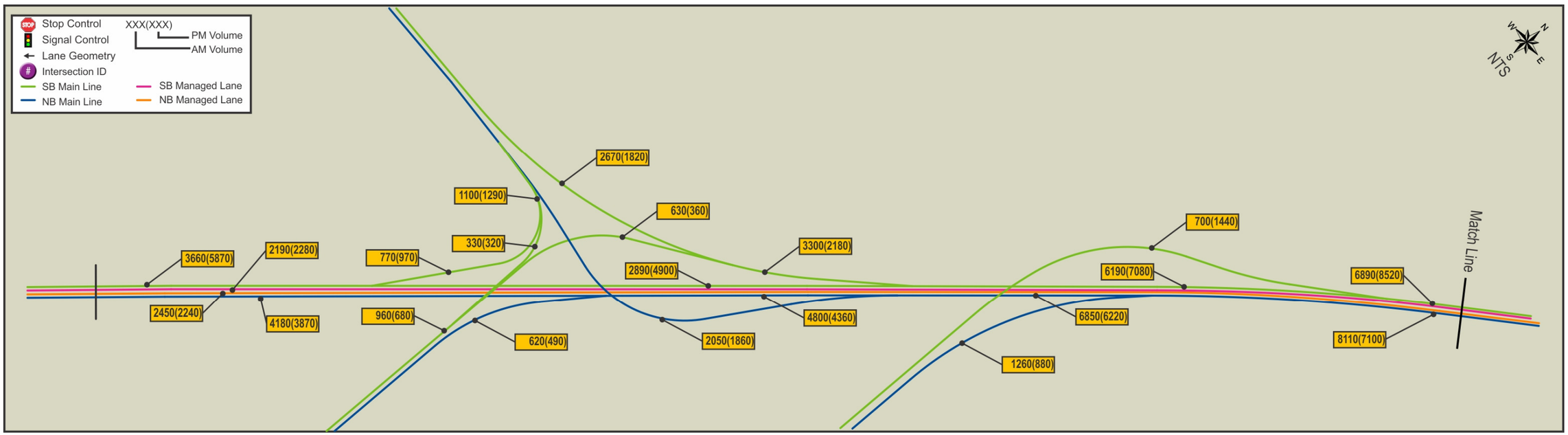


Figure 7-4. (Continued) Design Year (2040) DDHV – Master Project



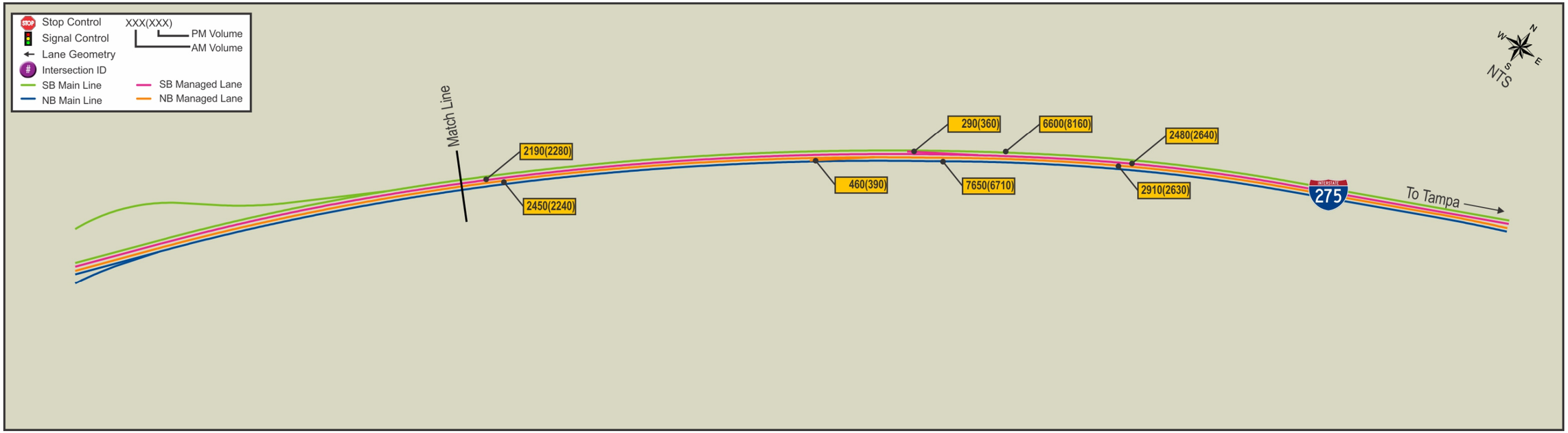


Figure 7-4. (Continued) Design Year (2040) DDHV – Master Project

7.3.2 No Build

7.3.2.1 Design Year (2040) I-275 Mainline Operations

The I-275 mainline was analyzed in HCS 2010 using density thresholds specified in Exhibit 11-5 of the HCM 2010 to determine the LOS. The results of the design year (2040) HCS 2010 basic freeway analysis for the AM and PM peak periods are shown in **Table 7-1** and **Table 7-2**, respectively. The results of the analysis indicate that twenty-five segments are not projected to meet the adopted LOS standards in the AM peak hour and twenty segments are not projected to meet the adopted LOS standards in the PM peak hour.

Table 7-1. Design Year (2040) No Build I-275 Mainline MOEs and LOS – AM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
Northbound I-275 Mainline			
South of 54th Ave S EB On	4380	44.0	E
54th Ave S EB On to 54th Ave S WB On	5670	33.3	D
54th Ave S On to 26th Ave S Off	7070	52.6	F
26th Ave S Off to 22nd Ave S EB On	6440	42.2	E
22nd Ave S EB On to 22nd Ave S WB On	7420	32.3	D
22ndAveS WB On to 31st St S Off	8120	26.6	D
31st St S Off to 28th St S On	7630	66.0	F
28th St S On to I-175 Off	8360	96.1	F
I-175 Off to I-175 On	6750	*	F
I-175 On to I-375 Off	8150	38.0	E
I-375 Off to I-375 On	7100	53.1	F
I-375 On to 5th Ave N On	8150	38.0	E
5th Ave N On to 22nd Ave N Off	9970	61.8	F
22nd Ave N Off to 22nd Ave N On	9130	176.1	F
22nd Ave N On to 38th Ave N Off	10740	*	F
38th Ave N Off to 38th Ave N On	9830	627.4	F
38th Ave N On to 54th Ave N EB Off	11230	100.0	F
54th Ave N EB Off to 54th Ave N WB Off	10500	74.0	F
54th Ave N Off WB to 22nd St N On	9660	387.7	F
22nd St N On to Gandy Blvd Off	10780	*	F
Southbound I-275 Mainline			
54th Ave N Off to 54th Ave N WB On	6280	40.1	E
54th Ave N WB On to 54th Ave N EB On	7260	31.2	D
54th Ave N EB On to 38th Ave N Off	8520	41.5	E

Table 7-1. (Continued) Design Year (2040) No Build I-275 Mainline MOEs and LOS – AM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
38th Ave N Off to 38th Ave N On	7680	67.5	F
38th Ave N On to 22nd Ave N Off	9150	179.8	F
22nd Ave N Off to 22nd Ave N On	8100	82.9	F
22nd Ave N On to 5th Ave N Off	9190	49.2	F
5th Ave N Off to I-375 Off	7510	32.9	D
I-375 Off to I-375 On	5620	32.8	D
I-375 On to I-175 Off	6180	38.8	E
I-175 Off to I-175 On	4150	39.4	E
I-175 On to 28th St S Off	4710	25.4	C
28th St S Off to 31st St S On	4160	21.8	C
31st St S On to 22nd Ave S Off	4860	18.9	C
22nd Ave S Off to 26th Ave S On	3600	18.6	C
26th Ave S On to 54th Ave S Off	4100	21.5	C
South of 54th Ave S Off	2430	18.9	C

*Vehicle density greater than 9999 pc/mi/ln; therefore failing LOS is projected

Table 7-2. Design Year (2040) No Build I-275 Mainline MOEs and LOS – PM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
Northbound I-275 Mainline			
South of 54th Ave S EB On	2460	19.1	C
54th Ave S EB On to 54th Ave S WB On	3360	17.4	B
54th Ave S On to 26th Ave S Off	4120	21.6	C
26th Ave S Off to 22nd Ave S EB On	3420	17.7	B
22nd Ave S EB On to 22nd Ave S WB On	4340	16.8	B
22ndAveS WB On to 31st St S Off	5010	15.5	B
31st St S Off to 28th St S On	4130	21.6	C
28th St S On to I-175 Off	4760	25.7	C
I-175 Off to I-175 On	3780	33.3	D
I-175 On to I-375 Off	5770	22.9	C
I-375 Off to I-375 On	5240	29.4	D
I-375 On to 5th Ave N On	6920	29.0	D
5th Ave N On to 22nd Ave N Off	8780	44.2	E
22nd Ave N Off to 22nd Ave N On	7660	66.9	F

Table 7-2. (Continued) Design Year (2040) No Build I-275 Mainline MOEs and LOS – PM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
22nd Ave N On to 38th Ave N Off	8780	128.3	F
38th Ave N Off to 38th Ave N On	7590	64.9	F
38th Ave N On to 54th Ave N EB Off	8510	41.4	E
54th Ave N EB Off to 54th Ave N WB Off	7630	33.8	D
54th Ave N Off WB to 22nd St N On	6730	46.5	F
22nd St N On to Gandy Blvd Off	7470	61.6	F
Southbound I-275 Mainline			
54th Ave N Off to 54th Ave N WB On	8390	97.9	F
54th Ave N WB On to 54th Ave N EB On	9030	47.2	F
54th Ave N EB On to 38th Ave N Off	9810	58.8	F
38th Ave N Off to 38th Ave N On	8380	97.3	F
38th Ave N On to 22nd Ave N Off	9530	300.1	F
22nd Ave N Off to 22nd Ave N On	8090	82.4	F
22nd Ave N On to 5th Ave N Off	9150	48.7	F
5th Ave N Off to I-375 Off	7180	30.6	D
I-375 Off to I-375 On	5910	35.7	E
I-375 On to I-175 Off	6670	45.5	F
I-175 Off to I-175 On	5240	73.4	F
I-175 On to 28th St S Off	6790	47.5	F
28th St S Off to 31st St S On	6300	40.3	E
31st St S On to 22nd Ave S Off	7100	30.1	D
22nd Ave S Off to 26th Ave S On	5730	33.9	D
26th Ave S On to 54th Ave S Off	6430	42.0	E
South of 54th Ave S Off	3570	30.4	D

7.3.2.2 Design Year (2040) I-275 Merge/Diverge Operations

The I-275 ramp merge/diverge areas were analyzed in HCS 2010 using density thresholds specified in Exhibit 13-2 of the HCM 2010. Ramp capacities were also checked. The results of the design year (2040) HCS 2010 ramp merge/diverge analysis for the AM and PM peak periods are shown in **Table 7-3** and **Table 7-4**, respectively. The results of the analysis indicate that thirty-one merge/diverge areas are not projected to meet the adopted LOS standards in the AM peak hour and twenty-eight merge/diverge areas are not projected to meet the adopted LOS standards in the PM peak hour. This may be attributed to substandard freeway operations as, the ramps all operate well under capacity as shown in **Table 7-5**.

Table 7-3. Design Year (2040) No Build I-275 Ramp MOEs and LOS – AM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
Northbound I-275			
54th Ave S EB On	1290	34.0	F
54th Ave S WB On	1400	42.4	F
26th Ave S Off	630	45.2	F
22nd Ave S EB On	980	41.5	F
22nd Ave S WB On	700	26.8	C
31st St S Off	490	33.3	F
28th St S On	730	57.7	F
I-175 Off	1610	55.2	F
I-175 On	1400	64.3	F
I-375 Off	1050	51.0	F
I-375 On	1050	24.6	F
5th Ave N On	1820	42.7	F
22nd Ave N Off	840	60.5	F
22nd Ave N On	1610	70.3	F
38th Ave N Off	910	79.7	F
38th Ave N On	1400	74.8	F
54th Ave N EB Off	730	55.3	F
54th Ave N WB Off	840	65.5	F
22nd St N On	1120	71.5	F
Southbound I-275			
54th Ave N Off	1080	48.3	F
54th Ave N WB On	980	36.8	F
54th Ave N EB On	1260	35.7	E
38th Ave N Off	840	47.0	F
38th Ave N On	1470	58.6	F
22nd Ave N Off	1050	52.9	F
22nd Ave N On	1090	56.0	F
5th Ave N Off	1680	70.4	F
I-375 Off	1890	26.4	F
I-375 On	560	48.9	E
I-175 Off	2030	34.9	F
I-175 On	560	35.6	F
28th St S Off	550	31.1	D
31st St S On	700	41.1	E
22nd Ave S Off	1260	21.5	C
26th Ave S On	500	24.8	C
54th Ave S Off	1670	18.5	B

Table 7-4. Design Year (2040) No Build I-275 Ramp MOEs and LOS – PM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
Northbound I-275			
54th Ave S EB On	900	14.6	B
54th Ave S WB On	760	25.8	C
26th Ave S Off	700	29.2	D
22nd Ave S EB On	920	25.0	C
22nd Ave S WB On	670	16.1	B
31st St S Off	880	6.2	A
28th St S On	630	31.0	D
I-175 Off	980	21.7	F
I-175 On	1990	43.9	F
I-375 Off	530	31.3	D
I-375 On	1680	16.0	F
5th Ave N On	1860	38.8	E
22nd Ave N Off	1120	49.4	F
22nd Ave N On	1120	55.2	F
38th Ave N Off	1190	61.4	F
38th Ave N On	920	52.0	F
54th Ave N EB Off	880	36.2	E
54th Ave N WB Off	900	38.7	F
22nd St N On	740	44.1	F
Southbound I-275			
54th Ave N Off	1090	68.0	F
54th Ave N WB On	640	51.1	F
54th Ave N EB On	780	41.6	F
38th Ave N Off	1430	59.1	F
38th Ave N On	1150	62.0	F
22nd Ave N Off	1440	56.4	F
22nd Ave N On	1060	58.1	F
5th Ave N Off	1970	64.6	F
I-375 Off	1270	23.2	F
I-375 On	760	47.5	F
I-175 Off	1430	39.5	F
I-175 On	1550	52.8	F
28th St S Off	490	42.6	F
31st St S On	800	62.2	F
22nd Ave S Off	1370	33.8	F
26th Ave S On	700	41.5	E
54th Ave S Off	2860	40.2	F

Table 7-5. Design Year (2040) No Build I-275 Ramp Capacity

I-275 On/Off Ramp	AM Peak-Hour Volume-to-Capacity Ratio	PM Peak-Hour Volume-to-Capacity Ratio
Northbound I-275		
54th Ave S EB On	0.31	0.21
54th Ave S WB On	0.67	0.36
26th Ave S Off	0.30	0.33
22nd Ave S WB On	0.49	0.46
22nd Ave S EB On	0.33	0.32
31st St S Off	0.12	0.21
28th St S On	0.35	0.30
I-175 Off	0.38	0.23
I-175 On	0.67	0.95
I-375 Off	0.50	0.25
I-375 On	0.25	0.40
5th Ave N On	0.87	0.89
22nd Ave N Off	0.40	0.53
22nd Ave N On	0.77	0.53
38th Ave N Off	0.43	0.57
38th Ave N On	0.67	0.44
54th Ave N EB Off	0.35	0.42
54th Ave N WB Off	0.42	0.45
22nd St N On	0.53	0.35
Southbound I-275		
54th Ave N Off	0.51	0.52
54th Ave N WB On	0.49	0.32
54th Ave N EB On	0.60	0.37
38th Ave N Off	0.40	0.68
38th Ave N On	0.70	0.55
22nd Ave N Off	0.50	0.69
22nd Ave N On	0.52	0.50
5th Ave N Off	0.80	0.94
I-375 Off	0.45	0.30
I-375 On	0.27	0.36
I-175 Off	0.48	0.34
I-175 On	0.27	0.74
28th St S Off	0.26	0.23
31st St S On	0.33	0.38
22nd Ave S Off	0.60	0.65
26th Ave S On	0.24	0.33
54th Ave S Off	0.40	0.68

7.3.2.3 Design Year (2040) I-275 Ramp Terminal Intersection Operations

HCS 2010 signalized ramp terminal intersections analysis for the AM and PM peak periods are shown in **Table 7-6** and **Table 7-7**, respectively. Similarly, the results of the design year (2040) HCS 2010 unsignalized ramp terminal intersections analysis for the AM and PM peak periods are shown in **Table 7-8** and **Table 7-9**, respectively. The results of the analysis indicate that nine intersections (both signalized and unsignalized) are not projected to meet the adopted LOS standard in the AM peak hour and nine intersections (both signalized and unsignalized) are not projected to meet the adopted LOS standard in the PM peak hour. Based on the Two-Way Stop Controlled (TWSC) analysis results, the 31st south ramp terminal intersection may be a candidate for signalization.

Table 7-6. Design Year (2040) No Build I-275 Signalized Ramp Terminal Intersection MOEs and LOS – AM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
54th Ave S SB Off	8.5	A	9.3	A	--	--	31.2	C	16.5	B
22nd Ave S SB Off	37.2	D	13.5	B	--	--	161.8	F	84.5	F
5th Ave N SB Off	144.7	F	17.7	B	--	--	81.3	F	99.0	F
5th Ave N NB On	263.2	F	32.5	C	122.2	F	--	--	182.2	F
22nd Ave N SB On/Off	61.0	E	18.7	B	--	--	302.1	F	96.1	F
22nd Ave N NB On/Off	126.9	F	95.7	F	56.1	E	--	--	101.9	F
38th Ave N SB On/Off	537.1	F	47.2	D	--	--	99.2	F	265.5	F
38th Ave N NB On/Off	97.9	F	93.3	F	105.7	F	--	--	97.3	F
54th Ave N SB Off	77.8	E	8.6	A	--	--	356.2	F	118.1	F

Table 7-7. Design Year (2040) No Build I-275 Signalized Ramp Terminal Intersection MOEs and LOS – PM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
54th Ave S SB Off	33.8	C	13.7	B	--	--	154.7	F	83.6	F
22nd Ave S SB Off	28.0	C	13.8	B	--	--	260.8	F	121.3	F
5th Ave N SB Off	134.9	F	20.0	C	--	--	246.7	F	162.3	F
5th Ave N NB On	295.0	F	106.2	F	102.0	F	--	--	192.4	F
22nd Ave N SB On/Off	56.4	E	16.4	B	--	--	475.3	F	147.2	F
22nd Ave N NB On/Off	46.2	D	34.6	C	98.1	F	--	--	53.1	D
38th Ave N SB On/Off	480.1	F	26.0	C	--	--	177.2	F	242.2	F
38th Ave N NB On/Off	33.5	C	27.1	C	159.1	F	--	--	65.2	E
54th Ave N SB Off	12.9	B	10.3	B	--	--	213.2	F	60.4	E

Table 7-8. Design Year (2040) No Build I-275 Unsignalized Ramp Terminal Intersection MOEs and LOS – AM Peak Hour

Intersection	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay[2] (sec/veh)	LOS
54th Ave S NB On	11.8	B[1]	--	--	--	--	--	--	1.0	A
26th Ave S SB On	--	--	8.4	A[1]	---	--	--	--	1.1	A
26th Ave S NB Off	--	--	--	--	38.1	E	--	--	17.0	B
31st St S SB On/NB Off	315.7	F	--	--	8.3	A[1]	--	--	106.4	F
28th St S SB Off	--	--	63.1	F	--	--	--	--	23.2	C
28th St S NB On	--	--	--	--	--	--	9.4	A1	1.3	A
Roosevelt Blvd SB Off	--	--	--	--	--	--	10091.5	F	877.8	F
Roosevelt Blvd NB On	626.5	F	--	--	--	--	--	--	39.8	E

1 Control delay reported for left-turn movement from cross street onto I-275 on ramp
2 Overall intersection delay calculated as the weighted average delay for all intersection movements

Table 7-9. Design Year (2040) No Build I-275 Unsignalized Ramp Terminal Intersection MOEs and LOS – PM Peak Hour

Intersection	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay[2] (sec/veh)	LOS
54th Ave S NB On	11.4	B[1]	--	--	--	--	--	--	0.5	A
26th Ave S SB On	--	--	8.6	A[1]	--	--	--	--	1.3	A
26th Ave S NB Off	--	--	--	--	86.8	F	--	--	42.2	E
31st St S SB On/NB Off	755.8	F	--	--	8.4	A[1]	--	--	381.4	F
28th St S SB Off	--	--	50.9	F	--	--	--	--	13.2	B
28th St S NB On	--	--	--	--	--	--	9.9	A[1]	1.7	A
Roosevelt Blvd SB Off	--	--	--	--	--	--	2043.6	F	138.4	F
Roosevelt Blvd NB On	144.1	F	--	--	--	--	--	--	6.2	A

1 Control delay reported for left-turn movement from cross street onto I-275 on ramp
2 Overall intersection delay calculated as the weighted average delay for all intersection movements

7.3.2.4 Design Year (2040) CORSIM Analysis

The I-275 freeway operations of the existing configuration from south of Gandy Boulevard to north of 4th Street were analyzed in CORSIM. The on and off ramps within these limits were also analyzed. The parameters used in the calibrated CORSIM models were used in the design year (2040) Models. The peak-hour results for different MOEs were extracted from the design year (2040) CORSIM model output and averaged over the ten runs for the appropriate links and time periods. Note that the peak-hour output was used for determining the operational analysis. The results of the design year (2040) CORSIM analysis for the AM and PM peak periods are shown in **Table 7-10**.

Table 7-10. Design Year (2040) No Build I-275 CORSIM Results

Segment	Average Speed (mph)		Density (veh/mi/ln)	
	AM	PM	AM	PM
Freeway				
NB I-275 from South of Gandy to Gandy Off Ramp	61.2	24.8	35.9	87.2
NB I-275 from Gandy Off Ramp to Gandy On Ramp	65.4	64.3	25.2	21.7
NB I-275 from Gandy On Ramp to Roosevelt/118th Off Ramp	62.6	64.9	23.4	19.7
NB I-275 from Roosevelt/118th Off Ramp to Roosevelt/118th On Ramp	67.1	67.3	11.4	13.1
NB I-275 from Roosevelt/118th Off Ramp to MLK On Ramp	65.7	66.3	18.0	14.9
NB I-275 from MLK On Ramp to Ulmerton On Ramp	65.5	65.9	18.9	16.2
NB I-275 from Ulmerton On Ramp to 4th On Ramp	49.8	58.8	30.1	22.7
NB I-275 from 4th On Ramp to South of the Howard Frankland Bridge	44.3	46.5	46.3	39.8
SB I-275 from South of the Howard Frankland Bridge to 4th Off Ramp	65.0	50.0	28.5	44.8
SB I-275 from 4th Off Ramp to Ulmerton/MLK Off Ramp	60.4	62.6	25.0	27.0
SB I-275 from Ulmerton/MLK Off Ramp to Ulmerton On Ramp	67.4	66.2	12.6	20.4
SB I-275 from Ulmerton On Ramp to Roosevelt/118th Off Ramp	65.1	61.4	14.8	24.4
SB I-275 from Roosevelt/118th Off Ramp to Roosevelt On Ramp	67.5	66.0	13.5	20.3
SB I-275 from Roosevelt On Ramp to 118th On Ramp	65.0	52.8	13.3	28.3
SB I-275 from 118th On Ramp to Gandy Off Ramp	63.2	33.3	21.2	68.9
SB I-275 from Gandy Off Ramp to Gandy Loop On Ramp	65.6	28.8	20.9	89.2
SB I-275 from Gandy Loop On Ramp to Gandy On Ramp	61.3	26.4	22.6	79.6
SB I-275 from Gandy On Ramp to South of Gandy	61.2	46.1	32.5	54.8
Arterials				
EB Gandy from West of I-275 to I-275 On Ramp	23.0	45.4	48.2	21.2
EB Gandy from I-275 On Ramp to NB I-275 Off Ramp	39.4	46.6	10.9	9.0
EB Gandy from NB to WB I-275 Off Ramp to NB to EB I-275 Off Ramp	43.3	44.0	10.7	10.4
EB Gandy from NB to EB I-275 Off Ramp to East of I-275	46.9	45.5	16.6	18.0
WB Gandy from East of I-275 to SB I-275 Loop On Ramp	50.7	43.8	15.6	21.2
WB Gandy from SB I-275 Loop On Ramp to SB I-275 Off Ramp	53.8	52.2	11.0	14.7
WB Gandy from SB I-275 Off Ramp to West of I-275	53.4	52.6	14.1	18.3
EB Roosevelt from West of I-275 to SB I-275 On Ramp	58.0	56.0	10.7	21.5
EB Roosevelt from SB I-275 On Ramp to NB I-275 Off Ramp	58.2	54.7	12.2	21.2
EB Roosevelt West of NB I-275 Off Ramp	53.7	49.2	17.0	25.1
EB Roosevelt from NB I-275 Off Ramp to East of I-275	54.1	54.1	20.7	20.7
WB Roosevelt from East of I-275 to NB I-275 On Ramp	57.8	46.6	23.1	33.3
WB Roosevelt West of NB I-275 On Ramp	57.3	19.1	23.3	90.8
WB Roosevelt from NB I-275 On Ramp to NB I-275 Off Ramp	56.8	56.3	19.6	18.0
WB Roosevelt from NB I-275 Off Ramp to West of I-275	56.9	57.4	16.9	14.1
WB 118th from SB I-275 Off Ramp to West of I-275	57.0	56.2	11.8	18.5
EB 118th from West of I-275 to SB I-275 On Ramp	35.6	35.3	70.3	61.6

Table 7-10. (Continued) Design Year (2040) No Build I-275 CORSIM Results

Segment	Average Speed (mph)		Density (veh/mi/ln)	
	AM	PM	AM	PM
EB Ulmerton from West of I-275 to I-275 On Ramp	57.5	57.0	16.2	20.7
WB Ulmerton West of I-275	55.1	56.4	24.4	15.4
Ulmerton to SB I-275 On Ramp/MLK	44.9	43.8	22.6	28.7
EB Ulmerton to SB MLK	43.6	43.6	6.2	6.6
SB MLK	48.9	49.0	8.3	6.4
Ramps				
NB I-275 Off Ramp to Gandy	46.0	21.0	37.7	104.2
NB I-275 Off Ramp to EB Gandy	46.8	45.8	22.8	29.6
NB I-275 Off Ramp to WB Gandy	47.8	47.6	14.4	18.2
I-275 On Ramp at EB Gandy	12.9	25.1	81.7	45.2
NB I-275 On Ramp from EB Gandy	43.6	48.6	11.1	12.0
SB I-275 Off Ramp to Gandy	49.0	46.6	13.5	17.8
I-275 Off Ramp at Gandy	47.6	47.1	21.3	27.1
SB I-275 On Ramp from EB Gandy	40.7	45.9	27.8	23.3
SB I-275 Loop On Ramp Loop from WB Gandy	33.1	29.3	30.0	33.9
NB I-275 Off Ramp to Roosevelt/118th	45.0	48.9	41.6	27.6
NB I-275 Off Ramp to Roosevelt/118th	44.6	46.9	34.8	24.0
NB I-275 Off Ramp to EB Roosevelt	47.9	49.0	20.0	7.4
NB I-275 Off Ramp to WB Roosevelt	48.1	48.4	17.3	12.9
NB I-275 On Ramp from WB Roosevelt	52.3	45.9	2.6	9.3
NB I-275 On Ramp from Roosevelt/118th	46.3	47.2	30.5	17.0
SB I-275 Off Ramp to Roosevelt/118th	48.7	44.5	14.0	26.3
SB I-275 On Ramp from Roosevelt	46.3	39.2	12.0	26.5
SB I-275 On Ramp from EB Roosevelt	49.3	48.2	7.1	19.8
NB I-275 Off Ramp to WB Roosevelt/118th	47.6	47.9	22.9	19.2
NB I-275 Off Ramp to 118th	49.0	48.9	11.2	11.1
NB I-275 On Ramp from 118th	29.3	47.4	71.8	16.8
SB I-275 Off Ramp to 118th	46.5	44.3	20.2	46.3
SB I-275 On Ramp from 118th	46.1	22.4	33.6	106.6
NB I-275 On Ramp from Ulmerton	48.3	47.8	18.3	23.9
SB I-275 Off Ramp to Ulmerton/MLK	47.0	48.3	34.4	21.3
SB I-275 On Ramp from Ulmerton	41.0	40.8	18.0	23.7
NB I-275 On Ramp from NB MLK	49.2	49.2	8.6	10.0
SB I-275 Off Ramp to MLK	48.3	48.6	11.5	7.1
NB I-275 On Ramp from 4th	55.3	58.2	10.3	6.5
SB I-275 Off Ramp to 4th	58.2	56.3	8.5	17.3

7.3.3 Preferred Build Alternative

The Preferred Build Alternative includes lane continuity improvements in Segments A and B and Master Plan express lanes in Segment C. The Master Plan Project proposes to widen the existing I-275 mainline towards the median in order to accommodate one EL in each direction from south of Gandy Boulevard to 118th Avenue North. Direct connections from the 118th Avenue North/Gateway corridor to I-275 are provided via new flyover ramps that enter and exit I-275 from the median. From 118th Avenue North to north of 4th Street North, the Master Plan Project proposes that two express lanes are provided in each direction of travel along I-275. The following sections present the key MOEs obtained from the use of the HCS 2010 and CORSIM to assess the operations of the I-275 study corridor.

7.3.3.1 Design Year (2040) I-275 Mainline Operations

The I-275 mainline was analyzed in HCS 2010 using density thresholds specified in Exhibit 11-5 of the HCM 2010 to determine the LOS. The results of the design year (2040) HCS 2010 basic freeway analysis for the AM and PM peak periods are shown in **Table 7-11** and **Table 7-12**, respectively. The results of the analysis indicate that twenty-four segments are not projected to meet the adopted LOS standards in the AM peak hour and eighteen segments are not projected to meet the adopted LOS standards in the PM peak hour.

Table 7-11. Design Year (2040) Build I-275 Mainline MOEs and LOS – AM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
Northbound I-275 Mainline			
South of 54th Ave S EB On	4380	44.0	E
54th Ave S EB On to 54th Ave S WB On	5670	33.3	D
54th Ave S On to 26th Ave S Off	7070	52.6	F
26th Ave S Off to 22nd Ave S EB On	6440	42.2	E
22nd Ave S EB On to 22nd Ave S WB On	7420	32.3	D
22ndAveS WB On to 31st St S Off	8120	26.6	D
31st St S Off to 28th St S On	7630	66.0	F
28th St S On to I-175 Off	8360	96.1	F
I-175 Off to I-175 On	6750	*	F
I-175 On to I-375 Off	8150	38.0	E
I-375 Off to I-375 On	7100	53.1	F
I-375 On to 5th Ave N On	8150	38.0	E
5th Ave N On to 22nd Ave N Off	9970	61.8	F
22nd Ave N Off to 22nd Ave N On	9130	176.1	F
22nd Ave N On to 38th Ave N Off	10740	81.0	F
38th Ave N Off to 38th Ave N On	9830	627.4	F
38th Ave N On to 54th Ave N EB Off	11230	100.0	F

Table 7-11. (Continued) Design Year (2040) Build I-275 Mainline MOEs and LOS – AM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
54th Ave N EB Off to 54th Ave N WB Off	10500	74.0	F
54th Ave N Off WB to 22nd St N On	9660	387.7	F
22nd St N On to Gandy Blvd Off	10780	*	F
Southbound I-275 Mainline			
54th Ave N Off to 54th Ave N WB On	6280	40.1	E
54th Ave N WB On to 54th Ave N EB On	7260	31.2	D
54th Ave N EB On to 38th Ave N Off	8520	41.5	E
38th Ave N Off to 38th Ave N On	7680	67.5	F
38th Ave N On to 22nd Ave N Off	9150	179.8	F
22nd Ave N Off to 22nd Ave N On	8100	82.9	F
22nd Ave N On to 5th Ave N Off	9190	49.2	F
5th Ave N Off to I-375 Off	7510	62.7	F
I-375 Off to I-375 On	5620	32.8	D
I-375 On to I-175 Off	6180	24.9	C
I-175 Off to I-175 On	4150	21.8	C
I-175 On to 28th St S Off	4710	25.4	C
28th St S Off to 31st St S On	4160	21.8	C
31st St S On to 22nd Ave S Off	4860	18.9	C
22nd Ave S Off to 26th Ave S On	3600	18.6	C
26th Ave S On to 54th Ave S Off	4100	15.9	B
South of 54th Ave S Off	2430	18.9	C

*Vehicle density greater than 9999 pc/mi/ln; therefore failing LOS is projected

Table 7-12. Design Year (2040) Build I-275 Mainline MOEs and LOS – PM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
Northbound I-275 Mainline			
South of 54th Ave S EB On	2460	19.1	C
54th Ave S EB On to 54th Ave S WB On	3360	17.4	B
54th Ave S On to 26th Ave S Off	4120	21.6	C
26th Ave S Off to 22nd Ave S EB On	3420	17.7	B
22nd Ave S EB On to 22nd Ave S WB On	4340	16.8	B
22ndAveS WB On to 31st St S Off	5010	15.5	B
31st St S Off to 28th St S On	4130	21.6	C
28th St S On to I-175 Off	4760	25.7	C
I-175 Off to I-175 On	3780	33.3	D

Table 7-12. (Continued) Design Year (2040) Build I-275 Mainline MOEs and LOS – PM Peak Hour

I-275 Freeway Segment From Ramp/To Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	LOS
I-175 On to I-375 Off	5770	22.9	C
I-375 Off to I-375 On	5240	29.4	D
I-375 On to 5th Ave N On	6920	29.0	D
5th Ave N On to 22nd Ave N Off	8780	44.2	E
22nd Ave N Off to 22nd Ave N On	7660	66.9	F
22nd Ave N On to 38th Ave N Off	8780	44.2	E
38th Ave N Off to 38th Ave N On	7590	64.9	F
38th Ave N On to 54th Ave N EB Off	8510	41.4	E
54th Ave N EB Off to 54th Ave N WB Off	7630	33.8	D
54th Ave N Off WB to 22nd St N On	6730	46.5	F
22nd St N On to Gandy Blvd Off	7470	61.6	F
Southbound I-275 Mainline			
54th Ave N Off to 54th Ave N WB On	8390	97.9	F
54th Ave N WB On to 54th Ave N EB On	9030	47.2	F
54th Ave N EB On to 38th Ave N Off	9810	58.8	F
38th Ave N Off to 38th Ave N On	8380	97.3	F
38th Ave N On to 22nd Ave N Off	9530	300.1	F
22nd Ave N Off to 22nd Ave N On	8090	82.4	F
22nd Ave N On to 5th Ave N Off	9150	48.7	F
5th Ave N Off to I-375 Off	7180	54.8	F
I-375 Off to I-375 On	5910	35.7	E
I-375 On to I-175 Off	6670	27.5	D
I-175 Off to I-175 On	5240	29.4	D
I-175 On to 28th St S Off	6790	47.5	F
28th St S Off to 31st St S On	6300	40.3	E
31st St S On to 22nd Ave S Off	7100	30.1	D
22nd Ave S Off to 26th Ave S On	5730	33.9	D
26th Ave S On to 54th Ave S Off	6430	26.2	D
South of 54th Ave S Off	3570	30.4	D

*Vehicle density greater than 9999 pc/mi/ln; therefore failing LOS is projected

7.3.3.2 Design Year (2040) I-275 Merge/Diverge Operations

The I-275 ramp merge/diverge areas were analyzed in HCS 2010 using density thresholds specified in Exhibit 13-2 of the HCM 2010. Ramp capacities were also checked. The results of the design year (2040) HCS 2010 ramp merge/diverge analysis for the AM and PM peak periods are shown in **Table 7-13** and **Table 7-14** respectively. The results of the analysis indicate that twenty-nine merge/diverge areas are not projected to meet the adopted LOS standards in the AM peak hour and twenty-seven merge/diverge areas are not projected to meet the adopted LOS standards in the PM peak hour. This may be attributed to substandard freeway operations as, the ramps all operate well under capacity as shown in **Table 7-15.**

Table 7-13. Design Year (2040) Build I-275 Ramp MOEs and LOS – AM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
Northbound I-275			
54th Ave S EB On	1290	34.0	F
54th Ave S WB On	1400	42.4	F
26th Ave S Off	630	45.2	F
22nd Ave S EB On	980	41.5	F
22nd Ave S WB On	700	26.8	C
31st St S Off	490	33.3	F
28th St S On	730	57.7	F
I-175 Off	1610	55.2	F
I-175 On	1400	64.3	F
I-375 Off	1050	51.0	F
I-375 On	1050	24.6	F
5th Ave N On	1820	42.7	F
22nd Ave N Off	840	60.5	F
22nd Ave N On	1610	65.1	F
38th Ave N Off	910	54.2	F
38th Ave N On	1400	69.3	F
54th Ave N EB Off	730	78.5	F
54th Ave N WB Off	840	65.5	F
22nd St N On	1120	71.5	F
Southbound I-275			
54th Ave N Off	1080	36.2	F
54th Ave N WB On	980	36.8	F
54th Ave N EB On	1260	35.7	E
38th Ave N Off	840	47.0	F
38th Ave N On	1470	58.6	F
22nd Ave N Off	1050	52.9	F
22nd Ave N On	1090	56.0	F
5th Ave N Off	1680	58.7	F
I-375 Off	1890	26.4	F
I-375 On	560	48.9	E
I-175 Off	2030	15.4	B
I-175 On	560	26.0	C

Table 7.13 (Continued) Design Year (2040) Build I-275 Ramp MOEs and LOS – AM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
28th St S Off	550	31.1	D
31st St S On	700	40.0	E
22nd Ave S Off	1260	26.0	C
26th Ave S On	500	19.8	B
54th Ave S Off	1670	*	*

*LOS results using HCM 2010 could not be determined due to geometry and magnitude of volume

Table 7-14. Design Year (2040) Build I-275 Ramp MOEs and LOS – PM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
Northbound I-275			
54th Ave S EB On	900	14.6	B
54th Ave S WB On	760	25.8	C
26th Ave S Off	700	29.2	D
22nd Ave S EB On	920	25.0	C
22nd Ave S WB On	670	16.1	B
31st St S Off	880	6.2	A
28th St S On	630	31.0	D
I-175 Off	980	21.7	F
I-175 On	1990	43.9	F
I-375 Off	530	31.3	D
I-375 On	1680	16.0	F
5th Ave N On	1860	38.8	E
22nd Ave N Off	1120	49.4	F
22nd Ave N On	1120	50.0	F
38th Ave N Off	1190	35.9	F
38th Ave N On	920	46.6	F
54th Ave N EB Off	880	53.1	F
54th Ave N WB Off	900	38.7	F
22nd St N On	740	43.9	F
Southbound I-275			
54th Ave N Off	1090	56.0	F
54th Ave N WB On	640	51.1	F
54th Ave N EB On	780	41.6	F
38th Ave N Off	1430	59.1	F
38th Ave N On	1150	62.0	F
22nd Ave N Off	1440	56.4	F
22nd Ave N On	1060	58.1	F
5th Ave N Off	1970	52.9	F

Table 7-14. (Continued) Design Year (2040) Build I-275 Ramp MOEs and LOS – PM Peak Hour

I-275 On/Off Ramp	Vehicle Volume (veh/hr)	Vehicle Density (pc/mi/ln)	*LOS
I-375 Off	1270	23.2	F
I-375 On	760	47.5	F
I-175 Off	1430	18.2	F
I-175 On	1550	40.0	F
28th St S Off	490	42.6	F
31st St S On	800	58.9	F
22nd Ave S Off	1370	38.3	F
26th Ave S On	700	36.5	E
54th Ave S Off	2860	5.4	A

Table 7-15. Design Year (2040) Build I-275 Ramp Capacity

I-275 On/Off Ramp	AM Peak-Hour Volume-to-Capacity Ratio	PM Peak-Hour Volume-to-Capacity Ratio
Northbound I-275		
54th Ave S EB On	0.31	0.21
54th Ave S WB On	0.67	0.36
26th Ave S Off	0.30	0.33
22nd Ave S WB On	0.49	0.46
22nd Ave S EB On	0.33	0.32
31st St S Off	0.12	0.21
28th St S On	0.35	0.30
I-175 Off	0.38	0.23
I-175 On	0.67	0.95
I-375 Off	0.50	0.25
I-375 On	0.25	0.40
5th Ave N On	0.87	0.89
22nd Ave N Off	0.40	0.53
22nd Ave N On	0.77	0.53
38th Ave N Off	0.22	0.28
38th Ave N On	0.67	0.44
54th Ave N EB Off	0.35	0.42
54th Ave N WB Off	0.42	0.45
22nd St N On	0.53	0.35
Southbound I-275		
54th Ave N Off	0.54	0.55
54th Ave N WB On	0.47	0.30
54th Ave N EB On	0.60	0.37

Table 7-15. (Continued) Design Year (2040) Build I-275 Ramp Capacity

I-275 On/Off Ramp	AM Peak-Hour Volume-to-Capacity Ratio	PM Peak-Hour Volume-to-Capacity Ratio
38th Ave N Off	0.40	0.68
38th Ave N On	0.70	0.55
22nd Ave N Off	0.50	0.69
22nd Ave N On	0.52	0.50
5th Ave N Off	0.80	0.94
I-375 Off	0.45	0.30
I-375 On	0.27	0.36
I-175 Off	0.48	0.34
I-175 On	0.27	0.74
28th St S Off	0.26	0.23
31st St S On	0.33	0.38
22nd Ave S Off	0.60	0.65
26th Ave S On	0.24	0.33
54th Ave S Off	0.40	0.68

7.3.3.3 Design Year (2040) I-275 Ramp Terminal Intersection Operations

The results of the design year (2040) HCS 2010 signalized ramp terminal intersections analysis for the AM and PM peak periods are shown in **Table 7-16** and **Table 7-17**, respectively. Similarly, the results of the design year (2040) HCS 2010 unsignalized ramp terminal intersections analysis for the AM and PM peak periods are shown in **Table 7-18** and **Table 7-19**, respectively. The results of the analysis indicate that all intersections (both signalized and unsignalized) are projected to meet the adopted LOS standard in the AM peak hour and two intersections (both signalized and unsignalized) are not projected to meet the adopted LOS standard in the PM peak hour.

Table 7-16. Design Year (2040) Build I-275 Signalized Ramp Terminal Intersection MOEs and LOS – AM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
54th Ave S SB Off	9.4	A	10.6	B	--	--	18.2	B	12.8	B
26th Ave S NB Off*	6.1	A	6.5	A	8.2	A	--	--	7.1	A
22nd Ave S SB Off	27.7	C	11.5	B	--	--	27.5	C	24.9	C
31st St S SB On/NB Off*	16.7	B	19.9	B	7.9	A	9.2	A	10.6	B
28th St S SB Off*	--	--	14.4	B	6.5	A	4.6	A	7.3	A
5th Ave N SB Off	53.7	D	10.0	A	--	--	40.2	D	41.7	D
5th Ave N NB On	33.5	C	20.8	C	54.3	D	--	--	34.5	C
22nd Ave N SB On/Off	28.3	C	16.9	B	--	--	47.0	D	28.3	C
22nd Ave N NB On/Off	22.6	C	32.0	C	51.1	D	--	--	31.4	C

Table 7-16. (Continued) Design Year (2040) Build I-275 Signalized Ramp Terminal Intersection MOEs and LOS – AM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
38th Ave N SB On/Off	68.5	E	22.7	C	--	--	44.4	D	46.2	D
38th Ave N NB On/Off	28.9	C	23.3	C	49.4	D	--	--	30.3	C
54th Ave N SB Off	21.4	C	13.3	B	--	--	29.8	C	21.0	C
Roosevelt Blvd SB Off*	12.4	B	13.8	B	--	--	42.7	D	15.9	B
Roosevelt Blvd NB On*	6.4	A	12.1	B	--	--	--	--	9.8	A

*Proposed signalized intersection

Table 7-17. Design Year (2040) Build I-275 Signalized Ramp Terminal Intersection MOEs and LOS – PM Peak Hour

I-275 Ramp Terminal	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
54th Ave S SB Off	22.5	C	19.2	B	--	--	27.0	C	23.7	C
26th Ave S NB Off*	7.2	A	7.4	A	8.1	A	--	--	7.7	A
22nd Ave S SB Off	27.7	C	13.7	B	--	--	36.1	D	28.7	C
31st St S SB On/NB Off*	21.1	C	22.6	C	10.6	B	15.2	B	16.6	B
28th St S SB Off*	--	--	14.6	B	7.6	A	6.9	A	8.4	A
5th Ave N SB Off	135.0	F	17.5	B	--	--	57.6	E	76.7	E
5th Ave N NB On	55.2	E	41.3	D	54.5	D	--	--	49.9	D
22nd Ave N SB On/Off	55.8	E	36.0	D	--	--	52.6	D	47.7	D
22nd Ave N NB On/Off	19.7	B	14.8	B	55.3	E	--	--	25.6	C
38th Ave N SB On/Off	134.1	F	28.6	C	--	--	37.7	D	71.2	E
38th Ave N NB On/Off	72.4	E	11.2	B	51.6	D	--	--	47.7	D
54th Ave N SB Off	15.4	B	19.0	B	--	--	32.1	C	20.9	C
Roosevelt Blvd SB Off*	36.1	D	15.5	B	--	--	50.8	D	26.7	C
Roosevelt Blvd NB On*	2.7	A	5.1	A	--	--	--	--	3.9	A

*Proposed signalized intersection

Table 7-18. Design Year (2040) Build I-275 Unsignalized Ramp Terminal Intersection MOEs and LOS – AM Peak Hour

Intersection	Eastbound		Westbound		Northbound		Southbound			
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay[2] (sec/veh)	LOS
54th Ave S NB On	11.8	B[1]	--	--	--	--	--	--	1.0	A
26th Ave S SB On	--	--	8.4	A[1]	---	--	--	--	1.1	A
28th St S NB On	--	--	--	--	--	--	9.4	A[1]	1.3	A

1 Control delay reported for left-turn movement from cross street onto I-275 on ramp

2 Overall intersection delay calculated as the weighted average delay for all intersection movements

Table 7-19. Design Year (2040) Build I-275 Unsignalized Ramp Terminal Intersection MOEs and LOS – PM Peak Hour

Intersection	Eastbound		Westbound		Northbound		Southbound		Overall Intersection	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay[2] (sec/veh)	LOS
54th Ave S NB On	11.4	B[1]	--	--	--	--	--	--	0.5	A
26th Ave S SB On	--	--	8.6	A[1]	--	--	--	--	1.3	A
28th St S NB On	--	--	--	--	--	--	9.9	A[1]	1.7	A

1 Control delay reported for left-turn movement from cross street onto I-275 on ramp
2 Overall intersection delay calculated as the weighted average delay for all intersection movements

7.3.3.4 Design Year (2040) CORSIM Analysis

The I-275 freeway from south of Gandy Boulevard to north of 4th Street North was analyzed in CORSIM with the Master Project implemented. The on and off ramps within these limits were also analyzed. The parameters used in the calibrated CORSIM models were used in the design year (2040) Models. The peak-hour results for different MOEs were extracted from the design year (2040) CORSIM model output and averaged over the ten runs for the appropriate links and time periods. Note that the peak-hour output was used for determining the operational analysis. The results of the design year (2040) CORSIM analysis for the AM and PM peak periods are shown in **Table 7-20**.

Table 7-20. Design Year (2040) Master Project I-275 CORSIM Results

Segment	Average Speed (mph)		Density (veh/mi/ln)	
	AM	PM	AM	PM
Freeway (General Use Lanes)				
NB I-275 from South of Gandy to Gandy Off Ramp	64.7	65.4	31.7	26.3
NB I-275 from Gandy Off Ramp to Gandy On Ramp	65.6	66.7	24.8	18.7
NB I-275 from Gandy On Ramp to NB EL Slip Ramp	60.5	65.8	25.7	18.0
NB I-275 from NB EL Slip Ramp to Roosevelt/118th Off Ramp	36.6	63.2	49.3	20.2
NB I-275 from Roosevelt/118th Off Ramp to Roosevelt/118th On Ramp	67.1	67.9	9.2	10.1
NB I-275 from Roosevelt/118th Off Ramp to MLK On Ramp	66.3	66.2	13.1	13.4
NB I-275 from MLK On Ramp to Ulmerton On Ramp	66.0	66.2	14.8	14.6
NB I-275 from Ulmerton On Ramp to 4th On Ramp	63.2	64.0	18.9	18.0
NB I-275 from 4th On Ramp to South of NB EL Slip Ramp	62.9	64.7	23.3	20.9
NB I-275 from NB EL Slip Ramp to Howard Frankland Bridge	65.4	65.6	26.7	24.7
SB I-275 from Howard Frankland Bridge to SB EL Slip Ramp	67.1	33.0	25.0	65.4
SB I-275 from SB EL Slip Ramp to 4th Off Ramp	59.2	51.9	28.1	41.5
SB I-275 from 4th Off Ramp to Ulmerton/MLK Off Ramp	62.0	63.8	22.0	24.7
SB I-275 from Ulmerton/MLK Off Ramp to Ulmerton On Ramp	67.7	66.7	10.7	18.5
SB I-275 from Ulmerton On Ramp to Roosevelt/118th Off Ramp	64.8	60.3	13.3	23.1
SB I-275 from Roosevelt/118th Off Ramp to Roosevelt On Ramp	68.0	66.8	11.3	17.2
SB I-275 from Roosevelt On Ramp to 118th On Ramp	65.0	61.1	11.8	20.5
SB I-275 from 118th On Ramp to Gandy Off Ramp	62.0	40.3	19.8	47.8
SB I-275 from Gandy Off Ramp to Gandy Loop On Ramp	66.2	60.6	18.6	31.8

Table 7-20. (Continued) Design Year (2040) Master Project I-275 CORSIM Results

Segment	Average Speed (mph)		Density (veh/mi/ln)	
	AM	PM	AM	PM
SB I-275 from Gandy Loop On Ramp to Gandy On Ramp	63.9	62.9	18.3	26.7
SB I-275 Between Gandy On Ramp and EL On Ramp	63.3	62.9	18.9	24.6
SB I-275 from SB EL Slip Ramp to South of Gandy	66.0	65.0	19.3	26.0
Arterials				
EB Gandy from West of I-275 to I-275 On Ramp	19.6	45.2	64.9	21.3
EB Gandy from I-275 On Ramp to NB I-275 Off Ramp	41.9	46.7	11.4	9.0
EB Gandy from NB to WB I-275 Off Ramp to NB to EB I-275 Off Ramp	45.6	48.8	11.3	9.4
EB Gandy from NB to EB I-275 Off Ramp to East of I-275	46.0	46.2	20.2	18.9
WB Gandy from East of I-275 to SB I-275 Loop On Ramp	50.7	50.5	15.6	18.5
WB Gandy from SB I-275 Loop On Ramp to SB I-275 Off Ramp	53.8	53.4	11.1	14.4
WB Gandy from SB I-275 Off Ramp to West of I-275	53.2	52.9	15.2	19.2
EB Roosevelt from West of I-275 to SB I-275 On Ramp	58.0	55.7	10.7	21.7
EB Roosevelt from SB I-275 On Ramp to NB I-275 Off Ramp	58.3	55.5	12.2	20.8
EB Roosevelt West of NB I-275 Off Ramp	54.4	47.8	16.4	26.1
EB Roosevelt from NB I-275 Off Ramp to East of I-275	52.9	53.6	22.8	21.4
WB Roosevelt from East of I-275 to NB I-275 On Ramp	57.8	48.3	23.1	29.3
WB Roosevelt West of NB I-275 On Ramp	57.4	22.0	23.3	80.2
WB Roosevelt from NB I-275 On Ramp to NB I-275 Off Ramp	56.8	56.3	19.6	18.4
WB Roosevelt from NB I-275 Off Ramp to West of I-275	56.7	57.4	19.5	15.7
WB 118th from SB I-275 Off Ramp to West of I-275	56.4	55.8	16.9	21.0
EB 118th from West of I-275 to SB I-275 On Ramp	56.0	54.9	27.5	28.9
EB Ulmerton from West of I-275 to I-275 On Ramp	57.2	57.2	18.5	18.5
WB Ulmerton West of I-275	55.4	56.3	23.5	16.0
Ulmerton to SB I-275 On Ramp/MLK	44.6	43.7	24.3	28.9
EB Ulmerton to SB MLK	43.7	43.7	6.6	6.3
SB MLK	48.8	49.1	9.0	6.3
Freeway (Express Lanes)				
NB EL from East of 118th On Ramp to NB I-275 Slip Ramp	66.1	66.0	18.0	18.2
NB EL from NB I-275 Slip Ramp to Slip Ramp North of 4th	66.0	65.9	17.0	17.1
NB EL from Slip Ramp North of 4th to Howard Frankland Bridge	64.9	64.9	20.2	19.9
SB EL from Howard Frankland Bridge to SB I-275 Slip Ramp	66.0	65.3	15.1	16.2
SB EL from SB I-275 Slip Ramp North of 4th to SB I-275 Slip Ramp	65.8	66.1	17.1	17.7
SB EL from SB I-275 Slip Ramp to SB I-275 Off Ramp to 118th	63.0	63.7	27.0	23.6
Ramps				
NB I-275 Off Ramp to Gandy	49.4	49.1	24.1	25.1
NB I-275 Off Ramp to EB Gandy	45.1	44.9	32.6	34.0
NB I-275 Off Ramp to WB Gandy	46.7	46.8	20.0	20.7
I-275 On Ramp from EB Gandy	12.8	24.3	100.9	47.2
NB I-275 On Ramp from EB Gandy	45.9	48.6	12.4	12.3

Table 7-20. (Continued) Design Year (2040) Master Project I-275 CORSIM Results

Segment	Average Speed (mph)		Density (veh/mi/ln)	
	AM	PM	AM	PM
SB I-275 Off Ramp to Gandy	48.9	48.4	13.7	18.7
SB I-275 Off Ramp to Gandy	47.1	46.7	24.5	30.1
SB I-275 On Ramp from EB Gandy	43.9	46.1	28.8	22.5
SB I-275 Loop On Ramp Loop from WB Gandy	33.1	33.2	29.5	28.8
NB I-275 Off Ramp to Roosevelt/118th	39.4	48.7	59.6	31.3
NB I-275 Off Ramp to Roosevelt/118th	41.0	46.1	47.7	27.6
NB I-275 Off Ramp to EB Roosevelt	47.3	48.9	25.2	8.5
NB I-275 Off Ramp to WB Roosevelt	48.6	49.0	23.0	15.9
NB I-275 On Ramp from WB Roosevelt	52.2	47.4	2.6	8.4
NB I-275 On Ramp from Roosevelt/118th	45.6	46.1	20.5	18.9
SB I-275 Off Ramp to Roosevelt/118th	50.2	40.1	13.6	35.3
SB I-275 On Ramp from Roosevelt	46.3	39.4	12.0	26.6
SB I-275 On Ramp from EB Roosevelt	49.4	48.2	7.1	19.8
NB I-275 Off Ramp to WB Roosevelt/118th	46.8	47.7	29.7	22.3
NB I-275 Off Ramp to 118th	48.6	48.6	12.3	11.0
NB I-275 On Ramp from 118th	46.5	47.1	31.2	24.4
SB I-275 Off Ramp to 118th	46.2	44.2	20.4	48.7
SB I-275 and SB EL Off Ramp to 118th	49.5	47.9	26.5	37.7
SB I-275 On Ramp from 118th	45.9	40.3	34.8	51.3
NB I-275 On Ramp from Ulmerton	48.0	48.2	21.8	19.9
SB I-275 Off Ramp to Ulmerton/MLK	47.0	48.2	34.0	22.2
SB I-275 On Ramp from Ulmerton	41.4	41.2	19.0	23.8
NB I-275 On Ramp from NB MLK	49.2	49.2	12.7	10.0
SB I-275 Off Ramp to MLK	48.2	48.8	12.6	7.2
NB I-275 On Ramp from 4th	57.6	58.3	14.5	10.0
SB I-275 Off Ramp to 4th	58.0	56.9	10.3	19.3
NB I-275 Slip Ramp to NB EL	65.3	65.2	16.4	16.2
NB I-275 Slip Ramp to NB EL	67.9	68.0	7.0	6.1
SB EL Slip Ramp to SB I-275	66.0	64.9	6.7	11.9
SB EL Slip Ramp to SB I-275	65.6	65.6	4.6	5.4

7.4 Alternatives Evaluation

7.4.1 Mainline Build Alternatives

For the I-275 mainline, two build alternatives were developed and evaluated based on alternate typical sections. In Segments A and B, the build alternative consists of lane continuity improvements, while in Segment C express lanes are considered as the build alternative. The proposed lane continuity improvements in Segments A and B provide for intermittent widening and restriping of existing lanes on I-275 to form two continuous lanes in each direction. In Segment B, a 40-foot

multimodal envelope is preserved for the future implementation of light rail transit within the I-275 median as part of the Federal Transit Administration (FTA) approved Pinellas AA.

As part of the Master Plan improvements in Segment C, a single express lane is to be added in the northbound direction of mainline I-275 north of Gandy Boulevard. A second express lane is added to the northbound I-275 mainline as a direct connection from the 118th Avenue North corridor. Only one access point, located between 4th Street North and the Howard Frankland Bridge, is provided for travel between ELs and GULs. In the southbound direction, two ELs on the I-275 mainline will originate from points north/east of the Howard Frankland Bridge, with one of the ELs terminating as a direct connection to the 118th Avenue North corridor, and the second southbound I-275 mainline EL will transition back into the GULs south of Gandy Boulevard. Similar to the northbound direction, only one access point is to be located between the Howard Frankland Bridge and 4th Street North. The express lane typical section in Segment C generally consists of six GULs (three lanes in each direction) and four ELs (two in each direction). A marked four-foot buffer containing traffic delineators (i.e., vertical PVC flexible posts) separate the ELs and the GULs.

The Starter Project improvements in Segment C consist of re-designating the existing auxiliary lanes on mainline I-275 to form a single express lane in each direction from south of the Roosevelt Boulevard corridor to the Howard Frankland Bridge. Access to the EL from the GULs is provided at three locations along the northbound I-275 mainline: 1) between Gandy Boulevard and Roosevelt Boulevard, 2) a direct connection from the 118th Avenue North corridor, and 3) between 4th Street North and the Howard Frankland Bridge. In the southbound direction of mainline I-275, the single express lane originating from points north/east of the Howard Frankland Bridge will terminate south of Gandy Boulevard. Access from the EL to the GULs is provided at three locations along the southbound I-275 mainline: 1) between the Howard Frankland Bridge and 4th Street North, 2) a direction connection to the 118th Avenue North corridor, and 3) between Gandy Boulevard and 54th Avenue North.

The widening of I-275, under both lane continuity and Starter and Master Plan express lane mainline alternatives, can be constructed within the existing right of way. Additional right of way may be required, however, for stormwater management facilities and floodplain compensation sites.

A detailed description of each mainline alternative is provided in the following pages, and a graphical depiction of the conceptual design layout of the proposed build alternative is provided in **Appendix A**.

7.4.1.1 Mainline Build Alternative – Segment A

Mainline Build Alternative – Segment A, proposed lane continuity improvements mainly consists of providing intermittent widening that varies between 0 and 12 ft and restriping of the existing four-lane typical section with auxiliary lanes. The proposed I-275 mainline build alternative typical section in Segment A is shown on **Figure 7-5**. As seen in this graphic, widening of I-275 is only proposed to the outside in the southbound direction.

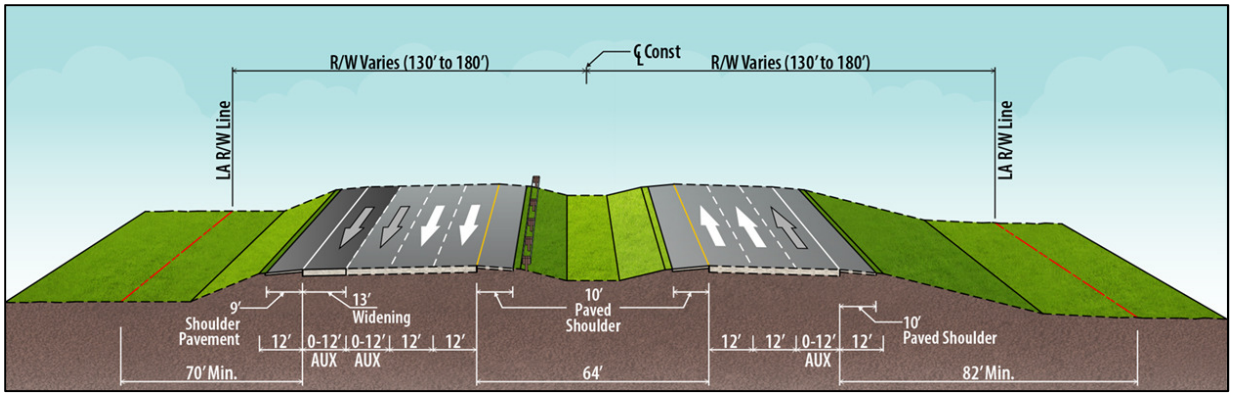


Figure 7-5. I-275 Mainline Build Alternative Typical Section from south of 54th Avenue to I-175 (Segment A)

7.4.1.2 Mainline Build Alternative – Segment B

Mainline Build Alternative – Segment B, proposed lane continuity improvements mainly consists of providing intermittent widening that varies between 0 and 24 ft and restriping of the existing six-lane typical section with auxiliary lanes. As previously mentioned in **Section 7.4.1**, lane continuity improvements and accommodations for future light rail transit within the I-275 median as planned in the Pinellas Alternatives Analysis are provided. The proposed I-275 mainline build alternative typical section in Segment B is shown on **Figure 7-6**.

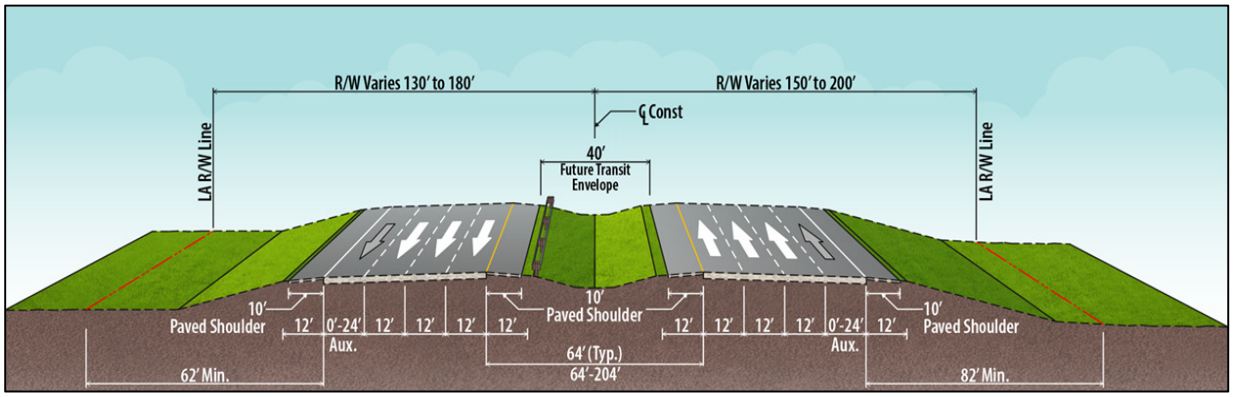


Figure 7-6. I-275 Mainline Build Alternative Typical Section from I-175 to south of Gandy Boulevard (Segment B)

7.4.1.3 Mainline Build Alternative – Segment C

Mainline Build Alternative – Segment C, proposed widening of I-275 consists of the addition of express lanes to form the Master Plan and Starter projects. The proposed I-275 mainline build alternative typical sections in Segment C are shown on **Figure 7-7(a-d)** and **Figure 7-8(a-d)** for the Master and Starter projects, respectively.

7.4.1.3.1 Proposed Master Plan Improvements

The Master Plan proposes to widen the existing I-275 mainline towards the median in order to accommodate one EL in each direction from south of Gandy Boulevard to 118th Avenue North (see **Figure 7-7a** for a graphical depiction of the proposed typical section). The proposed ELs are to be separated from the GULS by a four-foot painted buffer that is to contain traffic delineators. Direct

connections from the 118th Avenue North/Gateway corridor to I-275 are provided via new flyover ramps that enter and exit I-275 from the median. **Figure 7-7b** illustrates the use of Mechanically Stabilized Earth (MSE) wall to transition 118th Avenue North flyover ramps to the at-grade I-275 mainline. From 118th Avenue North to 1.0 mile south of the Howard Frankland Bridge, two express lanes are provided in each direction of travel along I-275 (see **Figure 7-7c** and **Figure 7-7d**). In order to accommodate the proposed express lanes, the existing I-275 causeway extending into Tampa Bay will need to be widened and the existing sea wall replaced.

Figure 7-7. I-275 Mainline Build Alternative Typical Sections – Master Plan Project

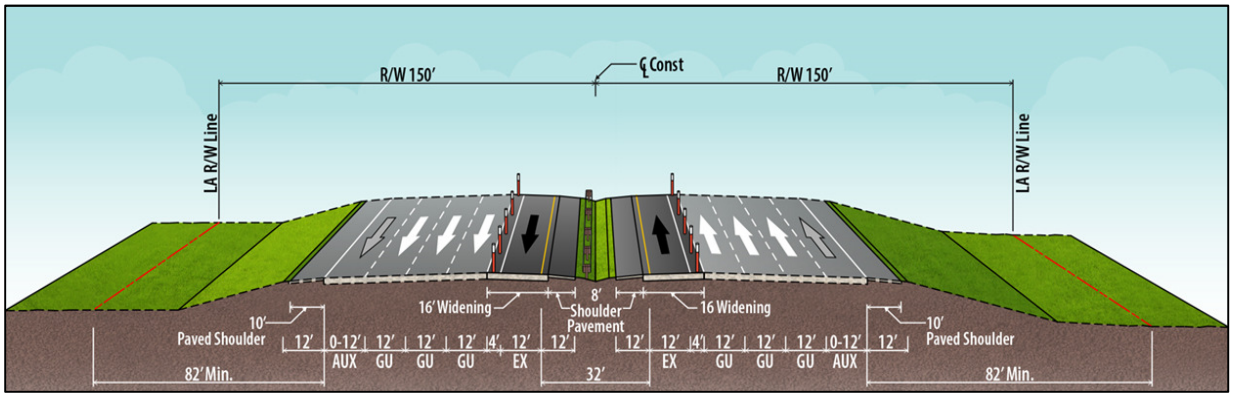


Figure 7-7a. I-275 Mainline Master Plan Build Alternative Typical Section from south of Gandy Boulevard to Roosevelt Boulevard (Segment C-MP1)

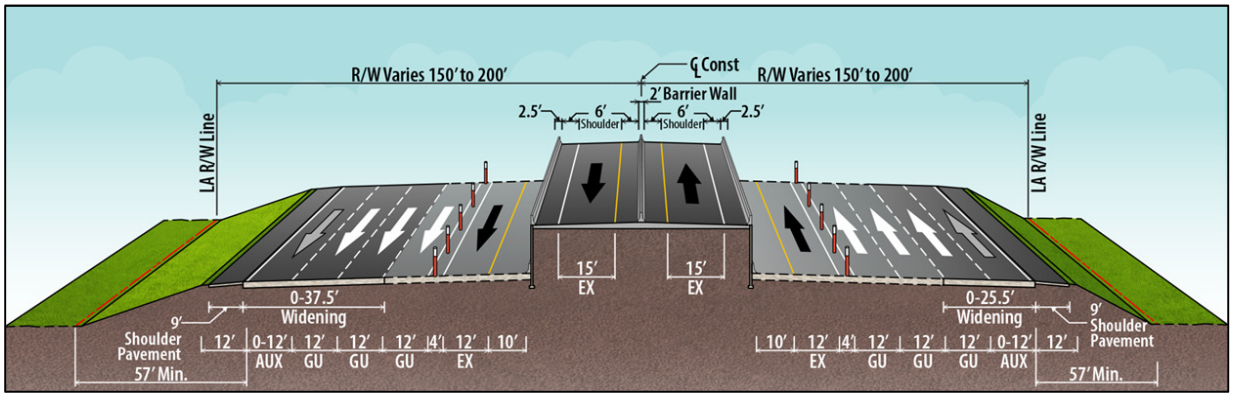


Figure 7-7b. I-275 Mainline Master Plan Build Alternative Typical Section from Roosevelt Boulevard to south of 9th Street North (Segment C-MP2)

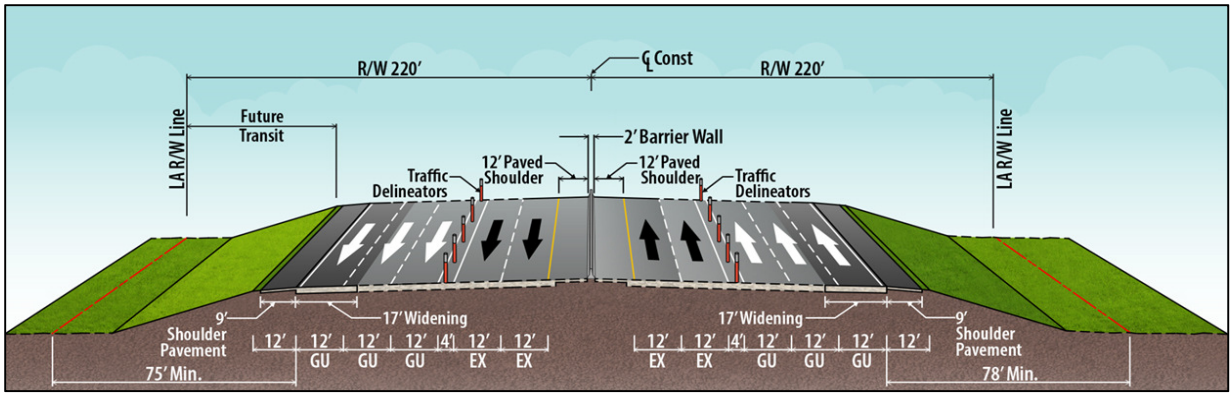


Figure 7-7c. I-275 Mainline Master Plan Build Alternative Typical Section from south of 9th Street North to north of 4th Street North (Segment C-MP3)

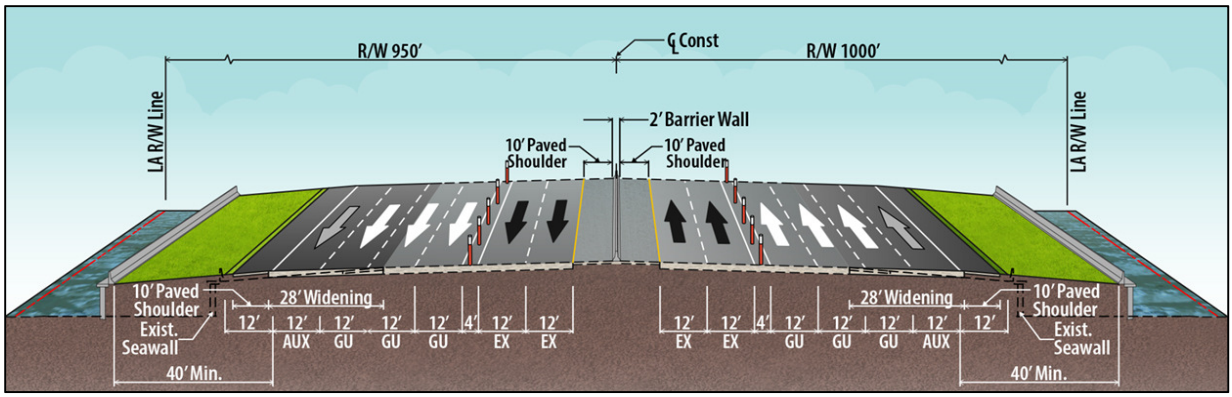


Figure 7-7d. I-275 Mainline Master Plan Build Alternative Typical Section from north of 4th Street North to 1.0 mile south of the Howard Frankland Bridge (Segment C-MP4)

7.4.1.3.2 Proposed Starter Project Improvements

The Starter Project improvements are similar to those of the Master Plan, with the exception that instead of two express lanes proposed in each direction of I-275 under the Master Plan Project, only one lane is provided in each direction of I-275. The southern termini of the Starter Project express lane improvements consist of a lane addition north of Gandy Boulevard, and in the southbound direction the proposed inside (i.e., towards the median) express lane transitions back into the existing southbound I-275 typical section south of Gandy Boulevard.

The Starter Plan proposes to widen the existing I-275 mainline towards the median in order to accommodate one EL in each direction from south of Gandy Boulevard to 118th Avenue North (see **Figure 7-8a** for a graphical depiction of the proposed typical section). As illustrated on **Figure 7-8b**, an MSE wall is utilized in the design of the direct connection to transition 118th Avenue flyover ramps into the at-grade I-275 mainline just south of 9th Street North. The remaining limits of the Starter Project, from north of 9th Street to 1.0 mile south of the Howard Frankland Bridge, involve outside widening and re-designating the existing auxiliary lane on I-275 to form an express lane to the inside. As shown on **Figure 7-8c** and **Figure 7-8d**, no additional travel lanes above-and-beyond the number of existing travel lanes are added under the Starter Project north of 9th Street North.

Figure 7-8. I-275 Mainline Build Alternative Typical Sections – Starter Project

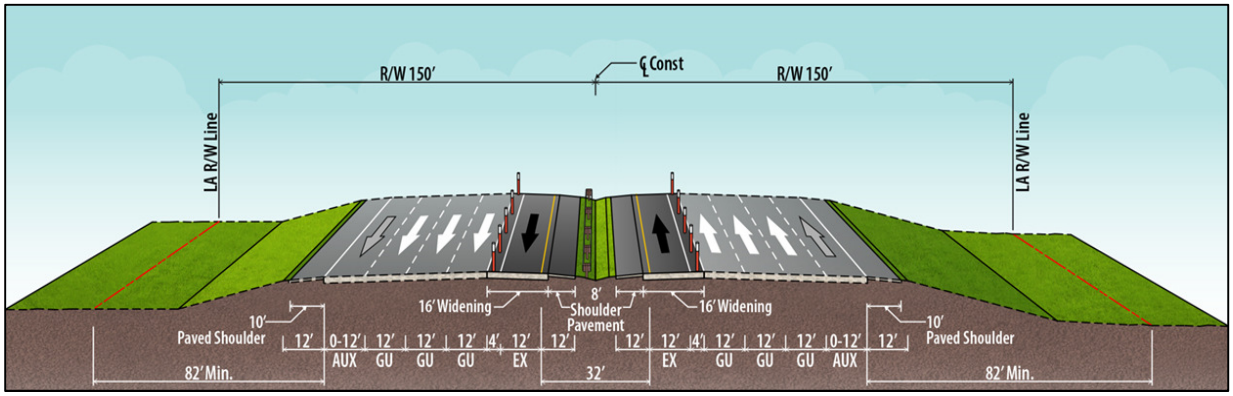


Figure 7-8a. I-275 Mainline Starter Project Build Alternative Typical Section from south of Gandy Boulevard to Roosevelt Boulevard (Segment C-SP1)

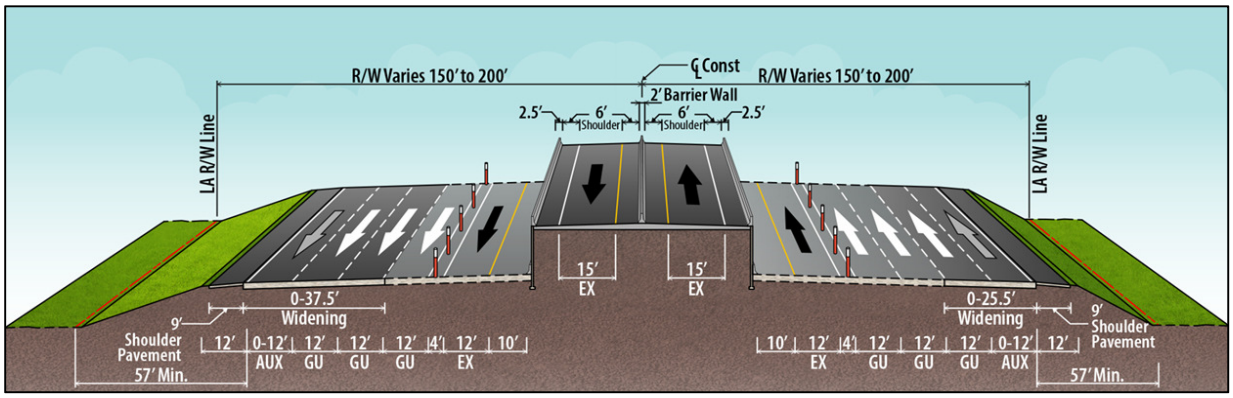


Figure 7-8b. I-275 Mainline Starter Project Build Alternative Typical Section from Roosevelt Boulevard to south of 9th Street North (Segment C-SP2)

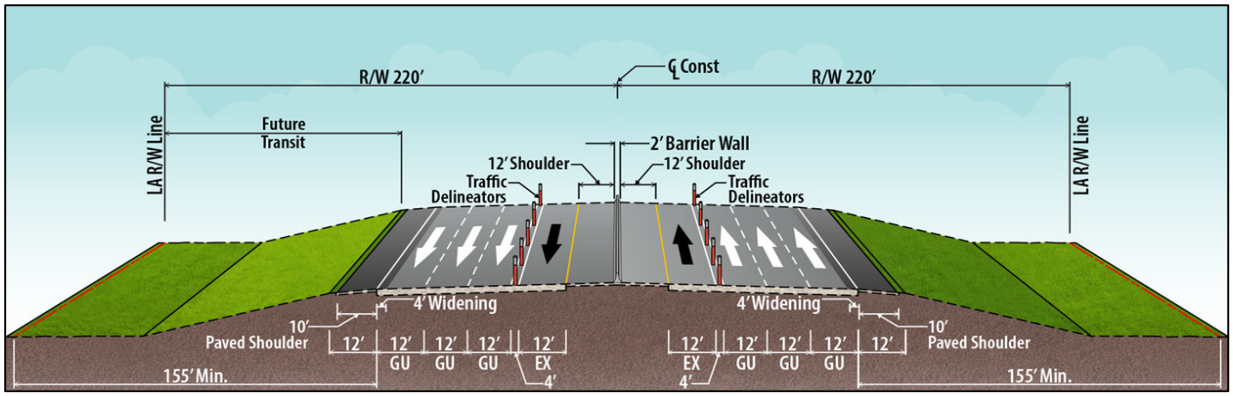


Figure 7-8c. I-275 Mainline Starter Project Build Alternative Typical Section from south of 9th Street North to north of 4th Street North (Segment C-SP3)

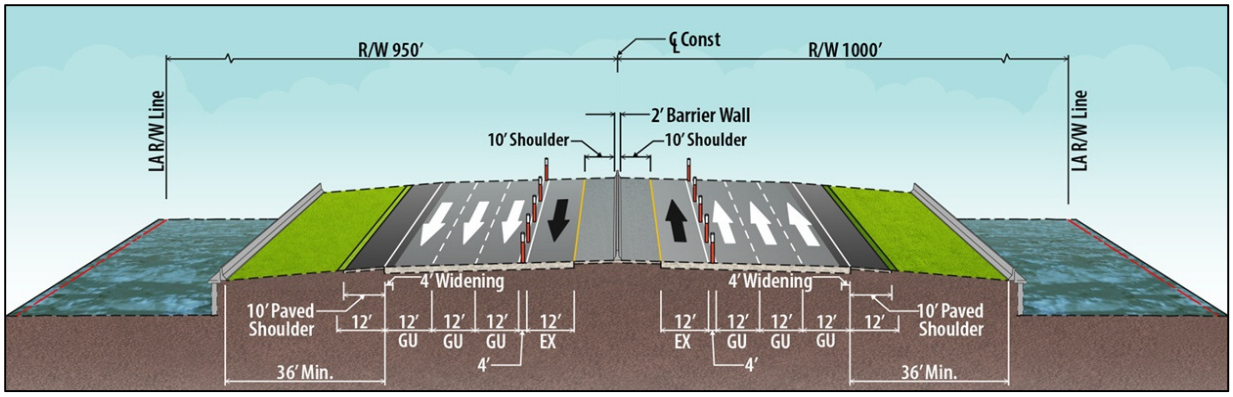


Figure 7-8d. I-275 Mainline Starter Project Build Alternative Typical Section from north of 4th Street North to 1.0 mile south of the Howard Frankland Bridge (Segment C-SP4)

7.4.2 Potential New Interchanges

No new interchanges are proposed within the project limits.

7.5 Summary of Environmental Issues and Impacts

Environmental issues and impacts related to the Preferred Build Alternative are contained in the Type 2 Categorical Exclusion (CE) Determination Form prepared as part of this PD&E Study. The Type 2 CE documents the social/economic, cultural, natural, and physical impacts associated with implementing the proposed Build Alternative and assigns a summary degree of effect for each potential impact. **Table 7-20** provides a summary listing of potential environmental impacts, and the following sections describe pertinent issues related to the Preferred Build Alternative when there is possible involvement only.

Table 7-20. Environmental Impact Evaluation Summary

Topical Categories	Impact Determination			
	Significant	Not Significant	None	No Involvement
A. Social and Economic				
Land Use Changes			✓	
Community Cohesion			✓	
Relocation Potential			✓	
Community Services		✓		
Nondiscrimination		✓		
Controversy Potential		✓		
Scenic Highways				✓
Farmlands				✓
B. Cultural				
Section 4(f)			✓	
Historic Sites/Districts		✓		
Archaeological Sites			✓	

Table 7-20. (Continued) Environmental Impact Evaluation Summary

Topical Categories	Impact Determination			
	Significant	Not Significant	None	No Involvement
Recreation Areas			✓	
C. Natural				
Wetlands		✓		
Aquatic Preserves			✓	
Water Quality		✓		
Outstanding FL Waters			✓	
Wild and Scenic Rivers				✓
Floodplains		✓		
Coastal Zone Consistency			✓	
Coastal Barrier Resources				✓
Wildlife and Habitat		✓		
Essential Fish Habitat		✓		
D. Physical Impacts				
Noise		✓		
Air Quality		✓		
Construction		✓		
Contamination			✓	
Aesthetic Effects			✓	
Bicycles and Pedestrians				✓
Utilities and Railroads		✓		
Navigation			✓	

7.5.1 Social and Economic

7.5.1.1 Community Services

The proposed roadway improvements can be constructed within existing right of way; therefore, minimal adverse impacts on community services are anticipated. Motorists using I-275 will benefit from the proposed improvements because of the increased capacity and enhanced level of service.

7.5.1.2 Nondiscrimination

This project was developed in accordance with Title VI of the Civil Rights Act of 1964, Executive Order 12898 (Environmental Justice) and other nondiscrimination laws and regulations. Many aspects of this project will be enhancements to the standard of living for all residents in the study area and users of the facility, minority or otherwise. The project will improve mobility throughout the area for all users. There will be no relocations nor isolation or splitting of neighborhoods as a result of the project. Therefore, the proposed project will not result in any disproportionately high and adverse effects on protected groups. Title VI information was made available at the Public Hearing.

7.5.1.3 Controversy Potential

A comprehensive Public Involvement Program was undertaken and it was in compliance with the FDOT Project Development and Environment Manual, Section 339.155, Florida Statutes (F.S.); Executive Orders 11990 and 11988; Council on Environmental Quality Regulations for implementing the procedural provisions of the NEPA; and 23 CFR 771. The primary benefit to the motoring public as a result of the proposed project will be a safer and more reliable transportation facility. Similar to other managed lanes systems in effect within Florida and across the United States, travelers who choose to pay for the express lanes will do so because their value of time savings exceeds the monetary costs associated with paying a toll to travel. The use of transit addresses the needs of low-income and other transportation-disadvantaged groups. The proposed express lane system will provide transportation alternatives for peak-period travelers. Moreover, former general purpose lane users that shift voluntarily to the express lanes will provide an overall degree of reduced congestion for users remaining in the general purpose lanes. As a result of the coordination with the public and agencies to date, there has been no substantial controversy associated with the proposed project.

7.5.2 Cultural

7.5.2.1 Historic Sites / Districts

A *Cultural Resource Assessment Survey* (CRAS) was conducted to locate and identify cultural resources within the Area of Potential Effect (APE), and to assess their significance in terms of eligibility for listing in the National Register of Historic Places (NRHP). This CRAS was conducted in accordance with the requirements set forth in the National Historic Preservation Act of 1966, as amended, and Chapter 267, *Florida Statutes* (*F.S.*). Sixteen NRHP-listed eligible [twelve as part of the Kenwood Historic District (8PI11176) including the District; and four individual – Norwood School (8PI714), Papa's Dream (8PI726), Manhattan Casino (8PI819), and Jordan Park Elementary School (8PI6901)], or potentially eligible, historic resources were located within the I-275 PD&E Study APE.

The FHWA approved the recommendations and findings of the April 8, 2015 CRAS on May 6, 2015 and the State Historic Preservation Officer (SHPO) concurred on June 2, 2015. A Draft Section 106 Consultation Case Study Report was submitted August 2015 to evaluate the potential effects (primary and secondary) of the proposed project to the sixteen NRHP-listed historic resources. Through consultation with the SHPO and FHWA, FDOT applied the Criteria of Adverse Effect found in 36 CFR Part 800.5 and determined that the project will have No Effect on the Jordan Park Elementary School (8PI06901), the Manhattan Casino (8PI00819), and Papa's Dream (8PI00726). The FDOT determined that the project would have No Adverse Effect on the NRHP-eligible Norwood School (8PI00714). The case study analysis indicated that the project would result in noise levels of 50.9 dB(A) at the Norwood School, which does not meet or exceed the Noise Abatement Criteria (NAC) of 51 dB(A) for a Category D property. Noise abatement measures do not need to be considered for this resource. However, noise barriers were recommended along this segment of the highway. The FDOT determined that the project would have No Adverse Effect on the NRHP-listed Kenwood Historic District (8PI11176), including 11 contributing resources within the historic district (8PI06929, 8PI06956, 8PI07256, 8PI07272, 8PI07410, 8PI07502, 8PI07837, 8PI07839, 8PI07970, 8PI11102, and 8PI11108). However, the analysis indicated an increase of between 0.4 and 5.9 dB(A) in noise levels when compared to the existing condition, and an increase of more than 3 dB(A) at four of the 11 contributing resources. The study suggested that noise barriers would be the most feasible and prudent noise abatement measures.

7.5.3 Natural

7.5.3.1 Wetlands

The location of surface waters and wetlands are mapped on the Concept Plans shown in **Appendix A**, and the Wetland and Surface Water Impact Sheets in the Final Wetlands and Biological Assessment Report (WEBAR). The results of wetlands evaluation indicate that there will be no anticipated wetland impacts in Segment A. Segments B and C require fill within surface waters, wetlands, and within waters of Old Tampa Bay, which includes the Pinellas County Aquatic Preserve.

The Preferred Build Alternatives for Segments B and C would result in approximately 0.74 acres of impacts to freshwater wetlands including approximately 0.59 acres of freshwater forested wetlands and 0.15 acres of non-forested freshwater wetlands. Segment C would result in 0.89 acres of impact to mangrove habitat including 0.73 acres around Big Island Gap and 0.16 acres to surface waters associated with the Weedon Island Preserve. Segment C would also require impacts to seagrass habitat. Impacts to continuous seagrass habitat would total approximately 0.40 acres; impacts to intermittent and patchy seagrass habitat 0.34 acres.

Wetland impacts would be avoided and minimized to the greatest extent practical during project design and permitting. All impacts to jurisdictional wetlands and surface waters would be evaluated using the Uniform Mitigation Assessment Method (UMAM) Chapter 62-345 FAC) during the design and permitting phase of the project as part of the Environmental Resource Permit (ERP) program under Part IV of Chapter 373 of the Florida Statutes. Mitigation would be provided pursuant to S.373.4137 Florida Statutes (F.S.) Part IV, Chapter 373, F.S. and 33 U.S.C.s, 1344.

7.5.3.2 Water Quality

Degradation of water quality resulting from construction or excess loading of stormwater runoff from the project has the potential to adversely impact tidal habitats in and around Tampa Bay including seagrass habitats and benthic communities. A Water Quality Impact Evaluation (WQIE) has been prepared for this study and is available in the project files.

7.5.3.3 Floodplains

A Final Location Hydraulics Memorandum was prepared to assess highway encroachment impacts within the 100-year (base) floodplains and any regulatory floodways that are associated with the proposed action. This project lies within the 100-year base floodplain in three locations within the I-275 corridor: (1) from the beginning of the project to north of 46th Avenue South, (2) just south of 26th Avenue South, and (3) from south of the Gandy Boulevard Interchange to the end of the project. The remaining portion of the I-275 roadway and bridges are elevated above the 100-year base flood elevation. No widening of the existing I-275 footprint is proposed within locations (1) and (2) above; therefore, there will be no impacts to the base floodplain in these areas. Location (3) was subdivided to evaluate potential impacts to the base floodplain as follows:

- Segment 3-1: South of Gandy Boulevard to the Gandy Boulevard Interchange
    - The widening of the roadway portion of the project will add embankment fill material upon the base floodplain within the existing right-of-way.
    - Floodplain Impact Locations have been identified as F-1, F-2 and F-3.

- Segment 3-2: Gandy Boulevard Interchange to Roosevelt Boulevard Interchange
    - The widening in this segment is to the inside (median) and is above the base floodplain elevation of 9.86 National Geodetic Vertical Datum (NGVD) (9.00 North American Vertical Datum (NAVD)).
    - There will be no impacts to the base floodplain in this segment.
- Segment 3-3: Roosevelt Boulevard Interchange to End Project
    - The widening in this segment is to the outside; however, this is an area of Tidal Swamp and floodplain compensation will not be required. This is supported by the availability of historical permits in the vicinity of this segment.
    - There will be no impacts to the base floodplain in this segment.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) show that the project bisects five (5) FEMA Flood Zones. These zones include: A, AE, VE, X, and X. As a result, approximately 3.26 acre-feet of floodplain impacts are expected within location (3). In addition, the encroachments into the floodplain may be decreased (minimized) through adjustment to the typical section in the vicinity of the floodplain impact areas. Minimization and/or avoidance measures will be taken into consideration during the design phase to reduce any impacts to the 100-year floodplain by steepening the side slopes or adding retaining walls, if feasible. Because the proposed roadway widening occurs along the existing alignment, floodplain encroachments are considered minimal. Moreover, there are no regulatory floodways within the project limits.

7.5.3.4 Wildlife and Habitat

The project corridor was evaluated for the presence of state and/or federally protected wildlife and habitat as part of preparing the Final WEBAR. Coordination letters in response to the WEBAR were received from the United States Fish and Wildlife Service (USFWS) and the Florida Wildlife Commission (FWC) July 17, 2015 and April 15, 2015, respectively. The results of the evaluation of wildlife and habitat indicated that neither federal nor state listed plants species were observed within the project corridor during the PD&E surveys or during prior field reviews. In contrast, there are several animal species observed within the project corridor that the Preferred Build Alternative *may affect, but is not likely to adversely affect:*

Federal Listed Species:

- Gulf sturgeon (*Acipenser oxyrinchus desotoi*);
- Small-toothed sawfish (*Pristis pectinata*);
- Loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), hawksbill sea turtle (Eretmochelys imbricate), and Kemp's Ridley sea turtle (*Lepidochelys kempii*);
- Wood stork (*Mycteria americana*);
- Piping plover (*Charadrius melodus*); and
- West Indian manatee (*Trichechus manatus latirostris*).

State Listed Species:

- Mangrove rivulus (*Kryptolebias marmoratus*);

- Snowy plover (*Charadrius alexandrines*), least tern (*Sternula antillarum*), great blue heron (*Ardea Herodias*), snowy egret (*Egretta thula*), little blue heron (*Egretta caerulea*), double-crested cormorant (*Phalacrocorax auritus*).

In order to assure that adverse impacts to protected species or habitat will not occur within the project corridor, the FDOT will adhere to the commitments and protection measures listed in **Section 1.2**.

7.5.3.5 Essential Fish Habitat

Estuarine habitats exist within Old Tampa Bay and are crossed by the I-275 project. Based on field reviews, the project crosses variety of coastal habitat communities. A freshwater, but tidally-connected canal was present along I-275 south of Gandy Boulevard. Mangroves were observed east and west of I-275 within the canal located between Roosevelt Boulevard and Ulmerton Road at the Weedon Island Preserve. Mangrove habitat was observed at the Weedon Island Preserve, at Big Island Gap on both natural substrate and riprap and along the Howard Frankland Bridge Causeway. Seagrass habitats of varying density, quality and composition were observed waterward of the Howard Frankland Bridge Causeway. Impacts to seagrass habitat would occur as a result of widening of the Howard Frankland Bridge Causeway. Impacts to both seagrass habitat and mangrove habitat would occur at Big Island Gap as a result of bridge widening. In addition, impacts to mangrove habitat would also occur at a canal near Weedon Island Preserve, located between Roosevelt Boulevard and Ulmerton Road, to accommodate highway widening.

Species known to exist in Tampa Bay and listed in the FMPs of the Gulf of Mexico Fishery Management Council include the red drum, coastal migratory pelagics and reef fish, pink shrimp, stone crab, and spiny lobster. However, base on standard water quality protection measures and mitigation, the project is not expected to have detrimental impacts on any of these species. Mitigation will be provided pursuant to S.373.4137 Florida Statutes (F.S.) Part IV, Chapter 373, F.S. and 33 U.S.C.s, 1344.

7.5.4 Physical

7.5.4.1 Noise

A Final Noise Study Report (NSR) was prepared for this PD&E Study to document the noise related impacts associated with the Preferred Build Alternative. Title 23, Part 772 of the Code of Federal Regulations (23 CFR 772), Procedures for Abatement of Highway Traffic Noise and Construction Noise (July 13, 2010), requires that projects requiring approval, or that are funded by, the FHWA be subjected to a traffic noise analysis and, if applicable, an evaluation of abatement measures. Two-thousand one hundred and eighty (2180) noise sensitive receptors (i.e., discrete representative locations on a property that has a noise sensitive land use) were evaluated within 72 noise sensitive areas (NSAs). Two thousand one hundred and thirty two (2132) receptors were evaluated on residential properties, three in active sports areas, one at a cemetery, two at day care centers, one for an exterior use at a medical facility, six at parks, three for exterior uses at places of worship, one at a public institutional structure, five in public recreational areas, two in residential recreational areas, and five for exterior uses at schools, Because there are no exterior uses identified, interior traffic noise levels were evaluated at one medical facility, a nonprofit institutional structure, seven places of worship, one public institutional structure, and one public meeting room. Finally, three receptors were evaluated at hotel/motels, two at properties designated as “other developed

properties" (i.e., a for-profit theater and a private lodge) and two for the outdoor dining areas of restaurants.

Of the evaluated receptors, 1,017 are predicted to be impacted by traffic noise with existing conditions. In the future without the proposed improvements 993 of the 2,180 receptors are predicted to be impacted (forecast changes in the future number of heavy trucks and buses on I-275 result in a decrease in the number of impacted properties). Finally, with the proposed improvements, 1,051 receptors are predicted to be impacted by traffic noise. Of these receptors, 1,031 were evaluated on residential properties (Activity Category B), 19 were evaluated for exterior uses at active sports areas, a cemetery, day care centers, institutional structures, medical facilities, parks, and schools (Activity Category C), and one was evaluated for the exterior dining area at a restaurant (Activity Category E).

Traffic management measures, modifications to the roadway alignment, buffer zones and noise barriers were considered as abatement measures. With the exception of the proposed noise barriers for the impacted properties within the following Noise Sensitive Areas (NSAs), the noise abatement measures were not determined to be both feasible and reasonable.

- NSA 10: Residences in the Lakewood Gateway and Country Club subdivisions;
- NSA 17: Residences in the Highland Terrace Park subdivision;
- NSA 20: Residences in the HIghland Terrace Park and Gateway subdivisions;
- NSA 21: Residences in Tangerine Terrace subdivision;
- NSA 23: Residences in Tangerine Terrace subdivision;
- NSA 25: Residences in the Tangerine Terrace, Grand Central, Revere, Rosa E. Royal's, Prather's 31st Acreage, Don's, William's, and E.C. Fishers subdivisions;
- NSA 37: Residences in the S.V. Smith's and H.A. Murphy's subdivisions;
- NSA 45: Residences in the Fuller's Gough's and Bronx subdivisions and the Northside Apartments;
- NSAs 54 and 59: Residences in the Reisset, Bunson's Woodlawn Estates, Pine City, Townsend's R.I. Williamson's, Herkimer Heights, Shelton Heights, Clearview Park, Flemings, Harris School Park, Tetreault, Cross Corners, Larry's Bryan Heights, and Thrumstons Bilmar subdivisions;
- NSAs 55 and 57: Residences in the Brunsun's Woodlawn, Pine City, Herkimer Heights, Benger's, Rochester Heights, D.C. White, Coolidge Park, Lynndale, Mar-Mick, and Lakeside subdivisions, Silver Lake Mobile Home Resort, and North Ridge Mobile Home Park;
- NSA 61: Residences in the Heinz subdivision and a mobile home park in the southwest quadrant of I-275 and 54th Avenue interchange.
- NSAs 63 and 67: Residences in the Erle Renwick and Fairview Estates subdivisions and the Southern Mobile Home Park;
- NSA 66: Residences in the Chateaux Versailles, Oaks at Meadowlawn, and Meadowlawn Cardinal subdivisions;
- NSA 69: Residences in the Village Green Mobile Home Park;

- NSA 70: Residences in Bay Isle Townhomes; and
- NSA 71: Residences in the Azure Apartments.

The location and limits of the PD&E-evaluated noise barriers for the above NSAs are illustrated on aerials in **Appendix A**. The FDOT is committed to the construction of noise barriers at the locations above, contingent upon the following:

- Detailed noise analysis during the final design process continues to support the need for, and the feasibility and reasonableness of providing the barriers as abatement;
- The detailed analysis demonstrates that the cost of the noise barrier will not exceed the cost effective limit;
- The residents/property owners benefitted by the noise barrier desire that a noise barrier be constructed; and
- All safety and engineering conflicts or issues related to construction of a noise barrier are resolved.

Notably, the noise barriers for the impacted properties in NSA 23, NSA 25 and NSA 61 have the potential to visually block outdoor advertising signs. Should the barriers at these locations remain a feasible and reasonable abatement measure after the detailed noise analysis performed during the project's design phase and the signs are determined to be conforming and legally permitted signs, a notice of the possible screening of the outdoor advertising signs will be provided to the affected sign permit holder(s) and the appropriate local sign regulating agency. A public hearing will also be held to receive input on the proposed noise barrier/sign conflict. Some land uses adjacent to I-275 are identified on the FDOT listing of noise- and vibration-sensitive sites (e.g., residential use). Application of the *FDOT Standard Specifications for Road and Bridge Construction* may minimize or eliminate potential issues should they arise during the construction process.

To reduce the possibility of additional traffic noise related impacts, noise level contours were developed for the future improved roadway facility. These noise contours delineate the distance from the improved roadway's edge-of-travel lane where exterior traffic noise is predicted to meet the NAC. Notably, these distances do not consider any reduction in traffic noise due to shielding from structures and vary depending on the segment of I-275.

- Activity Category "A" (land uses for which serenity and quiet are of extraordinary significance) – From 1,070 to 1,700 feet.
- Activity Categories "B" and "C" (includes residential land uses, places of worship, and day care centers) – From 360 to 720 feet.
- Activity Category "E" (includes land uses such as hotels/motels and the outdoor dining areas of restaurants) – From 220 to 390 feet.

7.5.4.2 Air Quality

The project is in an area that has been designated as attainment for all of the National Ambient Air Quality Standards (NAAQS) established by the Clean Air Act and subsequent amendments. Therefore, the Clean Air Act conformity requirements do not apply to this project. An air quality analysis, specifically an analysis of carbon monoxide (CO) concentrations, was performed using methodology established in the FDOT *Project Development and Environment Manual*, Part 2,

Chapter 16. CO levels were predicted using FDOT's screening test *CO Florida 2004*. All predicted CO concentrations for the No-Build and Preferred Build conditions in the opening year and design year were below the NAAQS.

7.5.4.3 Construction

Construction activities for this proposed project will have minimal, temporary, yet unavoidable, air, noise, water quality, traffic flow, and visual impacts for those residents and travelers within the immediate vicinity of the project. The following provides a brief summary of the construction impacts related to the Preferred Build Alternative:

- Air Quality: The air quality effect will be temporary and will primarily be in the form of emissions from diesel powered construction equipment and dust from construction activities. Air pollution associated with the creation of airborne particles will be effectively controlled through the use of watering or the application of other controlled materials in accordance with FDOT's *Standard Specifications for Road and Bridge Construction*.
- Water Quality: The water quality effects resulting from erosion and sedimentation during construction will be controlled in accordance with FDOT's *Standard Specifications for Road and Bridge Construction* and through the use of best management practices (BMPs).
- Wetlands: Short term construction related wetland impacts will be minimized by adherence to FDOT's *Standard Specifications for Road and Bridge Construction*. These specifications include measures known as BMPs, which include the use of siltation barriers, dewatering structures, and containment devices that will be implemented for controlling turbid water discharges outside of construction limits.
- Traffic Flow: Maintenance of Traffic (MOT) and sequence of construction will be planned and scheduled to minimize traffic delays throughout the project. Signs will be used to provide notice of road closures and other pertinent information to the traveling public. The local news media will be notified in advance of construction related activities so that motorists, residents, and business persons can make accommodations. All provisions of FDOT's *Standard Specifications for Road and Bridge Construction* will be followed.
- Construction of the roadway and bridges may require excavation of unsuitable material (muck), placement of embankments, and use of materials, such as limerock, asphaltic concrete, and Portland cement concrete. Demucking will be controlled by Section 120 of FDOT's *Standard Specifications for Road and Bridge Construction.* The removal of structures and debris will be in accordance with state regulatory agencies permitting this operation. The contractor is responsible for his methods of controlling pollution on haul roads and in areas used for disposal of waste materials from the project.
- Erosion: Temporary erosion control features, as specified in FDOT's *Standard Specifications for Road and Bridge Construction*, could consist of temporary grassing, sodding, mulching, sandbagging, slope drains, sediment basins, sediment checks, artificial coverings, and berms.
- Visual: For the residents living in the project area, some of the materials stored for the project may be displeasing visually; however, this will be a temporary condition and should pose no substantial, long term problem.

7.5.4.4 Utilities and Railroads

A summary of utility and railroad involvement associated with the Preferred Build Alternative is provided in **Section 8.13**.

7.6 Evaluation Matrix

The environmental and engineering related impacts associated with implementing the proposed Build Alternative were compared to the No Build Alternative in an evaluation matrix as shown in **Table 7-21**. Although the No Build Alternative experiences less impacts than the Preferred Build Alternative, the detrimental effects of increased traffic congestion and reduced highway safety associated with the No Build Alternative potentially outweighs the minimal environmental and engineering related impacts as a result of implementing the proposed Build Alternative.

Table 7-21. Alternatives Evaluation Matrix

Evaluation Criteria	No Build Alternative	Preferred Build Alternative			
		Segment A	Segment B	Segment C	Total
Safety and Mobility					
Degree of Congestion[1]	High	Moderate	Moderate	Moderate	Moderate
Crash Frequency[2]	2082	248	793	395	1436
Potential Relocations					
Number of Businesses and Residences for Roadway	0	0	0	0	0
Potential Right-of-Way (ROW) Impacts					
Additional ROW Needed for Roadway (acres)	0	0	0	0	0
Additional ROW Needed for Ponds	0	1.1	2.5	0.9	4.5
Potential Environmental Effects					
Archaeological/Historical Sites Eligible for NHRP Listing	16	2	14	0	16
Noise-Sensitive Sites[3]	993	171	725	158	1054
Seagrasses (acres)	0	0	0	0.74	0.74
Mangroves (acres)	0	0	0	0.89	0.89
Aquatic Preserve/OFW Encroachment (acres)	0	0	0	3.1	3.1
Threatened and Endangered Species[4]	Low	Low	Low	Low	Low
Contamination and Hazardous Material Sites (Medium and High Ranked)	13	5	4	4	13
Estimated Project Costs[5] ($millions)					

Table 7-21. (Continued) Alternatives Evaluation Matrix

Evaluation Criteria	No Build Alternative	Preferred Build Alternative			
		Segment A	Segment B	Segment C	Total
Right-of-Way Acquisition (ROW)[6]	$0.00	$4.44	$1.58	$0.98	$7.00
Construction Costs					
Roadway	$0.00	$3.76	$15.33	$48.03	$67.13
Structures	$0.00	$3.35	$3.45	$40.11	$46.91
Drainage/Stormwater Management	$0.00	$1.55	$6.77	$5.50	$13.82
Signing/Lighting/Signals/ITS	$0.00	$0.52	$0.89	$14.38	$15.79
Noise Abatement	$0.00	$6.34	$19.99	$3.36	$29.69
Maintenance of Traffic (10%)	$0.00	$1.55	$4.64	$11.14	$17.33
Mobilization (7%)	$0.00	$1.20	$3.57	$8.58	$13.35
Additional Contingencies (15%+/-)	$0.00	$2.74	$8.20	$19.67	$30.60
Total Construction Cost	$0.00	$21.01	$62.84	$150.77	$234.62
Preliminary Engineering Design (7%)	$0.00	$1.47	$4.40	$10.55	$16.42
Construction Engineering Inspection (7%)	$0.00	$1.47	$4.40	$10.55	$16.42
Project Grand Total	$0.00	$23.95	$71.64	$171.88	$267.47
Preliminary Estimate of Total Capital Costs[7]	**$0.00**	**$28.39**	**$73.22**	**$172.86**	**$274.47**

1 Low – used when less than 25% of the Segment has a v/c > 1.0, Medium – used when between 25% and 50% of the Segment has a v/c > 1.0, High – used when more than 50% of the Segment has a v/c > 1.0.
2 A crash reduction factor of 31% (“Update of Florida Crash Reduction Factors and Countermeasures to Improve the Development of District Safety Improvement Projects”, FDOT 2005, Gan, A., Shen, J., and Zein, S. R.)
3 Sites located within 66dBA noise level contour.
4 Low – species documented, but with a low likelihood to occur within the project corridor due to limited presence of suitable habitat, Medium – species documented and for which suitable habitat is present, however, no documented occurrences exist, High – species are documented within the vicinity of the project.
5 Present day costs in millions of dollars. Construction Costs based on FDOT's LRE system costs.
6 Includes the costs of right or way acquisition for stormwater management facilities and floodplain compensation sites.
7 Rounded to 2 significant figures - Costs are rounded above and may not add up to exact total shown.

8 Design Details of Preferred Alternative

8.1 Design Traffic Volumes

The design year (2040) AADTs and DDHVs for the No Build and Build Alternatives are presented in **Section 7.3.1**. The TBTOD Model with express lanes was developed from the TBRPM and used as a source to forecast future year (2020, 2030, and 2040) traffic projections within the I-275 PD&E study limits. The traffic operational analysis for the No Build and Build Alternatives can be found in **Section 7.3.2** and **Section 7.3.3**, respectively.

8.2 Typical Sections and Design Speed

The recommended typical sections for the lane continuity improvements (Segments A and B) and managed lanes (Segment C) were previously shown in **Section 7.4.1.3.1** and **Section 7.4.1.3.2**. The roadway approaches would transition to match the existing roadway approach typical sections, previously shown in **Section 4.1.2**.The existing roadway was designed with speeds of 50 mph and 70 mph. However, the entire roadway is currently posted at 65 mph throughout the project limits. The recommended design speed is 70 miles per hour.

8.3 Signal Analysis

The ramp terminal intersection operational analysis for the No Build and Build Alternatives can be found in **Section 7.3.2** and **Section 7.3.3** respectively.

8.4 Alignment and Right of Way Needs

The proposed horizontal alignment follows the existing roadway alignment, previously shown in **Section 4.1.5**. The transitions on the ends will be designed for the 70 mph design speed. No additional right of way is required for construction of the proposed roadway improvements. However, right of way is likely to be required for stormwater management facilities (SMF) and floodplain compensation (FPC) sites. A plan view of the proposed improvements is shown in **Appendix A**.

The proposed vertical alignment was previously shown in **Section 4.1.6**. Although several of these existing vertical curves fail to meet FDOT criteria, reconstruction of the existing I-275 corridor would significantly increase costs and construction duration. The purpose and need for this project can be accomplished in a more cost-effective manner without a decrease in highway safety through the implementation of lower-cost TSM and express lane improvements.

8.5 Relocations

At this time, no mainline right-of-way is anticipated to be required as a result of implementing the proposed roadway improvements. Proposed stormwater management facility (SMF) sites have been identified during the proposed project's PD&E study for the purpose of evaluating right of way cost estimates. These SMF locations may change during later project implementation phases. Since ROW acquisition has been identified for these SMF sites there is no proposed residential or business relocations.

8.6 Cost Estimates

An estimate of the capital cost for constructing the recommended lane continuity and Master Plan express lanes is approximately $274 million in today's dollars, based on the FDOT's Long Range Estimates (LRE) system (**Table 8-1**).

The cost for engineering (final design) and the cost for Construction Engineering Inspection (CEI) were estimated at 7 percent and 7 percent, respectively, of the estimated total construction cost. Project contingencies were estimated at 15 percent.

Table 8-1. Estimated Project Costs

Evaluation Criteria	Segment A	Segment B	Segment C	
			Starter	Master
Estimated Capital Cost[1] (Cost in $ millions, rounded)				
Right-of-Way Acquisition (ROW)[6]	$4.44	$1.58	$0.00	$0.98
Construction Costs				
Roadway	$3.76	$15.33	$24.91	$48.03
Structures	$3.35	$3.45	$27.90	$40.11
Drainage/Stormwater Management	$1.55	$6.77	$1.68	$5.50
Signing/Lighting/Signals/ITS	$0.52	$0.89	$13.87	$14.38
Noise Abatement	$6.34	$19.99	$0.50	$3.36
Maintenance of Traffic (10%)	$1.55	$4.64	$6.89	$11.14
Mobilization (7%)	$1.20	$3.57	$5.30	$8.58
Additional Contingencies (15%+/-)	$2.74	$8.20	$12.16	$19.67
Total Construction Cost	$21.01	$62.84	$93.20	$150.77
Preliminary Engineering Design (7%)	$1.47	$4.40	$6.52	$10.55
Construction Engineering Inspection (7%)	$1.47	$4.40	$6.52	$10.55
Project Grand Total	$23.95	$71.64	$106.25	$171.88
Preliminary Estimate of Total Capital Costs	***$28.39***	***$73.22***	***$106.25***	***$172.86***

1. Present day (2016) costs shown in millions were developed in FDOT LRE system.
2. Cost of right-of-way acquisition for stormwater management facilities and floodplain compensation sites.

8.7 Recycling of Salvageable Materials

During construction of the project, recycling of reusable materials will occur to the greatest extent possible. Where possible, pavement material removed from the existing roadway can be recycled for use in the new pavement. This will help to reduce the volume of the materials that need to be

hauled away and disposed of from the project and to reduce the cost of purchasing materials suitable for pavement construction. Other materials such as signs, drainage concrete pipes, etc., will also be salvaged and reused for regular maintenance operations if they are deemed to be in good condition.

8.8 User Benefits

The primary benefit to the motoring public as a result of the proposed improvement will be a safer and more reliable transportation facility. Similar to other managed lanes systems in effect within Florida and across the United States, travelers who choose to pay for the express lanes will do so because the value of the trips they choose exceeds the value of the in effect for that trip. The use of transit addresses the needs of low-income and other transportation-disadvantaged groups. The proposed express lane system will provide transportation alternatives for peak-period travelers. Moreover, former general purpose lane users that shift voluntarily to the express lanes will provide an overall degree of reduced congestion for users remaining in the general purpose lanes.

8.9 Multimodal Considerations

The Preferred Build Alternative accommodates premium transit such as LRT. Coordination is ongoing with TBARTA, PSTA, HART, Pinellas County MPO and other local governments and agencies to determine the best long-range solution for increasing the capacity within the I-275 corridor. Potential accommodations for express lanes and premium transit are discussed in **Section 3**.

8.10 Economic and Community Development

The proposed project would have little economic effects other than the temporary jobs that would be created during the construction phase along with the secondary benefits to service-related businesses. Based on the TIGER 3 FAQ's at the US DOT Application Resources website, the US DOT estimates that there are 13,000 job-years created per $1 billion dollars of government investment (or $76,900 per job-year; previous guidance had stated that every $92,000 of investment is equivalent to one job year). Based on a construction cost of approximately $234 million to implement lane continuity and Master Plan express lanes, construction of this project would result in approximately 3,042 job years of employment for the local economy.

8.11 Temporary Traffic Control Plan

The traffic control plan can be accomplished in two phases to accommodate the proposed inside and outside widening of roadway and bridge structures along both directions of I-275. In the first phase, traffic would shift onto the existing shoulder (i.e., temporary pavement on the shoulder required to match existing roadway cross slope). Lane widths may be reduced to 11 ft; however, a single 12-ft lane must be provided in either direction to accommodate truck traffic. The proposed ponds will also be constructed in this phase without any additional impacts to the travelling public. Once widening on a particular side is completed, traffic will shift onto the new pavement for the next phase, and the rest of the widening can be completed. Ramp gore construction during either phase may require those ramps to be closed while providing adequate detour signage.

Bridge widening would follow the same roadway phasing plan. Temporary night-time detours may be required along cross roads while overhead work is being performed to construct the new bridge widening over the roadway below.

8.12 Pedestrian and Bicycle Facilities

Consistent with federal and state policy, no facilities for bicyclists or pedestrians are planned on this limited access Interstate highway.

8.13 Utility Impacts

The type, involvement, and ownership of existing and planned utilities are summarized in **Table 8-2** of this report. Depending on the location and depth of the utilities, implementation of the recommended improvements for the project may require adjustment of some of these facilities. Costs for utility relocations are not included in the total estimated project costs presented in **Section 8.6**, since they will be borne by the respective Utility Agencies/Owners (UAOs). Since the project will require the relocation of some utilities, the project is expected to have minimal involvement with utilities. Utility companies that have identified possible involvement as a result of implementing the Preferred Build Alternative is shown in **Table 8-2**.

Table 8-2. Existing Utilities Within the Study Area

Company[1]	Type of Utility	Involvement?
American Traffic Solutions	ITS	Yes
AT&T	Fiber Optic	Yes
Bright House Networks	Cable TV	Yes
City of Pinellas Park	None	No
City of St. Petersburg	--	Yes
Crown Castle	Underground Fiber	Yes
Duke Energy BA Pipeline	Hot Oil Pipeline	Yes
Duke Energy Distribution	Buried/Aerial Electric	Yes
Duke Energy Transmission	Overhead and Underground Transmission	Yes
Fiberlight	Buried Fiber Optic	Yes
Florida Gas Transmission	Gas	Yes
FPL Fibernet	Buried Fiber Optic	Yes
Level 3 Communications	Fiber Optic	Yes
TECO Peoples Gas	Gas	Yes
TWTelecom[2]	Fiber Optic	Yes
Verizon	Overhead, Buried, Underground Facilities	Yes
Verizon Business	Buried Fiber Optic	Yes
Wide Open West	Aerial/Underground Fiber	Yes

1. Utilities based on ticket dated December 29, 2014.

8.14 Public Involvement Program

A Public Involvement Plan (PIP) was prepared for this study. The purpose of the plan was to assist in providing information to and obtaining input from concerned citizens, agencies, private groups (residential/business), and governmental entities. The plan included early agency coordination through the ETDM programming screen and the Advance Notification (AN) process; agency stakeholder meetings, a public workshop for the TBX projects, and a public hearing for this proposed project's PD&E study. The results of implementing the program are summarized in the Final Comments and Coordination Report that was prepared for this proposed project's PD&E study. A brief summary of the plan's post, current, and future activities are as follows.

8.14.1 Efficient Transportation Decision Making (ETDM)

The project was evaluated through the FDOT's ETDM process. This project is designated as ETDM Project #12556. An ETDM Final Programming Screen Summary Report was published on July 26, 2013, containing comments from the Environmental Technical Advisory Team (ETAT) on the project's effects on various natural, physical, and social resources. Based on the ETAT comments, the FHWA determined that this project qualifies as a Type 2 Categorical Exclusion.

8.14.2 Advance Notification

FDOT processed the AN through the ETDM Programming Screen. A number of federal, state, regional, and local agencies were informed of this project and its scope of anticipated activities. The comments and corresponding responses are included in the Final Comments and Coordination Report.

8.14.3 Interagency Coordination

FDOT distributed an electronic notification to elected officials informing them of the initiation of the I-275/SR 93 PD&E Study from South of 54th Avenue South to North of 4th Street North.

The notification consisted of a brief project description, overview of the project approach, and contact information. The notification was sent to representatives of the following governmental organizations:

- U.S. Senators;
- U.S. Representatives (applicable districts);
- Florida State Senators (applicable districts);
- Florida House of Representatives (applicable districts);
- Pinellas County Board of County Commissioners;
- City of St. Petersburg City Council; and
- Pinellas County Metropolitan Planning Organization.

8.14.4 Public Hearing

A public hearing was held on September 29, 2015 in Heritage Hall of First Baptist Church in St. Peterburg. Invitational letters and newsletters were distributed to elected and appointed officials,

property owners/tenants, business owners/operators, and interested parties as feasible. News/press release was submitted to the FDOT seven days prior to the public hearing. The following groups were contacted by direct mail in order to obtain input throughout the PD&E process and/or to provide information on the project:

- Those people whose property lies in whole or in part within 300 ft on either side of the right of way line of any alternative for the proposed project will be notified, as well as other local citizens who may impacted by the construction of the project.
- Local elected and appointed officials or individuals who request to be placed on the mailing list for this project.
- Public and private groups, organizations, agencies, or businesses that request to be placed on the mailing list for this project.

An audio/visual presentation, graphics, brochures, comment forms, and other exhibits were prepared to support the public hearing. A verbatim transcript of the public hearing was prepared by a court reporter.

Following the public hearing, responses to all comments received as a result of the hearing process and questions and comments not answered during the public hearing process have been made in writing. A legal notice announcing the FHWA's approval of the final environmental document will be published in the local newspaper. In addition, a public hearing transcript has been prepared by an approved court reporter, an errata sheet detailing any transcript discrepancies, a copy of all correspondence received by the FDOT as part of the public hearing record, and affidavits of publication for newspaper ads advertising the hearing, have been produced and submitted.

8.14.5 Other Public Outreach Activities

8.14.5.1 Newsletters and Postcards

Invitational and informational postcards, letters and newsletters are distributed to elected and appointed officials, property owners/tenants, business owners/operators, and interested parties as feasible. The three media distributed for this study are listed below:

- Postcard 1 – Notice of the TBX Master Plan Workshop;
- Newsletter 1 – Invitation to the public hearing; and
- Newsletter 2 – Notice of the Location Design and Concept Acceptance (LDCA) at the completion of the study.

8.14.5.2 Public Notices/Legal Display Ads

Two legal/display newspaper advertisements were published in the local newspaper. The first advertisement was published 21 days, but no more than 30 days, prior to the hearing and the second advertisement appeared seven to 12 days before the hearing. These advertisements were used to announce the date, time, and location of the public hearing for the I-275 PD&E study. All advertisements to the local newspaper will be sent via e-mail or by registered mail, return receipt requested.

8.14.5.3 Public Announcements

In order to distribute PD&E study information, fliers were made available to organizations such as neighborhood/civic groups, the FDOT, and Pinellas County, to publish in existing newsletters and web sites. Any such correspondence is coordinated through the District's Public Information Officer.

8.15 Drainage

8.15.1 Stormwater Management

A Final Alternative Stormwater Management Facility (SMF) Technical Memorandum was prepared as part of this proposed project's PD&E Study to document stormwater treatment and attenuation requirements for the proposed improvements. This memorandum identified approximate SMF site requirements per basin. The SMFs were sized for the Preferred Build Alternative Pond site alternatives that are hydraulically feasible and environmentally permittable based on the best available information is identified in the SMF Technical Memorandum.

The stormwater management systems will utilize ponds to meet permitting requirements. From south of 54th Avenue South to just north of Roosevelt Boulevard (Basins 1-21, R1-R5, M0 and M1), treatment, attenuation and recovery of the required volumes will be accomplished through wet detention. From north of the Roosevelt Boulevard to 1.0 mile south of the Howard Frankland Bridge (Basins M1-M9, G2, H1 and B1), treatment and recovery of the required volumes will be accomplished through dry retention (attenuation is not required since the outfall is tidal). **Table 8-3** provides the stormwater management calculations and required pond sizes to accommodate drainage requirements for the proposed Build Alternative.

Table 8-3. Stormwater Management Facility Sizing Matrix

Basin	Begin Station	End Station	Basin Length (ft)	Basin Area (ac)	Exist. Imp. Area (ac)	New Imp. Area (ac)	Treatment & Attenuation (ac-ft)	SMF Size (ac)	R/W Needed (ac)	Exist. Ground EL (ft)	Low EOP EL (ft)	Depth to SHGWT (ft)	Basin Soil Type(s)	Hydrologic Group	Outfall Station	Outfall Description	Est. Tailwater EL (ft)	Comments
1	72+34	100+00	2,766	54.06	25.52	0.00	-	-	0.0	8.50	8.76	2	Matlatcha, St Augustine, Urban	C	72+34	Frenchman's Creek	6.0	Multiple subbasins due to interchange ramps; No additional R/W anticipated
2	100+00	146+40	4,640	48.58	16.77	0.92	0.26	0.6	0.6	14.00	20.76	1	Adamsville, Immokalee, Matlatcha	B/D	114+15	Frenchman's Creek	5.6	Additional R/W required outside of FDOT owned R/W
3	146+40	155+00	860	6.67	2.52	0.23	0.06	0.4	0.0	18.00	27.16	1	Immokalee	B/D	153+16	Boca Ciega Bay	14.0	FDOT Parcel west of I-275; No additional R/W anticipated
4	155+00	213+14	5,814	59.16	25.48	0.33	0.09	0.4	0.0	18.00	19.16	1	Astatula, Immokalee, Matlatcha	B/D	182+16	Clam Bayou	5.3	FDOT Parcel west of I-275; No additional R/W anticipated
5	213+14	299+55	1,132	9.05	4.57	0.00	-	-	0.0	40.00	56.66	2	Astatula, Myakka	A	217+98	Clam Bayou	35.0	Flows southwest to ditch; Station Equation; No additional R/W anticipated
6	299+55	245+00	4,633	51.64	21.20	0.65	0.19	0.5	0.0	44.00	47.16	1	Myakka, Urban	B/D	308+45	Clam Bayou	38.6	New Ramp Crosses Ex. Pond; No additional R/W anticipated
7	245+00	280+00	3,500	26.67	10.25	0.63	0.18	0.5	0.5	50.00	63.06	1	Myakka, Urban	B/D	271+96	Booker Creek	42.0	20th St S SS; Additional R/W required outside of FDOT owned R/W
8	60+00	84+25	2,425	16.61	5.65	0.00	-	-	0.0	50.00	63.06	1	Myakka, Urban	B/D	120+72	Booker Creek	17.4	CBC under I-175 east of Tropicana Field; No additional R/W anticipated
9	280+00	303+80	2,380	13.51	8.73	0.21	0.06	0.3	0.0	40.00	68.26	1	Astatula, Urban	D	300+80	Booker Creek	38.0	Entire Basin is Elevated Roadway; 2nd Avenue SS; No additional R/W anticipated
10	303+80	316+50	1,270	30.12	12.58	0.31	0.05	0.3	0.0	42.00	62.66	2	Astatula, Urban	A	306+78	Booker Creek	38.0	Multiple discharge points to CBC/Booker Creek; No additional R/W anticipated
11	316+50	346+85	3,035	27.28	13.61	0.55	0.20	0.5	0.0	41.00	60.66	2	Astatula, Matlatcha, St Augustine	C	318+50	Booker Creek	38.0	Multiple discharge points to CBC/Booker Creek; No additional R/W anticipated
12	346+85	391+88	4,503	41.34	18.41	0.55	0.20	0.8	0.8	58.00	57.66	2	Matlatcha, St Augustine, Urban	B/D	351+00	Booker Creek	39.0	SS also collects runoff from 22nd Ave N; Additional R/W required outside of FDOT owned R/W
13	391+88	400+00	812	5.62	2.36	0.16	0.04	0.3	0.3	58.00	67.16	1	Myakka	B/D	395+15	Booker Creek	52.1	SS flows W along 28th Ave N; Additional R/W required outside of FDOT owned R/W
14	400+00	425+25	2,525	23.94	8.61	0.55	0.16	0.5	0.0	56.00	58.86	1	Myakka	B/D	423+88	Joe's Creek	44.6	Construct pond within R/W; 25th Street Outfall; No additional R/W anticipated
15	425+25	446+00	2,075	23.74	10.20	0.09	0.03	0.3	0.0	48.00	49.56	1	Myakka	B/D	440+00	Joe's Creek	42.0	Construct pond within R/W; No additional R/W anticipated
16	446+00	473+50	2,750	19.91	9.84	0.00	-	-	0.0	48.00	50.56	1	Myakka, Matlatcha, St Augustine	B/D	453+25	Joe's Creek	40.9	Significant offsite flows; No additional R/W anticipated
17	473+50	328+00	2,952	36.75	14.75	0.11	0.09	0.3	0.0	23.00	25.25	2	Astatula, Myakka, Felda	A	325+16	Riviera Bay	15.2	Const. pond within R/W; 499+99.72 = 324+97.73; No additional R/W anticipated
18	328+00	421+17	9,317	130.02	41.50	3.80	1.11	1.4	1.4	4.00	11.59	1	Felda, Myakka, Immokalee	B/D	386+65	Riviera Bay	3.0	Tailwater based on SHGWT, Crown of CBC at 7.0'; Additional R/W required outside of FDOT owned R/W
19	421+17	440+00	1,883	72.96	22.09	0.70	0.23	0.8	0.0	12.00	12.84	1	Pineda, Matlatcha, St Augustine	B/D	N/A	Riviera Bay	7.2	2-24" under Ramp C; No additional R/W anticipated
20	440+00	491+50	5,150	30.49	14.76	1.76	0.51	0.9	0.9	10.00	11.79	1	Pineda, Felda	B/D	466+70	Roosevelt Tributary 2	7.4	CBC to 102nd Ave ditch; Additional R/W required outside of FDOT owned R/W
R1	491+50	515+00	2,350	78.57	20.44	2.81	0.95	1.0	0.0	3.00	11.24	1	Pineda, Felda, Immokalee	B/D	502+30	Roosevelt Tributary 1	2.5	LP on 118th Ave N; Expand South Pond (Pond 2); No additional R/W anticipated
R2	510+50	522+75	-	9.99	3.32	0.00	0.00	0.0	0.0	8.00	11.79	1	Pineda, Felda	B/D	N/A	Roosevelt Tributary 2	1.3	Flows southeast along Roosevelt to CBC; No additional R/W anticipated

Table 8-3. (Continued) Stormwater Management Facility Sizing Matrix

Basin	Begin Station	End Station	Basin Length (ft)	Basin Area (ac)	Exist. Imp. Area (ac)	New Imp. Area (ac)	Treatment & Attenuation (ac-ft)	SMF Size (ac)	R/W Needed (ac)	Exist. Ground EL (ft)	Low EOP EL (ft)	Depth to SHGWT (ft)	Basin Soil Type(s)	Hydrologic Group	Outfall Station	Outfall Description	Est. Tailwater EL (ft)	Comments
R3	510+50	523+00	1,250	13.04	6.73	1.36	0.86	2.9	0.0	5.25	12.36	1	Pineda	B/D	510+50	Roosevelt Tributary 1	5.7	Use Exist. FDOT Pond 2 in Interchange; No additional R/W anticipated
R4	518+50	523+00	450	3.92	1.85	0.16	0.19	1.0	0.0	5.25	26.66	1	Pineda	B/D	518+50	Roosevelt Tributary 1	4.2	Use Exist. FDOT Pond 1 in Interchange; No additional R/W anticipated
R5	-	-	-	2.10	1.05	0.39	0.17	0.9	0.0	5.25	26.66	1	Pineda, Felda	B/D	N/A	Roosevelt Tributary 1	5.2	Use Exist. FDOT Pond 3 in Interchange; raise weir; No additional R/W anticipated
21	522+88	541+00	1,812	17.70	7.85	3.12	2.35	1.4	0.0	8.00	9.39	1	Pineda	B/D	532+30	Roosevelt Tributary 1	4.5	New pond in NE Interchange infield; No additional R/W anticipated
M0	541+00	557+00	1,600	5.66	3.13	1.63	0.20	1.2	0.0	1.80	7.16	1	Pineda, Felda, Immokalee	B/D	557+00	Roosevelt Tributary 1	1.5	Reconstruct pond within exist.R/W; No additional R/W anticipated
M	538+00	556+50	1,850	5.03	2.79	1.29	0.16	1.1	0.0	1.80	7.16	1	Pineda, Immokalee, Matlatcha	B/D	556+50	Roosevelt Tributary 1	1.5	Reconstruct pond within exist.R/W; No additional R/W anticipated
M1	559+00	586+83	2,783	10.35	4.45	0.80	0.05	3.7	0.0	3.30	6.16	2	Matlatcha, St Augustine, Urban	C	559+10	Roosevelt Tributary 1	1.5	Use Swale M-1 within exist. R/W; No additional R/W anticipated
M2	557+50	583+00	2,550	19.46	6.95	1.35	0.08	7.0	0.0	3.30	6.16	2	Matlatcha, St Augustine, Urban	C	557+40	Roosevelt Tributary 1	1.5	Use Swale M-2 within exist. R/W; No additional R/W anticipated
G2	586+00	590+20	420	2.83	1.87	0.35	0.02	0.5	0.0	3.30	6.01	2	Matlatcha, St Augustine, Urban	C	N/A	Roosevelt Tributary 1	1.5	Use Swale G-2 within exist. R/W; No additional R/W anticipated
M3	590+20	608+00	1,780	12.76	4.76	0.75	0.05	5.0	0.0	5.00	5.90	2	Matlatcha, St Augustine, Urban	C	590+47	Old Tampa Bay	1.5	Use Swale M-3 within exist. R/W; No additional R/W anticipated
H1	594+00	608+00	1,400	6.33	4.03	0.49	0.03	1.4	0.0	15.00	6.16	2	Matlatcha, St Augustine, Urban	C	597+38	Old Tampa Bay	1.5	Use Swale H-1 within exist. R/W; No additional R/W anticipated
M4	608+00	625+00	1,700	5.20	3.73	0.42	0.03	0.7	0.0	3.50	7.16	2	Matlatcha, St Augustine, Urban	C	617+91	Old Tampa Bay	1.5	Reconstruct pond within exist.R/W; No additional R/W anticipated
M5	608+00	623+68	1,568	4.51	3.11	0.53	0.03	0.7	0.0	3.60	7.16	2	Matlatcha, St Augustine, Urban	C	617+91	Old Tampa Bay	1.5	Reconstruct pond within exist.R/W; No additional R/W anticipated
M6	625+00	633+80	880	2.07	1.74	0.37	0.02	0.5	0.0	3.80	7.16	2	Matlatcha, St Augustine, Urban	C	633+85	Old Tampa Bay	1.5	Weir to Basin M8 linear wet pond; No additional R/W anticipated
M7	623+68	630+00	632	1.81	1.23	0.25	0.02	0.4	0.0	3.50	7.16	2	Matlatcha, St Augustine, Urban	C	624+00	Old Tampa Bay	1.5	Weir to infield pond to culvert; No additional R/W anticipated
B1	630+00	635+55	555	2.83	1.46	0.19	0.01	0.4	0.0	3.60	7.86	2	Matlatcha, St Augustine, Urban	C	624+40	Old Tampa Bay	1.5	No additional R/W anticipated
M8	633+80	647+00	1,320	2.93	1.83	0.73	0.05	0.6	0.0	3.80	8.66	2	Matlatcha, St Augustine, Urban	C	636+00	Old Tampa Bay	1.5	Weir to infield pond to culvert; No additional R/W anticipated
M9	635+55	645+84	1,029	2.92	1.64	0.31	0.02	0.6	0.0	3.60	8.96	2	Matlatcha, St Augustine, Urban	C	635+55	Old Tampa Bay	1.5	Weir to Basin B1 linear wet pond; No additional R/W anticipated
22	645+84	691+63	4,579	20.91	14.61	5.40	0.45	0.0	0.0	3.00	7.16	2	Matlatcha, St Augustine, Urban	C	N/A	Old Tampa Bay	1.5	Compensatory treatment in Basin 21; No additional R/W anticipated

All FPC and most of the SMF needs can be provided within the existing FDOT owned R/W. Only six drainage basins would require SMF sites that are anticipated to be located outside the existing FDOT owned R/W.

8.15.2 Flood Plains

The following information is from the Final LHM prepared for this project, to document that the floodplain encroachment will be minimal. Information related to existing flood plains conditions can be found in **Section 4.1.8**.

- Longitudinal or Transverse Encroachments: All three Floodplain Impact Locations (F-1, F-2 and F-3) will be longitudinal encroachments of the existing base floodplain along the roadway. F-1 occurs along northbound I-275, south of the Gandy Boulevard Interchange. F-2 occurs along southbound I-275 and Ramp E, south of the Gandy Boulevard Interchange. F-3 occurs along Ramp A, in the southeast quadrant of the Gandy Boulevard Interchange. Because the proposed improvements widen to the outside of existing I-275 and the ramps, impacts to this floodplain are unavoidable. However, steepening of the slopes during the final design phase may reduce impacts to the floodplain.

- Avoidance Alternatives: This project involves the widening of a heavily-travelled existing roadway facility. Because of the high traffic volumes and the need to provide additional capacity, avoidance is not practical. All of the floodplain encroachments will be minimal due to the proposed widening following the same general alignment as the existing roadway. However, retaining walls or steeper side slopes may be employed during the final design phase to reduce impacts to the floodplain.

- Base Flood Impacts: The floodplain encroachments due to the proposed improvements are minimal and will be mitigated as per the requirements of local FEMA, FDOT, and Southwest Florida Water Management District's (SWFWMD) design guidelines. The impacts to the base flood and likelihood of flood risk are minimal. No overtopping of the roadway is anticipated for the entire roadway corridor. Therefore, no significant changes in base flood elevations or limits will occur.

- Natural and Beneficial Floodplain Values: The proposed widening will follow the same general alignment as the existing roadway. All floodplain mitigation will be provided per SWFWMD's requirements. Therefore, no natural and beneficial floodplain values will be significantly affected.

- Floodplain Consistency and Development: This project is consistent with the Comprehensive Plan for Pinellas County. The proposed project will not encourage floodplain development due to local FEMA floodplain and SWFWMD regulations.

- Risk Assessment: The results of the risk assessment performed indicate that the floodplain encroachment level will be minimal and is described as Category 3. "*The modifications to drainage structures included in this project will result in an insignificant change in their capacity to carry floodwater. This change will cause minimal increases in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will not be a significant change in the potential for interruption or termination of emergency services or emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.*"

8.16 Special Features

Barriers required for noise abatement are considered special features of the proposed improvements. A Final Noise Study Report (NSR) was prepared as part of the proposed project's PD&E Study to evaluate impacts to noise sensitive locations along the I-275 study corridor and to evaluate whether noise abatement measures are to be both reasonable and cost feasible.

8.17 Access Management

As previously discussed in **Section 4.1.1**, I-275 is a limited access freeway facility. Access to the interstate is granted only at the 15 interchanges within the study limits. **Table 8-4** evaluates the existing interchanges spacing relative to the minimum spacing standards identified in Rule 14-97 of the Florida Administrative Code (FAC). Even though no new interchanges are proposed as part of the Preferred Build Alternative, it is worthwhile noting that very few interchanges meet the minimum spacing criteria of 2 miles.

Driveways, median openings, and arterial cross streets located adjacent to the I-275 ramp terminals have the potential to impact traffic operations within the interchange area. Left-turn and through movements onto arterial cross streets made from those full median openings could impact traffic flow such that vehicle queues spillback onto the I-275 mainline. **Table 8-5** evaluates the existing access management along the arterial roadways intersecting I-275.

Table 8-4. Access Management Spacing Standards

I-275 Segment (From/To)	Area Type (Minimum Spacing)	Interchange Spacing		Meet Minimum Interchange Spacing Criteria?
		Feet	Miles	
54th Ave S to 26th Ave S	Urbanized 2.0 miles	9400	1.78	No
26th Ave S to 22nd Ave S		1300	0.25	No
22nd Ave S to 31st St S		3500	0.66	No
31st St S to 28th St S		1800	0.34	No
28th St S to I-175		5000	0.95	No
I-175 to I-375		3600	0.68	No
I-375 to 5th Ave N		400	0.08	No
5th Ave N to 22nd Ave N		5400	1.02	No
22nd Ave N to 38th Ave N		5400	1.02	No
38th Ave N to 54th Ave N		5400	1.02	No
54th Ave N to 22nd St S		400	0.08	No
22nd St S to Gandy Blvd		11200	2.12	Yes
Gandy Blvd to 118th Ave N		9000	1.70	No
118th Ave N to Roosevelt Blvd		1200	0.23	No
Roosevelt Blvd to Dr MLK Jr St N		5900	1.12	No
Dr MLK Jr St N to Ulmerton Rd		600	0.11	No
Ulmerton Rd to 4th St N		3200	0.61	No

Table 8-5. Full Median Opening Spacing Standards for Arterials

Arterial	Direction	Access Class*	Speed	Minimum Spacing Standards (ft)	Full Median Opening Spacing Meets Criteria
54th Ave S	East	5	45	1320	No
	West	5	45	1320	No
26th Ave S	East	5	30	1320	No
	West	5	30	1320	No
22nd Ave S	East	5	35	1320	No
	West	5	35	1320	No
31st St S	North	6	35	245	Yes
	South	6	35	245	Yes
28th St S	North	6	35	245	Yes
	South	6	35	245	Yes
5th Ave N	East	5	35	1320	No
	West	5	35	1320	No
22nd Ave N	East	5	40	1320	No
	West	5	40	1320	No
38th Ave N	East	5	40	1320	No
	West	5	40	1320	No
54th Ave N	East	5	35	1320	No
	West	5	35	1320	No
22nd St S	North	6	25	245	No
	South	6	25	245	Yes
Gandy Blvd	East	3	45	440	Yes
	West	3	45	440	Yes
118th Ave N	East	6	45	440	Yes
	West	5	45	1320	Yes
Roosevelt Blvd	East	3	55	660	Yes
	West	3	55	660	Yes
Dr MLK Jr St N	South	3	55	660	Yes
Ulmerton Rd	West	3	55	660	Yes
4th St N	South	3	55	660	Yes

8.18 Potential Construction Segments and Phasing

The Preferred Build Alternative consists of lane continuity improvements proposed for Segments A and B, and express lane improvements proposed in Segment C. The lane continuity and express

lanes improvements can be constructed independent of each other, or jointly. Moreover, these improvements can either be implemented initially or on a midterm basis to incrementally address operational and safety deficiencies of the existing freeway system prior to the design year (2040). The timing for implementation of the proposed interim improvements will be governed by the degree of congestion anticipated for each segment of the I-275 study corridor, as well as the availability of funds for the proposed improvements. Both short and long-term improvements have been identified for the express lane section. The Starter Project is anticipated to be constructed in 2020, while the Master Plan Project would be needed prior to the design year (2040). Traffic volumes on the I-275 mainline are generally higher in Segment B (north of Downtown St. Petersburg) than in Segment A (south of Downtown St. Petersburg). Therefore, it is anticipated that the phasing of the proposed I-275 improvements may follow the sequence below:

- Phase 1 (FY 2015 to FY 2020): Starter Project Express Lanes (Segment C);
- Phase 2a (FY 2020 to FY 2030): Lane Continuity Improvements (Segment B);
- Phase 2b (FY 2020 to FY 2030): Lane Continuity Improvements (Segment A); and
- Phase 3 (FY 2030 to FY 2040): Master Plan Project Express Lanes (Segment C).

8.19 Work Program Schedule

The TBX Starter Project is included in the Draft (March 4, 2015) Tentative Work Program (FY 2015/16 to 2020/21) for FY 2019/2020 as a design bid-build project (FPN 424501-2). The amount shown for construction is $63.7 million and $6.83 million for preliminary engineering costs. Design is expected to commence in FY 2016.

9 List of Technical Reports

9.1 Engineering Items

- This Final Preliminary Engineering Report (FPER) with Conceptual Design Plans
- Design Traffic Technical Memorandum (DTTM)
- Final Alternatives Stormwater Management Facilities (SMF) Technical Memorandum
- Final Location Hydraulics Memorandum (LHM)

9.2 Environmental Items

- Type 2 Categorical Exclusion (CE)
- Final Wetlands Evaluation and Biological Assessment Report (WEBAR)
- Cultural Resource Assessment Survey (CRAS)
- Final Contamination Screening Evaluation Report (CSER)
- Final Noise Study Report (NSR)
- Final Air Quality Technical Memorandum (AQM)
- Final Section 106 Case Study Report

9.3 Public Involvement Items

- Public Involvement Plan (PIP)
- Public Hearing Transcript
- Final Public Hearing Scrapbook
- Final Comments and Coordination Report

Appendices

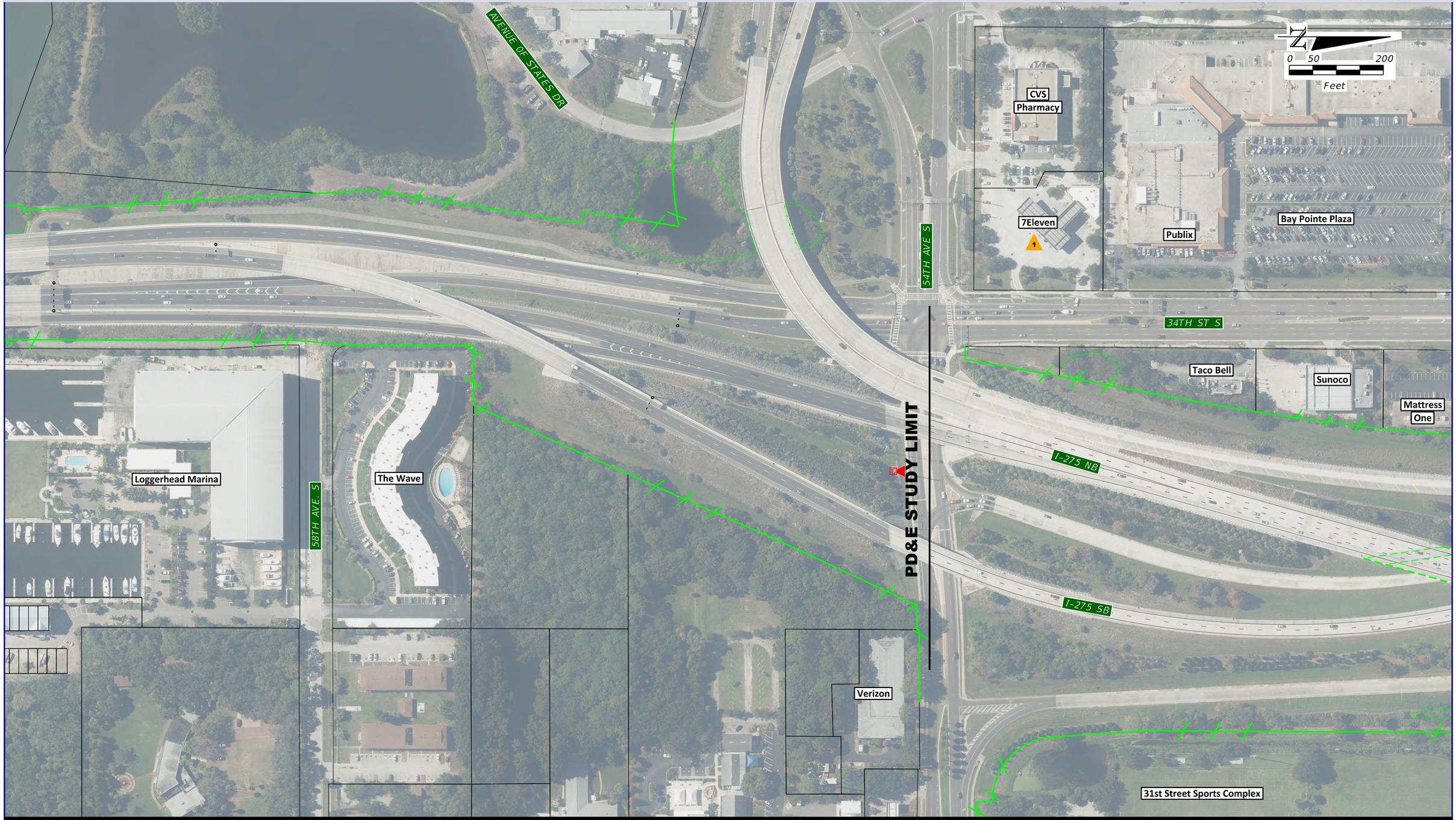
Appendix A
Conceptual Design Plans

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 1

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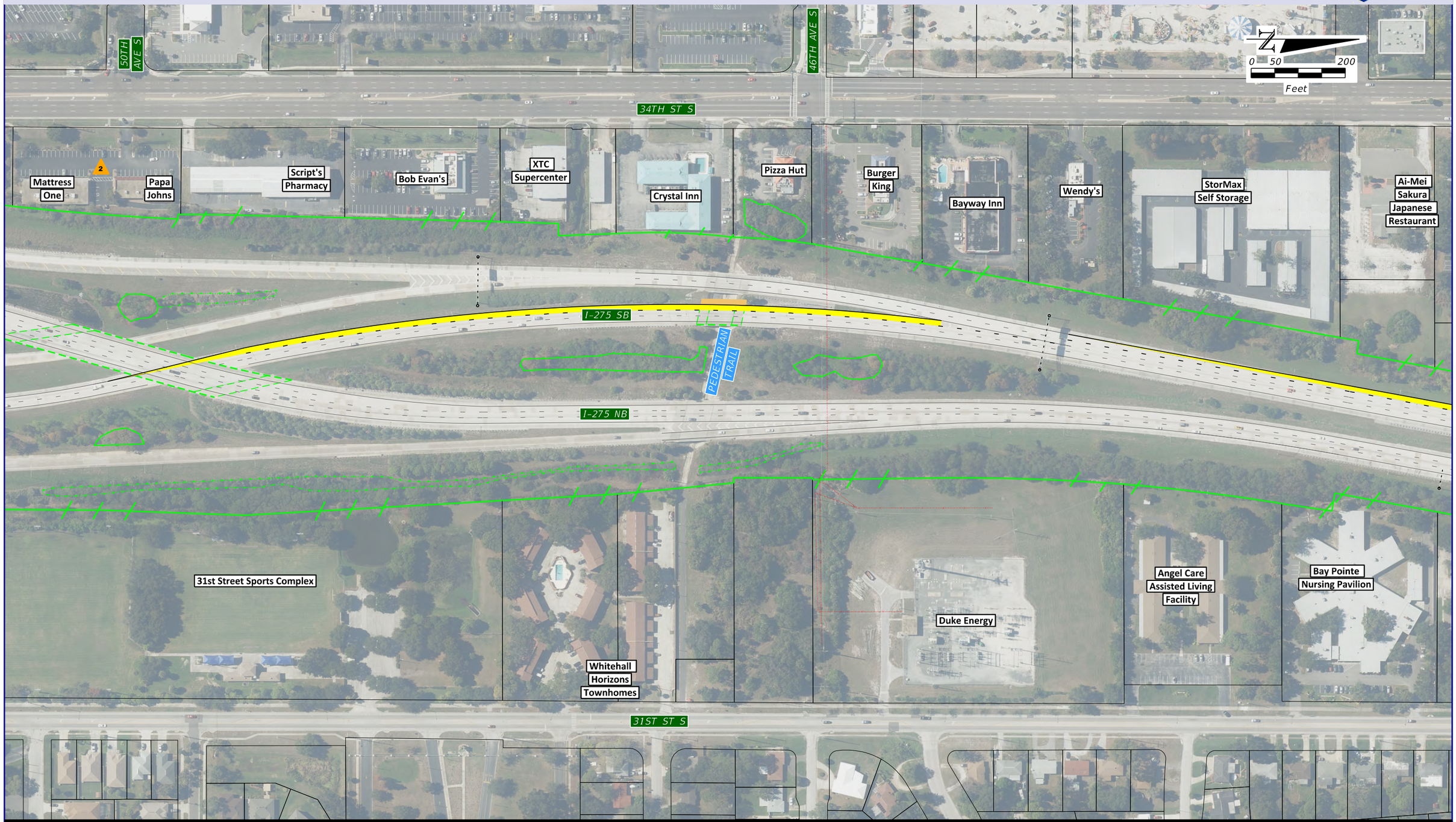
I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 2

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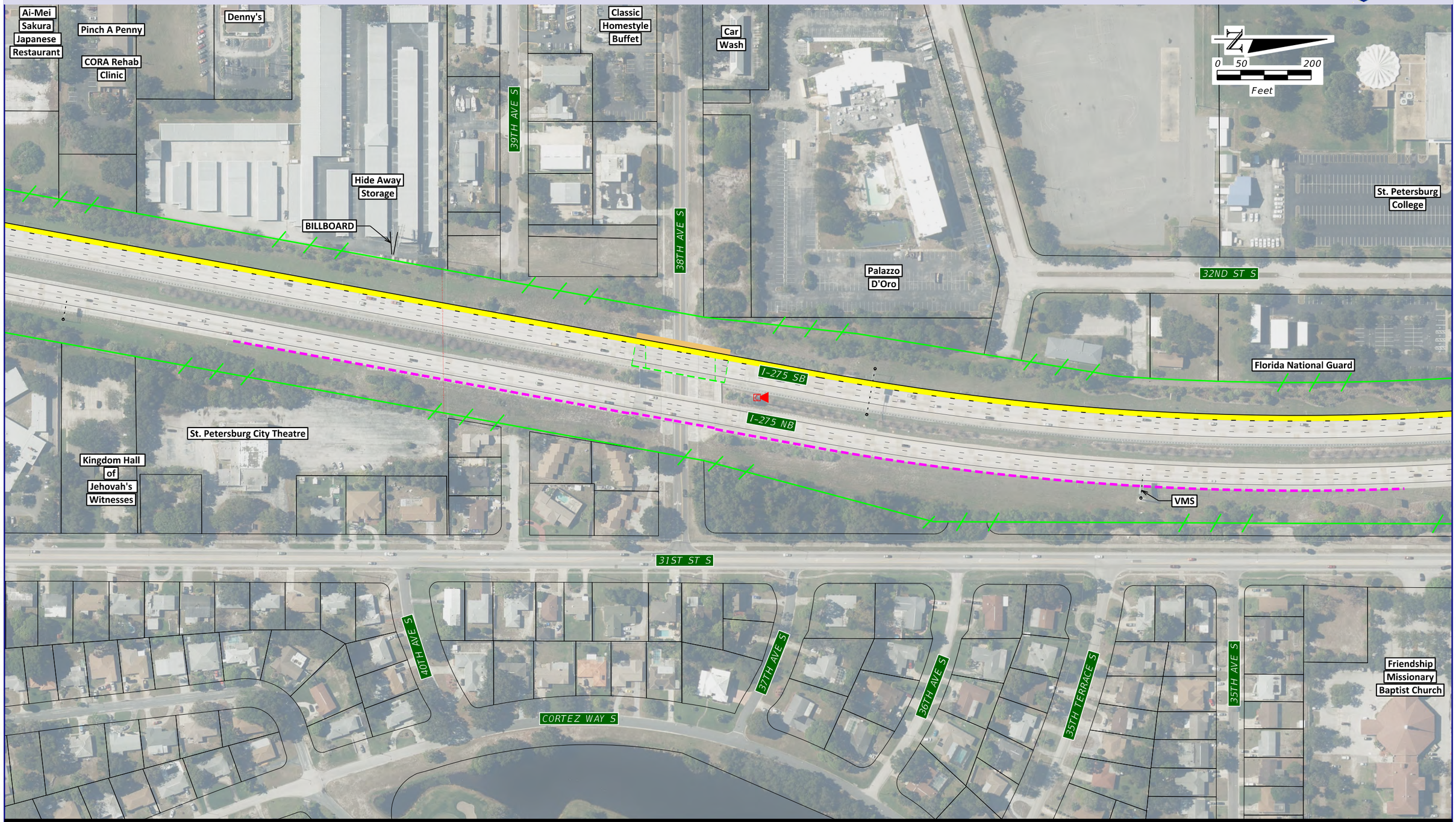
I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



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- BRIDGES
- HISTORIC SITE
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- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

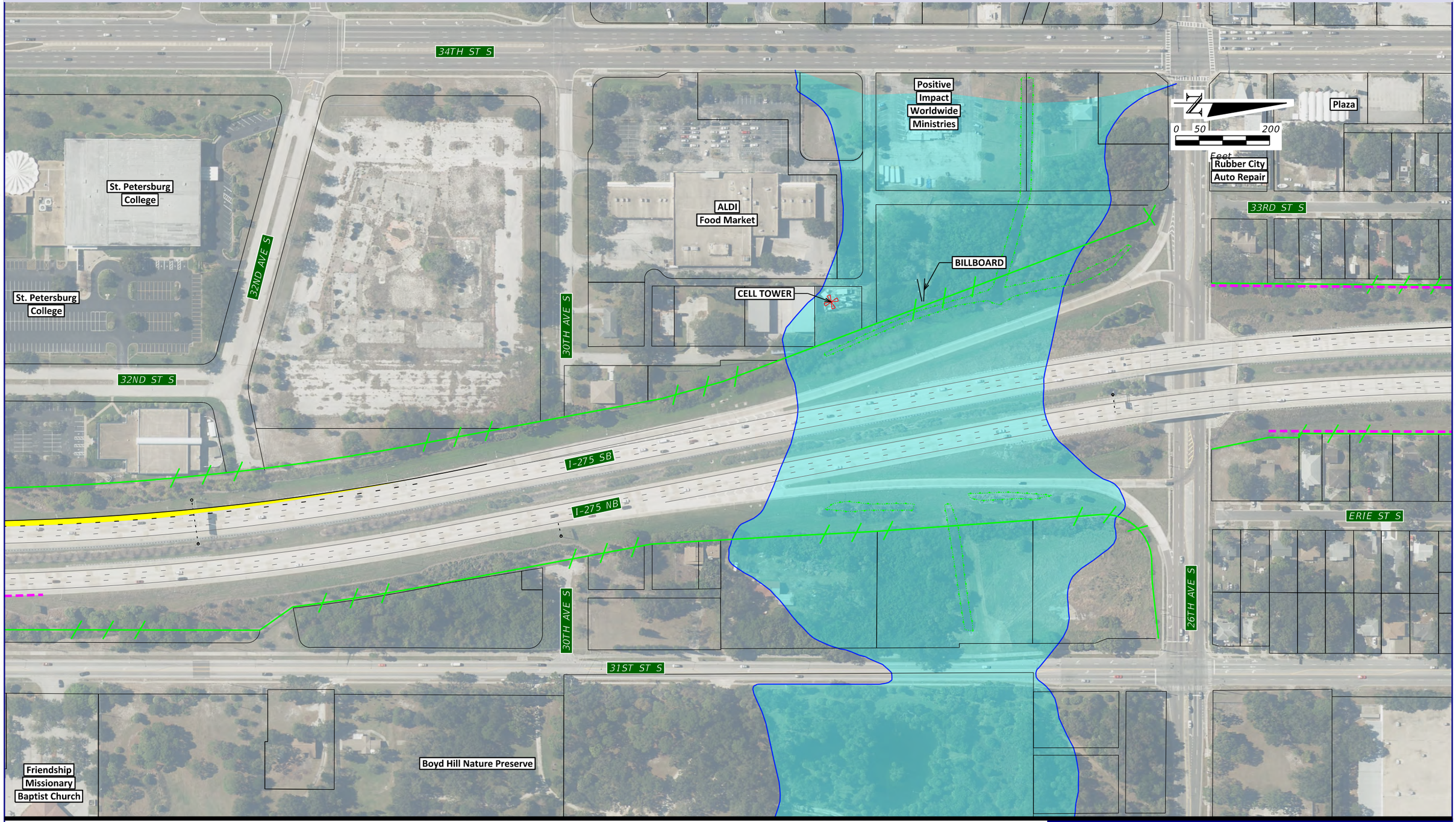
SHEET NO. 3

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

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- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
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- OVERHEAD SIGN STRUCTURE
- NOISE WALL
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 4

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275

0 50 200
Feet

34TH ST S

Plaza
KFC
31st Street Neighborhood
Liberty Tax
Brake World
Twin Brooks Commons
Alma Ingram
Classic Auto Care
Pet Pal Veterinary Clinic
Shell
Chevron
Elvis Towing & Trasport
Rental Hall

22ND AVE S
18TH AVE S
QUEENSBORO AVE S
17TH AVE S

33RD ST S

BILLBOARD

VMS

I-275 SB

I-275 NB

ERIE ST S

22ND AVE S
21ST AVE S
20TH AVE S
19TH AVE S
18TH AVE S

31ST ST S

LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

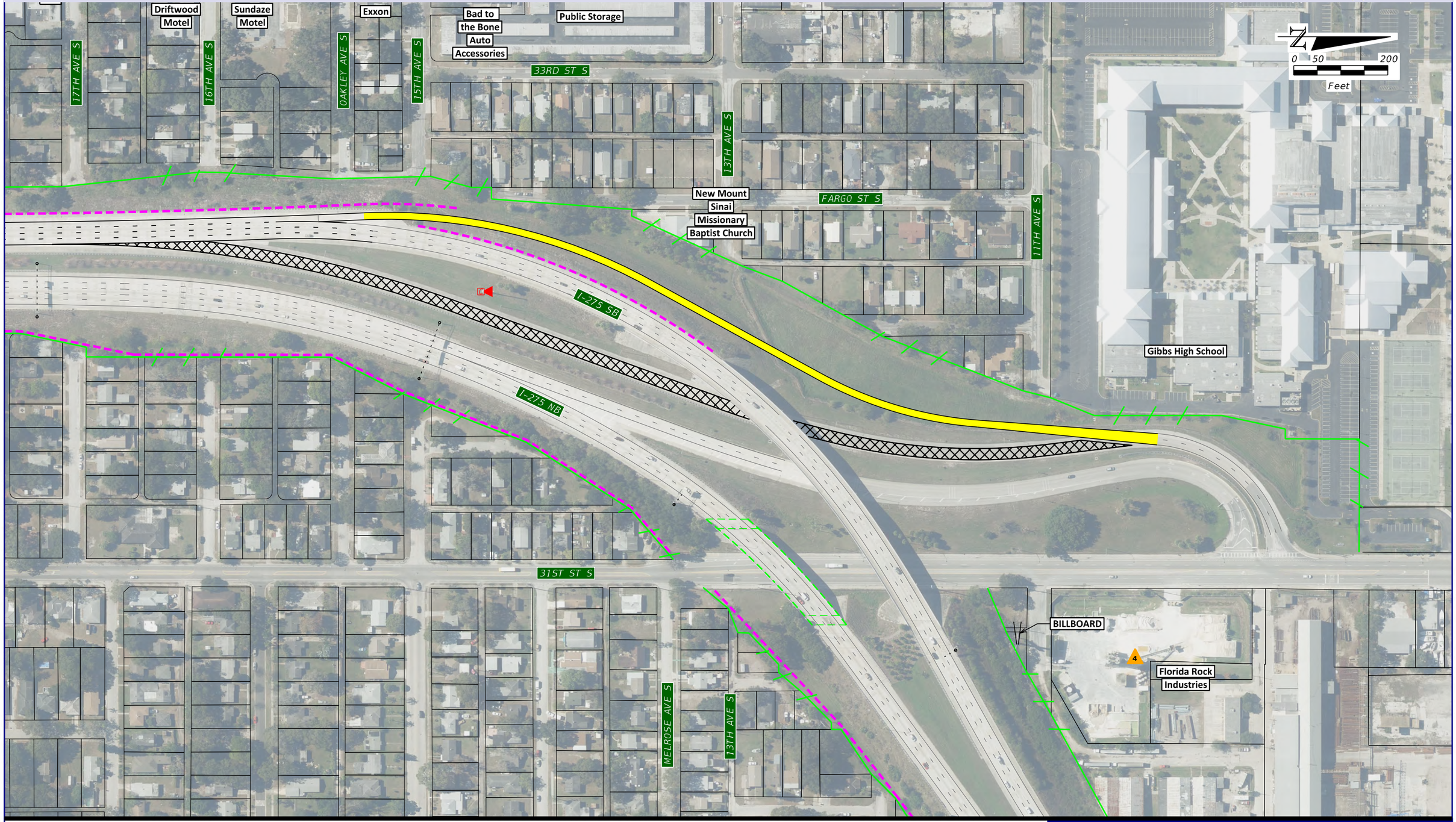
SHEET NO. 5

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

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- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
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- NOISE WALL
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

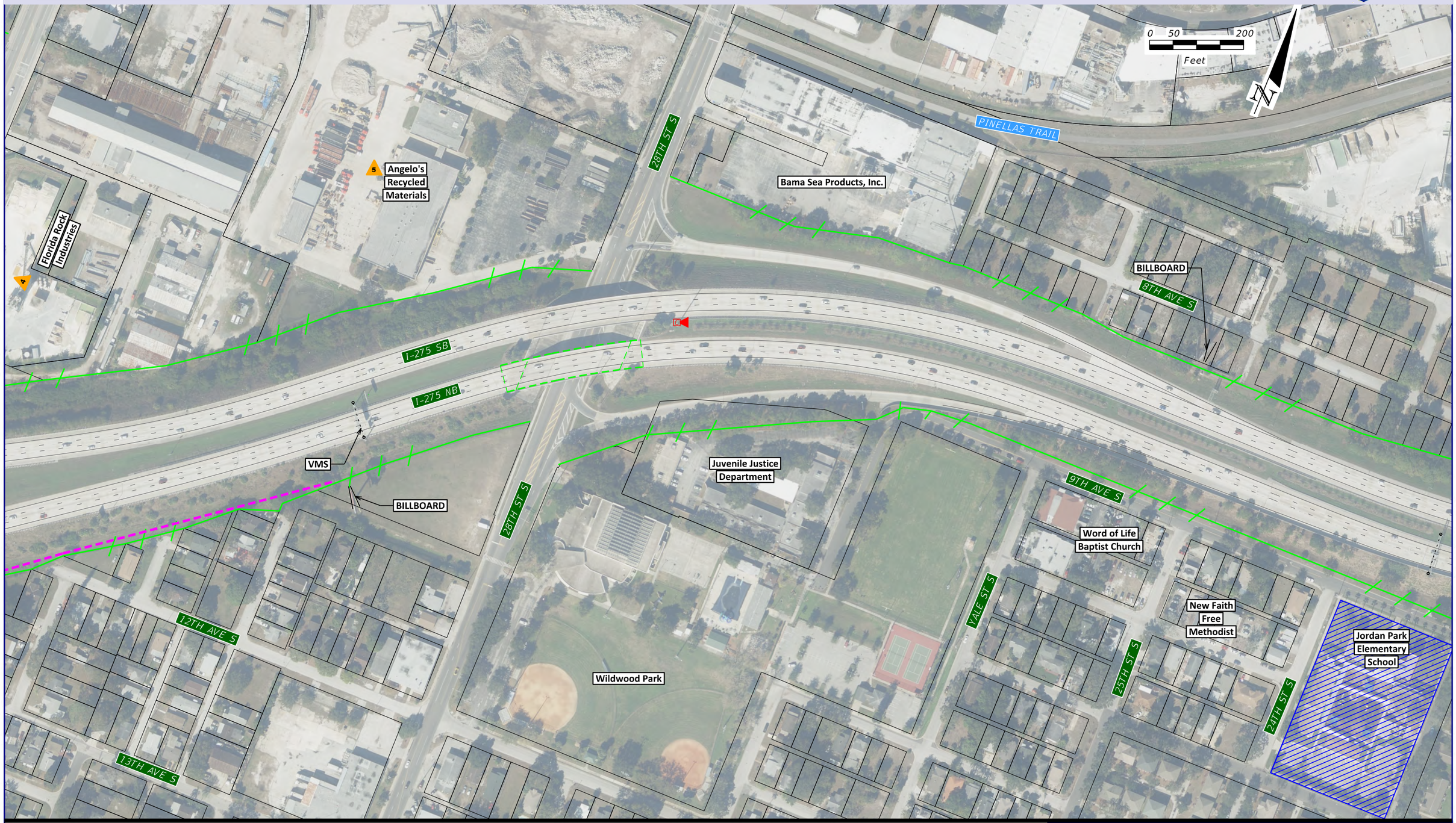
SHEET NO. 6

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

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- BRIDGES
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

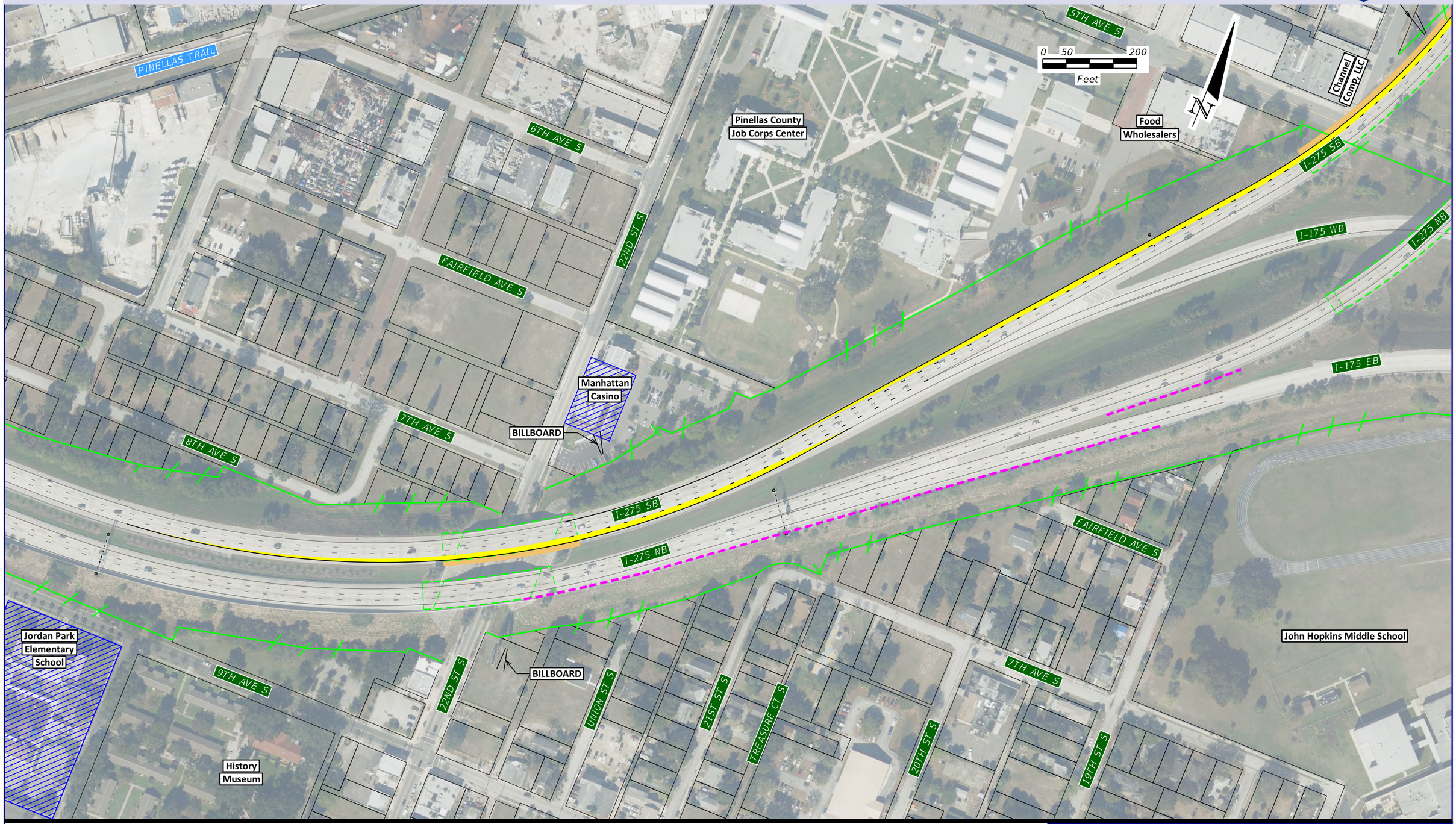
SHEET NO. 7

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

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- BRIDGES
- HISTORIC SITE
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

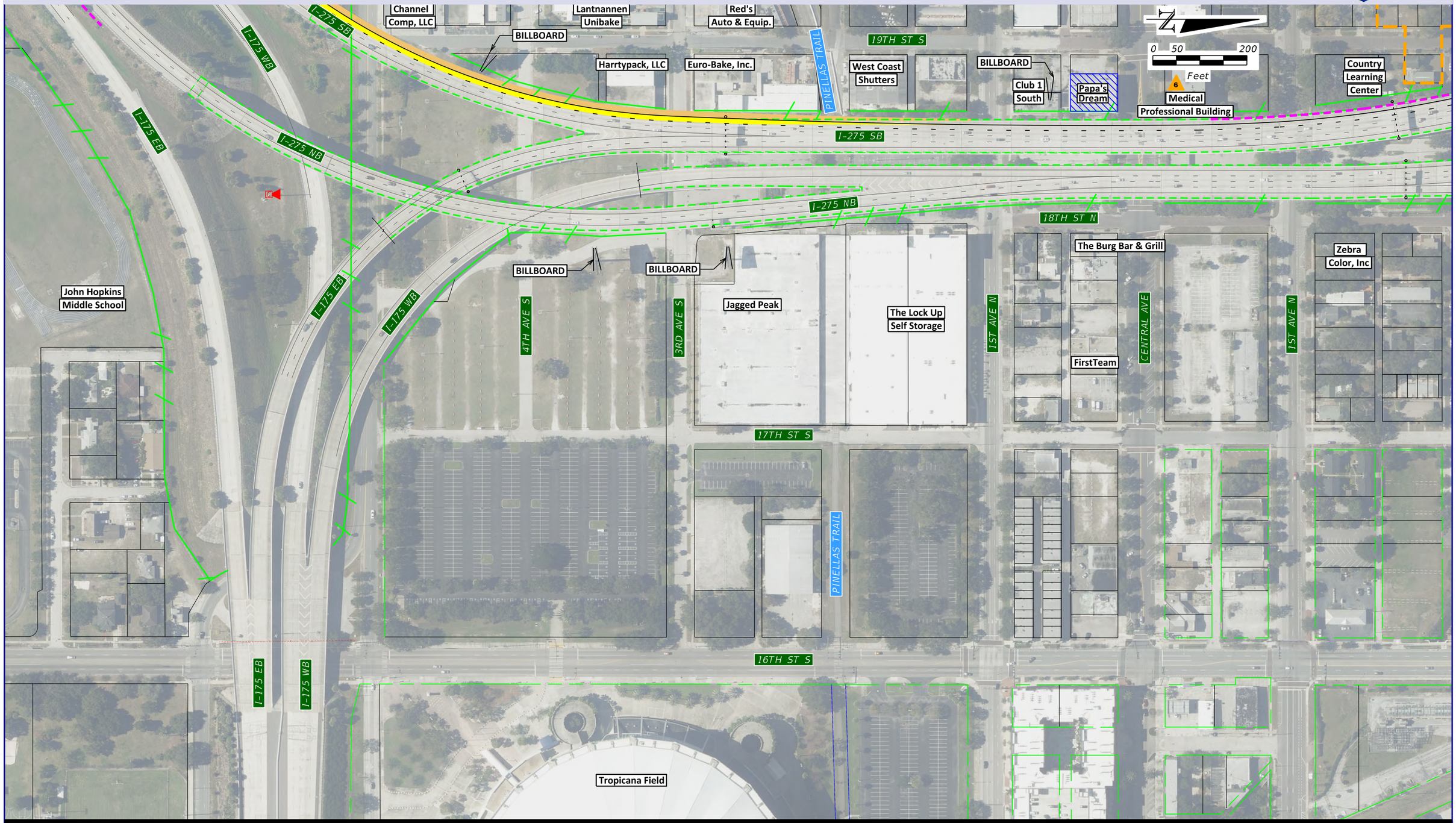
SHEET NO. 8

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

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- BRIDGES
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- NOISE WALL
- ITS CAMERA
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 9

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275

0 50 200 Feet

20TH ST N
Kenwood Dog Park
Kenwood Historic District
BURLINGTON AVE N
2ND AVE N
I-275 SB
19TH ST S
I-275 NB
Country Learning Center
Fleet Management
Turning Point
18TH ST N
Zebra Color, Inc
2ND AVE N
BURLINGTON AVE N
I-375 WB
I-375 EB
5TH AVE N
CSX RAILROAD
17TH ST S
St. Petersburg Water Resources
CSX RAILROAD

LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
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- BRIDGES
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 10

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275

Edward White Hospital
Simply Delicious
9TH AVE N
Booker Creek Park
13TH AVE N
Scherer Construction West
Gold Seal
0 50 200
Feet
Emar Grinding
WDE Windows, Doors, Etc
I-275 SB
I-275 NB
BILLBOARD
CSX RAILROAD
St. Petersburg Window Sales
Carroll's Building Materials
Recycling Corporation
7
8
TECO People's Gas
BILLBOARD
9TH AVE N
13TH AVE N
CSX RAILROAD
61 Sail Sports Technologies
General Mold Co.
North Sails
Slipaway Ceramics
20TH ST N
BILLBOARD
Orange Blossom Catering
Therapeutic Recreation
Bag Master
19TH ST N
Town Mini Storage
CSX RAILROAD
18TH ST N
Woodlawn Park
Woodlawn Park

LEGEND:

- PAVEMENT WIDENING
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 11

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275

Home Depot
CSX RAILROAD
U-Stor
22ND ST N
CELL TOWER
Kenny's Landscape Services
22ND AVE N
23RD AVE N
24TH AVE N
25TH AVE N
26TH AVE N
Former Norwood Secondary School
0 50 200
Feet
I-275 SB
I-275 NB
19TH ST N
Woodlawn Park
17TH AVE N
18TH AVE N
20TH AVE N
21ST AVE N

LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
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- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

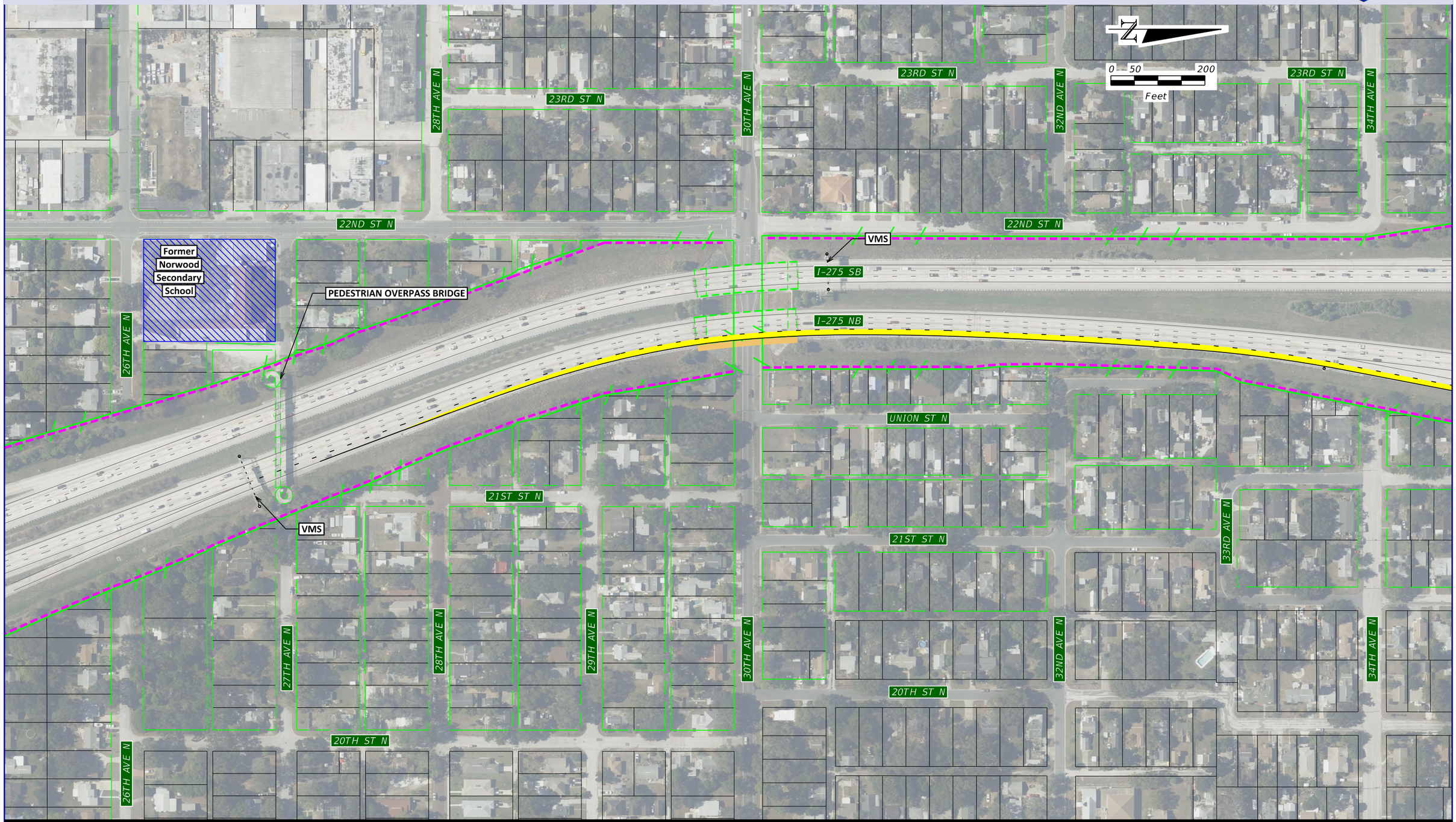
SHEET NO. 12

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

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- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
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- NOISE WALL
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Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

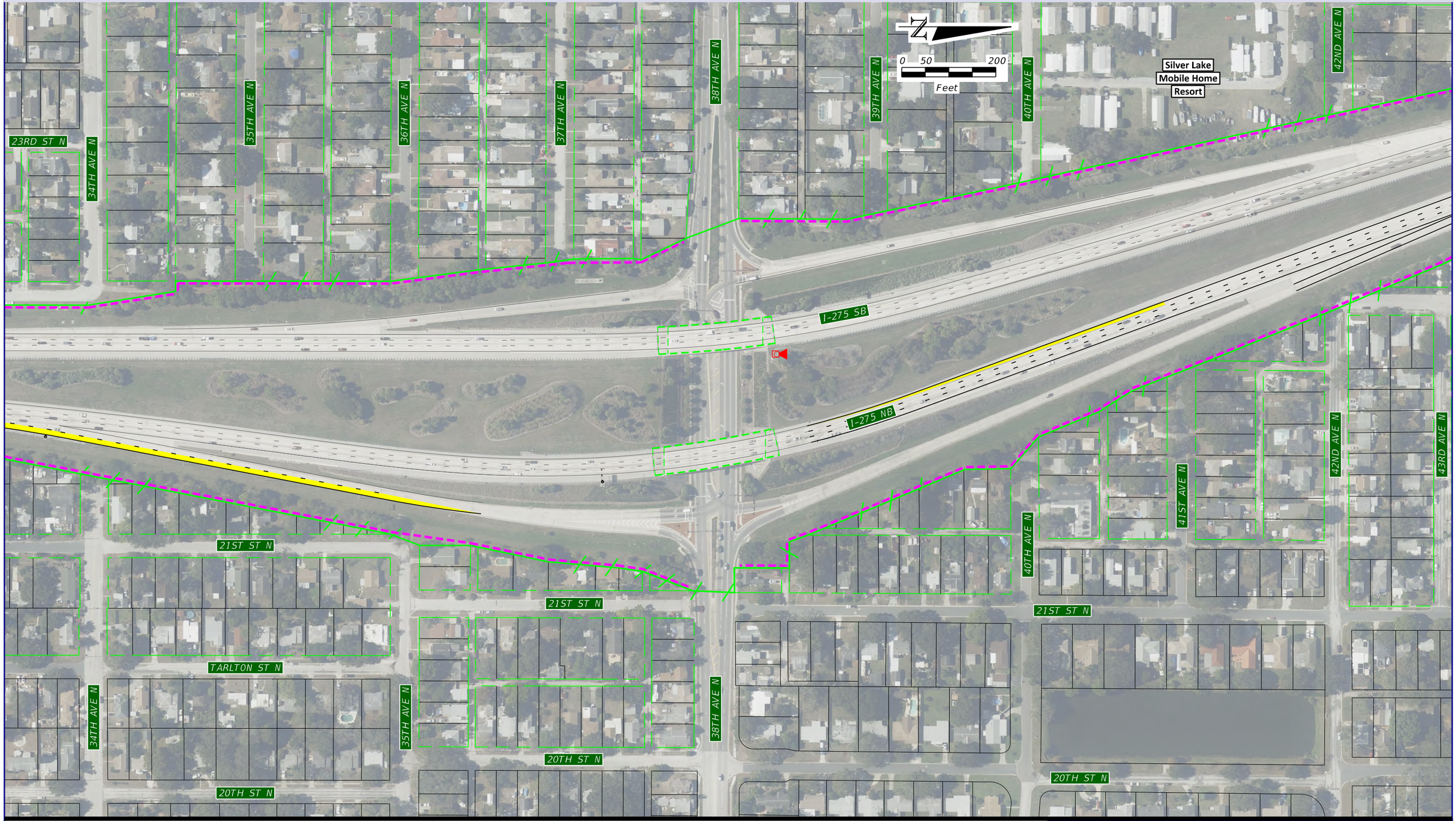
SHEET NO. 13

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

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- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

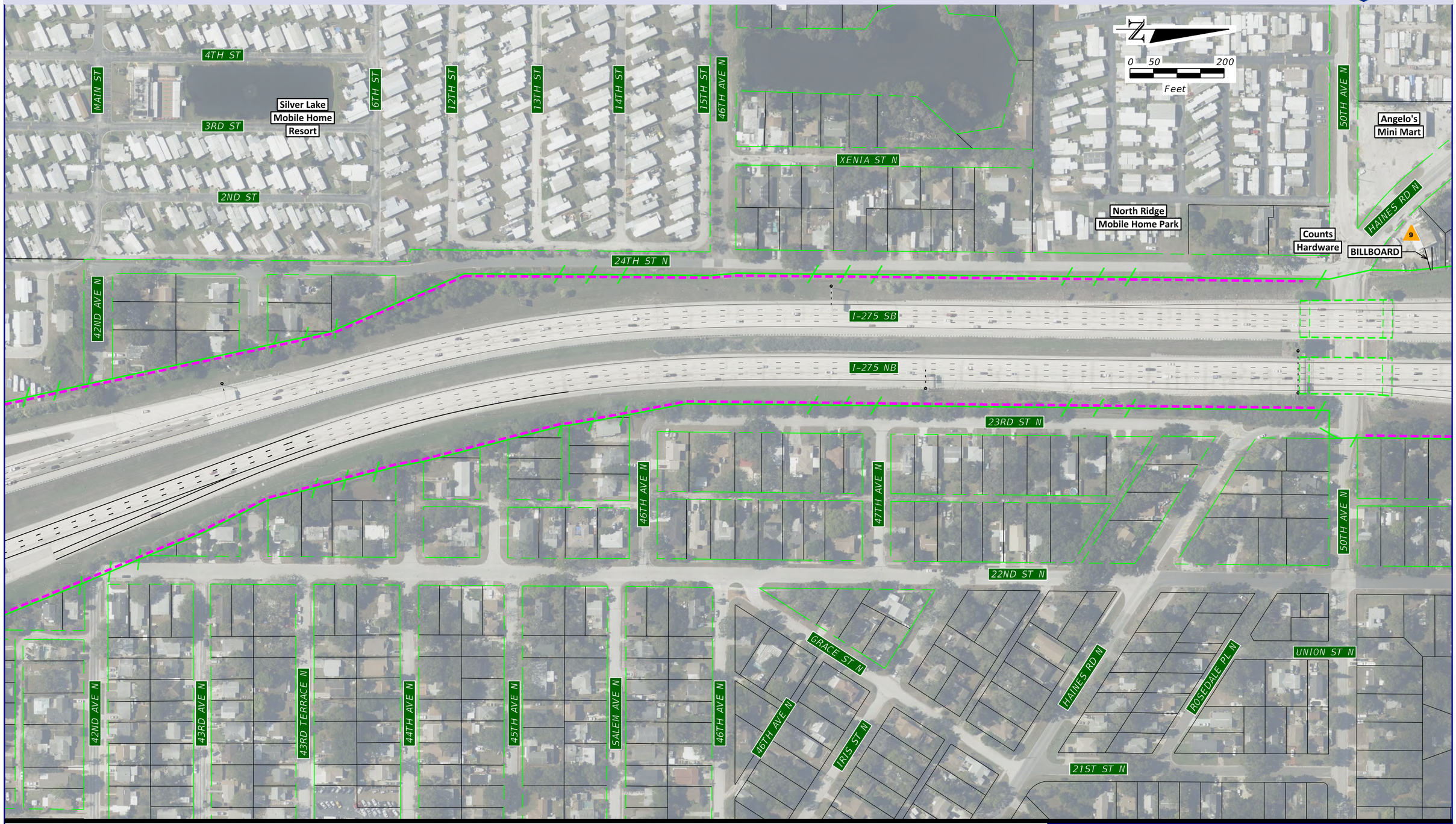
SHEET NO. 14

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

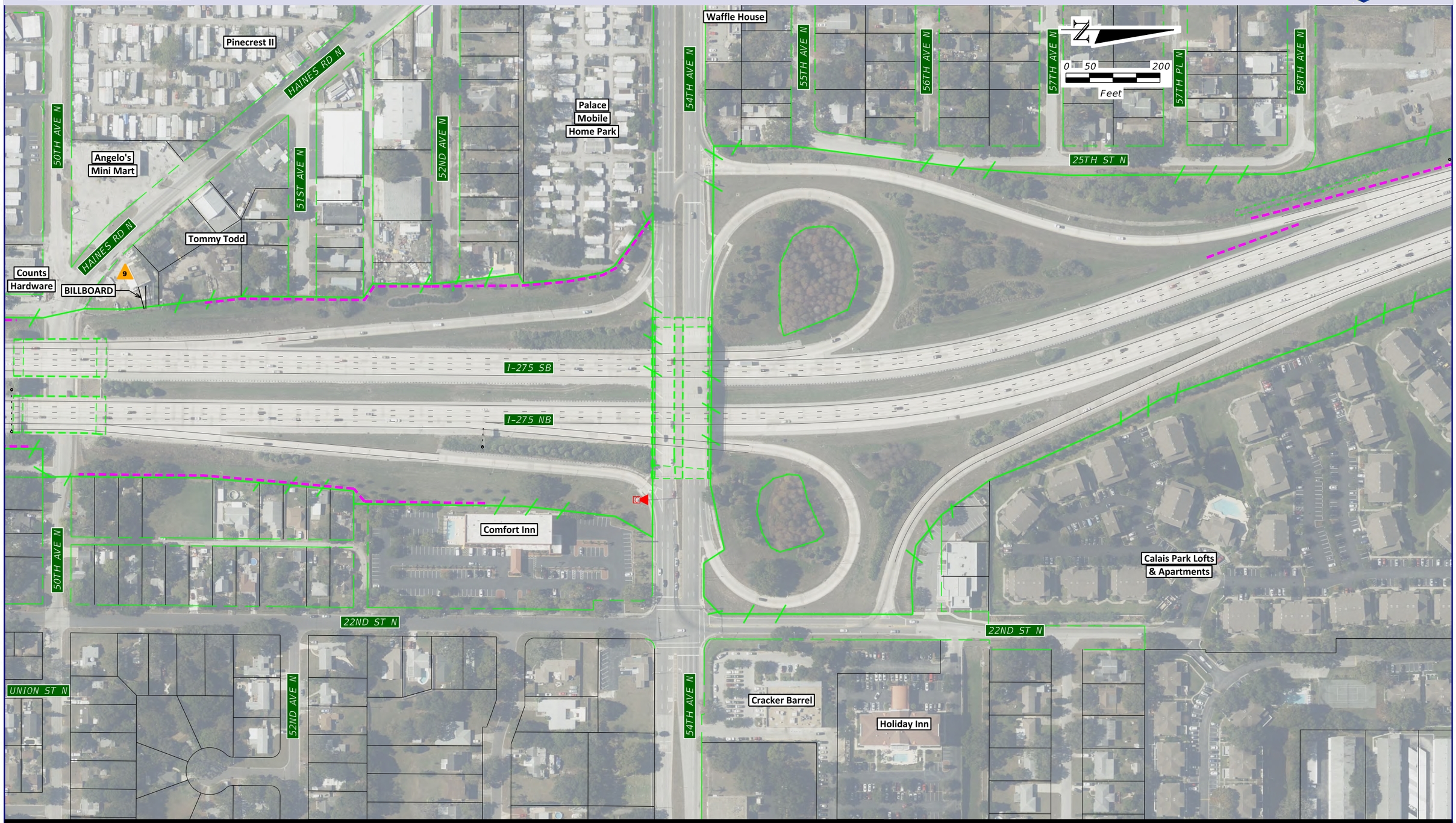
SHEET NO. 15

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 16

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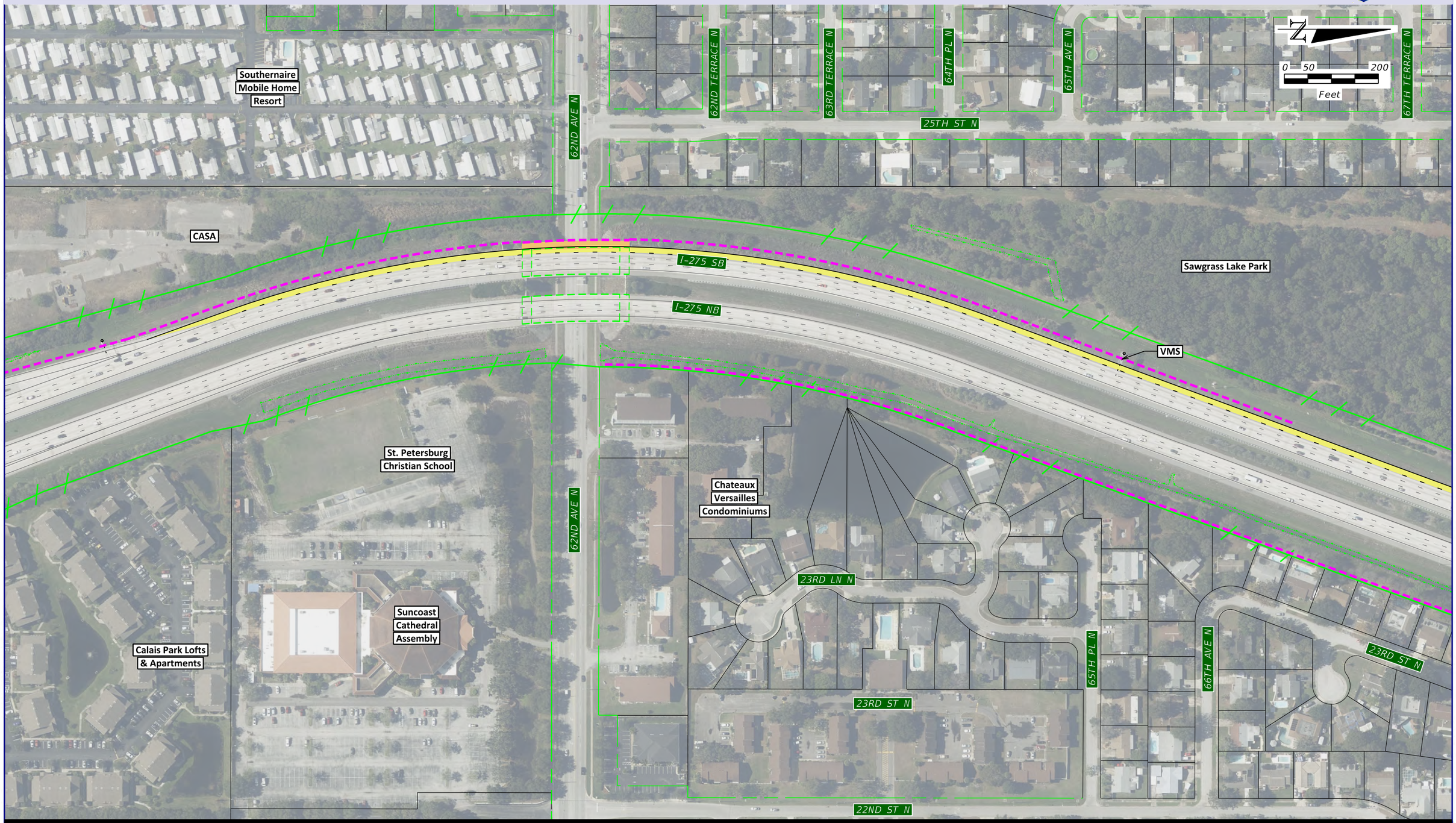
I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

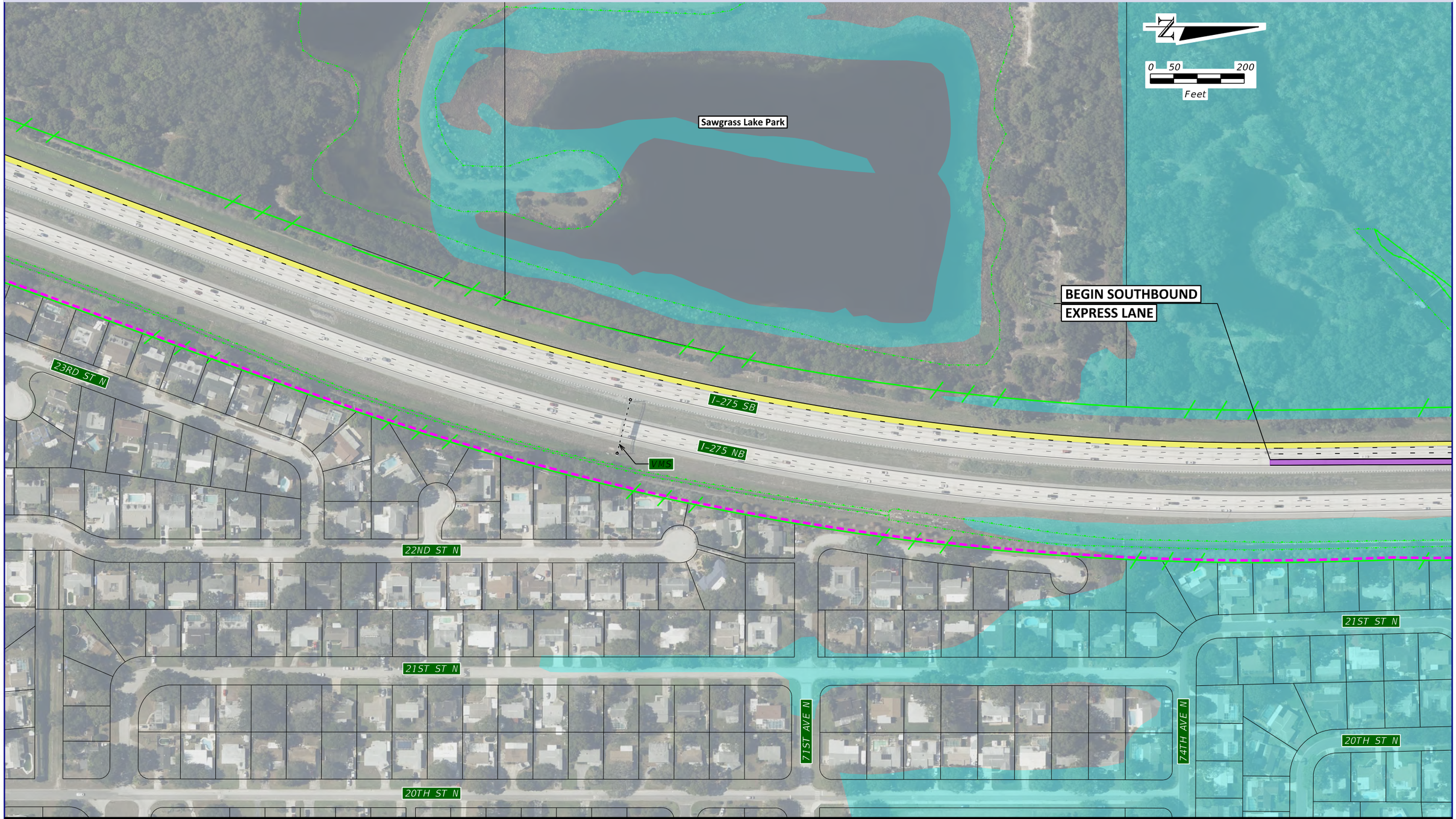
SHEET NO. 17

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- PAVEMENT WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTAMINATION
- OVERHEAD SIGN STRUCTURE
- NOISE WALL
- ITS CAMERA
- KENWOOD HISTORIC DISTRICT

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
LANE CONTINUITY

SHEET NO. 18

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275

LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

SHEET NO. 19

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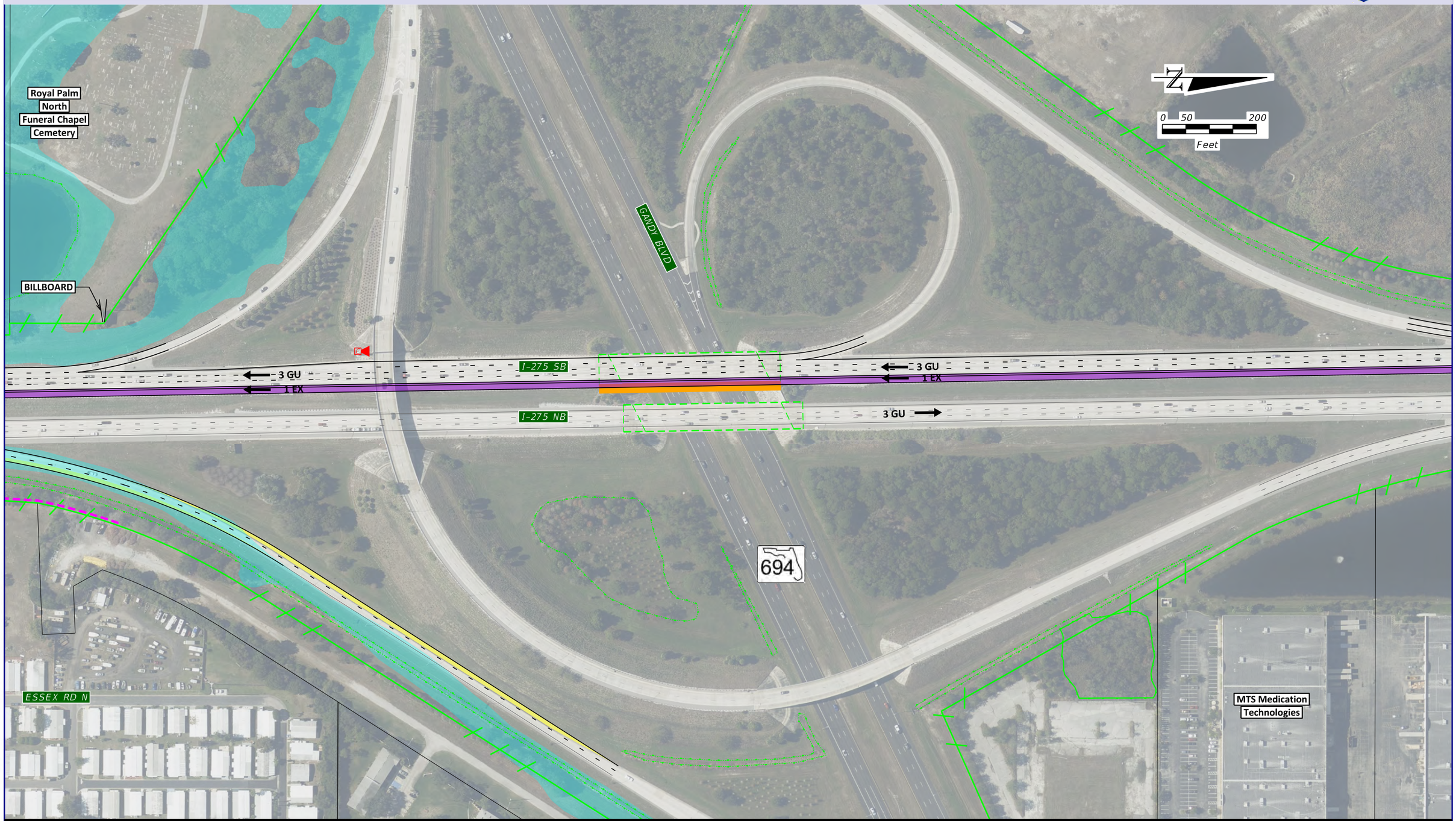
I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

SHEET NO. 20

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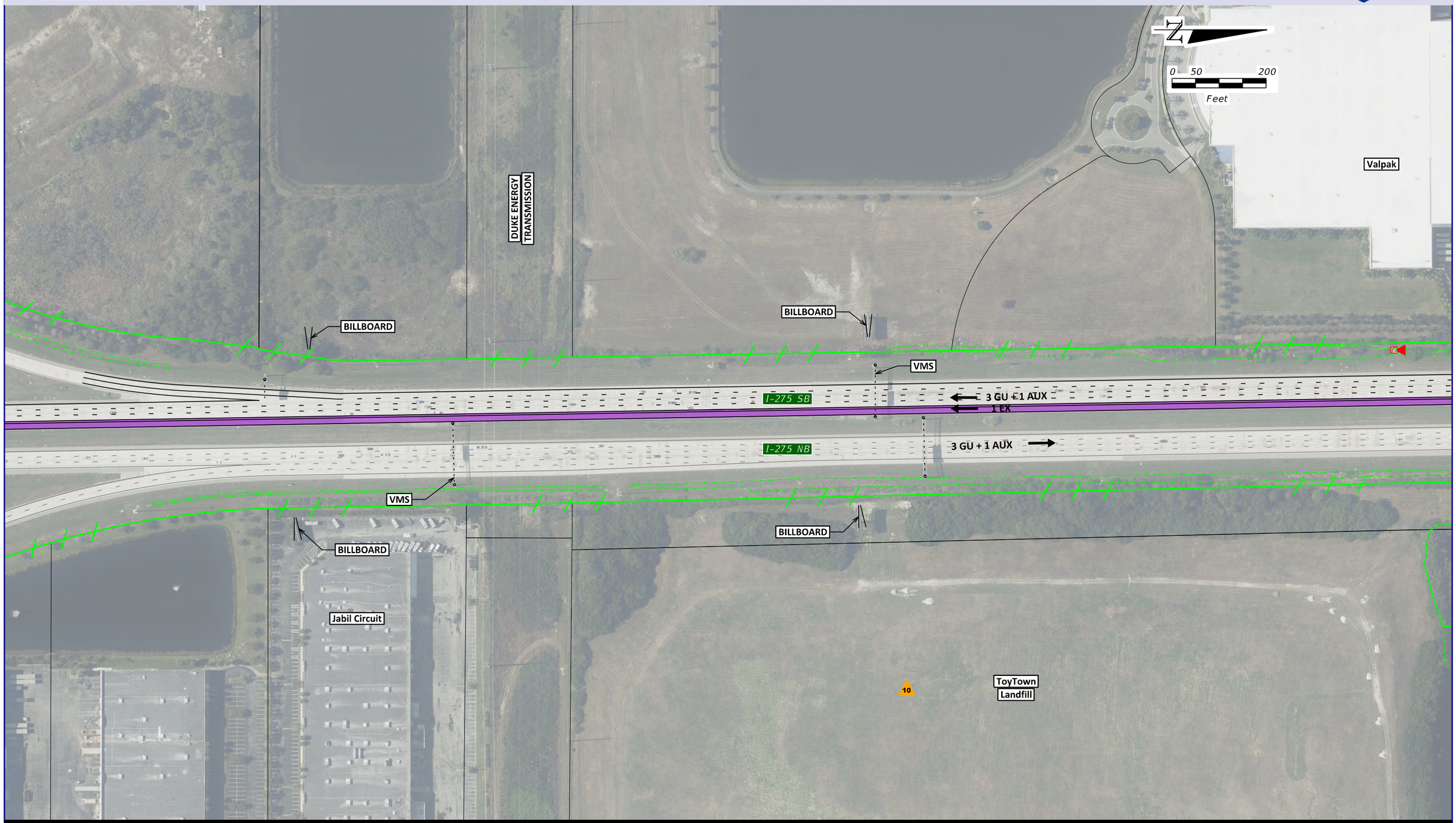
I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

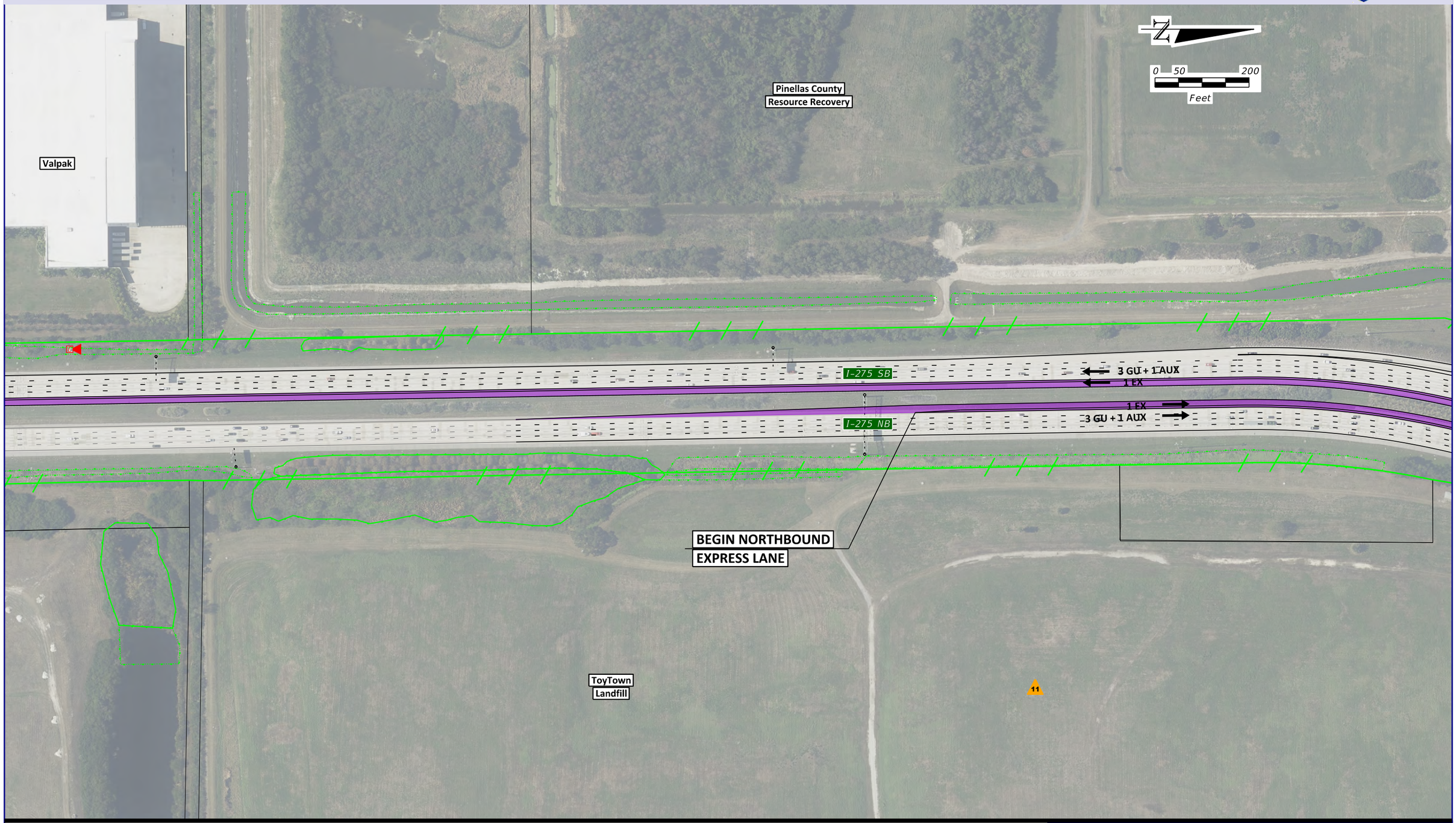
SHEET NO. 21

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

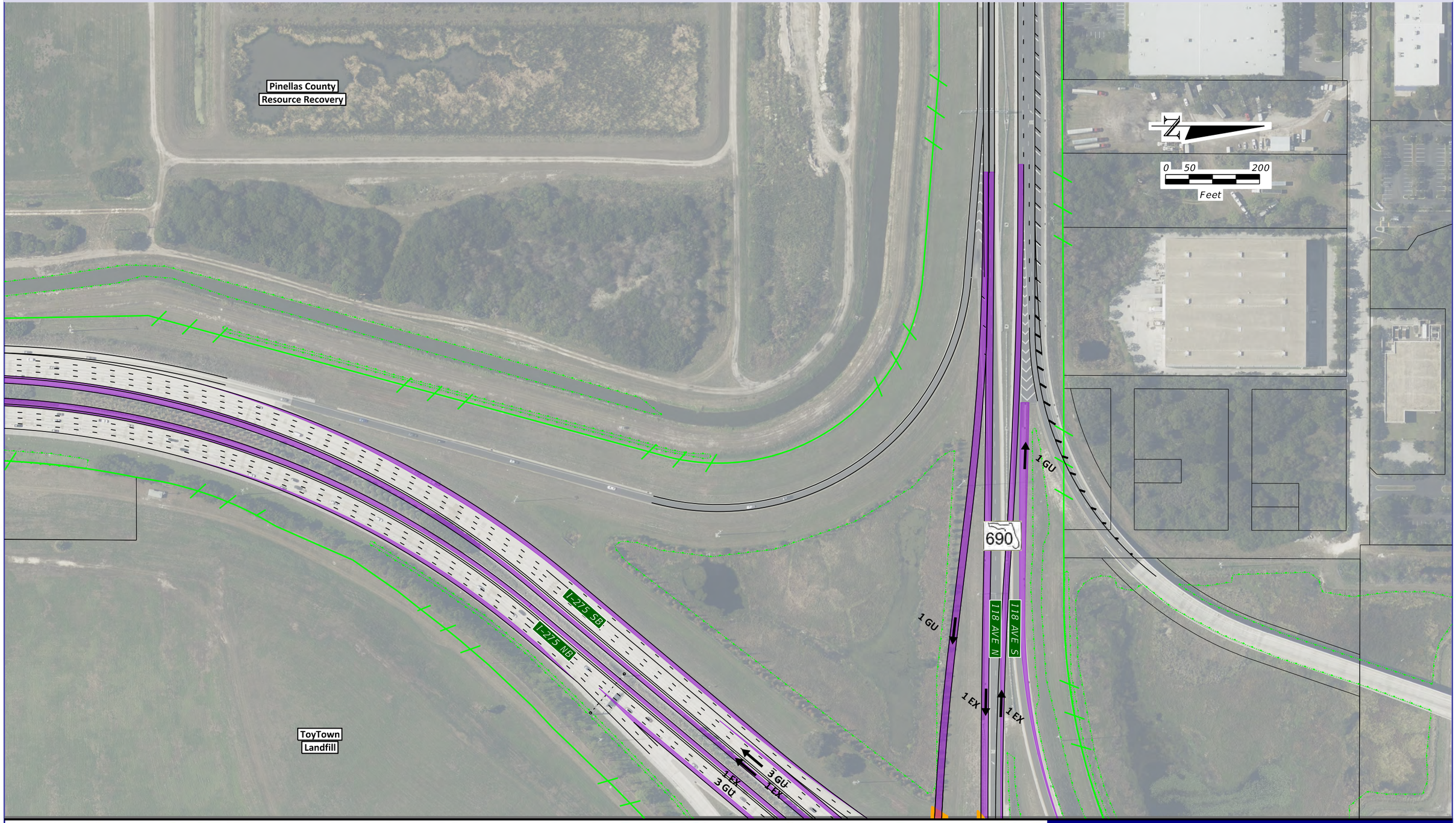
SHEET NO. 22

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

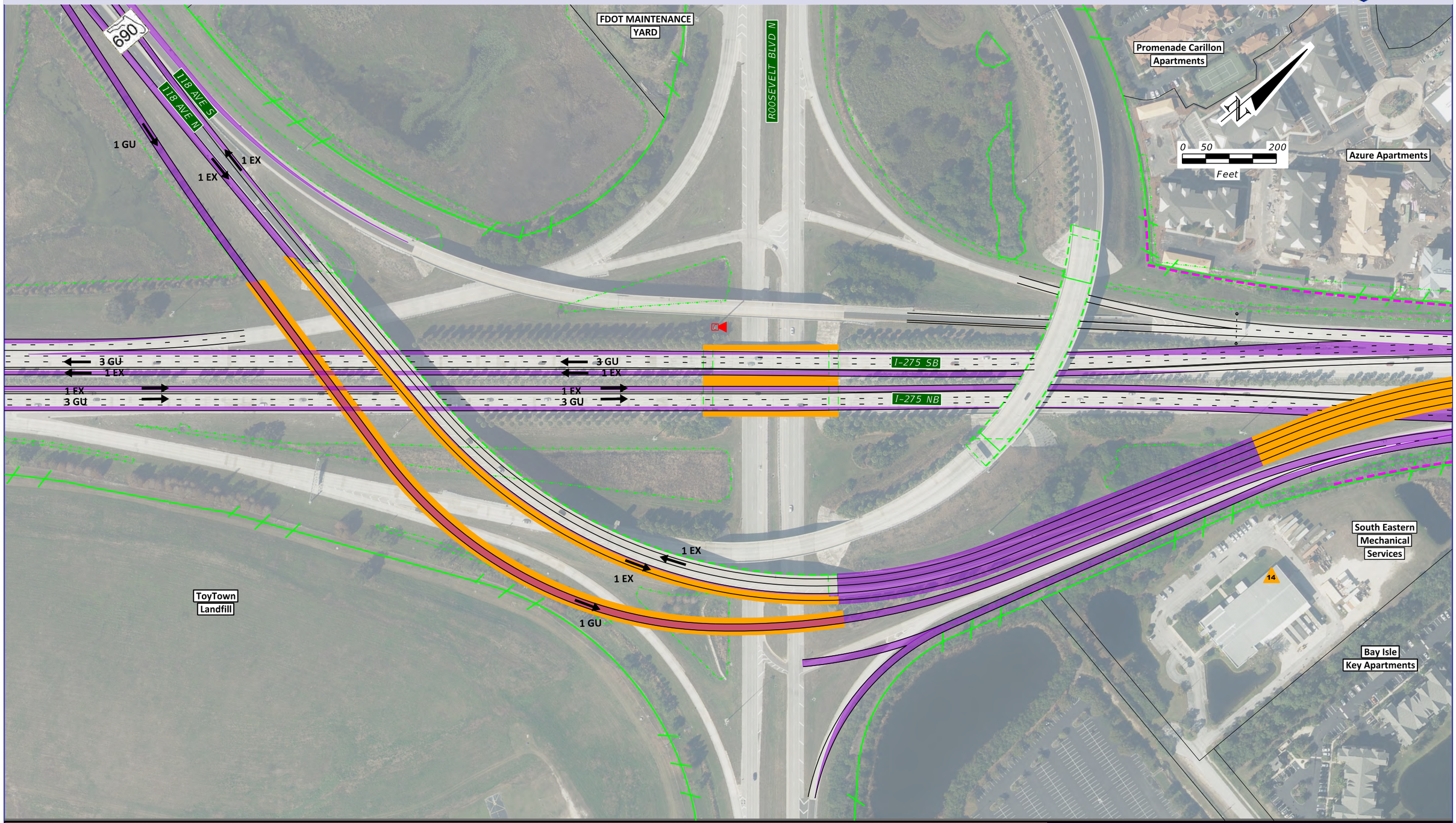
SHEET NO. 23

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

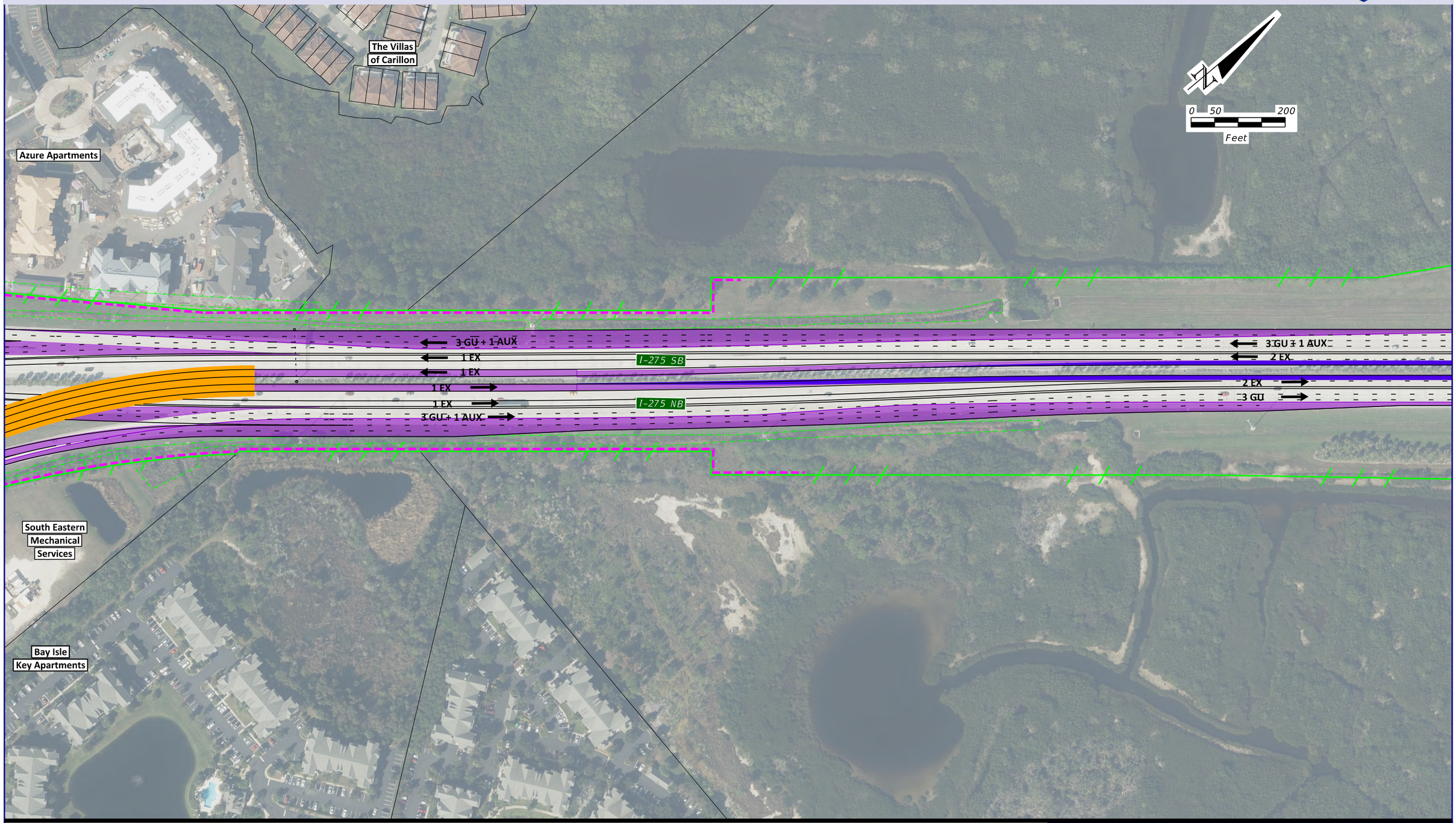
SHEET NO. 24

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

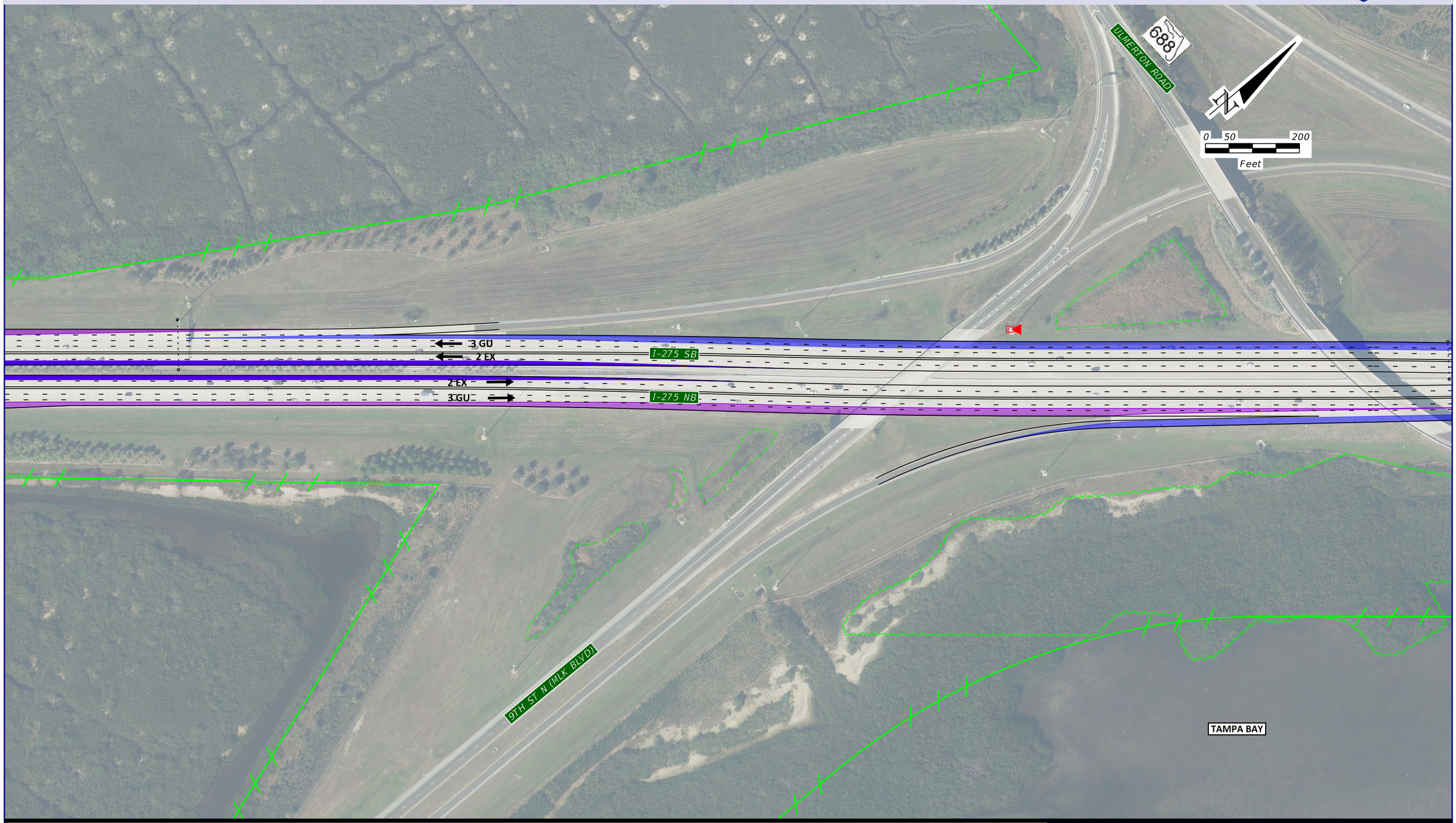
SHEET NO. 25

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

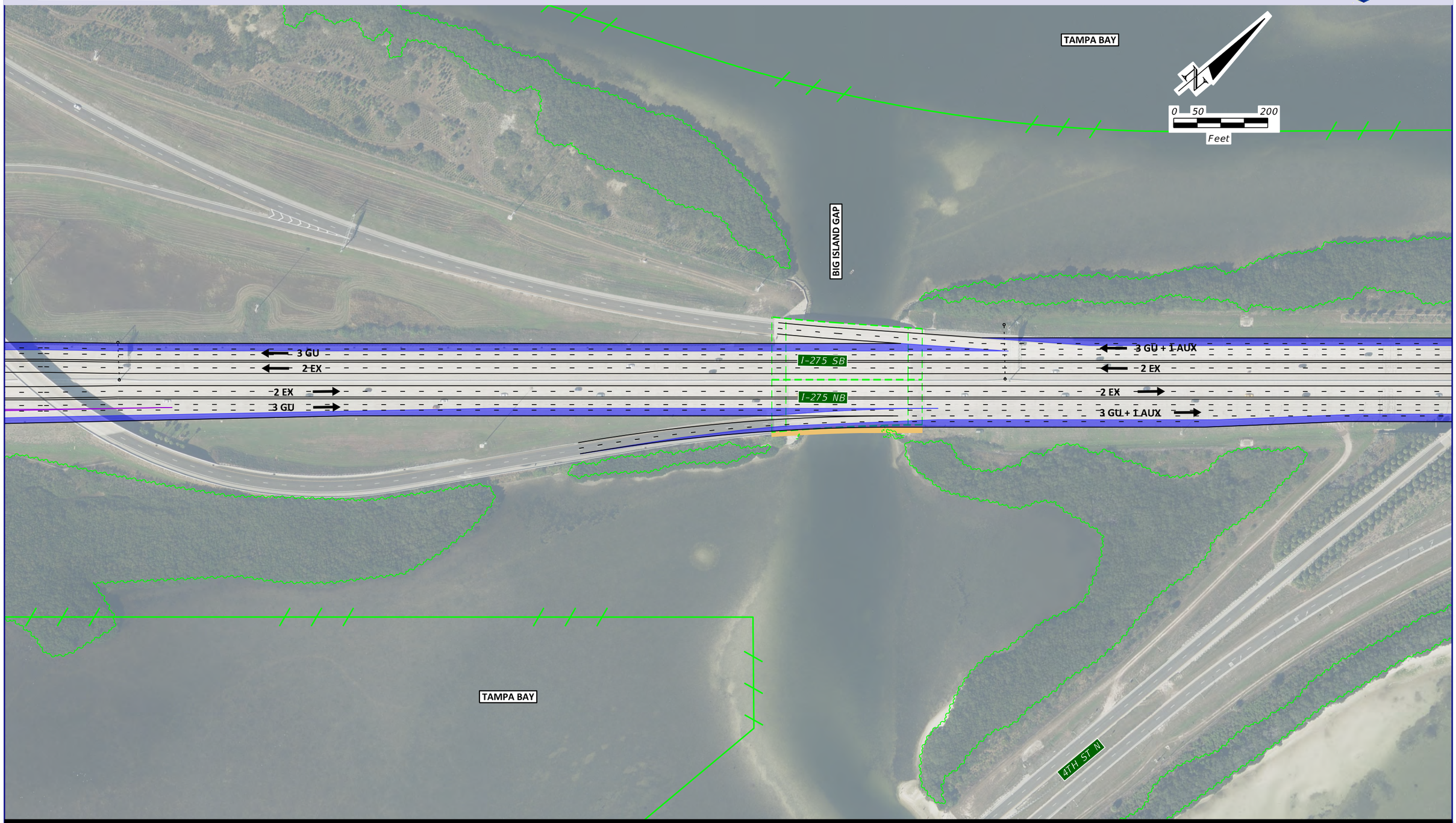
SHEET NO. 26

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

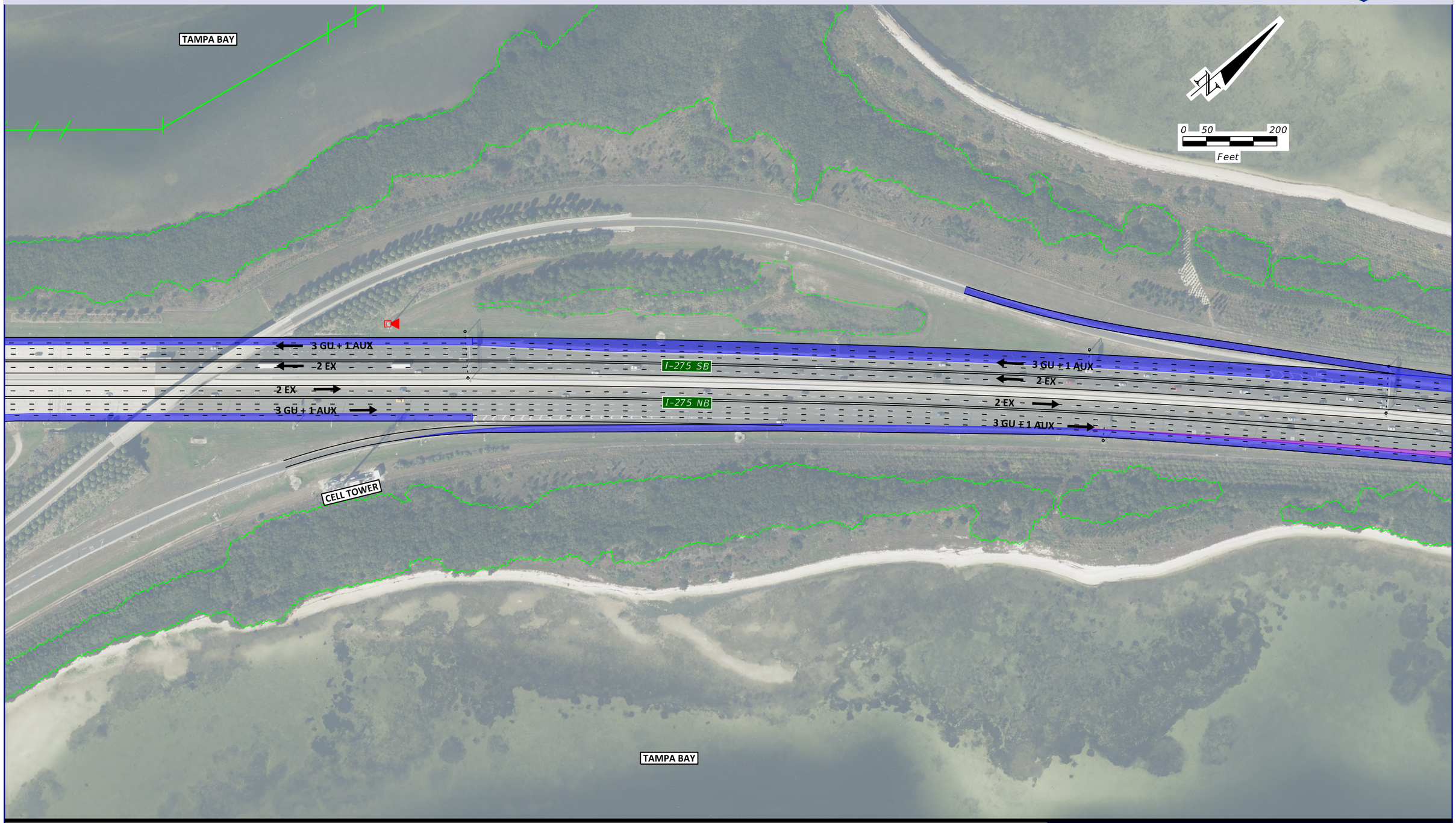
SHEET NO. 27

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Dec. '13 - Feb. '14

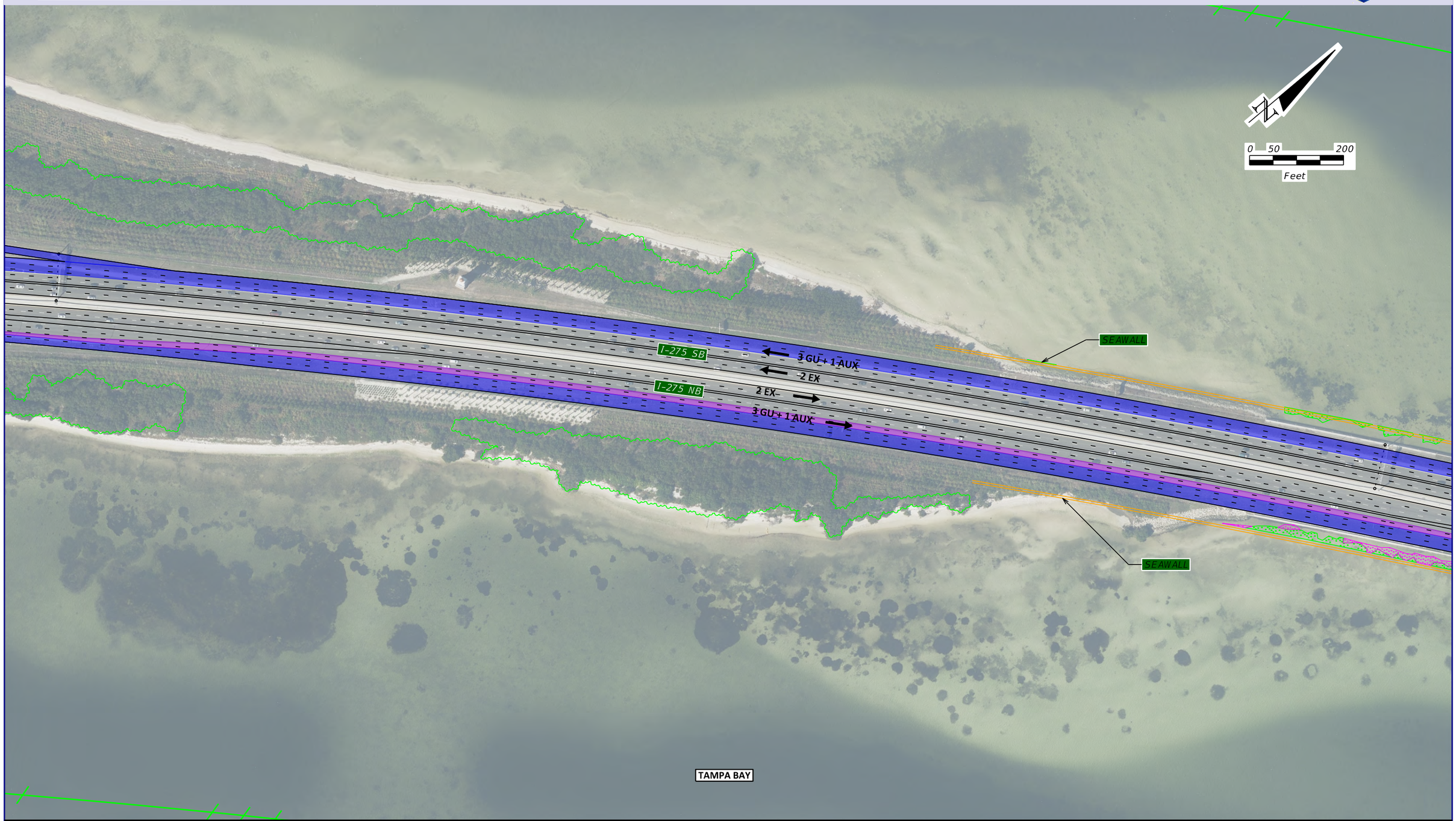
CONCEPT PLANS
EXPRESS MASTER PLAN

SHEET NO. 28

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES
Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

SHEET NO. 29

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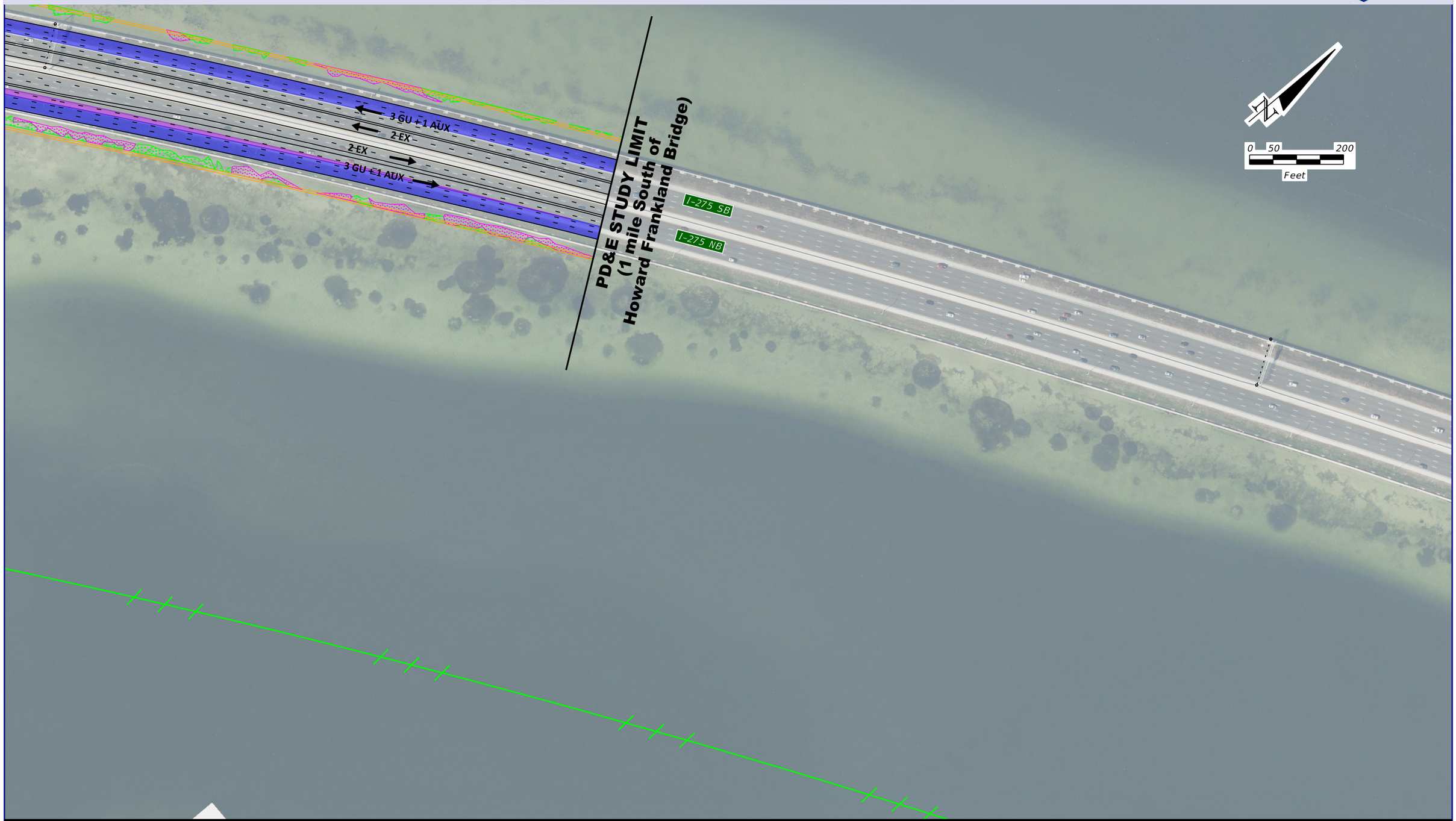
I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- CONTINUITY WIDENING
- MASTER WIDENING
- STARTER WIDENING
- BRIDGE WIDENING
- BRIDGES
- BARRIER WALL
- HISTORIC SITE
- WETLANDS
- SURFACE WATER
- MANGROVES
- RIGHT OF WAY
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA

EX = EXPRESS TOLL LANES
GU = GENERAL USE LANES
AUX = AUXILIARY LANES

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS MASTER PLAN

SHEET NO. 30

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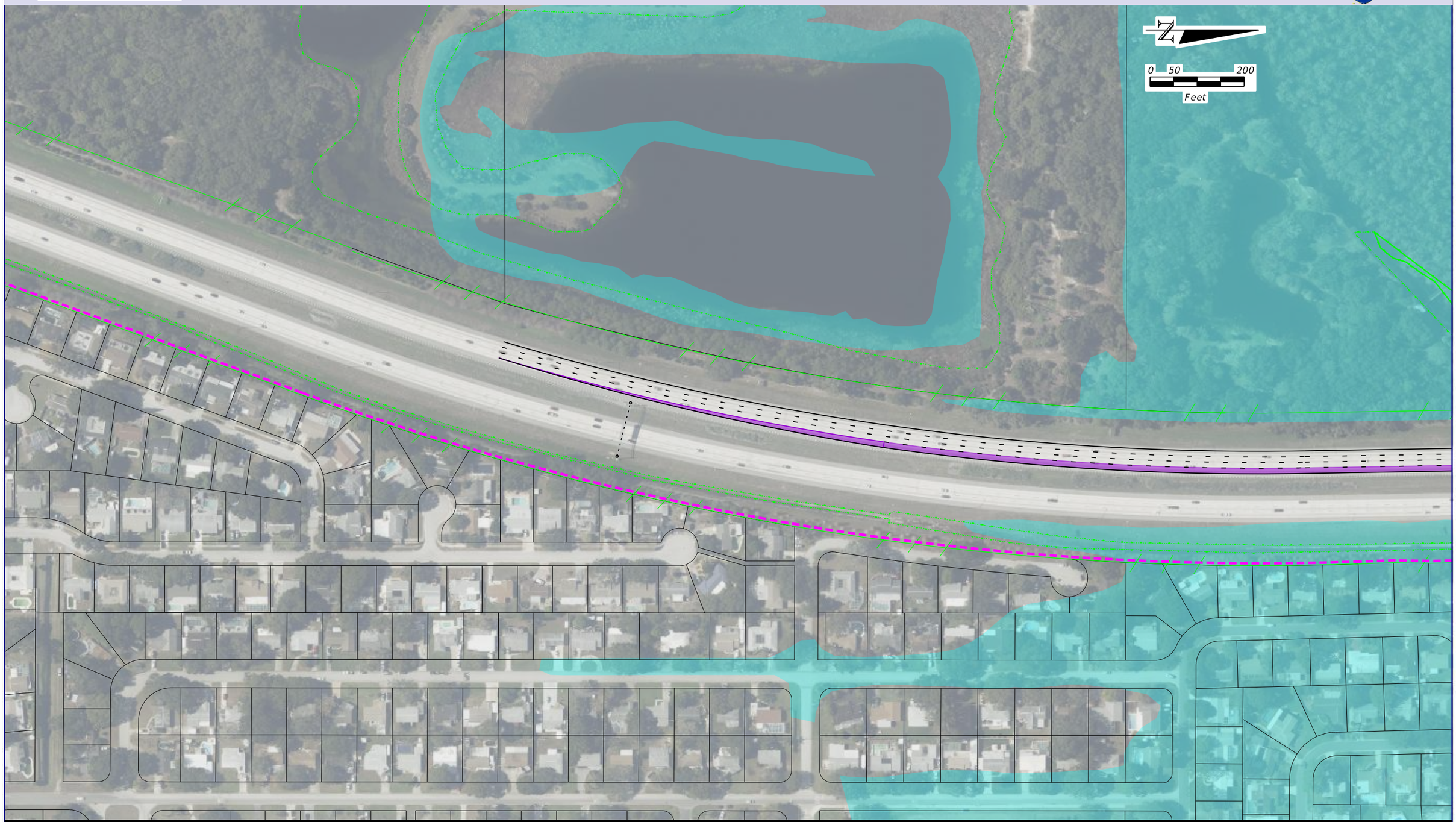
I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO.

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275

LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

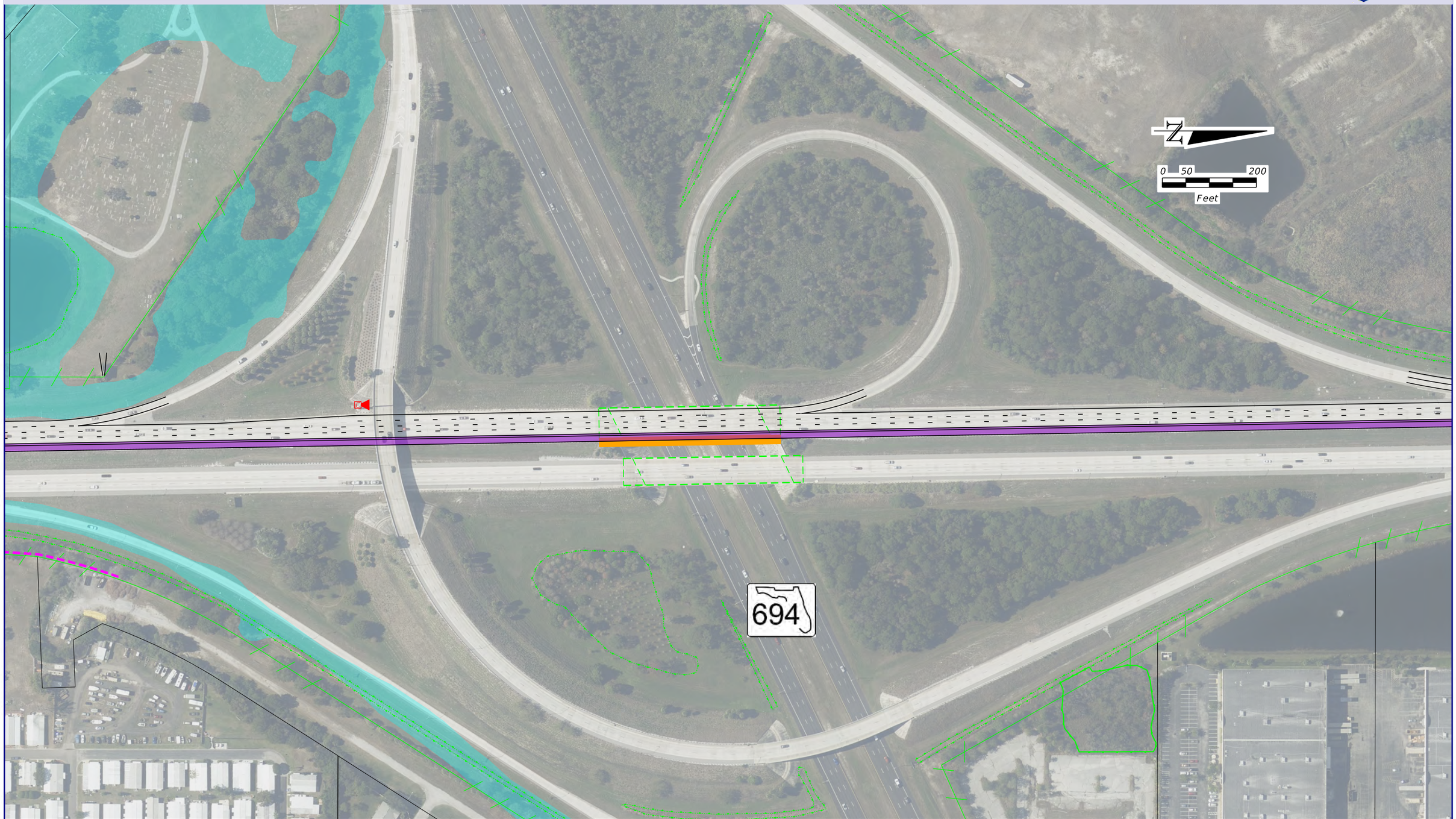
CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO.

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 33

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275

0 50 200
Feet

LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

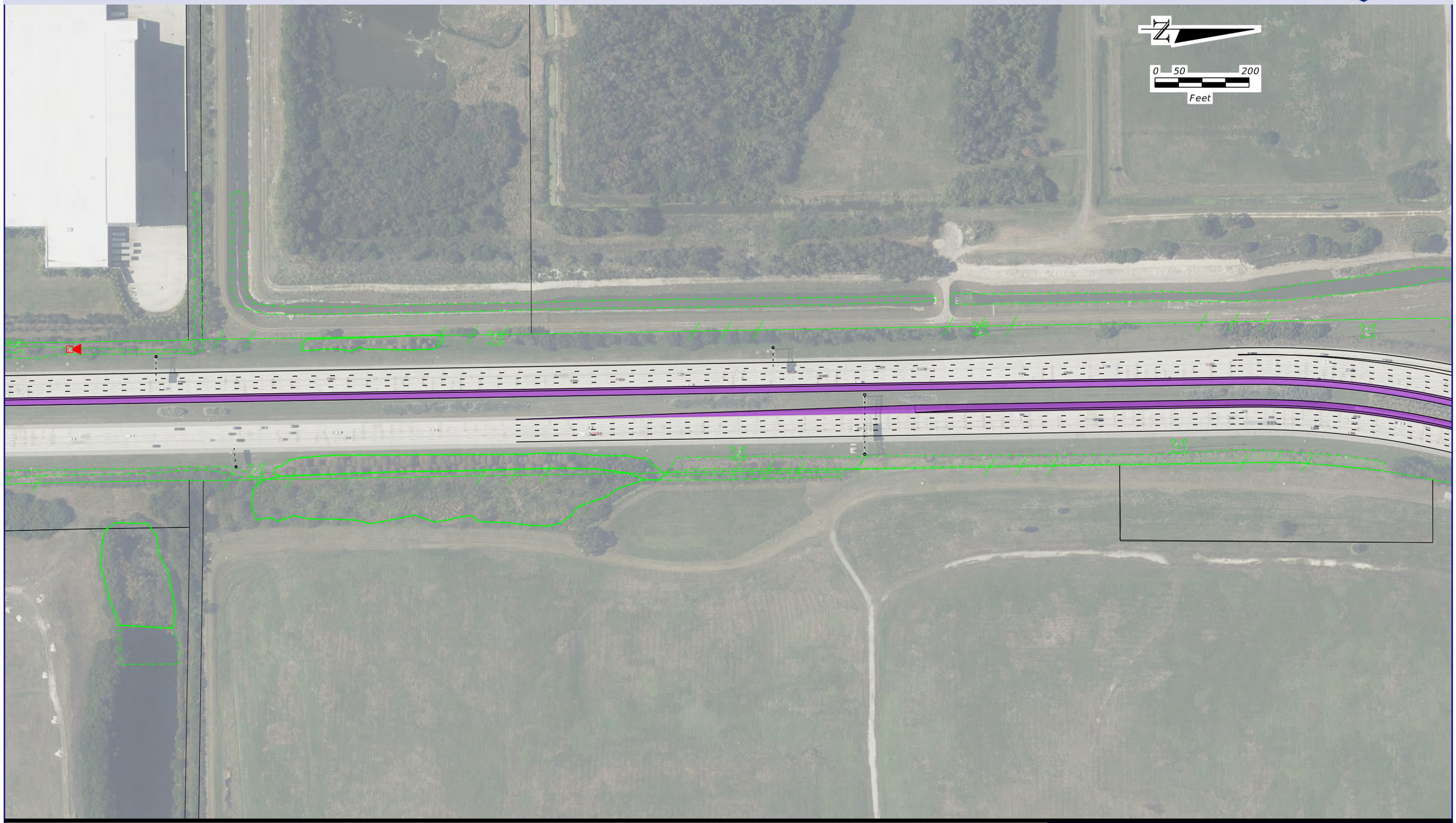
CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 34

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

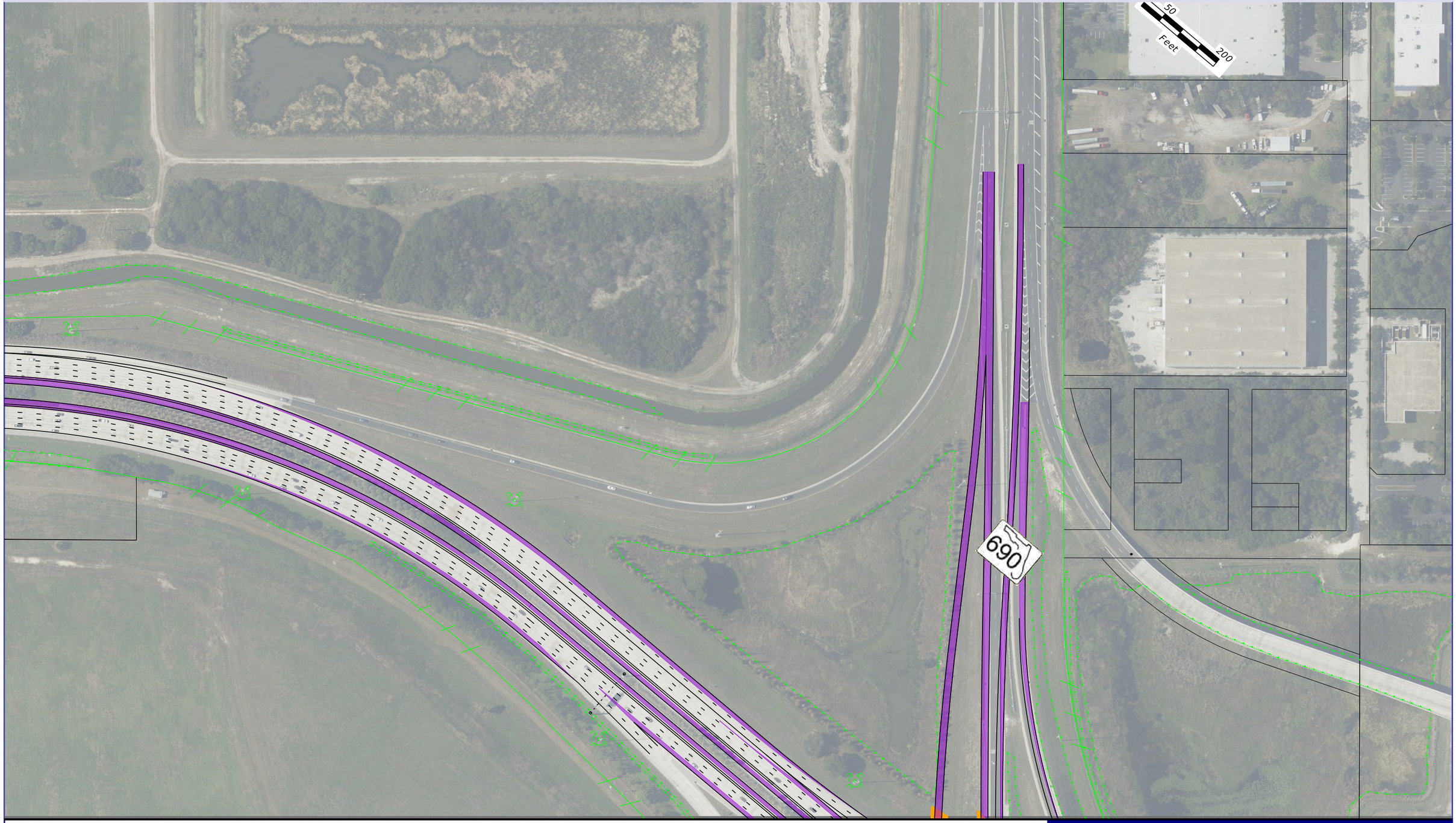
SHEET NO. 35

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 36

$USER$ $DATE$ $TIME$ $FILE$

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

FDOT

TAMPA BAY EXPRESS

INTERSTATE 275

690

FDOT MAINTENANCE YARD

Azure Apartments

South Eastern Mechanical Services

0 50 200

Feet

LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

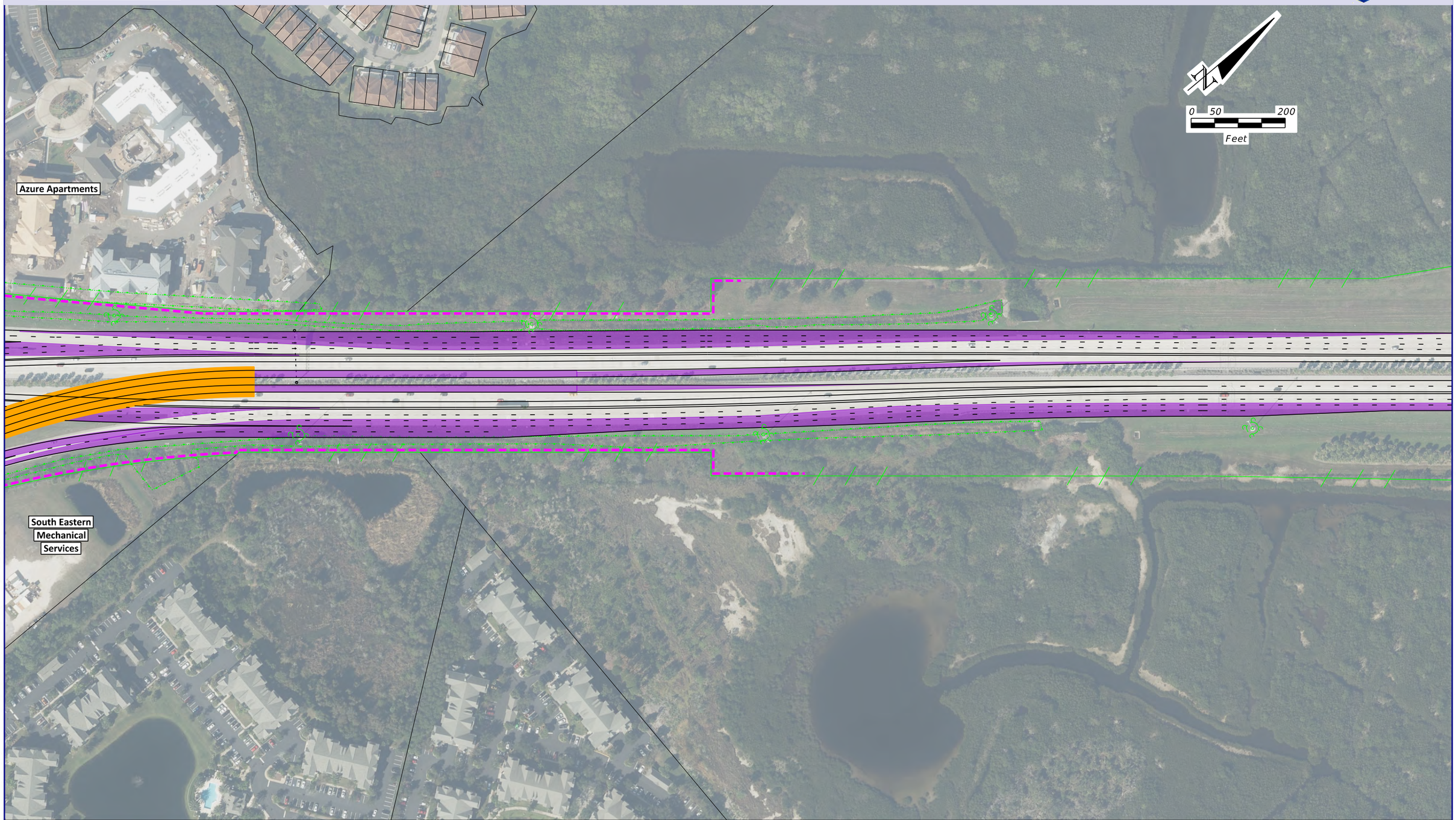
SHEET NO. 37

$USERS $DATES $TIMES $FILES

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 38

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275

LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 39

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275

0 50 200
Feet

LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 40

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275

LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

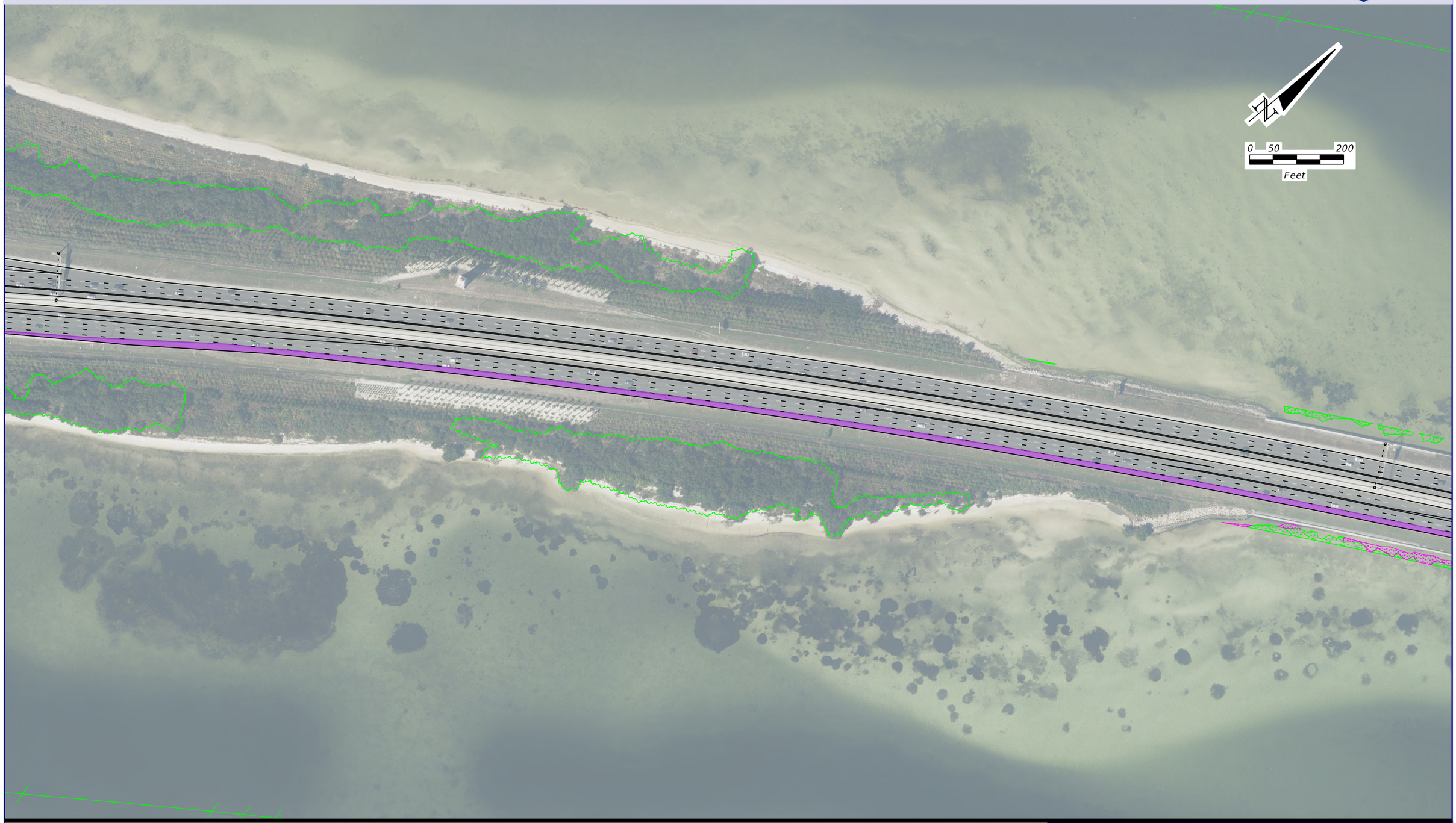
CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 41

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

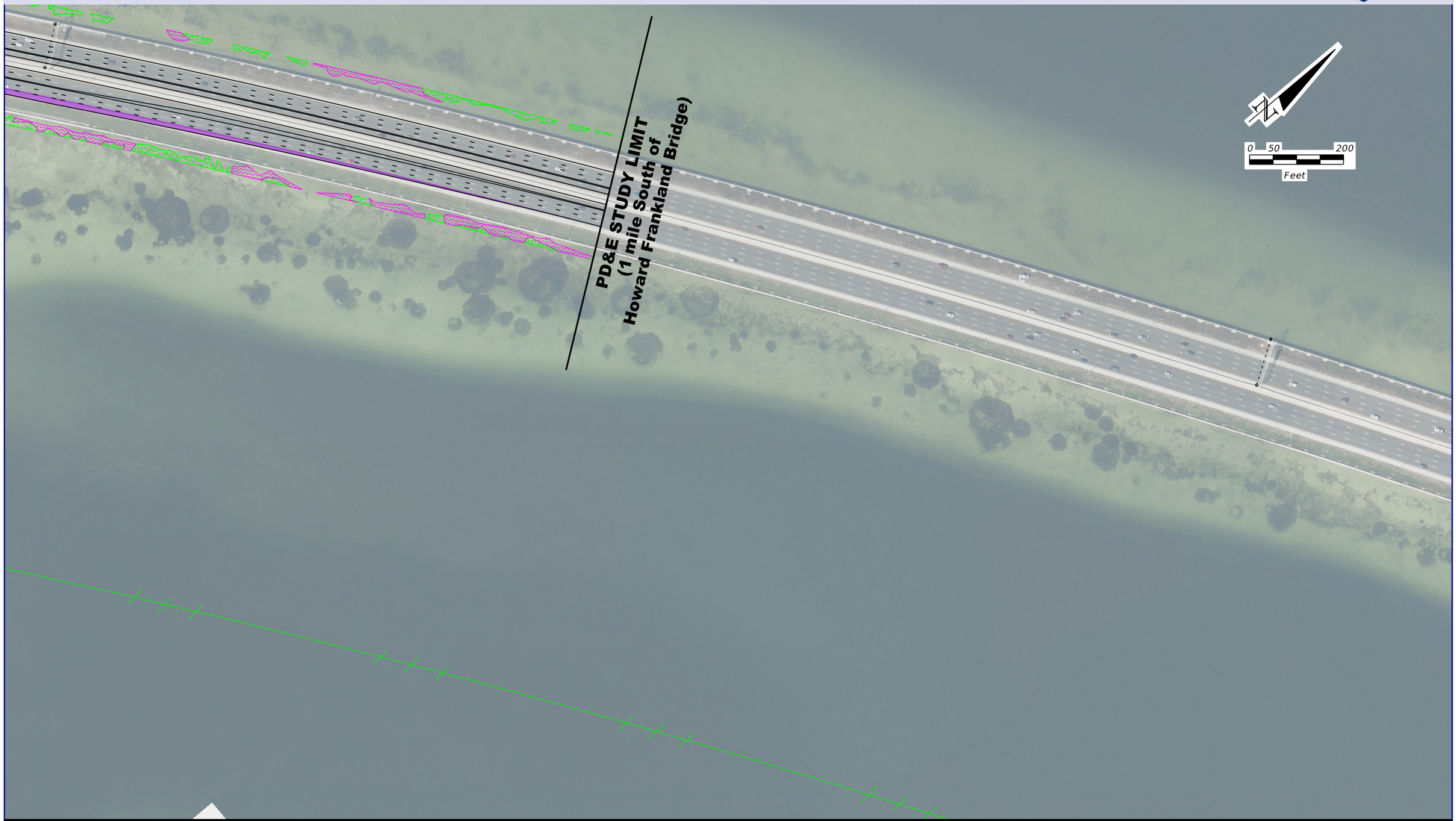
CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 42

I-275 (SR 93) PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

TAMPA BAY EXPRESS

INTERSTATE 275



LEGEND:

- STARTER WIDENING
- PAVEMENT REMOVAL
- BARRIER WALL
- BRIDGE WIDENING
- BRIDGES
- RIGHT OF WAY
- WETLANDS
- SURFACE WATER
- MANGROVES
- FLOOD PLAINS
- CONTINUOUS SEA GRASS
- DISCONTINUOUS SEA GRASS
- OVERHEAD SIGN STRUCTURE
- CONTAMINATION
- ITS CAMERA
- NOISE WALL

Aerial Photos Dec. '13 - Feb. '14

CONCEPT PLANS
EXPRESS STARTER PLAN

SHEET NO. 43