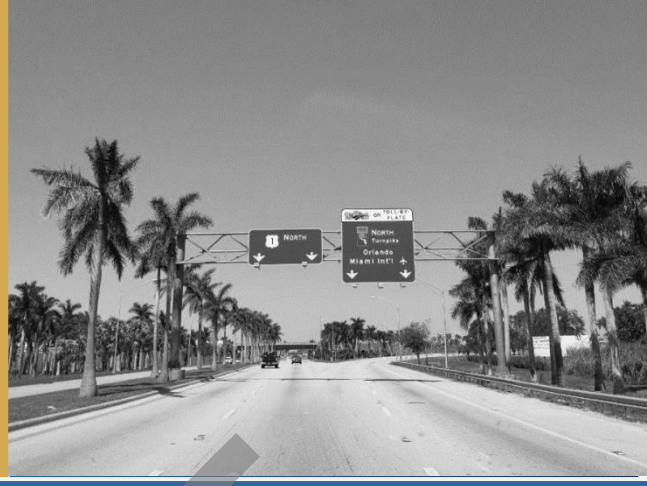

Draft Preliminary Engineering Report

Florida's Turnpike (SR 821) Widening
Project Development and Environment (PD&E) Study
From US 1 (South of Palm Drive) to Campbell Drive | Miami Dade County, Florida

FM No. 439545-1-22-01

Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069 | Ocoee, FL 34761

May , 2021

FLORIDA'S TURNPIKE

FDOT

DRAFT PRELIMINARY ENGINEERING REPORT

Florida Department of Transportation

Florida's Turnpike District

Florida's Turnpike (SR 821) Widening

Project Development and Environment (PD&E) Study

From US 1 (South of Palm Drive) to Campbell Drive

Miami Dade County, Florida

FM Number: 439545-1-22-01

ETDM Number: 14322

Date: May 2021

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Section 1

Project Summary

1.1 Project Description

The Turnpike Extension (SR 821) is a Strategic Intermodal System (SIS) limited access toll highway connecting the Florida Keys, the City of Florida City, and the City of Homestead with the greater Miami-Dade County region. The Turnpike Extension is the primary evacuation route connecting with the Florida Turnpike (SR 91) near the Miami-Dade/Broward County line.

This Project Development and Environment (PD&E) Study evaluates the southern three (3) miles of the Turnpike Extension within Miami-Dade County and the two (2) local municipalities which are the City of Florida City and the City of Homestead. The PD&E study limits are from US 1 (south of Palm Drive) to Campbell Drive (SW 312nd Street). Turnpike milepost (MP) 0.00 is located at US 1 and MP 3.00 is located at the Campbell Drive interchange. See **Figure 1-1** for the project location map.

The proposed improvements include widening the existing four-lane expressway and bridges to six (6) lanes between US 1 and Campbell Drive; improving the US 1 interchange with a new ramp over Palm Drive, adding a partial interchange at Lucy Street, and converting the taper ramps to parallel ramps at the Campbell Drive interchange. Bridge widening and/or minor improvements are proposed at Lucy Street, SW 162nd Avenue, C-103 Canal and Campbell Drive. Two (2) new bridges are proposed over the US 1 northbound lanes and over Palm Drive.

The study does not propose any improvements to Campbell Drive or Krome Avenue therefore these facilities are not described in this report. The Campbell Drive interchange was previously evaluated under PD&E Study FM 423372-1.

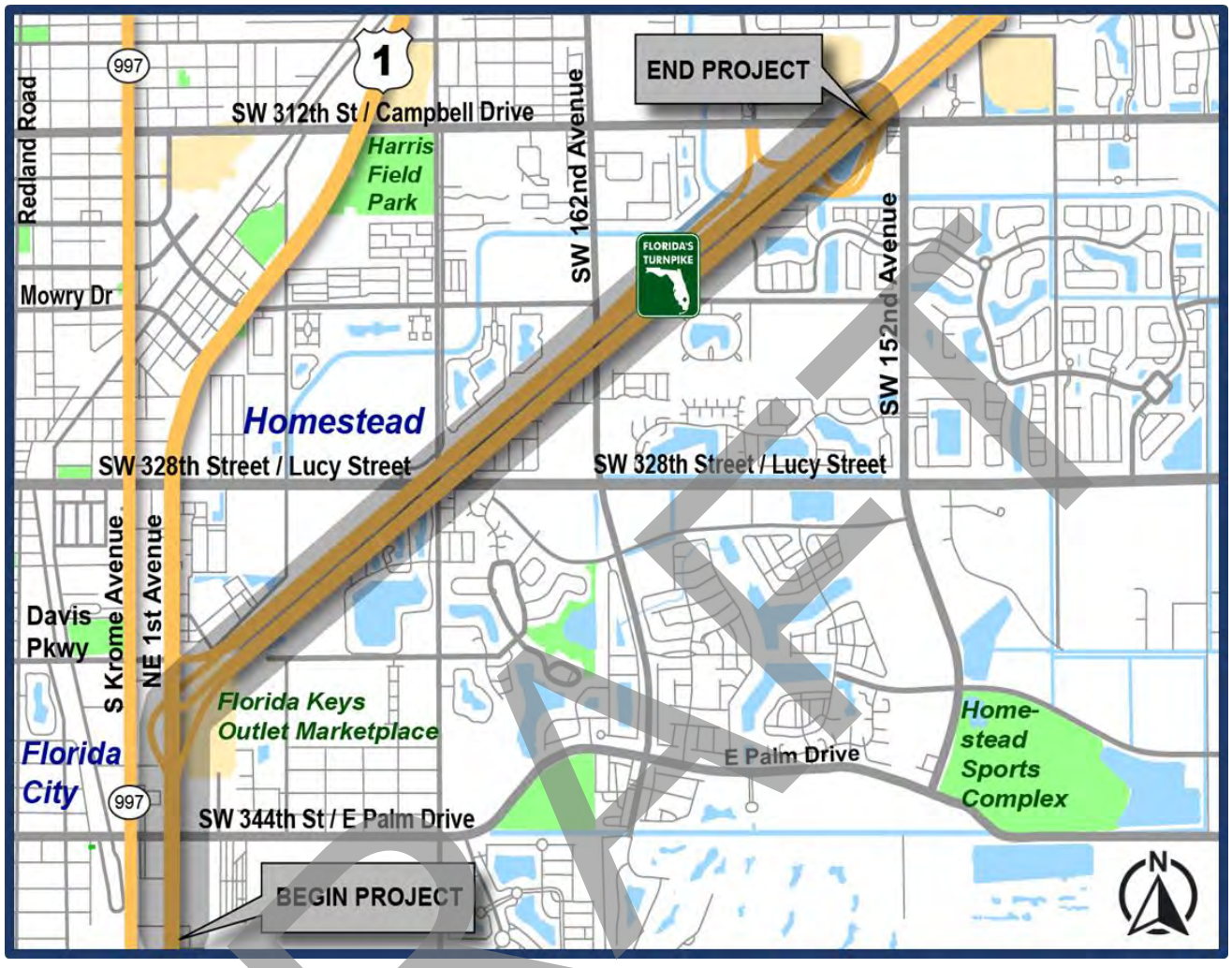


Figure 1-1 Project Location Map

1.2 Purpose & Need

1.2.1 Purpose

The primary purpose of the project is to enhance traffic operations and safety. The secondary purpose of this project is to accommodate the existing and future traffic demand, enhance regional mobility and improve evacuation/emergency response.

1.2.2 Need

Traffic Operations and Future Travel Demand

The existing four-lane divided tollway experiences congestion in the typical AM/PM peak hour and during the heavy inbound peak periods when traffic is heading south to the Florida Keys. The traffic operations continue to deteriorate through the Design Year 2045 dropping to Level of Service (LOS) F. Detailed analyses of the existing and future traffic conditions are documented in the *Draft Traffic Technical Memorandum,* July 2019 and the *Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation,* August 25, 2020. The No Build AADT and LOS results are depicted in **Tables 1-1** through **1-5**.

Existing (2016) traffic volume on the Turnpike north of the US 1 interchange is 39,800 and represents the Annual Average Daily Traffic (AADT). By year 2045 the freeway segment is expected to increase to 75,300 AADT. Two (2) peak traffic periods were evaluated, the typical AM/PM peak periods and the periodic, heavy inbound, or southbound, traffic period to the Florida Keys. Without improvement, traffic congestion is anticipated to increase, and the freeway segment will decline to LOS F by year 2045. The ramp merge/diverge operations will also decline to LOS F without ramp improvements.

Table 1-1 No Build 2016 and 2045 Traffic Volumes (AADT)

Mile Post Interchange	2016 AADT	2045 AADT
	61,000	**108,600**
Campbell Drive	24,500	43,700
	3,300	10,400
	39,800	**75,300**
US 1 (To/From North)	11,800	22,300
US 1 (To/From South)	28,000	53,000

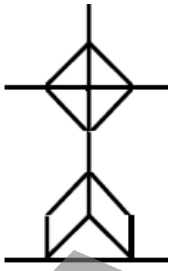


Table 1-2 No Build 2045 Freeway Segment LOS

Location	Direction	No Build Scenario		
		Typical		Heavy Inbound
		AM	PM	
North of Campbell Drive	Southbound	**F**	**F**	**F**
	Northbound	**F**	**F**	**F**
US 1 to Campbell Drive	Southbound	**F**	D	**F**
	Northbound	D	**F**	**F**

Table 1-3 No Build 2045 Ramp Merge/Diverge LOS

Interchange	Ramp	No Build Scenario		
		Typical		Heavy Inbound
		AM	PM	
Campbell Drive	Southbound off-ramp	**F**	**F**	**F**
	Northbound on-ramp	**F**	**F**	**F**
	Southbound on-ramp	**F**	C	**F**
	Northbound off-ramp	D	**F**	**F**
US 1	Southbound off-ramp to north	**F**	C	**F**
	Northbound on-ramp from north	C	**F**	**F**

The existing traffic at the US 1 interchange experiences substantial delay and queueing as a result of the existing signalized intersection at US 1 and Palm Drive which is located within 450 feet of the Turnpike on- and off-ramps. The Turnpike's southbound off-ramps to US 1 and West Davis Parkway experience repetitive queueing that backs up over one (1) mile into the high-speed freeway travel lanes. Without improvements, the off-ramps to US 1 will operate at LOS F with extensive queues encroaching into the high-speed freeway lanes as reported in the supporting traffic documents. A Systems Interchange Justification Report is being prepared and will further refine the traffic forecasts for the No Build and Preferred Alternative.

Table 1-4 No Build 2045 Intersection LOS

Intersection	No Build Scenario					
	Typical				Heavy Inbound	
	AM		PM			
	LOS	Delay	LOS	Delay	LOS	Delay
US 1 / NE 7th St (Davis Parkway)	**F**	107	**F**	83	**F**	82
US 1 / Palm Drive	**F**	345	**F**	384	**F**	223
Krome Ave / NE 7th St (Davis Parkway)	C	25	C	27	B	17
Krome Avenue / Palm Drive	D	45	E	58	D	48

Table 1-5 No Build 2045 US 1 Off-Ramp Performance Typical Design Hour (Worst Case AM Peak Hr) and (Heavy Inbound Florida Keys)

Location / Segment	No Build Scenario (Worst Case AM Peak Hr)		No Build Scenario (Heavy Inbound Florida Keys Peak Hour)	
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	Density [veh/mi/ln]	LOS	Density [veh/mi/ln]	LOS
Southbound off-ramp to Davis Parkway and US 1	88	F	138	F
Southbound off-ramp to Palm Drive and US 1	91	F	102	F
OFF-RAMP PERFORMANCE	Max. Queue [ft]	Average Speed [mph]	Max. Queue [ft]	Average Speed [mph]
Southbound Off-Ramp to Davis Parkway and US 1 (Operating Speed = 35 mph)	8,341	11	10,613	3
Southbound Off-Ramp to Palm Drive and US 1 via Existing Ramp (Operating Speed = 40 mph)	8,341	11	10,613	9

The projected poor off-ramp performance for the No Build condition creates a substantial speed differential between the queued traffic (3-11 mph) and the through lane traffic (65 mph), which presents an unsafe condition.

Safety

Safety and crash analyses were evaluated for the Turnpike freeway segment, ramps and adjacent arterial roadways located at the interchanges for the five-year period from 2011 to 2015.

A total of ninety-five (95) crashes occurred on the Turnpike freeway segment with 43% run-off-road and 19% rear-end representing the majority of crashes. The highest frequency of crashes occurred in July during the weekend days. At the US 1 interchange, fifty-four (54) crashes occurred with 56% run-off-road, 31% rear-end crashes. The southbound off-ramp to US 1 experienced thirty-six (36) crashes with run-off-road crashes representing the most common type *(*67%).

Along US 1 from south of Krome Avenue to the Davis Parkway off-ramp two hundred fifty-two (252) total crashes were reported. One hundred eight (108) of those occurred at the US 1 and Palm Drive intersection with 35% rear-end and 18% sideswipe crashes, 3% pedestrian and 2% bicycle crashes. There was one (1) fatality on US 1 that resulted from an angle crash involving two (2) vehicles at the southbound left turn entrance ramp to the northbound Turnpike.

Both the Turnpike freeway and US 1 segments within the study area appear on the Department's High Crash List for the referenced five-year period. Additionally, the intersections of US 1 at Palm Drive and US 1 at Davis Parkway appear on the High Crash List. The Department's High Crash List is composed of intersections and segments that experience higher crash rates than the statewide or districtwide average for similar intersections and roadway segments, which identifies a need for roadway and safety improvements to reduce crashes.

Crash analysis data for the time period 2013 to 2017 was preliminarily evaluated as a part of the *Systems Interchange Justification Report* (SIJR) effort which will be completed post-PD&E Study as the project enters the next development phase. Draft results, briefly summarized in Section 2.15 of this document, indicate similar trends as those discussed above.

Regional Mobility

The City of Homestead identified the need for improved regional mobility with additional Turnpike access between the US 1 and Campbell Drive interchanges. The US 1 interchange is in Florida City and the Campbell Drive interchange is at the northern boundary of the City of Homestead, with a distance of over three (3) miles between interchanges. This segment of the Turnpike lacks intermediate access points to / from the Turnpike system for local residents and businesses. The City of Homestead requested a new interchange at Lucy Street be evaluated to address this issue. Analysis documented in the *Lucy Street Feasibility Study Technical Memorandum* (**Appendix G**) confirmed the need for an interchange based on the forecasted traffic reductions it would provide for the congested US 1 and Campbell Drive interchanges and improved mobility for the Lucy Street region. The City of Homestead concurred with the feasibility study recommendation and the Lucy Street interchange was incorporated into the PD&E Study.

Emergency Response and Evacuation

This project area is in storm surge planning zones A, B and C (per the Miami-Dade County Storm Surge Planning Zone maps) which are at greatest risk for storm surge events during hurricanes. This segment of Florida's Turnpike is the only direct evacuation route for the region which includes southern Miami-Dade County and the Florida Keys. The emergency evacuation and response events require safe and efficient roadways for prompt response to critical events. Roadway improvements to reduce congestion and improve traffic operations will reduce travel time, save lives and, are critical to the success of emergency response actions. The Turnpike Extension is classified as an emergency evacuation route by the Florida Division of Emergency Management. Widening the Turnpike, improving ramp operations and the intersection at Palm Drive and US 1 will decrease emergency response times and expedite evacuation for residents and visitors in Miami-Dade and Monroe Counties (Florida Keys).

1.2.3 Project Status

Since 2007, several improvements for the area have been studied by FDOT District 6 and the Miami-Dade Transportation Planning Organization (MDTPO) documenting the need for improved operations at Palm Drive and US 1. The MDTPO report, *Evacuation Planning Assessment for the US 1 and SW 344th Street [Palm Drive] Intersection Area, dated June 2012* identified several alternatives to address traffic operations at the US 1 interchange and Palm Drive intersection.

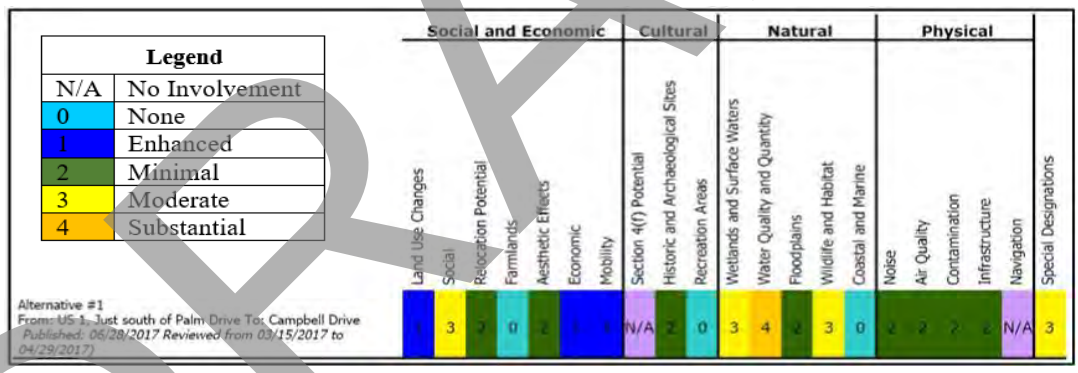


Figure 1-2 ETDM Summary Report

In 2017, prior to the PD&E study, the purpose and need, and potential effects were screened through the Efficient Transportation Decision Making (ETDM) process and documented in the ETDM Programming Screen Report (#14322, 6/28/17). The results of the Environmental Technical Advisory Team (ETAT) Programming Screen review is shown in **Figure 1-2.** The degree of effect assigned for several project issues was minimal, enhanced or none. A moderate degree of effect was assigned to social impacts, wetlands and surface waters, wildlife and habitat and special designations. A substantial degree of effect was assigned to water quality and quantity.

1.3 Planning Consistency

The project is consistent with local planning agency plans as noted below:

FDOT State Transportation Improvement Plan (STIP) and the MDTPO Transportation Improvement Plan (TIP) list the project as FM 439545-2 Widen HEFT with $7.3M for preliminary engineering in years 2021-23, and approximately $134M for construction beyond 2024.

MDTPO 2045 LRTP lists the project as widening with US 1 interchange improvements with $89.8M identified for the Priority IV project. The Lucy Street interchange is listed as a new interchange in Table 7-8, Private and Developer Projects.

The Miami-Dade Transportation Planning Organization (MDTPO) MDTPO 2045 Long Range Transportation Plan (2045 LRTP, Appendix F) Table AF-1, Purpose and Need is listed as:

Widen facility and improve interchange to address capacity and safety deficiencies. The project widens a segment of the Turnpike Extension / SR 821 between south of Palm Drive and Campbell Drive. The widening will increase the number of travel lanes from four to six. The project will also improve the interchange/intersections at Palm Drive/US 1.

City of Homestead Evaluation and Appraisal Report-Based Amendments to the Homestead Comprehensive Plan, Goals, Objectives and Policies (2011), states:

- *Objective 3: Enhance Regional Access*
- *Policy 3.6 - Coordinate with FDOT and Miami-Dade County to evaluate and consider the feasibility of a proposed interchange at Lucy Street and the Turnpike.*
- *Policy 5.6 - Krome Avenue, US-1, Turnpike (H.E.F.T), SW 312th Street, SW 328th Street, and SW 344th Street will be improved according to the Schedule of Capital Improvements which will be updated annually to include projects on these facilities to reduce existing deficiencies, replace obsolete facilities and include projects to meet future demand.*
- *Exhibit 14: 2030 Future Transportation Map, shows a new interchange at Lucy Street and six (6) lanes on the Turnpike.*

1.4 Commitments

At the time of preparation of this document, the following commitments are included:

- During the design phase, a Level II Contamination Assessment will be conducted for locations with risk ratings of “medium” or “high”, if the identified contamination concerns have the potential to impact the existing and / or proposed project right-of-way.

- Air pollution associated with the creation of airborne particles will be controlled using watering or the application of other control materials in accordance with FDOT’s Standard Specifications for Road and Bridge Construction.

- All applicable best management practices contained in the latest editions of the FDOT Standard Specifications for Road and Bridge Construction and the Construction Project Administration Manual will be adhered to during construction of the planned improvements.

- Minimization of wetland and surface water impacts will be evaluated further during the design phase of the project to the extent possible, i.e. changes in the typical section to avoid and minimize wetland impacts and use of BMPS to avoid and minimize impacts to water quality.

- Coordination with the appropriate regulatory agencies will be conducted throughout the design phase for permitting; FDOT's Standard Specifications for Road and Bridge Construction will be adhered to during the construction phase of the project.

- A Stormwater Management Plan will be developed to provide conveyance and treatment for stormwater runoff from impervious surfaces.
- Conduct a limited roost survey for Florida Bonneted Bat during design.
- Standard Manatee Conditions for In-water activities to be implemented during construction.
- The USFWS Standard Protection Measures for the Eastern Indigo Snake will be implemented to ensure no adverse impacts to the species occur during construction.

- A 25-foot buffer between the pine rocklands and construction activities should be noted in the plans for the Miami Tiger Beetle.

1.5 Alternatives Analysis Summary

Viable alternatives evaluated under this PD&E study were based on a number of previously prepared reports and technical memoranda that screened concepts to be advanced for further study. The major documents and memoranda are briefly mentioned below.

The US 1(SR 5) / SR 821 interchange analysis process had several iterations of concept development, from high- to sketch-level concepts through refined alternatives development for engineering and environmental assessment. Eight high- and 10 sketch-level concepts were initially screened and four (4) concepts were eventually advanced for a comprehensive analysis considering the purpose and need, existing conditions, safety, evacuation needs, environmental effects, constructability, cost and adjacent projects either under study, design or construction. Two (2) project concept alternatives, as well as the No Action alternative, were advanced into this PD&E Study for further engineering and environmental analysis.

Based on the results documented in the *Lucy Street Feasibility Study Technical Memorandum* previously prepared, the new, partial interchange concept was also advanced for inclusion in this study.

The Campbell Drive interchange underwent analysis in a previous PD&E Study (FM 423372-1), completed in 2014 and the ramp improvements identified in that memorandum have been included in the analyses performed as a part of this PD&E study.

A Value Engineering (VE) and Cost Risk Analysis was performed during this study which produced eighteen (18) recommendations. Two (2) of the recommendations were incorporated into the PD&E study, eight (8) were deferred to final design and the remaining eight (8) were not found to offer value to the project.

At the time of preparation of this report, there were several planned improvements in the design or construction phases under separate projects that were incorporated as existing conditions in this study. Those improvements consist of the following:

- Palm Drive widening to a 6-lane divided facility east of US 1 (City of Florida City project).
- Addition of a southbound right turn lane at the intersection of US 1 and Palm Drive (FDOT D6 FPID 405575-8-52-01).
- Widening of Davis Parkway west of US 1 and the addition of turn lanes on the north and west leg of the Davis Parkway / US 1 intersection (FDOT D6 FPID 405575-7).
- Lucy Street (SW 328th Street) widening to an urban 4-lane divided roadway from US 1 to SW 162nd Avenue (Miami-Dade County Public Works Project Number 20040556).
- Turnpike mainline milling and resurfacing with minor widening and slope regrading, lighting and ITS improvements (FDOT FPID's 440423-1-52-01 and 440423-2-52-01).

Each of the Build Alternatives and the No Build (or No Action) alternative were compared in an evaluation matrix with common criteria pertinent to the study. Additional information can be found in Section 5 of this document. This evaluation matrix, together with public and agency input, assisted with the identification of the Preferred Alternative, Alternative B.

1.6 Description of Preferred Alternative

The Preferred Alternative is Alternative B, (see **Appendix A**) and is summarized below:

- **Turnpike Widening:** The Turnpike, within the project limits, will be widened with one (1) additional lane in each direction to provide a 6-lane divided highway. The additional lanes will be constructed in the median and all six (6) lanes will be general toll lanes. Between the Campbell Drive and Lucy Street interchanges proposed outside widening will provide an auxiliary lane in the north and southbound directions.
- **US 1 Interchange Area and Ramps:** The US 1 interchange is modified to include a new tolled ramp over Palm Drive with one (1) lane northbound and one (1) lane southbound. A new one-lane, southbound US 1 right turn roadway is proposed to Palm Drive and located west of the existing southbound off-ramp and adjacent to the limited access (L/A) ROW line. The existing on- and off-ramps at US 1 will remain available to local traffic with minor improvements. The Davis Parkway southbound off-ramp will be converted from a one-lane taper ramp to a two-lane parallel off-ramp configuration and provide a dedicated left turn lane to US 1.

- **Lucy Street Interchange:** A new partial interchange, located between approximate MP 1.6 and 1.8, provides local access to/from Lucy Street via a single lane northbound on-ramp and a single lane southbound off-ramp.
- **Campbell Drive Interchange:** The Campbell Drive northbound off-ramp, northbound loop on-ramp, southbound off-ramp and southbound on-ramp will be converted from a taper ramp to a parallel ramp configuration, and auxiliary lanes (northbound and southbound) will be provided between Campbell Drive and Lucy Street.
- **Structures:** A number of the existing bridges will be widened along the Turnpike mainline. In addition, two (2) new bridge ramps over US 1 and over Palm Drive are proposed. The Preferred Alternative will widen existing bridges to the inside adding one (1) additional lane. In addition to the inside widening, some of the bridges will be widened to the outside to accommodate auxiliary lane improvements. A summary of the Preferred Alternative bridge elements is below:
    - Proposed Ramp Bridge South – Florida's Turnpike Southbound/Northbound (SB/NB) over Palm Drive;
      The first of the two (2) new ramp bridges will go over the Palm Drive intersection. This bridge will carry one (1) lane of northbound and one (1) lane of southbound traffic.
    - Proposed Ramp Bridge North – Florida's Turnpike SB/NB over US 1
      The second of the two (2) new ramp bridges will go over US 1 and carry one (1) lane of northbound and one (1) lane of southbound traffic.
    - Turnpike Mainline over US 1 - Bridge BR 870191
      The southern (existing) bridge on the Turnpike Mainline goes over US 1. This bridge does not require modifications to accommodate the Preferred Alternative.
    - Turnpike Mainline over Lucy Street - Bridges BR 870399 NB and BR 870192 SB
      The two (2) bridges over Lucy Street require widening to accommodate the Preferred Alternative. Both bridges will be widened 18 feet, 10 inches to the inside.
    - Turnpike Mainline over SW 162nd Avenue - Bridges BR 870400 NB and BR 870193 SB
      The two (2) bridges over SW 162nd Avenue require widening to accommodate the Preferred Alternative. Both bridges will be widened 19 feet, 2 inches to the inside and 14 feet, 6 inches to the outside to accommodate auxiliary lane improvements. Additional, close coordination with the Florida Gas Transmission 6-inch pipeline, which runs along the east side of SW 162nd Avenue and crosses the Turnpike at approximately STA. 3614+50 RT and 3617+25 LT, will be required during the final design phase.
    - Turnpike Mainline over C-103 Canal - Bridges BR 870389 NB and BR 870178 SB
      Two (2) existing bridges cross over the C-103 Canal. Only the northbound bridge, BR 870389, will be widened to accommodate the Preferred Alternative. The bridge will be widened 19 feet, 2 inches to the outside.
    - Turnpike Mainline over Campbell Drive - Bridges BR 870390 NB and BR 870179 SB
      The two (2) bridges over Campbell Drive require widening to accommodate the Preferred Alternative. Based on the proposed alignment, these bridges will be

widened to the outside. Bridge 870390 northbound will be widened 11 feet, 6 inches and Bridge 870179 southbound will be widened 14 feet, 10 inches.

- Proposed MSE Walls
  As part of the new ramp bridges mentioned above, widening of the Turnpike, and improvements at Lucy Street, the project will also require several new MSE walls. The new MSE walls will be located south and north of the Ramp Bridge South, north of the Ramp Bridge North, along the new on- and off-ramps at Lucy Street, along the southbound bridge at SW 162nd Avenue, and along both sides of the bridges at Campbell Drive.

1.7 List of Technical Documents

The following is a list of the technical documents prepared for this study:

- Air Quality Technical Memorandum
- Bridge Analysis Technical Memorandum
- Campbell Drive Feasibility Study Technical Memorandum
- Conceptual Stage Relocation Plan
- Contamination Screening Evaluation Report
- Cultural Resource Assessment Survey
- Geotechnical Services - Memo Report
- Interchange Alternatives Analysis Technical Memorandum
- ITS Technical Memorandum and Master Signing Plan
- Landscape Aesthetic Assessment Technical Memorandum
- Location Hydraulics Report
- Lucy Street Feasibility Study Technical Memorandum
- Natural Resources Evaluation
- Noise Study Report
- Pond Siting Report
- Preliminary Engineering Report
- Public Involvement Summary Report (to be completed after the Public Hearing)
- Safety Technical Memorandum
- Sociocultural Effects Technical Memorandum
- State Environmental Impact Report (to be completed after approval of this report)
- Utility Assessment Package Technical Memorandum
- Toll Site Technical Memorandum
- Typical Section Analysis Technical Memorandum
- Traffic Documentation
  - Draft Traffic Technical Memorandum
  - Project Traffic Analysis Report
  - Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation

Section 2

Existing Conditions

During this PD&E Study a detailed assessment of the existing conditions was conducted that included a review of existing plans, project reports, and historical records. Several field reviews were conducted by engineers and planners to verify information reviewed in the office and to check existing roadway features. Additional data was collected that included project aerial photography, limited topographic and right-of-way surveys.

2.1 Roadway

2.1.1 Freeway and Interchange Sections

Florida's Turnpike is part of the Strategic Intermodal System (SIS), defined as a transportation facility of statewide and interregional significance supporting the efficient movement of passengers and freight throughout the State of Florida. The portion of Florida's Turnpike being evaluated is primarily oriented southwest to northeast. The existing 4-lane mainline typical section has a 64-foot median from north of the US 1(SR 5) interchange to south of the Campbell Drive interchange, where the median width transitions and widens to an 88-foot median. South of Campbell Drive, the design-build project (FM 435462-1-52-01) widened the Turnpike from 4- to 6-lanes toward the median, reducing the existing 88-foot median to 64 feet. The roadway has paved outside and median shoulders, with continuous guardrail along the southbound median shoulder. The posted speed limit is 65 miles per hour (MPH). The existing right-of-way width is generally 300 feet and widens at the interchanges. The existing Turnpike mainline typical section is shown in **Figure 2-1**.

The tolling system consists of a mainline toll plaza located north of Campbell Drive beyond the project limits, which captures all other vehicles traveling north and south to US 1 and two (2) toll collection locations on the northbound on-ramp and southbound off-ramp at Campbell Drive. The existing toll locations at the Campbell Drive exit were included in a previous PD&E study and are not part of this study.

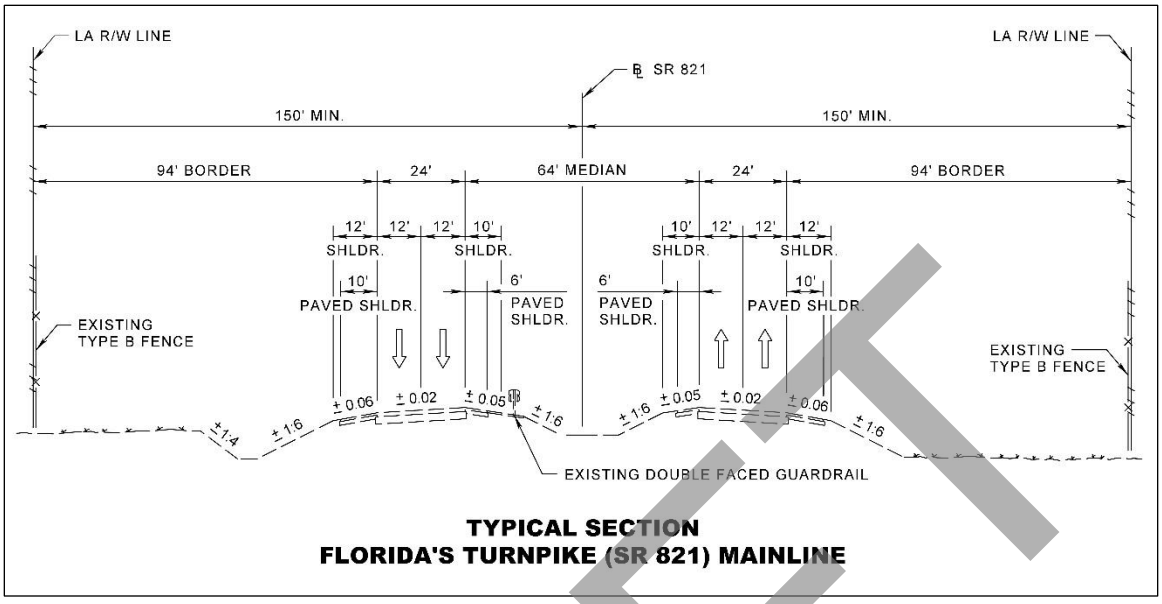


Figure 2-1 Existing Turnpike Mainline Typical Section

The two (2) existing interchanges within the study limits include US 1 and Campbell Drive.

US 1 Interchange Exit 1 (MP 0.436 – 0.538)

The US 1 interchange is the southern terminus of, and the gateway to, the Turnpike tollway system and does not have a typical interchange layout. This is Exit 1 of the Turnpike system. At the interchange area, US 1 is a 4-lane/6-lane, SIS, divided highway facility. US 1 is also listed on the Department of Defense Strategic Highway Network (STRAHNET) due to its connectivity with the Naval Air Station in Key West. The existing US 1 interchange ramps are described in **Table 2-1**. For a more detailed description of the ramps see the *Interchange Alternatives Analysis Technical Memorandum* in **Appendix K**.

Table 2-1 Existing US 1 Ramps

Ramp Number/Name	Ramp Movement	Ramp Description
D / 01	Northbound US 1 to Northbound Turnpike On-ramp	Two-lane ramp: 12-foot lanes with 12-foot outside shoulders (10 feet paved) and 8-foot inside shoulders (6 feet paved).
C / 02	Southbound US 1 to Northbound Turnpike On-ramp	One-lane ramp: 15-foot lane with 6-foot outside shoulders (4 feet paved) and 6-foot inside shoulders (2 feet paved).
E / 03	Southbound Turnpike to Davis Parkway Off-ramp	One-lane ramp: 15-foot lane with 6-foot outside shoulders (4 feet paved) and 6-foot inside shoulders (2 feet paved).
A / 04	Southbound Turnpike to Southbound US 1 Off-ramp	One-lane ramp: 15-foot lane with 6-foot outside shoulders (4 feet paved) and 6-foot inside shoulders (2 feet paved). The ramp crosses over US 1 and merges with southbound US 1.

Campbell Drive Interchange Exit 2 (MP 2.617 to 3.055)

The Campbell Drive interchange was previously evaluated under PD&E Study FM 405575-2 and improvements were recently constructed at the as part of a design-build (D-B) project, FM 435462-1-52-01. This project added a new northbound on-ramp (Ramp L) to serve westbound Campbell Drive and modified the existing northbound on-ramp (Ramp I / 08) to serve eastbound Campbell Drive only. The D-B project also included median mainline widening throughout the interchange area. This additional widening is striped out in some areas and can be utilized in the future for six-lane mainline widening to the south. The ramp connections to the Turnpike are taper-type connections. The existing Campbell Drive Interchange ramps are described in **Table 2-2**. For a more detailed description of the ramps see the *Interchange Alternatives Analysis Technical Memorandum*. It should be noted that Ramp L, is not included in the *Interchange Alternatives Analysis Technical Memorandum* as it was under construction at the time of preparation of that document. However, the final design of the D-B interchange project was considered in the evaluation and conceptual design of the alternatives for this study.

The study does not propose any improvements to the Campbell Drive arterial section and therefore the arterial section is not further described in this report.

Table 2-2 Existing Campbell Drive Ramps

Ramp Number/Name	Ramp Movement	Ramp Description
05*	Northbound Turnpike to Campbell Drive Off-ramp	One-lane ramp: 15-foot lane with 6 foot outside shoulders (4 foot paved) and 6 foot inside shoulders (2 foot paved).
06*	Eastbound Campbell Drive to Southbound Turnpike On-ramp	One-lane ramp: 15-foot lane with 6 foot outside shoulders (4 foot paved) and 6 foot inside shoulders (2 foot paved).
H / 07	Southbound Turnpike to Campbell Drive Off-ramp	One-lane ramp: 15-foot lane with 6 foot outside shoulders (4 foot paved) and 6 foot inside shoulders (2 foot paved).
I / 08	Eastbound Campbell Drive to Northbound Turnpike On-Ramp	One-lane ramp: 15-foot lane with 6 foot outside shoulders (4 foot paved) and 6 foot inside shoulders (2 foot paved).
Ramp L* (DB project, FM 435462-1)	Westbound Campbell to Northbound Turnpike On-Ramp	One-lane ramp: 15-foot lane with 6 foot outside shoulders (4 foot paved) and 6 foot inside shoulders (2 foot paved).

*Ramps are not proposed to be improved with this PD&E study.

2.1.2 Roadway Sections

The project study area also includes portions of the adjacent arterial roadway facilities of US 1, Palm Drive, Lucy Street and Davis Parkway.

US 1 (SR 5) (Dixie Highway) (NE 1st Avenue)

US 1 is a 4-lane/6-lane divided north-south facility. Existing lane widths vary from 11 to 12 feet. South of Palm Drive, curb and gutter and sidewalk are provided along both sides of the roadway. **Figure 2-3** depicts the existing conditions in this segment. North of Palm Drive outside 10-foot shoulders (4 feet paved) are provided. No sidewalks are provided north along US 1 between Palm Drive and Davis Parkway. US 1 will become a SIS facility and ownership will be transferred to FDOT as part of the SR 997 (Krome Avenue) Truck By-Pass PD&E Study. South of Florida's Turnpike US 1 remains an FDOT SHS and SIS, as well as a STRAHNET facility for the Department of Defense. This typical section is shown in **Figure 2-2**

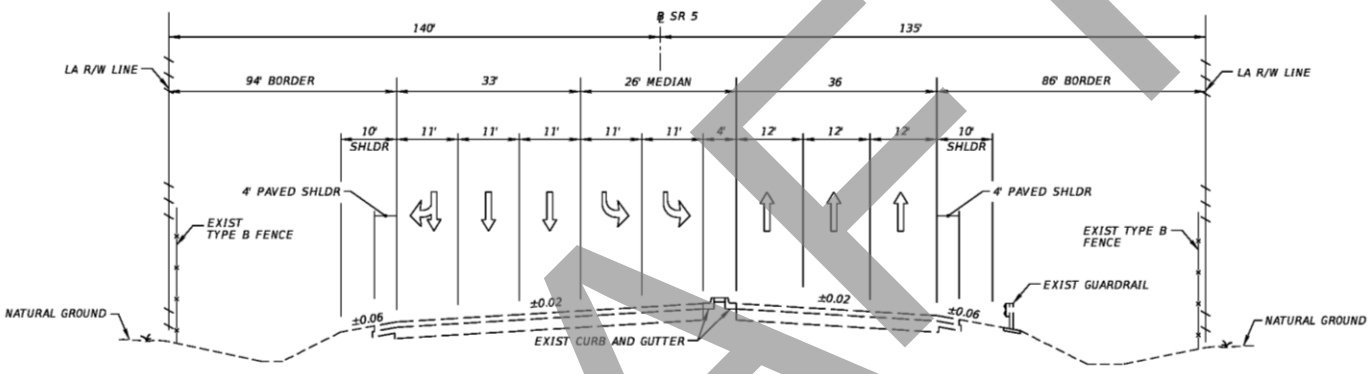


Figure 2-2 Existing Typical Section US 1 north of Palm Drive

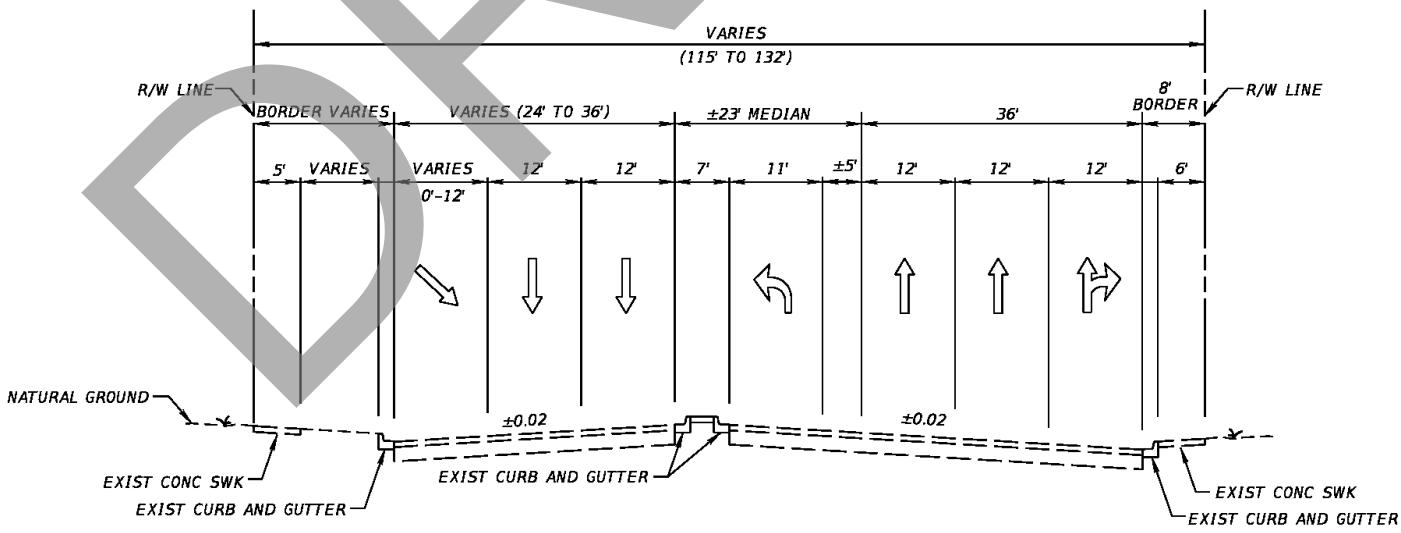


Figure 2-3 Existing Typical Section US 1 south of Palm Drive

Palm Drive (SW 344 Street)

Palm Drive, owned and maintained by Florida City east of US 1, is a 4-lane divided facility east of US 1. West of US 1, it is also known as SR 9336 and owned and maintained by FDOT. In this area the roadway is a 6-lane divided urban facility. Posted speed limit in the eastbound direction is 40 MPH and 30 MPH in the westbound direction. Lane widths are generally 11 feet within the study area. West of US 1 the eastbound outside through lane becomes a drop right turn lane to southbound US 1. The inside through lane becomes a left turn lane to northbound US 1. **Figure 2-4** depicts this typical section. Sidewalk exists only along the southside, west of US 1. Florida City is currently constructing improvements along Palm Drive east of US 1. These improvements include widening the roadway to provide a 6-lane divided facility. A 6-foot sidewalk and 5-foot bike lane will be provided along the south side of the roadway and a 12-foot shared use path along the north side. See **Figure 2-5**

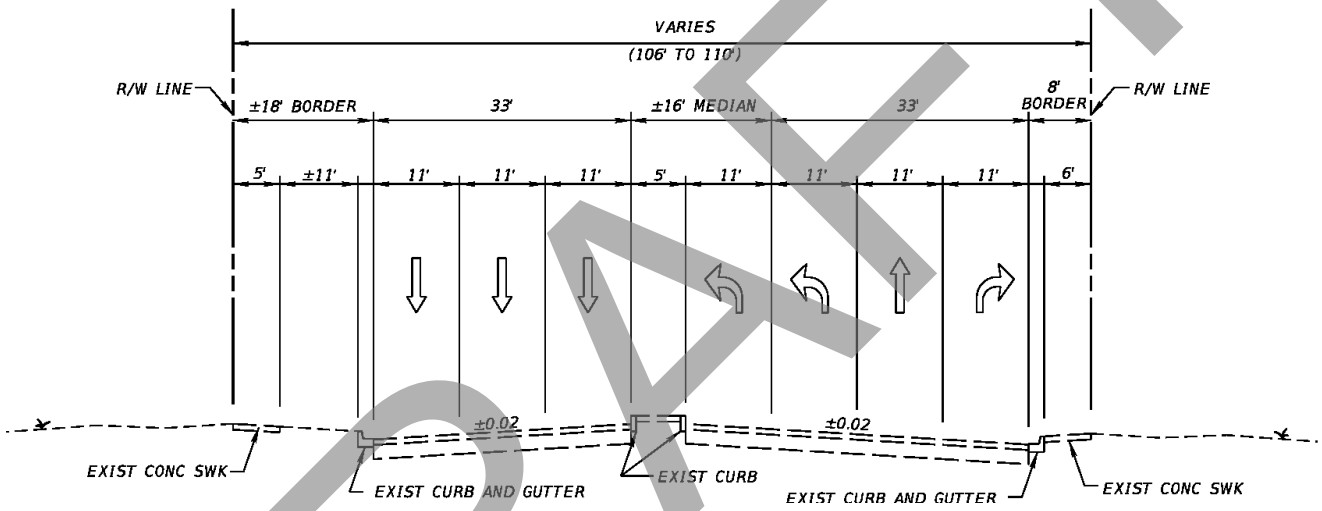


Figure 2-4 Existing Typical Section Palm Drive west of US 1

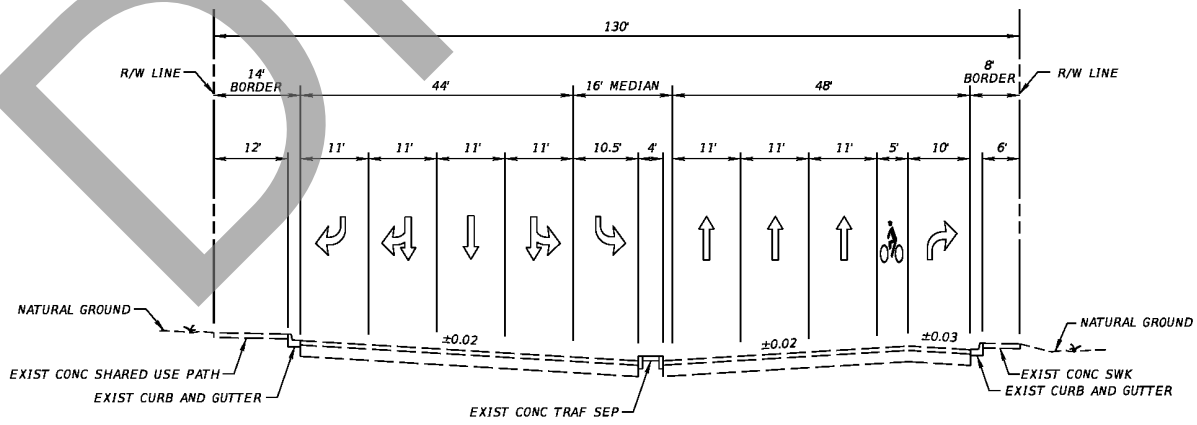


Figure 2-5 Existing Typical Section Palm Drive east of US 1

Lucy Street (SW 328th Street)

Lucy Street owned and maintained by Miami-Dade County, within the study area was reconstructed during this study to become a 4-lane, east-west divided roadway with a posted speed limit of 40 MPH. The arterial does not currently provide access to the Turnpike. The roadway provides two (2), 11-foot through lanes, 16-foot median, 4-foot bike lanes, and a 5-foot sidewalk. The *Lucy Street Feasibility Study Technical Memorandum* completed as a part of this project provides additional information pertaining to this roadway. See **Figure 2-6**.

Davis Parkway (SW 336 Street) (NE 7 Street)

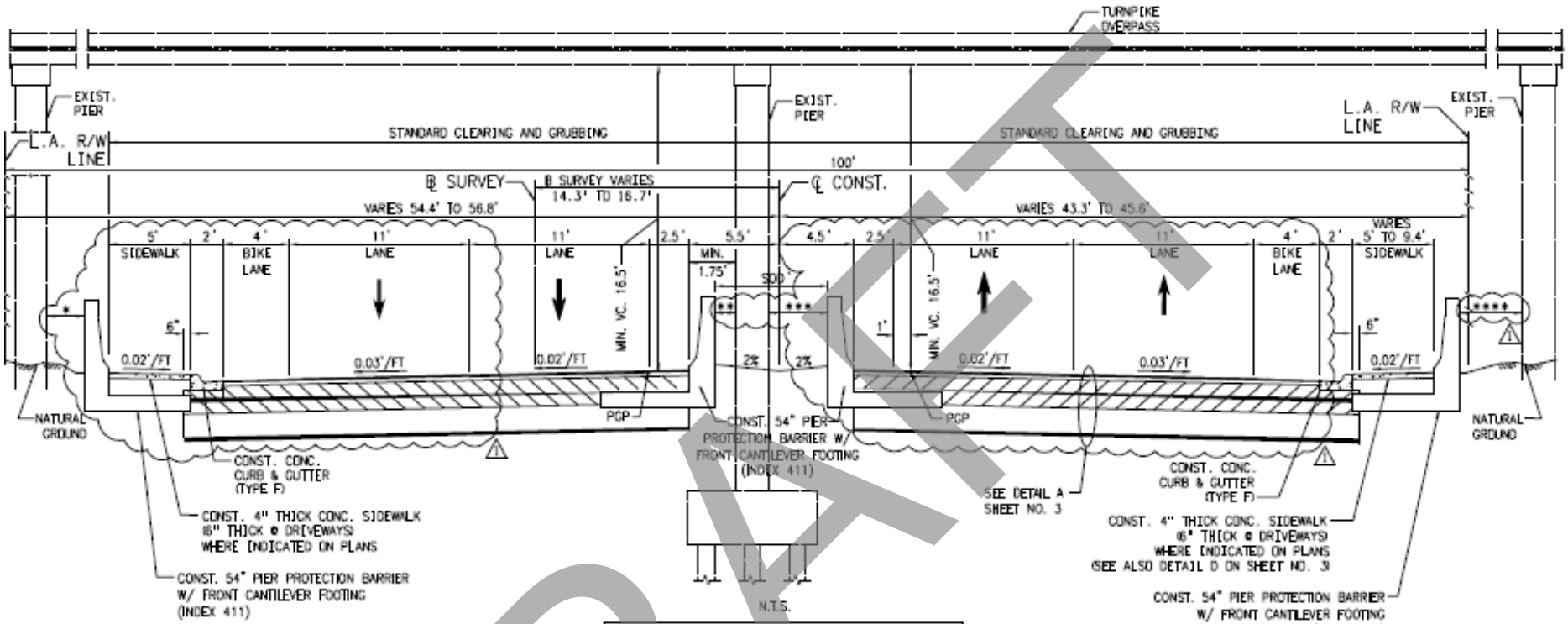
Davis Parkway, in the westbound direction, originates from the southbound Exit 1 off-ramp (Ramp E / 03) from the Turnpike. Davis Parkway provides a combined through and westbound to southbound left turn lane, and one (1) right turn lane east of the US 1 intersection. West of US 1 in the eastbound direction, one (1) right turn and one (1) left turn lane is provided.

The study does not propose any improvements to the arterial sections of Campbell Drive or Krome Avenue therefore these facilities are not further described in this report.

2.1.3 Related Projects

There are several projects within the vicinity of the study area as listed below:

- FM 405575-2-22-01, SR 997 (Krome Avenue) Truck By-Pass from South of Flagler Avenue to SW 296th Street PD&E Study. The study resulted in the transfer of Campbell Drive (from Krome Avenue to US 1) to state ownership and an SHS designation as well as several widening, reconstruction and intersection improvement projects.
- FM 435462-1-52-01, Campbell Drive D-B; The addition of a new northbound ramp at the Campbell Drive interchange was under construction at the time this report was prepared. The final design was considered as an existing condition for the concept alternatives for this study.
- FM 423372-2-52-01 Turnpike Widening from SW 288th Street to SW 216th Street D-B; Includes widening and managed lanes for Florida's Turnpike from SW 288th Street to SW 216th Street. The final design was considered in the evaluation and conceptual design of the alternatives for this study.
- FM 405575-6-52-01, Campbell Drive from Krome Avenue to US 1
- FM 405575-7-52-01, Davis Parkway from Krome Avenue to US 1
- FM 405575-8-52-01, Palm Drive from Krome Avenue to US 1
- SW 344th Street (Palm Drive) from US 1 to SW 172nd Avenue Canal Culvert and Roadway Widening Design (City of Florida City project)
- Project No. 20040558 SW 328th Street (Lucy Street) Widening Project from US 1 to SW 162nd Avenue (Miami-Dade County project)
- FM 440423-1-52-01 & 440423-2-52-01, State Road No. 821 (Homestead Extension of Florida's Turnpike) Resurfacing and Safety Improvements from MP 0.000 to MP 9.200;
- FM 441812-1-52-01, SR 5 (US 1) (South Dixie Highway) from Card Sound Road to South of 336 Street.



TYPICAL SECTION NOTES:

1. ALL EXISTING LIMEROCK BASE THAT IS REMOVED IS TO BE INCORPORATED INTO THE STABILIZED PORTION OF THE SUBGRADE AND IS NOT TO BE USED IN CONSTRUCTION OF THE PROPOSED BASE.
2. EXTEND LIMEROCK BASE (12" THICK) 6" OUTSIDE EDGES OF PAVEMENT AT ALL CONNECTIONS AND INTERSECTIONS TO COUNTY STREETS AND ROADS.
3. SEE SHEET 3 FOR ADDITIONAL TYPICAL SECTION DETAILS.

Figure 2-6 Existing Typical Section Lucy Street/SW 328th Street

2.2 Right-of-Way

The existing right-of-way widths for the study area are summarized in **Table 2-3.**

Table 2-3 Existing Right-of-Way Widths

Roadway	Existing Right-of-Way Width
Turnpike	300 feet (150 feet on each side of the baseline of survey. Fences are located near the right-of-way line.
US 1	US 1 south of Palm Drive – Varies from 115 to 132 feet; US 1 north of Palm Drive – 275 feet
Palm Drive	Palm Drive west of US 1 – Varies from 106 to 110 feet; Palm Drive east of US 1 – 130 feet
Lucy Street	Varies from 60 to 100 feet
Campbell Drive	Varies from 118 to 1,300 feet within the interchange area

2.3 Roadway Classification & Context Classification

The FDOT uses functional and context classification to describe the roadway network. **Table 2-4** details the context classification for the roadways within the study area. There is no applicable roadway or context classification for Lucy Street or Campbell Drive as they are not under FDOT jurisdiction and thus are not included in the table.

Table 2-4 Roadway Functional and Context Classification

Roadway	Functional Classification	Context Classification
Turnpike	Freeway / Expressway	Not Applicable
US 1	Urban Principal Arterial	C3C Suburban Commercial
Palm Drive	Urban Collector	C4 Urban General

2.4 Adjacent Land Use

The existing land use for the study area was determined through document review, the EDTM Environmental Screening Tool, GIS shapefiles obtained from Miami-Dade County, aerial photograph analysis, and observations made during the site visits.

At the beginning of the project in Florida City, the adjacent land use along US 1 is a combination of commercial (retail/office), tree crops and wetlands. One (1) landscape nursery is present on the eastside of US 1, south of Palm Drive. Moving further west along Palm Drive the land use becomes predominantly industrial due to the Farmer's Market. Traveling north along Florida's Turnpike, the land use beyond the right-of-way is predominately cropland/pastureland and residential. At the Campbell Drive interchange, the adjacent land use is predominantly commercial (retail/office) with some residential land use beyond the interchange area. **Figure 2-7**, Existing Land Use Map, represents the land use classifications in the study area.

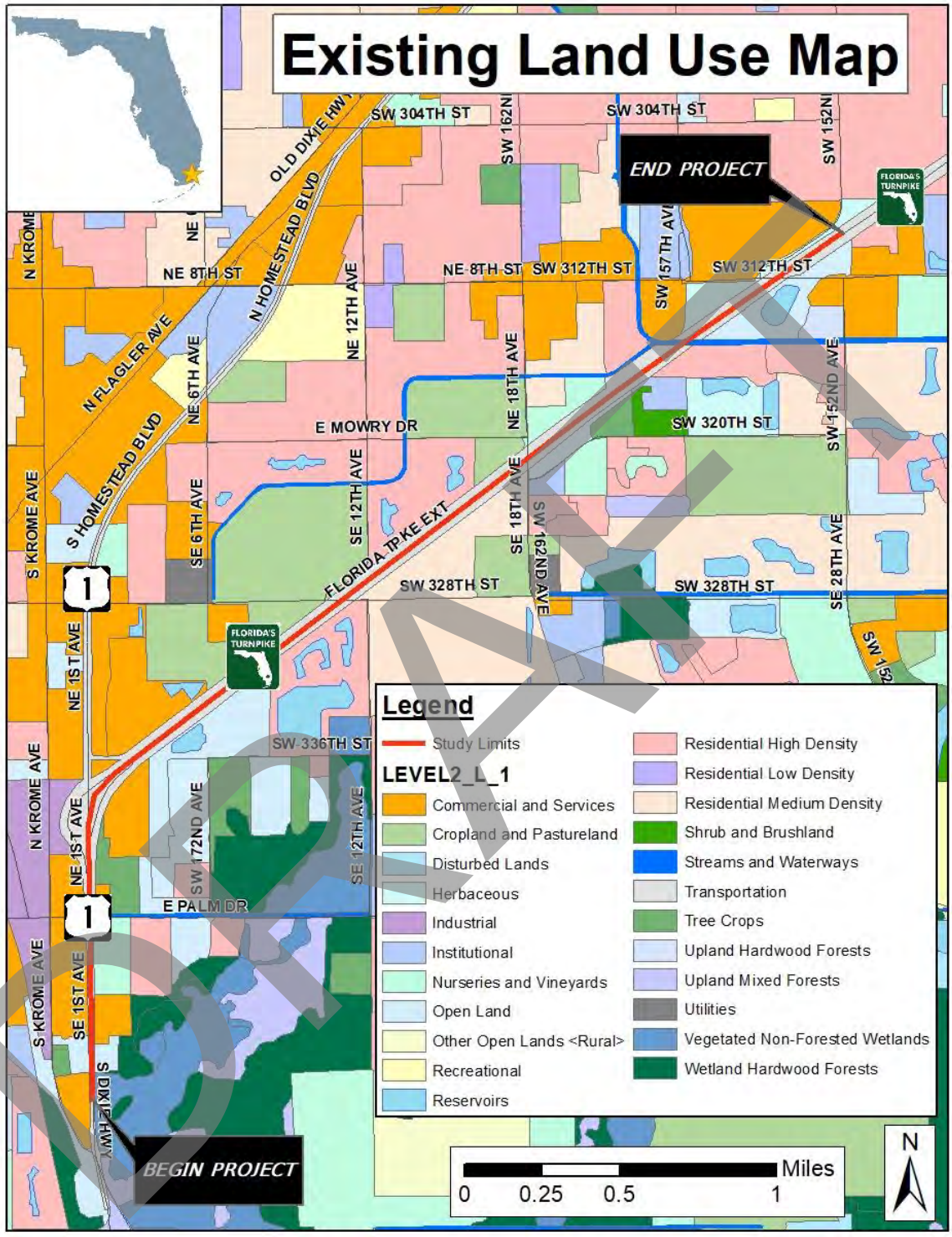


Figure 2-7 Existing Land Use Map

2.5 Access Management Classification

The FDOT District 6 Access Management Classification KMZ file was reviewed for access management classifications for SR 821, US 1 and Palm Drive. Other arterials in the study area (Lucy Street, Campbell Drive, Davis Parkway) were not shown in the KMZ file as they are not under FDOT jurisdiction.

Table 2-5 State Road Access Management Classification

Roadway	Access Management Classification
SR 821 (Turnpike)	1
SR 5 (US 1)	5
SR 9336 (Palm Drive) (west of US 1)	5

2.6 Design and Posted Speeds

Design and posted speed limits are listed in **Table 2-6** below.

Table 2-6 Design and Posted Speed Limits

Roadway	Location	Posted Speed	Design Speed
SR 821 (Florida's Turnpike)	NB and SB	65 mph	65 mph
Ramp D / 01	NB On-Ramp-N (NB US 1 to NB Tpk)	40 mph	50 mph
Ramp C / 02	NB On-Ramp-S (SB US 1 to NB Tpk)	none	50 mph
Ramp E / 03	SB Off-Ramp-N (Tpk to Davis Pkwy)	35 mph	35 mph
Ramp A / 04	SB Off-Ramp-S (Tpk to SB US 1)	35 mph	30-40 mph
Ramp 05 (FM 435462-1-52-01- Ramp D)	NB Off-Ramp to Campbell Drive	25 mph	30 mph
Ramp 06 (FM 435462-1-52-01- Ramp C)	SB On-Ramp from Campbell Drive	25 mph	30 mph
Ramp H / 07	SB Off-Ramp to Campbell Drive	30 mph	25 mph
Ramp I / 08	NB On-Ramp from EB Campbell Drive	30 mph	25 mph
US 1	NB	45 mph	45 mph
US 1	SB	45 mph	45 mph
Palm Drive	WB	30 mph	40 mph
Palm Drive	EB	40 mph	40 mph
Lucy Street	EB and WB	40 mph	40 mph
Campbell Drive	EB and WB	40 mph	40 mph

2.7 Vertical and Horizontal Alignment

The existing horizontal alignment and criteria information is summarized in **Table 2-7.**

Table 2-7 Existing Horizontal Alignment and Criteria

EXISTING					CRITERIA				
Curve Name	**PC**	**PT**	**Degree of Curvature**	**Radius (ft)**	**FDOT Min. Radius e =10%**	**FDOT Min. Curve Length (ft)**	**AASHTO Min. Curve Length (ft)**	**Existing Variation (V)/ Exception (E)**	**Curve Length (ft)**
Turnpike Extension	3632+65.87 MP 2.438	3638+78.97 MP 2.554	000°30'00"	11459.16	1630	975	975	V	613.10
Ramp 01 NB On-Ramp-N	102+11.30	107+61.25	2°00'00".53	2864.58	694	400	N/A	None	549.95
Ramp 01 NB On-Ramp-N	107+61.25	114+26.20	4°00'00"	1432.39	694	400	N/A	None	664.96
Ramp 01 NB On-Ramp-N	114+26.20	119+76.15	2°00'00.55"	2864.57	694	400	N/A	None	549.95
Ramp 02 NB On-Ramp-S	201+18.77	203+13.22	76°23'39.74"	75	694	65	N/A	None	194.45
Ramp 02 NB On-Ramp-S	204+33.89	209+99.18	3°29'29.46"	1641	694	400	N/A	None	565.28
Ramp 03 SB Off-Ramp-N	409+19.11	401.18.04	7°59'59.89"	716.20	292	400	N/A	None	458.51
Ramp 03 SB Off-Ramp-N	401+18.04	400+00.00	76°23'39.74"	75	292	65	N/A	None	118.04
Ramp 04 SB Off-Ramp-S	314+51.49	311+10.09	6°28'47.73"	884.21	200	400	N/A	None	341.39
Ramp 04 SB Off-Ramp-S	311+10.09	307+89.39	12°53'25.17"	449.38	200	400	N/A	None	320.71
Ramp 04 SB Off-Ramp-S	307+89.39	304+39.55	6°22'37.22"	898.48	200	400	N/A	None	349.85

EXISTING					CRITERIA				
Curve Name	**PC**	**PT**	**Degree of Curvature**	**Radius (ft)**	**FDOT Min. Radius e =10%**	**FDOT Min. Curve Length (ft)**	**AASHTO Min. Curve Length (ft)**	**Existing Variation (V)/ Exception (E)**	**Curve Length (ft)**
Ramp 04 SB Off-Ramp-S	303+12.98	300+00.00	9°59'59.86"	572.96	200	400	N/A	Length**	312.98
Ramp 05* NB Off-Ramp to Campbell Drive	114+11.27	120+69.81	6°21'02"	902.23	200	400	N/A	None	658.54
Ramp 05* NB Off-Ramp to Campbell Drive	125+68.35	130+66.72	15°11'09"	377.30	200	400	N/A	None	498.36
Ramp 06* SB On-Ramp from Campbell Drive	186+48.95	189+48.33	17°27'50"	328.08	200	400	N/A	None	299.39

* Ramp information for Ramps 05 and 06 taken from SR 821 (HEFT) Campbell Drive Interchange Improvements Design Build Project (FM 435462-1-52-01). Ramp 05 = Ramp D and Ramp 06 = Ramp C on FM 435462-1-52-01.

** Documented as a Technical Memorandum in the Existing Roadway Conditions Assessment Report, 2018, FM 440423-1.

The existing vertical alignment and criteria information is summarized in **Table 2-8**

Table 2-8 Existing Vertical Alignment and Criteria

EXISTING						CRITERIA			
Location	**PVC**	**PVT**	**Crest/Sag**	**Vertical Curve Length (ft)**	**K-Value**	**FDOT Criteria Length (ft)**	**FDOT Criteria K**	**AASHTO Criteria K**	**Existing Variation (V) or Exception (E)**
HEFT MP 0-2	581+05.87	586+05.87	Sag	500	167	800	157	157	Length**
HEFT MP 0-2	586+45.54	602+45.54	Crest	1600	267	1000	313	432	None
HEFT MP 0-2	602+85.21	607+85.21	Sag	500	167	800	157	157	Length**
HEFT MP 0-2	620+83.48	625+83.48	Sag	500	167	800	157	157	Length**
HEFT MP 0-2	626+39.15	642+39.15	Crest	1600	267	1000	313	432	None
HEFT MP 0-2	642+94.82	647+94.82	Sag	500	167	800	157	157	Length**
HEFT MP 0-2	656+29.15	661+29.15	Sag	500	250	800	157	157	Length**
HEFT MP 0-2	661+69.25	671+69.25	Crest	1000	278	1800	313	432	Length**
HEFT MP 0-2	671+87.19	678+37.19	Sag	650	148	800	157	157	Length**
US 1 Ramp D / 01 NB On-Ramp-N	536+75.00	539+75.00	Sag	300	288	200	96	96	None
US 1 Ramp D / 01 NB On-Ramp-N	542+00.00	549+00.00	Crest	700	466	300	136	229	None
US 1 Ramp D / 01 NB On-Ramp-N	549+50.00	553+50.00	Sag	400	604	200	96	96	None
US 1 Ramp A / 04 SB Off-Ramp-S	527+05.00	532+55.00	Sag	550	188	200	37	37	None
US 1 Ramp A / 04 SB Off-Ramp-S	536+40.00	546+60.00	Crest	1020	168	300	70	129	None
US 1 Ramp A / 04 SB Off-Ramp-S	548+55.00	553+55.00	Sag	500	154	200	96	96	None

Note: Stationing based off As-built Plans

** Documented as a Technical Memorandum in the Existing Roadway Conditions Assessment Report, 2018, FM 440423-1.

2.8 Pedestrian Accommodations

The existing pedestrian facilities within the study area are summarized in **Table 2-9**.

Table 2-9 Existing Pedestrian Facilities

Roadway	Existing Pedestrian Facilities	Comment
Turnpike	None	• Prohibited within Limited Access.
Turnpike Ramps	None	• Prohibited within Limited Access.
US 1	Yes, partial	• No sidewalks on either side of US 1 north of Palm Drive within Limited Access. • Sidewalk on both sides of US 1 south of Palm Drive.
Palm Drive	Yes, partial	• Recently constructed improvements (by City of Florida City) include sidewalk on the south side of Palm Drive and shared use path on the north side east of US 1.
Lucy Street	Yes	• Sidewalk on both sides of the roadway was provided with the Lucy Street improvements recently constructed by Miami-Dade County.
Campbell Drive	Yes, partial	• Sidewalk along the south side of the roadway. No sidewalk along the north side of the roadway in the interchange area.
Krome Avenue	Yes, partial	• Short section of sidewalk on the east side of the roadway north and south of Davis Parkway. No existing sidewalk on the west side of Krome Avenue.

2.9 Bicycle Facilities

The existing bicycle facilities within the study area are summarized in **Table 2-10**.

Table 2-10 Existing Bicycle Facilities

Roadway	Existing Bicycle Facilities	Comment
Turnpike	None	• Prohibited within Limited Access.
Turnpike Ramps	None	• Prohibited within Limited Access.
US 1	None	• South of Palm Drive: Bicycle lanes are provided on the north- and southbound sides of US 1 to the southern limits of the project. North of Palm Drive bicycle lanes are prohibited within Limited Access ROW.
Palm Drive	None	• Recently constructed improvements (by the City of Florida City) include a bicycle lane along the south side of the roadway and a shared use path along the north side east of US 1.
Lucy Street	Yes	• Bicycle lanes on both sides of the roadway being provided with the Lucy Street improvements currently under construction.
Campbell Drive	None	• None within the interchange area.
Krome Avenue	Yes	• Existing 4 ft bike lane on east side and “sharrows” on west side of roadway.

2.10 Transit Facilities

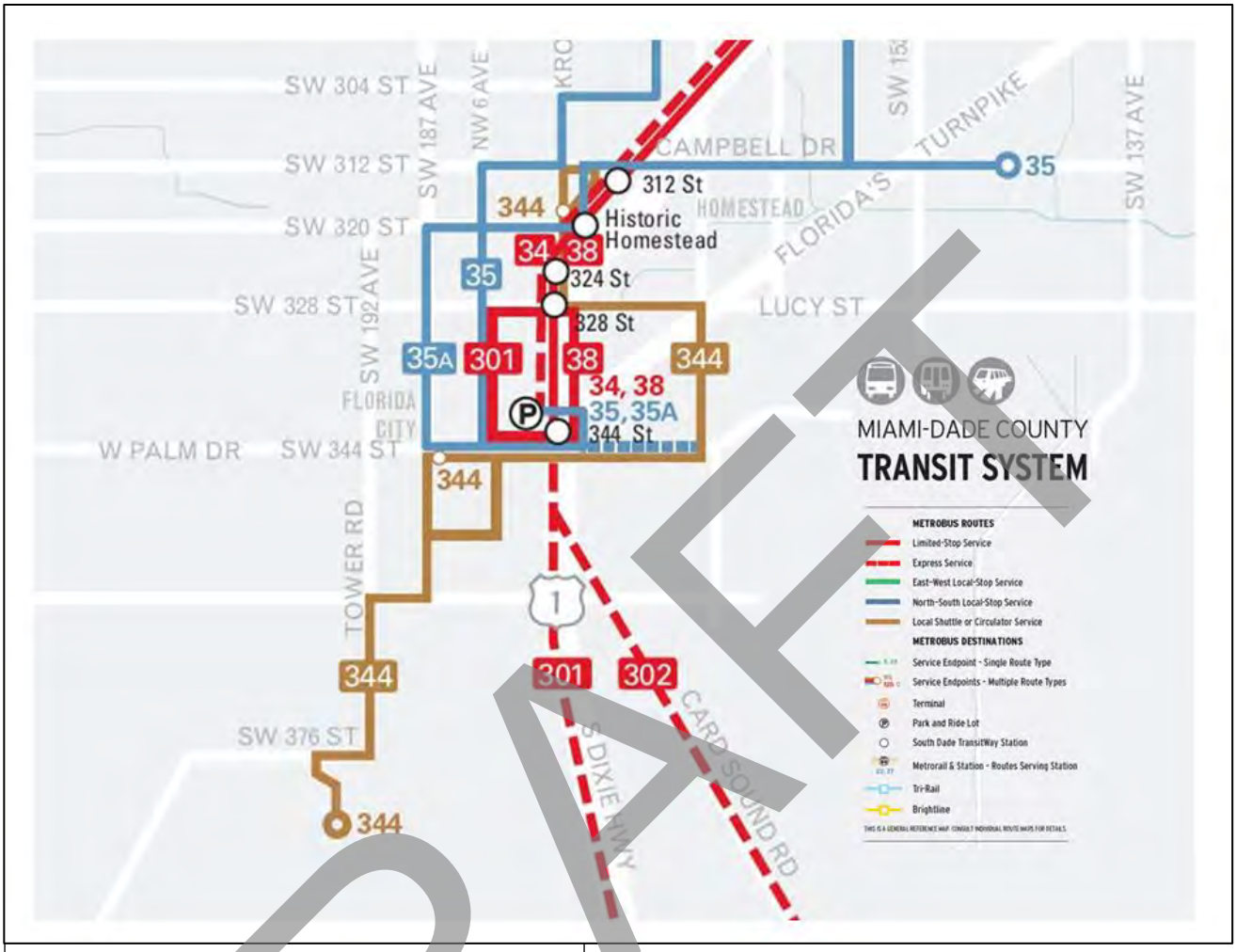
Existing transit located within the study area is provided by Miami-Dade Transit. Route 344 runs on Lucy Street and Palm Drive. On Palm Drive within the study area, the following Metrobus routes can be accessed; 34, 35, 35A, 38, 301 and 344. Route 35 runs east-west along Campbell Drive. The Miami-Dade Busway terminates at Palm Drive approximately 1,400 feet west of the intersection of US 1 and Palm Drive. The SW 344th Street Park and Ride lot is located at the end of the busway.

2.10.1 Miami-Dade County Metrobus

Miami-Dade County Transit System operates a number of Metrobus routes in the vicinity of the US 1 interchange with the Florida's Turnpike including: Limited-Stop Service, Express Service, North-South Local Stop Service, and Local Shuttle or Circulator Service. The SW 344 Street Park & Ride Lot is located just west of the Miami-Dade Busway, north of Palm Drive and west of Krome Avenue. The South Miami-Dade Busway route begins at the SW 344 Street Park and Ride Lot. And follows the converted Florida East Coast railroad corridor, connecting with the Metro-Rail station in South Miami.

Routes shown on **Figure 2-8** located at or near the US 1 interchange include the following:

- Express Service Routes
  - 301 - Dade-Monroe Express between Florida City and Marathon Key
  - 302 - Card Sound Express between Florida City and Ocean Reef Club (Key Largo)
  - 34 – 34 Express (weekday rush hour only) between Florida City and the Dadeland South Metrorail station
- Local Shuttle/Circulator Service
  - 344 – Homestead to Florida City
- North-South Local Stop Service
  - 35, 35A – between MDC Kendall Campus and Florida City
- Limited Stop Service
  - 38 – Busway Max between Dadeland South Metrorail and Florida City



Source: Miami-Dade Transit – MetroBus Systems Map, May 2019

Figure 2-8 Miami-Dade Metro Bus Routes

2.10.2 South Dade TransitWay Corridor

The South Dade TransitWay Corridor is one (1) of six (6) rapid transit corridors in the Strategic Miami Area Rapid Transit (SMART) Plan, connecting the Miami Central Business District and the Village of Pinecrest, the Village of Palmetto Bay, Town of Cutler Bay, City of Homestead, and Florida City. The 20-mile corridor extends from the Dadeland South Metrorail Station to the SW 344 Street Park and Ride/Transit Terminal. The Miami-Dade TPO selected Bus Rapid Transit (BRT) as the most feasible mode for this corridor. BRT is scheduled to begin operation by 2022. **Figure 2-9** shows the location of the South Dade TransitWay Corridor.

Source: Miami Dade Transportation Planning Organization

Figure 2-9 South Dade Transitway Map

2.11 Pavement Condition

A pavement evaluation for the Turnpike and ramps including the travel lanes and shoulders was prepared as part of the Existing Roadway Conditions Assessment Report (ERCAR, FM 440423-2) in February 2018. This evaluation included a review of the pavement condition using a combination of visual inspections and review of as-built plan, previous resurfacing projects, the pavement evaluation report and the forecasted traffic volumes or 18-kip Equivalent Single Axle Loads (ESAL). **Table 2-11** below summarizes the pavement condition for the Turnpike and ramps as noted in the pavement evaluation report.

Table 2-11 Existing Pavement Condition

Location	Overall Pavement Condition	Existing Structural Course Thickness
Turnpike Northbound	Good to Fair; some small areas of recent repair noted	Approximate Average = 3.7"*
Turnpike Southbound	Good to Fair; some small areas of recent repair noted	Approximate Average = 3.3"*
Turnpike Ramps at US 1 Interchange	Fair to Poor	Approximate Average = 2.4"

*The FDOT Flexible Pavement Design Manual requires a minimum structural course thickness of 4" on limited access facilities.

According to the pavement evaluation report, no noticeable significant single cracks, or area cracking, were observed along the Turnpike between MP 0.00 and 2.00.

The ERCAR (FM 440423-2) did not evaluate the pavement condition along US 1, Lucy Street or Campbell Drive. Lucy Street widening was recently completed and therefore pavement conditions are expected to be very good. The pavement condition of Campbell Drive is also expected to be very good with the recent improvements from the Campbell Drive D-B project. Also, the existing pavement condition of Palm Drive east of US 1 is expected to be very good due to the 2020/2021 Palm Drive reconstruction project.

The pavement along US, at the time of preparation of this document, was listed as fair condition. Milling and resurfacing improvements along US 1 within the project area are scheduled to be constructed in 2020. Therefore, the condition of the pavement along US 1 within the study area is anticipated to be in very good condition after the completion of the milling and resurfacing improvements.

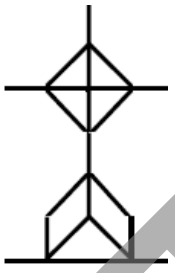
2.12 Traffic Volumes and Operational Conditions

2.12.1 Traffic Volumes

The existing (2016) Annual Average Daily Traffic (AADT) volumes were calculated for the project study area and include adjustments to account for seasonal variations (0.96) and axle corrections (0.96). It should be noted that MP 2 – Campbell Drive, throughout this document, refers to the Turnpike exit / interchange numbering system for consistency and not the straightline diagram milepost which shows Campbell Drive at physical MP 3. The existing (2016) AADT volumes for the Turnpike as shown in **Table 2-12.**

Table 2-12 Turnpike 2016 AADT Volumes

Exit Mile Post Interchange	2016 AADT
	61,000
	24,500
MP 2 – Campbell Drive	3,300
	39,800
MP 0 – US 1 (To/From North)	11,800
MP 0 – US 1 (To/From South)	28,000



Bold = Mainline Volumes

The existing (2016) arterial street AADT volumes are provided in **Table 2-13**.

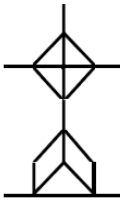
Table 2-13 2016 AADT Volumes on Arterial Streets

City Street	Location	2016 AADT
NE 7th Street (West Davis Parkway)	East of US 1	6,500
Palm Drive	East of Krome Avenue	22,400
US 1	South of Palm Drive	34,400

The AM and PM peak hour traffic volumes for the Turnpike and ramps are summarized in **Table 2-14.**

Table 2-14 Turnpike 2016 Peak Hour Volumes

Exit Mile Post Interchange	Existing 2016			
	AM Peak		PM Peak	
	SB	NB	SB	NB
	2,530	**2,220**	**2,220**	**2,530**
	860	1,110	1,100	860
MP 2 – Campbell Drive	150	160	160	150
	1,820	**1,270**	**1,270**	**1,820**
MP 0 – US 1 (To/From North)	630	500	500	630
MP 0 – US 1 (To/From South)	1,190	770	770	1,190



Bold = Mainline Volumes

The peak season hourly volumes for the southern Turnpike and US 1 study area are shown in the *Draft Traffic Technical Memorandum (DTTM)*, July 2019, prepared by FTE and located in **Appendix B.**

2.12.2 Operational Conditions

The traffic operations analysis for the existing Turnpike freeway segments and ramps are based on Highway Capacity Manual (HCM) Edition 7 methodologies. Highway Capacity Software was used to analyze the mainline segments and ramp merge/diverge areas. The Level of Service (LOS) was determined directionally for the highway segments within the study area. Intersections were analyzed based on Synchro control delay. The existing AM and PM peak hour traffic was evaluated in each direction for the freeway segment analysis. The FDOT minimum desired requirements for urban facilities is LOS D. The Freeway LOS results are shown in **Table 2-15.**

Table 2-15 Existing (2016) Freeway Level of Service

Location	Direction	LOS	
		AM	PM
North of Campbell Drive (Exit MP 2)	Southbound	C	C
	Northbound	C	C
North of US 1 (MP 0) to Campbell Drive (Exit MP 2)	Southbound	B	B
	Northbound	B	B

For the merge and diverge level of service analysis, the mainline free-flow speeds were lowered for the US 1 interchange ramps because this is the end of the Turnpike facility. The merge and diverge influence areas within the study area are provided in **Table 2-16**.

Table 2-16 Existing (2016) Freeway Ramp Merge/Diverge Influence Area Level of Service

Mile Post Interchange	Ramp	LOS	
		AM	PM
MP 2 – Campbell Drive	Southbound off-ramp (Ramp H / 07)	C	B
	Northbound on-ramp (Ramp I / 08)	B	C
	Southbound on-ramp (Ramp 06)	B	B
	Northbound off-ramp (Ramp 05)	B	B
MP 0 – US 1	Southbound off-ramp to north (Ramp C / 02)	B	A
	Northbound on-ramp from north (Ramp D / 01)	A	B

The LOS for the existing signalized intersections are shown in **Table 2-17**. The intersection of US 1 and Palm Drive is operating at LOS E. The southbound through movement fails in the AM, which results in queues and delays for Turnpike southbound off-ramp (Ramp A / 04). These queuing events reach over one hundred (100) events per year and are increasing annually. Other intersections are currently operating at acceptable level of service.

Table 2-17 Existing (2016) Intersection Analysis

Intersection Name	Intersection LOS / Delay (sec)	
	AM	PM
US 1 / NE 7th Street (West Davis Parkway)	C / 24.8	C / 25.0
US 1 / Palm Drive	E / 65.7	E / 65.0
Krome Avenue (SW 177th Avenue) / NE 7th Street (West Davis Parkway)	C / 23.6	D / 52.6
Krome Avenue (SW 177th Avenue) / Palm Drive	C / 25.7	C / 33.9
Krome Avenue (SW 177th Avenue) / US 1	A / 3.3*	A / 3.6*

*HCM 2010 LOS for the non-signalized intersection

Additional traffic information for the project study area can be found in the DTTM.

2.13 Intersections

The intersections within the project study area are noted in **Table 2-18.**

Table 2-18 Existing Intersections

Intersection Name	Signalized (Y/N)	Comments
US 1 and Palm Drive	Y	Mast Arm Signal System
US 1 and Davis Parkway	Y	Mast Arm Signal System
Southbound US 1 to Northbound Turnpike	N	Southbound US 1 left turn movement provides access to northbound Turnpike
Lucy Street and SW 167th Avenue	N	Currently a T-intersection east of the Turnpike

2.14 Railroad Crossings

There are no railroad crossings within the project study area. The Florida East Coast Railroad (FEC RR) right-of-way was located just west of Krome Avenue and was converted to the Miami-Dade Busway that connects Florida City with urban Miami via the old FEC RR corridor.

2.15 Crash Data and Safety Analysis

Crash data was collected for the five-year period from 2011-2015 and crash analyses were conducted to identify crash patterns and contributing causes within the study limits. Subsequently, safety analyses were conducted to identify potential improvements that could be implemented into the study alternatives. The analysis for the overall study area is summarized below. Segments and intersections within the study area were analyzed separately and are included in **Appendix C,** *Safety Technical Memorandum.*

2.15.1 Crash Data

Crash Data Analysis for the total study area yielded a total of five hundred twenty-four (524) crashes. Of the five hundred twenty-four (524) crashes one hundred fifty-six (156) (30%) were rear-end, eighty-seven (87) (17%) angle, eighty-seven (87) (17%) run-off road, seventy (70) (13%) sideswipe, thirty-one (31) (6%) head-on crashes, and twelve (12) (2%) pedestrian crashes

and eight (8) (2%) were bicycle crashes. One hundred ninety-three (193) or 37% occurred during non-daylight hours, which is above the statewide average for nighttime crashes. One hundred and twenty-seven (127) or 24% occurred on a wet roadway surface which is also above the statewide average. Based on crash severity three hundred thirty-two (332) (63%) were property damage only crashes, one hundred ninety (190) (36%) were injury type crashes, and two (2), less than 1%, were fatal crashes. Twelve (12) of the crashes involved a pedestrian and eight (8) involved a bicyclist. No fatalities resulted from the pedestrian related crashes, however eleven (11) resulted in injury, four (4) of which were serious injury. None of the bicycle related crashes resulted in a fatality, however six (6) resulted in injury and two (2) were serious injury. **Figure 2-10** shows the crash distribution by year and **Figure 2-11** shows the crash distribution by type.

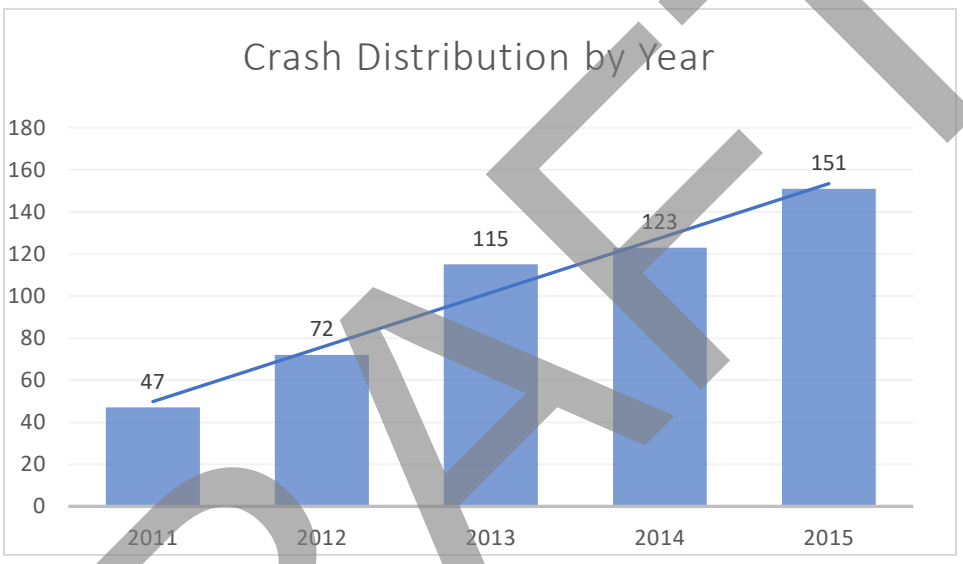


Figure 2-10 Crash Distribution by Year

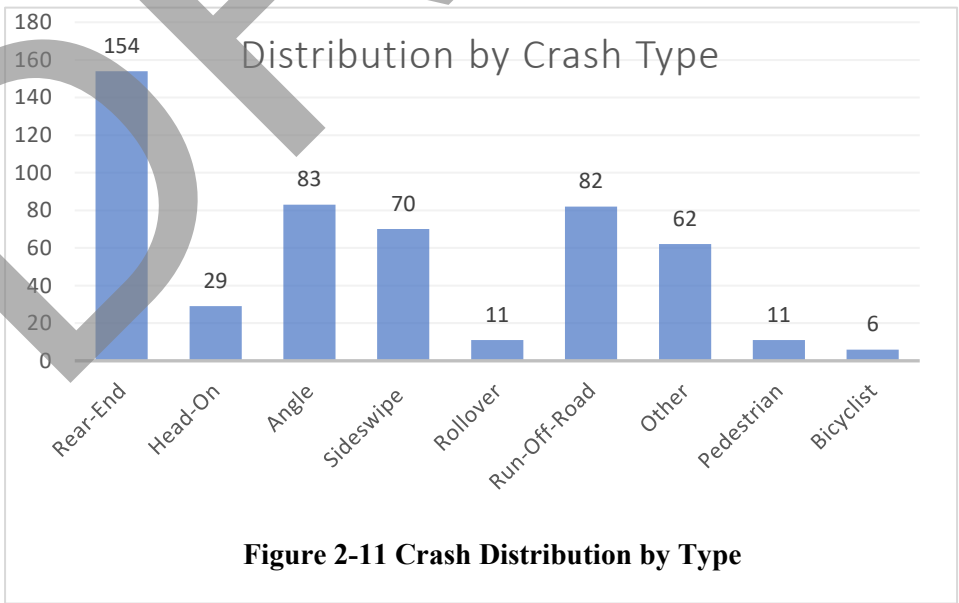


Figure 2-11 Crash Distribution by Type

Segments and intersections within the study area are on the state's Five-Year High Crash list for years 2011-2015. There is also an upward trend in the annual number of crashes for the entire study area during the study period and for the segments studied individually. Nighttime and wet roadway crashes are both above the statewide averages. From the crash analyses and field assessments conducted, it appears most of the crashes can be attributed to congestion leading to and from the Turnpike and US 1 intersection. Additionally, there are major attractors and generators to the east relative to the study area via Palm Drive. East-west traffic competes with north-south traffic for signal allocation. The southbound weave section along US 1 approaching Palm Drive, which is a result of drivers exiting the Turnpike destined for eastbound Palm Drive and southbound drivers along US 1 destined for westbound Palm Drive, is a safety concern. The available distance to make the weaving maneuvers is less than 350 feet and southbound queues are over 1,000 feet during peak periods. The westbound approach experiences multiple cycle failures during peak periods.

Crash rates are higher during the weekend and seasonal months. This is indicative of recreational and tourist traffic that passes through the study area who may not be familiar with the area roadway and operational conditions. Within the study area the Turnpike experiences both heavy local and heavy transient traffic with truck percentages above ten (10) percent. Residential, commercial, school, and agricultural traffic contribute to the local trips. The transient trips are generally attributed to the vacation/recreational destinations south of the study area in the Florida Keys, with tourist and workers originating from north of the study area. Both streams of traffic are funneled through the US 1 and Palm Drive intersection. The intersection experiences traffic beyond its capacity and, as such, results in traffic saturation and overall degradation in operations and safety.

The segments and intersections listed **Table 2-19** appear on the High Crash List, which is composed of intersections and segments that experience crash rates higher than the statewide or districtwide average for similar intersections and roadway segments. This is an indicator that safety issues are prevalent and should be addressed.

Table 2-19 High Crash List (2011-2015)

High Crash List (2011-2015)					
Intersections					
Location	**Milepost**	**Category**	**Dist**	**Dist. Ave. Crash Rate**	**Location Actual Crash Rate**
US 1 and Palm Drive	0.862	Urban, 6-Lane, 2-Way	D6	1.223	2.184
US 1 and Davis Parkway	1.369	Suburban, 4 to 5-Lane, 2-Way, Divided	D6	0.349	1.259
FTE from North of Davis Parkway to North of Campbell Drive	0.984-1.084	Toll Road, Urban	FTE	0.588	2.447
	1.884-2.284				1.912
	2.884-3.284				1.224

High Crash List (2011-2015)					
Segments					
Location	**Milepost**	**Category**	**Dist**	**Dist. Ave. Crash Rate**	**Location Actual Crash Rate**
US 1 from Palm Drive to FTE SB Off-Ramp	0.862-1.036	Suburban, 6+ Lane, 2-Way, Divided	D6	3.810	11.239
US 1 from US 1 SB to FTE NB On-Ramps to Davis Parkway	1.236-1.636	Suburban, 4 to 5-Lane, 2-Way, Divided	D6	2.896	5.469

- As a part of the SIJR effort, which will be completed as the project exits the PD&E phase and enters into the next phase of development, crash statistics from years 2013 to 2017 were gathered and analyzed. Since there is an overlap in data years (2013-2015) and the data was sorted in different methods, a side-by-side comparison of the data sets was not performed for the previously analyzed years and the newly analyzed years. However, the results suggest that the trends discussed above generally continue throughout the newly analyzed period. Also, as part of the SIJR effort, the No Build and Build alternatives were evaluated to predict the number of crashes for the 2025 to 2045 analysis period. It is important to note that the safety analysis tools that were used are deterministic in nature and estimate future crashes mainly based on AADT and roadway characteristics, they do not account for vehicle interactions. As anticipated, the No Build results indicated extensive congestion and queues that could potentially impact the number and type of crashes. The predicted crashes for the Build alternatives were lower due to the additional lanes proposed along the Florida's Turnpike mainline, ramp bridges over Palm Drive and other roadway and peripheral improvements.

2.15.2 Crash Mitigation

The five-year historical crashes with the potential for crash mitigation based on their respective locations and improvements are identified in **Table 2-20**. The proposed improvements would provide a benefit to safety and could be used to quantify safety mitigation toward specific historical crashes after implementation. The table below is based on engineering judgment and established crash reduction factors.

Table 2-20 Potential Crash Mitigation

Recommendation	Location	Potential Crash Mitigation
Grade Separate Turnpike Extension and US 1	US 1 and Palm Drive Intersection	62 rear-end and sideswipe crashes; 20 angle crashes
	Turnpike Southbound Ramp	7 rear-end crashes; 24 run-off-road crashes
Southbound Right Turn Lane	US 1 and Palm Drive Intersection	17 rear-end and sideswipe crashes

Recommendation	Location	Potential Crash Mitigation
Northbound Right Turn Lane	US 1 and Palm Drive Intersection	17 rear-end and sideswipe crashes
Queue Detection System	Turnpike Approaching Southbound US 1 Ramp	13 all types of crashes
Advance Overhead Guide Sign	US 1 Northbound at Turnpike Northbound Ramp	12 rear-end and sideswipe crashes
Lighting	Turnpike Between US 1 and Campbell Drive	33 nighttime crashes
Bicycle Lanes	US 1 North of Palm Drive	1 bicycle crash

2.16 Drainage

The project is within the jurisdiction of the South Florida Water Management District (SFWMD) and bisects or, is adjacent to, the Florida City Canal Basin, North Canal Basin and C-103 Basin.

The drainage pattern generally flows west to east. The region is drained by the Florida City Canal, North Canal and C-103 Canals. The project is divided into five (5) project drainage basins summarized in **Table 2-21**. Basin 3 includes a sub-basin named Basin 3 Intx for the Lucy Street interchange. Basin 5 is sub-divided into Basin 5S and Basin 5N, for areas south and north of the C-103 Canal, respectively.

Table 2-21 Existing Project Drainage Basins

Basin No.	Begin Location	End Location	Begin Station (B/L Survey)	End Station (B/L Survey)	Receiving Waterbody	Receiving Waterbody Class	Existing Water Quality Provided (acre-ft)
1	Begin Project	Palm Drive	50+00	71+33	French Drain, GWT	Self-Contained	2.36
2	Palm Drive	Davis Parkway	71+33	3532+00	Florida City Canal	Class III	0.0
3, 3Intx	Davis Parkway	North of Lucy St.	3532+00	3585+00	C-103S Canal	Class III	0.0
4	North of Lucy St.	SW 162nd Avenue	3585+00	3615+00	C-103S Canal	Class III	0.0
5	SW 162nd Avenue	Campbell Drive	3615+00	3681+00	C-103 Canal	Class III	2.44

Basin 1

This basin includes US 1 from the beginning of the project to Palm Drive. The existing drainage system includes a shallow roadside conveyance swale along the west side of the roadway and a closed system with curb inlets along the east side of the roadway. The drainage systems include exfiltration trench under both the south- and northbound lanes.

There are several offsite parcels along the west right-of-way line that partially contribute runoff via overland flow to the project. The offsite runoff is collected in the swale system and discharged to the French drain cells.

Basin 2

This basin includes the Palm Drive intersection, the remaining segment of US 1 up to Davis Parkway and the US 1 interchange. The existing drainage system includes the interchange infield area and roadside conveyance swales that exist along both sides of the road. Runoff is conveyed to the roadside swale along the east side of the road and transported south to the Florida City Canal. There is a 7 x 3-foot box culvert at STA 80+00, that conveys onsite and offsite runoff to the Florida City Canal. A 36-inch cross drain at STA 88+00 and a 24-inch cross drain at STA 91+00 provide the connectivity under US 1 from the interchange infields.

There is one (1) parcel on the east side of US 1 that partially contributes offsite runoff to the project by overland flow. In addition, areas west of the southbound off-ramp (Ramp A / 04) contribute offsite runoff to the project via overland flow.

Basin 3

This basin includes the Turnpike from Davis Parkway to Lucy Street. The existing drainage system includes a roadside conveyance swale along the west side of the Turnpike and a median swale. Along the east side of the Turnpike, there is no defined swale. Based on visual inspection and existing plans, stormwater runoff between the northbound lanes and L/A right-of-way line discharges offsite via overland flow. There is a double 60-inch cross drain under the Turnpike at STA 3579+00. The roadside conveyance swale along the west side of the Turnpike carries stormwater towards a small farm ditch (maintained by Miami-Dade County) located along the north side of Lucy Street via a double 42-inch cross drain under Lucy Street (located just west of Tennessee Road). The farm ditch conveys stormwater west through an operable slide gate structure before discharging to the C-103S Canal. There are French drain cells along Lucy Street that provide water quality.

Stormwater from a developed parcel (Baymont Hotel) on the southeast corner of US 1 and Davis Parkway partially contributes offsite runoff to the project.

Basin 3 Intx (Subbasin)

The proposed Lucy Street southbound off-ramp (Ramp G) and northbound on-ramp (Ramp F) occurs within agricultural developed lands. The double 60-inch cross drain under the Turnpike at STA 3579+00 provides hydraulic connectivity for the east and west side of the Turnpike at this location and is connected to the farm ditch mentioned above. The farm ditch is the outfall for the proposed Lucy Street Interchange.

Part of the Lucy Street interchange includes improvements to SW 12th Avenue (east of the Turnpike). SW 12th Avenue is a rural collector road with no formal drainage system. Lucy Street is an urban arterial with curb inlets and exfiltration system that discharges to the C-103S Canal and the North Canal (the drainage divide on Lucy Street is near SW 14th Avenue).

Basin 4

This basin includes the Turnpike from Lucy Street to SW 162nd Avenue. The existing drainage system consists of a median swale and roadside conveyance swales along both sides of the Turnpike. Median culverts and ditch bottom inlets drain the median area to the swale along the southbound lanes. There is an existing 24-inch cross drain at STA 3599+65 connecting the east and west side swale systems. The roadside swale along the southbound lanes conveys stormwater north to a roadside ditch. This ditch runs north along the west side of SW 162nd Avenue and discharges to the C-103S Canal.

Basin 5

This basin includes the Turnpike from SW 162nd Avenue to Campbell Drive and the C-103S Canal that carries offsite runoff through the project. The existing drainage system for Basin 5 consists of median and roadside swales.

Basin 5S (Subbasin)

South of the C-103 Canal, stormwater from the southbound lanes is conveyed to a roadside swale and discharged to the C-103S Canal via a control structure near STA 3635+70 LT. Stormwater is managed in a retention area designated P-4. Stormwater runoff from the northbound lanes is conveyed to the swale area that has a ditch block near STA 3633+00 RT. Between SW 162nd Avenue and the ditch block stormwater is conveyed offsite via overland flow to the Mowry Drive right-of-way. From the ditch block to the C-103 Canal, stormwater is discharged to the retention area, designated P-5, which outfalls to the C-103 via a drainage control structure. There are two (2) median cross drains that drain the median area, but there no existing cross drains that connect the roadside swales along the left and right sides of the Turnpike.

Basin 5N (Subbasin)

North of the C-103 Canal, between the C-103 Canal and the end of the project, stormwater is discharged to the C-103 Canal via drainage structures near STA 3646+65, 185 feet LT and STA 3652+60, 205 feet RT.

There is no offsite runoff contributing to the Turnpike drainage system. However, offsite runoff is conveyed through the project via the C-103 Canal. Also, offsite runoff is conveyed within a ditch that runs parallel to the southbound on-ramp (Ramp 06) at the Campbell Drive interchange. The offsite runoff is from Campbell Drive and adjacent property areas, including areas north of Campbell Drive. A double 48" cross drain, located just west of SW 157th Avenue, provides hydraulic connectivity under Campbell Drive with the eventual outfall at the C-103 Canal.

Major Culverts

There are 14 cross drains and numerous median drains and shoulder gutter drains along the project. The major culverts include:

- A 60-inch side drain culvert at Station 72+80 RT. This culvert is in Basin 2. The culvert is a connection to the Florida City Canal.
- A 7 x 3-foot cross drain box culvert at Station 80+00. This culvert is in Basin 2. The culvert connects the offsite conveyance ditch to the east side of US 1.
- A 36-inch cross drain pipe at Station 88+00. This culvert is in Basin 2. The culvert connects the infield to the east side of US 1.
- A 24-inch cross drain pipe at Station 91+00. The culvert is in Basin 2. The culvert drains the northbound off-ramp (Ramp I / 08) infield.
- A double 60-inch cross drain pipe at Station 3579+00. This culvert is in Basin 3. The culvert connects the east and west side of the Turnpike. Historically conveying runoff to the North Canal.

2.17 Soils and Geotechnical Data

The information presented in this section is a summary of the *Geotechnical Services – Memo Report*, (included as **Appendix D**) a companion document to this PD&E Study. The Soil Map of Miami-Dade County published by the United States Department of Agriculture (USDA) was reviewed for general near-surface soil information within the general project vicinity. This information indicates that there are eight (8) soil mapping units. The map soil units encountered are as follows:

In Miami-Dade County:

- Biscayne gravelly marl, drained
- Pennsuco marl, drained
- Perrine marl, drained
- Krome very gravelly loam
- Udorthents, marl substratum-Urban land complex
- Biscayne marl, drained
- Cardsound silty clay loam-Rock outcrop complex
- Chekika very gravelly loam

The most commonly encountered soil in Miami-Dade County was Perrine marl, which is characterized by somewhat drained soil.

A description of the general profile of the existing soils, within the study limits, was determined by available existing borings previously performed throughout the study limits. The existing boring depths varied approximately from 3 to 15 feet. Soils and soil profiles found in the available borings drilled for the roadway alignment study generally consisted of four (4) general types.

1. Strata 1 - Tan gray Marl (A-2-4/A-7).
2. Strata 2 - Tan Sand and Limerock (A-1-a/A-1-b).
3. Strata 3 - Tan Limerock.
4. Strata 4 - Muck (A-8).

The majority of the project corridor is underlain with interlayering of Strata 1, 2 and 3. Stratum 4, organic soils (Muck/A-8) were found at several isolated locations.

Stratum 1, Tan gray Marl is unsatisfactory for use as embankment. However, it can be used within the right-of-way and will support native grasses and shrubbery.

Strata 2 and 3 can be used for embankment and appear satisfactory for use as subgrade in most cases. Specialized tools and equipment are necessary to excavate and/or penetrate the limerock layer.

Stratum 4, organic soils are classified as A-8. As per FDOT Standard Plans, Index 120-002, these soils need to be removed and replaced with select embankment fill.

The groundwater table elevations in the available existing roadway and structure borings reviewed, varied from +1.0 feet NGVD to +2.3 feet NGVD (i.e., -0.5 feet NAVD to +0.8 feet NAVD).

United States Geological Survey (USGS) Report indicates the groundwater table elevations in the project limits varied from +2.2 feet NGVD to +4.0 feet NGVD (i.e., +0.7 feet NAVD to +2.5 feet NAVD). Available permits indicate the groundwater table elevations in the project limits varied from +3.0 feet NGVD to +3.2 feet NGVD (i.e., +1.5 feet NAVD to +1.8 feet NAVD). Based on review of the groundwater information, the preliminary, recommended Seasonal High Ground Water Table (SHGWT) elevation along the project corridor for the PD&E Study phase is approximately +2.00 feet [NAVD].

Based on available existing information (As-Built Plans), ten (10) existing structural borings were performed at selected bridges to various depths (15 to 60 feet). The existing bridge borings indicate the subsoils within the surface 5 feet are generally Marl, followed by Tan Limerock to the termination depth of borings. Based on the conditions encountered by the structural borings, the soil conditions will provide the required bearing capacity support for a deep foundation system (such as 18- to 24-inch square prestressed concrete piles and 48- to 60-inch diameter drilled shafts) for the proposed bridge widenings and/or new bridges.

2.18 Utilities

A list of the existing Utility Agencies/Owners (UAOs) was obtained by contacting Sunshine 811. A field review was also conducted to further identify any designated existing facilities in the project corridor. All the UAOs identified in the field were also noted on the Sunshine 811 list. The existing UAOs, the UAO contacts and facility type are summarized in **Table 2-22.**

Table 2-22 Existing Utilities

Utility Agency Owner	Contact	Utility Type	Comments
AT&T Florida 9101 24th St Miami, FL 33165	Steve Low 305-222-8745 Sl4504@att.com	Communications	Marked Plans Provided
City of Florida City Water/ Waste Water 404 West Palm Dr. Florida City, FL 33034	Elsa Rodriguez 305-598-0199 erodriguez@baljet.com	Water & Sewer	Marked Plans Provided
City of Homestead Water & Sewer 709 N. Homestead Blvd. Homestead, FL 33030	Dennis Maytan 305-224-4842 dmaytan@cityofhomestead.com	Water & Sewer	Utility Atlas Map
City of Homestead Electric 709 N. Homestead Blvd. Homestead, FL 33030	Julio Brea 305-301-4464 jbrea@cityofhomestead.com	Electric	No Reply
City of Homestead Fiber 709 N. Homestead Blvd. Homestead, FL 33030	Julio Brea 305-301-4464 jbrea@cityofhomestead.com	Communications	No Reply
Comcast 2601 SW 14th St. Miramar, FL 33027	Leonard Maxwell-Newbold 954-444-5113 Leonard_maxwell-newbold@comast.com	Communications	Marked Plans Provided
Direct Plus LLC 806 S. Douglas Rd. Suite 900 Coral Gables, FL 33134	Chris Campos 305-592-8925 Chris.campos@mastec.com	Communications	No Facilities
Dade County Public Works 7100 NW 36th St. Miami, FL 33166	Frank Aira 305-979-3466 airaf@miamidade.gov	Traffic	No Reply
Florida City Gas 4045 NW 97th Ave Doral, FL 33178	Maria Paula Lopez 786-332-8913 maria.lopez@nexteraenergy.com	Gas	Marked Plans Provided
FP&L Distribution 4200 W. Flagler St. Miami, FL 33134	Angel Vargas 305-442-5129 Angel.vargas@fpl.com	Electric	Marked Plans Provided
Florida Gas Transmission 2405 Lucien Way, Suite 200 Maitland, FL 32751	Joe Sanchez 407-839-7171 Joseph.e.sanchez@energytransfer.com	Gas	Marked Plans Provided
Miami-Dade Water & Sewer 3071 SW 38th Ave Miami, FL 33146	Patrick Chong 786-268-5255 pchong@miamidade.gov	Water & Sewer	No Facilities

2.19 Lighting

The existing lighting within the study area is summarized in the table below.

Table 2-23 Existing Lighting

Location	High Mast Lighting	Comments
Turnpike	None	Conventional; Within US 1, Campbell Drive and Palm Drive Interchange areas.
Turnpike Ramps	None	Conventional; Within US 1, Campbell Drive and Palm Drive Interchange Ramps
US 1	None	Conventional; south of Palm Drive west side of US 1; Conventional; north of Palm Drive both sides of the roadway.
Palm Drive	None	Conventional; west of US 1, north side of Palm Drive; Conventional; in the median east of US 1, north side of Palm Drive (planned improvements by others)
Lucy Street	None	Decorative; north and south side of Lucy Street (planned improvements by others)

2.20 Signing and ITS

Signing and ITS inventories were conducted along the Turnpike within the study limits in 2018. The signing inventory was limited to the identification and locations, by mileposts and lateral offsets, of overhead and double-posted ground mounted guide, information, and warning signs. At the time of this PD&E study, a milling and resurfacing (M&R) project (FM 440423-1) within the study limits has completed final design and will begin construction in fiscal year 2021. The limits of the M&R project are between MP 0.000 and 9.200, with an exception between MP 2.380 and 3.520 to account for the recently constructed Campbell Drive interchange improvements (FM 435462-1). **Table 2-24** provides an inventory and locations of the existing signing and signing to be replaced by the M&R project in fiscal year 2021. A comprehensive sign inventory can be found in FTE's database of existing signs along the Turnpike. The ITS inventory identified existing devices mounted on each pole and locations, by MP and lateral offsets, along the Turnpike and US 1. Devices such as closed-circuit TV (CCTV), microwave vehicle detection system (MVDS), highway advisory radio (HAR), and travel time system (TTS) were identified. Inquiries were made to FTE and FDOT D6 to identify current existing ITS devices not identified during the 2018 inventory. The existing ITS inventory can be found in **Table 2-25**. FTE's ITS is connected and communicates through a backbone comprised of a 96-count single mode fiber optic cable system. The backbone communicates with various ITS devices along the facility and FTE's Regional Traffic Monitoring Center (RTMC). The existing backbone terminates at ITS device 821-0.1- MD, near the begin milepost of the Turnpike.

An Existing Roadway Conditions Assessment Report (ERCAR, FM 440423-2), dated February 27, 2018 under a separate contract, was conducted along the Turnpike. The ERCAR included an inventory and assessment of all signing and signing components along the Turnpike and associated ramps between MP 0.000 and 5.100, with an exception along the mainline at the Campbell Drive interchange between MP 2.500 and 3.780 due to the design/build project FM 435462-1-52-01. The information from the ERCAR is outdated regarding devices around the Campbell Drive interchange

as visual checks from site visits, site videos, and through Google Earth indicate additional ITS devices have been installed since the completion of the ERCAR.

The existing master signing and ITS layout can be found in the *ITS Technical Memorandum and Master Signing Plan* (**Appendix L**) prepared as a supporting document to this PD&E study.

Table 2-24 Existing Signing

Sign No.	Str. No.	Roadway	Side	Location	MP	Type	Mount	440423-1-52-01
S-101		SR 821	NB	10.5' from guardrail	0.056	Guide	Double-Post	
S-105		SR 821	NB	6.75' from guardrail	0.147	Guide	Double-Post	To be replaced
S-106	87T303	SR 821	NB	4' from guardrail	0.206	Guide	Span	To be replaced
S-109		SR 821	NB	16' from travel lane	0.296	Guide	Single-Post	To be replaced
S-111		SR 821	NB	40' from travel lane	0.711	Information	Double-Post	To be replaced
S-115		SR 821	NB	41.25' from travel lane	0.924	Information	Double-Post	
S-116		SR 821	NB	40' from travel lane	1.053	Regulatory	Double-Post	
S-118		SR 821	NB	43.5' from travel lane	1.654	Information	Double-Post	To be replaced
S-119		SR 821	NB	41' from travel lane	1.744	Guide	Double-Post	To be replaced
S-120		SR 821	NB	41.75' from travel lane	1.771	Guide	Double-Post	
S-121		SR 821	NB	40' from travel lane	1.924	Guide	Multi-Post	To be replaced
S-121a		SR 821	NB	40' from travel lane	2.504	Guide	Double-Post	To be replaced
S-121b		SR 821	NB Off (225)	3' from guardrail	0.030	Guide	Single-Post	
S-124s		SR 821	SB	22' behind cable barrier	4.012	Service	Double-Post	
S-124t		SR 821	SB	18' behind cable barrier	3.862	Guide	Double-Post	
S-124u		SR 821	SB	51' from travel lane	3.542	Guide	Double-Post	
S-124v		SR 821	SB	38' from travel lane	3.342	Information	Double-Post	
S-124w	87T453	SR 821	SB	3.5' from guardrail	3.162	Guide	Cantilever	
S-124x	87T452	SR 821	SB	4' from guardrail	2.972	Guide	Cantilever	

Sign No.	Str. No.	Roadway	Side	Location	MP	Type	Mount	440423-1-52-01
S-124y		SR 821	SB Off (226)	29' from ramp	0.010	Guide	Double-Post	
S-124z		SR 821	SB On (224)	21' from ramp	2.502	Information	Double-Post	
S-125	87T069	SR 821	SB	42' from travel lane	1.962	Guide	Cantilever	To be replaced
S-126		SR 821	SB	44.5' from travel lane	1.811	Service	Double-Post	
S-129		SR 821	SB	44.5' from travel lane	1.662	Service	Double-Post	
S-130		SR 821	SB	8' from guardrail	1.560	Information	Single-Post	To be replaced
S-131		SR 821	SB	4.5' from guardrail	1.513	Service	Double-Post	
S-133	87T068	SR 821	SB	69' from travel lane	1.103	Guide	Cantilever	To be replaced
S-135		SR 821	SB	45' from travel lane	0.689	Guide	Double-Post	To be replaced
S-137		SR 821	Med	6.5' from guardrail	0.661	Guide	Double-Post	To be replaced
S-139		SR 821	SB Off (101)	14' from travel lane	0.033	Guide	Single-Post	To be replaced
S-140	87T067	SR 821	SB Off (101)	41' from travel lane	0.068	Warning	Cantilever	
S-152		SR 821	SB Off (101)	4.5' from guardrail	0.331	Information	Double-Post	
S-156	87S38	SR 821	SB	8' from guardrail	0.098	Guide	Span	To be replaced
S-163		SR 821	SB Off (105)	4.5' from guardrail	0.053	Service	Double-Post	
S-164		SR 821	SB Off (105)	5.75' from guardrail	0.071	Service	Double-Post	
S-165		SR 821	SB Off (105)	5' from guardrail	0.089	Service	Double-Post	
S-301		SR 5	Med	2' from back of curb	0.124	Guide	Single-Post	
S-302		SR 5	Med	4' from back of curb	0.692	Guide	Double-Post	
S-303		SR 5	NB	1.5' from back of sidewalk	0.732	Guide	Single-Post	

Sign No.	Str. No.	Roadway	Side	Location	MP	Type	Mount	440423-1-52-01
S-304		SR 5	Med	4' from back of curb	0.792	Information	Double-Post	
S-305		SR 5	SB	10' from travel lane	1.292	Toll	Single-Post	
S-306		SR 5	SB	3' from back of sidewalk	0.863	Information	Single-Post	
S-307		SR 5	SB	7.5' from back of curb	0.182	Regulatory	Double-Post	
S-308	87S674	SR 5	SB	6' from guardrail	0.070	Guide	Span	

Table 2-25 Existing ITS Devices

ITS Name	Roadway	Side	Location	MP	Device(s)
821-0.1-MD	SR 821	Med	15' from guardrail	0.40	CCTV; TTS (BlueToad); Wireless to FL City Hub; Land- lease to D6 RTMC
821-0.6-SB	SR 821	SB	58' from travel lane	0.90	MVDS
821-1.2-SB	SR 821	SB	39' from guardrail	1.30	CCTV; MVDS
821-1.2-MD	SR 821	Med	6.75' from guardrail	1.30	AVI
821-1.5-NB	SR 821	NB	43.5' from travel lane	1.65	HAR
821-1.7-SB	SR 821	SB	49.5' from travel lane	1.80	MVDS
821-2.1-SB	SR 821	SB	44' from guardrail	2.20	CCTV; MVDS
821-2.6-MD	SR 821	Med	14' from guardrail	2.70	MVDS; TTS (BlueToad)
821-2.8-SB	SR 821	SB	40' from travel lane	2.90	CCTV
821-2.9-SB	SR 821	SB	4' from guardrail	3.00	CCTV; MVDS; AVI; CB Radio
821-3.0-MD	SR 821	Med	7.5' from guardrail	3.10	AVI
821-3.3-SB	SR 821	SB	46' from travel lane	3.40	MVDS
821-3.7-SB	SR 821	SB	49' from travel lane	3.80	MVDS
Florida City Hub	177th Ct	NB	40' from roadway	N/A	Hub, Wireless Antennas
Card Sound Rd Beacon	SR 5	SB	2.5' from guardrail	0.06	Flashing Beacon; Radio Antenna
CCTV 348	SR 5	Med	4.5' from guardrail	0.23	CCTV; Radio
DMS 61 & 62	SR 5	Med	7' from guardrail	0.24	DMS (27X110); DMS (32X112)
CCTV 343	SR 5	SB	6' from face of curb	0.25	CCTV; MVDS; Radio; Wireless Antenna (2)
CCTV 350	SR 5	SB	6' from face of curb	0.25	CCTV
CCTV 349	SR 5	SB	6' from face of curb	0.27	CCTV

2.21 Aesthetic Features

Aesthetic elements in the project area consist of the Turnpike interchange infield areas and planted median areas along the US 1 corridor. Most of these areas are sodded and have large and small palm trees. There is a gateway electronic sign structure, at the southernmost point of the corridor, that reinforces Florida City's character as the last stop on the mainland north of the Florida Keys, as well as, the entrance to the "Less Stressway" for the Turnpike facility. This area is also enhanced with bold landscape elements. All bridges located within the study area are typical Turnpike bridges with no additional aesthetic features. Additional details can be found in **Appendix J**, *Landscape Aesthetic Assessment Technical Memorandum*.

2.22 Bridges and Structures

Along the study corridor, there are four (4) existing twin bridges and three (3) existing single bridges. The bridges carry either the southbound or northbound lanes of the Turnpike. The existing bridges range from two (2) to five (5) span bridges that cross over either roadways or the C-103 Canal. All the bridges consist of prestressed concrete AASHTO girders except for Bridge 780191 over US 1 which consists of steel plate girders. The existing bridges are on concrete foundations consisting of concrete column piers and spill-through abutments on 14- and 18-inch square prestressed concrete piles.

The condition of the existing bridges was evaluated through field reviews, current inspection reports (2018), existing load rating reports, existing bridge plans, and recent and ongoing bridge project plans. It was determined the bridges are acceptable for widening. All the bridges have health indexes higher the 99.0 and have a sufficiency rating between 90 and 98. All bridges except for bridges 870191, 870192, 870399, 870178, and 870389 have current load ratings that use the LRFR method with a rating equal to or greater than 1.0. Only bridge 870179 has a rating less than 1.0. Bridges 870191, 870192, 870399, 870178, and 870389 have a current load rating using the LFR method. During the design phase, these bridges load ratings will be updated per current FDOT load rating methods. A summary of the current condition of the existing bridges is shown in **Table 2-26**.

Table 2-26 Current Condition of Existing Bridges

Bridge No	Description	Superstructure Type	Health Index (Inspection date)	Sufficiency Rating (Inspection date)	Controlling Rating	Year/Type Rating
870191	SB Off-Ramp (Ramp A / 04) Turnpike Over US 1 (MP 0.30)	Steel I-Girders (Plate Girders)	99.74 (2/2018)	90.4 (2/2018)	**1.22 HS20 Inv.**	**1995 LFR**
870192	SB –Turnpike Over SW 328th St (Lucy St) (MP 1.30)	AASHTO Type III Beams	99.92 (2/2018)	96.5 (2/2018)	**1.08 HS20 Inv.**	**1996 LFR**
870399	NB -Turnpike Over SW 328th St (Lucy St)(MP 1.35)	AASHTO Type III Beams	99.68 (2/2018)	98.5 (2/2018)	**1.08 HS20 Inv.**	**1996 LFR**
870193	SB –Turnpike Over SW 162nd Ave (Farm Life Rd) (MP 2.11)	AASHTO Type IV Beams	99.88 (2/2018)	93.4 (2/2018)	1.05 HL93 Inv.	2011 LRFR
870400	NB -Turnpike Over SW 162nd Ave (Farm Life Rd) (MP 2.10)	AASHTO Type IV Beams	99.87 (2/2018)	93.4 (2/2018)	1.05 HL93 Inv.	2011 LRFR
870178	SB –Turnpike Over C-103 Canal (MP 2.70)	AASHTO Type II Beams	99.97 (2/2018)	98.5 (2/2018)	**1.05 HS20 Inv.**	**1996 LFR**
870389	NB -Turnpike Over C-103 Canal (MP 2.74)	AASHTO Type II Beams	99.97 (2/2018)	93.4 (2/2018)	**1.16 HL93 Inv.**	**1996 LFR**
870902	SB On-Ramp- (Ramp 06) Turnpike Over C-103 Canal (MP 2.70)	AASHTO Type II Beams	98.99 (2/2018)	94.6 (2/2018)	1.00 HL93 Inv.	2011 LRFR
870903	NB Off-Ramp- (Ramp 05) Turnpike Over C-103 Canal (MP 2.70)	AASHTO Type II Beams	99.86 (2/2018)	94.6 (2/2018)	1.12 HL93 Inv.	2011 LRFR
870179	SB – Turnpike Over SW 312th St (Campbell Dr.) (MP 3.05)	AASHTO Type III Beams	99.95 (2/2018)	95.0 (2/2018)	**0.91** HS20 Inv.	2010 LRFR
870390	NB – Turnpike Over SW 312th St (Campbell Dr.) (MP 3.10)	AASHTO Type III Beams	99.97 (2/2018)	95.7 (2/2018)	1.02 HS20 Inv.	2011 LRFR

Based on available information, all bridges currently meet or exceed current minimum vertical clearance criteria. The existing bridges can be widened on either side and still meet vertical clearance criteria based on the current proposed roadway alignments. All existing bridge traffic railings have been either retrofitted or will be retrofitted as part of a current on-going projects. Additional structural details can be found in the *Bridge Alternatives Analysis Technical Memorandum* located in **Appendix E**.

2.23 Toll Features

There are two (2), All-Electronic Tolling (AET) gantries located within the study area. They are located at the Campbell Drive interchange at the southbound on-ramp and northbound off-ramp. Mainline toll gantries located north of Campbell Drive toll vehicles traveling through/from the US 1 interchange. The US 1 and Davis Parkway ramps do not have toll gantries.

2.24 Outdoor Advertising

The following existing outdoor advertising structures are listed in the Florida Department of Transportation Outdoor Advertising Database for the Turnpike segment.

Table 2-27 Outdoor Advertising Structures on Turnpike Segment

Sign (Tag) Number	Location	Side of Roadway
CF144, CF145	1,100 feet south of Lucy Street	Southbound
BW204	Between Davis Pkwy. and the Turnpike-US 1 off-ramp, 400 feet east of US 1	Southbound

The following existing outdoor advertising structures are listed in the Florida Department of Transportation Outdoor Advertising Database for the US 1 segment:

Table 2-28 Outdoor Advertising Structures on US 1

Sign (Tag) Number	Location	Side of Roadway
CE151, CFH979	2,600 feet south of Palm Drive	Northbound
CK272, CK273	1,500 feet south of Palm Drive	Northbound
BL932 and BL933	1,000 feet south of Palm Drive	Southbound
CF299 and CF300	500 feet north of Palm Drive	Northbound
CK994 and CK995	West of the Turnpike and south of Salvation Army	Southbound
BW126	Between Davis Pkwy. and the Turnpike-US 1 off-ramp, 400 feet east of US 1	Northbound

See Concept Plans in **Appendix A** for location of the outdoor advertising structures.

2.25 Environmental Features

Environmental supporting documents prepared for this study are summarized by topic in the sections that follow.

2.25.1 Section 4(f) and 6(f)

This project is completely state funded and Section 4(f) does not apply since there is no Federal Highway Administration action needed for this project. There are no Section 6(f) properties that are impacted by the proposed improvements.

2.25.2 Cultural Resources

A *Cultural Resource Assessment Survey (CRAS)* was performed for this state-funded project. Results of the study are included in Section 7.2.4 of this report.

2.25.3 Wetlands

In accordance with Presidential Executive Order 11990, "*Protection of Wetlands*", US Department of Transportation Order 5660.1A, "*Preservation of the Nation's Wetlands*" and Part 2, Chapter 9 of the PD&E Manual, the project area was evaluated for the presence of wetlands. The evaluation identifies and describes existing jurisdictional wetlands and other surface waters within the project limits, assesses potential impacts to these resources, and evaluates avoidance, minimization, and potential mitigation options. The Wetland and Surface Water evaluation performed for this project identified three (3) natural wetland areas: Forested Wetlands 1 and 2 (FW-1 and FW-2); and an Emergent Wetland (EW-1) located at the southern project limits, east of South Dixie Highway. In addition, there are eleven (11) stormwater swales (SW) containing hydrophytic vegetation and twelve (12) other surface waters (OSW) along the project study corridor. Natural wetlands, stormwater swale wetlands and other surface waters are depicted on aerial maps in **Figure 2-12** (includes the features' identification number, size (acres), FLUCCS code/description, and USFWS code/description) and summarized in **Table 2-29**. Representative photographs are included in Appendix B of the *Natural Resources Evaluation (NRE)* prepared under separate cover for this project.

Table 2-29 Stormwater Management/Drainage Features and Surface Waters

ID No.	Size (ac)	FLUCCS Code	FLUCCS Description	USFWS Code	USFWS Description
NATURAL WETLANDS					
EW-1	123.52	641 643	Freshwater Marsh Wet Prairie	PEM1Ad	Palustrine, Emergent Persistent, Temporarily Flooded, Partially Drained/Ditched
FW-1	20.14	630	Mixed Wetland Hardwoods	PFO1Ad	Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded, Partially Drained/Ditched
FW-2	122.58	630	Mixed Wetland Hardwoods	PFO1Ad	Palustrine, Forested, Broad-Leaved Deciduous, Temporary Flooded, Partially Drained/Ditched
STORMWATER SWALES HAVING HYDROPHYTIC VEGETATION					
SW-1	1.79	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-2	0.57	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-3	0.34	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-4	0.87	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-5	0.51	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-6	0.22	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-7	1.50	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-8	1.60	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-9	0.45	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-10	0.48	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
SW-11	1.45	510	Streams and Waterways	PEM1A	Palustrine, Emergent Persistent, Temporarily Flooded
OTHER SURFACE WATERS					
OSW-1	5.04	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-2	2.00	510	Streams and Waterways	R2UBHx	Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded, Excavated

ID No.	Size (ac)	FLUCCS Code	FLUCCS Description	USFWS Code	USFWS Description
OSW-3	1.57	510	Streams and Waterways	R2UBHx	Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-4	1.77	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-5	1.34	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-6	1.74	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-7	0.32	510	Streams and Waterways	R5UBFx	Riverine, Unknown Perennial, Unconsolidated Bottom, Semi-permanently Flooded, Excavated
0SW-8	4.31	510	Streams and Waterways	R2UBHx	Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-9	2.28	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-10	2.76	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
OSW-11	2.92	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated
0SW-12	2.01	534	Reservoirs less than ten (10) acres	PUBHx	Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated

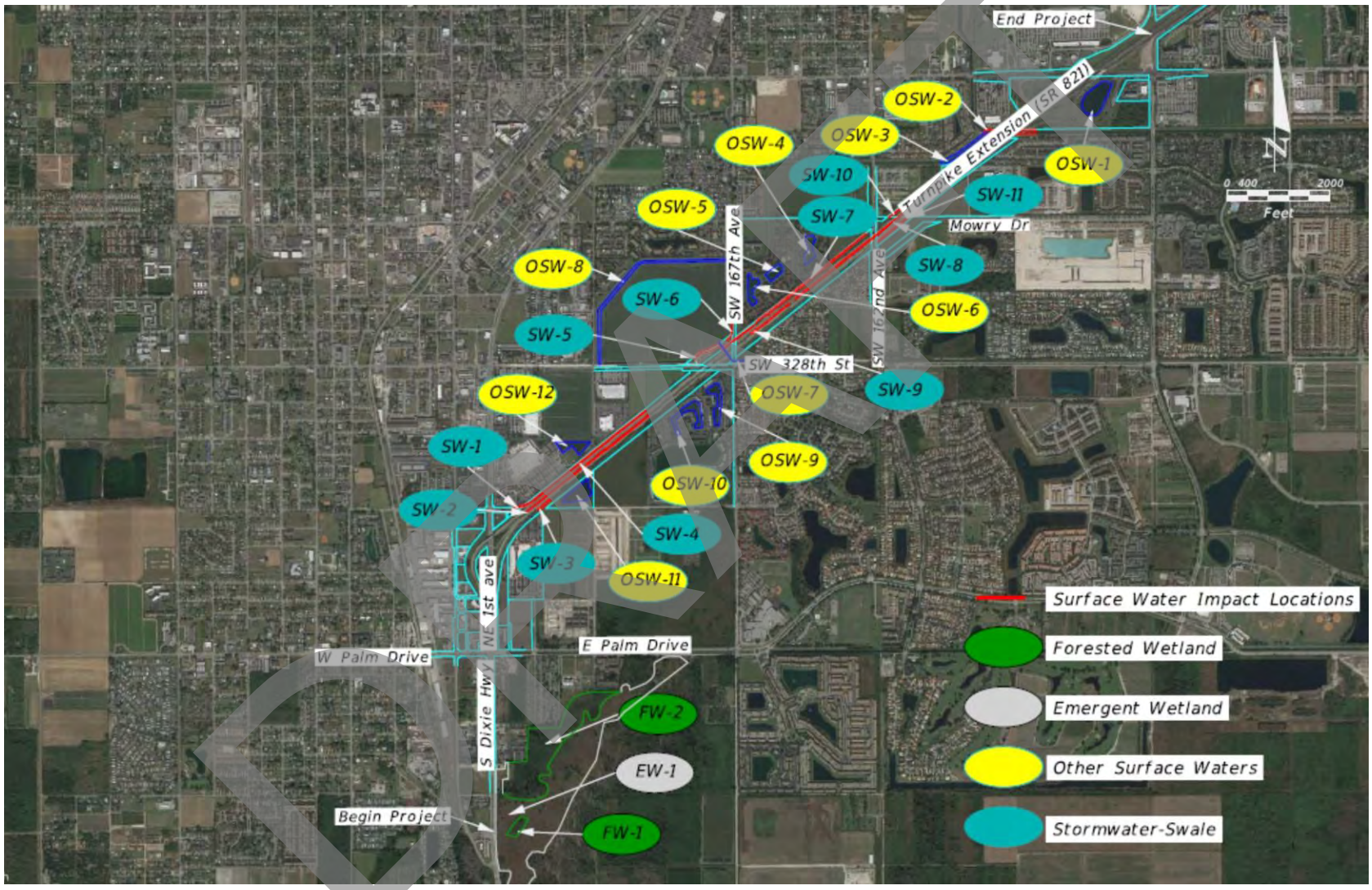


Figure 2-12 Wetlands and Surface Water Locations

2.25.4 Protected Species and Habitat

In accordance with Section 7 of the ESA of 1973, as amended, the FDOT PD&E Manual Part 2 Chapter 16 (Protected Species and Habitat) and Chapter 68 of the Florida Administrative Code (FAC), the project study area was evaluated for the potential occurrence of federal and state listed protected plant and animal species and their habitats.

Based on the potential availability of suitable habitat and known species ranges, **Table 2-30** lists the federal and state-listed wildlife species with the potential to occur within the project study area. The likelihood of species occurrences considered for the study area was determined based on several factors including whether the species were positively identified by project biologists during field surveys, suitable habitat was observed or is known to occur, species life history, and local knowledge. Additional details can be found in the *Natural Resources Evaluation* prepared for this project. Each species was given a rating of low, moderate, or high likelihood of occurring within the project corridor; High – referred habitat exists within project limits and species have been observed or reported within the project area; Moderate – some preferred habitat exists within the project limits, but species have not been observed in the project area and; Low – Preferred habitat is limited or lacking within the project limits and species have not been observed in the project area

Table 2-30 Federal and State-Listed with the Potential to Occur within the Project Corridor

Common Name	Scientific Name	Federal Status	State Status	Occurrence Potential	Observed
MAMMALS					
Florida Bonneted Bat	*Eumops floridanus*	E	FE	Low	No
West Indian manatee	*Trichechus manatus*	T	FT	Low	No
BIRDS					
Everglade Snail Kite	*Rostrhamus sociabilis plumbeus*	E	FE	Low	No
Florida Grasshopper Sparrow	*Ammodramus savannarum floridanus*	E	FE	Low	No
Wood Stork	*Mycteria americana*	T	FT	Moderate	No
Least Tern	*Sterna antillarum*	NL	ST	Low	No
Little Blue Heron	*Egretta caerulea*	NL	ST	Moderate	No
Tricolored Heron	*Egretta tricolor*	NL	ST	Moderate	No
Reddish Egret	*Egretta rufescens*	NL	ST	Low	No
Black Skimmer	*Rynchops niger*	NL	ST	Low	No
Burrowing Owl	*Athene cunicularia*	NL	ST	Low	No

Common Name	Scientific Name	Federal Status	State Status	Occurrence Potential	Observed
REPTILES					
American Crocodile	*Crocodylus acutus*	T	FT	Low	No
American Alligator	*Alligator mississippiensis*	SA (T)	FT (S/A)	Low	No
Eastern Indigo Snake	*Drymarchon corais couperi*	T	FT	Low	No
Gopher Tortoise	*Gopherus polyphemus*	NL	ST	Low	No
INSECTS					
Miami Tiger Beetle	*Cicindelidia floridana*	E	FE	Low	No

LEGEND
E = Endangered
FE = Federally Designated Endangered
NL = Not Listed
SA = Similar Appearance
T = Threatened
FT = Federally Designated Threatened
ST = State Designated Threatened
(S/A) = Federally Designated Threatened due to Similarity of Appearance

2.25.5 Essential Fish Habitat

There is no involvement with Essential Fish Habitat (EFH) as the project area does not contain areas that support EFH or National Oceanic and Atmospheric Administration (NOAA) trust fishery resources; therefore, no EFH assessment or further consultation with National Marine Fisheries Service (NMFS) is required.

2.25.6 Highway Traffic Noise and Air Quality

An analysis of the project area regarding highway traffic noise is being performed for existing conditions and the Preferred Alternative by FTE in accordance with Part 2, Chapter 18 (Highway Noise) of the FDOT PD&E Manual (January 14, 2019). Results of the existing conditions analysis will be included in the *Noise Study Report* and inserted here after the draft report is prepared by FTE.

An *Air Quality Technical Memorandum (AQTM)* was prepared as a part of this study and is included in **Appendix F** of this document. The review was conducted following the procedure documented in Part 2, Chapter 19 (Air Quality) of the FDOT PD&E Manual (January 14, 2019).

The project is located in Miami-Dade County, an area currently designated as being attainment for the following criteria air pollutant(s): ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10 microns in size), sulfur dioxide, carbon monoxide, and lead. This attainment designation is with respect to pollutant-specific National Ambient Air Quality Standards (NAAQS) under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

Since this project may have community concerns about the impacts to air quality, an air quality analysis for carbon monoxide (CO) was also completed in accordance with the guidance listed above and utilized the DOT's screening model; CO Florida 2012 model (CO model). Based on the results from the screening model, the highest project-related CO one- and eight-hour concentrations are not predicted to reach or exceed the one- or eight-hour NAAQS for this pollutant.

2.25.7 Contamination

A *Contamination Screening Evaluation Report (CSER),* September 2020, was prepared to evaluate and document known or potential contamination problems, presents recommendations concerning these problems, and discusses possible impacts to the proposed project, in accordance with Part 2, Chapter 20, of the Florida Department of Transportation (FDOT) PD&E Manual (FDOT, 2020). Findings are summarized below, and additional details can be found in the CSER.

A preliminary (Level I) contamination screening evaluation, a federal database search for facility listings with Federal Superfund status including National Priorities List/Comprehensive Environmental Response, Compensation and Liability Information System (NPL/CERCLIS), as well as, a site visit was performed as part of the evaluation. Based on database research, document review, and site reconnaissance, one (1) site along the project corridor has a High Risk ranking, one (1) site has a Medium Risk ranking, and twelve (12) sites have a Low Risk ranking for potential contamination and two (2) have No Risk. **Figure 2-13** depicts the locations of the potentially contaminated sites and **Table 2-31** lists the site rankings.

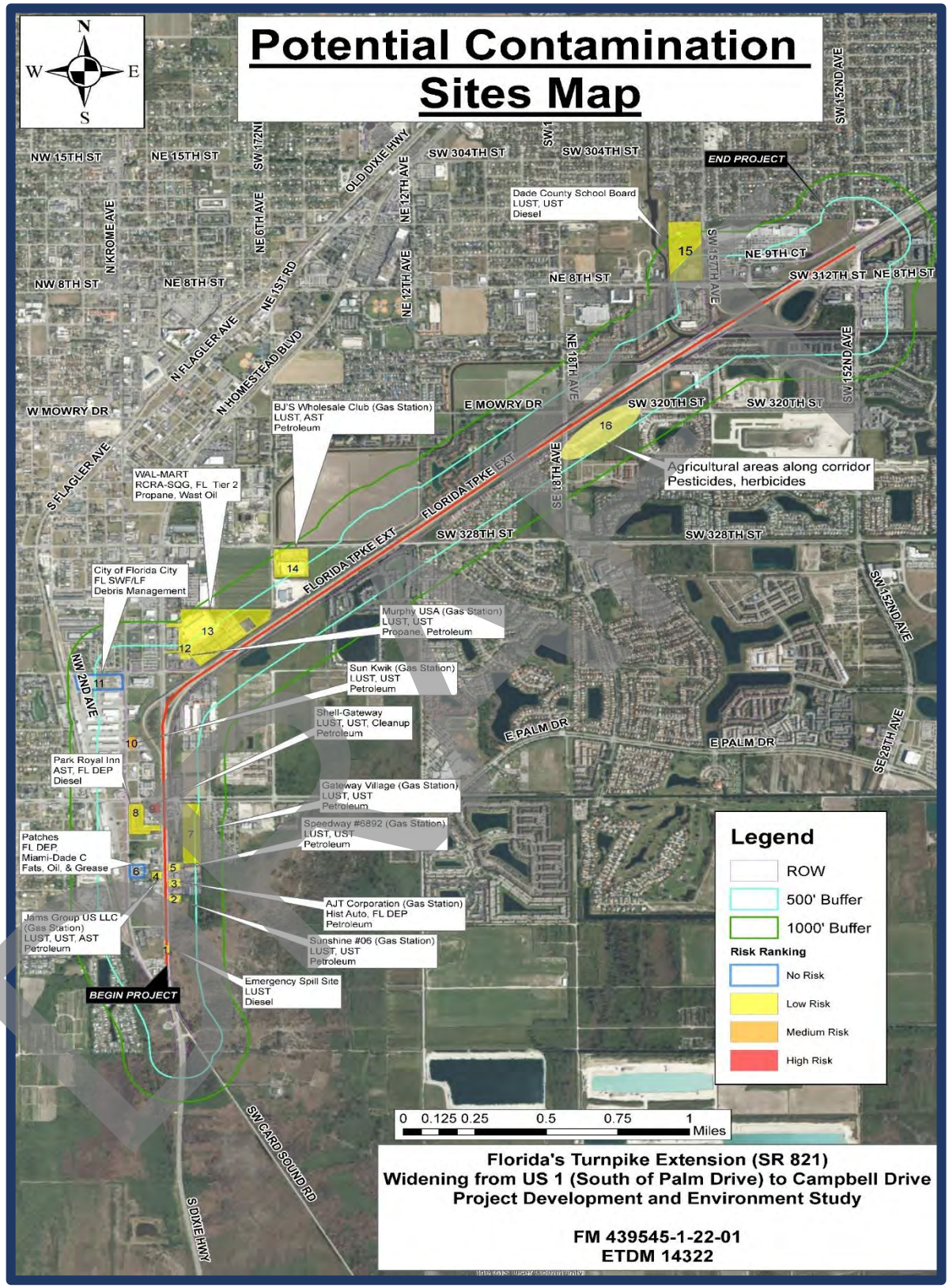


Figure 2-13 Potentatial Contamination Sites

Table 2-31 Potentially Contaminated Sites and Rankings

Map ID	Site Name	Site address	Risk/Database(s)	Risk Rating
1	Emergency Spill site-Triple A Linen Inc.	S Dixie HWY @ SW 350th Street Homestead, FL 33035	LUST	Low
2	Sunshine #06	505 SE 1st Street Florida City, FL 33034	FL LUST, FL UST	Low
3	ATJ Corporation	413 SE 1st Street Florida City, FL 33034	EDR Hist Auto, FL DEP	Low
4	Jams Group US LLC	380 SE 1st Ave Homestead, FL 33034	FL LUST, FL UST, FL AST	Low
5	Speedway #6892	311 SE 1st Ave Florida City, FL 33034	FL UST, FL LUST	Low
6	Patches	335 S Krome Ave Florida City, FL 33034	FL DEP, Miami-Dade Co. GTO	No
7	Gateway Village	11 SE 1st Ave Florida City, FL	FL LUST, FL UST	Low
8	Park Royal Inn	100 US HWY 1 Florida City, FL 33034	AST, FL DEP	Low
9	Shell-Gateway	10 SE 1st Ave Homestead, FL 33034	FL LUST, FL UST, FL CLEANUP SITES, FL DWM CONTAM	High
10	Sun Kwik #1- Just Oil	237 N Krome Ave Florida City, FL 33034	Fl Enforcement, FL Miami-Dade Co. HWS, FL LUST, FL UST, FL Miami-Dade Co. SPILL, FL Cleanup Sites, FL DWM CONTAM	Medium
11	City of Florida City	SW Corner of Krome Ave and Davis Parkway Florida City, FL 33034	FL SWF/LF	No
12	Murphy USA #5738	33517 S Dixie Hwy Florida City, FL 33034	FL LUST, FL UST, FL Enforcement	Low
13	WAL-MART SUPERCENTER #2727	33501 S Dixie Hwy Florida City, FL 33034	RCRA-SQG, FL Tier 2	Low
14	BJ'S WHOLESALE CLUB, INC. DBA BJ'S CLUB (Yates Homestead LLC)	650 SE 8th Street Homestead, FL 33030	FL Miami-Dade Co. GTO, FL Tier 2, LUST, AST	Low
15	Dade County School - Campbell Drive	30700 SW 157th Ave Homestead, FL 33033	FL LUST, FL UST	Low
16	Agricultural Areas	Various	NA	Low

There are several existing bridge structures within the project limits that were preliminarily evaluated for Asbestos Containing Materials and lead paint. Asbestos reports were available for all existing structures. A review of the reports identified that asbestos containing material was not detected in any of the samples collected from the bridges. **Table 2-32** lists the bridges within the project limits for which asbestos and lead reports were available and reviewed.

Table 2-32 Bridges Reviewed for Asbestos and Lead

Bridge	Location	Date
Bridge No. 870178 (MP 2.8)	Southbound State Road 821 (SR-821) Florida Turnpike over Mowry Canal 103	April 2018
Bridge No. 870179 (MP 3.1)	Southbound State Road 821 (SR-821) Florida Turnpike over Campbell Drive	April 2018
Bridge No. 870180 (MP 4.82)	Southbound HEFT (SR-821) over Canal C103-N	November 2018
Bridge No. 870191 (MP 0.3)	Southbound State Road 821 (SR-821) Florida Turnpike Off-Ramp (Ramp A / 04) over US 1	May 2018
Bridge No. 870192 (MP 1.5)	Southbound State Road 821 (SR-821) Florida Turnpike over 328th Street	April 2018
Bridge No. 870193 (MP 2.1)	Southbound State Road 821 (SR-821) Florida Turnpike over SW 167th Avenue	April 2018
Bridge No. 870389 (MP 2.8)	Northbound State Road 821 (SR-821) Florida Turnpike over Mowry Canal 103	April 2018
Bridge No. 870390 (MP 3.1)	Northbound State Road 821 (SR-821) Florida Turnpike over Campbell Drive	April 2018
Bridge No. 870391 (MP 4.76)	Northbound HEFT (SR-821) over Canal Mowry 103	November 2018
Bridge No. 870399 (MP 1.5)	Northbound State Road 821 (SR-821) Florida Turnpike over 328th Street	April 2018
Bridge No. 870400 (MP 2.1)	Northbound State Road 821 (SR-821) Florida Turnpike over SW 167th Avenue	April 2018

Section 3

Future Conditions

3.1 Future Conditions

The Southeast Regional Planning Model version 7 (SERPM 7) Activity Based version was used to develop traffic forecasts for this project. Early in the PD&E phase, traffic analyses for Alternative A were performed without the inclusion of the new partial interchange at Lucy Street. Later in the study, the partial interchange was incorporated into the project and included in subsequent traffic analyses. Results are summarized in the tables below and additional details can be found in the supporting traffic documents; *Project Traffic Analysis Report (PTAR), July 202* and the *Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation, August 2020* in **Appendix B**. The future (2045) No Build Annual Average Daily Traffic (AADT) volumes were calculated for the project study area and shown in **Table 3-1**.

Table 3-1 Turnpike 2045 No Build Annual Average Daily Traffic (AADT) Volumes

Mile Post	2045 AADT
	108,600
3 – Campbell Drive	43,700
	10,400
	75,300
1 - Lucy Street (SW 328th St)	0
	75,300
0 – US 1 (To/From North)	22,300
0 – US 1 (To/From South)	53,000

Bold = Mainline Volumes

Data from Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation, Table 1

The future (2045) arterial street AADT volumes are provided in **Table 3-2**.

Table 3-2 2045 No Build AADT Volumes on Arterial Streets

City Street	Location	2045 AADT
NE 7th Street (West Davis Parkway)	West of US 1	15,800
Palm Drive	East of Krome Avenue	36,100
US 1	South of Palm Drive	49,200

Data from Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation, Table 2

The AM and PM peak hour traffic volumes and LOS for the Turnpike mainline and ramps, under the No Build condition are summarized in **Table 3-3.**

Table 3-3 2045 Turnpike No Build Peak Hour Volumes and LOS

Segment	Segment Type	Lanes	Volume (vph)		AM / PM	
			AM	PM	LOS	LOS
Turnpike US 1 to Campbell Drive - Southbound						
Upstream of Campbell Dr. Off-Ramp	Basic	2	4,740	2,800	F	C
Campbell Dr. Off-Ramp	Diverge	2	4,740	2,800	F	B
Campbell Dr. Off-Ramp to On-Ramp	Basic	2	3,120	2,070	C	B
Campbell Dr. On-Ramp	Merge	2	3,600	2,580	C	C
Campbell Dr. On-Ramp to US 1 Off-Ramp	Basic	2	3,600	2,580	F	C
US 1 Off-Ramp	Diverge	2	3,600	2,580	F	C
Downstream of US 1 Off-Ramp	Basic	2	2,530	1,810	B	B
Turnpike US 1 to Campbell Drive - Northbound						
Upstream of US 1 On-Ramp	Basic	2	1,810	2,530	B	C
US 1 On-Ramp	Merge	2	2,580	3,600	C	D
US 1 On-Ramp to Campbell Dr. Off-Ramp	Basic	2	2,580	3,600	C	D
Campbell Dr. Off-Ramp	Diverge	2	2,580	3,600	C	E
Campbell Dr. Off-Ramp to On-Ramp	Basic	2	2,070	3,120	B	D
Campbell Dr. On-Ramp	Merge	2	2,800	3,900	B	D
Downstream of Campbell Dr. On-Ramp	Basic	2	2,800	3,900	C	E

Data from Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation, Table 3

The 2045, No Build LOS for the signalized intersections are shown in **Table 3-4.**

Table 3-4 2045 No Build Intersection LOS

Intersection Name	Intersection LOS / Delay (sec)	
	AM	PM
US 1 / NE 7th Street (West Davis Parkway)	B / 16.4	C / 23.4
US 1 / Palm Drive	F / 107.4	F / 187.7
Krome Avenue (SW 177th Avenue) / NE 7th Street (West Davis Parkway)	C / 30.9	C / 26.1
Krome Avenue (SW 177th Avenue) / Palm Drive	D / 45.1	E / 59.5

Data from Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation, Table 5

As shown in the table below, the mainline Turnpike and area interchanges will benefit from the addition of a partial interchange at Lucy Street by allowing the traffic to be more distributed within the roadway network.

Table 3-5 2045 Build Turnpike Mainline and Ramps AADT with and without Lucy Street Interchange

Mile Post	2045 Forecast	
	Without Lucy St. Interchange	With Lucy St. Interchange
	108,600	**108,600**
3 – Campbell Drive	43,700	36,000
	10,400	10,800
	75,300	**83,400**
1 - Lucy Street (SW 328th St)	0	22,600
	75,300	**60,800**
0 – US 1 (To/From North)	22,300	12,800
0 – US 1 (To/From South)	53,000	48,000

Bold = Mainline Volumes

Data from PTAR, Table 2.1

The proposed improvements for the mainline Turnpike are identical for Alternatives A and B. Results shown in **Table 3-6** include the Lucy Street interchange and are reported by segment depending upon their location; basic (mainline freeway) segment, a merge (entering), diverge (exiting) or a weave section.

With the proposed improvements along the Turnpike mainline, ramps, the US 1 interchange and intersection with Palm Drive, the forecasted peak hour LOS's are shown in **Table 3-7**.

Table 3-6 2045 Build Alternatives Turnpike Peak Hour LOS

Segment	Segment Type	Lanes	Volume (vph)		LOS	
			AM	PM	AM	PM
Upstream of Campbell Drive Off-Ramp	Basic	3	5,090	4,040	D	C
Campbell Drive Off-Ramp	Diverge	3	5,090	4,040	C	B
Campbell Drive Off-Ramp to On-Ramp	Basic	3	3,750	2,320	C	B
Campbell Drive On-Ramp to Lucy Street Off-Ramp	Weave	4	4,250	2,850	C	B
Lucy Street Off-Ramp to US 1 Off-Ramp	Basic	3	3,170	2,000	B	A
US 1 Off-Ramp	Diverge	3	3,170	2,000	C	A
Downstream of US 1 Off-Ramp	Basic	2	2,490	1,590	D	B
Upstream of US 1 On-Ramp	Basic	2	1,590	2,490	B	C
US 1 On-Ramp	Merge	3	2,000	3,170	A	B
US 1 On-Ramp to Lucy Street On-Ramp	Basic	3	2,000	3,170	A	B
Lucy Street On-Ramp to Campbell Drive Off-Ramp	Weave	4	2,850	4,250	C	D
Campbell Drive Off-Ramp to On-Ramp	Basic	3	2,320	3,750	B	C
Campbell Drive On-Ramp	Merge	3	2,680	4,440	B	C
Downstream of Campbell Drive On-Ramp	Basic	3	2,680	4,440	B	C

Data from Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation, Table 4

Table 3-7 2045 Build Alternatives A & B Intersection Peak Hour LOS

Intersections	LOS			
	Alternative A*		Alternative B**	
US 1	**AM**	**PM**	**AM**	**PM**
Davis Parkway/US 1	B	B	B	B
NB On-ramp	A	B	A	B
Palm Drive/SW 344 ST	D	**F**	D	**F**
Krome Avenue				
Davis Parkway/US 1	C	C	C	C
Palm Drive/SW 344 ST	D	D	D	D
Lucy Street				
SE 6th Avenue	C	**E**	C	**E**
SB Off-ramp	C	C	C	C
SW 167th Avenue (East)	C	C	C	C
SW 162nd Avenue	C	D	C	D
Campbell Drive				
Turnpike SB Ramps/Newton Rd	**E**	**F**	**E**	**F**
Kingman Road	A	**E**	A	**E**
Turnpike NB Ramp I	A	A	A	A
SW 152nd Avenue/Turnpike NB Ramp 2	C	C	C	C

*From PTAR, Table 4.4

** From Turnpike Extension Widening from South of Palm Drive to Campbell Drive: Build Alternative B Evaluation, Table 6

3.2 Build Alternative(s)

The build alternatives developed for the Turnpike mainline, US 1 Interchange, the Palm Drive area and Lucy Street Interchange (including ramp merge/diverge areas) are briefly described below.

The Turnpike mainline typical section analysis was documented in the *Typical Section Analysis Technical Memorandum* (**Appendix M**) prepared as a part of this study. All travel lanes are general toll lanes and managed lanes were not recommended for this section. The recommended typical section widens one (1) lane towards the median in the northbound and southbound directions separated by a 40-foot median (see **Figure 3-1**).

All the interchange alternatives evaluated and discussed below are compatible with the mainline typical section.

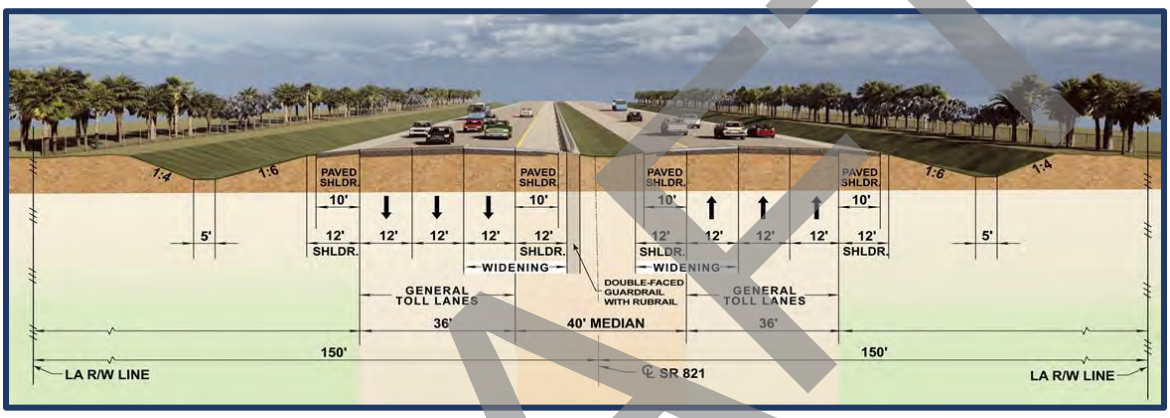


Figure 3-1 Proposed Turnpike Typical Section Widening

Outside widening will also be needed on the Turnpike mainline between Campbell Drive and Lucy Street to convert the current southbound off-ramp, northbound on-ramp (loop ramp) and southbound on-ramp terminals from taper types to parallel type ramp connections. The outside widening will provide an auxiliary lane in the north- and southbound directions between the Campbell Drive and Lucy Street interchanges. These ramp terminal modifications are consistent with TDH section 211.13 to provide parallel entrances and exits on new construction, widening and capacity improvement projects (see **Figure 3-2**).

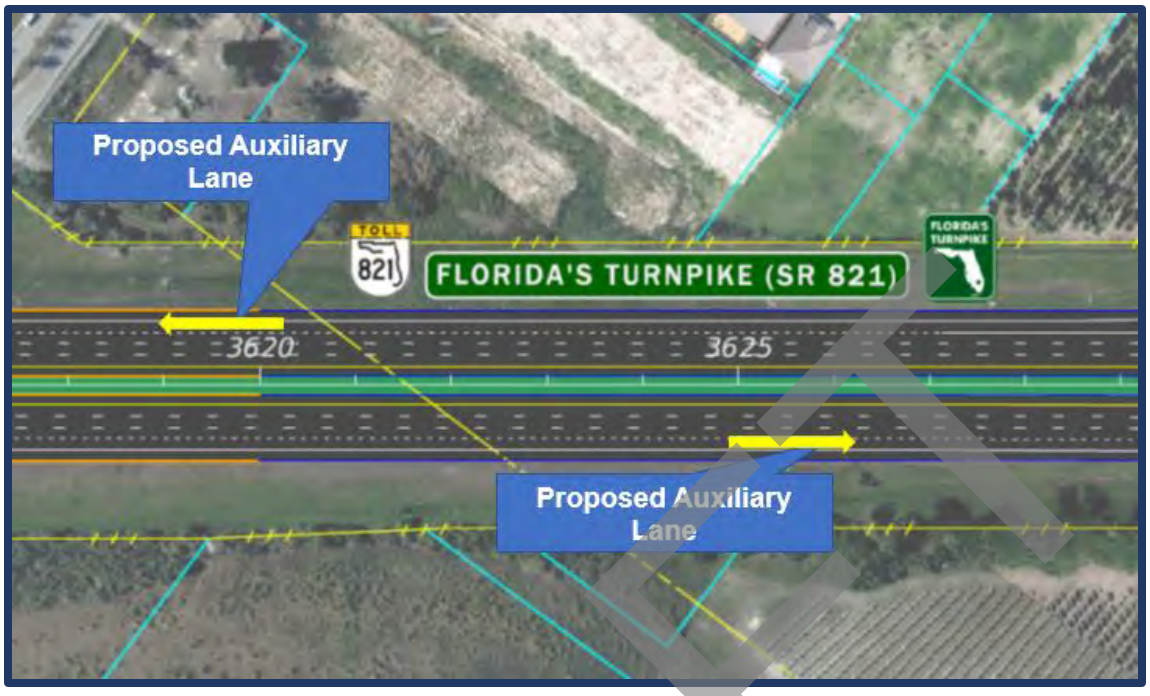


Figure 3-2 Proposed Auxiliary Lanes

US 1 Interchange Alternatives

Two (2) build alternatives (Alternative A and B) were recommended at the conclusion of the *Interchange Alternatives Analysis Technical Memorandum* and documented in that report. These alternatives are described below.

Alternative A

Alternative A along US 1 features a two-lane, two-way, grade-separated ramp bridge rising over Palm Drive and connecting to the median of the Turnpike. The ramp begins in the median of US 1, about 1,250 feet south of Palm Drive, continues over Palm Drive and connects along the centerline of the Turnpike. Northbound and southbound US 1 remain on the ground, or at-grade, but are slightly realigned to accommodate the ramp.

The Davis Parkway exit maintains the existing southbound off-ramp to US 1 and provides a two-lane ramp exit that expands with a dedicated left turn lane. Approximately 950 feet south of Davis Parkway, a southbound US 1 left turn lane provides a ramp connection to the northbound Turnpike.

South of Palm Drive the proposed ramp bridge touches down and merges with existing southbound US 1. The intersection at US 1 and Palm Drive is expanded to provide two (2) left turns, two (2) through lanes, separated by a 4-foot raised traffic separator and two (2) right turn lanes. To improve access management and circulation in the area, a Texas-U-turn is provided in the northbound direction just south of the Palm Drive intersection. A tolling location is proposed on the south end of the ramp for northbound travelers accessing the Turnpike. Alternative A, as shown at the Public Information Meeting #1 is depicted in **Figure 3-3**.

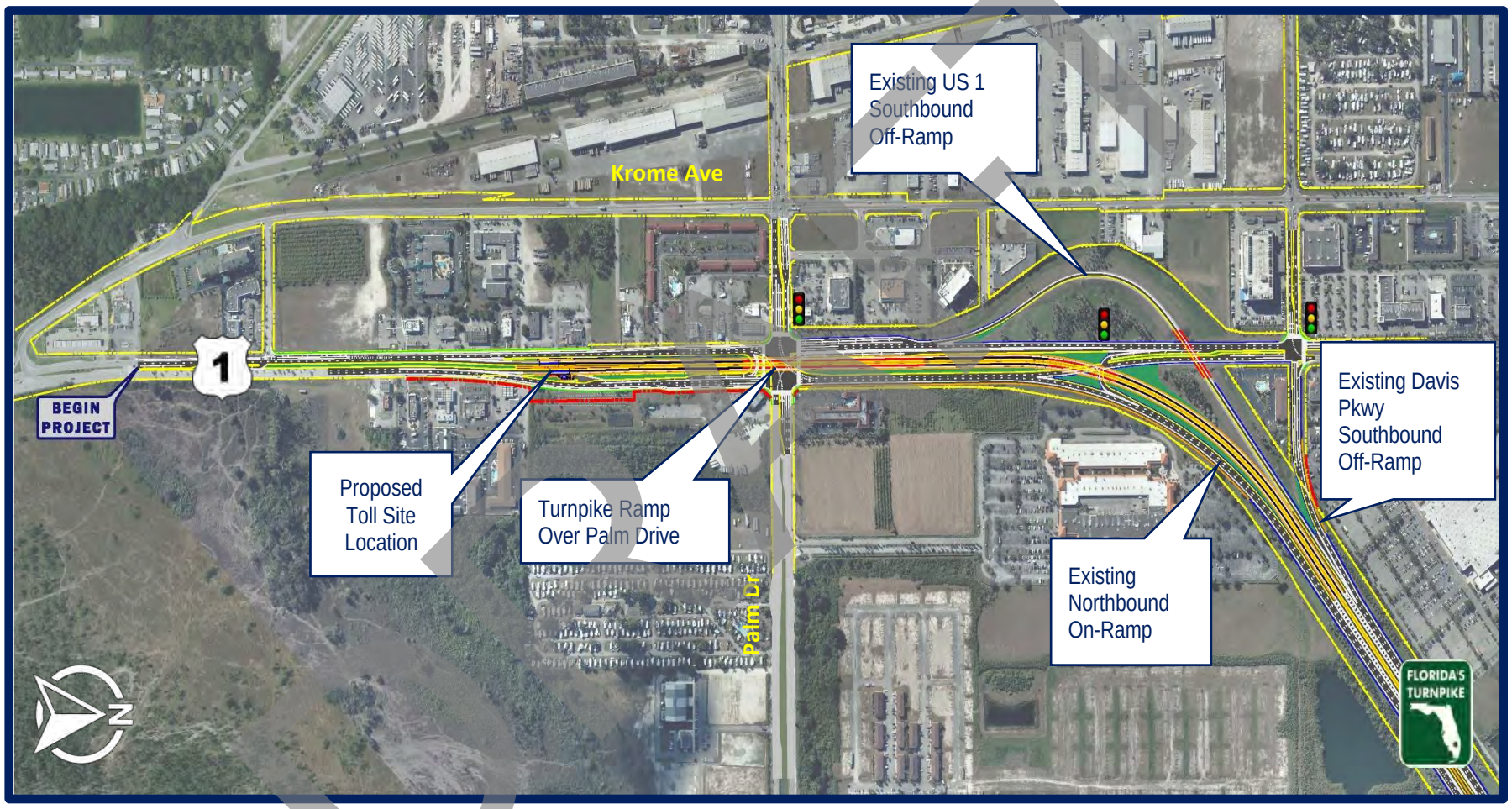


Figure 3-3 US 1 Interchange Alternative A

Alternative B

Alternative B is similar to Alternative A but contains additional improvements. The additional improvements include a dedicated southbound US 1 right turn lane ramp south of the Davis Parkway intersection, an additional traffic separator at the Palm Drive intersection and two (2), southbound US 1 lanes south of Palm Drive. The ramp bridge over Palm Drive is identical to that as proposed in Alternative A.

The existing southbound off-ramp (Ramp A / 04) to southbound US 1 is modified as in Alternative A. The southbound off-ramp remains a one-lane ramp as it exits from the Turnpike mainline and bridges over US 1 but widens to two (2) lanes to access the right turn lanes and southbound US 1 through lanes. No access to the dual left turn lanes is provided from this ramp. An additional traffic separator is provided at the Palm Drive intersection separating the right and through movements.

A new southbound US 1 right turn lane is proposed south of Davis Parkway. The road provides a one-lane ramp with 6-foot inside and outside shoulders. Access to the right turn lane is provided from the US 1 southbound outside through lane just south of Davis Parkway. This right turn lane allows southbound US 1 traffic to make a right turn onto westbound Palm Drive. No other movements are allowed from the right turn lane at the Palm Drive intersection. **Figure 3-4** depicts Alternative B and the proposed right turn lane.

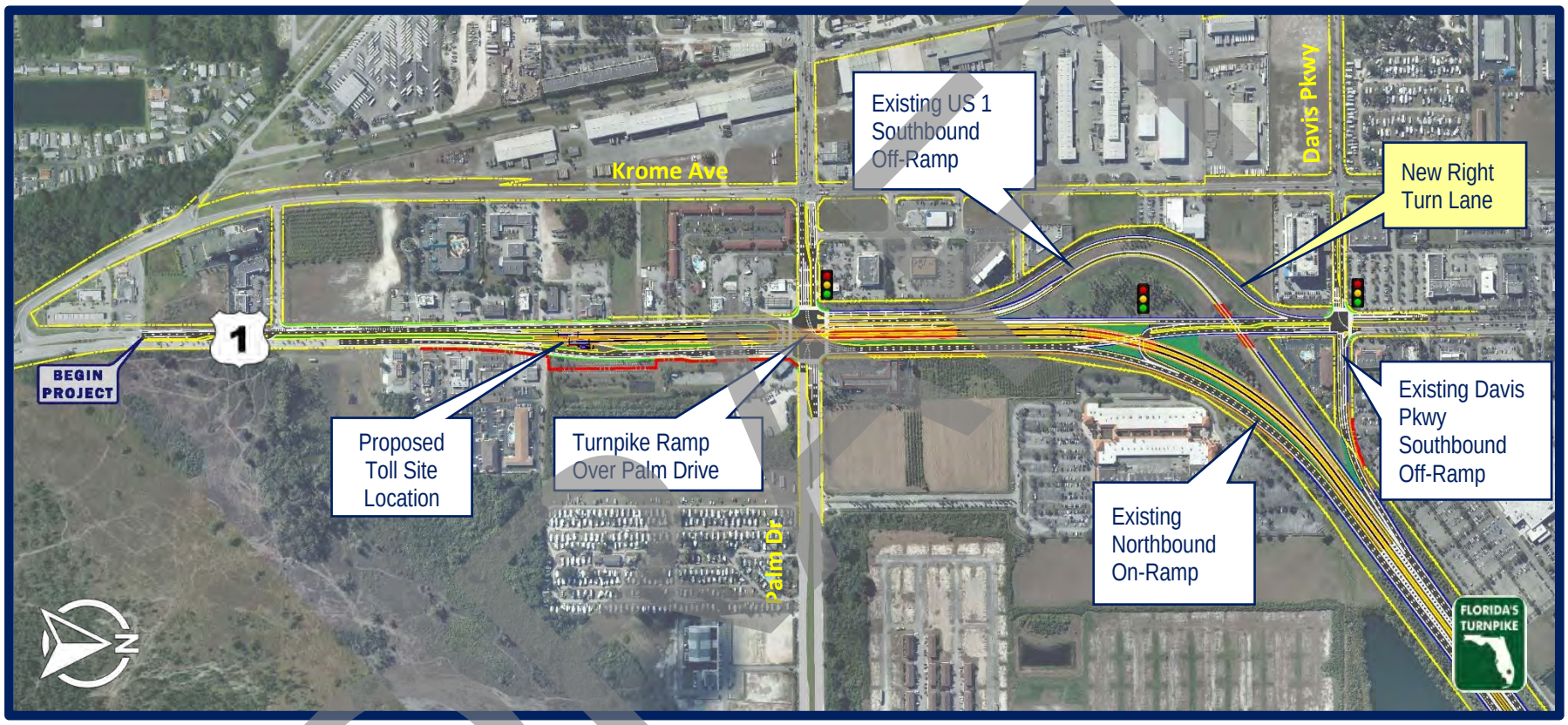


Figure 3-4 US 1 Interchange Alternative B

Lucy Street Interchange Alternative

The proposed Lucy Street Interchange concept was based on a previous interchange concept prepared by the Corradino Group in 2012, which provided the basic configuration for the interchange concept. This new interchange is in response to a local agency request for new access by the City of Homestead and local land developers. To accommodate the partial interchange, the existing Tennessee Road roadway, west of the Turnpike, will be relocated by others. Documentation of the coordination efforts with the City of Homestead and area landowners is included in Appendix E of the *Lucy Street Feasibility Study Technical Memorandum* (**Appendix G**). The partial interchange concept provided a new southbound off-ramp and a new northbound on-ramp. This concept was refined, updated and, incorporated into this PD&E study.

The concept also includes a 12-foot southbound auxiliary lane along the Turnpike from Campbell Drive to the proposed Lucy Street southbound off-ramp. The southbound off-ramp consists of a 15-foot wide single-lane ramp, which widens to three (3), 12-foot wide turning lanes [one (1) right turn lane, one (1) left turn lane and one (1) shared right/left turn lane] at Lucy Street. A signalized intersection will be developed at the southbound off-ramp and Lucy Street intersection. Extending the sidewalk from Tennessee Road to the new southbound off-ramp is also proposed.

A single-lane northbound on-ramp is proposed to connect Lucy Street to the Turnpike mainline as a parallel type ramp with an acceleration lane. Modifications along Lucy Street include adding a new eastbound left and right turn lane, adding a westbound right turn lane, and adding a through lane on the south leg of the intersection. **Figure 3-5** depicts the proposed interchange.

The only build alternative identified for the interchange included the Lucy Street Interchange concept is described above. No other build alternatives were evaluated or considered for the interchange. See the *Lucy Street Feasibility Study Technical Memorandum* in **Appendix G** for additional information.

Toll Site Alternatives

Two (2) tolling locations were considered for the ramp bridge over Palm Drive as part of this study. The first location was approximately 1,800 feet north of the ramp's southern-most touch down point. A second location was considered based on feedback received from FTE to locate the toll gantry closer to the ramp bridge entrance. This second location was preferred, and the tolling gantry is proposed to be located at the south end of the ramp over Palm Drive. A *Toll Site Technical Memorandum* will be prepared under separate cover after the Public Hearing to document the toll location details.

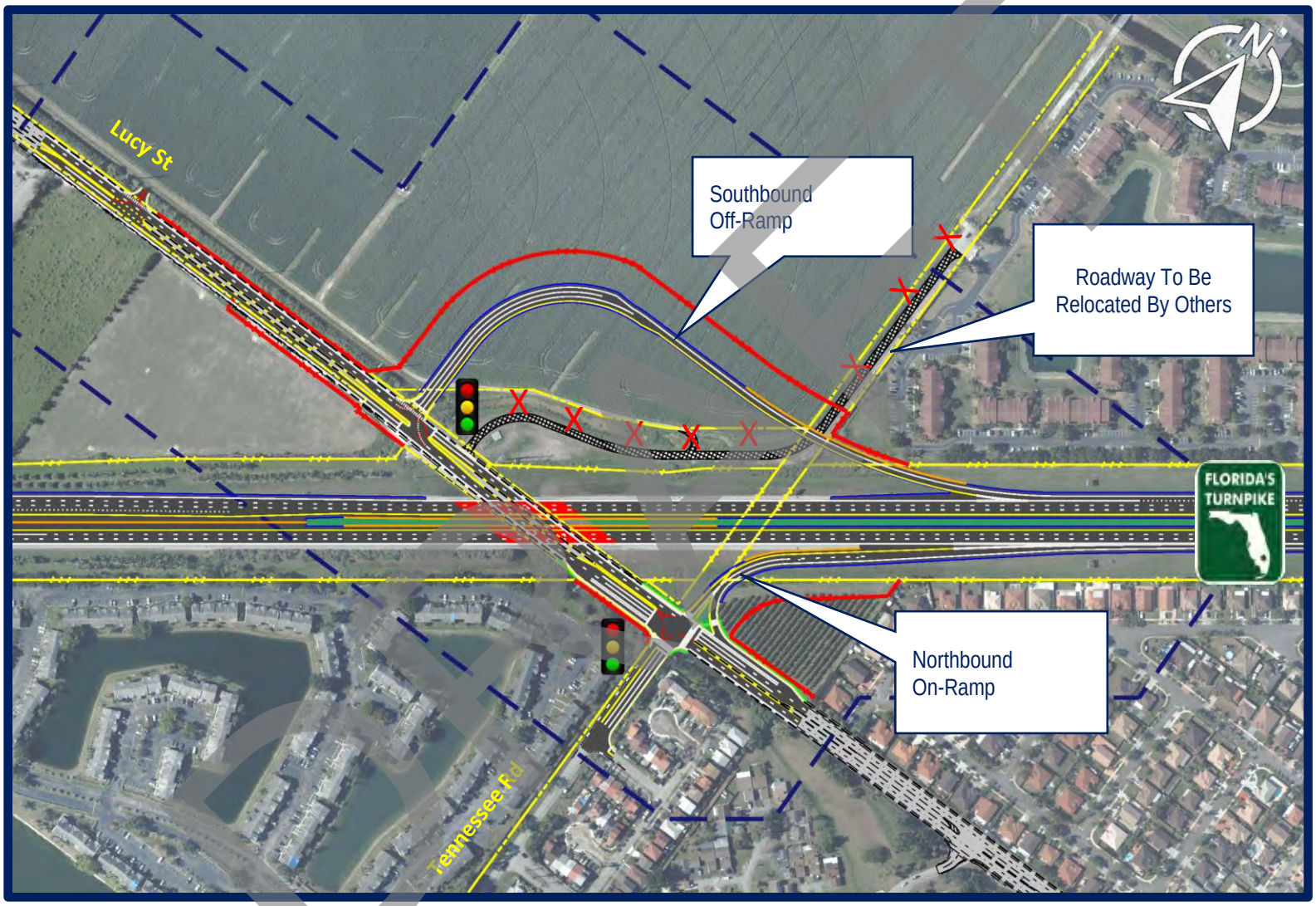


Figure 3-5 Lucy Street Intercvhange Alternative

Section 4

Design Controls and Criteria

4.1 Project Design Controls & Criteria

4.1.1 Roadway Context Classification

Roadway context classification was obtained from FDOT District 6 and is described further in **Section 2.3** of this report.

4.1.2 Design Control and Criteria

The design criteria and standards are based on design parameters outlined in A Policy on Geometric Design of Highways and Streets (AASHTO, 2011), FDOT Design Manual (FDM) (FDOT, 2020), Turnpike Design Handbook (TDH) (FTE, 2020), Load Rating Manual (FDOT, 2020), Roadside Design Guide (AASHTO, 2011) Load and Resistance Factor Design (LRFD) Bridge Design Specifications (AASHTO, Eighth Edition and 2018 Interims), Turnpike Supplemental to the FDOT Structures Manual (FTE, 2020), Turnpike Supplemental to the FDOT Drainage Manual (FTE, 2020) and General Tolling Requirements (GTR) (FTE 2019).

Table 4-1 through **Table 4-4** list the design criteria established for the project.

Table 4-1 Design Control Criteria

Design Element	Facility Type		Design Criteria			
		FDOT FDM	FTE TDH	AASHTO	Florida Green Book (2016)	Florida Green Book (2018)
Maximum Profile Grade	Turnpike Mainline	3%	-	3% level, 4% rolling, 6% mountainous	3% flat, 4% rolling	3% flat, 4% rolling
	Ramp @ 50 mph	5%	-	4% level, 5% rolling, 6% mountainous	4% flat, 5% rolling	4% flat, 5% rolling
	Arterials @ 45 mph	6%	-	6% level, 7% rolling, 10% mountainous	6% flat, 7% rolling	6% flat, 7% rolling
	Collectors @ 40 mph	7%	-	9% level, 10% rolling, 10% mountainous	9% flat, 10% rolling	9% flat, 10% rolling
Maximum Change in Grade without Vertical Curve	Turnpike Mainline	0.3	Min. distance between VPI's is 3 times DS = 195 ft	-	0.3	0.3
	Ramp @ 50 mph	0.6	Min. distance between VPI's is 3 times DS = 150 ft	-	0.6	0.6
	Arterials @ 45 mph	0.7	-	-	0.7	0.7
	Collectors @ 40 mph	0.8	-	-	0.8	0.8
Crest Vertical Curve	Turnpike Mainline	K=401, Minimum Length=1000 ft	-	K=193	K=193, Minimum Length=450 ft	K=193, Minimum Length=450 ft
	Ramps @ 50 mph	K=136, Minimum Length=300 ft	Use K values for higher system ramp design speeds except at platform area	K=84	K=84, Minimum Length=300 ft	K=84, Minimum Length=300 ft
	Arterials @ 45 mph	K=98, Minimum Length=135 ft	-	K=61	K=61	K=61
	Collectors @ 40 mph	K=70, Minimum Length=120 ft	-	K=44	K=44	K=44

Design Element	Facility Type		Design Criteria			
		FDOT FDM	FTE TDH	AASHTO	Florida Green Book (2016)	Florida Green Book (2018)
Sag Vertical Curve	Turnpike Mainline	K=181, Minimum Length=800 ft	-	K=157	K=157, Minimum Length=350 ft	K=157, Minimum Length=350 ft
	Ramps @ 50 mph	K=96, Minimum Length=200 ft	Use K values for higher system ramp design speeds except at platform area	K=96	K=96, Minimum Length=200 ft	K=96, Minimum Length=200 ft
	Arterials @ 45 mph	K=79, Minimum Length=135 ft	-	K=79	K=79	K=79
	Collectors @ 40 mph	K=70, Minimum Length=120 ft	-	K=64	K=64	K=64
Minimum Vertical Clearance	Bridges over Mainline (Limited Access)	16.5’ New; 16.0’ Exist	-	14’ Existing; 16’ New	16.5’	16.5’
	Bridges over Cross Roads (Non-LA)	16.5’ New; 16.0’ Exist	-	14’ Existing; 16’ New	16.0’	16.0’
	Overhead Signs	17.5’	18.0’ New	17’	-	-
	Dynamic Message Signs	19.5’	20.0’ New	17’	-	-
	Toll Gantries		18.0’	-	-	-
	Structure	-	18.0’	-	-	-
	Antennas & Cameras	-	18.5’	-	-	-
	VDAC	-	24.5’	-	-	-

Table 4-2 Horizontal Curve Criteria

Design Element	Facility Type	Design Criteria				
		FDOT FDM	FTE TDH	AASHTO	Florida Greenbook (2016)	Florida Greenbook (2018)
Maximum degree of Curve	Turnpike Mainline	4°15' (R=1348 ft)	-	4°15' (R=1348 ft)	4°15' (R=1345 ft)	4°15' (R=1345 ft)
	Ramps @ 50 mph – Ramp Bridge South, Ramp Bridge North, Lucy Street	8°15' (R=694 ft)	-	8°15' (R=694 ft)	8°15' (R=695 ft)	8°15' (R=695 ft)
	Urban Arterial @ 45 mph	10°15' (R=559 ft)	-	10°37' (R=540 ft)	8°15' (R=680 ft)	8°15' (R=680 ft)
	Urban Collector @ 40 mph	12°45' (R=432 ft)	-	12°45' (R=540 ft)	11°15' (R=510 ft)	11°15' (R=510 ft)
Length of Horizontal Curve	Turnpike Mainline	Desirable = 1950 ft	-	-	-	-
		Minimum = 975 ft	-	-	-	-
	Ramps – Ramp Bridge South, Ramp Bridge North, Lucy Street (V= 50 mph Design Speed)	Desirable 30V= 1500 ft	-	-	-	-
		Minimum 15V=750 ft	-	-	-	-
	Arterials @ 45 mph	675 ft	-	-	-	-
	Collector @ 40 mph	600 ft	-	-	-	-
Minimum Stopping Sight Distance	Turnpike Mainline	730 ft	-	645 ft	645 ft	645 ft
	Ramps @ 50 mph	425 ft	-	425 ft	425 ft	425 ft
	Arterials @ 45 mph	360 ft	-	360 ft	360 ft	360 ft
	Collectors @ 40 mph	305 ft	-	305 ft	305 ft	305 ft
Decision Sight Distance	Turnpike Mainline	-	-	1050 ft	-	1050 ft
	Ramps @ 50 mph	-	-	750 ft	-	750 ft
	Arterials @ 45 mph	-	-	930 ft	-	930 ft
	Collectors @ 40 mph	-	-	825 ft	-	825 ft
Superelevation Transition	Tangent (% of Superelevation length)	80%	80%	50%-80%	-	80%
	Curve (% of Superelevation length)	20%	20%	50%-20%	-	20%
Maximum Superelevation	Turnpike Mainline	10%	-	12%	10%	10%
	Ramps	10%	-	10%	10%	10%
	Arterials	10%	-	6%	5%	5%
	Collectors	10%	-	-	5%	5%

Table 4-3 Vertical Curve Criteria

Design Element	Facility Type	Design Criteria				
		FDOT FDM	FTE TDH	AASHTO	Florida Greenbook (2016)	Florida Greenbook (2018)
Maximum Profile Grade	Turnpike Mainline	3%	-	3% level, 4% rolling, 6% mountainous	3% flat, 4% rolling	3% flat, 4% rolling
	Ramp @ 50 mph	5%	-	4% level, 5% rolling, 6% mountainous	4% flat, 5% rolling	4% flat, 5% rolling
	Arterials @ 45 mph	6%	-	6% level, 7% rolling, 10% mountainous	6% flat, 7% rolling	6% flat, 7% rolling
	Collectors @ 40 mph	7%	-	9% level, 10% rolling, 10% mountainous	9% flat, 10% rolling	9% flat, 10% rolling
Maximum Change in Grade without Vertical Curve	Turnpike Mainline	0.3	Min. distance between VPI's is 3 times DS = 195 ft	-	0.3	0.3
	Ramp @ 50 mph	0.6	Min. distance between VPI's is 3 times DS = 150 ft	-	0.6	0.6
	Arterials @ 45 mph	0.7	-	-	0.7	0.7
	Collectors @ 40 mph	0.8	-	-	0.8	0.8
Crest Vertical Curve	Turnpike Mainline	K=401, Minimum Length=1000 ft	-	K=193	K=193, Minimum Length=450 ft	K=193, Minimum Length=450 ft
	Ramps @ 50 mph	K=136, Minimum Length=300 ft	Use K values for higher system ramp design speeds except at platform area	K=84	K=84, Minimum Length=300 ft	K=84, Minimum Length=300 ft
	Arterials @ 45 mph	K=98, Minimum Length=135 ft	-	K=61	K=61	K=61
	Collectors @ 40 mph	K=70, Minimum Length=120	-	K=44	K=44	K=44

Design Element	Facility Type	Design Criteria				
		FDOT FDM	FTE TDH	AASHTO	Florida Greenbook (2016)	Florida Greenbook (2018)
		ft				
Sag Vertical Curve	Turnpike Mainline	K=181, Minimum Length=800 ft	-	K=157	K=157, Minimum Length=350 ft	K=157, Minimum Length=350 ft
	Ramps @ 50 mph	K=96, Minimum Length=200 ft	Use K values for higher system ramp design speeds except at platform area	K=96	K=96, Minimum Length=200 ft	K=96, Minimum Length=200 ft
	Arterials @ 45 mph	K=79, Minimum Length=135 ft	-	K=79	K=79	K=79
	Collectors @ 40 mph	K=70, Minimum Length=120 ft	-	K=64	K=64	K=64
Minimum Vertical Clearance	Bridges over Mainline (Limited Access)	16.5' New; 16.0' Exist	-	14' Existing; 16' New	16.5'	16.5'
	Bridges over Cross Roads (Non-LA)	16.5' New; 16.0' Exist	-	14' Existing; 16' New	16.0'	16.0'
	Overhead Signs	17.5'	18.0' New	17'	-	-
	Dynamic Message Signs	19.5'	20.0' New	17'	-	-
	Toll Gantries		18.0'	-	-	-
	Structure	-	18.0'	-	-	-
	Antennas & Cameras	-	18.5'	-	-	-
	VDAC	-	24.5'	-	-	-

Table 4-4 Typical Section Criteria

Design Element	Facility Type	Design Criteria				
		FDOT FDM	FTE TDH	AASHTO	Florida Greenbook (2016)	Florida Greenbook (2018)
Lane Widths	Turnpike Mainline	12 ft	-	12 ft	12 ft	12 ft
	One-Lane Ramp	15 ft	-	15 ft	-	-
	Two-Lane Ramp	24 ft	-	-	-	-
	Arterials @ 45 mph	11 ft	-	10 ft	11 ft	11 ft
	Collectors @ 40 mph	11 ft	-	10 ft	11 ft	11 ft
Shoulder Width – Roadway Inside (or Left)		Total (Paved)	Total (Paved)	Total (Paved)	Total (Paved)	Total (Paved)
	Turnpike Mainline	12 ft (10 ft)	12 ft (10 ft)	10 ft (10 ft)	10 ft	10 ft
	One-Lane Ramp	6 ft (2 ft)	6 ft (4 ft)	4 ft (2 ft-4 ft)	6 ft	6 ft
	Two-Lane Ramp	8 ft (4 ft)	8 ft (4 ft)	4 ft (2 ft-4 ft)	6 ft	6 ft
	Arterials and collectors – w/o shoulder gutter	10 ft (5 ft)	-	6 ft-8 ft (2 ft)	6 ft-10ft	6 ft-10ft
	Arterial and collectors with shoulder gutter	15.5 ft (8 ft)				
Shoulder Width – Roadway Outside (or Right)		Total (Paved)	Total (Paved)	Total (Paved)	Total (Paved)	Total (Paved)
	Turnpike Mainline	12 ft (10 ft)	12 ft (10 ft)	10 ft (10 ft)	10 ft (10 ft)	10 ft (10 ft)
	One-Lane Ramp	6 ft (4 ft)	(4 ft)	6ft-10ft (6ft-10ft)	6 ft	6 ft
	Two-Lane Ramp	12 ft (10 ft)	(10 ft)	6ft-10ft (6ft-10ft)	6 ft	6 ft
	Arterials and collectors – w/o shoulder gutter	10 ft (0 ft)	-	6 ft-8 ft (2 ft)	10 ft	10 ft
	Arterials and collectors with shoulder gutter	15.5 ft (8 ft)				
Inside Shoulder Width – Bridge Structure	Turnpike Mainline	10 ft	Match paved shoulder width	10 ft	10 ft	10 ft
	One-Lane Ramp	6 ft	4 ft	4 ft	-	-
	Two-Lane Ramp	10 ft	-	4 ft	-	-
	Arterials	10 ft	-	6 ft	6 ft-10ft	6 ft-10ft
	Collectors	10 ft	-	6 ft		

Design Element	Facility Type	Design Criteria				
		FDOT FDM	FTE TDH	AASHTO	Florida Greenbook (2016)	Florida Greenbook (2018)
Outside Shoulder Width – Bridge Structure	Turnpike Mainline	10 ft	Match paved shoulder width	10 ft	10 ft	10 ft
	One-Lane Ramp	6 ft	-	6 ft	-	-
	Two-Lane Ramp	10 ft	-	6 ft	-	-
	Arterials	10 ft	-	6 ft	10 ft	10 ft
	Collectors	10 ft	-	6 ft		
Typical Roadway Cross Section Slopes:	Turnpike Mainline	2% for two lanes; 3% for outside lane sloped same direction	-	1.5% - 4%	1.5% - 4%	1.5% - 4%
	Ramps (New)	2%	3%	1.5% - 3%		
	Inside Shoulder	5%	-	2% - 6%		
	Outside Shoulder	6%	-	2% - 6%		
	Arterials	2%, 2%, 3%	-	1.5% - 3%		
	Collectors	2%, 2%, 3%	-	1.5% - 3%		
Recoverable Terrain (Min. from edge of travel)	Turnpike Mainline	36 ft	-	30 ft-34 ft	30 ft	30 ft
	One-Lane Ramp (50/30 mph)	14 ft/10 ft	Add Aux Lane CZ – 14 ft	14 ft	10 ft-18 ft	10 ft-14 ft
	Two-Lane Ramp (50/30 mph)	24 ft/12 ft	Add Aux Lane CZ – 14 ft	22 ft/14 ft	10 ft-18 ft	10 ft-14 ft
	Arterials @ 45 mph	24 ft	-	20 ft-24 ft	18 ft	20 ft-24 ft
	Collectors @ 40 mph	18 ft	-	14 ft-16 ft	10 ft	14 ft-16 ft
Border Width:	Ramps/Mainline	94 ft (for new construction, where no ROW use items listed in 211.6.1)	-	-	-	-
	Arterials @ 45 mph	14 ft	-	-	-	-
	Collectors @ 40 mph	12 ft	-	-	-	-

Section 5

Alternatives Analysis

5.1 Previous Planning Studies

Previously several improvements to the area have been studied by FDOT District 6 and the Miami-Dade Transportation Planning Agency (MDTPA)(formerly the Metropolitan Planning Organization MPO) to improve operations in the area. All improvements have been considered in the development of the alternatives for this PD&E study.

- Miami-Dade Metropolitan Planning Organization Evacuation Planning Assessment US 1 and SW 344th Street Intersection Area (2012)
- SR 997 (Krome Avenue) Truck By-Pass PD&E Study, FM 405575-2-22-01 (2015)
- Campbell Drive Interchange PD&E Study, FM 423372-1 (2014). Ramp improvements identified have been included in the analyses performed as a part of this PD&E study.
- Lucy Street Feasibility Study Technical Memorandum, FM 439545-1 (2019). A partial interchange concept was recommended for inclusion in this PD&E study at the request of the City of Homestead and area landowners. In order to accommodate this request, the FDOT requires a 50% cost share with these local partners. The *Lucy Street Feasibility Study Technical Memorandum* is included as **Appendix G.**
- Other studies that have resulted in design projects to widen or perform maintenance type projects include:
    - Palm Drive widening to a 6-lane divided facility east of US 1 (City of Florida City project).
    - Addition of a southbound right turn lane at the intersection of US 1 and Palm Drive (FDOT D6 FPID 405575-8-52-01).

- Widening of Davis Parkway west of US 1 and the addition of turn lanes on the north and west leg of the Davis Parkway / US 1 intersection (FDOT D6 FPID 405575-7).

- Lucy Street (SW 328th Street) widening to an urban 4-lane divided roadway from US 1 to SW 162nd Avenue (Miami-Dade County Public Works Project Number 20040556).

- Turnpike mainline milling and resurfacing with minor widening and slope regrading, lighting and ITS improvements (FDOT FPID's 440423-1-52-01 and 440423-2-52-01).

5.2 No Build (No-Action) Alternative

The No Build alternative leaves the Turnpike connection to US 1 as is, with no improvements or modifications. It also leaves the Turnpike over Lucy Street as is with no proposed interchange. It also does not modify the Campbell Drive ramp terminals from taper to parallel types.

5.3 Transportation Systems Management and Operations Alternative (TSM&O)

Transportation Systems Management and Operations (TSM&O) alternatives are defined as low cost transportation improvements designed to maximize the utilization and efficiency of the existing transportation system through improved system management. The various forms of TSM&O activities include:

- Traffic signal improvements;
- Intersection improvements;
- Widening of parallel arterials;
- Ridesharing programs;
- HOV lanes;
- Reversible flow roadway systems;
- Transit;
- Intelligent Transportation System (ITS); and
- Improvements to signing, marking, and roadway lighting.

TSM&O improvements were considered as project alternative. Due to the regional mobility needs that the Turnpike serves, off-corridor options such as widening of parallel arterials and cross street intersection/signal improvements will not address the future traffic demand. Existing transit service is available in the corridor but primarily services local users. The travel time on the Turnpike for regional traffic is much lower than local transit operation on congested local streets.

However, it is noted that TSM&O improvements are compatible with the potential widening of the Turnpike and are included in the Build Alternative. ITS enhancements and signing, marking and lighting modifications are being analyzed as part of the Build Alternative.

Although the implementation of these TSM&O strategies would certainly aid in localized operation of the existing roadway, the projected traffic volumes for the Design Year 2045 require segments of the Turnpike to be widened to provide additional capacity to maintain or improve the existing level of service. TSM&O improvements would not address the future travel demand along the study segment of the Turnpike. Therefore, the TSM&O Alternative alone is not considered a viable alternative as it does not meet the project's purpose to meet the projected future capacity needs and no further evaluation of the TSM&O Alternative will be conducted during this study. However, public agency input on the TSM&O alternative have been considered prior to identifying a Preferred Alternative.

5.4 Comparative Alternatives Evaluation

The Build, No Build and TSM&O alternatives were compared side-by-side in an evaluation matrix using criteria including engineering, cost and environmental factors. Also included in this section is the evaluation matrix prepared during the Interchange Alternative Analysis phase for the US 1 interchange, as well as, an overall evaluation matrix for the project comparing the purpose and need criteria.

US 1 Interchange Evaluation

Three (3) US 1 interchange alternatives (Alternative A, Alternative B and the No Build) were analyzed as part of the Interchange Alternative Analysis. The complete analysis of these alternatives is included in the *Interchange Alternative Analysis Technical Memorandum* in **Appendix K**. **Table 5-1** summarizes the findings and includes the TSM&O alternative.

Table 5-1 US 1 (SR 5) Interchange Alternatives Evaluation Matrix

Advantages & Effects		US 1 Interchange Alternatives			
		A	B	TSM&O	No Build
Traffic/ LOS/ Safety	Improve Traffic Operations and Safety for Roadway users (weaving, queueing)	Reduces weaving and queueing	Reduces weaving and queueing	Potential marginal reduction in Delay	Increase in Delay
	Enhance Evacuation Route	Yes	Yes	Potential marginal improvements	No
	Access Impacts (median closures/ modification)	Yes (2 full closures and 1 modified)	Yes (2 full closures and 1 modified)	N/A	No
Cost	Right-of-Way Impacts and Cost	7 parcels (2.345 Ac) $ 10.6 Million	7 parcels (2.345 Ac) $ 10.6 Million	$0	$0
	LRE Construction Costs	$119.6 Million	$125.6 Million	Cost unknown, anticipate $1M+	$0

Advantages & Effects		US 1 Interchange Alternatives			
		A	B	TSM&O	No Build
Environmental Impacts	Cultural (Recreational Areas, Historic, Archaeological Sites)	Minimal	Minimal	None	None
	Physical (Contamination and Noise)	Minimal	Minimal	None	None
	Natural (Species & Wetlands)	Minimal	Minimal	None	None
	Social (Public, Community & Businesses)	Minimal	Minimal	None	None
Other Engineering Impacts	Compatible with Adjacent Projects	Yes	Yes	Yes	No
	Utility Impacts	Yes	Yes (Additional impacts due to US 1 southbound right turn lane)	Potentially	None
	MOT Complexity & Constructability	Will require several phases to complete	Will require several phases to complete	Will require several phases to complete	None

Lucy Street Interchange Feasibility Study Recommendation

The alternative evaluated for the Lucy Street interchange is a new partial interchange based on a previous interchange concept prepared by The Corradino Group in 2012. This new interchange is in response to a local agency request for new access by the City of Homestead and local land developers.

The purpose of the interchange is to reduce congestion at adjacent Turnpike interchanges and improve mobility to, and within, the cities of Homestead and Florida City. Lucy Street crosses beneath the Turnpike at approximately MP 1.37, 0.83 miles north of the US 1 interchange, and 1.74 miles south of the Campbell Drive interchange. The interchange concept creates new access to the Turnpike with one (1) southbound off-ramp that expands to three (3) lanes at the Lucy Street intersection and one (1) northbound on-ramp. Since there was only a single alternative for the Lucy Street interchange, it was not included as a separate criteria in the evaluation matrix.

An overall project evaluation matrix using purpose and need criteria is shown in **Table 5-2.** Ratings were assigned "yes" if the proposed improvements met the criteria or would have a positive effect

(improve the current condition) on the criteria, a "no" if the proposed improvements did not meet the criteria or created a negative effect or allowed the current condition to worsen. Some criteria were assigned a "maybe" or "minimally" to indicate that the current condition could potentially be affected in a positive manner, albeit some criteria are anticipated to only improve marginally or "minimally".

Table 5-2 Overall Project Evaluation Matrix

Criteria / Objective		Project Alternatives			
		A	B	TSM&O	No Build
Traffic/ LOS/ Safety	Improve Traffic Operations and Safety for Roadway users	Yes	Yes	Minimally	No
	Improve Freeway LOS	Yes	Yes	Minimally	No
	Improve Emergency & Evacuation capability	Yes	Yes	Minimally	No
	Provide additional Access Opportunities	Yes	Yes	No	No
Right-of-Way	Minimize Right-of-Way Impacts	17 parcels (15.233 Ac)	17 parcels (15.264 Ac)	0 parcels	0 parcels
Environmental Impacts	Minimize Cultural (Recreational Areas, Historic, Archaeological Sites) impacts	No impact	No impact	No impact	No impact
	Minimize Physical (Contamination, Noise, Air) effects	Yes (C, N, A)	Yes (C, N, A)	Yes (N, A) Maybe (C)	No (N, A)
	Minimize Natural (Species & Wetlands) effects	Yes, effects mitigated	Yes, effects mitigated	No impact	No impact
	Enhance Social (Public, Community & Businesses) effects	Yes	Yes	Maybe	No
Other Factors	Enrich Community Livability	Yes	Yes	Maybe	No
	Improve Regional Mobility	Yes	Yes	Maybe	No
	Compatible with Adjacent Projects	Yes	Yes	Yes	No

Legend: Yes = Positive effect Maybe = potentially positive effect No = negative effect
C=Contamination N= Noise A=Air

5.5 Value Engineering

A Cost Risk and Value Engineering (CRAVE) study was conducted from March 2 through March 6, 2020. The CRAVE team developed eighteen (18) Value Engineering (VE) Recommendations and the PD&E team performed an assessment of those recommendations. Two (2) of the recommendations (described below) were incorporated into the PD&E study, eight (8) were deferred to final design and the remaining eight (8) were not found to offer any value to the project. The PD&E team's assessment results were concurred with by FTE Management in May 2020. The recommendations that were incorporated into the project are briefly described below and are reflected in the Concept Plans in **Appendix A**.

- VE Recommendation #6: Adjust SB Merge Distance at Davis Parkway Off-Ramp
  PD&E Team Response and Implementation: The length of the southbound lane shift for the direct connect lane was reduced and will result in the full depth pavement being modified to shoulder pavement offering a minor cost savings.

- VE Recommendation #12: Extend MSE Wall
  VE Recommendation: Relocate Turnpike mainline alignment 14 feet east to extend the MSE wall portion closer to Palm Drive intersection.
  PD&E Team Response and Recommendation: This recommendation was incorporated into the concept with minor revisions resulting in a slight shift of the ramp bridge alignment to the east, a reduction in bridge length and extension of the MSE wall limits. This revised recommendation offers a substantial cost savings and may have aesthetic benefits due to less bridge structure and more MSE wall.

5.6 FDOT Selected Alternative

Based on the engineering, environmental and VE study analysis and results, Alternative B was determined to best satisfy the projects purpose and need while minimizing adverse impacts. Alternative B is the FDOT Selected Alternative and is further detailed in Section 7 of this document.

Section 6

Project Coordination and Public Involvement

6.1 Agency Coordination

Agency coordination has occurred throughout the PD&E phase of the project and will continue as the project moves forward into subsequent design and construction phases. Agency coordination documentation is included in **Appendix H** of this report. Listed below is a history of the events to date:

- Advance Notification and ETDM – March 2017
- Public & Agency Kickoff Newsletter prepared and distributed - September 2018
- FDOT, District 6 Coordination– February 2018
- Miami-Dade Transportation & Public Works Coordination– September 2019
- City of Florida City Coordination – October 2019, January 2020
- City of Homestead Coordination – October 2019, March 2021
- Miami-Dade County TPO Coordination – October 2019, March 2021
- Public Additional Agency coordination is TBD and will be entered as the project progresses.

6.2 Public Involvement

Public outreach and involvement are important to the success of the project. This outreach effort will continue as the project moves forward into subsequent phases. The *Public Involvement*

Summary Report (prepared as a stand-alone supporting document) contains documentation of the items listed below. Listed below is a history of the public outreach events to date:

- Public Newsletter prepared and distributed - September 2018

- Public Information Meeting #1– January 2020, 5:30 – 7:30 p.m.; The project alternatives and supporting information was presented and displayed for the public and agencies in attendance at the Phicol Williams Center in the City of Homestead. Project representatives were on hand to discuss the concepts and answer questions. One hundred and fourteen (114) people attended the meeting which included twenty-six (26) members of the project team. A PowerPoint presentation was conducted and there were eight (8) comments received at the meeting and an additional seventeen (17) received during the comment period. All comments were responded to and documentation is included in the supporting *Public Involvement Summary Report* prepared under separate cover.

A number of additional stakeholder and small group meetings were held after PIM #1 but prior to the Public Hearing and listed below. Meeting minutes of each are included in the Public Involvement Summary Report prepared as a supporting document to this study:

  - March 3, 2021: Miami-Dade TPO Staff update; three (3) TPO staff members attended. No concerns were noted and it was suggested to meet with the TPO committees prior to the public hearing to gain additional feedback.
  - March 12, 2021, City of Homestead Public Works and Engineering staff; two (2) members of the City attended the meeting. No concerns were noted regarding the project and support was expressed for the Lucy Street Interchange.
  - List of meetings was updated as of May 25, 2021. Additional meetings will be inserted as needed.

Section 7

Design Features and Preferred Alternative

7.1 Engineering Details of the Preferred Alternative

The Preferred Alternative (Alternative B) is discussed in further detail in the following sections. These improvements are depicted in **Appendix A** containing the overall project exhibit which will be replaced with Concept Plans after the Public Hearing

7.1.1 Turnpike Mainline

The Turnpike mainline section will be generally widened to the inside to include six (6) travel lanes which are all general toll lanes. Other typical section elements are shown in **Figure 7-1.**

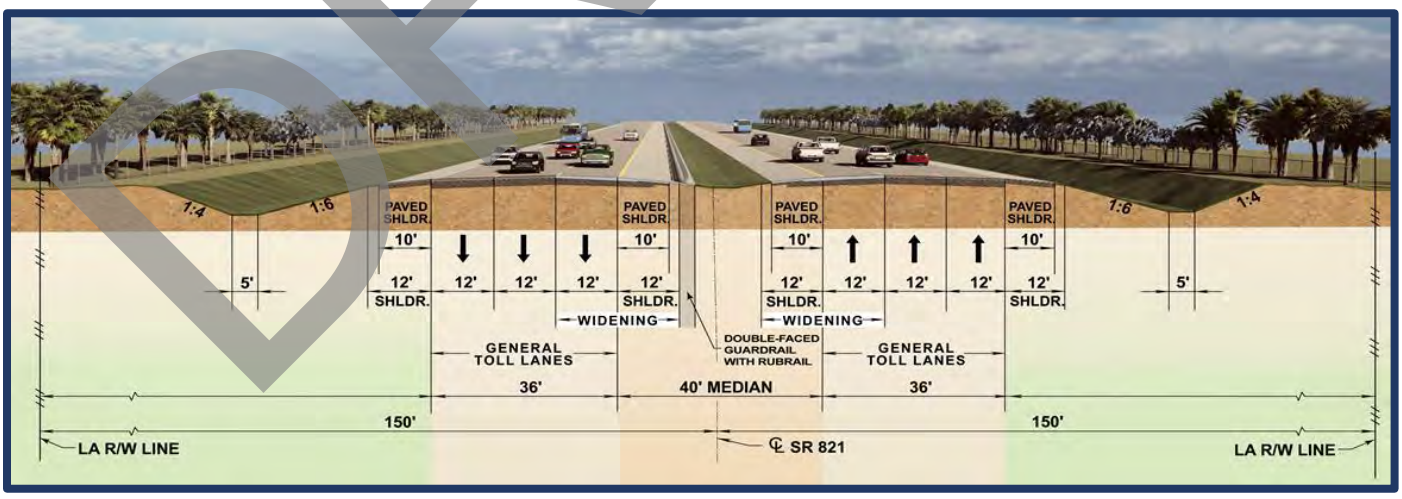


Figure 7-1 Mainline Widening

Outside widening will be provided on the Turnpike mainline between Campbell Drive and Lucy Street to convert the current Campbell Drive southbound off-ramp (Ramp 07), northbound loop on-ramp (Ramp I) and southbound on-ramp terminals from taper types to parallel type ramp connections. These ramp terminal modifications are consistent with TDH section 211.13 to provide parallel entrances and exits on new construction, widening and capacity improvement projects. The outside widening will also provide an auxiliary lane in the north and southbound directions between the Campbell Drive and Lucy Street interchanges.

At the time of this PD&E study, a wrong-way signing design-build project RFP (FM 434968-2-32-01) was in development. The new signing plan is not reflected or considered in the Preferred Alternative and should be considered during final design.

7.1.2 US 1 Interchange

The Preferred Alternative (depicted in **Figures 7-2** and **7-3**) features a two-lane, two-way, ramp bridge over Palm Drive (ramp is shown in **Figure 7-6**) connecting directly from the median of US 1 (south of Palm Drive) to the median of the Turnpike. Southbound and northbound US 1 must be slightly realigned to minimize ROW and accommodate the new ramp within the median.

The ramp bridge begins in the median of US 1, approximately 1,500 feet south of Palm Drive, raises up and continues over Palm Drive, connecting along the centerline of the Turnpike. The southbound off-ramp remains a one-lane ramp as it exits from the Turnpike mainline and goes over US 1 but widens to two (2) lanes to access the right turn lane and southbound US 1 through lanes. No access to the dual left turn lanes is provided from this ramp. An additional traffic separator is provided at the Palm Drive intersection separating the right and through movements.

A new southbound US 1 right turn lane is proposed south of Davis Parkway. The road provides a one-lane ramp with 6-foot inside and outside shoulders. Access to the right turn lane is provided from the US 1 southbound outside through lane just south of Davis Parkway.

On US 1, south of Davis Parkway, two (2) southbound through lanes, varying from 11 to 12 feet, are provided. Approximately 950 feet south of Davis Parkway, a southbound US 1 left-turn lane provides a ramp connection to the northbound Turnpike. At the Palm Drive intersection, southbound US 1 expands to provide two (2) left turn lanes, two (2) through lanes and two (2) right turn lanes. A raised 4-foot traffic separator is located between the left and through and the through and right turn movements to minimize weaving. The southbound ramp bridge over Palm Drive reaches grade approximately 1,500 feet south of the Palm Drive intersection where a third US 1 lane will accommodate the free flow ramp traffic. Further south, approximately 2,000 feet south of Palm Drive and 500 feet south of the ramp bridge terminus, the outside through lane becomes a drop right turn lane.

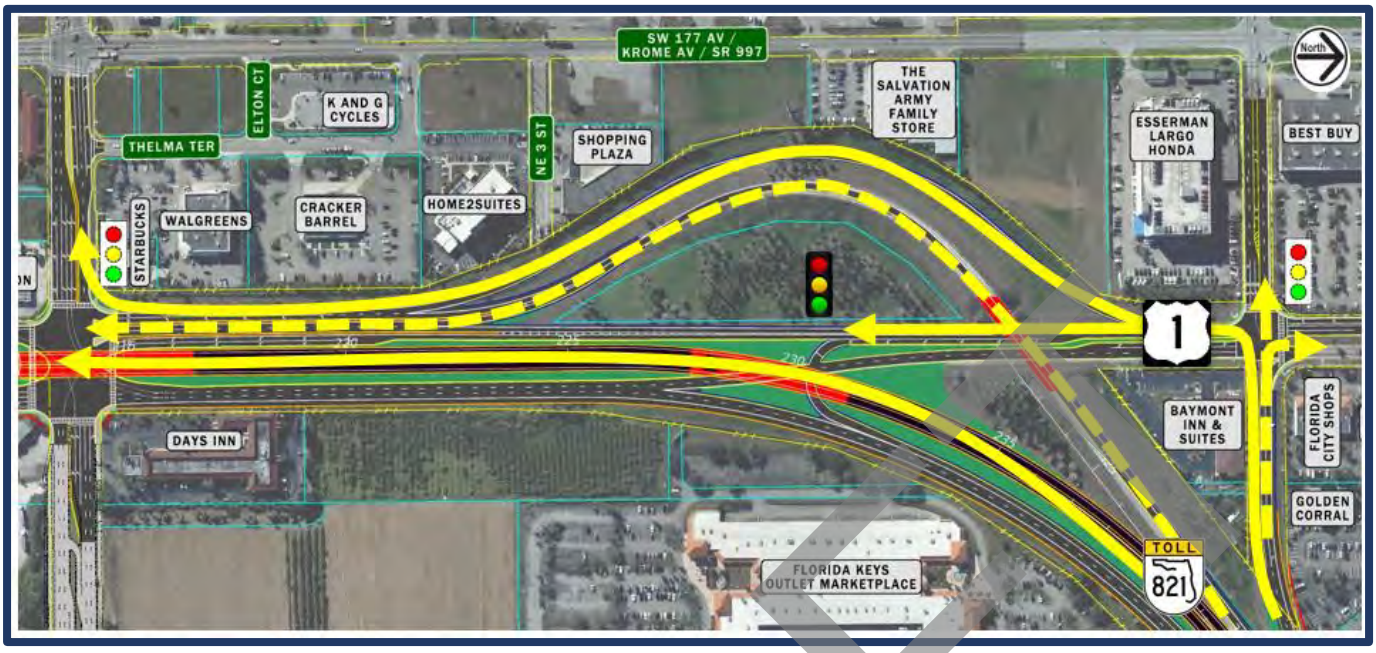


Figure 7-2 Preferred Alternative at US 1 North Area

Northbound US 1 remains three (3) lanes until the inside lane develops into the northbound ramp bridge over Palm Drive. At the Palm Drive intersection, the northbound US 1 approach has one (1) Texas U-turn lane, one (1) left turn lane, two (2) through lanes and a shared right/through lane. North of Palm Drive, US 1 northbound has two (2), 11-foot lanes and a 12-foot outside lane. The outside lane diverges to form dual northbound Turnpike on-ramp lanes approximately 1,250 feet north of Palm Drive. A new tolling facility is planned for the south end of the ramp bridge, south of Palm Drive and on the northbound side of the ramp. This southern section of the project is depicted in **Figure 7-3**.

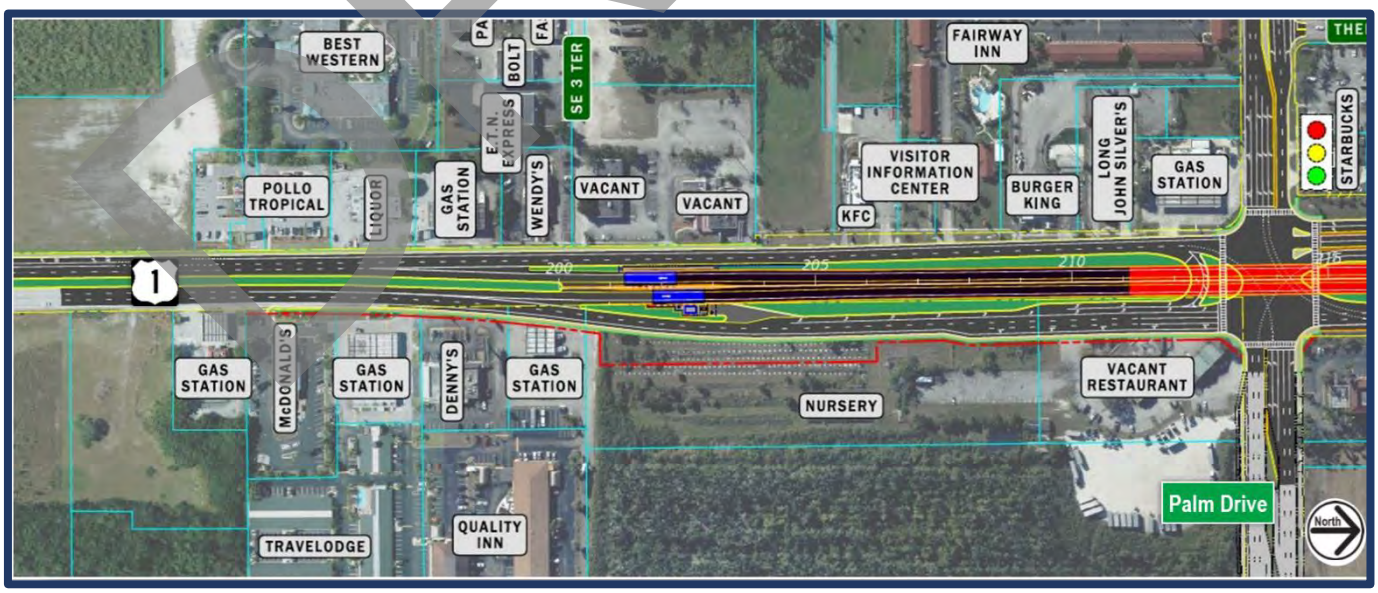


Figure 7-3 Preferred Alternative at US 1 South Area

7.1.3 Lucy Street Interchange

The proposed Lucy Street Interchange includes a partial interchange with a southbound off-ramp (approximate MP 1.657) and northbound on-ramp (approximate MP 1.762). A southbound 12-foot auxiliary lane is proposed along the Turnpike from Campbell Drive to the Lucy Street southbound off-ramp. The southbound off-ramp includes a 15-foot wide single-lane ramp, which widens to three (3), 12-foot wide lanes [one (1) right turn lane, one (1) left turn lane and one (1) shared right/left turn lane] at Lucy Street. To accommodate the southbound off-ramp the existing Tennessee Road roadway will be relocated by others. A signalized intersection is proposed at the southbound off-ramp and Lucy Street intersection. The sidewalk from Tennessee Road to the new southbound off-ramp will be extended. In order to accommodate these improvements, the L/A ROW on the north west side of interchange will be relocated and extended approximately 900' along the west side of the southbound off-ramp. This allows the land-locked interchange in-field area to be utilized for drainage needs.

A single-lane northbound on-ramp connects to the Turnpike mainline as a parallel ramp with an acceleration lane. Lucy Street modifications include adding a new eastbound left and right turn lane, a westbound right turn lane, and a through lane on the south leg of the intersection.

Potential substantial impacts are anticipated for the utilities within the Lucy Street interchange area. During the design phase potential utility conflicts should be reviewed with the proposed improvements including potential conflicts with new signal and light pole locations and at drainage modifications. The separately prepared *Lucy Street Feasibility Study Technical Memorandum* and the *Utility Assessment Package Technical Memorandum* contain more detailed information on the exact nature of the anticipated utility impacts.

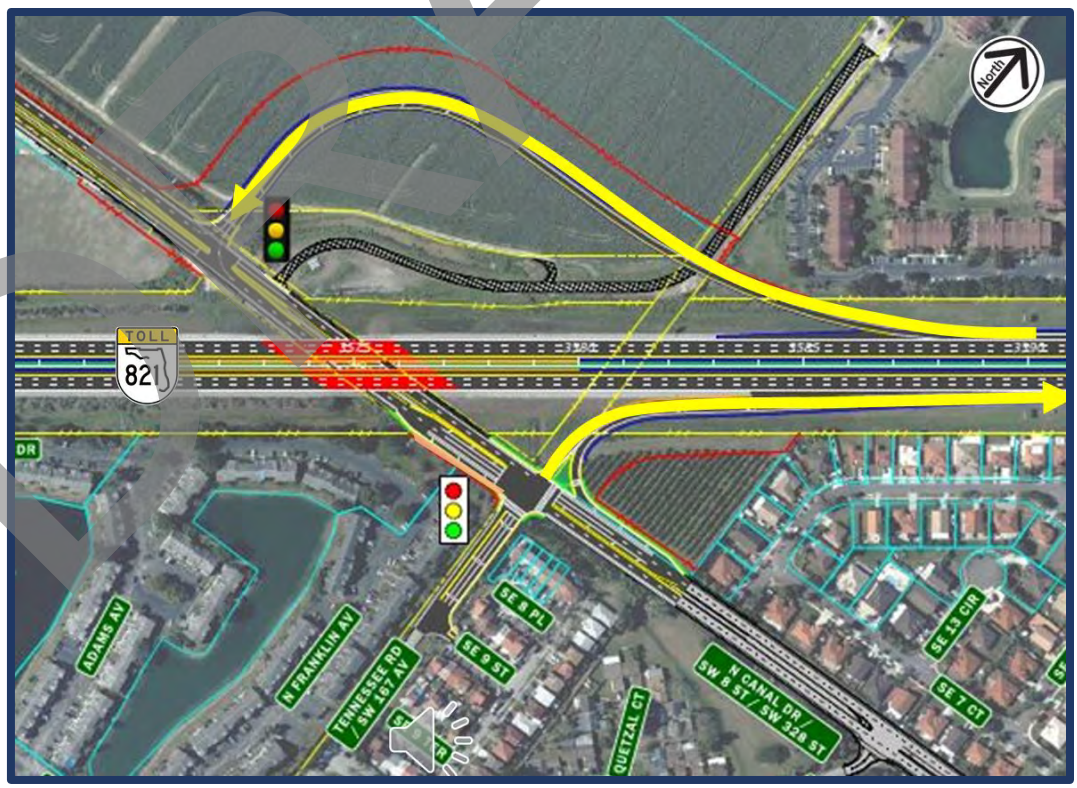


Figure 7-4 Proposed Lucy Street Interchange

7.1.4 Bridges and Structures

To accommodate the Preferred Alternative, most of the existing bridges will be widened along the Turnpike mainline. In addition, the Preferred Alternative will include two (2) new bridge ramps over US 1 and over Palm Drive. The Preferred Alternative will widen the existing bridges to the inside adding one (1) additional lane. Also, some of the bridges will be widened to the outside to accommodate auxiliary lane improvements. The locations of the existing and proposed bridges are shown in **Figure 7-7.** Additional details are found in the *Bridge Analysis Technical Memorandum (BATM)* located in **Appendix E** prepared as a supporting document to this study. A summary of the Preferred Alternative bridges is noted below:

Proposed Ramp Bridges

To accommodate the proposed improvements at Palm Drive and along US 1 the Preferred Alternative includes two (2) new ramp bridges that will connect US 1 to the Turnpike. The proposed ramp typical section is shown in **Figure 7-5**.

Proposed Ramp Bridge South – Florida's Turnpike SB/NB over Palm Drive

The first of the two (2) new ramp bridges, the Ramp Bridge South, will go over Palm Drive and consist of a three (3) span, steel plate girder bridge (**Figure 7-6**). Each span will consist of ten (10) steel plate girders. The total bridge length is 545 feet with a maximum span length of 213 feet. The bridge will have a 58-foot, 8-inch wide deck with two (2), 6-foot shoulders and will carry two (2), 15-foot lanes of traffic [one (1) in each direction]. The deck will also be constructed with two (2), 36-inch single slope traffic railings (Index 521-427) and a 36-inch single slope median traffic railing (Index 521-426). The bridge deck is crowned with a 3% cross slope and has a 3% longitudinal slope to allow for stormwater drainage off the bridge without the need for deck drains. The proposed bridge will utilize an integral pier cap. The abutments are founded on conventional pile cap and prestressed concrete piles with MSE wall facing.

Proposed Ramp Bridge North – Florida's Turnpike SB/NB over US 1

The second of the two (2) new ramp bridges, the Ramp Bridge North, will go over US 1 and consist of a two (2) span, steel plate girder bridge. Each span will have ten (10) steel plate girders. The total bridge length is 366 feet with a maximum span length of 183 feet. The bridge will have a 58-foot, 8-inch wide deck with two (2), 6-foot shoulders and will carry two (2), 15-foot lanes of traffic [one (1) in each direction] separated by a 2-foot median traffic railing. The deck will also be constructed with two (2), 36-inch single slope traffic railings (Index 521-427) and be superelevated to 6.1%. The proposed bridge will utilize an integral straddle bent. The abutments are proposed to be founded on conventional pile cap and prestressed concrete piles with MSE wall facing.

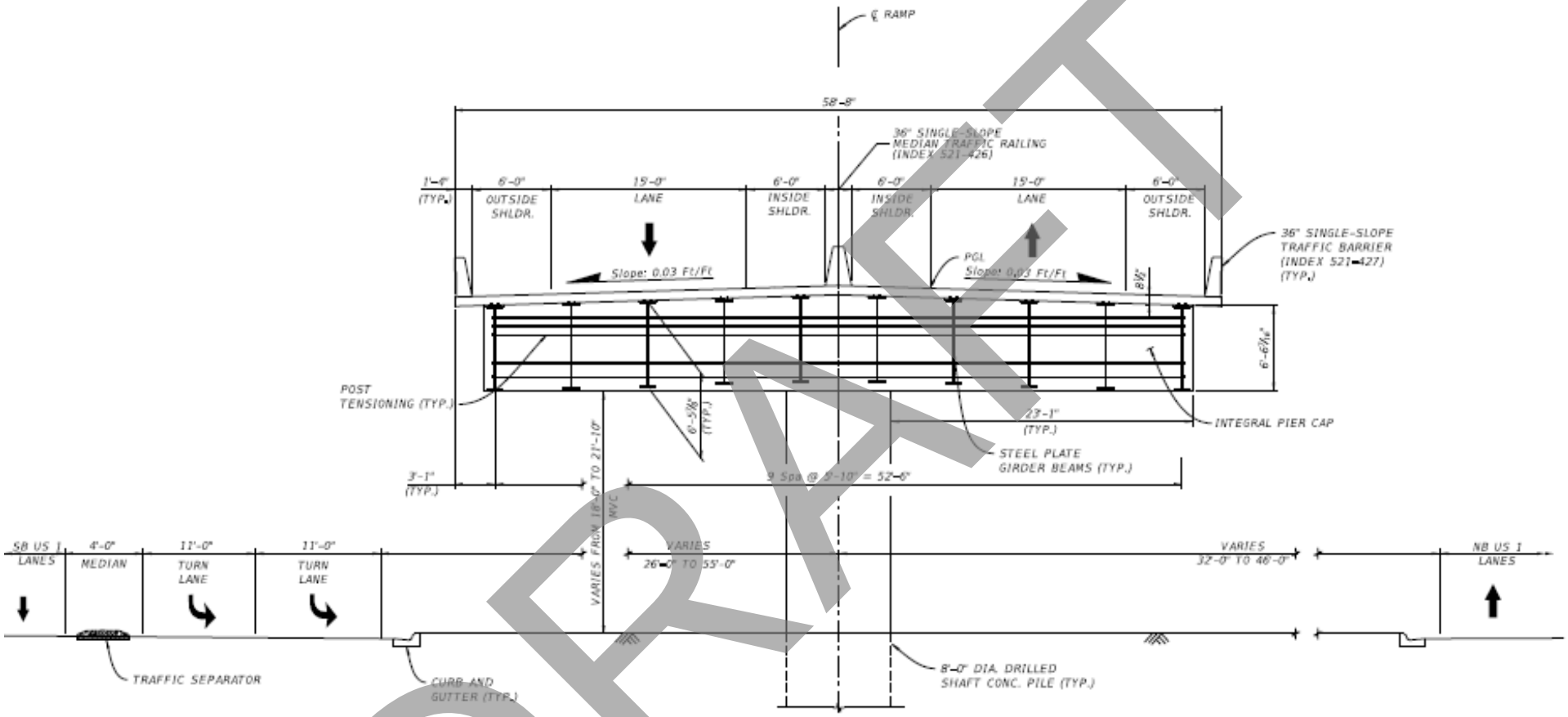


Figure 7-5 Proposed Ramp Bridge Typical Section

Figure 7-6 Ramp over Palm Drive

Turnpike Mainline over US 1 - Bridge BR 870191

The southern bridge on the Turnpike Mainline is bridge BR 870191 which goes over US 1. This bridge does not require modifications to accommodate the Preferred Alternative.

Turnpike Mainline over Lucy Street - Bridges BR 870399 and BR 870192

The two (2) bridges over Lucy Street (BR 870399 – Northbound and BR 870192 Southbound) require widening from two (2) to three (3) lanes to accommodate the Preferred Alternative. Both bridges will be widened 18 feet, 10 inches and will utilize Florida I-beams (FIBs) Type 36 and a new hammerhead pier. The new hammerhead pier will consist of one (1) column, pier cap and pile cap founded on 18-inch prestressed concrete piles similar to the existing foundations. The widenings will include the use of 36-inch single slope traffic railing (Index 521-427). Since the existing bridges slope up towards the centerline, the existing vertical clearance will be maintained.

Turnpike Mainline over SW 162nd Avenue - Bridges BR 870400 and BR 870193

The two (2) bridges over 162nd Avenue (BR 870400 – Northbound and BR 870193 Southbound) require widening from two (2) to three (3) lanes to accommodate the Preferred Alternative. Both bridges will be widened to the inside and outside. The bridges will be widened 19 feet, 2 inches to the inside and 14 feet, 6 inches to the outside to accommodate auxiliary lane improvements. Both bridges will utilize FIB Type 45. Since the existing bridges slope up towards the inside, the existing vertical clearance will be maintained. With the use of the FIB Type 45 beams, the existing vertical clearance along the outside face will also be

maintained. The widening will include the use of 36-inch single slope traffic railing (Index 521-427). Also, part of the widening, the new foundation will consist of concrete column piers and 18-inch prestressed concrete piles that are similar to the existing foundations. Additional, close coordination with the Florida Gas Transmission 6-inch pipeline, which runs along the east side of SW 162nd Avenue and crosses the Turnpike at approximately STA. 3614+50 RT and 3617+25 LT, will be required during the final design phase.

Turnpike Mainline over C-103 Canal - Bridges BR 870389 and BR 870178

Two (2) existing bridges cross over the C-103 Canal (BR 870389 – Northbound and BR 870178 Southbound). Only the northbound bridge BR 870389 will be widened from two (2) to three (3) lanes to accommodate the Preferred Alternative. The bridge will be widened 19 feet, 2 inches to the inside and will utilize AASHTO Type II beams. The widening will include the use of 36-inch single slope traffic railing (Index 521-427). As part of the widening, the new foundation will consist of 18-inch prestressed concrete piles that are similar to the existing foundations. Since the existing bridge slopes up towards the inside, the existing vertical clearance will be maintained. The existing width of the southbound bridge, BR 870178, is wide enough to accommodate the proposed widening. The existing, inside bridge shoulder will be decreased from 22 feet to 10 feet and the pavement area repurposed for the three (3) travel lanes and shoulders.

Turnpike Ramps over C-103 Canal - Bridges BR 870902 and BR 870903

The existing Florida's Turnpike SB on-ramp bridge from Campbell Drive over the Canal C-103 and the NB off-ramp from Campbell Drive do not require modifications to accommodate the Preferred Alternative.

Turnpike Mainline over Campbell Drive - Bridges BR 870390 and BR 870179

The two (2) bridges over Campbell Drive (BR 870390 Northbound and BR 870179 Southbound) require widening from two (2) to three (3) lanes plus an auxiliary lane to accommodate the Preferred Alternative. Based on the proposed alignment, these bridges will be widened to the outside. Bridge 870390 northbound will be widened 11 feet, 6 inches and Bridge 870179 southbound will be widened 14 feet, 10 inches. Both widenings will utilize FIB Type 36 beams. The existing vertical clearance along the outside face will be maintained. The widening will include the use of 36-inch single slope traffic railing (Index 521-427). Also, as part of the widening, the new foundation will consist of concrete column piers and 18-inch prestressed concrete piles that are similar to the existing foundations.

Proposed MSE Walls

As part of the new bridges mentioned above, widening of the Turnpike, and improvements at Lucy Street, the project will also require several new MSE walls. The new MSE walls will be located south and north of the Ramp Bridge South, north of the Ramp Bridge North, along the new on- and off-ramps at Lucy Street, along the southbound bridge at SW 162nd Avenue, and along both sides of both bridges at Campbell Drive. The proposed MSE wall south of the Ramp Bridge South will be along both sides of the ramp and will be approximately 835 feet in length. The proposed MSE Wall north of the Ramp Bridge South will be along both sides of the ramp and will be approximately 1,133 feet long. The proposed MSE Wall north of the Ramp Bridge

North will be along both sides of the ramp will be approximately 1,082 feet long. The proposed MSE Wall at the Lucy Street on-ramp will be approximately 315 feet long. The walls at the off-ramp will be approximately 650 feet long. The new MSE wall north of SW 162nd Avenue will be 330 feet long and the walls south of the bridge will be 462 feet long. The last set of proposed MSE walls will be north and south of the bridges over Campbell Drive and be located along the outside. The total length of new MSE wall at Campbell Drive will be 2,270 feet long. For all MSE walls, the wall height ranges from 5 to 21 feet.

Figure 7-7 Bridge Locations

For further information and details, see the *Bridge Alternatives Analysis Technical Memo* located in **Appendix E.**

7.1.5 Horizontal and Vertical Geometry

The horizontal geometry of the Preferred Alternative is shown on the Concept Plans in **Appendix A**. Proposed horizontal and vertical geometry follow the existing geometry very closely except for the modifications described below for the proposed ramps bridges and new ramps for the Lucy Street partial interchange.

The Turnpike ramp (Ramp Bridge North) over Palm Drive starts in the center median of US 1 and continues north over Palm Drive. A horizontal curve to the right (R=1,775.00, e=0.061) starts approximately 730 feet north of Palm Drive. This horizontal curve connects to the Turnpike mainline. Horizontal deflections of 00° 45'00" are provided to accommodate median widening for the ramp connection to the Turnpike Mainline. The existing horizontal alignment of the Turnpike is mainline is maintained throughout the remainder of the project.

The Turnpike southbound off-ramp (Ramp 04 / A) maintains the existing alignment. Minor widening is proposed at the connection to southbound US 1 to accommodate an additional lane. The existing southbound US 1 to northbound Turnpike ramp (Ramp 02 / C) is proposed to be relocated south of its existing location. A turning radius of 80 feet is proposed. The southbound off-ramp to Davis Parkway (Ramp 03 / E) proposes minor widening to accommodate a left turn lane

Two (2) new ramps are proposed at Lucy Street. From westbound Lucy Street, the northbound on-ramp (Ramp F) utilizes a horizontal curve to the right (R=286.00', e=0.050) to start the ramp. The ramp then utilizes another horizontal curve to the right (R=1,775.00, e=0.061) and connects to a tangent section before connecting to a large horizontal curve (R=22,050.00', e=NC) prior to merging with the Turnpike Mainline. The southbound off-ramp (Ramp G) consists of two horizontal curves (R=350.00', e=0.090 and R=1,432.00, e=0.072) with a tangent provided between the curves.

The ramps at Campbell Drive (Ramps H / 07 and I / 08) are being modified solely to change the taper ramp connection to a parallel ramp connection. The horizontal ramp geometry to accommodate these modifications is shown on the Concept Plans.

The proposed US 1 southbound right turn lane follows along the outside of the existing Turnpike southbound off-ramp within the limited access right-of-way. Three (3) horizontal curves are proposed for this right turn lane (R=800.00', e=RC; R=634.00', e=RC; R=500.00', e=0.026). Tangents are provided between the curves.

Vertical Geometry

The Preferred Alternative maintains the existing vertical geometry for the US 1 roadway, Turnpike mainline and existing on- and off-ramps. Proposed vertical geometry for the ramp over Palm Drive and the new interchange ramps at Lucy Street is described in the above sections. Additional details can be found in the *Bridge Alternatives Analysis Technical Memo* in **Appendix E.**

7.1.6 Bicycle and Pedestrian Accommodations

The Preferred Alternative maintains the existing bicycle and pedestrian corridors currently in place. Pedestrian enhancements include new sidewalk proposed along the west side of US 1 to extend to SW 352nd Street. Existing sidewalk impacted by the reconstruction of northbound US 1 south of Palm Drive will be replaced along the new roadway. Improved pedestrian crosswalks with median refuges will be provided at the US 1 intersection with Palm Drive. Sidewalk impacted by the Lucy Street interchange construction (by others) will also be replaced and enhanced crosswalks provided.

Bicycle enhancements include providing a bike lane along southbound US 1 south of Palm Drive and along northbound US 1 south of Palm Drive within the reconstruction limits. Bike lanes impacted by the Lucy Street interchange will be replaced and bike keyholes will be provided between the proposed right turn lane and the through lanes at the northbound on-ramp location.

No pedestrian or bicycle facilities or enhancements are provided along US 1 between Palm Drive and Davis Parkway as this is within limited access right-of-way.

Additional details can be found on the Concept Plans in **Appendix A**.

7.1.7 Multi-Modal Accommodations

The proposed improvements will not adversely affect the South Dade TransitWay Corridor, located parallel to US 1 and anticipated to be operational by 2022. The location of this transit corridor is shown in **Figure 2-8**. A number of Miami-Dade Metrobus stops occur within areas of proposed improvements along US 1 and Palm Drive. Adjustments to these stops will be coordinated with the Miami -Dade Transit during the Final Design Phase of the project. Stops that are anticipated to require adjustment are listed below. The referenced routes are shown on **Figure 7-8, Figure 7-9** and **Figure 7-10.**

- Route 301 - Dade-Monroe Express between Florida City and Marathon Key
  - Stop #1915 - Northbound US 1 & 34900 Block (near the McDonalds and Exxon businesses)
  - Stop #1916 - Northbound US 1 & Davis Parkway (*also on Route 344*)
  - Stop #1912 - Southbound US 1 & Davis Parkway (*also on Route 344*)
  - Stop #1914 - Southbound US 1 & 34800 Block (south of the Pollo Tropical)
  - Stop #1913 - Southbound US 1 & Palm Drive (just south of Palm Drive) (*also on Route 302*)
- Route 344 – N/S Local Route between Florida City and MDC Homestead Campus (weekdays only)
  - Stop # 1906 – Eastbound US 1 & Krome Avenue
  - Stop #9655 – Westbound on Palm Drive at US 1
  - Stop #1895 – Westbound on Palm Drive at Krome Avenue (*also on Route 302*)
  - Stop #1916 - Northbound US 1 & Davis Parkway (*also on Route 301*)

Figure 7-8 Location of MetroBus Stops that May Need Adjustment in Design 1914 & 1915

Figure 7-9 Location of MetroBus Stops that May Need Adjustment in Design 1895, 1906, 9655 (Palm Drive) & 1913

Figure 7-10 Location of MetroBus Stops that May Need Adjustment in Design 1916 & 1912 (Davis Parkway)

7.1.8 Access Management

Florida's Turnpike is classified as an Urban Principal Arterial Expressway in Area Type 2 within the study limits. There are two (2) existing interchanges within the study limits, SR 5/US 1 and Campbell Drive, which meet current interchange spacing criteria. A partial interchange for Lucy Street is proposed between the existing two (2) interchanges in the recommended alternative. The proposed condition would introduce deviations from interchange spacing criteria, however, the existing US 1 (SR 5) and proposed Lucy Street interchanges have partial, opposite-facing interchange configurations that would not introduce new weaving issues to the freeway segment. The existing and recommended access management conditions for the Turnpike mainline are presented in **Table 7-1** and **Table 7-2** and depicted in the Concept Plans in **Appendix A**.

US 1 (SR 5) is classified as an Urban Principal Arterial with Access Management Classification 05 within the study limits. There are deviations from median opening spacing criteria in the existing condition. The recommended alternative proposes the closure of some openings and the introduction of another. This change would meet median spacing criteria for the proposed condition. In the proposed condition, access for the closed openings would be replaced at the new directional median opening and Texas U-turn. In the recommended alternative, access for southbound Turnpike traffic headed to destinations along East Palm Drive is shifted from the Turnpike and US 1 (SR 5) interchange to the upstream, new ramp that connects to the Davis Parkway and US 1 (SR 5) intersection. A westbound left turn lane and left turn movement is proposed at this signalized intersection to help facilitate access. Access to businesses along US 1 (SR 5) is maintained for southbound Turnpike traffic via the US 1 (SR 5) intersection in the recommended alternative.

The full median openings located approximately 630 feet and 1,350 feet south of Palm Drive will be closed. The full median opening located approximately 2,000 feet south of Palm Drive will be modified to a northbound directional opening. A new southbound left turn lane is provided at the existing median opening located approximately 3,400 feet south of Palm Drive to accommodate U-Turn movements. Additionally, a northbound Texas U-turn, just south of the Palm Drive intersection, is proposed to mitigate the closed median access locations and provide additional opportunities for business access. New signage is proposed in the recommended alternative to reflect access changes. The modifications to the existing median openings along US 1 south of Palm Drive are depicted in the Concept Plans in **Appendix A**.

Several local streets connect to US 1 providing a local access circulation network to Krome Avenue and Palm Drive, there are no proposed access changes to this network. There are no proposed changes to the access management roadway classifications within the project limits The existing and recommended access management conditions for US 1 are presented in **Table 7-1** and **Table 7-2.**

Table 7-1 SR 821 Existing and Recommended Access Management Conditions

Roadway ID: 87471000				Strategic Intermodal Systems (SIS) Facility: Yes			
State Road Number: 821 (FL Turnpike)				Area Type: 2			
County: Miami-Dade				Functional Classification: Urban Principal Arterial Expressway			
Limits: MP 0.284 to MP 3.000				Speed Limit: 65 MPH			
Existing Interchange	**Mile Post**	**Existing Interchange Type**	**Existing Spacing (Miles)**	**Existing Deviation from Standard (%)**	**Recommended Changes**	**Proposed Spacing (Miles)**	**Proposed Deviation from Standard (%)**
US 1 (SR 5)	0.5	Partial					
N/A	N/A	N/A	N/A	N/A	Partial Interchange (Lucy St.)	0.9	55*
Campbell Drive	3.1	Full	2.6	0	None	1.7	15

*Partial, north-facing interchange proposed. Existing adjacent interchange at US 1, is partial, south-facing. Therefore, no new weaving introduced.

Table 7-2 US 1 Existing and Recommended Access Management Conditions

Roadway ID: 87020000				Strategic Intermodal Systems (SIS) Facility: Yes			
State Road Number: 5 (US 1)				Access Management Classification: 05			
County: Miami-Dade				Functional Classification: Urban Principal Arterial			
Limits: MP 0.100 to MP 1.369				Speed Limit: 45 MPH			
Existing Opening	**Mile Post**	**Existing Opening Type**	**Existing Spacing (Feet)**	**Existing Deviation from Standard (%)**	**Recommended Changes**	**Proposed Spacing (Feet)**	**Proposed Deviation from Standard (%)**
Bait & Tackle	0.22	Full					
SW 352nd Street	0.36	None	N/A	N/A	Directional Opening	740	0
Restaurant	0.49	Full	1,425	0	Close	N/A	N/A
Restaurant/Gas Station	0.61	Full	630	52	Close	N/A	N/A
Hotel	0.74	Full	685	48	Close	N/A	N/A
Palm Drive	0.86	Signal	635	52	None	2,640	0
SB US 1 FTE Entrance	1.24	Directional	2,005	0	Relocate 300 ft. south	1,705	0
Davis Parkway	1.37	Signal	670	0	None	970	0

7.1.9 Intersection Modifications

The Preferred Alternative modifies several intersections and provides a new interchange at Lucy Street within the project study area as noted in previous sections. These modifications and additions are noted in **Table 7-3** and are depicted in the Concept Plans in **Appendix A.**

Table 7-3 Proposed Intersection Modifications

Intersection Name	Intersection Modifications
US 1 and Palm Drive	• Intersection Expansion on all legs of the intersection. • Turnpike Ramp Bridges over Palm Drive provided for northbound and southbound movements. • Channelization with traffic separators is provided for Southbound US 1 north of Palm Drive to minimize weaving. • Signalized northbound U-Turn lane provided south of Palm Drive. • Triple left turn lanes (eastbound to northbound) • Southbound US 1 right turn lane provided from Davis Parkway to Palm Drive.
Southbound US 1 to Northbound Turnpike	• Provide signal control for movement
Turnpike Southbound Off-ramp	• Ramp A / 04 widening to provide channelization (with traffic separator) between right turn lane to westbound Palm Drive and southbound US 1 north of Palm Drive
Palm Drive and Krome Avenue	• Modifications on the east leg of intersection to accommodate improvements on Palm Drive between Krome Avenue and US 1.
US 1 and Davis Parkway	• Intersection improvements on all east, west and south legs of intersection. Southbound right turn lane provided north of Davis Parkway and left turn lane provided from Turnpike southbound off-ramp (Ramp E / 03).
Southbound Off-ramp to Lucy Street	• New T-intersection with proposed mast arm signal system.
Lucy Street and SW 167th Avenue/Turnpike northbound On-Ramp	• Modify existing T-intersection to full intersection to accommodate the new Turnpike northbound on-ramp. • Widening on Lucy Street to provide eastbound right and left turn lanes and a westbound right turn lane is proposed. • Widening on SW 167th Avenue is proposed to accommodate a northbound through lane to the Turnpike northbound on-ramp.
Turnpike southbound Off-Ramp at Lucy Street	• New off-ramp (Ramp G) connection from Turnpike to Lucy Street
Turnpike northbound On-Ramp at Lucy Street	• New on-ramp (Ramp F) connection from Lucy Street to Turnpike

7.1.10 Intelligent Transportation System and TSM&O Strategies

The proposed conceptual ITS layout will use a 144-count single mode fiber optic backbone that will be extended from the existing 96 count single mode fiber optic backbone. The backbone will be extended as necessary to accommodate the new design. The Fiber Optic Cable Assignment and Allocation Scheme for general fiber allocation for the backbone can be found in **Figure 7-11**. The fiber backbone is primarily located west of and runs parallel to the Turnpike, close to the right-of-way line. New and/or relocated devices will be spliced to the backbone through fiber optic pull and/or splice vaults using 24-count fiber optic cable drops and power service drops where necessary. New MVDSs are proposed along the new ramp for northbound and southbound traffic. A fiber drop will be placed at the proposed toll gantry location near the southern end of the new ramp. The conceptual ITS layout will also include fiber drops for existing devices that communicate over wireless communications. There are two (2) DMSs on a butterfly structure that are part of the District 6 inventory at US 1, MP 0.2, near the southern limit of the project. These DMSs need to be relocated due to widening and access modifications. A fiber drop and splice vault will be placed at the new locations. Wrong Way Detection devices are proposed at the southbound exits of the new FTE ramp, Davis Parkway ramp and Lucy Street ramp. The Conceptual ITS Layout can be found in **Figure 7-11** of the *ITS Technical Memorandum and Master Signing Plan* in **Appendix L.** Proposed ITS devices are provided in **Table 7-4**.

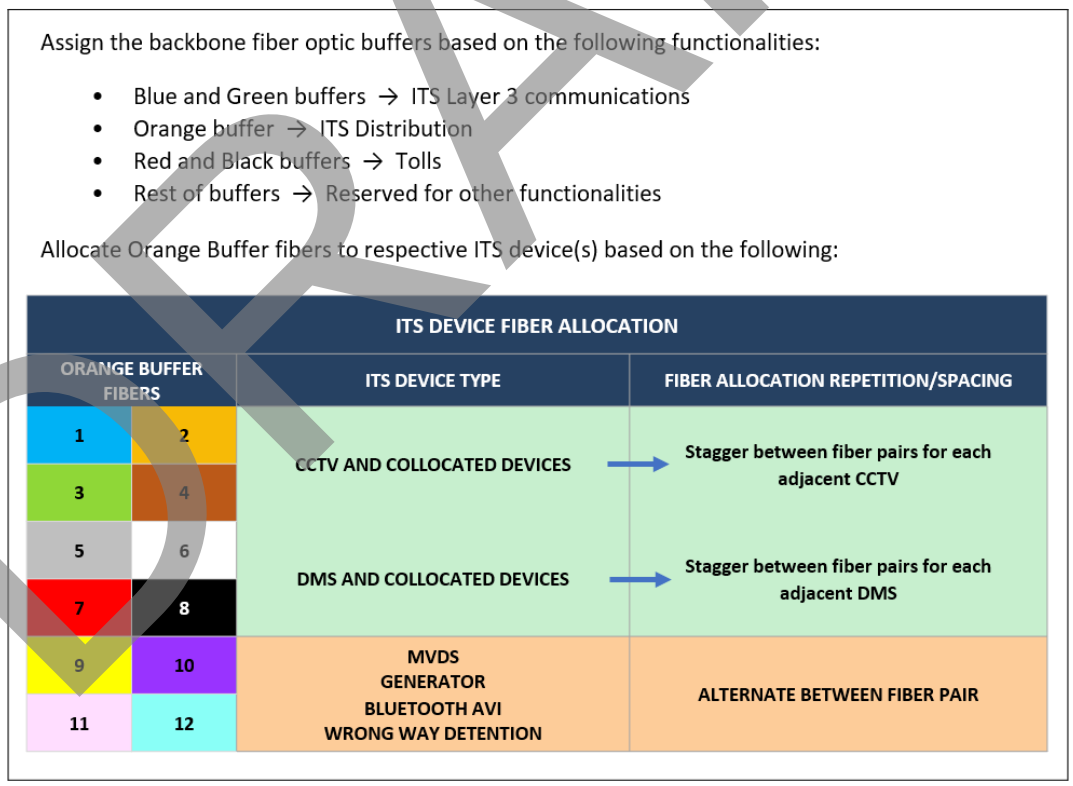


Figure 7-11 Fiber Optic Cable Assignment and Allocation Scheme

Table 7-4 Proposed ITS Devices

Approx. Station	Roadway	Side	Structure	ITS Device(s)
36	SR 5	NB	Pole	DMS Verification CCTV
42	SR 5	NB	Butterfly	NB & SB D6 DMS (Relocate)
57	SR 5	SB		WWD System
48	SR 5	SB	Pole	DMS Verification CCTV
235	SR 821	Med	Pole	MVDS & BlueToad
3572	SR 821	Med	Pole	AVI (Relocate)
3663	SR 821	SB	Pole	CCTV, MVDS, AVI, CB Radio (Relocate)
3619	SR 821	SB	Pole	CCTV, MVDS (Relocate)
	Exit 2	SB		WWD System
	Exit 1A	SB		WWD System

7.1.11 Utilities

Preliminary utility coordination was initiated through written communication to the listed utility agency owner (UAO) contacts. The utility companies were informed of the PD&E study through notification letters and were requested to provide information regarding the location, type, size and characteristics of any major utilities along or crossing the existing right-of-way. UAOs were requested to note if any utility facility is located within the FDOT right-of-way by easement or permit, and to provide an order-of-magnitude, worst-case estimate for the cost of relocating any utilities affected by the proposed project. The anticipated utility impacts are concentrated along US 1 and the associated local side streets. The anticipated impacts to utility facilities resulting from the Preferred Alternative are itemized by location in Table 6-1 of the *Utility Assessment Package Technical Memorandum* (see **Appendix I)**, along with the estimated relocation costs. Additional coordination with FGT and FPL for their facilities that cross the Turnpike mainline at SW 162nd Avenue will be required during final design. Utility relocations near the proposed toll site will need to adhere to the General Tolling Requirements (GTR) as set forth by the Florida's Turnpike and have been estimated to the extent possible during this PD&E phase of development. Actual utility impacts are to be verified during the design phase, when a detailed survey and subsurface utility information is available. It is anticipated the municipal water and wastewater providers may request a Utility Work by Highway Contractor Agreement (UWHCA).

Conservative utility relocation estimates were requested as part of the utility coordination process. The total combined estimated cost for relocation (as provided by the UAOs) is $11,545,000.

7.1.12 Drainage and Stormwater Management Facilities

A summary of the recommended stormwater management system and associated outfalls for each basin are summarized in **Table 7-5** and below.

Table 7-5 Recommended Stormwater Management System

Basin No.	Begin Station (B/L Survey)	End Station (B/L Survey)	Preferred Pond Site Alternative	Recommended Stormwater Management System	Outfall	Potential Right-of-way Requirements[1]
1	50+00	71+33	Self-contained Exfilt. Trench	Exfiltration Trench	Ground Water	None, within US 1 ROW
2	71+33	3532+00	US 1 interchange infields	Dry Detention	Florida City Canal	None
3, 3Intx	3532+00	3585+00	Lucy Street interchange infields	Wet/Dry Detention	C-103S Canal	30-ft Outfall Easement
4	3585+00	3615+00	Lucy Street interchange infields	Wet/Dry Detention	C-103S Canal	30-ft Outfall Easement
5 S	3615+00	3648+00	Roadside Swales	Retention	C-103 Canal	None
5 N	3648+00	3681+00	Campbell Drive interchange infields	Retention	C-103 Canal	None

1. The proposed stormwater management facilities for Basin 1, Basin 3, Basin 3Intx and Basin 4 are located within the proposed right-of-way along US 1 and the Lucy Street interchange.

Basin 1

The recommended stormwater management approach is to construct a system of exfiltration trenches along both the northbound and southbound US 1 travel lanes. This will mimic existing conditions. The required and provided water quality volume is summarized in **Table 7-6.** The exfiltration trench will be located under the proposed curb line/sidewalk of the southbound and northbound US 1 lanes. Runoff will be captured in new inlets and conveyed via pipe to the exfiltration trench system. The water quantity will meet pre-condition discharge rates. The ultimate outfall point is the ground water table. The ground water level is estimated to be 1.80 feet NAVD (Ref. Miami-Dade County, Average October Ground Water Level, W.C. 2.2).

All existing offsite areas draining to the project will continue to be conveyed to the onsite drainage system via overland flow and/or captured in new back of sidewalk inlets. During the design phase, it is recommended to obtain survey beyond the ROW line to adequately delineate the drainage areas flowing to the road and to survey finished floor elevations.

Based on preliminary ICPR analysis documented in the supporting *Pond Siting Report*, the critical event is the 100yr-1hr storm that produces a maximum stage of 5.66 feet NAVD. Considering this segment of US 1 is an evacuation route that is transitioning to a limited access facility, the approximate low edge of pavement elevation to keep the travel lanes dry is 5.50 feet NAVD. The corresponding bottom of base elevation would be 4.50 feet NAVD. This meets the flood criteria elevation established in the Miami-Dade County Flood Criteria Maps that sets the minimum crown of road elevation of 6.40 feet NGVD (4.90 feet NAVD) for this segment of the project.

Basin 2

The recommended stormwater management approach is to construct dry detention ponds in the US 1 interchange infields, interconnecting the ponds and discharging to the Florida City Canal. The required and provided water quality volume is summarized in **Table 7-6.**

The drainage patterns will be modified to capture and convey runoff to the detention ponds prior to discharging to the Florida City Canal. The US 1 interchange infields will be regraded to provide the required water quality and quantity volumes. The existing ditch along the east side of US 1 will be filled in and piped to connect to the existing 60-inch culvert at Palm Drive.

All existing offsite areas draining to the project will continue to be conveyed through the project via the conveyance swale that will be realigned further west between the L/A ROW and the proposed southbound right turn lane. The existing 7 x 3-foot box culvert at STA 80+00 is horizontally located within the proposed widening footprint and located under the proposed MSE wall for the ramp over Palm Drive. Due to this and the age of the box culvert, constructing a new culvert south outside the wall zone limits should be considered during the design phase. The conveyance swale on the east side of US 1 will be filled in by the proposed improvements and a new piped conveyance system will be constructed to the eventual outfall point at the Florida City Canal.

For US 1, the approximate low edge of pavement elevation and bottom of base is 6.20 feet NAVD and 5.20 feet NAVD, respectively. For the Turnpike, the approximate low edge of pavement elevation and bottom of base is 7.20 feet NAVD and 6.20 feet NAVD, respectively. The base clearance water elevation is the weir elevation of the control structure preliminarily designed to be at 3.2 feet NAVD.

Basin 3

The recommended stormwater management approach is to construct a detention pond to coincide with the proposed Lucy Street southbound off-ramp interchange infield to manage stormwater runoff from the mainline Turnpike in this basin.

The drainage patterns along the Turnpike mainline will remain similar to existing conditions. Roadside conveyance swales along the Turnpike will be constructed to carry runoff to the proposed Lucy Street infield pond. The pond will provide the required water quality volume summarized in **Table 7-6**. Along the mainline, berms will be constructed at the L/A ROW line. A cross drain under the Turnpike will be constructed to connect the left and right swales.

The 60-inch culvert at STA 3579+00 will remain. The ditch leading from this box culvert to the farm ditch will be re-aligned along the perimeter of the proposed southbound off-ramp infield pond. Along Lucy Street, the location of the 42-inch cross drain should be reviewed during the design phase for possible relocation due to the ramp terminal at this cross road and to provide connection to the proposed infield ponds.

The ultimate outfall point is the C-103S Canal near the Lucy Street/SE 6th Avenue intersection. The conveyance link between the proposed ponds and the outfall is the farm ditch discussed in detail in the *Pond Siting Report*. The farm ditch is roughly 1,700 feet long. A drainage easement along Tennessee Road can be considered, during the design phase, to provide a new connection to the C-103S Canal, if discharging to the farm ditch is determined problematic.

The 0.52 acres of offsite area near Davis Parkway will continue to drain to the Turnpike swale system. Due to the proposed widening improvements at the Davis Parkway off-ramp, the existing cross drain pipe under Davis Parkway (STA 3528+70, 200 LT) will to be reconstructed to connect to the Turnpike swale.

For the Lucy Street interchange ramps, the approximate low edge of pavement elevation and bottom of base is 6.80 feet NAVD and 5.80 feet NAVD, respectively. The base clearance water elevation is the weir elevation of the control structure preliminarily designed to be at 3.3 feet NAVD. The 100-yr floodplain elevation is 8.0 feet NGVD = 6.5 feet NAVD.

Basin 3 Intx (Subbasin)

The recommended stormwater management approach is to construct detention ponds adjacent to the proposed Lucy Street ramps/infields that would manage stormwater runoff from the proposed ramps and provide the required water quality volume, summarized in **Table 7-6**.

The proposed detention ponds will be constructed, and culverts will be included to provide connectivity from the Turnpike to the ponds and the outfall location. Runoff will sheet flow off the ramps into the ponds.

The ultimate outfall point is the C-103S Canal near the Lucy Street/SE 6th Avenue intersection with similar tailwater stages as stated for Basin 3. The conveyance link between the proposed ponds and the outfall is the farm ditch. A potential ROW requirement for a drainage easement for the Lucy Street interchange pond system is possible if discharging to the farm ditch is determined problematic.

The offsite area from Davis Parkway will continue to be drain to the Turnpike ROW and be conveyed to the interchange pond system.

For the Lucy Street interchange ramps, the approximate low edge of pavement and bottom of base is 6.80 feet NAVD and 5.80 feet NAVD, respectively. The base clearance water elevation is the weir elevation of the control structure preliminarily designed to be at 3.3 feet NAVD. The 100-yr floodplain elevation is 8.0 feet NGVD = 6.5 feet NAVD.

Basin 4

The recommended stormwater management approach is to construct detention ponds to coincide with the proposed Lucy Street interchange to manage stormwater runoff from the mainline in this basin. The pond system would manage stormwater runoff from Basin 3, Basin 4 and the Lucy Street interchange and provide the required water quality volume for these three (3) basins as summarized in **Table 7-6**.

The drainage patterns along the Turnpike mainline will change by routing stormwater south along the Turnpike roadside swales, through the proposed Lucy Street ponds before discharging to the C-103S. Roadside conveyance swales will be constructed to carry runoff to the proposed Lucy Street infield ponds. Along the mainline, berms will be constructed at the L/A ROW line. The 24-inch cross drain at STA 3599+65 will be extended and connect the left and right roadside swales.

The ultimate outfall point is the C-103S Canal near the Lucy Street/SE 6th Avenue intersection. The conveyance link between the proposed ponds and the outfall is the farm ditch. A potential ROW requirement for a drainage easement may be identified for the Lucy Street interchange pond system if discharging to the farm ditch is determined problematic.

However, if the Lucy Street interchange does not move forward with this project, then the recommended stormwater management approach is to construct a detention pond adjacent to the Turnpike ROW that would manage stormwater runoff from the proposed ramps and provide the required water quality volume, summarized in **Table 7-6**.

The drainage patterns along the Turnpike mainline will remain similar to existing conditions. Roadside conveyance swales along the Turnpike will carry runoff to the proposed pond. The proposed detention pond will be constructed, and culverts included to provide connectivity from the Turnpike to the pond and the outfall location. The pond will discharge back into the Turnpike's ROW and be conveyed via an existing ditch along SW 162nd Avenue to mimic existing conditions. The ultimate outfall point is the C-103S Canal. There are no offsite areas draining to the basin.

For mainline Turnpike, the approximate low edge of pavement and bottom of base elevation is 6.14 feet NAVD and 5.14 feet NAVD. The base clearance water elevation is the SHGWT estimated to be 1.80 feet NAVD. The 100-yr floodplain elevation on the west side of the Turnpike is 5.0 feet NGVD = 3.50 feet NAVD.

Basin 5S (Subbasin)

The discharge point for basins 5S and 5N is the C-103 Canal. The required and provided water quality volume is summarized in **Table 7-6.**

The recommended stormwater management approach is to expand the existing retention swales within the ROW. The existing ditch block near STA 3633+00 RT will be removed and a uniform berm along the L/A ROW line will be constructed to manage stormwater runoff from the Turnpike ROW and discharge to the C-103 canal via the existing structure near STA 3648+15, RT. This will effectively enlarge the existing retention area and mimic existing conditions for the northbound lanes.

For the southbound lanes, a uniform berm along the L/A ROW line will be constructed to manage stormwater runoff from the Turnpike ROW. The sound wall that acts as a drainage divide along the L/A ROW line will continue to do so. Discharge will continue to the C-103 via the existing structure near STA 3635+70, LT. This will effectively enlarge the existing retention area and mimic existing conditions.

The existing retention areas in this basin were previously designed with surplus water quality volume that will be used for this project. The approximate low edge of pavement and bottom of base elevation is 6.50 feet NAVD and 5.50 feet NAVD.

Basin 5N (Subbasin)

The recommended stormwater management approach is to utilize the existing interchange infields. The drainage patterns will remain similar to existing conditions. Minor widening is proposed along the median and outside lanes. New barrier wall inlets will be constructed along the widened edge of pavement to replace the existing inlets. It is recommended to replace the existing 15-inch CMP pipes with 18-inch pipe and new end treatments constructed.

The retention areas were previously designed with surplus water quality volume that will be used for this project. The low edge of pavement occurs between the bridges over the C-103 and Campbell Drive coinciding with the median drain at STA 3655+00. The approximate low edge of pavement elevation is 11.85 feet NAVD and the bottom of base elevation is 10.85 feet NAVD.

The land use values for each basin are summarized in **Table 7-6**. Note, survey data was not available at the time of this Study. The existing and proposed areas shown in this table are based on MicroStation evaluation using aerial imagery, parcel data from County GIS database and the proposed roadway footprint.

Table 7-6 Summary of Land Use Values and Hydraulic Calculations

Basin Name	Existing Area				Proposed Area				Water Quality			Water Quantity	
	Impervious	Pervious	Offsite	Total	Impervious	Pervious	Offsite	Total	Existing (to be replaced) Required (add. Impervious area)		Provided	Pre-Dev. /Allowable Q	Post-Dev. Q
	ac	ac	ac	ac	ac	ac	ac	ac	ac-ft	ac-ft	ac-ft	cfs	cfs
1	7.63	4.42	0.70	12.8	9.45	2.60	0.70	12.8	1.06	0.38	1.44	0.0	0.0
2	12.32	19.87	7.01	39.2	17.41	14.78	7.01	39.2	0	0.80	0.93	40.4	37.3
3	10.58	22.85	0.52	34.0	16.23	17.20	0.52	34.0	0	1.18			
3 Intx	5.76	16.35	0	22.1	7.91	14.20	0	22.1	0	0.45	4.18	41.7	41.3
4	6.76	13.84	0	20.6	9.70	10.90	0	20.6	0	0.61			
5 S	9.47	14.01	0	23.5	10.64	12.84	0	23.5	0	0.12	0.12	21.9	21.9
5 N	24.08	58.48	0	82.6	24.93	57.63	0	82.6	0	0.09	0.09	43.5	43.5
Totals	**77.6**	**149.8**	**8.2**	**234.7**	**96.3**	**130.2**	**8.2**	**234.7**	**1.06**	**3.63**	**6.76**	**147.6**	**144.0**

7.1.13 Floodplain Analysis

The project is located within Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps 12086C0727L and 12086C0730L. The existing Turnpike and US 1 alignments are above the 100-year flood plain. Some of the proposed project improvements will impact adjacent floodplain areas. These areas are listed below.

1. Where the northbound US 1 lanes are being realigned, south of Palm Drive.
    a. In Zone AE, base flood elevation is determined to be 7 feet NGVD
2. Where the southbound US 1 right turn lane is proposed, south of Davis Parkway.
    a. In Zone AH, base flood elevation is determined to be 8 feet NGVD
3. Where the Lucy Street interchange on-ramp (Ramp F) is proposed, near the ramp terminal.
    a. In Zone AH, base flood elevation is determined to be 7 feet NGVD
4. Where the Lucy Street interchange off-ramp (Ramp G) is proposed.
    a. In Zone AE, base flood elevation is determined to be 8 feet NGVD

The approximate floodplain impact is 11 acre-feet which can be compensated by excavating at the proposed interchange infield ponds and widening the roadside swales along the Turnpike.

Impacts to floodplains have been minimized with the Preferred Alternative. The Preferred Alternative widens the Turnpike towards the roadway median (above the floodplain) instead of the outside and the Lucy Street interchange ramps have been optimized. Additional information and details are found in the separate *Pond Siting Report* and *Location Hydraulics Report* prepared as supporting documents to this study.

7.1.14 Transportation Management Plan

The goal of a Transportation Management Plan (TMP) is to minimize congestion during construction by managing traffic through the project area. A complete TMP will be prepared during final design that also contains details for project specific elements that may require adjustments or precautions prior to construction such as ITS facilities, landscape features or other sensitive areas such as the Pine Rocklands that occur within the project vicinity. This Turnpike widening project is considered a significant TMP project as defined in the Turnpike Design Handbook (TDH) Section 240 which augments the Florida Design Manual (FDM).

This project requires a multi-discipline TMP team to coordinate the project logistics and hurricane preparation plan. The team composition should include the Turnpike Traffic Operations Engineer, the Turnpike Maintenance Engineer, the Turnpike Construction Engineer, Pompano Traffic Management Center, City of Homestead, City of Florida City, Miami-Dade County, FDOT, responsible design team, and impacted business representatives. The TMP is to include a well-prepared Temporary Traffic Control Plan set, a coordinated Transportation Operations Plan and a Public Information Plan.

<u>Temporary Traffic Control Plan (TTCP)</u>

A TTCP is required for all work zones within, or adjacent to highways, roads and streets as specified by Florida Statute and Federal regulations. TTCP shall be in accordance with the Florida's Turnpike Enterprise (FTE) Lane Closure Policy No. 0006, including supplements.

The primary purpose of TTCP concept is for the safety of construction crews and to minimize the disruption of the traveling public during construction. This includes provisions for the construction of a paved shoulder throughout all phases of construction. It is anticipated that the milling, overbuild and resurfacing required for the project can be accomplished primarily through TTCP typical sections conforming to the FTE Lane Closure Policy and the Manual on Uniform Traffic Control Devices (MUTCD). Some of these typical applications have been modified by the Standard Plans, 102 Series. Portable changeable message signs (PCMS) and arrow boards, plus channelizing devices will be used for lane shifts.

Lane closure traffic data must be obtained from Turnpike Traffic and Planning Office, including a growth rate factor and peak seasonal factor for all production design projects. Below outlines the TTCP approach for the project.

Phase I - Turnpike Mainline Widening:

The widening of the Turnpike near Campbell Drive for ramp and auxiliary lane construction will be accomplished by placing concrete barrier walls adjacent to the existing outside travel lanes. Roadway drainage will be maintained using standard Type K barrier wall with drainage slots. The Phase I typical section is shown in **Figure 7-12**.

The requirements for Emergency Shoulder Use (ESU) outlined in TDH 211.4.6 must be maintained during all phases of construction. Should conditions arise that creates a reduced outside mainline shoulder width of less than eight feet wide, TDH 240.2.2.20 Emergency Pull Off Area, shall be consulted and evaluated for an emergency pull off area. Final details of the TCCP will be determined during the subsequent design phase.

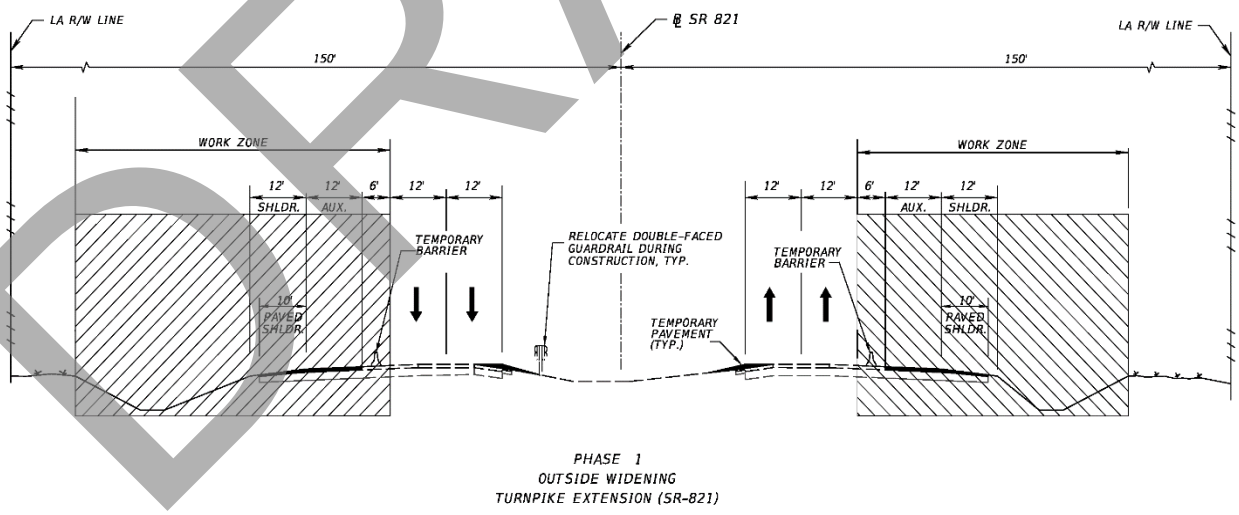


Figure 7-12 Turnpike Mainline – Phase I

Phase II - Turnpike Mainline Widening:

The widening of the Turnpike to the median for the construction of the paved shoulder will be accomplished by placing concrete barrier walls adjacent to the existing inside travel lanes to maintain traffic on the Turnpike while construction proceeds, one side at a time. The Phase II typical section is shown in **Figure 7-13**.

This includes provision of a paved shoulder throughout all phases of construction. It is anticipated that the milling, resurfacing and widening improvements can be accomplished primarily through TTCP typical sections which conform to the FTE Lane Closure Policy. Similarly, much of the mainline widening work can be constructed with limited temporary pavement and phasing, however work at the ramps and all bridge construction will require detailed phasing plans and limited detours in the construction plan set.

Work zone speed should equal the existing posted speed. A reduction from the existing posted speed should only be made when geometric constraints make it necessary, or in accordance with the requirements of TDH 240.2.2.12. For locations incorporating speed reductions, speed limit signs must be installed departing the work zone to "restore" the speed limit to the existing posted speed. During non-construction periods the speed limits must be restored to the existing posted speed limits.

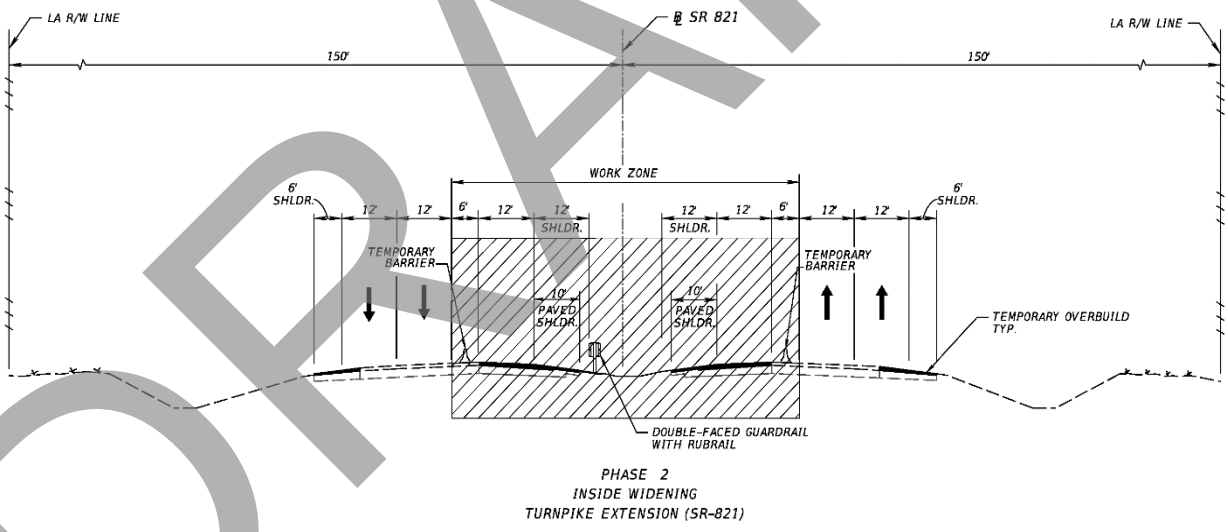


Figure 7-13 Turnpike Mainline – Phase II

Bridge Widening:

Concrete barrier walls will be utilized on the existing bridges to maintain traffic on the Turnpike while the widening construction takes place.

TTCP will include phasing of the median closures and widening with careful consideration for drop offs and temporary drainage. Utility relocations, if required during construction, will be accounted for in the detailed phasing.

Exit Ramp Opening:

Work in the vicinity of an exit ramp shall adhere to the requirements of TDH 240.2.1.16, Exit Ramp Opening, and the requirements shown on the MUTCD latest edition Figure 6H-42.

Proposed Ramp Bridges Over US 1 (SR 5):

For southbound US 1 south of Palm Drive widening and milling and resurfacing are anticipated. Northbound US 1 south of Palm Drive reconstruction is anticipated. The elevation of northbound US 1 near the tolling site will raise up and be higher than the southbound lanes to accommodate the tolling facility.

Between Davis Parkway and SW 352nd Street, the new lanes and median will be built outside of the existing lane configuration. Temporary barriers can be used to construct the new roadway portions and overhead bridge.

A PCMS plus arrow board would be required until the traveling public gets familiar with the traffic modifications. Also, a PCMS plus arrow boards would also be required to modify the traffic pattern from Palm Drive.

Lucy Street Interchange:

To construct the southbound off-ramp to Lucy Street, concrete barrier walls will be used along the Turnpike to maintain traffic on the Turnpike while constructing the ramp embankment and roadway tie-in to Lucy Street. Concrete barrier walls will also be utilized on Lucy Street to channelize traffic while the ramp is being constructed. During this phase, the removal of the farm road (SW 167th Avenue) will also be accomplished. For the northbound Turnpike on-ramp, similar TCCP devices will be used along Lucy Street and the Turnpike mainline.

Adjacent landowner coordination will be necessary to construct the new ramp at Lucy Street. The existing SW 167th Avenue adjacent to the farm will be relocated by others. Temporary drainage easements may be necessary until the permanent drainage facilities are built. These facilities will be determined during the final design phase.

Maintenance of Pedestrian Access:

Longitudinal Channelizing Devices (LCD) will be used to maintain pedestrian access where construction impacts local streets with pedestrian crossings. Detailed plans and details will be determined during the design phase and shown in the construction plans.

Maintenance of Drainage:

Roadway drainage will be maintained by the use of the standard Type K barrier wall with drainage slots and adhere to the requirements of TDH 240.2.2.21, Temporary Drainage, and maintain positive drainage during all construction phases. All temporary drainage items will be determined during final design and shown in the construction plan set and quantified. The Lucy Street Interchange TCCP section above also contains additional information.

Work Zone Pavement Markings:

Proposed pavement markings are to adhere to the requirements in TDH 240.2.2, Work Zone Pavement Markings. All proposed, temporary, or existing pavement markings to be removed must be detailed completely in the construction plans for a proper layout. High pressure water blasting is the only acceptable method for the removal of conflicting pavement markings.

7.1.15 Special Features

At this time the only proposed special feature is the City of Florida City welcome sign on the Turnpike mainline. Details regarding actual design and location of the sign will be determined during final design. There is a gateway electronic sign structure, at the southernmost point of the corridor, that reinforces Florida City's character as the last stop on the mainland north of the Florida Keys, as well as, the entrance to the "Less Stressway" for the Turnpike facility. This area is also enhanced with bold landscape elements. These features should be carefully considered and incorporated into the final design of the facility.

7.1.16 Design Variations and Design Exceptions

Border width variations have been identified for the project at the locations listed below:

- Northbound Turnpike south of Palm Drive. Existing border width is less than 94-foot criteria.
- Southbound US 1 south of Palm Drive – Proposed border width is less than 14-foot criteria.
- Lucy Street southbound off-ramp (Ramp G) adjacent to Monterey Pointe residential community has a proposed border width of 23.33 feet, criteria specifies 94 feet.
- Lucy Street northbound on-ramp (Ramp F) adjacent to the Tennessee Estates residential community has a proposed border with of 22.16 feet, criteria specifies 94 feet.

The horizontal curve length variation previously identified for curve name "Turnpike Extension" in the existing conditions section is no longer applicable. The Turnpike was widened in this area with the Campbell Drive design-build project. This widening provided longer curve lengths that exceed the FDOT minimum curve length of 975 feet.

7.1.17 Cost Estimates

The Department's Long-Range Estimating (LRE) system was used to prepare cost estimates for the Preferred Alternative. Right-of-Way costs were prepared by the FTE and based the parcels depicted in Figures 7-14, 7-15 and 7-16. **Table 7-7** summarizes the project costs.

Table 7-7 Project Cost Summary

Project Cost Summary	
Construction	$181.3 M
Design (estimated at 8% of construction cost)	$14.5 M
Right-of-Way Acquisition	$16.3 M
Total	**$212.1 M**

7.2 Summary of Environmental Impacts of the Preferred Alternative

Various supporting environmental documents were prepared as a part of this study. Summaries of the findings of each are included in the following sections. For more detailed results, refer to the State Environmental Impact Report (SEIR) or the individual reports referenced in the sections.

7.2.1 Right-of-Way & Relocations

The Preferred Alternative will require right-of-way from 17 parcels for a total of approximately 15.2 acres. The majority of the land will be required to construct the proposed partial interchange at Lucy Street. Affected parcels are shown on **Figure 7-14, Figure 7-15** and **Figure 7-16.**

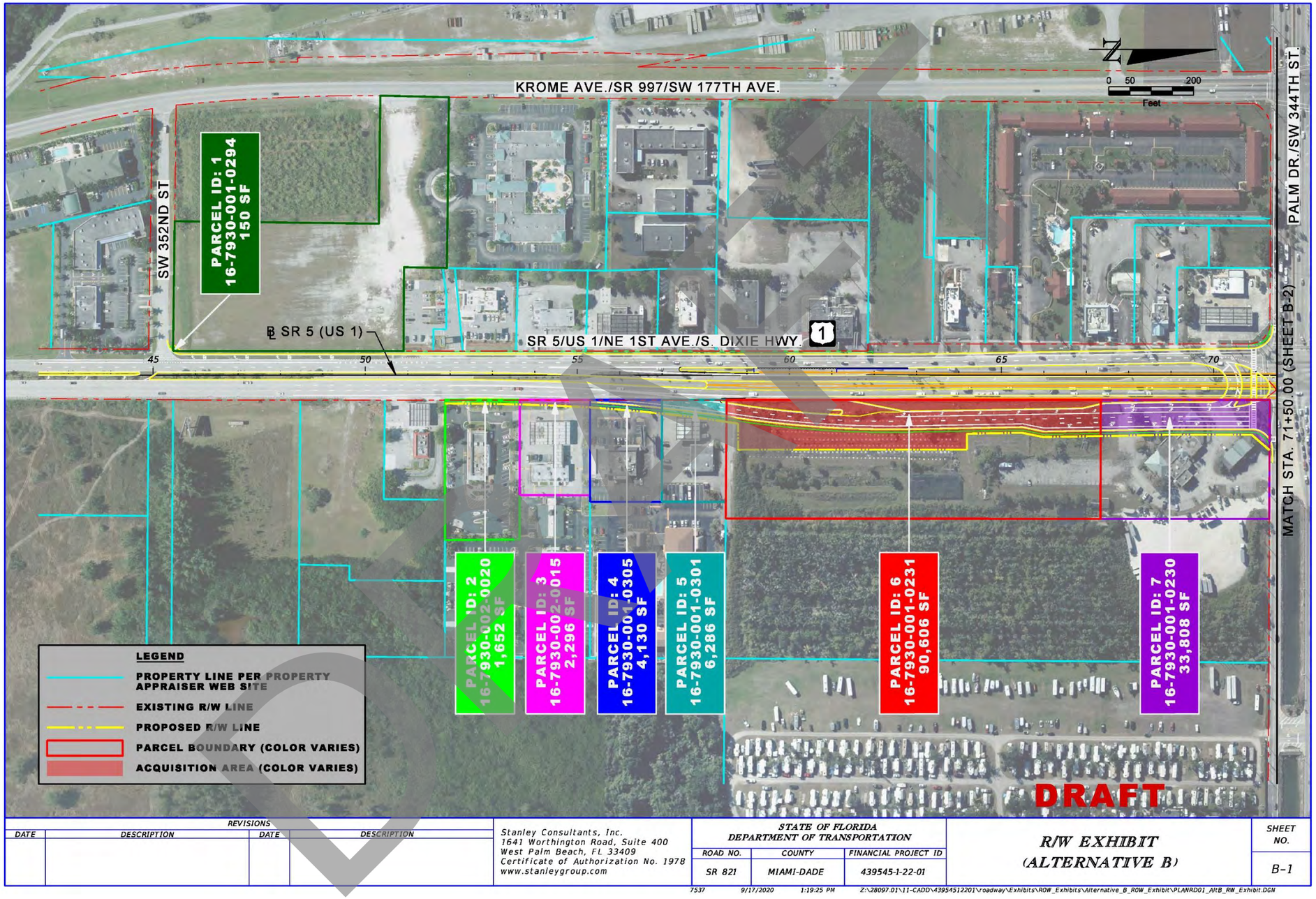


Figure 7-14 Potential Right of Way Acquisition; US 1

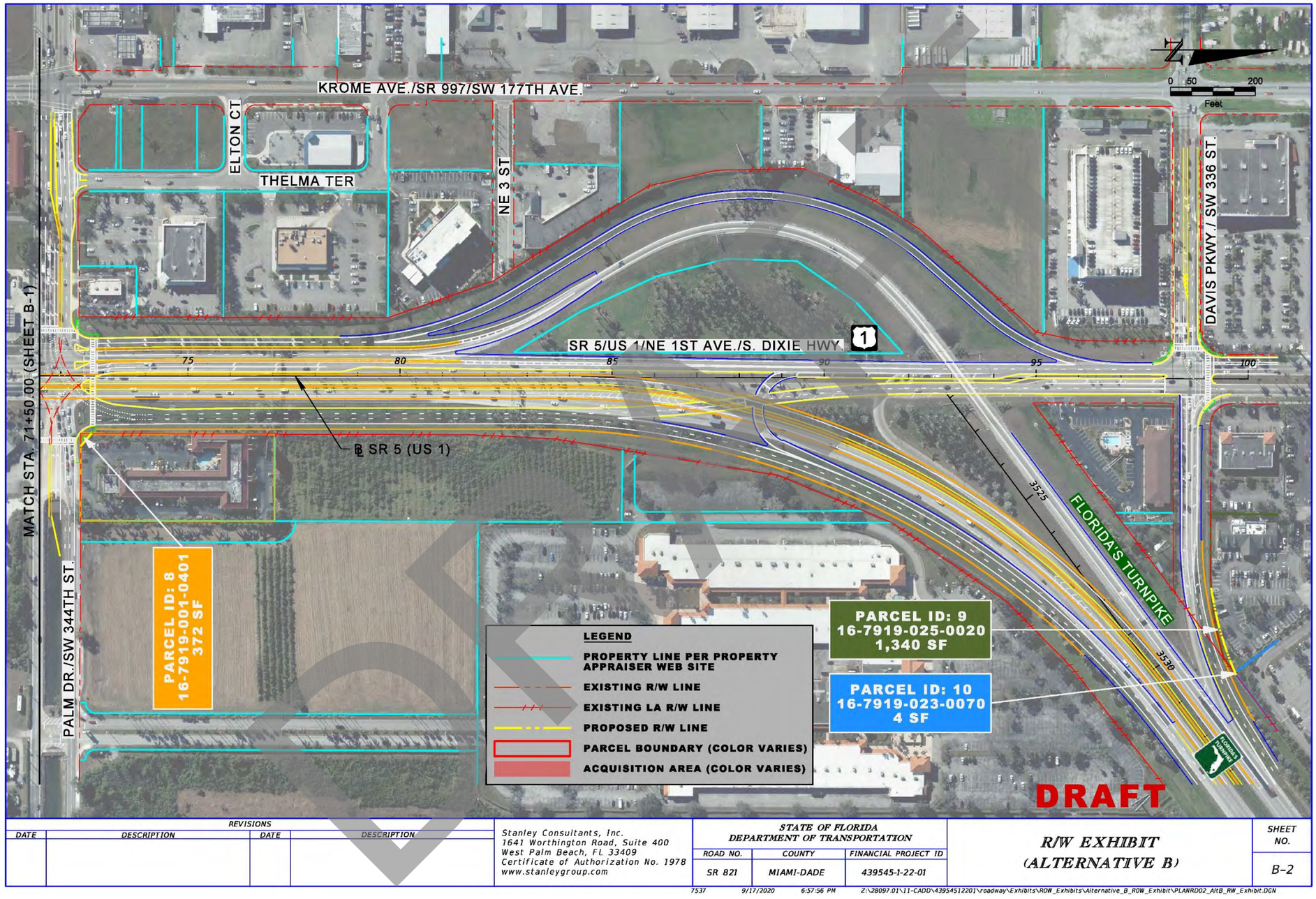


Figure 7-15 Potential Right of Way Acquisition; US 1 (continued)

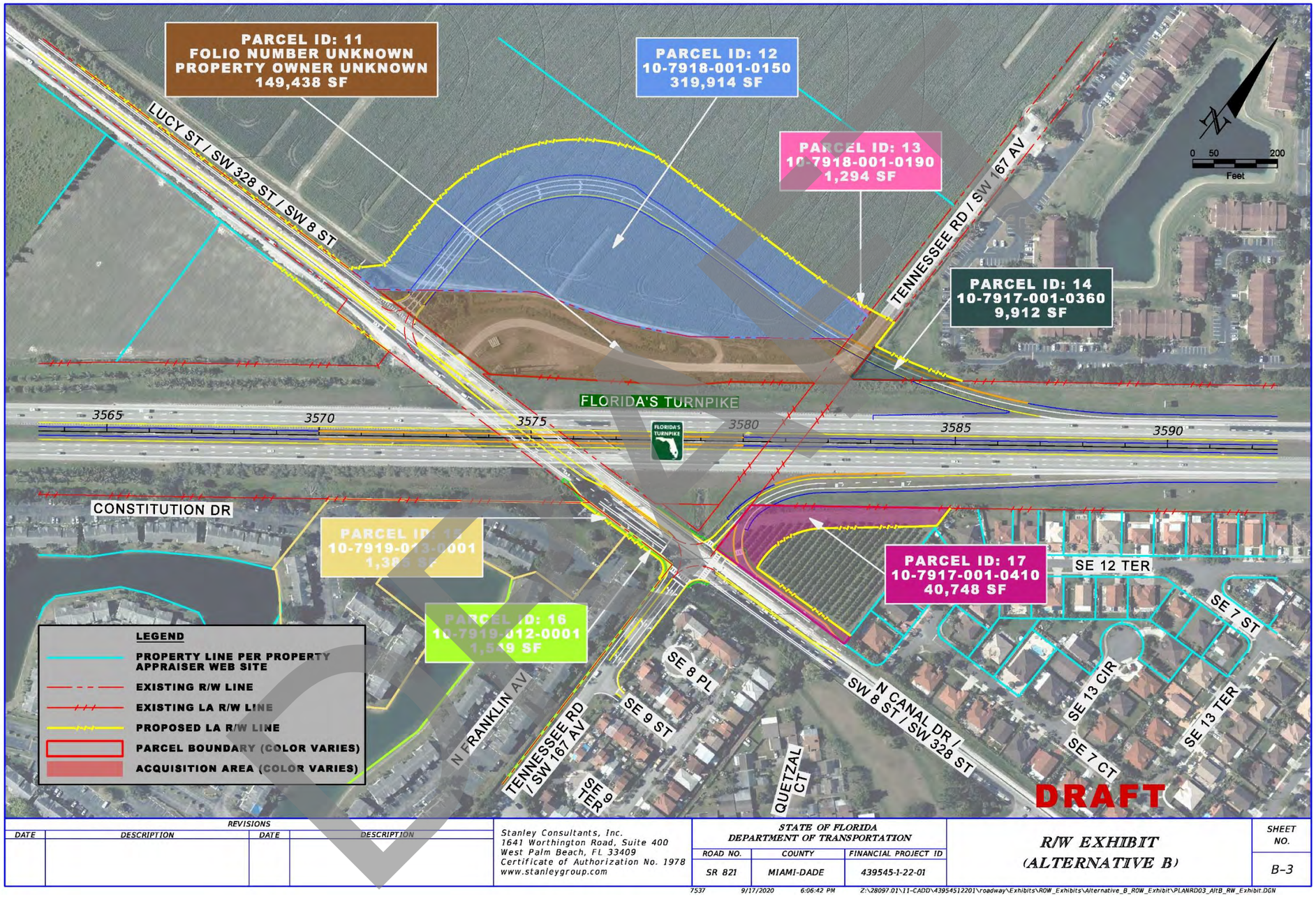


Figure 7-16 Potential Right of Way Acquisition; Lucy Street Interchange

A *Conceptual Stage Relocation Plan (CSRP)* was prepared for the project build alternatives. The Preferred Alternative has one (1) potential business relocation and one (1) potential landlord business relocation. Relocations are summarized in **Tables 7-8** and **7-9**.

Table 7-8 Relocations for Turnpike Widening

Relocation Summary Table	
Displaced Households	0
Business Relocations	1
Landlord Business	1
Sign Relocations	0
Personal Property Relocations	0

Table 7-9 Relocations for Lucy Street Interchange

Relocation Summary Table	
Displaced Households	0
Business Relocations	0
Landlord Business	0
Sign Relocations	0
Personal Property Relocations	0

7.2.2 Future Land Use

The future land use for the study area was determined from GIS shapefiles provided on the Miami-Dade County Open Date Hub website. At the southern end of the study area is predominately commercial (business and office) and residential zoning. Along Turnpike the expected future land use is to remain predominantly commercial and residential, with no planned agriculture land use. Required right-of-way acquisition for the improvements fall within areas currently zoned for transportation and require no land use changes. At the north terminus of the study area, the land use consists of commercial (business and office) and residential zoning. **Figure 7-17** illustrates the future land use for the project area.

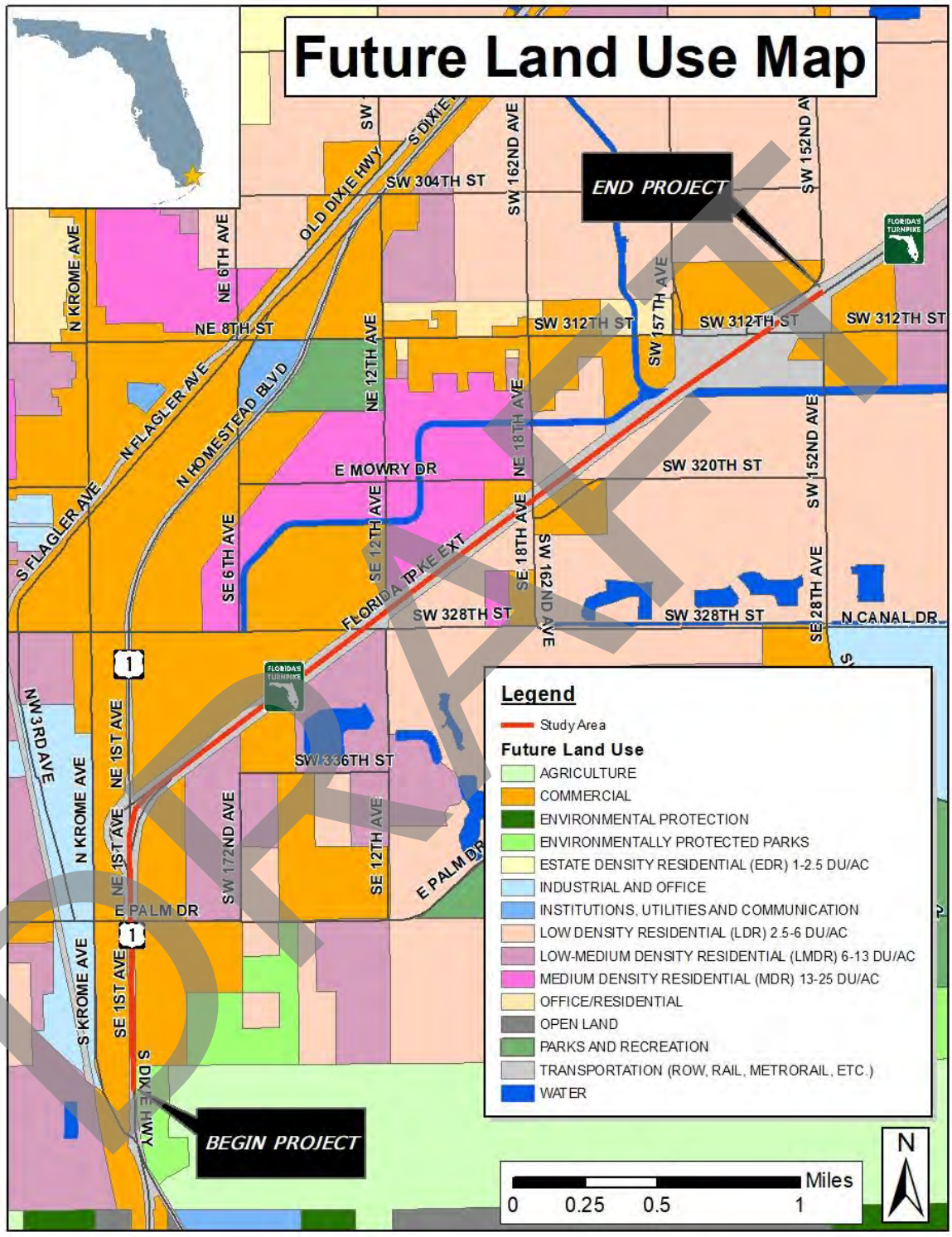


Figure 7-17 Future Land Use Map

7.2.3 Section 4(f)

This project is completely state funded and Section 4(f) does not apply since there is no Federal Highway Administration action needed for this project. Additionally, there are no 6(f) properties affected.

7.2.4 Cultural Resources

A *Cultural Resource Assessment Survey (CRAS)* report was prepared for this project and SHPO concurred with the findings and recommendations on October 9, 2020. The project Area of Potential Effect (APE) was developed based on the proposed improvements included on the Alternative B Concept Plans dated January 2020. Based on this, the archaeological APE focuses upon identifying and evaluating resources within the geographic limits of the proposed improvements and its associated ground disturbing activities within the existing and proposed ROW. Therefore, the archaeological APE was confined to the footprint of subsurface construction activity within the existing and proposed ROW. The APE for historic resources typically includes the area of the proposed improvements as well as the area within which potential visual effects for the improvements could be observed. Based on this and the developed nature of the corridor, the APE for historic resources includes parcels directly adjacent to the edge of the proposed project improvements for a distance of up to 200 feet. See Figures 2-1a-2-1l in the CRAS for aerial maps with the historic resources APE for this project.

Background research identified no previously recorded archaeological sites within the archaeological APE. The archaeological APE is entirely within areas of low archaeological site potential. Subsurface testing was conducted where feasible during the current survey, and no archaeological materials were recovered. The rest of the archaeological APE was within previously developed areas containing existing roadways, highways, berms, canals, ditches, buildings, hardscape, landscape, and underground drainage systems and utilities. The pedestrian survey of the archaeological APE confirmed the developed nature of the project corridor and a low potential for finding intact archaeological sites.

The historic resources survey resulted in the identification of a total of four (4) historic resources. Of the four (4) resources, two (2) have been previously recorded and two (2) are newly recorded. The two (2) previously recorded resources include: US 1 (Dixie Highway) (8DA9990) and the C-103 (Mowry) Canal (8DA15002). Portions of the US 1 (8DA9990) which comprise the entire segment within the current project APE were determined ineligible for inclusion in the National Register by SHPO on June 27, 2005 and September 10, 2014. The finding has not changed as a result of this study and the FMSF form for this resource was not updated. The C-103 (Mowry) Canal was recorded northwest of the project area in 2016 and SHPO determined it ineligible for inclusion on the National Register on November 28, 2017. The segment of the canal within the current project APE is considered ineligible for listing in the National Register due to common engineering techniques and lack of historical associations.

The two (2) newly recorded resources (8DA16043 and 8DA17113) consist of one (1) canal and one (1) standing structure, both of which are considered National Register-ineligible. The Florida City Canal (8DA16043) has been covered and converted to a culvert and is no longer visible within the current project APE. It is conserved ineligible for inclusion in the National Register. The standing structure, 402 NE 1st Avenue (8DA17113), exhibits common style and construction techniques, does not retain its historic appearance, and has undergone extensive alterations. As a result, it is considered ineligible for listing in the National Register.

Although unlikely, should construction activities uncover any archaeological remains, it is recommended that activity in the immediate area of the remains be stopped while a professional archaeologist evaluates the remains. In the event that human remains are found during construction or maintenance activities, Chapter 872.05 of the *Florida Statutes* will apply. Chapter 872.05 requires that all construction cease immediately in the area of human remains. Chapter 872.05 states that, when human remains are encountered, all activity that might disturb the remains shall cease and may not resume until authorized by the District Medical Examiner or the State Archaeologist. The District Medical Examiner has jurisdiction if the remains are less than 75 years old or if the remains are involved in a criminal investigation. The State Archaeologist may assume jurisdiction if the remains are 75 years of age or more.

7.2.5 Wetlands

The Wetland and Surface Water evaluation performed for this project identified three (3) natural wetland areas (as discussed in Section 2 of this report) and two (2) types of surface waters, i.e. stormwater swales and other surface waters. Natural wetlands, stormwater swale wetlands and other surface water including features are shown in **Table 2-29**, Stormwater Management/Drainage Features and Surface Waters, of this report (includes the features' identification number, size (acres), FLUCCS code/description, and USFWS code/description). The locations of these features are depicted on aerial maps in **Figure 2-12.** The potential impacts are to the eleven (11) stormwater swales (SW-1 to SW-11) and two (2) other surface waters (OSW-2 and -7). The impacts consist of approximately 9.78 acres impacts of re-grading in the SW-1 to SW-11 and approximately 2.0 acres of dredge and fill in OSW-2 and 0.32 acres of fill in OSW-7.

Per the January 16, 2020 interagency meeting with the South Florida Water Management (SFWMD) and US Army Corps of Engineers (USACE), permits are anticipated from the USACE and SFWMD. In this meeting, both agencies confirmed that mitigation will not be required for impacts to SW-1 to SW-11 and OSW-7. The stormwater swales will be replaced in-kind. It is anticipated that a Nationwide (NW) permit will be obtained for OSW-2 but will require no mitigation. Supporting agency correspondence is found in **Appendix H.**

7.2.6 Protected Species and Habitat

The NRE also contains detailed information pertaining to any threatened, endangered, or otherwise protected species within the project study limits. Avoidance and minimization measures for any potential impacts are included in this report. A Protected Species and Habitat evaluation was conducted to document potential project involvement with threatened, endangered and/or protected species that may result from the proposed roadway and interchange enhancements along the project corridor. This assessment was conducted in accordance with Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.) and Part 2 Chapter 16 of the Florida Department of Transportation (FDOT) PD&E Manual. **Table 7-10** provides a summary of the federally and state listed endangered species with potential to occur within the limits along with the corresponding effect determinations. The potential of occurrence was ranked as low, moderate, or high and based on land cover / land use, the presence or absence of quality suitable habitats and critical habitat within the project limits.

Table 7-10 Federal and State-Listed Endangered Species with the Potential to Occur within the Project Corridor and Federal Effects Determination

Common Name	Scientific Name	Federal Status	State Status	Occurrence Potential	Observed	Federal Effects Determination
Florida Bonneted Bat	*Eumops floridanus*	E	FE	Low	No	May Affect Not Likely to Adversely Affect – P if BMPs used and survey reports are submitted. Programmatic concurrence.
West Indian manatee	*Trichechus manatus*	T	FT	Low	No	May Affect Not Likely to Adversely Affect
Everglade Snail Kite	*Rostrhamus sociabilis plumbeus*	E	FE	Low	No	No effect
Florida Grasshopper Sparrow	*Ammodramus savannarum floridanus*	E	FE	Low	No	No effect
Wood Stork	*Mycteria americana*	T	FT	Moderate	No	Not Likely to Adversely Affect
Least Tern	*Sterna antillarum*	NL	ST	Low	No	NA
Little Blue Heron	*Egretta caerulea*	NL	ST	Moderate	No	NA
Tricolored Heron	*Egretta tricolor*	NL	ST	Moderate	No	NA
Reddish Egret	*Egretta rufescens*	NL	ST	Low	No	NA
Black Skimmer	*Rynchops niger*	NL	ST	Low	No	NA
Burrowing Owl	*Athene cunicularia*	NL	ST	Low	No	NA
American Crocodile	*Crocodylus acutus*	T	FT	Low	No	No effect
American Alligator	*Alligator mississippiensis*	SA (T)	FT (S/A)	Low	No	No effect
Eastern Indigo Snake	*Drymarchon corais couperi*	T	FT	Low	No	Not Likely to Adversely Affect
Gopher Tortoise	*Gopherus polyphemus*	NL	ST	Low	No	NA
Miami Tiger Beetle	*Cicindelidia floridana*	E	FE	Low	No	No effect

No direct impacts to any of these listed species are anticipated as a result of this project. The project is within the core foraging area (CFA) of one (1) known wood stork colony (Grossman

Ridge West). The project study area was also evaluated for the presence of federally designated Critical Habitat as defined by the U.S. Congress in 50 Code of Federal Regulations (CFR) 17. Based on this evaluation, it was determined that no federally designated Critical Habitat is present within the proposed Build Alternative. In addition, the project study area is located within the U.S. Fish and Wildlife Service (USFWS) Consultation Area (i.e. all areas where populations of certain species are known to exist) for the following species:

- American Crocodile (*Crocodylus acutus*)
- Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)
- Florida Bonneted Bat (*Eumops floridanus*)
- Wood Stork (*Mycteria americana*)

- Since the above species fall within the Consultation Area, impacts to these species was assessed and a technical assistance meeting with the USFWS was conducted as required. Meeting minutes documenting the technical assistance are included in the NRE document.

7.2.7 Essential Fish Habitat

There is no involvement with, or adverse effect on Essential Fish Habitat (EFH) as the project area does not contain areas that support EFH or National Oceanic and Atmospheric Administration (NOAA) trust fishery resources; therefore, no EFH assessment or further consultation with National Marine Fisheries Service (NMFS) will be required. An EFH Assessment is not required and is not included in this report.

7.2.8 Highway Traffic Noise and Air Analysis

Noise Analysis will be performed for the Preferred Alternative by FTE and results inserted here.

An *Air Quality Technical Memorandum (AQTM)* was prepared as a part of this study and is included in **Appendix F** of this document. The project is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

Based on the results from the screening model, the highest project-related CO one- and eight-hour concentrations are not predicted to reach or exceed the one- or eight-hour NAAQS for this pollutant. As such, the project "passes" the screening model and no further analysis is required. Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to the FDOT Standard Specifications for Road and Bridge Construction.

7.2.9 Contamination

A Level 1 contamination screening evaluation of the Turnpike (SR 821) was conducted, detailed in the CSER and, summarized in Section 2.25.7 of this report. The Preferred Alternative may potentially affect one (1) site along the project corridor with a High Risk ranking, one (1) site with a Medium Risk ranking, and twelve (12) sites with a Low Risk ranking. The High and Medium sites potentially affected are listed below and can be found on **Figure 2-13**.

Map Site #9 Shell-Gateway (FDEP # 8506213)

The site located at map site #9 is located at the southwest corner of US 1 and Palm Drive. The FDEP lists the site as open, has had five (5) reported discharges and is currently undergoing cleanup. Furthermore, according to the FDEP Storage Tank Database, the underground storage tank (UST) system consists of three (3) 12,000-gallon fiberglass double-walled USTs used to store various grades of unleaded gasoline and one (1) 10,000-gallon fiberglass double walled UST used to store vehicular diesel. A *Site Summary Package* was submitted to the Department of Environmental Resources Management (DERM) in September 2019 that discusses plans for installation of a remediation system (air sparging/vapor extraction) to remove soil and groundwater contamination at the site. Figures in the *Site Summary Package* suggest groundwater flow is radial from the dispenser island towards East Palm drive and SE 1st Avenue. Excerpts from the *Site Summary Package* are included in Appendix F of the CSER. The *Site Summary Package* identifies petroleum contaminants in groundwater including benzene, xylene, 1-methylnaphthalene, 2-methylnaphthalene, and methyl tert-butyl ether (MTBE). Petroleum contamination in both soil and groundwater could be encountered near this site.

Map Site #10 Sun Kwik #1-Just Oil (FDEP# 8622180)

The site located at map site #10 is located on the east side of Krome Avenue just west of the Turnpike off-ramp at the US 1 interchange. The site is a closed gas station with the following removed tanks: two (2) 4,000-gallon USTs and two (2) 2,000-gallon USTs of unleaded gasoline, one (1) 4,000-gallon, one (1) 2,000-gallon and two (2) 6,000-gallon USTs of vehicular diesel. During the site reconnaissance the site was vacant and monitoring wells were detected. A petroleum discharge was reported in December of 1991 and remedial action is ongoing. Excerpts from the *Remedial Action Plan Modification (LSRAPM) Addendum* are included in Appendix F of the CSER. The *LSRAPM* identifies petroleum contaminants in groundwater including benzene and MTBE. Petroleum contamination in both soil and groundwater could be encountered near this site.

A Level II Contamination Assessment is recommended for any areas that have proposed dewatering or subsurface work activities (e.g. pole foundations, drainage features) occurring adjacent to or at any of the sites listed in Section 2.25.6 of this report. If any dewatering activities are identified in design, particularly on US 1 south of Palm Drive where existing French drains are present, the appropriate permitting and local agency coordination activities should take place. A Level II Contamination Assessment is recommended for all Medium and High ranked sites.

Based on the age of the bridges, lead-based coating shall be assumed to be present within faying surfaces of splices and top flanges embedded in concrete decks as well as other surfaces. Asbestos and lead-based paint was not identified in the samples collected from bridges listed in Section 2.25.7; however; prior to destructive activities on any bridge, the reports should be reviewed to confirm that they cover areas of the proposed work.

The FDOT Standard Specifications for Road and Bridge Construction July 2012 Workbook, Section 120-Excavation and Embankment, Sub article 120-1.2-Unidentified Areas of Contamination, should be provided with the construction contract documents. This specification details what the contractor should do if unexpected contamination is encountered.

Appendix A

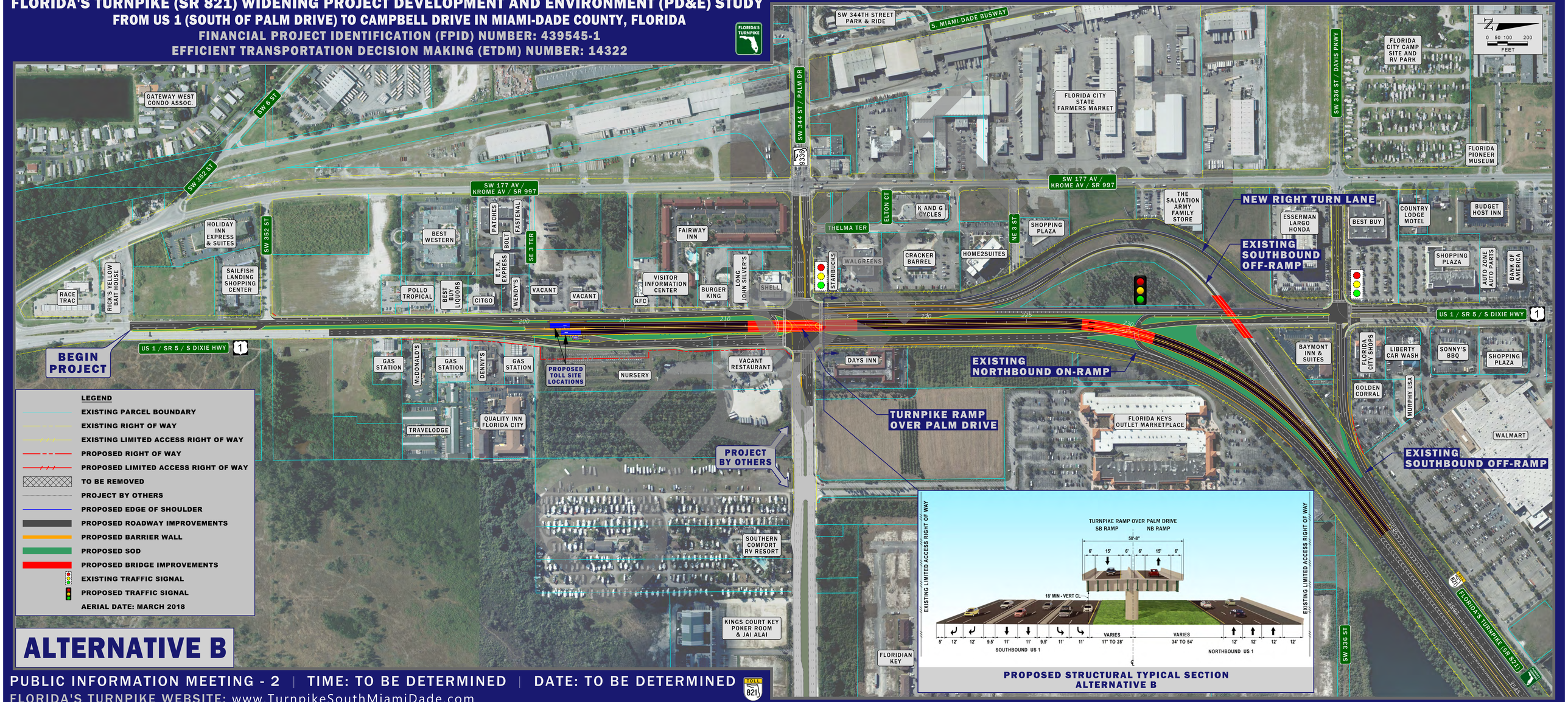
Concept Plans

FLORIDA'S TURNPIKE (SR 821) WIDENING PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY

FROM US 1 (SOUTH OF PALM DRIVE) TO CAMPBELL DRIVE IN MIAMI-DADE COUNTY, FLORIDA

FINANCIAL PROJECT IDENTIFICATION (FPID) NUMBER: 439545-1

EFFICIENT TRANSPORTATION DECISION MAKING (ETDM) NUMBER: 14322



LEGEND

- EXISTING PARCEL BOUNDARY
- EXISTING RIGHT OF WAY
- EXISTING LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- TO BE REMOVED
- PROJECT BY OTHERS
- PROPOSED EDGE OF SHOULDER
- PROPOSED ROADWAY IMPROVEMENTS
- PROPOSED BARRIER WALL
- PROPOSED SOD
- PROPOSED BRIDGE IMPROVEMENTS
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL
- AERIAL DATE: MARCH 2018

ALTERNATIVE B

PUBLIC INFORMATION MEETING - 2 | TIME: TO BE DETERMINED | DATE: TO BE DETERMINED

FLORIDA'S TURNPIKE WEBSITE: www.TurnpikeSouthMiamiDade.com

FLORIDA'S TURNPIKE (SR 821) WIDENING PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY
FROM US 1 (SOUTH OF PALM DRIVE) TO CAMPBELL DRIVE IN MIAMI-DADE COUNTY, FLORIDA
FINANCIAL PROJECT IDENTIFICATION (FPID) NUMBER: 439545-1
EFFICIENT TRANSPORTATION DECISION MAKING (ETDM) NUMBER: 14322

PUBLIC INFORMATION MEETING - 2 | TIME: TO BE DETERMINED | DATE: TO BE DETERMINED
FLORIDA'S TURNPIKE WEBSITE: www.TurnpikeSouthMiamiDade.com

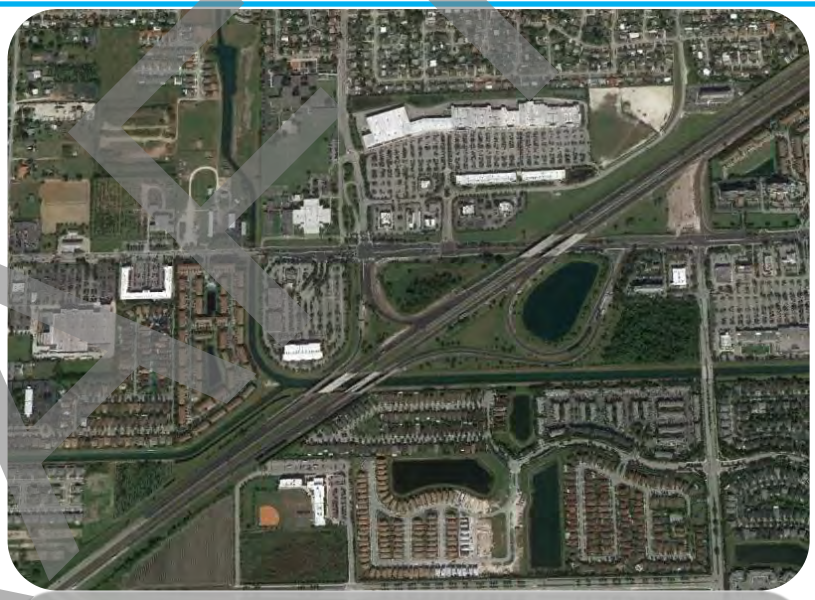
Appendix B

Project Traffic Documentation

Florida's Turnpike
Miami – Dade County

Turnpike Extension Widening

South of Palm Drive to Campbell Drive
[FPN 439545-1]
Draft Traffic Technical Memorandum



July 2019

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1.1 PROJECT OVERVIEW

This memorandum supports a Project Development and Environment (PD&E) study [FPN 439545-1] of the southern end of the Turnpike Extension between US 1 (MP 0) and Campbell Drive (MP 2). Included in this document are existing (Year 2016) and future traffic information, and traffic analysis supporting the development of project capacity enhancements. Project objectives are to development improvements which will serve existing and future demand and to improve safety by eliminating the potential for unsafe queues on the Turnpike Extension. Alternatives being considered include mainline widening, interchange improvements and enhancement at the intersection of US 1 and Palm Drive. The project evaluation also includes examining whether modifications to project area express lanes implementation plan are warranted. The study area is extended on to the local roads south of the Turnpike Extension which are critical to addressing current capacity deficiencies and future network changes. This includes the interchange and cross street intersections at US 1 (NE 1st Avenue / SR 5), NE 7th Street (SW 336th Street / West Davis Parkway), Palm Drive (SW 344th Street / SR 9336), and Krome Avenue (SW 177th Avenue / SR 997).

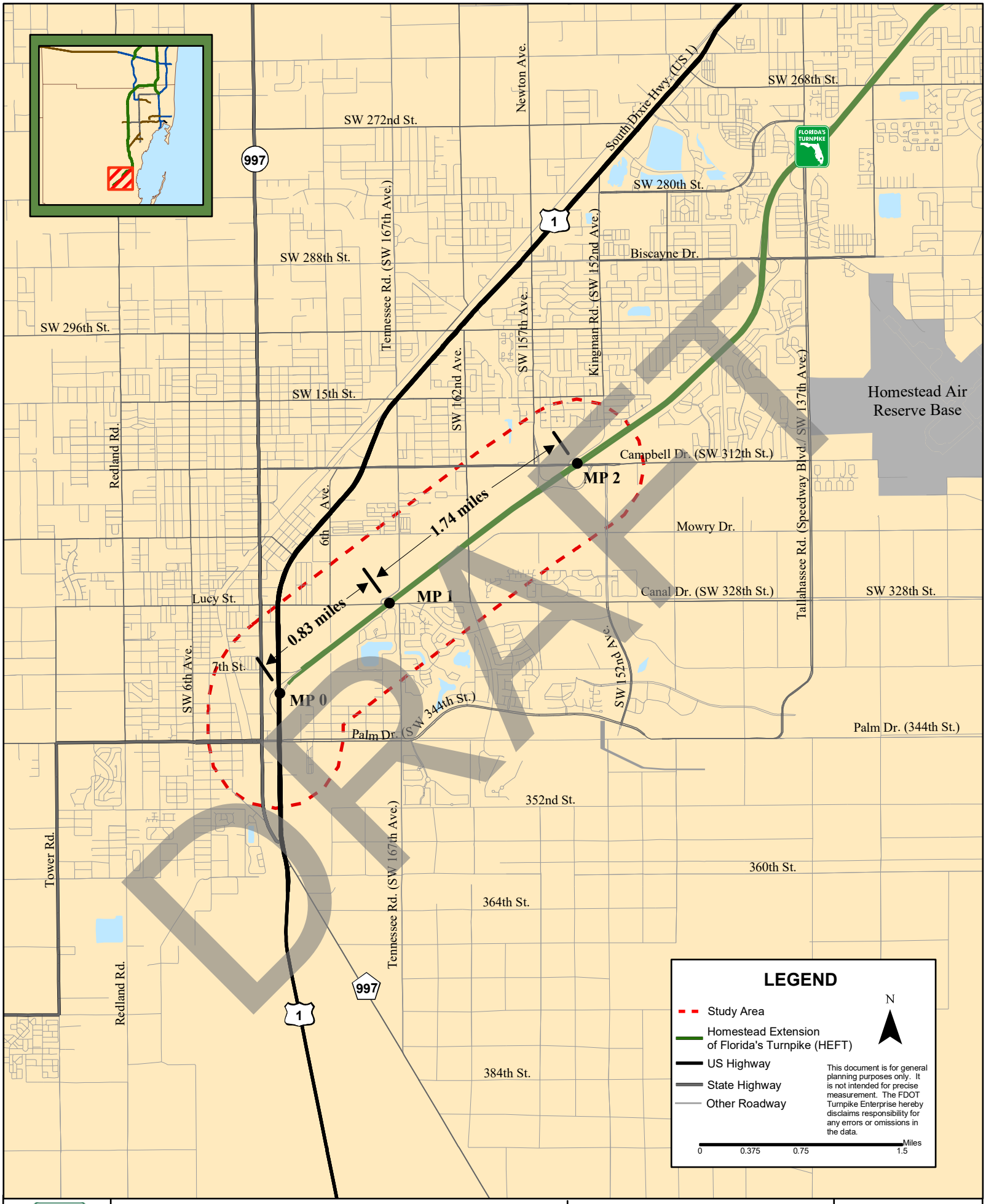
The Turnpike Extension, within this project area, is the only portion not included in the programmed widening projects with express lanes. Improvements to the ramp terminus have been studied several times in the last decade. Given the capacity constraints of the southern terminus and limited development potential to the south, previous efforts concluded that additional widening was not warranted until local roadway network deficiencies were addressed. The previous efforts also evaluated ultimate needs and determined improvements needed at the Campbell Drive (SW 312th Street) Interchange. An Interchange Modification Report (IMR) and Design Traffic Report (DTR) for the Turnpike Extension and Campbell Drive interchange were completed in 2014 and 2015, respectively. The improvements identified at the Campbell Drive interchange were recently completed.

The Turnpike Extension/US 1 corridor connects the Florida mainland and the Florida Keys – a chain of small islands popular to tourists of the state and permanent home to over 73,000 residents (based on 2010 Census). During heavy tourist timeframes and weekends, the Keys inbound traffic alone or in combination with typical traffic, results in queues into the mainline lanes of the southern Turnpike Extension segment. The recorded frequency of southbound exit ramps queue backups onto mainlines has been steadily increasing since 2015. There were 105 incidents of queuing observed in 2017, 80 in 2016, and 93 in 2015. Queue incidents typically occur during non-typical peak hours, the worst case occurs when the in-bound Keys traffic mixes with heavy commuter/typical traffic.

The US 1 / Turnpike Extension connection also serves as a critical evacuation route during events such as a hurricane higher than Category 3. The signalized intersection of US 1 and Palm Street located within 900 feet south of the Turnpike Extension southbound off-ramp is a choke point on the evacuation route and several improvement options were studied in a 2012 evacuation planning assessment.

The current study effort is scoped to provide future traffic demand and evaluate capacity and operational improvement alternatives for the southern 2-mile segment including the terminus at US 1. This memorandum provides existing conditions and operations in the No-Build conditions (No-Build) and Build

alternatives. Traffic analysis and forecasts are provided for existing (2016) and design year (2045). The project study area is shown on **Figure 1.1**.



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum**	**Project Location Map**	**Figure 1.1**

1.2 TRANSPORTATION FACILITIES

The Turnpike Extension southern point begins at US 1 and runs along a north/south alignment through Miami-Dade County to approximately the Miami-Dade/Broward County line, where the alignment shifts to east/west and connects to Florida's Turnpike. The Turnpike Extension has been converted to All-Electronic Tolling (AET).

The focus of this study is a four-lane facility in the Turnpike Extension at the southern end between US 1 (MP 0) and Campbell Drive (MP 2). The mainline posted speed limit is 65 mph. The Campbell Drive interchange is a Partial Cloverleaf (Parclo) Interchange with tolls collected on to/from the south ramps. The southern connection with US 1 includes two southbound off-ramps; an off-ramp connecting to Davis Parkway and US 1 intersection, and another off-ramp to US 1 just north of Palm Drive/US 1 intersection. There are also two northbound on-ramps, serving the northbound and southbound traffic from US 1, respectively. The existing aerial photographs of the interchanges within the study area are shown on **Figures 1.2** and **1.3**. This study also includes the city street network between Krome Avenue and US 1, adjacent to the Turnpike Extension MP 0. The existing interchange configuration and cross street lane geometry within the study area are shown on **Figure 1.4**.

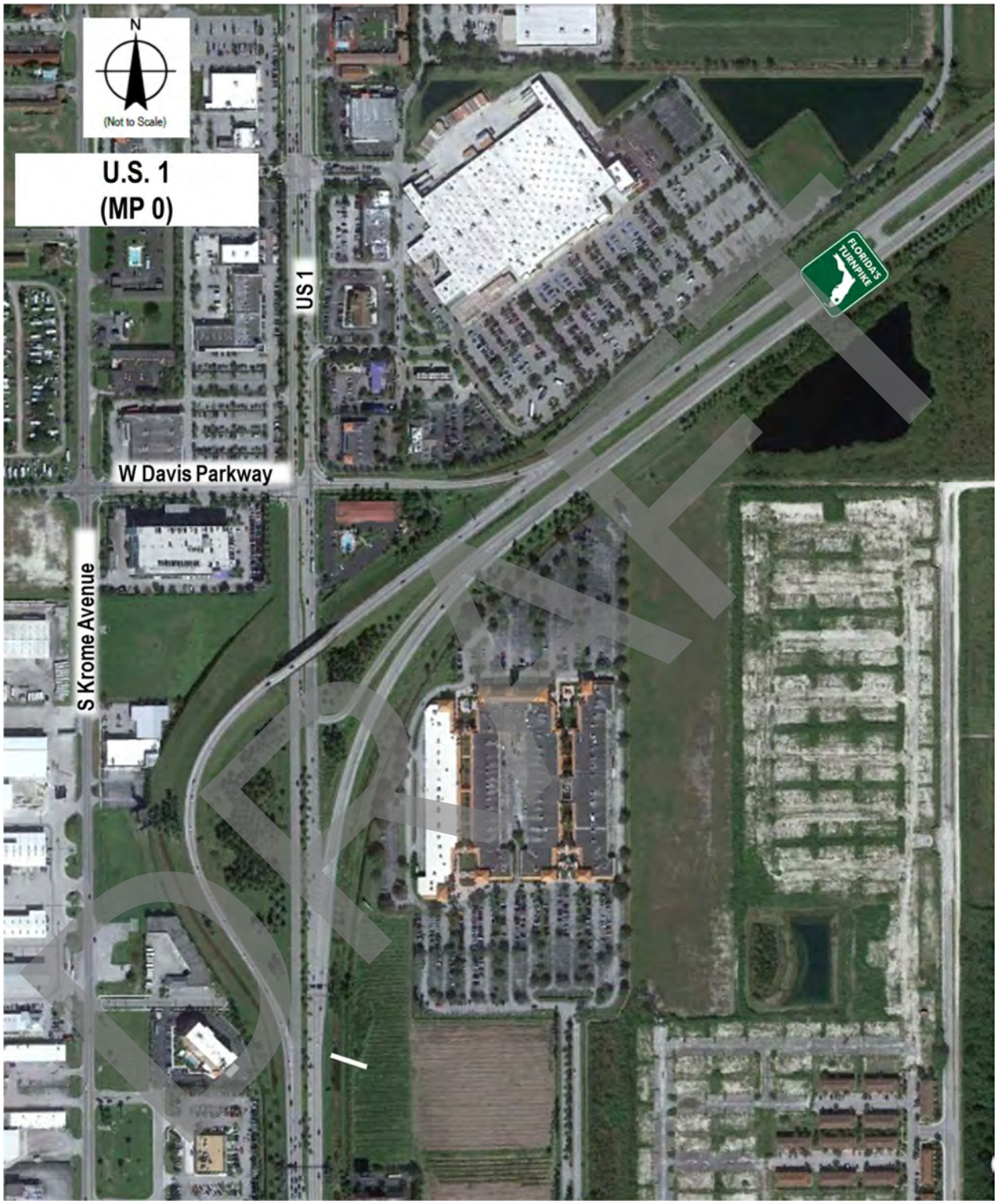
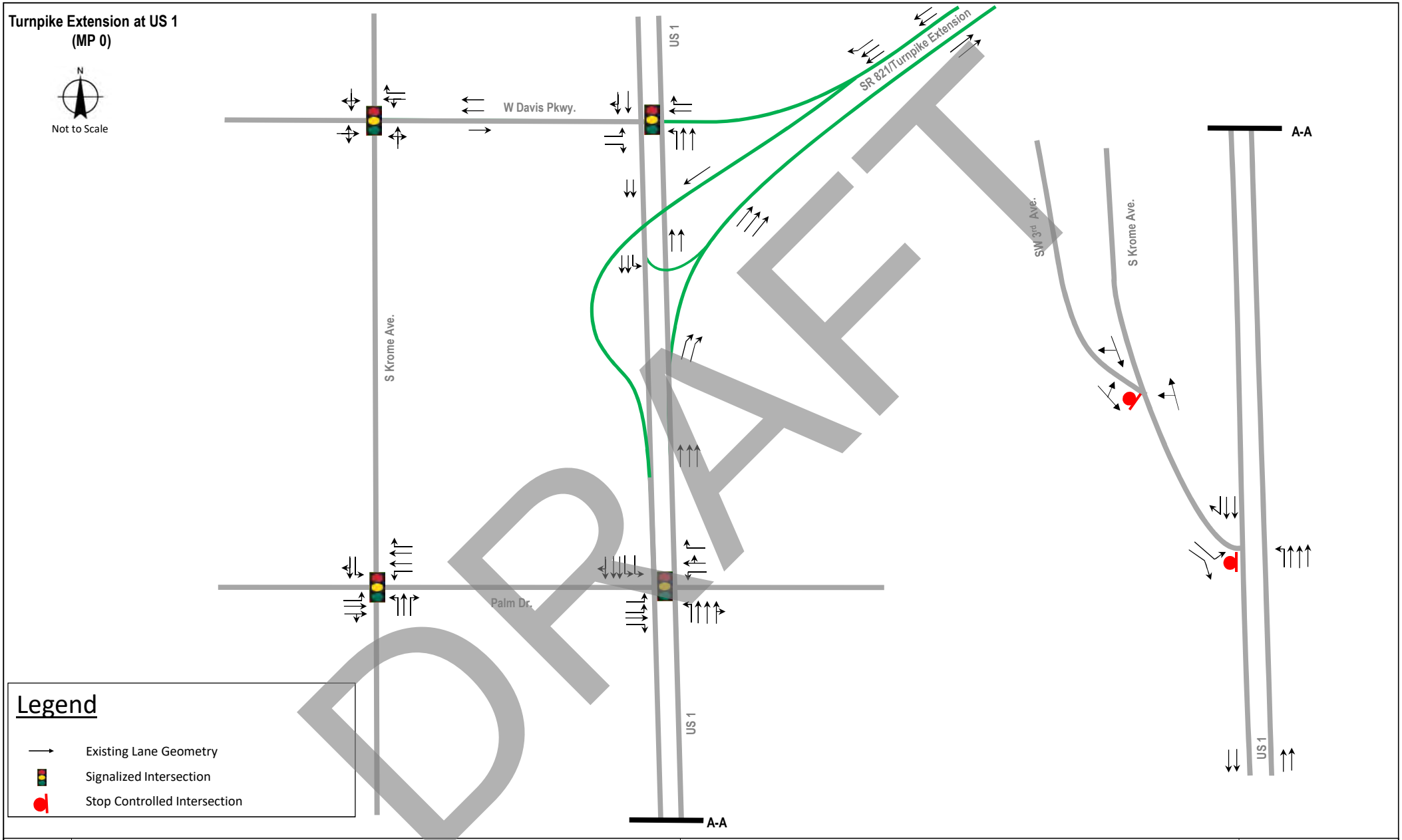


Figure 1.2
US 1 Interchange Aerial Photograph

Figure 1.3
Campbell Drive Interchange Aerial Photograph



FLORIDA'S TURNPIKE

Turnpike Extension Widening South of Palm Drive to Campbell Drive
Traffic Technical Memorandum

Existing (2016) Lane Geometry

Figure 1.4

2.1 DATA COLLECTION

Figure 2.1 illustrates the data collected for this project. Intersection turning movement counts were collected for AM peak, mid-day, and PM peak periods. The 24-hour directional counts were collected on the ramps for a week from Tuesday, March 8, 2016 through Monday, March 14, 2016, and on arterials of US 1, Palm Drive, and Krome Avenue for a week from Monday, March 7, 2016 to Sunday, March 13, 2016. Other resources include toll data at the Campbell Drive Interchange and the 2016 Florida Traffic Information (FTI) database.

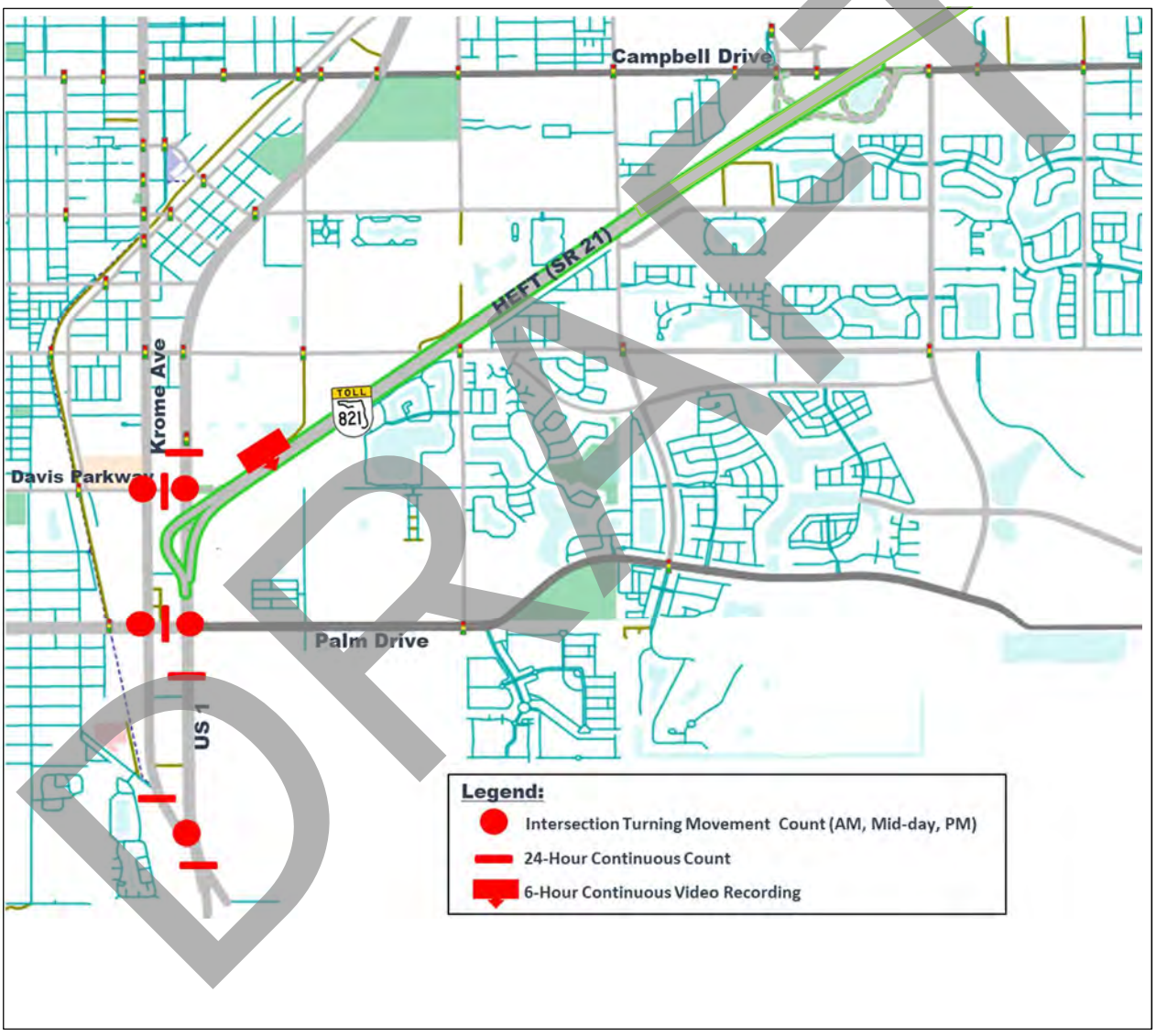


Figure 2.1
7-Day Machine Count and Intersection Turning Movement Count Locations

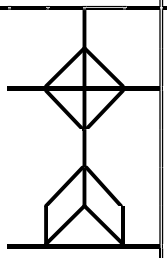
In addition, the field video data were collected on the 2016 Labor Day weekend (periods from 11:00 AM to 5:00 PM on September 2, 2016 to September 5, 2016), at the southbound off-ramp location as shown on **Figure 2.1**. Continuous southbound off-ramp queue backups to the mainline were observed on Saturday, September 3, 2016, from 11:00 AM to 1:30 PM. The longest observed queue length is approximately 1,200 feet onto the mainline. Queue backups were also observed on September 4, 2016, with the impact from an accident that occurred around 1:20 PM. Based on the data on September 3, 2016, the maximum hourly volume on the Turnpike Extension mainline between US 1 and Campbell Drive was 1,785 southbound and 1,014 northbound during 12:30 to 1:30 PM. To determine traffic splits between US 1 and Card Sound Road, and the amount of traffic entering and exiting the driveways on the south-west quadrant of Palm Drive/US 1 intersection, a follow-up data collection was conducted from Tuesday, February 11, 2019 through Saturday, February 16, 2019.

2.2 ANNUAL AVERAGE DAILY TRAFFIC VOLUMES

In order to calculate the existing (2016) Annual Average Daily Traffic (AADT) volumes, an analysis of the three-day traffic counts was conducted. Three-day averages were adjusted to account for seasonal variations and axle corrections to develop the AADT volumes. The most recent peak seasonal factor and weekly axle factor for the study region are 0.96 and 0.96, respectively, based on the 2015 Factor Category report from FTI. The existing (2016) AADT volumes resulting from these calculations are provided in **Table 2.1**.

Table 2.1
Turnpike Extension 2016 Annual Average Daily Traffic (AADT) Volumes

Mile Post-Interchange	2016
	61,000
MP 2 – Campbell Drive	24,500
	3,300
	39,800
MP 0 – US 1 (To/From North)	11,800
MP 0 – US 1 (To/From South)	28,000



Bold = Mainline Volumes

The existing (2016) arterial street AADT volumes are provided in **Table 2.2**.

Table 2.2
2016 Annual Average Daily Traffic (AADT) Volumes on Arterial Streets

City Street	Location	2016 AADT
NE 7th Street	East of US 1	6,500
Palm Drive	East of Krome Avenue	22,400
US 1	South of Palm Drive	34,400

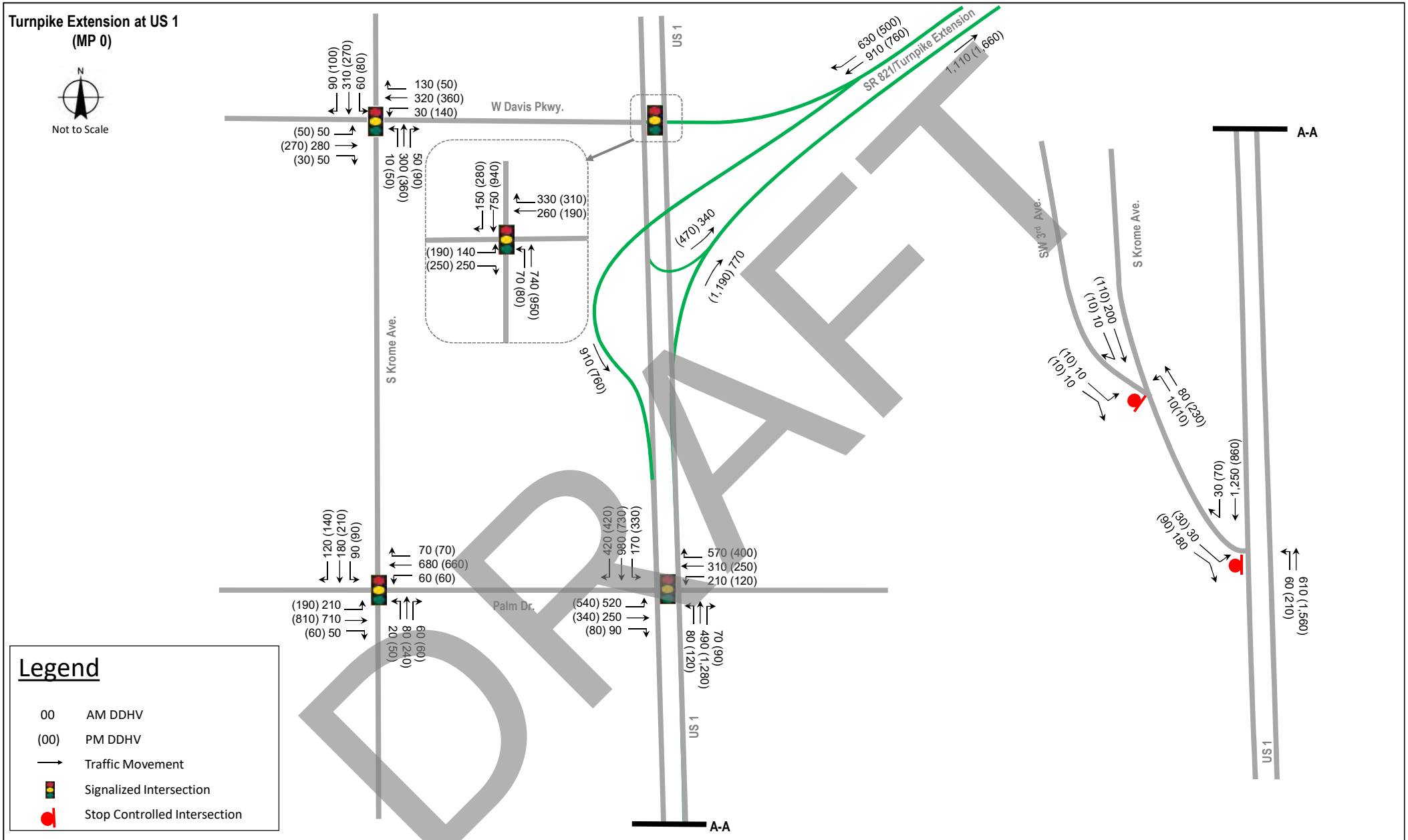
2.3 PEAK HOUR VOLUMES

The study area AM and PM peak hour traffic counts were summarized and adjusted to develop peak season existing AM and PM peak hour volumes. Mainline and ramps traffic volumes are summarized in **Table 2.3**. The cross street volumes are developed based on collected traffic counts and adjusted to match the ramp volumes, which were taken as the control points. The peak season peak hour volumes for the Turnpike Extension south end and US 1 study area is shown on **Figure 2.2**.

Table 2.3
Existing (2016) Peak Hour Volumes

Milepost-Interchange	Existing 2016			
	AM Peak		PM Peak	
	SB	NB	SB	NB
MP 2 – Campbell Drive	**2,530**	**2,220**	**2,220**	**2,530**
	860	1,110	1,110	860
	150	160	160	150
MP 0 – US 1 (To/From North)	**1,820**	**1,270**	**1,270**	**1,820**
	630	500	500	630
MP 0 – US 1 (To/From South)	1,190	770	770	1,190

Bold = Mainline Volumes



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum**	**Existing (2016) Peak Season Peak Hour Volumes**

Figure 2.2

The configuration at US 1/Palm Drive intersection as shown on **Figure 3.1** presents complex driving conditions where drivers must observe traffic signal phases and weave among other vehicles to position themselves in the appropriate lane according to their turning movement at the intersection. The effective length of the weaving zone at US 1/Palm Drive intersection is about 500 feet, which is too short for drivers to make several complex driving tasks before reaching the intersection. This has been the main cause of inefficient and unsafe intersection operations leading to mainline queue backups and increased delays. The condition is even worse during peak heavy inbound to the Keys when most drivers are unfamiliar with the area.

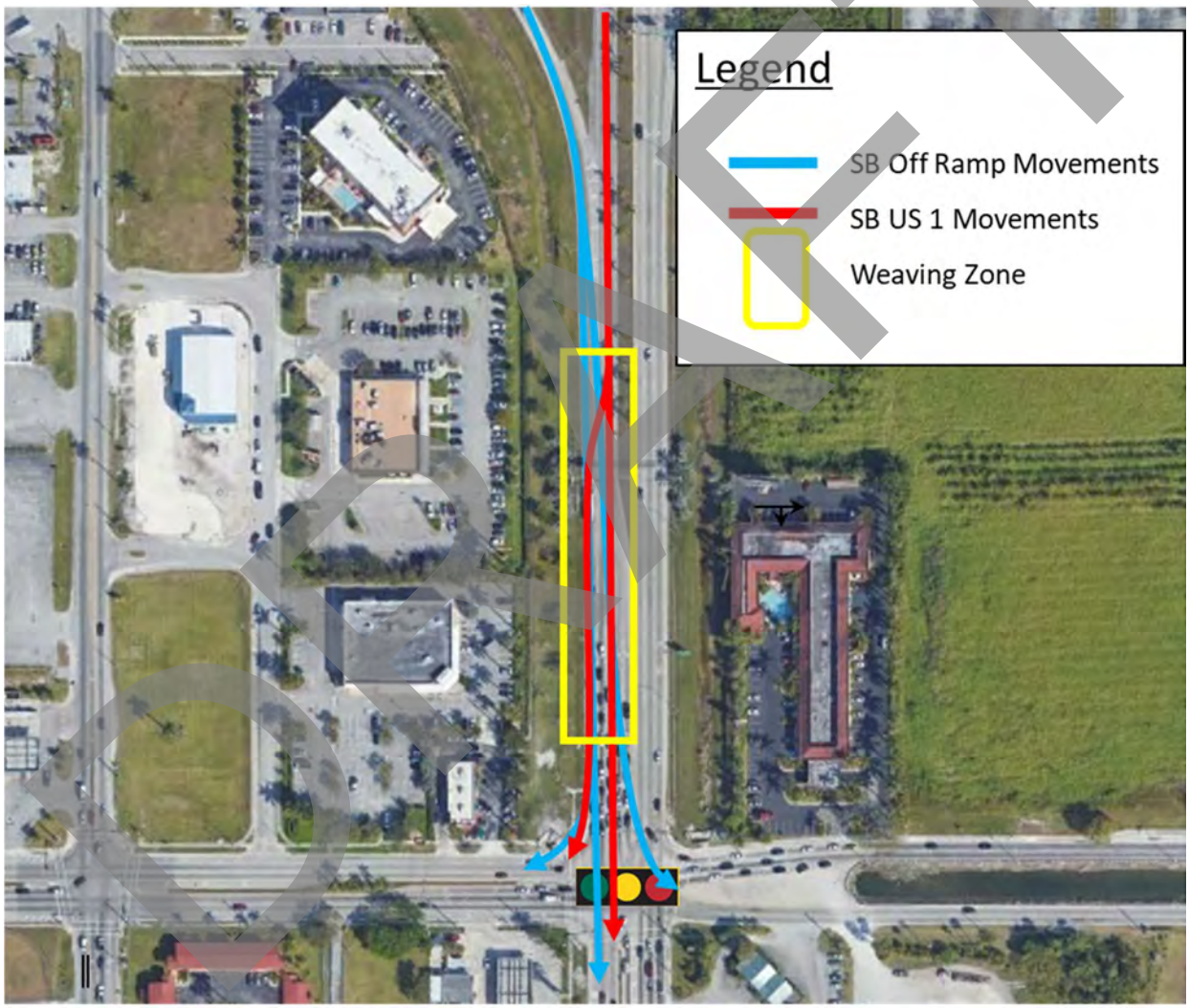


Figure 3.1
Existing Operational Complexity at US 1/Palm Drive Intersection

The traffic operations analysis for the existing Turnpike Mainline segments and ramps is based on Highway Capacity Manual Edition 7 (HCM) methodologies. Highway Capacity Software (HCS 7) was used to analyze the mainline segments and ramp merge/diverge areas. The Level of Service (LOS) was determined directionally for the highway segments within the study area. Intersections were analyzed based on Synchro control delay (Version 10.1, Build 2, revision 20). This was used because the HCM methodology has limitations regarding intersections that are not controlled by the standard National Electric Manufacturers Association (NEMA) phasing. For example, the eastbound and westbound lanes of the intersection at US 1 and Palm Drive are under the control of a split phase, which is not the standard NEMA phasing.

3.1 FREEWAY SEGMENT ANALYSIS

The existing AM and PM peak hour traffic was evaluated in each direction for the freeway segment analysis. The HCS software was calibrated based on the adjusted Florida Department of Transportation (FDOT) capacities. Since the freeway segment analysis modules in HCS lack a capacity reduction factor, the Speed Adjustment Factor and Capacity Adjustment Factor were used to adjust capacity to the LOS E density threshold of 45 passenger cars per mile per lane (pcpmpl) for a basic segment. The resulting adjustment factors were 0.88.

Other factors used to evaluate the level of service include number of lanes, truck percentage, and free-flow speed (FFS) in miles per hour. The input assumptions for the basic freeway segments are:

- Free-flow speed = 65 mph
- Peak Hour Truck percentage (T_f) = 3%
- Peak Hour Factor (PHF) = 0.95

The FDOT minimum desired operational requirements for urban freeway facilities is LOS D. The analysis results are shown in Table 3.1.

Table 3.1
Existing (2016) Freeway Level of Service

Location	Direction	LOS	
		AM	PM
North of Campbell Drive (MP 2)	Southbound	C	C
	Northbound	C	C
North of US 1 (MP 0) to Campbell Drive (MP 2)	Southbound	B	B
	Northbound	B	B

3.2 FREEWAY RAMP MERGE/DIVERGE INFLUENCE AREA ANALYSIS

For the merge and diverge level of service analysis, the mainline free-flow speeds were lowered for the US 1 interchange ramps because this is the end of the Florida's Turnpike facility. It is assumed that drivers slow down to 60 mph before the exiting ramps so they can be ready to get off the Turnpike and drivers on the northbound on-ramp from the south speed up to 55 mph before merging with the northbound on-ramp from the north traffic. The free-flow speed is 45 mph for curved ramps and 50 mph for straight or diagonal ramps. Other factors were consistent with the freeway mainline segment analysis.

The HCS results of the merge and diverge influence areas within the study area are provided in **Table 3.2**.

Table 3.2
Existing (2016) Freeway Ramp Merge/Diverge Influence Area Level of Service

Mile Post-Interchange	Ramp	LOS	
		AM	PM
MP 2 – Campbell Drive	Southbound off-ramp	C	B
	Northbound on-ramp	B	C
	Southbound on-ramp	B	B
	Northbound off-ramp	B	B
MP 0 – US 1	Southbound off-ramp to north	B	A
	Northbound on-ramp from north	A	B

3.3 INTERSECTION ANALYSIS

The results of the existing signalized intersection analysis are provided in **Table 3.3**. As shown in **Table 3.3**, the intersection at US 1 and Palm Drive, located immediately south of the Turnpike southbound off-ramp going to US 1 southbound, is operating at LOS E. The southbound through movement fails in the AM, which can potentially result in queues and delays for Turnpike the southbound off-ramp. Other intersections are currently operating at acceptable levels of service.

Table 3.3
Existing (2016) Intersection Analysis

Intersection Name	Intersection LOS / Delay (sec)	
	AM	PM
US 1 / NE 7th Street (West Davis Parkway)	C / 24.8	C / 25.0
US 1 / Palm Drive	E / 65.7	E / 65.0
Krome Avenue (SW 177th Avenue) / NE 7th Street (West Davis Parkway)	C / 23.6	D / 52.6
Krome Avenue (SW 177th Avenue) / Palm Drive	C / 25.7	C / 33.9
Krome Avenue (SW 177th Avenue) / US 1	A / 3.3 *	A / 3.6 *

*HCM 2010 LOS for the non-signalized intersection.

This section describes the development of the future No-Build and Build alternatives traffic forecast for 2045.

4.1 PROJECT FORECAST MODEL

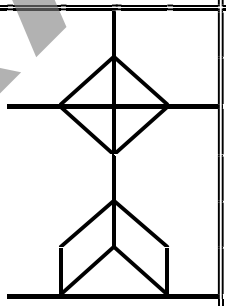
The latest official model, Southeast Florida Regional Planning Model (SERPM) version 7.0, was downloaded from the FDOT website, along with the 2010 and 2040 seed skims and add-on PopSyn-III module. The initial highway network and socio-demographic data were acquired from the FDOT District 4, which include roadway edits made for use of the transit projects studies in the region. A 2015 scenario was run with the acquired network and socio-demographic data to assess the current traffic estimates in the study area. Overall, the model performed very well replicating the average daily traffic (ADT) within a reasonable range. The model calibration, validation and future year trip table development report is included in **Attachment A**.

4.2 PROJECT NO-BUILD FORECASTS

Project Mainline and ramp AADTs traffic forecasts were developed using the 2017 Annual Traffic Trends Report and SERPM 7.0. The cross street AADTs were projected using estimated historical annual growth rates based on the FTI database and the SERPM 7.0 output for year 2045. The 2045 daily forecasts for the Turnpike Mainline, ramps and the cross streets, are shown in **Tables 4.1** and **4.2**, respectively.

Table 4.1
2045 No-Build AADT Volumes

Mile Post-Interchange	AADT
	108,600
2 – Campbell Drive	43,700
	10,400
	75,300
0 – US 1 (To/From North)	22,300
0 – US 1 (To/From South)	53,000



Bold = Mainline Volumes

Table 4.2
2045 Cross Street AADT

City Street	Location	AADT
Palm Drive	East of Krome Avenue	36,100
US 1	South of Palm Drive	49,200

4.3 FUTURE DIRECTIONAL DESIGN HOUR VOLUMES

The future Directional Design Hour Volumes (DDHVs) are calculated by applying the K factors and existing directional splits (directional distribution factor [D]) to the AADTs at interchange ramp pairs and the Turnpike Mainline control points. The K factor is the proportion of AADT occurring during the selected design hour. The D factor is the proportion of traffic in the design hour traveling in the peak direction.

Consistent with the FDOT districts, the Turnpike has developed standard K factors for use in planning and design applications. The K factor for the mainline section between Campbell Drive and US 1 is based on the Telemetered Traffic Monitoring Site (TTMS) 972262 data in the 2016 Florida Traffic Information (FTI) database, and is the same as the K factor for the US 1 Interchange ramps.

The K factors for the ramps at Campbell Drive are based on toll data. The D factors for the Campbell Drive Interchange ramps are based on 2016 toll data.

The Turnpike Extension interchange at US 1 serves both tourist and regular commute traffic. Therefore, future DDHVs were developed for two scenarios: the typical peak commuter design hour and the design hour for a heavy-inbound-keys scenario. The heavy-inbound-keys scenario considers a combination of peak season southbound tourists traveling to the Keys and a non-peak-hour commuter traffic for other movements. For the typical peak hour scenario, DDHVs were calculated based on the standard K factor and the D factor based on existing counts. For the heavy-inbound-keys scenario, the K and D factors were adjusted for the southbound off-ramp to make sure the design will be able to operate acceptably in the tourist traffic peaks. As mentioned in **Section 1.1**, over 81 percent of the queue incidents in 2015 occurred during non-typical peak hours, as a result of weekend and holiday tourist travel demand. Therefore, the directional splits from the FTI database, peak-season peak-hour counts, and peak period counts during typical holidays and weekends were studied and compared. In addition, a one-hour (11:30 AM to 12:30 PM) video was analyzed for the 2016 Labor Day Saturday to derive the D factors when upstream queues were present. Finally, a D factor of 60 percent was selected to produce the volume forecast representing a tourist-considered design volume.

For this specific location, the US 1 interchange ramp volumes are equal to the upstream mainline volumes. Therefore, the ramps (at both US 1 and Campbell Drive) are treated as control points. And mainline traffic volumes were then balanced throughout the system by adding and subtracting the ramp volumes.

Cross streets are forecasted with K factors in the 2016 FTI database and D factors were determined based on 2016 peak-season peak-hour counts.

The truck factor (T_f) is the percentage of truck traffic during the peak hours. The T_f can be estimated as half of the 24-hour truck factor (T), which is the percentage of truck traffic in 24 hours. T factors are based on the 2016 FTI database for cross streets and 2015 Turnpike Truck Factors for mainline segments and ramps.

The traffic factors used for future design hour traffic volumes and traffic operational analysis are provided in **Table 4.3**.

Table 4.3
Design Traffic Factors

Roadway Segment		K_{STD}	D	T	T_f	PHF
Turnpike Mainline						
North of US 1 (MP 0) to Campbell (MP 2)		8.50%	58.10%	5.6	3	0.95
Interchange Ramps						
Campbell Drive (MP 2)	South Ramps	9.50%	51.61%	5.6	3	0.95
	North Ramps	8.50%	56.35%	5.6	3	0.95
US 1 (MP 0) [Typical Scenario]	South Ramps	8.50%	58.10%	5.6	3	0.95
	North Ramps	8.50%	58.10%	5.6	3	0.95
US 1 (MP 0) [Heavy-Inbound-Keys Scenario]	South Ramps	9.50%	60.00%	5.6	3	0.95
	North Ramps	9.50%	60.00%	5.6	3	0.95
Cross Streets						
US 1	South of Interchange	9.50%	60.00%	9.5	5	0.95
Palm Drive	West of US 1, East of Krome	9.00%	55.00%	10.7	5	0.95

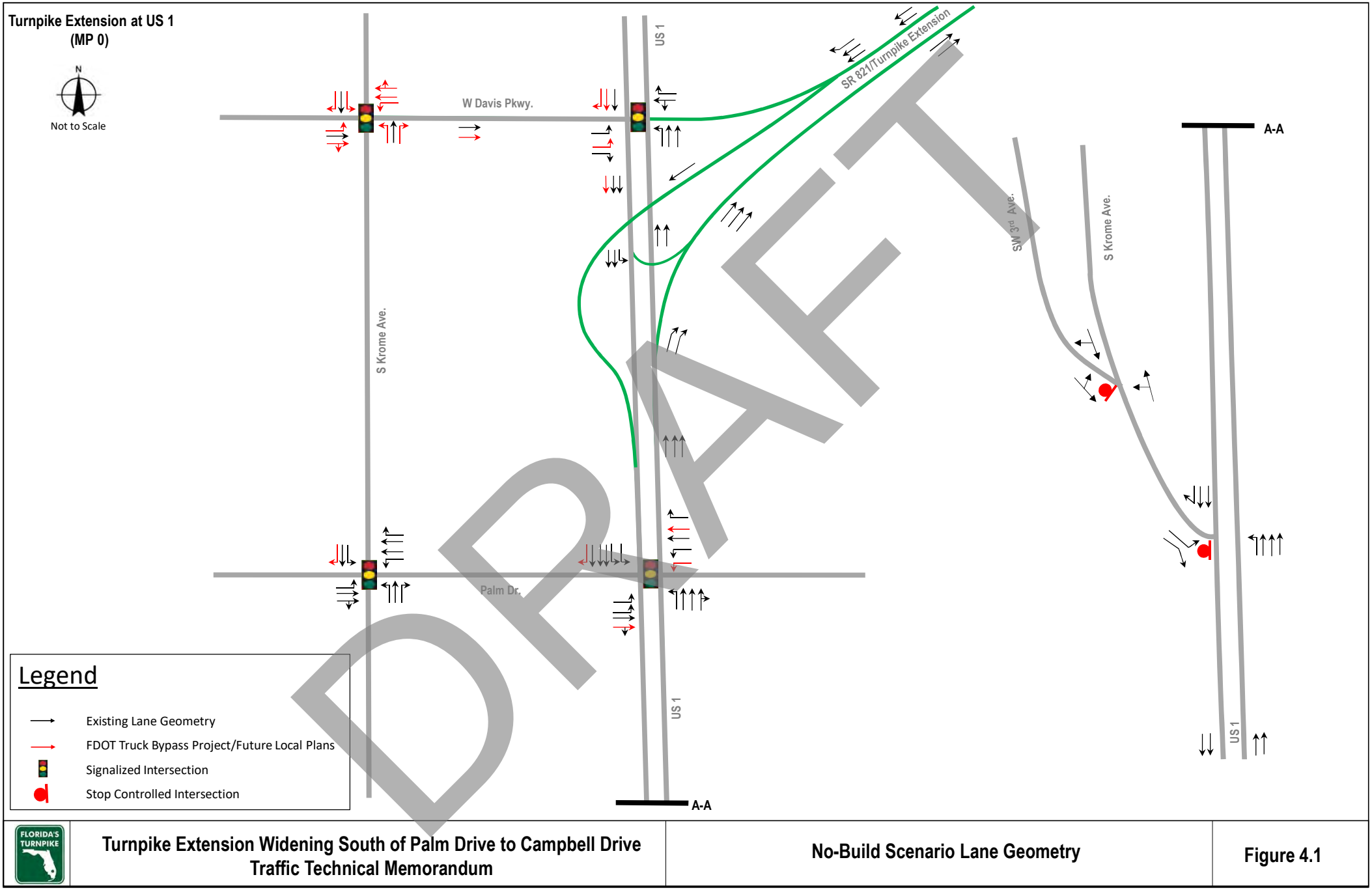
The DDHV volumes for the typical scenario are shown in **Table 4.4**. The DDHV volumes for the heavy-inbound-keys scenario were developed for 2045 as shown in **Table 4.5**. **Figure 4.1** shows No-Build Scenario lane geometry and **Figures 4.2** and **4.3** depict the mainline design hour through volumes and turning movements at the intersections included in the study area for the typical scenario and the heavy-inbound-keys scenario, respectively.

Table 4.4
2045 DDHVs – Typical Scenario

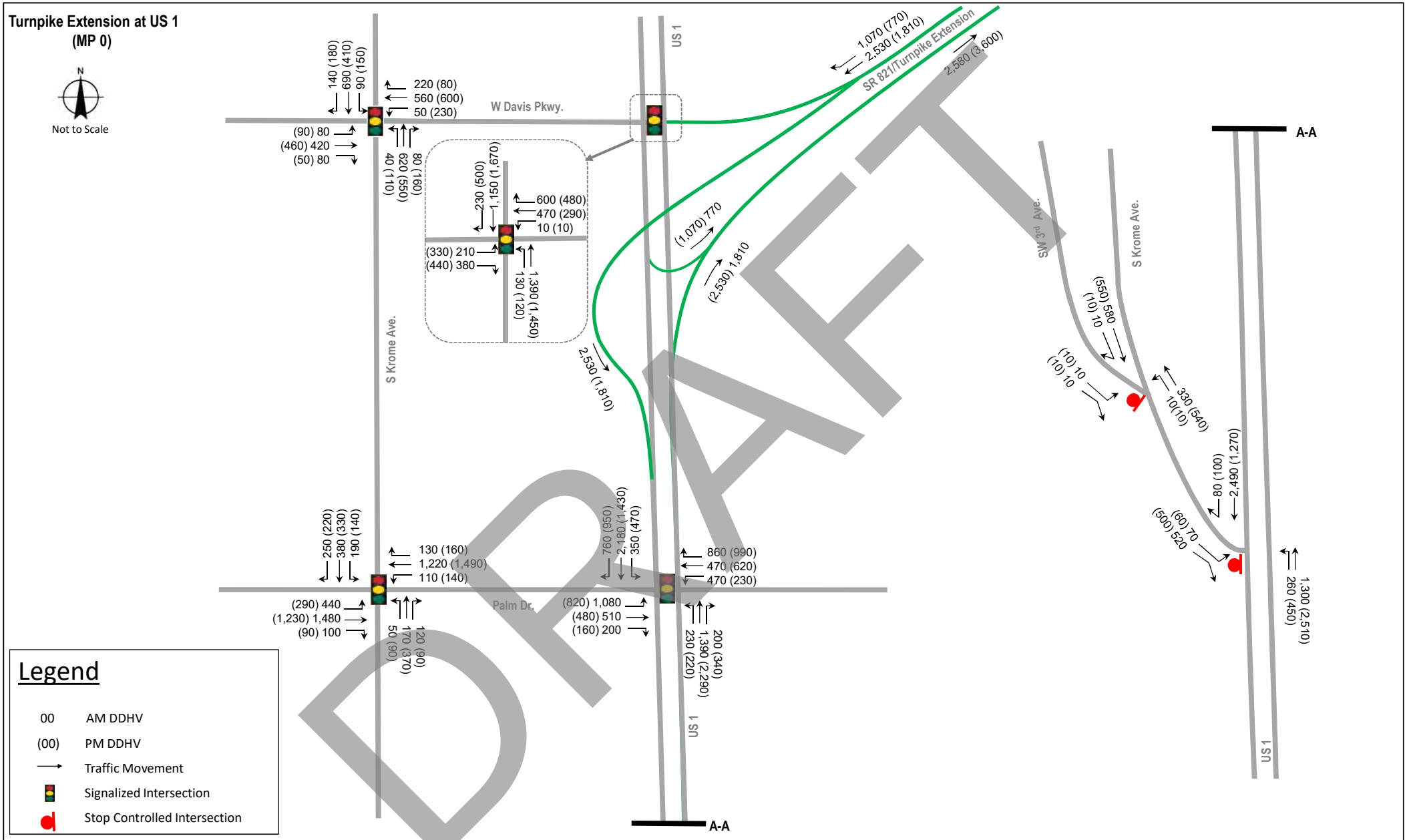
Mile Post-Interchange	DDHV			
	AM Peak		PM Peak	
	SB	NB	SB	NB
	5,870	**4,000**	**4,000**	**5,870**
2 – Campbell Drive	2,090	1,620	1,620	2090
	510	480	480	510
	4,290	**2,860**	**2,860**	**4,290**
0 – US 1 (To/From North)	1,270	850	850	1270
0 – US 1 (To/From South)	3,020	2,000	2,000	3,020

Table 4.5
2045 DDHVs – Heavy-Inbound-Keys Scenario

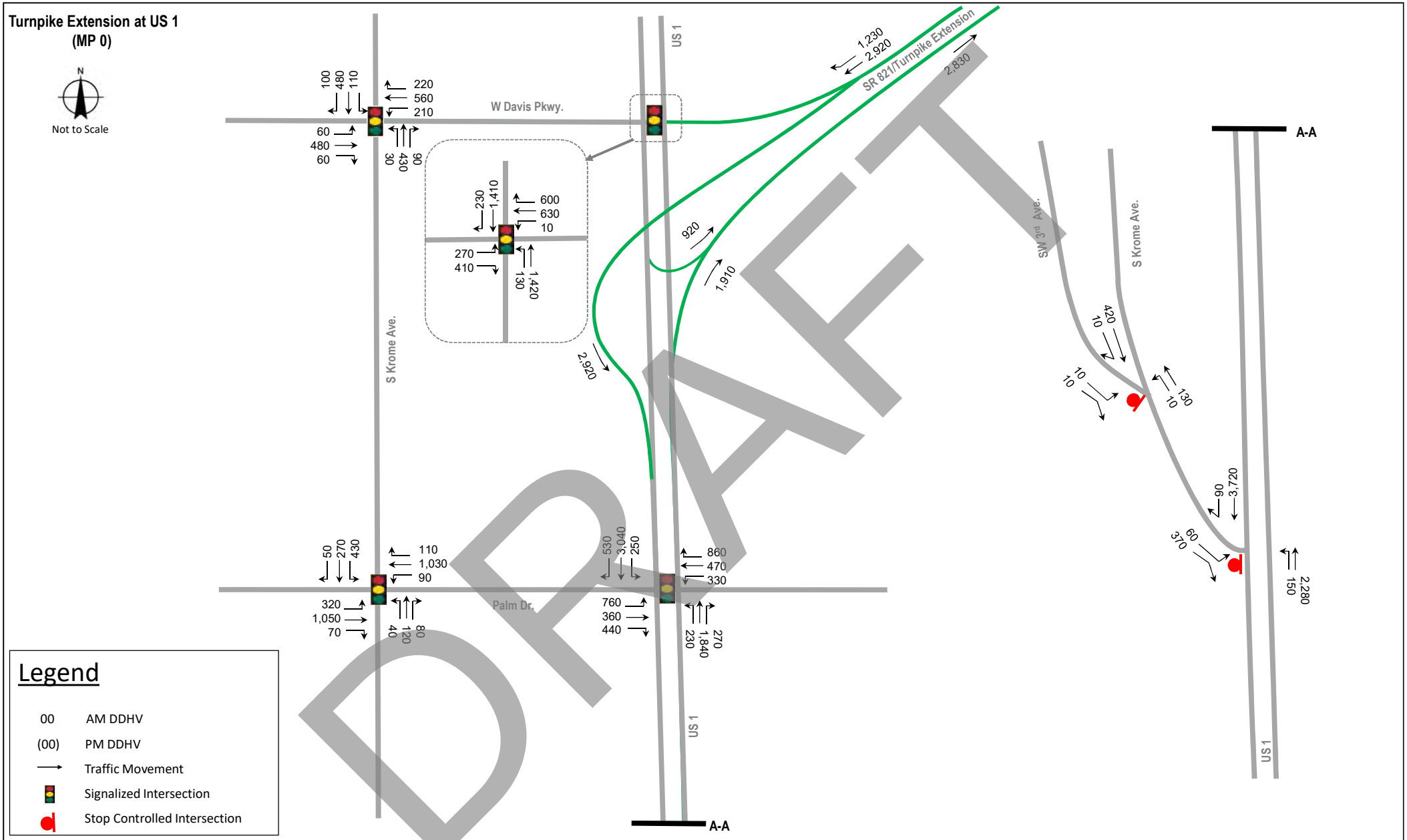
Mile Post-Interchange	DDHV	
	SB	NB
	3,600	**2,590**
0 – US 1 (To/From North)	1,230	920
0 – US 1 (To/From South)	2,920	1,910



Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	No-Build Scenario Lane Geometry	Figure 4.1



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive** **Traffic Technical Memorandum**	**2045 No-Build DDHVs** **Typical Scenario**
		Figure 4.2



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive** **Traffic Technical Memorandum**	**2045 No-Build DDHVs** **Heavy-Inbound-Keys Scenario**

Figure 4.3

The No-Build (i.e., without the southbound off and northbound on flyover ramps) Turnpike Extension mainline and ramp lane requirements within the study area for the years 2020 through 2045 using mainline LOS D and ramp capacity thresholds (LOS E) are shown in **Table 5.1**. This summary is based on the lane requirement capacity analysis shown in **Table 5.2**. The colors highlight the required directional number of lanes. This analysis is based on the DDHVs for both typical and heavy inbound scenarios.

Table 5.1
Lane Requirements by Year

Turnpike Extension Segment	Number of Lanes per Direction		
	Existing	Typical Scenario Lanes Needed (Year)	Heavy Inbound Scenario Lanes Needed (Year)
North of Campbell Drive Interchange	2	3 (2025)	3 (2022)
US 1 Interchange to South of Campbell Drive Interchange	2	3 (2042)	3 (2034)
Campbell Drive Interchange (MP 2)			
To/From north	1	2 (2037)	2 (2037)
To/From south	1	-	-
Campbell Drive Interchange (MP 0)			
US 1 To/From north	1	1	1
US 1 To/From south	1	2 (2028)	2 (2024)

The number of ramp roadway lanes required was determined based on LOS E capacity as shown in **Table 5.2**. The analysis summary in **Table 5.1** indicates a need to widen the south end of the Turnpike Extension between US 1 and Campbell Drive by 2042 under typical scenario and by 2034 when considering heavy inbound scenario. In addition, the southbound off-ramp to the south will need to be widened by 2028 under typical scenario and by 2024 when considering heavy inbound scenario.

Table 5.2
Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements

Typical Scenario Mainline (LOS D) and Ramp Capacity (LOS E MSV) Lane Requirements

Description	Year																									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
	2,940	**3,040**	**3,140**	**3,250**	**3,350**	**3,450**	**3,510**	**3,560**	**3,620**	**3,670**	**3,730**	**3,780**	**3,840**	**3,890**	**3,950**	**4,000**	**4,070**	**4,150**	**4,220**	**4,300**	**4,370**	**4,440**	**4,520**	**4,590**	**4,670**	**4,740**
2 - Campbell Drive	1,300	1,350	1,400	1,440	1,490	1,540	1,570	1,590	1,620	1,640	1,670	1,700	1,720	1,750	1,770	1,800	1,830	1,860	1,890	1,920	1,950	1,970	2,000	2,030	2,060	2,090
	1,930	**2,000**	**2,060**	**2,130**	**2,190**	**2,260**	**2,300**	**2,330**	**2,370**	**2,400**	**2,440**	**2,470**	**2,510**	**2,540**	**2,580**	**2,610**	**2,660**	**2,710**	**2,760**	**2,810**	**2,870**	**2,920**	**2,970**	**3,020**	**3,070**	**3,120**
	190	190	200	210	210	220	240	270	290	310	340	360	380	400	430	450	460	460	470	470	480	490	490	500	500	510
	2,110	**2,180**	**2,250**	**2,330**	**2,400**	**2,470**	**2,530**	**2,580**	**2,640**	**2,690**	**2,750**	**2,810**	**2,860**	**2,920**	**2,970**	**3,030**	**3,090**	**3,140**	**3,200**	**3,260**	**3,320**	**3,370**	**3,430**	**3,490**	**3,540**	**3,600**
0 - US 1 to/from north	670	690	700	710	720	730	750	760	780	800	820	830	850	870	880	900	920	930	950	970	990	1,000	1,020	1,040	1,050	1,070
0 - US 1 to/from south	1,430	1,500	1,560	1,620	1,680	1,740	1,780	1,820	1,860	1,900	1,940	1,970	2,010	2,050	2,090	2,130	2,170	2,210	2,250	2,290	2,330	2,370	2,410	2,450	2,490	2,530

Heavy Inbound Scenario Mainline (LOS D) and Ramp Capacity (LOS E MSV) Lane Requirements

Description	Year																									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
	3,150	**3,310**	**3,460**	**3,620**	**3,770**	**3,930**	**4,000**	**4,070**	**4,150**	**4,220**	**4,290**	**4,360**	**4,430**	**4,510**	**4,580**	**4,650**	**4,670**	**4,680**	**4,700**	**4,710**	**4,730**	**4,740**	**4,760**	**4,770**	**4,790**	**4,800**
2 - Campbell Drive	1,300	1,350	1,400	1,440	1,490	1,540	1,570	1,590	1,620	1,640	1,670	1,700	1,720	1,750	1,770	1,800	1,830	1,850	1,880	1,900	1,930	1,960	1,980	2,010	2,030	2,060
	2,150	**2,260**	**2,380**	**2,500**	**2,620**	**2,740**	**2,790**	**2,840**	**2,900**	**2,950**	**3,000**	**3,050**	**3,100**	**3,160**	**3,210**	**3,260**	**3,300**	**3,340**	**3,380**	**3,420**	**3,470**	**3,510**	**3,550**	**3,590**	**3,630**	**3,670**
	190	190	200	210	210	220	240	270	290	310	340	360	380	400	430	450	470	480	500	520	540	550	570	590	600	620
	2,280	**2,390**	**2,510**	**2,620**	**2,740**	**2,850**	**2,920**	**2,980**	**3,050**	**3,110**	**3,180**	**3,240**	**3,310**	**3,370**	**3,440**	**3,500**	**3,570**	**3,630**	**3,700**	**3,760**	**3,830**	**3,890**	**3,960**	**4,020**	**4,090**	**4,150**
0 - US 1 to/from north	720	750	770	790	820	840	860	880	900	920	940	960	980	1,000	1,020	1,040	1,060	1,080	1,100	1,120	1,140	1,150	1,170	1,190	1,210	1,230
0 - US 1 to/from south	1,550	1,650	1,740	1,830	1,920	2,010	2,060	2,100	2,150	2,190	2,240	2,280	2,330	2,370	2,420	2,460	2,510	2,550	2,600	2,640	2,690	2,740	2,780	2,830	2,870	2,920

Assumptions	
Total Trucks % (T_f)	3.00%
Peak Hour Factor (PHF)	0.95
Speed/Capacity Adjustment Factor	0.88
Intersection Density (ID)	0.20
Grade	0.00%
Terrain	Level
Lane width	12 ft
Right-shoulder Lateral Clearance (LC)	10 ft

Number of Mainline Lanes by LOS D Maximum Service Volume (MSV)	
Number of Lanes	South
	LOS D
2	3,420
3	5,220
4	6,840
5	8,550
6	10,260
FFS	65

Number of Ramp Lanes by Capacity (LOS E MSV)	
Number of Lanes	Capacity (veh/hr)
1	1,840
2	3,680

Free-Flow Speed 31-50 mph

In addition to the mainline widening evaluation, there are interchange improvements being explored at Campbell Drive and US 1, and a potential partial interchange at Lucy Street providing access to/from north. The alternatives at these interchanges are described below:

Campbell Drive Interchange Alternatives

Ultimate improvement needs at the Campbell Drive Interchange were evaluated and determined during a PD&E study [FPN 423372-1] for the Turnpike Extension corridor from Campbell Drive (MP 2) north to the Government Center area (MP 12) which was completed in 2013. An IMR to support the access modification proposed at the Turnpike Extension and Campbell Drive interchange was completed in 2014, followed by a DTR, which was provided in 2015. There were preliminary transportation systems management and operations (TSM&O) improvements which were explored to supplement the ultimate needs recommended in previous studies. The TSM&O solutions explored include turbo lanes and several turn lane reconfigurations. Detailed analysis of the TSM&O alternatives at Campbell Drive Interchange will be provided later in an updated version of the memorandum.

Lucy Street Interchange Alternatives

A proposed Lucy Street Interchange was requested as a developer funded project by the Alger Family due to the potential changes in land use development on the parcels they owned. An interchange feasibility study for the potential Turnpike Extension interchange at Lucy Street (SW 328th Street) was conducted in 2005 followed by an Interchange Justification Report (IJR) in 2008. This ongoing PD&E is reevaluating the interchange feasibility consistent with current land use amendments within the study area. Similar to the previous feasibility study, a partial interchange providing access to/from north has been proposed and preliminary analyses have been performed. Detailed analyses for this proposed interchange will be provided later in an updated version of the memorandum.

US 1 Interchange Alternatives

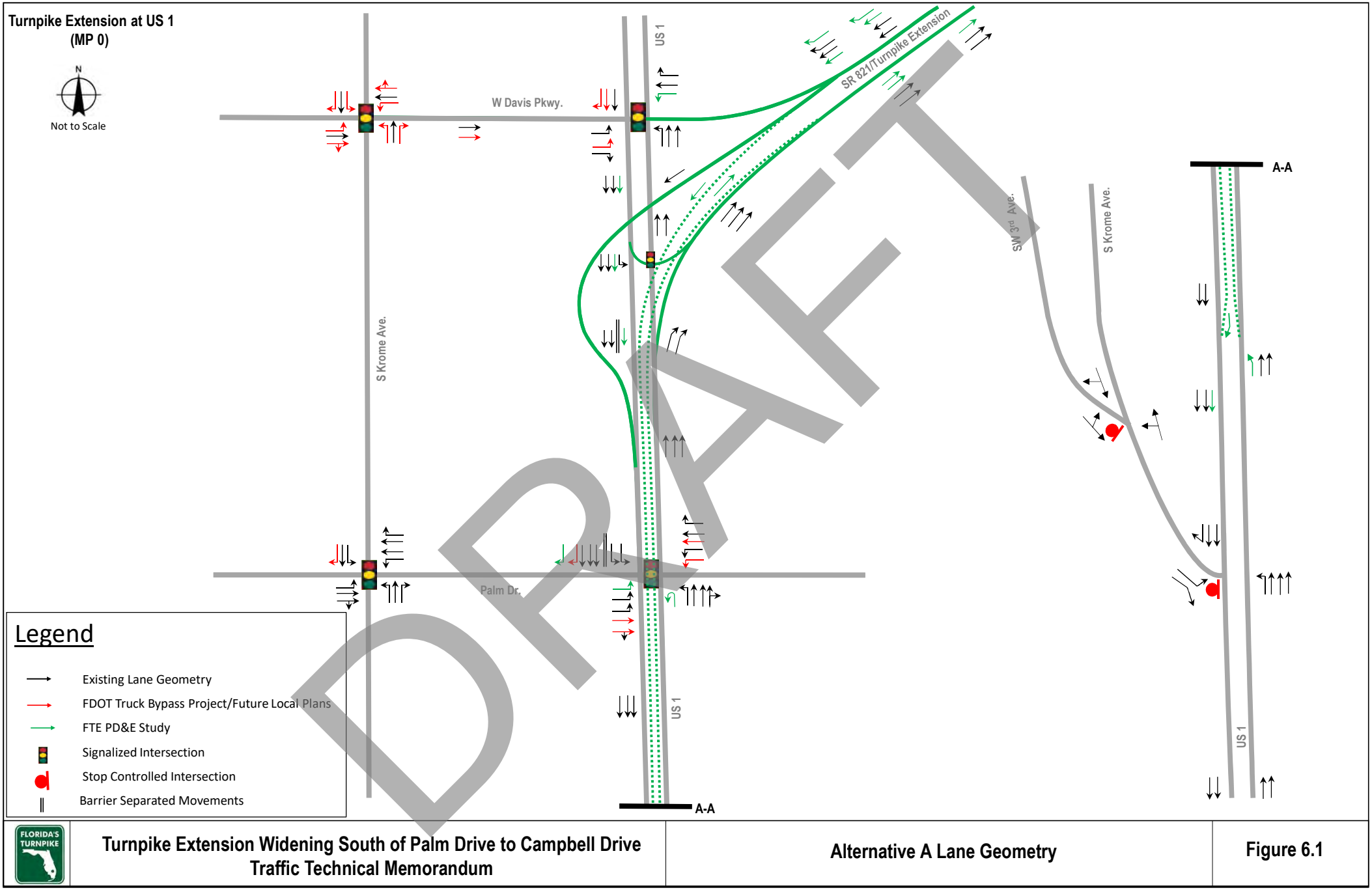
Preliminary screening and Synchro analyses were performed for the 11 US 1 / Palm Drive Interchange configuration alternatives. The preliminary analyses included several at grade and grade separated concepts. The lanes needed by an at grade alternative were not feasible and also required more right of way acquisition than viable. Based on the preliminary analyses results, three grade separated alternatives were advanced for more development and detailed analysis in Synchro, HCS, and VISSIM. The three alternatives analyzed were Alternatives A, B, and C. The results showed that Alternative C did not provide more operational benefits compared to Alternatives A or B despite its complex design requirements. Therefore, Alternative C was dropped from further consideration.

Due to alternatives complexity and in order to capture operational performance at both the intersection and the link levels, VISSIM models were also developed in addition to Synchro and HCS analysis. The following alternatives, including the No-Build Scenario, were advanced for further consideration and traffic operational analysis:

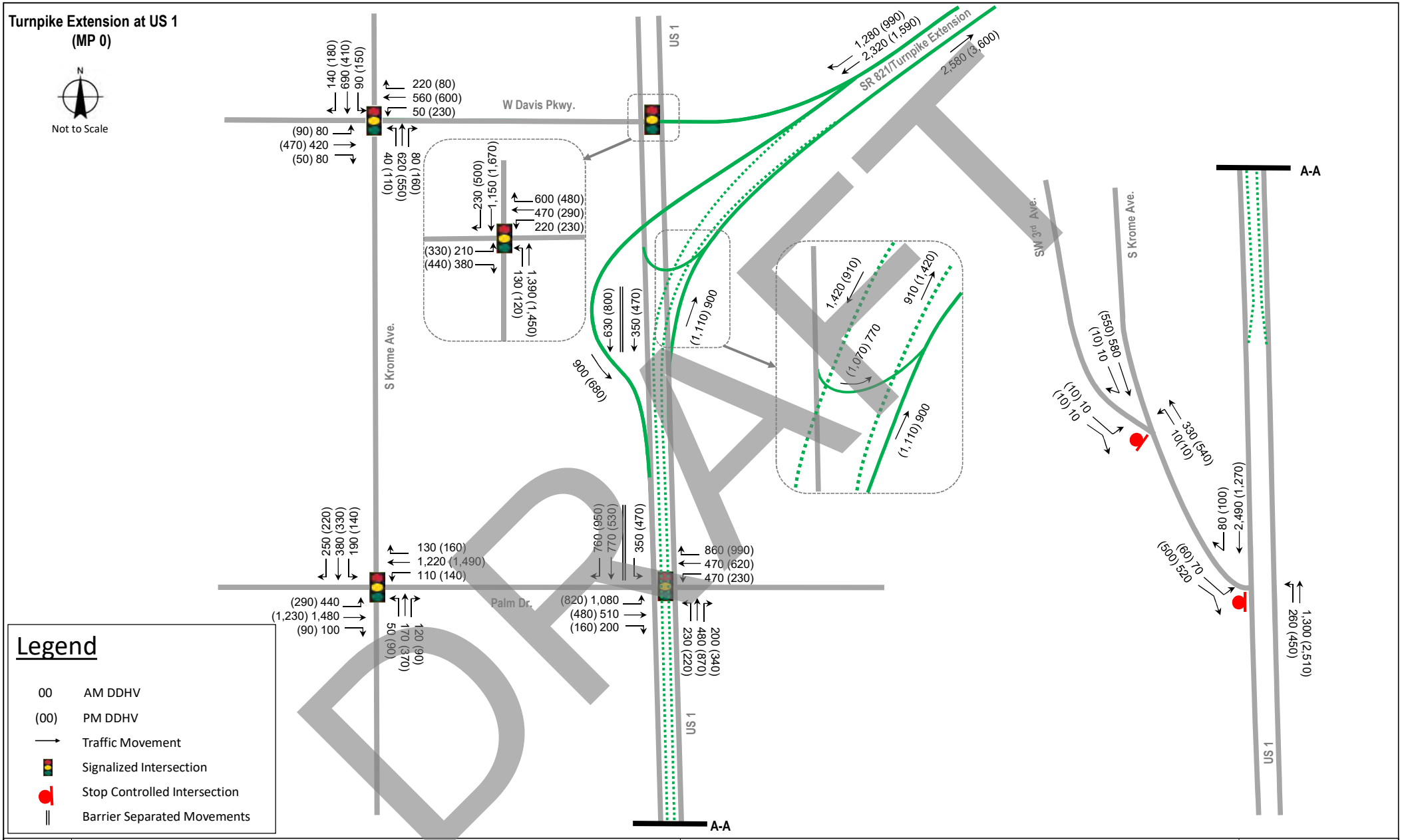
- **No-Build Scenario:** This alternative assumes existing conditions and all committed improvements. Future No-Build Scenario lane geometry and typical design hour volumes were previously provided in **Section Four**.

- **Alternative A**: Turnpike Extension southbound off and northbound on flyover ramps bypassing US 1 and Palm Drive intersection. This bypass flyover provides unconstrained travel to/from US 1 south of Palm Drive intersection for the traffic whose destinations are not within Florida City.
- **Alternative B**: This alternative includes the bypass flyover discussed in **Alternative A** with an additional diversion for the US 1 southbound right-turn traffic to the westbound Palm Drive. A single-lane westbound diversion is provided just south of US 1 / West Davis Parkway intersection, looping around west of the existing southbound off-ramp. The provided diversion becomes a two-lane segment after the loop, to provide a connection for the southbound off-ramp traffic to westbound Palm Drive.

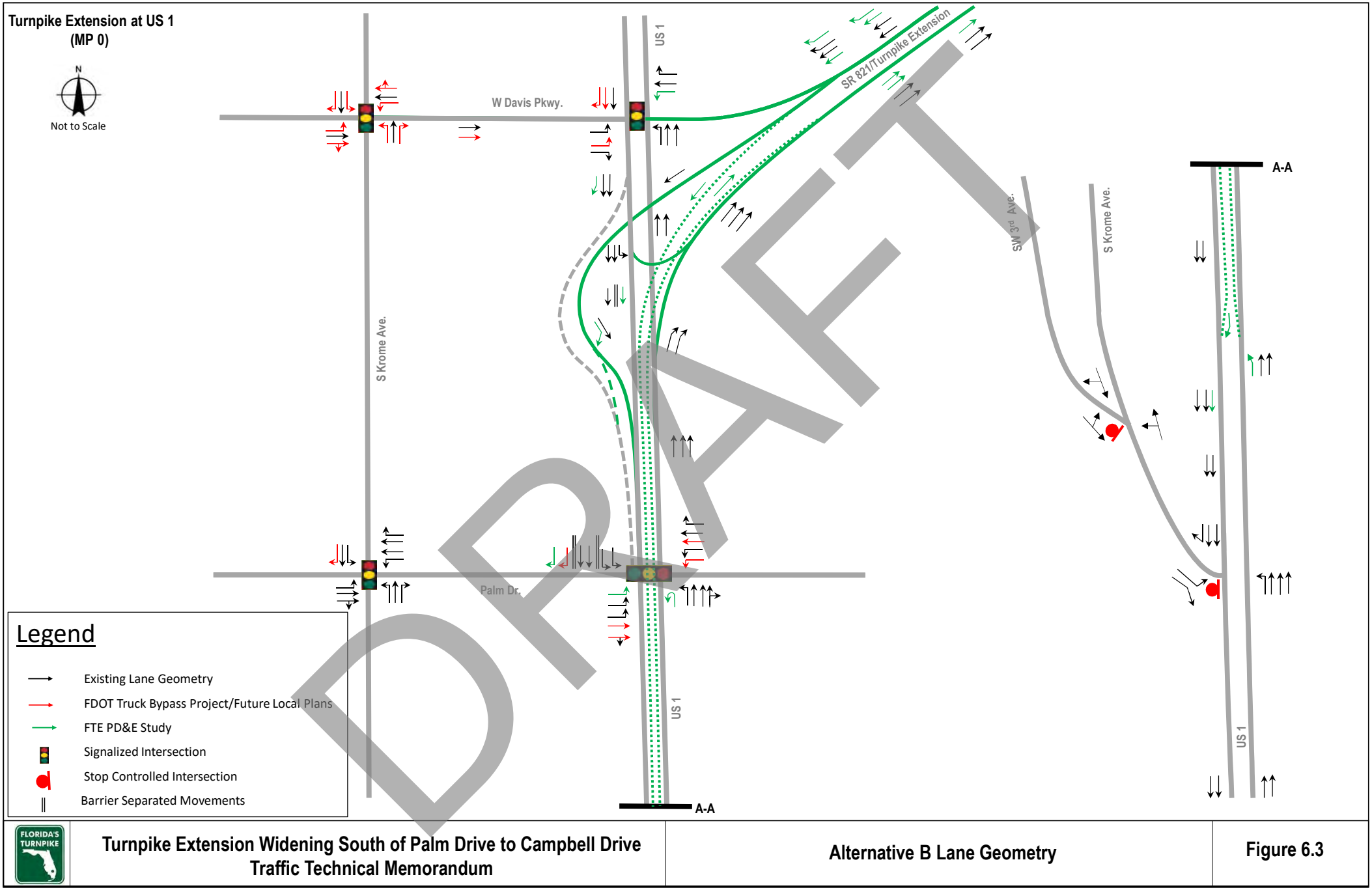
The lane geometries and design volumes for the Alternatives A and B are given on **Figures 6.1** through **6.6**, respectively. The alternatives design concepts are included in **Attachment B**.



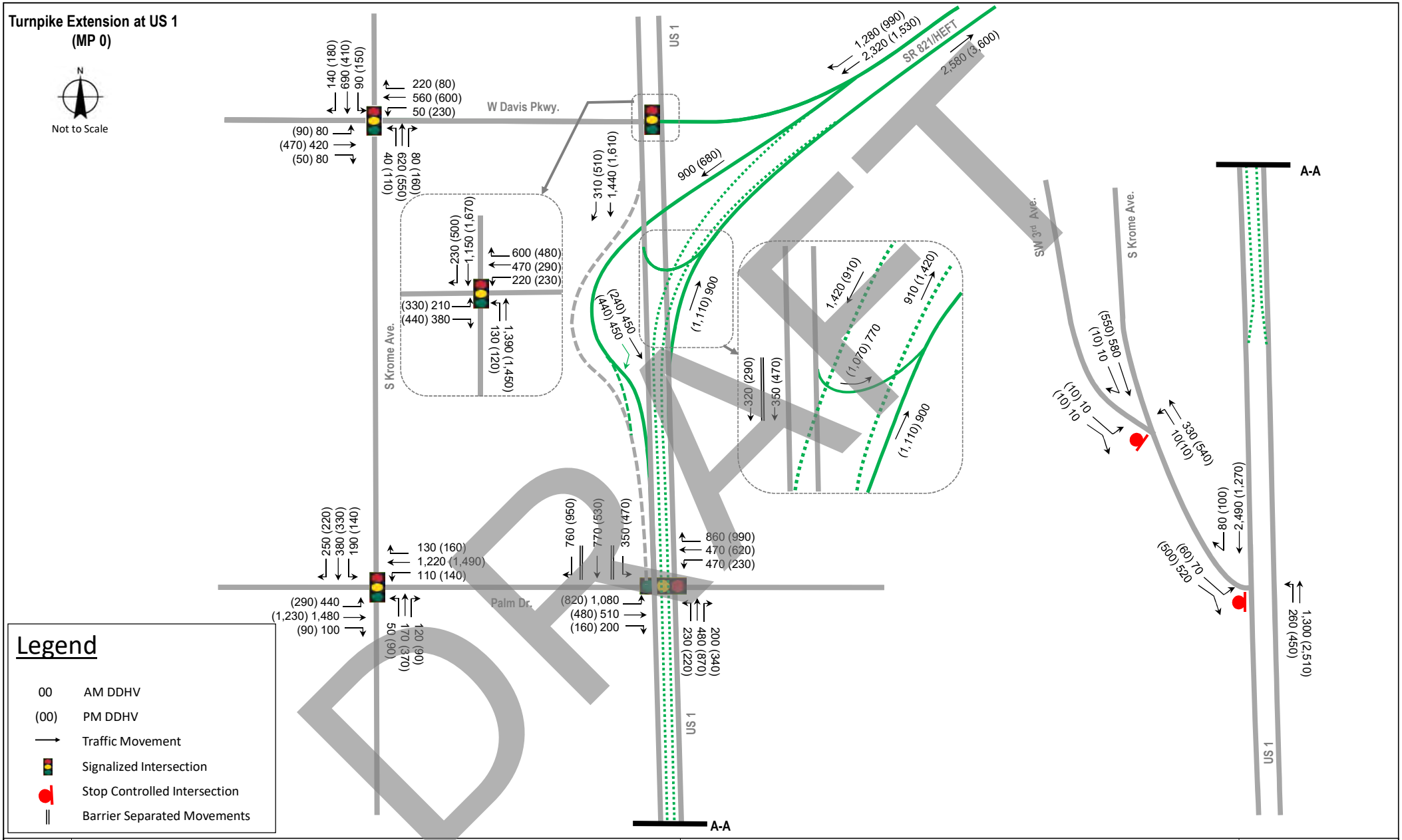
Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative A Lane Geometry	Figure 6.1



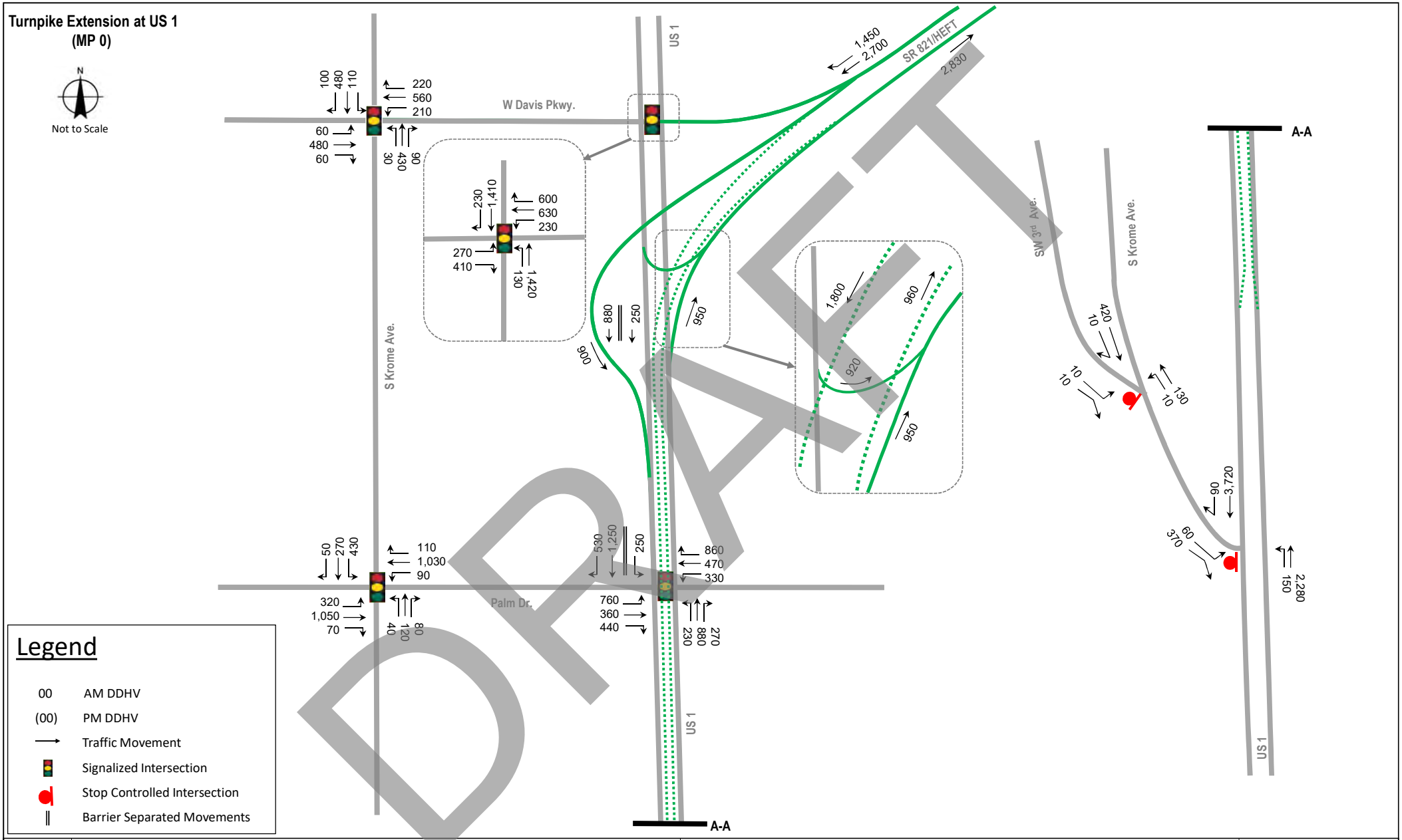
Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative A 2045 DDHVs Typical Scenario	Figure 6.2



Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative B Lane Geometry	Figure 6.3

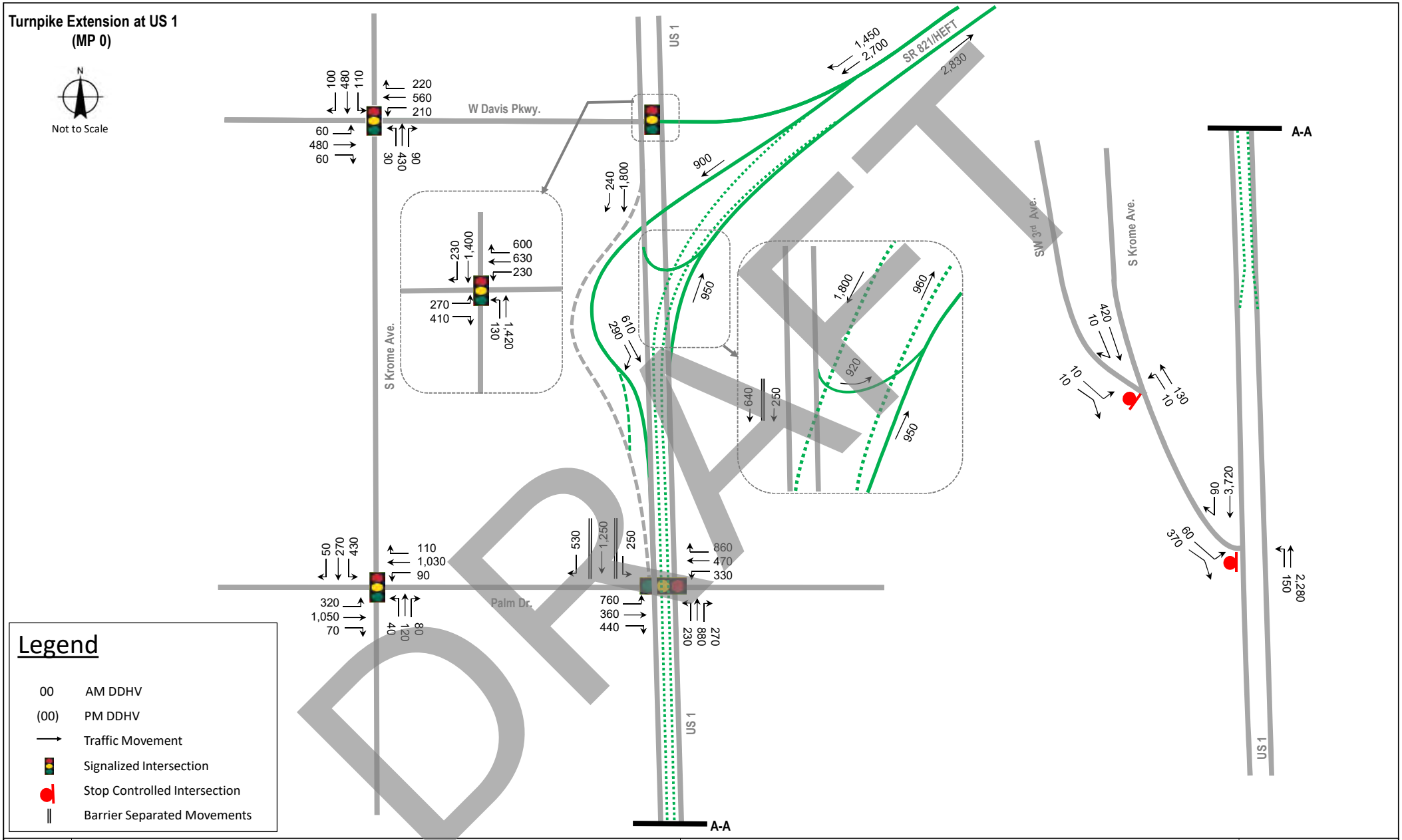


Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative B 2045 DDHVs Typical Scenario	Figure 6.4



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive** **Traffic Technical Memorandum**	**Alternative A 2045 DDHVs** **Heavy-Inbound-Keys Scenario**

Figure 6.5



Turnpike Extension Widening South of Palm Drive to Campbell Drive
Traffic Technical Memorandum

Alternative B 2045 DDHVs
Heavy-Inbound-Keys Scenario

Figure 6.6

6.1 FREEWAY SEGMENT ANALYSIS

The freeway segment analyses were performed for the No-Build, Alternative A, and Alternative B using future directional typical AM and PM design hour, and heavy inbound traffic volumes. The results for each year are summarized in **Table 6.1**.

6.2 FREEWAY RAMP MERGE/DIVERGE INFLUENCE AREA ANALYSIS

The ramp merge/diverge influence areas were analyzed for the No-Build, Alternative A, and Alternative B using future directional typical AM and PM design hour, and heavy inbound traffic volumes. Similar to Existing and No-Build conditions, HCS was used to assess level of service at the ramp merge / diverge areas. The 2045 ramp merge/diverge analysis level of service results are shown in **Table 6.2**.

6.3 INTERSECTION ANALYSIS

The No-Build, Alternative A, and Alternative B analyses of the study area intersections were performed for year 2045 using Synchro. The Synchro levels of service and delay (in seconds per vehicle) for the No-Build, Alternative A, and Alternative B design hour and heavy inbound volumes, reflecting Synchro-optimized signal timing / phasing, are summarized in **Table 6.3**.

Synchro and HCS are static analytical tools that lack the capability to capture bottleneck locations in a congested network. In order to capture operational performance at both the intersection and the link level, VISSIM models were developed in addition to Synchro and HCS analysis.

6.4 VISSIM ANALYSIS

A base VISSIM model was developed and calibrated to replicate existing traffic conditions following guidelines in the Florida Department of Transportation (FDOT) *Traffic Analysis Handbook: A Reference for Planning and Operations*. The traffic counts were used to develop demand profiles for input into base VISSIM models. The calibration is achieved by iteratively changing model parameters to replicate the traffic patterns, congestion, bottlenecks, and driver behavior observed within the study area. The VISSIM model parameters used for calibration are categorized as vehicle following (longitudinal vehicle movement) and lane change (lateral vehicle movements). The main vehicle following behavior parameters are look ahead distance, look back distance, number of observed vehicles, and temporary lack of attention. After the base model was calibrated, VISSIM models were developed for the No-Build, Alternative A, and Alternative B using future directional typical AM and PM design hour and heavy inbound traffic volumes.

The VISSIM analysis results for AM, PM, and heavy-inbound design demand volumes are shown in **Tables 6.4** through **6.6**. The tables provide performance measures for the freeway diverge influence area and off-ramps to assess potential queue backups into the mainline. Intersection delays are also provided to compare effectiveness between alternatives. The provided LOS are for interpretation and comparison purposes only and not as substitutes for Synchro or HCS results.

Table 6.1
2045 Scenarios Freeway Segment Analysis Results

Location	Direction	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
North of Campbell Drive (MP 2)	Southbound	**F**	**F**	**F**	D	C	D	D	C	D
	Northbound	**F**	**F**	**F**	C	D	D	C	D	D
North of US 1 (MP 0) to Campbell Drive (MP 2)	Southbound	**F**	D	**F**	C	B	D	C	B	D
	Northbound	D	**F**	**F**	B	C	B	B	C	B

Table 6.2
2045 Scenarios Ramp Merge / Diverge Level of Service Results

Mile Post-Interchange	Ramp	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
MP 2 – Campbell Drive	Southbound off-ramp	**F**	**F**	**F**	D	C	D	D	C	D
	Northbound on-ramp	**F**	**F**	**F**	D	C	D	D	C	D
	Southbound on-ramp	**F**	C	**F**	D	C	D	D	C	D
	Northbound off-ramp	D	**F**	**F**	C	D	C	C	D	C
MP 0 – US 1	Southbound off-ramp to north	**F**	C	**F**	A	A	B	A	A	B
	Northbound on-ramp from north	C	**F**	**F**	B	C	B	B	C	B

Table 6.3
2045 Scenarios Intersection Analysis Results

Intersection	No-Build Scenario						Alternative A						Alternative B					
	Typical				Heavy Inbound		Typical				Heavy Inbound		Typical				Heavy Inbound	
	AM		PM				AM		PM				AM		PM			
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
US 1 / NE 7th Street (West Davis Parkway)	**F**	107	**F**	83	**F**	82	B	14	C	22	B	13	B	17	C	23	B	15
US 1 / Palm Drive	**F**	345	**F**	384	**F**	223	D	42	D	47	D	43	D	48	D	49	D	46
Krome Avenue / NE 7th Street (West Davis Parkway)	C	25	C	27	B	17	C	21	C	33	C	21	C	21	C	35	C	22
Krome Avenue / Palm Drive	D	45	E	58	D	48	D	37	D	41	D	37	D	36	D	44	D	37

Table 6.4
2045 Typical AM Design Hour VISSIM Alternatives Analysis Results

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS ALONG GLADES ROAD	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Alternative A**	**Alternative B**
US-1/ Palm Drive	70.3	E	36.5	D	36.8	D	-48%	-48%
Krome Avenue/ Palm Drive	34.0	C	27.0	C	26.0	C	-20%	-24%
HEFT Off-Ramp at Davis Parkway/US-1	23.8	C	15.5	B	15.3	B	-35%	-36%
Krome Avenue/ Davis Parkway	24.7	C	20.8	C	20.8	C	-15%	-16%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1	88	F	13	B	13	B	-85%	-85%
Southbound Off to Palm Drive and US-1	91	F	10	B	10	B	-89%	-89%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	8,341	11	0	32	0	35	183%	215%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	8,341	11	0	37	0	40	244%	268%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	57	0	57	--	--

Table 6.5
2045 Typical PM Design Hour VISSIM Alternatives Analysis Results

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS ALONG GLADES ROAD	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Alternative A**	**Alternative B**
US-1/ Palm Drive	68.8	E	41.4	D	49.1	D	-40%	-29%
Krome Avenue/ Palm Drive	25.1	C	24.0	C	23.0	C	-4%	-8%
HEFT Off-Ramp at Davis Parkway/US-1	43.6	D	40.0	D	38.0	D	-8%	-13%
Krome Avenue/ Davis Parkway	48.0	D	29.4	C	28.0	C	-39%	-42%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1	12	B	11	B	11	B	-6%	-6%
Southbound Off to Palm Drive and US-1	22	C	20	C	18	B	-10%	-19%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	0	36	0	35	0	35	0%	0%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	0	36	0	37	0	40	4%	12%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	58	0	58	--	--

Table 6.6
2045 Heavy-Inbound VISSIM Alternatives Analysis Results

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS ALONG GLADES ROAD	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Alternative A**	**Alternative B**
US-1/ Palm Drive	73.4	E	36.2	D	36.0	D	-51%	-51%
Krome Avenue/ Palm Drive	34.6	C	22.5	C	21.0	C	-35%	-39%
HEFT Off-Ramp at Davis Parkway/US-1	72.9	E	55.0	D	49.2	D	-25%	-33%
Krome Avenue/ Davis Parkway	39.8	D	29.3	C	20.8	C	-26%	-48%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1	138	F	14	B	13	B	-90%	-90%
Southbound Off to Palm Drive and US-1	102	F	12	B	12	B	-89%	-88%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	10,613	3	973	25	0	35	606%	918%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	10,613	9	0	27	0	40	217%	370%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	56	0	53	--	--

To be finalized prior to Public Hearing.

ATTACHMENT A

Model Calibration, Validation and Future Year Trip Table Development Report

Turnpike Extension – US 1 to Campbell Drive PD&E
Project Traffic and Alternative Analysis Support
[FPN 437206-1]
Miami-Dade County

Contents

1. Background and Purpose

The Homestead Extension of Florida's Turnpike (SR-821) southern point begins at US 1 and runs along a north/south alignment through Miami-Dade County to approximately the Miami-Dade/Broward County line where the alignment shifts to east/west and connects to Florida's Turnpike. Programmed projects are currently underway to provide 60 % more capacity on the Turnpike Extension north of Campbell Drive to the Turnpike. The Turnpike Extension within the project is the only portion not being widened with express lanes. Improvements to the terminus have been studied several times in the last decade. Previous studies over the past decade had determined that no additional widening is needed south of the Campbell Drive Interchange given the limited capacity of the southern connection configuration, the remote location within the urban development boundary and limited development potential in The Florida Keys.

The capacity of Turnpike Extension's southern terminus on US 1 is constrained by the reduction of number of lanes and the signalized intersection at US 1. Therefore, the SB exit ramps have queue backup problems during holidays and weekends with heavy traffic traveling to Keys and on Fridays afternoon when the increase in Key travels overlaps with regular PM commuter traffic. There were 90 incidents of queuing observed to date in 2015, 43 in 2014 and 32 in 2013. Only 19% of the queue incidents in 2015 occurred during typical peak hours. The northbound Turnpike Extension is a critical element for evacuation planning and implementation. US 1/Turnpike Extension can be a choke point for the evacuation route for the Florida Keys during a major hurricane event such as a Category 3, 4, or 5 storms, if not planned adequately. This effort will estimate future traffic demand and evaluate capacity and operational improvement alternatives for the southern 2-mile segment.

2. Current Model Estimates

The latest official model, SERPM version 7.071 from FDOT District 4, was used along with 2010, 2040 seed skims and add-on PopSyn-III module. The initial highway network and socio-demographic data are acquired from District 4, which include roadway edits made for the use of the transit projects studies in the region. A 2015 scenario was run with the acquired network and interpolated socio-demographic data to assess the current traffic estimates in the study area. Overall, the model performed reasonably well replicating the daily traffic (ADT) within the acceptable range. Figure 1 shows the intersection and ramp count locations within the study area, and Table 1 shows 2015 average weekday observed counts and model estimates.

Figure 1 Location Map

Table 1 Observed 2015 Counts versus Initial Model Estimates

Location	SERPM 7 (2015) SB	NB	AAWDT	TEAR (2016)	2015 Counts SB	NB	AAWDT
Turnpike Extension (mainline)	16,042	16,577	32,619	39,800	28,000	11,800	39,80
M1C (ramp)	3,982		3,982				
M1B (ramp)		3,058	3,058				
M1D (ramp)	12,060		12,060				
M1A (ramp)		13,519	13,519				
A	9623	9623	19,246				
B	8224	8267	16,491				24,50
C	10686	10390	21,076				30,00
D	714	389	1,103				2,80
E	9309	9333	18,642				

Table 2 Model Validation at Subarea Level

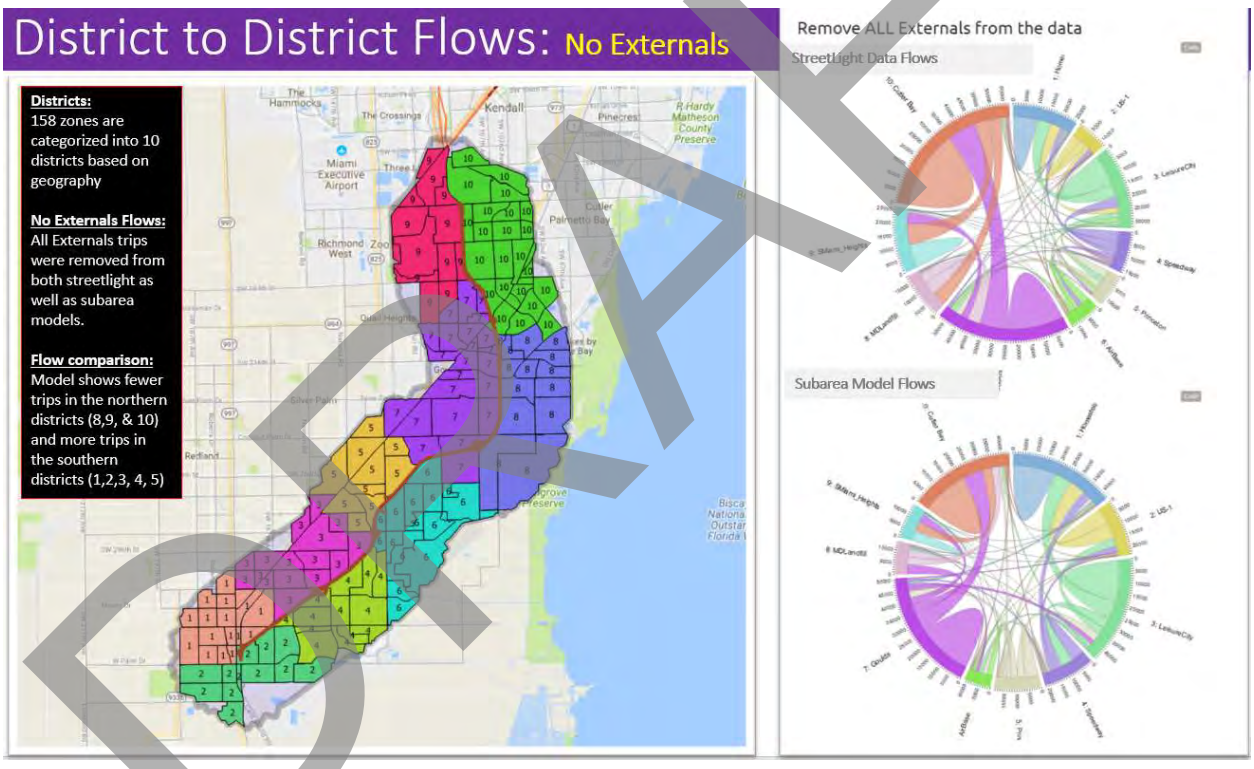
	volBin	Links	Obs.Count	Model.Est	Target	PRMSE	R.Squared
1	1 - 5,000	14	34998	18831	45% - 55%	94.63%	0.868
2	10,000 - 20,000	17	269326	184545	27% - 35%	48.85%	0.5468
3	20,000 - 30,000	4	97284	84744	24% - 27%	16.22%	0.853
4	30,000 - 40,000	2	65642	50796	22% - 24%	29.34%	1
5	40,000 - 50,000	2	94400	80824	20% - 22%	16.84%	1
6	5,000 - 10,000	13	92252	59608	35% - 45%	64.87%	0.2662
7	All	52	653902	479348	32% - 39%	44.29%	0.9666

3. Modeling Approach

3.1. Model Input

The overall SERPM model performance at the daily level looks reasonable. The subarea, which is defined as a 2-Mile buffer along the southern Turnpike Extension corridor consists of 158 zones. These zones are grouped into ten districts for comparison purposes since it's hard to visualize flows to/from 158 OD pairs. Figure 2 shows the comparison of the model estimates to observed daily flows where the OD flows were compared in districts. All external flows were removed from both the observed and model estimates the OD flows to/from the subarea zones are compared and analyzed. A detailed review shows fewer modeled trips in the northern districts (8,9, & 10) and higher than observed trips in the southern districts (1,2,3, 4, 5). While this is only a slight skew of the trip table and is acceptable in a regional model, it might pose inaccuracies in project forecasts. Thus, the model trips tables were corrected through the ODME process.

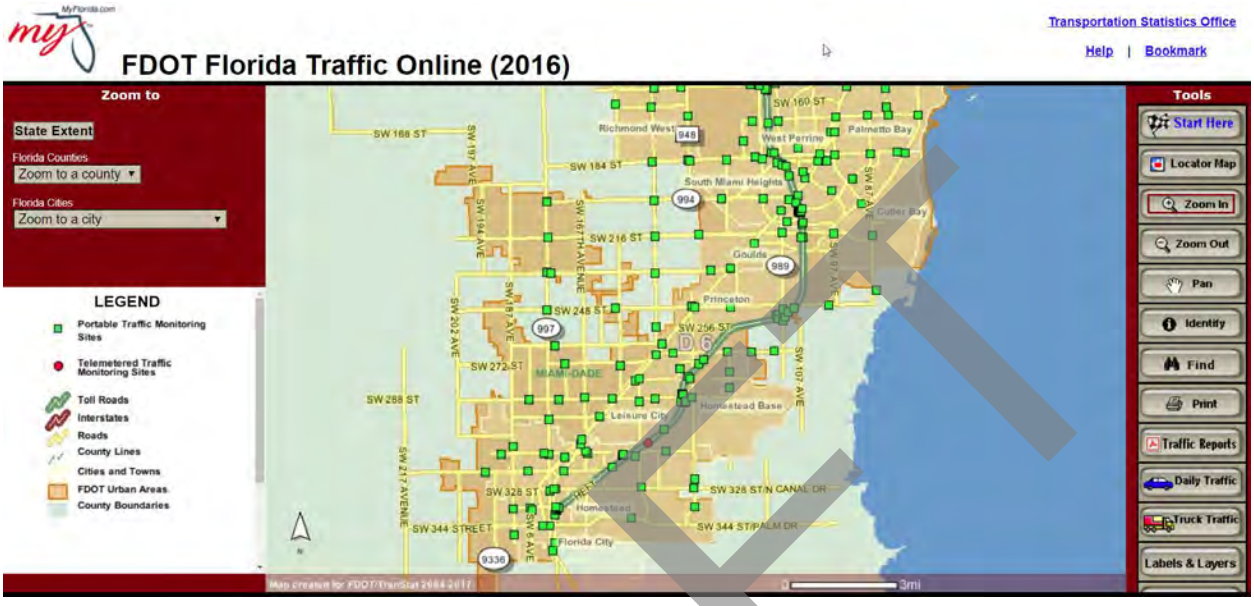
Figure 2 Subarea OD Flow Comparison to Observed Flows



Three model inputs were reviewed and updated:

1. *Networks and Counts:* Both 2015 and 2040 extracted highway networks were reviewed for accuracy of Turnpike Extension corridor and ramps coding at major interchanges. A set of 2015 counts for the subarea, shown in Figure 3**Error! Reference source not found.**, were collected and appended to the network.

Figure 3 Subarea Traffic Count Locations



2. *Socio-Demographics*: The current land use in the study area was reviewed and updates to population, households, and employment inputs at TAZ and MAZ data were completed. With the revised socio-demographic data, a new set of synthetic household and person data was generated through the PopSyn-III application.

3. *Subarea and ODME*: A 2015 scenario was developed from the updated count network and revised synthetic population. A subarea covering the study area was extracted to perform Origin-Destination Matrix Estimation (ODME). Using extracted subarea as seed matrix and observed 2015 counts by time periods as targets, a set of OD distributions by time period were estimated through CUBE ODME process. A set of adjustment factors were developed from the estimated trip tables and the original extracted subarea seed trip tables by time of day.

3.2. Model Add-On Features

To better estimate the traffic backups on the southern terminus of Turnpike Extension during weekends and Friday evenings from PM commuter flows overlapping with holiday traffic traveling to the Keys on the southbound direction, a few add-on features were explored. Table 3 shows the list of add-on features and along with their limitations.

The scoped approach, ODME and Subarea Analysis, is ideal for typical weekday peak hour and peak period traffic estimates due to reliance weekday distribution from the regional model and calibration to match observed traffic counts at targeted locations within the study area. However, one limitation is extending to weekends as the regional model lacks this distribution. To overcome this limitation, a second approach: observed weekend traffic flows can be acquired to develop a weekend OD distribution to use as a

supplemental seed to the above approach. Although the second approach overcomes the weekend limitation, it is hard to forecast the future weekend traffic flows due to lack of weekend demand in the regional model.

A third approach is to expand the weekend, and weekday OD flows for the subarea to match to the traffic at the external stations. The total traffic at the external stations can be apportioned by day, time period, and trip purpose. This approach estimates weekend future year growth as a function of overall weekday traffic growth at the external stations. Although this approach overcomes the future year forecasts, it still lacks the predictive capability to changes in land use activities outside the study area. A fourth approach is to model external geography as a visitor model to capture all weekend travel to and from the study area. The time and effort required to develop a visitor add-on model is well outside the scope of the project and cost-benefit of this approach is too high.

After a detailed review of pros and cons along with add-on features versus limitations of each approach, it is decided to proceed with an approach that can be implemented within a reasonable time and address the missing weekend component. While all options except the first one can address the weekend issue, only option #2 can be implemented in a reasonable time frame. For this reason, option 2, Mobile Phone OD Data for weekend subarea model expansion was chosen. The ODME approach, however, was relaxed as the model lacks weekend demand to apply ODME factors for future years.

Table 3 List of Add-On Features

	Add-On Feature	Description	Limitations
1	ODME & Subarea Analysis	Estimate traffic ODs based on 2015 traffic count data and SERPM v7 model (average weekday distribution). Independent of geographic characteristics and constraints (land use) Develop ODME adjustment factors to use with SERPM v7 future year scenario. A common practice for peak hour or period traffic estimates.	Doesn't address the problem statement (no weekend/holiday traffic). Difficult to forecast future years
2	Mobile Phone OD Data (Bluetooth / AirSage / StreetLight):	OD patterns for the weekend can be acquired via mobile phone data (Bluetooth, StreetLight, and AirSage). ODME can be extended with acquired weekend seed and traffic counts.	Difficult to forecast future years
3	Enhance External-model	Use OD data to identify travel patterns to/ from external stations into Miami-Dade County. Enables to implement route choice for all external travel (given the destinations). The generation rates can be developed to relate trip ends to demographics of Key-West to forecast future years efficiently instead of using a forecasted external station count. Further trip types can be identified from the external station to better model visitor, resident, weekday, and weekend traffic.	Trip types were limited to external stations and not socio-demographics (land use)
4	Simplified Visitor Model	A simple visitor model can be developed to account for traffic flows between Miami-Dade and Key-West. Visitor model relies on hotel occupancy and destination activities to estimate: Short-term and long-term traffic, Pleasure and business trip purpose types, Dependent on socio-demographic characteristics of the region	Time and Budget

3.3. Model OD Trip Tables

The project traffic was developed for 2045 forecast years. The official SERPM model consists of only two scenarios 2010 and 2040, which are not the project forecast years. Additionally, by design, the regional model produces average weekday traffic, and for all project alternative evaluations, both weekday and weekend traffic estimates are required. SERPM model was used to get initial trip tables to estimate average weekday traffic and mobile data shall be used to get weekend trip tables for 2015.

The socio-demographic data for 2015 was interpolated between 2010 and 2040 and further reviewed to match to the current conditions. Figure 4 and Figure 5 show updated zones in subarea with household and population respectively, and Figure 6 show percent frequency distribution of zones by the magnitude of change in households and persons. Similarly, 2045 land use projections within a 2-mile buffer along the Turnpike Extension corridor, south of Coral Reef Drive was reviewed for planned major developments, including DRIs in the study area. The SERPM regional model was run for these two years, 2015 and 2045, and respective subarea OD matrices were extracted.

Figure 4 Updated Households in Subarea

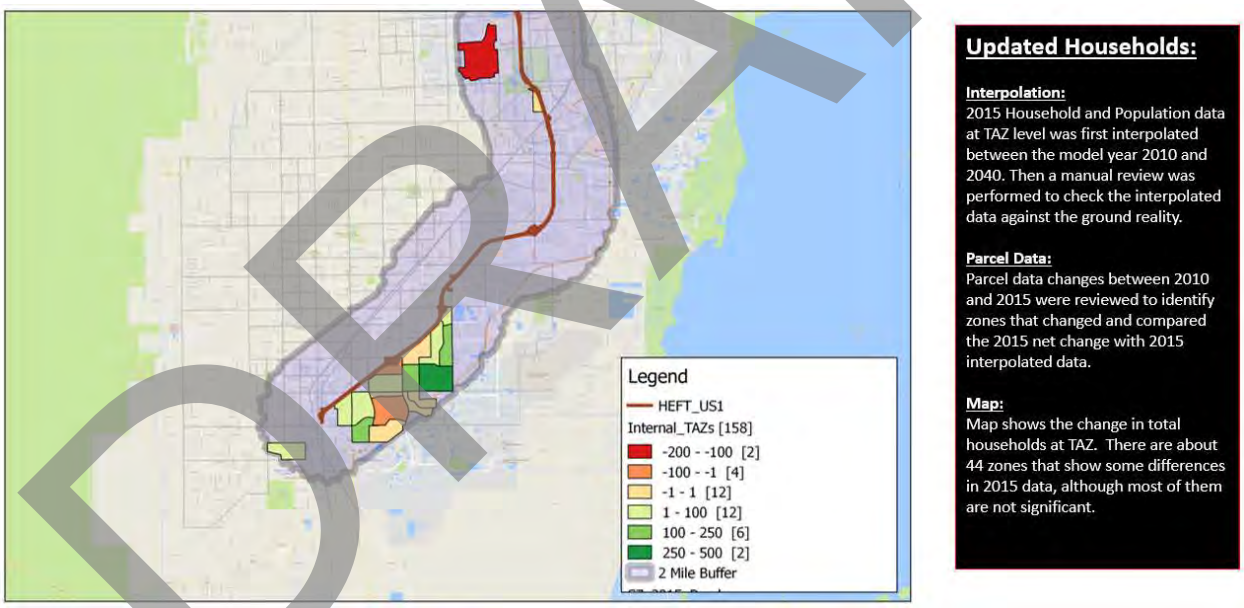
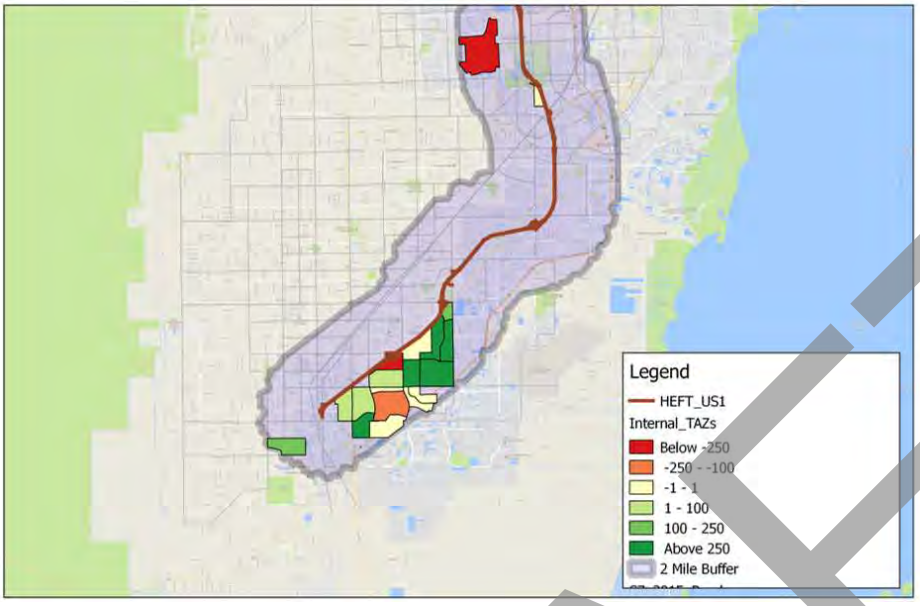


Figure 5 Updated Population in Subarea



Updated Population:

Interpolation:
2015 Household and Population data at TAZ level was first interpolated between the model year 2010 and 2040. Then a manual review was performed to check the interpolated data against the ground reality.

Parcel Data:
Parcel data changes between 2010 and 2015 were reviewed to identify zones that changed and compared the 2015 net change with 2015 interpolated data.

Map:
Map shows the change in total persons at TAZ. There are about 44 zones that show some differences in 2015 data, although most of them are not significant.

Figure 6 Distribution of Households and Population by Number of Zones

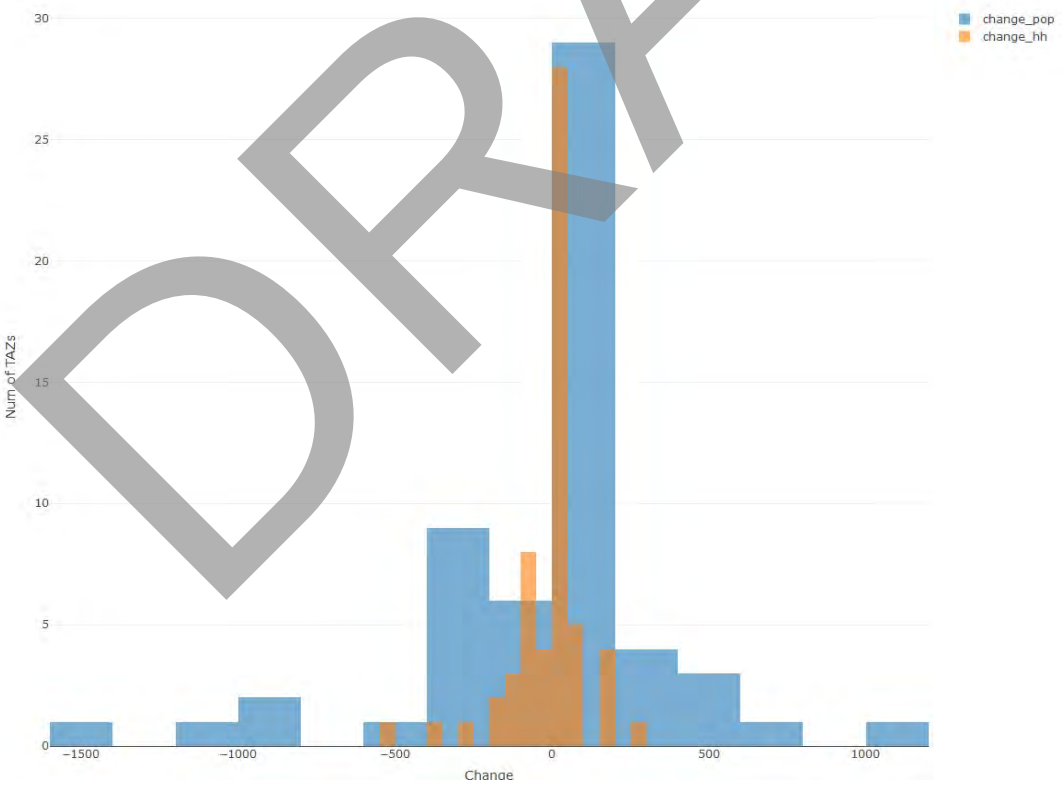


Figure 7 shows the location of traffic counts on southern Turnpike Extension, and Figure 8 shows sample count data by average weekday and weekend. With 2015 extracted trip table as seed and 2015 counts as targets, 2015 OD table was estimated through the ODME process. The weekday adjustment factors were developed from the extracted and estimated trip tables by time period. The 2015 factors used in developing 2045 trip tables to account for ODME based adjustments.

Figure 7 Turnpike Extension Traffic Count Locations

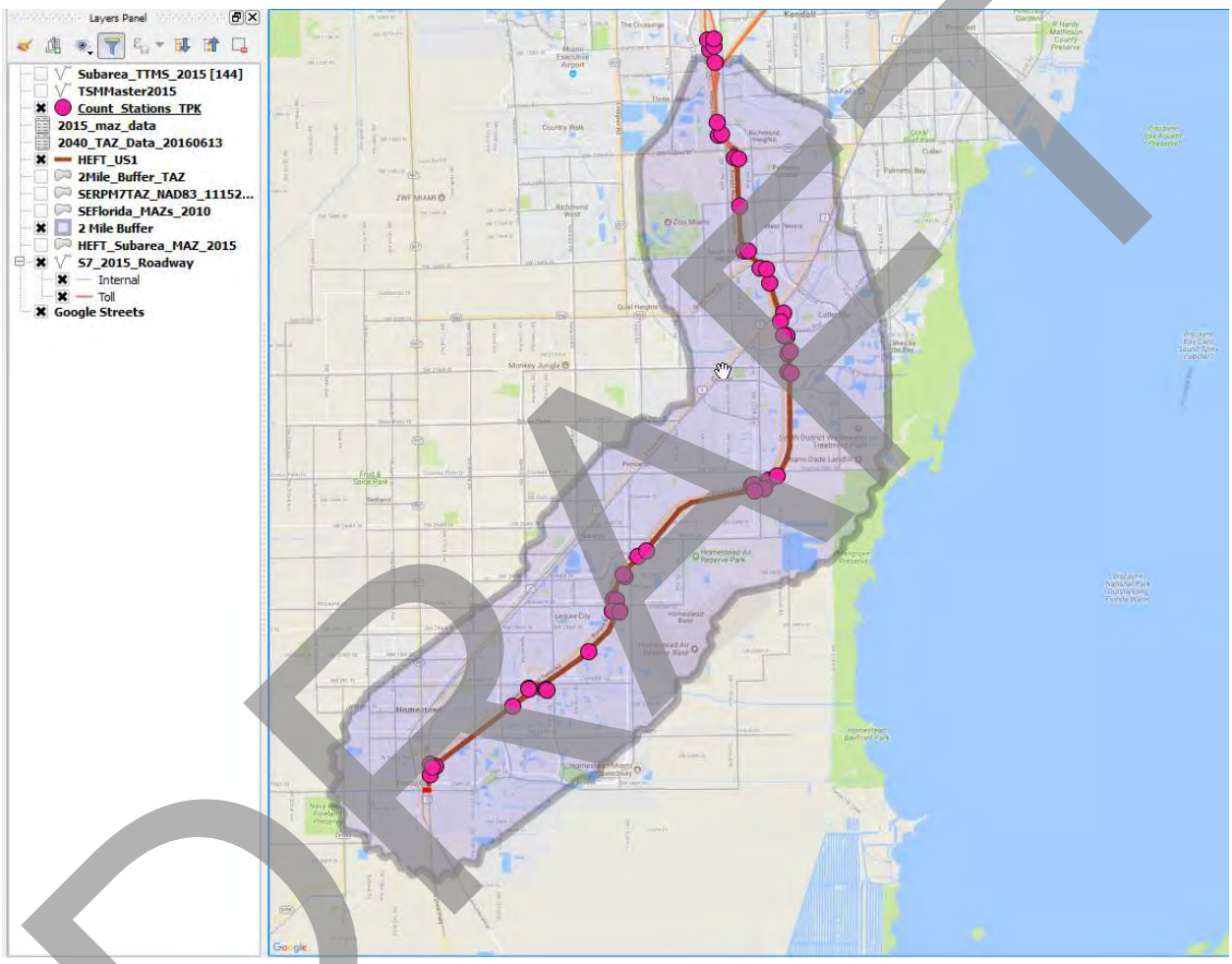


Figure 8 Turnpike Extension Traffic Counts by Average Weekday and Weekend

PLAZA	HOUR	AVG_TRAFFIC_COUNT	WEEKDAY_WEEKEND
006220	00	133.50	WEEKDAY
006220	00	272.36	WEEKEND
006220	01	86.26	WEEKDAY
006220	01	196.78	WEEKEND
006220	02	61.29	WEEKDAY
006220	02	124.98	WEEKEND

4. Model Validation

The regional model produced reasonable daily estimates for the study area. However, it did not perform well by time of day, particularly with the peak periods. Additionally, it also displayed a distorted OD flow distribution between the northern and southern ends of the study area.

Figure 9 and Figure 10 show before and after ODME validation for the AM period where the overall fitness (R-Square) of the curve improves with ODME as the procedure tries to match the counts while preserving the OD distributions from the seed. Table 4 and Table 5 shows the AM period before and after ODME model estimates and statistics by facility types where it shows the initial model underperformed on ramps, which were fixed with the ODME approach. Similarly, Figure 11 and Figure 12 show PM period before and after ODME validation plots, and Table 6 and Table 7 show the PM validation metrics by facility types.

Figure 9 Subarea Validation before ODME - AM

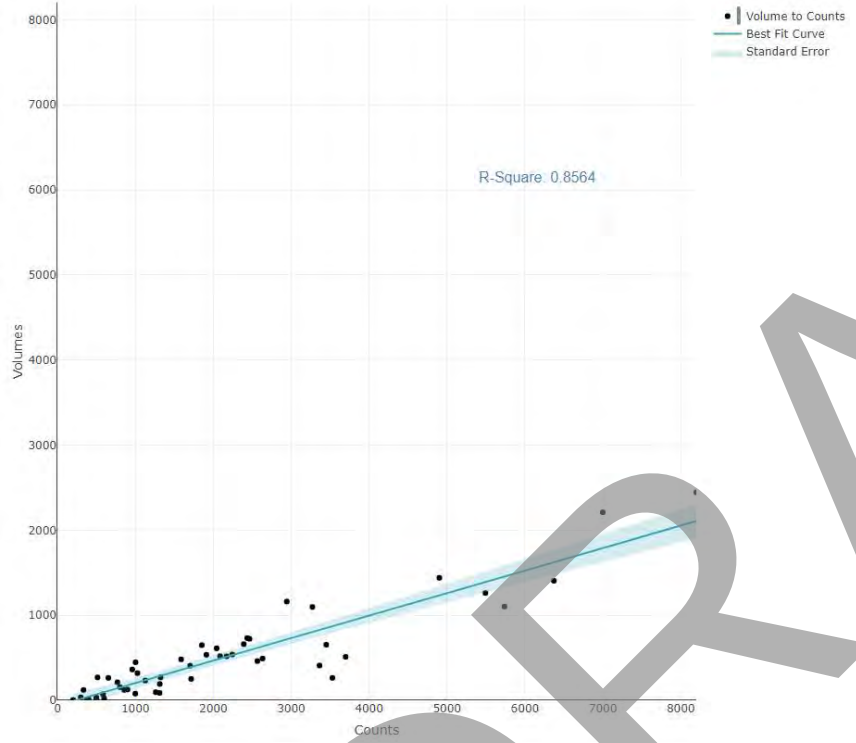


Figure 10 Subarea Validation after ODME - AM

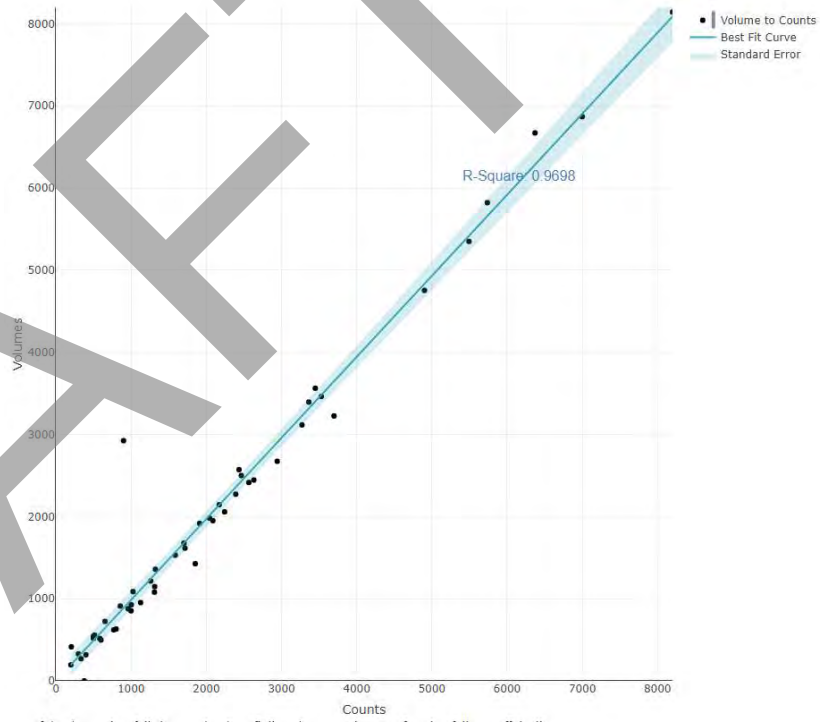


Table 4 Subarea Validation by Facility Types before ODME - AM

Subarea - Before ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	2224.58	2379	14799	6	561.05%	0.0003
2	Collectors	1119.04	1077	4890	4	415.61%	0.9628
3	HEFT	3502.76	8945	33382	8	313.27%	0.962
4	Ramps	1654.04	12702	54042	34	442.74%	0.7951

Table 5 Subarea Validation by Facility Types after ODME - AM

Subarea - After ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	113.7	14393	14799	6	4.74%	0.9872
2	Collectors	117.01	4972	4890	4	9.41%	0.983
3	HEFT	725.52	35022	33382	8	16.57%	0.9298
4	Ramps	174.09	51134	54042	34	11.58%	0.9893

Figure 11 Subarea Validation before ODME - PM

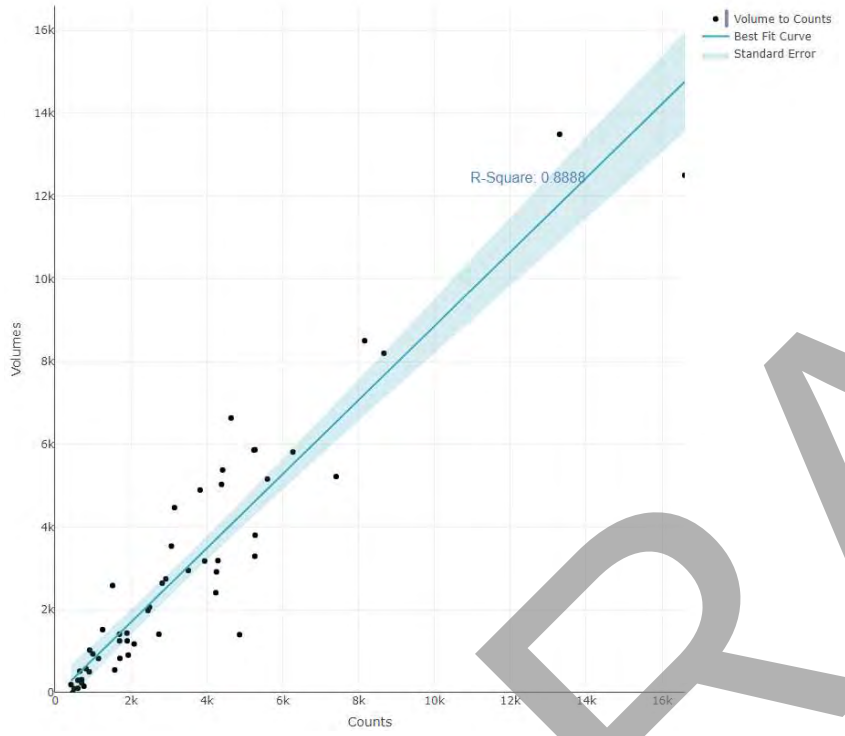


Figure 12 Subarea Validation after ODME - PM

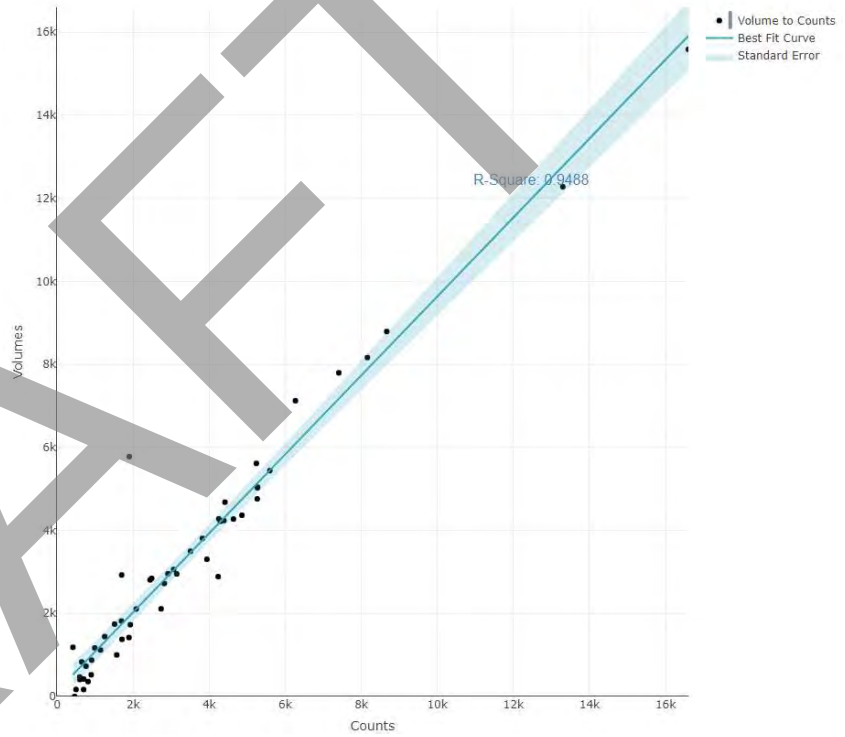


Table 6 Subarea Validation by Facility Types before ODME - PM

Subarea - Before ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	1211.75	23895	27318	6	30.43%	0.0375
2	Collectors	435.91	5950	7514	4	29.30%	0.9787
3	HEFT	1544.84	56450	59990	8	21.89%	0.9215
4	Ramps	1056.25	67069	81644	34	53.55%	0.7418

Table 7 Subarea Validation by Facility Types after ODME - PM

Subarea - After ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	237.68	26329	27318	6	5.42%	0.9763
2	Collectors	385.95	8135	7514	4	18.98%	0.9419
3	HEFT	1534.46	63816	59990	8	19.24%	0.9471
4	Ramps	427.79	76110	81644	34	19.11%	0.9576

ATTACHMENT B

Alternatives Design Concepts

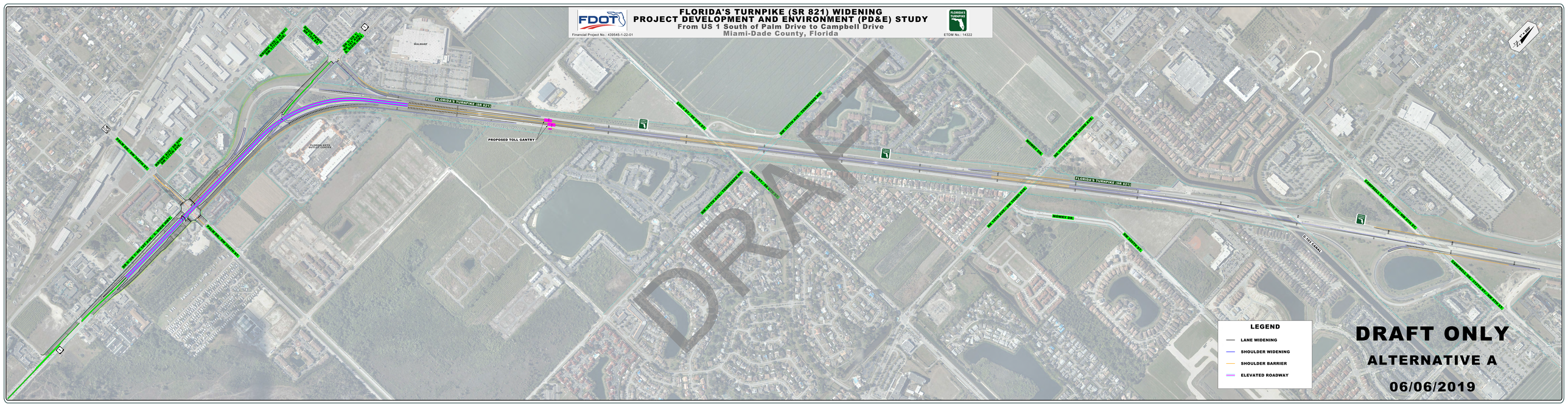
FLORIDA'S TURNPIKE (SR 821) WIDENING
PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY

From US 1 South of Palm Drive to Campbell Drive

Miami-Dade County, Florida

Financial Project No.: 439545-1-22-01

ETDM No.: 14322



DRAFT ONLY

ALTERNATIVE A

06/06/2019

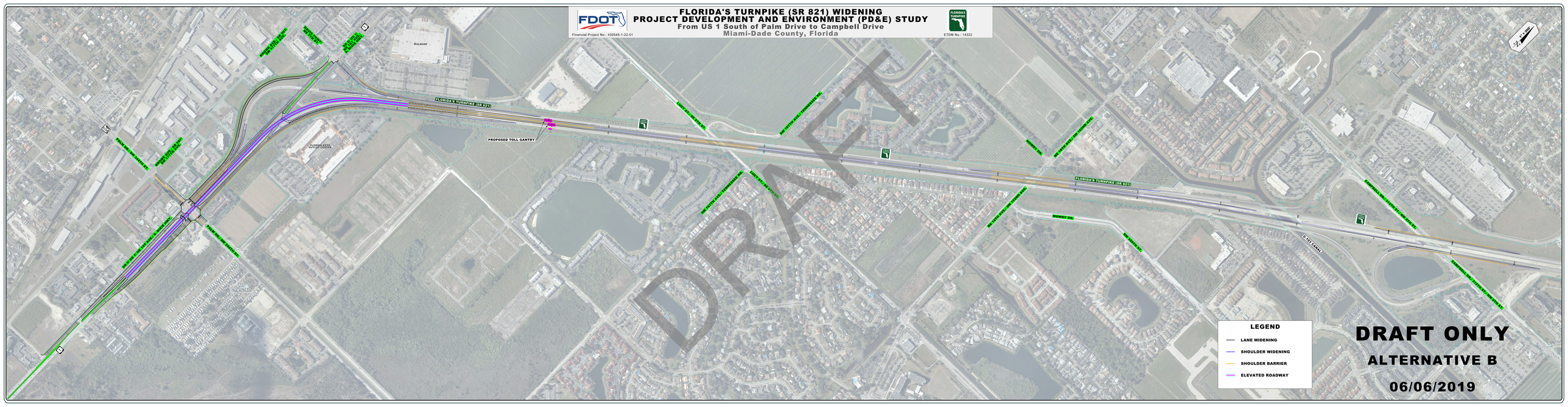
FLORIDA'S TURNPIKE (SR 821) WIDENING
PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY

From US 1 South of Palm Drive to Campbell Drive

Miami-Dade County, Florida

Financial Project No.: 439545-1-22-01

ETDM No.: 14322



LEGEND

- LANE WIDENING
- SHOULDER WIDENING
- SHOULDER BARRIER
- ELEVATED ROADWAY

DRAFT ONLY

ALTERNATIVE B

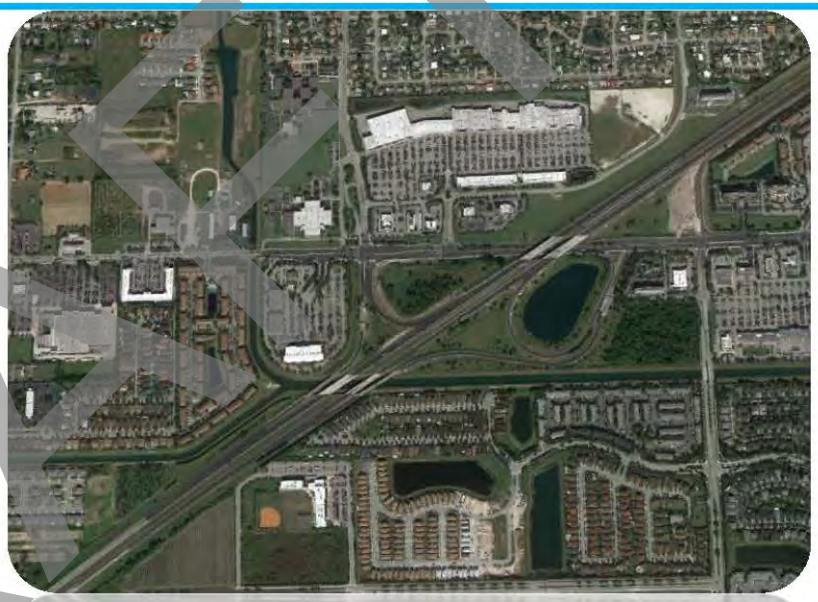
06/06/2019

Florida's Turnpike Enterprise
Turnpike Milepost 263
Building 5315
Ocoee, Florida 34761

Florida's Turnpike
Miami – Dade County

Turnpike Extension Widening (SR 821)

South of Palm Drive to Campbell Drive
[FPN 439545-1]
DRAFT Project Traffic Analysis Report (PTAR)



July 2020

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1.1 PROJECT OVERVIEW

The Turnpike Extension/US 1 corridor connects the Florida mainland and the Florida Keys – a chain of small islands popular to tourists of the state and permanent home to over 73,000 residents (based on 2010 Census). During heavy tourist timeframes and weekends, the Keys inbound traffic alone or in combination with local traffic, frequently result in queues into the mainline lanes of the southern Turnpike Extension segment. The US 1 / Turnpike Extension connection also serves as a critical evacuation route during events such as a hurricane higher than Category 3. The project area is in storm surge planning zones A, B and C, which are at greatest risk for storm surges during hurricanes. Florida's Turnpike Extension is the nearest designated emergency evacuation route with access from US 1 and Campbell Drive in this area. Given the capacity constraints of the southern Turnpike Extension terminus, previous efforts concluded that additional mainline widening was not warranted until the US 1/Palm Drive intersection deficiencies were addressed. The US 1/Palm Drive intersection was identified as a constraining point on the evacuation route and several improvement options were studied in a 2012 Evacuation Planning Assessment. As traffic demand increases in the future, traffic operations are expected to deteriorate within the US 1/Palm Drive intersection and thus impact the freeway mainline.

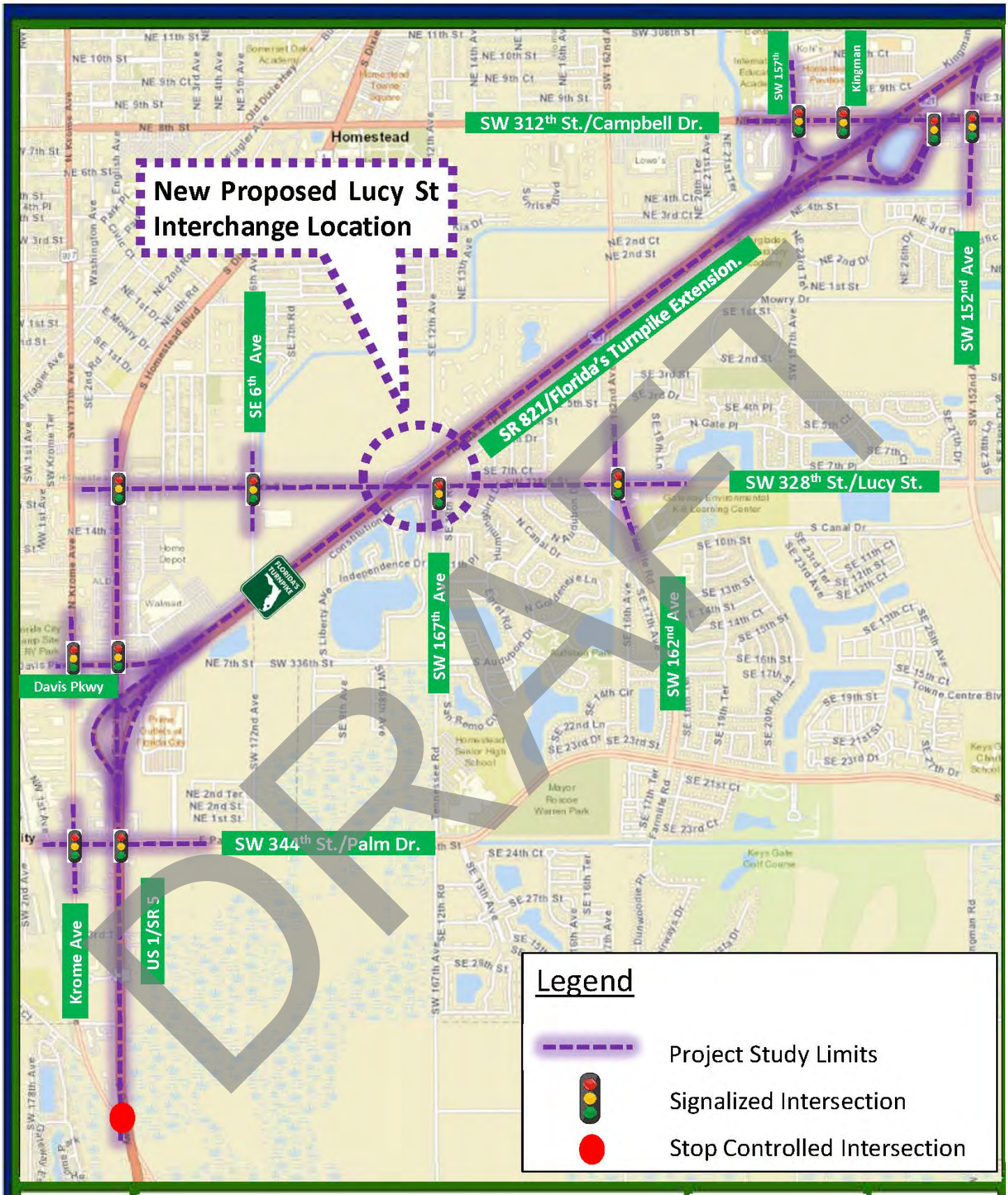
To address existing and future capacity needs, the Florida's Turnpike Enterprise (FTE) is conducting a Project Development & Environment (PD&E) study [FPID 439545-1] to evaluate widening of the southern end of the Turnpike Extension between US 1 at Mile Post 0 (MP 0) and Campbell Drive (MP 3) in Miami-Dade County. The PD&E study will also evaluate a new partial interchange at Lucy Street (SW 328th Street) and interchange modifications and enhancement at the intersection of US 1 and Palm Drive. A proposed Lucy Street interchange was requested by a developer (the Alger Family) to provide direct access to the anticipated traffic that would result from the potential mixed land use development on the parcels owned by the Alger Family in the vicinity of the Turnpike Extension. In 2005 FTE developed preliminary interchange concept alternatives to identify major issues including exception required for 2-mile interchange spacing standards, relocation of local accesses, right of way needs and project funding agreements. The ongoing PD&E is re-evaluating the interchange feasibility consistent with previous studies and the terms between the department and the applicants. As in the previous feasibility study, a partial interchange providing access to/from north will be evaluated in this PD&E.

This Project Traffic Analysis Report (PTAR) documents demand development and operational analysis to support the PD&E study. Included in this document are future (Year 2045) traffic information, and traffic analysis supporting the development of project capacity enhancements. Due to projected regional population growth, the anticipated land development around the project area and the need to enhance emergency evacuation process, it is important to explore capacity improvements options including assessment of additional access and modifications of existing interchanges. The new partial interchange at Lucy Street and the modifications of the US 1/SR 5 interchange are being proposed to address existing and projected future traffic congestion, capacity deficiencies, related safety issues, improving direct access and provide efficient emergency evacuation options.

The Turnpike Extension, within this project area, is the only portion not included in the programmed widening projects with express lanes. Improvements to the ramp terminus have been studied several times in the last decade. Given the capacity constraints of the southern terminus and limited

development potential to the south, previous efforts concluded that additional widening was not warranted until local roadway network deficiencies were addressed. The previous efforts also evaluated ultimate needs and determined improvements needed at the Campbell Drive (SW 312th Street) Interchange. An Interchange Modification Report (IMR) and Design Traffic Report (DTR) for the Turnpike Extension and Campbell Drive interchange were completed in 2014 and 2015, respectively. The improvements identified at the Campbell Drive interchange were recently completed.

The current study effort is scoped to provide future traffic demand and evaluate capacity and operational improvement alternatives for the southern segment including the terminus at US 1. This memorandum provides existing conditions and operations in the No-Build conditions (No-Build) and Build alternatives. Traffic analysis and forecasts are provided for design year (2045). The project study area is shown on **Figure 1.1**.



FLORIDA'S TURNPIKE

Turnpike Extension Widening
South of Palm Drive to Campbell Drive
Project Traffic Analysis Report

Project Study Limits

Figure 1.1

1.2 TRANSPORTATION FACILITIES

The Turnpike Extension southern point begins at US 1 and runs along a north/south alignment through Miami-Dade County to approximately the Miami-Dade/Broward County line, where the alignment shifts to east/west and connects to Florida's Turnpike. The Turnpike Extension has been converted to All-Electronic Tolling (AET).

The focus of this study is a four-lane facility in the Turnpike Extension at the southern end between US 1 (MP 0) and Campbell Drive (MP 3). The mainline posted speed limit is 65 mph. The Campbell Drive interchange is a Partial Cloverleaf (Parclo) Interchange with tolls collected on to/from the south ramps. The southern connection with US 1 includes two southbound off-ramps; an off-ramp connecting to Davis Parkway and US 1 intersection, and another off-ramp to US 1 just north of Palm Drive/US 1 intersection. There are also two northbound on-ramps, serving the northbound and southbound traffic from US 1, respectively. The existing aerial photographs of the interchanges within the study area are shown on **Figures 1.2** and **1.3**. This study also includes the city street network between Krome Avenue and US 1, adjacent to the Turnpike Extension MP 0.

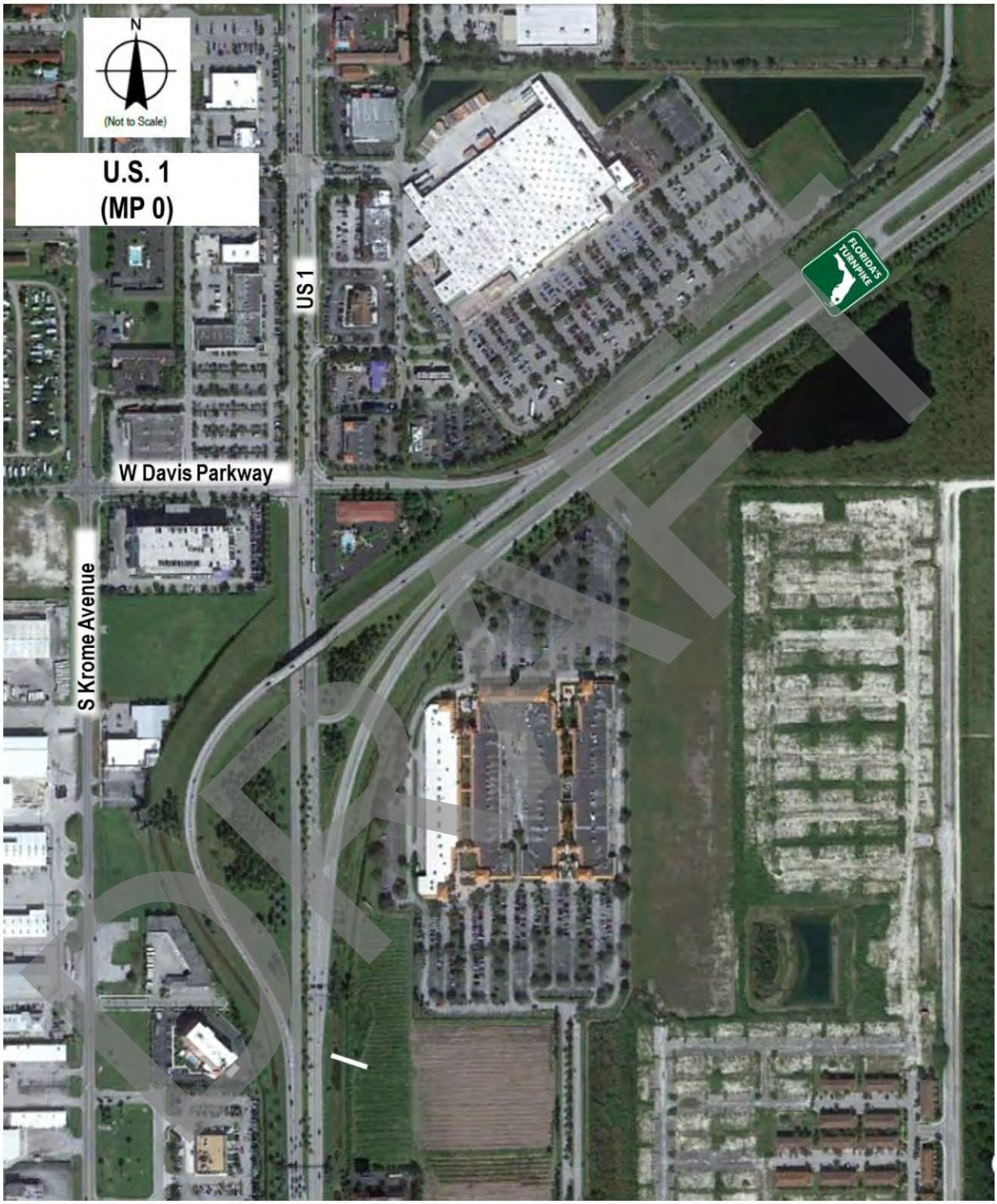


Figure 1.2
US 1 Interchange Aerial Photograph

Figure 1.3
Campbell Drive Interchange Aerial Photograph

This section describes the development of the future No-Build and Build alternatives traffic forecast for 2045.

2.1 PROJECT FORECAST MODEL

The Southeast Regional Planning Model version 7 (SERPM 7) was used to develop the traffic forecasts for this project. The SERPM 7 covers a three-county region in Southeast Florida: Palm Beach, Broward, and Miami-Dade. The SERPM produces traffic volumes at a daily level, as well as for five periods: AM Peak (6:00 – 9:00 AM), PM Peak (3:00 – 7:00 PM), Mid-Day (MD, 9:00 AM– 3:00 PM), Evening (EV, 7:00 – 10:00 PM), and Nighttime (NT, remainder of the day). The SERPM version 7 (SERPM 7) was used as a base model for this project since this Activity Based version has an enhanced modeling process for truck traffic. Numerous updates were made to the SERPM 7, which include socioeconomic data and networks, to produce the current FTE version of the model, which is called SERPM 7 FTE. The model was updated specifically for evaluating toll road and managed lane projects in southeast Florida.

2.2 PROJECT SCENARIOS FORECASTS

The development of the project traffic forecast was a multi-step effort involving a combination of internal modeling procedures and post-model evaluation. The historical growth rates from counts and the model forecasts were used to develop cross street Annual Average Daily Traffic (AADT). For the Turnpike Extension and ramps, the growth rates from SERPM 7 FTE model were used. The traffic forecasting methodology used for each approach for each intersection was based on the 2015 AADT (from the field), and 2015 and 2045 SERPM model volumes. The recommended 2045 AADTs were calculated by applying the model growth rate to the 2015 AADT. Additionally, the NCHRP 765 forecasting procedure was employed to further refine the future No-Build estimates. Once the No-Build forecast was established for 2045, the Build project forecast was developed by applying the model differences to the No-Build project forecast. For example, when computing the forecast using the difference, 2045 Build project traffic forecasts = 2045 No-Build project traffic + (2045 Build Model – 2045 No-Build Model). The final forecasted AADTs from the subarea model, along with K-factors and D-factors, were used to develop corridor-level directional design hour volumes (DDHVs), consistent with the guidelines set forth in the FDOT Project Traffic Forecasting Handbook. The Turnpike Extension interchange at US 1 serves both tourist and regular commute traffic. Therefore, future DDHVs were developed for two scenarios: the typical peak commuter design hour and the design hour for a heavy-inbound-keys scenario. The heavy-inbound-keys scenario considers a combination of peak season southbound tourists traveling to the Keys and a non-peak-hour commuter traffic for other movements. For the typical peak hour scenario, DDHVs were calculated based on the standard K factor and the D factor based on existing counts. For the heavy-inbound-keys scenario, the K and D factors were developed for the heaviest inflow to the keys for the southbound off-ramp. The future No-Build intersection turning movement volumes were developed by using existing and model intersection splits, and link DDHVs. The Build scenario turning movement design volumes were developed by adding the Build impact layer to the No-Build volumes.

The 2045 daily forecasts for the Turnpike Mainline, ramps and the cross streets, are shown in **Tables 2.1** and **2.2**, respectively.

Table 2.1
Future 2045 AADT Volumes

Mile Post-Interchange	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
	108,600	**108,600**	**0**
2 – Campbell Drive	43,700	36,000	-7,700
	10,400	10,800	400
	75,300	**83,400**	**8,100**
1 - Lucy Street (SW 328th St)	0	22,600	22,600
	75,300	**60,800**	**-14,500**
0 – US 1 (To/From North)	22,300	12,800	-9,500
0 – US 1 (To/From South)	53,000	48,000	-5,000

Bold = Mainline Volumes

2.3 FUTURE DIRECTIONAL DESIGN HOUR VOLUMES

The future Directional Design Hour Volumes (DDHVs) are calculated by applying the K factors and existing directional splits (directional distribution factor [D]) to the AADTs at interchange ramp pairs and the Turnpike Mainline control points. The K factor is the proportion of AADT occurring during the selected design hour. The D factor is the proportion of traffic in the design hour traveling in the peak direction.

Consistent with the FDOT districts, the Turnpike has developed standard K factors for use in planning and design applications. The K factor for the mainline section between Campbell Drive and US 1 is based on the Telemetered Traffic Monitoring Site (TTMS) 972262 data in the 2016 Florida Traffic Information (FTI) database, and is the same as the K factor for the US 1 Interchange ramps.

The K factors for the ramps at Campbell Drive are based on toll data. The D factors for the Campbell Drive Interchange ramps are based on 2016 toll data.

Cross streets are forecasted with K factors in the 2016 FTI database and D factors were determined based on 2016 peak-season peak-hour counts.

The truck factor (T_f) is the percentage of truck traffic during the peak hours. The T_f can be estimated as half of the 24-hour truck factor (T), which is the percentage of truck traffic in 24 hours. T factors are based on the 2016 FTI database for cross streets and 2015 Turnpike Truck Factors for mainline segments and ramps. The traffic factors used for future design hour traffic volumes and traffic operational analysis are provided in **Table 2.3**.

Table 2.2
2045 Cross Street AADT

Arterial Segment	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
Campbell Drive/SW 312th Street			
Campbell Drive - East of 152nd Ave	27,200	29,200	2,000
Campbell Drive - West of 152nd Ave to NB Ramps	23,000	25,000	2,000
Campbell Drive - Between NB Ramps and Kingman Road	30,800	28,700	-2,100
Campbell Drive - Kingman Road to SW 157th/SB Ramps	31,700	29,600	-2,100
Campbell Drive - West of SW 157th Avenue /SB Ramps	34,100	28,900	-5,200
SW 152ND Avenue - South of Campbell Drive	17,200	13,600	-3,600
Kingman Road - North of Campbell Drive	9,800	9,500	-300
SW 157th Avenue - North of Campbell Drive	8,000	8,000	0
Lucy Street			
Lucy Street - West of SW 6th Street	31,900	40,000	8,100
Lucy Street - East of SW 6th Street -West of Turnpike	24,600	38,900	14,300
Lucy Street - East of Turnpike -West of SW 162nd Avenue	26,800	34,000	7,200
Lucy Street - East of SW 162nd Avenue	30,000	27,300	-2,700
SW 6th Street - South of Lucy Street	20,000	18,800	-1,200
SW 6th Street - North of Lucy Street	14,000	9,200	-4,800
SW 162nd Avenue - South of Lucy Street	8,900	10,000	1,100
SW 162nd Avenue - North of Lucy Street	13,900	8,300	-5,600
US 1			
US 1 - North of Davis Parkway	39,800	30,600	-9,200
US 1 - South of Davis to SB US 1-NB Turnpike On Ramp	33,900	23,300	-10,600
US 1 - South of SB US 1-NB Turnpike On Ramp to SB Off Ramp to Palm Drive	25,300	18,900	-6,400
US 1 - Turnpike SB Off Ramp to Palm Drive	69,700	61,900	-7,800
US 1 - South of Palm Drive	49,200	49,200	0
Davis Parkway - West of US 1	15,800	13,000	-2,800
Palm Drive - East of US 1	31,800	26,800	-5,000
Palm Drive - West of US 1	36,100	31,300	-4,800

Table 2.3
Design Traffic Factors

Roadway Segment		K_{STD}	D	T_{24}	DHT	PHF
Turnpike Mainline						
North of US 1 (MP 0) to Campbell (MP 3)		8.50	58.10	5.6	3.0	0.95
Interchange Ramps						
Campbell Drive (MP 3)	South Ramps	9.50	51.61	5.6	3.0	0.95
	North Ramps	8.50	56.35	5.6	3.0	0.95
US 1 (MP 0) [Typical Scenario]	South Ramps	8.50	58.10	5.6	3.0	0.95
	North Ramps	8.50	58.10	5.6	3.0	0.95
US 1 (MP 0) [Heavy-Inbound-Keys Scenario] *	South Ramps	9.50	60.00	5.6	3.0	0.95
	North Ramps	9.50	60.00	5.6	3.0	0.95
Cross Streets						
Campbell Drive		9.00	57.40	9.5	5.0	0.95
Lucy Street		9.00	54.40	3.8	2.0	.95
Davis Parkway		9.00	58.5	10.7	5.0	0.95
Palm Drive		9.00	55.00	10.7	5.0	0.95
Krome Avenue		9.00	58.5	10.7	5.0	0.95
US 1		9.50	60.00	9.5	5.0	0.95

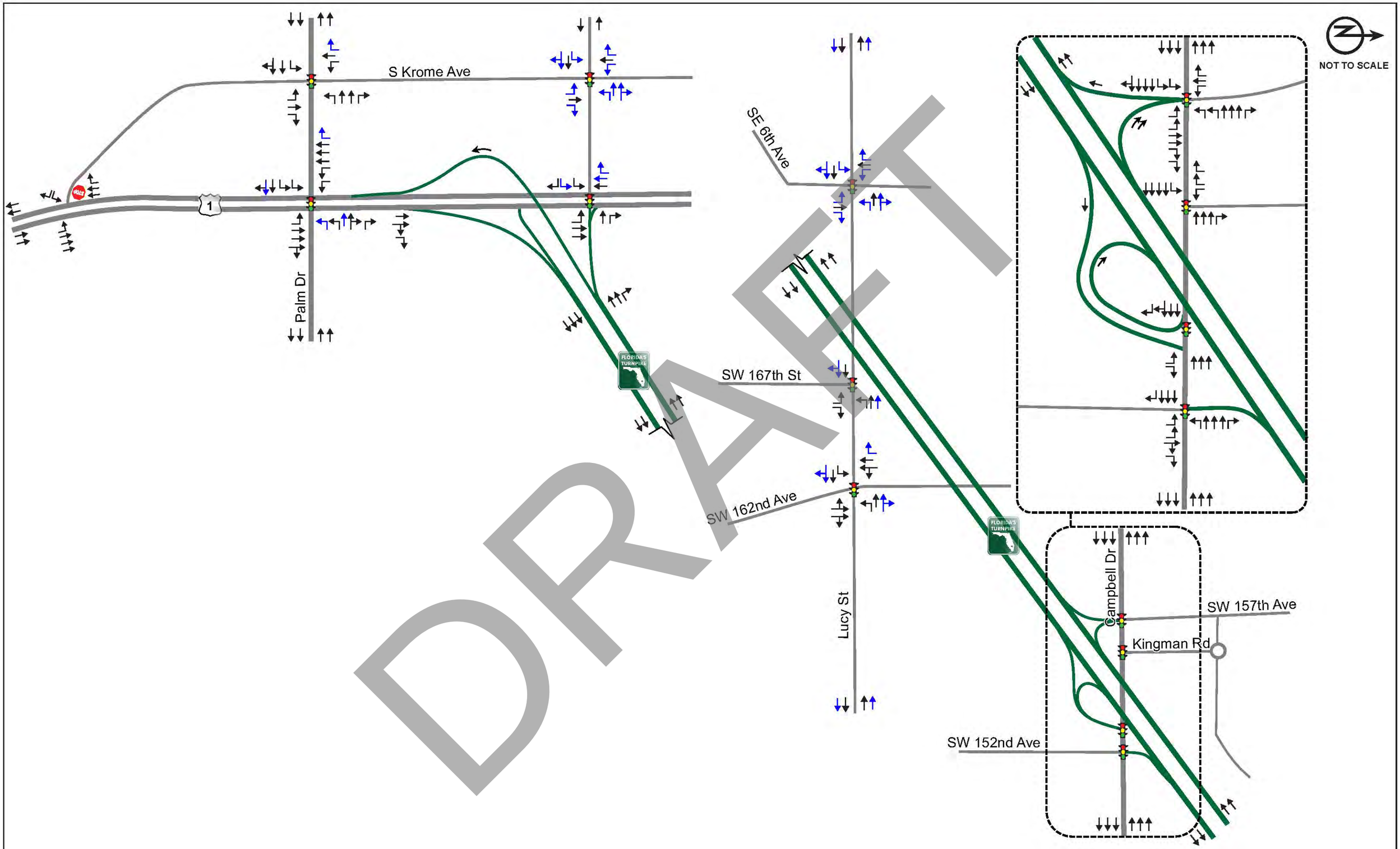
The DDHV volumes for the No-Build and Build scenarios are shown in **Tables 2.4** and **2.5**. **Figure 2.1** shows No-Build Scenario lane geometry and **Figure 2.2** depicts the mainline design hour through volumes and turning movements at the intersections included in the study area for the No-Build scenario.

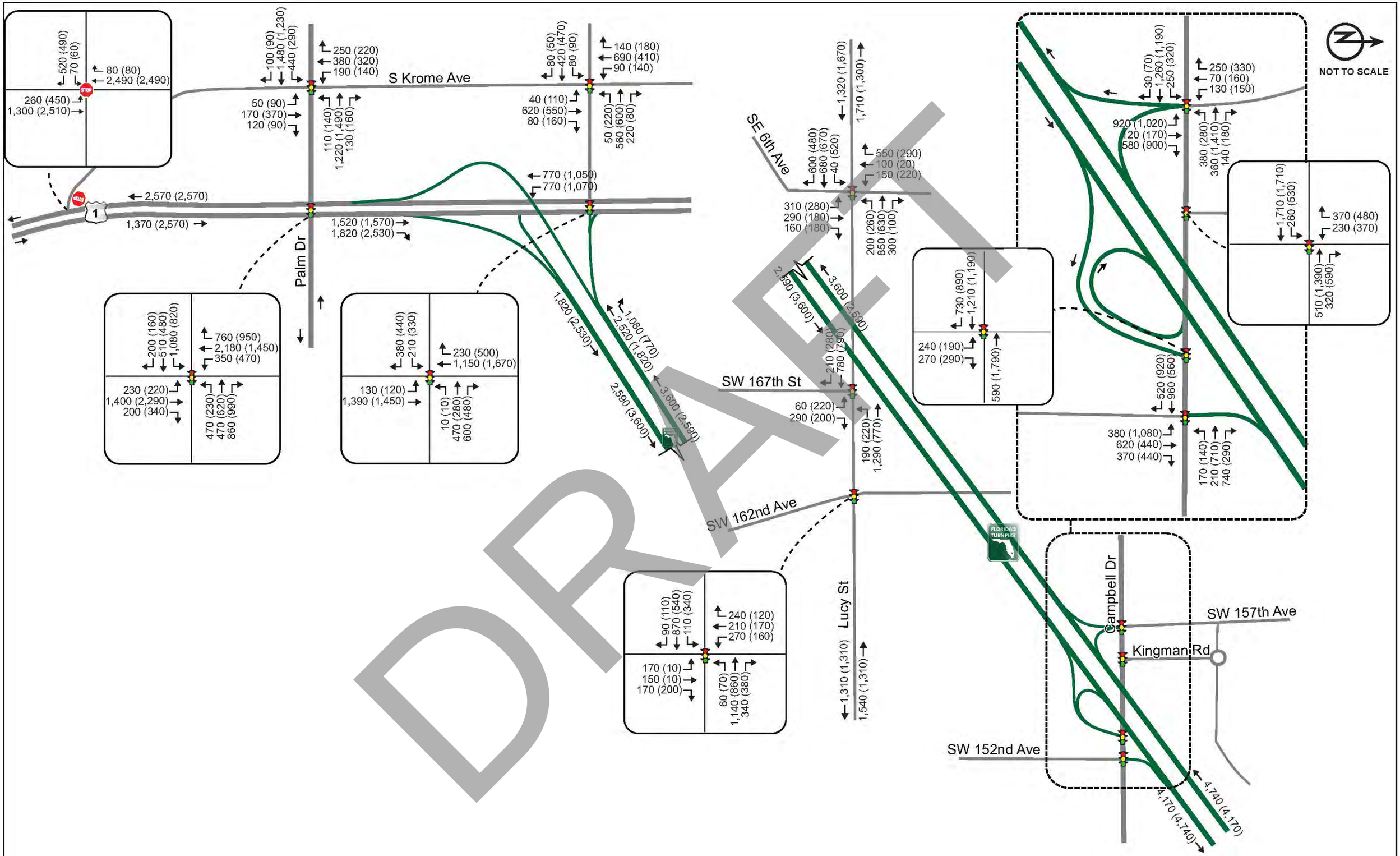
Table 2.4
2045 DDHVs – No-Build Scenario

Segment	Segment Type	Lanes	Total Traffic DDHV		Truck DDHV	
			AM	PM	AM	PM
Turnpike Extension U.S. 1 to Campbell Drive - Southbound						
Upstream of Campbell Drive off-ramp	Basic	2	4,740	2,800	140	80
Campbell Drive off-ramp	Diverge	2	4,740	2,800	140	80
Campbell Drive off-ramp to on-ramp	Basic	2	3,120	2,070	90	60
Campbell Drive on-ramp	Merge	2	3,600	2,580	110	80
Campbell Drive on-ramp to U.S. 1 off-ramp	Basic	2	3,600	2,580	110	80
U.S. 1 off-ramp	Diverge	2	3,600	2,580	110	80
Downstream of U.S. 1 off-ramp	Basic	2	2,530	1,810	80	50
Turnpike Extension U.S. 1 to Campbell Drive - Northbound						
Upstream of U.S. 1 on-ramp	Basic	2	1,810	2,530	50	80
U.S. 1 on-ramp	Merge	2	2,580	3,600	80	110
U.S. 1 on-ramp to Campbell Drive off-ramp	Basic	2	2,580	3,600	80	110
Campbell Drive off-ramp	Diverge	2	2,580	3,600	80	110
Campbell Drive off-ramp to on-ramp	Basic	2	2,070	3,120	60	90
Campbell Drive on-ramp	Merge	2	2,800	3,900	80	120
Downstream of Campbell Drive on-ramp	Basic	2	2,800	3,900	80	120

Table 2.5
2045 DDHVs – Build Scenario

Segment	Segment Type	Lanes	Total Traffic DDHV		Truck DDHV	
			AM	PM	AM	PM
Turnpike Extension U.S. 1 to Campbell Drive - Southbound						
Upstream of Campbell Drive off-ramp	Basic	3	5,090	4,040	150	120
Campbell Drive off-ramp	Diverge	3	5,090	4,040	150	120
Campbell Drive off-ramp to on-ramp	Basic	3	3,750	2,320	110	70
Campbell Drive on-ramp	Merge	3	4,250	2,850	130	90
Campbell Drive on-ramp to Lucy Street off-ramp	Basic	3	4,250	2,850	130	90
Lucy Street off-ramp	Diverge	3	4,250	2,850	130	90
Lucy Street off-ramp to U.S. 1 off-ramp	Basic	3	3,170	2,000	100	60
U.S. 1 off-ramp	Diverge	3	3,170	2,000	100	60
Downstream of U.S. 1 off-ramp	Basic	2	2,490	1,590	70	50
Turnpike Extension U.S. 1 to Campbell Drive - Northbound						
Upstream of U.S. 1 on-ramp	Basic	2	1,590	2,490	50	70
U.S. 1 on-ramp	Merge	3	2,000	3,170	60	100
U.S. 1 on-ramp to Lucy Street on-ramp	Basic	3	2,000	3,170	60	100
Lucy Street on-ramp	Merge	3	2,850	4,250	90	130
Lucy Street on-ramp to Campbell Drive off-ramp	Basic	3	2,850	4,250	90	130
Campbell Drive off-ramp	Diverge	3	2,850	4,250	90	130
Campbell Drive off-ramp to on-ramp	Basic	3	2,320	3,750	70	110
Campbell Drive on-ramp	Merge	3	2,680	4,440	80	130
Downstream of Campbell Drive on-ramp	Basic	3	2,680	4,440	80	130


NOT TO SCALE
S Krome Ave
Palm Dr
1
SE 6th Ave
SW 167th St
SW 162nd Ave
Lucy St
Campbell Dr
SW 157th Ave
Kingman Rd
SW 152nd Ave
FLORIDA'S TURNPIKE


S Krome Ave
Palm Dr
SE 6th Ave
SW 167th St
SW 162nd Ave
Lucy St
Campbell Dr
SW 157th Ave
Kingman Rd
SW 152nd Ave
NOT TO SCALE
520 (490)
70 (60)
80 (80)
2,490 (2,490)
260 (450)
1,300 (2,510)
100 (90)
1,480 (1,230)
440 (290)
250 (220)
380 (320)
190 (140)
50 (90)
170 (370)
120 (90)
110 (140)
1,220 (1,490)
130 (160)
80 (50)
420 (470)
80 (90)
140 (180)
690 (410)
90 (140)
40 (110)
620 (550)
80 (160)
50 (220)
560 (600)
220 (80)
770 (1,050)
770 (1,070)
2,570 (2,570)
1,370 (2,570)
1,520 (1,570)
1,820 (2,530)
1,820 (2,530)
1,080 (770)
2,520 (1,820)
2,590 (3,600)
3,600 (2,590)
200 (160)
510 (480)
1,080 (820)
760 (950)
2,180 (1,450)
350 (470)
230 (220)
1,400 (2,290)
200 (340)
470 (230)
470 (620)
860 (990)
380 (440)
210 (330)
230 (500)
1,150 (1,670)
130 (120)
1,390 (1,450)
10 (10)
470 (280)
600 (480)
1,320 (1,670)
1,710 (1,300)
600 (480)
680 (670)
40 (520)
550 (290)
100 (20)
150 (220)
310 (280)
290 (180)
160 (180)
200 (260)
850 (630)
300 (100)
2,590 (3,600)
3,600 (2,590)
210 (280)
780 (790)
60 (220)
290 (200)
190 (220)
1,290 (770)
30 (70)
1,260 (1,190)
250 (320)
250 (330)
70 (160)
130 (150)
920 (1,020)
120 (170)
580 (900)
380 (280)
360 (1,410)
140 (180)
1,710 (1,710)
260 (530)
370 (480)
230 (370)
510 (1,390)
320 (590)
730 (890)
1,210 (1,190)
240 (190)
270 (290)
590 (1,790)
520 (920)
960 (560)
380 (1,080)
620 (440)
370 (440)
170 (140)
210 (710)
740 (290)
90 (110)
870 (540)
110 (340)
240 (120)
210 (170)
270 (160)
170 (10)
150 (10)
170 (200)
60 (70)
1,140 (860)
340 (380)
1,310 (1,310)
1,540 (1,310)
4,740 (4,170)
4,170 (4,740)

The No-Build (i.e., without the southbound off and northbound on ramps over Palm Drive and without Lucy Street interchange) Turnpike Extension mainline and ramp lane requirements within the study area for the years 2020 through 2045 using mainline LOS D and ramp capacity thresholds (LOS E) are shown in **Table 3.1**. This summary is based on the lane requirement capacity analysis shown in **Table 3.2**. The colors highlight the required directional number of lanes. This analysis is based on the DDHVs for both typical and heavy inbound scenarios.

Table 3.1
Lane Requirements by Year

Turnpike Extension Segment	Number of Lanes per Direction		
	Existing	Typical Scenario Lanes Needed (Year)	Heavy Inbound Scenario Lanes Needed (Year)
North of Campbell Drive Interchange	2	3 (2025)	3 (2022)
US 1 Interchange to South of Campbell Drive Interchange	2	3 (2042)	3 (2034)
Campbell Drive Interchange (MP 3)			
To/From north	1	2 (2037)	2 (2037)
To/From south	1	-	-
Campbell Drive Interchange (MP 0)			
US 1 To/From north	1	1	1
US 1 To/From south	1	2 (2028)	2 (2024)

The number of ramp roadway lanes required was determined based on LOS E capacity as shown in **Table 3.2**. The analysis summary in **Table 3.1** indicates a need to widen the south end of the Turnpike Extension between US 1 and Campbell Drive by 2042 under typical scenario and by 2034 when considering heavy inbound scenario. In addition, the southbound off-ramp to the south will need to be widened by 2028 under typical scenario and by 2024 when considering heavy inbound scenario.

Table 3.2
Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements

Typical Scenario Mainline (LOS D) and Ramp Capacity (LOS E MSV) Lane Requirements

Description	Year																									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
2 - Campbell Drive	2,940	3,040	3,140	3,250	3,350	3,450	3,510	3,560	3,620	3,670	3,730	3,780	3,840	3,890	3,950	4,000	4,070	4,150	4,220	4,300	4,370	4,440	4,520	4,590	4,670	4,740
	1,300	1,350	1,400	1,440	1,490	1,540	1,570	1,590	1,620	1,640	1,670	1,700	1,720	1,750	1,770	1,800	1,830	1,860	1,890	1,920	1,950	1,970	2,000	2,030	2,060	2,090
	1,930	2,000	2,060	2,130	2,190	2,260	2,300	2,330	2,370	2,400	2,440	2,470	2,510	2,540	2,580	2,610	2,660	2,710	2,760	2,810	2,870	2,920	2,970	3,020	3,070	3,120
	190	190	200	210	210	220	240	270	290	310	340	360	380	400	430	450	460	460	470	470	480	490	490	500	500	510
	2,110	2,180	2,250	2,330	2,400	2,470	2,530	2,580	2,640	2,690	2,750	2,810	2,860	2,920	2,970	3,030	3,090	3,140	3,200	3,260	3,320	3,370	3,430	3,490	3,540	3,600
0 - US 1 to/from north	670	690	700	710	720	730	750	760	780	800	820	830	850	870	880	900	920	930	950	970	990	1,000	1,020	1,040	1,050	1,070
0 - US 1 to/from south	1,430	1,500	1,560	1,620	1,680	1,740	1,780	1,820	1,860	1,900	1,940	1,970	2,010	2,050	2,090	2,130	2,170	2,210	2,250	2,290	2,330	2,370	2,410	2,450	2,490	2,530

Heavy Inbound Scenario Mainline (LOS D) and Ramp Capacity (LOS E MSV) Lane Requirements

Description	Year																									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
2 - Campbell Drive	3,150	3,310	3,460	3,620	3,770	3,930	4,000	4,070	4,150	4,220	4,290	4,360	4,430	4,510	4,580	4,650	4,670	4,680	4,700	4,710	4,730	4,740	4,760	4,770	4,790	4,800
	1,300	1,350	1,400	1,440	1,490	1,540	1,570	1,590	1,620	1,640	1,670	1,700	1,720	1,750	1,770	1,800	1,830	1,850	1,880	1,900	1,930	1,960	1,980	2,010	2,030	2,060
	2,150	2,260	2,380	2,500	2,620	2,740	2,790	2,840	2,900	2,950	3,000	3,050	3,100	3,160	3,210	3,260	3,300	3,340	3,380	3,420	3,470	3,510	3,550	3,590	3,630	3,670
	190	190	200	210	210	220	240	270	290	310	340	360	380	400	430	450	470	480	500	520	540	550	570	590	600	620
	2,280	2,390	2,510	2,620	2,740	2,850	2,920	2,980	3,050	3,110	3,180	3,240	3,310	3,370	3,440	3,500	3,570	3,630	3,700	3,760	3,830	3,890	3,960	4,020	4,090	4,150
0 - US 1 to/from north	720	750	770	790	820	840	860	880	900	920	940	960	980	1,000	1,020	1,040	1,060	1,080	1,100	1,120	1,140	1,150	1,170	1,190	1,210	1,230
0 - US 1 to/from south	1,550	1,650	1,740	1,830	1,920	2,010	2,060	2,100	2,150	2,190	2,240	2,280	2,330	2,370	2,420	2,460	2,510	2,550	2,600	2,640	2,690	2,740	2,780	2,830	2,870	2,920

Assumptions	
Total Trucks % (T_f)	3.00%
Peak Hour Factor (PHF)	0.95
Speed/Capacity Adjustment Factor	0.88
Intersection Density (ID)	0.20
Grade	0.00%
Terrain	Level
Lane width	12 ft
Right-shoulder Lateral Clearance (LC)	10 ft

Number of Mainline Lanes by LOS D Maximum Service Volume (MSV)	
Number of Lanes	South LOS D
2	3,420
3	5,220
4	6,840
5	8,550
6	10,260
FFS	65

Number of Ramp Lanes by Capacity (LOS E MSV)	
Number of Lanes	Capacity (veh/hr)
1	1,840
2	3,680

Free-Flow Speed 31-50 mph

In addition to the mainline widening evaluation, there are interchange improvements being explored at Campbell Drive and US 1, and a potential partial interchange at Lucy Street providing access to/from north. The alternatives at these interchanges are described below:

Campbell Drive Interchange Alternatives

Ultimate improvement needs at the Campbell Drive Interchange were evaluated and determined during a PD&E study [FPN 423372-1] for the Turnpike Extension corridor from Campbell Drive (MP 3) north to the Government Center area (MP 12) which was completed in 2013. An IMR to support the access modification proposed at the Turnpike Extension and Campbell Drive interchange was completed in 2014, followed by a DTR, which was provided in 2015. There were preliminary transportation systems management and operations (TSM&O) improvements which were explored to supplement the ultimate needs recommended in previous studies. The TSM&O solutions explored include turbo lanes and several turn lane reconfigurations. The analysis of the TSM&O alternatives at Campbell Drive Interchange showed no significant operational benefits compared to the modification proposed in the 2013 IMR.

Lucy Street Interchange Alternatives

A proposed Lucy Street Interchange was requested as a developer funded project by the Alger Family due to the potential changes in land use development on the parcels they owned. An interchange feasibility study for the potential Turnpike Extension interchange at Lucy Street (SW 328th Street) was conducted in 2005 followed by an Interchange Justification Report (IJR) in 2008. This ongoing PD&E is reevaluating the interchange feasibility consistent with current land use amendments within the study area. Similar to the previous feasibility study, a partial interchange providing access to/from north has been proposed.

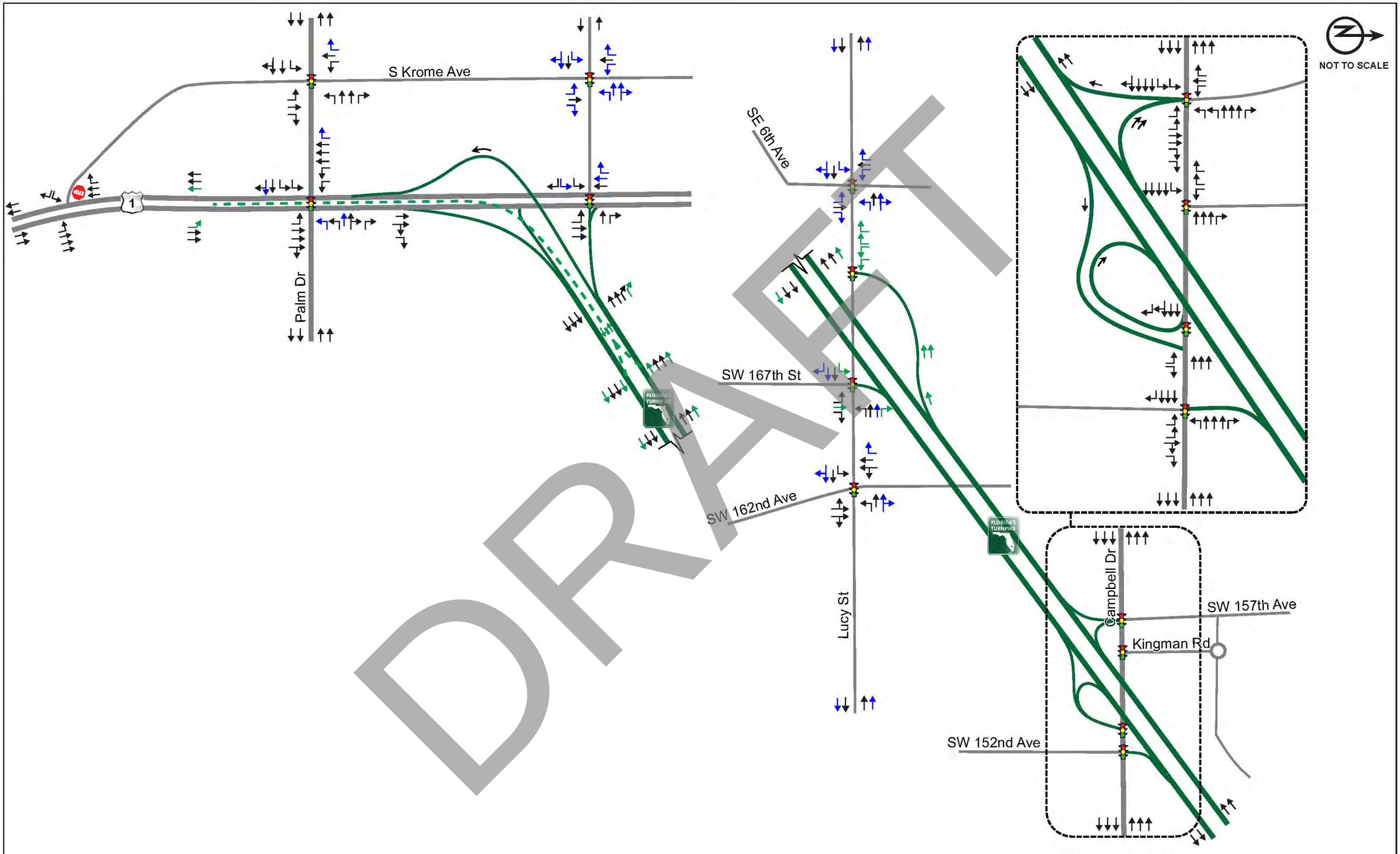
US 1 Interchange Alternatives

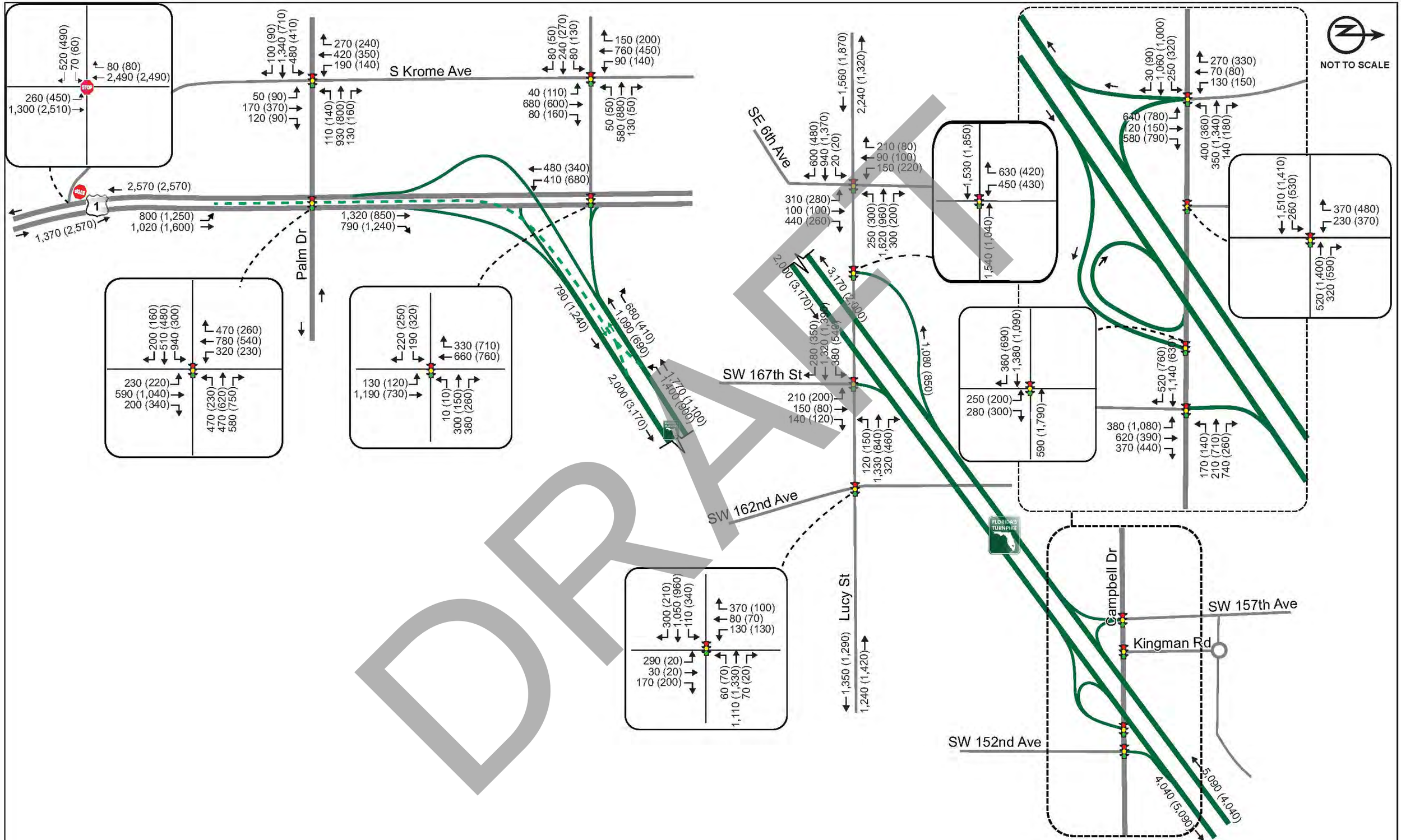
Preliminary screening and Synchro analyses were performed for the 11 US 1 / Palm Drive Interchange configuration alternatives. The preliminary analyses included several at grade and grade separated concepts. The lanes needed by an at grade alternative were not feasible and also required more right of way acquisition than viable. Based on the preliminary analyses results, three grade separated alternatives were advanced for more development and detailed analysis in Synchro, HCS, and VISSIM. The three alternatives analyzed were Alternatives A, B, and C. The results showed that Alternative C did not provide more operational benefits compared to Alternatives A or B despite its complex design requirements. Therefore, Alternative C was dropped from further consideration.

The following alternatives, including the No-Build Scenario, were advanced for further consideration and traffic operational analysis:

- **No-Build Scenario:** This alternative assumes existing conditions and all committed improvements.
- **Build Alternative:** Turnpike Extension southbound off and northbound on ramps over US 1 and Palm Drive intersection and Lucy Street interchange. These grades separated ramps provide unconstrained travel to/from US 1 south of Palm Drive intersection for the traffic whose destinations are not within Florida City.

The lane geometry and design volumes for the Build Alternative are given on **Figures 4.1** and **4.2**, respectively.


NOT TO SCALE
S Krome Ave
Palm Dr
SE 6th Ave
SW 167th St
SW 162nd Ave
Lucy St
Campbell Dr
SW 157th Ave
Kingman Rd
SW 152nd Ave
1
STOP
FLORIDA'S TURNPIKE


S Krome Ave
Palm Dr
SE 6th Ave
SW 167th St
SW 162nd Ave
Lucy St
Campbell Dr
SW 157th Ave
Kingman Rd
SW 152nd Ave
NOT TO SCALE
DRAFT

4.1 FREEWAY SEGMENT ANALYSIS

The freeway facility analyses were performed for the No-Build and Build Alternatives. The results for are summarized in **Tables 4.1** and **4.2**.

4.2 INTERSECTION ANALYSIS

The No-Build and Build Alternatives analyses of the study area intersections were performed for year 2045 using Synchro. The Synchro levels of service and delay (in seconds per vehicle) for the No-Build and Build Alternative design hour volumes are summarized in **Tables 4.3** and **4.4**.

Table 4.1
2045 No-Build Freeway Facility Analysis Results

Segment	Segment Type	Lanes	Volume (vph)		AM		PM	
			AM	PM	Density	LOS	Density	LOS
Turnpike Extension U.S. 1 to Campbell Drive - Southbound								
Upstream of Campbell Drive off-ramp	Basic	2	4740	2800	56.8	F	22.8	C
Campbell Drive off-ramp	Diverge	2	4740	2800	37.9	F	26.1	B
Campbell Drive off-ramp to on-ramp	Basic	2	3120	2070	18.2	C	16.5	B
Campbell Drive on-ramp	Merge	2	3600	2580	25.0	C	23.3	C
Campbell Drive on-ramp to U.S. 1 off-ramp	Basic	2	3600	2580	50.5	F	20.7	C
U.S. 1 off-ramp	Diverge	2	3,600	2,580	22.9	F	24.1	C
Downstream of U.S. 1 off-ramp	Basic	2	2,530	1,810	11.2	B	17.0	B
Turnpike Extension U.S. 1 to Campbell Drive - Northbound								
Upstream of U.S. 1 on-ramp	Basic	2	1810	2530	14.4	B	20.2	C
U.S. 1 on-ramp	Merge	2	2580	3600	23.2	C	34.2	D
U.S. 1 on-ramp to Campbell Drive off-ramp	Basic	2	2580	3600	20.7	C	32.4	D
Campbell Drive off-ramp	Diverge	2	2,580	3,600	23.2	C	32.3	E
Campbell Drive off-ramp to on-ramp	Basic	2	2,070	3,120	16.5	B	26.1	D
Campbell Drive on-ramp	Merge	2	2,800	3,900	24.8	B	37.6	D
Downstream of Campbell Drive on-ramp	Basic	2	2,800	3,900	22.8	C	37.3	E

Table 4.2
2045 Build Alternative Freeway Facility Analysis Results

Segment	Segment Type	Lanes	Volume (vph)		AM		PM	
			AM	PM	Density	LOS	Density	LOS
Turnpike Extension U.S. 1 to Campbell Drive - Southbound								
Upstream of Campbell Drive off-ramp	Basic	3	5090	4040	29.4	D	21.7	C
Campbell Drive off-ramp	Diverge	3	5090	4040	30.3	C	24.6	B
Campbell Drive off-ramp to on-ramp	Basic	3	3750	2320	20.0	C	12.3	B
Campbell Drive on-ramp	Merge	3	4250	2850	24.6	B	16.1	B
Campbell Drive on-ramp to Lucy Street off-ramp	Basic	3	4250	2850	23.1	C	15.1	B
Lucy Street off-ramp	Diverge	3	4250	2850	25.1	B	16.8	B
Lucy Street off-ramp to U.S. 1 off-ramp	Basic	3	3170	2000	16.8	B	10.6	A
U.S. 1 off-ramp	Diverge	3	3,170	2,000	23.0	C	11.0	A
Downstream of U.S. 1 off-ramp	Basic	2	2,490	1,590	36.0	E	13.9	B
Turnpike Extension U.S. 1 to Campbell Drive - Northbound								
Upstream of U.S. 1 on-ramp	Basic	2	1590	2490	12.6	B	19.9	C
U.S. 1 on-ramp	Merge	3	2000	3170	10.6	A	16.8	B
U.S. 1 on-ramp to Lucy Street on-ramp	Basic	3	2000	3170	10.6	A	16.8	B
Lucy Street on-ramp	Merge	3	2850	4250	16.3	B	24.9	C
Lucy Street on-ramp to Campbell Drive off-ramp	Basic	3	2,850	4,250	15.1	B	23.1	C
Campbell Drive off-ramp	Diverge	3	2,850	4,250	16.1	C	24.0	D
Campbell Drive off-ramp to on-ramp	Basic	3	2,320	3,750	12.3	B	20.0	C
Campbell Drive on-ramp	Merge	3	2,680	4,440	15.3	B	26.2	C
Downstream of Campbell Drive on-ramp	Basic	3	2,680	4,440	14.2	B	24.3	C

Table 4.3
2045 No-Build Intersection Analysis Results

Signal Controlled Intersections	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM													
U.S. 1													
Davis Parkway/NE 7th	**E (65.5)**		A (1.6)		**E (79.8)**	A (0.8)	B (15.6)	A (1.5)			B (14.8)	A (1.5)	B (16.4)
NB On-ramp								B (16.0)		A (1.7)	A (0.1)		A (8.4)
Palm Drive/SW 344 ST	**E (73.9)**	**E (65.4)**		**F (198.9)**	**F (175.1)**	**F (222.5)**	**F (144.6)**	**F (134.2)**		D (50.1)	**E (71.2)**	C (28.2)	**F (107.4)**
Krome Avenue													
SW 336/Davis	**F (196.4)**	D (42.7)		C (21.9)	C (26.6)		B (17.6)	C (26.4)	A (4.3)	B (19.5)	C (23.9)	A (3.2)	C (30.9)
SW 344 ST	**F (82.4)**	C (28.8)		C (32.8)	D (48.0)	B (11.1)	**F (161.1)**	D (51.0)	A (8.1)	**F (85.9)**	**E (70.2)**	B (13.6)	D (45.1)
Lucy Street													
SE 6th Avenue	C (25.7)	C (26.8)	A (4.2)	**E (73.9)**	B (18.4)	A (3.1)	D (36.4)	C (28.8)	A (6.5)	C (32.5)	C (24.9)	D (38.9)	C (24.2)
SW 167th Avenue (East)		B (12.0)		A (5.2)	A (2.1)		**E (70.8)**		B (18.4)				A (8.9)
SW 162nd Avenue	**F (115.1)**	B (13.0)	A (0.8)	C (27.6)	C (29.2)	A (2.9)		C (34.6)			**E (56.0)**		C (30.7)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**E (71.3)**	**F (84.0)**		**F (116.9)**	D (35.5)	D (38.3)	**F (88.8)**	C (27.1)	**E (72.3)**	D (44.6)	**E (56.7)**	**F (121.3)**	**E (79.1)**
Kingman Road	A (2.8)	A (3.6)			B (14.9)	A (4.8)				D (38.1)		B (11.4)	A (8.5)
Turnpike Extension NB Ramp 1		A (6.9)	A (5.3)		A (4.0)		C (30.6)		A (1.8)				A (7.4)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (26.6)	B (10.3)	**E (70.8)**	C (20.3)	D (47.6)	C (29.7)	**E (63.3)**	B (11.0)				C (34.4)
PM													
U.S. 1													
Davis Parkway/NE 7th	**F (95.3)**		A (1.1)		E (73.7)	A (0.6)	**F (297.2)**	A (0.9)			B (18.5)	A (4.0)	C (23.4)
NB On-ramp								B (16.6)		A (4.0)	A (0.2)		A (8.3)
Palm Drive/SW 344 ST	D (45.8)	D (48.7)		E (75.5)	**F (326.3)**	**F (444.4)**	**F (136.1)**	**F (296.2)**		**E (67.8)**	C (33.8)	**E (77.4)**	**F (187.7)**
Krome Avenue													
SW 336/Davis	D (46.0)	C (33.4)		E (74.0)	C (26.7)		A (9.4)	B (11.8)	A (1.0)	D (35.4)	C (25.2)	A (4.9)	C (26.1)
SW 344 ST	**F (110.0)**	C (34.4)		C (21.6)	**F (86.6)**	B (12.1)	**E (58.3)**	**E (56.0)**	A (6.9)	**F (131.1)**	D (51.4)	B (11.5)	**E (59.5)**
Lucy Street													
SE 6th Avenue	F (160.5)	A (9.2)	A (1.7)	B (18.8)	A (5.9)	A (0.3)	**F (105.3)**	D (51.3)	A (8.0)	**F (176.0)**	D (42.8)	B (11.4)	D (47.6)
SW 167th Avenue (East)		B (18.7)		C (22.6)	A (6.0)		**E (73.4)**		A (9.3)				B (19.2)
SW 162nd Avenue	**E (76.4)**	A (1.6)	A (0.2)	A (6.8)	A (8.0)	A (1.3)		A (9.6)			**F (98.8)**		C (27.4)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**F (193.9)**	**F (124.7)**		**F (212.7)**	**F (119.5)**	D (39.0)	**F (86.2)**	C (20.6)	**F (159.3)**	D (37.9)	D (54.0)	**F (109.9)**	**F (119.6)**
Kingman Road	**F (124.0)**	A (5.2)			A (2.6)	A (1.3)				**E (59.6)**		**F (209.3)**	D (40.0)
Turnpike Extension NB Ramp 1		A (3.9)	A (3.7)		B (12.4)		C (32.5)		A (1.6)				A (8.3)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (25.2)	C (27.5)	**F (100.3)**	B (18.3)	B (11.1)	D (53.8)	**E (61.7)**	B (16.3)				C (34.9)

Synchro 10.3.122.0 results
Delay is in sec/veh units

E (72.9)	: Level of service (LOS) E reflecting at capacity operations
F (121.8)	: Level of service (LOS) F reflecting over capacity operations

Table 4.4
2045 Build Alternative Intersection Analysis Results

Signal Controlled Intersections	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM													
U.S. 1 Alternative A													
Davis Parkway/NE 7th	**E (63.2)**		A (0.2)	D (47.1)	**E (74.0)**	A (0.4)	A (8.7)	A (8.2)			B (17.5)	A (2.4)	B (17.1)
NB On-ramp								B (14.8)		A (0.4)	A (0.0)		A (8.9)
Palm Drive/SW 344 ST	D (51.8)	D (54.6)		**E (78.2)**	**E (75.7)**	D (35.3)	**E (79.2)**	E (61.2)		D (47.4)	D (36.0)	A (2.1)	D (50.5)
Krome Avenue with U.S. 1 Alternative A													
Davis Parkway/NE 7th	**F (198.1)**	D (39.6)		D (35.3)	D (47.8)		A (8.7)	A (9.3)	A (0.5)	B (17.6)	C (22.5)	A (4.0)	C (30.5)
Palm Drive/SW 344 ST	**E (74.3)**	C (30.2)		D (38.2)	D (48.8)	B (15.8)	**F (126.9)**	D (48.9)	A (8.6)	**E (57.6)**	**E (58.6)**	A (9.7)	D (42.9)
U.S. 1 Alternative B													
Davis Parkway/NE 7th	**E (63.2)**		A (0.2)	D (47.1)	**E (74.0)**	A (0.4)	A (8.7)	A (8.2)			B (17.5)	A (2.4)	B (17.1)
NB On-ramp								B (14.8)		A (0.4)	A (0.0)		A (8.9)
Palm Drive/SW 344 ST	D (51.8)	D (54.6)		**E (78.2)**	**E (75.7)**	D (35.3)	**E (79.2)**	**E (61.2)**		D (47.4)	D (41.5)	A (4.2)	D (51.5)
Krome Avenue with U.S. 1 Alternative B													
Davis Parkway/NE 7th	**F (198.1)**	D (39.6)		D (35.3)	D (47.8)		A (8.8)	A (9.4)	A (0.6)	B (17.6)	C (22.5)	A (4.0)	C (30.5)
Palm Drive/SW 344 ST	**E (74.3)**	C (30.2)		D (39.2)	D (48.6)	B (16.2)	**F (126.8)**	D (48.6)	A (8.3)	**E (57.6)**	**E (58.6)**	A (9.7)	D (42.9)
Lucy Street													
SE 6th Avenue	C (29.5)	B (14.2)	A (2.5)	**F (80.3)**	B (15.1)	A (2.1)	**F (99.9)**	D (41.1)	**E (67.3)**	D (49.2)	D (40.7)	D (42.3)	C (28.8)
SB Off-ramp		B (15.3)			A (8.4)					D (51.0)		**E (63.2)**	C (23.1)
SW 167th Avenue (East)	**E (67.5)**	B (19.0)		D (39.5)	C (28.1)	A (6.5)	**F (90.1)**	**E (65.1)**	B (11.3)				C (30.7)
SW 162nd Avenue	**F (93.4)**	B (16.7)	A (1.9)	C (33.4)	C (27.6)	A (3.1)		D (40.9)			D (42.6)		C (28.1)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**E (71.3)**	**E (64.1)**		**F (101.1)**	C (34.7)	D (37.7)	**E (73.5)**	C (26.8)	**E (73.0)**	D (36.6)	D (48.3)	**E (74.1)**	**E (65.8)**
Kingman Road	A (3.6)	A (4.3)			B (15.2)	A (5.1)				C (34.4)		B (12.8)	A (9.2)
Turnpike Extension NB Ramp 1		B (10.1)	A (2.6)		A (5.1)		C (25.1)		A (2.3)				A (8.7)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (26.0)	A (9.3)	**F (91.3)**	C (20.3)	D (47.6)	C (29.7)	**E (63.3)**	B (11.0)				C (34.6)
PM													
U.S. 1 Alternative A													
Davis Parkway/NE 7th	**E (60.9)**		A (0.2)	**E (60.3)**	**E (80.0)**	A (0.2)	A (4.9)	A (0.9)			B (14.2)	A (4.3)	B (14.3)
NB On-ramp								D (36.1)		A (2.5)	A (0.0)		B (17.3)
Palm Drive/SW 344 ST	D (53.7)	**E (69.9)**		**E (61.7)**	**F (125.0)**	**F (106.1)**	**E (79.3)**	**F (124.7)**		D (49.3)	C (31.5)	A (2.3)	**F (87.1)**
Krome Avenue with U.S. 1 Alternative A													
Davis Parkway/NE 7th	**F (129.0)**	C (24.3)		C (22.9)	C (34.5)		C (22.0)	C (25.9)	A (4.7)	**F (80.5)**	C (31.9)	B (16.8)	C (34.1)
Palm Drive/SW 344 ST	**E (63.6)**	C (29.0)		C (30.7)	D (40.4)	B (14.7)	D (48.1)	D (46.6)	A (5.3)	**E (56.0)**	C (31.2)	A (2.1)	D (36.1)
U.S. 1 Alternative B													

Davis Parkway/NE 7th	**E (59.7)**		A (0.2)	**E (60.3)**	**E (80.0)**	A (0.2)	A (4.9)	A (0.9)			B (14.2)	A (4.3)	B (14.2)
NB On-ramp								D (36.1)		A (2.5)	A (0.0)		B (17.3)
Palm Drive/SW 344 ST	D (52.7)	**E (68.8)**		**E (61.7)**	**F (125.0)**	**F (106.1)**	**E (79.3)**	**F (124.7)**		D (49.2)	C (34.1)	A (2.3)	**F (87.2)**
Krome Avenue with U.S. 1 Alternative B													
Davis Parkway/NE 7th	**F (129.0)**	C (24.3)		C (23.1)	C (34.9)		C (22.2)	C (26.2)	A (4.8)	**F (80.5)**	C (31.9)	B (16.8)	C (34.3)
Palm Drive/SW 344 ST	**E (63.6)**	C (29.0)		C (28.4)	D (41.9)	B (16.9)	D (47.9)	D (46.3)	A (5.2)	**E (56.0)**	C (31.3)	A (2.1)	D (36.4)
Lucy Street													
SE 6th Avenue	A (6.7)	B (11.5)	A (1.7)	**F (497.2)**	A (7.1)	A (1.2)	**F (231.3)**	D (51.5)	**E (62.1)**	**F (131.9)**	D (51.5)	B (10.7)	**E (67.2)**
SB Off-ramp		B (12.7)			A (7.6)					**E (63.1)**		D (41.0)	C (21.1)
SW 167th Avenue (East)	D (43.1)	C (21.4)		**E (64.3)**	C (28.9)	B (11.6)	**F (87.5)**	**E (56.6)**	A (9.8)				C (29.8)
SW 162nd Avenue	**F (333.5)**	A (0.7)	A (0.2)	A (4.9)	A (5.7)	A (1.0)		C (27.5)			**F (177.0)**		D (52.4)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**F (193.9)**	**F (86.8)**		**F (117.6)**	**F (101.9)**	D (37.2)	**F (84.4)**	C (23.2)	**F (133.0)**	D (35.7)	D (46.0)	**F (82.3)**	**F (99.2)**
Kingman Road	**F (279.4)**	A (5.8)			A (5.9)	A (2.0)				**E (62.6)**		**F (284.3)**	**E (66.1)**
Turnpike Extension NB Ramp 1		A (4.6)	A (4.3)		B (10.3)		C (29.7)		A (1.8)				A (8.1)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (28.0)	B (18.0)	**F (82.2)**	C (22.7)	A (3.0)	D (48.9)	D (38.8)	B (11.1)				C (30.0)

Synchro 10.3.122.0 results

Delay is in sec/veh units

E (72.9)	: Level of service (LOS) E reflecting at capacity operations
F (121.8)	: Level of service (LOS) F reflecting over capacity operations

Traffic and Revenue Consultant
Florida's Turnpike Enterprise

Florida Department
of Transportation

MEMORANDUM

Date: August 25, 2020

To: Jazlyn Heywood, Project Manager

From: Kim Samson, Traffic Engineering Project Manager

Copies: Andrew Velasquez, Emam B. Emam, Enock Mtoi

Subject: Turnpike Extension Widening from South of Palm Drive to Campbell Drive MP (0-2): Build Alternative B Evaluation

FPN(s): 439545-1

County: Miami-Dade

Overview

The Turnpike is in the process of preparing a Project Development & Environment (PD&E) study [FPN 439545-1] for widening Florida's Turnpike Extension to address existing and future capacity needs. The PD&E study is evaluating widening from four to six lanes from US 1 interchange to north of Campbell Drive interchange. In addition to the mainline widening evaluation, there are improvements being explored at US 1 interchange and potential new interchange at Lucy Street. At US 1 interchange, the study area is extended to the local roads south of the Turnpike Extension which are critical to addressing capacity deficiencies and future network changes. The project study area is shown on **Figure 1.**

Several alternatives were evaluated for the US 1 interchange and Alternatives A and B were advanced for detailed analysis. For the Lucy Street, a to/from north partial interchange was analyzed. This memo provides information for the preferred mainline and interchange Build Alternative B. The preferred Build Alternative B described in this memo includes the mainline widening from four to six lanes, Alternative B at US 1, and a to/from north partial interchange at Lucy Street. The final detailed analysis will be documented in an Interchange Access Request (IAR) document.

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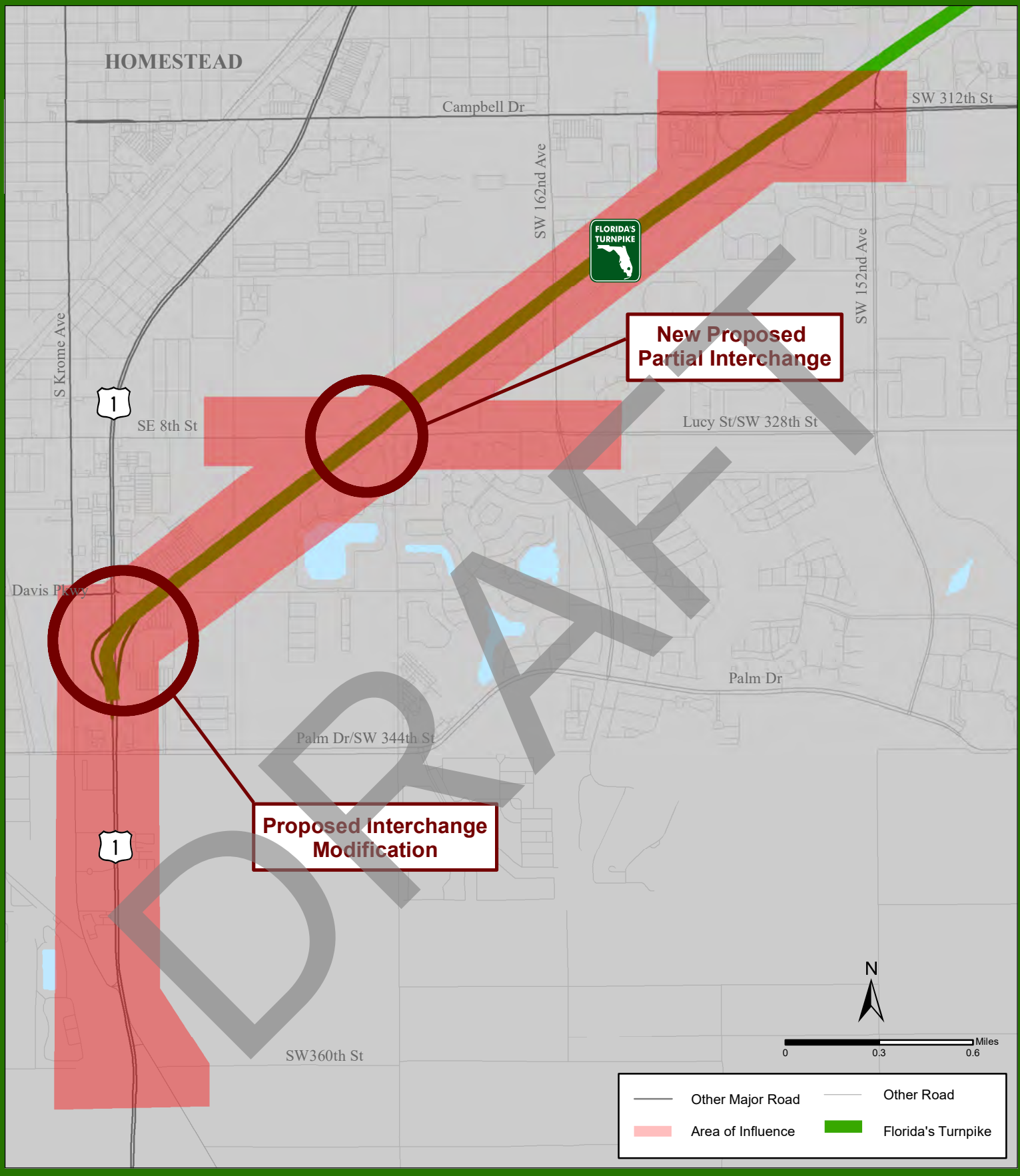

Turnpike Extension Widening
US 1 to North of Campbell Drive
Build Alternative Evaluation

Project Study Limits

Figure 1

Project Scenarios Forecasts

The Southeast Regional Planning Model version 7 (SERPM 7) was used to develop the traffic forecasts for this project. The SERPM 7 covers a three-county region in Southeast Florida: Palm Beach, Broward, and Miami-Dade. The SERPM produces traffic volumes at a daily level, as well as for five periods: AM Peak (6:00 – 9:00 AM), PM Peak (3:00 – 7:00 PM), Mid-Day (MD, 9:00 AM– 3:00 PM), Evening (EV, 7:00 – 10:00 PM), and Nighttime (NT, remainder of the day). The SERPM version 7 (SERPM 7) was used as a base model for this project since this Activity Based version has an enhanced modeling process for truck traffic. Numerous updates were made to the SERPM 7, which include socioeconomic data and networks, to produce the current FTE version of the model, which is called SERPM 7 FTE. The model was updated specifically for evaluating toll road and managed lane projects in southeast Florida. The 2045 Annual Average Daily Traffic (AADT) for the Turnpike Mainline, ramps and the cross streets, are shown in **Tables 1** and **2**, respectively.

Table 1
Future 2045 Mainline and Ramp AADT Volumes

Mile Post-Interchange	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
	108,600	**108,600**	**0**
2 – Campbell Drive	43,700	36,000	-7,700
	10,400	10,800	400
	75,300	**83,400**	**8,100**
1 - Lucy Street (SW 328th St)	0	22,600	22,600
	75,300	**60,800**	**-14,500**
0 – US 1 (To/From North)	22,300	12,800	-9,500
0 – US 1 (To/From South)	53,000	48,000	-5,000

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Table 2
Future 2045 Cross Street AADT

Arterial Segment	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
Campbell Drive/SW 312th Street			
Campbell Drive - East of 152nd Ave	27,200	29,200	2,000
Campbell Drive - West of 152nd Ave to NB Ramps	23,000	25,000	2,000
Campbell Drive - Between NB Ramps and Kingman Road	30,800	28,700	-2,100
Campbell Drive - Kingman Road to SW 157th/SB Ramps	31,700	29,600	-2,100
Campbell Drive - West of SW 157th Avenue /SB Ramps	34,100	28,900	-5,200
SW 152nd Avenue - South of Campbell Drive	17,200	13,600	-3,600
Kingman Road - North of Campbell Drive	9,800	9,500	-300
SW 157th Avenue - North of Campbell Drive	8,000	8,000	0
Lucy Street			
Lucy Street - West of SE 6th Avenue	31,900	40,000	8,100
Lucy Street - East of SE 6th Avenue -West of Turnpike	24,600	38,900	14,300
Lucy Street - East of Turnpike -West of SW 162nd Avenue	26,800	34,000	7,200
Lucy Street - East of SW 162nd Avenue	30,000	27,300	-2,700
SE 6th Avenue - South of Lucy Street	16,100	19,600	3,500
SE 6th Avenue - North of Lucy Street	6,200	8,800	2,600
SW 162nd Avenue - South of Lucy Street	8,900	10,000	1,100
SW 162nd Avenue - North of Lucy Street	13,900	8,300	-5,600
US 1			
US 1 - North of Davis Parkway	39,800	35,700	-4,100
US 1 - South of Davis to SB US 1-NB Turnpike On Ramp	33,900	30,000	-3,900
US 1 - South of SB US 1-NB Turnpike On Ramp to SB Off Ramp to Palm Drive	25,300	24,100	-1,200
US 1 - Turnpike SB Off Ramp to Palm Drive	69,700	64,400	-5,300
US 1 - South of Palm Drive	49,200	49,200	0
Davis Parkway - West of US 1	15,800	12,000	-3,800
Palm Drive - East of US 1	31,800	27,800	-4,000
Palm Drive - West of US 1	36,100	34,400	-1,700

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Future Directional Design Hour Volumes

The development of the project traffic forecast was a multi-step effort involving a combination of internal modeling procedures and post-model evaluation. The historical growth rates from counts and the model forecasts were used to develop cross street Annual Average Daily Traffic (AADT). For the Turnpike Extension and ramps, the growth rates from SERPM 7 FTE model were used. The traffic forecasting methodology used for each approach for each intersection was based on the 2015 AADT (from the field), and 2015 and 2045 SERPM model volumes. The recommended 2045 AADTs were calculated by applying the model growth rate to the 2015 AADT. Additionally, the NCHRP 765 forecasting procedure was employed to further refine the future No-Build estimates. Once the No-Build forecast was established for 2045, the Build project forecast was developed by applying the model differences to the No-Build project forecast. For example, when computing the forecast using the difference, 2045 Build project traffic forecasts = 2045 No-Build project traffic + (2045 Build Model – 2045 No-Build Model). The final forecasted AADTs from the subarea model, along with K-factors and D-factors, were used to develop corridor-level directional design hour volumes (DDHVs), consistent with the guidelines set forth in the FDOT Project Traffic Forecasting Handbook. The future No-Build intersection turning movement volumes were developed by using existing and model intersection splits, and link DDHVs. The Build scenario turning movement design volumes were developed by adding the Build impact layer to the No-Build volumes.

Build Alternative B Evaluation

The preferred Build Alternative B described in this memo includes the mainline widening from four to six lanes, Alternative B at US 1, and a to/from north partial interchange at Lucy Street. Ultimate improvement needs at the Campbell Drive Interchange were evaluated and determined during a PD&E study [FPN 423372-1] for the Turnpike Extension corridor from Campbell Drive (MP 3) north to the Government Center area (MP 12) which were completed in 2013. An IMR to support the access modification proposed at the Turnpike Extension and Campbell Drive interchange was completed in 2014, followed by a DTR, which was provided in 2015. The lane geometry and design volumes for the No-Build and Build Alternative B are shown on Figures 2 and 4.2, respectively.

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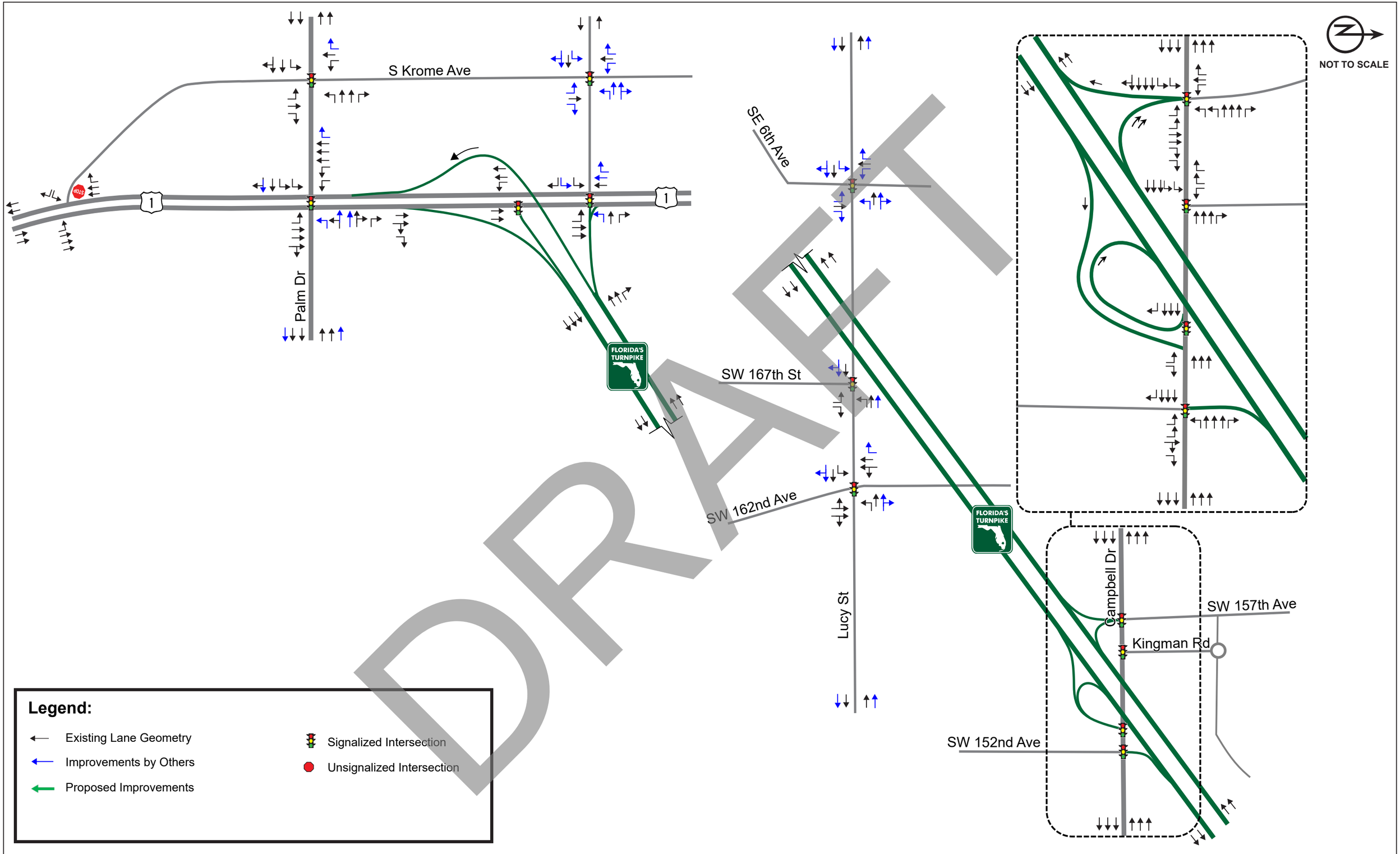
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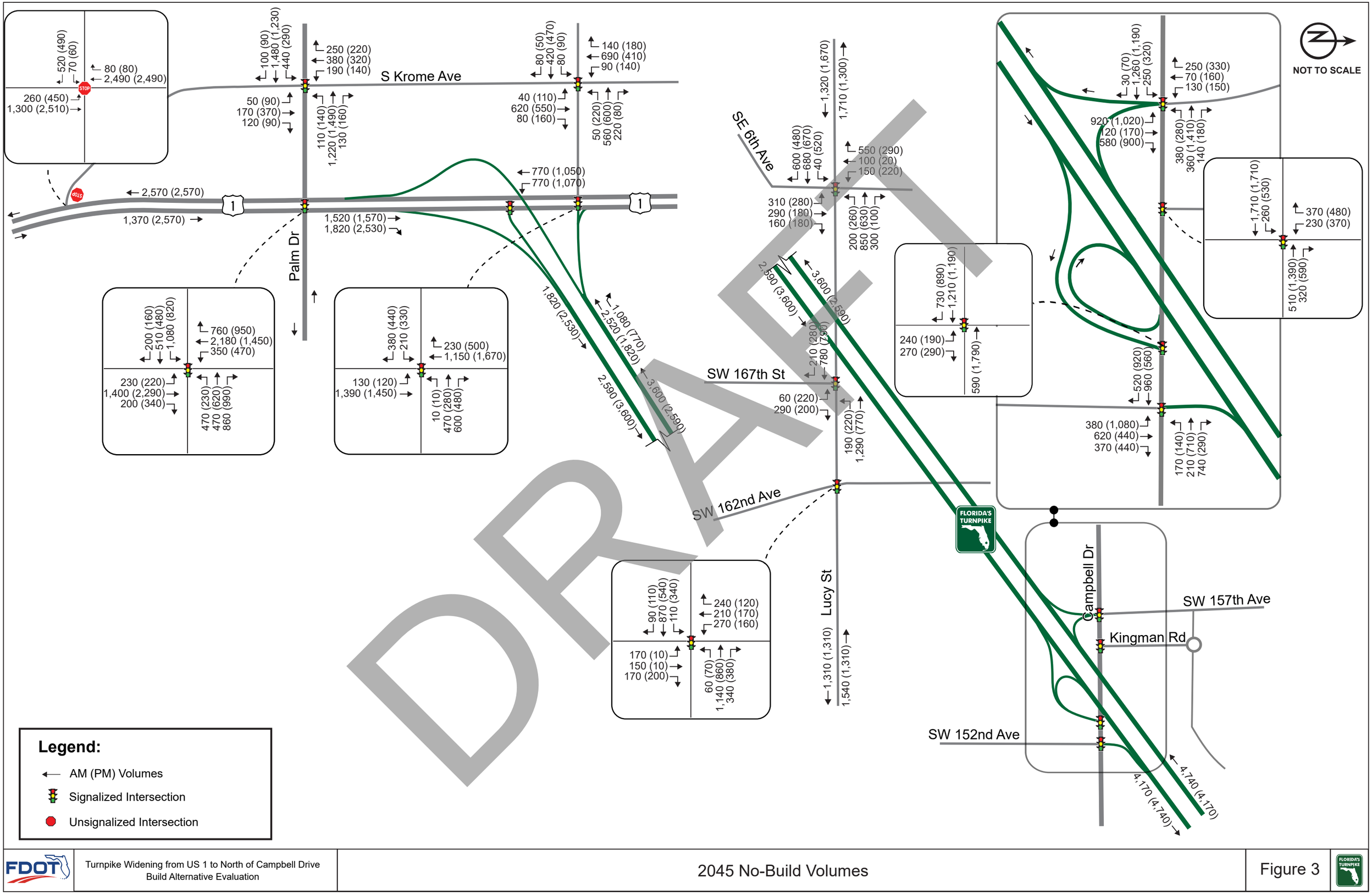
Palm Dr
1
1
STOP
FLORIDA'S TURNPIKE
SE 6th Ave
SW 167th St
SW 162nd Ave
Lucy St
FLORIDA'S TURNPIKE
Campbell Dr
SW 157th Ave
Kingman Rd
SW 152nd Ave
NOT TO SCALE
Legend:
Existing Lane Geometry
Improvements by Others
Proposed Improvements
Signalized Intersection
Unsignalized Intersection



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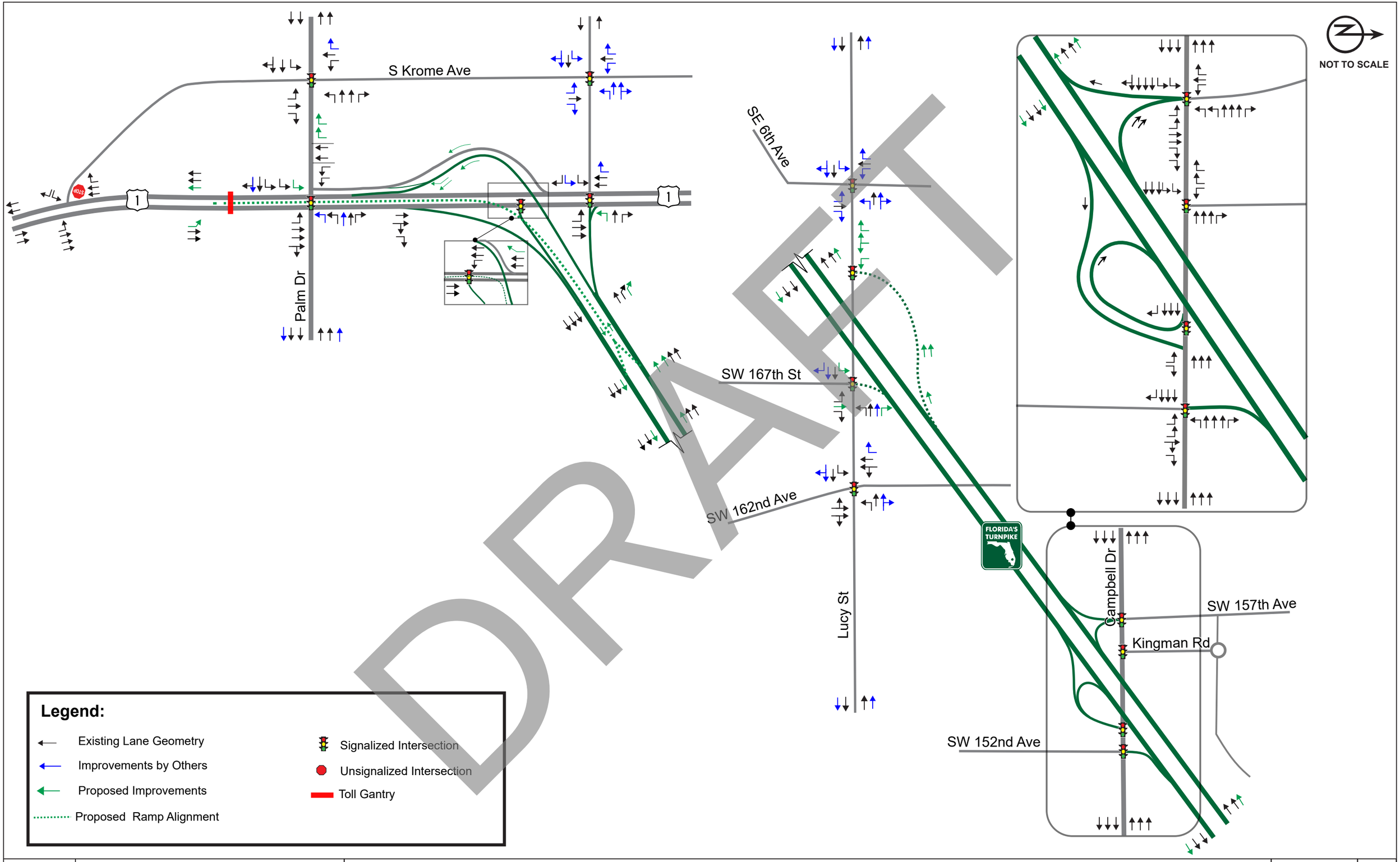
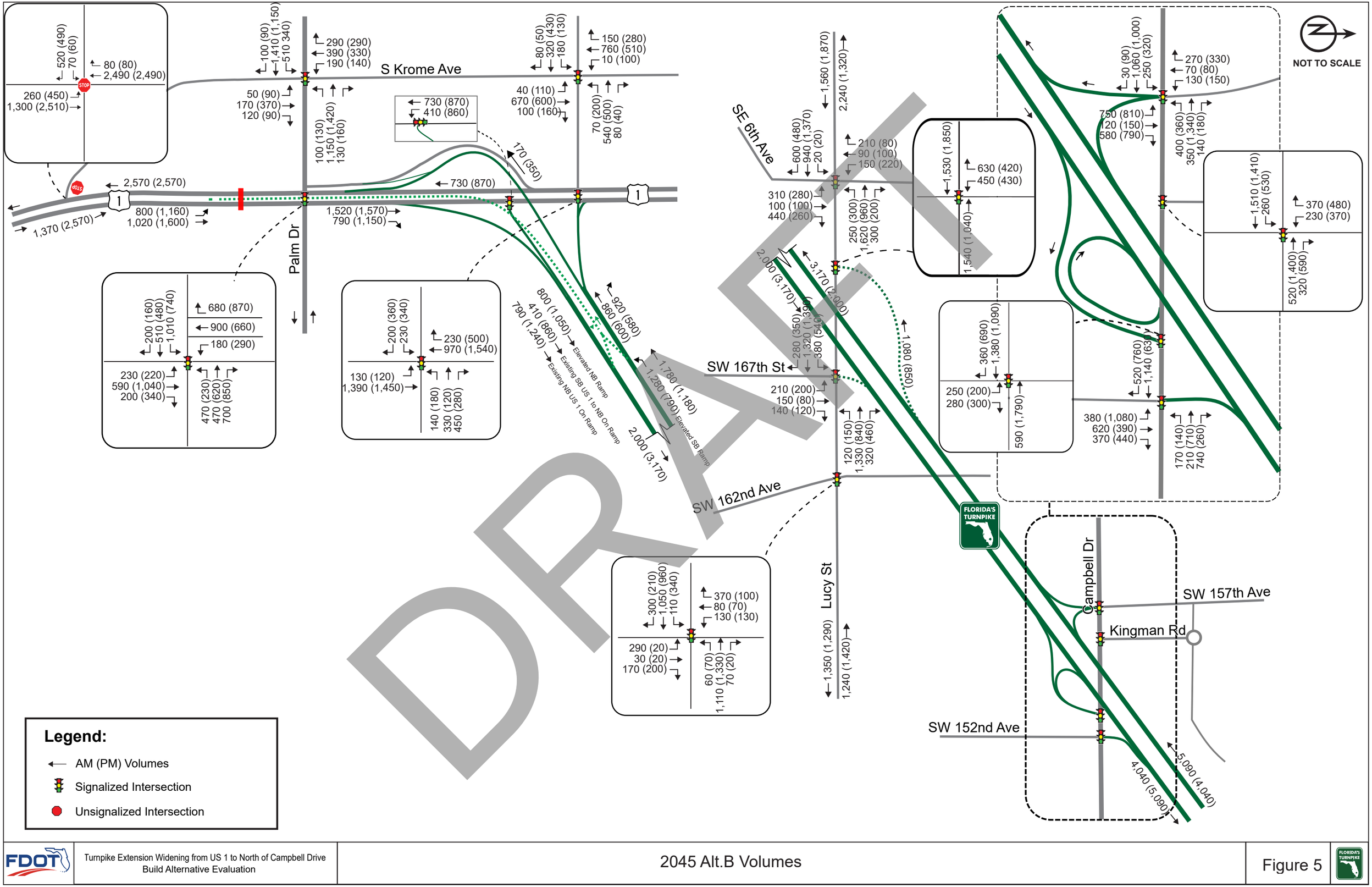
Legend:

- AM (PM) Volumes
- Signalized Intersection
- Unsignalized Intersection


S Krome Ave
Palm Dr
SE 6th Ave
SW 167th St
SW 162nd Ave
Lucy St
Campbell Dr
SW 157th Ave
Kingman Rd
SW 152nd Ave
FLORIDA'S TURNPIKE
NOT TO SCALE
DRAFT
Legend:
Existing Lane Geometry
Improvements by Others
Proposed Improvements
Proposed Ramp Alignment
Signalized Intersection
Unsignalized Intersection
Toll Gantry



FDOT	Turnpike Extension Widening from US 1 to North of Campbell Drive Build Alternative Evaluation	2045 Alt.B Volumes	Figure 5

Freeway Segment Analysis

The freeway facility analyses were performed for the No-Build and Alternative B. The results for are summarized in **Tables 3** and **4**.

Intersection Analysis

The No-Build and Build Alternatives analyses of the study area intersections were performed for year 2045 using Synchro. The Synchro levels of service and delay (in seconds per vehicle) for the No-Build and Alternative B design hour volumes are summarized in **Tables 5** and **6** respectively**.**

Table 3
No-Build 2045 Freeway Facility Analysis Results

Segment	Segment Type	Lanes	Volume (vph)		AM		PM	
			AM	PM	Density	LOS	Density	LOS
Turnpike Extension US 1to Campbell Drive - Southbound								
Upstream of Campbell Drive Off Ramp	Basic	2	4,740	2,800	56.8	F	22.8	C
Campbell Drive Off Ramp	Diverge	2	4,740	2,800	37.9	F	26.1	B
Campbell Drive Off Ramp to On Ramp	Basic	2	3,120	2,070	18.2	C	16.5	B
Campbell Drive On Ramp	Merge	2	3,600	2,580	25.0	C	23.3	C
Campbell Drive On Ramp to US 1 Off Ramp	Basic	2	3,600	2,580	50.5	F	20.7	C
US 1 Off Ramp	Diverge	2	3,600	2,580	22.9	F	24.1	C
Downstream of US 1 Off Ramp	Basic	2	2,530	1,810	11.2	B	17.0	B
Turnpike Extension US 1to Campbell Drive - Northbound								
Upstream of US 1 On Ramp	Basic	2	1,810	2,530	14.4	B	20.2	C
US 1 On Ramp	Merge	2	2,580	3,600	23.2	C	34.2	D
US 1 On Ramp to Campbell Drive Off Ramp	Basic	2	2,580	3,600	20.7	C	32.4	D
Campbell Drive Off Ramp	Diverge	2	2,580	3,600	23.2	C	32.3	E
Campbell Drive Off Ramp to On Ramp	Basic	2	2,070	3,120	16.5	B	26.1	D
Campbell Drive On Ramp	Merge	2	2,800	3,900	24.8	B	37.6	D
Downstream of Campbell Drive On Ramp	Basic	2	2,800	3,900	22.8	C	37.3	E

The results in **Table 3** show that, under the No-Build conditions, the freeway segments from US 1 interchange to Campbell Drive interchange are projected to operate at LOS F in the southbound direction in the AM peak hour. The segments are projected to operate at LOS E in the northbound direction in the PM peak hour.

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Table 4
Alternative B 2045 Freeway Facility Analysis Results

Segment	Segment Type	Lanes	Volume (vph)		AM		PM	
			AM	PM	Density	LOS	Density	LOS
Turnpike Extension US 1 to Campbell Drive - Southbound								
Upstream of Campbell Drive Off Ramp	Basic	3	5,090	4,040	29.4	D	21.7	C
Campbell Drive Off Ramp	Diverge	3	5,090	4,040	30.3	C	24.6	B
Campbell Drive Off Ramp to On Ramp	Basic	3	3,750	2,320	20.0	C	12.3	B
Campbell Drive On Ramp to Lucy Street Off Ramp	Weave	4	4,250	2,850	23.1	C	15.1	B
Lucy Street Off Ramp to US 1 Off Ramp	Basic	3	3,170	2,000	16.8	B	10.6	A
US 1 Off Ramp	Diverge	3	3,170	2,000	23.0	C	11.0	A
Downstream of US 1 Off Ramp	Basic	2	2,490	1,590	36.0	D	13.9	B
Turnpike Extension US 1 to Campbell Drive - Northbound								
Upstream of US 1 On Ramp	Basic	2	1,590	2,490	12.6	B	19.9	C
US 1 On Ramp	Merge	3	2,000	3,170	10.6	A	16.8	B
US 1 On Ramp to Lucy Street On Ramp	Basic	3	2,000	3,170	10.6	A	16.8	B
Lucy Street On Ramp to Campbell Drive Off Ramp	Weave	4	2,850	4,250	16.1	C	24.0	D
Campbell Drive Off Ramp to On Ramp	Basic	3	2,320	3,750	12.3	B	20.0	C
Campbell Drive On Ramp	Merge	3	2,680	4,440	15.3	B	26.2	C
Downstream of Campbell Drive On Ramp	Basic	3	2,680	4,440	14.2	B	24.3	C

In **Table 4** the analysis results show that, the proposed Build alternative with a 6-lane section will provide LOS D or better operations for all freeway mainline segments.

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Table 5
No-Build 2045 Intersection Analysis Results

Signal Controlled Intersections	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM													
US 1													
Davis Parkway/US 1	**E (65.5)**		A (1.6)		**E (79.8)**	A (0.8)	B (15.6)	A (1.5)			B (14.8)	A (1.5)	B (16.4)
NB On-ramp								B (16.0)		A (1.7)	A (0.1)		A (8.4)
Palm Drive/SW 344 ST	**E (73.9)**	**E (65.4)**		**F (198.9)**	**F (175.1)**	**F (222.5)**	**F (144.6)**	**F (134.2)**		D (50.1)	**E (71.2)**	C (28.2)	**F (107.4)**
Krome Avenue													
SW 336/Davis	**F (196.4)**	D (42.7)		C (21.9)	C (26.6)		B (17.6)	C (26.4)	A (4.3)	B (19.5)	C (23.9)	A (3.2)	C (30.9)
Palm Drive/SW 344 ST	**F (82.4)**	C (28.8)		C (32.8)	D (48.0)	B (11.1)	**F (161.1)**	D (51.0)	A (8.1)	**F (85.9)**	**E (70.2)**	B (13.6)	D (45.1)
Lucy Street													
SE 6th Avenue	C (25.7)	C (26.8)	A (4.2)	**E (73.9)**	B (18.4)	A (3.1)	D (36.4)	C (28.8)	A (6.5)	C (32.5)	C (24.9)	D (38.9)	C (24.2)
SW 167th Avenue (East)		B (12.0)		A (5.2)	A (2.1)		**E (70.8)**		B (18.4)				A (8.9)
SW 162nd Avenue	**F (115.1)**	B (13.0)	A (0.8)	C (27.6)	C (29.2)	A (2.9)		C (34.6)			**E (56.0)**		C (30.7)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**E (71.3)**	**F (84.0)**		**F (116.9)**	D (35.5)	D (38.3)	**F (88.8)**	C (27.1)	**E (72.3)**	D (44.6)	**E (56.7)**	**F (121.3)**	**E (79.1)**
Kingman Road	A (2.8)	A (3.6)			B (14.9)	A (4.8)				D (38.1)		B (11.4)	A (8.5)
Turnpike Extension NB Ramp 1		A (6.9)	A (5.3)		A (4.0)		C (30.6)		A (1.8)				A (7.4)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (26.6)	B (10.3)	**E (70.8)**	C (20.3)	D (47.6)	C (29.7)	**E (63.3)**	B (11.0)				C (34.4)
PM													
US 1													
Davis Parkway/US 1	**F (95.3)**		A (1.1)		**E (73.7)**	A (0.6)	**F (297.2)**	A (0.9)			B (18.5)	A (4.0)	C (23.4)
NB On-ramp								B (16.6)		A (4.0)	A (0.2)		A (8.3)
Palm Drive/SW 344 ST	D (45.8)	D (48.7)		E (75.5)	**F (326.3)**	**F (444.4)**	**F (136.1)**	**F (296.2)**		**E (67.8)**	C (33.8)	**E (77.4)**	**F (187.7)**
Krome Avenue													
SW 336/Davis	D (46.0)	C (33.4)		E (74.0)	C (26.7)		A (9.4)	B (11.8)	A (1.0)	D (35.4)	C (25.2)	A (4.9)	C (26.1)
Palm Drive/SW 344 ST	**F (110.0)**	C (34.4)		C (21.6)	**F (86.6)**	B (12.1)	**E (58.3)**	**E (56.0)**	A (6.9)	**F (131.1)**	D (51.4)	B (11.5)	**E (59.5)**
Lucy Street													
SE 6th Avenue	F (160.5)	A (9.2)	A (1.7)	B (18.8)	A (5.9)	A (0.3)	**F (105.3)**	D (51.3)	A (8.0)	**F (176.0)**	D (42.8)	B (11.4)	D (47.6)
SW 167th Avenue (East)		B (18.7)		C (22.6)	A (6.0)		**E (73.4)**		A (9.3)				B (19.2)
SW 162nd Avenue	**E (76.4)**	A (1.6)	A (0.2)	A (6.8)	A (8.0)	A (1.3)		A (9.6)			**F (98.8)**		C (27.4)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**F (193.9)**	**F (124.7)**		**F (212.7)**	**F (119.5)**	D (39.0)	**F (86.2)**	C (20.6)	**F (159.3)**	D (37.9)	D (54.0)	**F (109.9)**	**F (119.6)**
Kingman Road	**F (124.0)**	A (5.2)			A (2.6)	A (1.3)				**E (59.6)**		**F (209.3)**	D (40.0)
Turnpike Extension NB Ramp 1		A (3.9)	A (3.7)		B (12.4)		C (32.5)		A (1.6)				A (8.3)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (25.2)	C (27.5)	**F (100.3)**	B (18.3)	B (11.1)	D (53.8)	**E (61.7)**	B (16.3)				C (34.9)

Synchro 10.3.122.0 results
Delay is in sec/veh units

E (72.9)	Level of service (LOS) E reflecting at capacity operations
F (121.8)	Level of service (LOS) F reflecting over capacity operations

Table 6
Alternative B 2045 Intersection Analysis Results

Signal Controlled Intersections	Eastbound			Westbound			Northbound			Southbound			Overall
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM													
US 1													
Davis Parkway/US 1	**E (63.2)**		A (0.2)	D (47.1)	**E (74.0)**	A (0.4)	A (8.7)	A (8.2)			B (17.5)	A (2.4)	B (17.1)
NB On-ramp								B (14.8)		A (0.4)	A (0.0)		A (8.9)
Palm Drive/SW 344 ST	D (51.8)	D (54.6)		**E (78.2)**	**E (75.7)**	D (35.3)	**E (79.2)**	**E (61.2)**		D (47.4)	D (41.5)	A (4.2)	D (51.5)
Krome Avenue													
Davis Parkway/US 1	**F (198.1)**	D (39.6)		D (35.3)	D (47.8)		A (8.8)	A (9.4)	A (0.6)	B (17.6)	C (22.5)	A (4.0)	C (30.5)
Palm Drive/SW 344 ST	**E (74.3)**	C (30.2)		D (39.2)	D (48.6)	B (16.2)	**F (126.8)**	D (48.6)	A (8.3)	**E (57.6)**	**E (58.6)**	A (9.7)	D (42.9)
Lucy Street													
SE 6th Avenue	C (29.5)	B (14.2)	A (2.5)	**F (80.3)**	B (15.1)	A (2.1)	**F (99.9)**	D (41.1)	**E (67.3)**	D (49.2)	D (40.7)	D (42.3)	C (28.8)
SB Off-ramp		B (15.3)			A (8.4)					D (51.0)		**E (63.2)**	C (23.1)
SW 167th Avenue (East)	**E (67.5)**	B (19.0)		D (39.5)	C (28.1)	A (6.5)	**F (90.1)**	**E (65.1)**	B (11.3)				C (30.7)
SW 162nd Avenue	**F (93.4)**	B (16.7)	A (1.9)	C (33.4)	C (27.6)	A (3.1)		D (40.9)			D (42.6)		C (28.1)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**E (71.3)**	**E (64.1)**		**F (101.1)**	C (34.7)	D (37.7)	E (**73.5**)	C (26.8)	**E (73.0)**	D (36.6)	D (48.3)	**E (74.1)**	**E (65.8)**
Kingman Road	A (3.6)	A (4.3)			B (15.2)	A (5.1)				C (34.4)		B (12.8)	A (9.2)
Turnpike Extension NB Ramp 1		B (10.1)	A (2.6)		A (5.1)		C (25.1)		A (2.3)				A (8.7)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (26.0)	A (9.3)	**F (91.3)**	C (20.3)	D (47.6)	C (29.7)	**E (63.3)**	B (11.0)				C (34.6)
PM													
US 1													
Davis ParkwayUS 1	**E (59.7)**		A (0.2)	**E (60.3)**	E (**80.0**)	A (0.2)	A (4.9)	A (0.9)			B (14.2)	A (4.3)	B (14.2)
NB On-ramp								D (36.1)		A (2.5)	A (0.0)		B (17.3)
Palm Drive/SW 344 ST	D (52.7)	**E (68.8)**		E (**61.7**)	**F (125.0)**	**F (106.1)**	**E (79.3)**	**F (124.7)**		D (49.2)	C (34.1)	A (2.3)	**F (87.2)**
Krome Avenue													
Davis Parkway/US 1	**F (129.0)**	C (24.3)		C (23.1)	C (34.9)		C (22.2)	C (26.2)	A (4.8)	**F (80.5)**	C (31.9)	B (16.8)	C (34.3)
Palm Drive/SW 344 ST	**E (63.6)**	C (29.0)		C (28.4)	D (41.9)	B (16.9)	D (47.9)	D (46.3)	A (5.2)	**E (56.0)**	C (31.3)	A (2.1)	D (36.4)
Lucy Street													
SE 6th Avenue	A (6.7)	B (11.5)	A (1.7)	**F (497.2)**	A (7.1)	A (1.2)	**F (231.3)**	D (51.5)	**E (62.1)**	**F (131.9)**	D (51.5)	B (10.7)	**E (67.2)**
SB Off-ramp		B (12.7)			A (7.6)					**E (63.1)**		D (41.0)	C (21.1)
SW 167th Avenue (East)	D (43.1)	C (21.4)		**E (64.3)**	C (28.9)	B (11.6)	**F (87.5)**	**E (56.6)**	A (9.8)				C (29.8)
SW 162nd Avenue	F (333.5)	A (0.7)	A (0.2)	A (4.9)	A (5.7)	A (1.0)		C (27.5)			**F (177.0)**		D (52.4)
Campbell Drive													
Turnpike Extension SB Ramps/Newton Rd	**F (193.9)**	**F (86.8)**		F (**117.6**)	**F (101.9)**	D (37.2)	**F (84.4)**	C (23.2)	**F (133.0)**	D (35.7)	D (46.0)	**F (82.3)**	**F (99.2)**
Kingman Road	**F (279.4)**	A (5.8)			A (5.9)	A (2.0)				**E (62.6)**		**F (284.3)**	**E (66.1)**
Turnpike Extension NB Ramp 1		A (4.6)	A (4.3)		B (10.3)		C (29.7)		A (1.8)				A (8.1)
SW 152nd Avenue/Turnpike Extension NB Ramp 2		C (28.0)	B (18.0)	**F (82.2)**	C (22.7)	A (3.0)	D (48.9)	D (38.8)	B (11.1)				C (30.0)

Synchro 10.3.122.0 results
Delay is in sec/veh units

E (72.9)	Level of service (LOS) E reflecting at capacity operations
F (121.8)	Level of service (LOS) F reflecting over capacity operations

VISSIM Analysis

HCS/Synchro are quantitative individual component analysis, while VISSIM provides integrated system analysis. In order to capture operational performance at both the intersection and the link level, VISSIM models were developed in addition to Synchro and HCS analysis.

The VISSIM models were developed and calibrated for each of these alternatives following guidelines in the Florida Department of Transportation (FDOT) Traffic Analysis Handbook: A Reference for Planning and Operations. The existing ramp counts were used to develop demand profiles for input into VISSIM models.

Model calibration is achieved by iteratively changing model parameters to replicate the traffic patterns, congestion, bottlenecks, and driver behavior observed within the study area. In the calibration stage, the model measures of effectiveness (MOEs) were summarized and compared to the collected data, and field observations. The calibration parameters were adjusted iteratively, to make sure that the model reasonably reflected existing field conditions. The model outputs were compared to the vehicle volumes that were processed through the system, vehicle speeds, bottlenecks, and observed queues.

The model was calibrated by adjusting vehicle following and lane changing driver behavior parameters. Driving behaviors at merge, diverge, and weaving areas were replicated by first adjusting lane change distances based on field observations. It is common practice to modify the lane change distances according to observed behavior and if congested, to match the queuing behavior.

If lane change distances did not produce the desired behavior, then vehicle following behavior parameters were adjusted. The driving behavior parameters were iteratively adjusted until the desired traffic conditions were achieved. The calibration process is repeated until the model produced MOEs replicate the fieldcollected data. The model is considered calibrated and valida ted once acceptable margins of error in the comparison are reached.

After the base model was acceptably calibrated, the parameters are adopted in future condition models used for assessing the impacts of network, demand and operational changes.

The VISSIM analysis results for the AM and PM 2045 Design Year are shown in **Tables 7** and **8**. The tables provide performance measures for the freeway diverge influence area and off-ramps to assess potential queue backups into the mainline. Intersection delays are also provided to compare effectiveness between alternatives. The provided LOS are approximated for interpretation and comparison purposes only and not as substitutes for Synchro or HCS results.

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Table 8

2045 AM Design Hour VISSIM Analysis Results

LOCATION/SEGMENT	No-Build		Alternative B		
INTERSECTIONS AROUND US 1 INTERCHANGE	**Delay [sec/veh]**	**ESTIMATED LOS**	**Delay [sec/veh]**	**ESTIMATED LOS**	**Change in Delay**
US 1/ Palm Drive	70.3	E	30.6	C	-56%
Krome Avenue/ Palm Drive	34.0	C	30.5	C	-10%
Turnpike Extension Off-Ramp at Davis Parkway/US 1	23.8	C	20.0	B	-16%
Krome Avenue/ Davis Parkway	24.7	C	24.1	C	-2%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**ESTIMATED LOS**	**Density [veh/mi/ln]**	**ESTIMATED LOS**	**Change in Density**
Southbound Off to Davis Parkway and US 1	88	F	12	B	-87%
Southbound Off to Palm Drive and US 1	91	F	5	A	-94%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Change in Speed**
Southbound Off to Davis Parkway and US 1 (Operating Speed = 35 mph)	8,341	11	0	35	215%
Southbound Off to Palm Drive and US 1 via Existing Ramp (Operating Speed = 40 mph)	8,341	11	0	41	280%
Southbound Off to US 1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	57	--

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Table 9

2045 PM Design Hour VISSIM Analysis Results

LOCATION/SEGMENT	No-Build		Alternative B		
INTERSECTIONS AROUND US 1 INTERCHANGE	**Delay [sec/veh]**	**ESTIMATED LOS**	**Delay [sec/veh]**	**ESTIMATED LOS**	**Change in Delay**
US 1/ Palm Drive	68.8	E	30.8	C	-55%
Krome Avenue/ Palm Drive	25.1	C	27.2	C	8%
Turnpike Extension Off-Ramp at Davis Parkway/US 1	43.6	D	18.9	B	-57%
Krome Avenue/ Davis Parkway	48.0	D	34.7	C	-28%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**ESTIMATED LOS**	**Density [veh/mi/ln]**	**ESTIMATED LOS**	**Change in Density**
Southbound Off to Davis Parkway and US 1	12	B	7	A	-38%
Southbound Off to Palm Drive and US 1	22	C	3	A	-86%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Change in Speed**
Southbound Off to Davis Parkway and US 1 (Operating Speed = 35 mph)	0	36	0	34	-4%
Southbound Off to Palm Drive and US 1 via Existing Ramp (Operating Speed = 40 mph)	0	36	0	41	16%
Southbound Off to US 1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	58	--

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For the interchange ramps and the intersections, both Synchro and VISSIM analysis results, Alternative B shows improved operational performance compared to No-Build conditions. These improvements address the traffic operation deficiencies by eliminating or improving the failing conditions within the interchange influence area by reducing congestion and improving operating conditions at US 1 and Palm Drive intersection.

Considering the overall operations along the mainline Turnpike Extension, ramp terminals, and along US 1 and surrounding arterials, the Build alternative is projected to provide better operating conditions than the No-Build.

AECOM
P.O. Box 613069
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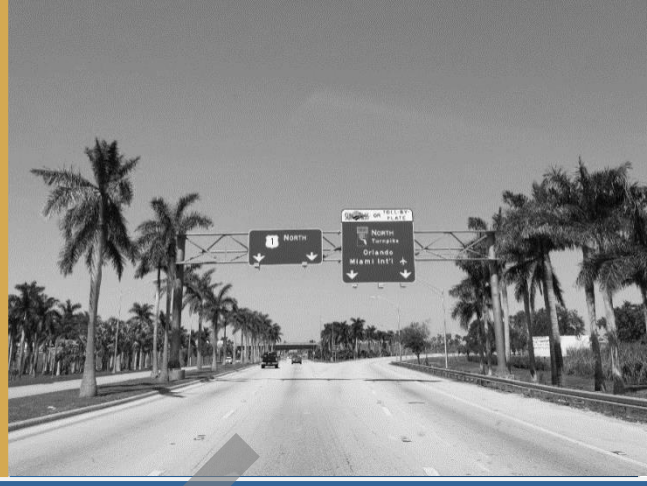
Appendix C

Safety Technical Memorandum



Safety Technical Memorandum

Florida's Turnpike (SR 821) Widening
Project Development and Environment (PD&E) Study
From US 1 (South of Palm Drive) to Campbell Drive | Miami Dade County, Florida

FM No. 439545-1-22-01

Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069 | Ocoee, FL 34761

March, 2020

FLORIDA'S TURNPIKE

FDOT

Safety Technical Memorandum

Miami-Dade County, Florida
FM No: 439545-1-22-01| ETDM No: 14322

Prepared for
Florida's Turnpike Enterprise
Florida's Turnpike Mile Post 263
Building 5315
Ocoee, Florida 34761

Prepared by:

Arcadis US, Inc.

March 2020

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APPENDICES

Section 1

Safety Analysis

1.1 Safety Analysis

As part of this study, crash data was collected for the five-year period from 2011 to 2015 and crash analyses were conducted to identify crash patterns and contributing causes within the study limits. Subsequently, safety analyses were conducted to identify potential improvements that could be implemented into the study alternatives. The crash data can be found in **Appendix A.** The analyses were conducted along the following roadways and associated ramps:

- SR 821/HEFT from North of Southbound Off-ramp to US 1 to South of Campbell Drive (MPs 1.039 to 2.616)
- SR 821/HEFT from SR 5/US 1 to Southbound Off-ramp to US 1 (Ramps)
- SR 5/US 1 from SR 997/Krome Avenue to SW 336th Street/Davis Parkway (MPs 0.000 to 1.431)
- SR 9336/Palm Drive from SR 997/Krome Avenue to SR 5/US 1 (MPs 8.455 to 8.745)
- SR 997/Krome Avenue from SR 5/US 1 to SW 336th Street/Davis Parkway (MPs 0.000 to 1.358)
- SW 336th Street/Davis Parkway from SR 997/Krome Avenue to SR 5/US 1 (Off-system)
- SW 328th Street/Lucy Street 0.25 miles east and west of SR 821/HEFT (Off-system)

The analysis for the overall study area is presented in **Section 3.** Segments and intersections within the study area were analyzed separately in subsections as follows:

3.1.1 – SR 821/HEFT

3.1.2 – SR 821/HEFT at SR 5/US1 Intersection

3.1.3 – SR 5/US 1

3.14 – SR 9336/SW 344th Street/Palm Drive

3.1.5 – SR 997/Krome Avenue

3.1.6 – Davis Parkway

3.1.7 – Lucy Street

The Straight-Line Diagrams can be found in **Appendix B**.

Section 2 summarizes the findings/results of the analyses conducted as part of this study.

Section 2

Existing Conditions

2.1 Existing Conditions

The study limits include the southern end of the Homestead Extension of Florida's Turnpike (HEFT)/SR 821 from US 1 to south of Campbell Drive, US 1/SR 5 from Krome Avenue to Davis Parkway, Krome Avenue/SR 997 from US 1 to Davis Parkway, Palm Drive/SR 9336 from Krome Avenue to US 1, Davis Parkway from Krome Avenue to US 1, and Lucy Street under the HEFT (see Aerial Map).

The HEFT is a Strategic Intermodal System (SIS) limited access toll road that is primarily a four-lane, divided highway with a 64-foot wide grass median within the project limits. The typical section has 12-foot-wide asphalt lanes and 12 foot outside and 10 foot inside flush shoulders. The median has guardrail installed along one of its sides throughout the study limits and rumble strips are located on both the inside and outside shoulders. Roadway lighting does not exist along the study segment except at the ramps and interchanges with US 1 and Campbell Drive, which utilizes conventional lighting with cobra arms. The HEFT carried an annual average daily traffic (AADT) of 59,800 vehicles in 2016 with 5.3% trucks north of Campbell Drive according to Count Station 970430.

US 1 is an urban principal arterial with a combination urban and suburban four-lane divided arterial typical section with auxiliary, turn, and merge lanes leading to and from the HEFT interchange. The raised median is 26 feet wide and sidewalk is located on both sides of the roadway south of Palm Drive. Conventional lighting is located on both sides of US 1 throughout the study limits. US 1 carried an AADT of 33,500 vehicles in 2016 with 10.1% trucks south of Palm Drive according to Count Station 870543.

Figure 2-1 Aerial Map

Krome Avenue is an urban principal arterial with a rural two-lane undivided typical section that has exclusive turn lanes approaching the intersection with Palm Drive. The typical section includes five-foot wide paved shoulders that are designated as bicycle lanes with no sidewalks. Conventional lighting is provided on the east side of Krome Avenue mounted on utility poles south of Palm Drive and conventional lighting is located on both sides of Krome Avenue north of Palm Drive in a staggered configuration. Krome Avenue carried an AADT of 13,400 vehicles in 2016 with 10.9% trucks south of SW 328th Street according to Count Station 870131.

Palm Drive is a six-lane divided urban minor arterial between Krome Avenue and US 1. It is a four-lane divided minor arterial west of Krome Avenue and east of US 1 within the study area. Palm Drive is a county roadway east of US 1. There are exclusive eastbound and westbound left-turn lanes at the Krome Avenue intersection and dual eastbound left-turn lanes and a westbound exclusive and shared through/left-turn lane at the US 1 intersection. Sidewalks are located on both sides of Palm Drive between Krome Avenue and US 1 and a sidewalk is located on the north side of Palm Drive east of US 1. Bicycle lanes are provided west of Krome Avenue along Palm Drive. Conventional lighting is located on the north side of Palm Drive west of US 1 and on both sides of the roadway east of US 1. Palm Drive carried an AADT of 21,300 vehicles in 2016 with 10.9% trucks east of Krome Avenue according to Count Station 872548.

Davis Parkway acts as an urban minor arterial between Krome Avenue and US 1 and is not a state road. It is generally a two-lane undivided roadway with a rural typical section that has an eastbound exclusive left-turn lane and a westbound shared through/left-turn lane between Krome Avenue and US 1. Separated sidewalks are located on both sides of the roadway. East of US 1, Davis Parkway is a one-way westbound road that receives southbound HEFT traffic via a southbound off-ramp with conventional lighting on the south side of the roadway. Roadway lighting does not exist between Krome Avenue and US 1.

Lucy Street was a two-lane undivided minor arterial near the HEFT during the five-year analysis years. The HEFT is grade-separated over Lucy Street with no interchange access. The HEFT bridge columns are protected by guardrail along the north and south sides of Lucy Street. There is a stop-controlled T-intersection west of the HEFT and a signalized T-intersection at SE 12th Avenue on the east side. A separated sidewalk is located on the north side of the roadway west of the HEFT and on the south side east of the HEFT. Roadway lighting nor bicycle lanes exist along Lucy Street in the vicinity of the HEFT. Lucy Street is currently under construction that will alter the typical section.

Section 3

Crash Data Analysis – Total Study Area

3.1 Crash Data Analysis – Total Study Area

- A total of 524 crashes were reported during the referenced five-year period within the study area. Forty-seven (47) crashes occurred in 2011, 76 in 2012, 120 in 2013, 128 in 2014 and 153 in 2015. See **Figure 3-1** for crash distribution by year.

- Of the 524 total crashes, 156 (30%) were rear-end, 87 (17%) angle, 87 (17%) run-off-road, 70 (13%) sideswipe, 31 (6%) head-on crashes, and 11 (2%) rollover. Sixty-two (62 or 12%) were considered "other"-type crashes and there were 12 (2%) pedestrian crashes and six (8 or 2%) bicycle crashes. See **Figure 3-2** for distribution by crash type.

- Fifty-two (52) of the crashes were coded as occurring at midnight (Code 0), which were likely coded incorrectly. **Figure 3-3** shows the overall crash distribution by time of day, less the Code 0 crashes.

- Actions at the time of crash for the drivers at fault were coded as follows: "Operating in Careless or Negligent Manner" (215 crashes), "No Contributing Causes" (74), "Failed to Yield Right-of-Way" (79), "Ran Red Light" (15), "Ran Off Roadway" (7), and "Other" and "Not Coded" (56).

- All state roads within the study area appear on the Department's High Crash List for segments for the referenced five-year period. All intersections, except Krome Avenue at Palm Drive, appear on the Department's High Crash List for Intersections for the referenced five-year period.

- Based on the crash distribution by month, the two months with the highest frequency of crashes along the study area were October and December (53 total for each of those months

on average) vs. the rest of the year (42 total for each of those months on average). See **Figure 3-4** for crash distribution by month.

- A higher frequency of the crashes occurred during Saturdays and Sundays with 181 (91 total for each of those days on average) vs. during the week with 343 on Mondays through Fridays (69 total for each of those days on average). See **Figure 3-5** for crash distribution by day of week.

- One-hundred and ninety-three (193) of the crashes, or 37%, occurred during non-daylight hours, which is above the statewide average for nighttime crashes (for all roadways).

- One-hundred and twenty-seven (127) of the crashes, or 24%, occurred on a wet roadway surface, which is above the statewide average (for all roadways).

- Based on crash severity, of the 524 crashes reported, 332 (63%) were property damage only crashes, 190 (36%) were injury type crashes, and two (2, less than 1%) were fatal crashes were reported during the referenced five-year period.

- Twelve (12) of the crashes involved a pedestrian and eight (8) of the crashes involved a bicyclist within the study area for the referenced five-year period. No fatalities resulted from the pedestrian-related crashes, however 11 resulted in injury and five (5) of the injuries were serious injury. None of the bicycle-related crashes resulted in a fatality, however six (6) resulted in injury and two (2) of the injuries were serious injury.

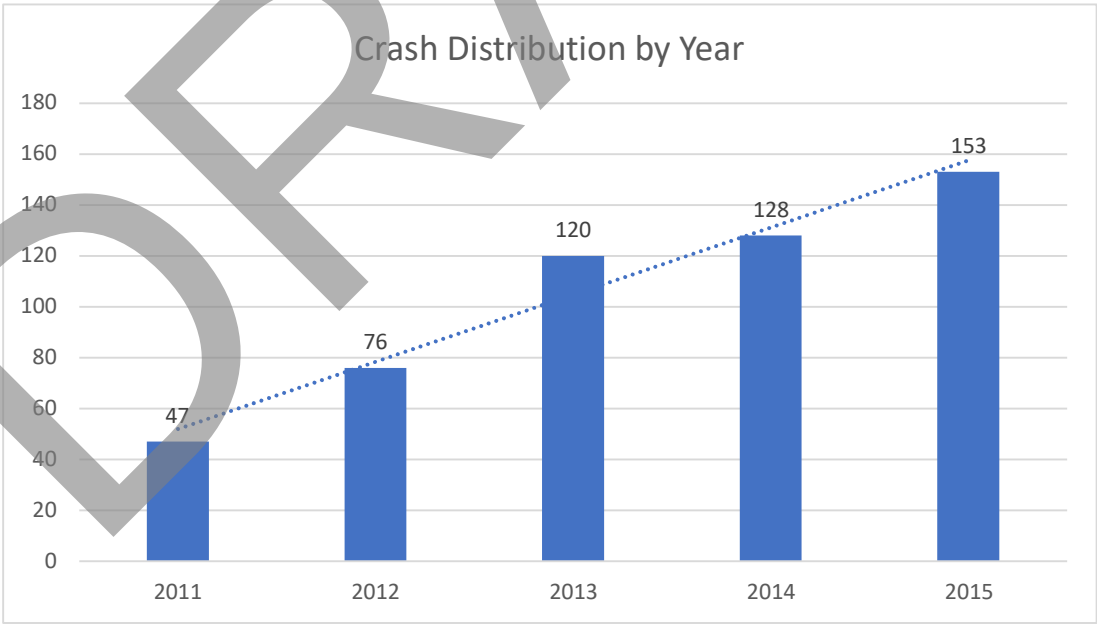

Figure 3-1 Crash Distribution by Year

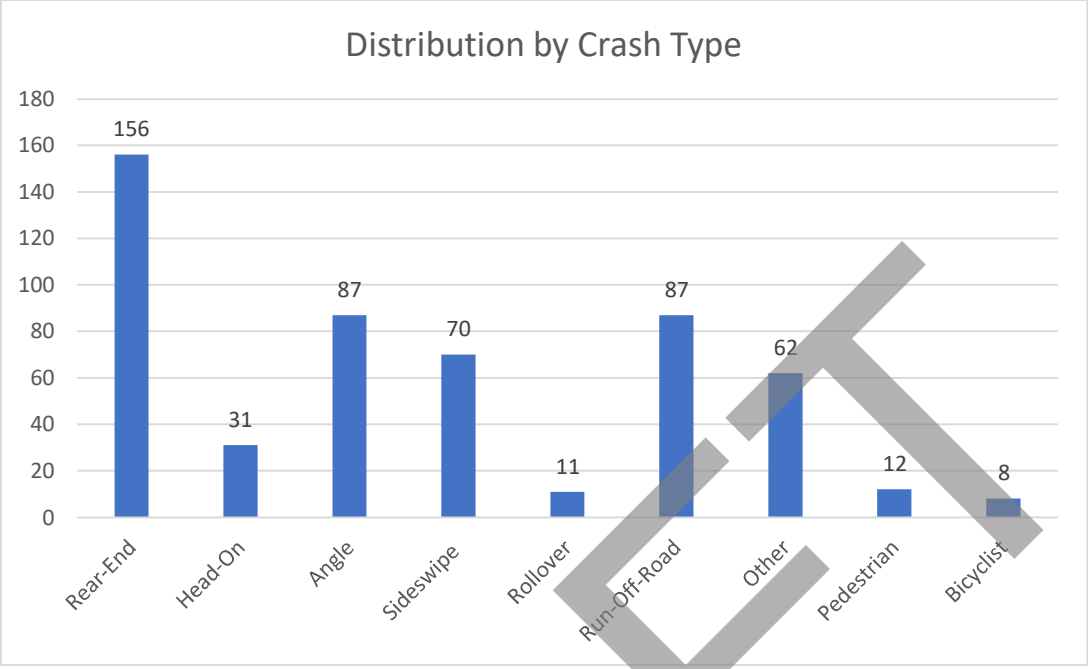

Figure 3-2 Crash Distribution by Crash Type

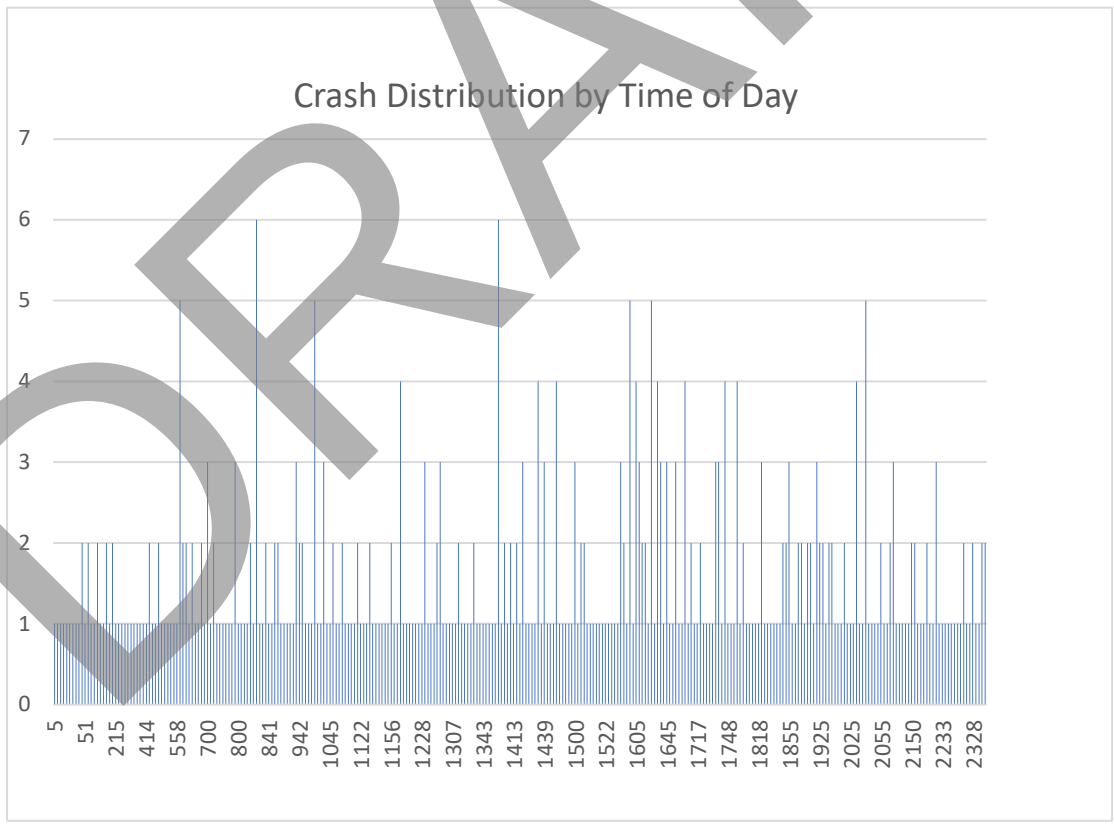

Figure 3-3 Crash Distribution by Time of Day (Less Code 0 Crashes)

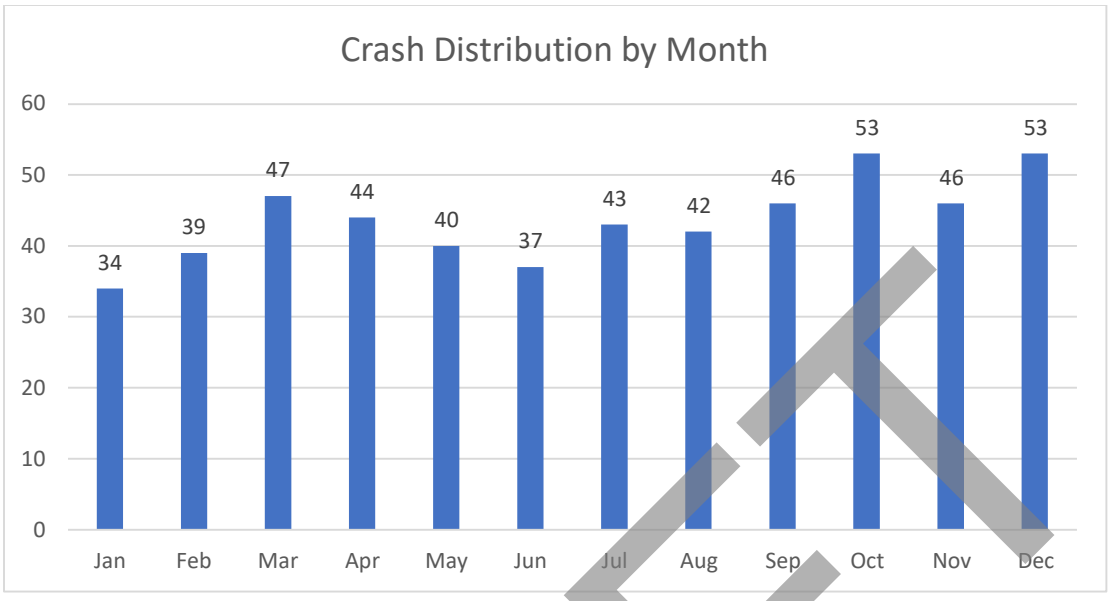

Figure 3-4 Crash Distribution by Month

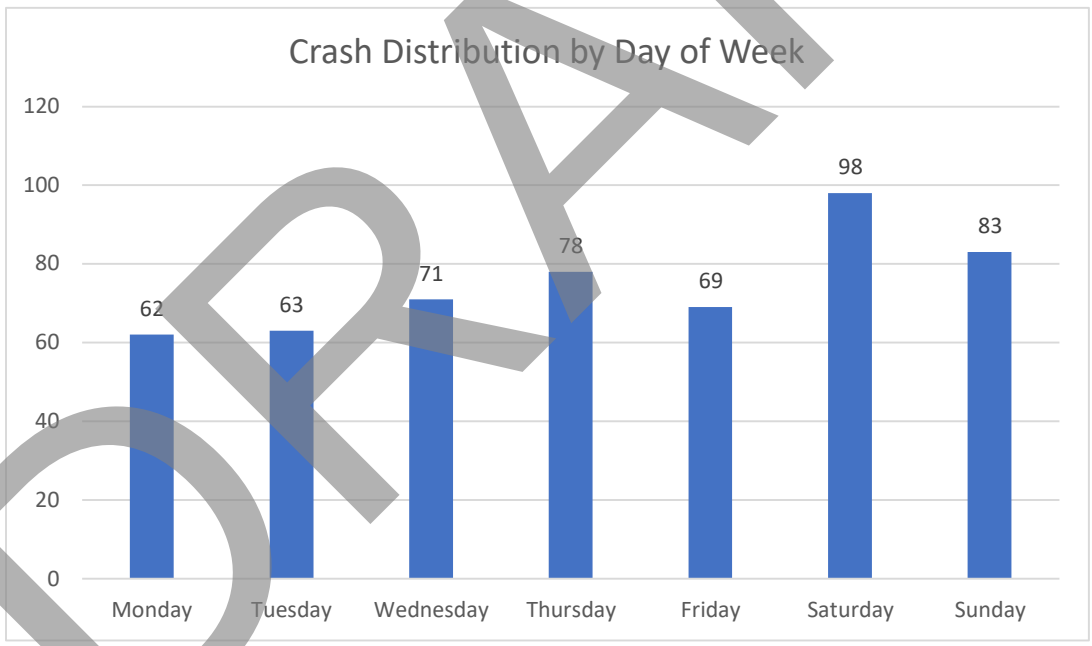

Figure 3-5 Crash Distribution by Day of Week

3.1.1 Crash Data Analysis – SR 821/HEFT

- A total of 95 crashes were reported during the referenced five-year period along the HEFT from north of the US 1 interchange and south of Campbell Drive, between mileposts 1.039 and 2.616. Fourteen (14) crashes occurred in 2011, 17 in 2012, 18 in 2013, 15 in 2014 and 31 in 2015. See **Figure 3-6** for crash distribution by year.

- Of the 95 crashes, 41 (43%) were run-off-road, 18 (19%) rear-end, seven (7 or 7%) sideswipe, six (6 or 6%) angle, and four (4 or 4%) were rollover crashes. Nineteen (19 or 20%) were considered as "other"-type crashes. See **Figure 3-7** for distribution by crash type.

- **Figure 3-8** shows the crash distribution by milepost.

- **Figure 3-9** shows the overall crash distribution by time of day.

- Fifty-five percent (55%) of the crashes along the HEFT occurred in the southbound direction.

- Based on the crash distribution by month, the highest frequency of crashes along the HEFT occurred during the month of July with 15 total vs. the rest of the year (7 for each of those months on average). See **Figure 3-10** for crash distribution by month.

- A slightly higher frequency of the crashes occurred along the HEFT on Saturdays and Sundays with 15 total for each of those days on average vs. during the rest of the week on Mondays through Fridays with 13 total for each of those days on average. See **Figure 3-11** for crash distribution by day of week.

- Thirty-three (33) of the crashes, or 35%, occurred during non-daylight hours, which is above the statewide average for nighttime crashes (for all roadways).

- Thirty-eight (38) of the crashes, or 40%, occurred on a wet roadway surface, which is above the statewide average (for all roadways).

- Based on crash severity, of the 95 crashes reported along the HEFT, 57 (60%) were property damage only crashes, 37 (31%) were injury type crashes, and one (1) fatal crash was reported during the referenced five-year period.

- The fatal crash occurred in the southbound direction of the HEFT, approximately one and a half miles north of the southbound off-ramp to US 1 northbound, on a Saturday at approximately 2PM on a dry roadway. The crash involved a southbound motorcycle and a southbound passenger vehicle. Four people were involved in the crash, which resulted in one fatality.

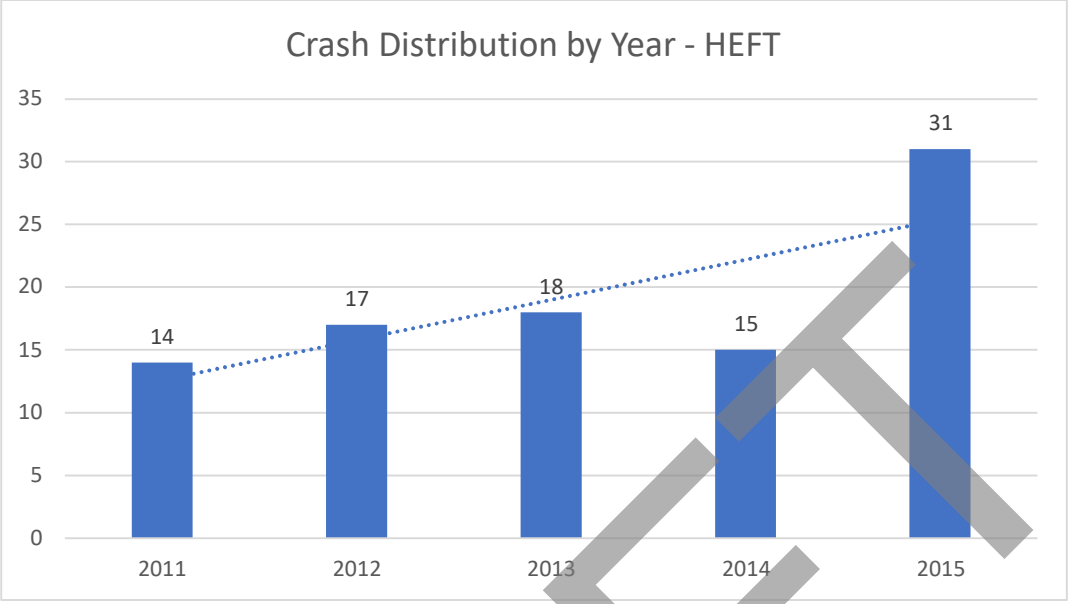

Figure 3-6 Crash Distribution by Year

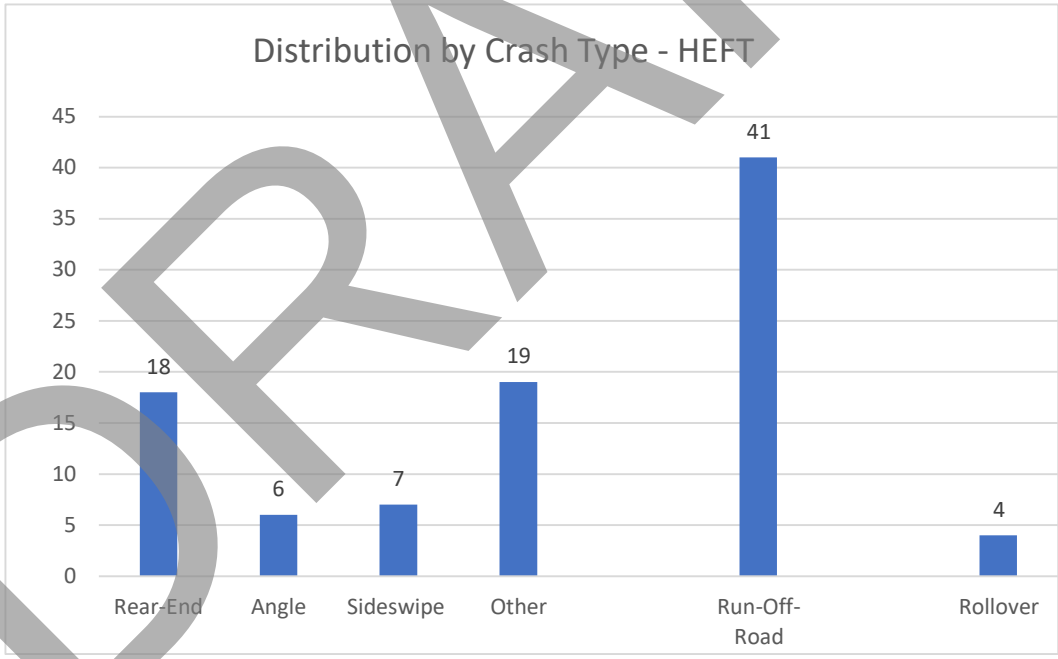

Figure 3-7 Distribution by Crash Type

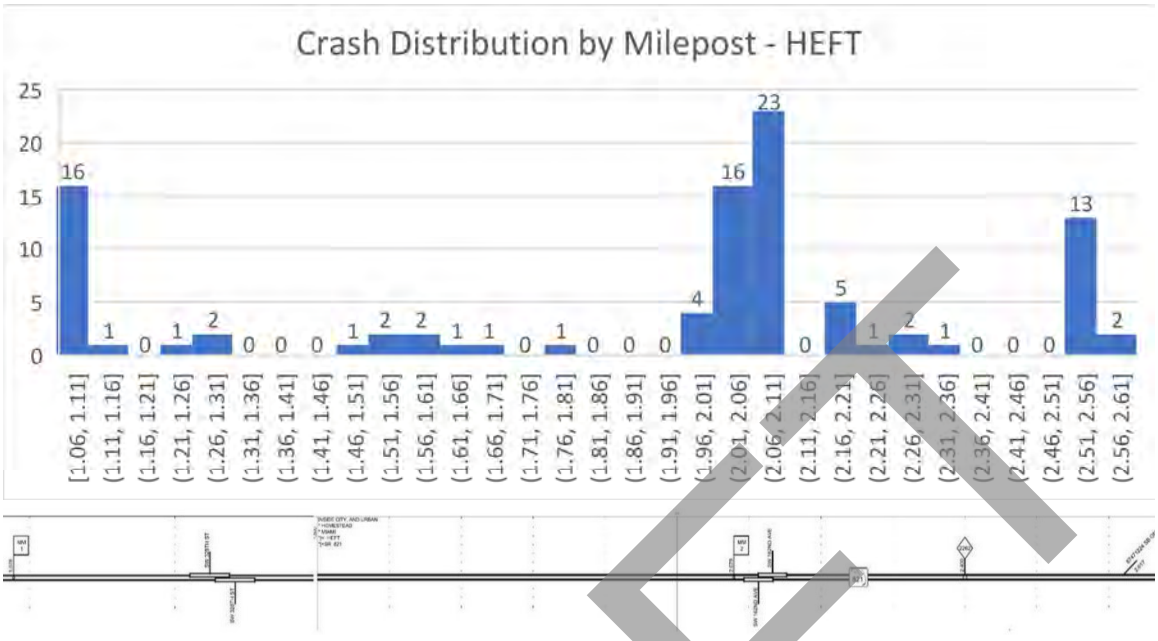

Figure 3-8 Crash Distribution by Milepost

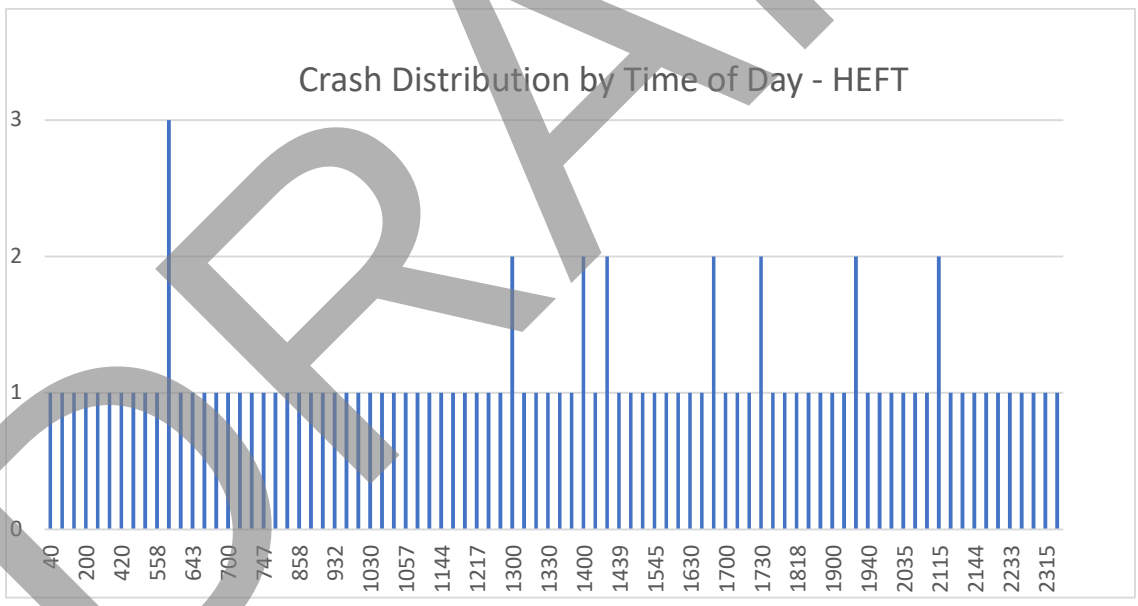

Figure 3-9 Crash Distribution by Time of Day

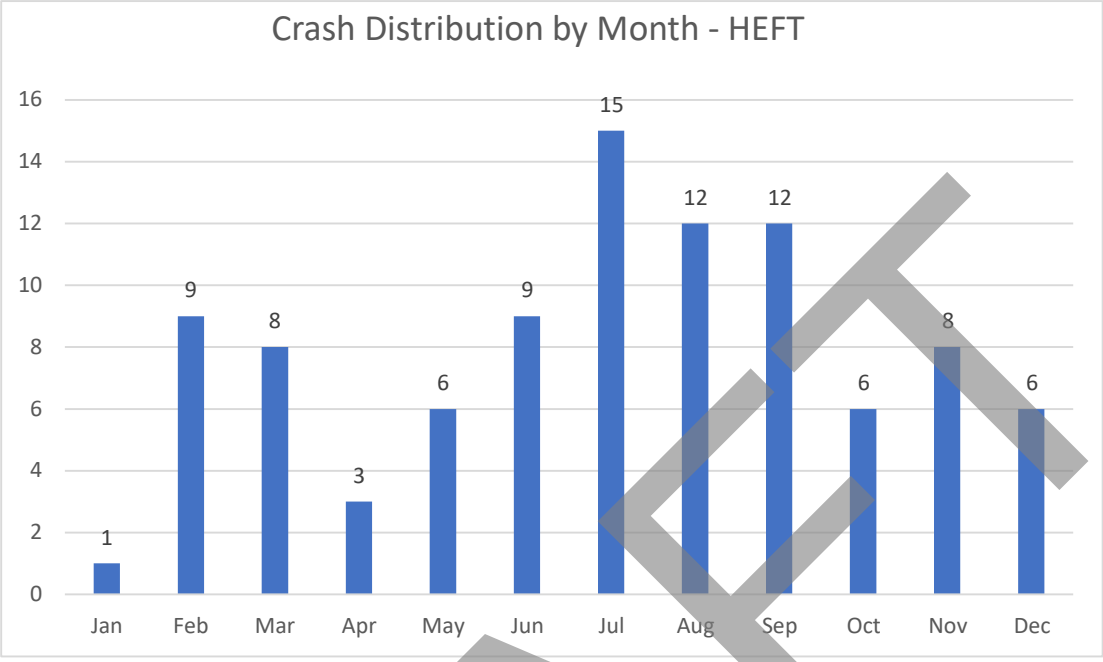

Figure 3-10 Crash Distribution by Month

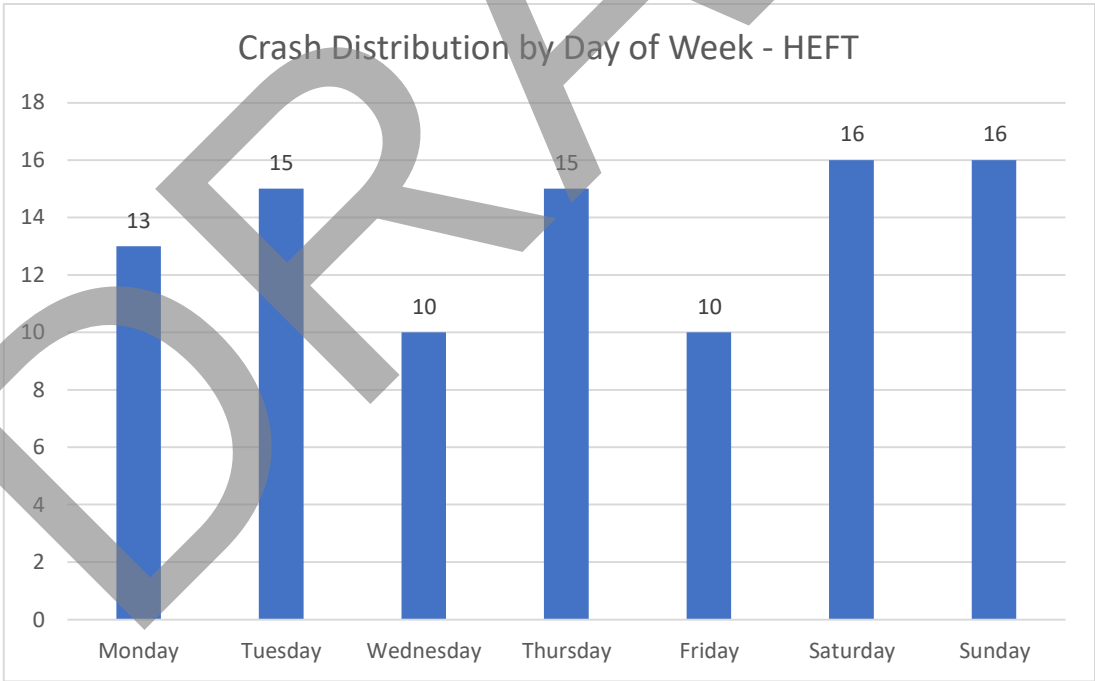

Figure 3-11 Crash Distribution by Day of Week

3.1.2 Crash Data Analysis – SR 821/HEFT at SR 5/US 1

- A total of 54 crashes were reported during the referenced five-year period along the HEFT and associated ramps at the US 1 interchange. Six (6) crashes occurred in 2011, nine (9) in 2012, 15 in 2013, 10 in 2014 and 14 in 2015. See **Figure 3-12** for crash distribution by year.

- Of the 54 crashes, 30 (56%) were run-off-road, 17 (31%) rear-end, two (2 or 4%) rollover, one (1 or 2%) sideswipe, and one (1 or 2%) crash involved a bicycle. Three (3 or 6%) were considered as "other"-type crashes. See **Figure 3-13** for distribution by crash type.

- **Figure 3-14** shows the overall crash distribution by time of day.

- Of the 54 total crashes along the HEFT interchange with US 1, the crashes are distributed along the ramps as follows:

    - Eight (8) crashes along the HEFT from US 1 to north of the southbound off-ramp to Davis Parkway (87471000; MP 0.284 to 1.038)
        - 2 run-off-road (both northbound)
        - 2 rear-end (both northbound)
        - 1 rollover (northbound)
        - 1 bicycle (northbound)
        - 2 "other non-collision" (both southbound)
            - Of these eight (8) crashes
                - 3 (38%) nighttime
                - 2 (25%) wet roadway
                - 0 fatalities
    - Thirty-six (36) crashes along the HEFT southbound off-ramp to US 1 (87471101)
        - 24 run-off-road
        - 7 rear-end
        - 1 sideswipe
        - 1 rollover
        - 3 "other"
            - Of these 36 crashes
                - 19 (53%) nighttime
                - 16 (44%) wet roadway
                - 0 fatalities
    - Zero (0) crashes along the HEFT northbound on-ramp from southbound US 1 (87471102)
    - Ten (10) crashes along the HEFT southbound off-ramp to Davis Parkway (87471105)

        - 8 rear-end
        - 2 run-off-road
            - Of these 10 crashes
                - 2 (20%) nighttime
                - 1 (10%) wet roadway
                - 0 fatalities

- Based on the crash distribution by month, a higher frequency of the crashes occurred along the HEFT and US 1 interchange during the months of May, October, and December (7 total for each of those months on average) vs. the rest of the year (4 total for each of those months on average). See **Figure 3-15** for crash distribution by month.

- A higher frequency of the crashes occurred along the HEFT and US 1 interchange during the days of Friday (9), Saturday (12), and Sunday (12) with 11 total for each of those days on average vs. during the rest of the week with five (5) total for each of those days on average. See **Figure 3-16** for crash distribution by day of week.

- Twenty-four (24) of the crashes, or 44%, occurred during non-daylight hours, which is above the statewide average for nighttime crashes (for all roadways).

- Nineteen (19) of the crashes, or 35%, occurred on a wet roadway surface, which is above the statewide average (for all roadways).

- Based on crash severity, of the 54 crashes reported along the HEFT and US 1 interchange, 33 (61%) were property damage only crashes, 21 (39%) were injury type crashes, and zero (0) fatal crash were reported during the referenced five-year period.

- Zero (0) crashes involved a pedestrian and one (1) crash involved a bicyclist. The crash resulted in serious injury.

    - 1 bicycle crash occurred near the northbound on-ramp to the HEFT.
        - 1 Occurred at night

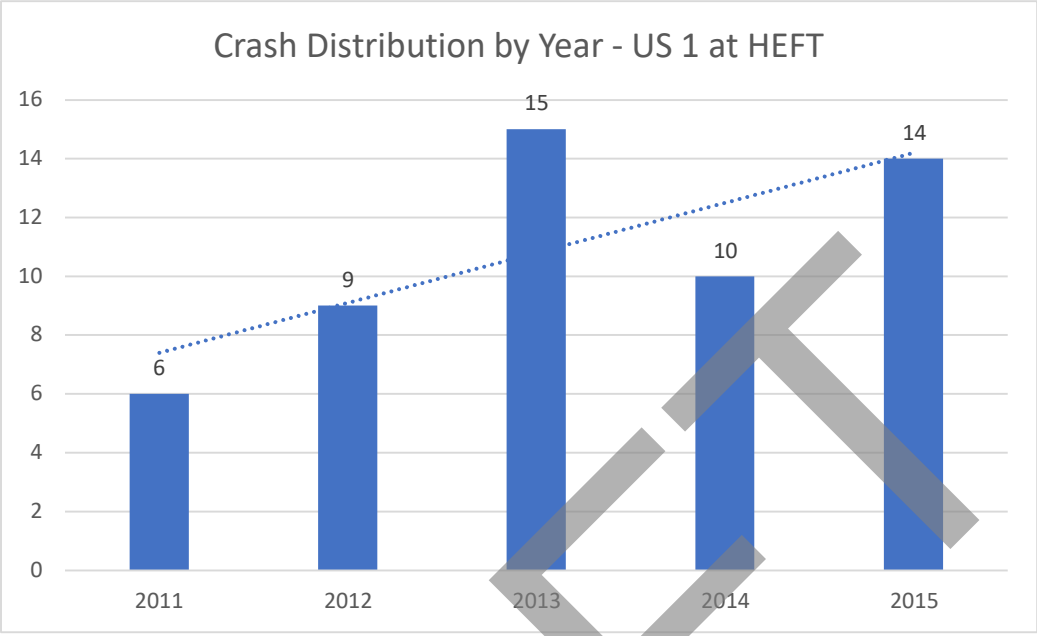

Figure 3-12 Crash Distribution by Year

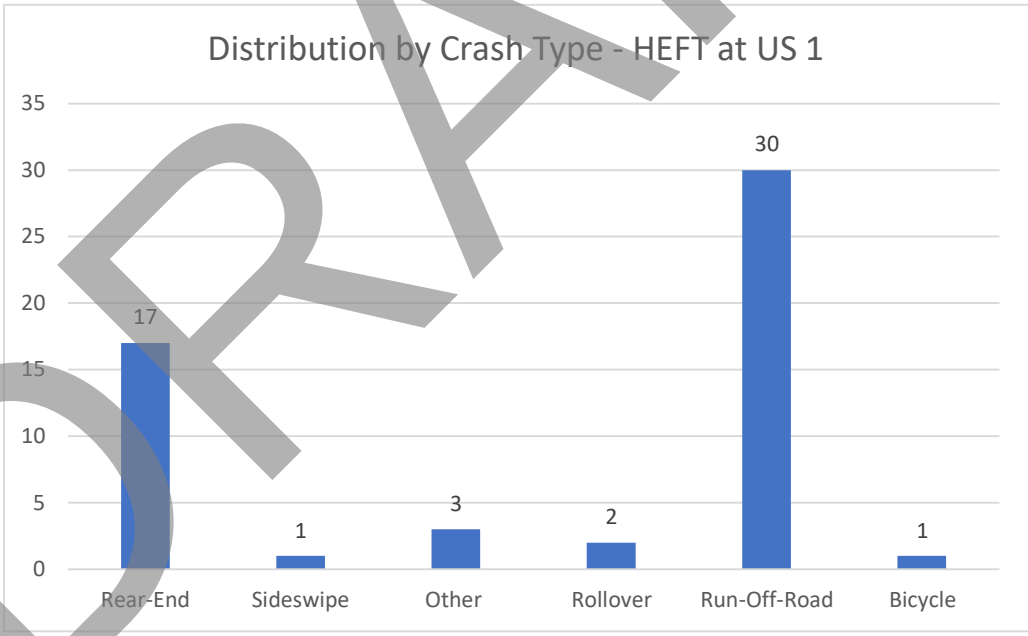

Figure 3-13 Crash Distribution by Type

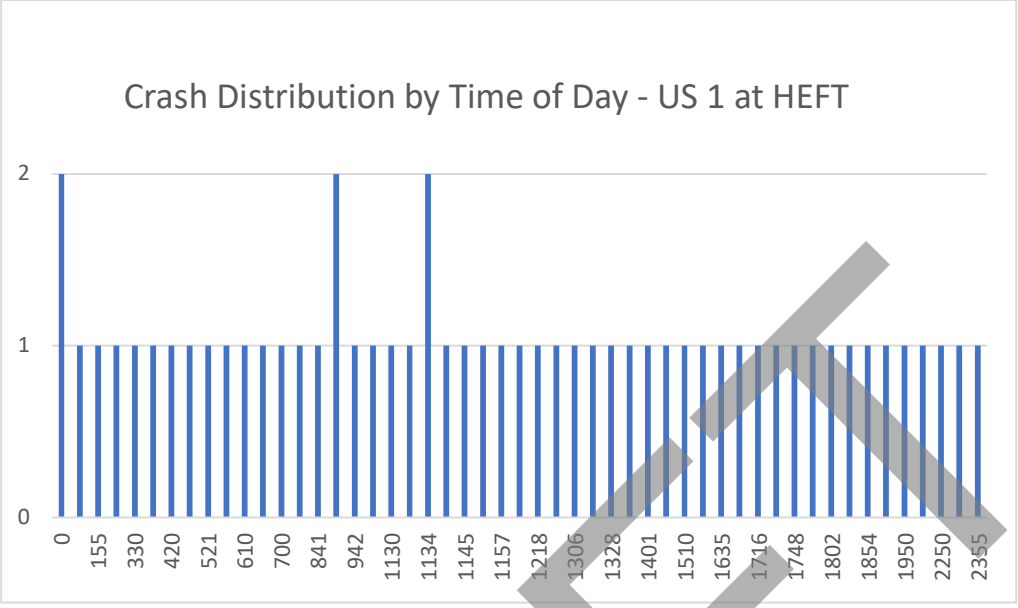

Figure 3-14 Crash Distribution by Time of Day

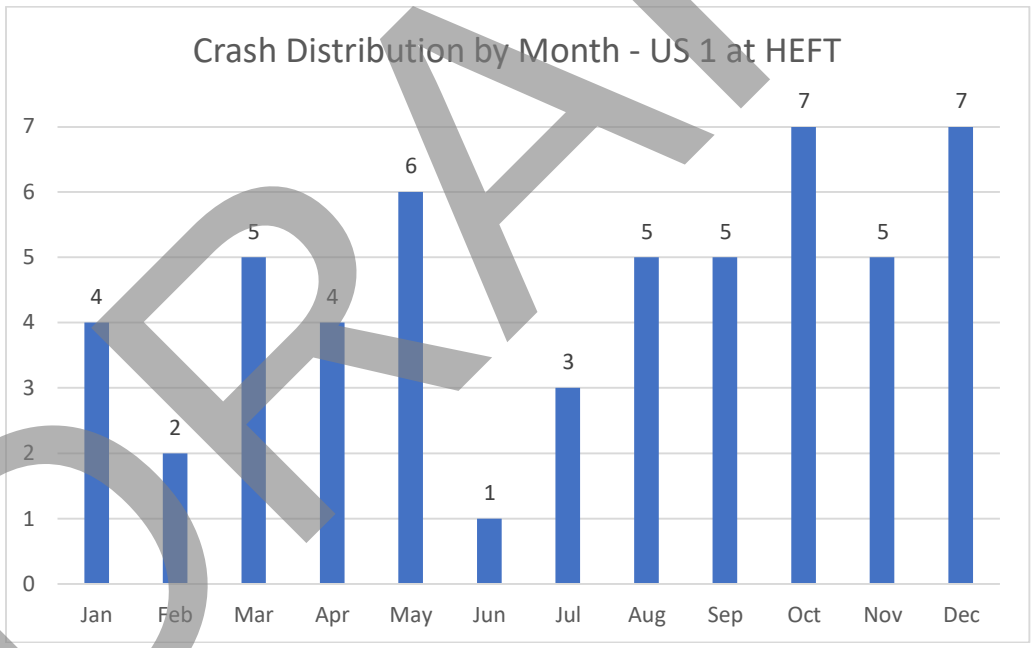

Figure 3-15 Crash Distribution by Month

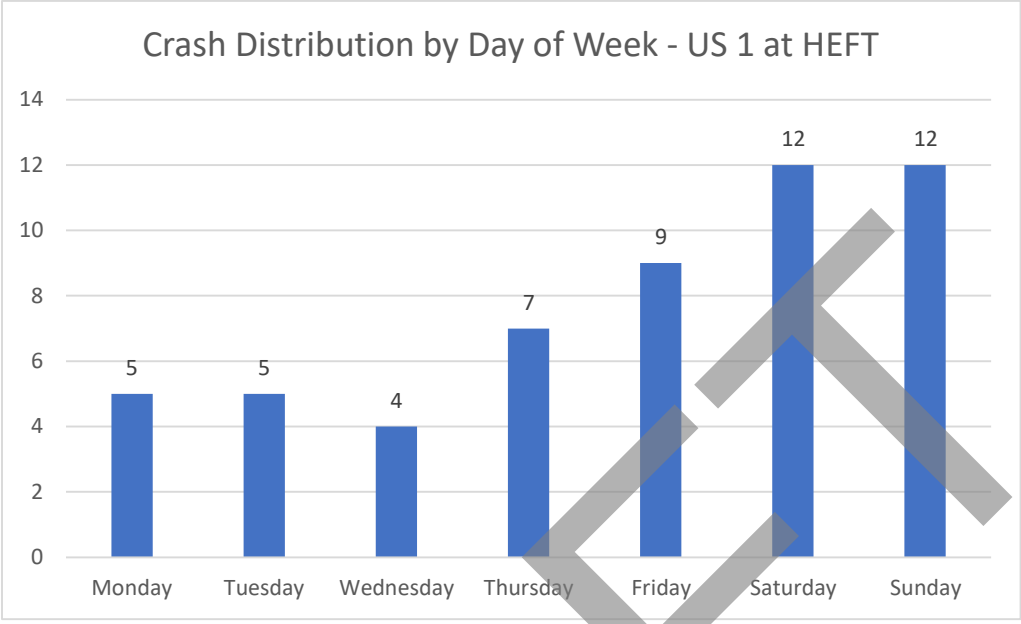

Figure 3-16 Crash Distribution by Day of Week

3.1.3 Crash Data Analysis – SR 5/US 1

- A total of 252 crashes were reported during the referenced five-year period along US 1, between mileposts 0.000 and 1.431. Eighteen (18) crashes occurred in 2011, 32 in 2012, 60 in 2013, 74 in 2014 and 68 in 2015. See **Figure 3-17** for crash distribution by year.
- Of the 252 crashes, 88 (35%) were rear-end, 49 (19%) angle, 45 (18%) sideswipe, 18 (7%) head-on, 11 (4%) run-off-road, and three (3 or 1%) rollover crashes. Twenty-seven (27 or 11%) were considered "other"-type crashes and there were seven (7 or 3%) pedestrian crashes and four (4 or 2%) bicycle crashes. See **Figure 3-18** for distribution by crash type.
- Figure 3-19 shows the crash distribution by milepost.
- Thirty-six (36) of the crashes were coded as occurring at midnight (Code 0), which were likely coded incorrectly. **Figure 3-20** shows the overall crash distribution by time of day, less the Code 0 crashes.
- Of the 133 rear-end and sideswipe crashes along US 1 within the study limits
    - 68 (51%) occurred at the US 1 and Palm Drive intersection:
        - 17 occurred in the southbound direction within and approaching the weave section of the US 1 and Palm Avenue intersection, between mileposts 0.862 and 1.136 (0.274 miles).
        - 17 occurred in the northbound direction approaching the intersection.

        - 13 occurred in the eastbound direction approaching the intersection.
        - 15 occurred in the westbound direction approaching the intersection.
        - 6 occurred in the northbound direction within the weave section approaching the northbound off-ramp to the HEFT, between mileposts 0.862 and 1.150 (0.288 miles).
    - 14 (11%) occurred at the US 1 and Davis Parkway intersection:
        - 11 occurred in the northbound direction approaching the intersection.
        - 3 occurred in the southbound direction approaching the intersection.
    - 5 (4%) occurred in the vicinity of the US 1 and Krome Avenue intersection:
        - 3 occurred in the northbound direction.
        - 2 occurred in the southbound direction.
- Of the 49 angle crashes along US 1 within the study limits
    - 20 (40%) occurred at the US 1 and Palm Drive intersection:
        - 9 northbound
        - 3 southbound
        - 2 eastbound
        - 6 westbound
    - 12 (24%) occurred at the US 1 and Davis Parkway intersection:
        - 3 northbound
        - 3 southbound
        - 5 eastbound
        - 1 westbound
- Based on the crash distribution by month, a higher frequency of the crashes occurred along US 1 during the months of January, March, April, October, and December (25 total for each of those months on average) vs. the rest of the year (18 total for each of those months on average). See **Figure 3-21** for crash distribution by month.
- A higher frequency of the crashes occurred along US 1 during on the days of Wednesday and Saturday with an average of 45 total for each of those days vs. during the rest of the week with 33 total for each of those days on average. See **Figure 3-22** for crash distribution by day of week.
- Ninety-two (92) of the crashes, or 37%, occurred during non-daylight hours, which is above the statewide average for nighttime crashes (for all roadways).
- Fifty (50) of the crashes, or 20%, occurred on a wet roadway surface, which is above the statewide average (for all roadways).
- Based on crash severity, of the 252 crashes reported along US 1, 172 (68%) were property

damage only crashes, 79 (31%) were injury type crashes, and one (1) fatal crash was reported during the referenced five-year period.

- Seven (7) of the crashes involved a pedestrian and four (4) of the crashes involved a bicyclist. No fatalities resulted from the pedestrian-related crashes, however all seven (7) resulted in injury and four (4) of the injuries were serious injury. None of the bicycle-related crashes resulted in a fatality, however two (2) resulted in injury and one (1) of the injuries was a serious injury.
    - 3 pedestrian crashes occurred at the US 1 and Palm Drive intersection.
        - 3 occurred at night
    - 4 pedestrian crashes occurred at the US 1 and Davis Parkway intersection.
        - 2 occurred at night
    - 3 bicycle crashes occurred at the US 1 and Palm Drive intersection.
        - 0 occurred at night
    - 1 bicycle crash occurred at the US 1 and Davis Parkway intersection.
        - 0 occurred at night
- The fatal crash occurred in the northbound lanes of US 1 at the southbound US 1 to northbound HEFT entrance ramp on a weekday at approximately 4PM. The crash involved three people in two vehicles where Driver 1 traveling in the southbound direction made a left-turn and failed to yield right-of-way to Driver 2 who was traveling northbound along US 1. The crash resulted in two injuries and one fatality.

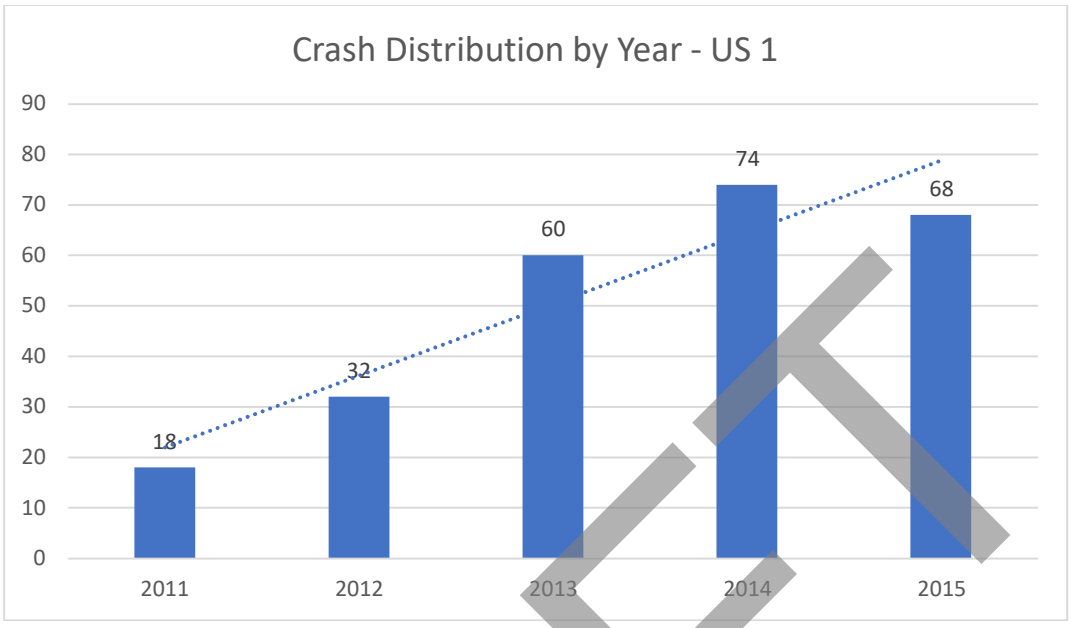

Figure 3-17 Crash Distribution by Year

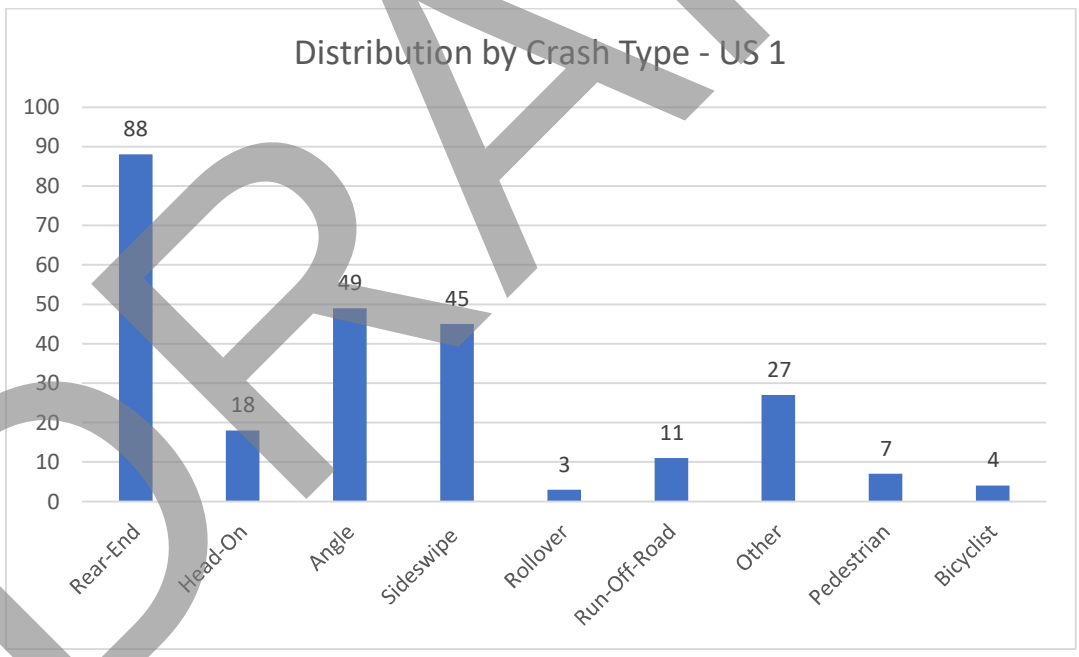

Figure 3-18 Distribution by Crash Type

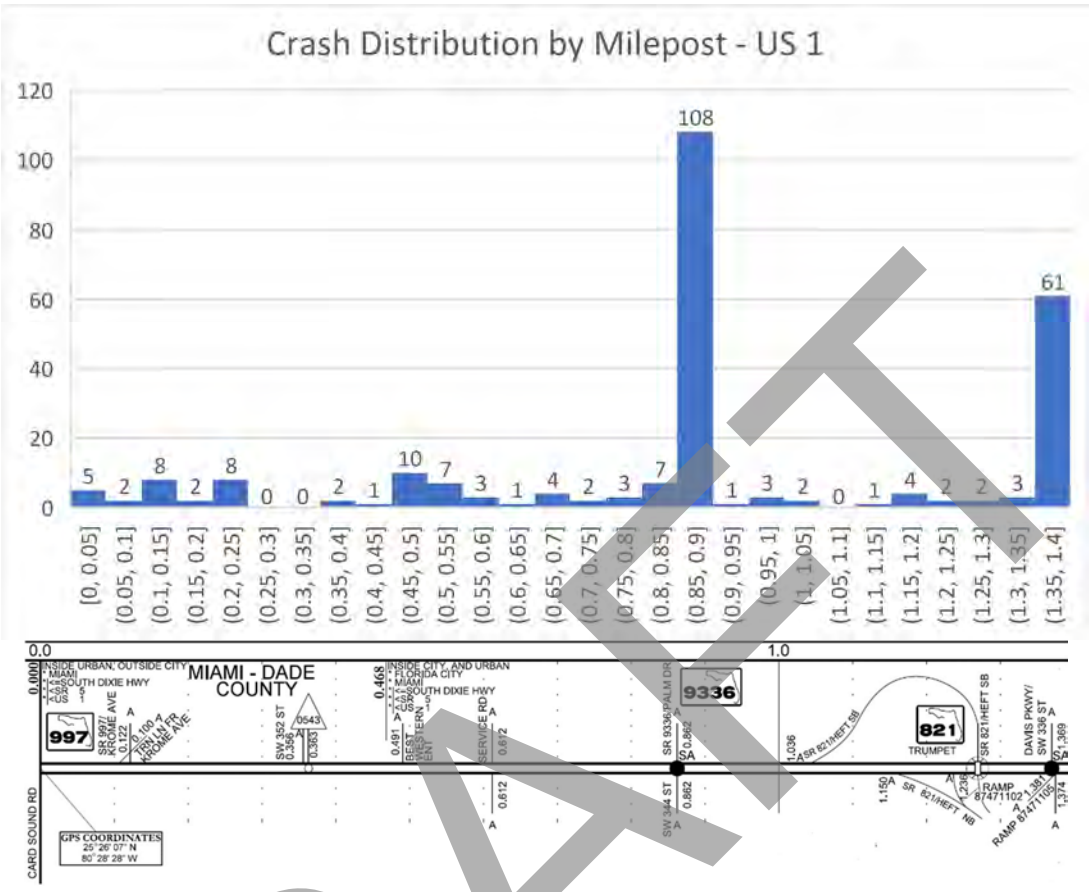

Figure 3-19 Crash Distribution by Milepost

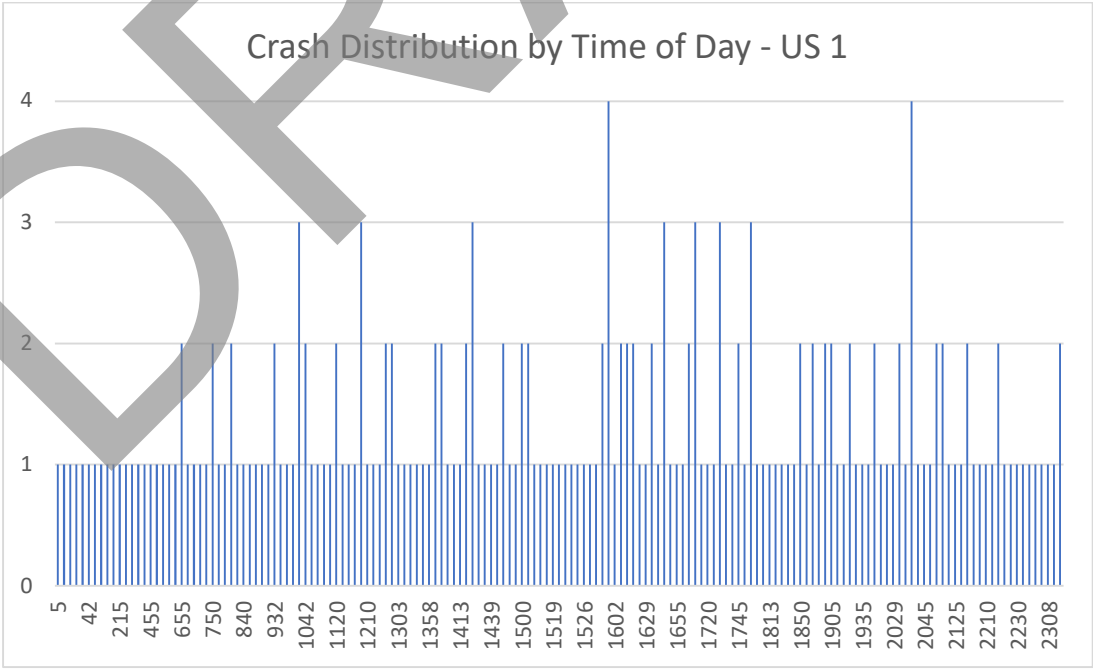

Figure 3-20 Crash Distribution by Time of Day (Less Code 0 Crashes)

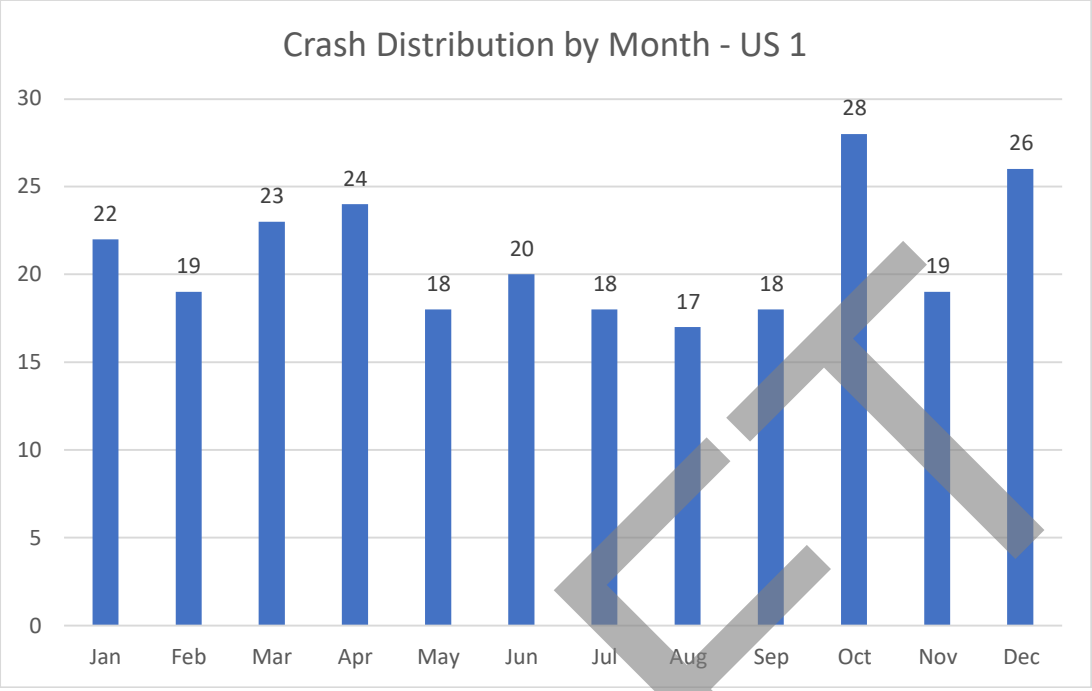

Figure 3-21 Crash Distribution by Month

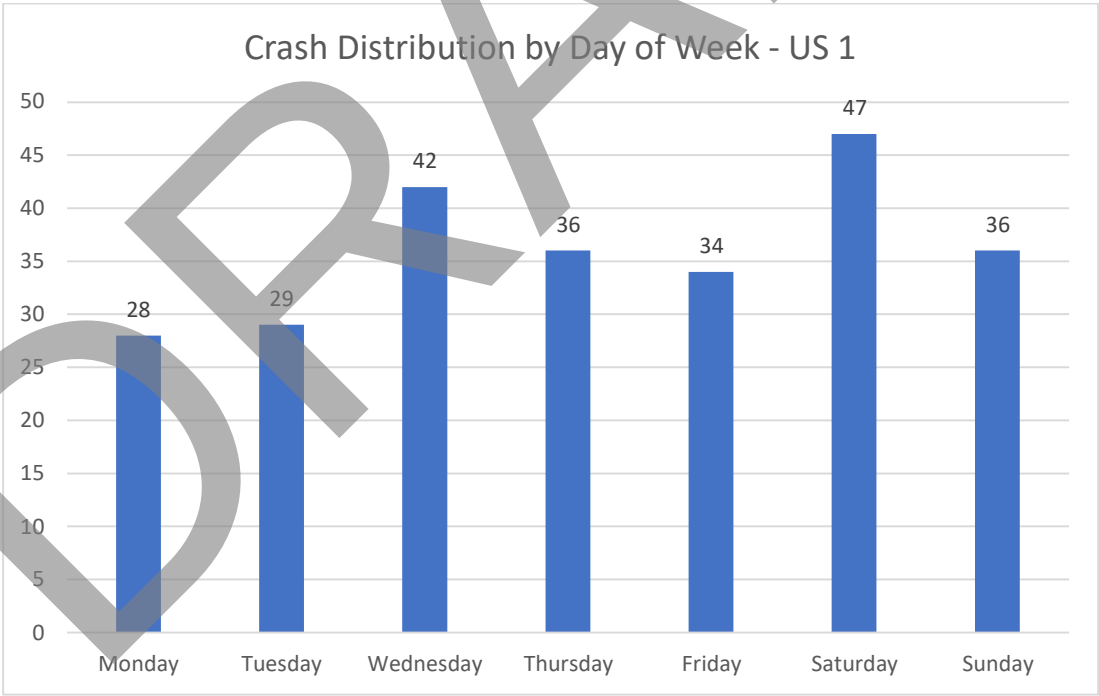

Figure 3-22 Crash Distribution by Day of Week

3.1.4 Crash Data Analysis – SR 9336/SW 344th Street/Palm Drive

- A total of 13 crashes were reported during the referenced five-year period along Palm Drive, between mileposts 8.455 and 8.745 minus the intersections with Krome Avenue and US 1 (mileposts 8.548 to 8.598 and 8.695 to 8.745, respectively), which are included in the analyses for those roadways. Two (2) crashes occurred in 2011, 1 in 2012, 1 in 2013, 3 in 2014 and 6 in 2015. See **Figure 3-23** for crash distribution by year.
- Of the 13 crashes, six (6) were rear-end, two (2) head-on crashes, and one (1) angle. Two (2) were considered "other"-type crashes and there were two (2) pedestrian crashes. See **Figure 3-24** for distribution by crash type.
- **Figure 3-25** shows the crash distribution by milepost.
- **Figure 3-26** shows the overall crash distribution by time of day.
- See **Figure 3-27** for crash distribution by month.
- See **Figure 3-28** for crash distribution by day of week.
- Four (4) of the crashes, or 31%, occurred during non-daylight hours, which is above the statewide average for nighttime crashes (for all roadways).
- Three (3) of the crashes, or 23%, occurred on a wet roadway surface, which is above the statewide average (for all roadways).
- Based on crash severity, of the 13 crashes reported along Palm Drive, five (5) were property damage only crashes, eight (8) were injury type crashes, and zero (0) fatal crash were reported during the referenced five-year period.
- Two (2) of the crashes involved a pedestrian and zero (0) crashes involved a bicyclist. Both pedestrian crashes resulted in injury.
    - 2 pedestrian crashes occurred at the Palm Avenue and Krome Avenue intersection.
        - 0 occurred at night

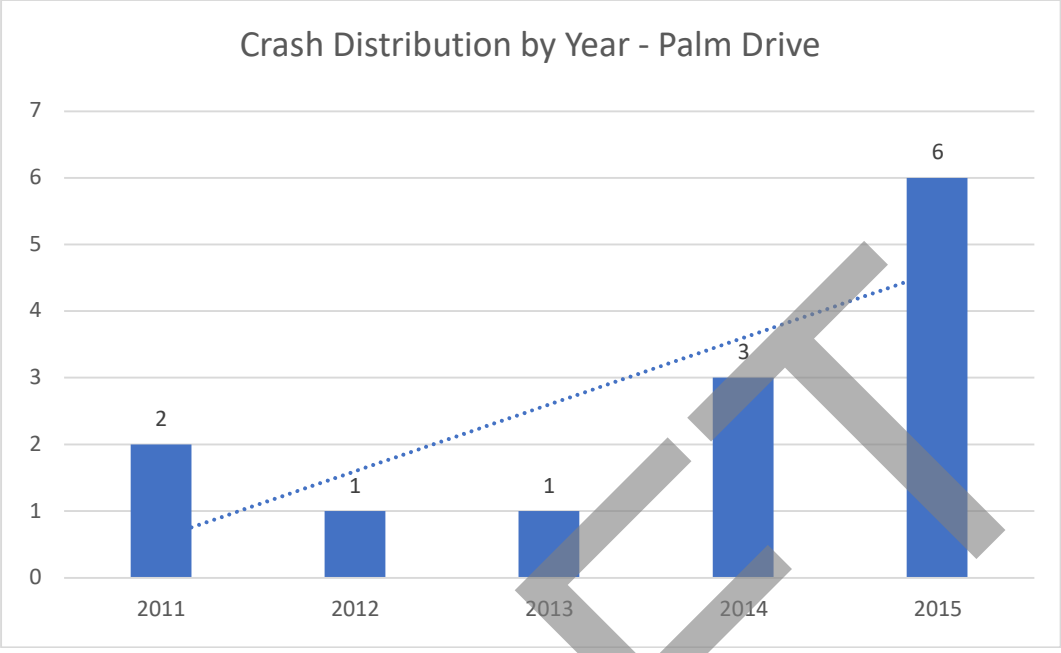

Figure 3-23 Crash Distribution by Year

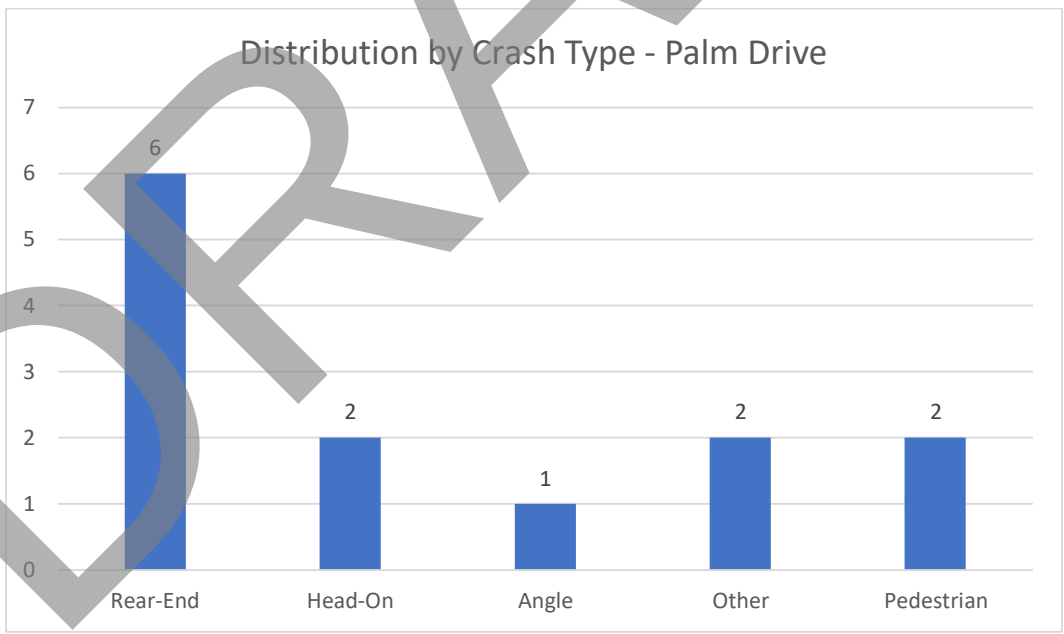

Figure 3-24 Distribution by Crash Type

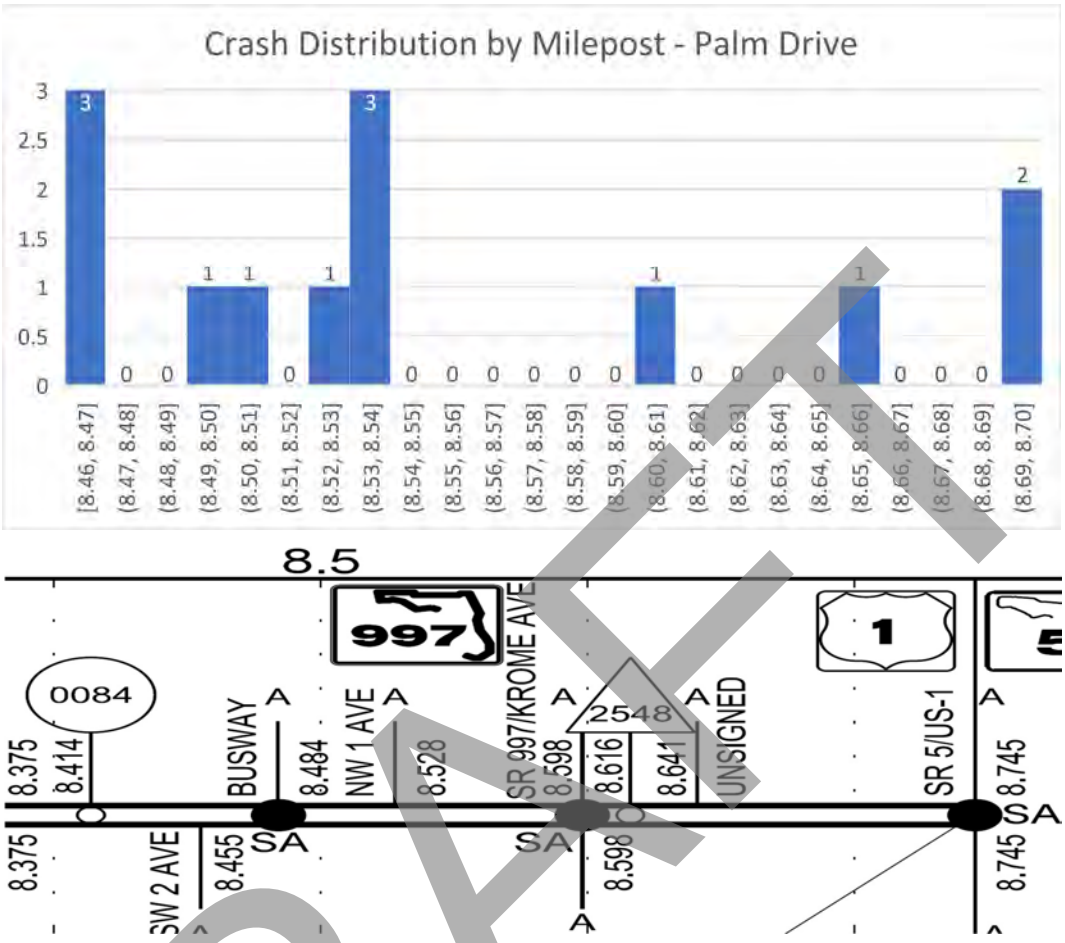

Figure 3-25 Crash Distribution by Milepost

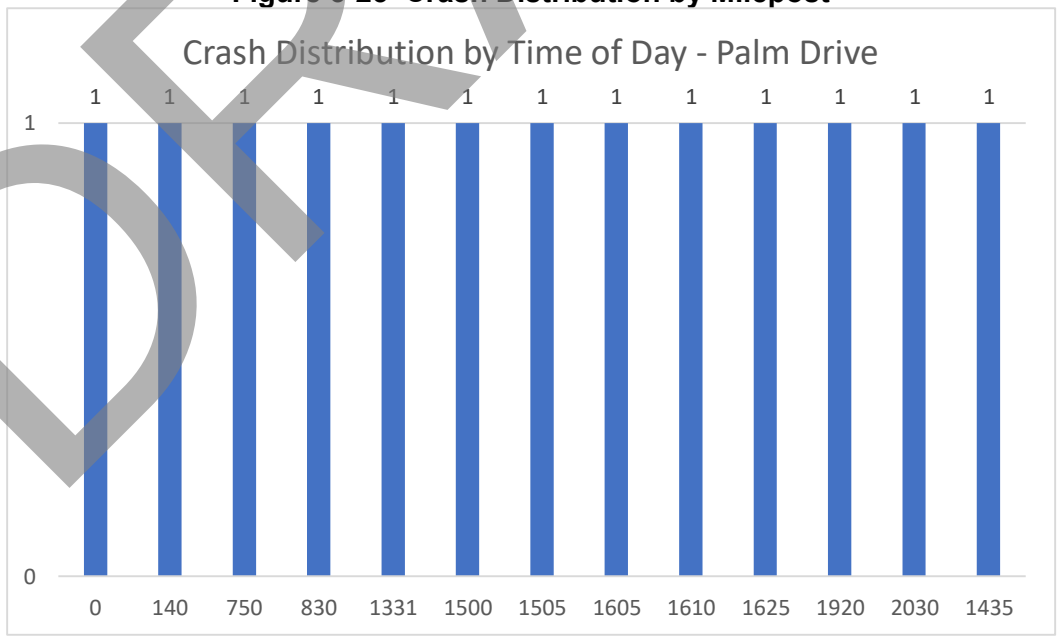

Figure 3-26 Crash Distribution by Time of Day

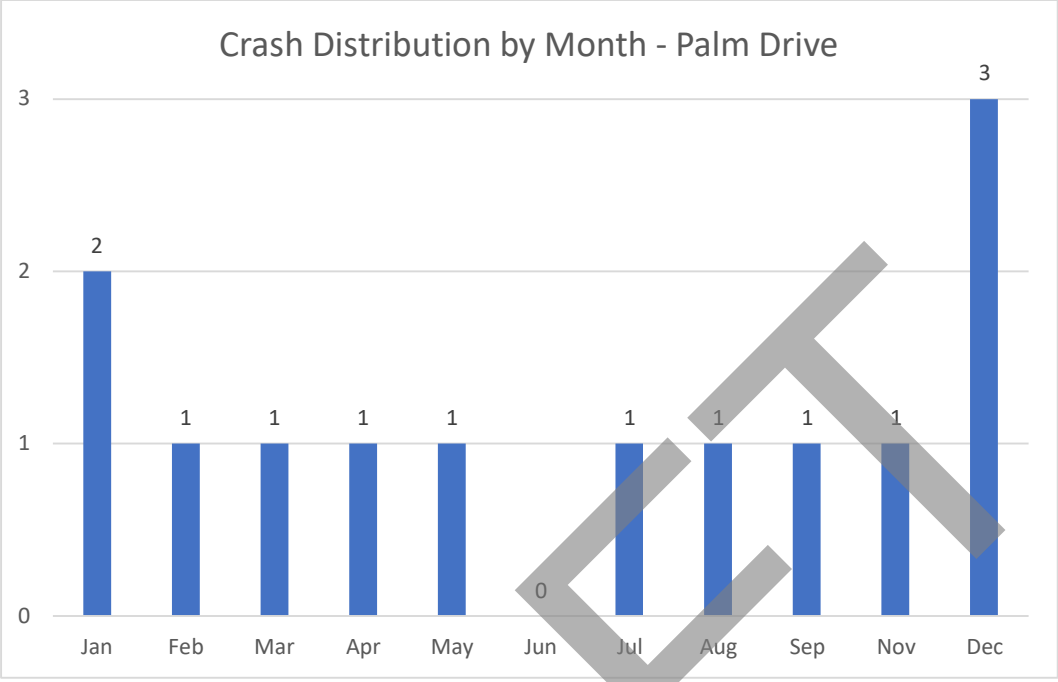

Figure 3-27 Crash Distribution by Month

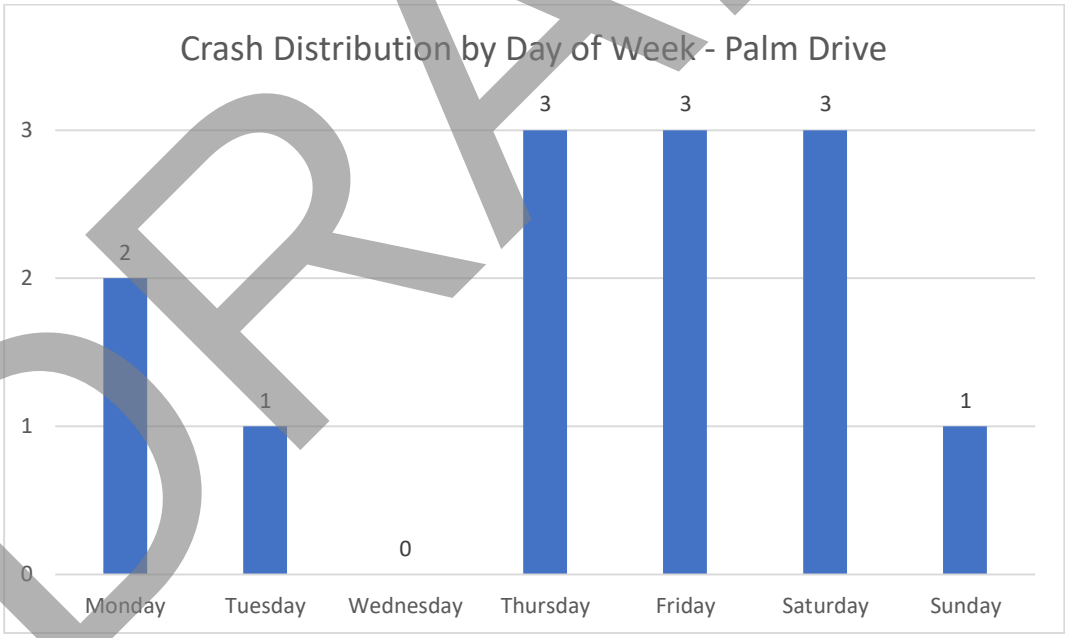

Figure 3-28 Crash Distribution by Day of Week

3.1.5 Crash Data Analysis – SR 997/Krome Avenue

- A total of 87 crashes were reported during the referenced five-year period along Krome Avenue, between mileposts 0.000 and 1.358. Seven (7) crashes occurred in 2011, 13 in 2012, 21 in 2013, 19 in 2014 and 27 in 2015. See **Figure 3-29** for crash distribution by year.
- Of the 87 crashes, 25 (29%) were rear-end, 23 (26%) angle, 15 (17%) sideswipe, nine (9 or 10%) head-on crashes, two (2 or 2%) rollover, and two (2 or 2%) run-off-road crashes. Eight (8 or 9%) were considered "other"-type crashes and there were three (2 or 2%) pedestrian crashes and one (1 or 1%) bicycle crashes. See **Figure 3-30** for distribution by crash type.
- **Figure 3-31** shows the crash distribution by milepost.
- Thirteen (13) of the crashes were coded as occurring at midnight (Code 0), which were likely coded incorrectly. **Figure 3-32** shows the overall crash distribution by time of day, less the Code 0 crashes.
- Of the 40 rear-end and sideswipe crashes along Krome Avenue within the study limits
  - 23 (56%) occurred at the Krome Avenue and Palm Drive intersection:
    - 1 occurred in the northbound direction approaching the intersection.
    - 3 occurred in the southbound direction approaching the intersection.
    - 11 occurred in the eastbound direction approaching the intersection.
    - 8 occurred in the westbound direction approaching the intersection.
  - 14 (34%) occurred at the Krome Avenue and Davis Parkway intersection:
    - 3 occurred in the northbound direction approaching the intersection.
    - 3 occurred in the southbound direction approaching the intersection.
    - 5 occurred in the eastbound direction approaching the intersection.
    - 3 occurred in the westbound direction approaching the intersection.
  - 1 (2%) southbound crash occurred in the vicinity of the Krome Avenue and US 1 intersection.
- Of the 23 angle crashes along Krome Avenue within the study limits
  - 12 (52%) occurred at the Krome Avenue and Palm Drive intersection:
    - 1 northbound
    - 2 southbound
    - 9 eastbound
  - 3 (13%) eastbound crashes occurred at the Davis Parkway intersection.
- Based on the crash distribution by month, a higher frequency of the crashes occurred along

Krome Avenue during the months of April and September through November (10 total for each of those months on average) vs. the rest of the year (6 total for each of those months on average). See **Figure 3-33** for crash distribution by month.

- A higher frequency of the crashes occurred along Krome Avenue on Saturdays and Sundays with 15 total for each of those days on average vs. during the rest of the week with 11 total for each of those days on average. See **Figure 3-34** for crash distribution by day of week.
- Thirty-three (33) of the crashes, or 38%, occurred during non-daylight hours, which is above the statewide average for nighttime crashes (for all roadways).
- Twelve (12) of the crashes, or 14%, occurred on a wet roadway surface, which is below the statewide average (for all roadways).
- Based on crash severity, of the 87 crashes reported along Krome Avenue, 48 (55%) were property damage only crashes, 39 (45%) were injury type crashes, and zero (0) fatal crash were reported during the referenced five-year period.
- Two (2) of the crashes involved a pedestrian and one (1) of the crashes involved a bicyclist. No fatalities resulted from the pedestrian-related crashes, however one (1) resulted in injury. The bicycle-related crash did not result in a fatality, however did result in one (1) injury.
    - 1 pedestrian crash occurred at the Krome Avenue and US 1 intersection.
        - 1 occurred at night
    - 1 pedestrian crash occurred at the Krome Avenue and Davis Parkway intersection.
        - 0 occurred at night
    - 1 bicycle crash occurred at the Krome Avenue and Davis Parkway intersection.
        - 1 occurred at night

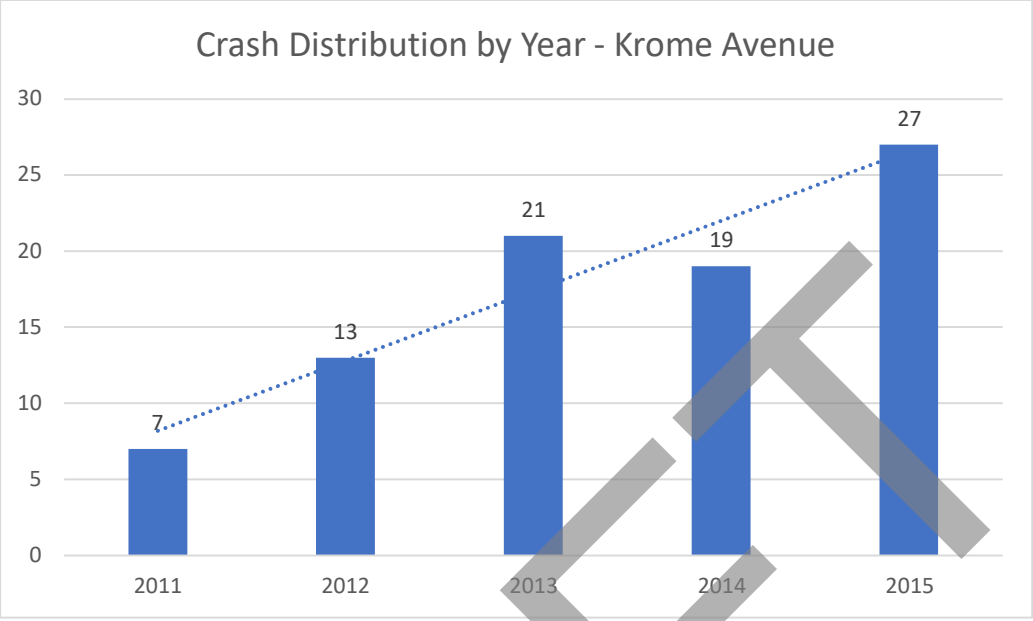

Figure 3-29 Crash Distribution by Year

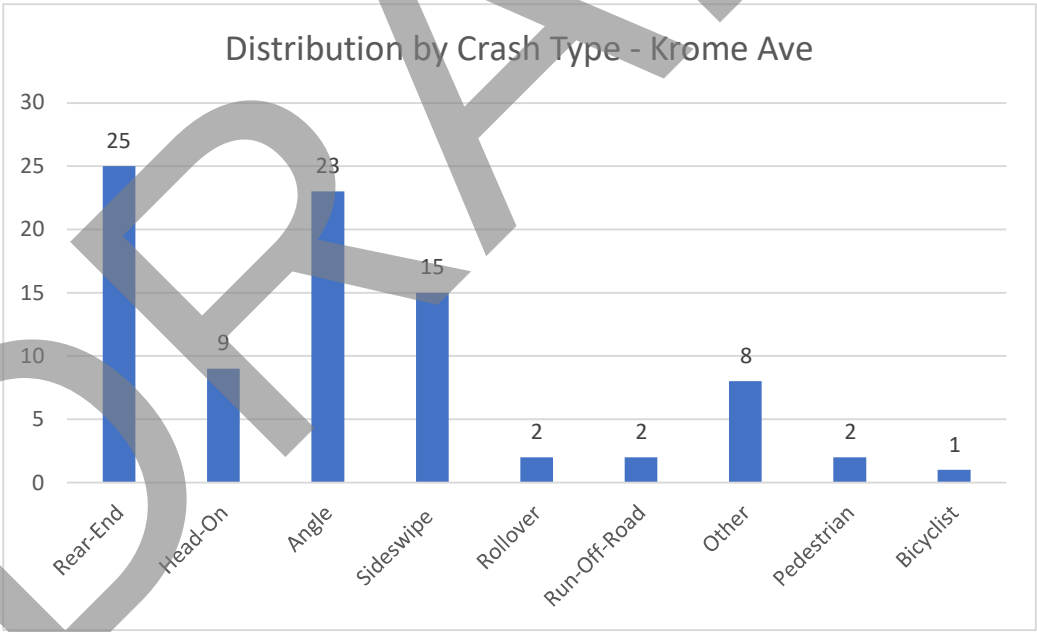

Figure 3-30 Distribution by Crash Type

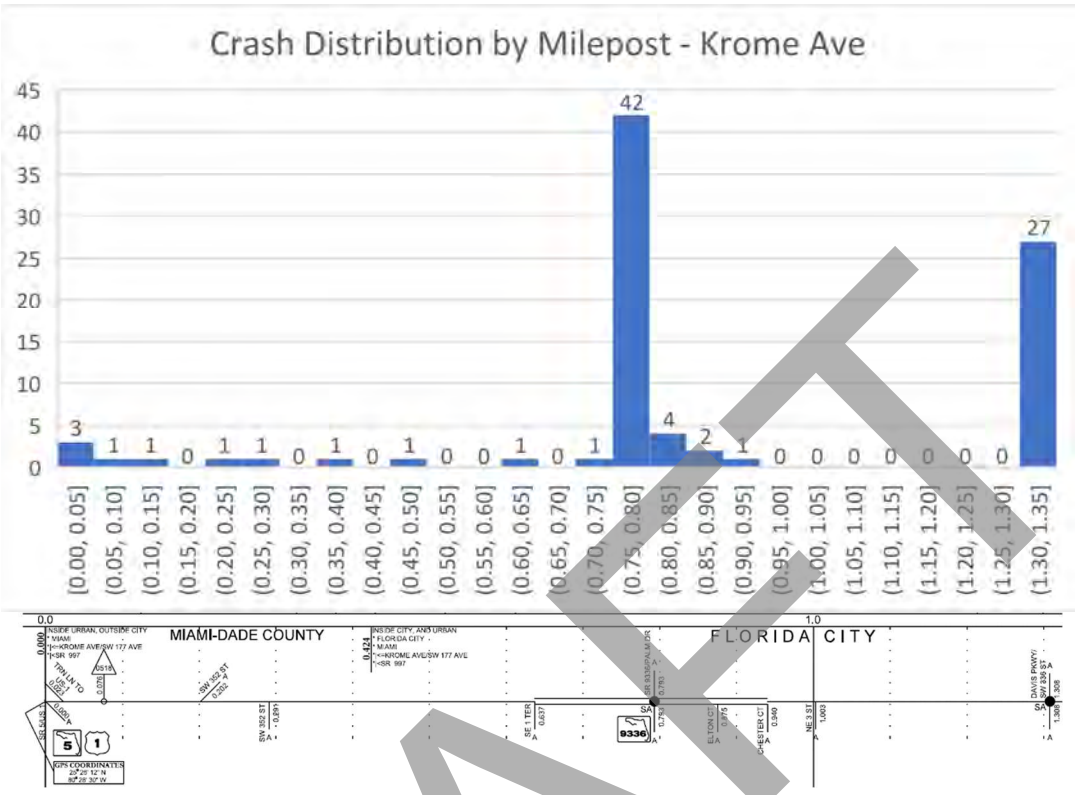

Figure 3-31 Crash Distribution by Milepost

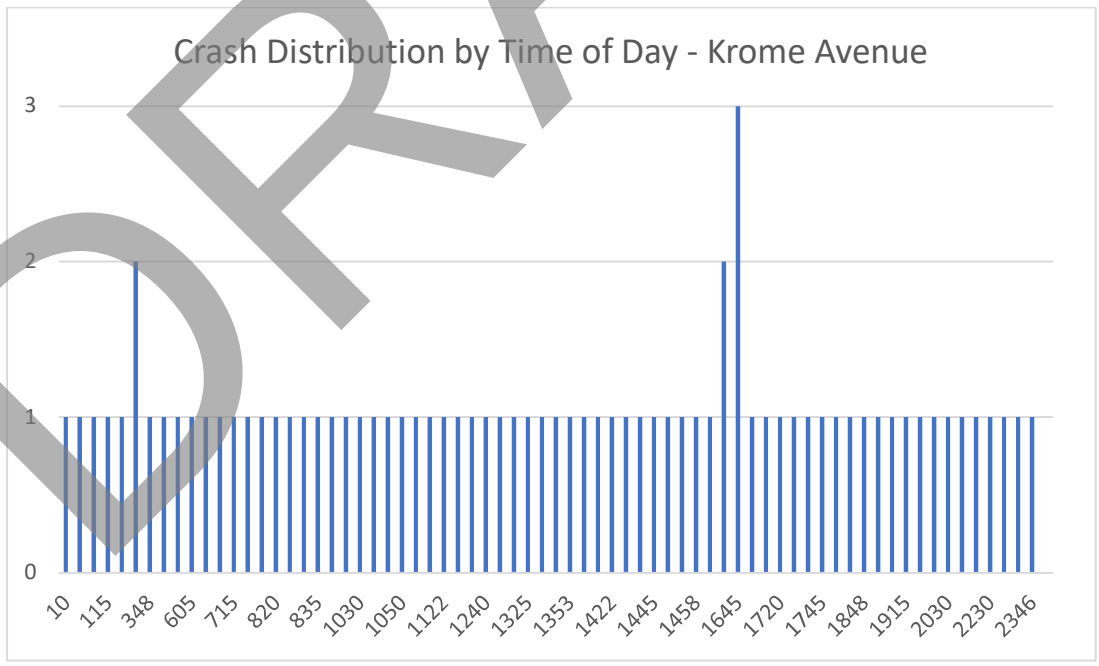

Figure 3-32 Crash Distribution by Time of Day (Less Code 0 Crashes)

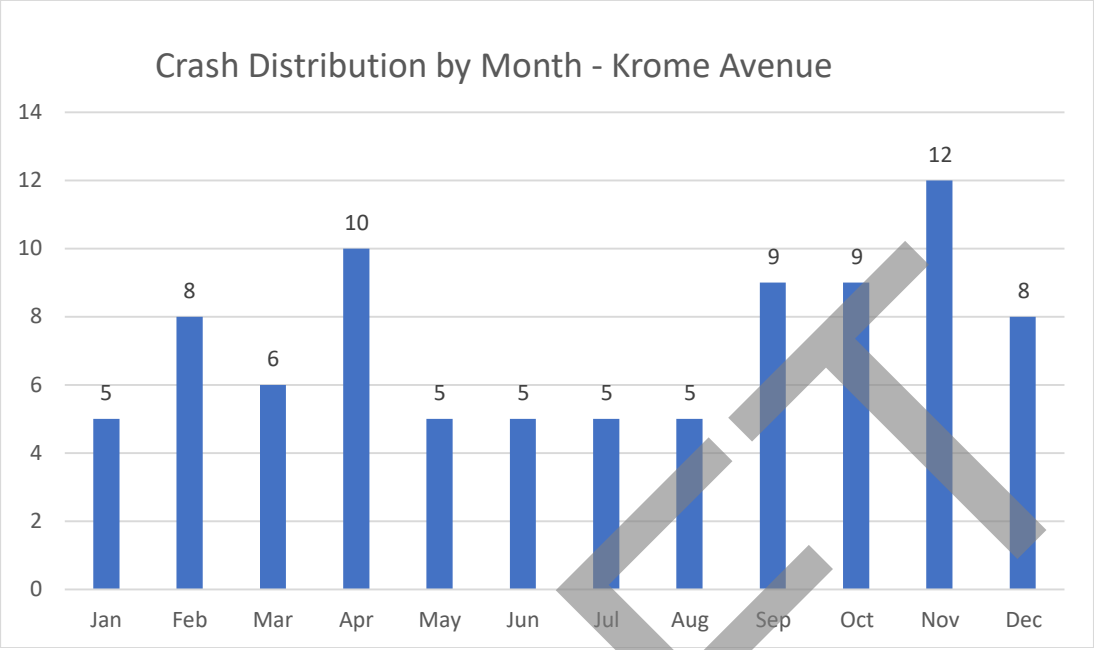

Figure 3-33 Crash Distribution by Month

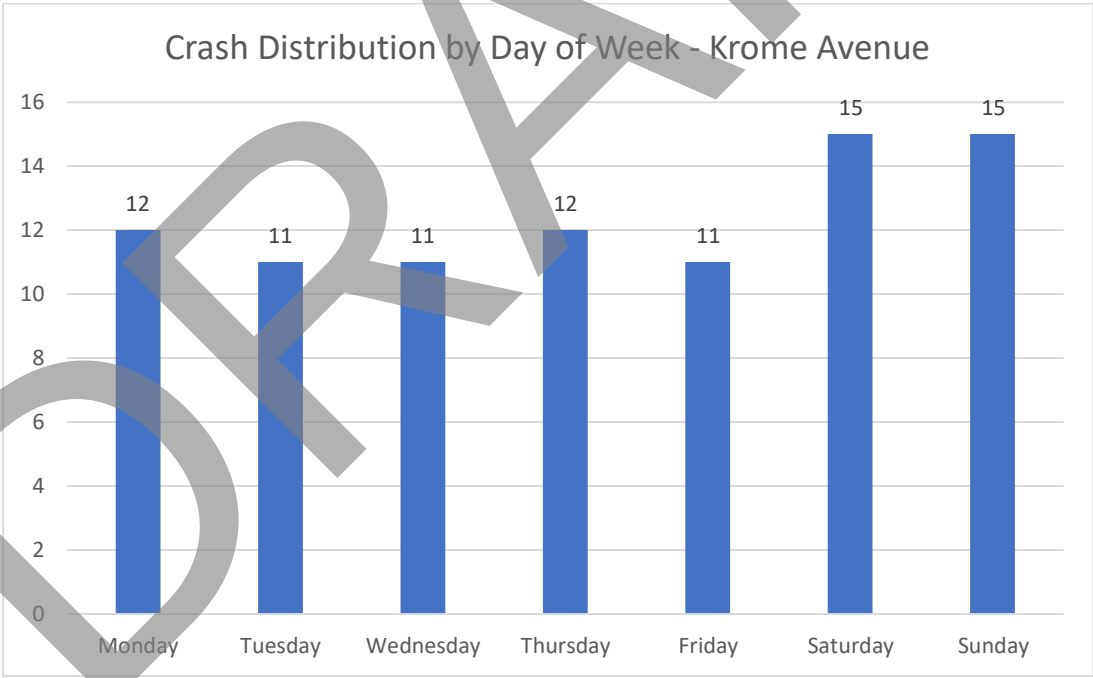

Figure 3-34 Crash Distribution by Day of Week

3.1.6 Crash Data Analysis – Davis Parkway

- A total of seven (7) crashes were reported during the referenced five-year period along Davis Parkway. Two (2) crashes occurred in 2014 and five (5) in 2015. See **Figure 3-35** for crash distribution by year.
- Of these seven (7) total crashes, four (4) were angle crashes, two (2) were sideswipe crashes, and one (1) was coded as "other". See **Figure 3-36** for distribution by crash type.
- See **Figure 3-37 through Figure 3-39** for crash distributions by time of day, month, and day of week, respectively.
- Six (6) of the seven (7) crashes occurred during daylight.
- Six (6) of the seven (7) crashes occurred on dry roadway.

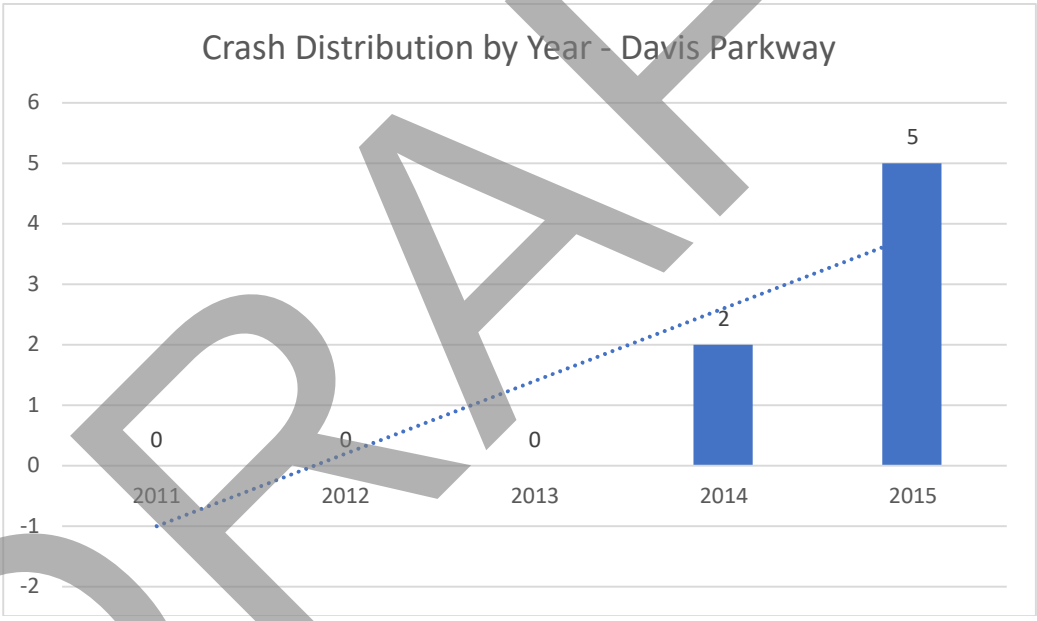

Figure 3-35 Crash Distribution by Year

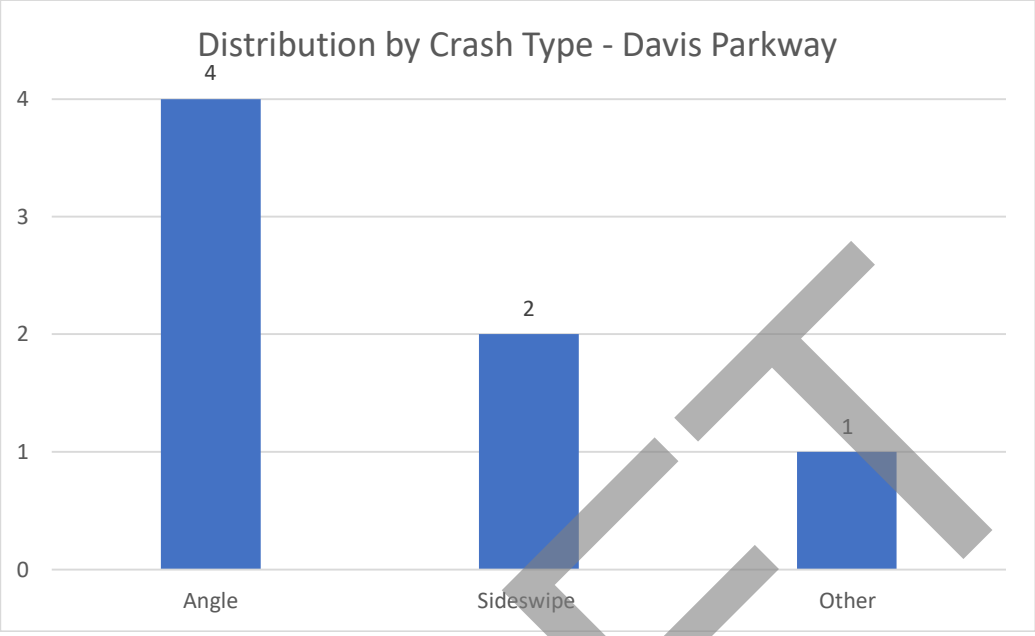

Figure 3-36 Distribution by Crash Type

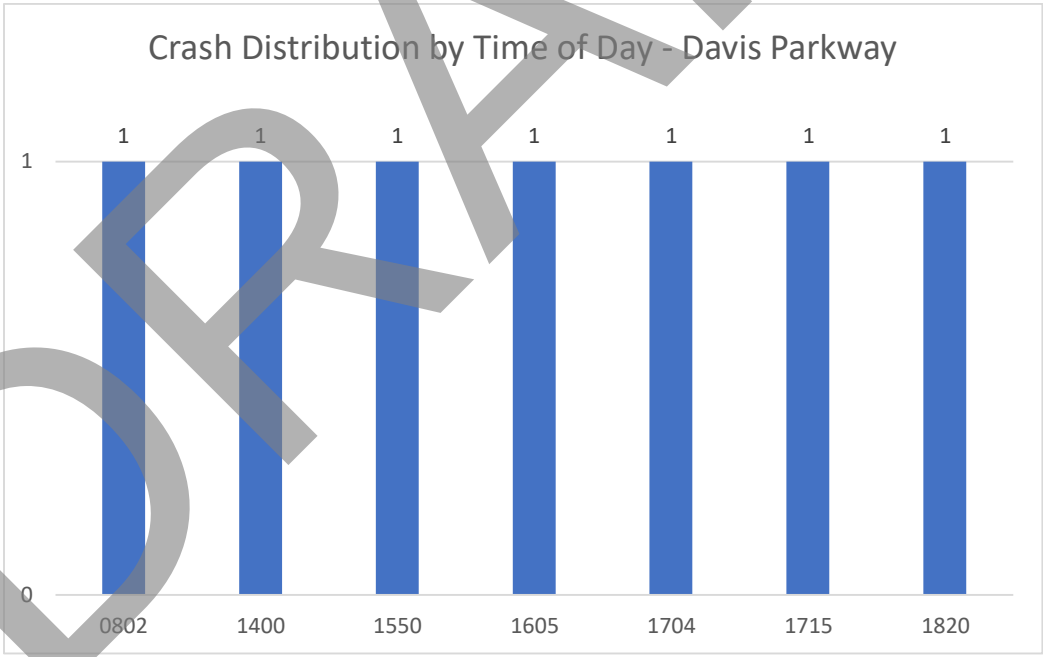

Figure 3-37 Crash Distribution by Time of Day

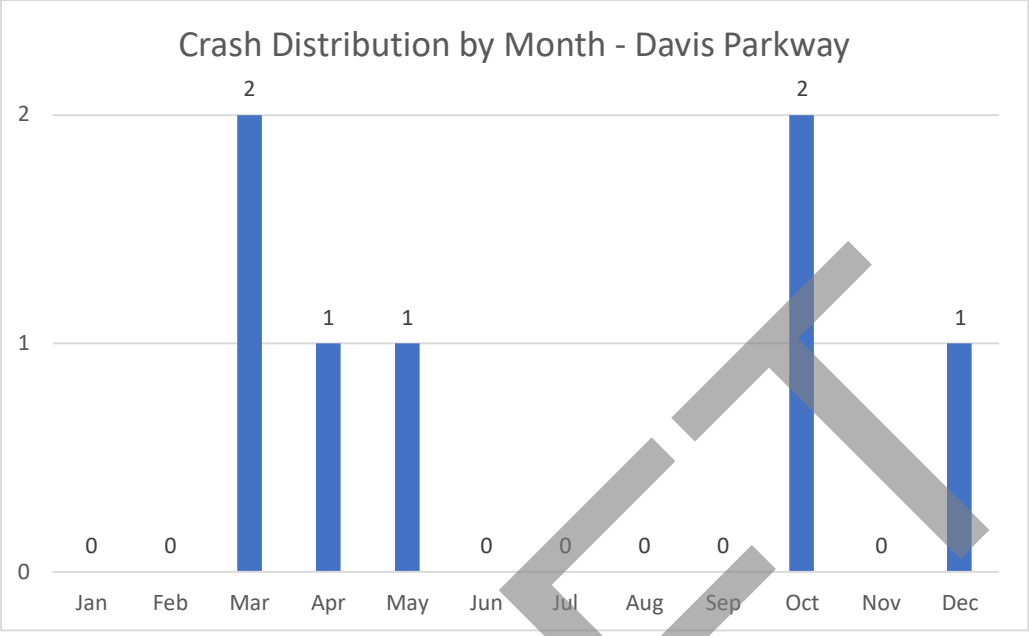

Figure 3-38 Crash Distribution by Month

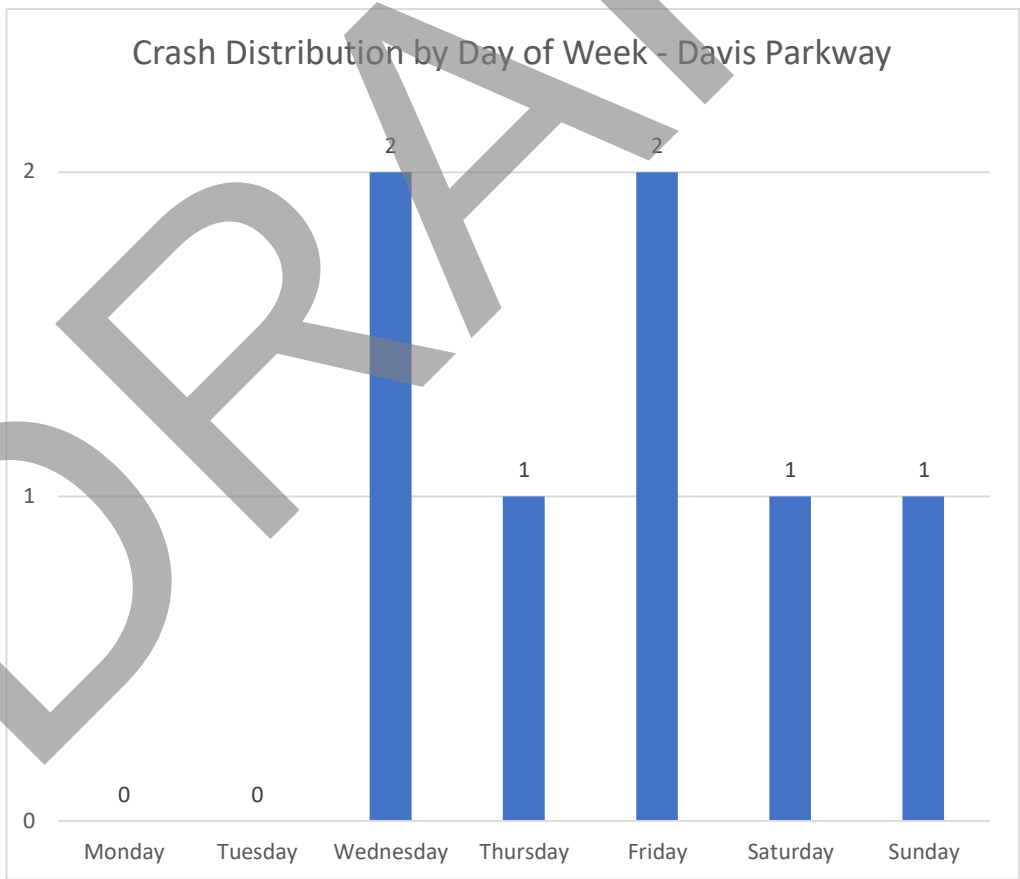

Figure 3-39 Crash Distribution by Day of Week

3.1.7 Crash Data Analysis – Lucy Street

- A total of sixteen (16) crashes were reported during the referenced five-year period along Lucy Street. Four (4) crashes occurred in 2012, five (5) in 2013, five (5) in 2014, and two (2) in 2015. See **Figure 3-40** for crash distribution by year.
- Of these sixteen (16) total crashes, five (5) were run-off-road, four (4) angle, two (2) rear-end, two (2) head-on, two (2) bicycle, and one (1) pedestrian crash. See Figure 3-41 for distribution by crash type.
- See **Figure 3-42 through Figure 3-44** for crash distributions by time of day, month, and day of week, respectively.
- Ten (10) of the 16 crashes occurred during daylight.
- Twelve (12) of the 16 crashes occurred on dry roadway.

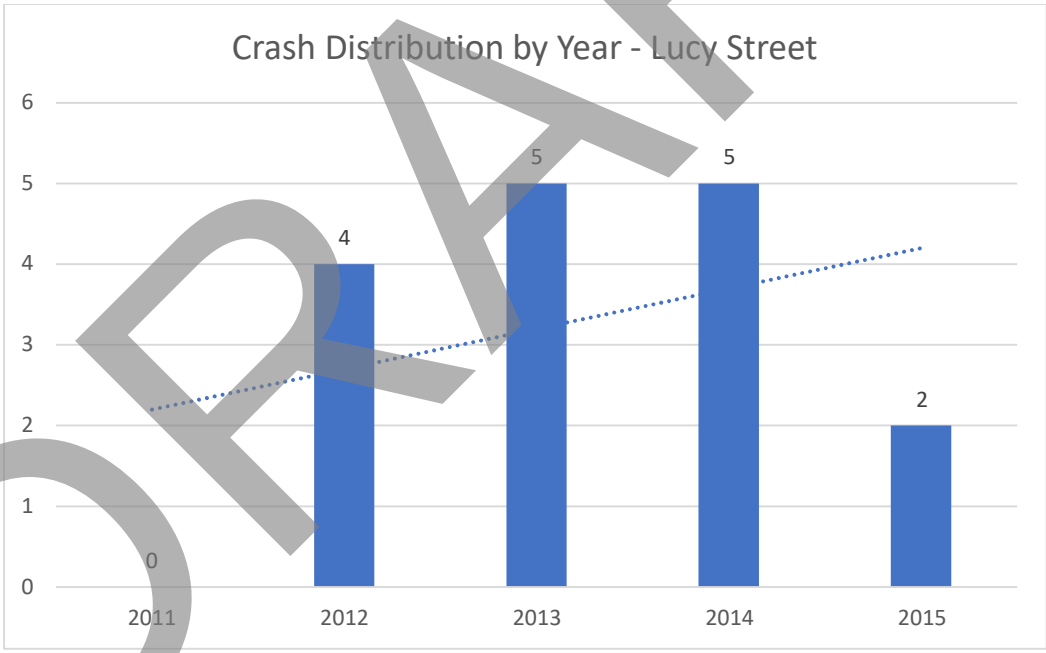

Figure 3-40 Crash Distribution by Year

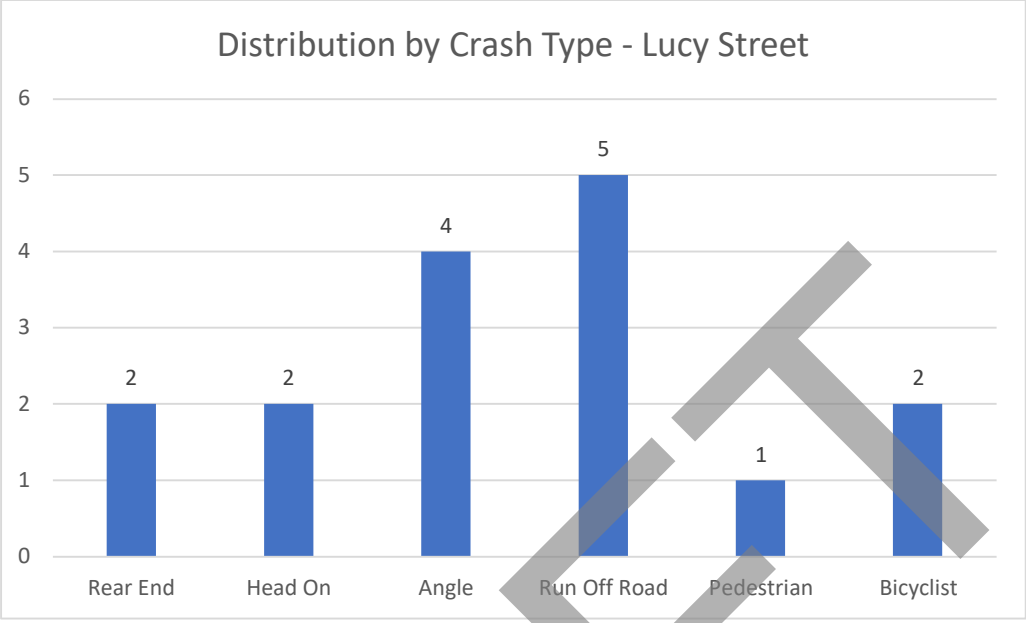

Figure 3-41 Distribution by Crash Type

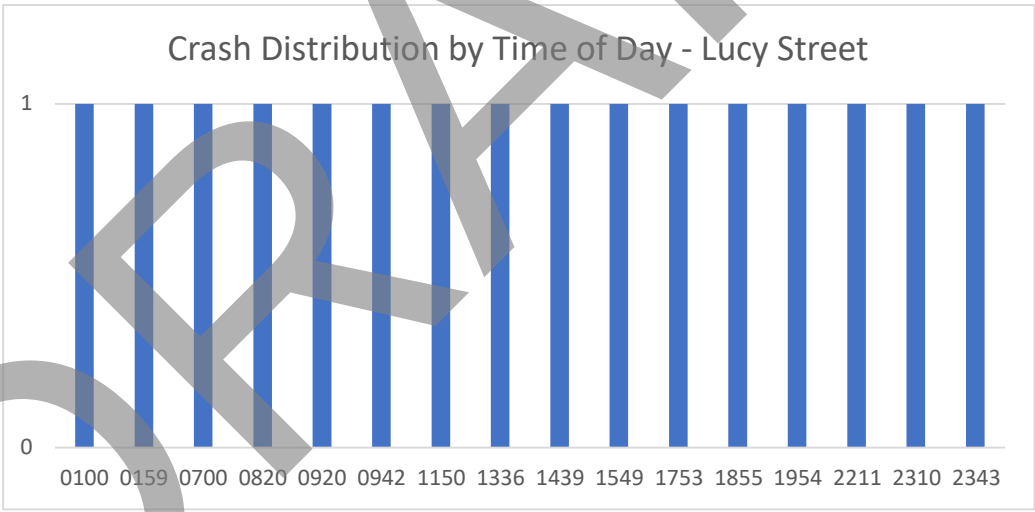

Figure 3-42 Crash Distribution by Time of Day

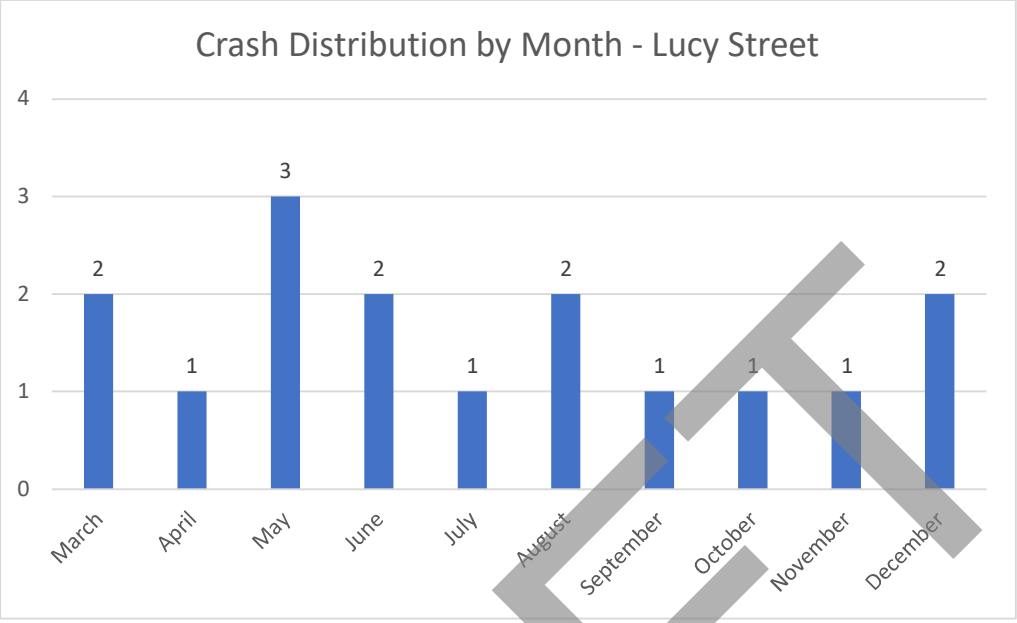

Figure 3-43 Crash Distribution by Month

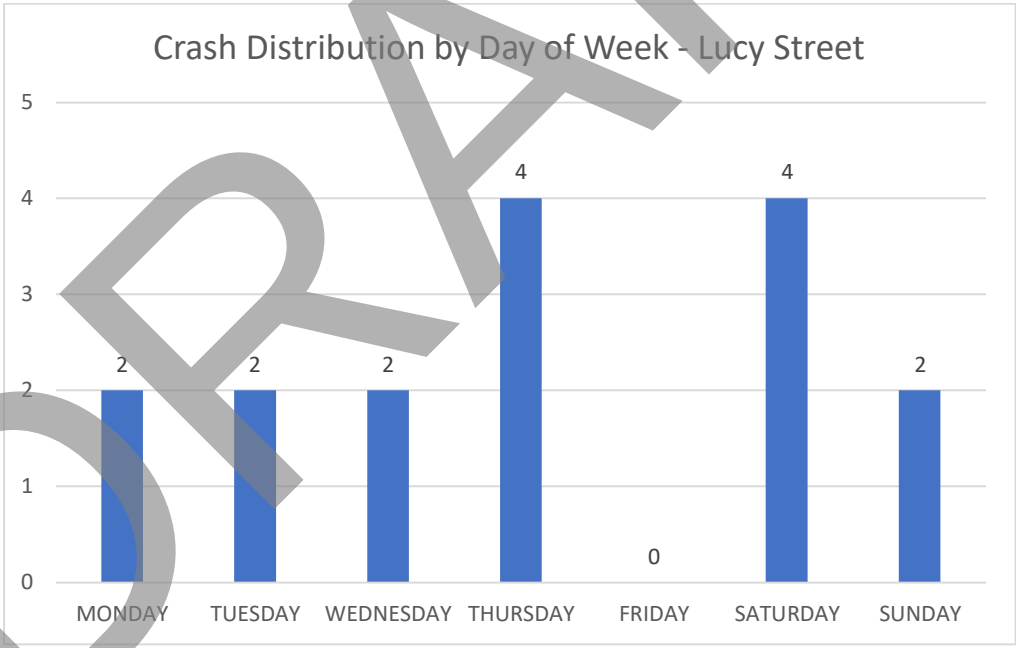

Figure 3-44 Crash Distribution by Day of Week

Section 4

Field Assessment

4.1 Field Assessment

A field assessment was conducted at the study area during the morning and evening peak periods on Thursday, March 8, 2018 to evaluate the physical and traffic safety conditions during a weekday. Supplementary assessments were conducted on the morning of Saturday, March 10, 2018 to evaluate the weekend traffic conditions and on the afternoons of Monday, March 12, Friday April 27, and Sunday April 29, 2018.

Along the HEFT south of Campbell Drive, the roadway is a divided four-lane freeway with three vertical curves. There are two overhead guide signs two miles and one mile in advance of the US 1 intersection in the southbound direction. Entering the study area from the north along the HEFT, the conditions transition from freeway conditions into urban arterial conditions via a single lane off-ramp with an advisory speed of 35 MPH that develops from a left lane merge. The off-ramp includes an overpass over US 1 and a superelevated section that transitions and merges onto southbound US 1, which abruptly leads to the US 1 and Palm Drive intersection and associated traffic queues. Several skid marks were observed approaching and along the ramp. Sections of repaired guardrail and crash marks along the concrete barrier wall were also observed in addition to recent skid marks that veered off the tangent section leading the crest vertical curve (see **Photo 1)**. The southbound off-ramp from the HEFT to US 1 northbound is delineated by two overhead guide signs one and a half miles and a half mile in advance of the ramp in addition to a ground-mounted guide sign at the diverge point. The single lane off-ramp is opens with a deceleration lane and includes a superelevated section with an advisory speed of 35 MPH. New sections of guardrail were observed on the tangent side. The off-ramp from northbound US 1 to northbound HEFT is two lanes with an advisory speed of 40 MPH with the inner lane delineated as a choice lane. There is one overhead guide sign for this ramp located at the theoretical gore point and no advance guide signs. The on-ramp from southbound US 1 to northbound HEFT is accessed via a left-in median opening along US 1 onto a single lane on-ramp that merges with the northbound US 1 to northbound HEFT two lane on-ramp. There are two ground-mounted

guide signs located on the right shoulder for this ramp, one tenth of a mile in advance and at the turn lane. All ramps have conventional lighting. Aside for the southbound HEFT to northbound US 1 off-ramp, there are no sidewalks nor provisions for pedestrian crossings along US 1 at these ramps.

The intersection of US 1 and Palm Drive is an at-grade signalized intersection (see **Photo 2**). Businesses surround the intersection and have access along the east, south, and west legs. Where provided, access is only right-in/right-out. The east-west approaches are split phase and the eastbound and westbound right-turn movements have right-turn overlap phases. The north and south legs do not have exclusive right-turn lanes. The westbound approach has one through lane with three receiving lanes along the west leg. Intersection sight distance appeared to be adequate, with no obstructions to lines of sight to the other approaches. The west and south legs have sidewalks on both sides of the roadways. The east leg has sidewalk along the north side of Palm Drive and the north leg does not have sidewalks. There are no bicycle lanes along US 1 nor Palm Drive at this intersection. An ITS CCTV camera is located at the northeast corner of the intersection. Red-light enforcement cameras are mounted on the north and west legs for the southbound and eastbound approaches, respectively.

The intersection of Krome Avenue and Palm Drive is signalized with a gas station on the northwest corner that has access along Krome Avenue and Palm Drive. There is a trucking shipping facility on the south leg with an access point along Palm Drive and four access points along Krome Avenue. There is a hotel on the south leg with access only along US 1 and no access to Krome Avenue nor Palm Drive. The north leg has trucking facilities, commercial centers, a farmers' market, and hotels. The north-south left-turn movements operate on permissive phasing. Pedestrian signals and crosswalks are on each leg and sidewalks are on both sides of Palm Drive. The north, south, and west legs have designated bicycle lanes. North of the intersection, Krome Avenue has a combination of exclusive bicycle lanes and shared lane markings. A red-light enforcement camera is mounted on the west leg for the eastbound approach.

Krome Avenue and Davis Parkway intersect as two-lane roadways. A car dealership is on the southeast corner with access along Krome Avenue and Davis Parkway, retail center on the northeast with access along Davis Parkway, RV park on the northwest with no access along Krome Avenue nor Davis Parkway, and vacant lot on the southwest. There are no exclusive left-turn lanes and the intersection operates with permissive left-turn phasing. Sidewalks are located on the east side of Krome Avenue and on both sides of the east leg of Davis Parkway. A marked crosswalk and pedestrian signal are on the east leg and designated bicycle lanes are provided along Krome Avenue.

Davis Parkway/HEFT Off-Ramp and US 1 is a signalized intersection. The east leg is westbound only from the HEFT with a channelized right-turn lane under Yield control. The car dealership and commercial center are on the west side and two hotels are on the east side. The car dealership does not have access to US 1 and the commercial center and two hotels have driveways along US 1 at least 250 feet from the intersection. Sidewalks are located on both sides of the north and west legs and crosswalks and pedestrian signals are also provided on the north and west legs. There are no designated bicycle lanes at this intersection.

US 1 and Krome Avenue intersect at the south end of the study limits as an unsignalized T-intersection. US 1 operates uncontrolled as the major roadway. Krome Avenue is under Stop control for eastbound left-turns and the channelized eastbound right-turn lane is under Yield control with a receiving lane along US 1. There appears to be good intersection and left-turn sight distances with no visual obstructions. Dynamic message signs are mounted in the median of US 1 on the north leg, protected by guardrail, that provide traffic information to northbound and southbound motorists. ITS CCTVs are also provided along this segment of roadway.

4.1.1 Operational Assessment

The following operational conditions were observed during the field assessments:

<u>HEFT Mainline</u>

Thursday, March 8, 2018, 8:00 AM

- Northbound and southbound traffic was light. There was more traffic, including haul trucks and school buses, along northbound but congestion was not observed.

Saturday, March 10, 2018, 9:30 AM

- Northbound and southbound traffic observed at this time was slightly heavier than the traffic observed on Thursday, March 8. Recreational vehicles, including trailered boats and campers, were observed in the northbound direction.

Thursday, March 8, 2018, 6:30 PM

- Northbound and southbound traffic was observed to be light. More traffic occurred in the southbound direction.

Monday, March 12, 2018, 4:30 PM

- Northbound and southbound traffic was moderate during this time.

Friday, April 27, 2018, 7:30 PM

- Southbound traffic was light and northbound traffic was slightly congested.

Sunday, April 29, 2018, 1:00 PM

- Northbound traffic was observed to be heavy and southbound traffic was light.

<u>US 1 and Palm Avenue Intersection</u>

Thursday, March 8, 2018, 8 to 9 AM

- The majority of the traffic that was processed through the intersection appeared to be coming from and destined for the HEFT.
- There was a significant amount of eastbound through traffic coming from the residential areas west of the study limits along Palm Avenue, possibly headed towards the schools east of the study.
- Aggressive driving was observed at this intersection, particularly on the westbound and southbound approaches.
- The southbound through movement routinely blocked the southbound left-turn storage lanes. The queues lengths were over 30 vehicles each cycle (see **Photo 3**).
- Many vehicles from the HEFT southbound ramp onto southbound US 1 had

difficulty weaving over two lanes to the southbound left-turn lanes at US 1 and Palm Avenue. Weaving maneuvers were conducted across the chevron gore striping as the southbound queues continued past the gore. At one point during the review, a police officer was observed parked in the gore area to discourage weaving over the striped gore.

- Several trucks were observed exiting the southbound ramp then weaving to make a left-turn. This was achieved by either stopping on the ramp to wait for available gaps in traffic or aggressively switching lanes in front of southbound vehicles.
- The southbound ramp from the HEFT to US 1 routinely experienced queue backups past the US 1 overpass. This was contributed, in part, to downstream southbound weaving maneuvers along the north leg of US 1.
- The outside southbound through lane north and south of Palm Avenue operated as a de-facto right-turn lane. South of the intersection, this lane is a merge lane and provides access adjacent to several commercial driveways that include a gas station and fast food restaurants.
- Southbound left-turn queues were eight (8) vehicles on average per cycle.
- Northbound through queues were only five (5) vehicles on average per cycle.
- The northbound left-turn volumes were low and often observed to have zero (0) cars in the storage lane.
- Northbound and southbound through and left-turn queues cleared each cycle.
- The majority of northbound traffic observed was destined to the HEFT.
- The westbound queues were routinely over 50 vehicles (see **Photo 4**). The queues often blocked the westbound left-turn storage lane. The westbound approach experienced multiple cycle failures on every cycle.
- The eastbound through queues were approximately 12 vehicles on average each cycle (see **Photo 5**).
- Eastbound left-turn queues were 14 vehicles on average and experienced cycle failures on every cycle.
- The eastbound exclusive right-turn lane was utilized by only one or two vehicles per cycle to make right turns. Some vehicles were observed using this lane to continue eastbound to skip the eastbound through queues.
- The eastbound approach to US 1 was metered by the upstream signal at Krome Avenue and Palm Avenue.
- There were approximately 10 pedestrians observed crossing US 1 and Palm Drive. Many pedestrians were observed crossing US 1 along the north leg, which does not currently have a marked crosswalk nor a pedestrian signal. However, during the field review, construction was observed that was in the process of implementing a crosswalk and pedestrian signals along the north leg.

Saturday, March 10, 2018, 9:30 AM

- Approaching the intersection in the southbound direction from the HEFT, traffic was stopped along the southbound off-ramp, as the queue ended along the ramp's horizontal curve. Line of sight towards the downstream queue is blocked by the

vertical curvature of the overpass and palm trees planted along the ramp.

- The southbound through queue was 13 vehicles, making the weaving maneuver to the southbound left-turn lanes difficult.
- The southbound left-turn queue was seven (7) vehicles.
- The southbound merge lane south of the intersection was congested by vehicles accessing the commercial business (see **Photo 6).**
- The eastbound left-turn queue was seven (7) vehicles.

Thursday, March 8, 2018, 5 to 6 PM

- The northbound approach was much heavier in the afternoon, with over 50 vehicles in the queues for most of the cycles observed (see **Photo 7**). The northbound through movement experienced a cycle failure at every cycle.
- Many northbound right-turning vehicles were observed cutting through the property on the southeast corner of the intersection.
- The westbound approach had over 50 vehicles in the queues and experienced multiple cycle failures on each cycle.
- The eastbound approach experienced more traffic than in the morning with over 20 vehicles in the queues and experienced cycle failures for most cycles observed (see **Photo 8**).
- The southbound approach cleared most of the cycles observed.
- The southbound left-turn movement had a 15-vehicle queue on average per cycle and cleared most cycles.
- There were only two to three vehicles per cycle making eastbound right-turns.
- Northbound drivers were observed using the leftmost lane exiting the intersection and cutting over to the middle or rightmost lane to enter the HEFT northbound.
- The weaving maneuver from the HEFT southbound ramp onto southbound US 1 was not as difficult during the afternoon as it was in the morning, however some drivers were observed holding the queue along the southbound off-ramp in order to weave over to the southbound left-turn lanes at US 1 and Palm Avenue.
- There were a few pedestrians and bicyclists observed crossing US 1 and Palm Drive. Some were leaving school and some crossed US along the north leg.

Monday, March 12, 2018, 4:30 PM

- A 20-car northbound queue in each of the three lanes was observed at the intersection.

<u>Krome Avenue and Palm Avenue Intersection</u>

Thursday, March 8, 2018, 8 to 9 AM

- Of the four legs at the intersection, the eastbound approach had the most traffic volume.
- Cycle failures were not observed.
- Eastbound signal timing between this signal and the signal at US 1 and Palm Avenue

provided for good eastbound progression.

Thursday, March 8, 2018, 5 to 6 PM

- Of the four legs at the intersection, the eastbound approach had the most traffic volume.
- There was more traffic in the northbound approach than in the morning review.
- Cycle failures were not observed.
- Eastbound signal timing between this signal and the signal at US 1 and Palm Avenue provided for good eastbound progression.

US 1 and Davis Parkway Intersection

Thursday, March 8, 2018, 8 to 9 AM

- The observed volume of traffic coming from the HEFT southbound off-ramp (east leg) was low.

Thursday, March 8, 2018, 5 to 6 PM

- A low volume of vehicles was observed coming from the HEFT southbound off-ramp (east leg).

Photo 1: Looking south along HEFT southbound off-ramp. Note skid marks

Photo 2: Looking northwest at US 1 and Palm Drive at-grade intersection

Photo 3: Looking north along southbound US 1 at Palm Drive. Note southbound queue and open left-turn lanes

Photo 4: Looking east along Palm Drive. Note queue length for westbound approach

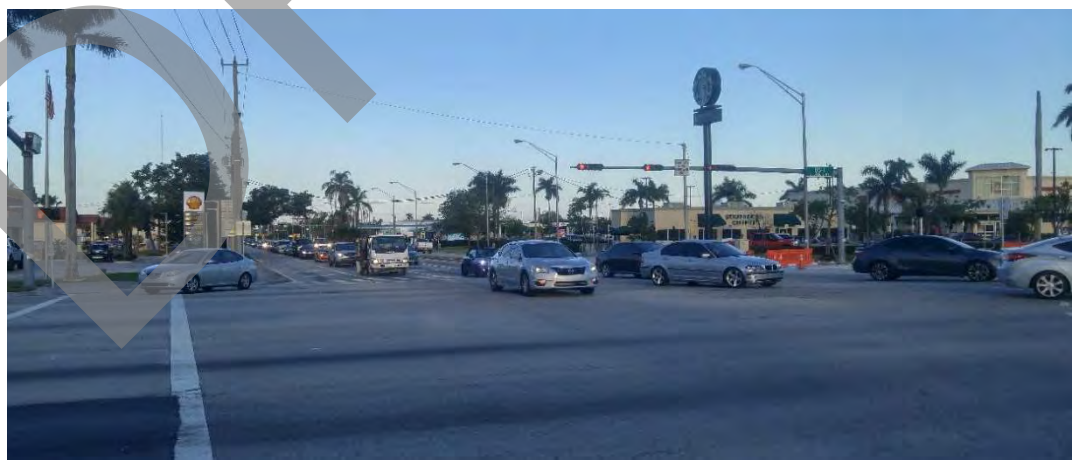

Photo 5: Looking west along Palm Drive. Note queue length for eastbound approach

Photo 6: Looking south along US 1. Note congested merge lane

Photo 7: Looking south along US 1. Note queue length for northbound approach

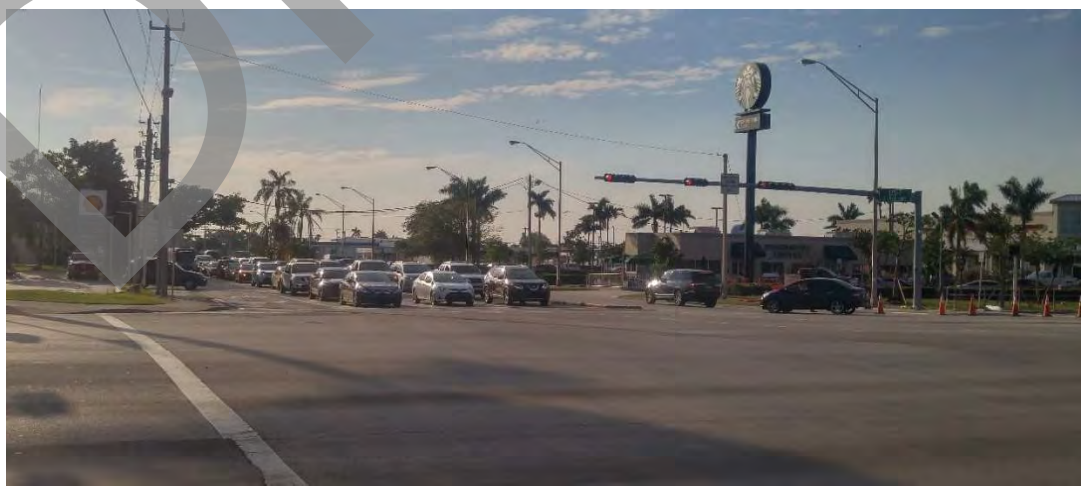

Photo 8: Looking west along Palm Drive. Note queue length for eastbound approach

Section 5

Safety Assessment

5.1 Safety Assessment

Segments and intersections within the study area are on the state's Five-Year High Crash List for years 2011-2015. There is also an upward trend in the annual number of crashes for the entire study area during the study period and for the segments studied individually. Nighttime and wet roadway crashes are both above the statewide averages. From the crash analyses and field assessments conducted, it appears the majority of the crashes can be attributed to congestion leading to and from the HEFT and US 1 intersection. Additionally, there are major attractors and generators to the east relative to the study area via Palm Drive. East-west traffic competes with north-south traffic for signal allocation. The southbound weave section along US 1 approaching Palm Drive, which is a result of drivers exiting the HEFT destined for eastbound Palm Drive and southbound drivers along US 1 destined for westbound Palm Drive, is safety concern. The available distance to make the weaving maneuvers is less than 350 feet and southbound queues are over 1,000 feet during peak periods. The westbound approach experiences multiple cycle failures during the peak periods.

Crash frequencies are higher during the weekends and during the seasonal months. This is indicative of recreational and tourist traffic that passes through the study area who may not be familiar with the area roadway and operational conditions. Within the study area, the HEFT experiences both heavy local and heavy transient traffic with the truck percentage above 10 percent. Residential, commercial, schools, and agricultural contribute to the local trips. The transient trips are generally attributed to the vacation/recreational destinations south of the study area in the Florida Keys, with both tourists and workers originating from north of the study area. Both streams of traffic are funneled through the US 1 and Palm Drive signalized intersection, which is just south of the begin limits of the HEFT. The intersection experiences traffic beyond its capacity and, as such, results in traffic saturation and overall degradation in safety.

There were 17 pedestrian and bicycle crashes during the study period. Eleven (11) of these occurred along US 1. There is a project currently under construction at the intersection of US 1 and Palm Drive that is implementing a crosswalk and pedestrian signals, however, there are no bicycle lanes along US 1 nor pedestrian facilities north of the intersection due to the limited access right-of-way.

It is recommended that the transient traffic along the HEFT be separated from the local traffic that utilizes the US 1 and Palm Drive. This configuration will reduce the congestion at the intersection while also reducing the number of potential conflicts, thereby mitigating congestion related crashes such as rear-end, sideswipe, and angle crashes. It will also mitigate ancillary crashes experienced by the surrounding roadways and intersections, particularly rear-end and run-off-road crashes along the southbound ramp from the HEFT as well as crashes related to the downstream weave approaching the intersection. More gaps would be available for vehicles entering onto southbound US 1 from the businesses along the west side of US 1 on the south leg, reducing the potential for crashes associated with those driveways. US 1 and the HEFT combined is an evacuation route for the Florida Keys and all traffic must pass through it. This improvement will also help better facilitate the evacuation route along US 1 as well.

A southbound right-turn lane is recommended at intersection of US 1 and Palm Drive. This improvement will help reduce the southbound queue length, thereby helping the southbound weave maneuver from the HEFT off-ramp and mitigating those crashes. It will also improve overall intersection operations.

A northbound right-turn lane is recommended at intersection of US 1 and Palm Drive. This improvement will help reduce the northbound queue length, thereby allowing for more signal allocation elsewhere and enabling better operations.

It is recommended that a dynamic message board linked to a queue detection system be installed along the HEFT in the southbound direction approaching the off-ramp to US 1. The purpose of the message board is to warn motorists when queues along the ramp are backed up and approaching the mainline of the HEFT.

Provide advance overhead guide signs along northbound US 1 approaching the off-ramp to northbound HEFT. Currently there is only one overhead guide sign located at the gore of the ramp. Advance notification of the ramp and associated lanes will enable advance lane management for motorists, reducing late lane shift maneuvers.

Install lighting along the HEFT between US 1 and Campbell Drive. Thirty-five percent of the crashes along the HEFT occurred at night, which is higher than the statewide average for all roadways.

Provide bicycle lanes and pedestrian facilities along US 1. There are no existing separated bicycle facilities along US 1 within the study area. This signalized intersection of US 1 and Palm Drive also channels residents from Florida City.

5.1.1 High Crash List

The segments and intersections within the study area listed below appear on the Department's Crash Analysis Reporting System (CARS) High Crash List for the referenced five-year period. The CARS High Crash List is composed of intersections and segments that experience crash rates that are higher than the statewide or districtwide average for similar intersections and roadway segments. Crash rates describe the number of crashes in a given period as compared to the traffic volume. Traffic volume determines the measure of exposure. Crash rates are calculated by dividing the number of crashes at an intersection or segment for the time period by a measure of exposure. The High Crash Lists can be found in **Appendix C**.

Intersections on the Five-Year High Crash List

US 1 and Palm Drive (MP 0.862)

- Category – Urban 6 Lane 2 Way Divided Raised
- District 6 Crash Rate for Category – 1.223
- Actual Crash Rate – 2.184
- Above Districtwide Crash Rate for Category

US 1 and Davis Parkway (MP 1.369)

- Category – Suburban 4-5 lane 2 Way Divided Raised
- District 6 Crash Rate for Category – 0.349
- Actual Crash Rate – 1.259
- Above Districtwide Crash Rate for Category

Segments on the Five-Year High Crash List

Turnpike Extension from North of Davis Parkway to North of Campbell Drive (MP 0.984 – 3.284).

- Category – Toll Road Urban
- Florida Turnpike Enterprise District Crash Rate for Category – 0.588
- MP 0.984 – 1.084 Actual Crash Rate – 2.447
- MP 1.884 – 2.284 Actual Crash Rate – 1.912
- MP 2.884 – 3.284 Actual Crash Rate – 1.224
- All Segments Above Districtwide Crash Rate for Category

US 1 from Palm Drive to Turnpike Extension SB Off-Ramp (MP 0.862 – 1.036).

- Category – Suburban 6+ Lane 2 Way Divided Raised
- Districtwide Crash Rate for Category – 3.810
- Actual Crash Rate – 11.239

US 1 from US 1 SB to Turnpike Extension NB On-Ramp to North of Davis Parkway (MP 1.236 – 1.636).

- Category – Suburban 4-5 Lane 2 Way Divided Raised
- Districtwide Crash Rate for Category – 2.896
- Actual Crash Rate – 5.469

Section 6

Crash Mitigation

6.1 Regional Stakeholders

The five-year historical crashes with potential for crash mitigation from their respective improvements and locations are identified in **Table 6.1**.

Table 6-1 Potential Crash Mitigation

Recommendation	Location	Potential Crash Mitigation
Grade Separate HEFT and US 1	US 1 and Palm Drive Intersection	· 62 rear-end and sideswipe crashes · 20 angle crashes
	HEFT Southbound Ramp	· 7 rear-end crashes · 24 run-off-road crashes
Southbound Right-Turn Lane	US 1 and Palm Drive Intersection	· 17 rear-end and sideswipe crashes
Northbound Right-Turn Lane	US 1 and Palm Drive Intersection	· 17 rear-end and sideswipe crashes
Queue Detection System	HEFT Approaching Southbound US 1 Ramp	· 13 all types of crashes
Advance Overhead Guide Sign	US 1 Northbound at HEFT Northbound Ramp	· 12 rear-end and sideswipe crashes
Lighting	HEFT Between US 1 and Campbell Drive	· 33 night-time crashes
Bicycle Lanes	US 1 North of Palm Drive	· 1 bicycle crash

Appendix A

Study Area Crash Data

CRSH_NUM	CAL_YR	EVNT_CRSH_DT	EVNT_CRSH_TM	DAYOWEEK	DAYOWEEK	MANDIST	CONTYDOT	RDWYID	LOCMP	LOCNODE	LOCDIST	LOCMEACD	LOCDIRCD	EVNT_ON_RD_NM	EVNT_INTCT_RD_NM	DISTINTS	MEAINTCD	DIRINTCD	ROUTEID	USRTNO	CONTYDMV	DHSCTYNO	EVNT_CTY_	EVNT_CTY_	ACCISEV	TYP_DR_ACDNT_CD	FRST_HARM_EVNT_CD	IMPCT_TYP_CD	FRST_HARM_LOC_CD	JCT_CD	INTCHG_C	ACCSIDRD	ACCLANE	DHSRDSYS
859660110	2015	9/25/2015	2349	5	F	8	87	87471000	0.286	9596	0.002	MI	N	US1	SW 344 ST	400	FT	N	SR 821		1	46	FLORIDA C	2	4	1	11	77	1	14	1	R	2	2
845202150	2014	12/8/2014	1040	1	M	8	87	87471000	0.436	2490	0			SR 821	EXIT 12	0	FT		SR 821		1	66	MIAMI	1	1	2	14	1	1	14	1	R	3	6
848932210	2015	7/18/2015	1550	6	Sa	8	87	87471000	0.445	2490	0.009	MI	N	S.R. 821 NB / MM0 ENTERANCE RAMP	SOUTH DIXIE HIGHWAY	50	FT	N	SR 821		1	58	HOMESTE	1	1	1	32	77	2	14	1	R	X	6
833103640	2013	6/22/2013	1431	6	Sa	8	87	87471000	0.5	3060	0.038	MI	S	SB MM 1R 821 S	SR 5	0.5	MI	N	SR 821		1	67	MIAMI TP	2	1	1	9	77	3	1	1	L	S	6
819880020	2011	4/6/2011	1400	3	W	8	87	87471101	0	3060	0			STATE ROAD-821	SW 344 STREET	100	FT	S	SR 821		1	67	MIAMI TP	1	1	1	1	77	1	1	1	L	X	6
820058120	2011	5/20/2011	1145	5	F	8	87	87471101	0	3060	0			SR 821	SB EXIT 1	0	FT		SR 821		1	67	HOMESTE	1	3	2	14	1	1	1	1	L	X	6
822669300	2011	10/16/2011	1716	7	Su	8	87	87471101	0	3060	0			SR-821	SR-5	100	FT	N	SR 821		1	67	MIAMI TP	2	2	1	27	77	3	14	2	L	X	6
828422440	2011	12/6/2011	1712	2	T	8	87	87471101	0	3060	0			STATE ROAD 821 (HOMESTEAD EXT)	STATE ROAD 5 (US -1)	300	FT	N	SR 821		1	67	MIAMI TP	1	3	1	14	1	1	1	1	L	X	6
822431040	2012	2/5/2012	611	7	Su	8	87	87471101	0	3060	0			STATE ROAD 821 (HOMESTEAD EXT)	STATE ROAD 5 (US-1)	250	FT	N	SR 821		1	67	MIAMI TP	1	1	1	27	77	1	1	1	L	X	6
831546090	2012	10/19/2012	1200	5	F	8	87	87471101	0	3060	0			SR 821	MM 1 EXIT 1	0	FT		SR 821		1	67	MIAMI TP	1	3	1	39	77	1	1	1	L	X	6
831684680	2012	9/3/2012	1133	1	M	8	87	87471101	0	3060	0			STATE ROAD 821	STATE ROAD 5	0.1	MI	N	SR 821		1	67	MIAMI TP	1	2	1	27	77	1	14	2	L	X	6
832428760	2012	12/29/2012	430	6	Sa	8	87	87471101	0	3060	0			STATE ROAD 821 EXIT	STATE ROAD 5	200	FT	N	SR 821		1	67	MIAMI TP	1	3	1	27	77	1	14	1	L	X	6
831686100	2013	1/4/2013	830	5	F	8	87	87471101	0	3060	0			SR-821 SB 2 T0 0 MM	US-1	1	MI	N	SR 821		1	58	HOMESTE	1	1	1	14	4	1	14	1	L	X	3
831866640	2013	1/12/2013	1401	6	Sa	8	87	87471101	0	3060	0			SR 821 S/B MM 1	SR 5	0.1	MI	N	SR 821		1	67	MIAMI TP	2	2	1	14	1	1	14	2	L	X	6
832416470	2013	5/4/2013	404	6	Sa	8	87	87471101	0	3060	0			SR 821 FL TP	SW 344 STREET	0.5	MI	N	SR 821		1	67	MIAMI TP	1	1	1	27	77	3	1	1	L	X	6
832416510	2013	5/17/2013	2250	5	F	8	87	87471101	0	3060	0			SR 821 FL TP	US 1	500	FT	N	SR 821		1	67	MIAMI TP	1	1	1	33	77	3	1	1	L	X	6
832429070	2013	3/16/2013	2049	6	Sa	8	87	87471101	0	3060	0			STATE ROAD 821	STATE ROAD 5	0.2	MI	N	SR 821		1	46	FLORIDA C	1	1	1	27	77	1	14	1	L	X	6
832549690	2013	4/30/2013	1749	2	T	8	87	87471101	0	3060	0			SR 821 S/B MM .1	SR 5	0.1	MI	N	SR 821		1	67	MIAMI TP	2	1	1	27	77	3	14	2	L	X	6
832549840	2013	5/30/2013	1218	4	R	8	87	87471101	0	3060	0			SR 821 SB MM .5	SR 5	0.1	MI	N	SR 821		1	67	MIAMI TP	1	4	1	23	77	2	14	2	L	X	6
835341950	2013	2/27/2013	0	3	W	8	87	87471101	0	3060	0			NE 1 AVE	E PALM DR	300	FT	N	SR 821		1	46	FLORIDA C	2	1	1	32	77	2	1	1	L	X	2
836705630	2013	12/29/2013	1328	7	Su	8	87	87471101	0	3060	0			SR 821 S/B MM 1	SR 5	0.7	MI	N	SR 821		1	67	MIAMI TP	2	3	1	14	1	1	14	2	L	X	6
837993470	2014	9/29/2014	1156	1	M	8	87	87471101	0	3060	0			SR 821	MM 1	0	FT		SR 821		1	58	HOMESTE	1	2	2	14	77	1	14	1	L	X	6
845004010	2014	11/9/2014	1745	7	Su	8	87	87471101	0	3060	0			SR-821 SB MM1	US DIXIE HWY	100	FT	N	SR 821		1	58	HOMESTE	2	1	1	25	77	2	1	1	L	X	6
848687010	2015	4/9/2015	1134	4	R	8	87	87471101	0	3060	0			SR 821 SB EXIT RAMP O	SR 5 (US 1) SB	5	FT	N	SR 821		1	67	MIAMI TP	1	1	1	14	1	1	14	1	L	X	6
851279320	2015	10/4/2015	942	7	Su	8	87	87471101	0.008	3060	0.008	MI	S	SR 821 SB MM 1 EXIT RAMP	SR 5 (US1)	40	FT	N	SR 821		1	67	MIAMI TP	1	1	1	14	77	1	14	1	L	X	6
835348720	2014	4/12/2014	1950	6	Sa	8	87	87471105	0	3060	0			W DAVIS PARKWAY	US-1	0	FT		SR 821		1	46	FLORIDA C	2	1	2	14	1	1	1	1	L	X	2
837559810	2014	10/9/2014	841	4	R	8	87	87471105	0	3060	0			SR 821 S/B MM .5	SR 5	0	MI		SR 821		1	58	HOMESTE	1	1	1	27	77	1	14	2	L	X	6
828438850	2012	3/3/2012	1130	6	Sa	8	87	87471105	0.003	3060	0.003	MI	S	SB SR 821 (FL TURNPIKE) MM 0 EXIT	US 1	0.1	MI	N	SR 821		1	67	MIAMI TP	1	1	1	14	1	1	1	1	L	X	6
852004250	2015	11/11/2015	700	3	W	8	87	87471105	0.038	3060	0.038	MI	S	SB STATE ROAD 821	STATE ROAD 5	200	FT	N	SR 821		1	58	HOMESTE	1	1	1	14	1	1	14	1	L	X	6
848932140	2015	7/13/2015	1510	1	M	8	87	87471000	0.821	3060	0.283	MI	N	S.R. 821 NB MM2	SW 328 STREET	0.5	MI	S	SR 821		1	58	HOMESTE	1	1	1	14	1	1	1	1	R	1	1
832006170	2013	3/23/2013	905	6	Sa	8	87	87471000	0.878	3060	0.34	MI	N	SR-821	SR-5	0.2	MI	S	SR 821		1	67	MIAMI TP	2	4	1	27	77	4	1	1	M	M	6
819545550	2011	1/23/2011	1802	7	Su	8	87	87471000	1	3062	0.321	MI	S	SR-821 (FL TURNPIKE) N/B MM 1	SR-5 (U.S.1)	1	MI	N	SR 821		1	67	MIAMI TP	2	3	1	1	77	1	1	1	R	1	6
828905840	2012	8/13/2012	155	1	M	8	87	87471000	1	3062	0.321	MI	S	SR 821 S/B MM 1	SR 5	1	MI	N	SR 821		1	67	MIAMI TP	2	1	1	9	77	1	1	1	L	S	6
833128890	2013	8/1/2013	1822	4	R	8	87	87471000	1.055	3062	0.266	MI	S	SB SR 821 MM 4	SW 312 ST	2	MI	S	SR 821		1	67	MIAMI TP	1	4	1	29	77	3	1	1	L	S	6
845533600	2015	6/13/2015	40	6	Sa	8	87	87471000	1.059	3062	0.262	MI	S	STATE ROAD-821 S/B	MILE MARKER 1	100	FT	S	SR 821		1	58	HOMESTE	1	1	1	14	1	1	1	1	L	1	6
852339230	2015	12/4/2015	600	5	F	8	87	87471000	1.059	3062	0.262	MI	S	STATE ROAD-821 S/B	MILE MARKER 1	100	FT	S	SR 821		1	58	HOMESTE	1	1	2	14	1	1	1	1	L	1	6
845286030	2015	2/27/2015	1722	5	F	8	87	87471000	1.062	3062	0.259	MI	S	S.R. 821 SB MM1	SW 344 STREET	1550	FT	S	SR 821		1	58	HOMESTE	1	1	2	5	77	1	1	1	L	1	6
822376840	2011	9/30/2011	1050	5	F	8	87	87471000	1.078	3062	0.243	MI	S	SR 821	MM 1	0	FT		SR 821		1	67	MIAMI TP	1	3	1	14	1	1	1	1	L	2	6
832607710	2013	6/2/2013	1940	7	Su	8	87	87471000	1.078	3062	0.243	MI	S	SR 821	MM 1	0	FT		SR 821		1	67	MIAMI TP	1	2	2	14	4	1	1	1	L	1	6
833128790	2013	7/16/2013	1057	2	T	8	87	87471000	1.078	3062	0.243	MI	S	NB SR 821 MM 1	SW 344 ST	0	MI		SR 821		1	67	MIAMI TP	1	1	1	14	77	1	17	2	R	1	6
836675990	2014	1/26/2014	1631	7	Su	8	87	87471000	1.078	3062	0.243	MI	S	SR 821	MM 1	0	FT		SR 821		1	67	HOMESTE	1	3	1	14	1	1	1	1	R	2	6
837143920	2014	5/11/2014	1920	7	Su	8	87	87471000	1.078	3062	0.243	MI	S	S.R. 821 NB / MM1	SW 328 STREET	0	FT		SR 821		1	58	HOMESTE	1	1	1	5	77	1	1	1	R	1	6
851258390	2015	9/17/2015	1333	4	R	8	87	87471000	1.078	3062	0.243	MI	S	SR 821	MM 1	0	FT		SR 821		1	58	HOMESTE	1	1	1	27	77	3	1	1	L	S	6
852227350	2015	11/23/2015	932	1	M	8	87	87471000	1.078	3062	0.243	MI	S	SR 821	MM 1	0	FT		SR 821		1	58	HOMESTE	1	3	1	27	77	3	1	1	M	M	6
852227530	2015	12/26/2015	950	6	Sa	8	87	87471000	1.078	3062	0.243	MI	S	SR 821	MM 1	0	FT		SR 821		1	58	HOMESTE	1	1	1	14	1	1	1	1	L	1	6
852227550	2015	12/27/2015	1158	7	Su	8	87	87471000	1.078	3062	0.243	MI	S	SR 821	MM 1	0	FT		SR 821		1	58	HOMESTE	1	1	1	14	1	1	1	1	L	1	6
838015330	2014	6/29/2014	1445	7	Su	8	87	87471000	1.079	3062	0.242	MI	S	STATE ROAD 821	2 MILE MARKER	1	MI	S	SR 821		1	58	HOMESTE	1	2	1	27	77	3	1	1	M	M	6
819879820	2011	7/1/2011	1300	5	F	8	87	87471000	1.087	3062	0.234	MI	S	STATE ROAD-821	MILE MARKER 1	50	FT	N	SR 821		1	67	MIAMI TP	1	2	1	27	77	2	1	1	R	1	6
832835740	2013	6/10/2013	1635	1	M	8	87	87471000	1.097	3062	0.224	MI	S	STATE ROAD-821 S/B	MILE MARKER 1	100	FT	N	SR 821		1	67	MIAMI TP	1	4	1	14	77	3	1	1	M	M	6
822669210	2011	10/2/2011	747	7	Su	8	87	87471000	1.133	3062	0.188	MI	S	SR-821	SW 162 ST	1	MI	S	SR 821		1	67	MIAMI TP	2	2	1	30	77	4	1	1	R	S	6
822430670	2011	6/16/2011	1425	4	R	8	87	87471000	1.25	3062	0.071	MI	S	STATE ROAD 821 (HOMESTEAD EXT)	STATE ROAD 5 (US -1)	1.25	MI	N	SR 821		1	67	MIAMI TP	1	1	1	1	77	3	1	1	R	S	6
832228460	2013	3/9/2013	226	6	Sa	8	87	87471000	1.267	3062	0.054	MI	S	STATE ROAD 821	1 MILE MARKER	1000	FT	N	SR 821		1	58	HOMESTE	1	1	1	27	77	3	1	1	M	M	6
837001820	2014	3/6/2014	1800	4	R	8	87	87471000	1.267	3062	0.054	MI	S	STATE ROAD 821	1 MILE MARKER	1000	FT	N	SR 821		1	67	HOMESTE	1	3	1	14	77	1	1	1	L	2	6
831905740	2013	2/25/2013	1300	1	M	8	87	87471000	1.5	3152	0.089	MI	N	SR 821 N/B MM 1.5	SR 5	1.5	MI	N	SR 821		1	67	MIAMI TP	2	3	1	14	1	1	1	1	R	1	6
829010270	2012	10/8/2012	858	1	M	8	87	87471000	1.555	3152	0.144	MI	N	SR 821 NB MM 1.5	SW 312TH ST	1.5	MI	S	SR 821		1	67	MIAMI TP	1	2	1	27	77	3	1	1	R	S	6
851261100	2015	9/13/2015	1635	7	Su	8	87	87471000	1.555	3152	0.144	MI	N	STATE ROAD 821	CAMPBELL DR	1.5	MI	S	SR 821		1	58	HOMESTE	1	1	2	30	77	2	1	1	M	M	3
820051820	2011	2/24/2011	600	4	R	8	87	87471000	1.558	3152	0.147	MI	N	SB STATE ROAD 821	SW 340 ST	776	FT	N	SR 821		1	67	MIAMI TP	1	1	1	14	3	1	1	1	L	2	1
832811620	2013	2/15/2013	45	5	F	8	87	87471000	1.578	3152	0.167	MI	N	SR-821(FL TURNPIKE) NB MM 1.5	SW 312 STREET	0.5	MI	N	SR 821		1	67	MIAMI TP	2	1	1	27	77	3	1	1	M	M	6
820051740	2011	2/15/2011	1235	2	T	8	87	87471000	1.631	3152	0.22	MI	N	SOUTHBOUND STATE ROAD 821	SW 340 ST	1164	FT	N	SR 821		1	0	HOMESTE	1	3	1	14	3	3	1	1	L	S	1
820062740	2011	7/29/2011	1115	5	F	8	87	87471000	1.659	3152	0.248	MI	N	SB SR 821 MM 1	FLORIDA CITY	1	MI	N	SR 821		1	67	MIAMI TP	1	1	1	7	77	1	1	1	L	1	6
845647600	2015	3/3/2015	2115	2	T	8	87	87471000	1.795	9004	0.298	MI	S	STATE ROAD 821	MILE MARKER 2	1500	FT	S	SR 821		1	58	HOMESTE	1	1	1	14	1	1	1	1	L	1	3
848932180	2015	7/17/2015	1545	5	F	8	87	87471000	1.984	9004	0.109	MI	S	S.R. 821 NB MM2	CAMPBELL DR.	500	FT	S	SR 821		1	58	HOMESTE	1	3	1	14	1	1	1	1	R	1	6
819546040	2011	5/16/2011	1920	1	M	8	87	87471000	2	9004	0.093	MI	S	SR-821 S/B AT MM 2	SR-5	2	MI	N	SR 821		1	67	MIAMI TP	2	4	1	27	77	4	1	1	M	M	6
820279700	2011	7/4/2011	440	1	M	8	87	87471000	2	9004	0.093	MI	S	SR 821 FL TP	SW 344 TH ST	2	MI	N	SR 821		1	67	MIAMI TP	1	2	1	14	77	3	1	1	L	1	6
828413790	2011	11/6/2011	1439	7	Su	8	87	87471000	2	9004	0.093	MI	S	SR 821 S/B MM 2	SR 5	2	MI	N	SR 821		1	67	MIAMI TP	2	4	1	27	77	3	1	1	L	S	6
828439120	2012	5/24/2012	815	4	R	8	87	87471000	2.036	9004	0.057	MI	S	SB SR 821 (FL TURNPIKE)	SW 162 AVE	300	FT	S	SR 821		1	67	MIAMI TP	1	1	1	27	77	3	1	1	M	M	6
831791690	2012	7/12/2012	1030	4	R	8	87	87471000	2.05	9004	0.043	MI	S	STATE ROAD-821 N/B	MILE MARKER 3	1	MI	S	SR 821		1	67	MIAMI TP	1	1	1	14	77	1	1	1	R	2	6
822668980	2011	8/17/2011	1211	3	W	8	87	87471000	2.055	9004	0.038	MI	S	SR-821	SW 312 ST	1	MI	S	SR 821		1	67	MIAMI TP	2	4	1	14	1	1	1	1	R	1	6
828749500	2012	9/16/2012	2233	7	Su	8	87	87471000	2.055	9004	0.038	MI	S	SR 821 2 MILEPOST (NB)	SW 312 ST	1	MI	S	SR 821		1	67	MIAMI TP	1	3	1	27	77	3	1	1	R	S	6
831650010	2012	7/5/2012	2144	4	R	8	87	87471000	2.055	9004	0.038	MI	S	SR 821 FL TP	CAMPBELL DR	1	MI	S	SR 821		1	67	MIAMI TP	1	1	2	14	4	1	1	1	L	2	6
831913540	2012	9/13/2012	2231	4	R	8	87	87471000	2.055	9004	0.038	MI	S	SR-821(FL TURNPIKE) SB MM 1	SW 312 ST	1	MI	S	SR 821		1	67	MIAMI TP	1	0	1	28	77	2	1	1	M	M	6
831914020	2012	12/25/2012	1400	2	T	8	87	87471000	2.055	9004	0.038	MI	S	SR-821(FL TURNPIKE) NB MM 2	SW 312 ST)CAMPBELL DR)	1	MI	S	SR 821		1	67	MIAMI TP	2	3	1	27	77	1	1	1	M	M	6
832005900	2012	11/29/2012	744	4	R	8	87	87471000	2.055	9004	0.038	MI	S	SR-821	SW 312 ST	1	MI	S	SR 821		1	67	MIAMI TP	2	1	1	27	77	3	1	1	R	S	6
832549850	2013	6/1/2013	630	6	Sa	8	87	87471000	2.055	9004	0.038	MI	S	SR 821 SB MM2	SW 312 STREET	1	MI	S	SR 821		1	67	MIAMI TP	2	1	1	27	77	3	1	1	L	S	6
845092000	2014	9/13/2014	245	6	Sa	8	87	87471000	2.055	9004	0.038	MI	S	STATE ROAD 821	SOUTHWEST 312 ST	1	MI	S	SR 821		1	58	HOMESTE	1	1	1	27	77	4	1	1	M	M	6
845649960	2015	3/21/2015	1355	6	Sa	8	87	87471000	2.055	9004	0.038	MI	S	SR 821 FL TP	SW 312 ST	1	MI	S	SR 821		1	67	MIAMI TP	1	5	1	1	77	1	1	1	L	2	6
848633860	2015	3/12/2015	1100	4	R	8	87	87471000	2.055	9004	0.038	MI	S	NNB STATE ROAD 821	SOUTHWEST 312 ST	1	MI	S	SR 821		1	58	HOMESTE	1	1	1	14	77	1	1	1	R	2	6
848759960	2015	7/25/2015	2305	6	Sa	8	87	87471000	2.055	9004	0.038	MI	S	STATE ROAD 821 1 MILEPOST (NB)	SW 312 ST	1	MI	S	SR 821		1	67	MIAMI TP	1	1	1	18	77	1	1	1	R	1	6
848932150	2015	7/13/2015	1435	1	M	8	87	87471000	2.055	9004	0.038	MI	S	S.R. 821 NB MM2	SW 312 STREET	1	MI	S	SR 821		1	58	HOMESTE	1	1	1	27	77	1	1	1	M	M	6
851114360	2015	6/6/2015	450	6	Sa	8	87	87471000	2.055	9004	0.038	MI	S	SR 821 FL TP	SW 312 STREET	1	MI	S	SR 821		1	67	MIAMI TP	1	1	2	14	4	1	1	1	L	2	6
851279390	2015	11/6/2015	1307	5	F	8	87	87471000	2.055	9004	0.038	MI	S	SR 821 NB MM 2 O/L	SW 312TH ST	1	MI	S	SR 821		1	67	MIAMI TP	1	1	1	9	77	1	1	1	R	2	6
832835800	2013	7/4/2013	2105	4	R	8	87	87471000	2.06	9004	0.033	MI	S	STATE ROAD-821 S/B	MILE MARKER 2	100	FT	S	SR 821		1	67	MIAMI TP	1	1	1	14	77	1	1	1	L	2	6
845533690	2015	7/8/2015	1000	3	W	8	87	87471000	2.06	9004	0.033	MI	S	STATE ROAD-821 S/B	MILE MARKER 2	100	FT	S	SR 821		1	58	HOMESTE	1	2	1	27	77	2	1	1	L	S	6
837559860	2014	10/15/2014	1042	3	W	8	87	87471000	2.078	9004	0.015	MI	S	SR 821 S/B MM 1	SR 5	1	MI	N	SR 821		1	58	HOMESTE	1	2	1	14	77	3	1	1	M	M	6
828894710	2012	8/25/2012	1144	6	Sa	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	67	MIAMI TP	1	1	1	14	77	3	1	1	M	M	6
829008300	2012	3/15/2012	1730	4	R	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	67	MIAMI TP	1	1	1	1	77	1	1	1	R	S	6
832607460	2013	3/5/2013	651	2	T	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	67	MIAMI TP	1	1	1	14	4	1	1	1	L	2	6
832607530	2013	4/3/2013	657	3	W	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	67	MIAMI TP	1	3	1	14	3	1	1	1	R	2	6
832607620	2013	5/17/2013	900	5	F	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	67	MIAMI TP	1	3	1	14	3	1	1	1	R	2	6
836675730	2013	11/30/2013	1600	6	Sa	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	67	MIAMI TP	1	1	1	14	77	1	1	1	L	S	6
837550870	2014	6/11/2014	119	3	W	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	58	HOMESTE	1	1	1	29	77	3	1	1	M	M	6
837993410	2014	9/23/2014	1305	2	T	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	58	HOMESTE	1	1	1	27	77	3	1	1	R	S	6
837993490	2014	10/1/2014	830	3	W	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	58	HOMESTE	1	2	1	27	77	3	1	1	R	S	6
848663880	2015	2/16/2015	2230	1	M	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	58	HOMESTE	1	4	1	33	77	3	1	1	R	S	6
848664160	2015	4/1/2015	2236	3	W	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	58	HOMESTE	1	2	1	14	1	1	1	1	L	2	6
848664180	2015	4/7/2015	2315	2	T	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	58	HOMESTE	1	1	1	14	77	1	1	1	M	M	6
852227380	2015	11/29/2015	1217	7	Su	8	87	87471000	2.079	9004	0.014	MI	S	SR 821	MM 2	0	FT		SR 821		1	58	HOMESTE	1	3	1	14	1	1	1	1	L	1	6
832835960	2013	9/10/2013	700	2	T	8	87	87471000	2.088	9004	0.005	MI	S	STATE ROAD-821 S/B	MILE MARKER 2	50	FT	N	SR 821		1	67	MIAMI TP	1	1	1	33	77	2	1	1	L	S	6
819783770	2011	7/16/2011	2035	6	Sa	8	87	87471000	2.098	9004	0.005	MI	N	SB ON S.R. 821	MM2	100	FT	N	SR 821		1	67	MIAMI TP	1	1	1	27	77	3	1	1	L	S	6
828129680	2012	2/27/2012	1818	1	M	8	87	87471000	2.098	9004	0.005	MI	N	STATE ROAD-821 S/B	MILE MARKER 2	100	FT	N	SR 821		1	0		1	1	1	37	77	2	1	1	L	2	6
831792040	2012	9/28/2012	558	5	F	8	87	87471000	2.098	9004	0.005	MI	N	STATE ROAD-821 S/B	MILE MARKER 2	100	FT	N	SR 821		1	67	MIAMI TP	1	1	1	27	77	2	1	1	M	M	6
845533410	2015	3/14/2015	1330	6	Sa	8	87	87471000	2.098	9004	0.005	MI	N	STATE ROAD-821 N/B	MILE MARKER 2 N/B	100	FT	N	SR 821		1	58	HOMESTE	1	1	1	14	1	1	1	1	R	1	6
852339290	2015	12/22/2015	600	2	T	8	87	87471000	2.098	9004	0.005	MI	N	STATE ROAD-821 N/B	MILE MAKRER 2	100	FT	N	SR 821		1	58	HOMESTE	1	1	1	27	77	2	1	1	R	2	6
832812210	2013	7/16/2013	910	2	T	8	87	87471000	2.103	9004	0.01	MI	N	SR-821(FL TURNPIKE) SB MM 2	SW 312 STREET	1	MI	S	SR 821		1	67	MIAMI TP	2	1	1	14	77	3	1	1	M	M	6
832227810	2012	9/24/2012	1400	1	M	8	87	87471000	2.174	7636	0.022	MI	N	STATE ROAD 821	2 MILE MARKER	500	FT	N	SR 821		1	67	MIAMI TP	1	3	1	14	4	1	1	1	L	1	6
832227870	2012	10/2/2012	1820	2	T	8	87	87471000	2.174	7636	0.022	MI	N	STATE ROAD 821	2 MILE MARKER	500	FT	N	SR 821		1	67	MIAMI TP	1	2	1	14	3	1	1	1	L	S	6
837001380	2013	11/10/2013	2100	7	Su	8	87	87471000	2.174	7636	0.022	MI	N	STATE ROAD 821	2 MILE MARKER	500	FT	N	SR 821		1	67	MIAMI TP	1	2	1	9	77	1	1	1	R	1	6
838015460	2014	8/2/2014	1710	6	Sa	8	87	87471000	2.174	7636	0.022	MI	N	STATE ROAD 821	2 MILE MARKER	500	FT	N	SR 821		1	58	HOMESTE	1	1	1	30	77	3	1	1	M	M	6
845263680	2014	11/20/2014	1630	4	R	8	87	87471000	2.174	7636	0.022	MI	N	STATE ROAD 821	MILE MARKER 2	500	FT	N	SR 821		1	66	MIAMI	1	1	2	14	4	1	1	1	L	2	6
837125180	2014	8/4/2014	1730	1	M	8	87	87471000	2.245	7636	0.093	MI	N	STATE ROAD 91 (FLORIDA TURNPIKE)	STATE ROAD 821 (FLORIDA TURNPIKE)	875	FT	N	SR 821		1	66	MIAMI	1	1	1	14	1	1	1	1	R	4	6

832227860	2012	10/2/2012	1815	2 T	8	87	87471000	2.268	7636	0.116 MI	N	STATE ROAD 821		2 MILE MARKER		1000 FT	N	SR 821		1	67 MIAMI TP	1	1	1	27	77	3	1	1 L	S		6
828832590	2012	8/26/2012	1435	7 Su	8	87	87471000	2.305	7636	0.153 MI	N	STATE ROAD 821 (HOMESTEAD EXT)		SW 312 STREET		0.75 MI	S	SR 821		1	67 MIAMI TP	1	1	1	27	77	3	1	1 L	S		6
848687440	2015	8/11/2015	643	2 T	8	87	87471000	2.355	7636	0.203 MI	N	SR 821 SB MM 2		SW 312TH ST		0.7 MI	S	SR 821		1	67 MIAMI TP	1	3	1	27	77	3	1	1 M	M		6
820522390	2011	9/24/2011	1250	6 Sa	8	87	87471000	2.552	7937	0.065 MI	S	SR 821		MILE POST 2		2500 FT	N	SR 821		1	67 MIAMI TP	1	1	1	14	1	1	1	1 M	M		6
819908030	2011	8/1/2011	740	1 M	8	87	87471000	2.555	7937	0.062 MI	S	SR 821 NB MM 2		SW 312TH ST		0.5 MI	S	SR 821		1	67 MIAMI TP	1	3	1	14	3	1	1	1 R	S		6
822431130	2012	2/27/2012	1559	1 M	8	87	87471000	2.555	7937	0.062 MI	S	STATE ROAD 821 (HOMESTEAD EXT)		SW 312 STREET		0.5 MI	S	SR 821		1	67 HOMESTEA	1	3	1	27	77	4	1	1 M	M		6
833294500	2013	5/15/2013	1440	3 W	8	87	87471000	2.555	7937	0.062 MI	S	STATE ROAD 821		SOUTHWEST 312 ST		0.5 MI	S	SR 821		1	67 MIAMI TP	1	1	1	14	4	1	1	1 L		2	6
833294860	2013	7/28/2013	2140	7 Su	8	87	87471000	2.555	7937	0.062 MI	S	STATE ROAD 821		CAMPBELL DR (SW 312 ST)		0.5 MI	S	SR 821		1	67 MIAMI TP	1	1	1	17	77	1	1	1 R		2	6
837453670	2014	5/7/2014	1700	3 W	8	87	87471000	2.555	7937	0.062 MI	S	SB SR 821 2MM		SW 312TH STREET		0.5 MI	S	SR 821		1	66 MIAMI	1	1	1	14	1	1	1	1 L	S		6
838006410	2014	6/14/2014	420	6 Sa	8	87	87471000	2.555	7937	0.062 MI	S	NB SR 821 2MM		SW 312 STREET		0.5 MI	S	SR 821		1	67 MIAMI TP	1	3	1	1	77	1	1	1 R	S		6
844930000	2015	9/15/2015	2115	2 T	8	87	87471000	2.555	7937	0.062 MI	S	TURNPIKE (SR-821) MM 5 SB		CAMPBELL DRIVE		0.5 MI	S	SR 821		1	58 HOMESTEA	1	1	1	29	77	2	1	1 M	M		3
848687420	2015	8/9/2015	2355	7 Su	8	87	87471000	2.555	7937	0.062 MI	S	SR 821 NB MM 2		SW 312TH ST		0.5 MI	S	SR 821		1	67 MIAMI TP	1	1	1	9	77	1	1	1 R		2	6
848759870	2015	7/8/2015	2003	3 W	8	87	87471000	2.555	7937	0.062 MI	S	STATE ROAD 821 2 MILEPOST (SB)		SW 312 ST		0.5 MI	S	SR 821		1	67 MIAMI TP	1	1	1	27	77	3	1	1 L	S		6
848963080	2015	8/2/2015	1900	7 Su	8	87	87471000	2.555	7937	0.062 MI	S	SR-821 NB MM2		CAMPBELL DR		0.5 MI	S	SR 821		1	58 HOMESTEA	1	1	1	27	77	2	1	1 R	S		6
848991230	2015	8/2/2015	1909	7 Su	8	87	87471000	2.555	7937	0.062 MI	S	SR-821 NB MM2		CAMPBELL DR		0.5 MI	S	SR 821		1	67 MIAMI TP	2	1	1	14	1	1	1	1 R		1	6
851859370	2015	12/8/2015	2120	2 T	8	87	87471000	2.555	7937	0.062 MI	S	STATE ROAD 821 (FLORIDA TURNPIKE)		CAMPBELL DRIVE		0.5 MI	S	SR 821		1	67 MIAMI TP	1	3	1	27	77	3	1	1 R	S		6
836772290	2014	2/27/2014	1955	4 R	8	87	87471000	2.579	7937	0.038 MI	S	SR-821 (FLA TURNPIKE)		MILE MARKER 2		0.5 MI	N	SR 821		1	67 MIAMI TP	2	2	1	27	77	2	1	1 L	S		6
851290000	2015	8/22/2015	200	6 Sa	8	87	87471000	2.579	7937	0.038 MI	S	SR-821 SB MM 2		EXIT 2		0.5 MI	N	SR 821		1	58 HOMESTEA	1	1	1	14	1	1	1	1 L		2	6
836530150	2013	7/18/2013	1134	4 R	8	87	87471101	0.059	3060	0.059 MI	S	SB SR 821 EXIT RAMP 0		US 1		2000 FT	N	SR 821		1	67 MIAMI TP	1	1	1	27	77	3	1	1 L	X		6
851279430	2015	11/22/2015	610	7 Su	8	87	87471101	0.095	8859	0.052 MI	N	SR 821 SB MM 0 EXIT RAMP		SR 5 (US 1)		500 FT	S	SR 821		1	67 MIAMI TP	1	1	1	14	77	3	14	1 L	X		6
836746060	2013	9/10/2013	1945	2 T	8	87	87471101	0.109	8859	0.038 MI	N	SB SR 821 EXIT RAMP TO SR 5		SR 5		200 FT	N	SR 821		1	67 MIAMI TP	1	1	1	27	77	3	1	1 L	X		1
837844910	2014	3/30/2014	330	7 Su	8	87	87471101	0.138	8859	0.009 MI	N	STATE ROAD 821		SW 328TH STREET		0.3 MI	S	SR 821		1	58 HOMESTEA	1	1	1	27	77	3	14	1 L	X		6
828894940	2012	10/7/2012	1748	7 Su	8	87	87471101	0.147	8859	0		SR 821		EXIT 1		0 FT		SR 821		1	67 MIAMI TP	1	1	1	27	77	3	1	1 L	X		6
828894950	2012	10/7/2012	1854	7 Su	8	87	87471101	0.147	8859	0		SR 821		MM1 EXIT 1		0 FT		SR 821		1	0	1	3	1	27	77	3	1	1 L	X		6
837699720	2014	3/13/2014	1320	4 R	8	87	87471101	0.147	8859	0		STATE ROAD 821		U.S. HIGHWAY 301 EXIT RAMP		0 FT		SR 821		1	58 HOMESTEA	1	1	1	14	1	1	14	1 L	X		3
851221450	2015	10/16/2015	147	5 F	8	87	87471101	0.23	8860	0.034 MI	S	SB SR 821 1MM EXIT RAMP		US-1		1100 FT	N	SR 821		1	67 MIAMI TP	1	3	1	27	77	1	1	1 L	X		6
852004470	2015	12/31/2015	420	4 R	8	87	87471101	0.288	8860	0.092 MI	S	SB STATE ROAD 821 EXIT		STATE ROAD 5		0.15 MI	N	SR 821		1	58 HOMESTEA	1	2	1	14	1	1	14	1 L	X		6
836746320	2013	12/11/2013	1635	3 W	8	87	87471101	0.362	945	0.076 MI	N	MM 0 SB SR 821		SR 5		400 FT	N	SR 821		1	67 MIAMI TP	1	1	1	27	77	3	1	1 L	X		1
851279250	2015	9/10/2015	1247	4 R	8	87	87471101	0.381	945	0.057 MI	N	SR 821 SB MM 0 EXIT RAMP		SR 5 (US 1)		300 FT	S	SR 821		1	67 MIAMI TP	1	3	1	27	77	3	14	1 L	X		6
833140230	2013	11/9/2013	1825	6 Sa	8	87	87471101	0.4	945	0.038 MI	N	SB S.R. 821 (FLORIDA TPK EXT) EXIT RAMP		U.S.1 (S.R. 5)		200 FT	N	SR 821		1	67 MIAMI TP	1	4	1	27	77	1	14	1 L	X		6
837550810	2014	5/18/2014	310	7 Su	8	87	87471101	0.419	945	0.019 MI	N	SR 821		MM 0		100 FT	N	SR 821		1	58 HOMESTEA	1	0	1	27	77	3	1	1 L	X		6
852004340	2015	12/4/2015	0	5 F	8	87	87471101	0.419	945	0.019 MI	N	SB STATE ROAD 821 EXIT RAMP		STATE ROAD 5		100 FT	N	SR 821		1	58 HOMESTEA	1	1	1	27	77	3	14	1 L	X		6
851289950	2015	8/14/2015	2355	5 F	8	87	87471101	0.438	945	0		SR-821 SB HOMESTEAD EXIT 1		US 1		0 MI		SR 821		1	58 HOMESTEA	1	0	1	27	77	1	1	1 L	X		6
825434180	2012	5/5/2012	932	6 Sa	6	87	87020000	1.017	945	0.019 MI	S	US 1				100 FT	S	SR 5	US 1	1	46 FLORIDA C	2	4	1	14	1	1	1	1 L		1	5
835346470	2013	11/21/2013	525	4 R	6	87	87020000	1.036	945	0		SOUTH DIXIE HWY				0 FT		SR 5	US 1	1	46 FLORIDA C	2	4	1	14	3	1	14	2 R		1	3
820067670	2011	1/2/2011	1157	7 Su	8	87	87471105	0.132	944	0.002 MI	N	STATE ROAD 821 (HOMESTEAD EXT)		STATE ROAD 5 (US-1)		10 FT	N	SR 821		1	67 MIAMI TP	1	2	1	14	1	1	1	1 L	X		6
831950140	2012	11/27/2012	1135	2 T	8	87	87471105	0.134	944	0		STATE ROAD 821 (SR821)(FL TURNPIKE)		US1 (STATE ROAD 5)(SR5)		0 FT		SR 821		1	46 FLORIDA C	2	1	1	14	1	1	2	2 L	X		2
836927120	2014	8/1/2014	1306	5 F	8	87	87471105	0.134	944	0		SR 821 S/B MM 1		SR 5		0 MI		SR 821		1	67 MIAMI TP	2	4	1	14	1	1	14	2 L	X		6
837349570	2014	8/16/2014	521	6 Sa	8	87	87471105	0.134	944	0		SR 821 S/B EXIT 1		SR 5		0 FT		SR 821		1	58 HOMESTEA	1	1	1	27	77	3	14	2 L	X		6
851185240	2015	5/9/2015	600	6 Sa	8	87	87471105	0.134	944	0		STATE ROAD 821		EXIT 1/US1 NORTH		0 FT		SR 821		1	58 HOMESTEA	1	2	1	14	1	1	14	1 L	X		6
859659610	2015	8/25/2015	905	2 T	8	87	87471105	0.134	944	0		US1		SW 336 ST		0 FT		SR 821		1	46 FLORIDA C	2	1	1	14	1	1	2	1 L	X		2
845683050	2015	2/6/2015	2358	5 F	6	87	87020000	1.112	944	0.038 MI	S	SB US-1 SR 5		SW 344 ST		1320 FT	N	SR 5	US 1	1	58 HOMESTEA	2	0	2	33	77	2	1	1 L	S		2
835353360	2014	11/28/2014	1228	5 F	6	87	87020000	1.18	944	0.03 MI	N	US1		SW 336 ST		1000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
835353690	2014	11/27/2014	2308	4 R	6	87	87020000	1.18	944	0.03 MI	N	US1		SW 336 ST		1000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	1	1	1	1 L	L		2
835356030	2015	11/21/2015	1902	6 Sa	6	87	87020000	1.18	944	0.03 MI	N	US-1		SW 336TH ST		1000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 R		2	2
859657840	2015	11/21/2015	1833	6 Sa	6	87	87020000	1.18	944	0.03 MI	N	US 1		SW 336 ST		1000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	1	1 R		1	2
824972240	2011	3/5/2011	1443	6 Sa	6	87	87020000	0	842	0		CARSOUND ROAD		STATE ROAD 5 SOUTH DIXIE HIGHWAY		50 FT	N	SR 5	US 1	1	0 UNINCORP	1	1	1	31	77	3	1	1 T	S		4
819497580	2014	6/26/2014	1400	4 R	6	87	87020000	0.001	842	0.001 MI	N	US1		CARD SOUND ROAD		3 FT	N	SR 5	US 1	1	58 HOMESTEA	1	3	1	19	77	3	3	1 R		2	2
836801620	2014	1/25/2014	1508	6 Sa	6	87	87020000	0.005	842	0.005 MI	N	SR-5		CARD SOUND ROAD		25 FT	N	SR 5	US 1	1	0 UNINCORP	1	1	1	14	4	1	3	1 R		1	3
835351760	2014	8/14/2014	2152	4 R	6	87	87020000	0.009	842	0.009 MI	N	S DIXIE HWY				50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		2	3
851204880	2015	8/26/2015	950	3 W	6	87	87020000	0.047	842	0.047 MI	N	STATE ROAD 5 US-1		CARD SOUND ROAD		250 FT	N	SR 5	US 1	1	58 HOMESTEA	1	0	2	27	77	3	1	1 L	S		3
825433000	2012	2/28/2012	800	2 T	6	87	87020000	0.062	6666	0.038 MI	S	US 1		SW 177 AVE		200 FT	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 L		1	5
819789760	2011	1/21/2011	722	5 F	6	87	87020000	0.094	6666	0.006 MI	S	US-1		SR-997		150 FT	S	SR 5	US 1	1	0	1	1	1	27	2	4	1	1 M	M		2
835337730	2012	8/3/2012	0	5 F	6	87	87020000	0.116	6667	0.004 MI	N	SE 1 AVE (US 1)		S KROME AVE		30 FT	S	SR 5	US 1	1	46 Florida City	2	1	1	14	4	1	1	1 L		2	2
845232170	2014	11/21/2014	1642	5 F	6	87	87020000	0.12	913	0.002 MI	S	STATE ROAD 5		STATE ROAD 997		10 FT	S	SR 5	US 1	1	58 HOMESTEA	1	2	1	14	1	1	1	1 L		3	3
825427820	2011	3/13/2011	1526	7 Su	6	87	87020000	0.122	913	0		S DIXIE HWY				0 FT		SR 5	US 1	1	46 FLORIDA C	1	3	1	14	77	1	1	1 I	M		5
825430560	2011	9/16/2011	1640	5 F	6	87	87020000	0.122	913	0		S DIXIE HWY		S KROME AVE		1 FT	S	SR 5	US 1	1	0 FLORIDA C	2	2	1	1	77	1	3	1 R	L		2
835347760	2014	1/27/2014	1800	1 M	6	87	87020000	0.122	913	0		S DIXIE HWY`				0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
835349470	2014	4/13/2014	957	7 Su	6	87	87020000	0.122	913	0		S KROME AVE		SOUTH DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	28	77	1	3	1 T	S		3
835345610	2013	9/27/2013	2230	5 F	6	87	87150000	0.006	913	0.006 MI	N	US 1 HWY		SW 352 ST		30 FT	N	SR 997		1	46 FLORIDA C	2	1	2	10	77	1	1	1 R		1	2
835353570	2015	3/13/2015	150	5 F	6	87	87150000	0.019	6841	0.004 MI	S	S KROME AVE		US-1		100 FT	W	SR 997		1	46 FLORIDA C	2	4	1	1	3	1	1	1 L	S		3
859659850	2015	9/20/2015	2346	7 Su	6	87	87150000	0.028	6841	0.005 MI	N	US 1 HWY		S KROME AVE		150 FT	N	SR 997		1	46 FLORIDA C	2	4	1	1	77	3	1	1 L	S		2
835351430	2014	7/21/2014	500	1 M	6	87	87020000	0.127	913	0.005 MI	N	US1		SR 997		25 FT	N	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	1	1 L		1	2
835339270	2012	9/13/2012	0	4 R	6	87	87020000	0.137	913	0.015 MI	N	SOUTH DIXIE HWY			35426	0.015 MI	N	SR 5	US 1	1	46 Florida City	2	2	1	14	4	1	1	1 L		2	5
835339550	2012	10/6/2012	0	6 Sa	6	87	87020000	0.176	913	0.054 MI	N		35426	SOUTH DIXIE HWY		400 FT	N	SR 5	US 1	1	46 Florida City	2	1	1	14	3	1	18	1 L		2	4
835353730	2014	12/6/2014	1200	6 Sa	6	87	87020000	0.179	913	0.057 MI	N	SOUTH DIXIE HWY				300 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		1	5
835341630	2013	2/10/2013	0	7 Su	6	87	87020000	0.201	913	0.079 MI	N	SE 1 AVE (US 1)				415 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 R	L		2
835340940	2013	1/13/2013	0	7 Su	6	87	87020000	0.202	913	0.08 MI	N	SOUTH DIXIE HWY		SW 355 ST		422 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	3	1	1	2 L		1	2
835344260	2013	7/14/2013	1255	7 Su	6	87	87020000	0.204	913	0.082 MI	N	S DIXIE HWY		354 ST		550 FT	N	SR 5	US 1	1	46 FLORIDA C	2	3	1	14	3	1	2	1 L		2	2
835355810	2015	3/8/2015	1625	7 Su	6	87	87020000	0.209	913	0.087 MI	N	US 1				457 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	1	1 L		1	2
835343770	2013	6/8/2013	220	6 Sa	6	87	87020000	0.214	913	0.092 MI	N	US1				486 FT	N	SR 5	US 1	1	46 FLORIDA C	2	3	2	14	77	1	1	1 L		1	2
835350400	2014	6/4/2014	455	3 W	6	87	87020000	0.217	913	0.095 MI	N	U.S. 1				500 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		2	2
835341990	2013	3/4/2013	0	1 M	6	87	87020000	0.221	913	0.099 MI	N	SE 1 AVENUE		SW 354 STREET		0.27 MI	S	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	5	1	1	1 L		1	2
835337200	2012	6/5/2012	0	2 T	6	87	87020000	0.226	913	0.104 MI	N	SOUTH DIXIE HIGHWAY (S.E. 1 AVE)				548 FT	N	SR 5	US 1	1	46 Florida City	2	1	2	14	3	1	1	1 L		1	2
848582730	2015	1/31/2015	605	6 Sa	6	87	87020000	0.362	3663	0.006 MI	N	US-1 (STATE ROAD 5)		344 ST (PALM DRIVE)		0.5 MI	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		2	2
835353380	2014	12/1/2014	1911	1 M	6	87	87020000	0.396	3663	0.04 MI	N	US1		SW 352 ST		500 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	2 L		1	2
835342950	2014	1/18/2014	2041	6 Sa	6	87	87020000	0.434	6668	0.057 MI	S	US1		SW 340ST		300 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	2 R		2	2
835349250	2014	4/4/2014	1710	5 F	6	87	87020000	0.462	6668	0.029 MI	S	S DIXIE HWY		400 BLK		153 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	1	1 L		1	2
835353580	2015	3/26/2015	200	4 R	6	87	87020000	0.483	6668	0.008 MI	S	SOUTH DIXIE HWY		SW 344 ST		2000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	4	1	14	1	1	1	1 R		2	3
835352120	2015	2/3/2015	1925	2 T	6	87	87020000	0.488	6668	0.003 MI	S	US-1		SE 4 AVE		1975 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	5	1	1	1 R		1	2
835344350	2013	7/16/2013	1439	2 T	6	87	87020000	0.49	6668	0.001 MI	S	SE 1 AVE (US 1)				5 FT	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	1	1 R		1	2
825434240	2012	5/8/2012	1640	2 T	6	87	87020000	0.491	6668	0		SOUTH DIXIE HWY		SW 352 ST		0 FT		SR 5	US 1	1	46 FLORIDA C	2	4	1	32	77	4	1	1 M	M		5
835338270	2012	7/7/2012	0	6 Sa	6	87	87020000	0.491	6668	0		SE 1 AVENUE				0 FT		SR 5	US 1	1	46 Florida City	2	1	1	14	3	1	1	1 R		2	2
835341300	2013	2/16/2013	0	6 Sa	6	87	87020000	0.491	6668	0		US 1		SW 352 ST		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	32	77	3	1	1 L	S		2
835348540	2014	4/21/2014	1015	1 M	6	87	87020000	0.491	6668	0		US 1		SW 344 STREET		0 MI		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	1	1 R		1	2
835351970	2014	8/29/2014	1030	5 F	6	87	87020000	0.491	6668	0		US1				0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 R		1	2
859659990	2015	9/27/2015	1629	7 Su	6	87	87020000	0.491	6668	0		US1		SW 340 ST		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	77	1 R		2	2
835350910	2014	6/29/2014	1553	7 Su	6	87	87020000	0.502	6668	0.011 MI	N	US 1				0.36 MI	S	SR 5	US 1	1	46 FLORIDA C	2	3	1	14	1	1	4	1 R		2	2
859658740	2015	7/14/2015	1550	2 T	6	87	87020000	0.505	6668	0.014 MI	N	SE 1 AVE				75 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L	S		2
859661500	2015	12/11/2015	515	5 F	6	87	87020000	0.51	6668	0.019 MI	N	SE 1 AVE				100 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	4	1	1 M	T		3
859660390	2015	10/8/2015	1745	4 R	6	87	87020000	0.525	6668	0.034 MI	N	US 1		SW 350 ST		1780 FT	S	SR 5	US 1	1	46 FLORIDA C	2	4	1	14	3	1	2	1 R		1	2
835356780	2015	4/21/2015	1220	2 T	6	87	87020000	0.529	6668	0.038 MI	N	US1		SW 352 ST		200 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	1	1	1	1 L		2	3
848697700	2015	5/12/2015	1925	2 T	6	87	87020000	0.532	6668	0.041 MI	N	STATE ROAD 5		MILE MARKER 126		0.33 MI	S	SR 5	US 1	1	0 UNINCORP	1	1	2	14	1	1	1	1 R		1	2
835353710	2014	11/28/2014	1940	5 F	6	87	87020000	0.546	6668	0.055 MI	N	US-1		SE 1 AVE		153 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	5	1	1	1 R		1	2
835346790	2013	12/10/2013	1408	2 T	6	87	87020000	0.562	6669	0.05 MI	S	US 1				0.3 MI	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	4	1 L		2	3
835343030	2013	4/28/2013	2030	7 Su	6	87	87020000	0.569	6669	0.043 MI	S	S. DIXIE HWY				225 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	2
859657590	2015	5/25/2015	2030	1 M	6	87	87020000	0.582	6669	0.03 MI	S	300 BLK		SE 1 AVE		0.28 MI	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	1	1 R		1	2
859661170	2015	12/13/2015	2150	7 Su	6	87	87020000	0.603	6669	0.009 MI	S	SE 1 AVE				50 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L	S		2
825427580	2011	2/15/2011	750	2 T	6	87	87020000	0.673	6669	0.061 MI	N	US1 (500 BLOCK OF SE 1 AVE.)		SW 344 ST.		1000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	2	1 L		1	5
825427880	2011	3/19/2011	750	6 Sa	6	87	87020000	0.673	6669	0.061 MI	N	400 BLOCK OF SE 1 AVE		SW 344 ST		1000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	3	1 L		1	4
832679010	2014	12/16/2014	719	2 T	6	87	87020000	0.692	6669	0.08 MI	N	STATE ROAD 5		SW 344 STREET		900 FT	S	SR 5	US 1	1	0 UNINCORP	1	1	1	14	1	3	1	1 L	S		2
848768380	2015	6/3/2015	1445	3 W	6	87	87020000	0.7	6669	0.088 MI	N	US-1 (STATE ROAD 5) NB MM119		CARD SOUND ROAD		0.7 MI	N	SR 5	US 1	1	58 HOMESTEA	1	1	1	9	77	1	1	1 R	S		2
835344110	2013	7/3/2013	1835	3 W	6	87	87020000	0.72	6669	0.108 MI	N	SE 1 AVE (US 1)				750 FT	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 R		2	2
835339730	2012	10/26/2012	0	5 F	6	87	87020000	0.748	240	0.114 MI	S	SE 1 AVE (US1)		E PALM DR (SW344 ST)		600 FT	S	SR 5	US 1	1	46 Florida City	2	1	1	14	1	1	1	2 R		2	2
835349220	2014	3/30/2014	2015	7 Su	6	87	87020000	0.767	240	0.095 MI	S	US 1		SW 344 ST		500 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	4	1 L		2	2
859662420	2015	12/31/2015	1400	4 R	6	87	87020000	0.767	240	0.095 MI	S	US1		350 ST		500 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	77	1 L		2	2
835354440	2015	1/7/2015	1210	3 W	6	87	87020000	0.786	240	0.076 MI	S	US1		SW 344 ST		400 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	15	1 R		1	3
835346340	2013	11/17/2013	1727	7 Su	6	87	87020000	0.824	240	0.038 MI	S	US1		SW 344 ST		200 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	2 R		1	2
835356560	2015	4/18/2015	2040	6 Sa	6	87	87020000	0.824	240	0.038 MI	S	US1		SW 344 ST		200 FT	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 R		2	2
835342240	2013	3/17/2013	0	7 Su	6	87	87020000	0.827	240	0.035 MI	S	S DIXIE HWY				187 FT	S	SR 5	US 1	1	46 FLORIDA C	2	4	1	14	1	1	1	1 R		1	5
825430780	2011	10/7/2011	806	5 F	6	87	87020000	0.834	240	0.028 MI	S	US 1 (SE 1 AVE)		SW 344 ST		150 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		2	4

835349760	2014	4/27/2014	2110	7 Su	6	87	87020000	0.843	240	0.019 MI	S	S DIXIE HWY	SW 344 ST	100 FT	S	SR 5	US 1	1	46 FLORIDA C	2	3	1	14	77	1	1	1 R		1	2
835349770	2014	4/27/2014	2110	7 Su	6	87	87020000	0.843	240	0.019 MI	S	S DIXIE HWY	W PALM DR	100 FT	S	SR 5	US 1	1	46 FLORIDA C	2	3	1	14	77	1	1	1 R		1	2
859659210	2015	7/28/2015	1510	2 T	6	87	87020000	0.843	240	0.019 MI	S	US1		100 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	2
825433510	2012	3/25/2012	840	7 Su	6	87	87020000	0.853	240	0.009 MI	S	US 1		50 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	0 L		1	2
835348910	2014	3/17/2014	2024	1 M	6	87	87020000	0.853	240	0.009 MI	S	US 1	SW 344 ST	50 FT	S	SR 5	US 1	1	46 FLORIDA C	2	4	1	14	77	1	77	1 M	M		2
835349660	2014	4/18/2014	2045	5 F	6	87	87020000	0.853	240	0.009 MI	S	S DIXIE HWY	SW 344 ST	50 FT	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 R		1	2
835344980	2013	8/10/2013	35	6 Sa	6	87	87020000	0.856	240	0.006 MI	S	SW 344 ST	U.S. 1	30 FT	S	SR 5	US 1	1	46 FLORIDA C	2	3	2	14	4	1	1	1 L		1	5
835353870	2014	12/7/2014	28	7 Su	6	87	87020000	0.857	240	0.005 MI	S	US1		25 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	2	1	1 L	S		2
859657320	2015	5/8/2015	1420	5 F	6	87	87020000	0.857	240	0.005 MI	S	US 1	SW 344 ST	25 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	3	1 L		1	2
829515840	2011	12/3/2011	1316	6 Sa	6	87	87020000	0.858	240	0.004 MI	S	US 1 STATE ROAD 5	SOUTHWEST 344TH STREET	20 FT	S	SR 5	US 1	1	0 UNINCORP	1	1	1	14	3	1	1	88 R		1	4
835345530	2013	9/30/2013	1800	1 M	6	87	87020000	0.858	240	0.004 MI	S	US 1	SW 344 ST (PALM DR)	20 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	2
835347210	2014	1/28/2014	655	2 T	6	87	87020000	0.858	240	0.004 MI	S	US 1	SW 344 STREET	20 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		1	4
835349330	2014	11/12/2014	1350	3 W	6	87	87020000	0.858	240	0.004 MI	S	SOUTH DIXIE HWY	SW 344 STREET	20 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	2	1 R		2	3
835350320	2014	5/26/2014	1435	1 M	6	87	87020000	0.86	240	0.002 MI	S	US 1	SW 344 STREET	10 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	1	1 L	S		2
835351030	2014	7/31/2014	1515	4 R	6	87	87020000	0.86	240	0.002 MI	S	SOUTH DIXIE HWY		10 FT	S	SR 5	US 1	1	46 FLORIDA C	2	3	1	14	1	1	1	1 R		2	3
835350360	2014	5/31/2014	1600	6 Sa	6	87	87020000	0.861	240	0.001 MI	S	S DIXIE HWY	SW 344 STREET	5 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 R	L		2
859658910	2015	7/12/2015	1635	7 Su	6	87	87020000	0.861	240	0.001 MI	S	US 1	SW 344 ST	5 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	2	1 R		2	2
825428300	2011	4/2/2011	110	6 Sa	6	87	87020000	0.862	240	0		US 1 HWY	E PALM DR	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	5
825429100	2011	5/21/2011	2328	6 Sa	6	87	87020000	0.862	240	0		E PALM DR	SE 1 AVE	0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	1	14	3	10	2	1 I	M		2
825430400	2011	9/3/2011	1155	6 Sa	6	87	87020000	0.862	240	0		SE 1 AVE		0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	11	77	0	0	0 L	L		2
825434030	2012	4/29/2012	2040	7 Su	6	87	87020000	0.862	240	0		SE 1 AVE		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	2	14	3	1	2	1 R		1	2
825434210	2012	5/7/2012	1455	1 M	6	87	87020000	0.862	240	0		S DIXIE HWY (SE 1 AVE)		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	5
825434270	2012	5/7/2012	1413	1 M	6	87	87020000	0.862	240	0		100 BLOCK E PALM DR	SE 1 AVE (US1)	50 FT	E	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	0	1	0 S		1	5
835337770	2012	6/15/2012	0	5 F	6	87	87020000	0.862	240	0		SOUTH DIXIE HIGHWAY	PALM DRIVE	0 FT		SR 5	US 1	1	46 Florida City	2	1	1	14	1	1	1	1 L		1	5
835338180	2012	6/28/2012	0	4 R	6	87	87020000	0.862	240	0		SE 1 AVE	E PALM DR	0 FT		SR 5	US 1	1	46 Florida City	2	3	1	14	2	1	1	1 L		2	2
835338460	2012	7/20/2012	1854	5 F	6	87	87020000	0.862	240	0		SW 344 ST	US1	0 FT		SR 5	US 1	1	46 Florida City	2	4	1	14	3	1	2	1 R		1	2
835338660	2012	8/1/2012	0	3 W	6	87	87020000	0.862	240	0		E PALM DR	SOUTH DIXIE HWY	100 FT	W	SR 5	US 1	1	46 Florida City	2	2	1	14	3	1	1	1 T		2	3
835338990	2012	8/22/2012	0	3 W	6	87	87020000	0.862	240	0		SOUTH DIXIE HWY		50 FT	W	SR 5	US 1	1	46 Florida City	2	1	2	14	1	1	1	1 T		1	3
835339090	2012	9/2/2012	0	7 Su	6	87	87020000	0.862	240	0		S DIXIE HWY	W PALM DR	0 FT		SR 5	US 1	1	46 Florida City	2	2	1	14	1	1	2	2 R		1	3
745993100	2013	10/24/2013	1436	4 R	6	87	87020000	0.862	240	0		SW 344TH ST	S DIXIE HWY	20 FT	W	SR 5	US 1	1	0 UNINCORP	1	4	1	14	1	1	2	88 S		1	5
835341070	2013	1/16/2013	0	3 W	6	87	87020000	0.862	240	0		E PALM DRIVE	US 1	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	2	1 L		1	5
835341500	2013	2/5/2013	0	2 T	6	87	87020000	0.862	240	0		US 1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	4	1	11	77	1	2	1 I	M		2
835341550	2013	2/7/2013	0	4 R	6	87	87020000	0.862	240	0		US-1	344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		2	5
835341560	2013	2/7/2013	0	4 R	6	87	87020000	0.862	240	0		US-1	344 STREET	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		2	5
835342100	2013	3/13/2013	0	3 W	6	87	87020000	0.862	240	0		E PALM DR		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 L		2	2
835342470	2013	3/26/2013	1855	2 T	6	87	87020000	0.862	240	0		SE 1 AVE (US 1)		0 FT		SR 5	US 1	1	46 FLORIDA C	2	4	1	14	2	1	1	1 L		1	2
835342480	2013	3/28/2013	0	4 R	6	87	87020000	0.862	240	0		US 1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	2	1 L		2	2
835342850	2013	4/17/2013	5	3 W	6	87	87020000	0.862	240	0		US 1	E PALM DR	0 FT		SR 5	US 1	1	46 FLORIDA C	2	4	1	17	2	1	1	1 I	M		2
835344040	2013	7/10/2013	1415	3 W	6	87	87020000	0.862	240	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	2
835345510	2013	9/16/2013	710	1 M	6	87	87020000	0.862	240	0		SW 344 ST	US 1	5 FT	E	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 S	L		3
835345620	2013	9/29/2013	2358	7 Su	6	87	87020000	0.862	240	0		US 1	E PALM DR	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	2	1	2	1 L		1	2
835346000	2013	10/16/2013	1813	3 W	6	87	87020000	0.862	240	0		S DIXIE HWY	E PALM DRIVE	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 I	M		3
835346140	2013	10/24/2013	2055	4 R	6	87	87020000	0.862	240	0		US 1	SW 344 STREET	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	2	1 R		2	2
835346670	2013	12/11/2013	2203	3 W	6	87	87020000	0.862	240	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	1	1 S		1	2
835346700	2013	12/16/2013	1640	1 M	6	87	87020000	0.862	240	0		SW 344 ST	US 1	100 FT	W	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 S		1	3
835347120	2013	12/27/2013	1930	5 F	6	87	87020000	0.862	240	0		S DIXIE HWY	W PALM DR	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	77	1 R		2	1
835347470	2014	1/28/2014	1700	2 T	6	87	87020000	0.862	240	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	5	1	18	1 R		1	5
835347820	2014	1/30/2014	2210	4 R	6	87	87020000	0.862	240	0		SW 344TH STREET	US 1	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 R		2	3
835348210	2014	4/10/2014	1042	4 R	6	87	87020000	0.862	240	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		2	2
835348790	2014	3/21/2014	1500	5 F	6	87	87020000	0.862	240	0		US1	W PALM DRIVE	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 R		2	2
835349080	2014	6/5/2014	51	4 R	6	87	87020000	0.862	240	0		344 ST	S DIXIE HWY	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 R		2	3
835349500	2014	4/16/2014	2242	3 W	6	87	87020000	0.862	240	0		SOUTH DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	2
835349520	2014	7/9/2014	1850	3 W	6	87	87020000	0.862	240	0		SW 344 ST	US1	30 FT	E	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 S		2	3
835350300	2014	5/31/2014	1615	6 Sa	6	87	87020000	0.862	240	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	2	1 L		2	2
835350590	2014	6/10/2014	1730	2 T	6	87	87020000	0.862	240	0		PALM DR		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	2	1 T		1	2
835351670	2014	8/13/2014	1905	3 W	6	87	87020000	0.862	240	0		E PALM DR	US1	200 FT	E	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	1	1 S		2	3
835351790	2014	8/20/2014	1850	3 W	6	87	87020000	0.862	240	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	3	1 R	U		2
835352530	2014	9/19/2014	1327	5 F	6	87	87020000	0.862	240	0		SW 344 STREET	US-1	30 FT	E	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	2	1 S		2	3
835352640	2014	11/15/2014	2245	6 Sa	6	87	87020000	0.862	240	0		SW 344 ST	US1	50 FT	E	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 S	L		2
835352950	2014	12/18/2014	2125	4 R	6	87	87020000	0.862	240	0		US-1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	2	2 L		2	2
835353210	2014	11/10/2014	1235	1 M	6	87	87020000	0.862	240	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	2	2 L		2	2
835353850	2014	12/6/2014	1045	6 Sa	6	87	87020000	0.862	240	0		SW 344 ST		50 FT	E	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	2 S		1	3
835354150	2015	1/16/2015	1800	5 F	6	87	87020000	0.862	240	0		US1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 R		2	2
835354280	2015	1/1/2015	327	4 R	6	87	87020000	0.862	240	0		S DIXIE HWY	SW 344 ST	10 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	4
835355270	2015	2/13/2015	2224	5 F	6	87	87020000	0.862	240	0		US 1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	1	10	77	1	1	1 L		1	2
835355550	2015	2/26/2015	915	4 R	6	87	87020000	0.862	240	0		US1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	1	1 R	L		2
835355640	2015	3/1/2015	1120	7 Su	6	87	87020000	0.862	240	0		SW 344 STREET	US 1	200 FT	W	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	1	1 T		1	3
835355980	2015	3/17/2015	1152	2 T	6	87	87020000	0.862	240	0		US 1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	1	2 R		1	2
850882550	2015	4/15/2015	1513	3 W	6	87	87020000	0.862	240	0		SW 344 ST	50 FT EAST OF US 1	50 FT	E	SR 5	US 1	1	31 DADE COU	2	1	1	14	1	1	3	1 S		1	4
852004160	2015	10/10/2015	1303	6 Sa	6	87	87020000	0.862	240	0		WB SOUTHWEST 344 ST	STATE ROAD 5	70 FT	E	SR 5	US 1	1	58 HOMESTEA	1	1	1	14	1	1	1	1 S	L		4
859657950	2015	6/5/2015	15	5 F	6	87	87020000	0.862	240	0		US 1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	2	14	5	1	2	1 R		2	2
859658060	2015	6/9/2015	1054	2 T	6	87	87020000	0.862	240	0		344 ST	US 1	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	77	1	2	2 R		2	3
859658340	2015	8/8/2015	1030	6 Sa	6	87	87020000	0.862	240	0		SW 344 STREET	S DIXIE HWY	50 FT	W	SR 5	US 1	1	46 FLORIDA C	2	1	1	11	77	1	1	1 T		2	3
859658930	2015	7/12/2015	2227	7 Su	6	87	87020000	0.862	240	0		SW 344 ST	S DIXIE HWY	50 FT	W	SR 5	US 1	1	46 FLORIDA C	2	4	1	10	77	1	1	1 T		1	4
859659160	2015	7/24/2015	928	5 F	6	87	87020000	0.862	240	0		US-1	PALM DRIVE	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	2	1 L		1	5
859659190	2015	7/25/2015	1727	6 Sa	6	87	87020000	0.862	240	0		US1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	1	2 L		1	2
859660320	2015	10/14/2015	1519	3 W	6	87	87020000	0.862	240	0		SW 344 ST		50 FT	E	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 S		2	3
859660750	2015	10/28/2015	1610	3 W	6	87	87020000	0.862	240	0		US1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 I	M		2
859660760	2015	10/30/2015	715	5 F	6	87	87020000	0.862	240	0		US1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	2	1 L		1	2
859660960	2015	11/6/2015	2230	5 F	6	87	87020000	0.862	240	0		US1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	2	1 L		1	2
859661180	2015	12/18/2015	1415	5 F	6	87	87020000	0.862	240	0		US1	SW 344 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	4	1	1	1 I	M		2
859661260	2015	11/29/2015	1255	7 Su	6	87	87020000	0.862	240	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	4	1	1	1 R		1	2
835349620	2014	5/29/2014	1715	4 R	6	87	87160000	8.726	240	0.019 MI	S	SW 344 ST	US-1	100 FT	S	SR 9336		1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	3
835345760	2013	10/7/2013	1450	1 M	6	87	87160000	8.736	240	0.009 MI	S	SW 344 ST	US 1	50 FT	S	SR 9336		1	46 FLORIDA C	2	1	2	14	1	1	1	1 R		1	3
835352190	2014	9/3/2014	1600	3 W	6	87	87160000	8.736	240	0.009 MI	S	SW 344 ST		50 FT	S	SR 9336		1	46 FLORIDA C	2	1	1	14	1	1	3	1 R	L		3
835345220	2013	8/20/2013	1508	2 T	6	87	87160000	8.74	240	0.005 MI	S	E PALM DR (SW 344ST)	SE 1 AVE (US 1)	25 FT	S	SR 9336		1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	3
835353310	2014	11/15/2014	830	6 Sa	6	87	87160000	8.743	240	0.002 MI	S	SW 344 ST	US 1	10 FT	S	SR 9336		1	46 FLORIDA C	2	1	2	14	4	1	1	1 R	L		3
859658140	2015	7/2/2015	1521	4 R	6	87	87160000	8.743	240	0.002 MI	S	SW 344 ST	US1	10 FT	S	SR 9336		1	46 FLORIDA C	2	1	1	14	3	1	1	2 R	L		3
825427030	2011	1/13/2011	37	4 R	6	87	87160000	8.745	240	0		SOUTH WEST 344 STREET		0 FT		SR 9336		1	46 FLORIDA C	2	1	1	14	1	1	2	1 L		1	5
825429390	2011	6/12/2011	1630	7 Su	6	87	87160000	8.745	240	0		E PALM DR		0 FT		SR 9336		1	46 FLORIDA C	2	1	1	14	4	1	1	1 U	U		5
825433930	2012	4/21/2012	300	6 Sa	6	87	87160000	8.745	240	0		344 ST	SE 1 AVE	0 FT		SR 9336		1	46 FLORIDA C	2	4	2	14	2	1	0	1 L		1	5
825434140	2012	4/28/2012	2025	6 Sa	6	87	87160000	8.745	240	0		344 ST	U.S. 1	0 FT		SR 9336		1	46 FLORIDA C	2	3	1	14	2	1	0	1 L		1	5
829531290	2012	9/13/2012	1042	4 R	6	87	87160000	8.745	240	0		SW 344 ST		0 FT		SR 9336		1	0 UNINCORP	1	1	1	1	6	1	1	1 I	M		3
835339810	2012	10/31/2012	0	3 W	6	87	87160000	8.745	240	0		W PALM DR	S DIXIE HWY	0 FT		SR 9336		1	46 FLORIDA C	2	2	1	14	77	1	2	2 L		2	2
835346630	2013	12/4/2013	2225	3 W	6	87	87160000	8.745	240	0		US-1	EAST PALM DRIVE	0 FT		SR 9336		1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		2	2
835354460	2015	1/7/2015	1820	3 W	6	87	87160000	8.745	240	0		SW 344 ST	US 1	0 FT		SR 9336		1	46 FLORIDA C	2	1	2	14	1	1	3	1 R	L		3
835355320	2015	2/13/2015	2031	5 F	6	87	87160000	8.745	240	0		SW 344 ST	US1	0 FT		SR 9336		1	46 FLORIDA C	2	2	1	1	77	1	1	1 R	S		4
835345720	2013	10/3/2013	900	4 R	6	87	87020000	0.864	240	0.002 MI	N	US 1	SW 344 ST	10 FT	N	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 L		1	2
835346100	2013	10/20/2013	215	7 Su	6	87	87020000	0.865	240	0.003 MI	N	U.S. 1	SW 344 ST	15 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	2	1	3	1 L		2	2
835355530	2015	1/24/2015	2224	6 Sa	6	87	87020000	0.865	240	0.003 MI	N	US 1	SW 344 ST	15 FT	N	SR 5	US 1	1	46 FLORIDA C	2	4	1	10	77	1	1	1 R		1	2
835341460	2013	2/4/2013	0	1 M	6	87	87020000	0.868	240	0.006 MI	N	NE 1 AVE	SW 344 ST	30 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		2	2
835348260	2014	2/21/2014	1605	5 F	6	87	87020000	0.871	240	0.009 MI	N	US 1	SW 344 ST	50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
835353130	2014	10/29/2014	2115	3 W	6	87	87020000	0.871	240	0.009 MI	N	US 1	SW 344 ST	50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 R		2	2
859657660	2015	5/25/2015	1720	1 M	6	87	87020000	0.871	240	0.009 MI	N	S DIXIE HWY	SW 344 ST	50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L	L		2
835355190	2015	3/21/2015	1600	6 Sa	6	87	87020000	0.873	240	0.011 MI	N	US1	SW 344 ST	60 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	2
835342500	2013	3/29/2013	1735	5 F	6	87	87020000	0.877	240	0.015 MI	N	SOUTH DIXIE HWY	E PALM DRIVE	80 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	1	1	1	1 R		2	3
835347480	2014	1/29/2014	1602	3 W	6	87	87020000	0.881	240	0.019 MI	N	S DIXIE HWY		100 FT	N	SR 5	US 1	1	25 MIAMI/DA	2	1	1	14	1	1	1	1 L		2	3
835351260	2014	8/29/2014	1615	5 F	6	87	87020000	0.881	240	0.019 MI	N	US1	SW 344 ST	100 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	1	2 L		1	2
859660400	2015	10/12/2015	830	1 M	6	87	87020000	0.881	240	0.019 MI	N	US 1		100 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 R		1	2
835344010	2013	7/8/2013	2150	1 M	6	87	87020000	0.89	240	0.028 MI	N	S DIXIE HWY	344 ST	150 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	5
859661400	2015	12/6/2015	1410	7 Su	6	87	87020000	0.9	240	0.038 MI	N	US1	SW 344 ST	200 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		1	2

835352810	2014	10/14/2014	1553	2 T	6	87	87020000	0.919	240	0.057 MI	N	US-1	W PALM DRIVE	300 FT	N	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	77	1	1	1 L		1	2
835341620	2013	2/10/2013	0	7 Su	6	87	87020000	0.957	945	0.079 MI	S	ESAT PALM DR S DIXIE HWY	N KROME AVE	500 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	2	2 R		2	5
835343010	2013	4/28/2013	1500	7 Su	6	87	87020000	0.957	945	0.079 MI	S	US 1	SW 344 ST	500 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	3
835342200	2013	4/20/2013	2133	6 Sa	6	87	87020000	0.976	945	0.06 MI	S	US1 (SE1 AVE)	SW 344 ST (E PALM DR)	600 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	2 L		1	2
835338970	2012	8/22/2012	0	3 W	6	87	87020000	1.236	3531	0		SOUTH DIXIE HWY		0 FT	N	SR 5	US 1	1	46 Florida City	2	1	1	16	1	1	1	1 R		1	3
859657830	2015	10/7/2015	1605	3 W	6	87	87020000	1.236	3531	0		US 1	SW 336 ST	1000 FT	S	SR 5	US 1	1	46 FLORIDA C	2	5	1	14	77	1	14	2 R		2	2
825472770	2012	6/9/2012	1830	6 Sa	6	87	87020000	1.262	946	0.003 MI	S	STATE ROAD 5	SW 10700 BLK TURNPIKE ON RAMP	135 FT	N	SR 5	US 1	1	36 CUTLER BA	2	2	1	24	77	1	1	1 L	X		5
835342910	2013	5/16/2013	1721	4 R	6	87	87020000	1.274	3532	0.001 MI	N	US1	SW336 ST	500 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	6	1	1	2 R		1	2
835352140	2015	3/14/2015	1520	6 Sa	6	87	87020000	1.322	947	0.047 MI	S	US-1	DAVIS PARKWAY	250 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	1	1 R	S		2
835345790	2013	10/13/2013	1405	7 Su	6	87	87020000	1.35	947	0.019 MI	S	US1	SW 336 ST	100 FT	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	2 L		1	2
835353040	2014	10/20/2014	1805	1 M	6	87	87020000	1.35	947	0.019 MI	S	US 1	SW 336 ST	100 FT	S	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 R		1	2
835349510	2014	6/4/2014	1810	3 W	6	87	87020000	1.36	947	0.009 MI	S	US1	SW 336 ST	50 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	1	2 M	M		2
859660650	2015	12/13/2015	0	7 Su	6	87	87020000	1.364	947	0.005 MI	S	US 1		25 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	1	1	1	1 R		2	2
835340470	2012	12/15/2012	0	6 Sa	6	87	87020000	1.367	947	0.002 MI	S	SOUTH DIXIE HWY	DAVIS PKWY	10 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		2	5
835348350	2014	3/2/2014	45	7 Su	6	87	87020000	1.367	947	0.002 MI	S	US 1	336 STREET	10 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	1	1 L		1	2
835350070	2014	5/6/2014	2305	2 T	6	87	87020000	1.367	947	0.002 MI	S	SW 336 ST	U.S. 1	10 FT	S	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	1	1	2	1 R		2	4
825428450	2011	4/9/2011	0	6 Sa	6	87	87020000	1.369	947	0		W DAVIS PKWY	US 1 HWY	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	0	0	1 I	M		5
825430300	2011	8/24/2011	655	3 W	6	87	87020000	1.369	947	0		N E 1 AVENUE - U S 1	E DAVIS PARKWAY - 336 STREET	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	0	1 L		1	5
825431780	2011	12/17/2011	414	6 Sa	6	87	87020000	1.369	947	0		SW 336 ST	US 1 HWY	200 FT	W	SR 5	US 1	1	42 FLORIDA C	2	2	2	32	77	2	1	1 T	S		5
825432950	2012	2/25/2012	1140	6 Sa	6	87	87020000	1.369	947	0		SOUTH DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	3	1 R		2	2
825434080	2012	4/30/2012	1727	1 M	6	87	87020000	1.369	947	0		NE 1 AVE		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	2	14	3	0	2	1 I	M		2
835338860	2012	9/6/2012	0	4 R	6	87	87020000	1.369	947	0		SW 336 ST	US1	0 FT		SR 5	US 1	1	46 Florida City	2	1	2	14	1	1	2	1 S		1	5
835339880	2012	11/9/2012	0	5 F	6	87	87020000	1.369	947	0		NORTH DAVIS PKWY	SOUTH DIXIE HWY	0 FT		SR 5	US 1	1	46 Florida City	2	1	1	18	77	1	3	1 I	M		2
835339980	2012	11/17/2012	0	6 Sa	6	87	87020000	1.369	947	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	1	14	3	1	1	1 L		1	4
835340140	2012	11/29/2012	0	4 R	6	87	87020000	1.369	947	0		SW 336 ST	S DIXIE HWY	100 FT	W	SR 5	US 1	1	46 Florida City	2	2	1	10	77	1	1	2 T		1	5
835341170	2013	1/20/2013	0	7 Su	6	87	87020000	1.369	947	0		S DIXIE HWY	SW 336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	1	2 L		2	5
835341510	2013	2/5/2013	0	2 T	6	87	87020000	1.369	947	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	1	14	2	1	2	1 I	M		2
835342870	2013	4/19/2013	42	5 F	6	87	87020000	1.369	947	0		SOUTH DIXIE HIGHWAY	336ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	2	2 I	M		3
835343140	2013	5/6/2013	1120	1 M	6	87	87020000	1.369	947	0		U S 1	S W 336 STREET	0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	1	14	77	1	1	1 L		2	3
835344430	2013	7/25/2013	2055	4 R	6	87	87020000	1.369	947	0		NE 1 AVE (US1)		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	2	1	1	1 I	M		4
835345210	2013	8/19/2013	1910	1 M	6	87	87020000	1.369	947	0		SW 336 ST	S DIXIE HWY	20 FT	W	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	1	1 T		1	5
835345520	2013	9/17/2013	1745	2 T	6	87	87020000	1.369	947	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 S	R		2
835345650	2013	9/30/2013	2040	1 M	6	87	87020000	1.369	947	0		US1	SW 336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	2 R		1	2
835345770	2013	10/8/2013	1200	2 T	6	87	87020000	1.369	947	0		US1	336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 L		1	2
835347030	2013	12/24/2013	1105	2 T	6	87	87020000	1.369	947	0		US 1	SW 336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 R		1	2
835347190	2014	1/6/2014	1358	1 M	6	87	87020000	1.369	947	0		US1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	2	11	77	1	1	1 L	R		3
835347200	2014	1/8/2014	1055	3 W	6	87	87020000	1.369	947	0		US1	336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	1	1 L		1	2
835349280	2014	4/5/2014	1525	6 Sa	6	87	87020000	1.369	947	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		2	2
835349390	2014	4/8/2014	2040	2 T	6	87	87020000	1.369	947	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	1	1 R		1	5
835350180	2014	5/14/2014	1755	3 W	6	87	87020000	1.369	947	0		S DIXIE HWY		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
835350790	2014	6/23/2014	1655	1 M	6	87	87020000	1.369	947	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	2	1 L		1	2
835350870	2014	6/23/2014	1700	1 M	6	87	87020000	1.369	947	0		US 1	SW 336 STREET	5 FT	W	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 T		1	3
835351880	2014	9/3/2014	1710	3 W	6	87	87020000	1.369	947	0		US-1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	2	1 L		1	2
835352100	2014	9/9/2014	2213	2 T	6	87	87020000	1.369	947	0		SW 336 ST	US 1	100 FT	W	SR 5	US 1	1	46 FLORIDA C	2	3	1	14	77	1	1	1 T		1	3
835352620	2014	10/22/2014	1420	3 W	6	87	87020000	1.369	947	0		US1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	4	1	10	77	1	1	1 S		1	2
835352830	2014	10/21/2014	1445	2 T	6	87	87020000	1.369	947	0		US 1	SW 336 STREET	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 S		1	3
835353230	2014	11/20/2014	1905	4 R	6	87	87020000	1.369	947	0		US 1	SW 336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	2	1 R		1	2
835353430	2014	12/13/2014	1855	6 Sa	6	87	87020000	1.369	947	0		US1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	3	1	1	1 R		1	2
835353880	2014	12/7/2014	1235	7 Su	6	87	87020000	1.369	947	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	2	14	3	1	1	1 L		1	2
835354190	2014	12/24/2014	1420	3 W	6	87	87020000	1.369	947	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	2
835352130	2015	3/13/2015	1630	5 F	6	87	87020000	1.369	947	0		US-1	DAVIS PARKWAY	0 FT		SR 5	US 1	1	46 FLORIDA C	2	2	1	14	5	1	1	1 L		1	2
835354470	2015	1/8/2015	836	4 R	6	87	87020000	1.369	947	0		US1	SW 336 ST	150 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	2	1 R		2	3
835355130	2015	2/7/2015	932	6 Sa	6	87	87020000	1.369	947	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	1	14	77	1	2	2 L		2	2
835355210	2015	2/8/2015	1318	7 Su	6	87	87020000	1.369	947	0		US 1		0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	1	1 L		1	2
835355960	2015	3/15/2015	2029	7 Su	6	87	87020000	1.369	947	0		SW 336 STREET	S DIXIE HWY	0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	1	14	3	4	1	1 L		1	3
859657070	2015	5/2/2015	1030	6 Sa	6	87	87020000	1.369	947	0		SW 336 ST		25 FT	W	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	3	1	1	1 T		1	3
859660210	2015	9/30/2015	1529	3 W	6	87	87020000	1.369	947	0		US1	SW 336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	3	1	14	77	1	2	1 L		1	2
859660790	2015	10/31/2015	2015	6 Sa	6	87	87020000	1.369	947	0		US1	SW 336 ST	0 FT		SR 5	US 1	1	46 FLORIDA C	2	1	2	14	77	1	1	1 I	M		2
859660910	2015	11/6/2015	913	5 F	6	87	87020000	1.37	947	0.001 MI	N	US-1	SW 336 STREET	5 FT	N	SR 5	US 1	1	46 FLORIDA C	2	4	1	10	77	1	2	1 L		2	3
835342530	2013	3/30/2013	0	6 Sa	6	87	87020000	1.371	947	0.002 MI	N	SOUTH DIXIE HWY	DAVIS PKWY	10 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		1	3
835346760	2013	12/5/2013	2051	4 R	6	87	87020000	1.371	947	0.002 MI	N	US1	SW 336 ST	10 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	1	1	1	2 L		1	2
835350520	2014	6/4/2014	1610	3 W	6	87	87020000	1.371	947	0.002 MI	N	US1	SW 336 ST	10 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	1	2 R		2	2
835346060	2013	10/17/2013	1200	4 R	6	87	87020000	1.374	2606	0		US 1	SW 336 ST	25 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
835343790	2013	6/8/2013	1659	6 Sa	6	87	87020000	1.375	2606	0.001 MI	N	S DIXIE HWY	W DAVIS PKWY	30 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	4	1	14	1 R		2	3
825430070	2011	8/3/2011	1710	3 W	6	87	87020000	1.378	2606	0.004 MI	N	S DIXIE HWY	SW 336 ST (DAVIS PARKWAY)	50 FT	N	SR 5	US 1	1	0 FLORIDA C	2	1	1	14	1	1	3	1 R		1	2
859659660	2015	9/3/2015	1405	4 R	6	87	87020000	1.378	2606	0.004 MI	N	US1	SW 336 ST	50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	2	14	4	1	1	2 L		1	2
859660330	2015	10/14/2015	1903	3 W	6	87	87020000	1.378	2606	0.004 MI	N	US1	SW 336 ST	50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
859660560	2015	10/14/2015	1903	3 W	6	87	87020000	1.378	2606	0.004 MI	N	US1	SW 336 ST	50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
859661630	2015	12/9/2015	1600	3 W	6	87	87020000	1.378	2606	0.004 MI	N	336 ST	S DIXIE HWY	50 FT	N	SR 5	US 1	1	46 FLORIDA C	2	2	1	14	1	1	77	1 L		2	2
825427230	2011	1/20/2011	1935	4 R	6	87	87020000	1.388	2606	0.014 MI	N	US 1 SOUTH DIXIE HIGHWAY NORTH EAST 1 AVENUE	SOUTH WEST 336 STREET DAVIS PARKWAY	100 FT	N	SR 5	US 1	1	46 FLORIDA C	2	3	1	10	77	1	1	1 R		1	2
835345100	2013	8/19/2013	1522	1 M	6	87	87020000	1.388	2606	0.014 MI	N	S DIXIE HWY	DAVIS PKWY	100 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L	L		2
859657990	2015	6/6/2015	2246	6 Sa	6	87	87020000	1.388	2606	0.014 MI	N	US1	SW 336 ST	100 FT	N	SR 5	US 1	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
836995530	2013	11/5/2013	450	2 T	6	87	87150000	0.1	6841	0.077 MI	N	STATE ROAD 997	STATE ROAD 5	0.1 MI	N	SR 997		1	46 FLORIDA C	1	1	1	14	1	3	1	1 R	S		3
835340840	2013	1/6/2013	0	7 Su	6	87	87150000	0.105	6841	0.082 MI	N	S DIXIE HWY		555 FT	N	SR 997		1	46 FLORIDA C	2	1	2	14	3	1	4	88 R	S		2
835352770	2014	11/8/2014	917	6 Sa	6	87	87150000	0.253	5720	0.038 MI	S	SW 177 AVE	SW 352 ST	200 FT	S	SR 997		1	46 FLORIDA C	2	2	1	14	3	1	1	1 L	S		2
843356610	2013	10/28/2013	2030	1 M	6	87	87150000	0.291	5720	0		SW 352ND STREET	SW 177TH AVENUE	200 FT	W	SR 997		1	0 UNINCORP	1	4	1	14	3	1	1	1 S		1	4
835352280	2014	9/13/2014	1050	6 Sa	6	87	87150000	0.393	4919	0.026 MI	N	SOUTH KROME AVE		0.4 MI	S	SR 997		1	46 FLORIDA C	2	3	1	14	3	1	2	1 R		1	5
835350630	2014	8/19/2014	600	2 T	6	87	87150000	0.493	6843	0.069 MI	N	S KROME AVE	SW 344 STREET	0.3 MI	S	SR 997		1	46 FLORIDA C	2	2	1	14	1	1	1	1 L		1	3
825429040	2011	5/18/2011	1240	3 W	6	87	87150000	0.631	7765	0.006 MI	S	S KROME AVE	SW 344 ST	855 FT	S	SR 997		1	46 FLORIDA C	2	2	1	14	1	1	4	1 L		1	5
835342810	2013	4/14/2013	2328	7 Su	6	87	87150000	0.717	239	0.076 MI	S	S KROME AVE	W PALM DR	400 FT	S	SR 997		1	46 FLORIDA C	2	2	1	14	3	1	1	1 R		1	3
859660950	2015	11/16/2015	1035	1 M	6	87	87150000	0.787	239	0.006 MI	S	SW 177 AVE	SW 344 ST	30 FT	S	SR 997		1	46 FLORIDA C	2	1	1	14	3	1	1	1 R		1	3
835353060	2014	10/24/2014	2152	5 F	6	87	87150000	0.79	239	0.003 MI	S	SW 177 AVE	SW 344 ST	15 FT	S	SR 997		1	46 FLORIDA C	2	2	2	14	1	1	3	1 R		1	3
835338830	2012	8/14/2012	0	2 T	6	87	87150000	0.793	239	0		W PALM DR		0 FT	N	SR 997		1	46 Florida City	2	3	1	14	3	1	1	1 I	M		3
835339170	2012	9/9/2012	0	7 Su	6	87	87150000	0.793	239	0		E PALM DR	N KROME AVE	50 FT	E	SR 997		1	46 Florida City	2	2	2	14	4	1	1	1 S		1	3
835340560	2012	12/19/2012	0	3 W	6	87	87150000	0.793	239	0		SW 177 AVE	SW 344 ST	0 FT		SR 997		1	46 FLORIDA C	2	2	1	14	1	1	3	1 L		1	5
835342350	2013	5/8/2013	1416	3 W	6	87	87150000	0.793	239	0		344 STREET	KROME AVE	0 FT		SR 997		1	46 FLORIDA C	2	2	1	14	2	1	2	1 I	M		5
835343390	2013	5/22/2013	630	3 W	6	87	87150000	0.793	239	0		SW 344 STREET	SW 177 AVENUE	0 FT		SR 997		1	46 FLORIDA C	2	2	1	14	3	1	1	1 I	M		3
835343900	2013	7/7/2013	1430	7 Su	6	87	87150000	0.793	239	0		W PALM DR		0 FT		SR 997		1	46 FLORIDA C	2	2	1	14	3	1	1	1 L		1	3
835347320	2014	1/7/2014	1454	2 T	6	87	87150000	0.793	239	0		SW 344 STREET	SW 177 AVE	60 FT	W	SR 997		1	46 FLORIDA C	2	2	1	14	1	1	1	1 T		1	3
835350600	2014	6/12/2014	730	4 R	6	87	87150000	0.793	239	0		344 STREET	177 AVE	60 FT	E	SR 997		1	46 FLORIDA C	2	1	1	14	1	1	1	1 S		1	3
835352420	2014	9/15/2014	1645	1 M	6	87	87150000	0.793	239	0		SW 3 44 ST	SW 177 AVE	0 FT		SR 997		1	46 FLORIDA C	2	1	1	14	2	1	2	1 I	M		3
835352720	2014	10/7/2014	1705	2 T	6	87	87150000	0.793	239	0		SW 344 ST	SW 177 AVE	0 FT		SR 997		1	46 FLORIDA C	2	2	1	14	77	1	3	1 L		1	3
835354200	2014	12/25/2014	1446	4 R	6	87	87150000	0.793	239	0		SW 344 ST		0 FT		SR 997		1	46 FLORIDA C	2	3	1	14	3	1	1	1 R		1	3
835351820	2015	12/19/2015	825	6 Sa	6	87	87150000	0.793	239	0		SW 344 ST	SW 177 AVE	0 FT		SR 997		1	46 FLORIDA C	2	1	1	14	3	1	1	1 R		1	3
859657650	2015	12/11/2015	1720	5 F	6	87	87150000	0.793	239	0		W PALM DRIVE	KROME AVE	0 FT		SR 997		1	46 FLORIDA C	2	1	2	14	5	1	1	1 R		2	4
859660030	2015	11/20/2015	2040	5 F	6	87	87150000	0.793	239	0		SW 177 AVE	SW 344 ST	0 FT		SR 997		1	46 FLORIDA C	2	1	1	14	2	1	1	1 L		1	3
859661270	2015	11/30/2015	1911	1 M	6	87	87150000	0.793	239	0		SW 344 ST	SW 177 AVE	100 FT	E	SR 997		1	46 FLORIDA C	2	3	1	14	1	1	1	1 S		1	3
835347910	2014	2/12/2014	1910	3 W	6	87	87160000	8.57	239	0.028 MI	S	SW 344 STREET	SW 1 AVENUE	150 FT	S	SR 9336		1	46 FLORIDA C	2	2	1	14	1	1	1	1 R		1	5
829533200	2012	10/25/2012	610	4 R	6	87	87160000	8.584	239	0.014 MI	S	SW 344 STREET	SW 187 AVENUE	1 MI	N	SR 9336		1	0 UNINCORP	1	4	1	14	5	1	1	1 R		1	4
859659490	2015	8/27/2015	715	4 R	6	87	87160000	8.589	239	0.009 MI	S	SW 344 ST	SW 177 AVE	50 FT	S	SR 9336		1	46 FLORIDA C	2	3	1	14	1	1	2	1 R		1	3
835348830	2014	3/17/2014	1445	1 M	6	87	87160000	8.594	239	0.004 MI	S	SW 344 ST	SW 177 AVE	20 FT	S	SR 9336		1	46 FLORIDA C	2	1	2	14	4	1	1	1 R		2	3
825433480	2012	3/23/2012	1458	5 F	6	87	87160000	8.596	239	0.002 MI	S	SW 344 ST (PALM DR)	SW 177 AVE (KROME AVE)	10 FT	S	SR 9336		1	0 FLORIDA C	2	3	1	14	3	1	2	1 R		2	5
835346660	2013	12/6/2013	1435	5 F	6	87	87160000	8.596	239	0.002 MI	S	SW 344 ST	SW 177 AVE	10 FT	S	SR 9336		1	46 FLORIDA C	2	3	1	10	77	1	3	1 L		2	5
835346830	2014	2/22/2014	0	6 Sa	6	87	87160000	8.596	239	0.002 MI	S	SW 344 ST	SW 177 AVE	10 FT	S	SR 9336		1	46 FLORIDA C	2	1	1	14	6	1	1	2 R		1	4
825427220	2011	1/20/2011	840	4 R	6	87	87160000	8.598	239	0		SR 344 ST	N KROME AVENUE	0 FT		SR 9336		1	46 FLORIDA C	2	1	2	14	4	1	2	1 L	L		5
825429780	2011	7/18/2011	1030	1 M	6	87	87160000	8.598	239	0		S W 344TH STREET (WEST PALM DRIVE)	S W 177TH AVENUE (KROME AVENUE)	0 FT		SR 9336		1	46 FLORIDA C	2	0	1	14	3	1	1	1 R	L		3
825430680	2011	9/24/2011	1805	6 Sa	6	87	87160000	8.598	239	0		W PALM DR		0 FT		SR 9336		1	0 FLORIDA C	2	3	1	14	4	1	1	1 R		2	5
825431940	2012	1/1/2012	115	7 Su	6	87	87160000	8.598	239	0		E PALM DRIVE & N KROME AVE	NORTH KROME AVE	0 FT		SR 9336		1	16 FLORIDA C	2	1	1	14	2	1	1	1 L		2	1
825432910	2012	2/22/2012	348	3 W	6	87	87160000	8.598	239	0		SW 344 ST		0 FT		SR 9336		1	46 FLORIDA C	2	1	1	14	4	1	1	1 R		1	3
835338090	2012	6/24/2012	0	7 Su	6	87	87160000	8.598	239	0		SW 344 ST(E PALM DR)	SW 177 AVE(N KROME AVE)	0 FT		SR 9336		1	46 Florida City	2	1	1	14	3	1	1	2 R		2	5
835341610	2013	2/9/2013	0	6 Sa	6	87	87160000	8.598	239	0		SW 344 ST(EPALMDR)	SW 177 AVE (NKROME AVE)	0 FT		SR 9336		1	46 FLORIDA C	2	1	1	14	3	1	1	2 L		1	5

835345050	2013	9/30/2013	605	1 M		6	87	87160000	8.598	239	0		SW 344 ST	N KROME AVE		0 FT		SR 9336	1	46 FLORIDA C	2	1	2	14	4	7	1	1 L		2	3
835347010	2013	12/24/2013	1043	2 T		6	87	87160000	8.598	239	0		SW 344 ST	SW 177 AVE		0 FT		SR 9336	1	46 FLORIDA C	2	1	1	14	4	1	2	2 R		1	3
835349200	2014	4/19/2014	835	6 Sa		6	87	87160000	8.598	239	0		W PALM DR	S KROME AVE		0 FT		SR 9336	1	46 FLORIDA C	2	1	1	14	3	1	2	1 R		1	5
835351410	2014	7/19/2014	1110	6 Sa		6	87	87160000	8.598	239	0		SW 344 ST	SW 177 AVE		0 FT		SR 9336	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	3
835352180	2014	9/3/2014	1343	3 W		6	87	87160000	8.598	239	0		SW 344 ST			0 FT		SR 9336	1	46 FLORIDA C	2	3	2	14	77	1	2	1 L		1	3
835356730	2015	4/9/2015	1745	4 R		6	87	87160000	8.598	239	0		SW 344 ST	SW 177 AVE		0 FT		SR 9336	1	46 FLORIDA C	2	1	2	14	3	1	2	1 R		1	3
859661610	2015	12/8/2015	1225	2 T		6	87	87160000	8.6	239	0.002 MI	N	W PALM DRIVE	KROME AVE		10 FT	N	SR 9336	1	46 FLORIDA C	2	1	1	14	1	1	2	1 R		1	5
835341600	2013	2/7/2013	0	4 R		6	87	87160000	8.602	239	0.004 MI	N	E PALM DRIVE	250 E PALM DR (FACTORY SHOPS BLVD)		757 FT	S	SR 9336	1	46 FLORIDA C	2	1	1	14	4	1	1	1 L		1	5
835343780	2013	6/8/2013	1441	6 Sa		6	87	87160000	8.602	239	0.004 MI	N	SW 344 ST (E PALM DR)	SW 177 AVE (S KROME AVE)		20 FT	N	SR 9336	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	3
835344450	2013	7/29/2013	1717	1 M		6	87	87160000	8.617	239	0.019 MI	N	E PALM DR	N KROME AVE		100 FT	N	SR 9336	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	3
850883280	2015	8/27/2015	1630	4 R		6	87	87160000	8.617	239	0.019 MI	N	SW 344TH STREET	KROME AVENUE SW 177TH AVENUE		100 FT	N	SR 9336	1	0 UNINCORP	1	1	1	14	4	1	1	1 L	L		4
825430770	2011	10/5/2011	10	3 W		6	87	87150000	0.801	239	0.008 MI	N	N KROME AVE	E PALM DR		40 FT	N	SR 997	1	46 FLORIDA C	2	2	1	14	2	1	1	1 L		1	5
859657690	2015	5/27/2015	1422	3 W		6	87	87150000	0.821	239	0.028 MI	N	N KROME			150 FT	N	SR 997	1	46 FLORIDA C	2	1	1	14	77	1	1	1 R		1	3
859661490	2015	12/6/2015	1300	7 Su		6	87	87150000	0.821	239	0.028 MI	N	KROME AVE			150 FT	N	SR 997	1	46 FLORIDA C	2	1	2	14	4	1	3	1 L		1	2
825431340	2011	11/12/2011	1848	6 Sa		6	87	87150000	0.831	239	0.038 MI	N	NORTH KROME AVE	EAST PALM DR		200 FT	N	SR 997	1	46 FLORIDA C	2	3	1	14	2	0	0	1 R		1	4
835355750	2015	3/7/2015	150	6 Sa		6	87	87150000	0.84	8370	0.035 MI	S	N KROME AVE	W PALM DRIVE		250 FT	N	SR 997	1	46 FLORIDA C	2	1	1	33	2	2	1	1 R	S		5
835352870	2014	10/18/2014	1330	6 Sa		6	87	87150000	0.875	8370	0		N KROME AVE			0 FT		SR 997	1	46 FLORIDA C	2	3	1	14	3	1	1	1 R		2	3
835340250	2012	11/26/2012	0	1 M		6	87	87150000	0.888	8370	0.013 MI	N	N KROME AVE	E PALM DR		500 FT	N	SR 997	1	46 Florida City	2	1	2	14	3	1	1	1 R		1	3
835342400	2013	4/20/2013	1318	6 Sa		6	87	87150000	0.941	9283	0.001 MI	N	N KROME AVE			781 FT	N	SR 997	1	46 FLORIDA C	2	1	2	22	77	2	1	1 L	S		77
835342920	2013	10/17/2013	1517	4 R		6	87	87150000	1.306	5722	0.002 MI	S	SW 177 AVE	SW 336 ST		10 FT	S	SR 997	1	46 FLORIDA C	2	1	1	14	1	1	1	2 R		1	3
835355370	2015	2/17/2015	1645	2 T		6	87	87150000	1.306	5722	0.002 MI	S	SW 177 AVE	SW 336 STREET		10 FT	S	SR 997	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	5
835342930	2013	11/15/2013	1915	5 F		6	87	87150000	1.307	5722	0.001 MI	S	SW 177 AVE (N KROME AVE)	SW 336 ST (W DAVIS PKWY)		5 FT	S	SR 997	1	46 FLORIDA C	2	1	1	14	1	1	1	2 R		1	3
829511920	2011	8/29/2011	1156	1 M		6	87	87150000	1.308	5722	0		336 STREET SOUTHWEST	177 AVENUE		0 FT		SR 997	1	0 UNINCORP	1	1	1	14	1	1	1	1 S		1	4
825432980	2012	2/27/2012	1410	1 M		6	87	87150000	1.308	5722	0		N KROME AVE	W DAVIS PKWY		10 FT	W	SR 997	1	46 FLORIDA C	2	1	1	14	1	0	1	0 T		1	5
835337880	2012	6/27/2012	0	3 W		6	87	87150000	1.308	5722	0		SW 336 ST (DAVIS PARKWAY)	SW 177AVE (N KROME AVE)		100 FT	E	SR 997	1	46 Florida City	2	2	1	14	2	1	1	1 S		2	5
835339830	2012	11/6/2012	0	2 T		6	87	87150000	1.308	5722	0		SW 336 ST	N KROME AVE		50 FT	W	SR 997	1	46 FLORIDA C	2	1	2	14	5	1	1	1 T		1	4
835341660	2013	2/15/2013	0	5 F		6	87	87150000	1.308	5722	0		DAVIS PARKWAY	KROME AVE		150 FT	W	SR 997	1	46 FLORIDA C	2	1	1	14	1	1	3	1 T		1	5
835343280	2013	5/12/2013	119	7 Su		6	87	87150000	1.308	5722	0		E DAVIS PKWY	N KROME AVE		0 FT		SR 997	1	46 FLORIDA C	2	1	1	14	2	1	2	1 I	M		5
835346070	2013	10/19/2013	1724	6 Sa		6	87	87150000	1.308	5722	0		SW 177 AVE	SW 336 ST		0 FT		SR 997	1	46 FLORIDA C	2	2	2	14	77	1	2	1 R		1	3
835347340	2014	1/10/2014	1817	5 F		6	87	87150000	1.308	5722	0		SW 336 ST	SW 177 AVE		0 FT		SR 997	1	46 FLORIDA C	2	1	1	14	3	1	1	2 R		1	3
835348590	2014	3/14/2014	1725	5 F		6	87	87150000	1.308	5722	0		SW 336 ST	KROME AVE		75 FT	W	SR 997	1	46 FLORIDA C	2	1	1	14	3	1	1	1 S	R		5
835353510	2014	11/22/2014	16	6 Sa		6	87	87150000	1.308	5722	0		SW 177 AVENUE	SW 336 STREET		0 FT		SR 997	1	46 FLORIDA C	2	4	1	14	5	1	1	1 L		1	3
835353600	2015	4/19/2015	2300	7 Su		6	87	87150000	1.308	5722	0		DAVIS PARKWAY			0 FT		SR 997	1	46 FLORIDA C	2	1	2	14	1	1	2	1 T		1	5
835356160	2015	3/31/2015	1325	2 T		6	87	87150000	1.308	5722	0		SW 326 ST	SW 177 AVE		0 FT		SR 997	1	46 FLORIDA C	2	4	1	9	77	1	2	1 I	M		4
835356300	2015	4/2/2015	812	4 R		6	87	87150000	1.308	5722	0		DAVIS PKWY	KROME AVE		0 FT		SR 997	1	46 FLORIDA C	2	2	1	14	1	1	2	1 R		1	5
835356310	2015	4/20/2015	830	1 M		6	87	87150000	1.308	5722	0		SW 336 ST	SW 177 AVE		5 FT	W	SR 997	1	46 FLORIDA C	2	1	1	14	4	1	2	1 T		1	3
835356580	2015	4/30/2015	1645	4 R		6	87	87150000	1.308	5722	0		SW 177 AVE	SW 336 ST		0 FT		SR 997	1	46 FLORIDA C	2	1	1	14	77	1	1	1 R		1	3
835356790	2015	4/22/2015	820	3 W		6	87	87150000	1.308	5722	0		SW 336 ST	SW 177 AVE		100 FT	E	SR 997	1	46 FLORIDA C	2	3	1	10	77	1	1	1 S	M		4
859658390	2015	6/28/2015	1930	7 Su		6	87	87150000	1.308	5722	0		SW 336 ST	SW 177 AVE		0 FT		SR 997	1	46 FLORIDA C	2	2	1	14	77	1	3	1 L		1	2
859658920	2015	7/12/2015	1945	7 Su		6	87	87150000	1.308	5722	0		SW 336 ST	SW 177 AVE		50 FT	W	SR 997	1	46 FLORIDA C	2	4	1	14	1	1	1	1 T		1	4
859659820	2015	9/11/2015	100	5 F		6	87	87150000	1.308	5722	0		SW 177 AVE	SW 336 ST		0 FT		SR 997	1	46 FLORIDA C	2	3	1	11	77	1	1	1 R		1	4
859660880	2015	11/5/2015	1122	4 R		6	87	87150000	1.308	5722	0		SW 177 AVE	SW 336 ST		0 FT		SR 997	1	46 FLORIDA C	2	3	1	14	3	1	2	1 R		1	4
859662020	2015	12/27/2015	1057	7 Su		6	87	87150000	1.308	5722	0		SW 336 ST	SW 177 AVE		50 FT	W	SR 997	1	46 FLORIDA C	2	1	1	14	77	1	3	1 T		1	5
835356610	2015	4/12/2015	1630	7 Su		6	87	87150000	1.31	5722	0.002 MI	N	SW 177 AVE	SW 336 ST		10 FT	N	SR 997	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		1	2
835346160	2013	10/29/2013	1353	2 T		6	87	87150000	1.316	5722	0.008 MI	N	SW 177 AVE	SW 336 STREET		40 FT	N	SR 997	1	46 FLORIDA C	2	2	1	14	77	1	1	1 R	S		3
835340220	2012	11/25/2012	0	7 Su		6	87	87150000	1.321	5722	0.013 MI	N	N KROME AVE	E DAVIS PKWY		70 FT	N	SR 997	1	46 Florida City	2	1	1	14	1	1	1	1 L		1	3
835349370	2014	4/7/2014	1505	1 M		6	87	87160000	8.455	235	0		200 BLK	SW 344 ST		0 FT		SR 9336	1	46 FLORIDA C	2	3	1	14	2	1	1	1 L		2	3
835354630	2015	1/13/2015	750	2 T		6	87	87160000	8.455	235	0		W PALM DR	SW 2 AVE		0 FT		SR 9336	1	46 FLORIDA C	2	3	1	14	1	1	3	1 R		1	5
859659950	2015	9/19/2015	1500	6 Sa		6	87	87160000	8.455	235	0		SW 344 ST	SW 2 AVE		0 FT		SR 9336	1	46 FLORIDA C	2	1	1	14	1	1	14	1 L		1	3
835338920	2012	8/19/2012	0	7 Su		6	87	87160000	8.489	243	0.005 MI	N	W PALM DR	BUS WAY		25 FT	N	SR 9336	1	46 Florida City	2	2	1	14	3	1	1	1 R	S		5
859661530	2015	12/7/2015	1625	1 M		6	87	87160000	8.503	243	0.019 MI	N	WEST PALM DRIVE	KROME AVE		500 FT	S	SR 9336	1	46 FLORIDA C	2	2	1	14	2	1	2	1 L		1	5
835354230	2014	12/26/2014	1605	5 F		6	87	87160000	8.522	238	0.006 MI	S	SW344 ST	100 BLOCK		30 FT	S	SR 9336	1	46 FLORIDA C	2	2	1	10	77	1	1	1 L	S		5
825427750	2011	3/10/2011	140	4 R		6	87	87160000	8.528	238	0		W PALM DRIVE AND NE 1 AVE	NORTHEAST 1 AVENUE		0 FT		SR 9336	1	46 FLORIDA C	1	1	1	14	7	1	1	1 L	U		2
825429770	2011	7/15/2011	1331	5 F		6	87	87160000	8.528	238	0		NE 1 AVE	E PALM DR		50 FT	N	SR 9336	1	46 FLORIDA C	2	2	1	4	77	1	1	1 S	S		5
859660040	2015	11/21/2015	1920	6 Sa		6	87	87160000	8.532	238	0.004 MI	N	SW 344 ST	NW 1 ST		20 FT	N	SR 9336	1	46 FLORIDA C	2	1	1	14	1	1	1	1 L		2	3
835349610	2014	5/8/2014	1610	4 R		6	87	87160000	8.65	6861	0.009 MI	N	SW 344 ST	SOUTH DIXIE HWY		500 FT	S	SR 9336	1	46 FLORIDA C	2	1	1	14	1	1	1	1 R		1	3
835354840	2015	1/22/2015	830	4 R		6	87	87160000	8.688	6861	0.047 MI	N	SW 344 STREET		250	300 FT	S	SR 9336	1	46 FLORIDA C	2	2	1	14	1	1	1	1 L		2	3
835355110	2015	2/7/2015	2030	6 Sa		6	87	87160000	8.688	6861	0.047 MI	N	200 BLK	SW 344 ST		300 FT	S	SR 9336	1	46 FLORIDA C	2	1	2	14	1	1	1	1 L		1	2
835354000	2014	12/25/2014	1820	4 THURSDAY				87000031	1.071				NE 7TH ST	N KROME AVE										14	4						
835348950	2014	3/21/2014	1704	5 FRIDAY				87000031	1.076	05722			NE 7TH ST	N KROME AVE				SR 997						14	3						
835356220	2015	3/28/2015	1605	6 SATURDAY				87000031	1.077				NE 7TH ST	S DIXIE HWY										14	77						
835349940	2015	5/17/2015	1715	7 SUNDAY				87000031	1.08				NE 7TH ST	N KROME AVE										14	5						
835356290	2015	4/1/2015	802	3 WEDNESDAY				87000031	1.071				NE 7TH ST	N KROME AVE										14	3						
859660520	2015	10/16/2015	1400	5 FRIDAY				87000031	1.071				NE 7TH ST	N KROME AVE										14	3						
859660740	2015	10/28/2015	1550	3 WEDNESDAY				87000031	1.08				NE 7TH ST	S DIXIE HWY										14	3						
818620660	2012	11/29/2012	920	4 R	06	87		87000014	0.102				SE 8TH ST	SE 12TH AVE		0.102								10	77						
818613620	2012	6/17/2012	159	7 Su	06	87		87000014	0.082				SW 328TH ST	SW 167TH AVE		0.082								14	2						
818613000	2012	5/31/2012	1753	4 R	06	87		87000014	0.084				SE 8TH ST	SE 12TH AVE		0.084								14	3						
818615740	2012	8/14/2012	1855	2 T	06	87		87000014	0.079				SE 8TH ST	SE 12TH AVE		0.079								27	77						
818626880	2013	4/3/2013	2343	3 W	06	87		87000014	0.167				SW 328TH ST	SE 12TH TER		0.167								28	77						
818633520	2013	8/15/2013	942	4 R	06	87		87000014	0.14				SE 8TH ST	SE 12TH AVE		0.14								14	2						
818639960	2013	12/19/2013	1549	4 R	06	87		87000014	0.084				SE 8TH ST	SE 12TH AVE		0.084								14	3						
846980420	2014	5/13/2014	820	2 T	06	87		87000014	0.085				SE 8TH ST	SE 12TH AVE		0.085								14	1						
846983510	2014	7/12/2014	1150	6 Sa	06	87		87000416	2.432				SW 328TH ST	SW 167TH AVE		2.432								15	77						
818643570	2014	3/1/2014	1439	6 Sa	06	87		87000014	0.078				SE 8TH ST	SE 12TH AVE		0.078								14	1						
846987250	2014	9/22/2014	700	1 M	06	87		87000014	0.084				SE 8TH ST	SE 12TH AVE		0.084								14	3						
846989480	2014	10/17/2014	2310	1 M	06	87		87000014	0.079				SW 328TH ST	SW 167TH AVE		0.079								3	77						
847003180	2015	6/6/2015	2211	6 Sa	06	87		87000014	0.178				SE 8TH ST	SE 12TH AVE		0.178								11	77						
847014460	2015	12/6/2015	1954	7 Su	06	87		87000014	0.084				SE 8TH ST	SE 12TH AVE		0.084								11	77						
818628510	2013	5/4/2013	1336	6 Sa	06	87		87000007	1.01				SW 167TH AVE	SW 328TH ST		1.01								14	3						
818626430	2013	3/27/2013	100	3 W	06	87		87000014	0.084				SE 8TH ST	12TH AVE		0.084								32	77						

TYPESHLD	INTCT_TYP_CD	RD_SRFC_COND_CD	LGHT_COND_CD	EVNT_WTHR_COND_CD	SCHL_BUS_	WRK_ZONE_REL_CD	LOC_WTHI	WRK_ZONE_TYP_CD	WRK_PRSI	LAW_ENFI	FRST_RD_(	SCND_RD_	THRD_RD_	FRST_ENVI	SCND_ENV	THRD_ENV	V1_TRAF_CTRL_CD	V2_TRAF_CTRL_CD	ALCINVCD	FAHWYSYS	FUNCLASS	CRRATECD	RDACCESS	PLACECD	SURWIDTH	SHLDTYPE	SHLDTYP2	SHLDTYP3	SLDWIDTH	SHLDWTH2	SHLDWTH3	MEDWIDTH	HRZDGCRV	MAXSPEED	TYPEPARK	SECTADT	AVGTFACT	SKTRESNM	V1_MOST_HARM_EVNT_CD
1	1	1	4	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	640	24	1	3		10	12	0			65	0	38000	7.4	36	10
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	640	24	1	5	3	10	3.5	12			65	0	19000	7.6	34	14
1	1	2	1	2	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	640	24	1	5	3	10	3.5	12			65	0	38000	7.4	36	32
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	640	24	1	5	3	10	3.5	12			65	0	34500	6.3	34	25
1	1	1	1	2	1	1	0	0	0	0	1	0	0	1	0	0	1		0			8			15	1			8	0	0						0	0	1
3	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1			8	0	0						0	0	14
1	1	2	1	3	1	1	0	0	0	0	10	0	0	2	0	0	1		0			8			15	1			8	0	0						0	0	27
1	1	1	2	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1			8	0	0						0	0	14
1	1	1	4	1	1	1	0	0	0	0	1	0	0	1	0	0	1		1			8			15	1			8	0	0					11500	0	0	27
1	1	2	1	3	1	1	0	0	0	0	1	0	0	1	0	0	1		0			8			15	1			8	0	0					11500	0	0	39
1	77	2	1	2	1	1	0	0	0	0	1	0	0	1	0	0	1		0			8			15	1			8	0	0					11500	0	0	27
1	1	1	4	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0			8			15	1			8	0	0					11500	0	0	27
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1			8	0	0					12000	6.3	0	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1			8	0	0					12000	6.3	0	14
1	1	1	4	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0			8			15	1			8	0	0					12000	6.3	0	27
1	1	1	4	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0			8			15	1			8	0	0					12000	6.3	0	33
1	1	1	4	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0			8			15	1			8	0	0					12000	6.3	0	27
1	1	2	2	3	1	1	0	0	0	0	10	0	0	2	0	0	1		0			8			15	1			8	0	0					12000	6.3	0	27
1	1	2	1	3	1	1	0	0	0	0	10	0	0	2	0	0	1		0			8			15	1			8	0	0					12000	6.3	0	23
3	1	2	4	3	1	1	0	0	0	0	1	1	1	2	0	0	1		0			8			15	1			8	0	0					12000	6.3	0	32
1	1	2	1	3	1	1	0	0	0	0	10	0	0	2	0	0	1	1	0			8			15	1			8	0	0					12000	6.3	0	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1			8	0	0					13500	7.6	0	14
1	1	2	2	3	1	1	0	0	0	0	10	0	0	2	0	0	1		0			8			15	1			8	0	0					13500	7.6	0	25
1	1	1	1	2	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1			8	0	0					13500	7.4	0	14
2	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1			8	0	0					13500	7.4	0	14
1	2	1	3	1	1	1	0	0	0	0	1	0	0	1	0	0	5	5	0			8			15	1	3		4	4	12					5400	7.6	0	14
1	1	2	1	2	1	1	0	0	0	0	10	0	0	1	0	0	1		0			8			15	1	3		4	4	12					5400	7.6	0	27
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	13	13	0			8			15	1	3		4	4	12					6000	0	0	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0			8			15	1	3		4	4	12					5500	7.4	0	14
1	1	2	1	3	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	14
1	1	1	1	2	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	34000	6.3	34	27
1	1	1	5	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	35000	5.69	33	1
1	1	1	5	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	35000	5.9	40	40
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	34000	6.3	34	29
1	1	1	1	2	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	14
1	1	2	1	3	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	14
1	1	1	1	2	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	5
1	1	1	1	1	2	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	35000	5.69	40	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	34000	6.3	34	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	34000	6.3	34	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	38000	7.6	34	14
1	1	1	5	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	38000	7.6	34	5
1	1	2	1	3	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	27
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	30
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	37100	7.4	36	14
1	1	2	1	3	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	38000	7.6	34	27
1	1	2	1	3	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	35000	5.69	40	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	34000	6.3	34	30
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	3		10	12	0	64		65	0	35000	5.69	40	30
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	5		8	3	0	64		65	0	35000	5.69	40	1
1	1	1	4	2	1	1	0	0	0	0	1	0	0	1	0	0	1		1	5	12	3	1	930	24	2	5		8	3	0	64		65	0	34000	6.3	34	27
1	1	2	5	3	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	5		8	3.5	0	64		65	0	38000	7.6	34	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	77	77	0	5	12	3	1	930	24	2	5		8	3	0	64		65	0	34000	6.3	34	14
1	1	2	1	3	1	1	0	0	0	0	1	0	0	2	0	0	1		0	5	12	3	1	930	24	2	5		8	3	0	64		65	0	35000	5.9	40	27
1	1	2	1	3	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	5	12	3	1	930	24	2	5		8	3.5	0	64		65	0	37100	7.4	36	0
1	1	1	3	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	5	12	3	1	930	24	2	5		8	3	0	64		65	0	35000	5.69	33	13
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1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1		0	6	16	20	3	640	22	1	6	12	2	0	15	30	1	22500	5.9	40	14
1	2	1	4	1	1	1	0	0	0	0	1	1	1	1	1	1	5	5	0	6	16	20	3	640	22	1	6	12	2	0	15	30	1	21500	7.37	45	0
1	1	2	1	3	1	1	0	0	0	0	10	1	1	2	1	1	5	5	0	6	16	20	3	640	22	1	6	12	2	0	15	30	1	21500	7.37	45	14
1	2	2	4	3	1	1	0	0	0	0	10	0	0	2	0	0	1	1	0	6	16	20	3	640	22	1	6	12	2	0	15	30	1	23500	7.1	38	14
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	6	16	30	3	640	33	6		2	0	0	15	30	1	16200	13.6	40	0
1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0	1	1	0	6	16	30	3	640	33	6		2	0	0	15	30	1	24500	12.4	38	14
1	1	1	4	1	1	1	0	0	0	0	1	0	0	1	0	0	0	1	0	6	16	30	3	640	33	6		2	0	0	15	30	1	24500	12.4	38	0
		1	4	1																																	
		1	1	1																																	
		1	1	1																																	
		1	1	1																																	
		1	1	1																																	
		2	1	3																																	
		1	1	1																																	
		1	1	1													NO CONTROLS	NOT CODED																			
		1	4	1													NO CONTROLS	NOT CODED																			
		2	1	1													TRAFFIC CONTROL S	TRAFFIC CONTROL SIGNAL																			
		1	1	1													NO CONTROLS	NOT CODED																			
		2	4	2													NO CONTROLS	NOT CODED																			
		1	1	1													TRAFFIC CONTROL S	TRAFFIC CONTROL SIGNAL																			
		1	1	1													TRAFFIC CONTROL S	TRAFFIC CONTROL SIGNAL																			
		1	1	1													TRAFFIC CONTROL S	TRAFFIC CONTROL SIGNAL																			
		1	1	1													NO CONTROLS	NO CONTROLS																			
		1	1	1													TRAFFIC CONTROL S	TRAFFIC CONTROL SIGNAL																			
		1	1	1													TRAFFIC CONTROL S	TRAFFIC CONTROL SIGNAL																			
		1	4	1													NO CONTROLS	NOT CODED																			
		2	5	2													NO CONTROLS	NOT CODED																			
		2	5	1													NO CONTROLS	NOT CODED																			
		1	1	1													TRAFFIC CONTROL S	TRAFFIC CONTROL SIGNAL																			
		1	4	1													TRAFFIC CONTROL S	NOT CODED																			

V1_HARM_EVNT_SQ01_CD	V1_VHCL_BDY_TYP_CD	V1_VHCL_SPCL_FNC_CD	V1_CMRC_USE_CD	V1_CMRC_VEH_CNFIG_CD	V1_CARY_BDY_TYP_CD	V1_CMRC_VEH_WT_CD	V1_POINTIMP	V1_VHCL_MOVE_CD	V1_TRAVDIR	V1_FRST_DR_ACTN_CD	V1_AGE3	V1_SUSP_ALC_USE_CD	V1_SUSP_DRUG_USE_CD	V2_MOST_HARM_EVNT_CD	V2_HARM_EVNT_SQ01_CD	V2_VHCL_BDY_TYP_CD	V2_VHCL_SPCL_FNC_CD	V2_CMRC_USE_CD	V2_CMRC_VEH_CNFIG_CD	V2_CARY_BDY_TYP_CD	V2_CMRC_VEH_WT_CD
10	1	1	0	0	0	0	1	1	N	1	23	1	1								
14	1	1	0	0	0	0	1	1	N	1	32	1	1	14	14	0	1	0	0	0	0
43	3	1	0	0	0	0	2	15	N	2	37	1	1								
40	2	1	0	0	0	0	9	1	S	1	32	1	1								
1	11	1	0	0	0	0	3	1	N	2	57	1	1								
14	0	1	0	0	0	0	0	1	S					14	14	1	1	0	0	0	0
27	1	1	0	0	0	0	1	1	S	2	52	1	1								
14	1	1	0	0	0	0	1	1	S	2	25	1	1	14	14	2	1	0	0	0	0
27	1	1	0	0	0	0	1	1	S	26	31	2	88								
39	11	1	0	0	0	0	13	1	S	1	22	1	1								
27	1	1	0	0	0	0	2	1	S	2	22	1	1								
27	1	1	0	0	0	0	2	1	S	2	20	1	1								
14	3	1	0	0	0	0	9	6	S	1	52	1	1	14	14	3	1	0	0	0	0
14	3	1	0	0	0	0	1	1	S	2	19	1	1	14	14	1	1	0	0	0	0
27	1	1	0	0	0	0	1	1	S	2	28	1	1								
33	16	1	0	0	0	0	1	15	S	2	24	1	1								
27	1	1	0	0	0	0	14	1	S	77	25	1	1								
27	1	1	0	0	0	0	14	15	S	2	22	1	1								
42	1	1	0	0	0	0	18	1	S	77	80	1	1								
32	1	1	0	0	0	0	6	17	S	30	34	1	1								
14	2	1	0	0	0	0	1	1	S	2	42	1	1	14	14	1	1	0	0	0	0
14	0	1	0	0	0	0	8	4	N					14	14	1	1	0	0	0	0
42	1	1	0	0	0	0	18	15	S	1	21	1	1								
14	16	1	0	0	0	0	14	1	S	10	67	1	1	14	14	16	1	0	0	0	0
14	3	1	0	0	0	0	8	4	N	4	52	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	5	W	2	33	1	1	14	14	88	1	0	0	0	0
27	3	1	0	0	0	0	14	15	S	30	27	1	1								
14	16	1	0	0	0	0	1	1	S	2	19	1	1	14	14	16	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S	2	49	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	N	2	35	1	1	14	14	3	1	0	0	0	0
27	1	1	0	0	0	0	1	6	N	2	46	1	1								
1	11	1	0	0	0	0	19	1	N	1	33	1	1								
40	1	1	0	0	0	0	18	1	S	1	22	1	1								
29	1	1	0	0	0	0	2	1	S	30	29	1	1								
14	1	1	0	0	0	0	1	1	N	2	69	1	1	14	14	1	1	0	0	0	0
14	0	1	0	0	0	0	0	1	S					14	14	1	1	0	0	0	0
5	19	1	0	0	0	0	0	1	S					17	17	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S	2	20	1	1	14	14	8	1	0	0	0	0
14	11	1	0	0	0	0	12	6	S					14	14	16	1	0	0	0	0
14	20	1	1	6	77	3	21	1	N	1	38	1	1								
14	1	1	0	0	0	0	7	6	N	77	67	1	1	14	14	11	1	0	0	0	0
5	3	1	0	0	0	0	7	1	N	1	55	1	1								
27	1	1	0	0	0	0	1	1	S	1	32	1	1								
30	1	1	0	0	0	0	14	1	S	2	23	1	1								
14	1	1	0	0	0	0	1	1	S	2	25	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S	2	45	1	1	14	14	1	1	0	0	0	0
43	16	1	0	0	0	0	13	1	S	2	30	1	1								
27	1	1	0	0	0	0	1	1	N	1	49	1	1	14	14	1	1	0	0	0	0
30	1	1	0	0	0	0	2	1	S	77	34	1	1								
30	1	1	0	0	0	0	14	1	N	2	31	1	1								
42	16	1	0	0	0	0	12	1	N	26	44	1	1								
27	16	1	0	0	0	0	13	77	S	2	23	2	88								
14	3	1	0	0	0	0	8	77	S	1	34	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	8	1	N	3	64	1	1	14	14	1	1	0	0	0	0
27	1	1	0	0	0	0	1	1	N	12	27	1	1								
0	0	1	0	0	0	0	0	0		0				27	27	3	1	0	0	0	0
13	1	1	0	0	0	0	14	1	S	1	36	1	1								
27	1	1	0	0	0	0	1	1	N	12	24	1	1								
27	1	1	0	0	0	0	10	1	S	1	46	1	1	14	14	1	1	0	0	0	0
7	1	1	0	0	0	0	1	1	N	1	48	1	1								
14	1	1	0	0	0	0	1	1	S	2	28	88	88	14	14	16	1	0	0	0	0
14	19	1	0	0	0	0	1	1	N	2	35	1	1	14	14	3	1	0	0	0	0
27	1	1	0	0	0	0	1	1	S	2	61	2	2								
27	1	1	0	0	0	0	1	1	S	2	18	1	1	14	14	16	1	0	0	0	0
27	1	1	0	0	0	0	1	1	S	1	24	1	1								
27	2	1	0	0	0	0	14	1	S	77	39	1	1								
14	2	1	0	0	0	0	12	1	N	77	27	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	8	6	N	25	48	1	1	14	14	1	1	0	0	0	0
27	1	1	0	0	0	0	1	1	N	2	26	1	1								
14	1	1	0	0	0	0	4	1	S					14	14	1	1	0	0	0	0
27	1	1	0	0	0	0	1	1	S												
27	1	1	0	0	0	0	1	1	N	29	30	1	1								
27	1	1	0	0	0	0	2	6	N	29	40	1	1								
27	1	1	0	0	0	0	1	11	S	30	20	1	1								
27	1	1	0	0	0	0	8	1	S	29	25	1	1								
14	11	1	0	0	0	0	19	1	S	2	67	1	1	14	14	1	1	0	0	0	0
18	16	1	0	0	0	0	18	1	N	1	34	1	1								
18	1	1	0	0	0	0	1	1	N	1	58	1	1								
14	1	1	0	0	0	0	1	1	N	2	18	1	1								
14	16	1	0	0	0	0	3	1	N					14	14	1	1	0	0	0	0
40	1	1	0	0	0	0	6	1	N	77	20	1	1	14	18	3	1	0	0	0	0
14	16	1	0	0	0	0	1	1	S	2	26	1	1	14	14	1	1	0	0	0	0
27	1	1	0	0	0	0	1	1	S	2	60	1	1								
14	1	1	0	0	0	0	2	1	S	2	31	1	1								
30	1	1	0	0	0	0	14	1	S	1	45	1	1								
1	1	1	0	0	0	0	3	1	N	1	34	1	1								
14	1	1	0	0	0	0	3	1	S	2	27	1	1	14	14	8	1	0	0	0	0
40	3	1	0	0	0	0	4	1	N	1	33	1	1	14	14	17	1	0	0	0	0
14	1	1	0	0	0	0	14	6	N	2	19	1	1	14	14	19	1	0	0	0	0
27	2	1	0	0	0	0	1	1	N	1	20	1	1								
29	1	1	0	0	0	0	1	1	S	1	30	1	1								
27	1	1	0	0	0	0	8	1	N	1	34	1	1								
27	1	1	0	0	0	0	1	1	N	1	34	1	1								
33	1	1	0	0	0	0	12	1	S	2	17	1	1								
14	1	1	0	0	0	0	1	1	S	2	43	1	1	14	14	1	1	0	0	0	0
29	1	1	0	0	0	0	5	1	S	1	31	1	1								
14	1	1	0	0	0	0	1	1	S	2	67	1	1	14	14	1	1	0	0	0	0
33	16	1	0	0	0	0	1	1	S	2	53	1	1								
27	1	1	0	0	0	0	1	1	S	77	48	1	1								
37	1	1	0	0	0	0	1	1	S	1	19	1	1								
27	1	1	0	0	0	0	12	1	S	2	21	1	1								
14	16	1	0	0	0	0	1	1	N	2	59	1	1	14	14	2	1	0	0	0	0
14	1	1	0	0	0	0	12	1	N	1	55	1	1								
14	1	1	0	0	0	0	1	1	S	12	20	1	1								
14	3	1	0	0	0	0	10	77	S	77	25	1	1	14	14	1	1	0	0	0	0
14	3	1	0	0	0	0	14	1	S	2	35	1	1	14	14	3	1	0	0	0	0
9	1	1	0	0	0	0	0	6	N	25	19	1	1	30	43	3	1	0	0	0	0
14	16	1	0	0	0	0	1	1	N	30	64	1	1								
14	0	1	0	0	0	0	3	1	S					14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	N	2	27	1	1	14	14	1	1	0	0	0	0

42	16	1	0	0	0	0	7	1	S	1	40	1	1									
42	1	1	0	0	0	0	1	1	S	25	23	1	1									
27	3	1	0	0	0	0	2	1	S	1	42	1	1									
14	1	1	0	0	0	0	14	1	N	1	44	1	1	14	14	16	1	0	0	0	0	
27	1	1	0	0	0	0	1	1	N	1	38	1	1	14	14	20	1	1	6	6	3	
43	1	1	0	0	0	0	13	1	N	25	17	1	1									
14	1	1	0	0	0	0	2	1	S	2	20	1	1	14	14	11	1	0	0	0	0	
17	1	1	0	0	0	0	1	1	N	1	64	1	1									
14	1	1	0	0	0	0	1	1	S	2	23	1	1	14	14	16	1	0	0	0	0	
1	1	1	0	0	0	0	19	1	N	1	21	1	1									
29	1	1	0	0	0	0	14	1	S	2	26	1	1									
40	20	1	1	6	77	2	21	1	N	77	55	1	1	18	18	1	1	0	0	0	0	
27	1	1	0	0	0	0	12	1	S	2	43	1	1									
42	3	1	0	0	0	0	3	1	N	77	62	1	1									
14	3	1	0	0	0	0	1	1	N	2	64	1	1	14	14	3	1	0	0	0	0	
27	3	1	0	0	0	0	1	1	N	77	51	1	1									
40	1	1	0	0	0	0	1	1	S	26	24	1	1									
14	1	1	0	0	0	0	1	1	S	2	33	1	1	14	14	1	1	0	0	0	0	
27	3	1	0	0	0	0	14	1	S	2	25	1	1									
42	1	1	0	0	0	0	1	1	S	12	28	1	1									
27	1	1	0	0	0	0	14	1	S	1	20	1	1									
27	1	1	0	0	0	0	1	1	S	12	25	1	1									
27	1	1	0	0	0	0	1	1	S	1	26	1	1									
27	1	1	0	0	0	0	1	1	S	1	23	1	1									
14	1	1	0	0	0	0	1	1	S	2	58	1	1	14	14	1	1	0	0	0	0	
27	3	1	0	0	0	0	1	1	S	2	28	1	1									
14	1	1	0	0	0	0	1	1	S	2	28	1	1	14	14	20	1	1	6	3	3	
27	1	1	0	0	0	0	1	1	S	1	22	1	1									
27	11	1	0	0	0	0	3	1	S	77	22	1	1									
27	1	1	0	0	0	0	1	1	S	2	61	1	1									
27	1	1	0	0	0	0	4	1	S													
27	1	1	0	0	0	0	1	1	S	2	31	1	1									
27	3	1	0	0	0	1	1	1	U													
10	1	88	0	0	0	0	15	1	S	1	53	1	1									
45	1	1	0	0	0	0	1	1	E	3	27	1	1	0	1	16	1	0	0	0	0	
14	1	1	0	0	0	0	1	1	S	2	43	1	1	14	14	1	1	0	0	0	0	
14	1	1	0	0	0	0	1	1	S	2	44	1	1	14	14	3	1	0	0	0	0	
14	1	1	0	0	0	0	14	1	S	2	23	1	1	14	14	16	1	0	0	0	0	
27	1	1	0	0	0	0	6	1	S	30	25	1	1									
14	1	1	0	0	0	0	1	1	S	2	26	1	1	14	14	1	1	0	0	0	0	
14	16	1	0	0	0	0	2	5	N	2	44	1	1	14	14	1	1	0	0	0	0	
33	3	1	0	0	0	0	14	1	S													
14	1	1	0	0	0	0	1	1	S	2	16	1	1	14	14	1	1	0	0	0	0	
14	1	1	0	0	0	0	1	1	S	2	0	1	1	14	14	1	1	0	0	0	0	
15	1	1	0	0	0	0	3	1	N	2	79	1	1	14	14	1	3	0	0	0	0	
14	1	1	0	0	0	0	1	3	E	3	46	1	1	14	14	1	1	0	0	0	0	
31	1	1	0	0	0	0	1	1	S	29	27	1	1									
19	3	1	0	0	0	0	1	1	N	2	52	1	1									
14	1	1	0	0	0	0	9	10	N	6	41	1	1	14	14	1	1	0	0	0	0	
14	3	1	0	0	0	0	2	1	N	2	18	1	1	0	44	1	1	0	0	0	0	
0	1	1	0	0	0	0	2	0	S													
0	19	1	4	0	0	0	1	1	S	2	34	1	1	0	0	1	1	3	0	0	0	
27	3	1	0	0	0	0	1	17	S	2	29	2	1									
14	1	1	0	0	0	0	0	6	S	2	21	1	1	14	14	16	1	0	0	0	0	
14	3	1	0	0	0	0	1	1	S	2	22	1	1	14	14	16	1	0	0	0	0	
14	1	1	0	0	0	0	10	3	S	6	50	1	1	0	14	11	1	0	0	0	0	
1	11	1	0	0	1	0	12	3	N	1	63	1	1	1	1	11	1	0	0	0	0	
14	1	1	0	0	0	0	14	1	S	10	35	1	1	14	14	1	1	0	0	0	0	
14	3	1	0	0	0	0	1	1	S	2	22	1	1	14	14	16	1	0	0	0	0	
14	1	1	0	0	0	0	10	3	S	6	50	1	1	0	14	11	1	0	0	0	0	
1	11	1	0	0	1	0	12	3	N	1	63	1	1	1	1	11	1	0	0	0	0	
14	11	1	0	0	0	0	13	1	S	1	69	1	1									
0	0	0	0	0	0	0	0	0	0													
42	11	1	0	0	0	0	2	1	S	1	27	1	1									
1	13	1	0	0	0	0	1	3	N	26	37	1	1									
14	16	1	0	0	0	0	6	3	N	2	32	1	1	14	14	1	1	0	0	0	0	
14	1	1	0	0	0	0	0	6	S	77	23	1	1	0	14	11	1	0	0	0	0	
15	2	1	0	0	0	0	0	1	S	77	41	1	1	0	14	2	1	0	0	0	0	
14	16	1	0	0	0	0	14	6	S	77	41	1	1	14	14	1	1	0	0	0	0	
14	20	1	0	0	0	0	21	3	N	2	38	1	1	14	14	19	1	0	0	0	0	
0	1	0	0	0	0	0	5	3	W	3	0	1	1	14	14	1	1	0	0	0	0	
14	16	1	0	0	0	0	13	1	E	3	32	1	1	14	14	16	1	0	0	0	0	
22	1	1	0	0	0	0	1	1	E	2	23	1	1	14	14	16	1	0	0	0	0	
14	2	1	0	0	0	0	4	3	W	2	43	1	1	14	14	1	1	0	0	0	0	
14	1	1	0	0	0	0	11	5	S	3	42	1	1	14	14	1	1	0	0	0	0	
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43	1	1	0	0	0	0	2	1	S	77	32	1	1									
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24	1	1	0	0	0	0	1	1	S	30	26	1	1									
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14	2	1	0	0	0	0	0	1	E		1	38	1	1								
14	1	1	0	0	0	0	0	1	W		11	37	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	14	3	E		6	58	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	2	3	E		1	16	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	N		3	77	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		3	42	1	1	14	14	16	1	0	0	0	0
14	1	1	0	0	0	0	11	10	W		6	26	1	1	14	14	1	1	0	0	0	0
14	77	1	0	0	0	0	4	5	N		10	60	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	14	1	N		11	28	1	1	14	14	20	1	4	9	1	1
14	2	1	0	0	0	0	1	1	E		2	79	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	5	W		3	24	1	1	14	14	2	1	0	0	0	0
14	3	88	0	0	0	0	2	5	W		2	15	88	88								
14	2	1	0	0	0	0	1	1	S		2	24	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	2	5	N		10	53	1	1	14	14	19	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S		2	34	1	1	14	14	1	1	0	0	0	0
14	3	1	0	0	0	0	1	1	S		10	16	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	4	3	N		3	42	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	7	3	W		1	57	1	1	14	14	1	1	0	0	0	0
9	1	1	0	0	0	0	1	1	S		2	39	1	1	0	9	1	1	0	0	0	0
14	1	1	0	0	0	0	14	3	E		3	24	1	1	14	14	11	1	0	0	0	0
10	1	1	0	0	0	0	1	1	W						10	10	2	1	0	0	0	0
14	3	1	0	0	0	0	1	1	W		1	30	1	1	14	14	2	1	0	0	0	0
14	1	1	0	0	0	0	4	3	E		3	27	1	1	14	14	1	1	0	0	0	0
14	3	1	0	0	0	0	1	3	E		3	26	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	10	1	N		11	60	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	6	3	W		2	88	1	1	14	14	19	1	0	0	0	0
14	1	1	0	0	0	0	3	3	N		3	25	1	1	14	14	3	1	0	0	0	0
14	16	1	0	0	0	0	1	5	N		2	56	1	1	14	14	8	13	0	0	0	0
14	7	1	0	0	0	0	0	3	W		3	56	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	1	5	E		2	0	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		25	23	1	1	0	14	19	1	0	0	0	0
14	1	1	0	0	0	0	1	5	S		2	24	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		2	21	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	0	3	E		3	0	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	1	5	E		2	0	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		25	23	1	1	0	14	19	1	0	0	0	0
14	1	1	0	0	0	0	1	5	S		2	24	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		2	21	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	0	3	E		3	0	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		3	21	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	5	E		2	29	1	1	14	14	1	1	0	0	0	0
14	77	9	0	0	0	0	1	1	S		2	29	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	13	5	N		3	0	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S		2	20	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	6	6	N		77	37	1	1	14	14	2	1	0	0	0	0
14	1	1	0	0	1	0	1	1	N		10	26	1	1	18	18	1	1	0	0	1	0
14	1	1	0	0	0	0	13	6	S		2	0	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S		2	64	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S		2	64	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	1	77	S		77	42	1	1	14	14	1	1	0	0	0	0
14	1	11	0	0	0	0	2	1	N													
14	1	1	0	0	0	0	1	1	S		2	23	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S		2	21	1	1	14	14	1	1	0	0	0	0
14	20	1	2	3	8	3	0	4	S		4	50	1	1	15	15	3	1	0	0	0	0
14	13	1	0	0	0	0	0	1	W		2	0	2	1	14	14	1	1	0	0	0	0
1	11	1	0	0	0	0	4	1	S		2	22	1	1								
14	13	1	0	0	0	0	1	1	E		2	22	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	2	3	S		2	20	1	1	14	14	1	1	0	0	0	0
42	3	1	0	0	0	0	1	1	S		2	30	1	1	0	43	2	1	0	0	0	0
14	16	1	0	0	0	0	1	1	S		2	18	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	4	1	S		3	16	1	1	14	14	11	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		2	85	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	14	3	S		3	45	1	1	14	14	1	1	0	0	0	0
14	2	1	0	0	0	0	0	3	E		3	47	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	0	0	W		3	0	1	1	14	14	8	13	3	11	2	3
14	1	3	0	0	0	0	0	13	S		1	41	1	1	14	14	3	1	0	0	0	0
14	16	1	0	0	0	0	2	3	S		2	74	1	1	14	14	1	1	0	0	0	0
14	3	1	0	0	0	0	1	3	E		3	40	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		11	62	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	W		2	21	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	14	1	E		2	51	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	2	3	E		2	80	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	5	3	S		2	79	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		3	37	1	1	0	33	1	1	0	0	0	0
14	16	1	0	0	0	0	3	3	E		3	51	1	1								
14	1	88	0	0	0	0	1	10	N		6	0	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	1	3	N		3	20	1	1	14	14	1	1	0	0	0	0
14	3	1	0	0	0	0	1	1	E		2	53	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		2	39	1	1	14	14	1	1	0	0	0	0
14	3	1	0	0	0	0	12	1	W		25	57	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		12	23	1	1	14	14	1	1	0	0	0	0
14	17	1	0	0	0	0	6	1	E		2	0	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	1	0	1	1	E		77	24	1	1	18	14	1	1	0	0	1	0
10	1	1	0	0	0	0	3	3	W		3	36	1	1								
14	20	1	2	6	1	1	7	3	E		2	51	1	1	14	14	8	13	0	0	0	0
14	8	12	0	0	0	0	1	3	W		1	52	1	88	14	14	1	1	0	0	0	0
0	1	0	3	0	0	0	2	10	S						0	0	3	0	3	0	0	0
14	3	1	0	0	0	0	13	11	E		15	42	1	1	14	14	1	1	0	0	0	0
14	0	0	0	0	0	0	2	3	N		3	33	1	1	14	14	0	0	0	0	0	0
14	8	13	0	0	0	0	1	1	E		25	44	1	1	14	14	8	12	0	0	0	0
14	1	1	0	0	0	0	0	3	S		3	55	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	N		3	21	1	1	14	14	1	1	0	0	0	0

14	20	88	0	6	88	2	0	1	W		2	0	88	88	14	14	2	13	0	11	2	2
14	3	1	0	0	0	0	2	17	E		25	61	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		3	22	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	W		2	33	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	3	E		3	0	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		2	24	1	1	14	14	1	1	0	0	0	0
14	19	1	0	0	0	0	1	1	E		2	52	1	1	14	14	16	1	0	0	0	0
14	1	1	0	0	0	0	2	1	W		2	18	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		2	28	1	1	14	14	1	1	0	0	0	0
14	3	1	0	0	0	0	1	1	E		30	36	1	1	14	14	1	1	0	0	0	0
14	8	12	4	11	2	4	2	3	W		25	30	1	1	14	14	17	1	0	0	0	0
14	11	1	3	0	0	0	1	1	S		1	57	1	1								
14	1	1	0	0	0	0	1	10	N		2	29	1	1	14	14	3	1	0	0	0	0
14	1	1	0	0	0	0	1	3		0	3	0	88	88	14	14	1	1	0	0	0	0
0	1	1	0	0	0	0	1	3	S		3	54	1	1	0	0	2	1	0	0	0	4
33	1	1	0	0	0	0	1	1	N		2	27	1	1								
14	11	1	0	0	0	0	1	1	N		2	32	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	0	3	S		6	60	1	1	14	14	1	1	0	0	0	0
39	88	88	0	0	0	0	1	1	S		2	0	88	88								
14	3	1	0	0	0	0	1	1	N		2	68	2	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S		1	47	1	1	14	14	16	1	0	0	0	0
14	1	1	0	0	0	0	1	1	N		2	17	1	1	14	14	1	1	0	0	0	0
14	1	3	0	0	0	0	2	1	W		10	25	88	88	14	14	1	1	0	0	0	0
0	1	1	3	0	0	0	1	1	E		2	35	1	1	0	0	1	1	3	0	0	0
14	1	1	0	0	0	0	0	3	E		2	54	1	1	14	14	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0		0	2	0	1	1	14	14	2	1	0	0	0	0
14	3	1	0	0	0	0	1	14	E		10	58	1	1	14	14	2	1	0	0	0	0
14	1	1	0	0	0	0	14	3	E		3	28	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	6	3	S		3	0	1	1	14	14	11	1	0	0	0	0
14	1	1	0	0	0	0	5	1	E		11	20	1	1	14	14	1	1	0	0	0	0
32	3	1	0	0	0	0	1	3	E		2	32	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	W		11	23	2	1	14	14	1	1	0	0	0	0
9	3	1	0	0	0	0	1	1	E		2	29	1	1	0	9	1	1	0	0	0	0
9	11	1	0	0	0	0	0	3	W		77	60	1	1								
14	1	1	0	0	0	0	6	1	N		77	37	1	1	14	14	16	1	0	0	0	0
42	1	1	0	0	0	0	13	5	E		2	34	1	1	0	9	3	1	0	0	0	0
14	1	1	0	0	0	0	5	1	W		77	56	1	1	14	14	2	1	0	0	0	0
10	16	1	0	0	0	0	2	3	S		77	41	1	1								
42	1	1	0	0	0	0	1	1	S		3	24	1	1	14	14	1	1	0	0	0	0
14	12	1	0	0	0	0	1	1	W		10	50	1	1	14	14	1	1	0	0	0	0
10	1	1	0	0	0	0	1	1	E		1	30	1	1								
14	1	1	0	0	0	0	2	3	E		3	24	1	1	14	14	2	1	0	0	0	0
14	77	1	0	0	0	0	8	4	W		4	41	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	S		2	26	1	1	14	14	1	1	0	0	0	0
14	16	1	0	0	0	0	19	1	S		2	25	1	1								
14	16	1	0	0	0	0	0	1	S		2	29	1	1	14	14	3	1	0	0	0	0
14	16	1	0	0	0	0	1	1	S		3	43	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	E		2	28	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	W		1	21	1	1	14	14	1	1	0	0	0	0
44	16	1	0	0	0	0	0	1	E		26	26	1	1								
14	1	1	0	0	0	0	2	3	S		2	22	1	1	14	14	1	1	0	0	0	0
14	20	88	0	0	0	0	2	1	W		6	27	1	1								
0	0	0	0	0	0	0	0	3	E						0	0	0	0	0	0	0	0
4	20	1	1	4	5	0	0	1	N		2	78	1	1	14	14	1	1	0	0	0	0
14	1	1	0	0	0	0	1	1	W		77	42	1	1	14	14	1	1	0	0	0	0
9	1	1	0	0	0	0	1	1	E		2	37	1	1	0	18	16	1	0	0	0	0
14	1	1	0	0	0	0	1	1	W		2	34	1	1	14	14	1	1	0	0	0	0
0	0	0	0	0	0	0	0	0		0					14	14	1	1	0	0	0	0

		OPERATED MV IN CARLESS OR NEGL	
		OPERATED MV IN CARLESS OR NEGL	
		FAILED TO YIELD RIGHT-OF-WAY	
		OPERATED MV IN CARLESS OR NEGL	
		OPERATED MV IN CARLESS OR NEGL	
		OPERATED MV IN CARLESS OR NEGL	
		FAILED TO YIELD RIGHT-OF-WAY	
W		NO CONTRIBUTING ACTION	0 0
W		OPERATED MV IN CARLESS OR NEGL	0 0
W		RAN RED LIGHT	0 0
W		OPERATED MV IN CARLESS OR NEGL	0 0
E		RAN OFF ROADWAY	0 0
W		OPERATED MV IN CARLESS OR NEGL	0 0
N		RAN RED LIGHT	0 0
W		FOLLOWED TOO CLOSELY	0 0
W		OTHER CONTRIBUTING ACTION	0 0
E		OPERATED MV IN CARLESS OR NEGL	0 0
N		FAILED TO YIELD RIGHT-OF-WAY	0 0
W		OTHER CONTRIBUTING ACTION	0 0
E		OPERATED MV IN CARLESS OR NEGL	0 0
E		NO CONTRIBUTING ACTION	0 0
E		OPERATED MV IN CARLESS OR NEGL	0 0
N		RAN OFF ROADWAY	0 0

V2_POINTIMP	V2_VHCL_MOVE_CD	V2_TRAVDIR	V2_FRST_DR_ACTN_CD	V2_AGE3	V2_SUSP_ALC_USE_CD	V2_SUSP_DRUG_USE_CD	TOT_CRSH_DMG_AMT	TOT_VHCL_DMG_AMT	TOT_PROP_DMG_AMT	TOT_OF_PERS_NUM	TOT_OF_DR_NUM	TOT_OF_VHCL_NUM	TOT_OF_FATL_NUM	TOT_OF_INJR_NUM	TOTSEVREINJ_NUM	TOTNONTRAFFATL_NUM	TOT_OF_PEDST_NUM	TOTOF_PEDLCYCL_NUM	EVNT_LAT_	EVNT_LON	CAR_LAT_I	CAR_LONG	RUN DATE	RUN TIME	OPT	PROGRAM
							580	500	80	2	1	1	0	1	1	0	0	1	0	0	25.45206	80.47487	2/5/2018	13:45:56	1	CARPJ126
8	1	N					550	550	0	1	1	2	0	0	0	0	0	0	0	25.5832	80.36462	25.45406	80.47395	2/5/2018	13:45:56	1	CARPJ126
							1500	1500	0	1	1	1	0	0	0	0	0	0	0	25.46865	80.4531	25.45416	80.47386	2/5/2018	13:45:56	1	CARPJ126
							1500	1500	0	1	1	1	0	0	0	0	0	0	0	25.45673	80.47087	25.45472	80.47323	2/5/2018	13:45:56	1	CARPJ126
							800	800	0	1	1	1	0	0	0	0	0	0	0	25.45195	80.47622	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
8	1	S	2	47	1	1	900	900	0	1	1	2	0	1	0	0	0	0	0	25.46052	80.46482	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							17000	8000	9000	1	1	1	0	1	0	0	0	0	0	25.77378	80.38247	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	22	1	1	8500	8500	0	12	2	2	0	11	0	0	0	0	0	25.45436	80.47425	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							7500	6000	1500	1	1	1	0	0	0	0	0	0	0	25.45523	80.47332	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							1000	1000	0	1	1	1	0	1	0	0	0	0	0	25.45175	80.47608	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							4000	3000	1000	2	1	1	0	2	0	0	0	0	0	25.45351	80.47547	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							5000	3800	1200	2	1	1	0	1	0	0	0	0	0	25.45214	80.47618	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
2	1	S	1	33	1	1	520	520	0	2	2	2	0	0	0	0	0	0	0	25.45552	80.47251	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
8	14	S	1	28	1	1	18100	18000	100	3	2	2	0	3	0	0	0	0	0	25.45494	80.47345	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							8000	5000	3000	1	1	1	0	0	0	0	0	0	0	25.45985	80.46584	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							6500	3000	3500	3	1	1	0	0	0	0	0	0	0	25.68517	80.42673	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							2600	1800	800	1	1	1	0	0	0	0	0	0	0	25.45511	80.47328	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							7000	7000	0	1	1	1	0	0	0	0	0	0	0	25.45122	80.47575	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							5000	5000	0	1	1	1	0	1	0	1	0	0	0	25.4551	80.47327	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							4000	3000	1000	1	1	1	0	0	0	0	0	0	0	0	0	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
8	13	S	1	51	1	1	16000	16000	0	14	4	4	0	5	0	0	0	0	0	25.45189	80.47604	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
1	1	S	1	20	1	1	2100	2100	0	1	1	2	0	0	0	0	0	0	0	25.45525	80.47446	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
							10000	10000	0	1	1	1	0	0	0	0	0	0	0	25.45114	80.4757	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
7	13	S	1	43	1	1	10000	10000	0	2	2	2	0	0	0	0	0	0	0	25.61466	80.37865	25.45527	80.47291	2/5/2018	13:45:56	1	CARPJ126
1	13	S	1	25	1	1	5000	5000	0	4	2	2	0	0	0	0	0	0	0	25.45546	80.47506	25.4552	80.47301	2/5/2018	13:45:56	1	CARPJ126
7	13	W	1	40	1	1	1100	1100	0	5	2	2	0	0	0	0	0	0	0	0	0	0	25.45534	80.47304	2/5/2018	13:45:56	1	CARPJ126
							2500	2500	0	1	1	1	0	0	0	0	0	0	0	25.44721	80.47546	25.45534	80.47304	2/5/2018	13:45:56	1	CARPJ126
8	14	S	1	33	1	1	4500	4500	0	3	3	3	0	0	0	0	0	0	0	25.45427	80.4744	25.45533	80.47308	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	47	1	1	3700	3700	0	2	2	2	0	0	0	0	0	0	0	25.45985	80.46584	25.45523	80.47363	2/5/2018	13:45:56	1	CARPJ126
8	1	N	1	47	1	1	3500	3500	0	7	2	2	0	0	0	0	0	0	0	25.46865	80.4531	25.45756	80.46914	2/5/2018	13:45:56	1	CARPJ126
							16500	15000	1500	3	1	1	0	3	1	0	0	0	0	25.46105	80.46448	25.45806	80.46842	2/5/2018	13:45:56	1	CARPJ126
							5000	5000	0	1	1	1	0	1	0	0	0	0	0	25.46087	80.46446	25.45914	80.46686	2/5/2018	13:45:56	1	CARPJ126
							1000	1000	0	1	1	1	0	0	0	0	0	0	0	25.47213	80.44805	25.45914	80.46686	2/5/2018	13:45:56	1	CARPJ126
							6000	4000	2000	2	1	1	0	1	0	0	0	0	0	25.4877	80.42494	25.45962	80.46616	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	43	1	1	8200	8200	0	3	3	3	0	0	0	0	0	0	0	25.45985	80.46584	25.45966	80.4661	2/5/2018	13:45:56	1	CARPJ126
6	1	S	2	39	1	1	900	900	0	1	1	2	0	0	0	0	0	0	0	25.45985	80.46584	25.45966	80.4661	2/5/2018	13:45:56	1	CARPJ126
4	1	S	1	31	1	1	500	500	0	1	1	2	0	0	0	0	0	0	0	25.45985	80.46584	25.45968	80.46607	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	43	1	1	3000	3000	0	28	2	2	0	1	0	0	0	0	0	25.45495	80.4734	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
4	1	S	1	56	1	1	1400	1400	0	1	1	2	0	1	0	0	0	0	0	25.4381	80.47551	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
							100	100	0	1	1	1	0	0	0	0	0	0	0	25.45522	80.47261	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
10	1	N	1	58	1	1	2000	2000	0	2	2	2	0	1	0	0	0	0	0	25.49932	80.41992	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
							200	200	0	1	1	1	0	0	0	0	0	0	0	25.45985	80.46584	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
							4000	4000	0	1	1	1	0	0	0	0	0	0	0	25.46893	80.45317	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
							1000	1000	0	1	1	1	0	1	0	0	0	0	0	25.46623	80.45696	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	71	1	1	1700	1700	0	2	2	2	0	0	0	0	0	0	0	25.60123	80.4116	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	47	1	1	1200	1200	0	2	2	2	0	0	0	0	0	0	0	25.46769	80.45484	25.45982	80.46586	2/5/2018	13:45:56	1	CARPJ126
							4500	4000	500	1	1	1	0	1	0	0	0	0	0	25.47125	80.44966	25.45983	80.46585	2/5/2018	13:45:56	1	CARPJ126
3	1	N	1	67	1	1	5650	4750	900	8	2	2	0	1	0	0	0	0	0	25.46408	80.45959	25.4599	80.46575	2/5/2018	13:45:56	1	CARPJ126
							10500	10000	500	8	1	1	0	6	3	0	0	0	0	25.78039	80.3679	25.45999	80.46562	2/5/2018	13:45:56	1	CARPJ126
							8000	8000	0	1	1	1	0	1	0	0	0	0	0	25.77378	80.38247	25.46031	80.46516	2/5/2018	13:45:56	1	CARPJ126
							15000	5000	10000	2	1	1	0	0	0	0	0	0	0	25.46027	80.46505	25.46134	80.46367	2/5/2018	13:45:56	1	CARPJ126
							4300	4000	300	1	1	1	0	0	0	0	0	0	0	25.46095	80.46461	25.46149	80.46345	2/5/2018	13:45:56	1	CARPJ126
1	1	S	77	22	1	1	8000	8000	0	5	3	3	0	3	0	0	0	0	0	25.46074	80.46508	25.46149	80.46345	2/5/2018	13:45:56	1	CARPJ126
1	1	N	1	53	1	1	10000	10000	0	7	2	2	0	6	0	0	0	0	0	25.46615	80.45677	25.46354	80.46048	2/5/2018	13:45:56	1	CARPJ126
							5500	5000	500	1	1	1	0	1	0	0	0	0	0	25.46313	80.46112	25.46403	80.45977	2/5/2018	13:45:56	1	CARPJ126
13	1	S	1	41	1	1	2200	2200	0	1	1	2	0	0	0	0	0	0	0	25.46865	80.4531	25.46403	80.45977	2/5/2018	13:45:56	1	CARPJ126
							500	500	0	1	1	1	0	0	0	0	0	0	0	25.46128	80.46419	25.46405	80.45973	2/5/2018	13:45:56	1	CARPJ126
							8600	8000	600	1	1	1	0	0	0	0	0	0	0	25.46343	80.46073	25.46423	80.45948	2/5/2018	13:45:56	1	CARPJ126
12	1	S	1	37	1	1	4500	4500	0	2	2	2	0	1	0	0	0	0	0	25.46052	80.46482	25.4647	80.4588	2/5/2018	13:45:56	1	CARPJ126
							500	500	0	1	1	1	0	0	0	0	0	0	0	25.47033	80.45112	25.46494	80.45845	2/5/2018	13:45:56	1	CARPJ126
9	1	S	1	39	1	1	15000	13000	2000	4	2	2	0	0	0	0	0	0	0	25.45985	80.46584	25.46614	80.45671	2/5/2018	13:45:56	1	CARPJ126
7	1	N	1	55	1	1	8500	8000	500	2	2	2	0	1	0	0	0	0	0	25.46865	80.4531	25.46781	80.4543	2/5/2018	13:45:56	1	CARPJ126
							7500	7000	500	1	1	1	0	1	1	0	0	0	0	25.46868	80.45344	25.46795	80.45409	2/5/2018	13:45:56	1	CARPJ126
1	1	S	1	19	1	1	10500	8500	2000	3	2	2	0	1	0	0	0	0	0	25.46823	80.45423	25.46795	80.45409	2/5/2018	13:45:56	1	CARPJ126
							5500	5000	500	1	1	1	0	1	1	0	0	0	0	25.46325	80.46136	25.46795	80.45409	2/5/2018	13:45:56	1	CARPJ126
							5500	4000	1500	4	1	1	0	0	0	0	0	0	0	25.46883	80.45319	25.46827	80.45363	2/5/2018	13:45:56	1	CARPJ126
1	1	N	1	36	1	1	4700	4700	0	3	2	2	0	0	0	0	0	0	0	25.66347	80.3876	25.46839	80.45345	2/5/2018	13:45:56	1	CARPJ126
1	1	N	1	28	1	1	23000	20000	3000	6	2	2	0	6	3	0	0	0	0	25.77378	80.38247	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							9000	7000	2000	1	1	1	0	1	0	0	0	0	0	25.46424	80.45941	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
12	1	S	1	30	1	1	5000	5000	0	2	1	2	0	0	0	0	0	0	0	25.46703	80.45578	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							8400	8000	400	0	0	1	0	0	0	0	0	0	0	25.46346	80.46094	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							10000	8000	2000	1	1	1	0	1	0	0	0	0	0	25.81979	80.33491	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							5300	5000	300	2	1	1	0	0	0	0	0	0	0	25.46826	80.45351	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							7000	7000	0	1	1	1	0	0	0	0	0	0	0	25.46585	80.4574	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							3000	3000	0	2	1	1	0	0	0	0	0	0	0	25.46865	80.4531	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
9	13	S	1	49	1	1	1250	1250	0	4	2	2	1	0	0	0	0	0	0	25.46233	80.46267	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							900	900	0	1	1	1	0	0	0	0	0	0	0	25.45985	80.46584	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							4000	3000	1000	1	1	1	0	0	0	0	0	0	0	25.45738	80.46967	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
							4750	4000	750	1	1	1	0	0	0	0	0	0	0	25.46865	80.4531	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
13	1	N	1	35	1	1	1500	1500	0	1	1	2	0	0	0	0	0	0	0	25.47616	80.43582	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
1	1	N	1	27	1	1	15500	15500	0	4	3	3	0	0	0	0	0	0	0	25.46933	80.45217	25.46844	80.45339	2/5/2018	13:45:56	1	CARPJ126
4	1	S	1	43	1	1	6000	6000	0	2	2	2	0	0	0	0	0	0	0	25.45808	80.46894	25.46848	80.45333	2/5/2018	13:45:56	1	CARPJ126
							5000	5000	0	1	1	1	0	1	0	0	0	0	0	25.46865	80.4531	25.46848	80.45333	2/5/2018	13:45:56	1	CARPJ126
							5000	5000	0	1	1	1	0	1	0	0	0	0	0	25.46028	80.46576	25.46864	80.4531	2/5/2018	13:45:56	1	CARPJ126
							1000	1000	0	1	1	1	0	0	0	0	0	0	0	25.59971	80.37708	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							5500	5000	500	2	1	1	0	0	0	0	0	0	0	25.47394	80.44511	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
10	1	S	1	35	1	1	1000	1000	0	2	2	2	0	0	0	0	0	0	0	25.59779	80.37677	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
1	1	N	1	34	1	1	6000	6000	0	9	2	2	0	8	0	0	0	0	0	25.60481	80.37824	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
7	1	N	1	30	1	1	7000	7000	0	4	2	2	0	3	0	0	0	0	0	0	25.5047	80.41663	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							1900	900	1000	2	1	1	0	0	0	0	0	0	0	25.47548	80.44333	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							5000	4000	1000	1	1	1	0	0	0	0	0	0	0	25.48536	80.42776	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							3000	3000	0	1	1	1	0	0	0	0	0	0	0	25.47015	80.45103	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							3600	3000	600	2	1	1	0	2	0	0	0	0	0	25.47669	80.44057	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							4800	4000	800	2	1	1	0	2	1	0	0	0	0	25.4755	80.44423	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	45	1	1	6000	6000	0	3	2	2	0	3	0	0	0	0	0	25.47768	80.43971	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							1400	900	500	2	1	1	0	0	0	0	0	0	0	25.48279	80.43125	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	46	1	1	2500	2500	0	4	2	2	0	3	0	0	0	0	0	25.49898	80.41771	25.46865	80.45308	2/5/2018	13:45:56	1	CARPJ126
							7500	3500	4000	1	1	1	0	0	0	0	0	0	0	25.47587	80.44344	25.46873	80.45297	2/5/2018	13:45:56	1	CARPJ126
							3200	2000	1200	6	1	1	0	0	0	0	0	0	0	25.46909	80.45296	25.46881	80.45284	2/5/2018	13:45:56	1	CARPJ126
							3000	2500	500	1	1	1	0	0	0	0	0	0	0	25.48056	80.43507	25.46881	80.45284	2/5/2018	13:45:56	1	CARPJ126
							1600	1300	300	1	1	1	0	0	0	0	0	0	0	25.49105	80.42109	25.46881	80.45284	2/5/2018	13:45:56	1	CARPJ126
8	1	N	1	50	1	1	7000	7000	0	3	2	2	0	0	0	0	0	0	0	25.46865	80.4531	25.46881	80.45284	2/5/2018	13:45:56	1	CARPJ126
							800	800	0	1	1	1	0	0	0	0	0	0	0	25.46865	80.4531	25.46881	80.45284	2/5/2018	13:45:56	1	CARPJ126
							3250	3000	250	1	1	1	0	0	0	0	0	0	0	25.4663	80.45684	25.46886	80.45278	2/5/2018	13:45:56	1	CARPJ126
3	1	S	1	50	1	1	11000	9000	2000	4	2	2	0	3	0	0	0	0	0	25.47681	80.44122	25.46948	80.45187	2/5/2018	13:45:56	1	CARPJ126
8	13	S	1	45	1	1	8000	8000	0	4	4	4	0	3	0	0	0	0	0	25.46882	80.4533	25.46948	80.45187	2/5/2018	13:45:56	1	CARPJ126
14	1	N	1	26	1	1	4000	4000	0	2	2	2	0	1	0	0	0	0	0	25.47845	80.43785	25.46948	80.45187	2/5/2018	13:45:56	1	CARPJ126
							6000	6000	0	2	1	1	0	0	0	0	0	0	0	25.47839	80.43796	25.46948	80.45187	2/5/2018	13:45:56	1	CARPJ126
13	6	S	1	47	1	1	501	501	0	1	1	2	0	0	0	0	0	0	0	25.47694	80.43561	25.46948	80.45187	2/5/2018	13:45:56	1	CARPJ126
8	14	N	1	19	1	1	2500	2500	0	3	2	2	0	0	0	0	0	0	0	25.96554	80.22919	25.47011	80.45096	2/5/2018	13:45:56	1	CARPJ126

							4000	4000	0	1	1	1	0	0	0	0	0	0	25.46884	80.4533	25.47031	80.45067	2/5/2018	13:45:56	1	CARPJ126
							6000	5000	1000	1	1	1	0	0	0	0	0	0	25.4689	80.45326	25.47064	80.4502	2/5/2018	13:45:56	1	CARPJ126
							10250	10000	250	2	1	1	0	1	0	0	0	0	25.46989	80.45183	25.47108	80.44956	2/5/2018	13:45:56	1	CARPJ126
9	1	N	1	63	1	1	6000	5000	1000	3	2	2	0	0	0	0	0	0	25.75682	80.35476	25.47276	80.447	2/5/2018	13:45:56	1	CARPJ126
2	1	N	1	48	1	1	20500	20000	500	4	2	2	0	2	0	0	0	0	25.46839	80.45337	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							8000	6500	1500	2	1	1	0	1	0	0	0	0	25.46931	80.45215	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
10	1	S	1	73	1	1	2100	2100	0	2	2	2	0	0	0	0	0	0	25.46735	80.45561	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							2000	2000	0	1	1	1	0	0	0	0	0	0	25.47177	80.44846	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
8	14	S	1	27	1	1	10000	10000	0	6	2	2	0	0	0	0	0	0	25.48177	80.43313	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							5000	5000	0	2	1	1	0	2	0	0	0	0	25.67031	80.38836	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							13000	10000	3000	1	1	1	0	0	0	0	0	0	25.49496	80.41817	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
1	1	N	1	30	1	1	2501	2501	0	3	2	2	0	0	0	0	0	0	25.44731	80.47568	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							7000	5000	2000	1	1	1	0	0	0	0	0	0	25.46982	80.45194	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							9000	6500	2500	1	1	1	0	0	0	0	0	0	25.463	80.46135	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
21	1	N	1	17	1	1	14000	14000	0	2	2	2	0	0	0	0	0	0	25.463	80.46135	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							8000	8000	0	1	1	1	0	1	0	0	0	0	25.47034	80.45056	25.47279	80.44696	2/5/2018	13:45:56	1	CARPJ126
							5000	4000	1000	1	1	1	0	1	0	0	0	0	25.47847	80.43824	25.47298	80.44664	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	40	1	1	3000	3000	0	3	2	2	0	0	0	0	0	0	25.47751	80.44001	25.47298	80.44664	2/5/2018	13:45:56	1	CARPJ126
							1500	1000	500	1	1	1	0	0	0	0	0	0	25.45197	80.47614	25.45475	80.47367	2/5/2018	13:45:56	1	CARPJ126
							5000	5000	0	6	1	1	0	0	0	0	0	0	25.45184	80.47617	25.45444	80.47413	2/5/2018	13:45:56	1	CARPJ126
							4600	4000	600	1	1	1	0	0	0	0	0	0	25.46666	80.48333	25.45432	80.47431	2/5/2018	13:45:56	1	CARPJ126
							6500	6000	500	1	1	1	0	0	0	0	0	0	25.4611	80.46392	25.45406	80.47468	2/5/2018	13:45:56	1	CARPJ126
							1500	1500	0	1	1	1	0	0	0	0	0	0	25.45201	80.47624	25.45398	80.47479	2/5/2018	13:45:56	1	CARPJ126
							2000	2000	0	3	1	1	0	3	0	0	0	0	25.45212	80.47617	25.45398	80.47479	2/5/2018	13:45:56	1	CARPJ126
8	13	S	1	72	1	1	8400	8400	0	3	2	2	0	0	0	0	0	0	25.45985	80.46584	25.45398	80.47479	2/5/2018	13:45:56	1	CARPJ126
							12500	10000	2500	1	1	1	0	1	0	0	0	0	25.45312	80.47594	25.45323	80.47582	2/5/2018	13:45:56	1	CARPJ126
21	1	S	1	64	1	1	6000	6000	0	2	2	2	0	1	0	0	0	0	25.45985	80.46584	25.45248	80.47621	2/5/2018	13:45:56	1	CARPJ126
							5000	5000	0	1	1	1	0	0	0	0	0	0	25.46865	80.4531	25.45147	80.4759	2/5/2018	13:45:56	1	CARPJ126
							1000	1000	0	1	1	1	0	1	0	0	0	0	25.45278	80.47612	25.45123	80.47574	2/5/2018	13:45:56	1	CARPJ126
							4000	4000	0	2	1	1	0	1	1	0	0	0	25.453	80.47597	25.451	80.47558	2/5/2018	13:45:56	1	CARPJ126
							2000	1500	500	0	0	1	0	0	0	0	0	0	25.45114	80.47559	25.45075	80.47544	2/5/2018	13:45:56	1	CARPJ126
							1000	0	1000	1	1	1	0	0	0	0	0	0	25.45985	80.46584	25.45075	80.47544	2/5/2018	13:45:56	1	CARPJ126
							26000	20000	6000	0	0	1	0	0	0	0	0	0	25.45185	80.47618	25.4505	80.47533	2/5/2018	13:45:56	1	CARPJ126
							1500	1500	0	2	1	1	0	1	1	0	0	0	0	0	25.45004	80.47505	2/5/2018	13:45:56	1	CARPJ126
1	1	N	1	27	1	1	10000	10000	0	2	2	2	0	2	1	0	0	0	0	0	25.45032	80.47506	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	22	1	1	600	600	0	3	2	2	0	1	0	0	0	0	25.45569	80.47503	25.45522	80.47513	2/5/2018	13:45:56	1	CARPJ126
8	13	S	1	32	1	1	2000	2000	0	2	2	2	0	0	0	0	0	0	25.44776	80.47503	25.45522	80.47516	2/5/2018	13:45:56	1	CARPJ126
7	13	S	1	44	1	1	10500	10000	500	4	2	2	0	4	1	0	0	0	25.45528	80.47305	25.45522	80.47516	2/5/2018	13:45:56	1	CARPJ126
							6500	6000	500	1	1	1	0	0	0	0	0	0	25.45525	80.47396	25.45522	80.47516	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	28	1	1	800	800	0	2	2	2	0	1	0	0	0	0	25.45603	80.47406	25.45522	80.47516	2/5/2018	13:45:56	1	CARPJ126
9	13	N	1	61	1	1	1200	1200	0	2	2	2	0	0	0	0	0	0	0	0	25.45522	80.47516	2/5/2018	13:45:56	1	CARPJ126
							6300	2800	3500	0	0	1	0	0	0	0	0	0	25.44776	80.47503	25.45142	80.47507	2/5/2018	13:45:56	1	CARPJ126
1	1	S	1	48	1	1	5100	5100	0	7	3	3	0	0	0	0	0	0	0	0	25.45241	80.47507	2/5/2018	13:45:56	1	CARPJ126
8	1	S	1	26	1	1	300	300	0	3	2	2	0	0	0	0	0	0	0	0	25.45241	80.47507	2/5/2018	13:45:56	1	CARPJ126
9	8	N					100	100	0	2	1	2	0	0	0	0	0	0	0	0	25.45241	80.47507	2/5/2018	13:45:56	1	CARPJ126
9	1	N	1	55	1	1	3000	3000	0	4	2	2	0	0	0	0	0	0	0	0	25.45241	80.47507	2/5/2018	13:45:56	1	CARPJ126
							7000	5000	2000	1	1	1	0	0	0	0	0	0	0	0	25.43529	80.47443	2/5/2018	13:46:36	1	CARPJ126
							25000	20000	5000	1	1	1	0	1	0	0	0	0	25.43433	80.47418	25.43531	80.47443	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	22	1	1	5000	5000	0	4	2	2	0	0	0	0	0	0	25.43426	80.47425	25.43536	80.47444	2/5/2018	13:46:36	1	CARPJ126
9	1	N	1	28	1	1	4100	4100	0	3	2	2	0	0	0	0	0	0	0	0	25.43542	80.47446	2/5/2018	13:46:36	1	CARPJ126
							3000	2500	500	0	0	1	0	0	0	0	0	0	25.41659	80.47243	25.43596	80.47458	2/5/2018	13:46:36	1	CARPJ126
8	1	S	1	45	1	1	3200	3200	0	3	2	2	0	1	0	0	0	0	0	0	25.43618	80.47462	2/5/2018	13:46:36	1	CARPJ126
							4500	3000	1500	1	1	1	0	0	0	0	0	0	25.43658	80.47485	25.43663	80.47472	2/5/2018	13:46:36	1	CARPJ126
0	1	S	1	36	1	1	5300	5300	0	2	2	2	0	0	0	0	0	0	0	0	25.43695	80.47478	2/5/2018	13:46:36	1	CARPJ126
8	13	S	1	69	1	1	1700	1700	0	5	2	2	0	1	0	0	0	0	25.43098	80.47421	25.437	80.4748	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	44	1	1	8000	8000	0	4	2	2	0	2	0	0	0	0	0	0	25.43703	80.4748	2/5/2018	13:46:36	1	CARPJ126
12	3	N	1	38	1	1	3000	3000	0	2	2	2	0	2	0	0	0	0	0	0	25.43703	80.4748	2/5/2018	13:46:36	1	CARPJ126
7	1	S	1	33	1	1	10500	10500	0	3	2	2	0	0	0	0	0	0	0	0	25.43703	80.4748	2/5/2018	13:46:36	1	CARPJ126
							100	100	0	1	1	1	0	1	0	0	0	0	0	0	25.43703	80.4748	2/5/2018	13:46:36	1	CARPJ126
							0	0	0	1	0	1	0	0	0	0	1	0	0	0	25.43704	80.47497	2/5/2018	13:46:36	1	CARPJ126
							3000	3000	0	1	1	1	0	1	1	0	0	0	0	0	25.437	80.47518	2/5/2018	13:46:36	1	CARPJ126
							500	500	0	1	1	1	0	1	1	0	0	0	0	0	25.437	80.47532	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	23	1	1	12000	12000	0	3	2	2	0	1	0	0	0	0	0	0	25.4371	80.47482	2/5/2018	13:46:36	1	CARPJ126
0	1	S	1	62	1	1	1900	1900	0	4	4	4	0	1	0	0	0	0	0	0	25.43725	80.47484	2/5/2018	13:46:36	1	CARPJ126
0	13	E	77	26	1	1	4500	4500	0	4	2	2	0	0	0	0	0	0	0	0	25.43781	80.47492	2/5/2018	13:46:36	1	CARPJ126
4	1	S	1	24	1	1	800	800	0	7	2	2	0	0	0	0	0	0	0	0	25.43785	80.47493	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	58	1	1	9000	9000	0	3	2	2	0	0	0	0	0	0	0	0	25.43817	80.47494	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	25	1	1	7500	7500	0	2	2	2	0	0	0	0	0	0	0	0	25.43819	80.47494	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	33	1	1	10000	10000	0	6	2	2	0	2	0	0	0	0	0	0	25.43822	80.47495	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	69	1	1	14500	14500	0	3	2	2	0	0	0	0	0	0	0	0	25.43829	80.47495	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	27	1	1	5500	5500	0	4	2	2	0	4	0	0	0	0	0	0	25.43836	80.47495	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	54	1	1	8000	8000	0	2	2	2	0	0	0	0	0	0	0	0	25.43841	80.47495	2/5/2018	13:46:36	1	CARPJ126
5	1	S	1	40	1	1	3400	3400	0	6	2	2	0	0	0	0	0	0	0	0	25.43847	80.47495	2/5/2018	13:46:36	1	CARPJ126
0	1	S	1	48	1	1	4000	4000	0	2	2	2	0	0	0	0	0	0	0	0	25.43854	80.47495	2/5/2018	13:46:36	1	CARPJ126
21	14	S	1	44	1	1	15000	5000	10000	3	1	2	0	0	0	0	0	0	25.43808	80.47507	25.44052	80.47497	2/5/2018	13:46:36	1	CARPJ126
11	1	S	1	46	1	1	1000	1000	0	5	2	2	0	0	0	0	0	0	0	0	25.44101	80.47498	2/5/2018	13:46:36	1	CARPJ126
13	1	N	1	50	1	1	1850	1850	0	2	2	2	0	0	0	0	0	0	0	0	25.44156	80.47498	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	59	1	1	3500	3500	0	2	2	2	0	0	0	0	0	0	0	0	25.44197	80.47499	2/5/2018	13:46:36	1	CARPJ126
7	1	N	1	45	1	1	13000	13000	0	3	2	2	0	1	1	0	0	0	0	0	25.44228	80.47499	2/5/2018	13:46:36	1	CARPJ126
1	3	N	1	41	1	1	2300	2300	0	2	2	2	0	0	0	0	0	0	0	0	25.44235	80.47499	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	22	1	1	13500	13500	0	4	2	2	0	1	0	0	0	0	0	0	25.44238	80.47499	2/5/2018	13:46:36	1	CARPJ126
							7000	5000	2000	1	1	1	0	1	1	0	0	0	0	0	25.44239	80.47499	2/5/2018	13:46:36	1	CARPJ126
0	1	N	1	47	1	1	2500	2500	0	5	2	2	0	0	0	0	0	0	0	0	25.44239	80.47499	2/5/2018	13:46:36	1	CARPJ126
							4100	4000	100	2	1	1	0	0	0	0	0	0	0	0	25.44239	80.47499	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	31	1	1	10000	10000	0	4	2	2	0	4	0	0	0	0	0	0	25.44239	80.47499	2/5/2018	13:46:36	1	CARPJ126
1	3	W	27	25	1	1	1000	1000	0	3	2	2	0	0	0	0	0	0	0	0	25.44239	80.47499	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	65	1	1	11500	11500	0	3	2	2	0	0	0	0	0	0	0	0	25.44239	80.47499	2/5/2018	13:46:36	1	CARPJ126
7	5	N	1	41	1	1	7300	7300	0	6	3	3	0	3	0	0	0	0	0	0	25.44255	80.47499	2/5/2018	13:46:36	1	CARPJ126
1	77	E	1	36	1	1	1100	1100	0	5	2	2	0	0	0	0	0	0	0	0	25.4426	80.47499	2/5/2018	13:46:36	1	CARPJ126
10	13	E	1	35	1	1	2000	2000	0	2	2	2	0	0	0	0	0	0	0	0	25.44267	80.47499	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	53	1	1	18000	18000	0	3	2	2	0	2	1	0	0	0	0	0	25.44289	80.475	2/5/2018	13:46:36	1	CARPJ126
1	1	S	77	0	1	1	3000	3000	0	2	2	2	0	0	0	0	0	0	0	0	25.44294	80.475	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	32	1	1	1000	1000	0	4	1	2	0	0	0	0	0	0	25.4432	80.47476	25.44299	80.475	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	32	1	1	1100	1100	0	3	2	2	0	0	0	0	0	0	0	0	25.44319	80.475	2/5/2018	13:46:36	1	CARPJ126
9	5	S	1	67	1	1	6000	6000	0	2	2	2	0	1	0	0	0	0	0	0	25.44342	80.475	2/5/2018	13:46:36	1	CARPJ126
8	1	N	1	21	1	1	200	200	0	2	2	2	0	0	0	0	0	0	0	0	25.44353	80.475	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	30	1	1	3000	3000	0	3	2	2	0	0	0	0	0	0	0	0	25.44372	80.475	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	27	1	1	2000	2000	0	4	2	2	0	0	0	0	0	0	0	0	25.44402	80.47501	2/5/2018	13:46:36	1	CARPJ126
14	1	S	1	26	0	0	600	600	0	2	2	2	0	0	0	0	0	0	0	0	25.44504	80.47502	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	50	1	1	400	400	0	3	2	2	0	0	0	0	0	0	0	0	25.44504	80.47502	2/5/2018	13:46:36	1	CARPJ126
8	77	S	1	31	1	1	300	300	0	2	2	2	0	0	0	0	0	0	25.44788	80.47503	25.44532	80.47502	2/5/2018	13:46:36	1	CARPJ126
							5001	5000	1	5	1	1	0	0	0	0	0	0	25.31688	80.45086	25.44543	80.47502	2/5/2018	13:46:36	1	CARPJ126
6	13	N	1	50	1	1	18000	18000	0	5	2	2	0	3	0	0	0	0	0	0	25.44572	80.47502	2/5/2018	13:46:36	1	CARPJ126
0	1	N	1	23	1	1	5200	5200	0	3	3	3	0	0	0	0	0	0	0	0	25.44613	80.47503	2/5/2018	13:46:36	1	CARPJ126
9	1	S	1	53	1	1	500	500	0	5	2	2	0	0	0	0	0	0	0	0	25.44641	80.47503	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	59	1	1	3700	3700	0	2	2	2	0	0	0	0	0	0	0	0	25.44641	80.47503	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	34	1	1	6000	6000	0	4	2	2	0	0	0	0	0	0	0	0	25.44668	80.47503	2/5/2018	13:46:36	1	CARPJ126
3	1	N	1	38	1	1	900	900	0	2	2	2	0	0	0	0	0	0	0	0	25.44723	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	1	N	1	50	1	1	2000	2000	0	6	2	2	0	2	0	0	0	0	0	0	25.44723	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	1	N	1	19	1	1	15000	15000	0	3	2	2	0	1	1	0	0	0	0	0	25.44728	80.47504	2/5/2018	13:46:36	1	CARPJ126
5	1	S	1	31	1	1	2100	2100	0	2	2	2	0	0	0	0	0	0	0	0	25.44738	80.47504	2/5/2018	13:46:36	1	CARPJ126

1	1	N	1	51	2	1	2000	2000	0	5	2	2	0	1	0	0	0	0	0	0	25.44751	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	51	2	1	3000	3000	0	5	2	2	0	1	0	0	0	0	0	0	25.44751	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	1	N	1	38	1	1	1000	1000	0	3	2	2	0	0	0	0	0	0	0	0	25.44751	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	5	S	1	29	1	1	7000	7000	0	4	2	2	0	0	0	0	0	0	0	0	25.44766	80.47504	2/5/2018	13:46:36	1	CARPJ126
							2000	1500	500	1	1	1	0	1	1	0	0	0	0	0	25.44766	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	13	S	1	47	1	1	3000	3000	0	3	2	2	0	2	0	0	0	0	0	0	25.44766	80.47504	2/5/2018	13:46:36	1	CARPJ126
14	10	S					3100	3100	0	1	1	2	0	1	0	0	0	0	0	0	25.4477	80.47504	2/5/2018	13:46:36	1	CARPJ126
							3200	2000	1200	1	1	1	0	0	0	0	0	0	0	0	25.44771	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	1	S	1	31	1	1	700	700	0	4	2	2	0	0	0	0	0	0	0	0	25.44771	80.47504	2/5/2018	13:46:36	1	CARPJ126
9	8	N	1	102	1	1	4000	4000	0	4	3	3	0	0	0	0	0	0	0	0	25.44773	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	13	N	1	40	1	1	3500	3500	0	2	2	2	0	0	0	0	0	0	0	0	25.44773	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	3	S	1	39	1	1	2000	2000	0	2	2	2	0	0	0	0	0	0	0	0	25.44773	80.47504	2/5/2018	13:46:36	1	CARPJ126
9	1	S	1	63	1	1	1600	1600	0	2	2	2	0	0	0	0	0	0	0	0	25.44773	80.47504	2/5/2018	13:46:36	1	CARPJ126
							700	500	200	2	1	1	0	0	0	0	0	0	0	0	25.44776	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	43	1	1	10500	10500	0	3	3	3	0	2	0	0	0	0	0	0	25.44776	80.47504	2/5/2018	13:46:36	1	CARPJ126
5	5	W	1	53	1	1	700	700	0	4	2	2	0	0	0	0	0	0	0	0	25.44777	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	14	N	1	21	1	1	1600	1600	0	4	2	2	0	0	0	0	0	0	0	0	25.44777	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	N	1	38	1	1	800	800	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	38	1	1	5000	5000	0	5	2	2	0	4	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
							200	200	0	5	1	1	0	1	0	0	0	1	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	3	S	1	55	1	1	500	500	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
9	1	N	1	55	1	1	2100	2100	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	W	1	69	1	1	2500	2500	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	14	S	1	34	1	1	700	700	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	1	S	1	33	1	1	30000	30000	0	2	2	2	0	2	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
3	1	N	1	28	1	1	20000	20000	0	4	2	2	0	4	1	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	1	W	1	38	1	1	1500	1500	0	3	2	2	0	2	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	13	E	1	35	1	1	800	800	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	13	E	1	23	1	1	12000	12000	0	2	2	2	0	2	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	13	W	1	42	1	1	600	600	0	27	2	2	0	1	1	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	1	S	1	46	1	1	2800	2800	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
							50	50	0	2	1	1	0	1	1	0	0	0	1	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	5	E	1	47	1	1	1000	1000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	S	1	63	1	1	3500	3500	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	5	S	1	59	1	1	2300	2300	0	4	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	5	S	1	26	1	1	19000	19000	0	6	2	2	0	6	1	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
13	1	S	1	23	1	1	5000	5000	0	6	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	35	1	1	7500	7500	0	2	2	2	0	2	1	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	1	N	1	33	1	1	1500	1500	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	W	1	28	1	1	200	200	0	2	2	2	0	1	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	53	1	1	5000	5000	0	3	2	2	0	2	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
11	3	E	1	33	1	1	600	600	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
14	1	N	1	50	1	1	800	800	0	4	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	8	E	1	48	1	1	37500	37500	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	1	E	1	46	1	1	500	500	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
12	13	N	1	49	1	1	2750	2750	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
6	1	N	1	29	1	1	1000	1000	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	66	1	1	4200	4000	200	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	14	N	1	61	1	1	4000	4000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	61	1	1	2000	2000	0	4	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
6	1	E	11	38	1	1	6000	6000	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	1	S	1	30	1	1	2600	2600	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	1	E	1	37	1	1	700	700	0	4	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	50	1	1	2000	2000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	13	E	1	22	1	1	800	800	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	27	1	1	5000	5000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	42	1	1	2500	2500	0	7	3	3	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
10	13	W	1	34	1	1	1800	1800	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	3	W	1	66	1	1	2000	2000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	41	1	1	8000	8000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	3	W	1	67	1	1	6000	6000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
11	1	W	1	33	1	1	1200	1200	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	25	1	1	2000	2000	0	4	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	N	1	19	1	1	2000	2000	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
							200	200	0	5	1	1	0	1	0	0	1	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	13	N	1	48	1	1	2	2	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
10	13	E	1	45	1	1	300	300	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
3	1	E	1	48	1	1	13000	13000	0	2	2	2	0	1	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	13	W	1	30	1	1	100	100	0	29	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
21	13	W	1	38	1	1	550	550	0	2	2	2	0	0	0	0	0	0	0	0	25.45985	80.46584	2/5/2018	13:46:36	1	CARPJ126
3	3	E	1	34	1	1	500	500	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
6	1	E	1	28	1	1	21000	21000	0	3	2	2	0	2	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
							50	50	0	2	1	1	0	0	0	0	0	1	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
							400	400	0	2	1	1	0	1	1	0	1	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	32	1	1	3600	3600	0	5	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	56	1	1	4350	4350	0	5	3	3	0	1	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	1	W	1	36	1	1	1450	1450	0	3	2	2	0	2	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
5	1	W	77	50	1	1	2000	2000	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	S	1	48	1	1	4000	4000	0	4	2	2	0	2	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	31	1	1	9000	9000	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
1	5	N	77	46	1	1	1000	1000	0	5	2	2	0	1	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
4	5	W	1	43	1	1	7000	7000	0	3	2	2	0	1	0	0	0	0	0	0	25.44779	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	1	E	1	63	1	1	6000	6000	0	2	2	2	0	0	0	0	0	0	0	0	25.4478	80.47542	2/5/2018	13:46:36	1	CARPJ126
8	1	E	1	22	1	1	400	400	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47526	2/5/2018	13:46:36	1	CARPJ126
10	13	E	1	39	1	1	800	800	0	8	2	2	0	0	0	0	0	0	0	0	25.44779	80.47526	2/5/2018	13:46:36	1	CARPJ126
7	1	E	1	42	1	1	600	600	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47519	2/5/2018	13:46:36	1	CARPJ126
3	3	E	1	40	1	1	4000	4000	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47515	2/5/2018	13:46:36	1	CARPJ126
6	1	E	1	35	1	1	1250	1250	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47515	2/5/2018	13:46:36	1	CARPJ126
8	88	E	1	25	1	1	6001	6001	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
12	5	W	1	26	1	1	1200	1200	0	5	2	2	0	0	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
13	1	S	1	36	1	1	25000	25000	0	4	2	2	0	1	1	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	27	1	1	11500	11500	0	5	2	2	0	2	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
12	88	S	1	0	1	1	350	350	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
0	1	S	1	21	1	1	10000	10000	0	5	2	2	0	4	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
7	5	W	1	56	1	1	1800	1800	0	3	2	2	0	0	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
7	13	E					800	800	0	2	1	2	0	0	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
							350	350	0	1	1	1	0	1	0	0	0	0	0	0	25.44779	80.47511	2/5/2018	13:46:36	1	CARPJ126
7	13	S	1	51	1	1	2000	2000	0	3	2	2	0	1	0	0	0	0	0	0	25.44782	80.47504	2/5/2018	13:46:36	1	CARPJ126
14	5	W	1	22	1	1	6000	6000	0	2	2	2	0	0	0	0	0	0	0	0	25.44783	80.47504	2/5/2018	13:46:36	1	CARPJ126
							350	350	0	3	1	1	0	1	1	0	1	0	0	0	25.44783	80.47504	2/5/2018	13:46:36	1	CARPJ126
0	13	S	1	50	1	1	16200	16200	0	3	3	3	0	0	0	0	0	0	0	0	25.44787	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	13	S	1	43	1	1	5500	5500	0	3	2	2	0	0	0	0	0	0	0	0	25.44792	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	13	S	1	37	1	1	12000	12000	0	3	3	3	0	1	0	0	0	0	0	0	25.44792	80.47504	2/5/2018	13:46:36	1	CARPJ126
4	1	S	1	33	1	1	1100	1100	0	4	2	2	0	0	0	0	0	0	0	0	25.44792	80.47504	2/5/2018	13:46:36	1	CARPJ126
7	1	N	1	34	1	1	1500	1500	0	2	2	2	0	0	0	0	0	0	0	0	25.44795	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	N	1	32	1	1	1000	1000	0	3	2	2	0	0	0	0	0	0	0	0	25.448	80.47504	2/5/2018	13:46:36	1	CARPJ126
8	13	S	1	54	1	1	1100	1100	0	3	2	2	0	0	0	0	0	0	0	0	25.44806	80.47505	2/5/2018	13:46:36	1	CARPJ126
3	1	S	1	58	1	1	300	300	0	2	2	2	0	0	0	0	0	0	0	0	25.44806	80.47505	2/5/2018	13:46:36	1	CARPJ126
3	1	N	1	50	1	1	3000	3000	0	3	2	2	0	0	0	0	0	0	0	0	25.44806	80.47505	2/5/2018	13:46:36	1	CARPJ126
8	1	N	1	34	1	1	4500	4500	0	2	2	2	0	0	0	0	0	0	0	0	25.44819	80.47505	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	61	1	1	2000	2000	0	3	2	2	0	0	0	0	0	0	0	0	25.44834	80.47505	2/5/2018	13:46:36	1	CARPJ126

1	1	N	1	23	1	1	4000	4000	0	5	3	3	0	2	0	0	0	0	0	0	25.44861	80.47505	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	51	1	1	6000	6000	0	3	2	2	0	0	0	0	0	0	0	0	25.44917	80.47505	2/5/2018	13:46:36	1	CARPJ126
8	13	S	1	33	1	1	825	825	0	2	2	2	0	0	0	0	0	0	0	0	25.44917	80.47505	2/5/2018	13:46:36	1	CARPJ126
8	1	S	1	35	1	1	500	500	0	4	2	2	0	0	0	0	0	0	0	0	25.44944	80.47505	2/5/2018	13:46:36	1	CARPJ126
0	77	O					21500	1500	20000	1	1	2	0	0	0	0	0	0	0	0	25.45323	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	N	1	56	1	1	4500	4500	0	3	2	2	1	2	0	0	0	0	0	0	25.45323	80.47508	2/5/2018	13:46:36	1	CARPJ126
							5000	5000	0	2	1	1	0	2	0	0	0	0	0	0	25.4536	80.47508	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	22	1	1	500	500	0	3	2	2	0	0	0	0	0	0	0	0	25.45378	80.47508	2/5/2018	13:46:36	1	CARPJ126
12	1	S	1	53	1	1	5000	5000	0	3	2	2	0	0	0	0	0	0	0	0	25.45448	80.47508	2/5/2018	13:46:36	1	CARPJ126
8	1	S	1	52	1	1	6200	6200	0	4	3	3	0	1	0	0	0	0	0	0	25.45488	80.47508	2/5/2018	13:46:36	1	CARPJ126
7	14	N	1	66	1	1	1700	1700	0	4	3	3	0	1	0	0	0	0	0	0	25.45488	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	36	1	1	3100	3000	100	2	2	2	0	0	0	0	0	0	0	0	25.45503	80.47508	2/5/2018	13:46:36	1	CARPJ126
7	1	N	1	39	1	1	600	600	0	2	2	2	0	0	0	0	0	0	0	0	25.45509	80.47508	2/5/2018	13:46:36	1	CARPJ126
0	13	N					800	800	0	1	1	2	0	0	0	0	0	0	0	0	25.45513	80.47508	2/5/2018	13:46:36	1	CARPJ126
3	1	S	1	20	1	1	500	500	0	4	2	2	0	0	0	0	0	0	0	0	25.45513	80.47508	2/5/2018	13:46:36	1	CARPJ126
0	1	N	1	69	1	1	4000	4000	0	4	2	2	0	0	0	0	0	0	0	0	25.45513	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	42	1	1	1000	1000	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
3	1	W	1	30	1	1	1750	1750	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
							1000	0	1000	1	1	1	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
2	1	W	1	28	1	1	1800	1800	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	38	1	0	300	300	0	4	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
0	5	E	77	0	1	1	700	700	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
							250	250	0	1	1	1	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
0	1	W	1	23	1	1	1500	1500	0	3	2	2	0	2	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
							0	0	0	2	1	1	0	1	0	0	1	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
0	1	S	1	28	1	1	6000	6000	0	6	2	2	0	2	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
14	1	W	1	45	1	1	3300	3300	0	2	2	2	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	24	1	1	2000	2000	0	4	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	22	1	1	22000	22000	0	3	2	2	0	3	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	5	W	1	41	1	1	1000	1000	0	5	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	19	1	1	1000	1000	0	4	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
9	5	N	1	75	1	1	500	500	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
6	1	W	1	49	1	1	2500	2500	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	19	1	1	650	650	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
3	1	N	1	77	1	1	5000	5000	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
							1	1	0	2	1	1	0	0	0	0	0	0	0	1	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
8	1	S	1	31	1	1	700	700	0	2	2	2	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
8	5	N	1	36	1	1	1300	1300	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
3	1	W	1	21	1	1	2000	2000	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
8	14	S	1	28	1	1	1100	1100	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	50	1	1	2700	2700	0	4	2	2	0	2	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	S					1000	1000	0	3	1	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
8	1	S	1	50	1	1	5000	5000	0	3	2	2	0	2	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
10	1	W	1	34	1	1	1500	1500	0	2	2	2	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	55	1	1	2000	2000	0	6	1	2	0	1	1	0	1	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
7	1	W					600	600	0	3	1	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	18	1	1	2200	2200	0	5	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	22	1	1	2000	2000	0	7	2	2	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	46	1	1	15000	15000	0	2	2	2	0	2	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	E	1	54	1	1	3200	3200	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	S	1	46	1	1	3400	3400	0	4	3	3	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
9	13	N	1	29	1	1	1200	1200	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
2	1	S	1	42	1	1	2500	2500	0	4	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
4	3	W	1	23	1	1	4500	4500	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	61	1	1	1500	1500	0	3	2	2	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	13	E	1	66	1	1	7500	7500	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	28	1	1	6600	6600	0	3	3	3	0	1	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
1	1	W	1	17	1	1	1500	1500	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47508	2/5/2018	13:46:36	1	CARPJ126
							500	500	0	2	1	1	0	1	1	0	1	0	0	0	25.45517	80.47509	2/5/2018	13:46:36	1	CARPJ126
3	1	N	1	17	1	1	700	700	0	3	2	2	0	0	0	0	0	0	0	0	25.45519	80.47509	2/5/2018	13:46:36	1	CARPJ126
8	0	S	1	57	1	1	750	750	0	2	2	2	0	0	0	0	0	0	0	0	25.45519	80.47509	2/5/2018	13:46:36	1	CARPJ126
2	1	N	1	24	1	1	1500	1500	0	3	2	2	0	0	0	0	0	0	0	0	25.45519	80.47509	2/5/2018	13:46:36	1	CARPJ126
7	13	S	1	43	1	1	1700	1700	0	2	2	2	0	0	0	0	0	0	0	0	25.45523	80.47509	2/5/2018	13:46:36	1	CARPJ126
13	1	N	1	37	1	1	3500	3500	0	2	2	2	0	0	0	0	0	0	0	0	25.45525	80.47509	2/5/2018	13:46:36	1	CARPJ126
8	13	N	1	21	1	1	5300	5300	0	2	2	2	0	0	0	0	0	0	0	0	25.45529	80.47509	2/5/2018	13:46:36	1	CARPJ126
4	1	S	1	28	1	1	450	450	0	4	2	2	0	0	0	0	0	0	0	0	25.45529	80.47509	2/5/2018	13:46:36	1	CARPJ126
8	13	S	1	59	1	1	1500	1500	0	2	2	2	0	0	0	0	0	0	0	0	25.45529	80.47509	2/5/2018	13:46:36	1	CARPJ126
8	13	S	1	59	1	1	1500	1500	0	2	2	2	0	0	0	0	0	0	0	0	25.45529	80.47509	2/5/2018	13:46:36	1	CARPJ126
8	77	S	1	21	1	1	4000	4000	0	2	2	2	0	1	0	0	0	0	0	0	25.45529	80.47509	2/5/2018	13:46:36	1	CARPJ126
							1500	1500	0	2	1	1	0	1	0	0	1	0	0	0	25.45544	80.47509	2/5/2018	13:46:36	1	CARPJ126
7	1	S	1	32	1	1	1650	1650	0	3	2	2	0	0	0	0	0	0	0	0	25.45544	80.47509	2/5/2018	13:46:36	1	CARPJ126
8	1	S	1	24	1	1	4500	4500	0	3	2	2	0	0	0	0	0	0	0	0	25.45544	80.47509	2/5/2018	13:46:36	1	CARPJ126
1	8	N	1	47	1	1	1000	1000	0	2	2	2	0	0	0	0	0	0	0	0	25.43766	80.47545	25.43781	80.476	2/5/2018	13:47:57	1	CARPJ126
0	5	W	1	48	1	1	1210	1210	0	2	2	2	0	0	0	0	0	0	0	0	25.43787	80.47603	2/5/2018	13:47:57	1	CARPJ126
							500	500	0	1	1	1	0	1	0	0	0	0	0	0	25.43987	80.47687	2/5/2018	13:47:57	1	CARPJ126
14	13	W	1	29	1	1	8000	8000	0	2	2	2	0	2	1	0	0	0	0	0	25.44041	80.47699	2/5/2018	13:47:57	1	CARPJ126
1	1	N	1	78	1	1	4400	4000	400	4	2	2	0	4	0	0	0	0	0	0	25.44189	80.47711	2/5/2018	13:47:57	1	CARPJ126
7	3	S	1	43	1	1	21000	18000	3000	3	2	2	0	2	0	0	0	0	0	0	25.44334	80.47712	2/5/2018	13:47:57	1	CARPJ126
0	3	S	1	31	1	1	6000	6000	0	4	2	2	0	1	0	0	0	0	0	0	25.44534	80.47714	2/5/2018	13:47:57	1	CARPJ126
1	1	N	1	53	1	1	5500	5500	0	2	2	2	0	1	0	0	0	0	0	0	25.44658	80.47716	2/5/2018	13:47:57	1	CARPJ126
10	1	N	1	20	1	1	6000	6000	0	5	2	2	0	0	0	0	0	0	0	0	25.4476	80.47717	2/5/2018	13:47:57	1	CARPJ126
10	1	N	1	24	1	1	9500	9500	0	3	2	2	0	1	0	0	0	0	0	0	25.44764	80.47717	2/5/2018	13:47:57	1	CARPJ126
0	1	W	1	63	1	1	8000	8000	0	3	2	2	0	3	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
0	17	W	1	51	1	1	200	200	0	7	2	2	0	5	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
0	1	S	2	47	1	1	400	400	0	3	2	2	0	1	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
14	1	E	1	30	1	1	2300	2300	0	3	2	2	0	2	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
1	1	W	1	17	1	1	7500	7500	0	5	2	2	0	1	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
2	1	S	1	31	1	1	25000	25000	0	6	2	2	0	4	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
8	14	W	1	19	1	1	3800	3800	0	7	4	4	0	1	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
9	13	E	1	33	1	1	900	900	0	4	3	3	0	0	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
13	1	W	1	56	1	1	900	900	0	2	2	2	0	0	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
1	1	E	1	33	1	1	6500	6500	0	6	2	2	0	1	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
1	1	W	1	48	1	1	44500	43000	1500	7	3	3	0	7	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
							1100	800	300	2	1	1	0	0	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
9	1	W	1	42	1	1	3000	3000	0	2	2	2	0	0	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
1	1	S	1	55	1	1	2000	2000	0	4	2	2	0	0	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
6	13	E	1	41	1	1	5000	5000	0	3	3	3	0	1	0	0	0	0	0	0	25.44769	80.47717	2/5/2018	13:47:57	1	CARPJ126
1	13	W	1	21	1	1	3000	3000	0	8	3	3	0	5	0	0	0	0	0	0	25.44778	80.47791	2/5/2018	13:47:57	1	CARPJ126
12	1	E	1	34	1	1	1000	1000	0	2	2	2	0	1	1	0	0	0	0	0	25.44778	80.47769	2/5/2018	13:47:57	1	CARPJ126
1	1	E	12	40	1	1	1400	1400	0	7	4	4	0	1	0	0	0	0	0	0	25.44778	80.47761	2/5/2018	13:47:57	1	CARPJ126
13	1	E	1	38	1	1	950	950	0	3	2	2	0	0	0	0	0	0	0	0	25.44778	80.47753	2/5/2018	13:47:57	1	CARPJ126
4	1	S	1	74	1	1	11600	11600	0	3	3	3	0	2	0	0	0	0	0	0	25.44778	80.47749	2/5/2018	13:47:57	1	CARPJ126
							300	300	0	2	1	1	0	1	0	0	1	0	0	0	25.44778	80.47749	2/5/2018	13:47:57	1	CARPJ126
13	1	E	1	62	1	1	250	250	0	2	2	2	0	0	0	0	0	0	0	0	25.44778	80.47749	2/5/2018	13:47:57	1	CARPJ126
12	13	W					1	1	0	1	1	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
14	1	E					11010	11010	0	0	0	3	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
6	5	E	1	19	1	1	2000	2000	0	3	2	2	0	1	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
2	1	0					2700	2000	700	2	1	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
1	5	E	1	54	1	1	2300	2300	0	16	2	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
0	1	E	1	43	1	1	5000	5000	0	3	2	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
13	1	W	1	17	1	1	3700	3700	0	2	2	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126

11	1	W		1	43	1	1	50	50	0	2	2	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
11	1	E		1	60	1	1	2750	2750	0	2	2	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
12	1	N		1	74	1	1	9000	9000	0	3	2	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
6	13	W		1	67	1	1	2500	2500	0	6	3	3	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
2	1	W		1	23	1	1	500	500	0	2	2	2	0	1	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
2	10	W		1	50	1	1	4300	1800	2500	5	2	2	0	0	0	0	0	0	0	0	25.44778	80.47746	2/5/2018	13:47:57	1	CARPJ126
9	13	E		1	33	1	1	800	800	0	2	2	2	0	0	0	0	0	0	0	0	25.44778	80.47743	2/5/2018	13:47:57	1	CARPJ126
9	1	W		1	25	1	1	9000	9000	0	2	2	2	0	0	0	0	0	0	0	0	25.44778	80.4774	2/5/2018	13:47:57	1	CARPJ126
8	1	E		1	39	1	1	2900	2900	0	5	3	3	0	0	0	0	0	0	0	0	25.44778	80.4774	2/5/2018	13:47:57	1	CARPJ126
0	13	E		1	0	88	88	1200	1200	0	3	3	3	0	0	0	0	0	0	0	0	25.44778	80.47716	2/5/2018	13:47:57	1	CARPJ126
14	1	W		1	47	1	1	301	301	0	2	2	2	0	0	0	0	0	0	0	0	25.44778	80.47716	2/5/2018	13:47:57	1	CARPJ126
								1200	1200	0	1	1	1	0	1	0	0	0	0	0	0	25.4478	80.47717	2/5/2018	13:47:57	1	CARPJ126
5	1	N		1	24	1	1	2000	2000	0	2	2	2	0	0	0	0	0	0	0	0	25.44809	80.47717	2/5/2018	13:47:57	1	CARPJ126
14	1	S		1	38	1	1	500	500	0	2	2	2	0	0	0	0	0	0	0	0	25.44809	80.47717	2/5/2018	13:47:57	1	CARPJ126
1	1	N		1	21	1	1	12500	12500	0	5	2	2	0	5	0	0	0	0	0	0	25.44824	80.47717	2/5/2018	13:47:57	1	CARPJ126
								23000	23000	0	1	1	1	0	0	0	0	0	0	0	0	25.44837	80.47717	2/5/2018	13:47:57	1	CARPJ126
3	5	N		1	28	1	1	5500	5500	0	3	2	2	0	2	0	0	0	0	0	0	25.44888	80.47718	2/5/2018	13:47:57	1	CARPJ126
0	1	N		1	23	1	1	1700	1700	0	2	2	2	0	0	0	0	0	0	0	0	25.44906	80.47718	2/5/2018	13:47:57	1	CARPJ126
								800	0	800	1	1	1	0	0	0	0	0	0	0	0	25.44983	80.47719	2/5/2018	13:47:57	1	CARPJ126
8	1	N		1	37	1	1	400	400	0	2	2	2	0	0	0	0	0	0	0	0	25.45513	80.47723	2/5/2018	13:47:57	1	CARPJ126
7	1	S						1000	1000	0	1	1	2	0	0	0	0	0	0	0	0	25.45513	80.47723	2/5/2018	13:47:57	1	CARPJ126
8	1	N		1	61	1	1	2300	2300	0	2	2	2	0	0	0	0	0	0	0	0	25.45514	80.47723	2/5/2018	13:47:57	1	CARPJ126
9	5	W		1	47	88	88	550	550	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
8	1		0	1	28	1	1	1550	1550	0	4	3	3	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
0	1	W		1	27	1	1	13200	13000	200	2	2	2	0	1	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
0	1	W		1	27	1	1	550	550	0	5	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
8	13	E		1	40	1	1	1600	1600	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
6	1	W		1	31	1	1	4300	4300	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
3	1	N		1	50	1	1	700	700	0	3	2	2	0	2	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	N		1	44	1	1	11000	11000	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	W		1	27	1	1	11000	6000	5000	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	S		1	21	1	1	13500	10000	3500	4	2	2	0	4	1	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
8	1	E		1	63	1	1	5500	5500	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
								400	400	0	1	1	1	0	1	1	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	W		77	36	1	1	1100	1100	0	5	2	2	0	1	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
5	5	E		1	34	1	1	3000	3000	0	3	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	N		77	47	1	1	2000	2000	0	4	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
								0	0	0	2	1	1	0	1	0	0	0	1	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	E		1	23	1	1	8000	8000	0	3	2	2	0	1	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
7	14	W		1	19	1	1	1000	1000	0	3	2	2	0	1	1	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
								1000	1000	0	2	1	1	0	1	0	0	0	0	1	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	N		1	68	1	1	24000	24000	0	6	2	2	0	5	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	13	E		1	22	1	1	500	500	0	2	2	2	0	0	0	0	0	0	0	0	25.45516	80.47723	2/5/2018	13:47:57	1	CARPJ126
8	1	S		1	89	1	1	1700	1700	0	3	2	2	0	0	0	0	0	0	0	0	25.45519	80.47723	2/5/2018	13:47:57	1	CARPJ126
								11000	10000	1000	1	1	1	0	1	0	0	0	0	0	0	25.45527	80.47723	2/5/2018	13:47:57	1	CARPJ126
0	1	S		1	44	1	1	2300	2300	0	2	2	2	0	0	0	0	0	0	0	0	25.45534	80.47723	2/5/2018	13:47:57	1	CARPJ126
1	1	E		1	36	1	1	4000	4000	0	3	2	2	0	1	0	0	0	0	0	0	25.44776	80.47974	2/5/2018	13:47:22	1	CARPJ126
1	13	E		1	31	1	1	14600	14600	0	5	3	3	0	2	0	0	0	0	0	0	25.44776	80.47974	2/5/2018	13:47:22	1	CARPJ126
8	1	W		1	31	1	1	1500	1500	0	2	2	2	0	0	0	0	0	0	0	0	25.44776	80.47974	2/5/2018	13:47:22	1	CARPJ126
								5000	2500	2500	1	1	1	0	1	0	0	0	0	0	0	25.44777	80.4792	2/5/2018	13:47:22	1	CARPJ126
12	1	E		1	26	1	1	1500	1500	0	2	2	2	0	1	0	0	0	0	0	0	25.44777	80.47898	2/5/2018	13:47:22	1	CARPJ126
								10	10	0	2	1	1	0	1	0	0	0	1	0	0	25.44777	80.47867	2/5/2018	13:47:22	1	CARPJ126
1	1	S						1700	1700	0	2	0	2	0	0	0	0	0	0	0	0	25.44777	80.47858	2/5/2018	13:47:22	1	CARPJ126
12	1	S		1	27	1	1	5000	5000	0	3	2	2	0	1	0	0	0	0	0	0	25.44777	80.47858	2/5/2018	13:47:22	1	CARPJ126
7	1	W		1	46	1	1	2000	2000	0	4	2	2	0	0	0	0	0	0	0	0	25.44777	80.47851	2/5/2018	13:47:22	1	CARPJ126
8	1	E		1	40	1	1	4000	4000	0	2	2	2	0	0	0	0	0	0	0	0	25.44779	80.47663	2/5/2018	13:47:22	1	CARPJ126
8	1	W		1	50	1	1	1600	1600	0	4	3	3	0	1	0	0	0	0	0	0	25.44779	80.47602	2/5/2018	13:47:22	1	CARPJ126
7	1	W		1	46	1	1	400	400	0	1	1	2	0	0	0	0	0	0	0	0	25.44779	80.47602	2/5/2018	13:47:22	1	CARPJ126

NOT CODED						2	1	1	0	1	1		1	0		25.46258	-80.4605	03/04/2018	
NOT CODED						1	1	1	0	1	0		0	0		25.46258	-80.4608	03/04/2018	
NO CONTRIBUTING ACTION						2	2	2	0	0	0		0	0		25.46258	-80.4608	03/04/2018	
NOT CODED						1	1	1	0	0	0		0	0		25.46258	-80.4609	03/04/2018	
NOT CODED						2	1	1	0	0	0		0	0		25.46258	-80.4595	03/04/2018	
NO CONTRIBUTING ACTION						2	2	2	0	1	0		0	0		25.46258	-80.4599	03/04/2018	
NO CONTRIBUTING ACTION						2	2	2	0	1	0		0	0		25.46258	-80.4608	03/04/2018	
NO CONTRIBUTING ACTION						3	2	2	0	0	0		0	0		25.46258	-80.4608	03/04/2018	
NOT CODED						1	1	2	0	0	0		0	0		25.46254	-80.4627	03/04/2018	
NO CONTRIBUTING ACTION						3	3	3	0	0	0		0	0		25.46258	-80.4609	03/04/2018	
NO CONTRIBUTING ACTION						2	2	2	0	0	0		0	0		25.46258	-80.4608	03/04/2018	
NOT CODED						1	1	1	0	0	0		0	0		25.46258	-80.4609	03/04/2018	
NOT CODED						2	1	1	0	1	0		0	1		25.46258	-80.4593	03/04/2018	
NOT CODED						2	1	1	0	1	0		0	1		25.46258	-80.4608	03/04/2018	
NO CONTRIBUTING ACTION						4	2	2	0	0	0		0	0		25.46258	-80.4608	03/04/2018	
NOT CODED						1	1	1	0	0	0		0	0		25.46258	-80.4608	03/04/2018	

Appendix B

Straight Line Diagrams

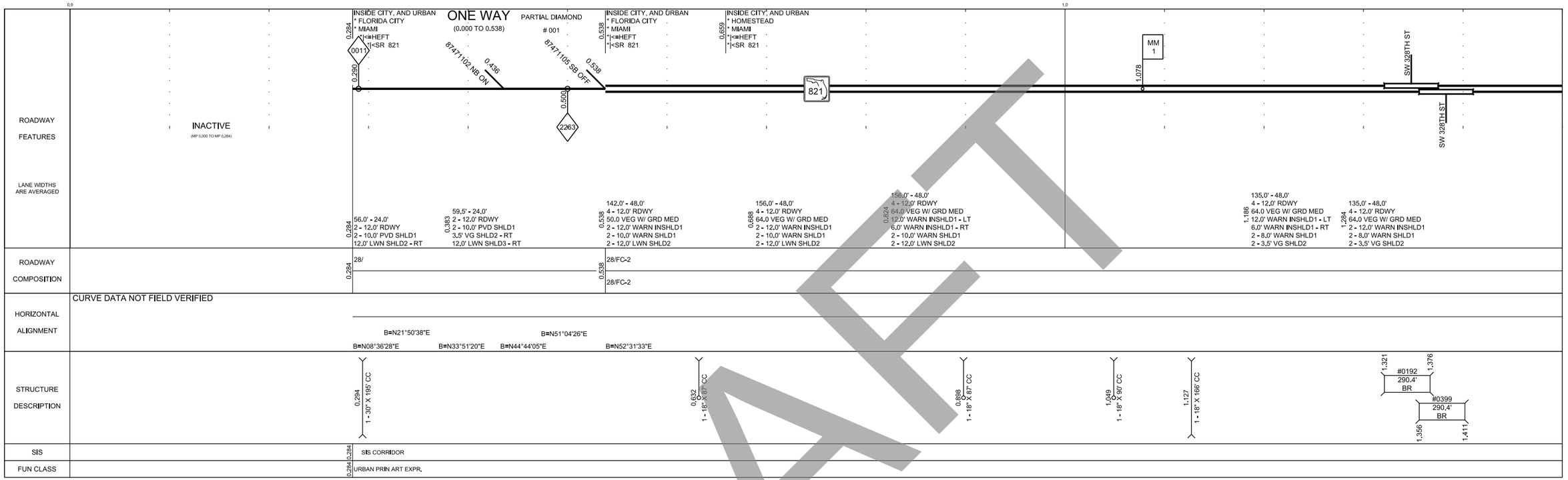
	5 YR INV	SLD REV
DATE	08/16/2013	09/28/2013
BY	Juan Echevarria - URS	Juan Echevarria - URS

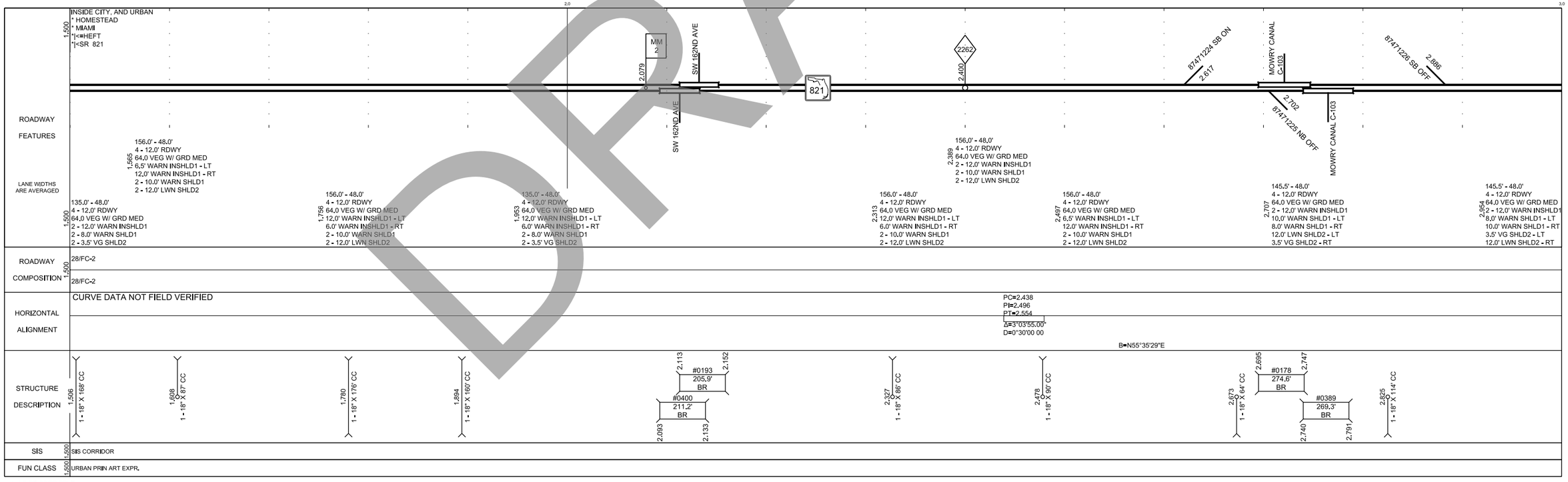
BMP	EMP	INV	SLD REV
011,767	014,473	06/07/2017 AECOM	06/28/2017 AECOM
000,000	040,150	P1-2016-DQE	08/19/2016 AECOM
000,000	001,000	F-326 Symbology	02/10/2016 AECOM

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
12		SR 821	MIAMI-DADE	08	87471000	1 OF 14





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Version: 1.4.2.27 06/28/2017

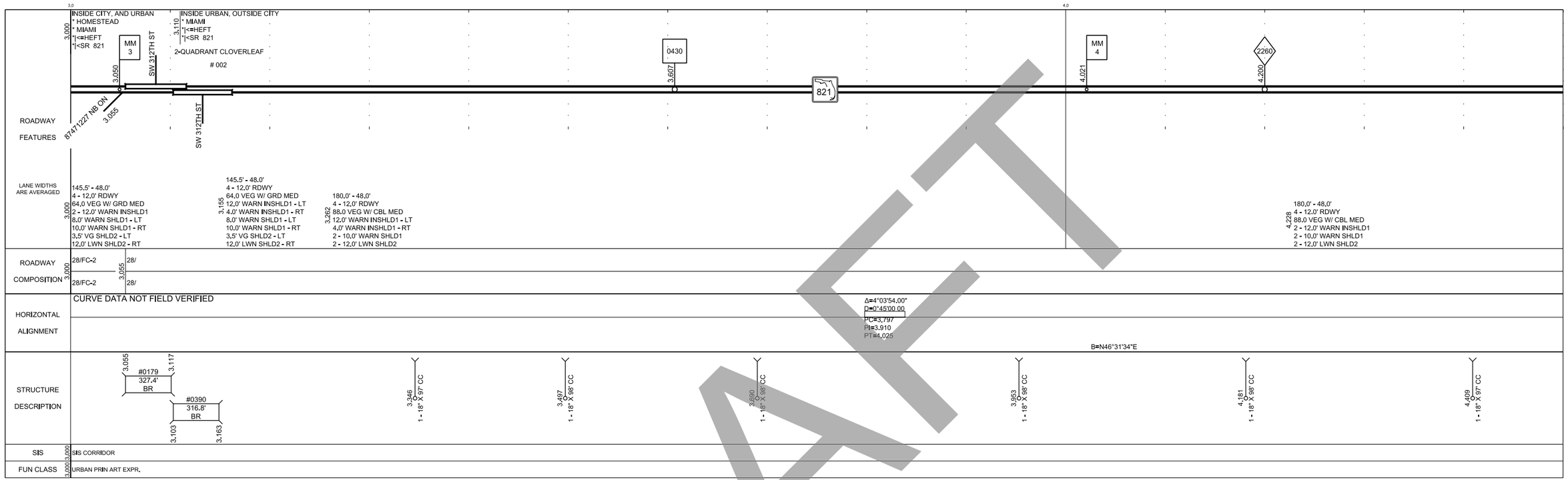
	5 YR INV	SLD REV
DATE	08/16/2013	09/28/2013
BY	Juan Echevarria - URS	Juan Echevarria - URS

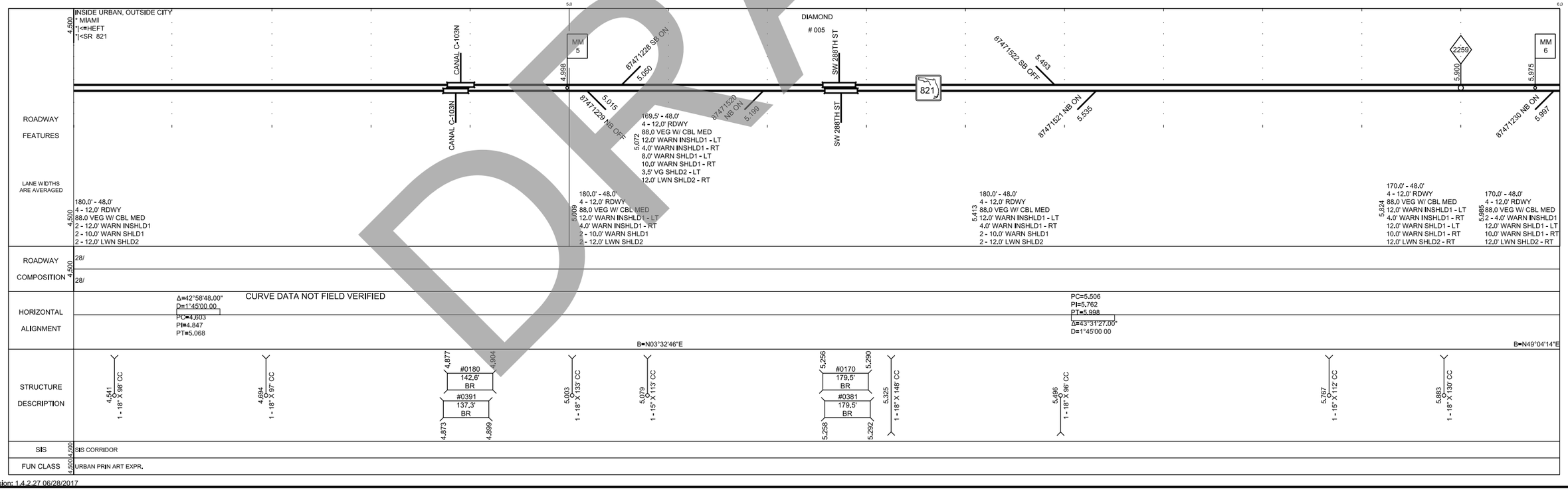
BMP	EMP	INV	SLD REV
011.767	014.473	06/07/2017 AECOM	06/28/2017 AECOM
000.000	040.150	P1-2016-DQE	08/19/2016 AECOM
000.000	001.000	F-326 Symbology	02/10/2016 AECOM

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
12		SR 821	MIAMI-DADE	08	87471000	2 OF 14





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Version: 1.4.2.27 06/28/2017

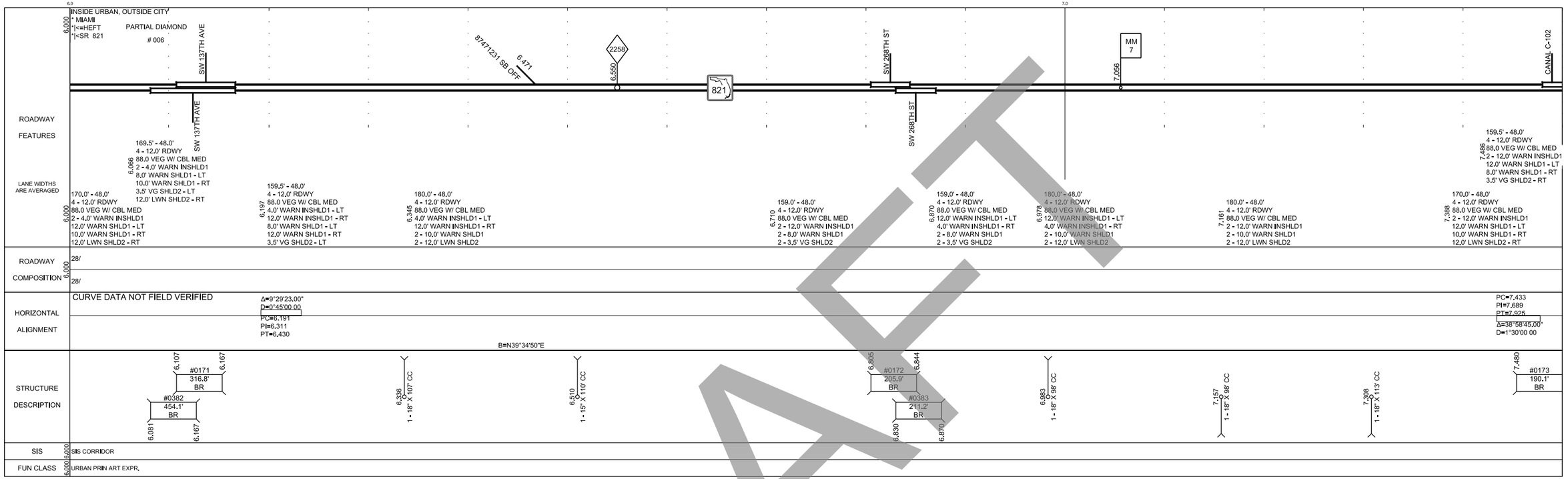
	5 YR INV	SLD REV
DATE	08/16/2013	09/28/2013
BY	Juan Echevarria - URS	Juan Echevarria - URS

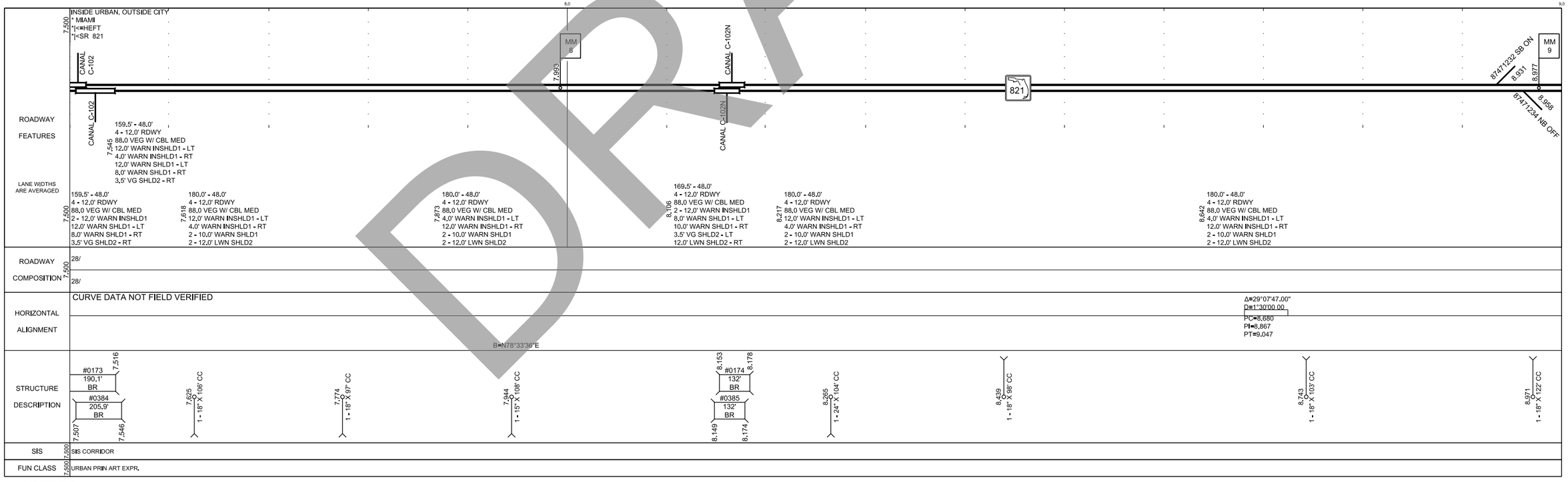
BMP	EMP	INV	SLD REV
011.767	014.473	06/07/2017 AECOM	06/28/2017 AECOM
000.000	040.150	P1-2016-DOE	08/19/2016 AECOM
000.000	001.000	F-326 Symbology	02/10/2016 AECOM

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
12		SR 821	MIAMI-DADE	08	87471000	3 OF 14





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Version: 1.4.2.27 06/28/2017

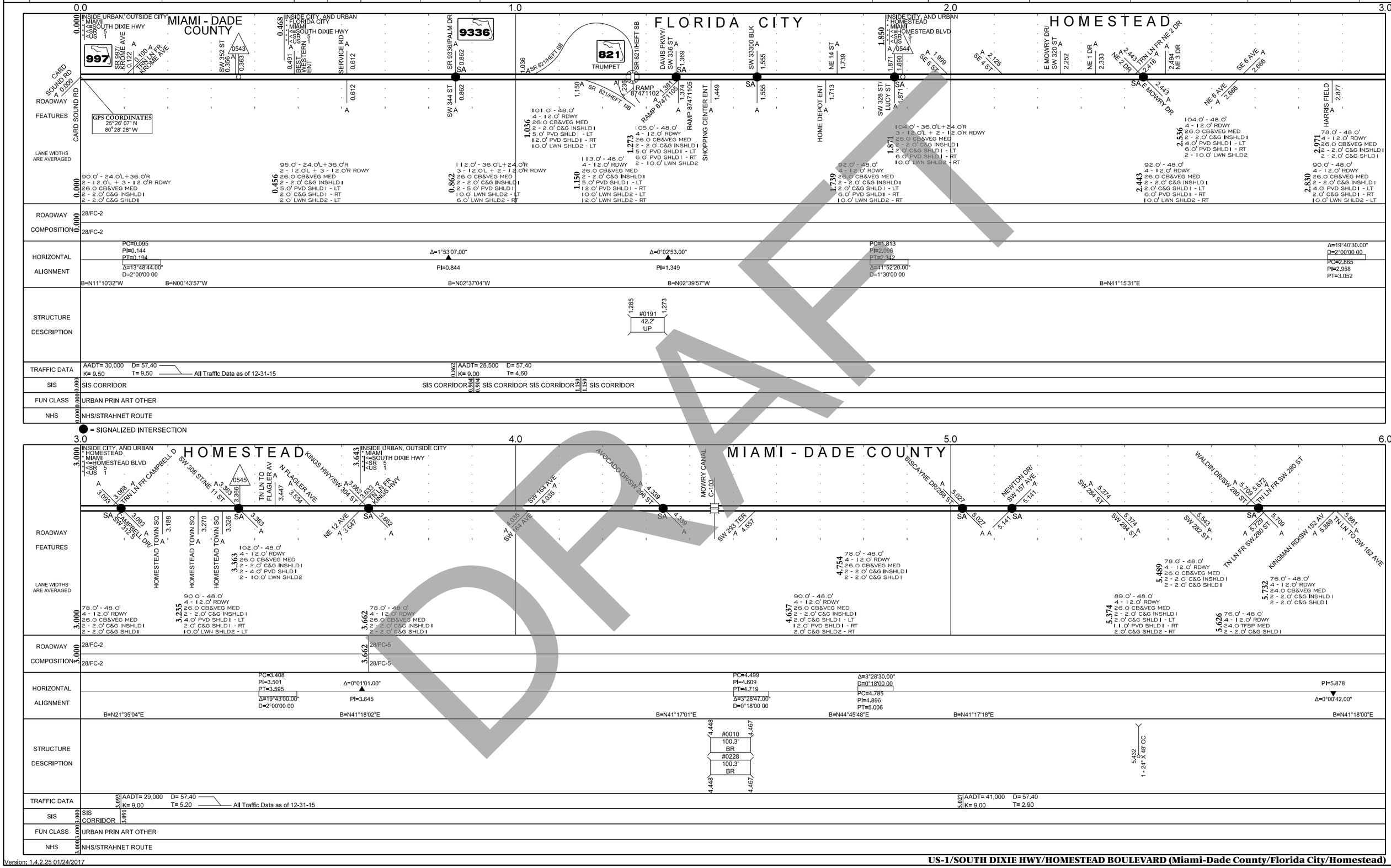
	5 YR INV	SLD REV
DATE	12/23/2016	01/24/2017
BY	URS	URS

BMP	EMP	INV	SLD REV

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02	US 1	SR 5	MIAMI-DADE	06	87020000	1 OF 4



	5 YR INV	SLD REV
DATE	04/04/2016	04/12/2016
BY	URS	URS

BMP	EMP	INV	SLD REV
7.358	8.214	08/02/2017 URS	08/07/2017 URS

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 9336	MIAMI-DADE	06	87160000	1 OF 1

0.0 1.0 2.0 3.0 4.0 5.0 6.0

MIAMI - DADE COUNTY

0.000 OUTSIDE CITY & URBAN
* MIAMI
*|<=SW 376 ST/INGRAHAM
*|<SR 9336

4.563 INSIDE URBAN, OUTSIDE CITY
* MIAMI
*|<=SW 376 ST/INGRAHAM
*|<SR 9336

5.060 INSIDE URBAN, OUTSIDE CITY
* MIAMI
*|<=SW 192 AV/TOWER RD
*|<SR 9336

ROADWAY FEATURES: EVERGLADES NAT PARK; L-311W; 0.056 CANAL; GLENN GARRETT MEM; SOUTH FL WATER MGMT; 0.581; 015'; 1.036 ACCESS RD; 1.045 S. FL WAY GREENWAY ENT.; 1.070 AEROJET CANAL C-111; DIRT RD 1.377; DIRT RD 1.643; SW 217 AVE 2.132; DIRT ROAD 2.138; SW 214 AVE 2.385; SW 215 AVE 2.258; SW 212 AVE 2.639; SW 209 AVE 2.894; DIRT RD 3.272; C-111E CANAL; SW 202 AVE 3.934; DIRT RD 4.317; JUAREZ PARK ENTRANCE 4.428; DIRT RD 4.563; UNSIGNED 4.039; UNSIGNED 4.747; SW-193 PATH 4.829; UNSIGNED 4.943; SW 192 AVE/ TOWER RD 5.060; SW 376 ST/INGRAHAM; SW 372 ST 5.311; SW 368 ST 5.568

GPS COORDINATES 25° 23' 49" N 80° 34' 32" W

LANE WIDTHS ARE AVERAGED

0.000 46.0' - 22.0' | 2 - 11.0' RDWY | 2 - 12.0' LWN SHLD I
0.884 48.0' - 22.0' | 2 - 11.0' RDWY | 2 - 4.0' PVD SHLD I | 6.0' LWN SHLD2 - LT | 12.0' LWN SHLD2 - RT
1.134 40.0' - 22.0' | 2 - 11.0' RDWY | 6.0' LWN SHLD I - LT | 12.0' LWN SHLD I - RT
1.643 34.0' - 22.0' | 2 - 6.0' LWN SHLD I
2.138 46.0' - 22.0' | 2 - 12.0' LWN SHLD I
2.639 40.0' - 22.0' | 6.0' LWN SHLD I - LT | 12.0' LWN SHLD I - RT
2.820 54.0' - 22.0' | 2 - 11.0' RDWY | 2 - 4.0' PVD SHLD I | 2 - 12.0' LWN SHLD2
3.105 46.0' - 22.0' | 2 - 12.0' LWN SHLD I
4.314 46.0' - 22.0' | 2 - 11.0' RDWY | 12.0' LWN SHLD I - LT | 6.0' PVD SHLD I - RT | 6.0' LWN SHLD2 - RT
4.476 40.0' - 22.0' | 2 - 11.0' RDWY | 12.0' LWN SHLD I - LT | 6.0' LWN SHLD I - RT
4.682 46.0' - 22.0' | 2 - 12.0' LWN SHLD I
5.450 40.0' - 22.0' | 2 - 11.0' RDWY | 6.0' LWN SHLD I - LT | 12.0' LWN SHLD I - RT

ROADWAY COMPOSITION: 0.000 28/FC-2; 0.126 08/FC-0; 0.140 28/FC-2; 1.087 08/FC-0; 1.105 28/FC-2; 3.366 08/FC-0; 3.380 28/FC-2

HORIZONTAL ALIGNMENT: B=N064°22'58"E; PC=0.925 PI=0.979 PT=1.032 Δ=0°35'05.00" Δ=25°31'08.00" D=4°30'00.00" PI=1.104 B=N089°55'55"E B=N089°29'00"E; PI=2.115 Δ=0°11'41.00" B=N089°40'41"E; Δ=45°20'50.00" D=6°00'00.00" PC=2.859 PI=2.949 PT=3.030 Δ=0°07'46.00" PI=3.200 B=N044°19'51"E B=N044°12'05"E B=N044°29'24"E; PI=3.915 Δ=0°17'19.00"; PC=4.350 PI=4.361 PT=4.370 PI=4.548 Δ=90°00'00.00" Δ=45°00'00.00" D=5°00'00.00" Δ=0°06'30.00" B=N089°29'18"E B=N089°35'48"E B=N000°31'36"W; PI=5.060 B=N000°38'41"W; Δ=0°07'05.00" PI=5.555 B=N000°36'19"W

STRUCTURE DESCRIPTION: 0.126 #0081 73.9' BR 0.140; 1.087 #0057 95' BR 1.105; 3.366 #0058 73.9' BR 3.380

TRAFFIC DATA: AADT= 1,450 D= 57.40 K= 9.00 T= 9.60 — All Traffic Data as of 12-31-15

SIS

FUN CLASS: 0.000 RURAL MAJOR COLLECTOR; 4.563 URBAN MAJOR COLLECTOR

● = SIGNALIZED INTERSECTION

6.0 7.0 8.0 8.5 9.0

MIAMI-DADE COUNTY

6.000 INSIDE URBAN, OUTSIDE CITY
* MIAMI
*|<=SW 192 AV/TOWER RD
*|<SR 9336

7.085 INSIDE CITY, AND URBAN
* FLORIDA CITY
* MIAMI
*|<=SW 344 ST/PALM DR
*|<SR 9336

FLORIDA CITY

ROADWAY FEATURES: SW 360 ST 6.066; SW 358 ST 6.192; SW 354 ST/18TH ST 6.460; SW 353 ST/17TH ST 6.511; SW 352 ST/16TH ST 6.586; SW 354 ST 6.452; DIRT RD 6.839; SW 344 ST/PALM DR 7.085; SW 192 AVE; SW 188 AVE 7.358; SW 187 AV/ REDLAND RD 7.584; SW 9 AVE 7.711; SW 8 CT 7.761; SW 8 AVE 7.835; PA; NW 7 AVE 7.965; NW 6 AVE/ SW 182 AVE 8.089; NW 5 AVE 8.214; NW 4 AVE 8.296; NW 3 AVE 8.375; 0084; 8.414; BUSWAY 8.484; NW 1 AVE 8.528; SR 997/KROME AVE 8.598; 2548; 8.616; 8.641 UNSIGNED; SR 5/US-1 8.745; SR5/US-1/S DIXIE HWY END MP: 008.745 NET ROADWAY ID LENGTH: 8.745

GPS COORDINATES 25° 26' 52" N 80° 28' 31" W

LANE WIDTHS ARE AVERAGED

6.000 40.0' - 22.0' | 2 - 11.0' RDWY | 6.0' LWN SHLD I - LT | 12.0' LWN SHLD I - RT
6.399 46.0' - 22.0' | 2 - 11.0' RDWY | 2 - 12.0' LWN SHLD I
7.358 42.0' - 22.0' | 2 - 11.0' RDWY | 12.0' LWN SHLD I - LT | 8.0' LWN SHLD I - RT
7.584 36.0' - 22.0' | 2 - 11.0' RDWY | 6.0' LWN SHLD I - LT | 8.0' LWN SHLD I - RT
7.761 40.0' - 22.0' | 2 - 11.0' RDWY | 6.0' LWN SHLD I - LT | 12.0' LWN SHLD I - RT
7.899 40.0' - 22.0' | 2 - 11.0' RDWY | 12.0' LWN SHLD I - LT | 6.0' LWN SHLD I - RT
8.089 76.0' - 11.0'L + 22.0'R | 1 - 11.0'L + 2 - 11.0'R RDWY | 5.0 CB&VEG MED | 2 - 2.0' CRG INSHLD I | 2 - 12.0' PVD SHLD I | 2 - 2.0' C&G SHLD2
8.187 87.0' - 44.0' | 4 - 11.0' RDWY | 5.0 CB&VEG MED | 2 - 2.0' CRG INSHLD I | 2 - 12.0' PVD SHLD I | 2 - 2.0' C&G SHLD2
8.598 85.0' - 66.0' | 6 - 11.0' RDWY | 5.0 CB&VEG MED | 2 - 2.0' CRG INSHLD I | 2 - 2.0' C&G SHLD I

ROADWAY COMPOSITION: 6.000 28/FC-2; 8.089 28/FC-2 / 28/FC-2

HORIZONTAL ALIGNMENT: PI=6.059 Δ=0°02'22.00" Δ=0°01'15.00" PI=6.567 B=N000°36'19"W B=N000°37'24"W B=N089°24'34"E; PI=7.058 Δ=90°00'00.00" B=N089°29'21"E; PI=7.574 Δ=0°04'47.00"

STRUCTURE DESCRIPTION

TRAFFIC DATA: AADT= 1,450 D= 57.40 K= 9.00 T= 9.60 — All Traffic Data as of 12-31-15; 7.085 AADT= 23,500 D= 57.40 K= 9.00 T= 6.80; 8.089 AADT= 23,500 D= 57.40 K= 9.00 T= 6.80; 8.598 AADT= 24,500 D= 57.40 K= 9.00 T= 10.70

SIS

FUN CLASS: 6.000 URBAN MAJOR COLLECTOR; 7.085 URBAN MINOR ART

SW 376 Street/Ingraham/SW 192 Avenue/Tower Road/SW 344 Street/Palm Drive (Miami-Dade County, Florida City)

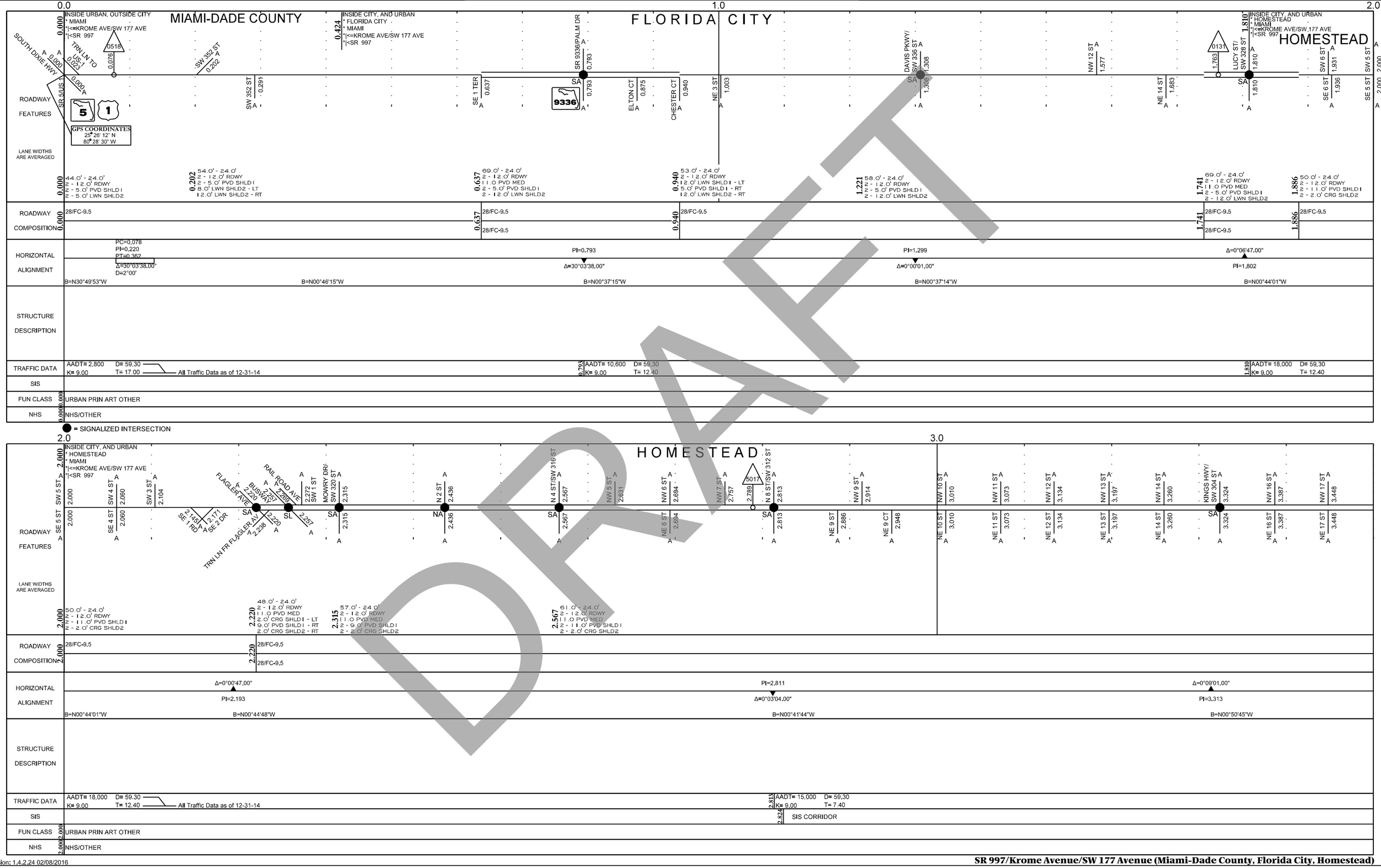
5 YR INV	SLD REV
DATE 01/05/2016	02/08/2016
BY URS	URS

BMP	EMP	INV	SLD REV

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
02		SR 997	MIAMI-DADE	06	87150000	1 OF 3



Appendix C

High Crash Lists

FLORIDA - DEPARTMENT OF TRANSPORTATION
C A R - CRASH ANALYSIS REPORTING SYSTEM
HIGH CRASH/REFERENCE INTERSECTIONS REPORT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AVAILABLE YEARS 2015 2014 2013 2012 2011
1 YEAR RATES     _    _    _    _    _
2 YEAR RATES     _    _    _    _
3 YEAR RATES     _    _    _
4 YEAR RATES     _    _
5 YEAR RATES     X

STATEWIDE:  _                       ENTER "X" FOR COUNTY PAGE BREAKS:  X
DISTRICTS:  6 _ _ _ _ _ _
COUNTIES:   __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __
RANK BY:  CONFIDENCE LEVEL
SORT BY:  ROADWAY ID
 -------\   MINIMUM CONF LVL       MINIMUM # OF CRASHES
| LIMIT  \  95.00%                    8                   RURAL
| BY:    /  99.00%                    8                   SUBURBAN
 -------/   99.95%                    8                   URBAN

COMMENTS:                                        USERID:  SF945BJ
```

DIST RANK	ROADWAY ID(S)	MILE PT(S)	NODE NUMBR	ROUTE NAME(S)	INTRSCTN NODE DESCRIPTN	RDWAY TYPE	NBR OF LEGS	NMBR OF CRASH	MILLIONS OF VEHICLES	ACTUAL CRASH RATE	INTSCT TYPE AVG	HIGH CRASH CONF%	NBR OF FTL	NBR OF INJ	NBR PTY DMG	2014 HIGH CRASH	2013 HIGH CRASH	2012 HIGH CRASH
667	87018000	0.000	03511	SR 852	SR 817	U-6DR	3	114	76.248500	1.495	0.687	99.99		46	82			
	87019000	4.866		SR 817	215TH ST													
716	87018000	1.369	07016	SR 852	12TH AVE	S-4DR	4	71	58.582500	1.212	0.494	99.99	1	59	36			
863	87018000	1.996	03990	SR 852	7TH AVE N	S-4DR	3	49	58.582500	0.836	0.349	99.99		45	27			
113	87018000	2.525	03991	SR 852	WYE TO NW	U-4DR	3	216	61.320000	3.523	0.714	99.99		136	135			
225	87018000	2.534	08005	SR 852	SR 7	U-6DR	3	210	86.231250	2.435	0.687	99.99		134	130			
	87140000	14.680		SR 7	SR 852													
1169	87019000	1.586	01770	SR 817	165TH ST	U-6DR	3	73	65.700000	1.111	0.687	99.99		48	50			
1000	87019000	1.635	01771	SR 817	165TH TER	U-6DR	3	81	65.700000	1.233	0.687	99.99		54	56			
58	87019000	1.685	01772	SR 817	166TH ST	U-6DR	3	273	65.700000	4.155	0.687	99.99	1	140	196			
1208	87019000	1.716	03743	SR 817	FRONTAGE	U-OLA	4	414	167.613840	2.470	2.032	99.99	2	195	303			
	87260533	1.000		SR 826	27TH AVE													
	87260600	0.000		SR 826	27TH AVE													
241	87019000	1.793	01776	SR 817	167TH TER	U-6DR	3	209	89.242500	2.342	0.687	99.99	1	115	148			
532	87019000	2.740	01786	SR 817	SR 860	U-6DR	4	352	162.060000	2.172	1.223	99.99	1	170	250			
	87026000	3.019		SR 860	SR 817													
893	87019000	3.741	01789	SR 817	IVES DAIR	U-6DR	4	190	100.375000	1.893	1.223	99.99	1	76	139			
956	87019000	4.351	01791	SR 817	207TH ST	U-6DR	4	163	86.014440	1.895	1.223	99.99		93	112			
	87000267	0.979		CR OFF	27TH AVE													
667	87019000	4.866	03511	SR 817	215TH ST	U-6DR	3	114	76.248500	1.495	0.687	99.99		46	82			
	87018000	0.000		SR 852	SR 817													
869	87020000	0.862	00240	SR 5	SR 9336	U-6DR	4	116	53.107500	2.184	1.223	99.99		62	80			
	87160000	8.745		SR 9336	SR 5													
521	87020000	1.369	00947	SR 5	ARTHUR DA	S-4DR	3	65	51.647500	1.259	0.349	99.99		28	44			
533	87020000	1.374	02606	SR 5	NB ENT FR	S-4DR	3	64	51.647500	1.239	0.349	99.99		28	43			
1362	87020000	1.555	03533	SR 5	WAL MART	S-4DR	4	41	51.647500	0.794	0.494	99.90	1	41	22			
926	87020000	2.418	03535	SR 5	SB ENT FR	U-6DR	3	70	51.647500	1.355	0.687	99.99		58	41			

REPORT..CARPJ66- FLORIDA - DEPARTMENT OF TRANSPORTATION PAGE NO 0
DATE....03/16/2017 C A R - CRASH ANALYSIS REPORTING SYSTEM
TIME....11:25:03 HIGH CRASH ROADWAY SEGMENTS USING: DISTRICT AVERAGES AS OF: 03/15/2017
COMMENT: _____ USERID: SF945BJ DISTRICT:

MINIMUM CRASHES USED IN CONFIDENCE LEVEL CALCULATIONS (RURAL): 8
(SUBURBAN): 8
(URBAN): 8

AVAILABLE YEARS 2015 2014 2013 2012 2011
1 YEAR RATES _ _ _ _ _
2 YEAR RATES _ _ _ _
3 YEAR RATES _ _ _
4 YEAR RATES _ _
5 YEAR RATES X
"X" STATE WIDE: _ "X" PAGE BREAK ON: _ DISTRICT _ COUNTY
DISTRICT #S: 6 _ _ _ _ _ "X" PAGE BREAK ON COUNTY: X
COUNTY #S: __ __ __ __ __ __ __ __ __ __ __ __ __ __ __
1 RANK OPTION: 1 CONF LVL 2 CRASHES 3 INJS 4 CRASH RATE
5 SORT OPTION: 1 CONF LVL 2 CRASHES 3 INJS 4 CRASH RATE 5 RDWY MP

LIMIT BY	MIN CONF LVL	MIN CRASHES
	95.00%	8
RURAL	99.00%	8
SUBURBAN	99.95%	8
URBAN		

NUMB	COSECSUB	BMP	EMP	STROAD	LENGTH	CC	CRASHES	ADT	ACTUAL	AVERAGE	CONLV	FTL	INJ	PRTY	CL-1	CL-2	CL-3
561	87012000	1.054	1.354	SR 847	0.300	S-2UN	27	16,299	3.025	1.655	99.95	1	7	21			
378	87012000	2.020	2.144	SR 847	0.124	S-2DP	32	16,299	8.675	2.676	99.99	0	19	20			
563	87015000	2.229	2.429	SR 989	0.200	S-4DP	107	31,000	9.456	6.918	99.95	1	82	62			
166	87015000	2.729	3.032	SR 989	0.303	S-4DP	300	30,997	17.502	6.918	99.99	1	202	193			
106	87016000	0.400	0.758	SR 112	0.358	U-4DP	398	40,093	24.432	10.464	99.99	1	93	321			
16	87016000	0.758	0.814	SR 112	0.056	U-2UN	271	40,098	66.128	7.400	99.99	1	60	226			
364	87017000	0.000	0.145	SR 913	0.145	U1WAY	135	19,548	26.097	13.652	99.99	0	28	113			
451	87017000	0.145	0.373	SR 913	0.228	U-6DR	174	38,995	10.723	7.049	99.99	0	61	135			
258	87018000	0.000	0.300	SR 852	0.300	S-4DR	125	28,559	7.994	2.896	99.99	0	59	87			
526	87018000	1.959	2.159	SR 852	0.200	S-4DR	56	32,100	4.779	2.896	99.99	0	48	31			
168	87018000	2.285	2.534	SR 852	0.249	U-4DR	225	29,066	17.034	6.161	99.99	0	137	143			
149	87019000	1.600	2.000	SR 817	0.400	U-6DR	620	45,159	18.807	7.049	99.99	2	362	423			
359	87019000	2.200	2.300	SR 817	0.100	U-6DR	125	48,900	14.006	7.049	99.99	0	83	75			
110	87019000	2.664	2.837	SR 817	0.173	U-6DP	388	52,318	23.489	11.980	99.99	1	180	281			
556	87019000	3.637	3.937	SR 817	0.300	U-6DR	262	54,997	8.701	7.049	99.95	3	124	184			
167	87019000	4.337	4.437	SR 817	0.100	U-6DR	175	55,000	17.434	7.049	99.99	0	89	124			
234	87020000	0.862	1.036	SR 5	0.174	S-6DR	100	28,298	11.239	3.810	99.99	0	54	70			
390	87020000	1.236	1.636	SR 5	0.400	S-4DR	113	28,300	5.469	2.896	99.99	2	79	69			
163	87020000	3.030	3.130	SR 5	0.100	U-4DR	90	28,004	17.610	6.161	99.99	0	50	59			
250	87020000	3.363	3.662	SR 5	0.299	S-4DR	138	27,496	9.197	2.896	99.99	0	94	86			
438	87020000	4.162	4.562	SR 5	0.400	U-4DR	188	27,500	9.364	6.161	99.99	1	152	111			
348	87020000	4.862	5.262	SR 5	0.400	U-4DR	239	31,730	10.318	6.161	99.99	2	238	122			
357	87020000	6.967	7.567	SR 5	0.600	S-4DR	193	34,696	5.079	2.896	99.99	1	187	88			
267	87020000	8.067	8.659	SR 5	0.592	S-4DR	238	34,571	6.371	2.896	99.99	2	186	130			
303	87020000	9.577	9.977	SR 5	0.400	S-4DR	156	34,400	6.212	2.896	99.99	0	153	80			
265	87020000	10.377	11.377	SR 5	1.000	S-4DR	419	34,400	6.674	2.896	99.99	1	399	213			
237	87020000	11.552	12.014	SR 5	0.462	U-4DR	316	34,396	10.895	6.161	99.99	2	229	192			
521	87020000	12.214	12.614	SR 5	0.400	U-6DR	311	48,300	8.820	7.049	99.99	0	126	227			
333	87020000	13.114	13.514	SR 5	0.400	U-6DR	385	48,300	10.919	7.049	99.99	2	138	297			
203	87020000	13.914	14.139	SR 5	0.225	U-6DR	263	48,296	14.421	7.049	99.99	1	155	177			
548	87020000	16.165	16.565	SR 5	0.400	U-6DR	426	69,900	8.348	7.049	99.95	1	194	303			
158	87020000	17.365	17.465	SR 5	0.100	U-6DR	237	72,708	17.860	7.049	99.99	1	93	177			
334	87020000	19.628	19.900	SR 5	0.272	S-6DR	290	93,194	6.268	3.810	99.99	0	94	222			
279	87021000	0.000	0.300	SR 878	0.300	U-TOL	102	40,197	4.634	1.729	99.99	1	54	66			
253	87021000	2.500	2.658	SR 878	0.158	U-TOL	65	26,498	8.506	1.729	99.99	0	63	35			
436	87026000	0.900	1.300	SR 860	0.400	U-6DR	220	28,908	10.424	7.049	99.99	0	123	143			
171	87026000	2.900	3.300	SR 860	0.400	U-6DR	394	32,231	16.745	7.049	99.99	1	184	281			
415	87026000	4.900	5.100	SR 860	0.200	U-6DR	135	31,000	11.931	7.049	99.99	0	61	93			
146	87026000	5.400	5.800	SR 860	0.400	U-6DR	558	40,078	19.072	7.049	99.99	2	240	392			
374	87026000	6.000	6.176	SR 860	0.176	U-6DR	175	44,397	12.271	7.049	99.99	0	106	105			
70	87026000	6.486	6.584	SR 860	0.098	U-4DR	102	44,396	30.980	6.161	99.99	0	65	66			
244	87026000	6.584	6.840	SR 860	0.256	S-4DR	229	49,094	9.983	2.896	99.99	3	181	135			
620	87026000	7.312	7.512	SR 860	0.200	S-4DR	69	49,100	3.850	2.896	99.00	1	24	48			
505	87026000	7.512	7.912	SR 860	0.400	S-4DR	148	49,100	4.129	2.896	99.99	0	94	84			
153	87026000	8.112	8.185	SR 860	0.073	S-4DR	119	49,098	18.192	2.896	99.99	2	54	80			
430	87026000	8.689	8.865	SR 860	0.176	S-4DR	77	42,832	5.596	2.896	99.99	0	52	51			
118	87026000	9.065	9.311	SR 860	0.246	U-6DR	418	41,697	22.329	7.049	99.99	0	215	263			

MINIMUM CRASHES USED IN CONFIDENCE LEVEL CALCULATIONS (RURAL): 8
(SUBURBAN): 8
(URBAN): 8

AVAILABLE YEARS 2015 2014 2013 2012 2011
1 YEAR RATES _ _ _ _ _
2 YEAR RATES _ _ _ _
3 YEAR RATES _ _ _
4 YEAR RATES _ _
5 YEAR RATES X
"X" STATE WIDE: _ "X" PAGE BREAK ON: _ DISTRICT _ COUNTY
DISTRICT #S: 8 _ _ _ _ _ "X" PAGE BREAK ON COUNTY: X
COUNTY #S: __ __ __ __ __ __ __ __ __ __ __ __ __ __ __
1 RANK OPTION: 1 CONF LVL 2 CRASHES 3 INJS 4 CRASH RATE
5 SORT OPTION: 1 CONF LVL 2 CRASHES 3 INJS 4 CRASH RATE 5 RDWY MP

LIMIT BY	MIN CONF LVL	MIN CRASHES
	95.00%	8 RURAL
	99.00%	8 SUBURBAN
	99.95%	8 URBAN

NUMB	COSECSUB	BMP	EMP	STROAD		LENGTH	CC	CRASHES	ADT	ACTUAL	AVERAGE	CONLV	FTL	INJ	PRTY	CL-1	CL-2	CL-3
4	87470000	0.000	1.300	SR	91	1.300	U-TOL	446	77,786	2.416	0.588	99.99	0	159	357			
110	87470000	1.600	1.700	SR	91	0.100	U-TOL	23	77,800	1.619	0.588	99.99	0	11	15			
50	87470000	2.000	2.400	SR	91	0.400	U-TOL	75	77,800	1.320	0.588	99.99	1	40	51			
208	87470000	3.200	3.342	SR	91	0.142	U-TOL	23	77,796	1.140	0.588	99.95	0	7	18			
76	87471000	0.984	1.084	SR	821	0.100	U-TOL	16	35,820	2.447	0.588	99.99	0	7	9			
32	87471000	1.884	2.284	SR	821	0.400	U-TOL	50	35,820	1.912	0.588	99.99	1	42	31			
128	87471000	2.884	3.284	SR	821	0.400	U-TOL	40	44,748	1.224	0.588	99.99	2	24	28			
51	87471000	4.884	5.384	SR	821	0.500	U-TOL	70	56,608	1.355	0.588	99.99	0	45	37			
15	87471000	5.784	6.384	SR	821	0.600	U-TOL	114	67,986	1.531	0.588	99.99	3	57	73			
95	87471000	6.984	7.184	SR	821	0.200	U-TOL	38	74,580	1.395	0.588	99.99	0	24	21			
107	87471000	7.984	8.284	SR	821	0.300	U-TOL	50	74,578	1.224	0.588	99.99	1	19	38			
27	87471000	8.784	9.184	SR	821	0.400	U-TOL	88	74,580	1.616	0.588	99.99	0	48	56			
53	87471000	10.684	10.784	SR	821	0.100	U-TOL	29	79,180	2.006	0.588	99.99	1	12	20			
46	87471000	10.884	11.284	SR	821	0.400	U-TOL	78	79,180	1.349	0.588	99.99	1	43	49			
18	87471000	11.484	12.484	SR	821	1.000	U-TOL	264	108,526	1.332	0.588	99.99	0	176	158			
93	87471000	12.884	13.284	SR	821	0.400	U-TOL	93	122,400	1.040	0.588	99.99	0	58	58			
12	87471000	13.584	14.484	SR	821	0.900	U-TOL	367	135,779	1.645	0.588	99.99	1	184	241			
116	87471000	15.084	15.384	SR	821	0.300	U-TOL	80	143,398	1.018	0.588	99.99	0	43	50			
21	87471000	15.684	16.984	SR	821	1.300	U-TOL	472	159,208	1.249	0.588	99.99	0	267	294			
197	87471000	17.184	17.384	SR	821	0.200	U-TOL	58	171,440	0.926	0.588	99.95	0	32	37			
20	87471000	17.884	18.684	SR	821	0.800	U-TOL	194	105,932	1.254	0.588	99.99	0	96	129			
63	87471000	18.984	19.484	SR	821	0.500	U-TOL	105	102,340	1.124	0.588	99.99	0	66	60			
17	87471000	19.784	20.784	SR	821	1.000	U-TOL	268	109,493	1.341	0.588	99.99	1	151	158			
5	87471000	22.684	22.784	SR	821	0.100	U-TOL	54	125,120	2.364	0.588	99.99	1	23	33			
23	87471000	23.084	24.384	SR	821	1.300	U-TOL	369	132,663	1.172	0.588	99.99	2	228	223			
143	87471000	25.084	25.384	SR	821	0.300	U-TOL	75	139,720	0.980	0.588	99.99	1	48	46			
24	87471000	25.484	26.484	SR	821	1.000	U-TOL	304	152,201	1.094	0.588	99.99	0	184	184			
68	87471000	27.184	27.584	SR	821	0.400	U-TOL	92	109,180	1.154	0.588	99.99	0	54	59			
199	87471000	27.584	27.784	SR	821	0.200	U-TOL	40	109,180	1.003	0.588	99.95	0	17	29			
201	87471000	28.084	28.484	SR	821	0.400	U-TOL	70	109,180	0.878	0.588	99.95	0	31	49			
19	87471000	29.084	29.784	SR	821	0.700	U-TOL	170	102,451	1.298	0.588	99.99	1	59	126			
183	87471000	30.984	31.384	SR	821	0.400	U-TOL	68	101,300	0.919	0.588	99.99	0	24	49			
150	87471000	32.184	32.384	SR	821	0.200	U-TOL	42	101,300	1.135	0.588	99.99	0	15	30			
118	87471000	33.084	33.384	SR	821	0.300	U-TOL	59	97,141	1.109	0.588	99.99	1	24	39			
209	87471000	33.984	34.184	SR	821	0.200	U-TOL	35	94,840	1.011	0.588	99.95	0	18	25			
98	87471000	34.184	34.384	SR	821	0.200	U-TOL	45	94,840	1.299	0.588	99.99	0	22	29			
58	87471000	34.784	34.884	SR	821	0.100	U-TOL	32	94,840	1.848	0.588	99.99	0	15	24			
69	87471000	34.984	35.384	SR	821	0.400	U-TOL	82	93,896	1.196	0.588	99.99	0	35	58			
129	87471000	35.484	36.184	SR	821	0.700	U-TOL	105	87,972	0.934	0.588	99.99	1	45	74			
111	87471000	36.284	36.484	SR	821	0.200	U-TOL	41	87,980	1.276	0.588	99.99	0	12	30			
73	87471000	38.284	38.484	SR	821	0.200	U-TOL	47	87,980	1.463	0.588	99.99	0	22	34			
34	87471000	38.884	39.684	SR	821	0.800	U-TOL	131	72,079	1.244	0.588	99.99	0	49	100			
29	87471000	39.984	40.150	SR	821	0.166	U-TOL	36	48,719	2.439	0.588	99.99	0	16	24			
RECORDS SELECTED:			43					4,938					19	2552	3253			

Segment Crash Rates Along SR 821 Between Mileposts 0.436 & 2.954 (2011 – 2015)

439545-1 Turnpike Extension Widening PD&E Study from US 1 (South of Palm Drive) to Campbell Drive

April 7, 2020

Below are the 2011-2015 five-year crash rates for the given segments between mileposts 0.436 & 2.954 along SR 821 (Roadway ID 87471000). Crash rates describe the number of crashes in a given period as compared to the traffic volume. Traffic volume determines the measure of exposure. Crash rates are calculated by dividing the number of crashes at an intersection or segment for the time period by a measure of exposure.

Five-Year Crash Rates for Segments Along SR 821 (2011-2015)

Turnpike Extension from North of Palm Drive to North of Campbell Drive (MP 0.436 – 2.954).

- MP 0.436 – 0.538 Crash Rate – 0.450
- MP 0.538 – 0.659 Crash Rate – 0.000
- MP 0.659 – 2.400 Crash Rate – 0.625
- MP 2.400 – 2.612 Crash Rate – 0.939
- MP 2.612 – 2.877 Crash Rate – 0.254
- MP 2.877 – 2.954 Crash Rate – 0.130

Mainline and Ramp AADT

Milepost – Description	Two-Way AADT 2011	2012	2013	2014	2015		AADT 5-Yr Average	Crash Rates MP	No. of Crashes	Segment Length	Crash Rate
	52,700	**54,000**	**54,100**	**55,700**	**57,100**						
MP 2.954								2.954			
	52,700	**54,000**	**54,100**	**55,700**	**57,100**		54,720		1	0.077	**0.130**
MP 2.877								2.877			
2 – Campbell Drive	20,900	22,100	22,300	22,300	23,200	22,160	32,560		4	0.265	**0.254**
	3,300	3,300	3,200	3,100	3,200	3,220					
MP 2.612								2.612	13	0.212	**0.939**
MP 2.400								2.400			
Lucy St.									71	1.741	**0.625**
	35,100	**35,200**	**35,000**	**36,500**	**37,100**		35,780				
MP 0.659								0.659	0	0.121	**0.000**
MP 0.538	**35,100**	**35,200**	**35,000**	**36,500**	**37,100**			0.538			
0 – US 1 (To/From North)	0	0	0	0	0				3	0.102	**0.450**
0 – US 1 (To/From South) MP 0.436	35,100	35,200	35,000	36,500	37,100		35,780	0.436			

Object Id	Calendar Y	FDOT Crash	Reporting A	Reporting A	Reporting A	FDOT Man	County	Crash Date	Crash Time	Day	DHSMV Cit	Crash Repo	In Town	On Roadwa	Int Roadwa	FDOT Roac	Nearest In	Nearest No	State Road
3034808	2012	82883259(	FHPK12OF	1	FLORIDA H	08	87	08/26/201	1435	SUNDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.305	07636	SR 821
3043793	2012	82901027(	FHPK12OF	1	FLORIDA H	08	87	10/08/201	0858	MONDAY	8767	0167	N	SR 821	312TH ST S	87471000	1.555	03152	SR 821
3064525	2012	83179204(	FHPK12OF	1	FLORIDA H	08	87	09/28/201	0558	FRIDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.098	09004	SR 821
3066097	2012	83222781(	FHPK12OF	1	FLORIDA H	08	87	09/24/201	1400	MONDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.174	07636	SR 821
3070520	2012	83165153(	FHPK12OF	1	FLORIDA H	08	87	08/04/201	1400	SATURDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.905	02486	SR 821
3071682	2012	83222787(	FHPK12OF	1	FLORIDA H	08	87	10/02/201	1820	TUESDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.174	07636	SR 821
3080824	2012	83200590(	FHPK12OF	1	FLORIDA H	08	87	11/29/201	0744	THURSDAY	8767	0167	Y	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3105827	2012	82900830(	FHPK12OF	1	FLORIDA H	08	87	03/15/201	1730	THURSDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.079	09004	SR 821
3106209	2012	82843912(	FHPK12OF	1	FLORIDA H	08	87	05/24/201	0815	THURSDAY	8767	0167	N	SR 821	162ND AVI	87471000	2.036	09004	SR 821
3148085	2012	82812968(	FHPK12OF	1	FLORIDA H	08	87	02/27/201	1818	MONDAY	8700	0100	N	SR 821	MILE MAR	87471000	2.098	09004	SR 821
3153716	2012	82889471(	FHPK12OF	1	FLORIDA H	08	87	08/25/201	1144	SATURDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.079	09004	SR 821
3159725	2012	82844959(	FHPK12OF	1	FLORIDA H	08	87	02/14/201	1736	TUESDAY	8767	0167	Y	SR 821	162ND ST S	87471000	2.652	07937	SR 821
3165255	2012	82890584(	FHPK12OF	1	FLORIDA H	08	87	08/13/201	0155	MONDAY	8767	0167	Y	SR 821	SR 5	87471000	1	03062	SR 821
3191283	2012	83191354(	FHPK12OF	1	FLORIDA H	08	87	09/13/201	2231	THURSDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3192662	2012	83191402(	FHPK12OF	1	FLORIDA H	08	87	12/25/201	1400	TUESDAY	8767	0167	Y	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3196195	2012	83179169(	FHPK12OF	1	FLORIDA H	08	87	07/12/201	1030	THURSDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.05	09004	SR 821
3208389	2012	83222786(	FHPK12OF	1	FLORIDA H	08	87	10/02/201	1815	TUESDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.268	07636	SR 821
3212832	2012	82243113(	FHPK12OF	1	FLORIDA H	08	87	02/27/201	1559	MONDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
3214615	2012	82874950(	FHPK12OF	1	FLORIDA H	08	87	09/16/201	2233	SUNDAY	8767	0167	N	SR 821	312TH ST	87471000	2.055	09004	SR 821
3232723	2013	83700138(	FHPL13OFI	1	FLORIDA H	08	87	11/10/201	2100	SUNDAY	8767	0167	N	SR 821	MM #2	87471000	2.174	07636	SR 821
3253855	2013	83254985(	FHPK13OF	1	FLORIDA H	08	87	06/01/201	0630	SATURDAY	8767	0167	Y	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3266451	2013	83222846(	FHPK13OF	1	FLORIDA H	08	87	03/09/201	0226	SATURDAY	8758	0158	N	SR 821	MILE MAR	87471000	1.267	03062	SR 821
3277037	2013	83200617(	FHPK13OF	1	FLORIDA H	08	87	03/23/201	0905	SATURDAY	8767	0167	Y	SR 821	328TH ST S	87471000	0.878	03060	SR 821
3283531	2013	83312879(	FHPK13OF	1	FLORIDA H	08	87	07/16/201	1057	TUESDAY	8767	0167	N	SR 821	MILE MAR	87471000	1.078	03062	SR 821
3283817	2013	83312889(	FHPK13OF	1	FLORIDA H	08	87	08/01/201	1822	THURSDAY	8767	0167	N	SR 821	312TH ST S	87471000	1.055	03062	SR 821
3286017	2013	83281221(	FHPK13OF	1	FLORIDA H	08	87	07/16/201	0910	TUESDAY	8767	0167	Y	SR 821	312TH ST S	87471000	2.103	09004	SR 821
3323174	2013	83190574(	FHPK13OF	1	FLORIDA H	08	87	02/25/201	1300	MONDAY	8767	0167	Y	SR 821	SR 5	87471000	1.5	03152	SR 821
3336866	2013	83310364(	FHPK13OF	1	FLORIDA H	08	87	06/22/201	1431	SATURDAY	8767	0167	Y	SR 821	SR 5	87471000	0.5	03060	SR 821
3358937	2013	83310385(	FHPK13OF	1	FLORIDA H	08	87	08/24/201	1448	SATURDAY	8767	0167	Y	SR 821	312TH ST S	87471000	2.855	02486	SR 821
3368161	2013	83260753(	FHPK13OF	1	FLORIDA H	08	87	04/03/201	0657	WEDNESD/	8767	0167	N	SR 821	MILE MAR	87471000	2.079	09004	SR 821
3370988	2013	83667573(	FHPK13OF	1	FLORIDA H	08	87	11/30/201	1600	SATURDAY	8767	0167	N	SR 821	MM #2	87471000	2.079	09004	SR 821
3413273	2013	83276756(	FHPK13OF	1	FLORIDA H	08	87	07/21/201	0440	SUNDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.755	02487	SR 821
3423505	2013	83283580(	FHPK13OF	1	FLORIDA H	08	87	07/04/201	2105	THURSDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.06	09004	SR 821
3423782	2013	83283574(	FHPK13OF	1	FLORIDA H	08	87	06/10/201	1635	MONDAY	8767	0167	N	SR 821	MILE MAR	87471000	1.097	03062	SR 821
3426956	2013	83329450(	FHPK13OF	1	FLORIDA H	08	87	05/15/201	1440	WEDNESD/	8767	0167	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
3433067	2013	83260746(	FHPK13OF	1	FLORIDA H	08	87	03/05/201	0651	TUESDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.079	09004	SR 821
3443085	2013	83329486(	FHPK13OF	1	FLORIDA H	08	87	07/28/201	2140	SUNDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
3488058	2013	83260762(	FHPK13OF	1	FLORIDA H	08	87	05/17/201	0900	FRIDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.079	09004	SR 821
3488060	2013	83260771(	FHPK13OF	1	FLORIDA H	08	87	06/02/201	1940	SUNDAY	8767	0167	N	SR 821	MILE MAR	87471000	1.078	03062	SR 821
3488077	2013	83281162(	FHPK13OF	1	FLORIDA H	08	87	02/15/201	0045	FRIDAY	8767	0167	Y	SR 821	MILE MAR	87471000	1.578	03152	SR 821
3488195	2013	83283596(	FHPK13OF	1	FLORIDA H	08	87	09/10/201	0700	TUESDAY	8767	0167	N	SR 821	MILE MAR	87471000	2.088	09004	SR 821
3532655	2014	83714392(	FHPK14OF	1	FLORIDA H	08	87	05/11/201	1920	SUNDAY	8758	0158	N	SR 821	MILE MAR	87471000	1.078	03062	SR 821
3539581	2014	83712518(	FHPK14OF	1	FLORIDA H	08	87	08/04/201	1730	MONDAY	8766	0166	N	SR 821	MILE MAR	87471000	2.245	07636	SR 821
3544324	2014	83755087(	FHPK14OF	1	FLORIDA H	08	87	06/11/201	0119	WEDNESD/	8758	0158	N	SR 821	MM #2	87471000	2.079	09004	SR 821
3551239	2014	83801546(	FHPK14OF	1	FLORIDA H	08	87	08/02/201	1710	SATURDAY	8758	0158	N	SR 821	MILE MAR	87471000	2.174	07636	SR 821
3609613	2014	84509200(	FHPK14OF	1	FLORIDA H	08	87	09/13/201	0245	SATURDAY	8758	0158	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821

3634192	2014	83677229(	FHPK14OF	1	FLORIDA H	08	87	02/27/201	1955	THURSDAY	8767	0167	Y	SR 821	MILE MARI	87471000	2.579	07937	SR 821
3646998	2014	83800641(	FHPK14OF	1	FLORIDA H	08	87	06/14/201	0420	SATURDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
3653663	2014	83799349(	FHPK14OF	1	FLORIDA H	08	87	10/01/201	0830	WEDNESD/	8758	0158	N	SR 821	MILE MARI	87471000	2.079	09004	SR 821
3673203	2014	84520215(	FHPK14OF	1	FLORIDA H	08	87	12/08/201	1040	MONDAY	8766	0166	N	SR 821	SR 5	87471000	0.436	02490	SR 821
3706609	2014	83667599(	FHPK14OF	1	FLORIDA H	08	87	01/26/201	1631	SUNDAY	8767	0167	N	SR 821	MILE MARI	87471000	1.078	03062	SR 821
3728886	2014	83745367(	FHPK14OF	1	FLORIDA H	08	87	05/07/201	1700	WEDNESD/	8766	0166	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
3735686	2014	83799341(	FHPK14OF	1	FLORIDA H	08	87	09/23/201	1305	TUESDAY	8758	0158	N	SR 821	MM #2	87471000	2.079	09004	SR 821
3739200	2014	83801533(	FHPK14OF	1	FLORIDA H	08	87	06/29/201	1445	SUNDAY	8758	0158	N	SR 821	MM #2	87471000	1.079	03062	SR 821
3775157	2014	84526368(	FHPK14OF	1	FLORIDA H	08	87	11/20/201	1630	THURSDAY	8766	0166	N	SR 821	MILE MARI	87471000	2.174	07636	SR 821
3815994	2014	83700182(	FHPK14OF	1	FLORIDA H	08	87	03/06/201	1800	THURSDAY	8767	0167	N	SR 821	MILE MARI	87471000	1.267	03062	SR 821
3852735	2012	83165001(	FHPK12OF	1	FLORIDA H	08	87	07/05/201	2144	THURSDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3861331	2015	84553360(	FHPK15OF	1	FLORIDA H	08	87	06/13/201	0040	SATURDAY	8758	0158	N	SR 821	MILE MARI	87471000	1.059	03062	SR 821
3861455	2015	84493000(	FHPK15OF	1	FLORIDA H	08	87	09/15/201	2115	TUESDAY	8758	0158	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
3869614	2015	84528603(	FHPK15OF	1	FLORIDA H	08	87	02/27/201	1722	FRIDAY	8758	0158	N	SR 821	328TH ST S	87471000	1.062	03062	SR 821
3878602	2015	84866418(	FHPK15OF	1	FLORIDA H	08	87	04/07/201	2315	TUESDAY	8758	0158	N	SR 821	MILE MARI	87471000	2.079	09004	SR 821
3884032	2015	84875987(	FHPK15OF	1	FLORIDA H	08	87	07/08/201	2003	WEDNESD/	8767	0167	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
3892595	2015	85125839(	FHPK15OF	1	FLORIDA H	08	87	09/17/201	1333	THURSDAY	8758	0158	N	SR 821	MILE MARI	87471000	1.078	03062	SR 821
3899775	2015	85111436(	FHPK15OF	1	FLORIDA H	08	87	06/06/201	0450	SATURDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3961030	2015	85222738(	FHPK15OF	1	FLORIDA H	08	87	11/29/201	1217	SUNDAY	8758	0158	N	SR 821	MILE MARI	87471000	2.079	09004	SR 821
3984527	2015	84863386(	FHPK15OF	1	FLORIDA H	08	87	03/12/201	1100	THURSDAY	8758	0158	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3985059	2015	84893215(	FHPK15OF	1	FLORIDA H	08	87	07/13/201	1435	MONDAY	8758	0158	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
3985096	2015	84866388(	FHPK15OF	1	FLORIDA H	08	87	02/16/201	2230	MONDAY	8758	0158	N	SR 821	MILE MARI	87471000	2.079	09004	SR 821
3988558	2015	84896308(	FHPK15OF	1	FLORIDA H	08	87	08/02/201	1900	SUNDAY	8758	0158	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
4013669	2015	84899123(	FHPK15OF	1	FLORIDA H	08	87	08/02/201	1909	SUNDAY	8767	0167	Y	SR 821	312TH ST S	87471000	2.555	07937	SR 821
4056964	2015	85127939(	FHPK15OF	1	FLORIDA H	08	87	11/06/201	1307	FRIDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
4057119	2015	85129000(	FHPK15OF	1	FLORIDA H	08	87	08/22/201	0200	SATURDAY	8758	0158	N	SR 821	MILE MARI	87471000	2.579	07937	SR 821
4058209	2015	84893221(	FHPK15OF	1	FLORIDA H	08	87	07/18/201	1550	SATURDAY	8758	0158	N	SR 821	SR 5	87471000	0.445	02490	SR 821
4073345	2015	84564996(	FHPK15OF	1	FLORIDA H	08	87	03/21/201	1355	SATURDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
4075617	2015	84553341(	FHPK15OF	1	FLORIDA H	08	87	03/14/201	1330	SATURDAY	8758	0158	N	SR 821	MILE MARI	87471000	2.098	09004	SR 821
4076975	2015	84868742(	FHPK15OF	1	FLORIDA H	08	87	08/09/201	2355	SUNDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
4088443	2015	84866416(	FHPK15OF	1	FLORIDA H	08	87	04/01/201	2236	WEDNESD/	8758	0158	N	SR 821	MILE MARI	87471000	2.079	09004	SR 821
4088941	2015	84893214(	FHPK15OF	1	FLORIDA H	08	87	07/13/201	1510	MONDAY	8758	0158	N	SR 821	328TH ST S	87471000	0.821	03060	SR 821
4093110	2015	84893218(	FHPK15OF	1	FLORIDA H	08	87	07/17/201	1545	FRIDAY	8758	0158	N	SR 821	MM #2	87471000	1.984	09004	SR 821
4093383	2015	84875996(	FHPK15OF	1	FLORIDA H	08	87	07/25/201	2305	SATURDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.055	09004	SR 821
4101911	2015	85126110(	FHPK15OF	1	FLORIDA H	08	87	09/13/201	1635	SUNDAY	8758	0158	N	SR 821	312TH ST S	87471000	1.555	03152	SR 821
4104136	2015	85233923(	FHPK15OF	1	FLORIDA H	08	87	12/04/201	0600	FRIDAY	8758	0158	N	SR 821	MILE MARI	87471000	1.059	03062	SR 821
4104137	2015	85233929(	FHPK15OF	1	FLORIDA H	08	87	12/22/201	0600	TUESDAY	8758	0158	N	SR 821	MILE MARI	87471000	2.098	09004	SR 821
4123757	2015	85185937(	FHPK15OF	1	FLORIDA H	08	87	12/08/201	2120	TUESDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.555	07937	SR 821
4125379	2015	85222735(	FHPK15OF	1	FLORIDA H	08	87	11/23/201	0932	MONDAY	8758	0158	N	SR 821	MILE MARI	87471000	1.078	03062	SR 821
4187395	2015	84553369(	FHPK15OF	1	FLORIDA H	08	87	07/08/201	1000	WEDNESD/	8758	0158	N	SR 821	MILE MARI	87471000	2.06	09004	SR 821
4205884	2015	85222753(	FHPK15OF	1	FLORIDA H	08	87	12/26/201	0950	SATURDAY	8758	0158	N	SR 821	MILE MARI	87471000	1.078	03062	SR 821
4259437	2014	83755986(	FHPK14OF	1	FLORIDA H	08	87	10/15/201	1042	WEDNESD/	8758	0158	N	SR 821	MILE MARI	87471000	2.078	09004	SR 821
4268697	2015	84868744(	FHPK15OF	1	FLORIDA H	08	87	08/11/201	0643	TUESDAY	8767	0167	N	SR 821	312TH ST S	87471000	2.355	07636	SR 821
4591887	2015	84564760(	FHPK15OF	1	FLORIDA H	08	87	03/03/201	2115	TUESDAY	8758	0158	N	SR 821	MILE MARI	87471000	1.795	09004	SR 821
4600955	2015	85222755(	FHPK15OF	1	FLORIDA H	08	87	12/27/201	1158	SUNDAY	8758	0158	N	SR 821	MILE MARI	87471000	1.078	03062	SR 821
4681136	2012	82954005(	PD121217	2	COUNTY SI	08	87	12/17/201	0257	MONDAY	8700	0100	N	SR 821	312TH ST S	87471000	2.866	02486	SR 821

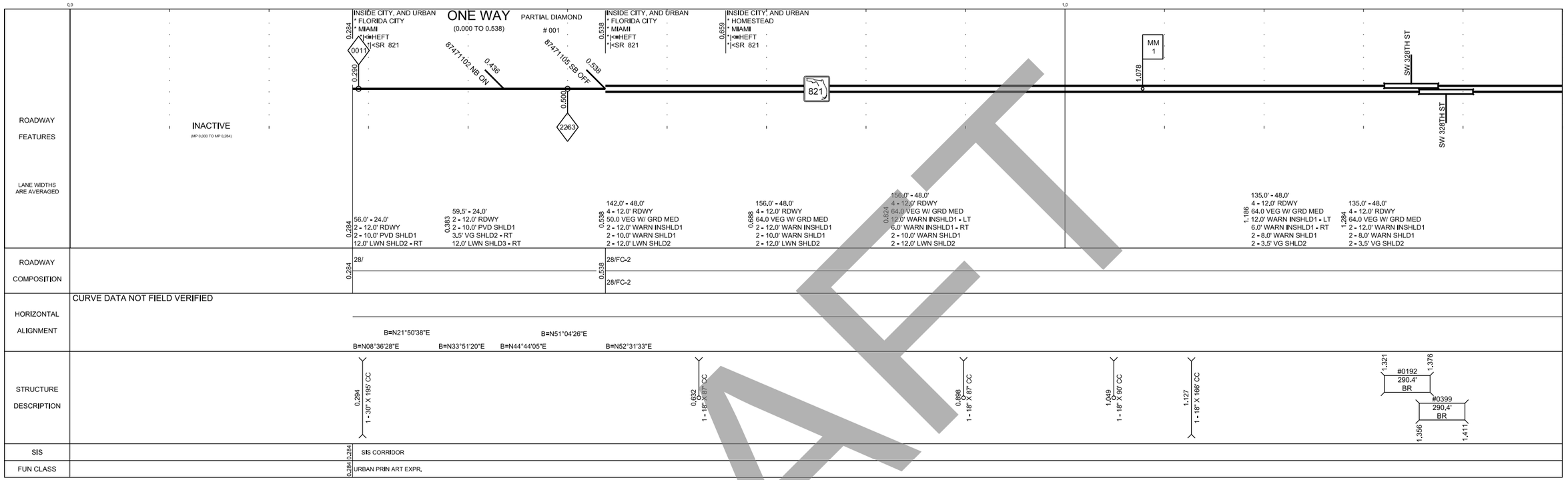
	5 YR INV	SLD REV
DATE	08/16/2013	09/28/2013
BY	Juan Echevarria - URS	Juan Echevarria - URS

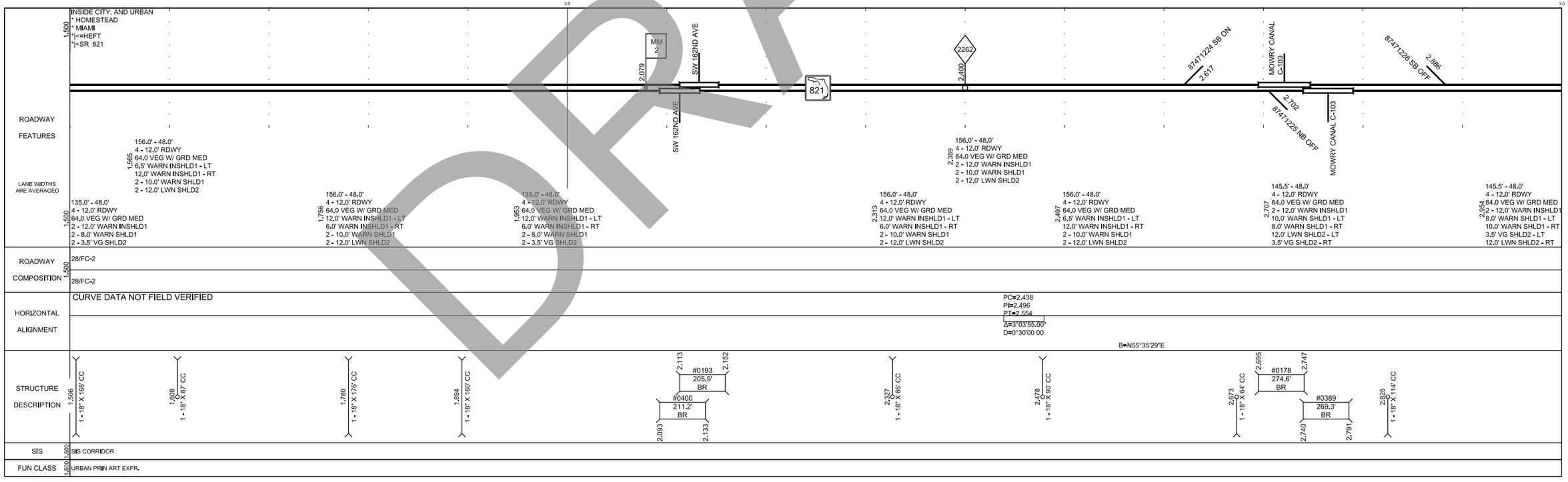
BMP	EMP	INV	SLD REV
011,767	014,473	06/07/2017 AECOM	06/28/2017 AECOM
000,000	040,150	P1-2016-DQE	08/19/2016 AECOM
000,000	001,000	F-326 Symbology	02/10/2016 AECOM

FLORIDA DEPARTMENT OF TRANSPORTATION

STRAIGHT LINE DIAGRAM OF ROAD INVENTORY

SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
12		SR 821	MIAMI-DADE	08	87471000	1 OF 14





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Version: 1.4.2.27 06/28/2017

Appendix D

Geotechnical Services – Memo Report

Date: July 3, 2019

Prepared by: **GCME, Inc.**

TO: Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409

Attention: Ms. Linda Hess, P.E.
Transportation Engineer

SUBJECT: **Geotechnical Services – Memo Report**
PD&E Services for HEFT from Palm Drive to Campbell Drive
Miami-Dade County, Florida
FPID No.: 439545-1-22-01
GCME Project No.: 2000-01-17002

Dear Ms. Hess,

GCME, Inc. has completed the Geotechnical Services Memo Report – compiling review of all existing geotechnical information and documentation of seasonal high groundwater table in connection with the subject project, as per our negotiation on September 17, 2017. The purpose of this report is to provide geotechnical information to the roadway engineers and for preparation of the plans for the proposed alternatives / improvements.

A. USDA, SCS Soil Information

Research of the U.S. Department of Agriculture (USDA), Soil Conservation Service (SCS) Soil Survey of the Miami-Dade County area indicates the presence of different soil map units along the roadway sections.

The soil map units present along the project corridor are as follows:

- Biscayne gravelly marl, drained
- Pennsuco marl, drained
- Perrine marl, drained
- Krome very gravelly loam
- Udorthents, marl substratum-Urban land complex
- Biscayne marl, drained
- Cardsound silty clay loam-Rock outcrop complex
- Chekika very gravelly loam

➢ Based on the SCS Maps; no unsuitable soils are found in this area.

A segment of the USDA Soils Map showing the proposed roadway section and the surrounding areas is presented in Appendix – A.

B. Existing Soil Boring Information from Previous Projects along the Project Corridor

Based on the existing geotechnical information received from your office, we have separated the available information proximate to the proposed project corridor into four (4) segments as follows:

Segment-1: Turnpike Bridge over Canal C-103 (4 Existing Bridge Borings)

Segment-2: Turnpike Bridge over Campbell Drive (6 Existing Bridge Borings)

Segment-3: Turnpike project corridor along Turnpike from Palm Drive to Mowry Drive (Roadway Soil Profiles)

Segment-4: Turnpike project corridor along Turnpike from Mowry Drive to Campbell Drive (Roadway Soil Profiles)

The existing soil boring information applicable to each Segments – 1 through 4 are presented in Appendix – B1 through B4, respectively.

Based on existing information and our experience along the corridor, we understand that the project corridor is chiefly underlain by mineral soils (i.e., silt materials A-7 and limerock). Organic soils were encountered at some isolated locations. We anticipate that the proposed improvements will not encounter major organic/unsuitable subsoil deposits. However, organic/unsuitable subsoils will require some special considerations during the design phase. We understand that the subsoils have moderate to high capacity to transmit water. Bridge structures within the corridor could be replaced or widened using prestressed concrete pile (PSC) foundations.

C. Groundwater Information & Seasonal High Groundwater Elevation Determination

The following information are reviewed in determining the Seasonal High Groundwater Elevation [SHGWT] along the corridor:

1. Based on USGS Report <Average Altitude of the Water Table (1990-99) and Frequency Analysis of Water Levels (1974-99) in the Biscayne Aquifer, Miami-Dade County, Florida> dated 2002, the GWT (ground water table) information along the project corridor are as follows [Presented in Appendix – C1]:

a. Average Yearly High Water Levels 1990 - 99 is +4.0 ft NGVD (~+2.5 ft NAVD)
b. Average May Water Levels 1990 - 99 is +2.2 ft NGVD (~+0.7 ft NAVD)
c. Average October Water Levels 1990 - 99 is +2.8 ft NGVD (~+1.3 ft NAVD)
d. Average Yearly High Water Levels 1995 - 99 is +3.8 ft NGVD (~+2.3 ft NAVD)
e. Average May Water Levels 1995 - 99 is +2.5 ft NGVD (~+1.0 ft NAVD)
f. Average October Water Levels 1995 - 99 is +2.8 ft NGVD (~+1.3 ft NAVD)

- The above GWT levels are presented in Appendix – C1, page C1.a through C1.f.

2. Based on available Permits, the GWT (ground water table) along the project corridor are as follows (information received from SCI) [Pl see location map]:

a. Permit No: 13-01181-P, WSWT Control Elevation is +1.8 ft NAVD
b. Permit No: 13-00044-S-18, WSWT Control Elevation is +3.2 ft NGVD (~+1.7 ft NAVD)
c. Permit No: 13-06529-P, WSWT Control Elevation is +3.0 ft NGVD (~+1.5 ft NAVD)
d. Permit No: 13-04562-P, WSWT Control Elevation is +3.0 ft NGVD (~+1.5 ft NAVD)

- Please refer to location map presented in Appendix – C2.

3. Based on As Build Plans, the GWT (ground water table) along the project corridor are as follows (information received from SCI):

a. Turnpike Bridge over Canal C-103, the GWT Elevation varied from +1.6 ft to +3.3 ft NGVD, average +2.3 ft NGVD (~+0.8 ft NAVD)
   [Refer to Segment-1 in Appendix – B1]
b. Turnpike Bridge over SW 312th Street (Campbell Drive), the GWT Elevation varied from +1.5 ft to +1.9 ft NGVD, average +1.8 ft NGVD (~+0.3 ft NAVD)
   [Refer to Segment-2 in Appendix – B2]
c. Roadway Plans (State Job No. 87005-3302), the GWT Elevation shown on 'Profile Subgrade Survey for the Design of Road' is +1.0 ft NGVD (~-0.5 ft NAVD)
   [Refer to Segment-3 in Appendix – B3]

Based on review of the above information, we would recommend a preliminary SHGWT elevation along the project corridor for the PD&E Study phase to be approximately +2.00 feet [NAVD].

We understand that during final design phase, roadway soil borings/survey will be performed as per FDOT standards, and accordingly the final determination of the SHGWT elevation will be performed.

-oo0oo-

We are pleased to be of continued service to Stanley Consultants, Inc. and the Florida Department of Transportation (FDOT). If you have any questions or comments regarding the contents of the following report, please call.

Very truly yours,

GCME, INC.

Zhijun Pan, P.E.
Project Geotechnical Engineer
FL. Reg. No. 70634

Partha Ghosh, P.E.
Principal Engineer
FL Registration No. 51377

Appendices:

Appendix – A	USDA, SCS Soil Information
Appendix – B	Existing Soil Boring Information from Previous Projects along the Project Corridor
Appendix – C	Groundwater / Seasonal High Groundwater Elevation Information

APPENDIX – A

USDA, SCS Soil Information

United States Department of Agriculture

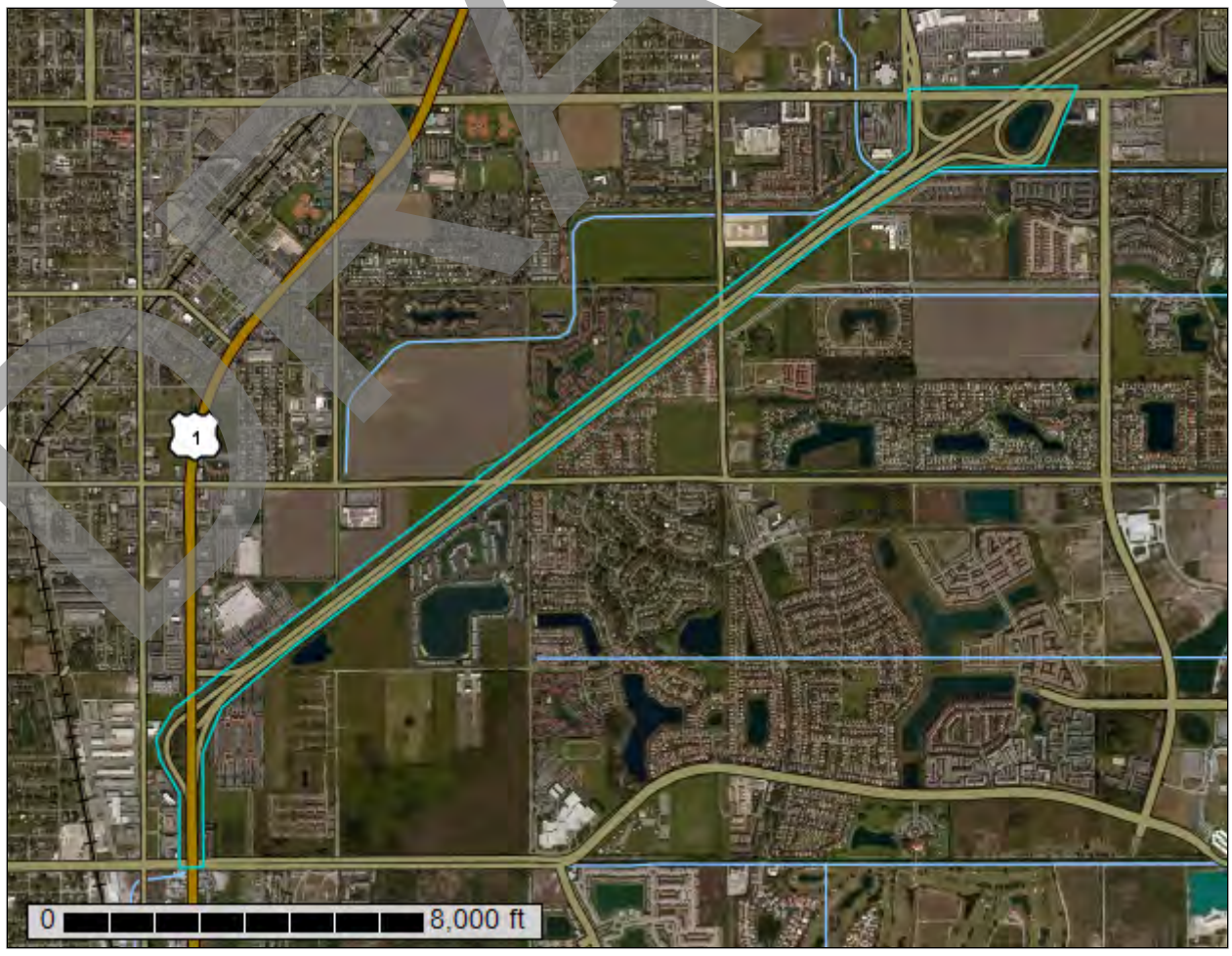
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Miami-Dade County Area, Florida

HEFT & US 1 (From Palm Dr to Campbell Dr)



September 19, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

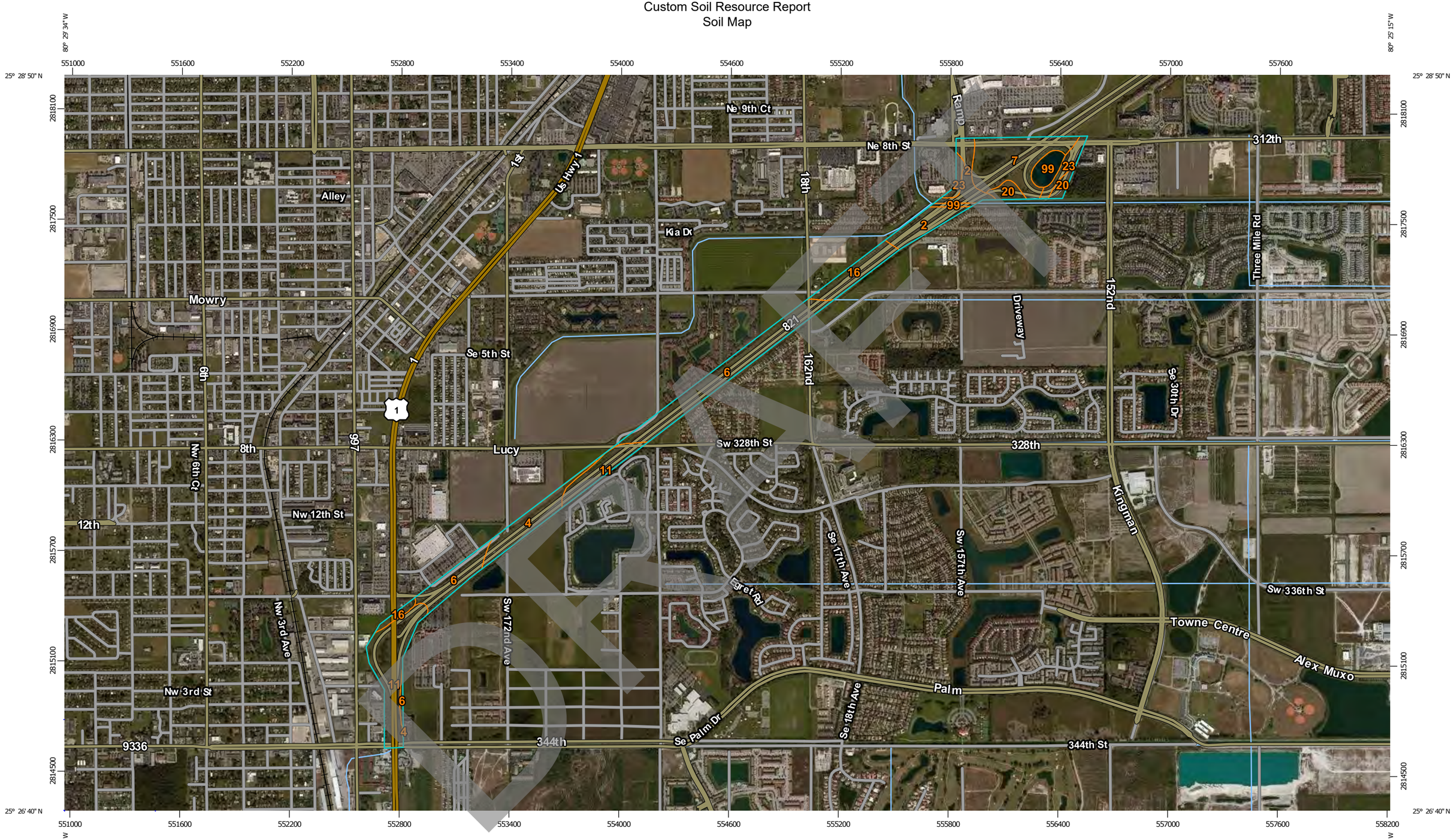
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

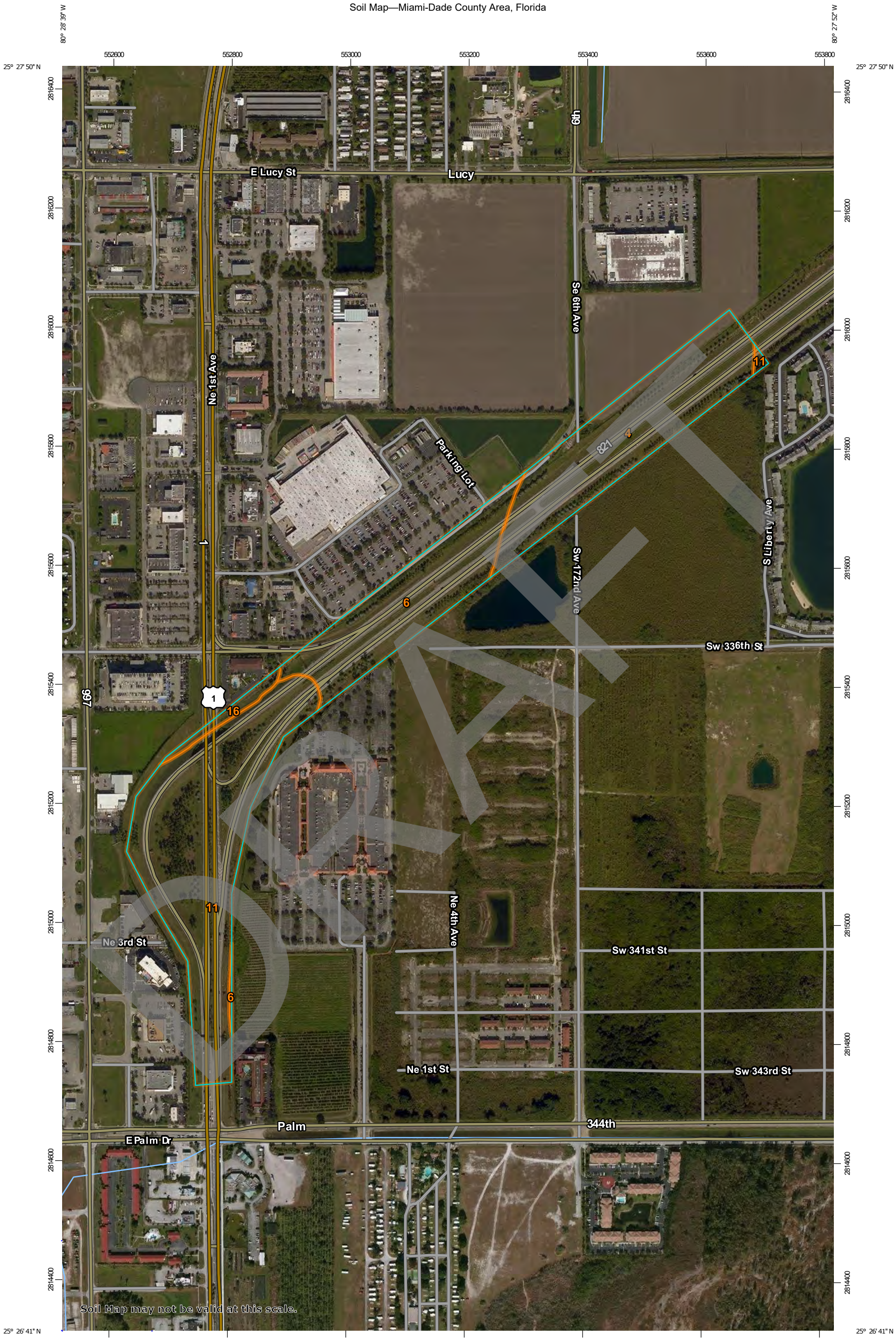
Soil Map

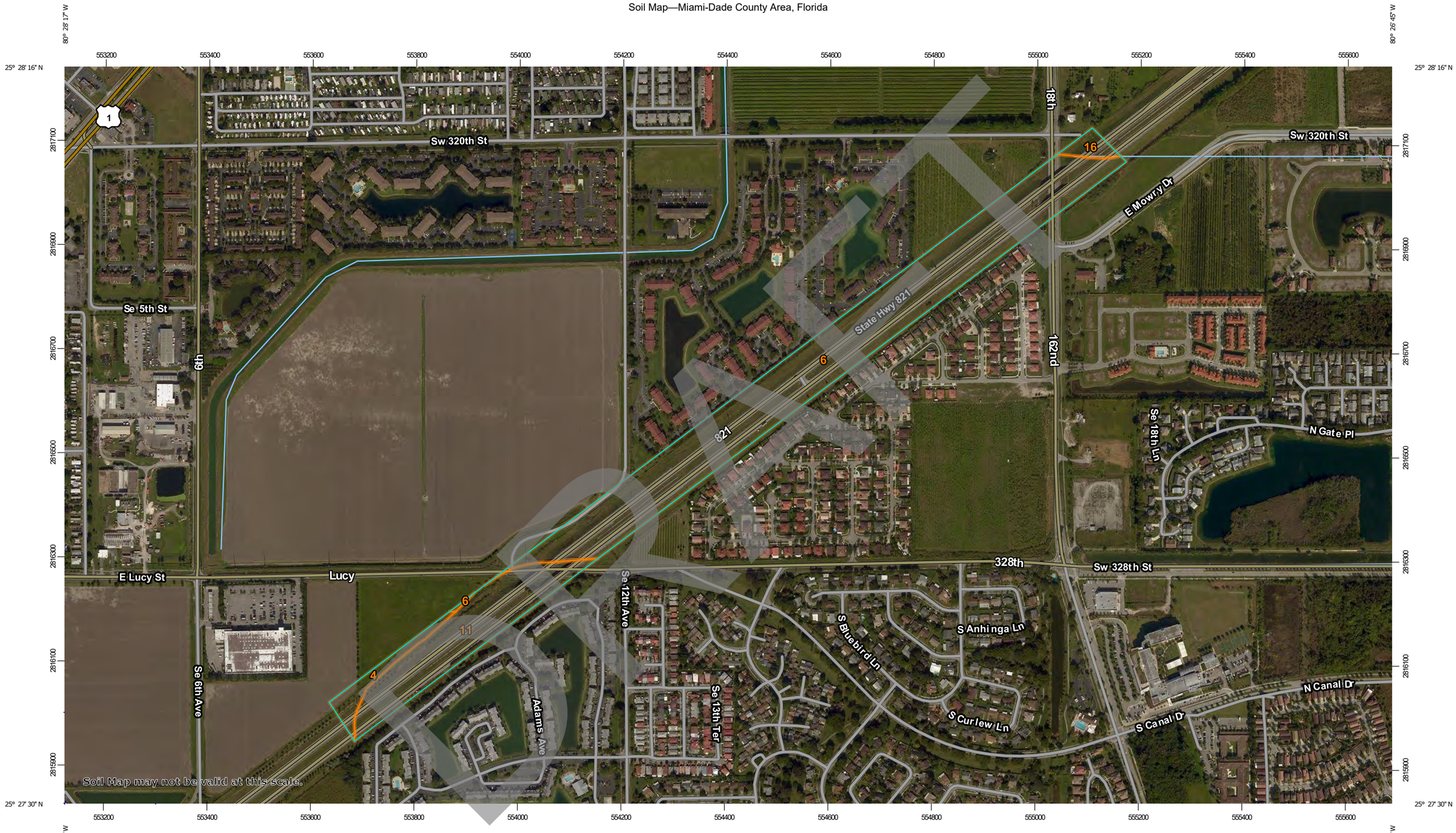
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Soil Map—Miami-Dade County Area, Florida





Map Scale: 1:6,910 if printed on B landscape (17" x 11") sheet.

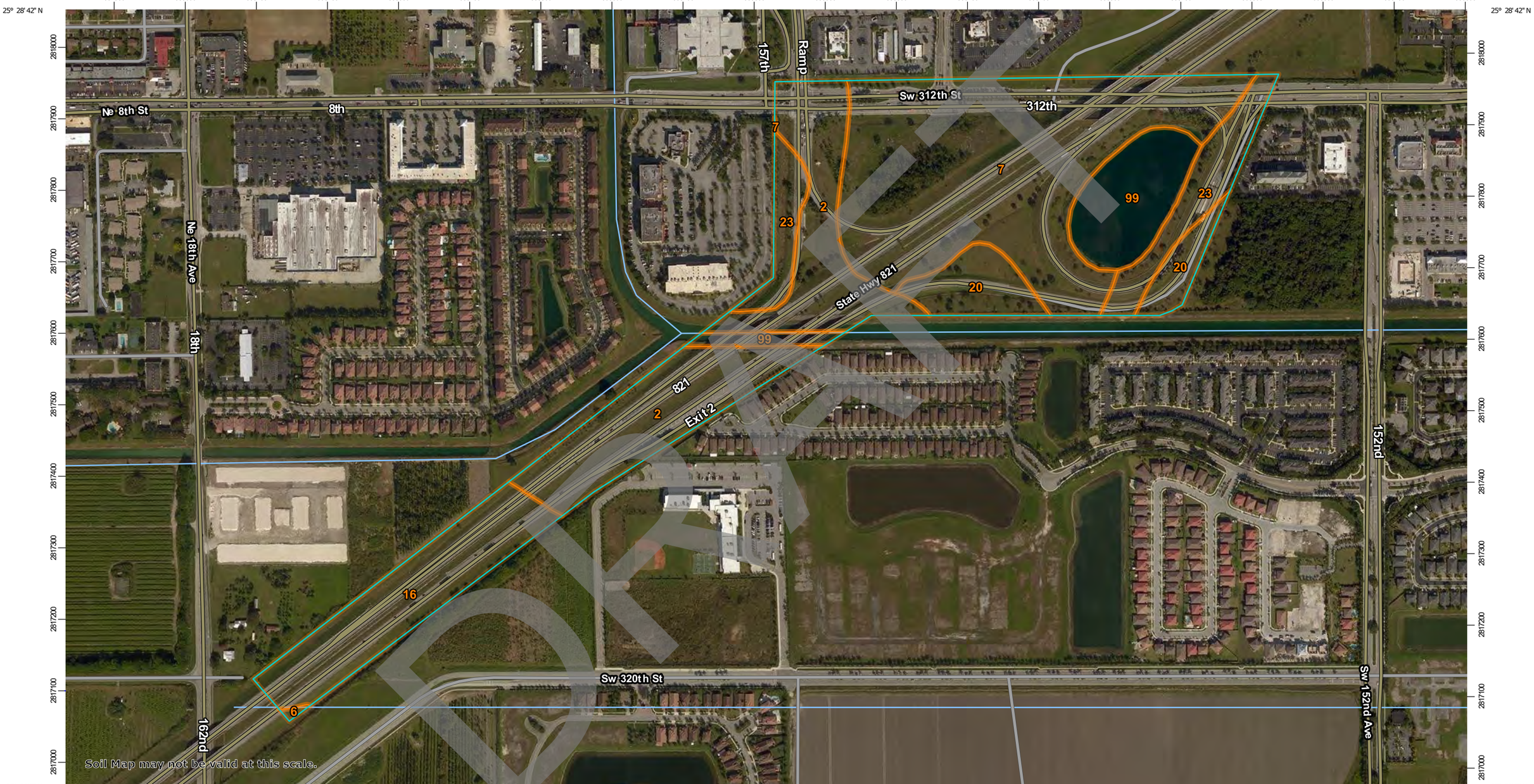
N

Meters
0 100 200 400 600

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Soil Map—Miami-Dade County Area, Florida



Map Scale: 1:5,310 if printed on B landscape (17" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Miami-Dade County Area, Florida
Survey Area Data: Version 7, Nov 19, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 11, 2010—Jan 8, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Miami-Dade County Area, Florida (FL686)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Biscayne gravelly marl, drained	18.6	10.8%
4	Pennsuco marl, drained	13.6	7.9%
6	Perrine marl, drained	42.0	24.4%
7	Krome very gravelly loam	28.8	16.8%
11	Udorthents, marl substratum-Urban land complex	35.9	20.9%
16	Biscayne marl, drained	13.0	7.6%
20	Cardsound silty clay loam-Rock outcrop complex	5.9	3.4%
23	Chekika very gravelly loam	7.0	4.1%
99	Water	6.9	4.0%
Totals for Area of Interest		**171.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been

observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Miami-Dade County Area, Florida

2—Biscayne gravelly marl, drained

Map Unit Setting

National map unit symbol: p664
Elevation: 0 to 10 feet
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Biscayne, drained, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Biscayne, Drained

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy marine deposits

Typical profile

Ap - 0 to 7 inches: gravelly marly silt loam
2R - 7 to 11 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 1 to 20 inches to lithic bedrock
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 90 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Minor Components

Pennsuco, drained

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156AC341FL)
Hydric soil rating: Yes

Chekika

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G156AC521FL)
Hydric soil rating: No

4—Pennsuco marl, drained

Map Unit Setting

National map unit symbol: p666
Elevation: 0 to 10 feet
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pennsuco, drained, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pennsuco, Drained

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy marine deposits over limestone

Typical profile

Ap - 0 to 8 inches: marly silt loam
Cg - 8 to 44 inches: marly silt loam
2Cr - 44 to 48 inches: weathered bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 40 to 72 inches to paralithic bedrock
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 60 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very high (about 13.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156AC341FL)
Hydric soil rating: Yes

Minor Components

Biscayne, drained

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Lauderhill, depressional

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: Yes

Udorthents

Percent of map unit: 1 percent
Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

6—Perrine marl, drained

Map Unit Setting

National map unit symbol: p668
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Perrine, drained, and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Perrine, Drained

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy marine deposits over limestone

Typical profile

Ap - 0 to 10 inches: marly silt loam
Cg - 10 to 26 inches: marly silt loam
2Cr - 26 to 30 inches: weathered bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 80 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Minor Components

Lauderhill, depressional

Percent of map unit: 1 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: Yes

Udorthents

Percent of map unit: 1 percent
Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

7—Krome very gravelly loam

Map Unit Setting

National map unit symbol: p669
Elevation: 0 to 10 feet
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Krome and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Krome

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy residuum over oolitic limestone

Typical profile

Ap - 0 to 7 inches: very gravelly loam
R - 7 to 11 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 2 to 10 inches to lithic bedrock
Natural drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 80 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 0.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5s
Hydrologic Soil Group: D
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G156AC521FL)
Hydric soil rating: No

Minor Components

Cardsound

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Biscayne, drained

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Matecumbe

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: No

Chekika

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G156AC521FL)
Hydric soil rating: No

11—Udorthents, marl substratum-Urban land complex

Map Unit Setting

National map unit symbol: p66d
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 60 percent
Urban land: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

C1 - 0 to 12 inches: very gravelly loam
C2 - 12 to 41 inches: gravelly sandy loam
Cg - 41 to 80 inches: marly silt loam
2R - 80 to 90 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 60 to 90 inches to lithic bedrock
Natural drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: High (about 11.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

16—Biscayne marl, drained

Map Unit Setting

National map unit symbol: p66k
Elevation: 0 to 30 feet
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Biscayne, drained, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Biscayne, Drained

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy marine deposits

Typical profile

A - 0 to 5 inches: marly silt loam
Cg - 5 to 15 inches: marly silt loam
2R - 15 to 19 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 1 to 20 inches to lithic bedrock
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 100 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Minor Components

Pennsuco, drained

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156AC341FL)
Hydric soil rating: Yes

Lauderhill, depressional

Percent of map unit: 2 percent

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: Yes

Chekika

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G156AC521FL)
Hydric soil rating: No

Dania, depressional

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: Yes

Rock outcrop

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

20—Cardsound silty clay loam-Rock outcrop complex

Map Unit Setting

National map unit symbol: p66n
Elevation: 10 feet
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Cardsound and similar soils: 54 percent

Rock outcrop: 38 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cardsound

Setting
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy marine deposits over oolitic limestone

Typical profile
A - 0 to 4 inches: silty clay loam
2R - 4 to 8 inches: unweathered bedrock

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: 2 to 8 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 60 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 0.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Description of Rock Outcrop

Setting
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear

Typical profile
R - 0 to 80 inches: unweathered bedrock

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 4 percent
Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: No

Matecumbe

Percent of map unit: 4 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: No

23—Chekika very gravelly loam

Map Unit Setting

National map unit symbol: p66r
Elevation: 0 to 10 feet
Mean annual precipitation: 62 to 70 inches
Mean annual air temperature: 73 to 81 degrees F
Frost-free period: 358 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Chekika and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chekika

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Marly and loamy marine deposits over oolitic limestone

Typical profile

Ap - 0 to 5 inches: very gravelly loam
R - 5 to 9 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 2 to 10 inches to lithic bedrock
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 80 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 0.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G156AC521FL)
Hydric soil rating: No

Minor Components

Krome

Percent of map unit: 3 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G156AC521FL)
Hydric soil rating: No

Biscayne, drained

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Yes

Opalocka

Percent of map unit: 2 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Rise

Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G156AC521FL)
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

Matecumbe

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Organic soils in depressions and on flood plains (G156AC645FL)
Hydric soil rating: No

99—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Forage suitability group not assigned (G156AC999FL)
Hydric soil rating: Unranked

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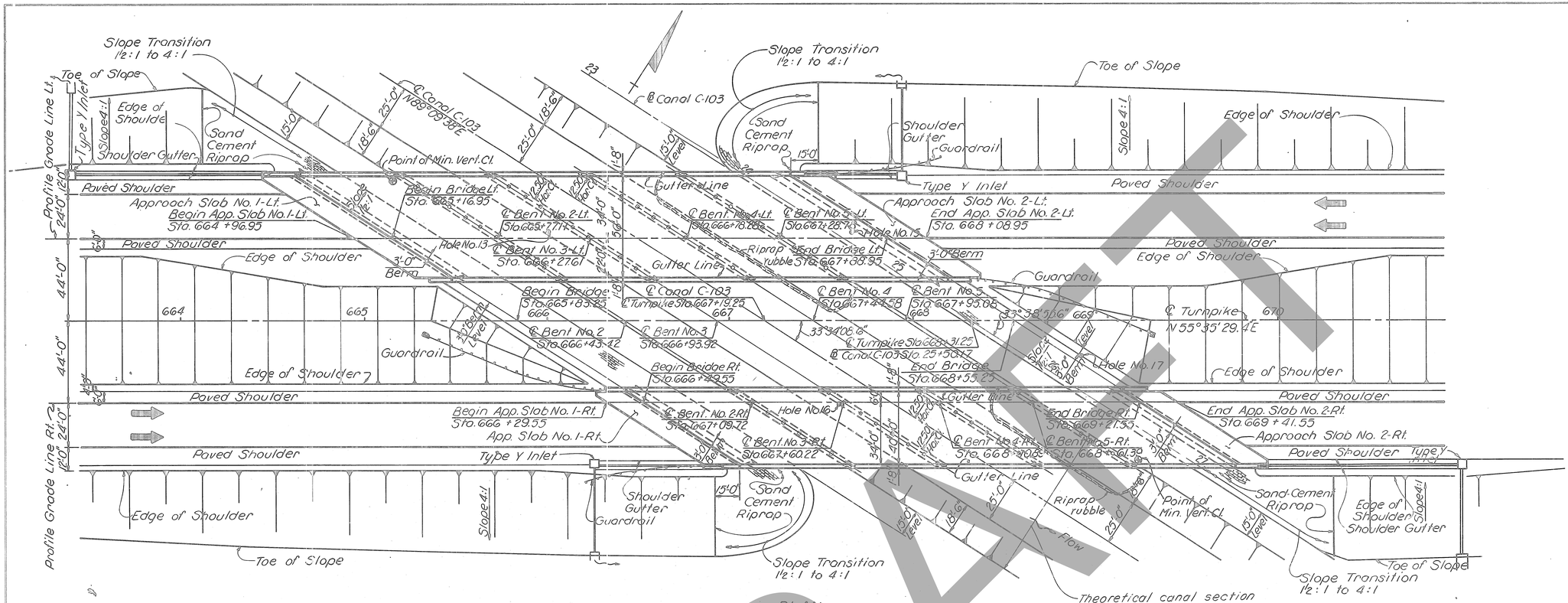
APPENDIX – B1

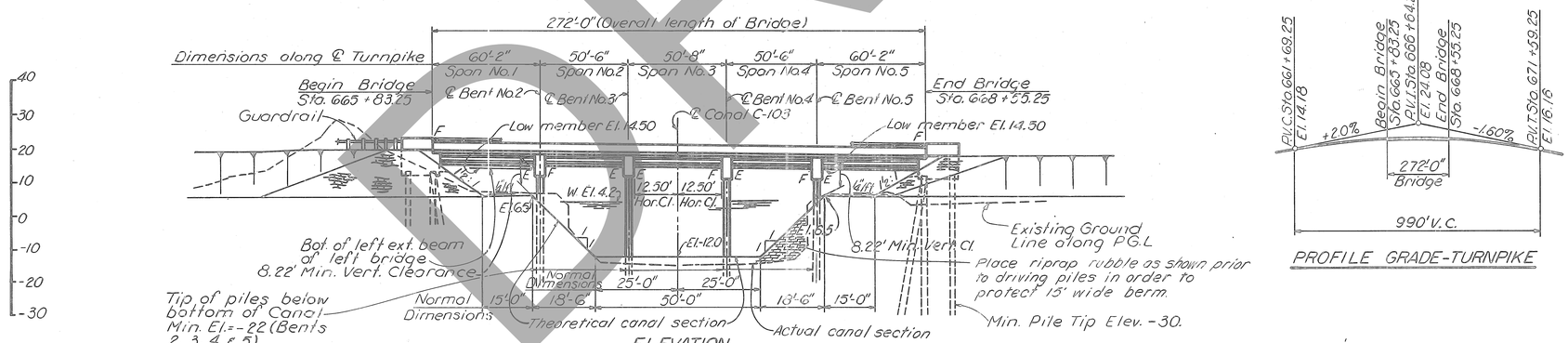
Existing Soil Boring Information from Previous Projects along the Project Corridor

SECTION	CONTRACT	HOMESTEAD OF EXTENSION	SHEET NO.
87005	3303	FLORIDA'S TURNPIKE	C - 2
DEPARTMENT OF TRANSPORTATION			Date:

STATE ROAD NO. 821



PLAN



ELEVATION
Normal to ℄ Canal

PROFILE GRADE-TURNPIKE

Note: Drive one unloaded test pile, 18"ø, each 40' long in End Bents No. 1-Lt. & No. 6-Rt. and Bent No. 3-Rt. One 50' long in Bent 5-Lt. in the position of a permanent plumb pile, located as directed by the Engineer.

NOTE: Contractor is not required to alter the actual canal section except for placing riprap rubble as shown in front of Bent Nos. 5 Lt. & 5 Rt. prior to driving piles.

NO	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

PLAN & ELEVATION
TURNPIKE OVER CANAL C-103

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

MADE J.E.P.	DATE 4-70	TRACED L.V.	DATE 4-70
CHECKED S.H.W.	DATE 4-70	SCALE	

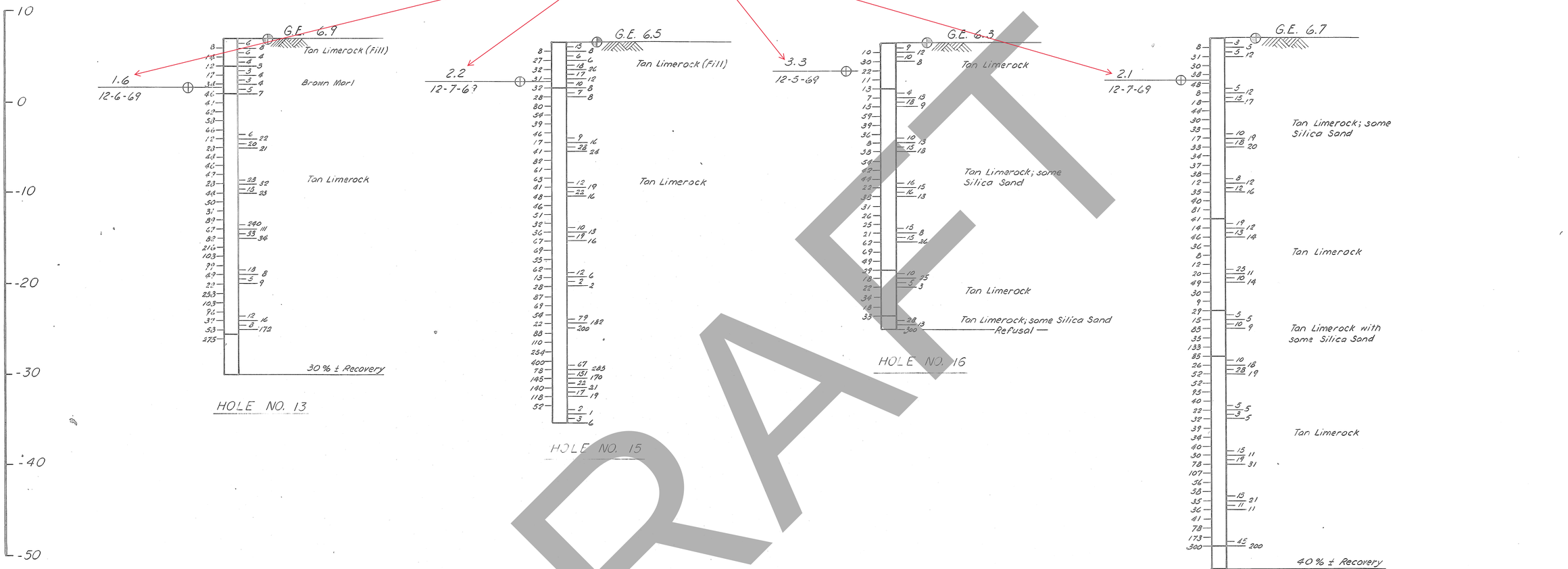
STRUCTURE C | DRAWING NO. 2 of 35

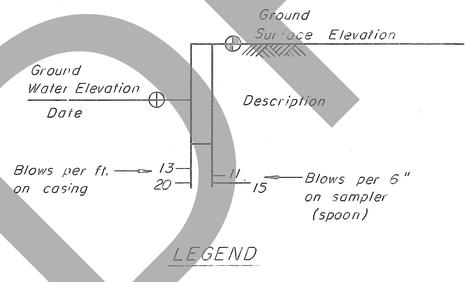
BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

SECTION	CONTRACT	HOMESTEAD OF EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
87005	3303		C-3
DEPARTMENT OF TRANSPORTATION			Date: 10/70

STATE ROAD NO. 821

GWT Ele. = +1.6' to +3.3' NGVD





BORING EQUIPMENT

Hammer Weight: Casing 140 lbs. Spoon 140 lbs
Hammer Drop: Casing 30 ins. Spoon 30 ins.
Sampler Size: 1.5" I.D. 2.0" O.D.
Casing Size: 2.5" I.D. 3.0" O.D. Type: Flushwall
By Floridc Testing and Engineering Co. on
Dec 5, 1969 thru Dec 7, 1969.

NO	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

BORING DATA
TURNPIKE OVER CANAL C-103

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

MADE	L.K.	DATE	3-70	TRACED	L.K.	DATE	3-70
CHECKED	R.A.	DATE	3-70	SCALE			

STRUCTURE C | DRAWING NO. 3 of 35

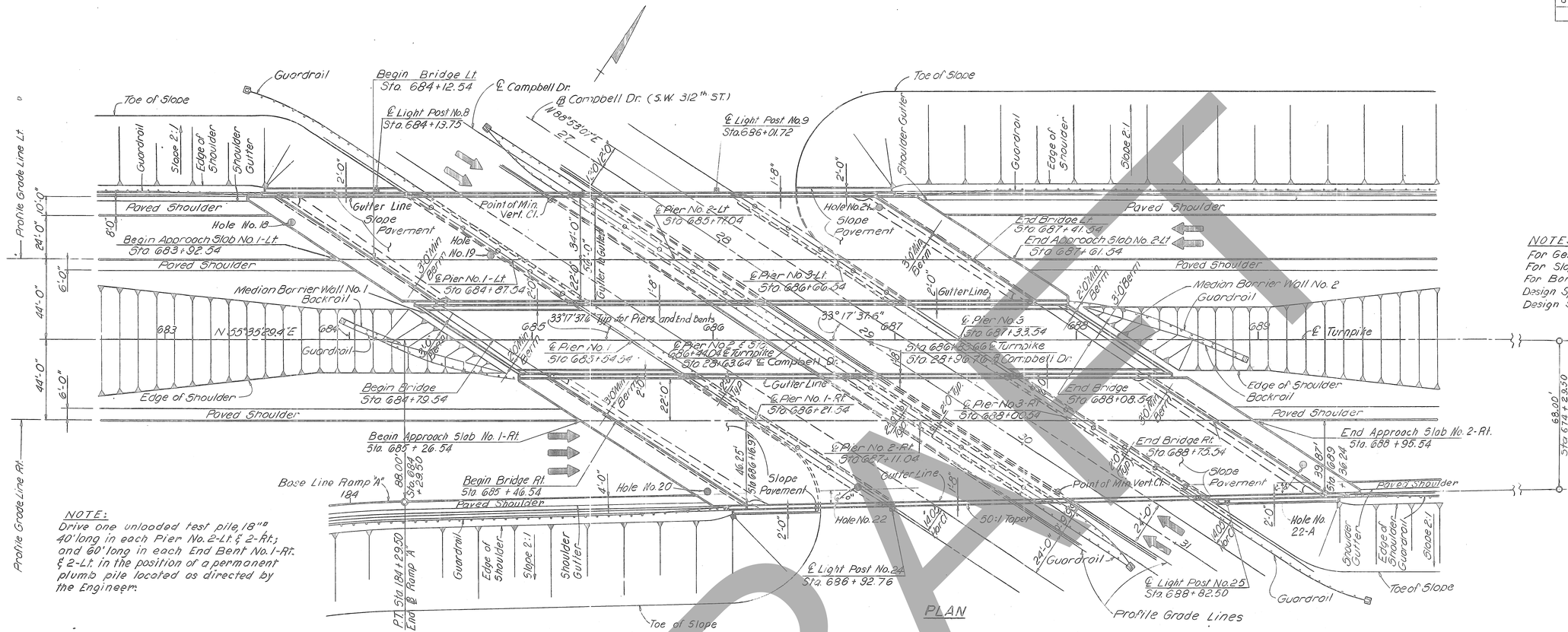
BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

APPENDIX – B2

Existing Soil Boring Information from Previous Projects along the Project Corridor

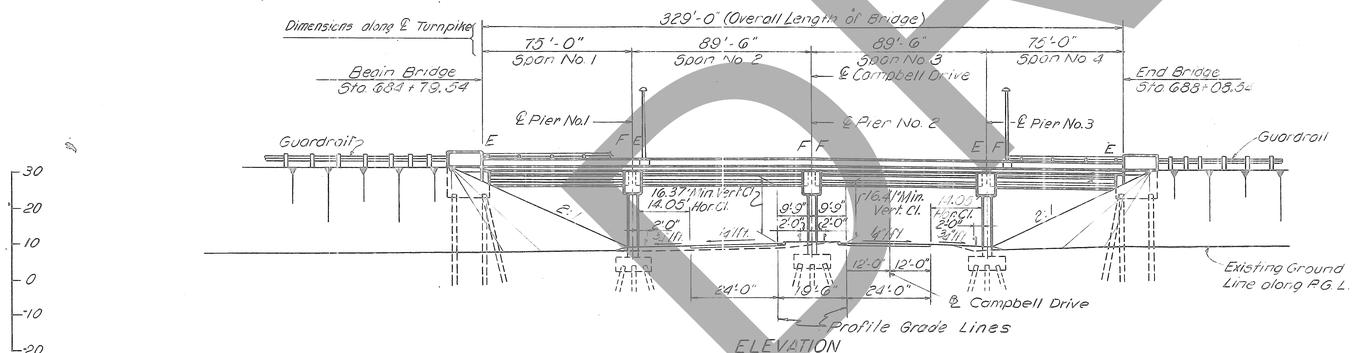
SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
87005	3303		D-2
DEPARTMENT OF TRANSPORTATION			Date 10/70

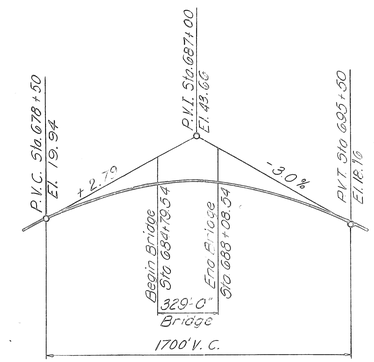
STATE ROAD NO 821



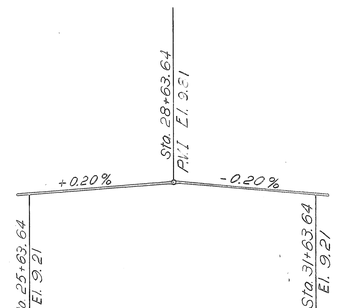
NOTE:
Drive one unloaded test pile, 16"ø 40' long in each Pier No. 2-Lt. & 2-Rt.; and 60' long in each End Bent No. 1-Rt. & 2-Lt. in the position of a permanent plumb pile located as directed by the Engineer.

NOTES:
For General Notes, see Sheet No. T-1.
For Slope Pavement Details, see Sheet No. D-5.
For Boring Data, see Sheet No. D-3.
Design Speed for Turnpike = 60 M.P.H.
Design Speed for Campbell Drive = 40 M.P.H.





PROFILE GRADE - TURNPIKE



PROFILE GRADE - CAMPBELL DRIVE

NO	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

PLAN, ELEVATION & PROFILE GRADE
TURNPIKE OVER S.W. 312TH ST.
(CAMPBELL DRIVE)

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

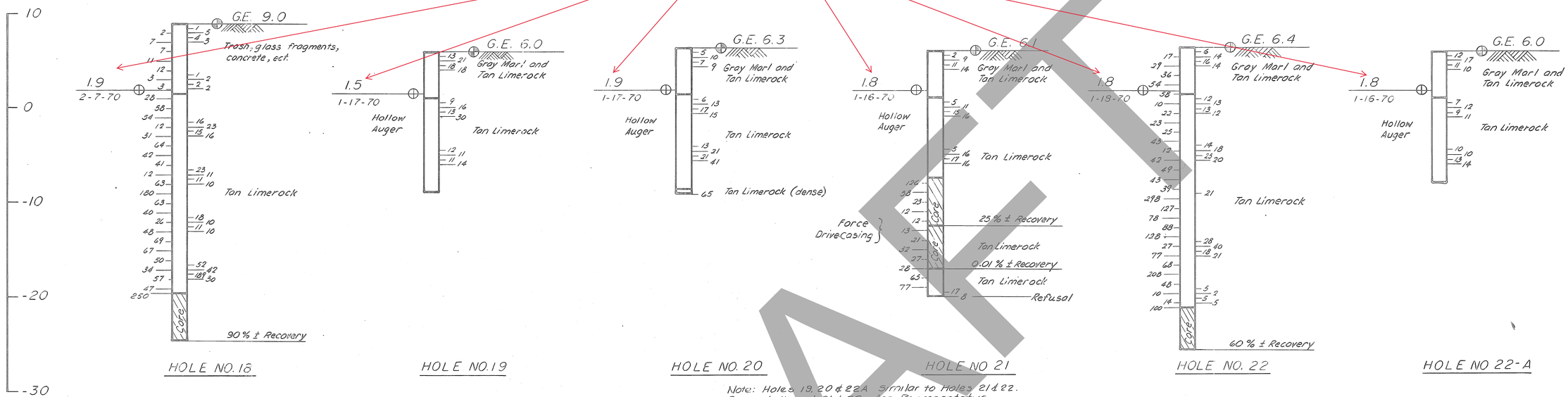
MADE V.M.G.	DATE 1-70	TRACED M.L.S.	DATE 1-70
CHECKED M.F.V.	DATE 6-70	SCALE	
STRUCTURE D	DRAWING NO. 2 of 45		

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

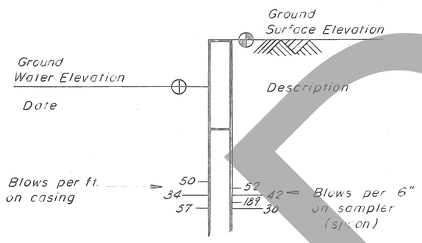
SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
87005	3303		D-3
DEPARTMENT OF TRANSPORTATION			Date: 10/70

STATE ROAD NO. 821

GWT Ele. = +1.0' NGVD



Note: Holes 19, 20 & 22A Similar to Holes 21 & 22. Cores taken at 21 & 22 Are Representative. Hole 18 is Somewhat Different and was Cored.



LEGEND

BORING EQUIPMENT (HOLES NO. 19, 20, 21 & 22-A)

Hammer Weight: Spoon 140 lbs.
Hammer Drop: Spoon 30 ins.
Sampler Size: 1.5" I.D. 2.0" O.D.
Type: Hollow Auger

BORING EQUIPMENT (HOLES NO. 18 & 22)

Hammer Weight: Casing 140 lbs. Spoon 140 lbs.
Hammer Drop: Casing 30 ins Spoon 30 ins.
Sampler Size: 1.5" I.D. 2.0" O.D.
Casing Size: 2.5" I.D. 3.0" O.D. Type: Flushwall

By Florida Testing and Engineering Co. on Jan 15, 1970 thru Feb 6, 1970.

NO	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

BORING DATA
TURNPIKE OVER S.W. 312TH ST.
(CAMPBELL DRIVE)

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

MADE	L.K.	DATE	4-70	TRACED	L.K.	DATE	4-70
CHECKED	A.A.	DATE	5-70	SCALE			

STRUCTURE D | DRAWING NO. 3 of 45

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

APPENDIX – B3

Existing Soil Boring Information from Previous Projects along the Project Corridor

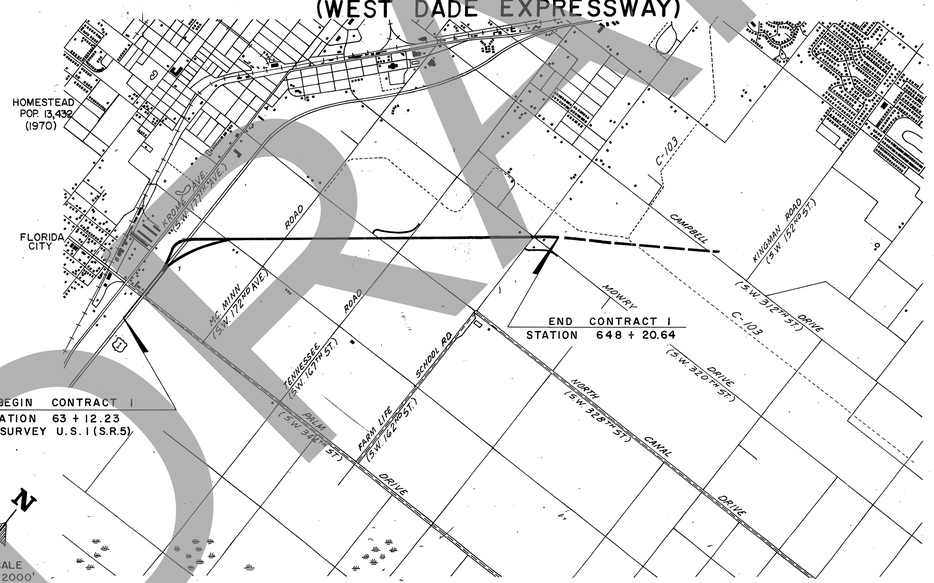
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

FINAL PLANS
~~PLANS OF PROPOSED~~

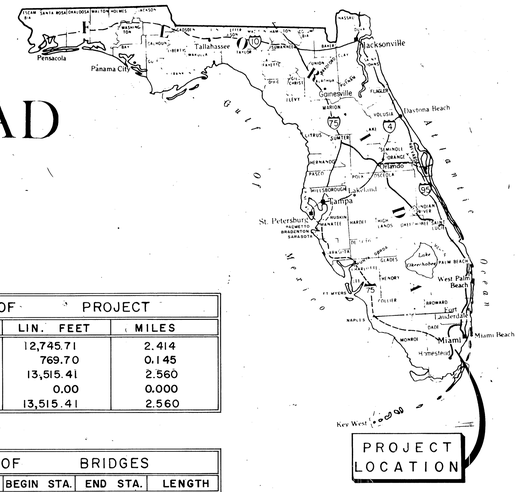
HOMESTEAD EXTENSION
—OF—
FLORIDA'S TURNPIKE
FLORIDA'S TURNPIKE TO SOUTH OF HOMESTEAD

STATE ROAD 821
DADE COUNTY
STATE JOB NO. 87005-3302
(WEST DADE EXPRESSWAY)

SHEET NO.	INDEX OF SHEETS
1	KEY MAP
2 - 3	DRAINAGE MAPS
4 - 5	TYPICAL SECTIONS
6	SUMMARY OF QUANTITIES
7	MASS DIAGRAM
7 A	REFERENCE POINTS
8 - 15	PLAN AND PROFILES U.S. 1 AND TURNPIKE
16	PLAN AND PROFILES S.W. 162 AVE. (FARM LIFE RD.)
17	PLAN AND PROFILES S.W. 320 ST. (MOWRY DRIVE) RELOCATION
18 - 32	DRAINAGE STRUCTURES
33	INTERCHANGE LAYOUT (U.S. 1)
34 - 36	RAMP PROFILES
37 - 38	RAMP TERMINAL DETAILS
39 - 40	INTERSECTION DETAILS
41	CROSS SECTION PATTERN (U.S. 1 INTERCHANGE)
42 - 51	ROADWAY SOIL SURVEY
52 - 91	ROADWAY CROSS SECTIONS U.S.1 AND TURNPIKE
92 - 97	ROADWAY CROSS SECTIONS S.W. 162 AVE. (FARM LIFE RD.)
98 - 101	ROADWAY CROSS SECTIONS S.W. 320 ST. (MOWRY DR.) RELOCATION
102 - 104	ROADWAY CROSS SECTIONS S.W. 167 AVE. (TENNESSEE RD.) RELOCATION
105	SPIRAL STAKE-OUT DATA SHEET
106 - 116A	RIGHT OF WAY MAPS
M-1 - M-43	SIGNING AND MARKING PLANS
E-1 - E-4	LIGHTING PLANS
BP-1- BP-~~820~~	BORROW PIT NO. 20-57-39-3 & PIT NO. 19-57-39
117 - 122	DETAILS OF SELECTIVE CLEARING AND GRUBBING
123	STD. DWG. NO.1 INTERCHANGE RAMP TERMINALS AT TOLL ROADS
124	STD. DWG. NO.2 ROADWAY SUPERELEVATION
125	STD. DWG. NO.4 AND 4 A. GUARDRAIL
126 - 126 A	STD. DWG. NO. 5 (FENCING) & 5-A(GUARDRAIL - FENCE DETAILS)
127	INDEX NO. 200 STANDARD ENDWALLS FOR PIPE CULVERTS
128 - 129	INDEX NO. 1101-V MISCELLANEOUS ROADWAY CONSTRUCTION DETAILS (2 SHEETS)
NO 130 - 131	INDEX NO. 1129-E U-ENDWALLS FOR PIPE CULVERTS (2 SHEETS)
132	INDEX NO. 1454-B STANDARD ENDWALLS FOR PIPE CULVERTS
132A	INDEX NO. 2037-A SAND-CEMENT ENDWALL FOR PIPE CULVERTS
133 - 136	INDEX NO. 2300-Q MOD. GUARDRAIL CONSTRUCTION (4 SHEETS)
137	INDEX NO. 2415 MOD. STANDARD HEADWALL FOR TWO 60" CONCRETE PIPES
138 - 139	INDEX NO. 5047-F INLET, MANHOLE, AND JUNCTION BOX TYPES P AND J. (2 SHEETS)
140	INDEX NO. 5048-A INLET TYPE "X"
141	INDEX NO. 5049 INLET TYPE "Z"
142 - 143	INDEX NO. 5061-D MISCELLANEOUS DRAINAGE DETAILS (2 SHEETS)
NO 144 - 145	INDEX NO. 5072-G DETAILS OF FENCING (2 SHEETS)
146	INDEX NO. 5073-K STANDARD DETAILS FOR RAMP TERMINALS (SHEET 3 OF 3)
147 - 148	INDEX NO. 5080-E CURB, CURB AND GUTTER AND TRAFFIC SEPARATOR (2 SHEETS)
149	INDEX NO. 5086 SHOULDER GUTTER INLET TYPE "Y"
150	INDEX NO. 8012 SINGLE CONCRETE BOX CULVERTS
151	STD. DWG. NO. 26 CROSSOVER
T1, S1 - S4, A1 - A24	BRIDGE PLANS
AA1 - AA23, B1 - B19	



LOCATION MAP



LENGTH OF PROJECT	LIN. FEET	MILES
ROADWAY	12,745.71	2.414
BRIDGES	769.70	0.145
NET LENGTH	13,515.41	2.560
EXCEPTIONS	0.00	0.000
GROSS LENGTH	13,515.41	2.560

LOCATION OF BRIDGES			
STRUCTURE	BEGIN STA.	END STA.	LENGTH
SOUTHBOUND LANE OVER U.S. 1 (S.R. 5)	539+84.40	542+49.60	265.20
S.W. 328th ST. (N. CANAL DR)	592+99.04	595+92.04	293.00
S.W 162 AVE. (FARM LIFE RD)	633+33.40	635+44.90	211.50

CONTRACTOR	THE BREWER CO. OF FLORIDA
DISTRICT ENGINEER	B.C. SIMPSON
RESIDENT ENGINEER	V. BENITEZ
PROJECT ENGINEER	BEISWENGER HOCH & ASSOCIATES, INC.
DATE WORK STARTED	JULY 6, 1973
DATE WORK COMPLETED	OCTOBER 22, 1974

GENERAL SPECIFICATIONS:

FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION - 1966 OR AS MODIFIED BY THE CONTRACT SPECIAL PROVISIONS.

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

APPROVAL RECOMMENDED Oct., 1971
BY Thomas B. Greiner

J. E. GREINER COMPANY INC.
GENERAL CONSULTANT

APPROVED
BY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

DESIGN SECTION NO. 1
CONSTRUCTION CONTRACT NO. 1
STATE JOB NO. 87005-3302
FROM U.S.1 (S R.5) SOUTH OF PALM DRIVE TO NORTH OF MOWRY DRIVE
STATION 63+12.23 TO STATION 648+20.64

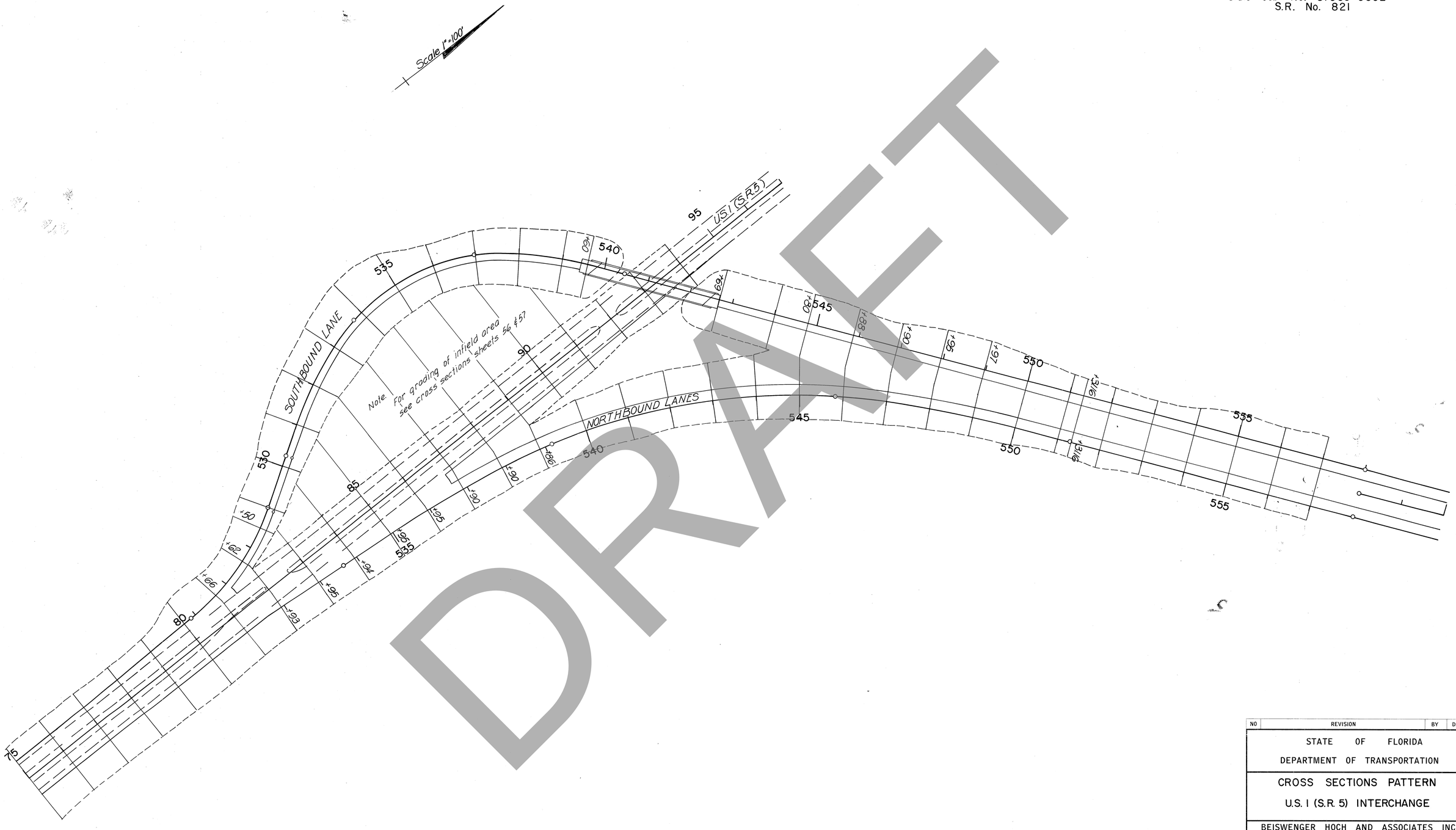
BEISWENGER, HOCH AND ASSOCIATES, INC.
CONSULTING ENGINEERS
NORTH MIAMI BEACH FLORIDA

SUBMITTED F.A. Norona DATE AUG. 1970

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
I	1		41
DEPARTMENT OF TRANSPORTATION			Date: 8-70

State Job No. 87005-3302
S.R. No. 821

Scale 1"=100'



NO	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS PATTERN
U.S. 1 (S.R. 5) INTERCHANGE

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

MADE	DATE	TRACED A.F.	DATE 5-70
CHECKED J.S.	DATE 5-70	SCALE	

DRAWING NO. 41

Dist.	State	Section	Route	Proj.	Sheet No.
	Fla.	DESIGN SEC.I	SR821	CONTRACT I	42

DEPARTMENT OF TRANSPORTATION

DATE OF SURVEY: FEBRUARY 2-27, 1970

SURVEY MADE BY: FLORIDA TESTING & ENGINEERING CO.

SUBMITTED BY: BEISWENGER HOCH & ASSOCIATES

PROJECT NO. 87005-3302

DIVISION NO.

ROAD NO. SR 821 HOMESTEAD EXT. OF FLORIDA'S TURNPIKE

COUNTY DADE

PROFILE SUBGRADE SURVEY FOR THE DESIGN OF ROAD

SURVEY PROJECT BEGINS STA. 63 + 12.23

SURVEY PROJECT ENDS STA. 95 + 32.10

SCALE: 1"= 100' HORIZONTAL
1"= 5' VERTICAL

NOTE: STRATUM BOUNDARIES ARE APPROXIMATE FINAL CHECKS TO BE MADE AFTER GRADING

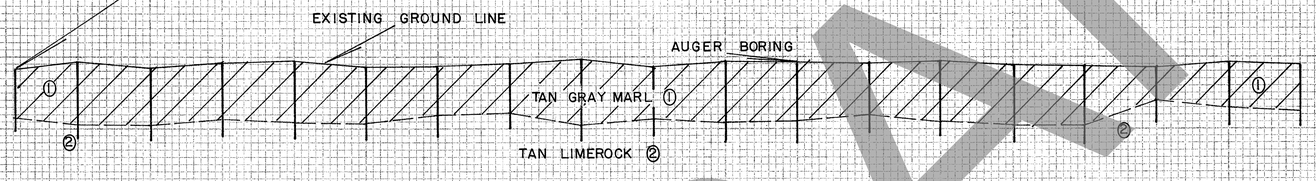
WEATHER CONDITIONS AT TIME OF SURVEY: NORMAL

LEGEND: WATER TABLE ——— ———

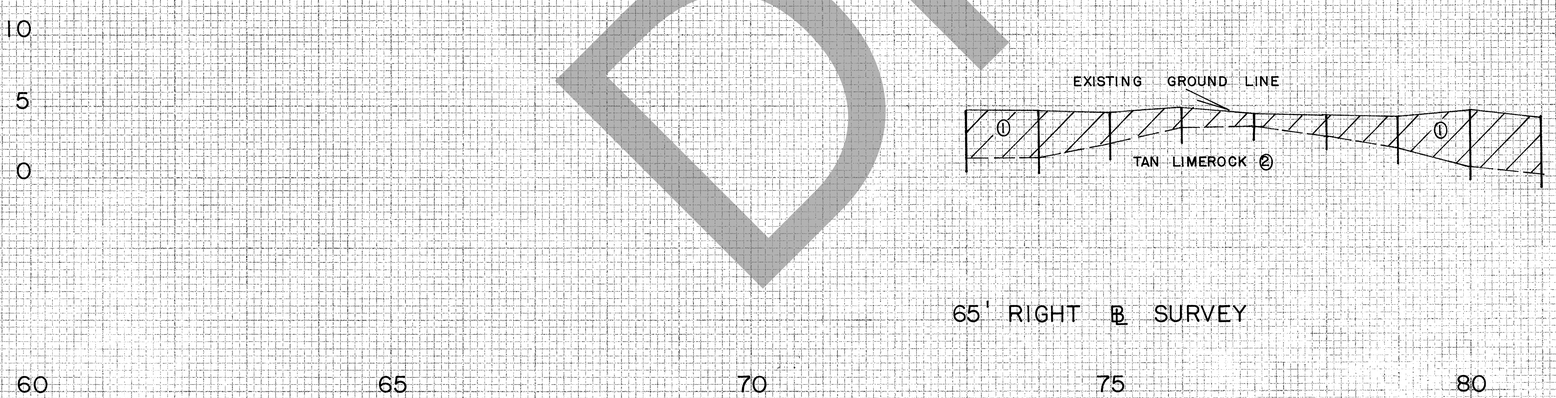
DESCRIPTION OF STRATA
① TAN GRAY MARL
② TAN LIMEROCK
③ MUCK
NOTE: SEE SHEET NO. 51 FOR SOILS ANALYSIS

U.S. 1 (S.R. 5)

BEGIN SURVEY STA: 63 + 12.23

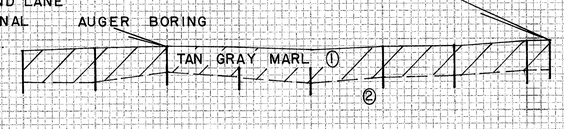


62' LEFT ℄ SURVEY



END SURVEY STA: 95 + 32.10

SEE SHEET NO. 44 NORTH BOUND LANE FOR ADDITIONAL SOILS INFO.



65' RIGHT ℄ SURVEY

Form C-69
Rev. 5-65

Dist.	State	Section	Route	Proj.	Sheet No.
	Fla.	DESIGN SEC. I	SR 821	CONT. I	43

DEPARTMENT OF TRANSPORTATION

DATE OF SURVEY FEB. 2-27, 1970

SURVEY MADE BY FLORIDA TESTING & ENGINEERING CO.

SUBMITTED BY BEISWENGER HOCH & ASSOC.

PROJECT NO. 87005-3302

PROFILE SUBGRADE SURVEY FOR THE DESIGN OF ROAD

SURVEY BEGINS STA. 527+87.27 SURVEY ENDS STA. 558+00

DIVISION NO.

ROAD NO. SR 821 HOMESTEAD EXT. OF FLORIDA'S TNPK.

COUNTY . DADE

DESIGN SEC. I CONT. I

SCALE: 1"=100' HORIZONTAL
1"= 5' VERTICAL

NOTE: STRATUM BOUNDARIES ARE APPROXIMATE ONLY FINAL CHECK TO BE MADE AFTER GRADING

WEATHER CONDITION AT TIME OF SURVEY: **NORMAL**

LEGEND: WATER TABLE
WATER FLOW

DESCRIPTION OF STRATA

STRATUM ① TAN GRAY MARL STRATUM ③ MUCK
STRATUM ② TAN LIMEROCK
NOTE: SEE MAINLINE SURVEY FOR SOILS ANALYSIS SHEET NO. 51

BEGIN SURVEY STA: 527+87.27

US I INTERCHANGE
SOUTHBOUND LANE

℄ US I SEE SHEET NO. 42 FOR ADDITIONAL SOILS INFORMATION

PROPOSED PROFILE GRADE

10
5
0

TAN GRAY MARL ①
EXISTING GROUND LINE
AUGER BORING
TAN LIMEROCK ②

℄ SURVEY

525 530 535 540 545 550 555

PROPOSED PROFILE GRADE END SURVEY STA: 558+00
(BEGIN MAINLINE)

10
5
0

TAN GRAY MARL ①
EXISTING GROUND LINE
TAN LIMEROCK ②

℄ SURVEY

555 560

DRAFT

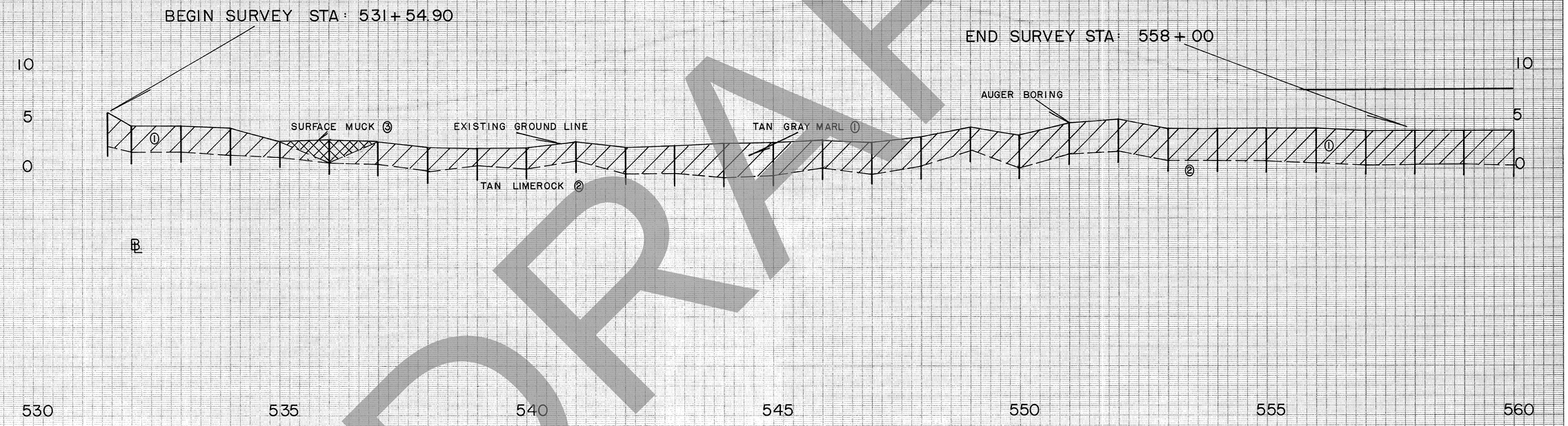
BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS
Jacksonville

SECTION	CONTRACT	HOMESTEAD OF EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
I	I		44
DEPARTMENT OF TRANSPORTATION			Date: 8-70

STATE ROAD 821

US 1 INTERCHANGE
NORTHBOUND LANE

PROPOSED PROFILE GRADE



SOILS PROFILE

PROJECT: SR 821 HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE DESIGN SEC. I CONT. I

STA: 531+54.90 TO STA: 558+00 DATE: FEB. 1970

PERFORMED BY: FLORIDA TESTING & ENGINEERING CO.

SECTION ENGR: BEISWENGER HOCH & ASSOC.

US 1 INTERCHANGE NORTHBOUND LANE

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

Publication No.
No.
Plot Plotted by
Checked by
Computed by
Lines Scaled by
Checked by
Checked by

A. R. COGSWELL
JACKSONVILLE, FLA.

Sht.	State	Section	Prefix	Suf.	Sheet No.
No.	Fla.	DESIGN SEC I	SR 821	87005-3302	45

CONTRACT I

DEPARTMENT OF TRANSPORTATION

DATE OF SURVEY FEB. 2 - FEB. 27, 1970

SURVEY MADE BY FLORIDA TESTING & ENGINEERING CO.

SUBMITTED BY BEISWENGER HOCH & ASSOCIATES

PROJECT NO. 87005-3302

PROFILE SUBGRADE SURVEY FOR THE DESIGN OF ROAD

SURVEY BEGINS STA. 558+00 SURVEY ENDS STA. 648+20.64

DIVISION NO.

ROAD NO. SR 821 HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE

COUNTY DADE

DESIGN SEC. I

SCALE: 1"=100' HORIZONTAL
1"= 5' VERTICAL

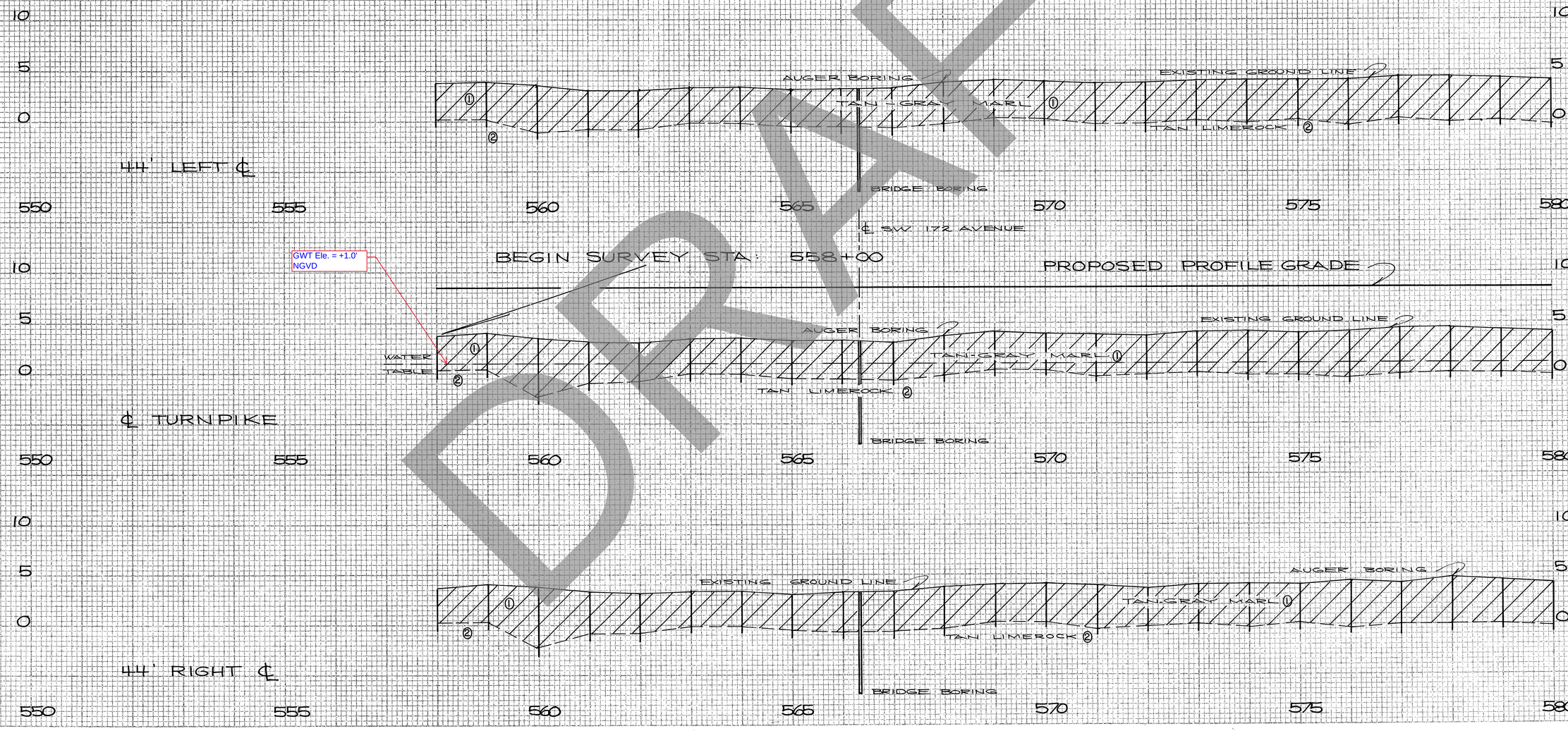
NOTE: STRATUM BOUNDARIES ARE APPROXIMATE ONLY FINAL CHECK TO BE MADE AFTER GRADING

WEATHER CONDITION AT TIME OF SURVEY: NORMAL

LEGEND: WATER TABLE ——— ———
WATER FLOW

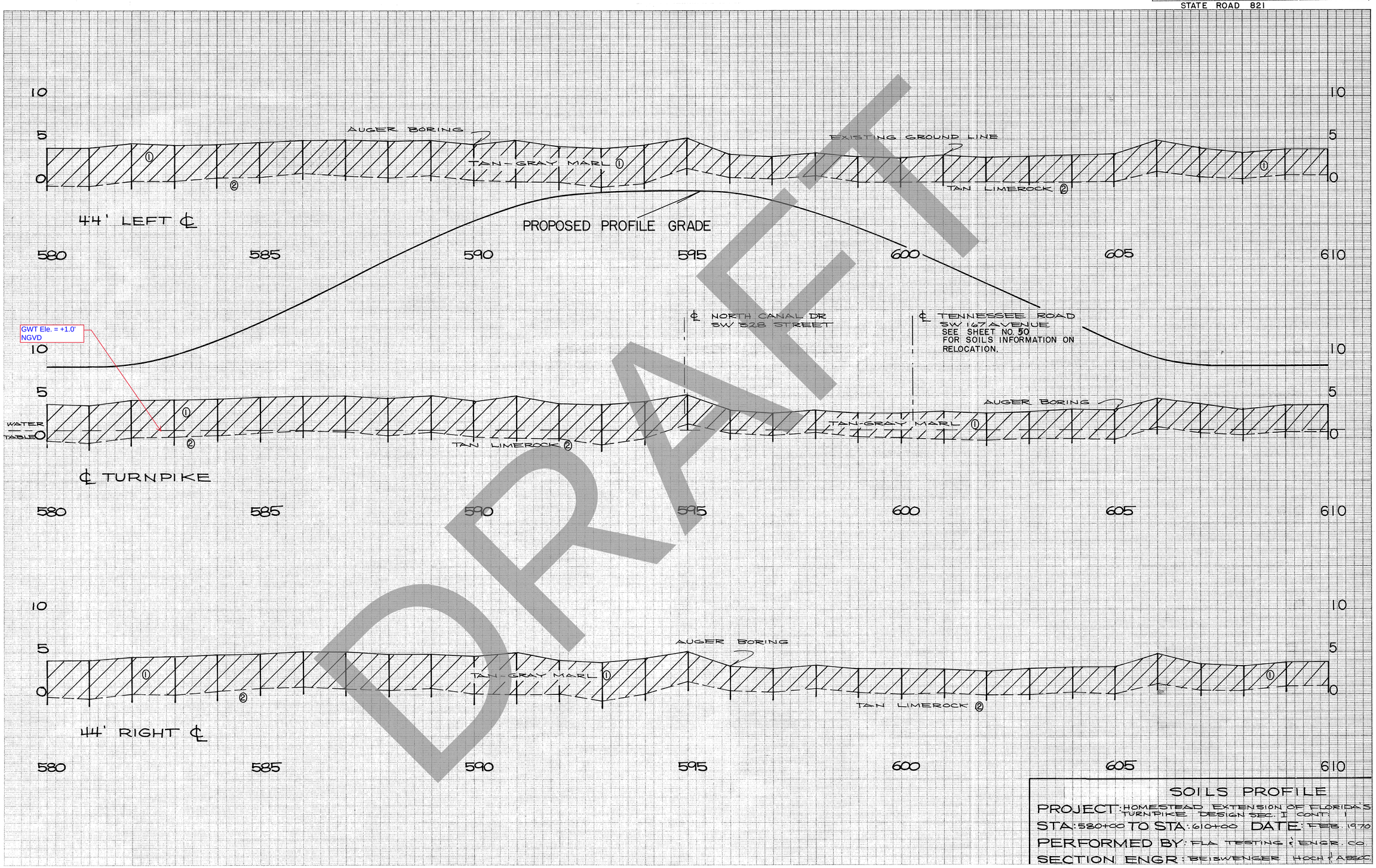
DESCRIPTION OF STRATA

STRATUM ① TAN-GRAY MARL
STRATUM ② TAN LIMEROCK
STRATUM ③ MUCK SEE SHEET NO. 51 FOR SOILS ANALYSIS



SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
1	1		46
DEPARTMENT OF TRANSPORTATION			Date: 8-70

STATE ROAD 821



SOILS PROFILE

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE DESIGN SEC. 1 CONT. 1

STA: 580+00 TO STA: 610+00 DATE: FEB. 1970

PERFORMED BY: FLA. TESTING & ENGR. CO.

SECTION ENGR: BEISWENGER HOCH & ASSOC.

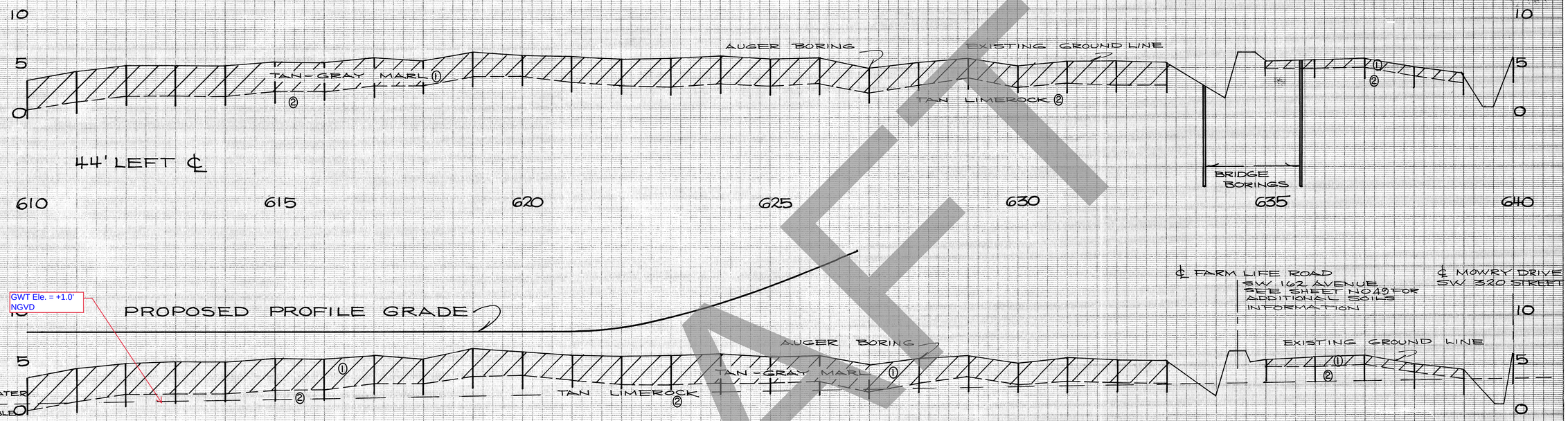
BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

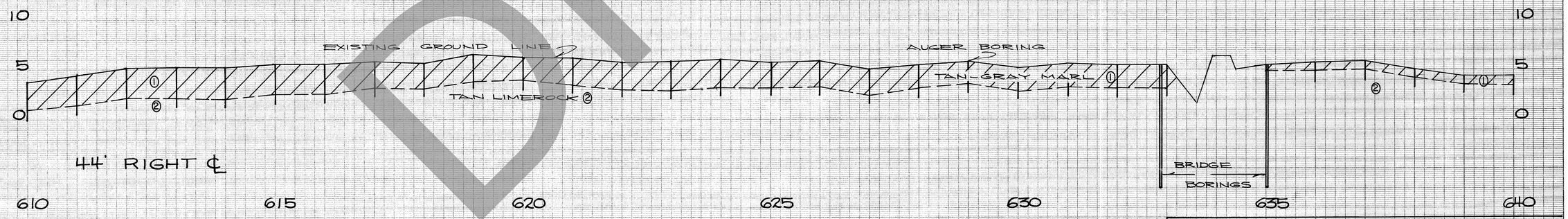
Application No. ____
File ____
Plotted by ____
Checked by ____
Template by ____
Index by ____
Profile Plotted by ____
Checked by ____
Lines by ____
Checked by ____

A. R. COGSWELL
JACKSONVILLE, FLA.

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
1	1		47
DEPARTMENT OF TRANSPORTATION			Date 8-70

STATE ROAD 821





SOILS PROFILE

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE DESIGN SEC. 1 CONT. 1

STA: 610+00 TO STA: 640+00 DATE: FEB. 1970

PERFORMED BY: FLA. TESTING & ENGR. CO.

SECTION ENGR: BEISWENGER HOCH & ASSOC.

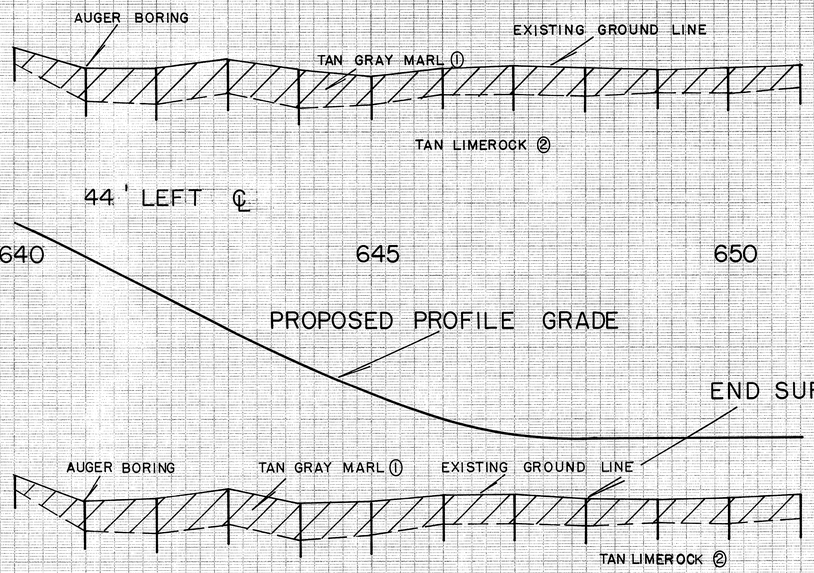
BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

Completion No.
P. No.
Original Plotted by
Checked by
Computate by
Checked by
Grade Plotted by
Checked by
Check by
Checked by

A. R. COGSWELL
JACKSONVILLE, FLA.

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
			48
DEPARTMENT OF TRANSPORTATION			Date: 8-70

STATE ROAD 821



SOILS PROFILE

PROJECT: HOMEADSTEAD EXTENSION OF FLORIDA'S TURNPIKE

STA: 640+00 TO STA: 648+00 DATE: FEB. 1970

PERFORMED BY: FLA. TESTING & ENGINEERING CO.

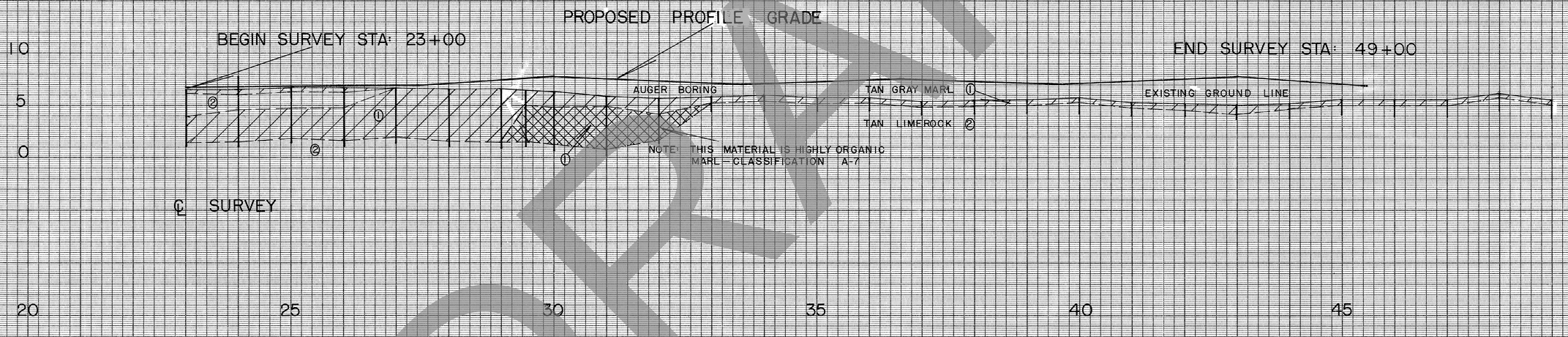
SECTION ENGR: BEISWENGER HOCH & ASSOC.

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
I	1		49
DEPARTMENT OF TRANSPORTATION			DATE: 8-70

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

FARM LIFE ROAD



SOILS PROFILE

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE
SR 821 DESIGN SECTION I CONTRACT I

STA: 23+00 TO STA: 49+00 DATE: FEB. 1970

PERFORMED BY: FLORIDA TESTING & ENGINEERING CO.

SECTION ENGR: BEISWENGER HOCH & ASSOCIATES

FARM LIFE ROAD

Application No. _____
No. _____
Original Platted by _____
" Checked by _____
Template by _____
Area by _____
Finals Platted by _____
" Checked by _____
Area by _____
" Checked by _____

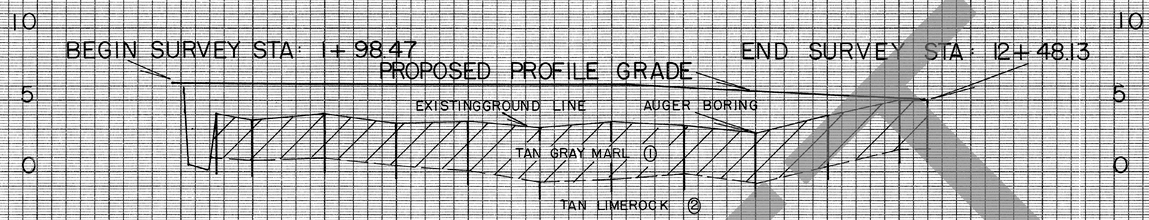
A. R. COGSWELL
JACKSONVILLE, FLA. 2-69

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
1	1		50
DEPARTMENT OF TRANSPORTATION			Date 8-70

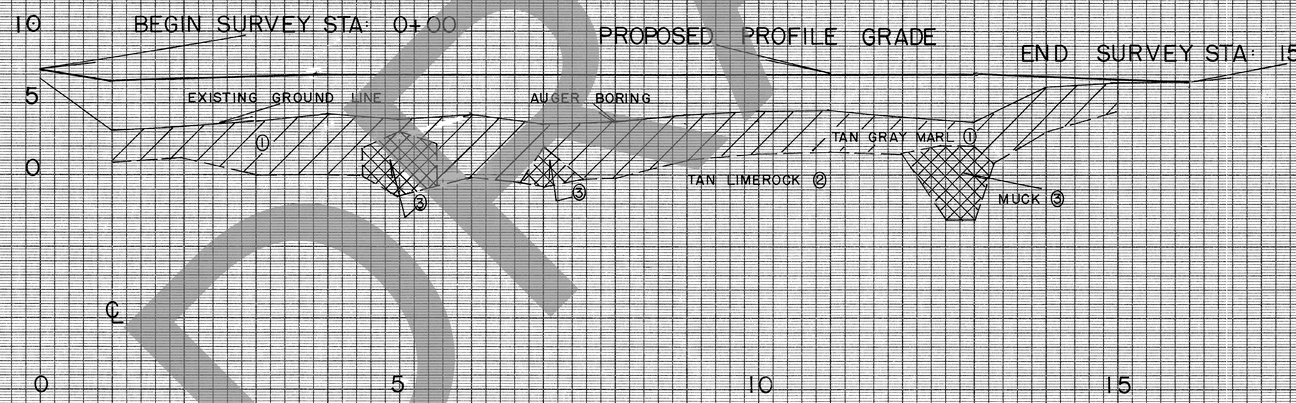
STATE ROAD 821

TENNESSEE ROAD RELOCATION

NOTE: SEE SHEET NO. 9 FOR SOILS ANALYSIS



S.W. 320 ST. (MOWRY DR.) RELOCATION



SOILS PROFILE

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE
DESIGN SECTION 1 CONTRACT 2

STA: TENN. RD. 1+98.47 / MOWRY DR. 0+00 TO STA: 12+48.13 / 15+21.71 DATE: FEB. 1970

PERFORMED BY: FLORIDA TESTING & ENGINEERING COMPANY

SECTION ENGR: BEISWENGER HOCH & ASSOCIATES

TENNESSEE ROAD & MOWRY DRIVE RELOCATION

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

Station No. _____
" No. _____
Original Platted by _____
" Checked by _____
Template by _____
Area by _____
Finals Platted by _____
" Checked by _____
Area by _____
" Checked by _____

A. R. COGSWELL
JACKSONVILLE, FLA. 2-69

REVISED 10-2-72

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
I	1		51
DEPARTMENT OF TRANSPORTATION			Date: 8-70

State Job No. 87005-3302
State Road No. 821

Laboratory: Florida Testing & Engineering Co.
Project: Homestead Ext. of Florida's Turnpike
D.O.T. Job No.: 87005-3302
Road No.: 821

Date Sampled: February 1970
Sampled By: Florida Testing & Engineering Co.
Date Tested: February 1970
Date Reported: May 18, 1970

REPORT OF TESTS OF MATERIAL FROM ROADWAY FOR USE IN EMBANKMENT AND SUBGRADE

Stratum Nos.	Sample Nos.	LBR Value	% Pass 4 Mesh	% Pass 10 Mesh	% Pass 40 Mesh	% Pass 200 Mesh	Constant Material Passing No. 40 Sieve Liquid Limit	Plastic Index	Group
1	1	-	100.0	100.0	96.8	69.8	45	16	A-7
2	2	-	Tan Limerock	--	--	--	-	-	-
1	3	-	100.0	100.0	100.0	89.6	48	19	A-7
2	4	-	Tan Limerock	--	--	--	-	-	-
1	5	-	100.0	100.0	100.0	92.4	42	16	A-7
2	6	-	Tan Limerock	--	--	--	-	-	-
3	7	-	Muck	--	--	--	-	-	A-8

NOTE: The above LBR Values were determined by the Laboratory.

EMBANKMENT AND SUBGRADE

The material from Strata No. 2 appears satisfactory for use in the embankment, subgrade and base material. Further chemical analysis will be necessary upon mining.

The material from Strata No. 1 is Tan Gray Marl and Stratum 3 is Muck.

This material is unsatisfactory for use as embankment except in Index Drawing No. 1101-1 (General Note 8 - Sheet 2). This material can be used within the Right-of-Way and win support native grasses and shrubbery.

J. V. Winterholler, Jr., P. E.
Registered Engineer No. 6893
State of Florida

PERFORMED BY: FLA. TESTING & ENGR. CO.
DATE: FEBRUARY 1970

NO	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

SUMMARY OF SOILS TESTING ANALYSIS

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

MADE _____ DATE _____ TRACED _____ DATE _____
CHECKED _____ DATE _____ SCALE _____

DRAWING NO. 51

APPENDIX – B4

Existing Soil Boring Information from Previous Projects along the Project Corridor

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

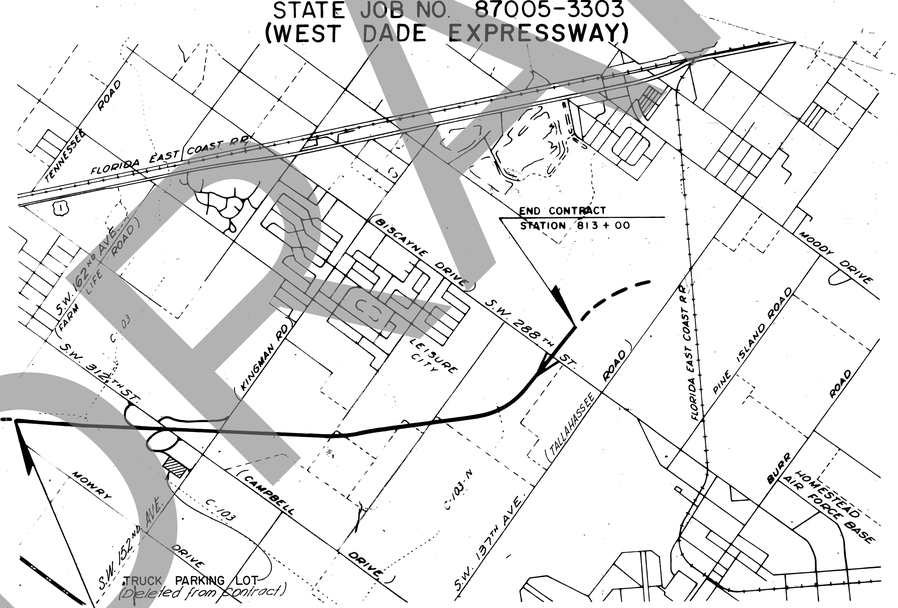
FINAL PLANS
~~PLANS OF PROPOSED~~

HOMESTEAD EXTENSION
— OF —
FLORIDA'S TURNPIKE

FLORIDA'S TURNPIKE TO SOUTH OF HOMESTEAD

STATE ROAD 821
DADE COUNTY
STATE JOB NO. 87005-3303
(WEST DADE EXPRESSWAY)

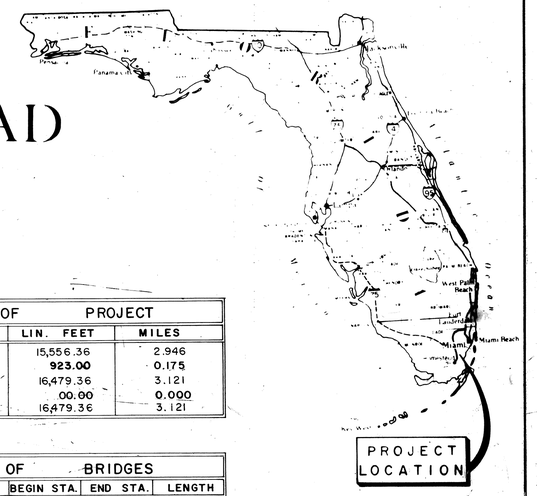
SHEET NO.	INDEX OF SHEETS
1	Key Map
2-4	Drainage Maps
5	Summary of Quantities
6-7	Typical Sections
8	Mass Diagram
9	Reference Points
10-15	Plan & Profiles Turnpike
16-17	Plan & Profiles S.W. 312TH St. (Campbell Drive)
18, 18A	Plan & Profiles S.W. 152 Ave. (Truck Parking, Kingman Road Relocation, Kingman Road)
19	Plan & Profiles S.W. 288TH St. (Biscayne Drive)
20-42	Drainage Structures
43	Interchange Layout (Campbell Drive)
44-46	Ramp Profiles
47-50	Ramp Terminal Details
51-52	Intersection Details
53	Interchange Layout (Biscayne Drive)
54-56	Ramp Profiles
57-60	Ramp Terminal Details
61	Construction Details
62	Cross Section Pattern (Campbell Drive Interchange)
63	Cross Section Pattern (Biscayne Drive Interchange)
64-74	Roadway Soil Survey
75-115	Roadway Crooss Sections Turnpike
116-125	Roadway Cross Sections S.W. 312TH St. (Campbell Drive)
126-131 B	Roadway Cross Sections (Campbell Dr. Interchange Ramps, Kingman Rd.)
132-135	Roadway Cross Sections S.W. 152ND Ave. (Kingman Rd.) Relocation
136-143	Roadway Cross Sections Canal
144-147 X1-16	Roadway Cross Sections S.W. 288TH St. (Biscayne Drive)
148-159 A	Right of Way Maps
M1-M43	Signing & Marking Plans
E1-E7	Lighting Plans
160-167	Details of Selective Clearing and Grubbing
168	Std. Dwg. No. 1 Interchange Ramp Terminals at Toll Roads
169	Std. Dwg. No. 2 Roadway Superelevation
170-171	Std. Dwg. No. 4 and 4 A Guardrail
172	Std. Dwg. No. 5 (Fencing)
173	Index No. 200 Standard Endwalls for Pipe Culverts
174-175	Index No. 1101-V Miscellaneous Roadway Constructions Details (2 Sheets)
176-177	Index No. 1129-E U-Endwalls for Pipe Culverts (2 Sheets)
178	Index No. 1454-B Standard Endwalls for Pipe Culverts
179-182	Index No. 2300-Q Mod. Guardrail Construction (4 Sheets)
183	Index No. 2415 Standard Headwall For 60" Concrete Pipe
184-185	Index No. 5047-F Inlet, Manhole, and Junction Box Types P and J (2 Sheets)
186	Index No. 5048-A Inlet Type "X"
187	Index No. 5049 Inlet Type "Z"
188-189	Index No. 5061-D Miscellaneus Drainage Details (2 Sheets)
190-191	Index No. 5072-G Details of Fencing (2 Sheets)
192-194	Index No. 5073-K Standard Details for Ramp Terminals (Sheet 3 of 3)
195-196	Index No. 5080-E Curb, Crurb and Gutter and Traffic Separator (2 Shts.)
197	Index No. 2037-A Sand-Cement Endwalls For Pipe Culverts
198	Index No. 5086 Shoulder Gutter Inlet Type "Y"
199	Index No. 8011-Mod. Single Concrete Box Culverts
200-206	BORROW PIT NO. 3-57-39
207	Std. Dwg. No. 26 Maint. or Emergency Crossover
T1, S1-S4, C1-C35 D1-D45, F1-F33, G1-G22	Bridge Plans



LOCATION MAP

LENGTH OF PROJECT	LIN. FEET	MILES
ROADWAY	15,556.36	2.946
BRIDGES	923.00	0.175
NET LENGTH	16,479.36	3.121
EXCEPTIONS	00.00	0.000
GROSS LENGTH	16,479.36	3.121

LOCATION OF BRIDGES			
STRUCTURE	BEGIN STA.	END STA.	LENGTH
CANAL C-103	665+83.25	668+55.25	272.00
S.W. 312th ST. (CAMPBELL DR.)	684+79.54	688+08.54	329.00
CANAL C-103 N	779+27.09	780+69.09	142.00
S.W. 288th ST. (BISCAYNE DR.)	799+19.32	800+99.32	180.00



NAME OF CONTRACTOR	THE BREWER CO. OF FLA.
DISTRICT ENGINEER	BEN SIMPSON
PROJECT ENGINEER	BEISWENGER HOCH & ASSC.
DATE WORK STARTED	5-8-72
DATE WORK CONDITIONALLY ACCEPTED	1-27-74
DATE WORK ACCEPTED	8-9-74

GENERAL SPECIFICATIONS:

FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 1966 OR AS MODIFIED BY THE CONTRACT SPECIAL PROVISIONS

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

APPROVAL RECOMMENDED August, 1971
BY Thomas B. Terpening
J. E. GREINER COMPANY INC.
GENERAL CONSULTANT

APPROVED
BY
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

DESIGN SECTION NO. 1
CONSTRUCTION CONTRACT NO. 2
STATE JOB NO. 87005-3303
FROM NORTH OF MOWRY DRIVE TO NORTH OF BISCAYNE DRIVE
STATION 648+20.64 TO STATION 813+00

BEISWENGER, HOCH AND ASSOCIATES, INC.
CONSULTING ENGINEERS
NORTH MIAMI BEACH FLORIDA
SUBMITTED F. A. Nonna DATE Oct. 1970

SECTION	CONTRACT	HOMESTEAD OF EXTENSION FLORIDA'S TURNPIKE	SHEET NO.
I	2		62
DEPARTMENT OF TRANSPORTATION			Date 10/70

State Job No. 87005-3303
S.R. No. 821

Scale: 1"=100'

RAMP "B"
MATCH LINE
RAMP "A"
RAMP "A-1"
POND
Elev. -15.0(MIN.)
S. Survey S.W. 312TH ST. (CAMPBELL DRIVE)
KINGMAN RD. RELOCATION
C & E TURNPIKE

NO.	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS PATTERN
CAMPBELL DRIVE INTERCHANGE

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

MADE	L.A.T.	DATE 7-70	TRACED	L.A.T.	DATE 7-70
CHECKED	J.S.	DATE 7-70	SCALE	1"=100'	

DRAWING NO. 62

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

Form C-99

Dist.	State	Section	Route	Proj.	Sheet No.
	Fla.	DESIGN SEC 1	SR 821	CONTRACT 2	64

DATE OF SURVEY FEBRUARY, 1970

SURVEY MADE BY FLORIDA TESTING & ENGINEERING CO.

SUBMITTED BY BEISWENGER HOCH & ASSOCIATES

DIVISION NO.

ROAD NO. SR 821 HOMESTEAD EXT. OF FLORIDA'S TURNPIKE

COUNTY DADE

PROJECT NO. 87005-3303

PROFILE SUBGRADE SURVEY FOR THE DESIGN OF ROAD

PROJECT BEGINS STA. 648+20.64 PROJECT ENDS STA. 813+00

SCALE: 1" = 100' HORIZONTAL
1" = 5' VERTICAL

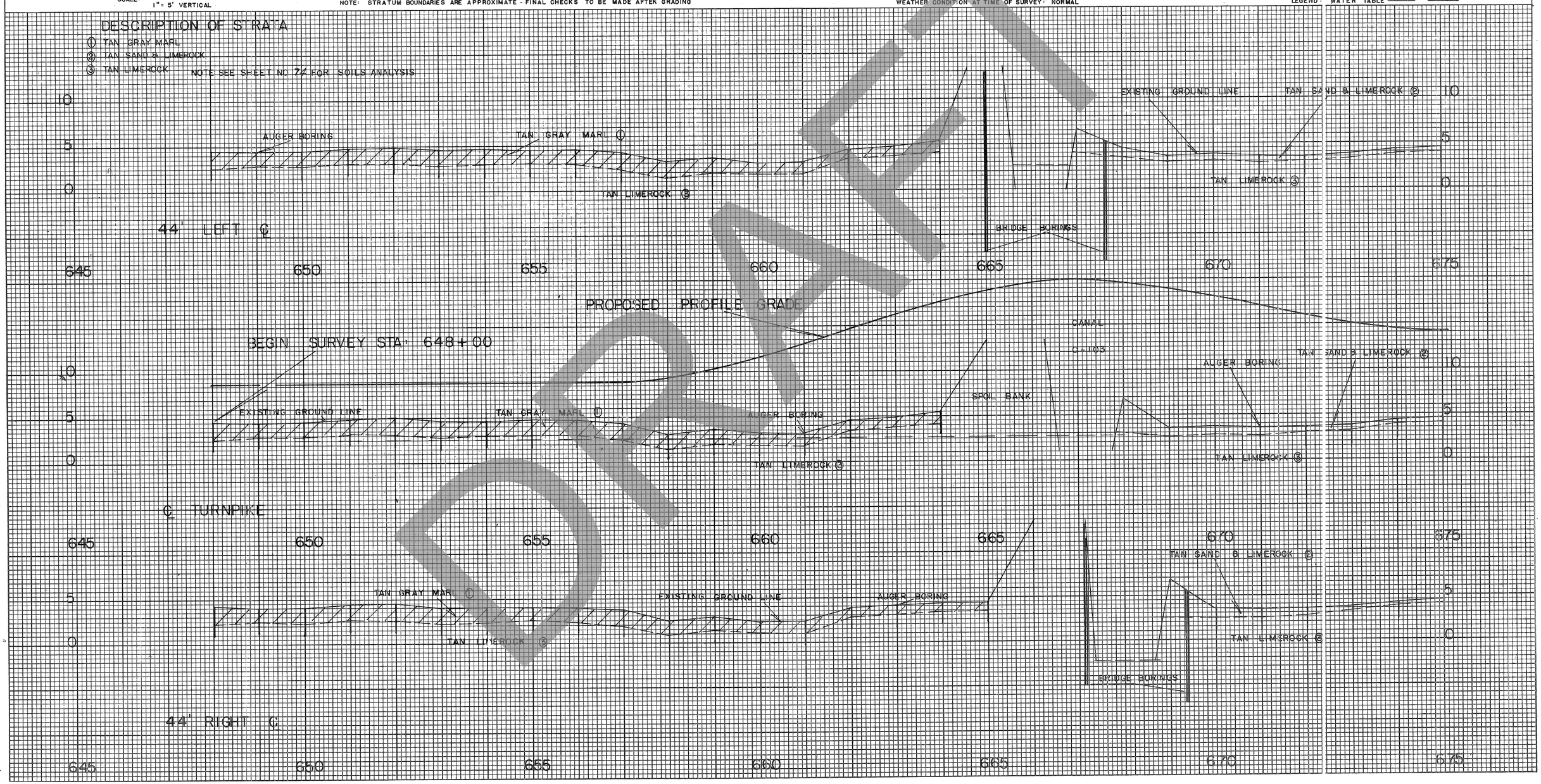
NOTE: STRATUM BOUNDARIES ARE APPROXIMATE - FINAL CHECKS TO BE MADE AFTER GRADING

WEATHER CONDITION AT TIME OF SURVEY: NORMAL

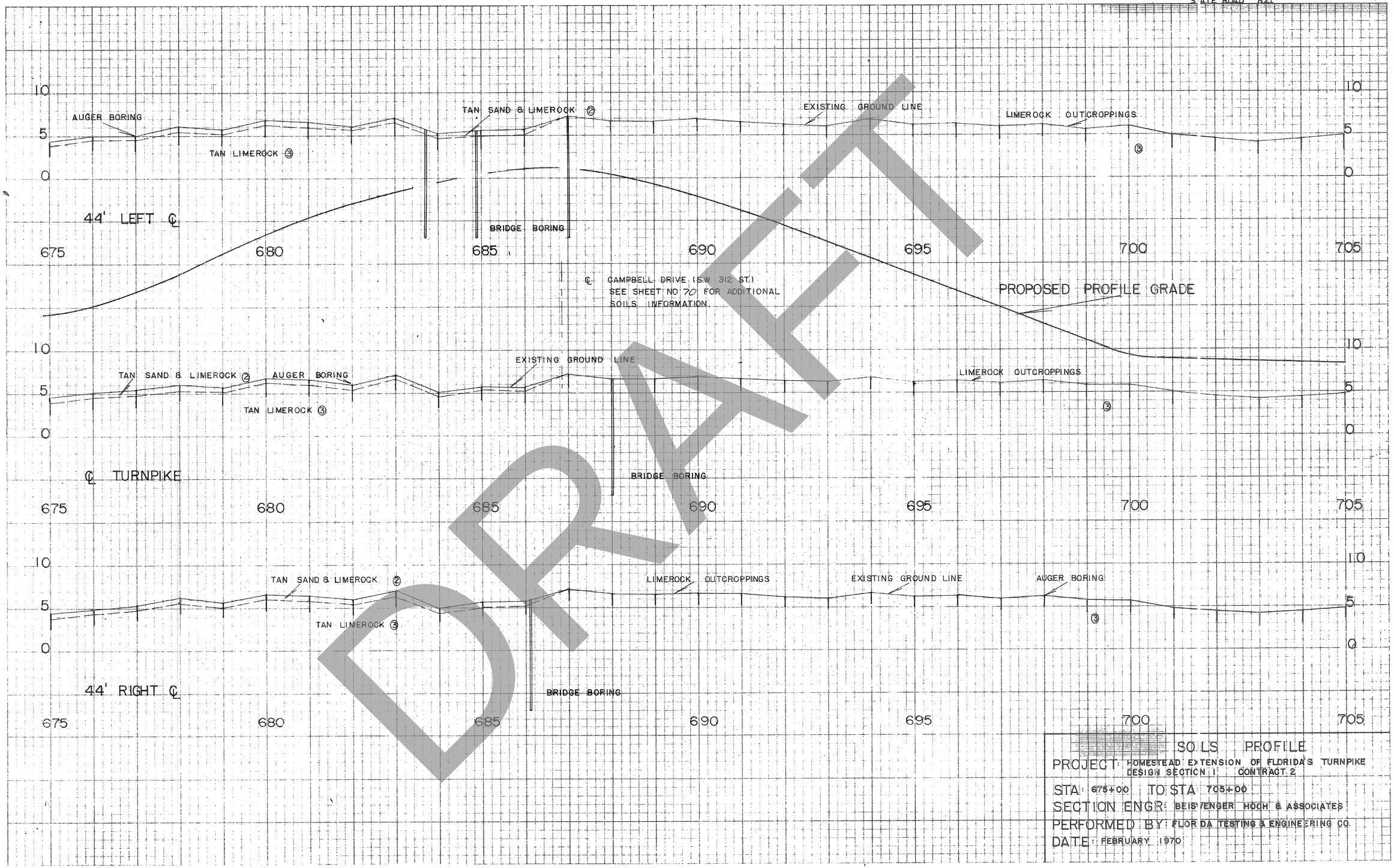
LEGEND: WATER TABLE ——— ———

DESCRIPTION OF STRATA
① TAN GRAY MARL
② TAN SAND & LIMEROCK
③ TAN LIMEROCK

NOTE SEE SHEET NO 74 FOR SOILS ANALYSIS



SECTION	CONTRACT	HOMESTEAD OF EXTENSION	SHEET NO.
1	2	FLORIDA'S TURNPIKE	65
DEPARTMENT OF TRANSPORTATION			DATE: 1970
STATE ROAD 821			



SOILS PROFILE

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE
DESIGN SECTION 1 CONTRACT 2

STA: 675+00 TO STA 705+00

SECTION ENGR: BEIS/ENGER HOCH & ASSOCIATES

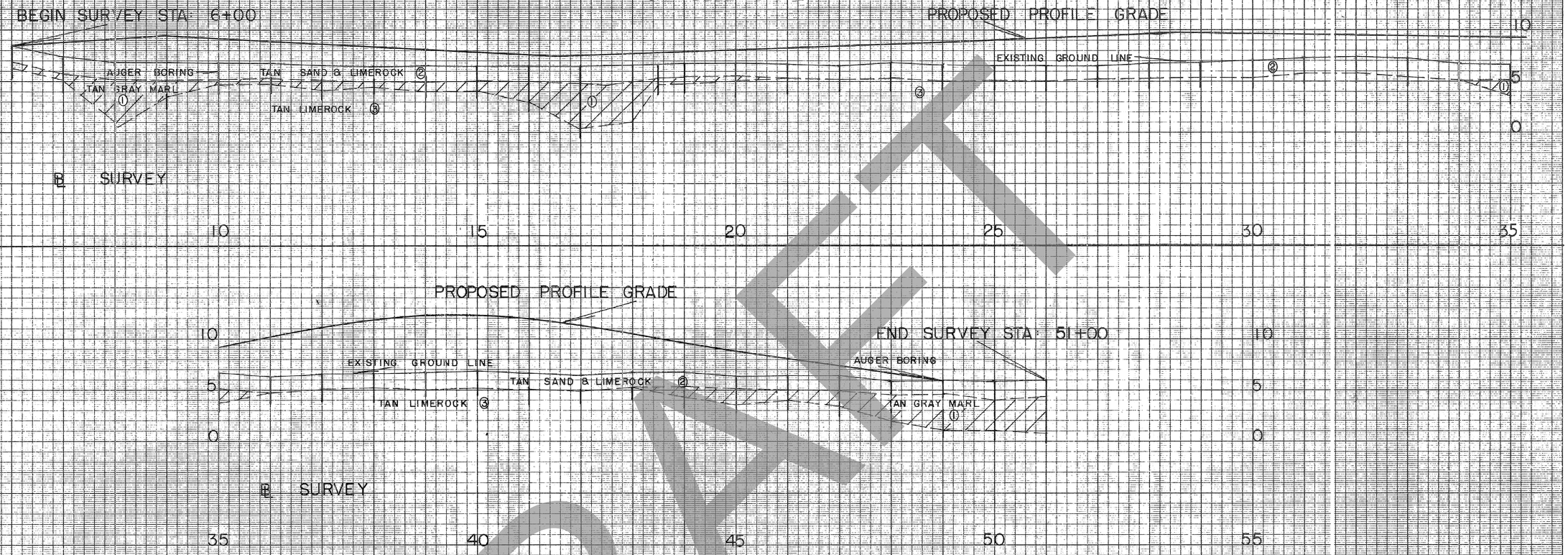
PERFORMED BY: FLORIDA TESTING & ENGINEERING CO.

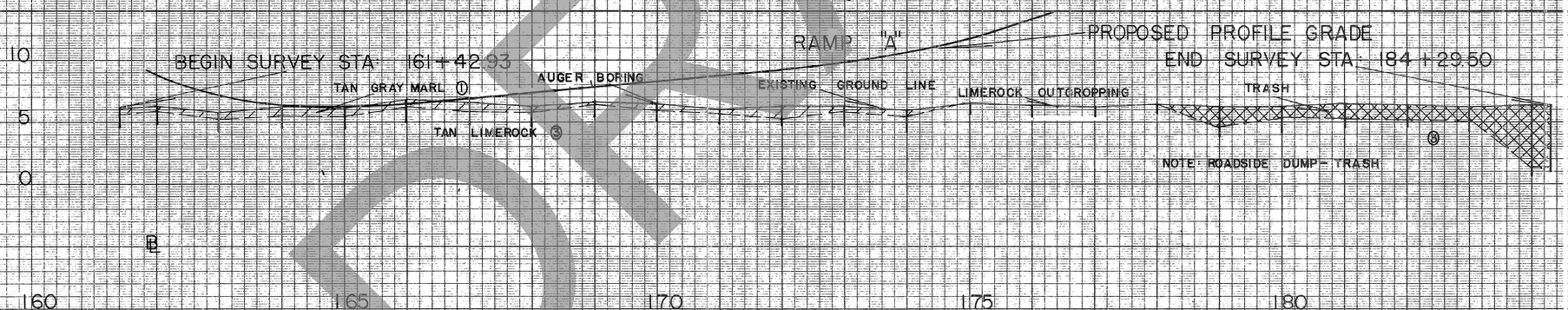
DATE: FEBRUARY 1970

SECTION	CONTRACT	HOMESTEAD OF EXTENSION FLORIDA'S TURNPIKE	SHEET NO.
1	2		70
DEPARTMENT OF TRANSPORTATION			DATE: 10/70

STATE ROAD 821

CAMPBELL DRIVE





NOTE: NO WATER TABLE ENCOUNTERED

SOILS PROFILE

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE
DESIGN SECTION CONTRACT 2

STA: 670+00 TNPK TO STA: 705+00 TNPK

SECTION ENGR: BEISWENGER HOCH & ASSOCIATES

PERFORMED BY: FLORIDA TESTING & ENGINEERING CO.

DATE: FEBRUARY 1970

CAMPBELL DRIVE INTERCHANGE

Application No.	
Route No.	
Original Plotted by	
" Checked by	
Template by	
Area by	
Finals Plotted by	
" Checked by	
Area by	
" Checked by	

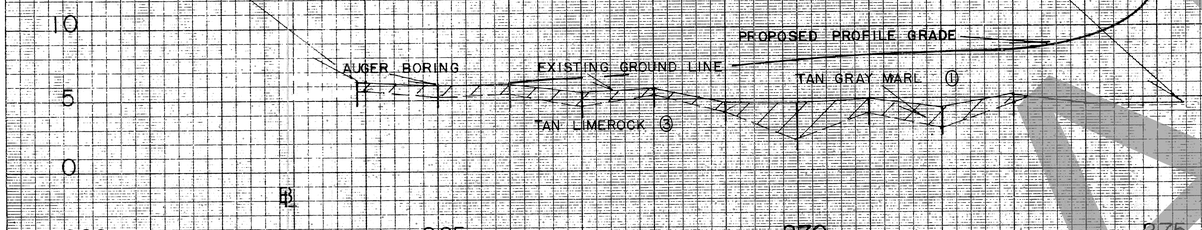
A. R. COGSWELL
JACKSONVILLE, FLA. 3-69

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
1	2		71
DEPARTMENT OF TRANSPORTATION			DATE: 10/70

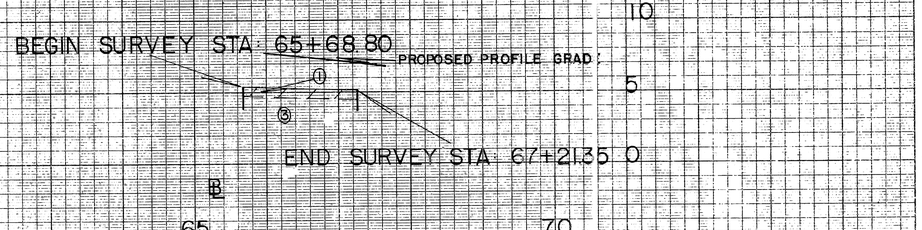
STATE ROAD 821

RAMP "A-1"

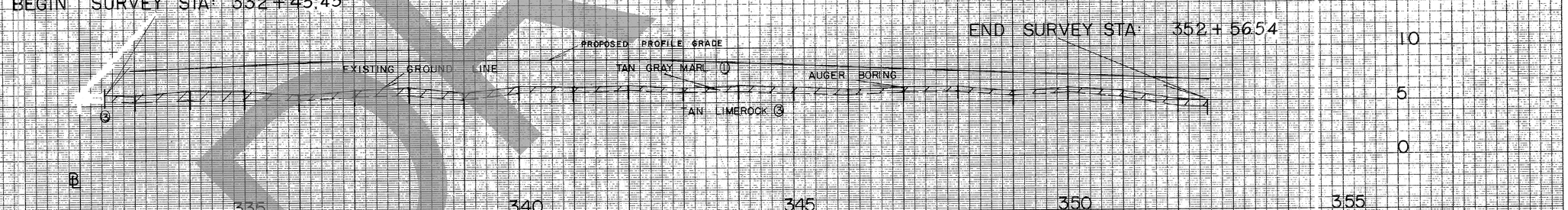
RAMP "B"



RAMP "B-1"



KINGMAN ROAD RELOCATION



SOILS PROFILE

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE
DESIGN SECTION 1 CONTRACT 2

STA: 670+00 TNPK TO STA: 705+00 TNPK

SECTION ENGR: BEISWENGER HOCH & ASSOCIATES

PERFORMED BY: FLORIDA TESTING & ENGINEERING CO.

DATE: FEBRUARY 1970

CAMPBELL DRIVE INTERCHANGE

Application No.	
Route No.	
Original Platted by	
" Checked by	
Template by	
Area by	
Finals Platted by	
" Checked by	
Area by	
" Checked by	

A. R. COGSWELL
JACKSONVILLE, FLA. 2-69

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
1	2		72
DEPARTMENT OF TRANSPORTATION			Date: 10/70

STATE JOB NO. 87005-3303

STATE ROAD 821

CANAL SURVEY

NOTE: ℄ CANAL 90' LEFT OF ℄ TURNPIKE

NOTE: B-00 DENOTES AUGER BORING

CANAL SOILS SURVEY

PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE
DESIGN SECTION 1 CONTRACT 2

STA: 725+00 TO STA: 780+00

SECTION ENGR: BEISWENGER HOCH & ASSOCIATES

PERFORMED BY: FLORIDA TESTING & ENGINEERING CO

DATE: MAY-JUNE 1970

Application No.
Route No.
Original Platted by
" Checked by
Template by
Area by
Finals Platted by
" Checked by
Area by
" Checked by

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
1	2		74
DEPARTMENT OF TRANSPORTATION			Date: 10/70

State Job No. 87005-3303
State Road No. 821

LABORATORY: FLORIDA TESTING & ENGINEERING CO.
PROJECT: HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE
D.O.T. JOB NO. 87005-3303
ROAD NO. 821

DATE TESTED: FEBRUARY 1970
SAMPLED BY: FLA. TESTING & ENGINEERING CO.
DATE SAMPLED: FEBRUARY 1970
DATE REPORTED: JUNE 1970

REPORT OF TESTS

STRATUM NO	LBR	% PASS NO. 4	% PASS NO. 10	% PASS NO. 40	% PASS NO. 200	MATERIAL CONSTANTS NO. 40 SIEVE LIQUID LIMIT	PLASTIC INDEX	GROUP	DESCRIPTION
1	—	100.0	100.0	100.0	74.8	44	13	A-7	TAN GRAY MARL
1	—	100.0	100.0	100.0	88.3	49	16	A-7	" " "
2	46.5	57.8	21.6	18.7	7.6	22	NP	A-1-A	TAN SAND & LIMEROCK
2	54.9	48.7	24.3	13.3	6.8	20	NP	A-1-A	" " " "
3	-	—	—	—	—	--	—	—	TAN LIMEROCK

NOTE: LBR VALUES DETERMINED BY THE LABORATORY

EMBANKMENT & SUBGRADE

THE MATERIAL FROM STRATUM NO 1 IS TAN GRAY MARL- A-7. THIS MATERIAL IS UNSATISFACTORY FOR USE AS EMBANKMENT EXCEPT AS SPECIFIED ON INDEX DRAWINGS 1101-V. THIS MATERIAL CAN BE USED WITHIN THE R.W. AND WILL SUPPORT NATIVE GRASSES AND SHRUBBERY.

THE MATERIAL FROM STRATUM NO 2 CAN BE USED FOR EMBANKMENT AND APPEARS SATISFACTORY FOR USE AS SUBGRADE IN MOST CASES.

STRATUM NO.3 IS TAN LIMEROCK. IT APPEARS SATISFACTORY FOR USE AS EMBANKMENT AND AS BASE MATERIAL. FURTHUR CHEMICAL ANALYSIS WILL BE REQUIRED UPON MINING.

J. V. WINTERHOLLER, JR., P.E.
REGISTERED ENGINEER NO. 6893
STATE OF FLORIDA.

PERFORMED BY: FLA. TESTING & ENGR. CO.
DATE: FEBRUARY 1970

NO	REVISION	BY	DATE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

SUMMARY OF SOILS TESTING ANALYSIS

BEISWENGER HOCH AND ASSOCIATES INC.
CONSULTING ENGINEERS NORTH MIAMI BEACH

MADE ____ DATE ____ TRACED ____ DATE ____
CHECKED ____ DATE ____ SCALE ____

DRAWING NO.

BEISWENGER, HOCH & ASSOCIATES
CONSULTING ENGINEERS

SECTION	CONTRACT	HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE	SHEET NO.
87005	3303		202
DEPARTMENT OF TRANSPORTATION			

STATE ROAD 821

LABORATORY: Florida Testing & Engineering Co.
PROJECT: Homestead Extension of Florida's Turnpike
Design Section I Contract 2
D.O.T. Job No: 87005-3303

DATE SAMPLED: May and June, 1971
SAMPLED BY: Florida Testing & Engineering Co.
DATE TESTED: June, 1971
DATE REPORTED: June, 1971

REPORT OF TESTS OF MATERIAL FROM BORROW PIT 3-57-39

FOR USE IN EMBANKMENT & SUBGRADE

Stratum No.	Sample No.	Total Carbonates of Calcium & Magnesium, %	% Pass. # 10 Mesh	% Pass. #40 Mesh	% Pass. #200 Mesh	Constants Mat'l Pass. #40 Sieve L.L.	P.I.	Group	Sample Depth	Ph Value
1	B 1: 1	-	80.2	53.6	29.5	25	7	A-2-4	0 - 1.0'	6.5
1	B14: 1	-	82.5	47.3	22.6	22	7	A-2-4	0 - 1.5'	6.5
1	B33: 1	-	76.4	45.2	24.8	27	8	A-2-4	0 - 1.5'	6.8
2	B 1: 1 & 2	95.4	-	-	-	--	-		1 - 10'	
2	B 1: 3	97.1	-	-	-	--	-		10- 15'	
2	B 5: 1	97.3	-	-	-	--	-		3 - 10'	
2	B 9: 2	96.3	54.6	40.1	20.2	24	N.P.	A-1-b	3 - 5'	
2	B20: 2	97.0	-	-	-	--	-		2 - 5'	
2	B23: 1	98.5	-	-	-	--	-		0.5-5'	
2	B23: 2	94.0	-	-	-	--	-		5 - 10'	
2	B23: 3	94.6	58.6	35.5	24.5	20	N.P.	A-1-b	10- 15'	
2	B26: 2	93.9	-	-	-	--	-		2 - 5'	
2	B28: 2	98.1	-	-	-	--	-		10-15'	
2	B37: 2	-	51.0	38.8	22.8	28	N.P.	A-1-b	5 - 10'	
2	B38: 3	96.6	-	-	-	--	-		10- 15'	
2	B42: 2	97.4	53.1	40.2	23.2	27	N.P.	A-1-b	5 - 10'	
2	B50: 3	96.0	-	-	-	--	-		10- 15'	
2	B53: 2	97.9	-	-	-	--	-		5 - 10'	
2	B53: 3	97.4	-	-	-	--	-		10- 15'	
3	B 1: 4	86.5	-	-	-	--	-		15- 20'	
3	B 1: 5	76.6	-	-	-	--	-		20- 25'	
3	B 2: 5	79.6	-	-	-	--	-		20- 25'	
3	B 5: 3	87.8	-	-	-	--	-		15- 20'	
3	B 8: 3	-	49.3	27.4	8.3	16	N.P.	A-1-a	15- 20'	
3	B 9: 3	-	54.0	27.5	9.1	18	N.P.	A-1-b	10- 15'	
3	B13: 4	94.8	-	-	-	--	-		15- 20'	
3	B18: 2	95.5	-	-	-	--	-		1 - 5'	
3	B20: 4	89.9	-	-	-	--	-		15- 20'	
3	B20: 6	50.5	-	-	-	--	-		25- 30'	
3	B21: 1-3	92.3	-	-	-	--	-		1 - 15'	
3	B21: 4	85.6	-	-	-	--	-		15- 20'	
3	B26: 3	88.9	-	-	-	--	-		15- 20'	
3	B26: 5	74.2	51.0	24.7	7.2	14	N.P.	A-1-b	20- 25'	
3	B28: 4	82.5	-	-	-	--	-		20- 25'	
3	B30: 2-3	98.5	-	-	-	--	-		10- 20'	
3	B31: 3-4	92.0	-	-	-	--	-		15- 25'	
3	B42: 4	87.4	-	-	-	--	-		15- 20'	
3	B42: 6	53.2	-	-	-	--	-		25- 30'	
3	B50: 4	90.0	-	-	-	--	-		15- 20'	

EMBANKMENTS AND SUBGRADE

The material noted above as Stratum No. 1 and classified as an A-2-4 material may possibly be stockpiled and used as a base for growing grass within the Right-Of-Way.

Stratum No. 2 is a soft limerock mixed with slight sand. The degree of mixture may be noted by the fluctuation of the total carbonates content. This material is classified as an A-1-b group and may be used in the embankments, including the top two (2) feet.

Stratum No. 3 is basically the same material (limerock and sand) as Stratum No. 2. However, it has been differentiated because of its hardness. This material may also be used in the embankments, including the top two (2) feet. It will be noted, however, that from 25' to 30' below the existing surface, the total carbonate content of Stratum No. 3 is reduced to 50 to 60% total carbonates.

Respectfully Submitted,
FLORIDA TESTING & ENGINEERING CO.

J.V. Winterholler, Jr., P.E.
Registered Engineer No. 6893
State of Florida

BORROW PIT NO. 3-57-39

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

SUMMARY OF SOILS
TESTING ANALYSIS

FLORIDA TESTING & ENGINEERING CO.
FORT LAUDERDALE FLORIDA

SECTION 87005 CONTRACT 3303 SHEET NO.

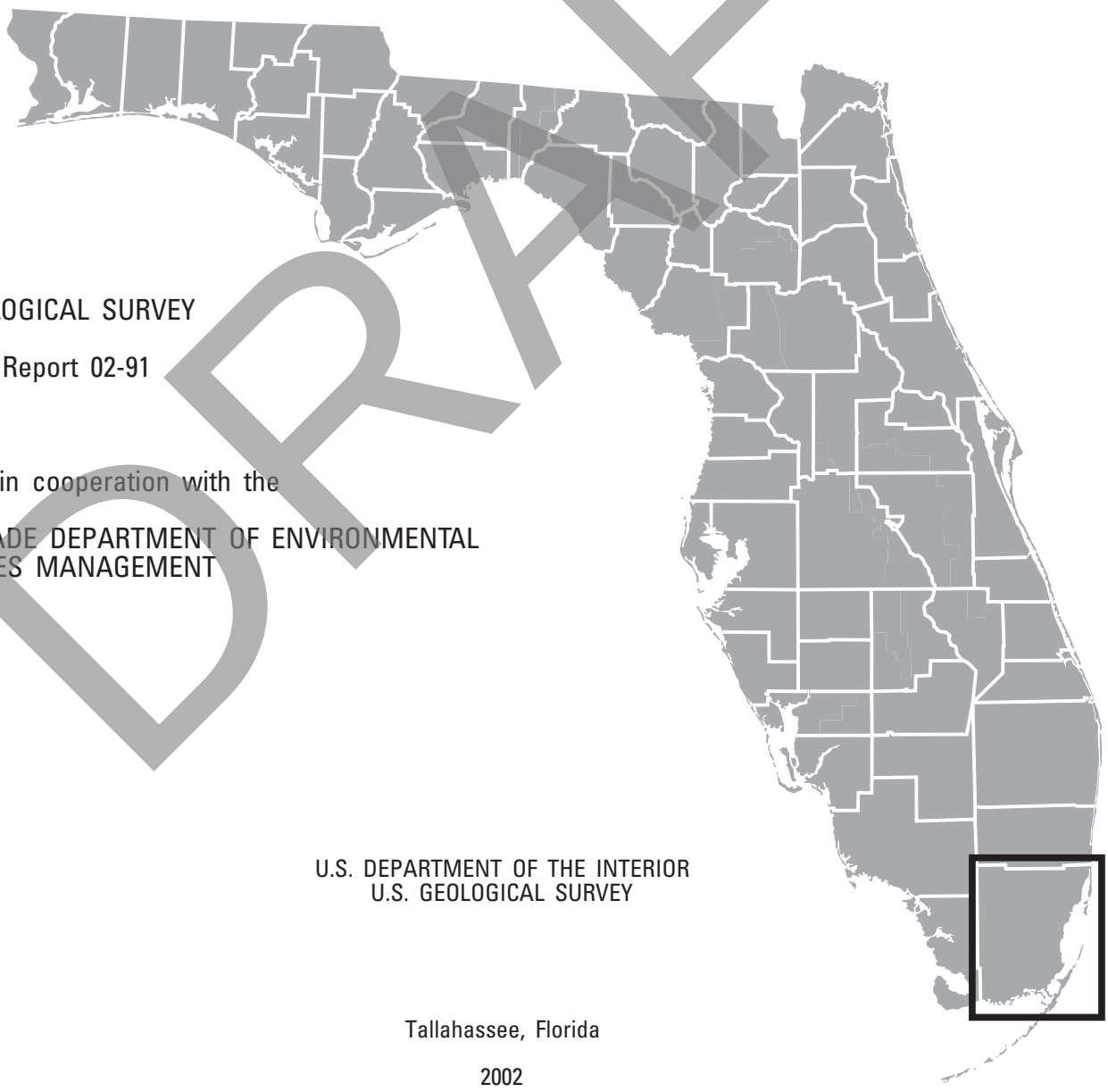
APPENDIX – C1

Groundwater / Seasonal High Groundwater Elevation Information

USGS
science for a changing world

Average Altitude of the Water Table (1990-99) and Frequency Analysis of Water Levels (1974-99) in the Biscayne Aquifer, Miami-Dade County, Florida

By A.C. Lietz, Joann Dixon, and Michael Byrne



U.S. GEOLOGICAL SURVEY

Open-File Report 02-91

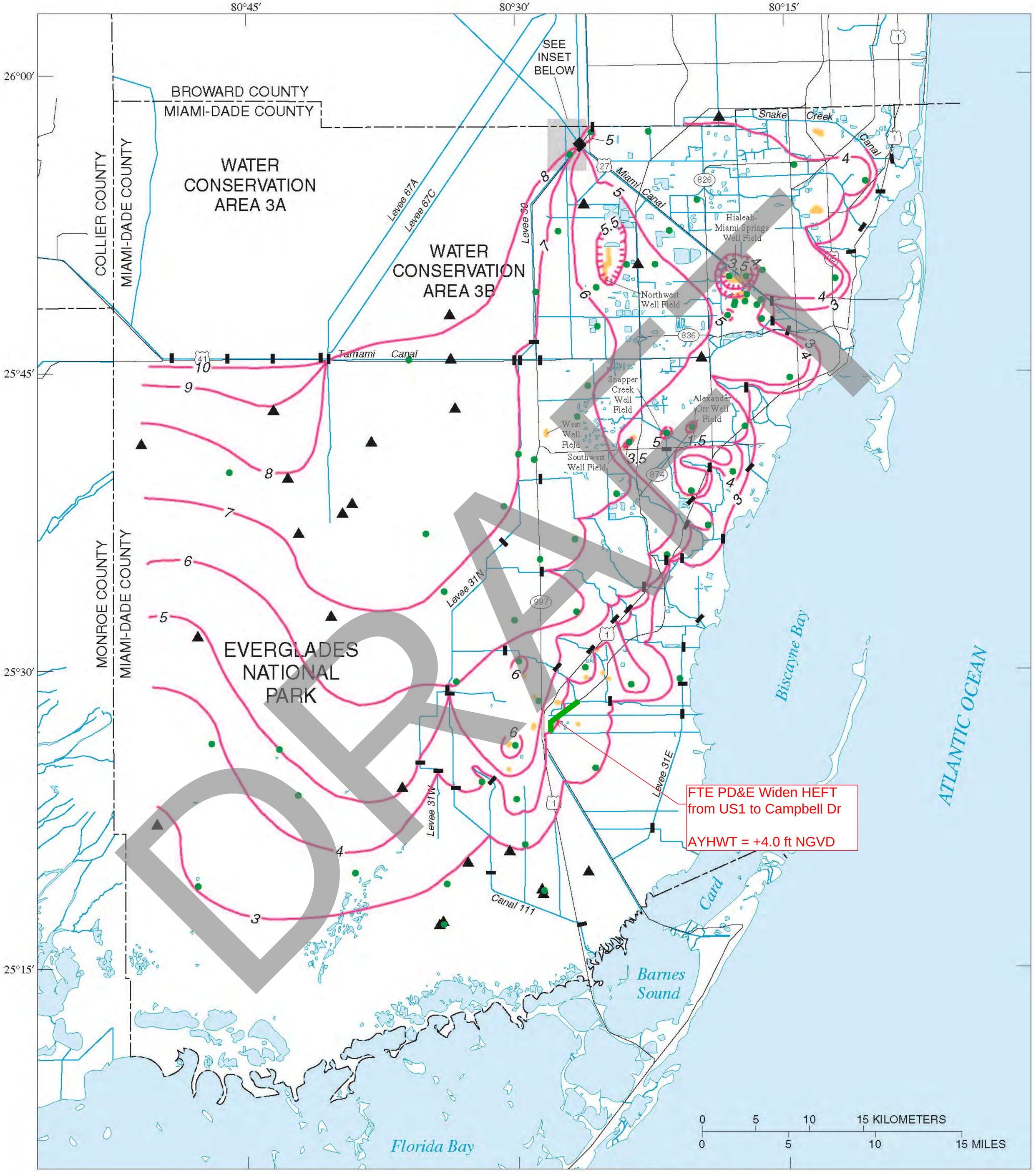
Prepared in cooperation with the

MIAMI-DADE DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Tallahassee, Florida

2002



FTE PD&E Widen HEFT
from US1 to Campbell Dr

AYHWT = +4.0 ft NGVD

DRAFT

(AYHWT) AVERAGE YEARLY HIGH WATER LEVELS 1990-99

C1.a

80°45′ 80°30′ 80°15′

26°00′

25°45′

25°30′

25°15′

BROWARD COUNTY

MIAMI-DADE COUNTY

COLLIER COUNTY

MIAMI-DADE COUNTY

MONROE COUNTY

MIAMI-DADE COUNTY

WATER CONSERVATION AREA 3A

WATER CONSERVATION AREA 3B

EVERGLADES NATIONAL PARK

SEE INSET BELOW

Levee 67A

Levee 67C

Levee 30

Levee 31N

Levee 31W

Levee 31E

Tamiami Canal

Miami Canal

Snake Creek Canal

Canal 111

Hialeah-Miami Springs Well Field

Northwest Well Field

Snapper Creek Well Field

West Well Field

Alexander Orr Well Field

Southwest Well Field

Biscayne Bay

ATLANTIC OCEAN

Card Sound

Barnes Sound

Florida Bay

FTE PD&E Widen HEFT from US1 to Campbell Dr

AMWT = +2.2 ft NGVD

0 5 10 15 KILOMETERS

0 5 10 15 MILES

DRAFT

(AMWT) AVERAGE MAY WATER LEVELS 1990-99

C1.b

80°45′ 80°30′ 80°15′

26°00′ 25°45′ 25°30′ 25°15′

BROWARD COUNTY
MIAMI-DADE COUNTY

COLLIER COUNTY
MIAMI-DADE COUNTY
MONROE COUNTY
MIAMI-DADE COUNTY

WATER CONSERVATION AREA 3A

WATER CONSERVATION AREA 3B

EVERGLADES NATIONAL PARK

SEE INSET BELOW

Levee 67A
Levee 67C
Levee 30
Levee 31N
Levee 31W
Levee 31E

Tamiami Canal
Miami Canal
Snake Creek Canal
Canal 111

Hialeah-Miami Springs Well Field
Northwest Well Field
Snapper Creek Well Field
Alexander Orr Well Field
West Well Field
Southwest Well Field

27 826 836 874 997 95 41 1

10 9 8 7 6 5 4 3 2 1 4.5 5 6 4 5 3 2 -3.5 3.5 1.5 4 3 2 4 2 2

Biscayne Bay
ATLANTIC OCEAN
Card Sound
Barnes Sound
Florida Bay

FTE PD&E Widen HEFT
from US1 to Campbell Dr

AOWT = +2.8 ft NGVD

0 5 10 15 KILOMETERS
0 5 10 15 MILES

(AOWT) AVERAGE OCTOBER WATER LEVELS 1990-99

C1.c

80°45′ 80°30′ 80°15′

26°00′ 25°45′ 25°30′ 25°15′

BROWARD COUNTY
MIAMI-DADE COUNTY

COLLIER COUNTY
MIAMI-DADE COUNTY
MONROE COUNTY
MIAMI-DADE COUNTY

WATER CONSERVATION AREA 3A

WATER CONSERVATION AREA 3B

EVERGLADES NATIONAL PARK

SEE INSET BELOW

Levee 67A
Levee 67C
Levee 30
Levee 31N
Levee 31W
Levee 31E
Canal 111

Tamiami Canal
Miami Canal
Snake Creek Canal

Hialeah-Miami Springs Well Field
Northwest Well Field
Snapper Creek Well Field
West Well Field
Alexander Orr Well Field
Southwest Well Field

Biscayne Bay
Card Sound
Barnes Sound
Florida Bay
ATLANTIC OCEAN

FTE PD&E Widen HEFT
from US1 to Campbell Dr

AYHWT = +3.8 ft NGVD

0 5 10 15 KILOMETERS
0 5 10 15 MILES

DRAFT

(AYHWT) AVERAGE YEARLY HIGH WATER LEVELS 1995-99

C1.d

INSET

80°45′ 80°30′ 80°15′

26°00′ 25°45′ 25°30′ 25°15′

BROWARD COUNTY
MIAMI-DADE COUNTY

COLLIER COUNTY
MIAMI-DADE COUNTY
MONROE COUNTY
MIAMI-DADE COUNTY

WATER CONSERVATION AREA 3A

WATER CONSERVATION AREA 3B

EVERGLADES NATIONAL PARK

SEE INSET BELOW

Levee 67A
Levee 67C
Levee 30
Levee 31N
Levee 31W
Levee 31E
Canal 111
Miami Canal
Snake Creek Canal
Tamiami Canal

Hialeah-Miami Springs Well Field
Northwest Well Field
Snapper Creek Well Field
Alexander Orr Well Field
West Well Field
Southwest Well Field

Biscayne Bay
Card Sound
Barnes Sound
Florida Bay
ATLANTIC OCEAN

FTE PD&E Widen HEFT from US1 to Campbell Dr

AMWT = +2.5 ft NGVD

0 5 10 15 KILOMETERS
0 5 10 15 MILES

INSET

(AMWT) AVERAGE MAY WATER LEVELS 1995-99

C1.e

80°45′ 80°30′ 80°15′

26°00′ 25°45′ 25°30′ 25°15′

BROWARD COUNTY
MIAMI-DADE COUNTY

COLLIER COUNTY
MIAMI-DADE COUNTY
MONROE COUNTY
MIAMI-DADE COUNTY

WATER CONSERVATION AREA 3A

WATER CONSERVATION AREA 3B

EVERGLADES NATIONAL PARK

SEE INSET BELOW

Levee 67A
Levee 67C
Levee 30
Levee 31N
Levee 31W
Levee 31E
Canal 111
Tamiami Canal
Miami Canal
Snake Creek Canal

Hialeah-Miami Springs Well Field
Northwest Well Field
West Well Field
Alexander Orr Well Field
Snapper Creek Well Field
Southwest Well Field

Biscayne Bay
Barnes Sound
Card Sound
Florida Bay
ATLANTIC OCEAN

FTE PD&E Widen HEFT
from US1 to Campbell Dr

AOWT = +2.8 ft NGVD

0 5 10 15 KILOMETERS
0 5 10 15 MILES

DRAFT

(AOWT) AVERAGE OCTOBER WATER LEVELS 1995-99

C1.f

INSET

APPENDIX – C2

Groundwater / Seasonal High Groundwater Elevation Information

File Edit View Tools Add Help

Sign in

WSWT Ctrl Elev = 1.80 ft NAVD
Permit No: 13-01181-P

WSWT Ctrl Elev = 3.20 ft NGVD
Permit No: 13-00044-S-18

WSWT Ctrl Elev = 3.00 ft NGVD
PERMIT NO. 13-06529-P

WSWT Ctrl Elev = 3.00 ft NGVD
Permit No: 13-04562-P

Google Earth

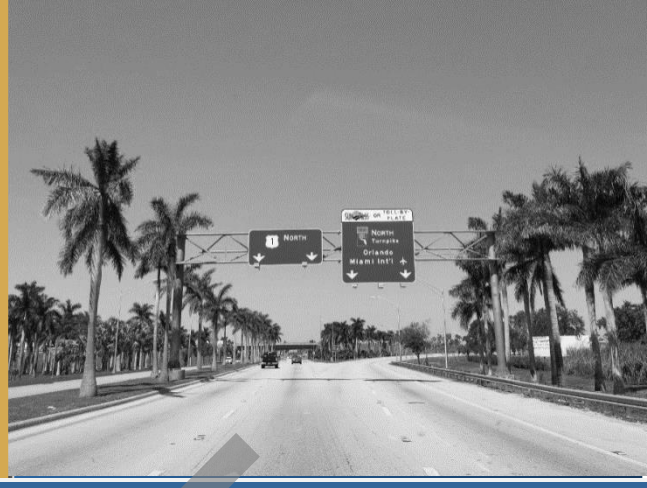
Imagery Date: 2/16/2017 25°28'05.60" N 80°25'29.19" W elev 0 ft eye alt 21984 ft

Appendix E

Bridge Analysis Technical Memorandum

Appendix F

Air Quality Technical Memorandum



Air Quality Technical Memorandum

Florida's Turnpike (SR 821) Widening
Project Development and Environment (PD&E) Study
from US 1 (South of Palm Drive) to Campbell Drive | Miami-Dade County, Florida

FM No. 439545-1-22-01

Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069 | Ocoee, FL 34761

August 2020

FDOT

FLORIDA'S TURNPIKE

Air Quality Technical Memorandum

Miami-Dade County, Florida
FM No: 439545-1-22-01| ETDM No: 14322

Prepared for
Florida's Turnpike Enterprise
Florida's Turnpike Mile Post 263
Building 5315
Ocoee, Florida 34761

Prepared by:
Stanley Consultants Inc.
1641 Worthington Road, Suite 400
West Palm Beach, Florida 33409

August 2020

Table of Contents

TABLES

FIGURES

Section 1

Introduction

1.1 Introduction

The Project Development and Environment (PD&E) Study, Florida's Turnpike (SR 821) Widening from US 1 (South of Palm Drive) to Campbell Drive was programmed under Financial Management (FM) number 439545- 1-22-01 and the Preliminary Programming Report was published on 6/28/2017 under Efficient Decision Transportation Making (EDTM) number 14322. The project is located in an urban area of south Miami-Dade County and is surrounded by predominantly commercial land use.

An air quality review was conducted following the procedure documented in Part 2, Chapter 19 (Air Quality) of the Florida Department of Transportation (FDOT) PD&E Manual (January 14, 2019).

The project is located in Miami-Dade County, an area currently designated as being attainment for the following criteria air pollutant(s): ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10 microns in size), sulfur dioxide, carbon monoxide, and lead. This attainment designation is with respect to pollutant-specific National Ambient Air Quality Standards (NAAQS) under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

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Section 2

Screening Test Methodology & Results

2.1 Screening Test Methodology

Since this project may have community concerns about the impacts to air quality, an air quality analysis for carbon monoxide (CO) was completed in accordance with the FDOT PD&E Manual Part 2, Chapter 19, section 2.2.4 and utilized the Florida Department of Transportation's (FDOT's) screening model; CO Florida 2012 model (CO model).The CO model uses the latest United States Environmental Protection Agency (USEPA)-approved software to produce estimates of one-hour and eight-hour CO concentrations at default air quality receptor locations. The predicted one-hour and eight-hour concentrations can be directly compared to the current one-and eight-hour NAAQS for CO.

CO concentrations were predicted for the project alternative using an urban land use type in the CO model. The model uses default values for surface roughness (175 cm), atmospheric stability class (class D), and CO background concentrations (5.0 ppm for the 1-hour averaging period and 3.0 ppm for the 8-hour averaging period) based on the urban land use. These default values are considered conservative worst-case assumptions that are related to the site conditions, meteorology, and traffic.

The roadway intersection forecasted to have the highest total approach traffic volume was US 1/SR 5 and Palm Drive. Traffic inputs were provided by the FDOT. The Build and No-Build scenarios for both the opening year (2025) and the design year (2045) were evaluated. The No-Build intersection was modeled as a 4x6 and the Build intersection was modeled as a 4x4. Since levels of CO tend to be highest adjacent to intersections, estimates of CO were predicted for the default receptors which are located ten (10) feet to 150 feet from the edge of the roadway. Section 2.4 of this document shows traffic volume inputs used in the screening analysis. Section 2.5 presents output from the CO model including predicted concentrations.

2.2 Screening Test Results

Based on the results from the screening model, the highest project-related CO one- and eight-hour concentrations are not predicted to reach or exceed the one- or eight-hour NAAQS for this pollutant with either the No-Build or Build alternatives. As such, the project "passes" the screening model. The maximum concentrations for each model run of the screening model are attached to this memorandum and summarized in **Tables 2-1** and **Table 2-2**. Receptors are chosen by the model at pre-determined worst-case locations, an example of the receptor locations is shown below in figure 2-1.

Table 2-1 Air Quality Screen No-Build Results, Maximum Concentration

Year	AM/PM Peak	Pass/Fail	NAAQS 1-hour CO Standard (PPM)	Maximum 1-hour CO (PPM)	NAAQS 8-hour CO Standard (PPM)	Maximum 8-hour CO (PPM)	Receptor
2025	AM	Pass	35	6.6	9	4.0	18
2025	PM	Pass	35	6.6	9	4.0	18
2045	AM	Pass	35	7.4	9	4.4	3 & 13
2045	PM	Pass	35	7.1	9	4.3	3, 13 & 18

Table 2-2 Air Quality Screen Build Results, Maximum Concentrations

Year	AM/PM Peak	Pass/Fail	NAAQS 1-hour CO Standard (PPM)	Maximum 1-hour CO (PPM)	NAAQS 8-hour CO Standard (PPM)	Maximum 8-hour CO (PPM)	Receptor
2025	AM	Pass	35	6.1	9	3.7	3 &18
2025	PM	Pass	35	6.0	9	3.6	3 &18
2045	AM	Pass	35	6.4	9	3.8	3
2045	PM	Pass	35	6.3	9	3.8	3, 8, 13 & 18

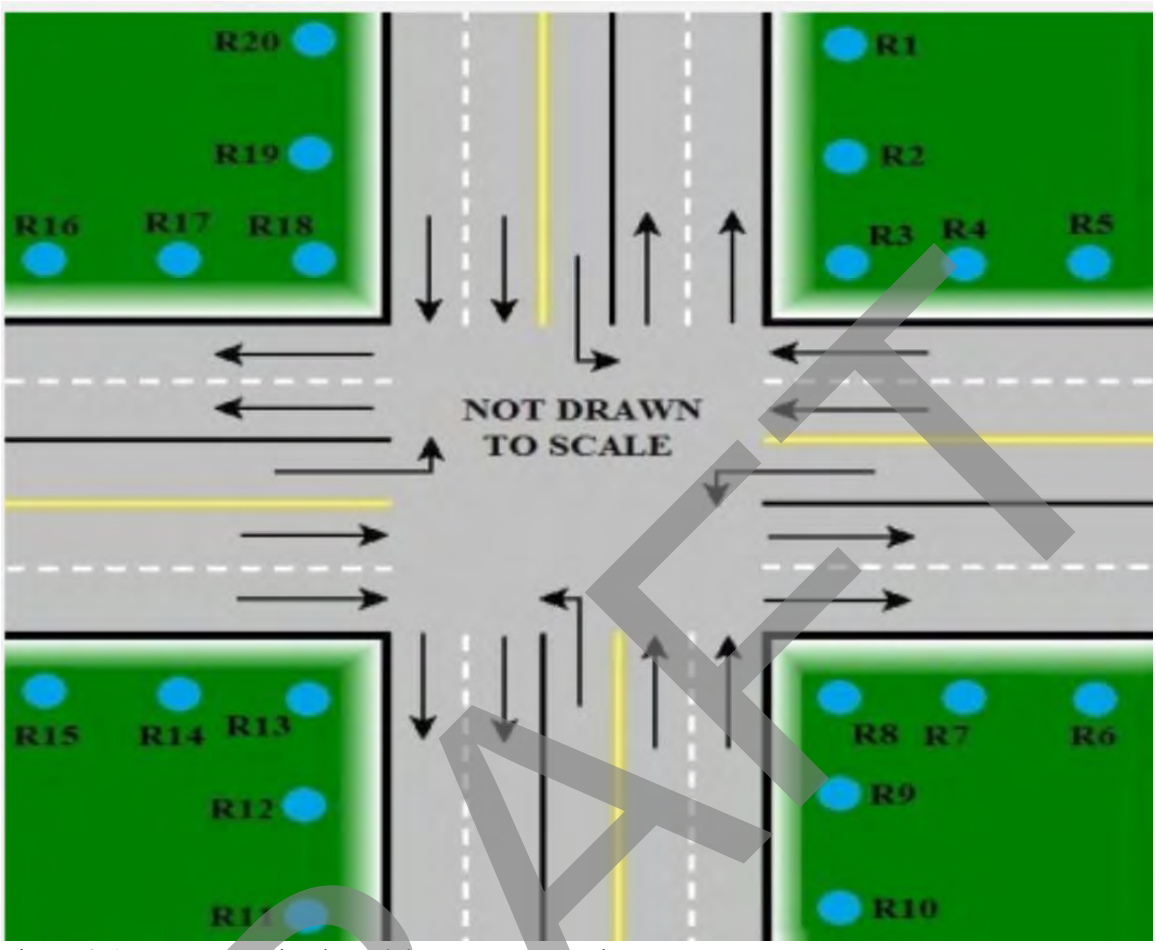


Figure 2-1- Pre-Determined Model Receptor Location

Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to applicable state regulations and to the FDOT Standard Specifications for Road and Bridge Construction.

2.3 Summary

The project is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

Based on the results from the screening model, the highest project-related CO one- and eight-hour concentrations are not predicted to reach or exceed the one- or eight-hour NAAQS for this pollutant with either the No-Build or Build alternatives. As such, the project "passes" the screening model and no further analysis is required.

2.4 Traffic Data for Air Quality Analysis

Table 2-3 Open Year 2025 No-Build Scenario Vehicle per Hour (VPH) Volumes

Intersection	Eastbound			Westbound			Northbound			Southbound			Intersection Total
	LT	T	RT	LT	T	RT	LT	T	RT	LT	T	RT	
AM													
Palm Drive and US 1	490	230	90	210	210	390	100	1,060	90	160	1,400	350	4,780
Approach Total	810			810			1,250			1,910			
PM													
Palm Drive and US 1	370	220	70	100	280	450	100	1,630	160	210	850	430	4,870
Approach Total	660			830			1,890			1,490			

Table 2-4 Design Year 2045 No-Build Scenario Vehicle per Hour (VPH) Volumes

Intersection	Eastbound			Westbound			Northbound			Southbound			Intersection Total
	LT	T	RT	LT	T	RT	LT	T	RT	LT	T	RT	
AM													
Palm Drive and US 1	1,080	510	200	470	470	860	230	1,390	200	350	2,180	760	8,700
Approach Total	1,790			1,800			1,820			3,290			
PM													
Palm Drive and US 1	820	480	160	230	620	990	220	2,290	340	470	1,440	950	9,010
Approach Total	1,460			1,840			2,850			2,860			

Table 2-5 Open Year 2025 Build Scenario Vehicle per Hour (VPH) Volumes

Intersection	Eastbound			Westbound			Northbound			Southbound			Intersection Total
	LT	T	RT	LT	T	RT	LT	T	RT	LT	T	RT	
AM													
Palm Drive and US 1	480	230	90	210	210	390	100	440	90	250	640	370	3,500
Approach Total	800			810			630			1,260			
PM													
Palm Drive and US 1	290	220	70	100	280	550	100	760	160	210	600	230	3,570
Approach Total	580			930			1,020			1,040			

Table 2-6 Design Year 2045 Build Scenario Vehicle per Hour (VPH) Volumes

Intersection	Eastbound			Westbound			Northbound			Southbound			Intersection Total
	LT	T	RT	LT	T	RT	LT	T	RT	LT	T	RT	
AM													
Palm Drive and US 1	940	510	200	470	470	580	230	590	200	320	780	470	5,760
Approach Total	1,650			1,520			1,020			1,570			
PM													
Palm Drive and US 1	300	480	160	230	620	750	220	1,040	340	230	540	260	5,170
Approach Total	940			1,600			1,600			1,030			

Note: Build Scenario assumes mainline widening, Alternative A/B at US 1 and a partial interchange at Lucy Street

2.5 Air Quality Analysis – CO Screening Model Results

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2025 No Build - AM Peak
FDOT District	6
Year	2025
Intersection Type	4 X 6
Speed	Arterial 30 mph
Approach Traffic	Arterial 1910 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.0	3.6
2	6.1	3.7
3	6.5	3.9
4	6.2	3.7
5	6.0	3.6
6	6.1	3.7
7	6.2	3.7
8	6.5	3.9
9	6.2	3.7
10	6.0	3.6
11	6.0	3.6
12	6.1	3.7
13	6.5	3.9
14	6.2	3.7
15	6.1	3.7
16	6.1	3.7
17	6.3	3.8
18	6.6	4.0
19	6.2	3.7
20	6.1	3.7

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2025 No Build - PM Peak
FDOT District	6
Year	2025
Intersection Type	4 X 6
Speed	Arterial 30 mph
Approach Traffic	Arterial 1890 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.0	3.6
2	6.1	3.7
3	6.5	3.9
4	6.1	3.7
5	6.0	3.6
6	6.0	3.6
7	6.2	3.7
8	6.5	3.9
9	6.1	3.7
10	6.0	3.6
11	6.0	3.6
12	6.1	3.7
13	6.5	3.9
14	6.1	3.7
15	6.1	3.7
16	6.0	3.6
17	6.3	3.8
18	6.6	4.0
19	6.2	3.7
20	6.1	3.7

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2045 No Build - AM Peak
FDOT District	6
Year	2045
Intersection Type	4 X 6
Speed	Arterial 30 mph
Approach Traffic	Arterial 3290 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.7	4.0
2	6.9	4.1
3	7.4	4.4
4	7.2	4.3
5	6.8	4.1
6	6.9	4.1
7	7.2	4.3
8	7.2	4.3
9	6.9	4.1
10	6.4	3.8
11	6.8	4.1
12	7.0	4.2
13	7.4	4.4
14	7.2	4.3
15	6.8	4.1
16	6.9	4.1
17	7.2	4.3
18	7.3	4.4
19	6.9	4.1
20	6.5	3.9

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2045 No Build - PM Peak
FDOT District	6
Year	2045
Intersection Type	4 X 6
Speed	Arterial 30 mph
Approach Traffic	Arterial 2860 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	6.4	3.8
2	6.6	4.0
3	7.1	4.3
4	6.8	4.1
5	6.6	4.0
6	6.7	4.0
7	6.8	4.1
8	7.0	4.2
9	6.6	4.0
10	6.3	3.8
11	6.5	3.9
12	6.7	4.0
13	7.1	4.3
14	6.8	4.1
15	6.6	4.0
16	6.8	4.1
17	7.0	4.2
18	7.1	4.3
19	6.6	4.0
20	6.4	3.8

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2025 Build - AM Peak
FDOT District	6
Year	2025
Intersection Type	4 X 4
Speed	Arterial 30 mph
Approach Traffic	Arterial 1260 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.7	3.4
2	5.8	3.5
3	6.1	3.7
4	5.8	3.5
5	5.8	3.5
6	5.7	3.4
7	5.8	3.5
8	6.0	3.6
9	5.9	3.5
10	5.8	3.5
11	5.7	3.4
12	5.9	3.5
13	6.0	3.6
14	5.8	3.5
15	5.8	3.5
16	5.7	3.4
17	5.9	3.5
18	6.1	3.7
19	5.8	3.5
20	5.8	3.5

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2025 Build - PM Peak
FDOT District	6
Year	2025
Intersection Type	4 X 4
Speed	Arterial 30 mph
Approach Traffic	Arterial 1040 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.6	3.4
2	5.8	3.5
3	6.0	3.6
4	5.7	3.4
5	5.6	3.4
6	5.6	3.4
7	5.8	3.5
8	5.9	3.5
9	5.8	3.5
10	5.6	3.4
11	5.6	3.4
12	5.8	3.5
13	5.9	3.5
14	5.7	3.4
15	5.6	3.4
16	5.6	3.4
17	5.9	3.5
18	6.0	3.6
19	5.7	3.4
20	5.7	3.4

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2045 Build - AM Peak
FDOT District	6
Year	2045
Intersection Type	4 X 4
Speed	Arterial 30 mph
Approach Traffic	Arterial 1650 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.9	3.5
2	6.0	3.6
3	6.4	3.8
4	6.0	3.6
5	5.9	3.5
6	5.9	3.5
7	6.0	3.6
8	6.3	3.8
9	6.0	3.6
10	5.9	3.5
11	5.9	3.5
12	6.0	3.6
13	6.3	3.8
14	6.0	3.6
15	5.9	3.5
16	5.9	3.5
17	6.1	3.7
18	6.3	3.8
19	6.0	3.6
20	5.9	3.5

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

CO Florida 2012 - Results
Thursday, February 13, 2020

Project Description

Project Title	Turnpike Extension (SR 821) Widening PD&E
Facility Name	Turnpike Extension (SR 821)
User's Name	Stanley Consultants
Run Name	2045 Build - PM Peak
FDOT District	6
Year	2045
Intersection Type	4 X 4
Speed	Arterial 30 mph
Approach Traffic	Arterial 1600 vph

Environmental Data

Temperature	53.9 °F
Reid Vapor Pressure	13.3 psi
Land Use	Urban
Stability Class	D
Surface Roughness	175 cm
1 Hr. Background Concentration	5.0 ppm
8 Hr. Background Concentration	3.0 ppm

Results
(ppm, including background CO)

Receptor	Max 1-Hr	Max 8-Hr
1	5.8	3.5
2	6.0	3.6
3	6.3	3.8
4	5.9	3.5
5	5.8	3.5
6	5.8	3.5
7	6.0	3.6
8	6.3	3.8
9	5.9	3.5
10	5.8	3.5
11	5.8	3.5
12	6.0	3.6
13	6.3	3.8
14	5.9	3.5
15	5.8	3.5
16	5.8	3.5
17	6.1	3.7
18	6.3	3.8
19	6.0	3.6
20	5.8	3.5

****
**********PROJECT PASSES**********
NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
****

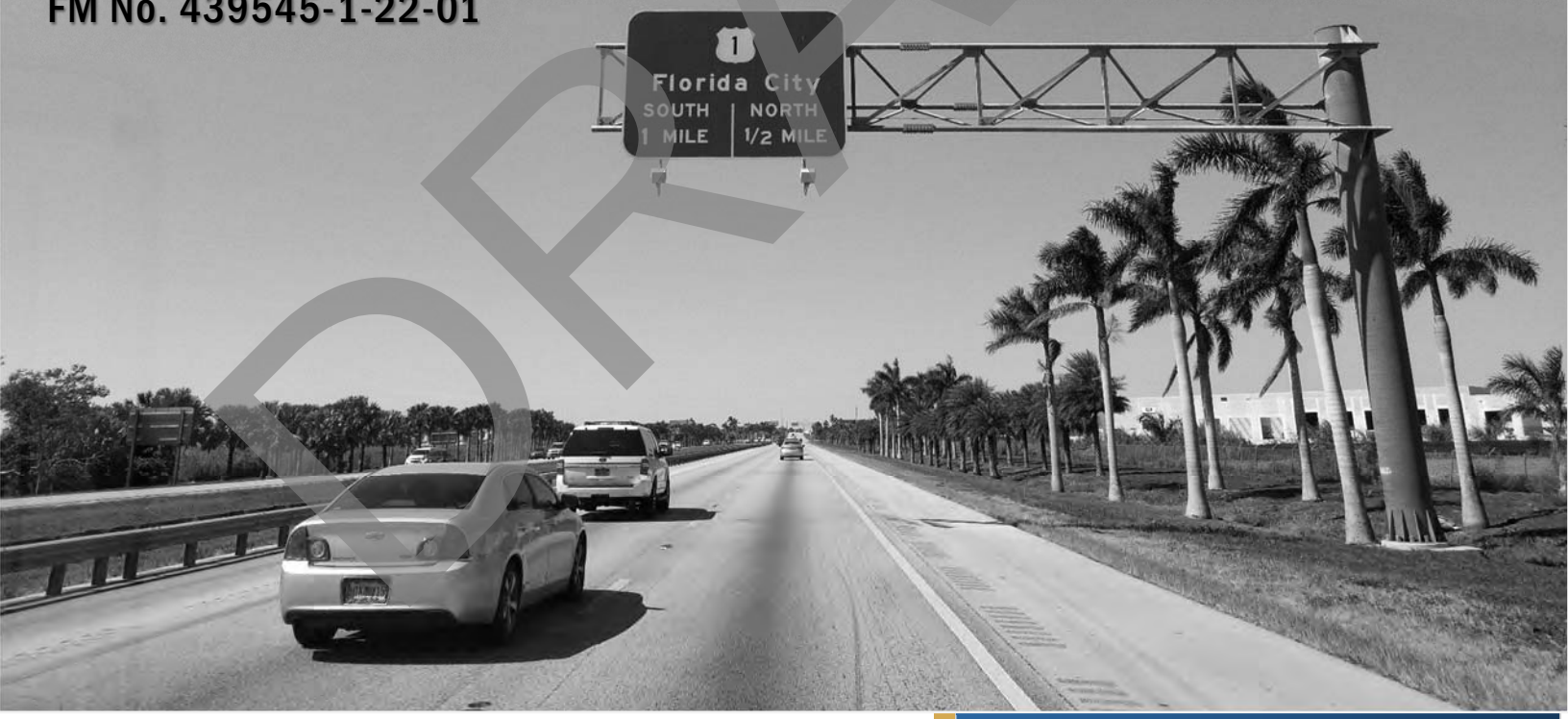
Appendix G

Lucy Street Feasibility Study Technical Memorandum

Lucy Street Feasibility Study
Technical Memorandum

Turnpike Extension (SR 821) Widening
Project Development and Environment (PD&E) Study
From US 1 South of Palm Drive to Campbell Drive | Miami-Dade County, Florida

FM No. 439545-1-22-01



Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069 | Ocoee, FL 34761

December 2019

FDOT

FLORIDA'S TURNPIKE

Executive Summary

The Florida's Turnpike Enterprise (FTE) retained Stanley Consultants, Inc., to perform a feasibility study for a new partial interchange at Lucy Street/SE 8th Street/SW 328th Street along the Turnpike Extension (SR-821) in Miami-Dade County, Florida. A previous interchange concept prepared by The Corradino Group in 2012 was provided to the study team to refine and update roadway geometry to meet current Florida Department of Transportation (FDOT) Design Manual (FDM) and Turnpike Design Handbook (TDH) design standards.

The purpose of this Lucy Street Feasibility Study memorandum is to analyze the feasibility of a new Turnpike Extension interchange at Lucy Street to reduce congestion at adjacent Turnpike interchanges and improve mobility in the cities of Homestead and Florida City. Lucy Street crosses beneath the Turnpike Extension approximately at mile post (MP) 1.37, 0.83 miles north of the US 1 interchange, and 1.74 miles south of the Campbell Drive interchange. The interchange concept creates new access to the Turnpike Extension with one (1) southbound off-ramp that expands to three (3) lanes at the Lucy Street intersection and one (1) northbound on-ramp. Concept plans are presented in **Appendix A**.

The arterial roadway connection at Lucy Street utilized the Miami-Dade County, Lucy Street four-lane reconstruction plans as the existing roadway condition.

The new interchange would require right of way acquisition (partial or total parcel acquisition) on seven (7) parcels. No residential or business relocations are required. Other impacts of the interchange include drainage, utilities and signalization on Lucy Street. The total estimated construction cost for the interchange is approximately $13.2 million.

The benefits of a new interchange access point at Lucy Street are the following:

- Reduction in traffic volumes at the US 1 and Campbell Drive interchanges
- Improvement in regional mobility
- A benefit/cost ratio of 0.54

Based on the evaluation completed in this feasibility study, the proposed partial interchange is recommended for further study and development in a PD&E Study.

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1.0 Introduction

The Florida's Turnpike Enterprise (FTE) has retained Stanley Consultants, Inc., to perform a preliminary engineering review and feasibility study of a new partial interchange concept at Lucy Street/SE 8th Street/SW 328th Street (referred to as Lucy Street in this study) in Miami-Dade County, Florida. The feasibility study was conducted concurrently with the Project Development and Environment (PD&E) Study to widen Turnpike Extension (SR 821) from US 1 South of Palm Drive to Campbell Drive.

This feasibility study responds to an interchange access request that was initiated by the City of Homestead in support of local development and enhancement of regional mobility. A previous feasibility study for this proposed interchange was completed by The Corradino Group, dated May 2012, which provided the basic configuration for the interchange concept presented in this memorandum. The concept proposes a southbound off-ramp and a northbound on-ramp at Lucy Street. This feasibility study updates the geometric design of the interchange concept to current roadway standards and documents the features, benefits and impacts related to the engineering and environmental elements associated with the potential new partial interchange. Separate toll gantries for these new ramps are not anticipated at the time of this memorandum.

1.1 Purpose and Need

The primary purpose of a new Turnpike Extension interchange at Lucy Street is provide new access to/from the Turnpike between the two existing interchanges which are approximately three (3) miles apart. The secondary purpose of the interchange is to reduce congestion at the two adjacent interchanges and improve mobility in the cities of Homestead and Florida City. Lucy Street crosses beneath the Turnpike Extension approximately at MP 1.37, 0.83 miles north of the US 1 interchange, and 1.74 miles south of the Campbell Drive interchange.

1.2 Study Description and Location

The proposed partial interchange concept includes:

1. A single-lane Turnpike Extension southbound off-ramp which widens to three turning lanes (right turn, center choice right/left turn, and left turn lanes) at Lucy Street with a directional median opening for southbound left turns.

2. A single-lane Turnpike Extension northbound on-ramp, which allows for access from eastbound/westbound Lucy Street and northbound SW 167th Avenue.

3. Minor improvements to Lucy Street to accommodate the new interchange intersections.

4. Relocation (by others) of the local road SE 12th Avenue/Tennessee Road, west of the proposed interchange.

5. Stormwater treatment and attenuation improvements for the new impervious area.

The study area along Lucy Street is 0.7 miles long from west of NE 6th Avenue to east of SW 167th Avenue/Tennessee Road, as depicted on the project location map in **Figure 1**.

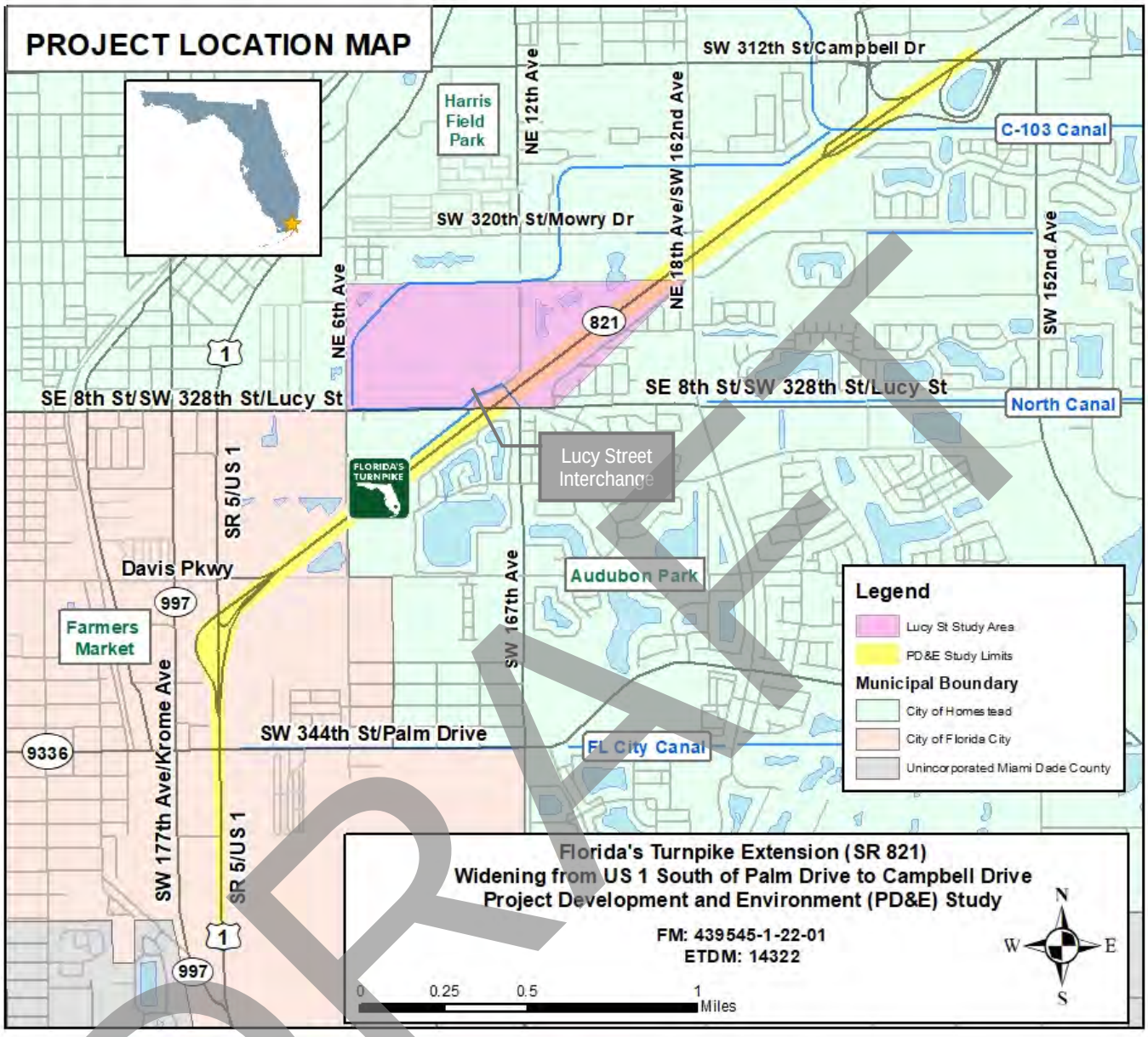

Figure 1 - Project Location Map

2.0 Existing Conditions

Lucy Street within the study area runs east to west and was under construction in 2019 to become a four-lane divided roadway. See **Appendix B** for the Lucy Street Widening Construction Plans. The arterial does not provide access to the Turnpike Extension. Adjacent land use is predominately farmland with surrounding residential land use.

The four-lane widening construction plans were prepared by Jacobs Engineering Group, Inc for Miami-Dade County Public Works and Waste Management Department Highway Division (Project Number 20040558). Since the Lucy Street reconstruction project is under construction during development of this feasibility memo, the existing condition will be considered, as shown in those reconstruction design plans, an urban four-lane divided major collector.

As shown in **Figure 2**, Tennessee Road north of Lucy Street is a paved local-access-only roadway that leads to a gated and locked secondary entry to the Monterey Pointe development. The roadway terminates at this gate (shown in **Figure 3**) and no longer connects to the closed bridge over C-103 canal. In coordination with the City, this bridge and road is not scheduled for improvement or opening to public traffic.

South of Lucy Street, Tennessee Road will be referred to as SW 167th Avenue which is an active local collector roadway with a signalized intersection.

Figure 2 - Interchange Study Area

Figure 3 - Termini of Tennessee Road North of Lucy Street

2.1 Roadway Features

The Lucy Street reconstruction project provides an urban four-lane divided typical section with two 11-foot through lanes, 16-foot median, four-foot bike lanes, and five-foot sidewalks with a 40-mph design and posted speed.

2.2 Traffic and Safety

The Turnpike Extension segment that crosses over Lucy Street has a 2016 Annual Average Daily Traffic (AADT) volume of approximately 39,800 vehicles. According to the FDOT Florida Traffic Online website, Lucy Street has a 2018 AADT of 9,400 vehicles (west of the Turnpike Extension) and 4,100 vehicles (east of the Turnpike Extension). The Turnpike Extension operates at LOS B (2016) between US 1 and Campbell Drive.

Crash data was collected for the five-year period from 2011 to 2015 and a crash analysis was conducted to identify crash patterns and contributing causes within the proposed interchange limits. The full crash analysis can be found in **Appendix C**.

A total of 55 crashes were reported during the referenced five-year period on the Turnpike Extension within the Feasibility Study limits, between mileposts 1.579 and 2.469. See **Figures 4** through **8** for crash distributions by year, type, lighting conditions, roadway surface, and severity, respectively.

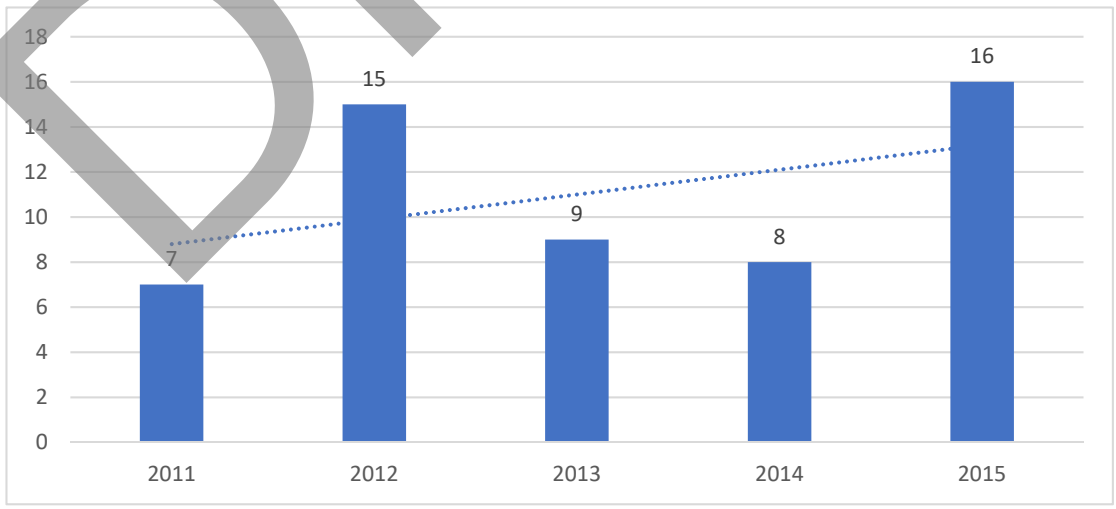

Figure 4 - Turnpike Extension Crash Distribution by Year

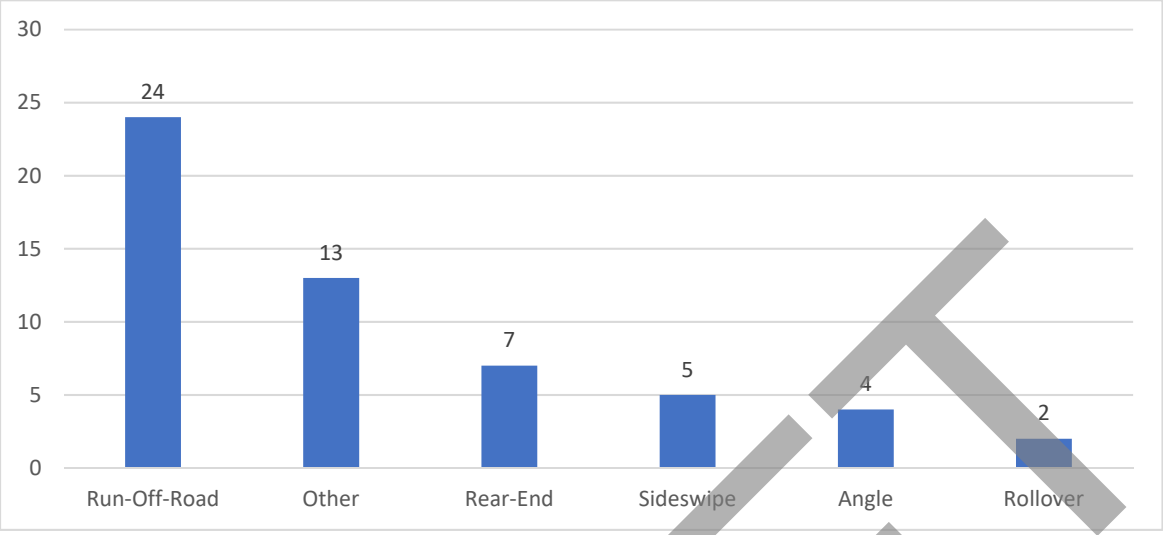

Figure 5 - Turnpike Extension Crash Distribution by Type

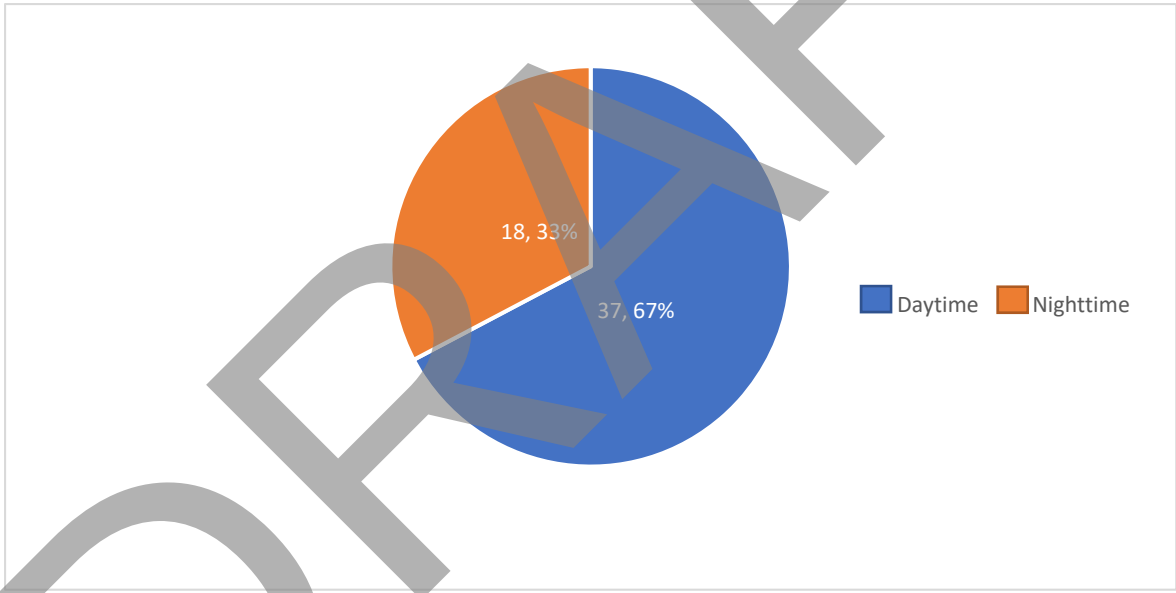

Figure 6 - Turnpike Extension Crash Distribution by Lighting Condition

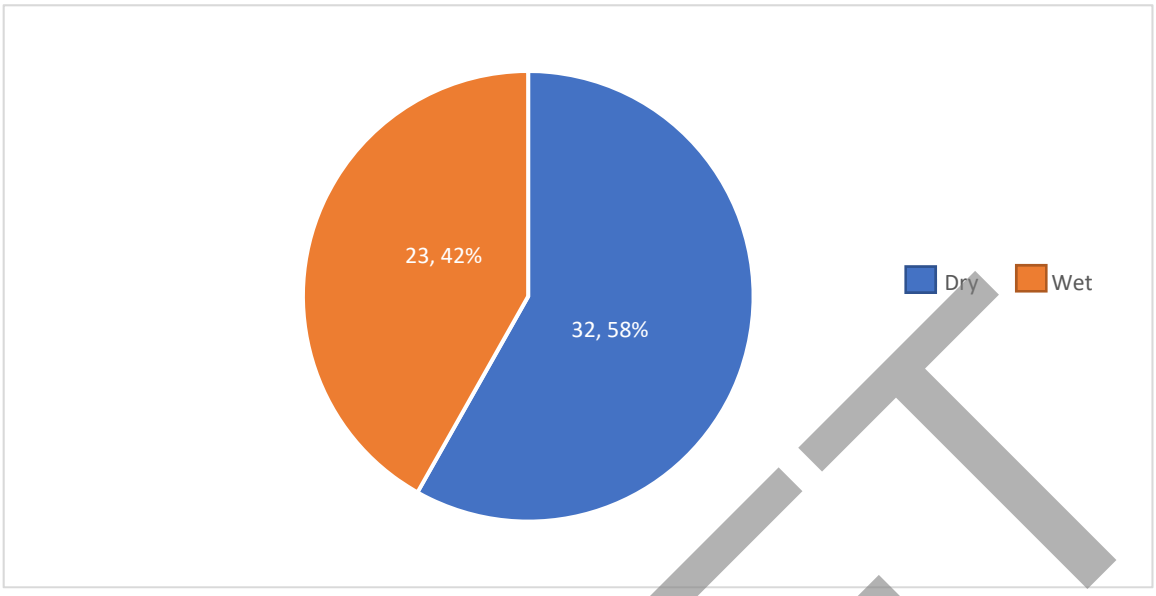

Figure 7 - Turnpike Extension Crash Distribution by Roadway Surface Condition

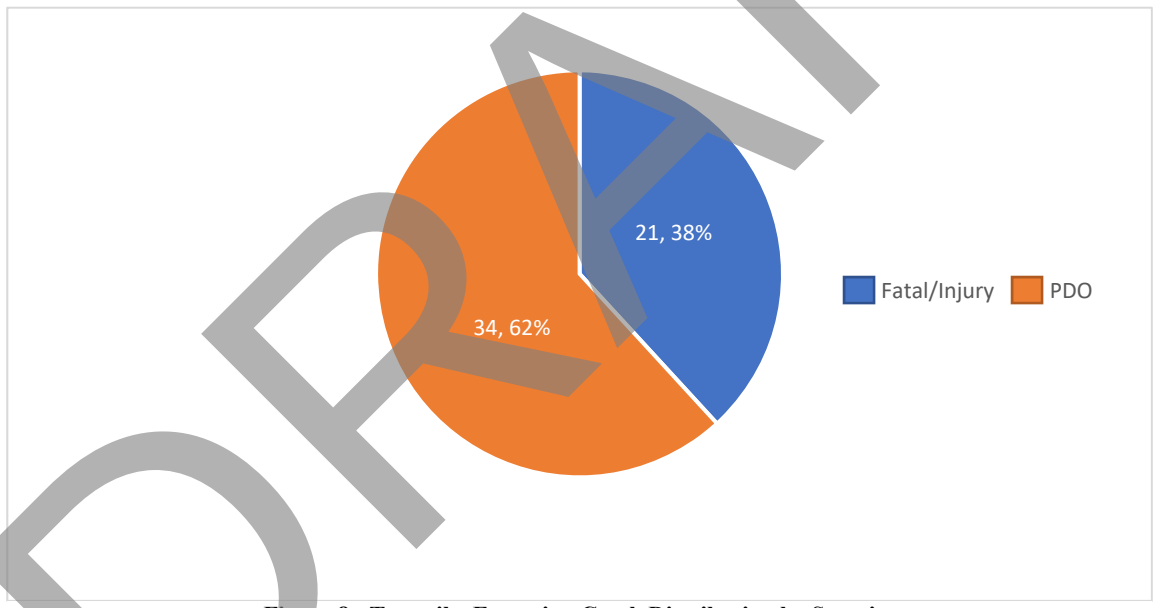

Figure 8 - Turnpike Extension Crash Distribution by Severity

One fatal crash occurred in the southbound direction of the Turnpike Extension, approximately one and a half miles north of the southbound off-ramp to US 1 northbound, on a Saturday at approximately 2 PM on a dry roadway. The crash involved a southbound motorcycle and a southbound passenger vehicle. Four people were involved in the crash, which resulted in one fatality.

A total of sixteen (16) crashes were reported during the referenced five-year period along Lucy Street. See **Figures 9 and 10** for crash distributions by year and type, respectively.

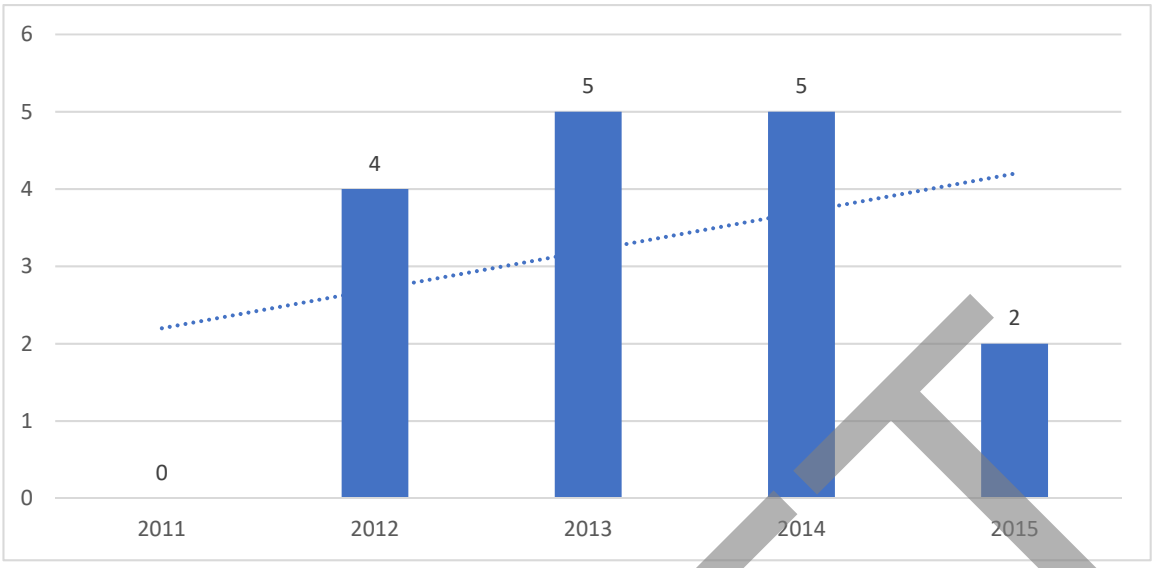

Figure 9 - Lucy Street Crash Distribution by Year

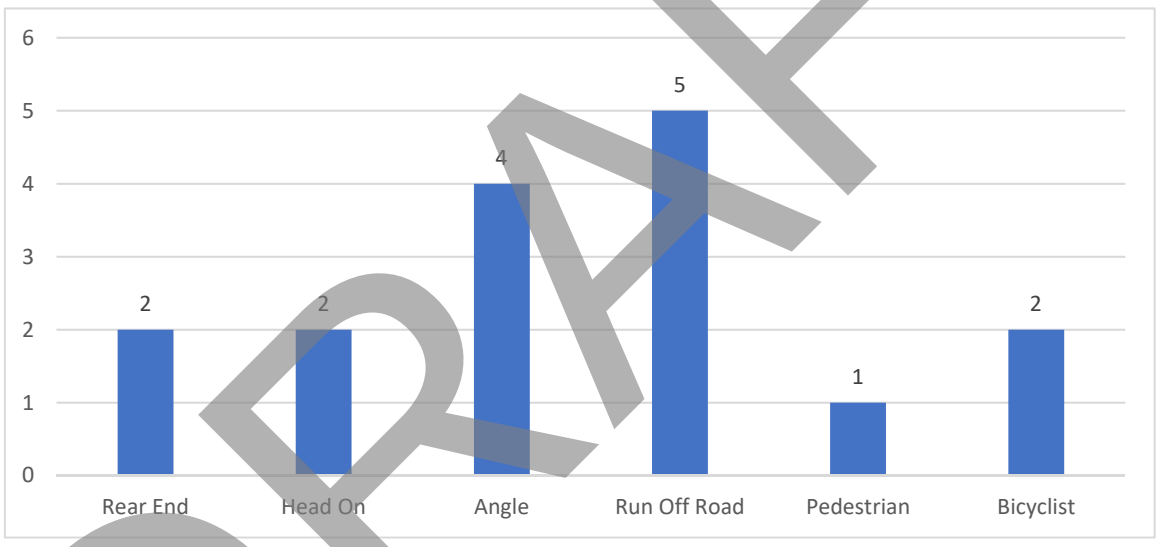

Figure 10 - Lucy Street Crash Distribution by Type

2.3 Turnpike Extension Interchange Access

No existing access to the Turnpike Extension is available from Lucy Street. To access the Turnpike Extension, a driver must either go south to the US 1 interchange (MP 0.00) or go north to the Campbell Drive interchange (MP 3.00).

2.4 Structures

Lucy Street passes beneath the Turnpike under spans 2 and 3 of bridges 870192 and 870399. The existing vertical clearance is 16 feet - 4.5 inches. The bridges have four spans with AASHTO girders, founded on abutments and column piers with 18-inch prestressed concrete piles. The construction plans call for 54-inch pier protection at the median and outside piers. Both abutments have concrete slope protection underneath spans 1 and 4 as seen in **Figure 11**.

Figure 11 - Existing Southbound SR 821 Bridge (looking east)

2.5 Pedestrian and Bike Facilities

According to the Lucy Street construction plans, a five-foot concrete sidewalk and a four-foot bicycle lane will be provided on both sides of the roadway beneath the Turnpike overpass. Miami-Dade Transit route 344 services Lucy Street from SE 6th Avenue to Tennessee Road east of the Turnpike Extension.

2.6 Drainage

The North Canal crosses under the Turnpike Extension via a double 60-inch major cross drain, approximately 250 feet north of Lucy Street, and leads east to a piped portion of the North Canal. The North Canal eventually discharges to Biscayne Bay and is the outfall location for Lucy Street as well. Lucy Street has a closed drainage system consisting of curb inlets and pipes. There are 36-inch French drain cells located on the north side of the road that provide water quality.

An existing double 42-inch cross drain provides drainage connectivity to the North Canal for discharge from the Turnpike Extension south of Lucy Street. The cross drain is located 200 feet west of the center Turnpike pier. There is an agricultural ditch located, outside of the Lucy Street right of way, on the north side of Lucy Street west of the Turnpike Extension and is used for irrigation purposes.

2.7 Lighting

Reconstruction project improvements include providing decorative lighting along the north and south back of sidewalk along Lucy Street and under the Turnpike Extension bridges. The Turnpike Extension mainline does not have existing roadway lighting within the study area.

2.8 Signalization

The intersection of SW 167th Avenue and Lucy Street is a signalized T-intersection with three approaches. The signal system is comprised of three (3) mast arms located on the north, east and west corners. **Figure 12** shows an existing signal mast arm on Lucy Street east of the Turnpike mainline.

Figure 12 - Existing Mast Arm Signal at Lucy Street

2.9 Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS) facilities exist along the Turnpike Extension in the vicinity of Lucy Street and are further detailed in Section 3.11.

No ITS facilities are indicated on the Lucy Street reconstruction plans.

2.10 Utilities

Overhead utilities were verified during a field review and buried utilities were identified in the Lucy Street reconstruction plans from the Miami-Dade County SW 328th Street from US 1 to SW 162nd Avenue design plans. There are overhead electric transmission lines, owned by the City of Homestead that run parallel along Lucy Street. All known utility owners within the study limits are:

- Miami-Dade County Water and Sewer Dept.
- Miami-Dade County Public Works
- Advantage Group of Florida Communications
- AT&T
- Florida Power and Light
- Bellsouth
- Florida Power and Light
- City of Homestead
- City of Homestead (Electric Department)
- City of Florida City

2.11 Landscaping

No landscaping exists within the right of way of Lucy Street or the Turnpike within the Study area.

2.12 Environmental

Wetland and Surface Waters

The ditch that runs adjacent on the north side of Lucy Street flows east and continues to flow underneath the Turnpike Extension via box culverts. The ditch continues flowing east to the North Canal just east of NE 18th Avenue. There is wetland vegetation along the banks and within the ditch (i.e. torpedo grass, white duck potato, and maidencane grass).

Protected Species and Habitat

The land cover within the study area is predominantly agricultural. Based on the data and literature review, federally listed species that may occur include the American Crocodile, Florida Bonneted Bat, Eastern Indigo Snake, and the Wood Stork. The study area is within the United States Fish and Wildlife Service's (USFWS) Consultation Areas for the American Crocodile and the Florida Bonneted Bat. It is also within the Grossman Ridge West Core Foraging Area (CFA) for the Wood Stork. The project area is not within any USFWS designated critical habitat.

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3.0 Proposed Interchange Concept Evaluation

3.1 Concept Description

The proposed feasibility concept (see **Appendix A**) is a partial interchange with a southbound off-ramp and northbound on-ramp. A southbound 12-foot auxiliary lane is proposed along the Turnpike Extension from Campbell Drive to the Lucy Street southbound off-ramp. The mainline posted speed is 65 mph.

To accommodate the southbound off-ramp, the existing Tennessee Road roadway will be relocated by others. The final location and alignment of Tennessee Road will be determined by the local agencies and/or property owners at a later date and is not part of the Lucy Street Feasibility Study. The concept plans provided in this study show a potential connection to Lucy Street from Tennessee Road, 900 feet west of the new ramp location with the new limited access right of way line extending to the newly relocated driveway. This location is an equal distance from NE 6th Avenue and the new off-ramp intersection. Other possible relocations of Tennessee Road could connect to NE 6th Avenue directly.

The southbound off-ramp includes a 15-foot wide single-lane ramp, which widens to three (3) 12-foot wide turning lanes (one right turn lane, one left turn lane and one shared right/left turn lane) at Lucy Street. A signalized intersection will be developed at the southbound off-ramp and Lucy Street intersection. The ramp exit design speed is 50 mph, which lowers to 30 mph approaching the Lucy Street intersection.

A single-lane northbound on-ramp connects to the mainline as a parallel ramp with a 1,135 foot long acceleration lane. Lucy Street modifications include adding a new eastbound left and a right turn lane, adding a westbound right turn lane, and adding a through lane on the south leg of the intersection. The on-ramp design speed is 50 mph.

3.2 Future Traffic and Safety

The future year 2045 traffic analysis shows that when the Lucy Street interchange is added to the freeway system it reduces the overall travel demand on the Campbell Drive and US 1 interchanges by 7,700 and 14,500 AADT respectively (**Table 1**). The freeway travel demand increases south of Campbell Drive by 8,100 AADT and decreases south of Lucy Street by 14,500. The net benefit is reduced delay and travel time throughout the study

Table 1 - 2045 Mainline and Ramp AADT

Mile Post-Interchange	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
	108,600	**108,600**	**0**
2 – Campbell Drive	43,700	36,000	-7,700
	10,400	10,800	400
1 - Lucy Street (SW 328th St)	**75,300**	**83,400**	**8,100**
	0	22,600	22,600
	75,300	**60,800**	**-14,500**
0 – US 1 (To/From North)	22,300	12,800	-9,500
0 – US 1 (To/From South)	53,000	48,000	-5,000

area. Compared to the No Build alternative, with the Lucy Street interchange implemented, the overall regional delay is reduced 78%, which results in a net cumulative benefit of over $12 million to the region's transportation

network. A benefit-cost ratio of 0.54 was determined based on travel time, time value and time benefit in respect with cost. The analysis can be found in **Appendix D**.

The future year 2045 traffic volumes exceed the capacity of the existing four lane freeway segment in the No Build Scenario resulting in LOS D/F. Widening to a six-lane freeway section will provide sufficient capacity to achieve acceptable LOS D or better with typical traffic volumes operating at LOS B/C (**Table 2**).

Table 2 - 2045 Scenarios Freeway Segment Analysis Results

Location	Direction	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
North of Campbell Drive (MP 2)	Southbound	F	F	F	D	C	D	D	C	D
	Northbound	F	F	F	C	D	D	C	D	D
North of US 1 (MP 0) to Campbell Drive (MP 2)	Southbound	F	D	F	C	B	D	C	B	D
	Northbound	D	F	F	B	C	B	B	C	B

The proposed partial interchange at Lucy Street will provide additional access to the Turnpike Extension for the City of Homestead/Florida City area residents, both to and from the Greater Miami Area, thereby reducing traffic volumes and related congestion experienced along the US 1, Palm Drive, and Campbell Drive arterials and intersections. New traffic flow on Lucy Street will result as motorist use the closer and more convenient Turnpike access point. Traffic analyses shows the Lucy Street ramp terminal intersections operating at acceptable LOS in the design year and overall traffic volumes, congestion and delay at the existing Palm Drive and Campbell Drive intersections would be reduced. The proposed partial interchange would provide an overall positive effect to regional mobility and provide congestion relief at the adjacent Turnpike interchanges by reducing total network delay, reducing travel times, and reducing emissions.

The congestion relief that would occur at the existing US 1, Palm Drive, and Campbell Drive arterials and intersections due to the new Lucy Street interchange will have a positive impact on overall safety in the study area. Although the number of crashes along Lucy Street will likely increase in the future given the higher traffic volumes, overall intersection-related crashes within the study area should decrease, when compared to the No-Build Alternative, including high severity angle and left-turn crashes as congestion is reduced and gaps in conflicting traffic are increased. Sideswipe and rear-end Turnpike crashes will also decrease, when compared to the No-Build Alternative, at the existing on and off-ramps along with mitigated mainline nighttime crashes due to additional interchange lighting. The reduction in volumes at the Campbell Drive interchange will also mitigate lane departure crashes along the loop ramps. Pedestrians and bicyclists should experience safer conditions from reduced congestion and the new signalization along Lucy Street that allows for better pedestrian access to potential bus stops.

For the traffic and safety impacts to the study area, the proposed interchange provides an overall positive effect.

3.3 Right of Way Needs

Right of way is required for both proposed ramps. A 94-foot border width was used for the mainline and ramps except where the border width was reduced to 24 feet to mitigate residential right of way impacts.

This study provides a potential connection for a future relocated Tennessee Road connecting to Lucy Street midway from the new southbound off-ramp and NE 6th Avenue. The final location and design of the realigned roadway is to be determined later by local agencies and property owner coordination. Right of way for the Tennessee Road relocation will be provided by the owner/developer per the local agency coordination meeting held on November 4, 2019. See **Appendix E** for meeting minutes.

4, 2019. See **Appendix E** for meeting minutes.

No residential or business relocations were identified with the proposed partial interchange concept. **Table 3** summarizes the right of way needed from each parcel. A right of way exhibit corresponding to the table is provided in **Appendix F**. A preliminary right of way cost estimate was $5.5 million.

Table 3 - Approximate Right of Way Areas Needed

Folio Number	Area (SF)
1079180010150	345,945
1079170010360	8,405
1079190130001	420
1079190120001	260
1079170010410	95,435
Total SF	**450,465**

3.4 Roadway and Access

The proposed Lucy Street interchange would be located within the limits of the City of Homestead and approximately 1.74 miles from the existing Campbell Drive interchange and 0.83 mile from the US 1/SR 5 interchange. The Lucy Street interchange is a directional interchange with located ramps between Lucy Street and the Campbell Drive interchange which is 1.74 miles to the north. The Lucy Street interchange does not introduce ramps in the shorter 0.83-mile section to the south towards the US 1 interchange.

According to the City of Homestead Economic Development Book 2019, the city is home to 70,000 residents and an additional 400,000 people are within a 20-minute commute. The FDOT Quality/Level of Service Handbook 2013, page 58 defines an Other Urbanized Area as having a minimum population of 50,000. Therefore, according to the FDOT Design Manual (FDM) and Access Management Rule 14-97 Table 201.3.1, Freeway Interchange Spacing is Area Type 2, and Existing Urbanized Areas Other Than Area Type 1 with interchange spacing at two (2) miles.

The proposed interchange substantially satisfies the spacing criterion where the ramps are proposed between Lucy Street and Campbell Drive. An auxiliary lane is provided between the southbound on-ramp at Campbell Drive and the southbound off-ramp at Lucy Street. Traffic projections and operational analysis identified adequate LOS for the ramps, mainline and merge/diverge/weave areas. Overall regional mobility and access is anticipated to have a positive effect due to the proposed interchange.

3.5 Structures

The proposed interchange does not impact the existing Turnpike Extension bridges over Lucy Street. However, the improvements would require other miscellaneous structural work for a potential box culvert on the north side of Lucy Street as well foundations for the proposed mast arm signals. Potential new overhead sign structures could be needed to sign the new interchange. Potential minimal impacts are anticipated to structures.

No improvements are expected under or to the Turnpike bridges due to the new interchange improvements.

3.6 Pedestrian and Bike Facilities

Sidewalk modifications are required on the north side of Lucy Street due to the proposed ramps. Sidewalk modifications are minor and include sidewalk relocation, additional curb ramps and additional sidewalk to the relocated Tennessee Road.

The proposed interchange improvements maintain the bike lanes along Lucy Street. Bike keyholes will be provided between the proposed right turn lane and the through lanes at the northbound on-ramp location. Potential minimal impacts are anticipated to pedestrian and bicycle facilities.

3.7 Drainage

Drainage modifications include inlet, manhole and headwall adjustments. New side drain pipes are required at the southbound off-ramp terminus at Lucy Street to provide positive drainage for the existing irrigation ditch utilized by the adjacent agricultural property.

The proposed interchange concept does not impact the existing double 60-inch cross drain under the Turnpike Extension or the double 42-inch cross drain under Lucy Street, however the headwall of the piped segment of the North Canal will be impacted near the proposed northbound on-ramp intersection with Lucy Street. The piped segment of the North Canal should be modified to be located beyond the clear zone of the proposed ramp. The new southbound auxiliary lane from Campbell Drive to the Lucy Street off-ramp requires regrading the existing swales of the mainline and possible adjustments to the existing drainage inlets.

Stormwater management treatment for the southbound off-ramp can occur within linear ponds located within the proposed limited access right of way of the southbound off-ramp. Stormwater management of the northbound on-ramp can occur within a linear pond located within the proposed limited access right of way of the northbound on-ramp. Potential minimal impacts are anticipated to drainage.

3.8 Signing and Pavement Marking

Additional interchange signage is required along Lucy Street and the Turnpike Extension. A conceptual signing plan should be prepared as part of the PD&E Interchange Access Report process. Minor pavement marking modifications are required along Lucy Street due to the addition of the southbound off-ramp and northbound on-ramp. Investigation and coordination of the freeway guide sign placement should consider the location of the express lane guide and toll signs associated with the express lane entry/exit point just north of Campbell Drive.

3.9 Lighting

Some of the recently constructed light poles along Lucy Street will require modification. The proposed southbound off-ramp impacts approximately one (1) light pole. The proposed northbound on-ramp impacts five (5) light poles for the westbound to northbound right turn lane. New lighting should be evaluated during the PD&E phase along with any lighting modifications along Lucy Street. Potential minimal impacts are anticipated to lighting.

3.10 Signalization

New mast arm signals will be required at the southbound off-ramp and modifications required for the existing mast arm signals and traffic controller located at the SW 167th Avenue and northbound on-ramp intersection.

3.11 Intelligent Transportation Systems (ITS)

The proposed Lucy Street interchange may impact the existing ITS facilities along the Turnpike Extension. A fiber optic cable backbone and electrical service wires buried west of and running parallel to the mainline. Lateral cable and electrical service wire drops service ITS subsystems 821-1.2SB and 821-1.2MD. ITS subsystem 821-1.2SB is located just south of Lucy Street along the southbound side of the mainline, 39 feet from the face of guardrail that has CCTV, microwave vehicle detection system (MVDS), and travel-time system (TTS) transponder readers mounted on a 76-foot concrete pole. ITS subsystem 821-1.2MD is located just south of Lucy Street in the grass median of the mainline, seven feet from the face of guardrail that has TTS mounted on a 34-foot concrete pole.

The roadway modifications from the proposed interchange at Lucy Street will have impacts in the northwest and

The roadway modifications from the proposed interchange at Lucy Street will have impacts in the northwest and northeast quadrants of the interchange. No impacts are anticipated in the southwest or southeast quadrants. Based on a preliminary assessment of the existing ITS infrastructure, ITS subsystems 821-1.2 SB and 821-1.2 MD will not be impacted due to the new interchange. However, 821-1.2 MD is anticipated to be relocated due to incidental construction of the proposed inside widening from the proposed Homestead Extension Florida's Turnpike project (439545-1-52-01). There do not appear to be any fiber pull boxes or splice vaults within the vicinity of the proposed alignments and it is anticipated that no excavation will be required within the vicinity of the fiber optic cable backbone along the west side of Florida's Turnpike, thus, the backbone will not be impacted.

The existing power service is located in the northwest quadrant of Lucy Street and Florida's Turnpike. It is anticipated that the overhead utilities will be impacted due to the profile of the proposed off-ramp alignment, however, the power service point for the ITS devices located south of the new alignment is not expected to be impacted. Accommodations should be made to ensure that service shall be retained to the existing ITS infrastructure through this service point during any potential modifications to the overhead utilities.

Future arterial dynamic message signs on the three approaches to the northbound on-ramp will require consideration.

3.12 Utilities

The proposed interchange ramps will impact existing utilities. The underground and overhead transmission lines have been identified as belonging to the City of Homestead Electric. See **Appendix G** for the electrical utility plans.

At the northbound on-ramp the underground three phase primary line will be crossed and the switch cabinet and primary pull box will need relocation. Coordination is required regarding the location of the eastbound right turn lane, sidewalk, existing 105-foot transmission poles and utility cabinets to identify horizontal clearance requirements. **Figure 13,** facing west, shows the current configuration of cabinets on the southwest quadrant of the intersection that will potentially be impacted by proposed curb return improvements.

Figure 13 - Existing Utility Cabinets on Southwest Corner of Lucy Street and SW 167th Avenue

The proposed alignment for the southbound off-ramp avoids the existing transmission power poles along the northside of Lucy Street, as seen on the left side of **Figure 14**. However, potential powerline relocations needed for the northbound on-ramp at SW 167th Avenue may affect the transmission poles near the southbound off-ramp. The southbound off-ramp will pass under a distribution powerline along the existing western limited access right

Figure 14 - Transmission Pole West of Turnpike on Lucy Street

of way line and affect the powerline, five (5) 45-foot wood power poles and one (1) overhead transformer to meet vertical clearance requirements over the ramp. Along Lucy Street, the underground three phase primary line will be crossed with the new off-ramp construction.

Potential substantial impacts are anticipated for utilities within the study area. During the design phase potential utility conflicts should be reviewed with the proposed improvements including potential conflicts at new signal and light pole locations and at drainage modifications.

3.13 Landscape

No landscape impacts are anticipated with the proposed new interchange.

3.14 Environmental

Wetland and Surface Waters

Any proposed improvements (i.e. new culverts or relocation of culverts) within the ditch running parallel to Lucy Street could result in minimal impacts to the wetland vegetation identified along the banks and within the ditch.

Protected Species and Habitat

Based on subsequent field reviews and the land cover within the study area, the likelihood of the occurrence of the American Crocodile, the Florida Bonneted Bat and Eastern Indigo Snake is very low. The ditch does provide some habitat for fish and foraging birds such as the Wood Stork.

Minimal wetland and protected species impacts are anticipated and coordination with federal agencies will need to be completed in the PD&E and design phases.

Noise effects on the nearby residential areas should be evaluated during the PD&E phase.

Farmland Protection Policy Act is not applicable to projects that do not use federal funding.

3.15 Design Variations

The proposed new interchange requires design variations for border width. The proposed interchange requires a border width variation at the start of the southbound off-ramp adjacent to the Monterey Pointe residential community. A proposed border width of 23.33 feet at this location minimizes right of way acquisition and other impacts to this community. Similarly, a reduced border width of 22.16 feet is also proposed along the northbound on-ramp adjacent to the Tennessee Estates residential community. No other design variations are anticipated for the proposed partial interchange.

3.16 Construction Cost

To calculate an estimated construction cost of the new proposed partial interchange a Long Range Estimate (LRE) was completed. The LRE cost is approximately $13.2 million.

3.17 Evaluation Matrix

The advantages and disadvantages of the proposed new partial interchange are summarized in **Table 4.**

Table 4 - Concept Advantages vs. Disadvantages

Criteria	Advantages	Disadvantages
Traffic	• New access to and from the Turnpike, thereby reducing volumes along Palm Drive and Campbell Drive. • Improved reduced trip length, • Reduced network delay on regional network by 78% • Acceptable future LOS at new Lucy Street interchange • Improves regional mobility. • Improves EMT response time. • Provides additional evacuation access. • Provides additional trucking access.	• Signals at southbound off-ramp adds delay on Lucy Street.
Safety	• Congestion relief at US 1 and Palm Drive intersection and at Campbell Dr & SW 157th Ave & SW 152nd Ave intersections, thereby reducing intersection crashes. • Reduction of Turnpike mainline crashes at Campbell Dr on/off-ramps; net reduction of mainline crashes due to equalization/metering of on-ramps within study area. • Reduction in volume/lane departure crashes along Campbell Drive loop ramps. • Reduction in volume/left-turn delay and left-turn crashes along arterials and minor roadways leading to/from Palm Drive and Campbell Drive.	• Increase in intersection crashes along Lucy Street at new interchange intersections. • Increase in Turnpike mainline crashes at Lucy Street on/off-ramp connections.
Right of Way Needs		• Total Right of Way acquisition required is approximately 10.3 acres. • Approximate cost of Right of Way required is $5.5 million.
New Interchange	• Proper interchange spacing.	

Criteria	Advantages	Disadvantages
Access Effects	• Added southbound auxiliary lane along the Turnpike Extension main line. • Improved access to/from Turnpike for daily use and evacuation periods from southern City of Homestead and northern section of Florida City. • Reduction in traffic at the interchanges with US 1 and Campbell Drive. • Reduction in trips on local arterial roadways. • AADT reduction in mainline Turnpike traffic south of new interchange. • Significantly enhances regional mobility. • Congestion reduction at adjacent interchanges.	
Adjacent Property Operations	• New access to Turnpike Extension.	• Reduction in land use that can be used for farming purposes.
Structure Impacts		• Impacts to existing box culvert under SW 167th Ave/Tennessee Road. • New culvert required under southbound off-ramp.
Bike and Pedestrian	• Reduced congestion at Palm Drive and Campbell Drive intersections should improve safety for bicyclists & pedestrians.	• Adds conflict points at the proposed ramp termini.
Drainage		• The new ramps and realigned access road impact existing canals and culverts. However, these impacts can be addressed with standard methods (canal realignment, culvert replacement/extension).
Lighting Impacts	• Nighttime crashes along Turnpike mainline in the vicinity of Lucy Street should reduce due to new interchange lighting.	
Signalization		• One (1) new signal required at southbound off-ramp and Lucy Street.
ITS	No impacts	
Utility		• Utility relocations will be needed, specifically FPL overhead transmission lines and poles at the southwest corner of Lucy Street and SW 167th Avenue.
Landscaping	No impacts	
Environment		• Increase in noise along the proposed ramps, adjacent to residential land use. • Coordination with NCSR for farmland impacts.
Cost	Based on Time Benefit a Cumulative Benefit Difference of $12,392,500 is achieved when compared to the No Build.	• Right of Way is approximately $5.5 million. • Construction cost is approximately $13.2 million. • Relocation of utility costs are approximately $500,000 per transmission pole.

Criteria	Advantages	Disadvantages
Design Variations		• Border width variation needed for new ramps.

The proposed new partial interchange was evaluated for impacts and effects against a No-Build scenario. **Table 5** shows the rating system used for each evaluation criteria and **Table 6** shows the results of the no Build scenario compared to the proposed Build concept.

Table 5 - Criteria Rating System

Rating System
Positive Effect
No Impact
Potential Minimal Impact
Potential Substantial Impact
Fatal Flaw

Table 6 - Evaluation Matrix

Item No.	Criteria	No Build	Build
1	Regional Mobility	**Potential Substantial Impact**	**Positive Effect**
2	Congestion relief at adjacent interchanges	**Potential Substantial Impact**	**Positive Effect**
3	Traffic and Safety	**Potential Substantial Impact**	**Positive Effect**
4	Right of way needs	**No Impact**	**Potential Substantial Impact**
5	Local Property Access	**No Impact**	**Positive Effect**
6	Structures	**No Impact**	**Potential Minimal Impact**
7	Bike and Pedestrian	**No Impact**	**Potential Minimal Impact**
8	Drainage	**No Impact**	**Potential Minimal Impact**
9	Lighting Impacts	**No Impact**	**Potential Minimal Impact**
10	Signalization	**No Impact**	**Potential Minimal Impact**
11	ITS	**No Impact**	**No Impact**
12	Utility	**No Impact**	**Potential Substantial Impact**
12	Landscaping	**No Impact**	**No Impact**
13	Environment	**No Impact**	**Potential Minimal Impact**
14	Cost	**No Impact**	**Potential Substantial Impact**
16	Design Variations	**No Impact**	**No Impact**

4.0 Conclusion

4.1 Findings and Recommendations

This study evaluated existing conditions along Lucy Street within vicinity of the Turnpike Extension for the consideration of a new interchange.

Considerations for the design include but are not limited to:

- Adding northbound on-ramp and southbound off-ramp,
- New southbound auxiliary lanes to the proposed southbound off-ramp,
- Widening along Lucy Street at the new northbound on-ramp location to account for additional turn lanes,
- Extending the sidewalk from Tennessee Road to the new southbound off-ramp.

The proposed new interchange for the Turnpike Extension at Lucy Street will have a positive impact on the traffic operations at the existing adjacent interchanges located at termini of the Turnpike at US 1 and Campbell Drive. A benefit-cost ratio of 0.54 was determined.

Potential impacts at the proposed new interchange include right of way, utility and construction cost impacts. The preliminary LRE cost is $13.2 million and the right of way cost is an approximate $5.5 million. Utility costs to relocate Homestead Electric transmission lines will need to be coordinated with the utility owner in the design phase.

Based on the initial review of potential environmental and social impacts, there are no substantive issues identified that would preclude the construction of an interchange at the subject location. Additional coordination with local, state and federal agencies would need to occur in the PD&E and Design stage.

The evaluation of a new interchange for the Turnpike Extension at Lucy Street will require processing through the FDOT Interchange Access Request process.

Based on the evaluation and analysis of this memo, the new partial interchange at Lucy Street is recommended for further evaluation in the PD&E stage.

4.2 Local Funding Match Requirements

A new interchange at Lucy Street would require a large amount of right of way acquisition, improvements to the Lucy Street arterial and the relocation of the local access road, SW 167th Avenue/Tennessee Road. Based on the letter dated July 16, 2012 from then FDOT Secretary Ananth Prasad, PE the local matching fund requirement is half the cost of the interchange cost.

APPENDIX A
Concept Plans

CURVE DATA CURVE LUCY OFF-1
PI STA. = 205+99.94
Δ = 88° 10' 51" (RT)
D = 16° 22' 13"
T = 339.06'
L = 538.67'
R = 350.00'
PC STA. = 202+60.88
PT STA. = 207+99.55
e = 0.090

CURVE DATA CURVE LUCY OFF-2
PI STA. = 214+88.72
Δ = 36° 04' 15" (LT)
D = 4° 00' 04"
T = 466.26'
L = 901.52'
R = 1,432.00'
PC STA. = 211+22.46
PT STA. = 220+23.98
e = 0.072

CURVE DATA CURVE LUCY ON-1
PI STA. = 102+51.43
Δ = 45° 12' 39" (RT)
D = 20° 02' 01"
T = 119.08'
L = 225.68'
R = 286.00'
PC STA. = 101+32.35
PT STA. = 103+58.02
e = 0.05

CURVE DATA CURVE LUCY ON-2
PI STA. = 111+82.00
Δ = 1° 56' 58" (RT)
D = 0° 15' 35"
T = 375.18'
L = 750.28'
R = 22,050.00'
PC STA. = 108+06.82
PT STA. = 115+57.11
e = NC

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

LUCY STREET FEASIBILITY STUDY

SHEET NO. 01

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

LUCY STREET FEASIBILITY STUDY

SHEET NO. 02

APPENDIX B
Lucy Street Construction Plans

APPENDIX C
Crash Analysis

ARCADIS Design & Consultancy for natural and built assets

Florida's Turnpike Enterprise

FLORIDA'S TURNPIKE AND SW 328TH STREET/LUCY STREET PROPOSED INTERCHANGE

In Miami-Dade County
FPID#: 439545-1-22-01

Crash Analysis

June 17, 2019

1 SAFETY ANALYSIS

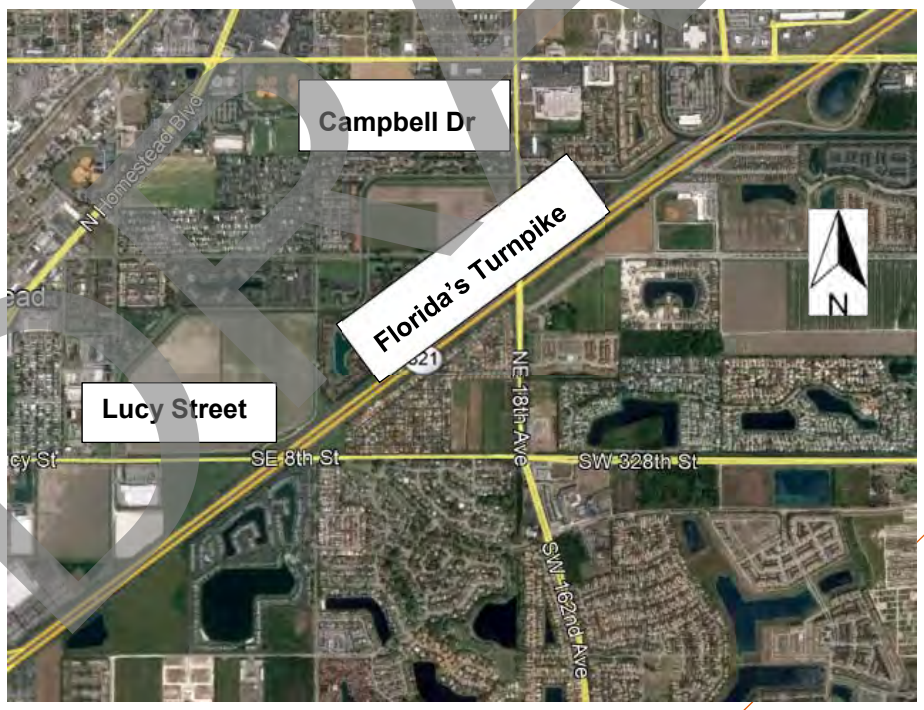
As part of this feasibility study, crash data was collected for the five-year period from 2011 to 2015 and a crash analysis was conducted to identify crash patterns and contributing causes within the proposed interchange limits. Subsequently, a safety analysis was conducted to identify the impacts the proposed interchange will have on traffic safety. The analysis was conducted along the following roadways:

- Florida's Turnpike from south of the proposed interchange to north the proposed northbound on and off-ramps (MPs 1.579 to 2.469)
- SW 328th Street/Lucy Street 0.25 miles east and west of SR 821/HEFT (Off-system)

The following summarizes the findings/results of the analyses conducted as part of this study.

1.1 Existing Conditions

The study limits include the Florida's Turnpike from south of Lucy Street to the southbound on-ramp from Campbell Drive and Lucy Street under the Florida's Turnpike overpass (see **Aerial Map**).



Aerial Map

Florida's Turnpike is a Strategic Intermodal System (SIS) limited access toll road that is primarily a four-lane, divided highway with a 64 foot wide grass median within the project limits. The typical section has 12 foot wide asphalt lanes and 12 foot outside and 10 foot inside flush shoulders. The median has guardrail installed along one of its sides throughout the study limits and rumble strips are located on both the inside and outside shoulders. Roadway lighting does not exist along the study segment except at the ramps. The facility carried an annual average daily traffic (AADT) of 59,800 vehicles in 2016 with 5.3% trucks north of Campbell Drive according to Count Station 970430.

Lucy Street is currently under construction that will alter the typical section to a four-lane divided arterial with sidewalks and bicycle lanes. During the analysis years, Lucy Street was a two-lane undivided minor arterial near the HEFT during the five-year analysis years. The Florida's Turnpike was and will continue to be grade-separated over Lucy Street with no current interchange access. The bridge columns were protected by guardrail along the north and south sides of Lucy Street. There was a stop-controlled T-intersection west of Florida's Turnpike at SE 12th Avenue and a signalized T-intersection at SE 12th Avenue east of Florida's Turnpike. A separated sidewalk was located on the north side of the roadway west of the HEFT and on the south side east of the HEFT. Roadway lighting nor bicycle lanes existed along Lucy Street in the vicinity of the Florida's Turnpike.

1.1.1 Crash Data Analysis – Florida's Turnpike

- A total of 55 crashes were reported during the referenced five-year period within the feasibility study limits, between mileposts 1.579 and 2.469. Seven (7) crashes occurred in 2011, 15 in 2012, 9 in 2013, 8 in 2014 and 16 in 2015. See **Figure 1** for crash distribution by year.
- Of the 55 crashes, 24 (44%) were run-off-road, seven (7 or13%) rear-end, five (5 or 9%) sideswipe, four (4 or 7%) angle, and two (2 or 4%) were rollover crashes. Thirteen (13 or 24%) were considered as "other"-type crashes. See **Figure 2** for distribution by crash type.
- **Figure 3** shows the crash distribution by milepost.
- **Figure 4** shows the overall crash distribution by time of day.
- Fifty-eight percent (58%) of the crashes along the HEFT occurred in the southbound direction.
- Based on the crash distribution by month, the highest frequency of crashes along the HEFT occurred during the month of July with 11 total vs. the rest of the year (4 for each of those months on average). See **Figure 5** for crash distribution by month.
- Eighteen (18) of the crashes, or 33%, occurred during non-daylight hours, which is slightly above the statewide average for nighttime crashes (for all roadways).
- Twenty-three (23) of the crashes, or 42%, occurred on a wet roadway surface, which is above the statewide average (for all roadways).
- Based on crash severity, of the 55 crashes reported along the HEFT, 34 (62%) were property damage only crashes, 20 (36%) were injury type crashes, and one (1) fatal crash was reported during the referenced five-year period.
- The fatal crash occurred in the southbound direction of the HEFT, approximately one and a half miles north of the southbound off-ramp to US 1 northbound, on a Saturday at approximately 2PM on a dry roadway. The crash involved a southbound motorcycle and a southbound passenger vehicle. Four people were involved in the crash, which resulted in one fatality.

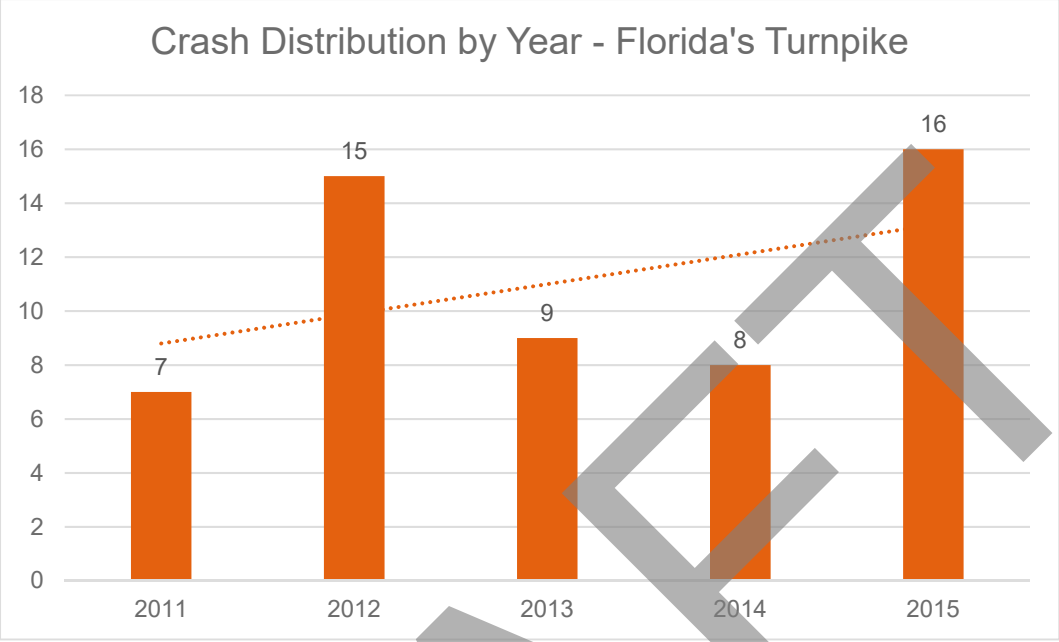


Figure 1 – Crash Distribution by Year

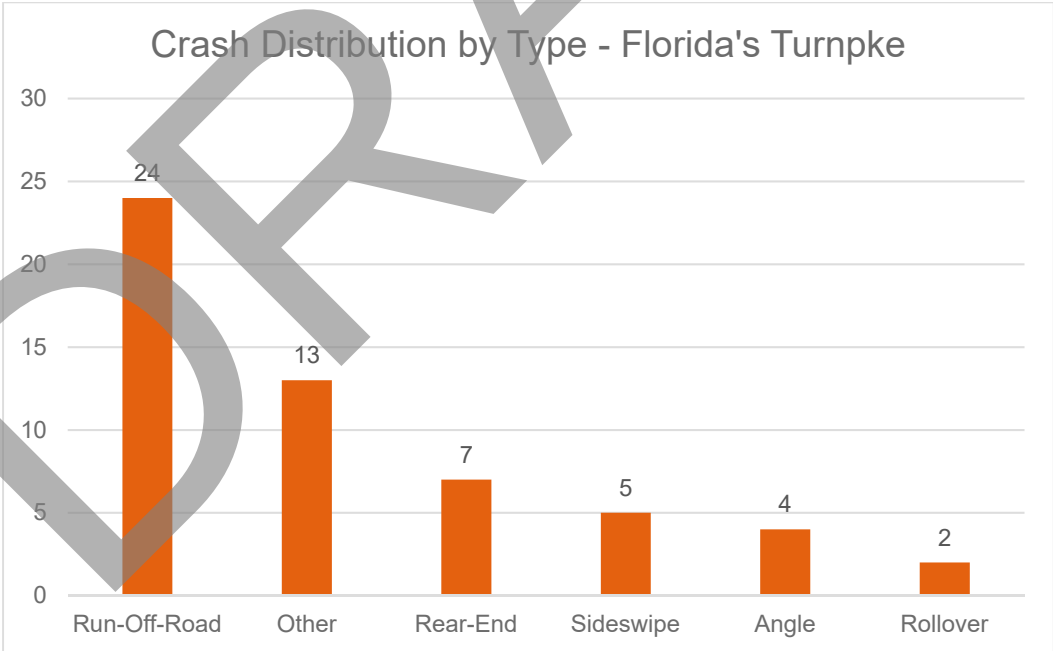


Figure 2 – Distribution by Crash Type

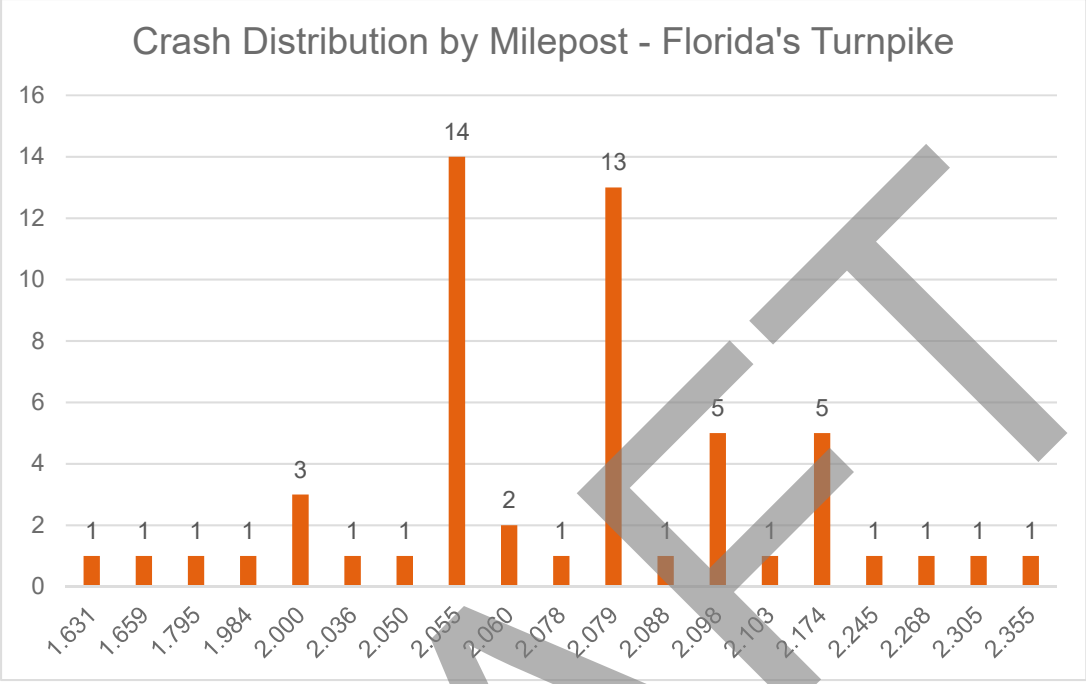


Figure 3 – Crash Distribution by Milepost

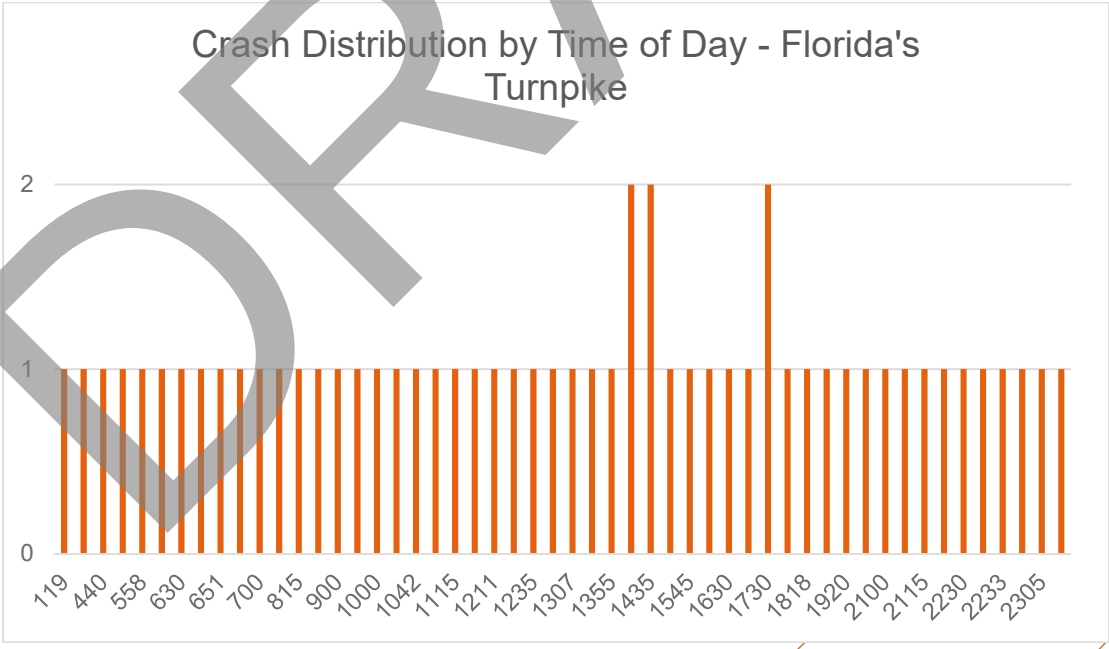


Figure 4 - Crash Distribution by Time of Day

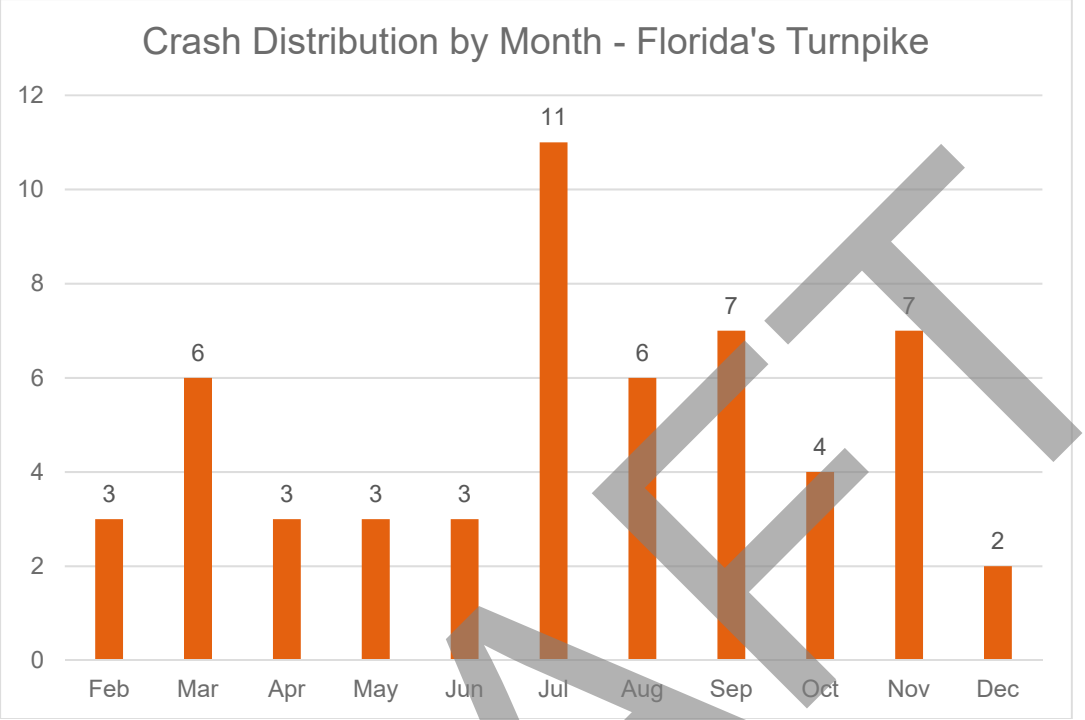


Figure 5 - Crash Distribution by Month

1.1.2 Crash Data Analysis – Lucy Street

- A total of sixteen (16) crashes were reported during the referenced five-year period along Lucy Street. Four (4) crashes occurred in 2012, five (5) in 2013, five (5) in 2014, and two (2) in 2015. See **Figure 6** for crash distribution by year.
- Of these sixteen (16) total crashes, five (5) were run-off-road, four (4) angle, two (2) rear-end, two (2) head-on, two (2) bicycle, and one (1) pedestrian crash. See **Figure 7** for distribution by crash type.
- See **Figures 8 through 10** for crash distributions by time of day, month, and day of week, respectively.
- Six (6) of the 16 crashes occurred during non-daylight hours.
- Four (4) of the 16 crashes occurred on a wet roadway surface.

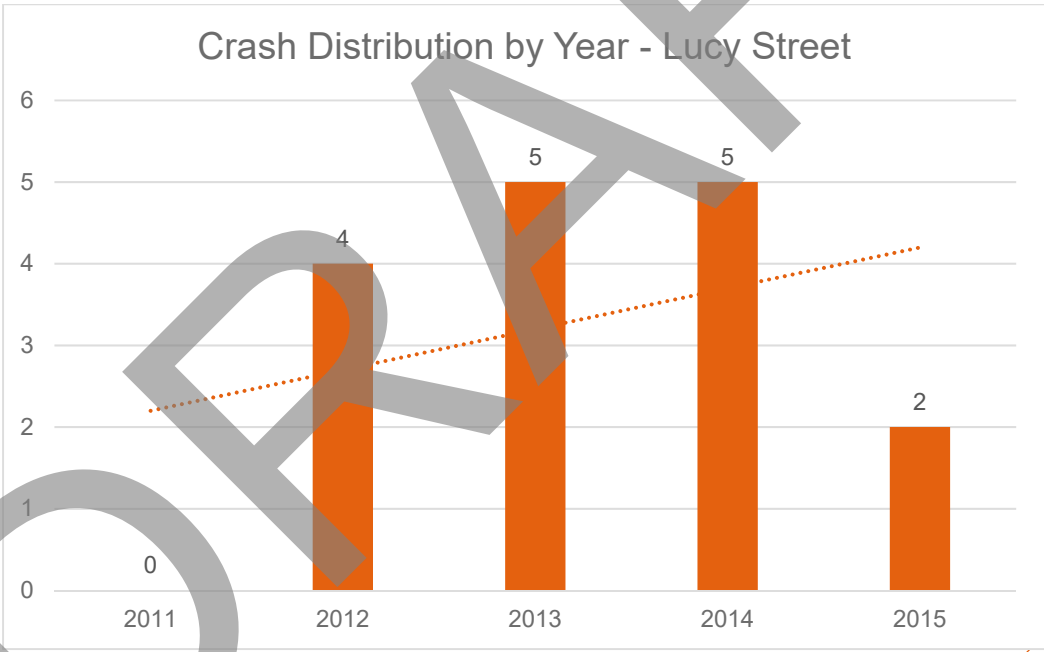


Figure 6 – Crash Distribution by Year

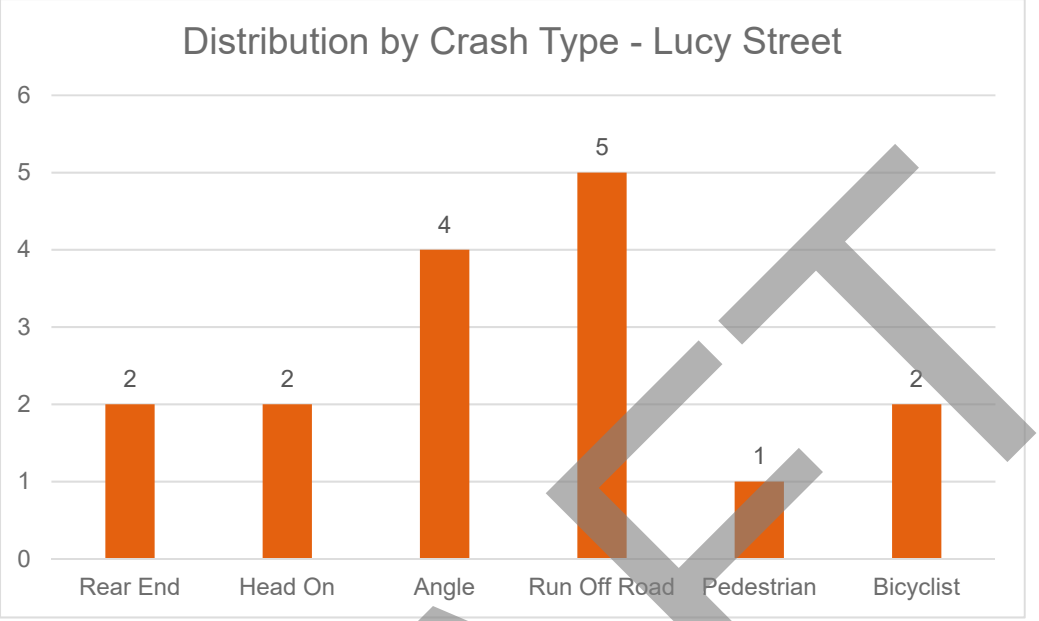


Figure 7 – Distribution by Crash Type

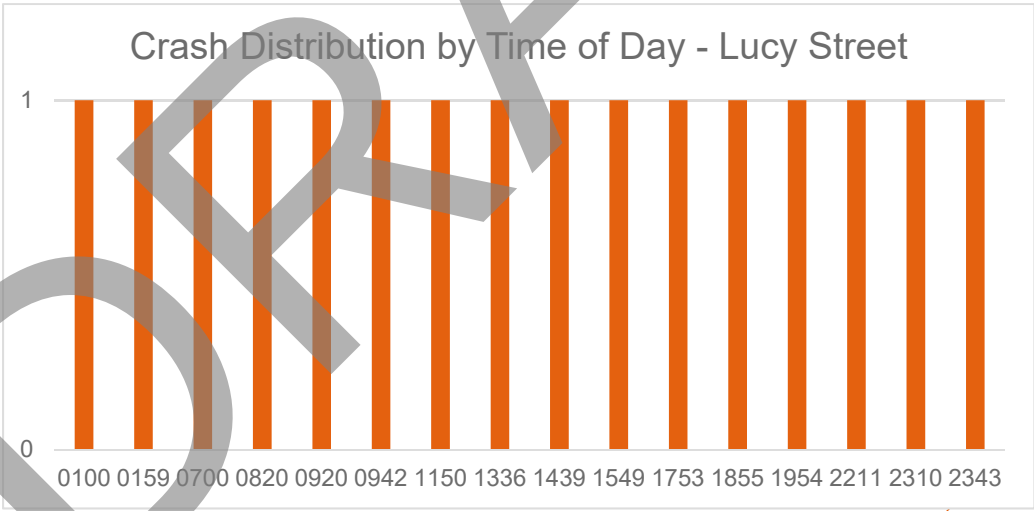


Figure 8 - Crash Distribution by Time of Day

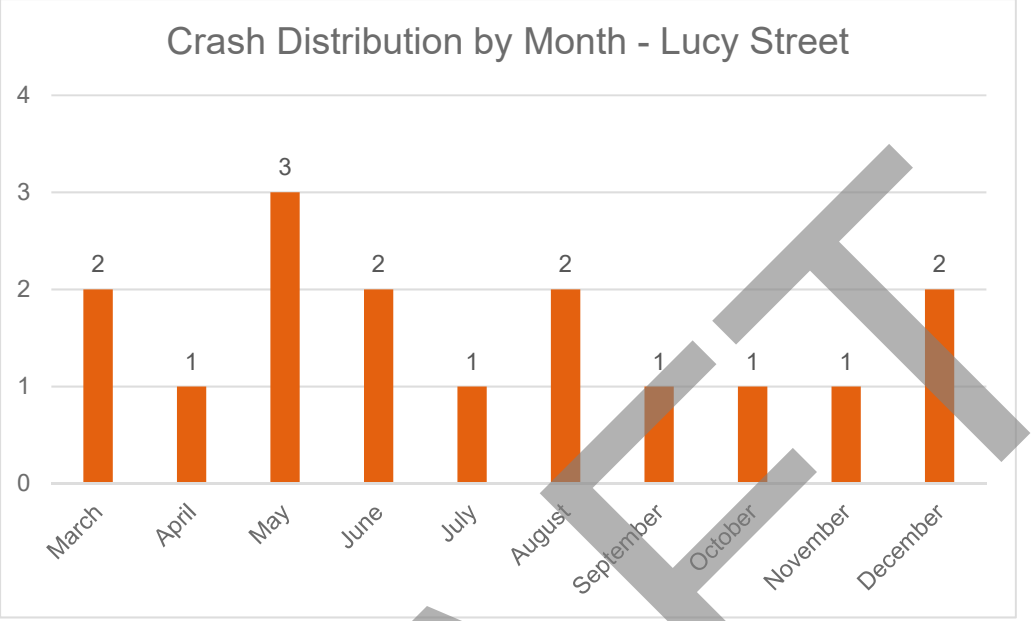


Figure 9 - Crash Distribution by Month

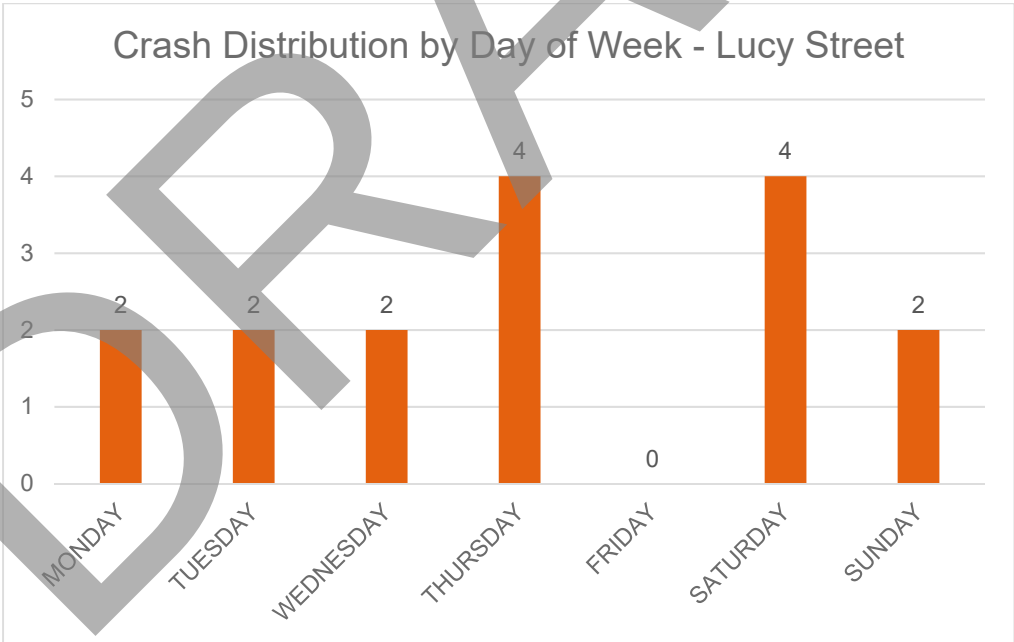


Figure 10 – Crash Distribution by Day of Week

ARCADIS Design & Consultancy for natural and built assets

ARCADIS Design & Consultancy for natural and built assets

APPENDIX D
Benefit-Cost Analysis

Table A: 2045 Mainline and Ramp AADT

Mile Post-Interchange DRAFT	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
	108,600	108,600	0
2 – Campbell Drive	43,700	36,000	-7,700
	10,400	10,800	400
1 - Lucy Street (SW 328th St)	75,300	83,400	8,100
	0	22,600	22,600
	75,300	60,800	-14,500
0 – US 1 (To/From North)	22,300	12,800	-9,500
0 – US 1 (To/From South)	53,000	48,000	-5,000

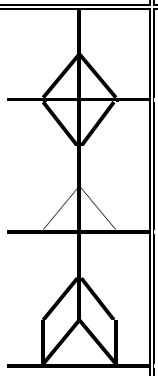


Figure A: 2045 AM Design Hour Volumes

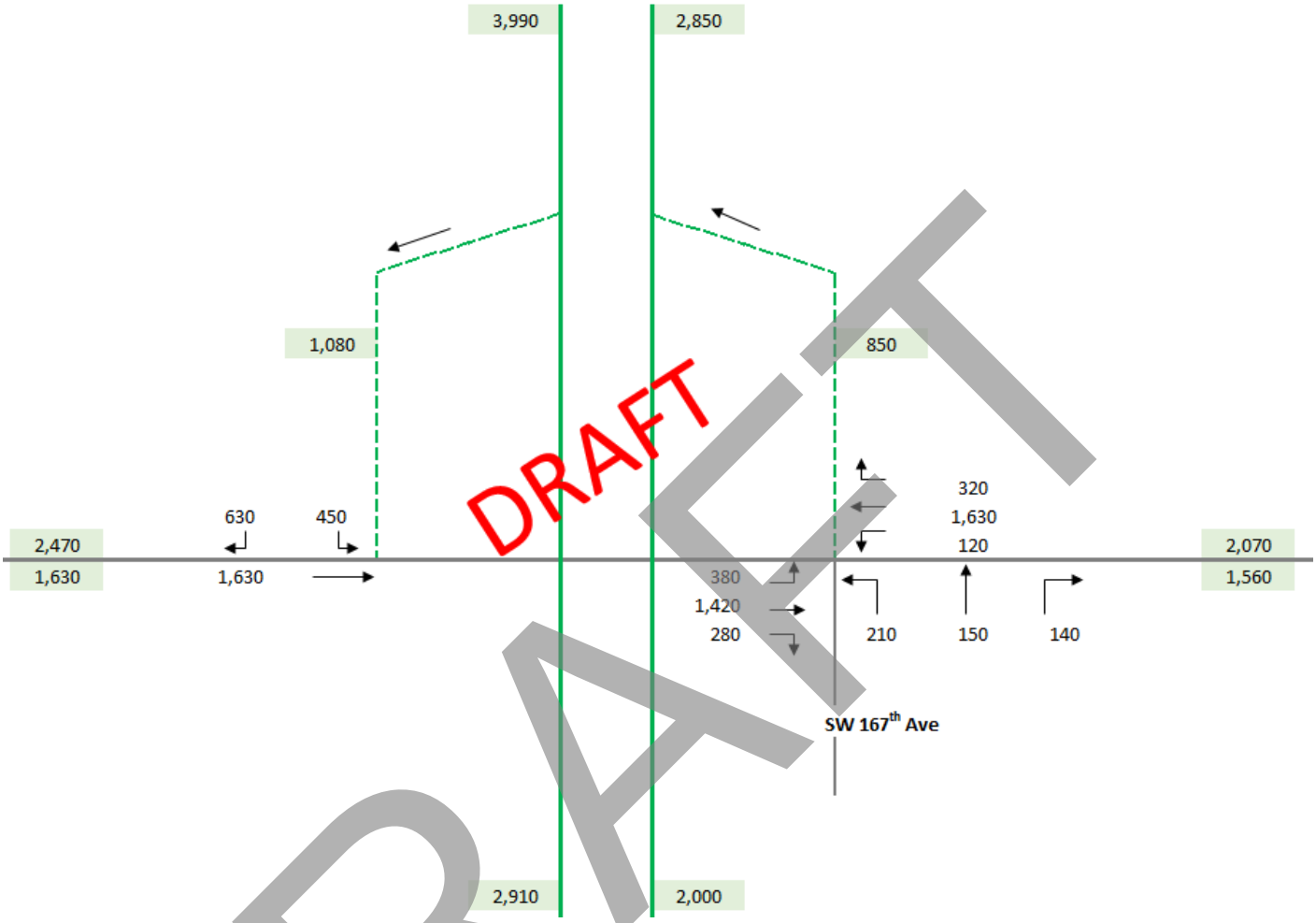
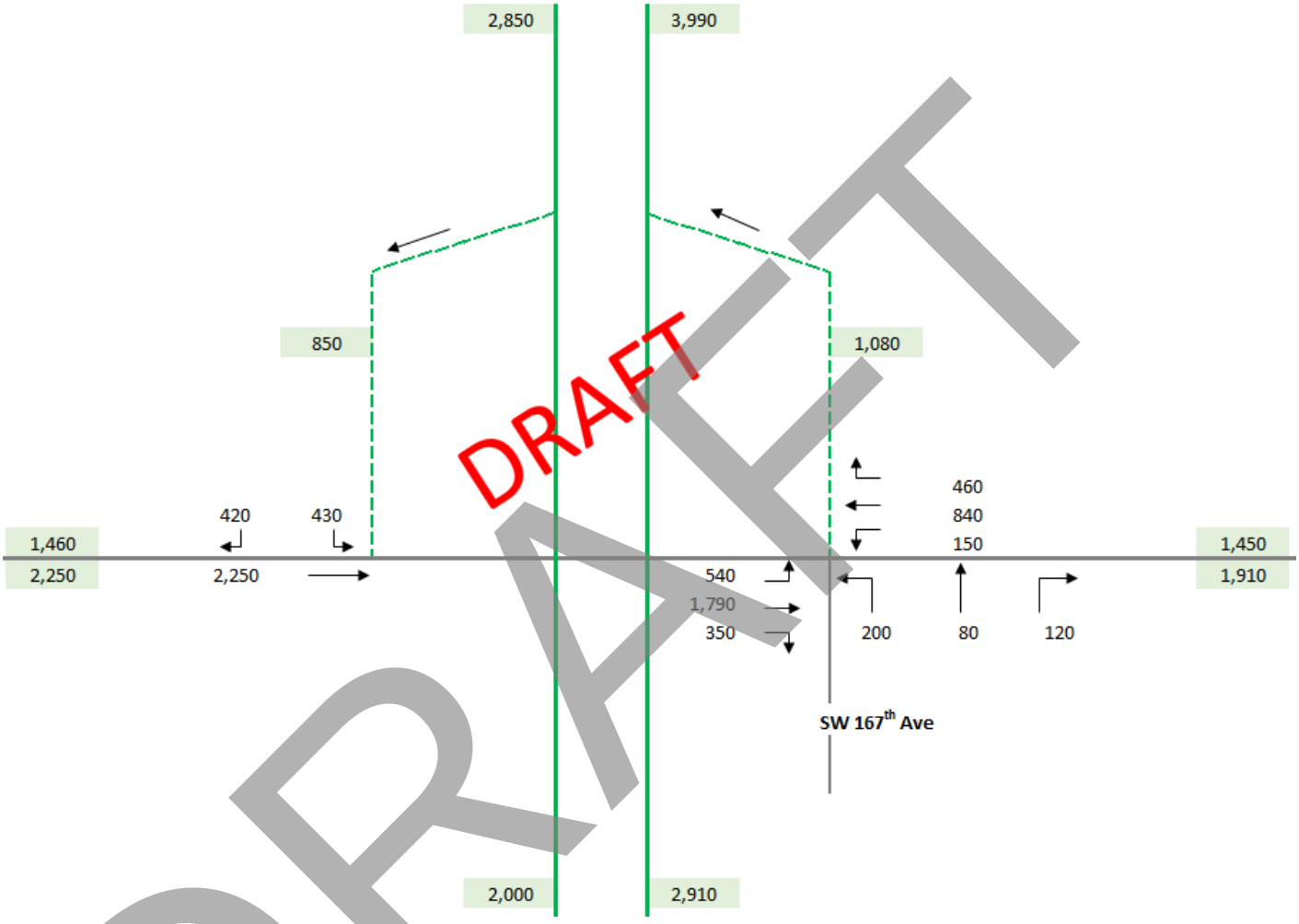


Figure B: 2045 PM Design Hour Volumes



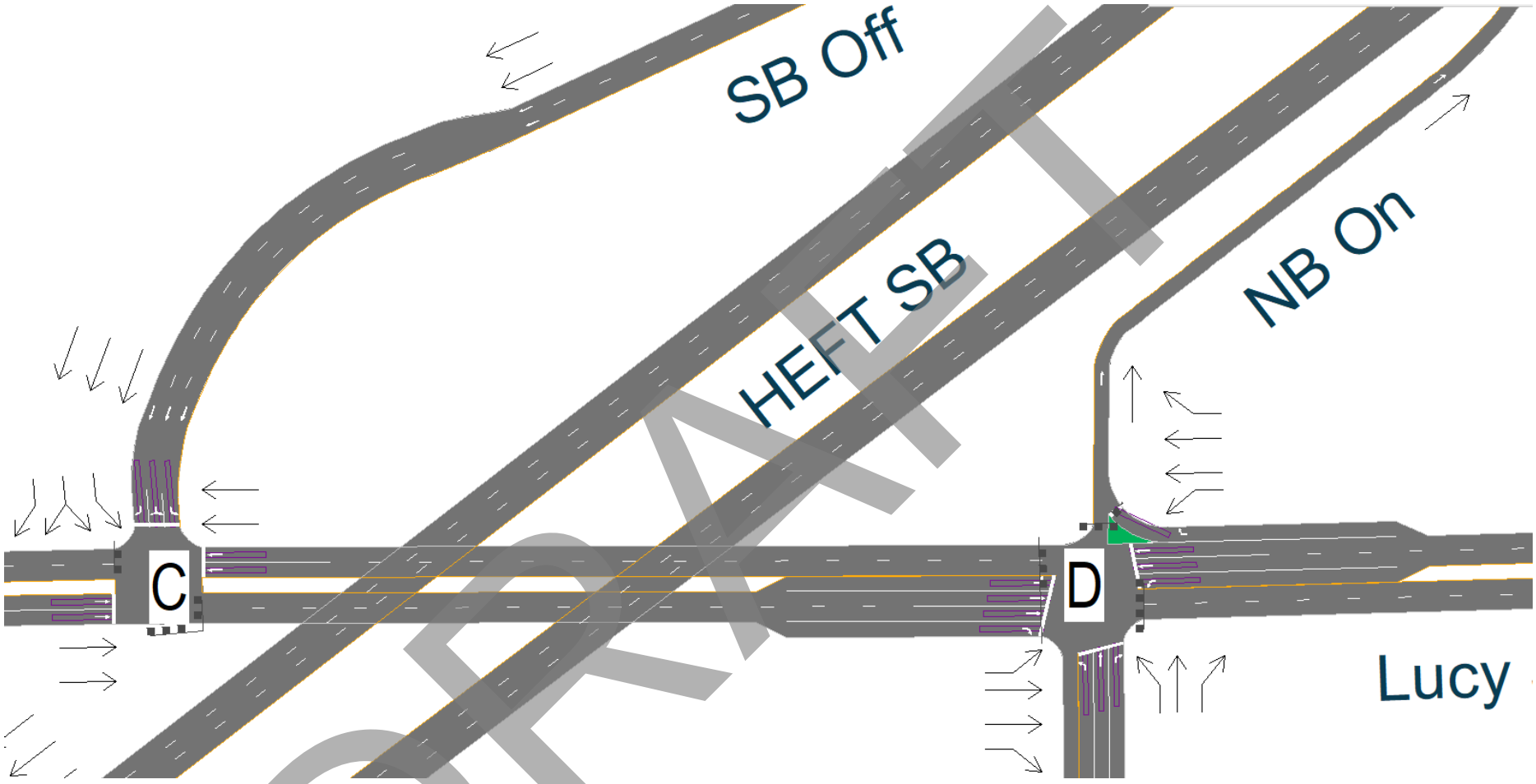


Figure C: 2045 AM Synchro Model

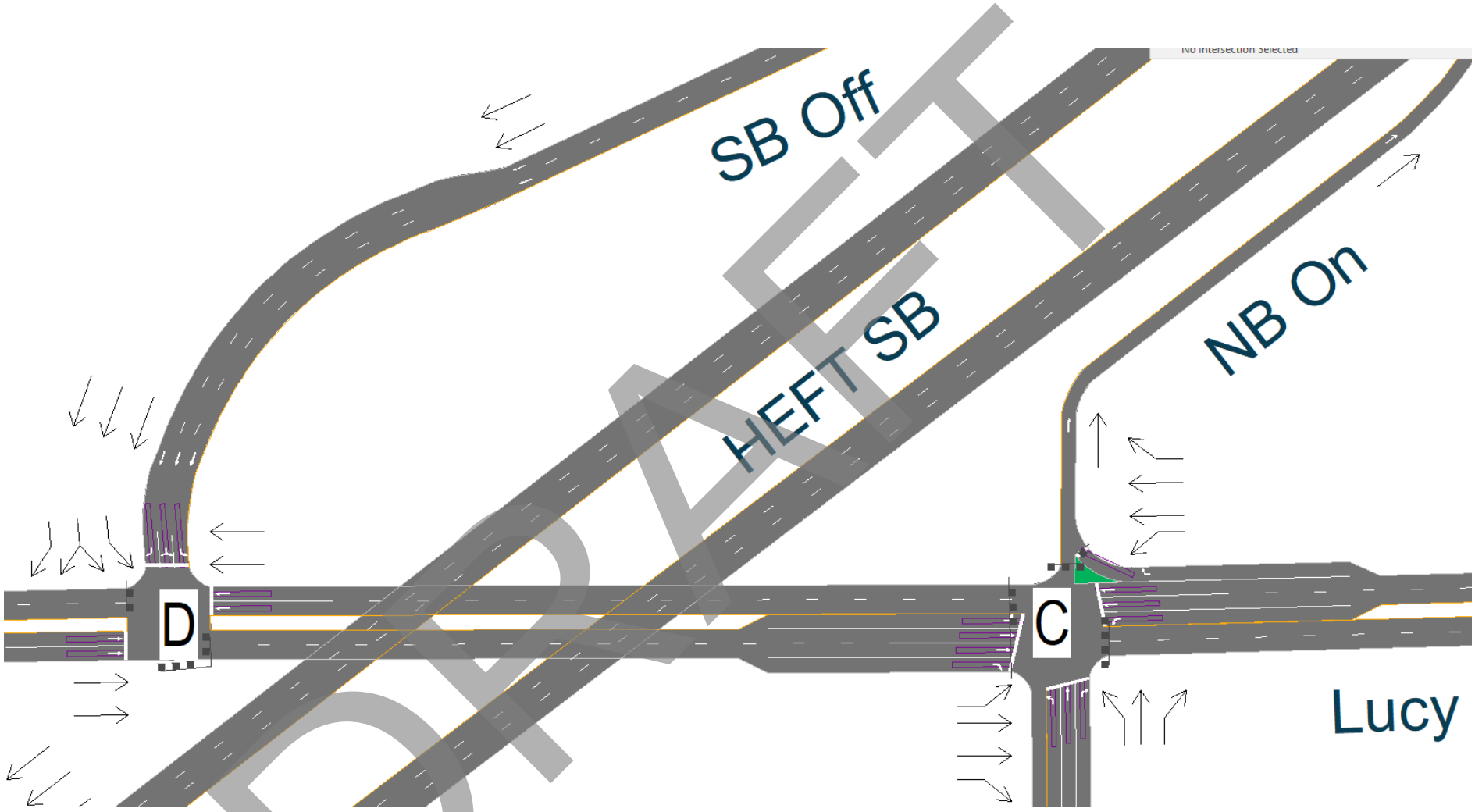


Figure D: 2045 PM Synchro Model

Table B: 2045 Synchro Queue Results

Location		AM Peak	PM Peak	Storage from Concept
SB Off Ramp Intersection	EBT	731	#912	
	WBT	m124	35	
	SBL	427	#304	900
	SBR	#560	#258	300
NB On Ramp Intersection	EBL	m#556	m#242	200
	EBT	320	m#657	
	EBR	m124	m7	
	WBL	110	#197	
	WBT	#1,025	#393	
	WBR	163	113	250
	NBL	#322	174	
	NBT	213	77	
	NBR	63	18	

Notes:

95th percentile volume exceeds capacity, queue may be longer

m Volume for 95th percentile queue is metered by upstream signal

Turnpike Extension Widening [FPN 439545-1]

Lucy Street Partial Interchange Benefit-Cost Analysis: Scenario 3

Year	Travel Time (Veh-hrs)		TIME VALUE				TIME BENEFIT	
			No-Build		Build Lucy Interchange		No-Build vs Build Lucy Interchange	
	No-Build	Build Lucy	Dollars ($/yr)	2019 Dollars ($/yr)	Dollars ($/yr)	2019 Dollars ($/yr)	Dollars ($/yr)	2019 Dollars ($/yr)
2025	1,656	1,576	$10,196,800	$7,609,000	$9,707,800	$7,244,100	$489,000	$364,900
2035	2,519	2,399	$15,510,900	$7,105,700	$14,773,800	$6,768,000	$737,100	$337,700
2045	4,738	4,090	$29,179,000	$8,206,300	$25,185,600	$7,083,200	$3,993,400	$1,123,100
2025	**1,656**	**1,576**	**$10,196,800**	**$7,609,000**	**$9,707,800**	**$7,244,100**	**$489,000**	**$364,900**
2026	1,742	1,659	$10,728,200	$7,624,300	$10,214,400	$7,259,200	$513,800	$365,100
2027	1,828	1,741	$11,259,600	$7,620,900	$10,721,000	$7,256,400	$538,600	$364,500
2028	1,915	1,823	$11,791,000	$7,600,600	$11,227,600	$7,237,400	$563,400	$363,200
2029	2,001	1,905	$12,322,400	$7,564,900	$11,734,200	$7,203,800	$588,200	$361,100
2030	2,087	1,988	$12,853,900	$7,515,400	$12,240,800	$7,156,900	$613,100	$358,500
2031	2,173	2,070	$13,385,300	$7,453,400	$12,747,400	$7,098,200	$637,900	$355,200
2032	2,260	2,152	$13,916,700	$7,380,300	$13,254,000	$7,028,900	$662,700	$351,400
2033	2,346	2,234	$14,448,100	$7,297,300	$13,760,600	$6,950,000	$687,500	$347,200
2034	2,432	2,317	$14,979,500	$7,205,400	$14,267,200	$6,862,800	$712,300	$342,600
2035	**2,519**	**2,399**	**$15,510,900**	**$7,105,700**	**$14,773,800**	**$6,768,000**	**$737,100**	**$337,700**
2036	2,741	2,568	$16,877,700	$7,363,700	$15,815,000	$6,900,000	$1,062,700	$463,700
2037	2,962	2,737	$18,244,500	$7,581,000	$16,856,200	$7,004,100	$1,388,400	$576,900
2038	3,184	2,906	$19,611,300	$7,760,900	$17,897,300	$7,082,600	$1,714,000	$678,300
2039	3,406	3,075	$20,978,100	$7,906,400	$18,938,500	$7,137,700	$2,039,600	$768,700
2040	3,628	3,244	$22,345,000	$8,020,600	$19,979,700	$7,171,600	$2,365,300	$849,000
2041	3,850	3,413	$23,711,800	$8,105,900	$21,020,900	$7,186,000	$2,690,900	$919,900
2042	4,072	3,582	$25,078,600	$8,164,900	$22,062,100	$7,182,800	$3,016,500	$982,100
2043	4,294	3,751	$26,445,400	$8,199,900	$23,103,200	$7,163,600	$3,342,100	$1,036,300
2044	4,516	3,920	$27,812,200	$8,213,000	$24,144,400	$7,129,900	$3,667,800	$1,083,100
2045	**4,738**	**4,090**	**$29,179,000**	**$8,206,300**	**$25,185,600**	**$7,083,200**	**$3,993,400**	**$1,123,100**

Benefit of:	No-Build vs Build	
Present Day 2019	Cumulative Benefit Difference	$12,392,500
	Cost Difference	$23,028,464
	Benefit-Cost Ratio	0.54

Current year	2019
Opening Year	2025
Assumed Interest Rate	5.0%
Consumer Price Index	1.6%

2015 Texas Transportation Institute (TTI) - Urban Mobility Scorecard (Exhibit A-10: National Congestion Constants for 2015 Urban Mobility Scorecard)			
2014 cost of person time in congestion	$	17.67	Source: TTI Urban Mobility Scorecard, 2015
Average Occupancy during peak conditions		1.25	Source: TTI Urban Mobility Scorecard, 2015
2014 cost of truck time in congestion	$	94.04	Source: TTI Urban Mobility Scorecard, 2015
Southern Coin Percent Trucks (peak hour)		3.00%	Source: CY 2016 Traffic Factors (Truck_Factors_2016_V0.xlsx
2014 Weighted Value of Time	$	**24.25**	

Scenario 3- Tennessee Road by others	
ROW	$5,502,980
CST/LRE	$13,177,056
Design (20% of LRE)	$2,635,411
CEI (13% of LRE)	$1,713,017
Total Cost	**$23,028,464**

Hess, Linda

From: Mtoi, Enock <Enock.Mtoi@dot.state.fl.us>
Sent: Friday, December 13, 2019 11:48 AM
To: Heywood, Jazlyn
Cc: Evans, Bill; Hess, Linda; Samson, Kim C.; Emam, Emam B.
Subject: RE: 439545-1 Palm to Campbell: DELAY for Public meeting board

Hi Jazlyn,

Here is the summary table for the US 1 – Campbell alternatives:

Alternative	2045 Scenarios					
	Cumulative Average Delay (sec/veh)			Percent Delay Reduction		
	AM	PM	Total	AM	PM	Overall
No Build	446	454	900	--	--	--
Without Lucy Street Interchange						
ALT. A	100	292	392	78%	36%	56%
ALT. B	105	267	372	77%	41%	59%
With Lucy Street Interchange						
ALT. A	95	106	201	79%	77%	78%
ALT. B	99	97	196	78%	79%	78%

Please let me know if you have any questions.

Thanks,

Enock T. Mtoi, Ph.D., P.E
Transportation Engineer
FTE - Traffic & Revenue Engineering Consultants
D +1-954-934-1292
enock.mtoi@dot.state.fl.us

……..
AECOM – Imagine It. Delivered
Florida's Turnpike Enterprise
Pompano Operations Center
P.O. Box 9828
Ft. Lauderdale, FL 33310

……

From: Emam, Emam B.
Sent: Friday, December 13, 2019 7:38 AM
To: Hess, Linda <HessLinda@stanleygroup.com>; Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Cc: Evans, Bill <William.Evans@arcadis.com>; Samson, Kim C. <Kim.Samson@dot.state.fl.us>; Mtoi, Enock <Enock.Mtoi@dot.state.fl.us>
Subject: RE: 439545-1 Palm to Campbell: DELAY for Public meeting board

Hi Linda,

Enock will send out the design year total delays (AM + PM) for the No-Build and the two Build options shortly. Please note that these values are included in the traffic report submitted to the team.

Thanks,

Emam B. Emam, PhD, PE, PTOE
Group Manager – Planning Traffic Engineering
FTE - Traffic & Revenue Engineering Consultants
D (407) 264–3820 / M (321) 246–3935
F (407) 822–6612
Email: emam.emam@dot.state.fl.us

AECOM - Built to deliver a better world
Florida's Turnpike Enterprise
Milepost 263, Bldg 5315
P.O. Box 613069
Ocoee, FL 34761

From: Hess, Linda [mailto:HessLinda@stanleygroup.com]
Sent: Thursday, December 12, 2019 7:25 PM
To: Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Cc: Evans, Bill <William.Evans@arcadis.com>; Emam, Emam B. <Emam.Emam@dot.state.fl.us>
Subject: 439545-1 Palm to Campbell: DELAY for Public meeting board

Hi Jazlyn,

We are still waiting for the delay numbers to add to the evaluation matrix board for the public information meeting.

Thank you,

Linda Hess, P.E., Transportation Engineer
STANLEYCONSULTANTS, 1641 Worthington Road Suite 400, West Palm Beach, FL 33409
T: 561-689-7444 | M: 561-818-8344 | stanleyconsultants.com

APPENDIX E
Local Agency Coordination Meeting Minutes

Hess, Linda

From: Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Sent: Thursday, December 12, 2019 2:53 PM
To: John Alger; Amanda Quirke; jbrea@cityofhomestead.com
Cc: Jung, Rax; Velasquez, Andrew; Emam, Emam B.; Samson, Kim C.; Mtoi, Enock; Pinzon, Henry; Evans, Bill; Hess, Linda
Subject: 439545-1 TPK Widening (US 1 to Campbell): Turnpike Project Discussion
Attachments: 439545-1_Alger&Homestead PPT_110419.pdf

Hi Julio, John, Carla and Amanda:

Thank you for meeting with us on November 4, 2019 to discuss the Florida's Turnpike Widening PD&E Study with limits from US 1 (south of Palm Drive) to Campbell Drive. The proposed improvements include widening of the Florida's Turnpike, modifications to the existing US 1 interchange and a new interchange at Lucy Street/SW 328th Street. Attached is the PowerPoint presentation used during the meeting.

The following are the main discussion points as it relates to the potential Lucy Street interchange:

- The relocation of Tennessee Road will be shown as 'by others' on the concept plans. Tennessee Road terminates at the Mowry Canal and does not continue south to Lucy Street. The City of Homestead currently has no plans to replace the bridge over Mowry Canal or reconnect Tennessee Road to Lucy Street. Also, the locked gate on the west side of Monterey Pointe is currently not in use.
- A driveway entrance onto Parcel 10-7918-001-0150 will be shown on the concept plans, at the recommended distance from the southbound off-ramp.
- The City of Homestead will provide a funding strategy/commitment letter to be included in Turnpike's Systems Interchange Justification Report. This letter should be provided by the end of January 2020.
- A Public Information Meeting will be held on January 21, 2020 at the Phichol Williams Community Center from 5:30 pm to 7:30 pm. Notifications will be distributed at the end of December.

We look forward to continued coordination efforts. Please don't hesitate to contact me with any questions or comments. Thanks.

Jazlyn Heywood P.E.

Senior Project Manager
North America
Engineering, Design and Project Management
Office: +1.407.264.3298 Mobile: +1.407.235.2042

Atkins, member of the SNC-Lavalin Group
Florida's Turnpike Milepost 263, Building 5315
P.O. Box 613069, Ocoee, Florida 34761

LUCY STREET INTERCHANGE

Historical Context.

2012

- FDOT commitment letter to Mayor of Homestead
  - — Conduct a PD&E Study
  - – Construct the interchange provided that there are:
    1. Executed contracts for development of adjacent properties
    2. Development partners fund half the cost

Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

July 16, 2012

Honorable Steven C. Bateman
Mayor, City of Homestead
790 N. Homestead Boulevard
Homestead, FL 33030

Re: City of Homestead – Turnpike Interchange

Dear Mayor Bateman:

The Florida Department of Transportation (FDOT) has reviewed your request for a southbound exit ramp and a northbound entrance ramp at Lucy Street and the Homestead Extension of Florida's Turnpike. There do not appear to be any fatal flaws in the preliminary review of the request and I am pleased to advise that the Department is committed to begin the Project Development and Environmental Study, and ultimately construct the interchange as described, provided that there are executed contracts in place for the development of the adjacent properties and that the development partners are willing to fund half the cost of the interchange.

Thank you for the opportunity to partner with FDOT. We look forward to working with you as, together, we seek to make positive contributions towards job creation and long-term economic opportunities for the City of Homestead. If you have any questions, please do not hesitate to contact FTE Executive Director Diane Scaccetti at 407-264-3100 or via email at diane.scaccetti@dot.state.fl.us.

Sincerely,

Ananth Prasad, P.E.
Secretary

cc: Diane Gutierrez-Scaccetti

www.dot.state.fl.us

APPENDIX F
Right of Way Exhibit

LEGEND

- EXISTING R/W LINE
- EXISTING LA R/W LINE
- PROPOSED R/W LINE
- PROPOSED LA R/W LINE
- PARCEL BOUNDARY (COLOR VARIES)
- ACQUISITION AREA (COLOR VARIES)
- ROAD CLOSURE AREA (CONVEY ROADWAY R/W TO TURNPIKE)
- TO BE DEVELOPED BY OTHERS

LUCY STREET FEASIBILITY STUDY
(A SEPARATE STUDY UNDER FPID: 439545-1-22-01)

PARTIAL INTERCHANGE IMPROVEMENTS:
- NEW SOUTHBOUND OFF-RAMP TO LUCY STREET
- NEW NORTHBOUND ON-RAMP TO FLORIDA'S TURNPIKE FROM LUCY STREET

N

0 20 100
Feet

MONTEREY POINTE APARTMENTS

SE 12TH AVE./TENNESSEE RD. TO BE DEVELOPED BY OTHERS

PARCEL ID: 24
10-7917-001-0360
8405 SF

PARCEL ID: 21
10-7918-001-0150
345,946 SF

PARCEL ID: 27
10-7917-001-0410
95,434 SF

PARCEL ID: 25
10-7919-013-0001
420 SF

PARCEL ID: 26
10-7919-012-0001
261 SF

FUTURE ACCESS POINT BY OTHERS

SW 328TH ST./LUCY ST.

PORTION OF SE 12TH AVE./TENNESSEE RD. TO BE CLOSED

FLORIDA'S TURNPIKE

3590
3585
3580
3575
3570
3565

SE 6TH AVE.

SE 12TH TER.

TENNESSEE ESTATES

SE 9TH ST.

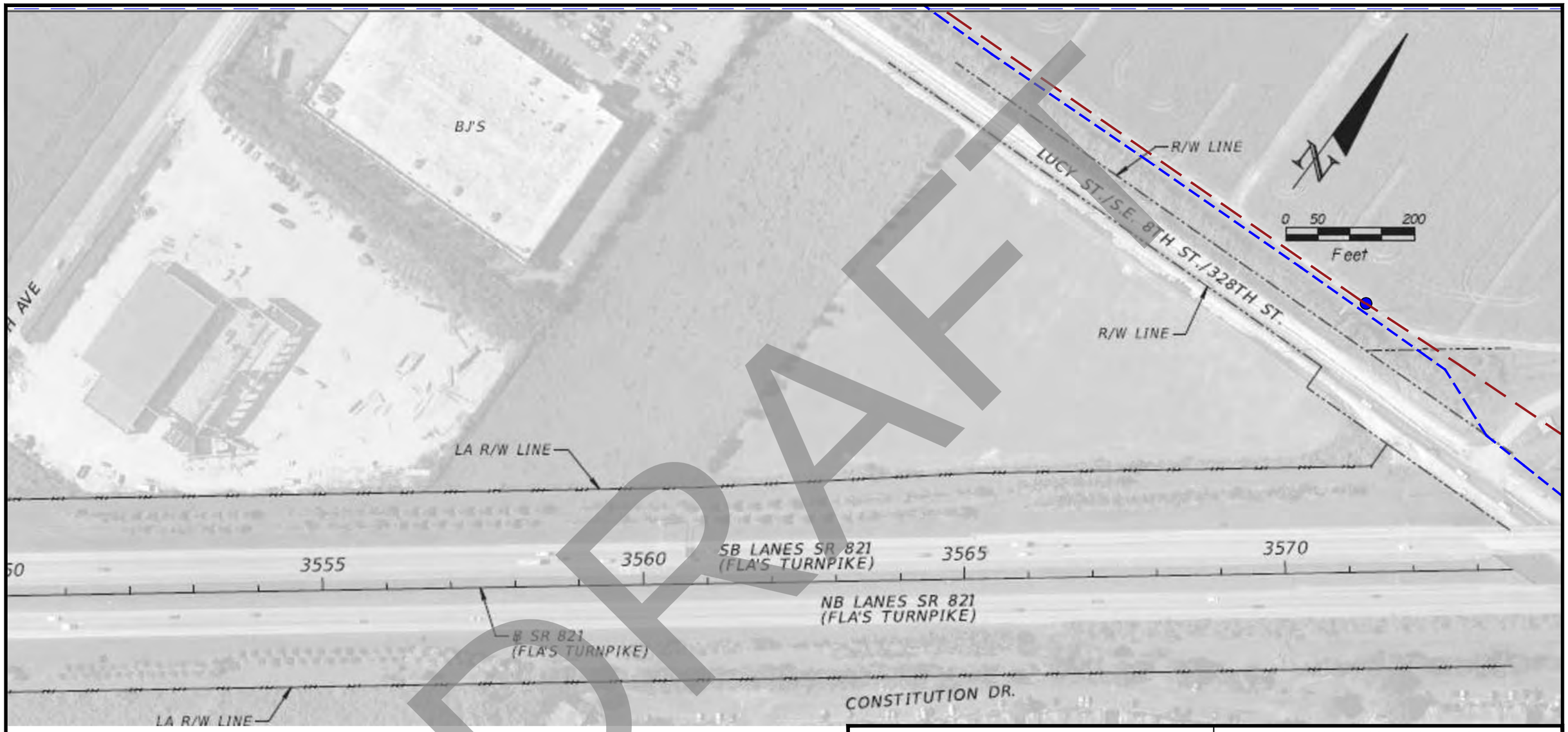
SE 13TH RD.

SE 10TH ST.

LAKESHORE COMMUNITY

DRAFT
11-20-2019

APPENDIX G
Electrical Utility Plans



LEGEND:

EXISTING UNDERGROUND 3 PHASE PRIMARY LINE

105' TRANSMISSION POLE

EXISTING OVERHEAD TRANSMISSION LINE

ALL DISTANCES ARE APPROXIMATIONS

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :

Rural Location: SEC. 08 , TWP. 57 S., RNG. 39 E.

Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

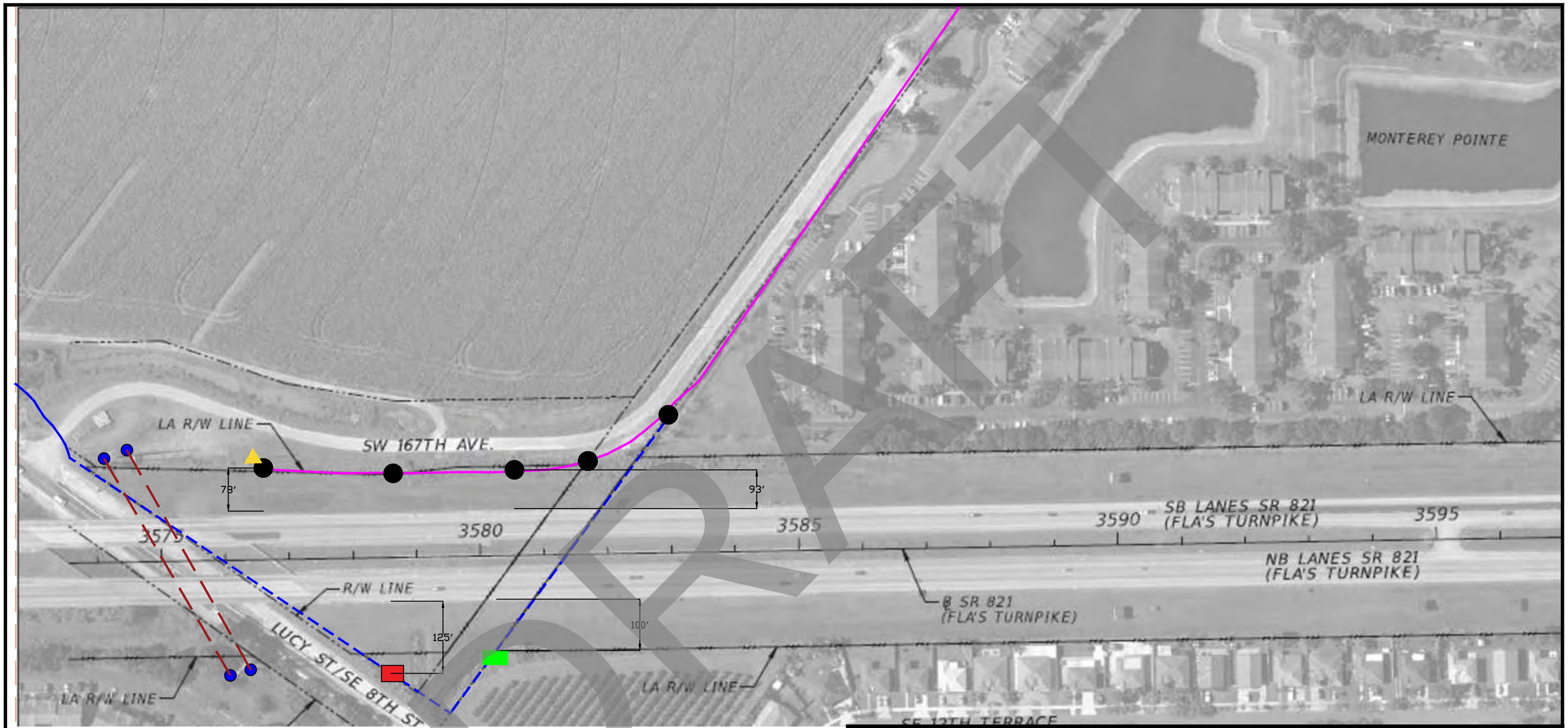
CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
328ST AND TURNPIKE

S. SALINAS	J. GARCIA	Date: 07/08/19
Designer	Checked by:	Scale: NTS

Work Order #: -

Pri Map #: -



LEGEND:

- EXISTING OVERHEAD 3 PHASE PRIMARY LINE
- EXISTING UNDERGROUND 3 PHASE PRIMARY LINE
- 105' TRANSMISSION POLE
- EXISTING OVERHEAD TRANSMISSION LINE
- ALL DISTANCES ARE APPROXIMATIONS
- 45' WOOD POLE
- PRIMARY PULLBOX
- OVERHEAD TRANSFORMER
- SWITCH CABINET

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :
Rural Location: SEC. 08 , TWP. 57 S., RNG. 39 E.

Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
328ST AND TURNPIKE

S. SALINAS — Designer
J. GARCIA — Checked by:
Date: 7/8/19
Scale: NTS

Work Order #: _____ Pri Map #: _____

Appendix H

Agency Coordination

FDOT

Florida Department of Transportation

RICK SCOTT
GOVERNOR

Florida's Turnpike Enterprise
P.O. Box 613069, Ocoee, FL 34761
407-532-3999

JIM BOXOLD
SECRETARY

March 8, 2017

Mr. Chris Stahl, Clearinghouse Coordinator
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 47
Tallahassee, FL 32399-3000

Subject: Advance Notification
HEFT (SR 821) Widening US 1 South of Palm Drive to Campbell Drive
ETDM Number: 14322
Financial Management Number: 439545-1
Miami-Dade County, Florida

Dear Mr. Stahl:

This Advance Notification (AN) package is being sent to your office for distribution to State agencies that conduct federal consistency reviews (consistency reviewers) in accordance with the Coastal Zone Management Act and Presidential Executive Order 12372. Although we will request specific comments during the permitting process, we are asking that consistency reviewers examine the attached information and provide us with their comments.

Consistency reviewers have 45 days from the Programming Screening Notification to provide their comments. Once you have received their comments, please submit a consistency determination for the State of Florida within 60 days of the Programming Screening Notification. If you need more review time, please send a written request for an extension to our office within the initial 60-day comment period.

This is a non-federal action and the Florida Department of Transportation will determine what type of environmental documentation will be necessary. The determination will be based on in-house environmental evaluations and comments from other agencies. A consistency review for this project is not required by 15 CFR 930 because no federal actions are involved. In addition, please review this projects consistency, to the maximum extent feasible, with the requirements of Chapter 163 of the Florida Statutes.

Your comments should be submitted via the Environmental Screening Tool (EST) if you are an Environmental Technical Advisory Team (ETAT) representative, or emailed or mailed to the Florida's Turnpike contact:

Henry Pinzon, P.E.
Florida Department of Transportation
Florida's Turnpike Enterprise Mile Post 263, Building 5315
P.O. Box 613069
Ocoee, FL 34761

Email: Henry.Pinzon@dot.state.fl.us

I appreciate your cooperation in this matter.

Sincerely,

Henry Pinzon, P.E.
Environmental Management Engineer

Enclosures: AN Package

cc: Transmittal List, Part III of AN Package

Advance Notification Package

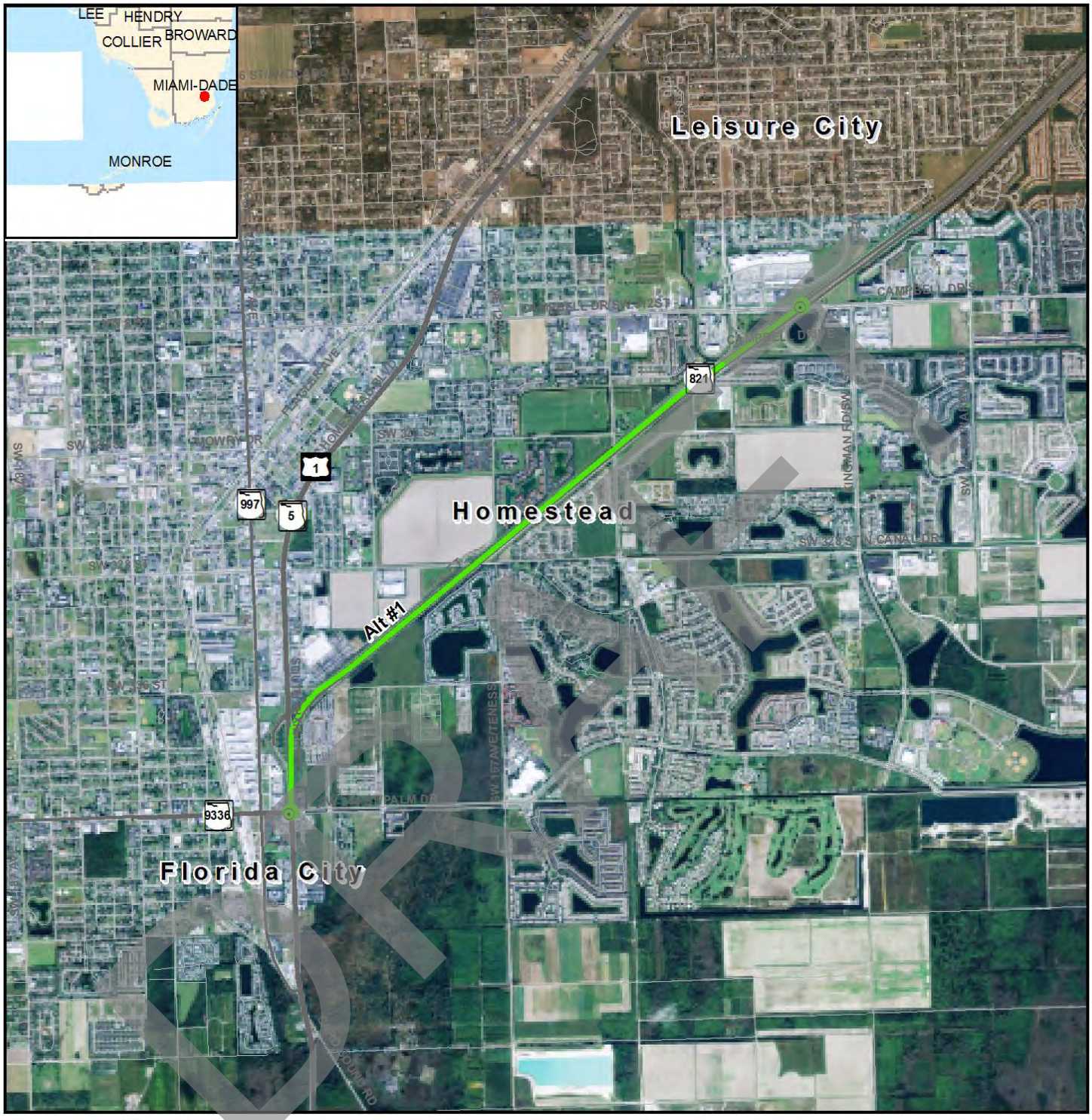
Project #14322 - HEFT (SR 821) Widening US 1 South of Palm Drive to Campbell Drive
Programming Screen - Published on 03/13/2017
Printed on: 3/15/2017

Table of Contents

I. Location Maps

14322 HEFT (SR 821) Widening US 1 South of Palm Drive to Campbell Drive

US 1, Just south of Palm Drive to Campbell Drive



Project Aerial Map

- ETDM Alternative
- ETDM Alternative Terminus
- Major Road
- Local Road or Trail

Data Sources:
Highways - NAVTEQ
Digital Orthophotograph - ArcGIS Online

0 0.2 0.4 0.8 Miles

N

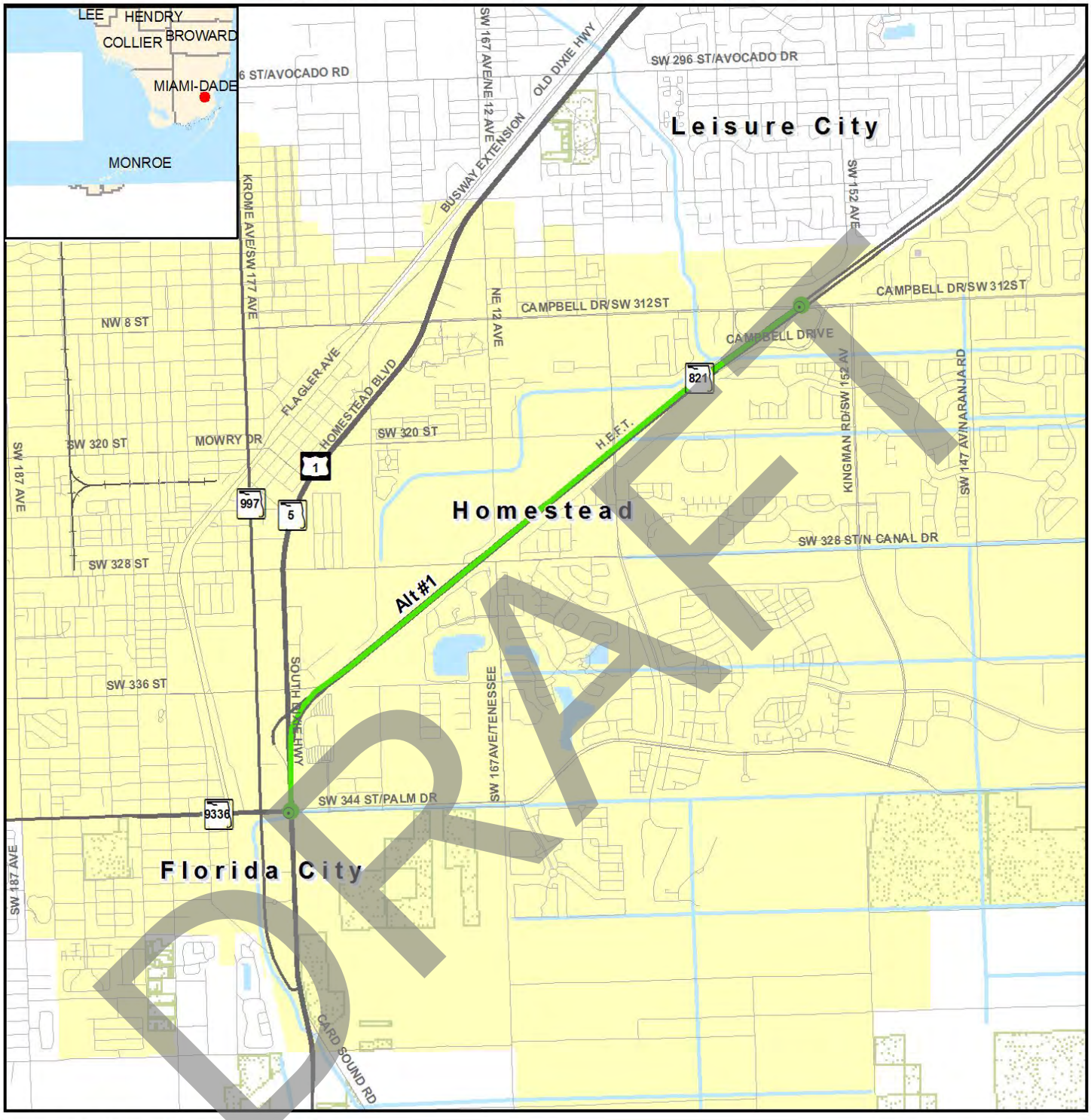
3/6/2017

etdm Environmental Screening Tool

FDOT

14322 HEFT (SR 821) Widening US 1 South of Palm Drive to Campbell Drive

US 1, Just south of Palm Drive to Campbell Drive



Project Base Map

ETDM Alternative Terminus
Managed Conservation Lands
Alt #1
Local Road or Trail
Major Road
City Limits

Data Sources:
NAVTEQ
US Geological Survey
US Census Bureau
County Property Appraisers
Florida Natural Areas Inventory

0 0.15 0.3 0.6 Miles

N

3/6/2017

etdm Environmental Screening Tool

FDOT

II. Fact Sheet

Disclaimer

DISCLAIMER: The Fact Sheet data consists of the most up-to-date information available at the time the Advance Notification Package is published. Updates to this information may be found on the ETDM website at http://etdmpub.fla-etat.org

Special Note: Please be aware of the selected Milestone date when viewing project data on the ETDM website. Snapshots of project and analysis data have been taken for Project #14322 at various points throughout the project's life-cycle. On the website these **Project Milestone Dates** are listed in the the project header immediately after the project contact information. Click on any of the dates listed to view the information available on that date.

Overview

#14322 HEFT (SR 821) Widening US 1 South of Palm Drive to Campbell Drive

District: District 6
County: Miami-Dade
Planning Organization: Florida's Turnpike Enterprise
Plan ID: Not Available
Federal Involvement: Other Federal Permit

Phase: Programming Screen
From: US 1, Just south of Palm Drive
To: Campbell Drive
Financial Management No.: 439545-1

Contact Information: Rax Jung (407) 264-3870 rax.jung@dot.state.fl.us
Snapshot Data From: Current Draft Data

a. Purpose and Need

The purpose of the Homestead Extension of Florida's Turnpike (HEFT) (SR 821) widening from US 1 south of Palm Drive to Campbell Drive is to provide additional capacity on this main expressway. This portion of the expressway passes through Homestead and Florida City and leads to the Florida Keys, a major tourist destination. Additionally, this widening project will satisfy increasing traffic demands and improve evacuation and response times for surrounding communities.

Currently, this roadway is a four-lane divided highway servicing nearby communities and through traffic visiting the Florida Keys. Traffic volumes have been increasing over the past several years and are expected to continue to increase. Traffic growth from 1998-2011 was 7.7 percent per year on the southern portion of the HEFT. Per the Florida's Turnpike Enterprise (FTE) Planning Department, traffic numbers within the study area of the HEFT will increase beyond the capacity of the roadway. Additionally, proposed housing and commercial developments near the study area, i.e. Florida City Commons Development of Regional Impact (DRI), will contribute traffic to the areas roadways generating a need for sufficient roadways. A lack of improvements would cause traffic congestion and a likely increase in crashes. Lastly, HEFT has been classified as an emergency evacuation route by the Florida Division of Emergency Management. Therefore, widening of HEFT will decrease emergency response times and will expedite evacuation for surrounding communities in Miami-Dade County and Monroe County (FL Keys) residents/visitors.

b. Project Description

The HEFT is a southern extension (47 miles) of Florida's Turnpike and is a limited access facility that extends from the Florida's Turnpike Mainline (SR 91) to the municipalities of western Miami-Dade County. The HEFT originates at the Florida's Turnpike Mainline, four miles north of the Golden Glades interchange, and terminates at US 1 in Florida City. HEFT has a design speed of 65 miles per hour. This roadway provides regional mobility within Miami-Dade County and it is a part of the Strategic Intermodal System (SIS). The SIS includes Florida's important transportation facilities that support the state's economy and mobility.

The study area currently consists of a four-lane divided expressway with a 64-foot-wide grass median. The right of way (R/W) width varies slightly but is generally 300 feet. The southern terminus of the project is at US 1 (Milepost (MP) 0) and the northern terminus is Campbell Drive (MP 2). Just south of the Palm Drive/US 1/HEFT interchange is the continuation of US 1 and the beginning of Card Sound Road, both of which are main corridors leading to/from the Florida Keys.

There are two alternatives being considered: alternative 1, which consists of three general use lanes in each direction, and alternative 2, which consists of two general use lanes and one express lane in each direction. The interchange/intersection at Palm Drive/US 1/HEFT will also be evaluated. The improvements will facilitate traffic demands

at the US 1 and Palm Drive intersection especially to/from the Florida Keys. Additionally, at MP 0, a two-lane southbound ramp from the HEFT to southbound US 1 is being considered as part of the interchange improvements. Lastly, stormwater management facilities will be evaluated along with improvements to bridges within the study area.

c. Preliminary Environmental Discussion

i. Social and Economic

1. Land Use Changes

Project PED Comments

The proposed HEFT (SR 821) Widening project is located within Florida Department of Transportation (FDOT) right-of-way (R/W). At the 500-foot buffer distance, using the FDOT District 6 Generalized Land Use layer, the primary existing land use is Retail/Office (approximately 12 percent of the buffer area). The next highest land uses within the 500-foot buffer are, Agricultural (approximately 11 percent of the buffer area), Residential (approximately 11 percent of the buffer area), Vacant Residential (approximately 6 percent of the buffer area), Acreage not Zoned for Agriculture (approximately 6 percent of the buffer area), Vacant Nonresidential (approximately 3 percent of the buffer area), Institutional (approximately 2 percent of the buffer area), Recreation (approximately 2 percent of the buffer area), and Public/Semi-Public (approximately 1 percent of the buffer area).

Comparing existing land use classifications to the Future Land Use 2008 Geographic Information System (GIS) data layer in the EST shows a shift in the predominant land use within the 500-foot buffer to Residential Medium (more than residential low and less than 13 dwelling units), which is approximately 35 percent of the buffer area. Other future land use classifications identified within the 500-foot buffer include, Industrial, Extractive, Transportation (approximately 33 percent of the buffer area); Commercial, Office, Tourism, Marina (approximately 31 percent of the buffer area); and Water Bodies (approximately 2 percent of the buffer area). This change in land use could be linked to the project being located near the boundary of the Villages of Homestead DRI, a mixed-use development which was originally approved in 1975 and contains the Homestead Miami Speedway, along with residential houses and apartment buildings.

2. Social

Project PED Comments

Within the 500-foot buffer distance from the HEFT Widening project, the predominant social features are recreational trails and one church. Within this buffer there are two proposed recreational trails (Biscayne-Everglades Greenway Corridor and Mowry Trail Corridor) and the Gate Way Church of Christ.

According to 2010 Census data, there are ten Census Block Groups within the 500-foot project buffer. Within these ten block groups the housing vacancy rate is approximately 20 percent. Eight of these ten block groups have a majority White Alone population and the other two block groups have a majority Hispanic or Latino of Any Race. All block groups are comprised of at least 40 percent Hispanic or Latino of Any Race.

A Sociocultural Effects Evaluation will be conducted during the PD&E phase to determine potential impacts to adjoining communities.

3. Relocation Potential

Project PED Comments

South Florida Water Management District Residential Areas 2008 GIS data shows that within the 500-foot project buffer, there is approximately 28 acres of Fixed Single Family Units, 36 acres of Multiple Dwelling Units - Low Rise, and 9 acres of High Density Under Construction. The proposed improvements include widening the existing four-lane HEFT to either three additional general-use lanes in each direction or two additional general use lanes and one express lane in each direction. Currently, FDOT owns enough R/W for this six-lane highway. It is anticipated that the proposed improvements would occur within the existing R/W and residential relocations will not be required.

A Conceptual Stage Relocation Plan will be prepared during the PD&E phase, if relocations are determined to be necessary.

4. Farmlands

Project PED Comments

Within the 500-foot project buffer there are approximately 243 acres of land classified as Farmland of Unique Importanceas identified in the Prime Farm Land GIS data. Within the buffer, there is also approximately 26 acres of land classified as Prime Farmland in Florida with Associated Level 3 Water Management District Land Use Descriptions.No impacts to farmlands are anticipated because of the proposed project.

5. Aesthetic Effects

Project PED Comments

Within the 500-foot project buffer there are existing residential areas with a total area of approximately 73 acres. Existing residential areas and future commercial and residential land use designations surrounding the proposed widening project indicate that residential and commercial land use will potentially increase in the future. However, because this proposed project includes widening an existing roadway, the proposed project is anticipated to have minimal change to the existing visual environment.

6. Economic

Project PED Comments

According to 2010 Census data the average Median Family Income (2009) for the ten block groups that make up the 500-foot buffer is $40,717, and there is a total of 6,786 households living below the poverty level. There is one Development of Regional Impact (DRI), Villages of Homestead (ADA No: 1976-001), within the 500-foot buffer. Additionally, there are four Planned Unit Developments (PUD) comprising 16.89 acres. Additional lanes on the HEFT will provide increased mobility for nearby communities and tourists visiting Homestead/Florida City and the Florida Keys. The enhanced mobility of people and goods should have a positive economic effect on these areas.

7. Mobility

Project PED Comments

The 500-foot project buffer contains two Transportation Disadvantaged Service Providers (Miami-Dade Transit Agency and Logisticare Solutions, LLC), as well as two planned recreational trails (the Biscayne-Everglades Greenway Corridor and the Mowry Trail Corridor). Additionally, there are eight bus transit routes within the 500-foot project buffer servicing the community. The project location is not directly serviced by airports or railroads.

ii. Cultural

1. Section 4(f) Potential

Project PED Comments

Section 4(f) is not applicable on state funded projects.

2. Historic and Archaeological Sites

Project PED Comments

The 500-foot project buffer contains two Florida Site File historic standing structures. The two historic standing structures were built in 1949 and 1950, and both have been determined not eligible for listing on National Register of Historic Places (NRHP). There is one Florida Site File Resource Group within the 500-foot buffer. The resource group is Highway US 1, however it has been determined ineligible for NRHP listing.

A Cultural Resources Assessment Survey (CRAS) will be conducted during the PD&E phase which will assess unrecorded resources within the Area of Potential Effects (APE) for the project.

3. Recreation Areas

Project PED Comments

GIS data provided in the Environmental Screening Tool (EST) show only two planned recreational trails (the Biscayne-Everglades Greenway Corridor and the Mowry Trail Corridor). There are no existing trails within the 500-foot project buffer. Additionally, there are no parks or other recreational areas within the project buffer. Both the Biscayne-Everglades Greenway Corridor and the Mowry Trail Corridor are planned to cross the Turnpike. The effects to these or other recreational areas will be determined during the PD&E phase.

iii. Natural

1. Wetlands and Surface Waters

Project PED Comments

According to National Wetlands Inventory GIS data provided in the EST there are approximately 15 acres of palustrine wetlands and 5 acres of riverine wetlands within the 500-foot project buffer. The South Florida Water Management District GIS data did not show any wetlands within the project buffer. This proposed widening of the HEFT will minimize potential wetland impacts.

A wetlands evaluation will be conducted during the PD&E phase to determine if potential adverse impacts to wetlands will occur. Unavoidable impacts to wetlands and surface waters will require an Environmental Resource Permit from the South Florida Water Management District and a Section 404 of the Clean Water Act (CWA) Dredge and Fill Permit from the US Army Corps of Engineers.

2. Water Quality and Quantity

Project PED Comments

There is currently one Sole Source Aquifer in the State of Florida (Biscayne Aquifer). The North Canal is the only impaired waterbody located within the 500-foot project buffer and is impaired for dissolved oxygen.

Stormwater treatment and attenuation facilities will be evaluated in the PD&E phase to minimize adverse effects to the North Canal and the Biscayne Aquifer. A water quality impact evaluation will be conducted during the PD&E phase.

3. Floodplains

Project PED Comments

According to FEMA Flood Insurance Rate Maps 1996 GIS data provided in the EST there are approximately 399 acres that are within the 100-year floodplain inside the 500-foot project buffer. Approximately 178 acres are classified as a Special Flood Hazard Zone A (areas that are inundated by 100-year flooding, for which no Base Flood Elevations have been determined). Approximately 221 acres are classified as a Special Flood Hazard Zone AE (areas that are inundated by 100-year flooding, for which Base Flood Elevations have been determined). Although the project buffer contains areas within the 100-year floodplain, the HEFT, including the proposed additional lanes, is within Zone X (areas determined to be outside the 0.2% annual chance floodplain). Therefore, impacts to the base floodplain are not anticipated.

A Location Hydraulic Assessment will be performed during the PD&E phase to ensure potential impacts to floodplains will not occur.

4. Coastal Zone Consistency

Coastal Zone Consistency Determination is Required: **Yes**
Project is subject to a consistency review as required by **15 CFR 930**.

5. Wildlife and Habitat

Project PED Comments

The 500-foot project buffer contains several Consultation Areas for federally-listed species. The project buffer is within the following Consultation Areas: American crocodile, snail kite, Florida bonneted bat and Miami-Dade Keys plants. The

Florida panther consultation zone is approximately 0.20 miles from the project study area. In addition to the consultation areas, the project lies within one wood stork Core Foraging Area (Grossman Ridge West). Additionally, the eastern indigo snake and the Miami Tiger Beetle have the potential to occur in the project buffer. State-listed species with potential to occur within the project buffer include the gopher tortoise and the burrowing owl.

Pine rockland, an imperiled habitat, may occur within the project buffer.

An Endangered Species Biological Assessment will be conducted during the PD&E phase to evaluate the potential species and habitat impacts from this project.

6. Coastal and Marine
Project PED Comments
According to National Oceanic and Atmospheric Administration (NOAA) Coastal Assessment Framework GIS data provided in the EST the project has land areas that are within one Coastal Drainage Area, the Biscayne Bay Estuarine Drainage Area. However due to the location of the project no adverse coastal and marine impacts are anticipated.

iv. Physical

1. Noise
Project PED Comments
There are several residential and non-residential noise sensitive sites within the 500-foot project buffer that could be impacted by noise generated by the proposed improvements.

A noise study will be conducted during the PD&E phase to identify noise sensitive sites and to determine the eligibility for additional noise abatement measures.

2. Air Quality
Project PED Comments
Analysis of the GIS data provided in the EST shows that the project is located within the Southeast Florida Airshed. Miami-Dade County, Florida is an area that has been designated as attainment for ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10.0 microns in size), sulfur oxides, carbon monoxide, and lead. The project is located in an area which is designated attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

An Air Quality Screening Analysis will be conducted during the PD&E phase.

3. Contamination
Project PED Comments
Four Storage Tank Contamination Monitoring Sites are located within the 500-foot project buffer; two facilities are currently listed as "Closed" and two are listed as "Open". Seven Petroleum Contamination Monitoring Sites are located within the 500-foot buffer; five have a status of "work underway" and two have a status of "closed." Shell Oil Co., a Hazardous Waste Facility, is located within the 500-foot project buffer. Additionally, there is one Biomedical Waste facility (Walgreens #11481) located within the project buffer.

A contamination screening evaluation will be conducted as part of the PD&E phase to determine potential impacts to contamination sites.

4. Infrastructure
Project PED Comments

The Shell Oil Co. Hazardous Waste Facility is located within the 500-foot project buffer. The EST GIS data does not identify any other infrastructure within the 500-foot project buffer.

5. Navigation

Project PED Comments

Analysis of GIS data provided in the EST did not identify any navigable waterways within the project buffer. There are no anticipated impacts to navigable waterways from the project.

Within the 500-foot project buffer, there are four water drainage flowlines that intersect this project.

v. Special Designations

1. Special Designations: Outstanding Florida Waters

Project PED Comments

Analysis of the GIS data provided in the EST showed no areas designated as Outstanding Florida Waters in the project buffer.

2. Special Designations: Aquatic Preserves

Project PED Comments

Analysis of the GIS data provided in the EST showed no areas designated as Aquatic Preserves in the project buffer.

3. Special Designations: Scenic Highways

Project PED Comments

Analysis of the GIS data provided in the EST showed no Scenic Highways designated in the project buffer.

4. Special Designations: Wild and Scenic Rivers

Project PED Comments

Analysis of the GIS data provided in the EST showed no Wild and Scenic Rivers or river segments in the project buffer.

d. Anticipated Permits

Permit	Type	Conditions	Assigned By	Date
Section 404 Individual Permit	USACE		Florida's Turnpike Enterprise	02/21/17
NPDES General Permit	FDEP		Florida's Turnpike Enterprise	02/21/17
Environmental Resource Permit	FDEP		Florida's Turnpike Enterprise	02/21/17

e. Anticipated Technical Studies

Technical Study Name	Type	Conditions	Assigned By	Date
Location Hydraulics Report	ENGINEERING		Florida's Turnpike Enterprise	02/21/2017
Drainage/Pond Siting Report	ENGINEERING		Florida's Turnpike Enterprise	02/21/2017
Geotechnical Report	ENGINEERING		Florida's Turnpike Enterprise	02/21/2017
Bridge Hydraulic Report	ENGINEERING		Florida's Turnpike Enterprise	02/21/2017
Noise Study Report	ENVIRONMENTAL		Florida's Turnpike Enterprise	02/21/2017
Air Quality Report	ENVIRONMENTAL		Florida's Turnpike Enterprise	02/21/2017
Contamination Screening Evaluation Report	ENVIRONMENTAL		Florida's Turnpike Enterprise	02/21/2017
Conceptual Stage Relocation Plan	ENVIRONMENTAL		Florida's Turnpike Enterprise	02/21/2017
Sociocultural Effects Evaluation	Other		Florida's Turnpike Enterprise	02/21/2017
Preliminary Engineering Report	ENGINEERING		Florida's Turnpike Enterprise	02/21/2017

Water Quality Impact Evaluation (WQIE)	ENVIRONMENTAL		Florida's Turnpike Enterprise	02/21/2017
Cultural Resource Assessment Survey	ENVIRONMENTAL		Florida's Turnpike Enterprise	02/21/2017
Utility Assessment Technical Memorandum	ENGINEERING		Florida's Turnpike Enterprise	02/21/2017
Natural Resources Evaluation (NRE)	ENVIRONMENTAL		Florida's Turnpike Enterprise	02/21/2017

III. Transmittal List

Official Transmittal List

	Organization	Name
1.	City of Florida City	* Berry, Eugene D.
2.	City of Florida City	Brown, Avis
3.	City of Florida City	* Butler, Sharon
4.	City of Florida City	Shiver, Royr S.
5.	City of Florida City	* Taylor, Pedro W.
6.	City of Florida City	* Wallace, Otis T.
7.	City of Homestead	Brea, P.E., Julio A.
8.	City of Homestead	Burgess , Jon
9.	City of Homestead	Fairclough, Patricia
10.	City of Homestead	* Gretsas, George
11.	City of Homestead	* Maldonado, Elvis R.
12.	City of Homestead	Maytan, Jr., Dennis R.
13.	City of Homestead	* Porter, Jeff
14.	City of Homestead	Rolle, Al
15.	City of Homestead	Roth, Larry
16.	City of Homestead	* Shelley, Stephen R.
17.	City of Homestead	Williams, III, Jimmie L.
18.	FDOT District 6	Colmenares, Lisa
19.	FDOT District 6	Huynh, Dat
20.	FDOT District 6	James, Steven C.
21.	FDOT Office of Environmental Management	Kirby, Marjorie
22.	FDOT Office of Environmental Management	McGilvray, Peter
23.	FDOT Office of Environmental Management	Muchuruza, Victor
24.	FDOT Office of Environmental Management	Pagan, Xavier
25.	FDOT Office of Environmental Management	Sykes, Michael
26.	FDOT Office of Environmental Management	Thompson, Erika
27.	FDOT Office of Environmental Management	Yee Fong, Shereen
28.	Federal Aviation Administration	* Airports District Office
29.	Federal Transit Administration	Mitchell, Stan
30.	Federal Transit Administration	Ramirez, Andres
31.	FIHS Central Office	Hatim, Khaleda
32.	FL Department of Agriculture and Consumer Services	Bohl, Steve
33.	FL Department of Economic Opportunity	Biblo, Adam
34.	FL Department of Economic Opportunity	Preston, Matt
35.	FL Department of Environmental Protection	Ray, Suzanne E.
36.	FL Department of State	Aldridge, Jason
37.	FL Department of State	Jones, Ginny L.
38.	FL Department of State	McClarnon, Daniel
39.	FL Department of State	McManus, Alyssa
40.	FL Fish and Wildlife Conservation Commission	Gilbert, Terry
41.	FL Fish and Wildlife Conservation Commission	Goff, Jennifer
42.	FL Fish and Wildlife Conservation Commission	Poole, MaryAnn
43.	FL Fish and Wildlife Conservation Commission	Sanders, Scott
44.	Florida's Turnpike Enterprise	Horwitz, Martin
45.	Florida's Turnpike Enterprise	Jung, Rax
46.	Miami-Dade County	Barreiro, Bruno A.

47.	Miami-Dade County	Bovo, Jr., Esteban
48.	Miami-Dade County	Bravo, P.E., Alice N.
49.	Miami-Dade County	Cava, Daniella L.
50.	Miami-Dade County	Diaz, Jose Pepe
51.	Miami-Dade County	Downey, Dave
52.	Miami-Dade County	Edmonson, Audrey
53.	Miami-Dade County	* Gimenez, Carlos A.
54.	Miami-Dade County	Henderson, David
55.	Miami-Dade County	Heyman, Sally A.
56.	Miami-Dade County	Jordan, Barbara J.
57.	Miami-Dade County	Martinez, Joe A.
58.	Miami-Dade County	Monestime, Jean
59.	Miami-Dade County	Moss, Dennis C.
60.	Miami-Dade County	Navarrete, George
61.	Miami-Dade County	Osterholt, Jack
62.	Miami-Dade County	Perez, Juan J.
63.	Miami-Dade County	Ransom, Jeff B.
64.	Miami-Dade County	Roa, Carlos
65.	Miami-Dade County	Sandanasamy, Vinod
66.	Miami-Dade County	Sola, Lester
67.	Miami-Dade County	Sosa, Rebeca
68.	Miami-Dade County	Souto, Javier D.
69.	Miami-Dade County	Stillings, Noel
70.	Miami-Dade County	Suarez, Xavier L.
71.	Miami-Dade Expressway Authority	Diaz, Mayra
72.	Miami-Dade Urbanized Area MPO	Roa, Carlos
73.	Miccosukee Tribe of Indians of Florida	* The Honorable Mr. Billy Cypress, Chairman
74.	Muscogee (Creek) Nation	* The Honorable Mr. James Floyd, Principal Chief
75.	National Marine Fisheries Service	Howard, Brandon
76.	National Park Service	Barnett, Anita
77.	Natural Resources Conservation Service	Crockett, Leroy
78.	Natural Resources Conservation Service	Robbins, Rick A.
79.	Poarch Band of Creek Indians	* The Honorable Ms.Stephanie A. Bryan, Tribal Chair
80.	Seminole Nation of Oklahoma	* The Honorable Mr. Leonard M. Harjo, Principal Chief
81.	Seminole Tribe of Florida	Backhouse, Paul N.
82.	Seminole Tribe of Florida	Swing, Alison
83.	Seminole Tribe of Florida	* The Honorable Mr. Marcellus W. Osceola, Chairman
84.	South Florida Regional Planning Council	Hamilton, Karen
85.	South Florida Water Management District	Conmy, Barb
86.	South Florida Water Management District	deRojas, Carlos
87.	South Florida Water Management District	Parrott, Mindy
88.	US Army Corps of Engineers	Barron, Robert B.
89.	US Army Corps of Engineers	Kizlauskas, Andrew A.
90.	US Army Corps of Engineers	Ornella, Michael
91.	US Army Corps of Engineers	Ostrofsky, Tarrie L.
92.	US Army Corps of Engineers	Turner, Randy
93.	US Army Corps of Engineers	Wegmann, Deborah L.
94.	US Coast Guard	Overton, Randall D.
95.	US Coast Guard	Tate, William G.
96.	US Coast Guard	Tompkins, Darayl
97.	US Coast Guard	Zercher, Jennifer

98.	US Department of Health and Human Services	* National Center for Environmental Health Centers for Disease Control and Prevention
99.	US Department of Housing and Urban Development	* Regional Environmental Officer
100.	US Department of Interior	* Bureau of Land Management, Southeastern States Field Office
101.	US Department of Interior	Director, USGS-FISC
102.	US Environmental Protection Agency	Gates, Kim
103.	US Environmental Protection Agency	Somerville, Amanetta
104.	US Environmental Protection Agency	Walls, Beth
105.	US Fish and Wildlife Service	Wrublik, John
106.	US House	* Curbelo, Carlos
107.	US House	* Ros-Lehtinen, Lleana
108.	US Senate	* Nelson, Bill
109.	US Senate	* Rubio, Marco

* Hardcopy recipient

Florida's Turnpike (SR 821) Widening

Project Development and Environment (PD&E) Study
from US 1 South of Palm Drive to Campbell Drive
Miami-Dade County Florida - Financial Project ID No.: 439545-1-22-01 - ETDM Number: 14322

Newsletter No. 1 September 2018

ABOUT THE STUDY

The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE), recently started a Project Development and Environment (PD&E) Study for the widening of Florida's Turnpike (SR 821) from US 1 south of Palm Drive to Campbell Drive, in Miami-Dade County. The total project length is approximately 3.5 miles (see project location map below).

Currently, this roadway is a four-lane divided limited access toll facility serving Florida City, the City of Homestead and the Florida Keys. Florida's Turnpike has been classified as an emergency evacuation route by the Florida Division of Emergency Management. Traffic volumes are anticipated to increase beyond the capacity of the existing Turnpike tollway.

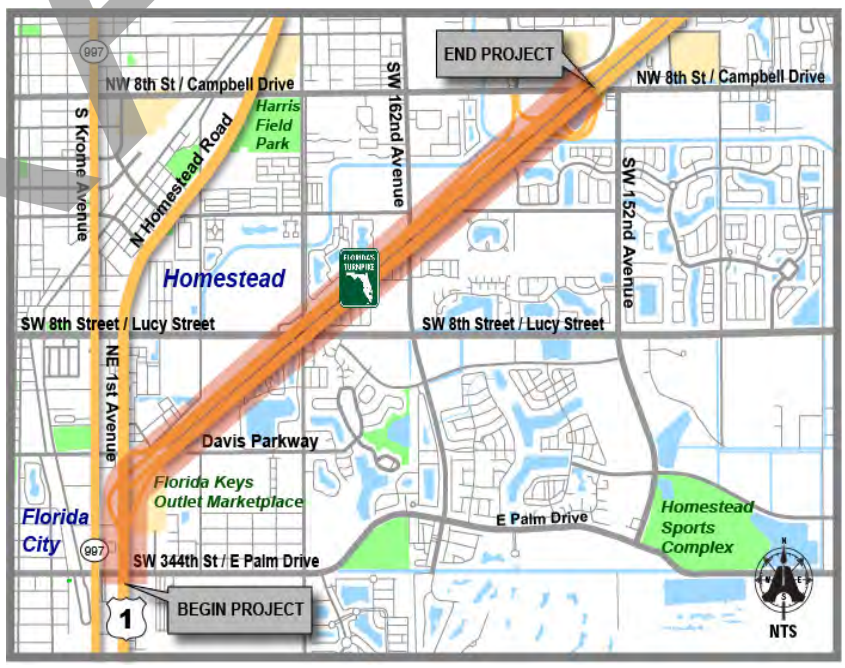
The Palm Drive/US 1 intersection is currently experiencing heavy traffic congestion which backs up onto Florida's Turnpike interchange ramps at US 1, causing delay and traffic build up on Florida's Turnpike and local streets. Without improvements, traffic congestion and collisions will increase and, in turn, result in extensive delay to motorists.

The purpose of this PD&E Study is to evaluate alternatives that would provide additional traffic capacity to meet the anticipated traffic growth through the year 2045 and provide improved evacuation and emergency response times. During the study, local street improvements at the interchanges will consider the needs of pedestrians, bicyclists, bus transit riders, and landscape improvements.

WHAT IS A PD&E STUDY?

A PD&E Study is an environmental and engineering process conducted by FDOT to determine social, economic, physical and environmental impacts associated with a proposed transportation improvement project. An important component of the process is public and agency involvement. The process follows federal and state laws and regulations. It requires the combined efforts of professional engineers, planners and scientists who collect and analyze project-related information to develop the best solution for a community's transportation needs while minimizing impacts.

The PD&E process is an integrated work effort involving engineering analysis and environmental evaluation, all accomplished within the context of a public participation program.



The key components of the process are data collection, traffic forecasts, alternatives analysis and development (including a no-build alternative), engineering analysis, environmental analysis, documentation, public and agency involvement. The PD&E process involves creating several roadway alternatives with and without express lanes and identifying interchange improvements. Two public meetings will be held, an alternatives public meeting and a public hearing to obtain the community's input. Afterward the final engineering and environmental documents are prepared for approval.

NOISE

The PD&E Study includes the evaluation of potential noise impacts that may result from the proposed improvements. Noise specialists will use approved federal and state procedures for evaluating whether noise abatement or reduction would benefit property owners. The analysis identifies potential abatement locations and the proposed method to reduce traffic noise, e.g., noise walls. The findings will be documented in a Noise Study Report. For additional information on traffic noise, please go to the FTE project website: www.floridasturnpike.com/construction.html, then click on "Turnpike Traffic Noise Video."

NEWSLETTER

This is the first of three newsletters for this PD&E Study. Through these newsletters, FTE will notify the public about upcoming meetings and provide periodic updates on study activities. Newsletters will be available prior to the alternatives public meeting and the public hearing.

PUBLIC PARTICIPATION

FTE encourages the public to get involved throughout the study by providing comments, questions and suggestions to the study team. Information will be available through newsletters, the project website at: www.TurnpikeSouthMiamiDade.com , at public information meetings and through public inquiries.

All comments or suggestions may be mailed or emailed to the project manager. Contact information is shown below.

Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability or family status.

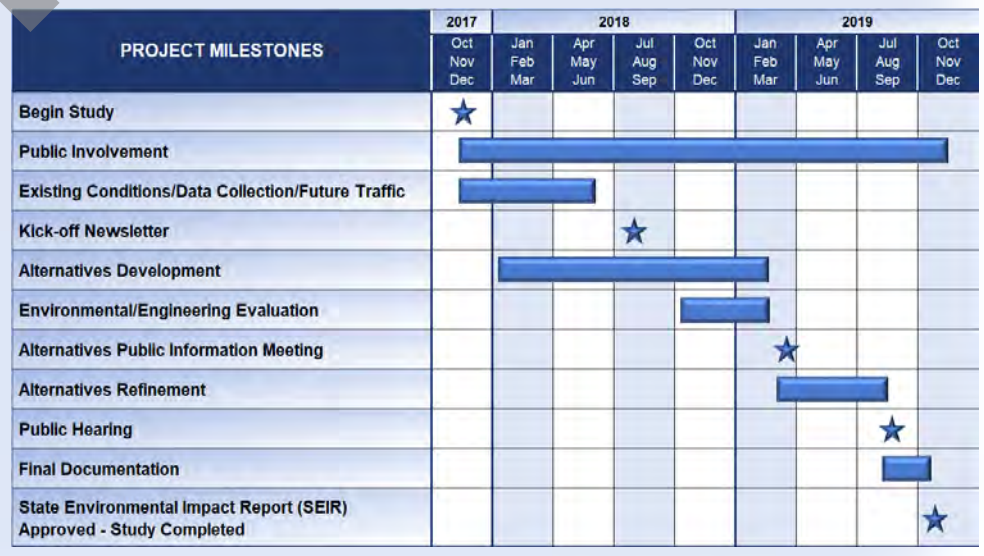
Project Development and Environment (PD&E) Study Process

CONTACT INFORMATION

If you would like to obtain additional project information, be added to the mailing list, please visit our website at www.TurnpikeSouthMiamiDade.com and click on "Stay Connected" or contact:

Brian Ribaric, P.E.
Project Manager (Atkins)
Florida's Turnpike Enterprise
P.O. Box 613069
Ocoee, FL 34761-3069
Phone: 407-264-3095
Email: Brian.Ribaric@dot.state.fl.us

Victoria Williams, CPM
MPO Liaison for South Florida
Florida's Turnpike Enterprise
P.O. Box 9828
Ft. Lauderdale, FL 33310
Office: 954-934-1104
Mobile: 407-462-8225
Correo Electronico: Victoria.Williams@dot.state.fl.us



from Campbell Drive south until it connects with the existing SIS facility on US 1. This change will convert Krome Ave to a city/county roadway within the study area.

- Expansion of Palm Drive to the east of US 1 is under design with piping of the canal being included.
- The potential Publix shopping center southeast of Palm Drive may have been relocated further east on Palm Drive.

HEFT PD&E Study (Palm Drive to Campbell Drive)

- 24 month schedule
- 2045 Design Year
- includes both express lanes and general toll lanes for the HEFT mainline widening.
- Currently the express lanes end at Campbell Drive.
- final traffic forecasts anticipated by March and/or April.

Public Involvement and Coordination

An information newsletter will be circulated to the public and elected officials, in lieu of a public kickoff meeting which will not be held. A public workshop for the alternatives and public hearing are planned.

District 6 noted the SMART plans, street needs, bus-on-shoulder concepts are being considered at Miami-Dade County and the FTE should anticipate transit input from MD County

The FTE is reviewing a new interchange access request for Lucy Street which is being widened to 6 lanes. District 6 experienced challenges with Lucy street on a previous project due to a near-by pre-school.

FTE will take the lead on the HEFT public involvement with notifications being coordinated through Hong Benitez, Dat Huynh and Ken Jeffies. Handouts will be sent to District 6 ahead of distribution to the public. District 6 would like notice if FTE is meeting with public officials.

Alternative Concepts

Interchange alternatives will need to go through the DIRC process (maybe a joint DIRC meeting). FTE to will be the lead agency.

Preliminary alternatives were then presented to District 6 by the FTE. Brian caveat the presentation stating that these alternatives were developed in the early marketing phases of the project and coordination with FTE traffic is ongoing.

- Inside and outside widening will be considered on the mainline. One alternative considers 3 general purpose lanes and the other 2 general purpose and 1 express. In the future north of Campbell will be 6 lanes.
- District 6 expressed concern for a connection to Krome Ave from the southbound off ramp shown in Concept 5, 6, 7 and 8. The connection to Krome might not be ideal with the SMART Plan and presents a new idea not considered during the truck bypass study.
- District 6 added that Miami-Dade could potentially ask FTE to explore park and ride lot improvement with possibly a direct ramp to a park and ride lot.

WIDEN HOMESTEAD EXTENSION OF FLORIDA'S TURNPIKE (SR 821)
PD&E Study From US 1 South of Palm Drive to Campbell Drive
In Miami-Dade County
FPID#: 439545-1-22-01

Meeting Minutes | District 6 Kickoff Meeting | Date: February 7, 2018

Introductions were made and a list of attendees can be found attached to these notes.

Brian R. gave a quick overview of the project, study limits, purpose and need.

Members from District 6 expressed interest in the HEFT widening PD&E study and if limits would be extended in the south on US 1 to include a fly over the Palm Drive and US 1 intersection. The FTE team explained to District 6 that traffic still needs to be evaluated to determine viable alternatives and that the study limits would be determined based on alternatives developed that meet the study purpose and need. The current analysis includes the north/south overpass alternative for consideration as an alternative.

Members from District 6 informed the Turnpike (FTE) PD&E study team of other adjacent projects that are outgoing or planned. The projects discussed included:

- The Miami-Dade TPO studied Palm Drive and US 1. The study found a need for a grade separated overpass for emergency evacuation. The study did not have any other project move forward at this location.
- District 6 Evacuation study has been superseded by Turnpike review and additional evacuation study document.
- Members from District 6 noted the intersection at Palm Drive and US 1 has the biggest area of need and concern due to congestion and safety.

<u>Coordination with other projects</u>

- Florida City has a project on US 1 on Palm Drive from east of US 1; the City is considering widening the roadway to 6 lanes.
- FDOT District 6 Design Projects underway include
-
    - FM: 405575-8-52-01; FDOT PM: Nathaniel Pulido; Project Limits: SR 40/SR 9336/Palm Drive from SR 997/Krome Ave to SR5/US1 (Truck Bypass)
    - FM: 405575-6; Project Limits: SW 312 Street, SW 336 ST/Davis Parkway, SR 9336/Palm Drive from Krome Ave to US 1 Truck By-Pass (Tentative start: 10/19, Anticipated Completion Date: 12/21)
    - US 1 from Davis – Krome Truck by-pass PD&E has some improvements along this area.

- A right turn lane is planned to be added at the intersection of Davis Parkway and Krome Ave. Reja Raby from Caltran will provide the FTE study team roadway CADD files and stripping plan.
- Hong informed the Turnpike study team that two resurfacing projects are planned for advertisement this calendar year. The projects are expected to be in construction in about two years.
- Miami-Dade project at Lucy Street to widen to 4LD.
- HEFT project Design and Construction funds are not programmed at this time, however they may be included in the next work program cycle.
- Truck Bypass - The SIS designation for the surrounding surfaces streets are being modified. The proposed change will make Campbell Drive from Krome Ave to Homestead Blvd and then US 1

Meeting Minutes | District 6 Kickoff Meeting | Date: February 7, 2018

- FTE is looking at shoulders for evacuation. Entire county of Monroe must evacuate in a hurricane 3, 4 or 5. Additional coordination with Monroe County might be needed.
- There is a new design standard for the rumble strips. Dat to send to team.
- Continue to coordinate with Dat and Hong at District 6 will be conducted throughout the study and with Nathan regarding the design project.
- Environment
    - Noise walls will be evaluated by FTE for this PD&E study.
    - General Tiger Beetle investigation will be included during the
    - Contamination data collection will commence in the near future.

Meeting Attendance Sheet

Widen HEFT (SR 821) from US 1 South of Palm Drive To Campbell Drive PD&E Study

Miami-Dade County
FM 439545-1-22-01 & ETDM 14322

Date: February 7, 2017 **Meeting Purpose:** Kickoff with District 6

Meeting Location: District 6 - Executive Conference Room

Initial as Attending	Name	Organization	Phone	E-Mail
✓	Brian Ribaric, PE	GEC Production Project Manager		
	Henry Pinzon	FTE		
	Rax Jung, Ph.D., PE	FTE		
DIAL IN	Martin Horwitz	FTE		
WTE	Evans, Bill	Arcadis	561.352.5662	william.evans@arcadis.com
	Linda Hess	Stanley Consultants	561.584.8744	hesslinda@stanleygroup.com
HB	HONG BENITEZ	FDOT D6 PLEMO	3/470-5219	hong.benitez@dot.
N.S.	Nour shehadeh	HSQ Group Inc.	561-392-6221	nour@hsqgroup.net
	NATHAN V. PULIDO	FDOT PM	305 470 5297	NATHANIEL.PULIDO@DOT.STATE.FL
R.R	Reja E Rabbi;	Caltran Eng. Group. Inc.	786-456-7700	rrabbi@caltrangroup.com.
KJ	Ken Jeffries	FDOT D6 PLEMO	305.470.5345	Ken.jeffries@dot.state.fl.us
DH	DAT HUYNH	FDOT D6	305 470-5201	DAT.HUYNH@DOT.STATE.FL.US
	Andrew Jungman	FDOT D6 PLEMO	305 470 5420	andrew.jungman@DOT.STATE.FL.US
BC	Barbara Culhane	FDOT D6 PLEMO	305.470.5231	barbara.culhane@dot.state.fl.us
DIALIN	Courtney ARENA			

Stanley Consultants INC.

Summary of Local Agency Meetings

PROJECT: **Turnpike Extension: Widening PD&E Study (FPID#: 439545-1-22-01)**
From US 1 S. of Palm Drive to Campbell Drive
Miami-Dade County

MEETING DATES: September 30, 2019 Miami-Dade County
October 1, 2019 City of Florida City & City of Homestead
October 16, 2019 Miami-Dade TPO (GoToMeeting)

Local agency meetings were held on September 30, 2019 and October 1, 2019 with Miami-Dade County, the City of Homestead and the City of Florida City to present the project alternatives regarding the Turnpike Extension Project (FM 439545-1) PD&E study and obtain local agency comments. An additional go-to meeting was held on October 16, 2019 with the Miami-Dade TPO to present the project and obtain feedback.

The presentation included the PD&E purpose and need, traffic and safety conditions, right of way requirements, and the No Build and Build alternatives which included:

- Mainline Turnpike widening from US 1 to Campbell Drive by adding one lane in each direction.
- A new tolled Turnpike ramp over Palm Drive
- A new partial interchange at Lucy Street
- Express lanes were not being considered south of Campbell Drive
- Additional information was presented regarding a separate Campbell Drive feasibility study.

The three agencies stated their support for the project alternatives and new interchange at Lucy Street, and the need to improve operations and safety at Palm Drive for both local and Turnpike operations. Other discussion occurred explaining the changes in access and new traffic circulation patterns on US 1.

Miami-Dade requested Turnpike to coordinate during the design phase with MD Transit for bus stop locations, and obtain input from the school board, police and fire/rescue regarding the new travel patterns.

City of Florida City noted correcting the weaving problem on US 1 north of Palm Drive; keeping access to the local businesses, obtaining a southbound U-turn on US-1, synchronizing the signals at Davis Parkway and at Palm Drive were important features to consider. The City would like the project coordinated with the City Commission and City Planner, Henry Iler.

City of Homestead noted that both the City and the owner of the Alger parcels were still interested in a new Lucy Street interchange and in discussion to provide the right of way. Potential development plans may include multiuse development. Turnpike noted the Lucy Street interchange was being advanced into the current PD&E study for evaluation. Tennessee Street maybe reconnected by the City or developer in the future. It was agreed, the PD&E study will show Tennessee Street as “by Others” on the PD&E concepts and the City or developer would be responsible for Tennessee Street planning and construction, which would assist in the benefit/cost ratio of the project. The Campbell Drive study noted no substantial benefit by adding a westbound turbo lane or eastbound right turn lane; which were

dropped from implementation. The shared use path was feasible, and the City or County could fund and implement the shared use path project.

The Miami-Dade TPO had the inquired about evacuation needs and local coordination after the presentation. The evacuation traffic operations are improved with the northbound direct connect ramp providing free flow traffic movement over the signalized Palm Drive intersection. This proposed ramp doubles the current northbound traffic flow capacity to northbound Turnpike. The elevated direct connect ramps also improves the at-grade signalized operations as well for turning movements and local emergency management vehicles. Local coordination with the City of Florida City and the City of Homestead was conducted. The City of Homestead requested FTE to brief the Alger parcel owners regarding the Lucy Street interchange. The Turnpike schedule a meeting for November 4th with the Alger parcel owners and developer to discuss the interchange and need for right of way. The Lucy Street interchange is being added to the PD&E study and will be presented at the 1/21/20 public meeting to present the PD&E alternatives to the public.

Meeting Attendance Sheet

Widen Turnpike Extension (SR 821)
from US 1 South of Palm Drive to Campbell Drive PD&E Study

Miami-Dade County
FM 439545-1-22-01 & ETDM 14322

Date: 9-30-19 **Meeting Purpose:** LOCAL AGENCY MEETING

Meeting Location: MIAMI DADE COUNTY

Initial as Attending	Name	Organization	Phone	Email
JH	Jazlyn Heywood	GEC Production Project Manager	407-264-3298	Jazlyn.Heywood@dot.state.fl.us
✓	Henry Pinzon	FTE	407.264.3802	Henry.Pinzon@dot.state.fl.us
	Enock Mtoi	AECOM/FTE Traffic	954-934-1292	Enok.Mtoi@dot.state.fl.us
WTE	Evans, Bill	Arcadis	561-352-5662	William.evans@arcadis.com
	Alice Bravo	DTPW		
CD	Claudia Diaz	DTPW TED		Claudia.Diaz@miamidade.gov
	Darlene Fernandez	DTPW		Darlene.Fernandez@maimidade.gov
	Frank Aira	DTPW TSS	305-679-0002	airaf@miamidade.gov

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Meeting Attendance Sheet

Widen Turnpike Extension (SR 821)
from US 1 South of Palm Drive to Campbell Drive PD&E Study

Miami-Dade County
FM 439545-1-22-01 & ETDM 14322

Date: 10-1-19 **Meeting Purpose:** Local Agency Meeting

Meeting Location: City of Florida City

Initial as Attending	Name	Organization	Phone	Email
JH	Jazlyn Heywood	GEC Production Project Manager	407-264-3298	Jazlyn.Heywood@dot.state.fl.us
	Henry Pinzon	FTE	407.264.3802	Henry.Pinzon@dot.state.fl.us
	Enock Mtoi	AECOM/FTE Traffic	954-934-1292	Enok.Mtoi@dot.state.fl.us
WTE	Evans, Bill	Arcadis	561.352.5662	William.evans@arcadis.com
	Eugene Leon	City of Fla. City	305-247-8221	proj-mngr@floridacityfl.gov
	Cindy Lyle	City of Fla. City	305-242-8178	com-dev@floridacityfl.gov
	DUANE E. SCHULTZ	CITY OF FLORIDA CITY	305 247 8222	BSUPERVISOR@FLORIDACITYFL.GOV
E.V.	Edel Villar	City of Florida City	305-247-8221	evillar@floridacity fl.gov

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Meeting Attendance Sheet

Widen Turnpike Extension (SR 821)
from US 1 South of Palm Drive to Campbell Drive PD&E Study

Miami-Dade County
FM 439545-1-22-01 & ETDM 14322

Date: 10-1-19 **Meeting Purpose:** LOCAL AGENCY MEETING

Meeting Location: CITY OF HOMESTEAD

Initial as Attending	Name	Organization	Phone	Email
	Jazlyn Heywood	GEC Production Project Manager	407-264-3298	Jazlyn.Heywood@dot.state.fl.us
	Henry Pinzon	FTE	407.264.3802	Henry.Pinzon@dot.state.fl.us
	Enock Mtoi	AECOM/FTE Traffic	954-934-1292	Enok.Mtoi@dot.state.fl.us
	Evans, Bill	Arcadis	561-352-5662	William.evans@arcadis.com
	Julio A. Brea	City of Homestead	305-224-4770	jbrea@cityofhomestead.com

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Meeting Attendance Sheet

Widen Turnpike Extension (SR 821)
from US 1 South of Palm Drive to Campbell Drive PD&E Study

Miami-Dade County
FM 439545-1-22-01 & ETDM 14322

Date: 10/16/2019 **Meeting Purpose:** Project update to Miami-Dade TPO

Meeting Location: Go-To Meeting

Initial as Attending	Name	Organization	Phone	Email
x	Jazlyn Heywood	GEC Production Project Manager	407-264-3298	Jazlyn.Heywood@dot.state.fl.us
x	Henry Pinzon	FTE	407.264.3802	Henry.Pinzon@dot.state.fl.us
x	Enock Mtoi	AECOM/FTE Traffic	954-934-1292	Enok.Mtoi@dot.state.fl.us
x	Bill Evans	Arcadis	561-352-5662	William.evans@arcadis.com
x	Linda Hess	Stanley Consultants	561-584-8744	HessLinda@stanleygroup.com
x	Victoria Williams	FDOT		
x	Carlos Roa	Miami-Dade		Carlos.Roa@miamidade.gov
x	Maria Elisa Colmenares	Miami-Dade		MariaElisa.Colmenares@miamidade.gov
x	Andrew Velasquez	FDOT		

Stanley Consultants INC.

Summary of Meeting with Florida City

PROJECT: **Turnpike Extension: Widening PD&E Study (FPID#: 439545-1-22-01)**
From US 1 S. of Palm Drive to Campbell Drive
Miami-Dade County

MEETING DATES: November 12, 2019

ATTENDEES: **City of Florida City:** Mayor Otis Wallace, Richard Status, Eugene Leon, Pedro Gonzalez, Henry Iler, Jack Ahlstedt; **Florida Turnpike:** Jazlyn Heywood, Rax Jung, Henry Pinzon, Enock Mtoi, Kim Sampson, Emam Emam **Turnpike Consultant:** Bill Evans, Linda Hess

A Local agency meeting was held on November 12, 2019 with the Mayor Otis Wallace, City of Florida City and other Florida City staff to present the project alternatives regarding the Turnpike Extension Project (FM 439545-1) PD&E study and obtain local agency comments.

The presentation included the PD&E purpose and need, traffic and safety conditions, right of way requirements, and the proposed geometry of the No Build and Build alternatives which included:

- Mainline Turnpike widening from US 1 to Campbell Drive by adding one lane in each direction.
- A new tolled Turnpike ramp over the Palm Drive intersection.
- Traffic flow for the interchange area
- Right of way needs
- Traffic operation results for the 2045 design year
- Maintaining the existing Turnpike ramps to and from US 1.

The US 1 interchange alternatives were developed to identify solutions to eliminate traffic queuing up on the Turnpike through lanes. Jazlyn reviewed the traffic flow for the Turnpike off ramps and local roadways. She explained that in both alternatives, US 1 southbound traffic flow may continue to use the same traffic pattern as currently exists to access businesses.

Jazlyn explained that several alternatives were evaluated that did not have proposed ramps over Palm Drive. They were found not viable due to traffic operations, right of way impacts and other safety concerns. Traffic analysis found that at-grade alternatives did not eliminate the safety problem of traffic queueing on the Turnpike's mainline through lanes and did not address the weaving issue on southbound US 1. The Turnpike explained that to solve the safety issue of traffic backing up onto the mainline, an alternative that spans over the highly congested Palm Drive intersection is needed.

The city inquired on how traffic volumes were developed for the grade separated flyover. Kim Sampson explained that several factors were included in the development including a commercial origin destination model, StreetLight information that utilizes drivers cell phone data and a calibrated regional traffic model that includes future land use development for the area. Control points were used in the origin and destination model that were location north and south of the interchange on US 1 east and west on Palm Drive. The Turnpike traffic model accounted for the recent construction projects on Palm Drive and Lucy Street.

Jazlyn explained that construction cost for both alternatives are under development but will be presented at the public meeting in January. The static toll cost was developed based on balancing traffic operations and not based on construction cost. Henry stated that the project is not currently in the 5-year work program.

At the public information meeting in January, two (2) alternatives will be presented to the public and the City and public has opportunities for submitting alternative approaches.

Florida City asked if Turnpike considered an option to connect SW 136 Street under or over the Turnpike. Turnpike explained that they do take in to account local roadway plan connectivity and that this proposal would need to be identified in a local plan.

ACTION ITEMS:

- An updated PDF file of the presentation will be sent to the city that includes the at-grade scenario evaluated at the Palm Drive intersection. ***Follow up to the meeting – Jazlyn sent the pdf presentation to Henry Iler on 11/12/2019.
- Florida City requested a link to Turnpike high crash information.
- The Public Information Meeting is scheduled for January 21, 2019. A separate meeting with Florida City will occur on the morning of January 22nd at the Florida City, City Hall.

From:	Heywood, Jazlyn
To:	mayor@floridacityfl.gov; henry@ilerplanning.com
Cc:	Williams, Victoria; Scott, Carol; Linda Hess (Stanley); Evans, Bill
Subject:	439545-1 Turnpike Widening (from US 1 South of Palm to Campbell)_Requested Information
Date:	Tuesday, January 28, 2020 10:54:34 AM
Attachments:	439545-1_FINAL_Newsletter_No_1_091018.pdf 439545-1_Master Mailing List for Public Meeting_122319.xlsx 439545-1_Property Owner Mailing Map_Public Information Meeting.pdf 439545-1_Master Mailing List for Newsletter No. 1.xlsx

Hi Mayor Wallace:

It was a pleasure to meet with you to discuss the subject PD&E Study. Attached are the items you requested:

1. Newsletter No. 1
2. Mailing list for Newsletter No. 1
3. Mailing list for the January 21st Public Information Meeting
4. Notification Map for the January 21st Public Information Meeting.

Below are the direct links to the videos that were on display at the public meeting:

1. PD&E Process Video: https://www.youtube.com/watch?v=Ak3QiPMo0aE&feature=youtu.be
2. Turnpike Traffic Noise Video: https://www.youtube.com/watch?v=bdbzGGM6vsk
3. Right of Way Video: https://www.youtube.com/watch?v=Y_N-ynavzsk&feature=youtu.be

We look forward to continued coordination with your Team. Please provide us with the list of items your Team needs. Thanks.

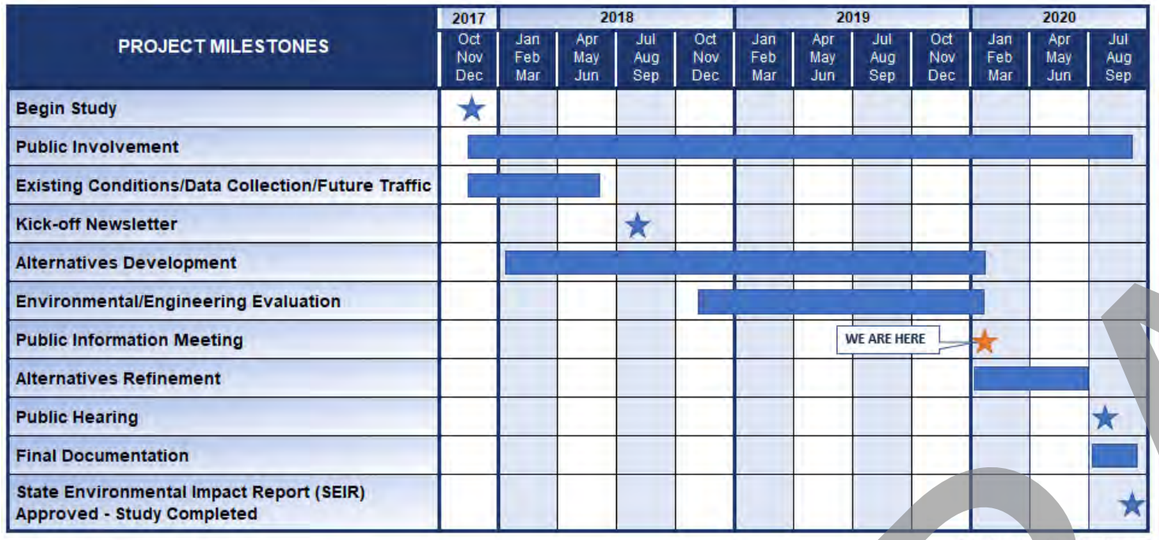
Jazlyn Heywood P.E.

Senior Project Manager
North America
Engineering, Design and Project Management
Office: +1.407.264.3298 Mobile: +1.407.235.2042

Atkins, member of the SNC-Lavalin Group
Florida's Turnpike Milepost 263, Building 5315
P.O. Box 613069, Ocoee, Florida 34761

PROJECT SCHEDULE

The PD&E Study began in fall 2017. The public information meeting is being held on January 21, 2020. A public hearing will be held in summer 2020. The study is anticipated to be completed in fall 2020 with the approval of the State Environmental Impact Report (SEIR).



Schedule is subject to change

CONTACT INFORMATON

Ms. Jazlyn Heywood, P.E.
Project Manager for
Florida's Turnpike Enterprise (Atkins)
P.O. Box 613069
Ocoee, Florida 34761-3069
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407-264-3298

Mr. Rax Jung, P.E., Ph.D.
Project Development Engineer
Florida's Turnpike Enterprise
P.O. Box 613069
Ocoee, Florida 34761-3069
Rax.Jung@dot.state.fl.us
407-264-3870

PUBLIC PARTICIPATION:

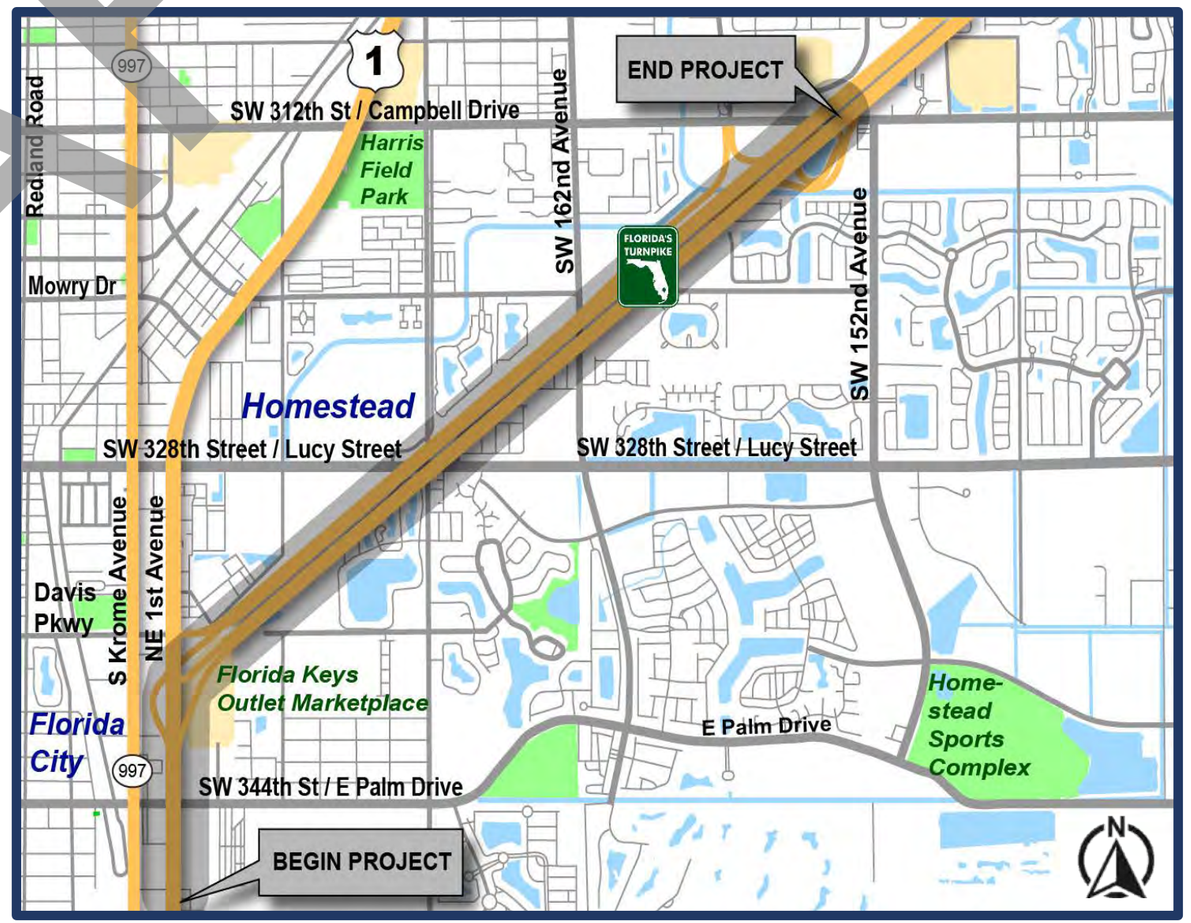
Public participation is solicited without regard to race, color, national origin, age, sex, religion, disability, or family status. Please visit the project website at www.TurnpikeSouthMiamiDade.com, for project information and updates throughout the study.

Florida's Turnpike (SR 821) Widening
Project Development and Environment (PD&E) Study
from US 1 (South of Palm Drive) to Campbell Drive
Miami-Dade County, Florida - Financial Project ID No.: 439545-1 - ETDM Number: 14322

The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE) is conducting a Project Development and Environment (PD&E) Study for widening Florida's Turnpike (SR 821) from US 1 (south of Palm Drive) to Campbell Drive, in Miami-Dade County. This portion of the Turnpike passes through the cities of Homestead and Florida City and leads to the Florida Keys, a major tourist destination.

Project objectives include widening the Turnpike to serve existing and future traffic demand, improve evacuation and emergency response times and enhance economic growth. It also includes improving safety by addressing congestion at the US 1 and Palm Drive intersection. Recurring congestion at this intersection causes traffic to back-up onto southbound Florida's Turnpike.

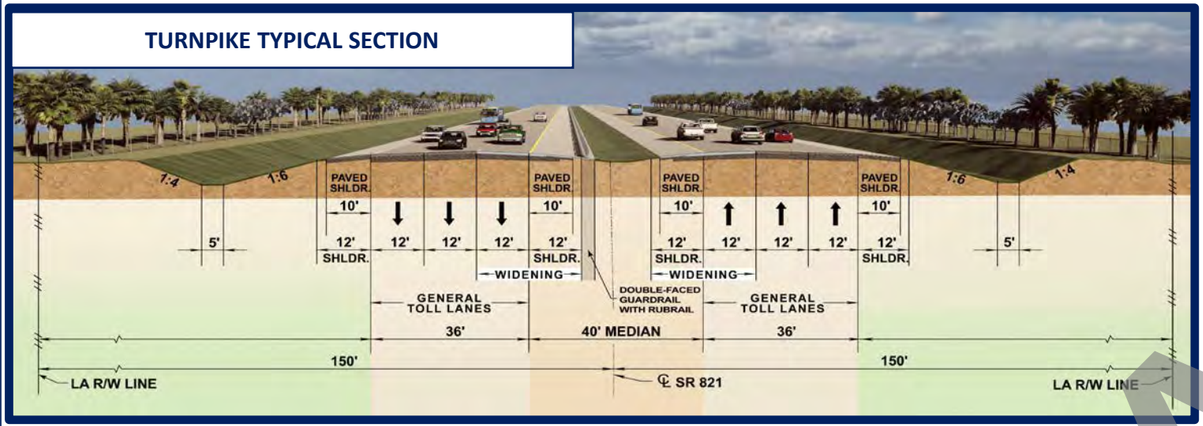
Conceptual project alternatives were developed to widen Florida's Turnpike, to improve the US 1/Palm Drive intersection, add a new interchange at Lucy Street, and provide minor ramp improvements at the Campbell Drive interchange.



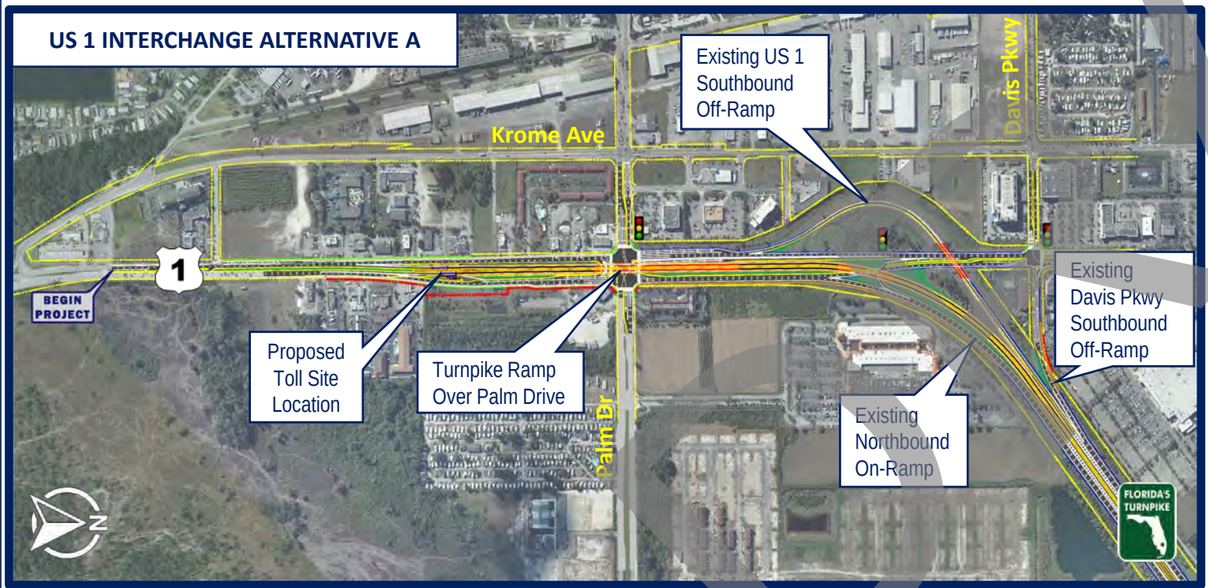
PROJECT ALTERNATIVES

Turnpike Typical Section: The Turnpike from US 1 to Campbell Drive, is proposed to be widened to a six-lane divided highway. The additional lanes will be constructed toward the median.

TURNPIKE TYPICAL SECTION



US 1 INTERCHANGE ALTERNATIVE A



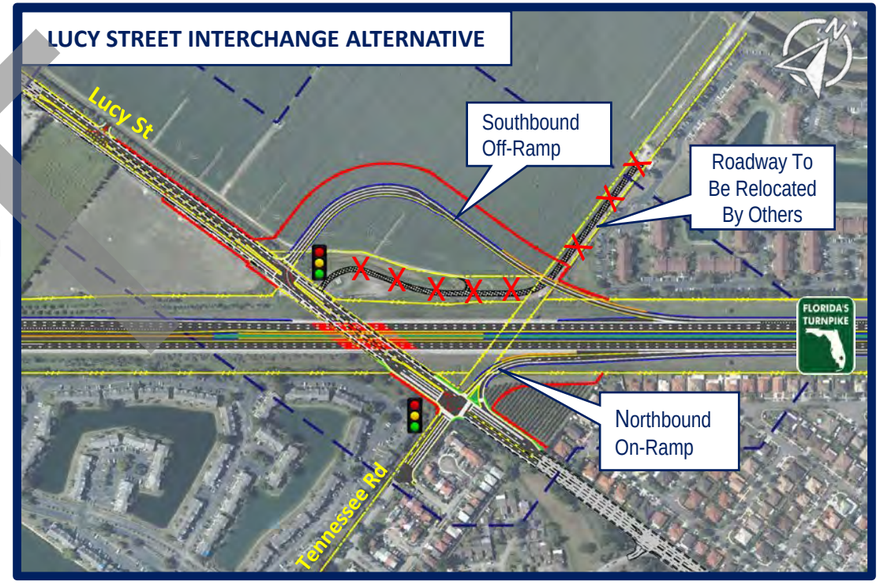
US 1 Interchange Alternative A:

- This alternative features an elevated Turnpike ramp over the Palm Drive and US 1 intersection, with one lane in each direction. The elevated ramp will be tolled and open to all vehicle types. The existing Turnpike on- and off-ramps will remain with minor modifications.
- A traffic separator on southbound US 1 (north of Palm Drive) will channelize local southbound traffic to reduce traffic weaving and improve safety. Advance traffic signs will guide motorists to their desired lane.

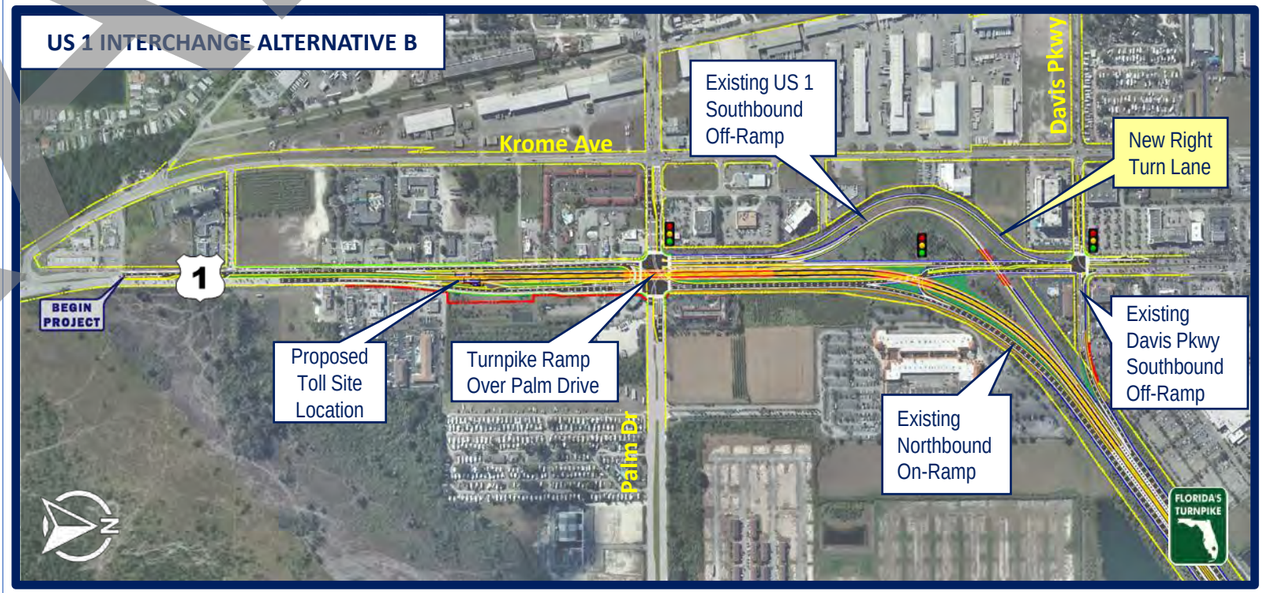
Lucy Street Interchange Alternative:

The Lucy Street interchange is proposed to be a partial interchange with a southbound off-ramp and northbound on-ramp. Two signalized intersections will be provided at the ramp intersections.

LUCY STREET INTERCHANGE ALTERNATIVE



US 1 INTERCHANGE ALTERNATIVE B



US 1 Interchange Alternative B: Alternative B has the identical features of Alternative A plus the following:

- A new right turn lane will be added between Palm Drive and Davis Parkway to accommodate southbound right turns at Palm Drive. Southbound US 1 motorists will access the new right turn lane just south of the Davis Parkway and US 1 intersection.
- An additional traffic separator on southbound US 1 (north of Palm Drive) will further channelize local southbound traffic to eliminate traffic weaving and improve safety.

Florida Department of Transportation

RON DESANTIS
GOVERNOR

Florida's Turnpike Enterprise
P.O. Box 613069, Ocoee, FL 34761
407-532-3999

KEVIN J. THIBAULT, P.E.
SECRETARY

Date: January 16, 2020

Place: SFWMD 3301 Gun Club Road, West Palm Beach, FL

Project/Purpose: FDOT/SFWMD/COE Interagency Meeting Minutes
FPID # 439545-1-22-01 Turnpike Extension Widening PD&E Study from US 1 South of Palm Drive to Campbell Drive, Miami-Dade County

Attendees:

Jesse Markle, PE – SFWMD
Caroline Hanes, PWS – SFWMD
Matt Bolton – SFWMD
Mark Tamblyn – USACE
Annemarie Hammond – FTE
Fred Gaines, PWS – FTE (Atkins)
Renaud Olivier, PE - Stanley
Millie Radsikhovsky – BMA
Nick Vitani, PG – SFWMD
Beverly Miller – SFWMD
Teri Swartz, PE – SFWMD
Cynthia Ovdenk - USACE
Jazlyn Heywood, PE – FTE (Atkins)
Bill Evans, PE – Arcadis
Linda Hess, PE – Stanley
Dylan Larson – Miller Legg

The meeting started at 10:30 with introductions. Attached to these minutes are the attendee list, meeting exhibits and meeting agenda.

ITEM	SUBJECT	DISCUSSION	ACTION
1	Project overview	The project team gave a project overview using the attached exhibits of the location map, proposed roadway typical section, drainage map, US 1 Interchange, Lucy Street Interchange and Campbell Drive Interchange plan aerials.	None
2	Drainage patterns	The project team explained the existing drainage patterns are from west to east and the project bisects or is adjacent to the Florida City Canal Basin, the North Canal Basin and the C-103 Basin.	None
3	Project outfall locations	The project team described the outfalls will be to the Florida City Canal, the C-103S Canal and the C-103 Canal. The existing outfall to the Florida City Canal will remain. The existing outfalls at the C-103S Canal and C-103 will remain. New connections to the C-103 or C-103S Canal are not anticipated.	None

ITEM	SUBJECT	DISCUSSION	ACTION
4	Existing permits	The project team described the relevant existing SFWMD permits along the project including: 13-04562-P (US 1 South of Palm Drive) 13-06529-P (Palm Drive/ SW 344 – US 1 to SW 172) 13-05167-S (Lucy Street/ SW 328 Street) 13-01181-P (Campbell Drive Interchange)	None
5	Work within SFWMD C-103 Right of Way	The project team explained work within the Right of Way will include widening the existing northbound bridge towards the median. The low member elevation will not be reduced. The team requested canal information including: The existing R/W Occupancy permit, the canal design cross section, canal stages, and low member design criteria.	Project team follow up for C-103 Canal information. Beverly Miller stated she would send info. to Fred Gaines.
6	Water Quality	The project team explained that the project will not discharge to any impaired water bodies or outstanding Florida waters. The project will provide water quality volume at 2.5" times the additional impervious area and replace any previously permitted water quality volume that is impacted by the project. The project will use any excess water quality volume available within the project area. SFWMD agreed with this approach.	None
7	Water Quantity	The project team described the project discharge to the Florida City Canal will meet historical pre-condition discharge rate as discussed with Miami-Dade County. The remaining project discharges to the C-103S and C-103 Canals and will meet historical pre-condition discharge rates for the existing right of way. Any new right of way will meet the allowable discharge formula established for these canals. SFWMD agreed with this approach.	None
8	Permits anticipated (ERP)	An Environmental Resource Permit (ERP) is required. SFWMD suggested a new ERP be submitted for the project.	None
9	Exfiltration Trench Design	Exfiltration trench will be designed to allow exfiltration throughout the storm event. A variable tailwater elevation boundary condition will be used. SFWMD agreed with this approach.	None

ITEM	SUBJECT	DISCUSSION	ACTION
10	Permits anticipated Right of Way Occupancy (SFWMD, C-103)	A Right of Way occupancy permit modification is required for work in/over the C-103 Canal.	None
11	Permits anticipated (Section 408)	The C-103 is a C&SF canal. A USACE Section 408 review is required. At this point in time, SFWMD estimated the current review time for this permit to be 2-4 months. Cynthia Ovdenk (USACE) requested to keep her informed with all coordination that occurs with USACE S408.	Reminder. USACE Section 404 permit must be in for the Section 408 to be reviewed.
12	Permits anticipated (Section 404)	A USACE Section 404 permit is required for dredge and fill activities. Dredge and fill activities are anticipated in the C-103 and the other surface waters along the project.	None
13	Permits anticipated NPDES (SWPPP)	A Stormwater Pollution Prevention Plan will be developed for the project.	None
14	Permits anticipated Dewatering (Miami-Dade County)	A Water Use permit will be determined during the design phase. If dewatering, a SFWMD Water Use permit is required. SFWMD stated if dewatering within 1/4 mile of a known contamination site, then a Class V permit from Miami-Dade County is also required and needed for the SFMWD WU permit. If dewatering beyond 1/4 mile of a known contamination site, then only a SFWMD WU permit is required. Dewatering < 1 year considered short term dewatering, otherwise it is considered long term dewatering.	None
15	Permits anticipated R/W Occupancy (Miami-Dade County)	A Class III permit from Miami-Dade County is anticipated if work occurs within county canal right of way. SFWMD reminded the team for proposed work outside FTE/FDOT right of way, then proof of ownership is required or a permit (i.e. Class III permit) before SFWMD ERP is issued / construction can commence.	Project team to confirm Miami Dade County right of way "extents" at the Palm Drive / US 1 intersection.
16	Environmental Wetlands	The only forested or emergent wetlands are located at the beginning of the project and outside of the concept limits. Some stormwater ditch impacts are anticipated. No forested or emergent wetland impacts are anticipated. Mitigation is not anticipated for this project. SFWMD and USACE agreed.	None

ITEM	SUBJECT	DISCUSSION	ACTION
17	Environmental Species	There is one (1) identified wood stork core forging area within 18.6 miles of the study area. There is also a Pine Rockland area identified within the Campbell Drive interchange which is home to the Miami Tiger Beetle. The concept limits do not include impacts to the pine rockland and no involvement is anticipated for species. The USACE requested being copied on all project correspondence with USFWS.	None
18	Environmental Contamination	There are five (5) gas stations located on US 1 south of Palm Drive. If dewatering occurs within a ¼ mile of known contamination a DERM Class V permit will be needed with Miami-Dade County.	Project team to identify in design if dewatering is needed.
19	Environmental Look Around (ELA) Questions	The project team initiated the ELA with Agency staff requesting their review of the five questions listed on the attached agenda. SFWMD mentioned to consider the re-use of stormwater from any wet ponds for irrigation purposes. SFWMD will provide a contact for the Homestead Field Office regarding potential fill material source.	Follow up with Agencies for responses, if any.

FDOT Interagency Meeting – January 16, 2020

10:30 to 11:15 AM: 439545-1 PD&E Widen HEFT (SR821) from US 1 south of Palm Drive to Campbell Drive (MP 0 to MP 2), Miami-Dade County.

Dylan Larson	Miller Legg	954 434 7100	dlarson@millerlegg.com
Jesse Markle	SFWMD	(561) 682-6274	JMARKLE@sfwmd.gov
Beverly Miller	SFWMD	561-682-6979	BMILLER@SFWMD.GOV
Matt Bolton	SFWMD		MBolton@SFWMD.gov
Nicholas Vitani	SFWMD	561-682-2133	NVitani@SFWMD.gov
Teri Swartz	SFWMD	561-682-2505	tswartz@sfwmd.gov
Ann Marie Hammond	TURNPIKE	via phone	
Jaclyn Heywood	turnpike / atkins	via phone	
Mark Tamblyn	USACOE	via phone	
Cynthia Ovdenk	USACOE	via phone	
Caroline Hanes	SFWMD	561-682-6856	chanes@sfwmd.gov

FDOT Interagency Meeting – January 16, 2020

10:30 to 11:15 AM: 439545-1 PD&E Widen HEFT (SR821) from US 1 south of Palm Drive to Campbell Drive (MP 0 to MP 2), Miami-Dade County.

Linda Hess	Stanley Consultants	561 584-8744	HessLinda@StanleyGroup.com
Jesse Mackie	SFWMD	(561) 682-6274	JMACKIE@SFWMD.GOV
Renaud Olivier	Stanley Consultants	561 689-7444	olivierrenaud@stanleygroup.com
Millie Radziszewsky	BMA CE	954-744-4691	mradziszewsky@bma-ce.com
William T Evans	ARCADIS	561 352 5662	William.Evans@ARCADIS.com
Fred Gaines	Atkins (FTE)	407 264 3689	fred.gaines@dot.state.fl.us

MEETING AGENDA

SFWMD Meeting

PROJECT:	**TPK EXT Widening PD&E Study (FPID#: 439545-1-22-01)** **From US 1 S. of Palm Drive to Campbell Drive** Miami-Dade County
MEETING DATE:	January 16, 2020
MEETING TIME:	10:30 am – 11:15 am
LOCATION:	SFWMD 3301 Gun Club Road West Palm Beach, Florida 33406 Location: B-1 Richard Rogers Conf Rm
CONFERENCE CALL NUMBER:	**(561) 682-6800** (WPB Local Number) **(855) 682-6800** (Toll Free Nationwide)
ACCESS CODE:	994 769 479
CONSULTANT	Stanley Consultants, Inc
SUB-CONSULTANTS	Arcadis-US, Inc.; BMA Consulting Engineering, Inc.; GCME, Inc.; Glass Land Acquisition Service Specialist, Inc.; I.F. Rooks & Associates, INC.; Janus Research; Quest Corporation for America; Wantman group, Inc.; Bentley Architects & Engineers, Inc.; Sims Wilkerson Cartier Engineer
EOR ROADWAY	Cyndy Kendrick, PE
PROJECT MANAGER	Bill Evans, PE, AICP / Arcadis-US, Inc

1. **Introductions**
2. **Project Overview**
    a. Turnpike widening from 4 lanes to 6 lanes, improve US 1 interchange, add Lucy Street interchange and minor ramp improvements at Campbell Drive.
    b. Design funded for 2021/2022
3. **Drainage Approach**
    a. Drainage basins, flow patterns and outfall locations (canals)
    b. Existing Permits

Permit Number	Location
13-04562-P	US 1 south of Palm Drive for auxiliary lanes
13-06529-P	Palm Drive/ SW 344th Street
13-05167-S	Lucy Street/SW 328th Street
1301181-P	Campbell Drive Interchange – modify for this project

    c. Proposed drainage concept
        - Water quality
        - Water quantity

d. Permits anticipated

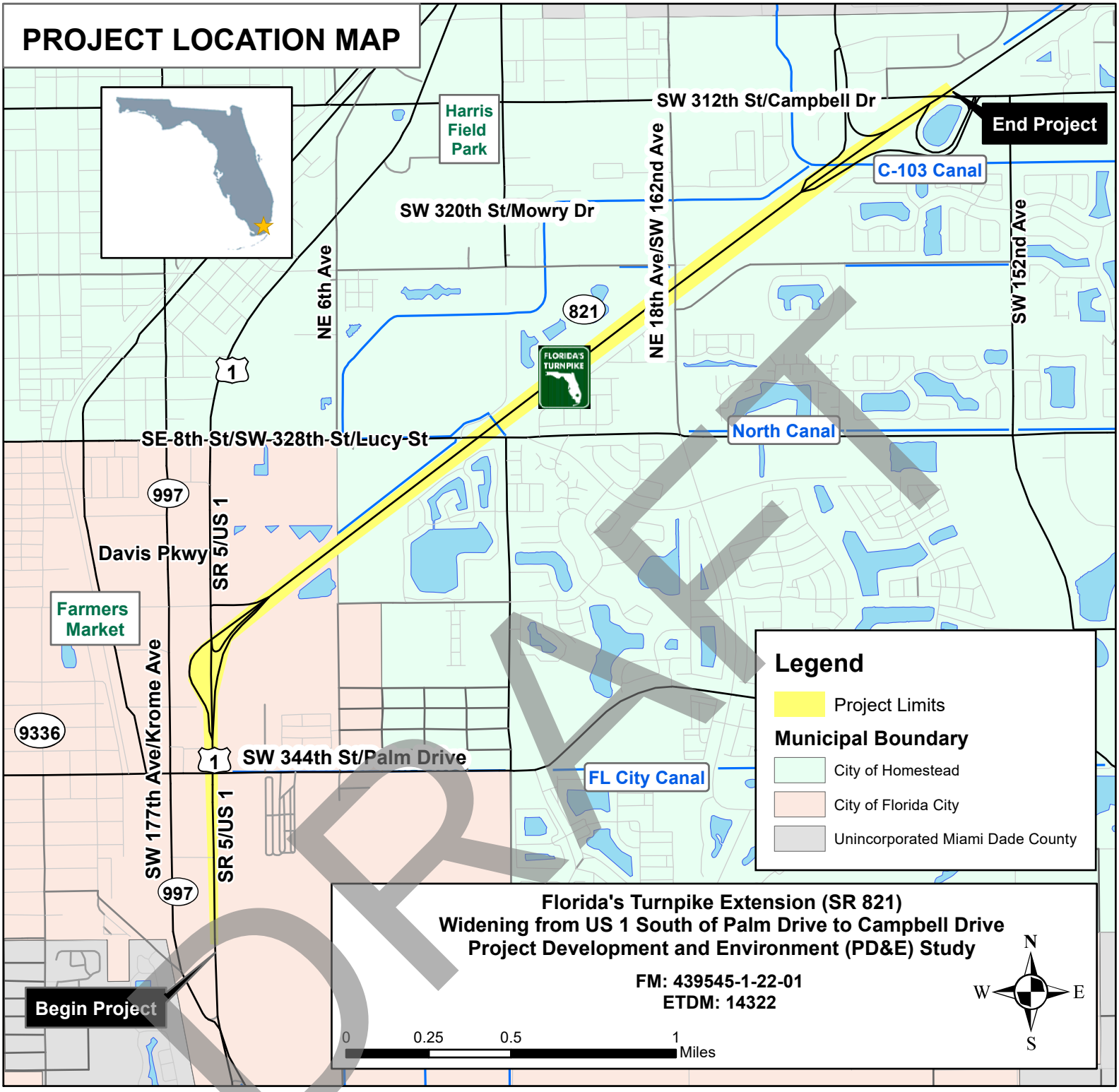
- SFWMD Permit Modification to ERP No. 1301181-P
- SFWMD R/W Occupancy Modification for work over/in the C-103
- USACE Section 404 Dredge and Fill in C-103 (SAJ 92 Permit Nationwide 14)
- USACE Section 408 for work in C-103
- NPDES (SWPPP)
- Dewatering (confirmed in design phase)

4. <u>Environment</u>

a. Contamination
b. Existing Wetlands and Other Surface Water Locations
c. Species

2. <u>Environmental Look Around Questions:</u>

A. Do you know of any wetlands near the project that can benefit from treated stormwater runoff (rehydration)?
B. Do you know of any areas near the project site that need water? For instance, re-use water for irrigation purposes?
C. Do you know of any regional stormwater treatment areas that the project could benefit from?
D. Do you know if there are any SFWMD lands that could be used to obtain select fill material for the project?
E. Do you know of any adjacent projects that could benefit from joint use water management facilities?


PROJECT LOCATION MAP
Harris Field Park
SW 312th St/Campbell Dr
End Project
C-103 Canal
SW 320th St/Mowry Dr
NE 6th Ave
NE 18th Ave/SW 162nd Ave
SW 152nd Ave
821
FLORIDA'S TURNPIKE
1
SE-8th-St/SW-328th-St/Lucy-St
North Canal
997
Davis Pkwy
SR 5/US 1
Farmers Market
9336
SW 177th Ave/Krome Ave
SW 344th St/Palm Drive
FL City Canal
Begin Project
Legend
Project Limits
Municipal Boundary
City of Homestead
City of Florida City
Unincorporated Miami Dade County
Florida's Turnpike Extension (SR 821)
Widening from US 1 South of Palm Drive to Campbell Drive
Project Development and Environment (PD&E) Study
FM: 439545-1-22-01
ETDM: 14322
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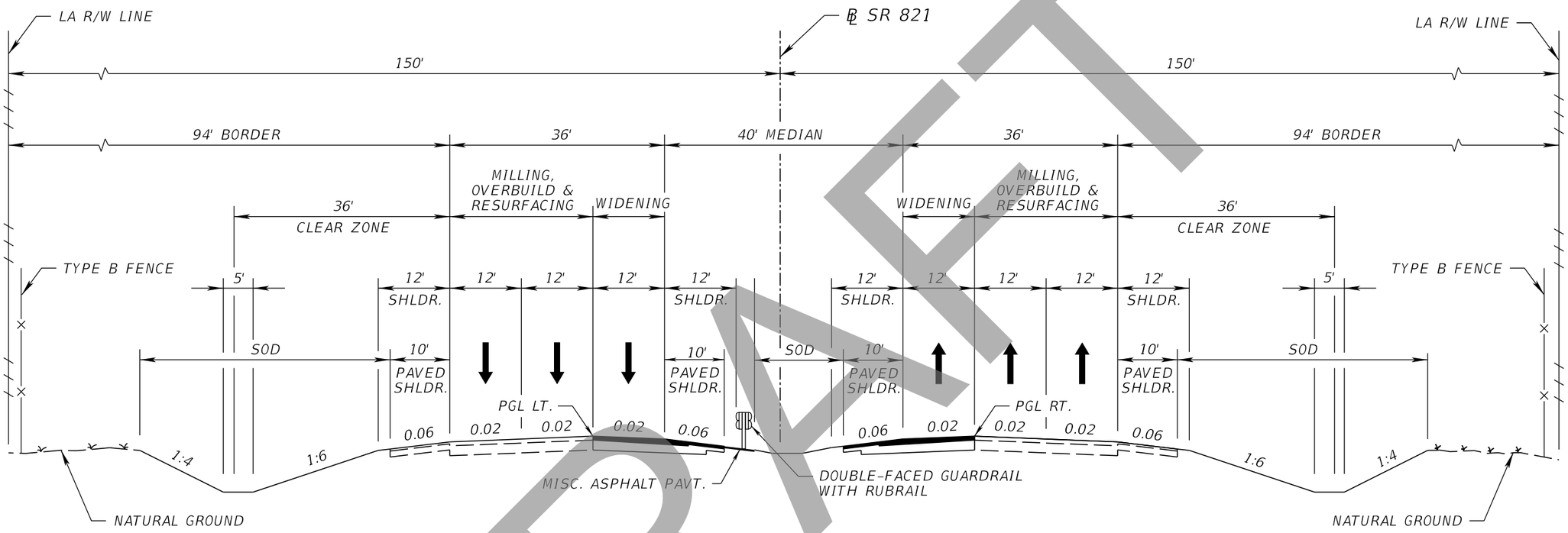

TYPICAL SECTION (6 GU LANES)

SR 821 – INSIDE WIDENING – 1 IN/2 OUT

MP 0.538 TO MP 3.055

TRAFFIC DATA

CURRENT YEAR = 2019 AADT = XX,XXX
ESTIMATED OPENING YEAR = 2025 AADT = XX,XXX
ESTIMATED DESIGN YEAR = 2045 AADT = XX,XXX
K = X.X% D = XX.X% T = X.X% (24 HOUR)
DESIGN HOUR T = X.X%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
NO DESIGN EXCEPTIONS/VARIATIONS NEEDED

DRAFT
2019-06-06

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

TYPICAL SECTION - ALT 3

SHEET NO. 3

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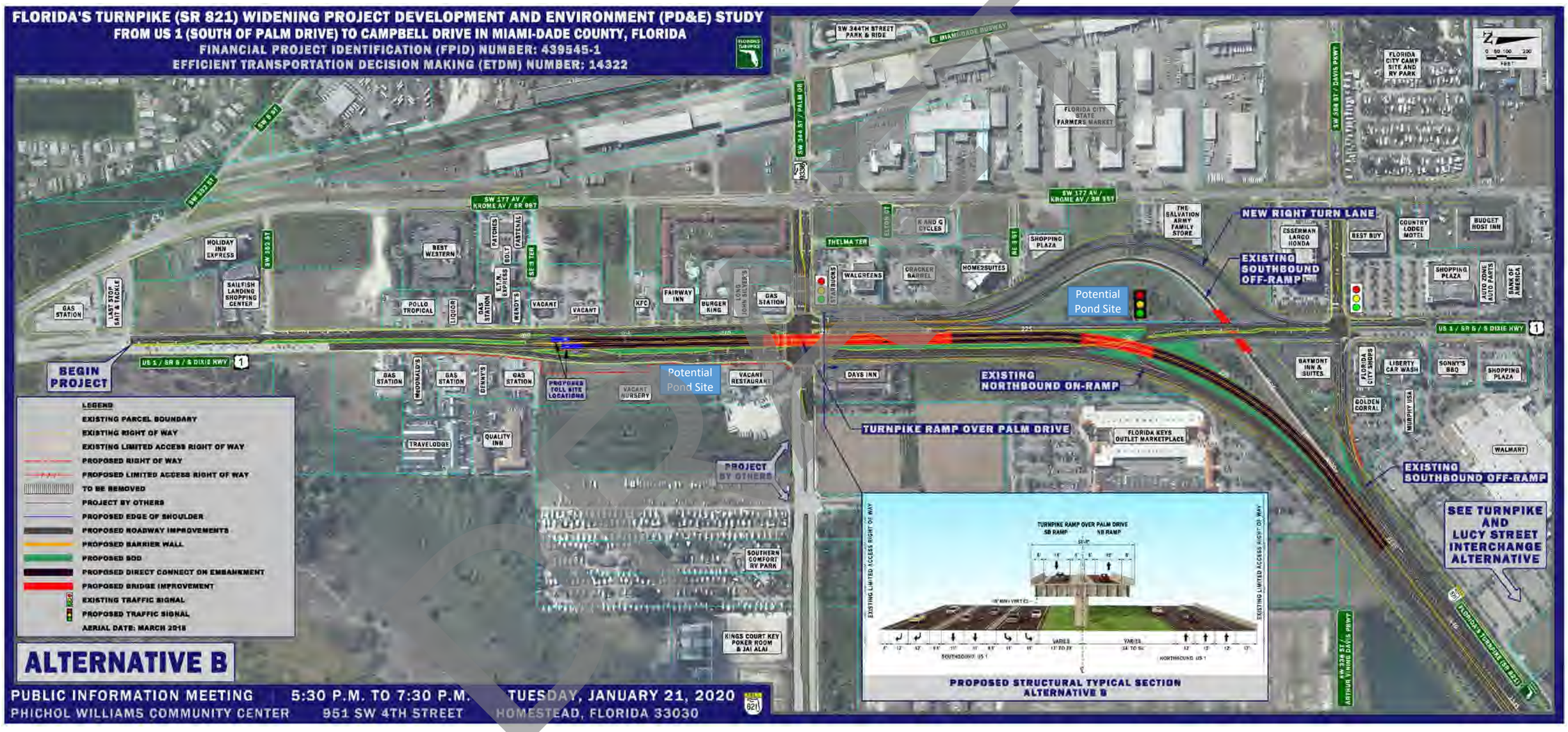
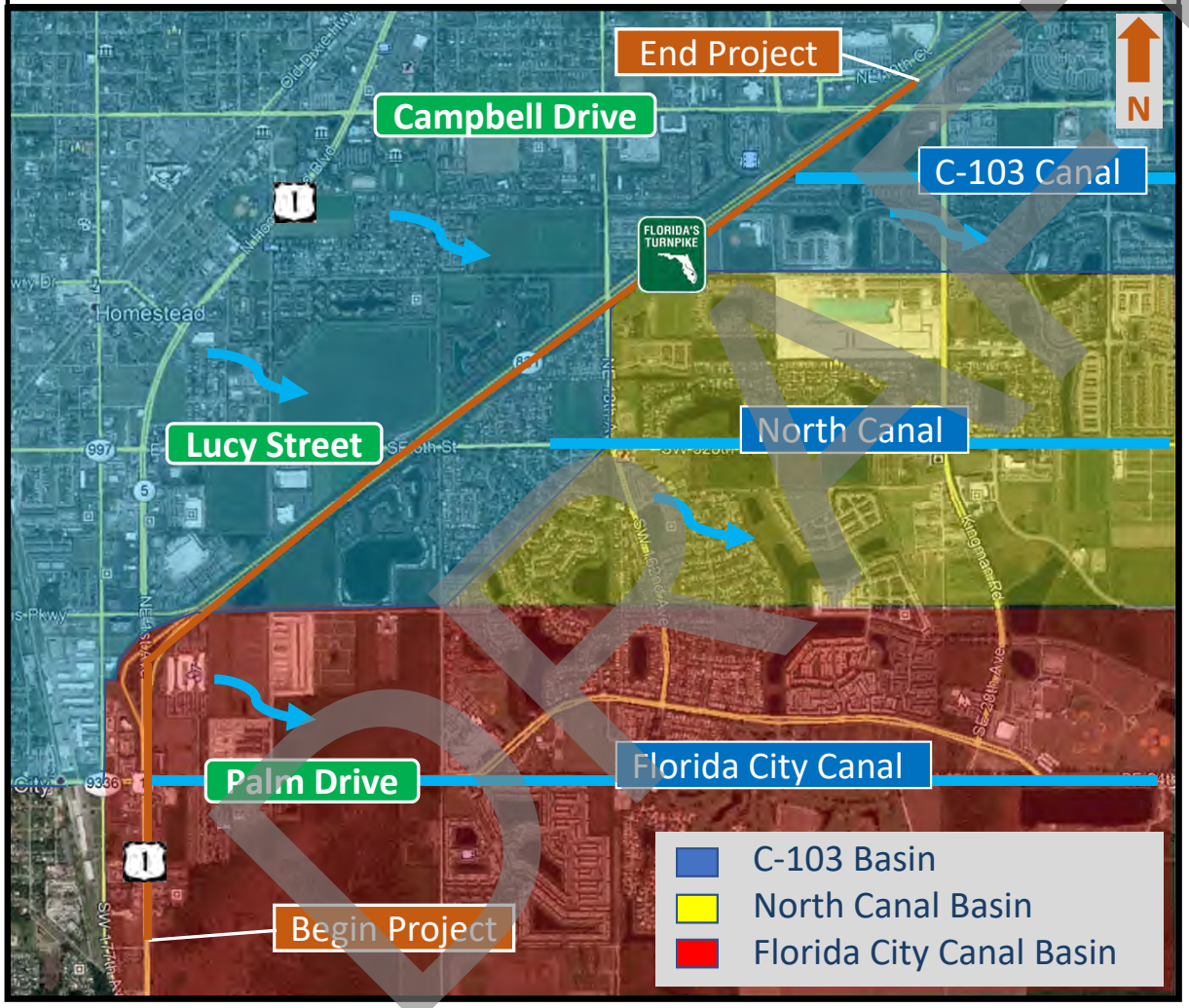
US 1 Interchange



Lucy Street Interchange

Campbell Drive Interchange

Florida's Turnpike Extension (from South of Palm Drive to Campbell Drive)
FPID 439545-1-22-01
Drainage Map



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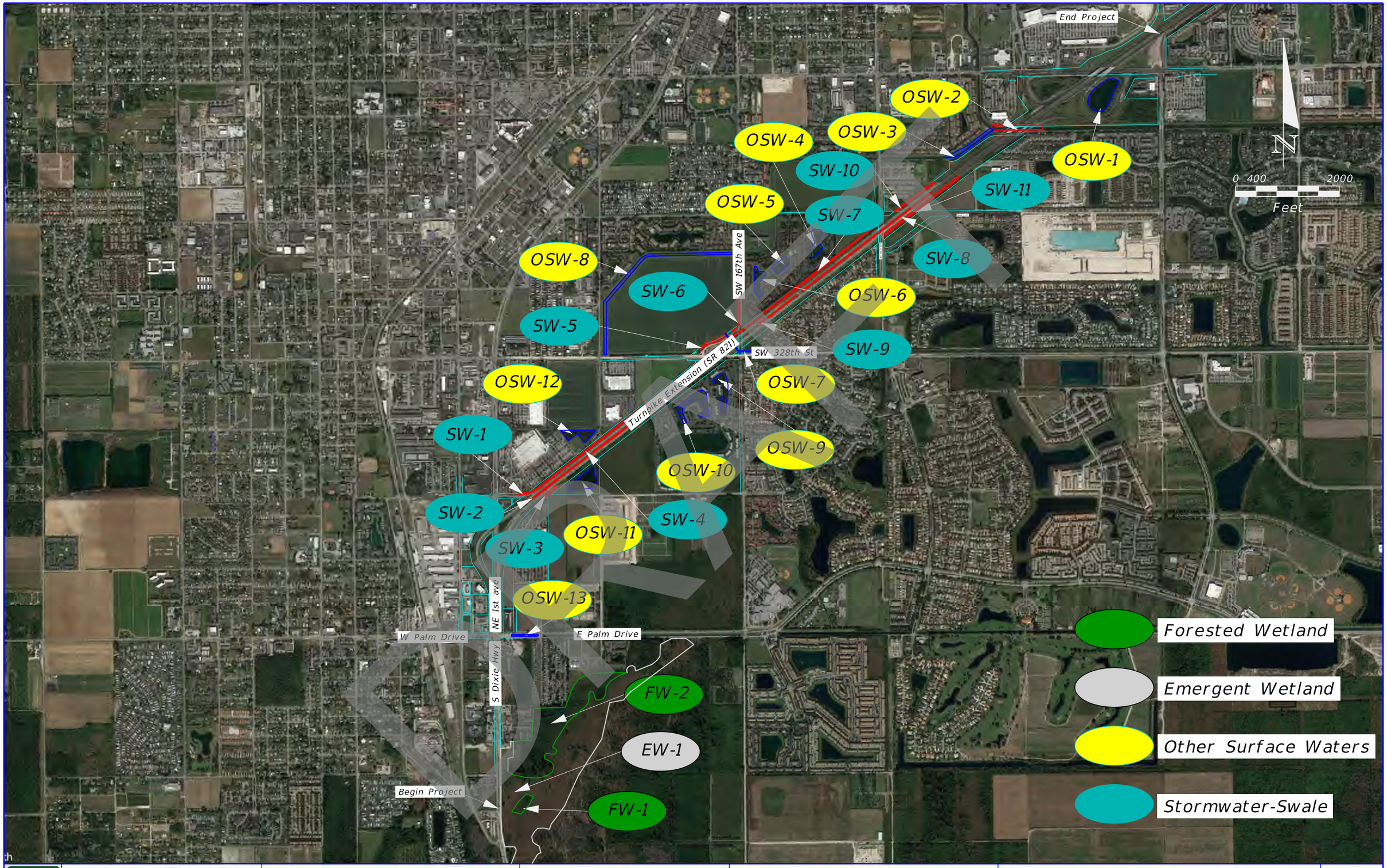

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FLORIDA'S TURNPIKE

NATURAL RESOURCES EVALUATION

TURNPIKE EXTENSION (SR821)

BMA CONSULTING ENGINEERING
18503 PINES BLVD, SUITE 210
PEMBROKE PINES, FL 33029

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI DADE	439545-1-22-01

WETLANDS & SURFACE WATERS LOCATION

SHEET NO. 1 of 7

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FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			WETLANDS & SURFACE WATERS LOCATION	SHEET NO.
				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 821	MIAMI DADE	439545-1-22-01		2 of 7

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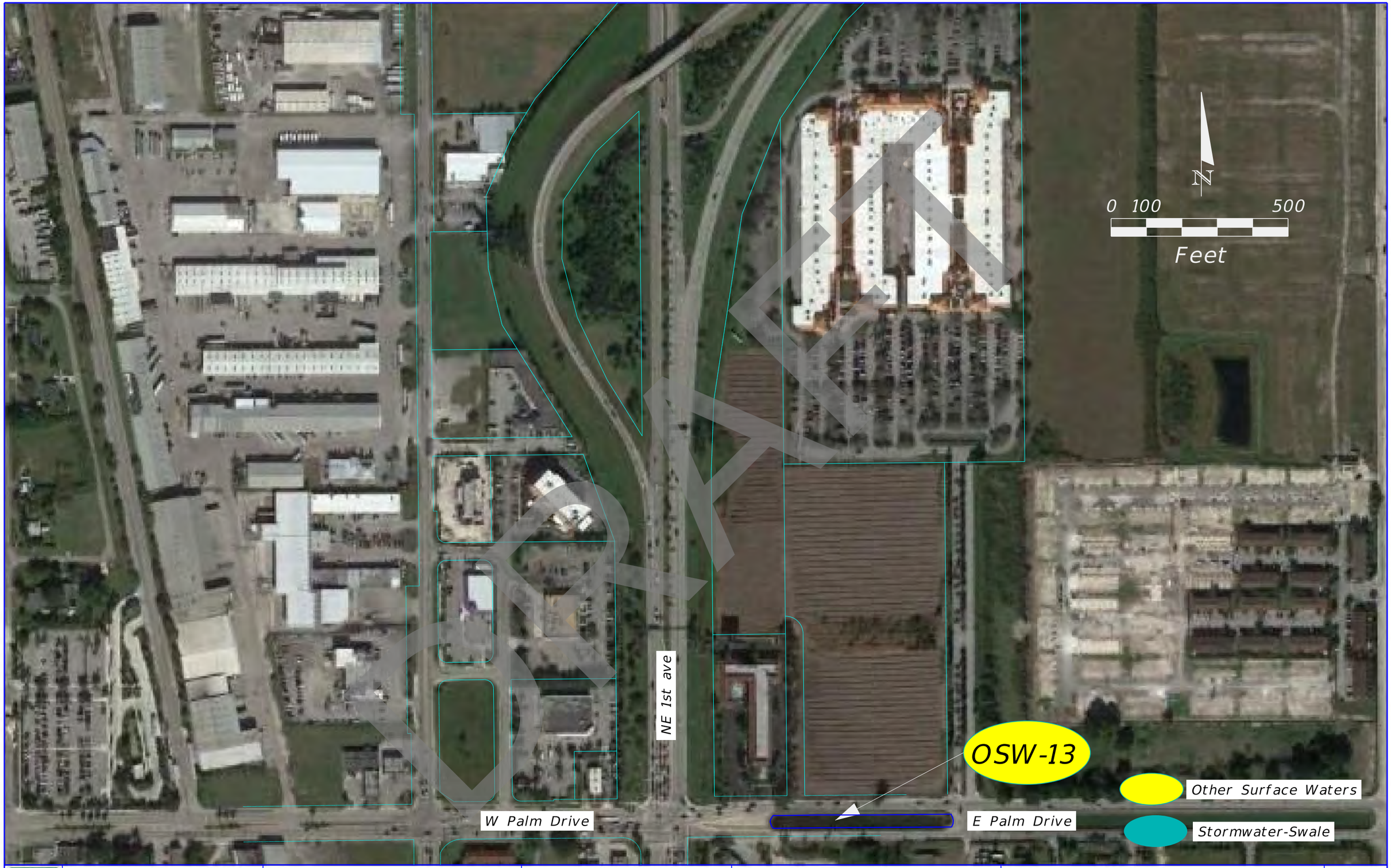

FLORIDA'S TURNPIKE

NATURAL RESOURCES EVALUATION

TURNPIKE EXTENSION (SR821)

BMA CONSULTING ENGINEERING
18503 PINES BLVD, SUITE 210
PEMBROKE PINES, FL 33029

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI DADE	439545-1-22-01

WETLANDS & SURFACE WATERS LOCATION

SHEET NO. 3 of 7

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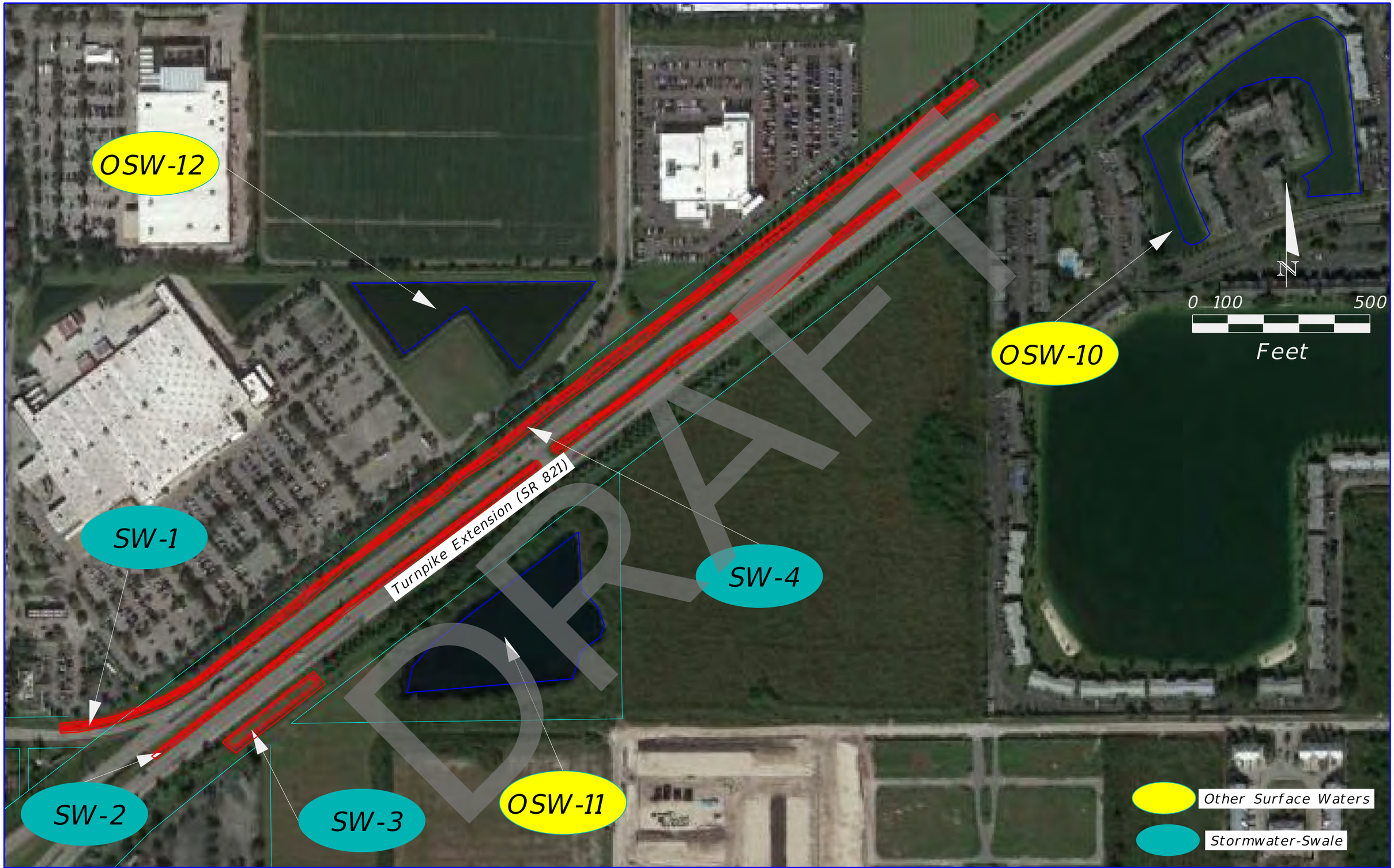

FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			WETLANDS & SURFACE WATERS LOCATION	SHEET NO.
				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 821	MIAMI DADE	439545-1-22-01		4 of 7

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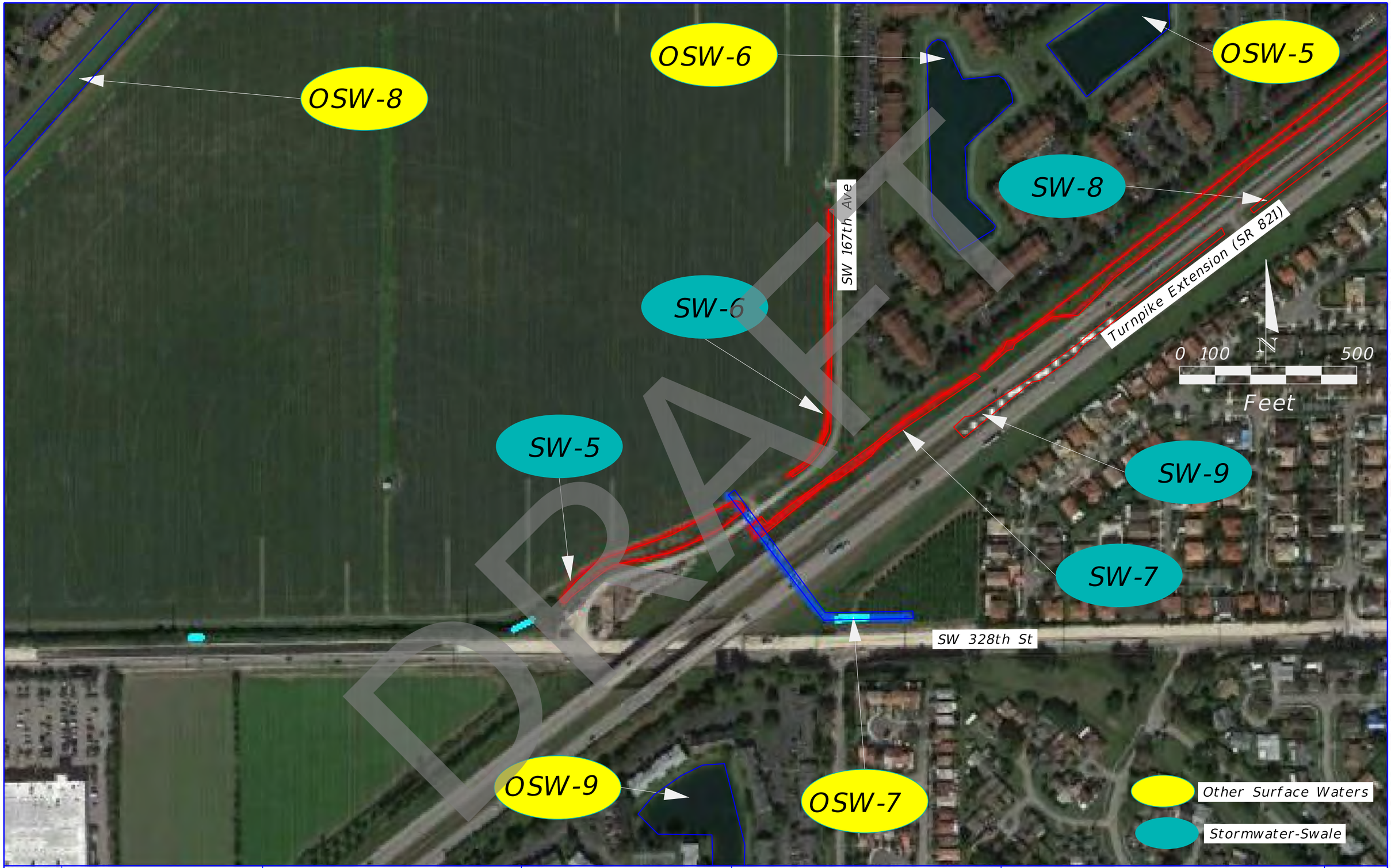

FLORIDA'S TURNPIKE

NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			WETLANDS & SURFACE WATERS LOCATION	SHEET NO.
			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		5 of 7
			SR 821	MIAMI DADE	439545-1-22-01		

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FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. / COUNTY / FINANCIAL PROJECT ID SR 821 / MIAMI DADE / 439545-1-22-01	WETLANDS & SURFACE WATERS LOCATION	SHEET NO. 6 of 7

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FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. / COUNTY / FINANCIAL PROJECT ID SR 821 / MIAMI DADE / 439545-1-22-01	WETLANDS & SURFACE WATERS LOCATION	SHEET NO.	7 of 7

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RON DESANTIS
GOVERNOR

Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069, Ocoee, FL 34761
407-532-3999

KEVIN J. THIBAULT, P.E.
SECRETARY

Meeting Notes
FDOT, Florida's Turnpike Enterprise/USFWS Technical Assistance

FPID 439545-1, Widen HEFT from US 1, south of Palm Drive to Campbell Drive PD&E
Miami-Dade County

Date: June 25, 2020 via MS TEAMS
Time: 9:00 – 9:30 AM

---

1. **Introductions**
   - **USFWS Staff – John Wrublik**
   - **Turnpike Environmental Administrator – Philip Stein**
   - **Turnpike Permits Coordinator – Annemarie Hammond**
   - **Turnpike Project Manager – Jazlyn Heywood, PE (Atkins)**
   - **Turnpike Permits Coordinator – Fred Gaines, PWS (Atkins)**
   - **Turnpike Environmental Scientist – Doug Zang, AICP (Atkins)**
   - **Consultant Project Manager – Bill Evans, PE**
   - **Consultant Deputy Project Manager – Cassie Piche, PE**
   - **Consultant Environmental Scientist – Millie Radsikovsky**

2. **Project Overview**
   Turnpike provided a brief overview of the project and explained that the main focus of this project is to widen the Turnpike from US 1 to Campbell Drive within the median and provide improved intersection / interchange operations at Campbell Drive, Lucy Street and Palm Drive / US 1. Turnpike indicated that the project had been reviewed under ETDM Project #14322. Existing land uses are described and were briefly mentioned. The work proposed outside of the existing right of way is south of Palm Drive on commercial property parcels, and at Lucy St where existing agricultural land is present.

   The SFWMD C-103 Canal is included within the project limits. The proposed project concept includes 296.86 acres of wetlands/surface waters consisting of roadside ditches, infield ponds, seasonal swales and farm irrigation ditches with no anticipated wetlands impacts. All wetland / surface water areas will be addressed for storm water retention and erosion control measures. This preliminary coordination is to ensure that the USFWS agrees with the project approach to federal listed species and habitat thus far. There were no questions or follow up discussion.

3. **Florida Bonneted Bat (FBB)**
   Turnpike indicated that project area is within the urban consultation area for the FBB. Landscape areas with 30-40' tall palm trees exist along the corridor which could provide habitat for the FBB. Visual surveys of under-bridge areas did not note any presence of the FBB. Acoustic surveys are not planned at this time but limited presence/absence surveys in existing structures are suggested as sufficient since there are less than 5 acres of suitable habitat. If impacts were to change during the design phase, a formal determination and additional coordination with USFWS will be

performed at that time. USFWS agreed with the "may affect / not likely to adversely affect" determination suggested. There were no additional questions or follow up discussion.

4. **West Indian Manatee**
   Turnpike indicated that the SFWMD C-103 Canal is accessible to manatees as documented in USFWS's on-line information. Since the Standard Manatee Conditions for In-water Work will be implemented for a build alternative, USFWS agreed with the "may affect / not likely to adversely affect" determination suggested. There were no additional questions or follow up discussion.

5. **Everglade Snail Kite**
   Turnpike indicated that the Snail Kite habitat within the project area will not be impacted. USFWS agreed with the "no affect anticipated" determination suggested. There were no additional questions or follow up discussion.

6. **Florida Grasshopper Sparrow**
   Turnpike indicated that no suitable habitat for the Sparrow exists in the project area. USFWS agree with the "no affect anticipated" determination suggested. There were no additional questions or follow up discussion.

7. **Wood Stork**
   Turnpike indicated that less than 0.5 acres of suitable foraging habitat for the Wood Stork is impacted with the project build alternative concept. The project is within the CFA for one nesting colony. It was stated that some swales may approach the threshold depth for foraging habitat and will be reevaluated as the design progresses. Roadside swales and ditches providing CFA and any other CFA impacts will be replaced as required. Based on the USFWS Wood Stork determination key, a "not likely to adversely affect" determination was presented. USFWS agreed with this determination. There were no additional questions or follow up discussion.

8. **American Crocodile**
   Turnpike indicated that potential habitat for the Crocodile exists in the project area at the SFWMD C-103 Canal but habitat consists of steep, well maintained canal banks. Any occurrence of the Crocodile would be expected to be transient in nature. No observations have been noted. USFWS agreed with the "no affect anticipated" determination suggested. There were no additional questions or follow up discussion.

9. **American Alligator**
   Turnpike indicated that the Alligator was included on the list due to similarity to the American Crocodile, but no occurrences of the species have been noted and a "no affect" determination recommended. USFWS stated that consultation is not normally performed for this species and a formal determination is not needed. USFWS suggested that this species could be removed from the list for this project. There were no additional questions or follow up discussion.

10. **Eastern Indigo Snake**
    Turnpike indicated that potential habitat for the Indigo snake exists in the project area, specifically in the pine rocklands and neighboring agriculture fields. No observations of the species have been noted and Eastern Indigo Snake standard protection provisions will be included in the plans. Based on the USFWS Eastern Indigo Snake determination key, a "not likely to adversely affect" determination is recommended. USFWS agreed with this determination. There were no additional questions or follow up discussion.

11. **Miami Tiger Beetle**
    Turnpike indicated that potential habitat for the Tiger Beetle exists in the project area, specifically in the fenced pine rocklands within the Turnpike's Campbell Drive interchange. No formal surveys have been performed and opportunistic pedestrian surveys have not resulted in observance of the beetle. Currently, there is no work planned within the fenced pine rockland areas but standard exclusion/protection measures are anticipated to be included in the plans. USFWS agreed with the "no effect" determination suggested. There were no additional questions or follow up discussion.

12. **Anticipated Permits**
    Turnpike listed the anticipated permits for the project.
    - South Florida Water Management District (SWFMD) – ERP Permit
    - US Army Corps of Engineers Permit w/ Section 7 Consultation
    - SFWMD Right-of-way Permit for C-103 Canal
    - Florida Department of Environmental Protection (FDEP) – NPDES

    Turnpike stated that additional technical assistance requests may be anticipated as the design progresses for confirmation of determinations and necessary measures to be included in the plans. Standard Section 7 consultation with the USACE is expected as well as Sections 404 and 408.

    USFWS suggested that while there will be no further involvement from USFWS, that when coordinating with USACE, to inform them of the determination keys used and prior USFWS coordination / concurrence in order to help keep the process moving.

13. **Roundtable/Questions/Comments**

    There was no further discussion or comments from the attendees.

MEETING AGENDA AND EXHIBITS HAVE BEEN ATTACHED TO THESE MINUTES FOR REFERENCE.

FDOT, Florida's Turnpike Enterprise/USFWS Technical Assistance Meeting Agenda

FPID 439545-1, Widen HEFT from US 1, south of Palm Drive to Campbell Drive PD&E
Miami-Dade County

Date: June 25, 2020 via Microsoft Teams
Time: 9:00 – 10:00 AM

---

1. **Introductions**

2. **Project Overview**
   - Current Alignment (map provided – Exhibit 1)
     - 3 miles along the Florida's Turnpike corridor, from US 1, south of Palm Drive to Campbell Drive in Miami-Dade County, Florida. The area to the east of the Turnpike is primarily residential land use with some commercial uses along the major arterials. The area west of the Turnpike is primarily commercial, agricultural with some residential land uses.
   - The following federally listed species have Consultation Areas that cover the project or the potential for occurrence within the project area (Exhibit 2)
     - Florida Bonneted Bat (*Eumops floridanus*)
     - West Indian Manatee (*Trichechus manatus*)
     - Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)
     - Florida Grasshopper Sparrow (*Ammodramus savannarum floridanus*)
     - Wood Stork (*Mycteria americana*)
     - America Crocodile (*Crocodylus acutus*)
     - American Alligator (*Alligator mississippiensis*)
     - Eastern Indigo Snake (*Drymarchon corais couperi*)
     - Miami Tiger Beetle (*Cicindelidia floridana*)
   - 296.86 acres of wetlands and surface waters within the project area (Exhibits 3)
     - Project area - 3 wetlands, 11 surface waters (stormwater swales with hydrophytic vegetation) and 12 other surface waters
     - 10.1 acres of surface water/other surface waters impact are primarily grassed maintained swales or steep bank ditches/canals with little or no littoral shelf and will be replaced with similar functioning drainage systems.
     - No impacts to wetlands

3. **Florida Bonneted Bat**
   - Within FBB South Florida Urban Area
   - Less than 5 acres of potential habitat within the project area (landscaped royal palm trees located in pond area at the southern project limits)
   - No observations within the project area and no documented occurrences within one mile
   - Determination based on Florida Bonneted Bat Consultation Key
   - Will conduct limited roost survey
   - ***May Affect Not Likely to Adversely Affect – P if BMPs used and survey reports are submitted. Programmatic concurrence.*** (Exhibit 4)

4. **West Indian Manatee**
    - Potential habitat exists along the SFWMD C-103 canal. The C-103 Canal is accessible by the Manatee (USFWS & SFWMD Central and Southern Florida Project Manatee Accessibility Map, September 2006)
    - No observations within the project area and no documented occurrences within one mile
    - Standard Manatee Conditions for In-water to be implemented during construction
    - ***May Affect Not Likely to Adversely Affect (MANLAA) anticipated***

5. **Everglade Snail Kite**
    - Large, open water lakes exist adjacent to the study area; however, these lakes lack the emergent vegetation required by the snail kite for nesting. These lakes will not be impacted.
    - No observations within the project area and no documented occurrences within one mile
    - ***No Effect anticipated***

6. **Florida Grasshopper Sparrow**
    - No potential habitat within the study area that meets the requirements of the Florida Grasshopper sparrows.
    - No observations within the project area and no documented occurrences within one mile
    - No impacts anticipated
    - ***No Effect anticipated***

7. **Wood Stork**
    - Less than 0.5 acres suitable habitat within the project area (SW-5)
    - Located within the 18.6 mile core foraging area (CFA) of one nesting colony
        - Grossman Ridge West CFA
    - Determination based on Wood Stork Determination Key, South Florida (05/18/2010)
    - ***Not Likely to Adversely Affect (NLAA) anticipated*** (Exhibit 5)

8. **American Crocodile**
    - Potential habitat exists within the SFWMD C-103 canal
    - No observations of individuals, nests or signs of this species within the project area and no documented occurrences within one mile
    - No impacts anticipated
    - ***No Effect anticipated***

9. **American Alligator**
    - Potential habitat exists within the SFWMD C-103 canal
    - No observations of individuals, nests or signs of this species within the project area and no documented occurrences within one mile
    - No impacts anticipated
    - ***No Effect anticipated***

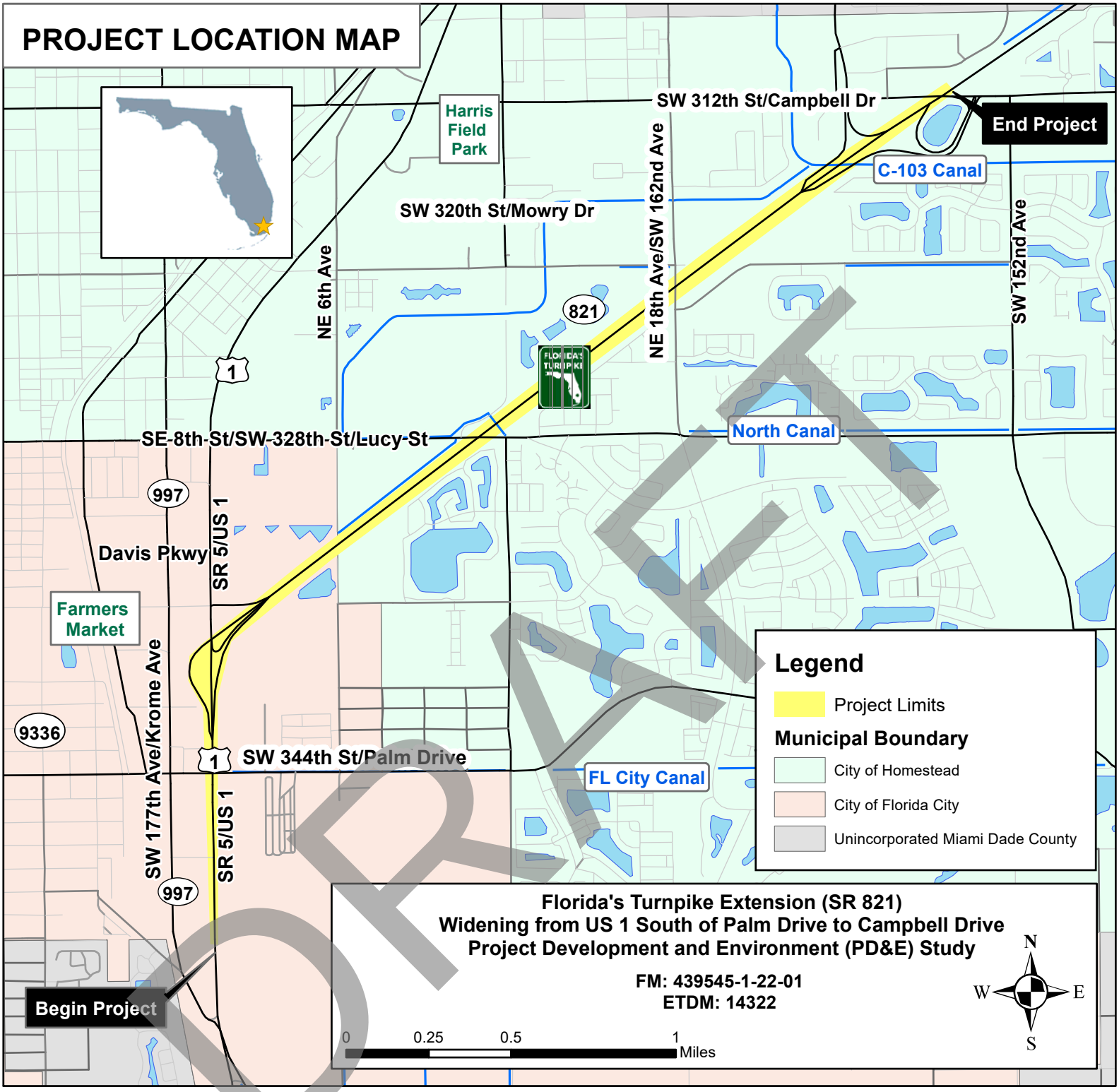
10. **Eastern Indigo Snake**
    - Potential habitat for the Eastern Indigo Snake within the project area is the remnant pine rocklands as defined by the Consultation Key for the Eastern Indigo Snake. Potential habitats include sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes. These habitats are not found within the project area.
    - No observations within the project area and no documented occurrences within one mile
    - Determination based on Consultation Key for the Eastern Indigo Snake (Revised August 1, 2017)
    - Standard Protection Measures to be implemented during construction
    - ***Not Likely to Adversely Affect (NLAA) anticipated*** (Exhibit 6)

11. **Miami Tiger Beetle**
    - Potential habitat exists within the remnant pine rocklands near the Campbell Drive Interchange (Exhibit 7)
    - No observations within the project area and no documented occurrences within one mile
    - No work is proposed in the pine rocklands and the area is currently fenced. A 25-ft buffer between the pine rocklands and construction activities should be noted in the plans.
    - ETDM # 14322
    - ***No Effect anticipated***

12. Anticipated Permits
- South Florida Water Management District (SWFMD) – ERP Permit
- US Army Corps of Engineers Permit w/ Section 7 Consultation
- SFWMD Right-of-way Permit
- Florida Department of Environmental Protection (FDEP) – NPDES

13. Roundtable/Questions/Comments

EXHIBIT 1 – PROJECT CORRIDOR


PROJECT LOCATION MAP
Harris Field Park
SW 312th St/Campbell Dr
End Project
C-103 Canal
SW 320th St/Mowry Dr
NE 6th Ave
NE 18th Ave/SW 162nd Ave
SW 152nd Ave
821
1
SE-8th-St/SW-328th-St/Lucy-St
North Canal
997
Davis Pkwy
SR 5/US 1
Farmers Market
9336
SW 177th Ave/Krome Ave
SW 344th St/Palm Drive
FL City Canal
Begin Project
Legend
Project Limits
Municipal Boundary
City of Homestead
City of Florida City
Unincorporated Miami Dade County
Florida's Turnpike Extension (SR 821)
Widening from US 1 South of Palm Drive to Campbell Drive
Project Development and Environment (PD&E) Study
FM: 439545-1-22-01
ETDM: 14322
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FLORIDA'S TURNPIKE (SR 821) WIDENING PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY

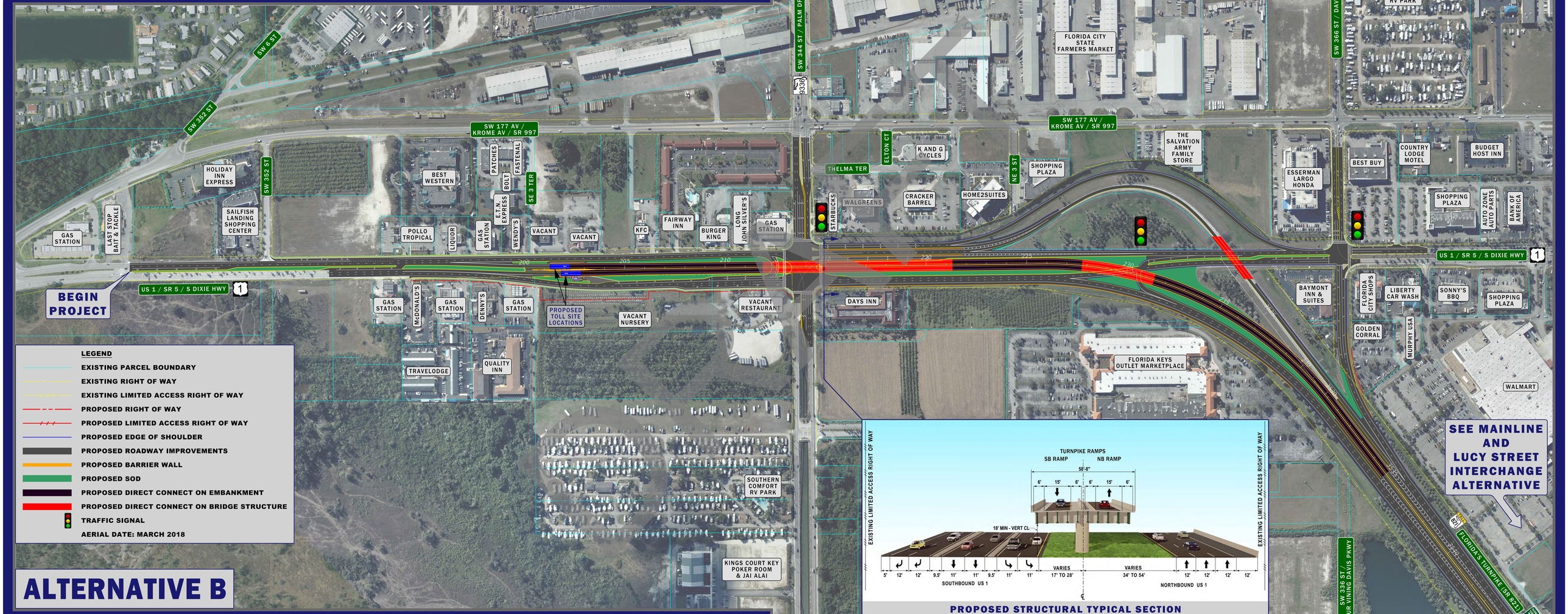
FROM US 1 (SOUTH OF PALM DRIVE) TO CAMPBELL DRIVE IN MIAMI-DADE COUNTY, FLORIDA

FINANCIAL PROJECT IDENTIFICATION (FPID) NUMBER: 439545-1

EFFICIENT TRANSPORTATION DECISION MAKING (ETDM) NUMBER: 14322

FDOT

FLORIDA'S TURNPIKE



LEGEND

- EXISTING PARCEL BOUNDARY
- EXISTING RIGHT OF WAY
- EXISTING LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED EDGE OF SHOULDER
- PROPOSED ROADWAY IMPROVEMENTS
- PROPOSED BARRIER WALL
- PROPOSED SOD
- PROPOSED DIRECT CONNECT ON EMBANKMENT
- PROPOSED DIRECT CONNECT ON BRIDGE STRUCTURE
- TRAFFIC SIGNAL
- AERIAL DATE: MARCH 2018

PROPOSED STRUCTURAL TYPICAL SECTION ALTERNATIVE B

ALTERNATIVE B

PUBLIC INFORMATION MEETING | 5:30 P.M. TO 7:30 P.M. | TUESDAY, JANUARY 21, 2020

PHICHOL WILLIAMS COMMUNITY CENTER | 951 SW 4TH STREET | HOMESTEAD, FLORIDA 33030

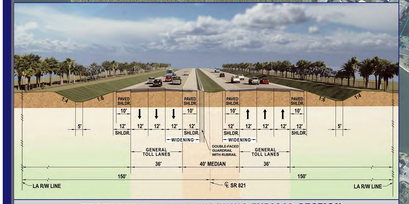
TOLL 821

FLORIDA'S TURNPIKE (SR 821) WIDENING PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY
FROM US 1 (SOUTH OF PALM DRIVE) TO CAMPBELL DRIVE IN MIAMI-DADE COUNTY, FLORIDA
FINANCIAL PROJECT IDENTIFICATION (FPID) NUMBER: 439545-1
EFFICIENT TRANSPORTATION DECISION MAKING (ETDM) NUMBER: 14322

FDOT

PROPOSED LUCY STREET INTERCHANGE

SEE ALTERNATIVE A AND ALTERNATIVE B



PROPOSED MAINLINE WIDENING TYPICAL SECTION
FROM DAVIS PARKWAY TO CAMPBELL DRIVE

MAINLINE AND LUCY STREET INTERCHANGE ALTERNATIVE

PUBLIC INFORMATION MEETING | 5:30 P.M. TO 7:30 P.M. | TUESDAY, JANUARY 21, 2020
PHICHOL WILLIAMS COMMUNITY CENTER | 951 SW 4TH STREET | HOMESTEAD, FLORIDA 33030

LEGEND
- EXISTING PARCEL BOUNDARY
- EXISTING RIGHT OF WAY
- EXISTING LIMITED ACCESS RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPOSED LIMITED ACCESS RIGHT OF WAY
- PROPOSED EDGE OF SHOULDER
- PROPOSED ROADWAY IMPROVEMENTS
- PROPOSED BARRIER WALL
- PROPOSED SOD
- PROPOSED DIRECT CONNECT ON EMBANKMENT
- PROPOSED BRIDGE STRUCTURE
- TRAFFIC SIGNAL

AERIAL DATE: MARCH 2018

END PROJECT

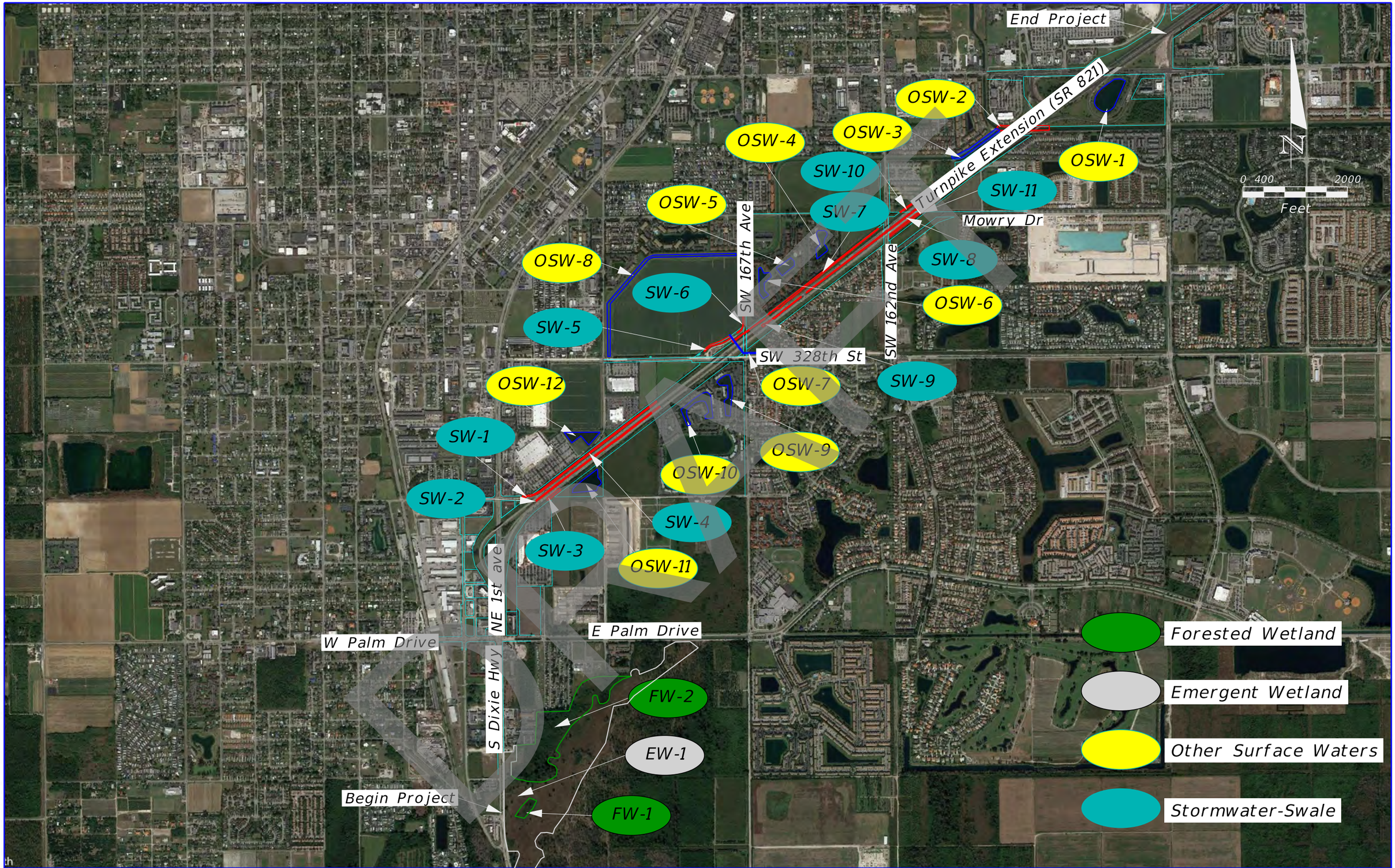
EXHIBIT 2 – FEDERALLY LISTED SPECIES

Table 1 – Federally Listed Endangered Species with the Potential to Occur within the Project Corridor and Effects Determination

Common Name	Scientific Name	Federal Status	Occurrence Potential	Observed	Effects Determination
Florida Bonneted Bat	*Eumops floridanus*	E	Low	No	May Affect Not Likely to Adversely Affect – P if BMPs used and survey reports are submitted. Programmatic concurrence.
West Indian manatee	*Trichechus manatus*	T	Low	No	May Affect Not Likely to Adversely Affect (MANLAA) anticipated
Everglade Snail Kite	*Rostrhamus sociabilis plumbeus*	E	Low	No	No effect
Florida Grasshopper Sparrow	*Ammodramus savannarum floridanus*	E	Low	No	No effect
Wood Stork	*Mycteria americana*	T	Moderate	No	Not Likely to Adversely Affect (NLAA)
American Crocodile	*Crocodylus acutus*	T	Low	No	No effect
American Alligator	*Alligator mississippiensis*	T (SA)	Low	No	No effect
Eastern Indigo Snake	*Drymarchon corais couperi*	T	Low	No	Not Likely to Adversely Affect (NLAA)
Miami Tiger Beetle	*Cicindelidia floridana*	E	Low	No	No effect

TABLE LEGEND
E = Endangered **T = Threatened**
SSC = Species of Special Concern **SA = Similar Appearance**

EXHIBIT 3 – WETLANDS & SURFACE WATERS LOCATION MAP



FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. / COUNTY / FINANCIAL PROJECT ID SR 821 / MIAMI DADE / 439545-1-22-01	WETLANDS & SURFACE WATERS LOCATION	SHEET NO. 1 of 7

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FLORIDA'S TURNPIKE

NATURAL RESOURCES EVALUATION

TURNPIKE EXTENSION (SR821)

BMA CONSULTING ENGINEERING
18503 PINES BLVD, SUITE 210
PEMBROKE PINES, FL 33029

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI DADE	439545-1-22-01

WETLANDS & SURFACE WATERS LOCATION

SHEET NO. 2 of 7

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FLORIDA'S TURNPIKE

NATURAL RESOURCES EVALUATION

TURNPIKE EXTENSION (SR821)

BMA CONSULTING ENGINEERING
18503 PINES BLVD, SUITE 210
PEMBROKE PINES, FL 33029

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI DADE	439545-1-22-01

WETLANDS & SURFACE WATERS LOCATION

SHEET NO. 3 of 7

FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. / COUNTY / FINANCIAL PROJECT ID SR 821 / MIAMI DADE / 439545-1-22-01	WETLANDS & SURFACE WATERS LOCATION	SHEET NO. 4 of 7

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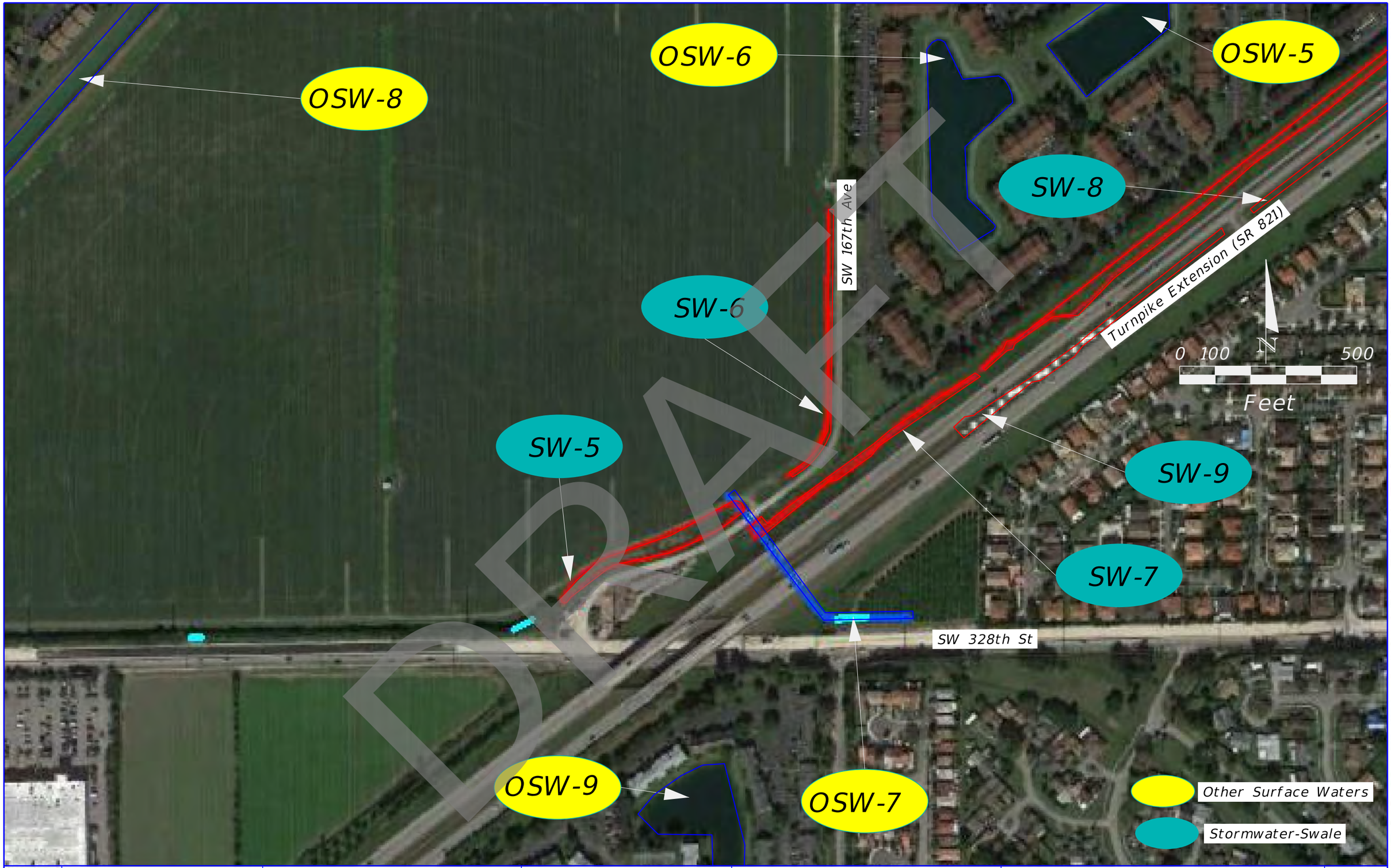

FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD NO. / COUNTY / FINANCIAL PROJECT ID SR 821 / MIAMI DADE / 439545-1-22-01	WETLANDS & SURFACE WATERS LOCATION	SHEET NO. 5 of 7

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FLORIDA'S TURNPIKE	NATURAL RESOURCES EVALUATION	TURNPIKE EXTENSION (SR821)	BMA CONSULTING ENGINEERING 18503 PINES BLVD, SUITE 210 PEMBROKE PINES, FL 33029	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			WETLANDS & SURFACE WATERS LOCATION	SHEET NO.
				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				SR 821	MIAMI DADE	439545-1-22-01		6 of 7

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FLORIDA'S TURNPIKE

NATURAL RESOURCES EVALUATION

TURNPIKE EXTENSION (SR821)

BMA CONSULTING ENGINEERING
18503 PINES BLVD, SUITE 210
PEMBROKE PINES, FL 33029

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI DADE	439545-1-22-01

WETLANDS & SURFACE WATERS LOCATION

SHEET NO. 7 of 7

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EXHIBIT 4 – FLORIDA BONNETED BAT KEY

Florida Bonneted Bat Consultation Key#

Use the following key to evaluate potential effects to the Florida bonneted bat (FBB) from the proposed project. Refer to the Glossary as needed.

1a. Proposed project or land use change is partially or wholly within the Consultation Area (Figure 1)..... **Go to 2**
1b. Proposed project or land use change is wholly outside of the Consultation Area (Figure 1)..... **No Effect**

2a. Potential FBB roosting habitat exists within the project area..... **Go to 3**
2b. No potential FBB roosting habitat exists within the project area..... **Go to 13**

3a. Project size/footprint* ≤ 5 acres (2 hectares)..... **Conduct Limited Roost Survey (Appendix C)** then Go to 4 **NOTE: LIMITED ROOST SURVEY HAS NOT BEEN CONDUCTED**
3b. Project size/footprint* > 5 acres (2 hectares)..... **Conduct Full Acoustic/Roost Surveys (Appendix B)** then **Go to 6**

4a. Results show FBB roosting is likely ..... **Go to 5**
4b. Results do not show FBB roosting is likely..... **MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**

5a. Project will affect roosting habitat..... **LAA+ Further consultation with the Service required.**
5b. Project will not affect roosting habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**

6a. Results show some FBB activity..... **Go to 7**
6b. Results show no FBB activity..... **No Effect**

7a. Results show FBB roosting is likely..... **Go to 8**
7b. Results do not show FBB roosting is likely..... **Go to 10**

8a. Project will not affect roosting habitat..... **Go to 9**
8b. Project will affect roosting habitat..... **LAA+ Further consultation with the Service required.**

9a. Project will affect* > 50 acres (20 hectares) (wetlands and uplands) of foraging habitat..... **LAA+ Further consultation with the Service required.**
9b. Project will affect* ≤ 50 acres (20 hectares) (wetlands and uplands) of foraging habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**

10a. Results show high FBB activity/use..... **Go to 11**
10b. Results do not show high FBB activity/use..... **Go to 12**

11a. Project will affect* > 50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **LAA+ Further consultation with the Service required.**
11b. Project will affect* ≤ 50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**

12a. Project will affect* > 50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **LAA+ Further consultation with the Service required.**
12b. Project will affect* ≤ 50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence. 7**

13a. FBB foraging habitat exists within the project area and foraging habitat will be affect……..***Go to 14***

13b. FBB foraging habitat exists within the project area and foraging habitat will not be affected OR no FBB foraging habitat exists within the project area……..**No Effect**

14a. Project size* > 50 acres (20 hectares) (wetlands and uplands) ……..**Go to 15**

14b. Project size* ≤ 50 acres (20 hectares) (wetlands and uplands……. **MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**

15a. Project is within 8 miles (12.9 kilometers) of high quality potential roosting areas^……**Conduct Full Acoustic Survey (Appendix B) and Go to 16**

15b. Project is not within 8 miles (12.9 kilometers) of high quality potential roosting area^……**MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**

16a. Results show some FBB activity……..**Go to 17**

16b. Results show no FBB activity……..**No Effect**

17a. Results show high FBB activity/use……..**LAA+ Further consultation with the Service required.**

17b. Results do not show high FBB activity/use…….. **MANLAA-P if BMPs (Appendix D) used and survey reports submitted. Programmatic concurrence.**

If you are within the urban environment and you are renovating an existing artificial structure (with or without additional ground disturbing activities), these Guidelines do not apply. The Service is developing separate guidelines for consultation in these situations. Until the urban guidelines are complete, please contact the Service for additional guidance

*Includes wetlands and uplands that are going to be altered along with a 250- foot (76.2- meter) buffer around these areas if the parcel is larger than the altered area.

+Project modifications could change the LAA determinations in numbers 5, 8, 9, 11, 12, and 17 to MANLAA determinations.

^Determining if high quality potential roosting areas are within 8 mi (12.9 km) of a project is intended to be a desk-top exercise looking at most recent aerial imagery, not a field exercise.

EXHIBIT 5 - WOOD STORK KEY

WOOD STORK DETERMINATION KEY

South Florida (05/18/2010)

A. Project within 0.76 km (0.47 mile)[2] of an active colony site[3] "*may affect*[4]"

Project impacts Suitable Foraging Habitat (SFH) ~ at a location greater than 0.76 km (0.47 mile) from a colony site go to B"

NOTE: ACTIVE COLONY IS APPROXIMATELY 18.6 MILES AWAY

Project does not affect SFH……."no effect1".

B. Project impact to SFH is less than 0.20 hectare (one-half acre)[6]……NLAA[1]"

Project impact to SFH is greater in scope than 0.20 hectare (one-half acre) ……go to C

C. Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony site ……go to D

Project impacts to SFH within the CFA of a colony site …….. go to E

D. Project impacts to SFH have been avoided and minimized to the extent practicable; compensation (Service approved mitigation bank or as provided in accordance with Mitigation Rule 33 CFR Part 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines; and habitat compensation replaces the foraging value matching the hydroperiod[7] of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance[8]…….. NLAA[1]"

Project not as above…….. "*may affect*[4]"

E. Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the HMG; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod[7] of the wetlands affected, and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance[8] …… "NLAA[1]"

Project does not satisfy these elements "may affect[4]"

---

[1] With an outcome of "no effect" or "NLAA" as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

[2] Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mi).

[3] An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

[4] Consultation may be concluded informally or formally depending on project impacts.

[5] Suitable foraging habitat (SFH) includes wetlands that typically have shallow-open water areas that are relatively calm and have a permanent or seasonal water depth between 5 to 38cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural ditches, seasonally flooded pastures, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

[6] On an individual basis, SFH impacts to wetlands less than 0.20 hectare (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide-ranging species, and individually, habitat change from impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

[7] Several researchers (Flemming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) than long hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these short hydroperiod wetlands within CFAs are avoided, minimized, and compensated for by enhancement/restoration of short hydroperiod wetlands.

[8] For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Enclosure 3 for projects with greater than 2.02 hectares (5 acres) of wetland impacts. For projects with less than 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.

This Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

EXHIBIT 6 – EASTERN INDIGO SNAKE KEY

Consultation Key for the Eastern Indigo Snake

Revised August 1, 2017

A. Project is not located in open water or salt marsh……go to B

Project is located solely in open water or salt marsh……**no effect**

B. Permit will be conditioned for use of the Service's most current guidance for Standard Protection Measures For The Eastern Indigo Snake (currently 2013) during site Preparation and project Construction……go to C

Permit will not be conditioned as above for the eastern indigo snake, or is not known Whether an applicant intends to use these measures and consultation with the Service is Requested…… **may effect**

C. The project will impact less than 25 acres of eastern indigo snake habitat (e.g. sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes) …… go to D

The project will impact 25 acres or more of eastern indigo snake habitat (e.g. sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes) …… **May affect**

D. The project has no known holes, cavities, active or inactive gopher tortoise burrows, or Other underground refugia where a snake could be buried, trapped and/or injured during Project activities…… **NLAA**

The project has known holes, cavities, active or inactive gopher tortoise burrows, or Other underground refugia where a snake could be buried, trapped and/or Injured……go to E

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, Will be excavated prior to site manipulation in the vicinity of the burrow[1]. If an eastern Indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows be inspected each morning before planned site manipulation of a particular area, and if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work……**NLAA[2]**

Permit will not be conditioned as outlined above…… **may affect**

End Key

---

[1] If excavating potentially occupied burrows, active or inactive, individuals must first obtain authorization via a Florida Fish and Wildlife Conservation Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Application should follow the excavation guidance provided with the most current Gopher Tortoise Permitting Guidance found at http:/myfwc.com/gophertortoise

[2] Please note: If the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/human-altered) completely surrounded by an urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommend formal consultation for this situation because the expected increased value of the vegetated habitat within the individual's home range.

EXHIBIT 7 – REMNANT PINE ROCKLAND

Pine Rockland

MEETING NOTES

Miami-Dade TPO (Staff) Project Update Meeting

Project	Turnpike (SR 821) Widening from US 1 (south of Palm Drive) to Campbell Drive Project Development and Environment (PD&E) Study
FPID	439545-1
Date/Time	Friday, March 12, 2021 / 11:00 AM – 12:00 PM
Location	GoTo Meeting Only
FTE Project Manager	Jazlyn Heywood, P.E.

MEETING ATTENDEES

Miami-Dade TPO Staff
Paul Chance, TPO/Public Involvement Officer
Wilson Fernandez, TPO/Program Administrator Transportation
Regina Serrano, TPO/Special Projects
Turnpike Staff and GEC
Jazlyn Heywood, Atkins Team/FTE Project Management
Henry Pinzon, FTE EMO
Enock Mtoi, AECOM/ FTE Planning Traffic
Carol Scott, FTE Planning
Andrew Velasquez, AECOM/FTE Planning Traffic
Victoria Williams, FTE Liaison
Stantec
Beth Beam

The Miami-Dade Transportation Planning Organization (TPO) Staff Project Update Meeting was held on March 12, 2021 as a GoToMeeting. Following are key discussion points summarized by agenda item.

A. Introductions
FTE opened the meeting with call-in attendees and introduced the project team and asked TPO staff to introduce themselves.

B. Project Update Video
FTE stated a project video (approximately 13 minutes long) is available on the project website and asked attendees if they agree to watch the video as part of this meeting so they could discuss the information presented. All agreed and the project video was presented.

C. Open Discussion
FTE opened the meeting to discussion.

The TPO staff commented that the video was excellent and provides a lot of information. A question was asked about bypassing Palm Drive and if this will create traffic congestion/issues farther south. FTE stated that the turning movements associated with the proposed improvements will provide for improved flow. The project update video will be posted online and FTE hopes the public will take time to watch the video and understand the improvements

D. Input Needed

1. Changes in projected 2045 population and employment growth due to pandemic.

FTE mentioned the public may ask if there are changes in projected 2045 population and employment growth due to the COVID pandemic. The TPO stated that Wilson Fernandez (TPO) or Christopher Rosenberg (TPO) would be able to provide an answer this question.

2. Board Member Courtesy Meetings

FTE stated that the list of planned update meetings is shown in agenda Item E (below) and will be held ahead of the planned July 2021 Public Hearing.

FTE stated that the Economic Development Council of South Miami-Dade and the South Dade Chamber of Commerce wrote letters to the Mayor, Governor, and Secretary of the Department of Transportation expressing concern about the project and impacts to businesses. The FTE will be holding small group business owner meetings to better understand concerns and discuss proposed improvements.

3. TPO Committee Meetings

FTE requested input from TPO attendees regarding the Miami-Dade TPO Board Member Courtesy Meetings, Miami-Dade TPO Transportation Planning Technical Advisory Committee (TPTAC), and Miami-Dade TPO Transportation Planning Council (TPC).

TPO staff recommended that FTE reach out to Vivian Villaamil regarding coordination to present at the CTAC, TPTAC, and TPC.

FTE asked how long it takes to get on the agenda and if they are still virtual. TPO said the TPC is in person and the TPTAC is virtual. FTE said they were not planning on presenting to the TPO board.

FTE asked if there is anyone else the team should reach out to. TPO suggested including the Transportation Aesthetics Review Committee (TARC) committee (aesthetics). FTE noted that aesthetics is typically not addressed during a PD&E Study. TPO staff suggested a presentation to the Bicycle Pedestrian Advisory Committee (BPAC) may be beneficial to point out the refuge improvements for pedestrians and bicyclists crossing US 1.

The TPO stated that the video is long for presentations made at the committee meetings. Normally 10 – 15 slides are presented or a 2 – 3 minute video. TPO staff suggested preparing a shorter movie trailer style video that lasts 2 – 3 minutes and then committee members can go to the project website to view the complete video.

The TPO staff asked to be copied on information that is sent to Elizabeth Rockwell (TPO Chief Communications Officer) for the TPO eNewsletter and suggested to include any graphics and a link to the video.

FTE Traffic asked if shortening the video to 10 minutes would be acceptable. TPO staff said that it likely will depend on the committee. Generally, the committees do not allow that much time for presentations because it leaves no time for discussion.
TPO staff asked if the toll at the end of the Turnpike is extra or part of what travelers already pay before they get to the exit. FTE Traffic stated that toll amount will be nominal and is based on traffic projections. Generally, drivers will pay the toll during peak periods.

FTE asked if the TPO for input on whether the toll will influence drivers to exit at Davis Parkway and not continue south. TPO staff believes it will influence drivers and asked if it will create more backup on Davis Parkway.

FTE stated that drivers are currently using the Davis Parkway exit and if travelers are continuing on to the Keys, for example, they will not use this ramp but will continue on the Turnpike past Palm Drive. FTE also stated that the ramps at Campbell Drive have a nominal toll.

FTE asked the TPO staff if they have received complaints about this area that would show support for the improvements. TPO staff was not aware of any complaints.

4. Community Outreach

FTE noted that small group meetings will be held with the business community south of Palm Drive on April 19, 2021.

FTE asked if a post can be placed in the TPO eNewsletter to encourage readers to view the project update video and virtual tour room. TPO staff said they can also repost anything the FTE posts on social media. FTE Liaison will forward text to Elizabeth Rockwell to review for the TPO eNewsletter.

E. Planned Project Update Meetings

1. Miami-Dade TPO staff (3/12/21)
2. Miami-Dade County Transportation, Public Works & Transit staff (3/31/21)
3. Miami Dade County Commissioner Courtesy Meeting - Commissioner Kionne McGhee (Dist. 9)
4. Miami-Dade TPO Board Member Courtesy Meetings
5. City of Homestead Public Works & Engineering (3/16/21)
6. City of Florida City (including Mayor Wallace) (3/29/21)
7. Economic Development Council of South Miami-Dade
8. South Dade Chamber of Commerce
9. Miami-Dade TPO Citizens' Transportation Advisory Committee (CTAC)
10. Miami-Dade TPO Transportation Planning Technical Advisory Committee (TPTAC)
11. Miami-Dade TPO Transportation Planning Council (TPC)
12. Small Group Business Meetings (4/19/21)
13. Others as requested by staff and upon request

F. Virtual Tour Room

FTE introduced the virtual tour room which displays the concept in a 3-D format, additional videos, and boards which will allow people to view the improvements and better visualize them (www.TurnpikeSouthMiamiDade.com).

The TPO staff like the visualized information and asked if there is sound associated with the videos. FTE confirmed that there is not. The TPO Staff said that narration may be expected when you press play, and it may help people better understand the project area and the improvements. FTE will investigate the option to include narration.

G. Schedule

FTE stated that the meetings and activities discussed today will lead up to the Hybrid Public Hearing currently scheduled for July 20, 2021. The preferred alternative will be presented for public input.

H. Action Items

FTE

- Contact Vivian Villaamil to coordinate TPO Committee Meeting presentations
- Discuss a potential BPAC presentation
- Reduce the size of the Project Update Video for TPO Committee Meetings
- Forward text to the TPO for the eNewsletter
- Consider narration for the virtual tour room videos

Meeting adjourned: 12:00 pm

These notes reflect our interpretation of the discussion during the meeting. Please notify Beth Beam If there are any modifications needed to the meeting notes within ten (10) calendar days from issuance of the meeting notes.

Attachments: Agenda

AGENDA

Miami-Dade TPO (Staff) Project Update Meeting

Turnpike Extension (SR 821) Widening from US 1 (south of Palm Drive) to Campbell Drive PD&E Study
FPID No. 439545-1-22-01
Friday, March 12, 2021 (11:00 AM – 12:00 PM)
GoToMeeting

A. Introductions

B. Project Update Video (13:22)

C. Open Discussion

D. Input Needed

1. Changes in projected 2045 population and employment growth due to pandemic
2. Board Member Courtesy Meetings
3. TPO Committee Meetings
4. Community Outreach
   - TPO Newsletter

E. Planned Project Update Meetings

1. Miami-Dade TPO staff (3/12/21)
2. Miami-Dade County Transportation, Public Works & Transit staff (3/31/21)
3. Miami Dade County Commissioner Courtesy Meeting - Commissioner Kionne McGhee (Dist. 9)
4. Miami-Dade TPO Board Member Courtesy Meetings
5. City of Homestead Public Works & Engineering (3/16/21)
6. City of Florida City (including Mayor Wallace) (3/29/21)
7. Economic Development Council of South Miami-Dade
8. South Dade Chamber of Commerce
9. Miami-Dade TPO Citizens' Transportation Advisory Committee (CTAC)
10. Miami-Dade TPO Transportation Planning Technical Advisory Committee (TPTAC)
11. Miami-Dade TPO Transportation Planning Council (TPC)
12. Small Group Business Meetings (4/19/21)
13. Others as requested by staff and upon request

F. Virtual Tour Room

1. 3-D graphics and videos available at project website www.TurnpikeSouthMiamiDade.com

G. Schedule

1. Tentative July 20, 2021 Hybrid Public Hearing
   - Present preferred alternative for public input

H. Action Items

MEETING NOTES

City of Homestead Project Update Meeting

Project	Turnpike (SR 821) Widening from US 1 (south of Palm Drive) to Campbell Drive Project Development and Environment (PD&E) Study
FPID	439545-1-22-01
Date/Time	Tuesday, March 16, 2021 / 1:00 PM –2:00 PM
Location	GoTo Meeting Only
FTE Project Manager	Jazlyn Heywood, P.E.

MEETING ATTENDEES

City of Homestead
Julio Brea, Public Works & Engineering
Captain Yanko Rodriguez, Police Department
Turnpike Staff and GEC
Jazlyn Heywood, Atkins Team/FTE Project Management
Rax Jung, FTE EMO
Henry Pinzon, FTE EMO
Enock Mtoi, AECOM/ FTE Planning Traffic
Kim Samson, AECOM/FTE Planning Traffic
Carol Scott, FTE Planning
Andrew Velasquez, AECOM/FTE Planning Traffic
Victoria Williams, FTE Liaison
Stantec
Beth Beam

The City of Homestead Project Update Meeting was held on Tuesday, March 16, 2021 as a GoTo Meeting. Following are key discussion points summarized by agenda item.

A. Introductions
FTE opened the meeting with call-in attendees, stated the purpose of the GoTo meeting, introduced the project team, and asked City of Homestead (City) staff to introduce themselves.

B. Project Update Video
FTE stated a project video (approximately 13 minutes long) is available on the project website and asked attendees if they agree to watch the video as part of this meeting so they could discuss the information presented. All agreed and the project video was presented.

C. Open Discussion
FTE opened the meeting to discussion.

The City is in support of the potential Lucy Street interchange and the positive impact it will have on the traffic conditions. The City also noted that improvements to Lucy Street have recently been completed. This high-capacity roadway with a Turnpike connection is desirable.

The City inquired on potential grant opportunities to support funding construction of the Lucy Street interchange. FTE Traffic stated the TPO should be able to provide input into

grants or special taxing districts in order to find the funding to complete the improvements. There may also be grants available due to the current economic conditions. FTE also noted that the TPO may require the project to be shovel ready.

FTE explained that the entire project is comprised of the Turnpike widening, Lucy Street interchange, and Palm Drive improvements. If the project is a No-Build, then this will affect the Lucy Street interchange improvements. The project as a whole has a more desirable cost-benefit than only interchange improvements at Lucy Street.

FTE inquired on the status of a Developer. The City confirmed that no Developer has approached them to move forward, but the Lucy Street interchange is still needed to support ongoing growth.

FTE asked for the City's input on the entire project, including the proposed tolled Turnpike ramp at the Palm Drive and US 1 intersection, and the mainline widening. The City stated since the work is outside of the City limits they did not want to appear supportive of a project that will impact another city. FTE stated that with respect to the proposed improvements and their location to a particular City's limits, the City of Homestead residents will experience the effects of congestion if improvements are not made.

The last time FTE met with the City of Florida City it was mentioned that the Mayor of Homestead was not in support of the project. The City staff commented that they did not have any information on the Mayor's opinion regarding the project but will find out.

D. Input Needed

1. Feedback from the Mayor of Homestead.
FTE requested the City staff confirm the Mayor's position on the project.

2. Lucy Street Interchange
See previous discussion in Item C.

3. Phichol Williams Community Center
FTE stated that the team contacted the City regarding reserving the Phichol Williams Community Center for the in-person portion of the Hybrid Public Hearing. The team was told the City is not renting out the facility due to COVID.

FTE requested that the City staff inquire with Parks and Recreation on the status of facility rental. The Hybrid Public Hearing is currently scheduled for July 20, 2021 and FTE will set the meeting up according to state and local regulations. FTE will check back with the City staff in a week or so.

E. Planned Project Update Meetings
FTE reviewed the recently held and scheduled project update meetings with the agencies/organizations listed below.

1. Miami-Dade TPO staff (3/12/21)
2. Miami-Dade County Transportation, Public Works & Transit staff (3/31/21)
3. Miami Dade County Commissioner Courtesy Meeting - Commissioner Kionne McGhee (Dist. 9)
4. Miami-Dade TPO Board Member Courtesy Meetings

5. City of Homestead Public Works & Engineering (3/16/21)
6. City of Florida City (including Mayor Wallace) (3/29/21)
7. Economic Development Council of South Miami-Dade
8. South Dade Chamber of Commerce
9. Miami-Dade TPO Citizens' Transportation Advisory Committee (CTAC)
10. Miami-Dade TPO Transportation Planning Technical Advisory Committee (TPTAC)
11. Miami-Dade TPO Transportation Planning Council (TPC)
12. Small Group Business Meetings (4/19/21)
13. Others as requested by staff and upon request

F. Project Website (www.TurnpikeSouthMiamiDade.com)
FTE introduced the virtual tour room and provided a demonstration which displayed the concept in a 3-D format, additional videos, and boards. The information is intended to allow people to view the improvements and better visualize them (www.TurnpikeSouthMiamiDade.com).

G. Schedule

FTE stated that the meetings and activities discussed today will lead up to the Hybrid Public Hearing currently scheduled for July 20, 2021. Options to participate in the Public Hearing include online/virtual, via telephone, and in-person.

H. Action Items

FTE

- Follow up with the City regarding rental of the Phichol Williams Community Center for the hybrid Public Hearing.

City of Homestead

- Confirm Mayor of Homestead's position on the entire project.

Meeting adjourned: 1:47 pm

These notes reflect our interpretation of the discussion during the meeting. Please notify Beth Beam If there are any modifications needed to the meeting notes within ten (10) calendar days from issuance of the meeting notes.

Attachments: Agenda

AGENDA

City of Homestead Project Update Meeting

Turnpike (SR 821) Widening from US 1 (south of Palm Drive) to Campbell Drive PD&E Study
Financial Project Identification No. 439545-1
Tuesday, March 16, 2021 (1:00 PM – 2:00 PM)
GoToMeeting

A. Introductions

B. Project Update Video (13:22)

C. Open Discussion

D. Input Needed

1. Feedback from Mayor of Homestead
2. Lucy Street Interchange
3. Community Outreach
4. Phichol Williams Community Center

E. Planned Project Update Meetings

	Local Agency/Stakeholder	**Status**
1	Miami-Dade TPO (MDTPO) staff	**Scheduled** – March 12
2	City of Homestead Public Works & Engineering	**Scheduled** – March 16
3	City of Florida City (including Mayor Wallace)	**Scheduled** – March 29
4	Miami-Dade County Transportation, Public Works &4Transit staff	**Scheduled** – March 31
5	Economic Development Council of South Miami-Dade	**Scheduled** – April 6
6	Small Group Business Owner Meetings	**Scheduled** – April 19
7	Courtesy Meeting – County Commissioner Kionne McGhee (Dist. 9)	Pending County staff meeting
8	MDTPO Board Member Courtesy Meetings	Date Pending
9	South Dade Chamber of Commerce	Date Pending
10	MDTPO Citizens' Transportation Advisory Committee (CTAC)	Date Pending
11	MDTPO Transportation Planning Technical Advisory Committee (TPTAC)	Date Pending
12	MDTPO Transportation Planning Council (TPC)	Date Pending
13	Hybrid Public Hearing	**Tentatively Scheduled** - July 20

F. Project Website (www.TurnpikeSouthMiamiDade.com)

1. Project Update Video posted
2. Virtual Tour Room available showing 3-D graphics and videos

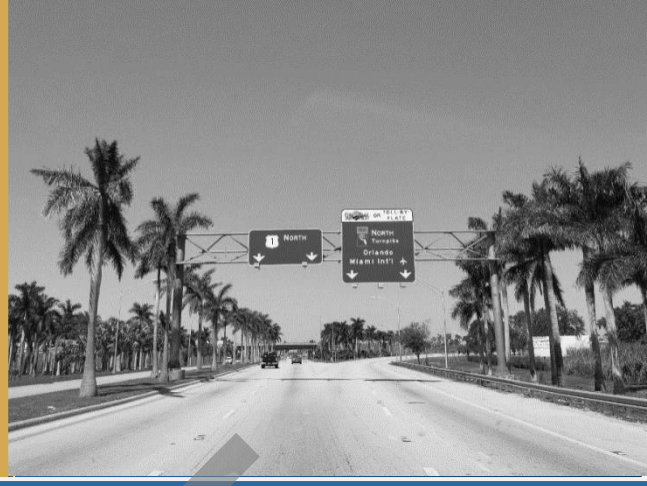
G. Schedule

1. Tentative July 20, 2021 Hybrid Public Hearing
   - Online/virtual, telephone and in-person participation options
   - Present preferred alternative for public input

H. Action Items

Appendix I

Utility Assessment Package Technical Memorandum



Utility Assessment Package
Technical Memorandum

Florida's Turnpike (SR 821) Widening
Project Development and Environment (PD&E) Study
from US 1 (South of Palm Drive) to Campbell Drive | Miami-Dade County, Florida

FM No. 439545-1-22-01

Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069 | Ocoee, FL 34761

August, 2020

FDOT

FLORIDA'S TURNPIKE

Utility Assessment Package
Technical Memorandum

Miami-Dade County, Florida
FM No: 439545-1-22-01| ETDM No: 14322

Prepared for
Florida's Turnpike Enterprise
Florida's Turnpike Mile Post 263
Building 5315
Ocoee, Florida 34761

Prepared by:

Wantman Group
2035 Vista Parkway, Suite 100
West Palm Beach, Florida 33411

August 2020

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FIGURES

APPENDICES

Section 1

Introduction

1.1 Introduction

This memorandum documents the preliminary Utility Assessment process and coordination efforts used to develop and evaluate the Turnpike Extension (SR 821) Widening Project Development and Environment (PD&E) Study from US 1 South of Palm Drive to Campbell Drive. There is a considerably use of acronyms and abbreviations, throughout this report, please refer to **Appendix A** for reference

1.2 Project Description

The Turnpike Extension (SR 821) is a Strategic Intermodal System (SIS) limited access toll highway connecting the Florida Keys, the City of Florida City, and the City of Homestead with the greater Miami-Dade County region. The Turnpike Extension is the primary evacuation route connecting with the Florida Turnpike (SR 91) near the Miami-Dade/Broward County line.

This Project Development and Environment (PD&E) Study evaluates the southern three (3) miles of the Turnpike Extension within Miami-Dade County and the two local municipalities which are the City of Florida City and the City of Homestead. The PD&E study limits are from US 1 (south of Palm Drive) to Campbell Drive/SW 312nd Street. Turnpike milepost (MP) 0.00 is located at US 1 and MP 3.0 is located at the Campbell Drive interchange. (See **Figure 1-1**).

The proposed improvements include widening the existing four-lane expressway and bridges to six (6) lanes between US 1 and Campbell Drive; improving the US 1 interchange with a new ramp over Palm Drive, adding a partial interchange at Lucy Street, and converting the taper ramps to parallel ramps at the Campbell Drive interchange. Bridge widening and/or minor improvements are proposed at Lucy Street, SW 162nd Avenue, C-103 Canal and Campbell Drive. Two new bridges are proposed over the US 1 northbound lanes and over Palm Drive. This project

does anticipate acquisition of new right of way along the east side US 1 south of Palm Drive and at the Lucy Street interchange.

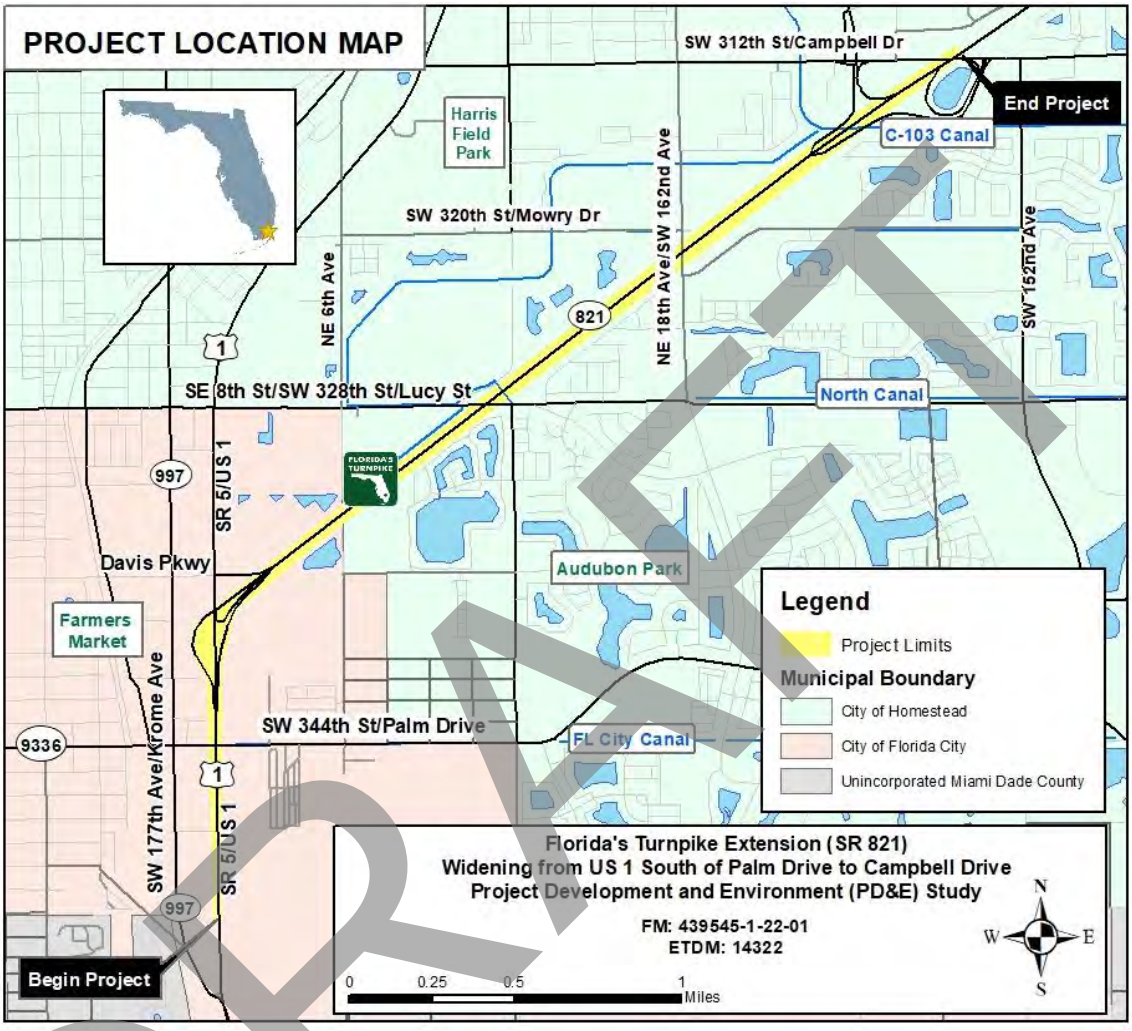

Figure 1-1 Project Location Map

1.3 Purpose and Need

The primary purpose of the project is to enhance traffic operations and safety. The secondary purpose of this project is to accommodate the existing and future traffic demand, enhance regional mobility and improve evacuation/emergency response.

The existing four-lane divided tollway experiences congestion in the typical am/pm peak hour and during the heavy inbound peak periods when traffic is heading south to the Florida Keys. The traffic operations continue to deteriorate through the Design Year 2045 dropping to Level of Service (LOS) F. The detailed analysis is documented in the Systems Interchange Justification Report (SIJR).

The local municipality, City of Homestead identified the need for improved regional mobility with additional Turnpike access between the US 1 and Campbell Drive interchanges. The US 1 interchange is in Florida City and the Campbell Drive interchange is located at the north boundary of the City of Homestead. The central region lacks adequate access to the Turnpike system and the City of Homestead requested a new interchange at Lucy Street.

Section 2

Methodology

2.1 Methodology

The process to discover utilities during the Project Development and Environmental (PD&E) phase consists of three stages: PD&E Request Package; Utility Agency Owner (UAO) Coordination, and Utility Assessment Package.

The PD&E Request Package consists of the concept plans overlay on an aerial background. A request is made for each UAO to provide information for above ground and below ground utility facilities within the PD&E project area, for both existing and planned utility facilities. Also included is a request for each UAO to provide information pertaining to any existing easements or other property interests that may be affected by the project. The contacted UAOs are requested to review the concept plans and identify their major utility facilities and other obstructions or encroachments within or adjacent to the project. Each UAO was to identify both existing and planned utility installations in, or adjacent to, the project limits. The UAOs are requested to respond in writing and delineate their facilities and any property interests on the concept plans, in accordance with Chapter 14-46, Florida Administrative Code (F.A.C.) and the Utility Accommodation Manual (UAM).

Section 3

Utility Agency Owners

3.1 Utility Agency Owners

The existing and proposed utilities located within the study area were identified throughout the project corridor as part of this PD&E Study. A list of the existing Utility Agencies/Owners (UAOs) was obtained by contacting Sunshine 811. A field review was also conducted to further identify any designated existing facilities in the project corridor. All the UAOs identified in the field were also noted on the Sunshine 811 list. The existing UAOs, the identified UAO contacts and facility type are summarized in **Table 3-1**.

Preliminary utility coordination was initiated through written communication to the listed utility contacts. The utility companies were informed of the PD&E study through these notification letters and were requested to provide information regarding the location, type, size and characteristics of any major utilities along or crossing the existing right-of-way. UAOs were requested to note if any utility facility is located within the FDOT right-of way by easement or permit, and to provide an order-of-magnitude worst-case estimate for the cost of relocating any utilities affected by the proposed project. The information obtained from the UAOs is documented in this technical memorandum.

Table 3-1 Utility Contact List Provided by Sunshine 811

Utility Agency Owner	Contact	Utility Type	Comments
AT&T Florida 9101 24th St Miami, FL 33165	Steve Low 305-222-8745 Sl4504@att.com	Communication	Marked Plans Provided
City of Florida City Water & Wastewater 404 West Palm Drive Florida City, FL 33034	Elsa Rodriguez 305-598-0199 erodriguez@baljet.com	Water & Sewer	Marked Plans Provided
City of Homestead Water & Wastewater 709 N. Homestead Blvd. Homestead, FL 33030	Dennis Maytan 305-224-4842 dmaytan@cityofhomestead.com	Water & Sewer	Atlas Map Provided
City of Homestead Electric 709 N. Homestead Blvd. Homestead, FL 33030	Julio Brea 305-301-4464 jbrea@cityofhomestead.com	Electric	Marked Plan Provided
City of Homestead Fiber 709 N. Homestead Blvd. Homestead, FL 33030	Julio Brea 305-301-4464 jbrea@cityofhomestead.com	Communication	No Response Provided
Comcast 2601 SW 14th St. Miramar, FL 33027	Leonard Maxwell 954-444-5113 Leonard_maxwell-newbold@comast.com	Communication	Marked Plans Provided
Direct Plus LLC 806 S. Douglas Rd. Suite 900 Coral Gables, FL 33134	Chris Campos 305-592-8925 Chris.campos@mastec.com	Communication	No Facilities
Dade County Public Works 7100 NW 36th St. Miami, FL 33166	Frank Aira 305-979-3466 airaf@miamidade.gov	Traffic	No Response Provided
Florida City Gas 4045 NW 97th Ave Doral, FL 33178	Maria Paula Lopez 786-332-8913 maria.lopez@nexteraenergy.com	Gas	Atlas Map Provided
Florida Power & Light (FP&L) Distribution 4200 W. Flagler St. Miami, FL 33134	Angel Vargas 305-442-5129 Angel.vargas@fpl.com	Electric	Marked Plans Provided
Florida Power & Light (FP&L) Transmission 9329 S. Military Trail BYO/BB1 Boynton Beach, FL 33436	Michael Foley 561-742-2057 Michael.Foley@fpl.com	Electric	Atlas Map Provided
Florida Gas Transmission 2405 Lucien Way, Suite 200 Maitland, FL 32751	Joe Sanchez 407-839-7171 Joseph.e.sanchez@energytransfer.com	Gas	Marked Plans Provided
Miami-Dade Water & Sewer 3071 SW 38th Ave Miami, FL 33146	Patrick Chong 786-268-5255 pchong@miamidade.gov	Water & Sewer	No Facilities

Section 4

Utility Description

4.1 Utility Description

The existing utility facilities include power, gas, water, wastewater (sewer), and communications. A preliminary plan set with aerial background was sent to all Utility Agencies Owners identified by Sunshine 811 as having utility facilities in the project area, for their use in identifying their facilities. Information received from the various Utility Agency Owners can be found in **Appendix C**.

Based on the initial utility coordination effort, utility facilities were identified within the existing or proposed right-of-way. The general location of the existing utility facilities described below are based on the Utility Agency Owners response through the utility contact process. Exact locations of the existing utilities and the extent of impacts will be determined during the final design phase of this project. Coordination with the known UAOs during the final design phase will assist in minimizing relocation adjustments and disruptions of service to the public. Provided below is a summary of the existing facilities within the project corridor.

AT&T Florida (Distribution)

- Buried cables along the east side of US 1 from Sta. 45+00 to 71+30
- (1) Manhole (size unknown) at Sta. 46+20
- (1) 6x12x17 Manhole at Sta. 71+05
- 4-4” buried cables on south side Palm Drive east of US 1
- Buried cable on south side of Palm Drive west of US 1
- 1-4” buried cable on north side of Palm Drive east of US 1 with 30”x48” handhole
- 6-4” buried cables from Sta. 71+05 to 73+10
- 30”x48” handhole at Sta. 73+10 and 73+80

- 1-4” buried cable from Sta. 73+80 to 100+00
- Buried cable west of south bound Turnpike Extension (SR 821) exit
- Buried cable on south side of NE 17th ST west of US 1
- 4-4” buried conduit crossing SR 821 south side Lucy Street
- (1) Manhole and (3) cabinets at SW 167 Avenue

City of Florida City - Water & Wastewater

- 12” DIP WM from Sta. 34+00 LT to 45+12 LT
- 12” DIP WM from Sta. 72+25 RT to 86+00 RT
- 12” DIP WM from Sta. 95+05 LT to 100+00 LT
- 12” DIP WM from Sta. 96+80 RT to 100+00 RT
- 12” DIP WM from Sta. 3525+00 RT to 3533+20 RT
- 12” DIP WM from Sta. 3529+75 LT to 3547+80 LT
- 16” DIP WM crossing SR 5 (US 1) at 45+12
- 16 DIP WM from Sta. 45+12 RT to 71+30 RT
- 16” DIP WM crossing SR 5 (US 1) at 55+05
- 16” DIP WM from Sta. 51+90 LT to 71+06 LT
- 8” DIP FM from Sta. 50+00 LT to 69+50 LT
- 8” PVC FM from Sta. 52+10 RT to 70+20 RT
- 10” PVC FM from Sta. 62+10 LT to 71+40 LT
- 10” PVC FM west of SR 5 on the south side of Palm Drive
- 10” DIP FM crossing SR 5 going east on south side of Palm Drive
- 8” PVC FM from Sta. 97+10 RT to 100+00 RT
- WM valve at Sta. 45+12 LT
- (3) WM valves at Sta. 45+12 RT
- WM valve at Sta. 51+90 RT
- WM valve at Sta. 53+75 RT
- (4) WM valves at Sta. 55+10 RT
- (2) WM valves at Sta. 55+10 LT
- WM valve at Sta. 58+20 RT
- WM valve at Sta. 58+80 RT
- WM valve at Sta. 71+00 RT
- (3) WM valves at Sta. 71+00 LT
- (4) WM valves at Sta. 99+00 LT and RT

- FM manhole at Sta. 50+00 LT
- FM manhole at Sta. 52+10 RT
- FM manhole at Sta. 52+10 LT
- FM manhole at Sta. 53+80 LT
- FM manhole at Sta. 54+30 RT
- FM manhole at Sta. 56+45 LT
- FM manhole at Sta. 57+00 RT
- FM manhole at Sta. 58+10 LT
- FM manhole at Sta. 58+45 RT
- FM manhole at Sta. 59+50 RT
- FM manhole at Sta. 62+05 LT
- FM manhole at Sta. 62+30 LT
- (2) FM manholes at Sta. 62+30 RT
- FM manhole at Sta. 65+40 LT
- FM manhole at Sta. 66+00 RT
- FM manhole at Sta. 66+70 RT
- FM manhole at Sta. 69+50 LT
- FM manhole at Sta. 70+20 RT
- FM manhole at Sta. 71+70 RT
- FM manhole 125" east of SR 5 on Palm Drive
- FM manhole at Sta. 97+10 RT
- Fire hydrant at Sta. 60+10 RT
- Fire hydrant at Sta. 63+10 RT
- Fire hydrant at Sta. 66+60 RT
- Fire hydrant at Sta. 97+00 RT

City of Homestead - Water and Wastewater

- No Facilities within project limits

City of Homestead - Electric

- Overhead electric crossing SR 821 from Sta. 3575+50 LT to 3582+00 RT
- Underground electric crossing SR 821 from Sta. 3574+90 LT to Sta. 3578+20 RT
- Underground electric crossing SR 821 from Sta. 3580+50 LT to Sta. 3582+50 RT
- Overhead electric crossing SR 821 from Sta. 3613+20 RT to Sta. 3615+70 LT

- Underground electric crossing SR 821 from Sta. 3619+20 LT to Sta. 3623+75 RT
- Underground electric crossing SR 821 from Sta. 3664+60 LT to Sta. 3637+30 RT
- Underground electric crossing SR 821 from Sta. 3681+70 RT to Sta. 3682+60 LT

City of Homestead - Fiber Optic

- No Response Provided

Comcast

- Buried cable from Sta. 51+80 RT to 53+75 RT
- Aerial cable form 53+75 RT to 57+60 RT
- Aerial cable on south side of Palm Drive crossing SR 5
- Aerial cable on north side of NE 17th St crossing SR 5
- Aerial cable from Sta. 98+20 RT to 100+00 RT
- Buried cable crossing Turnpike Extension at Sta. 3580+50 RT to 3582+50 LT
- Buried cable crossing Turnpike Extension at Sta. 3613+50 RT to 3615+75 LT
- Buried cable crossing Lucy Street at SW 167th Avenue

Directplus, LLC

- No facilities

Florida City Gas

- 2” PE GM from Sta. 51+80 LT to 70+75 LT
- 2” PE GM from Sta. 98+30 RT to 100+00 RT
- 6” PE GM crossing SR 821 Turnpike Extension at Sta. 3667+60+/-

Florida Gas Transmission

- 6” GM crossing Turnpike Extension at Sta. 3614+50 RT and 3617+25 LT

Florida Power & Light (FP&L) - Distribution

- 2-6” Buried electric (23kv) from Sta. 43+00 LT to 72+70 LT
- Overhead electric (23kv) from Sta. 50+75 RT to Sta. 57+60 RT
- Overhead electric (23kv) crossing US 1 at Sta. 71+25
- Overhead electric (23kv) on south side of Palm Drive
- 2-6” Buried electric (23kv) crossing US 1 at Sta. 72+70
- Overhead electric (23kv) on south side west of US 1
- Overhead electric (23kv) on south side crossing US 1
- Overhead electric (23kv) on south side east of US 1
- 2-6” Buried electric (23kv) on north side of Palm Drive east of US 1
- Overhead electric (23kv) crossing US 1 at Sta. 98+80
- Overhead electric (23kv) on north side of Davis Parkway / NE 7th St.

- Buried electric (23kv) crossing Turnpike Extension at Sta. 3530+00 LT to Sta. 3534+00 RT
- Buried electric (23kv) crossing Turnpike Extension at Sta. 3572+50 LT to Sta. 3576+50 RT
- Buried electric (23kv) crossing Turnpike Extension at south side Lucy Street
- Overhead electric (23kv) on east side of SW 167 Avenue at Lucy Street

Florida Power & Light (FP&L) - Transmission

- Overhead electric (138kv) crossing SR 821 at Sta. 3614+80 RT to Sta 3616+45 LT

Miami Dade Water and Waste Water

- No Facilities

Section 5

Build Impacts

5.1 Build Impacts

The anticipated utility impacts are concentrated along SR 5 (US 1) and the associated local side streets. The anticipated impacts to utility facilities resulting from the recommended Build alternative are itemized by location in **Table 6-1**, along with estimated relocation costs. The estimated impacts are based on the data provided by the UAO as previously summarized. Actual utility impacts will be verified during the design phase, when a detailed survey and subsurface utility information is available. It is anticipated the municipal water and wastewater providers may request a Utility Work by Highway Contractor Agreement (UWHCA).

Powerline proximity interference effects with the proposed toll facility will be quantified in the design phase.

Section 6

Utility Agency Owner Cost Estimates

6.1 Utility Agency Owner Cost Estimates

Conservative utility relocation estimates were requested as part of the utility coordination process through follow up with each Utility Agency Owner. The total combined estimated cost for relocations (as provided by the Utility Agency Owners) is $11,545,000.

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Table 6-1 Utility Impacts from Proposed Build

Utility Agency Owner	Utility Type	Station	General Location	Size	Impact	Estimated Cost
US Highway 1						
AT&T Florida	BT	45+00 to 71+30	East side	Not Provided	Roadway Construction	460,000
AT&T Florida	MH	46+20	East side	Not Provided	Roadway Construction	125,000
AT&T Florida	MH	71+05	East side	6x12x17	Roadway Construction	125,000
AT&T Florida	BT	71+05 to 73+10	East side	6-4”	Roadway Construction	200,000
AT&T Florida	MH	73+05	East side	30”x48”	Roadway Construction	125,000
AT&T Florida	MH	73+10	East side	30”x48”	Roadway Construction	125,000
AT&T Florida	BT	73+80 to 100+00	East side	1-4”	Roadway Construction	460,000
City of Florida City W&WW	WM	43+00 to 45+12	West side	12” DIP	Roadway Construction	15,000
City of Florida City W&WW	WM	72+25 to 86+00	East side	12” DIP	Roadway Construction	75,000
City of Florida City W&WW	WM	95+05 to 100+00	West side	12” DIP	Roadway Construction	50,000
City of Florida City W&WW	WM	96+80 to 100+00	East side	12” DIP	Roadway Construction	30,000
City of Florida City W&WW	WM	45+12	Crossing	16” DIP	Roadway Construction	10,000
City of Florida City W&WW	WM	45_12 to 71+30	East side	16” DIP	Roadway Construction	50,000
City of Florida City W&WW	WM	55+05	Crossing	16” DIP	Roadway Construction	10,000
City of Florida City W&WW	WM	51+90 to 71+06	West side	16” DIP	Roadway Construction	350,000
City of Florida City W&WW	FM	50+00 to 69+50	West side	8” DIP	Roadway Construction	120,000
City of Florida City W&WW	FM	52+10 to 70+20	East side	8” PVC	Roadway Construction	110,000
City of Florida City W&WW	FM	62+10 to 71+40	West side	10” PVC	Roadway Construction	65,000
City of Florida City W&WW	FM	97+10 to 100+00	East side	8” PVC	Roadway Construction	20,000
City of Florida City W&WW	WM	45+12	West side	Valve	Roadway Construction	5,000

Utility Agency Owner	Utility Type	Station	General Location	Size	Impact	Estimated Cost
City of Florida City W&WW	WM	45+12	East side	(3) Valves	Roadway Construction	15,000
City of Florida City W&WW	WM	51+90	East side	Valve	Roadway Construction	5,000
City of Florida City W&WW	WM	53+75	East side	Valve	Roadway Construction	5,000
City of Florida City W&WW	WM	55+10	East side	(4) Valves	Roadway Construction	20,000
City of Florida City W&WW	WM	55+10	West side	(2) Valves	Roadway Construction	10,000
City of Florida City W&WW	WM	58+20	East side	Valve	Roadway Construction	5,000
City of Florida City W&WW	WM	58+80	East side	Valve	Roadway Construction	5,000
City of Florida City W&WW	WM	71+00	East side	Valve	Roadway Construction	5,000
City of Florida City W&WW	WM	71+00	West side	(3) Valves	Roadway Construction	15,000
City of Florida City W&WW	WM	99+00	East side	(4) Valves	Roadway Construction	20,000
City of Florida City W&WW	WM	99+00	West side	(4) Valves	Roadway Construction	20,000
City of Florida City W&WW	FM	50+00	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	52+10	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	52+10	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	53+80	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	54+30	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	56+45	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	57+00	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	58+10	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	58+45	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	59+50	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	62+05	West side	MH	Roadway Construction	100,000

Utility Agency Owner	Utility Type	Station	General Location	Size	Impact	Estimated Cost
City of Florida City W&WW	FM	62+30	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	62+30	East side	(2) MH	Roadway Construction	200,000
City of Florida City W&WW	FM	65+40	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	66+00	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	66+70	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	69+50	West side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	70+20	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	71+70	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	97+10	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	FM	60+10	East side	MH	Roadway Construction	100,000
City of Florida City W&WW	WM	63+10	East side	FH	Roadway Construction	50,000
City of Florida City W&WW	WM	66+60	East side	FH	Roadway Construction	50,000
City of Florida City W&WW	WM	97+00	East side	FH	Roadway Construction	50,000
Comcast	BTV	51+80 to 53+75	East side	Not Provided	Roadway Construction	20,000
Comcast	OTV	53+75 to 57+60	East side	Not Provided	Roadway Construction	40,000
Comcast	OTV	98+20 to 100+00	East side	Not Provided	Roadway Construction	20,000
Florida City Gas	GM	51+80 to 70+75	West side	2” PE	Roadway Construction	115,000
Florida City Gas	GM	98+30 to 100+00	East side	2” PE	Roadway Construction	15,000
FP&L Distribution	BE	43+00 to 72+70	West side	(2) 6” PVC (23kv)	Roadway Construction	725,000
FP&L Distribution	OE	50+75 to 57+60	East side	23kv	Roadway Construction	45,000
FP&L Distribution	OE	71+25	Crossing US 1	23kv	Roadway Construction	15,000

Utility Agency Owner	Utility Type	Station	General Location	Size	Impact	Estimated Cost
FP&L Distribution	BE	72+70	Crossing US 1	(2) 6” PVC (23kv)	Roadway Construction	25,000
FP&L Distribution	OE	98+80	Crossing US 1	23kv	Roadway Construction	15,000
Palm Drive						
AT&T Florida	BT	US 1	South side east of US 1	4-4”	Roadway Construction	300,000
AT&T Florida	BT	US 1	South side west of US 1	Not Provided	Roadway Construction	150,000
AT&T Florida	BT	US 1	North side west of US 1	1-4”	Roadway Construction	150,000
AT&T Florida	HH	US 1	North side west of US 1	30”x48”	Roadway Construction	50,000
Comcast	OTV	US 1	South side west of US 1	Not Provided	Roadway Construction	30,000
Comcast	OTV	US 1	South side crossing US 1	Not Provided	Roadway Construction	30,000
Comcast	OTV	US 1	South side east of US 1	Not Provided	Roadway Construction	30,000
Florida City W&WW	FM	US 1	South side west of US 1	10” PVC	Roadway Construction	75,000
Florida City W&WW	WM	US 1	North side West of US 1	16” DIP	Roadway Construction	125,000
Florida City W&WW	FM	US 1	South side crossing US 1	12” DIP	Roadway Construction	100,000
Florida City W&WW	WM	US 1	North side east of US 1	16” DIP	Roadway Construction	125,000
Florida City W&WW	WM	US 1	South side east of US 1	12” DIP	Roadway Construction	100,000
Florida City W&WW	FM	US 1	South side east of US 1	12” DIP	Roadway Construction	100,000
FP&L Distribution	OE	US 1	South side west of US 1	23kv	Roadway Construction	75,000
FP&L Distribution	OE	US 1	South side crossing US 1	23kv	Roadway Construction	75,000
FP&L Distribution	OE	US 1	South side east of US 1	23kv	Roadway Construction	75,000
FP&L Distribution	BE	US 1	North side east of US 1	23kv	Roadway Construction	50,000
Turnpike Extension (SR 821) Mainline						
AT&T Florida	BT	US 1	West side of the mainline	Not Provided	Roadway Construction	25,000

Utility Agency Owner	Utility Type	Station	General Location	Size	Impact	Estimated Cost
City of Homestead Electric	OE	3613+20 to 3615+70	Crossing SR 821	138kv	Bridge Construction	600,000
FP&L Transmission	OE	3614+80 to 3616+45	Crossing SR 821	138kv	Roadway Construction	600,000
City of Homestead Electric	BE	3619+20 to 3623+75	Crossing SR 821	Not Provided	Roadway Construction	100,000
City of Homestead Electric	BE	3664+60 to 3667+60	Crossing SR 821	Not Provided	Bridge Construction	75,000
City of Homestead Electric	BE	3681+70 to 3682+60	Crossing SR 821	Not Provided	Roadway Construction	30,000
Comcast	BTV	3613+50 RT to 3615+75 LT	Crossing SR 821	Not Provided	Roadway Construction	30,000
Florida City W&WW	WM	3525+00 to 3533+20	North side	12" DIP	Roadway Construction	60,000
Florida City W&WW	WM	3529+75 to 3547+80	South side	12" DIP	Roadway Construction	130,000
Florida Gas Transmission	GM	3614+50 RT to 3617+25 LT	Crossing SR 821	6"	Roadway Construction	15,000
FP&L Distribution	BE	3530+00 LT to 3534+00 RT	Crossing SR 821	23kv	Roadway Construction	100,000
Lucy Street (SW 328 Street)						
City of Homestead Electric	OE	3575+50 to 3578+20	Crossing SR 821	138kv	Bridge Construction	1,000,000
City of Homestead Electric	BE	3574+90 to 3578+20	Crossing SR 821	Not Provided	Bridge Construction	100,000
City of Homestead Electric	BE	3580+50 to 3582+50	Crossing SR 821	Not Provided	Roadway Construction	50,000
Comcast	BTV	3580+50 RT to 3582+50 LT	Crossing SR 821	Not Provided	Roadway Construction	30,000
FP&L Distribution	BE	3572+50 LT to 3576+50 RT	Crossing SR 821	23kv	Bridge Construction	100,000
AT&T Florida	BT	3574+50 RT to 3576+20 LT	Crossing SR 821	4-4"	Roadway Construction	40,000
AT&T Florida	BT	SW 176th Avenue	South side of Lucy Street	(3) Cabinets	Roadway Construction	450,000
FP&L Distribution	BE	Lucy Street	Crossing SR 821	23kv	Roadway Construction	100,000
FP&L Distribution	OE	SW 167 Avenue	East side of SW 167 Ave	23kv	Roadway Construction	60,000
Comcast	BTV	SW 167 Avenue	East side of SW 167 Ave	Not Provided	Roadway Construction	30,000

Utility Agency Owner	Utility Type	Station	General Location	Size	Impact	Estimated Cost
Davis Parkway / NE 17th St.						
AT&T Florida	BT	US 1	South side west of US 1	Not Provided	Roadway Construction	40,000
Comcast	OTV	US 1	North side west of US 1	Not Provided	Roadway Construction	25,000
Comcast	OTV	US 1	North side crossing US 1	Not Provided	Roadway Construction	25,000
Comcast	OTV	US 1	North side east of US 1	Not Provided	Roadway Construction	25,000
FP&L Distribution	OE	US 1	North side east & west of US 1	Not Provided	Roadway Construction	25,000

Section 7

Mitigation Recommendations

7.1 Mitigation Recommendations

Most UAOs have the capability to adjust their services without causing significant inconvenience to their customers. Mitigation measures will include the following:

- The accurate location of all underground facilities to confirm a clear or conflict determination.
- The accurate location of all aerial facilities to confirm a clear or conflict determination.
- An innovative design approach to avoid the utility facilities and minimize impacts.
- The Utility Work by Highway Contractor Agreement (UWHCA) option for unavoidable relocation of the water and wastewater (sewer) facilities.
- Minimizing the duration of unavoidable service disruptions.
- Allowing service disruption only during periods of minimum usage.
- Maintaining utility connections in temporary locations.
- Installing alternative or new facilities before disconnecting the existing facilities.
- Completion of the necessary utility work prior to the start of roadway construction or prioritize the utility work to avoid the first phases of roadway construction.
- Removing Occupational Safety and Health Administration (OSHA) crane conflicts, utilize low overhead construction techniques.

Appendix A

Acronyms and Abbreviations

BE	Buried Electric
BT	Buried Telephone/Communication
BTV	Buried Cable/Communications
DIP	Ductile Iron Pipe
F.A.C.	Federal Administrative Code
FDOT	Florida Department of Transportation
FH	Fire Hydrant
FM	Force Main (sewer)
FTE	Florida's Turnpike Enterprise
ft / ft	Feet / Foot
FPID	Financial Project Identification
GM	Gas Main
In.	Inch
Kv	Kilovolt
Mh	Manhole
MP	Milepost
No.	Number
OE	Overhead Electric
OTV	Overhead Cable/Communication
PD&E	Project Development and Environment
PE	Polyethylene Pipe
PVC	Polyvinyl Chloride Pipe
SR	State Route
UAO	Utility Agency Owner
UAM	Utility Accommodation Manual
UWHCA	Utility Work by Highway Contractor Agreement
W	Water
WM	Water Main
WW	Wastewater

Appendix B

Sample Utility Agency Owner Contact Letter

WGI

American Traffic Solutions
AT&T Florida
Comcast
City of Florida City
City of Homestead Water
City of Homestead Sewer
City of Homestead Fiber
City of Homestead Electric
Direct Plus LLC
Dade County Public Works
FPL Distribution
FPL Transmission
Florida City Gas
Florida Gas Transmission
Miami-Dade Water & Sewer

August 23, 2018

RE: **ADJUSTMENT OF UTILITIES – STATE STATUTES CHAPTER 337.403**

Project: **HEFT (SR 821) Roadway Improvements – PD&E Study**
Description: **Widening of HEFT (SR 821) from US 1 south of Palm Dr. to Campbell Dr.**
County: **Miami-Dade County**
FPID: **439545-1-22-01**

INITIAL UTILITY DISTRIBUTION

The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise, is conducting a Project Development and Environment (PD&E) Study for roadway improvements to the HEFT (SR 821). The PD&E study limits begin on US Highway 1 south of Palm Drive and end at Campbell Drive, which is approximately 9 miles (see attached Contract Plans).

In order to determine the best alternative for this project, our project team needs to determine the locations of all existing and out-of-service utility facilities within the project limits. Please identify all utility facilities inside and outside the right of way lines (at least 200 feet) and provide a marked set showing their location on the attached/enclosed aerial base maps. It is important that your marked aerials (hard copy or electronic) be returned to our office by ***September 7, 2018.***

Please provide with your response the following information:

- Provided aerials marked to show the areas where your company's existing and out-of-service utility facilities are approximately located along the project corridors or easements. Indicate the limits of any easements and if the easement is owned by your company or some other entity.
- Provide a description of the utility facilities marked on the aerials, include the type, size, material, and if aerial or underground.
- Indicate on the aerials if you have any future planned utility installations within the project limits (inside and/or outside the right of way lines).

Your input and continued cooperation on this project is essential. Should you have any questions do not hesitate to contact me directly at 561-839-1730, email: alan.boaz@wginc.com.

Sincerely,
WANTMAN GROUP, INC.

Alan Boaz
Sr. Utility Coordinator

Cc: Randy Augat – Florida's Turnpike Utility Office; Linda Hess – Stanley Consultants

Appendix C

Utility Agency Owner Response

Utility Agency Owners

AT&T Florida

City of Florida City Water & Wastewater

City of Homestead Water & Wastewater

City of Homestead Electric

Comcast

Florida City Gas

Florida Power & Light - Distribution

Florida Power & Light - Transmission

Florida Gas Transmission

APPENDIX C

Utility Agency Owner Responses

AT&T Florida

COMPONENTS OF CONTRACT PLANS SET

CONCEPT PLANS

INDEX OF CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2 thru 9	ROADWAY PLAN

STATE OF FLORIDA

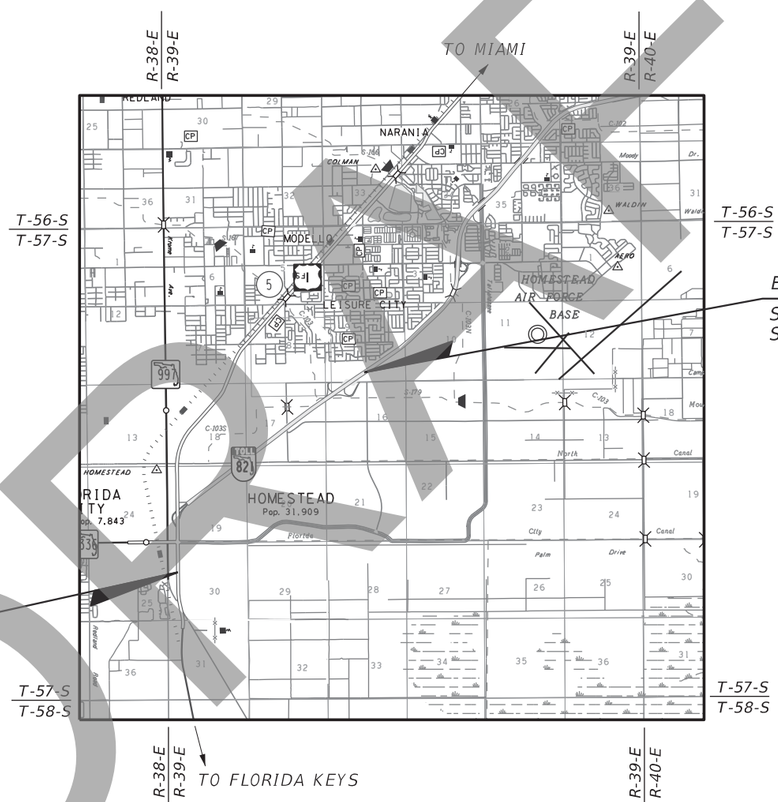
DEPARTMENT OF TRANSPORTATION

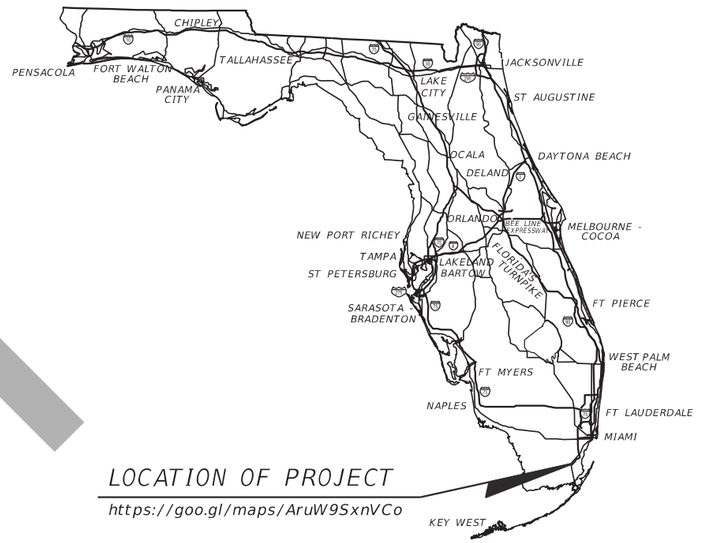
CONTRACT PLANS

FINANCIAL PROJECT ID 439545-1-22-01

MIAMI-DADE COUNTY (874710)

SR 5 (US 1) AND SR 821 (FLORIDA'S TURNPIKE) WIDENING
FROM SOUTH OF PALM DRIVE TO CAMPBELL DRIVE





LOCATION OF PROJECT

https://goo.gl/maps/AruW9SxnVCo

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Miles

PLANS PREPARED BY:

STANLEY CONSULTANTS, INC.
1641 WORTHINGTON ROAD, SUITE 400
WEST PALM BEACH, FL 33409
CERTIFICATE OF AUTHORIZATION 1978
VENDOR NO. VF-421320758-001
CONTRACT NO. C9X28

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

INITIAL UTILITY COORDINATION
AUGUST, 2018

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2018-19 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

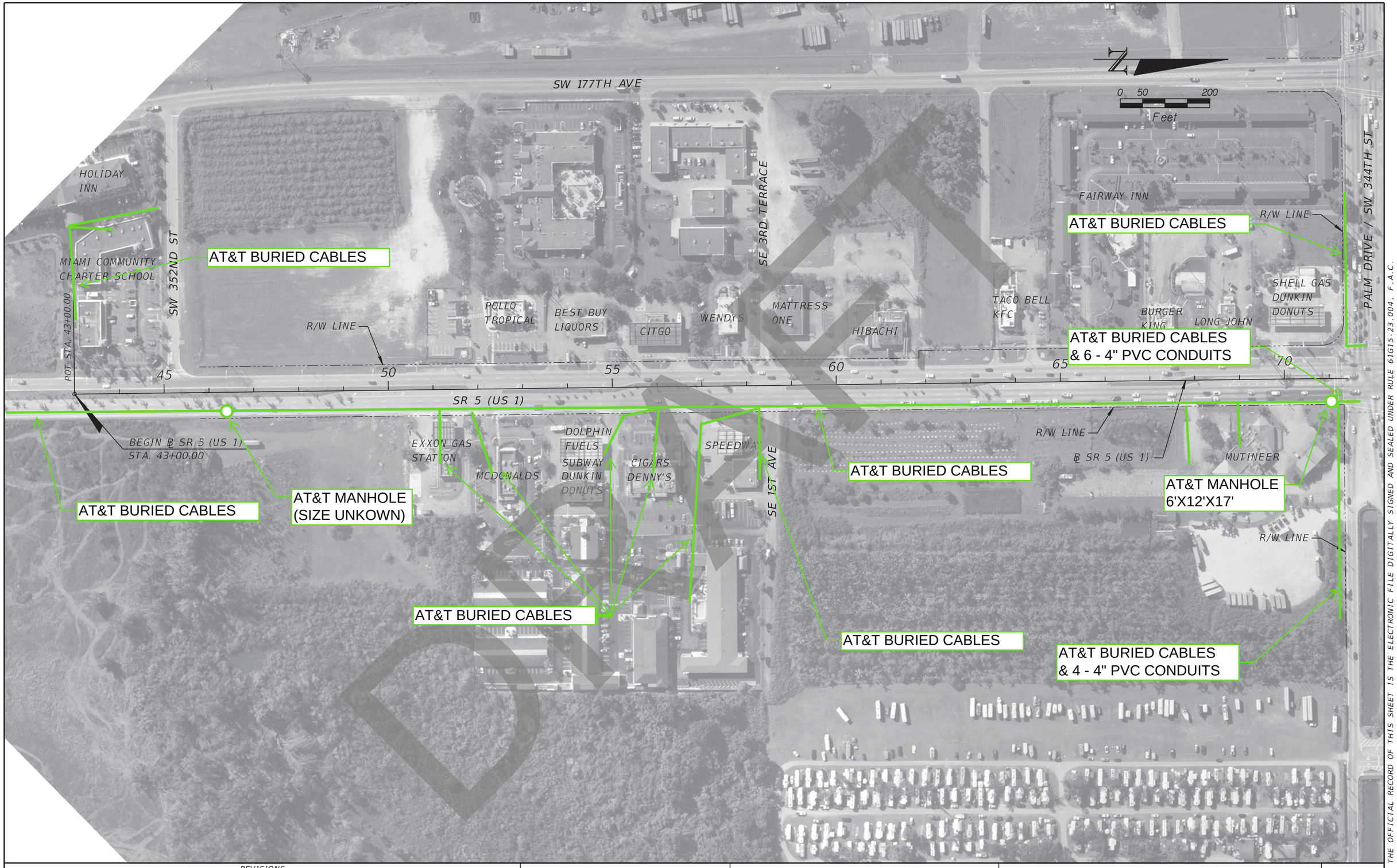
APPLICABLE IRs:

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, January 2019 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

FDOT PROJECT MANAGER: RAX JUNG, P.E.
GEC PROJECT MANAGER: BRIAN P. RIBARIC, P.E.

FISCAL YEAR	SHEET NO.
22	1



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 2

AT&T BURIED CABLES

AT&T BURIED CABLES

AT&T BURIED CABLES

AT&T BURIED CABLES

AT&T BURIED CABLES

AT&T AERIAL CABLES

AT&T BURIED CABLES
& 6 - 4" PVC CONDUITS

AT&T BURIED CABLES
& 1 - 4" PVC CONDUITS

AT&T BURIED CABLES

AT&T HAND HOLE
30"X48"

AT&T HAND HOLE
30"X48"

AT&T 1 - 4" PVC
CONDUIT

AT&T HAND HOLE
30"X48"

SW 177TH AVE
ELTON CT
THELMA TERRACE
PALM AVE / SW 344TH ST
NE 3RD ST
DAVIS PKWY / NE 7TH ST
ALL IN COLOR
SKY NET 360
SHIVER GLASS/MIRROR
UNIQUE TUXEDOS
LA R/W LINE
R/W LINE
SALVATION ARMY
FAMILY STORE
HONDA
WALGREENS
CRACKER
BARREL
HOME 2 HILTON
STARBUCKS
PI STA. 71+84.58
POT STA. 100+00.00
POT STA. 3521+
SR 5 (US 1)
℄ SR 5 (US 1)
END ℄ SR 5 (US 1)
STA. 100+00.00
BEGIN ℄ SR 821
(FLA'S TURNPIKE)
STA. 3521+85.01
℄ SR 821
(FLA'S TURNPIKE)
80
85
90
95
100
525
3530
0 50 200
Feet
DAYS INN
BAYMONT INN
TMOBILE
ENTERPRISE
MUSIC DEPOT
GAMESTOP
GOLDEN
CORRAL
FLORIDA KEYS
OUTLET CENTER
SB LANES SR 821
(FLA'S TURNPIKE)
NB LANES SR 821
(FLA'S TURNPIKE)

DRAFT

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1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 3

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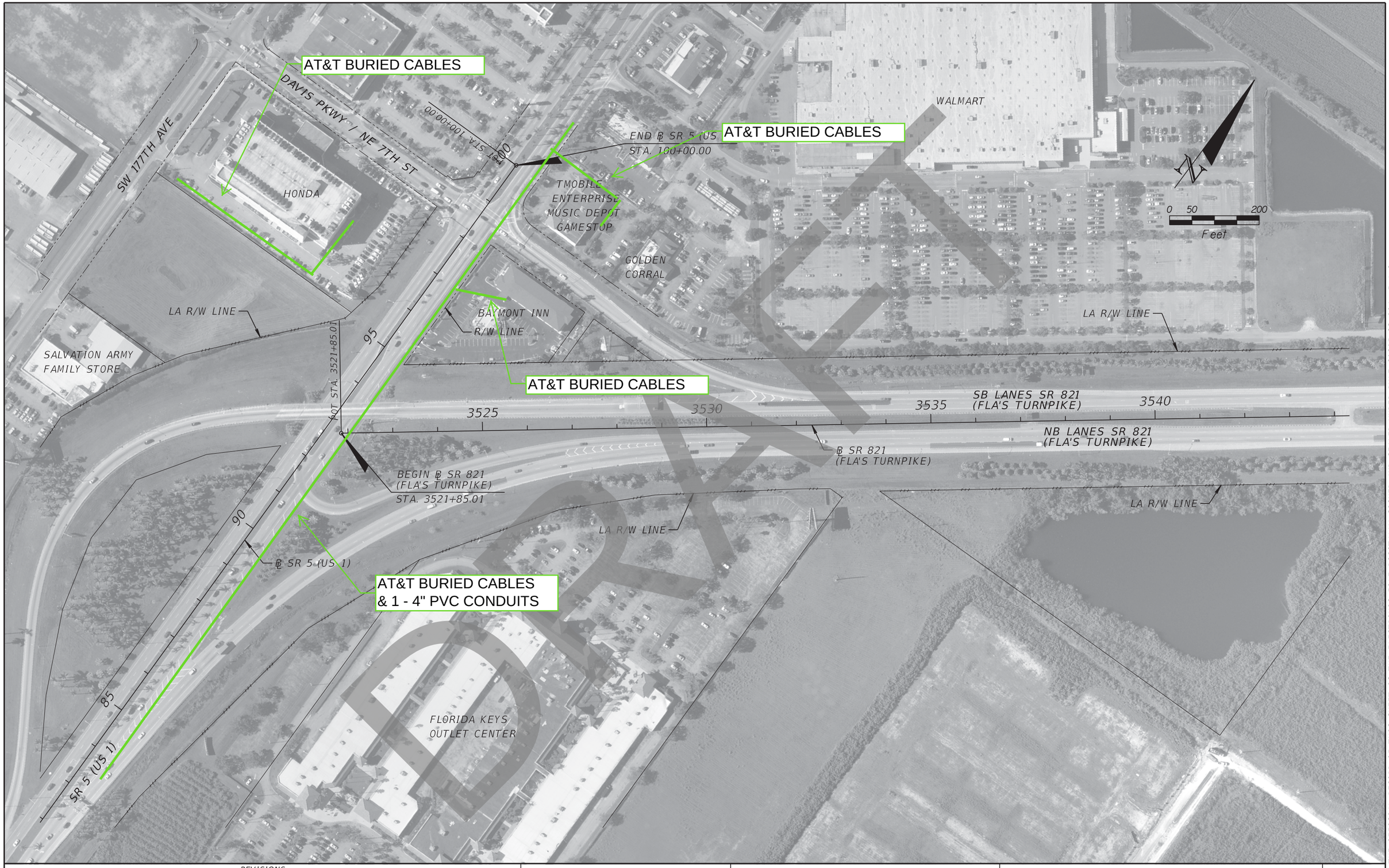

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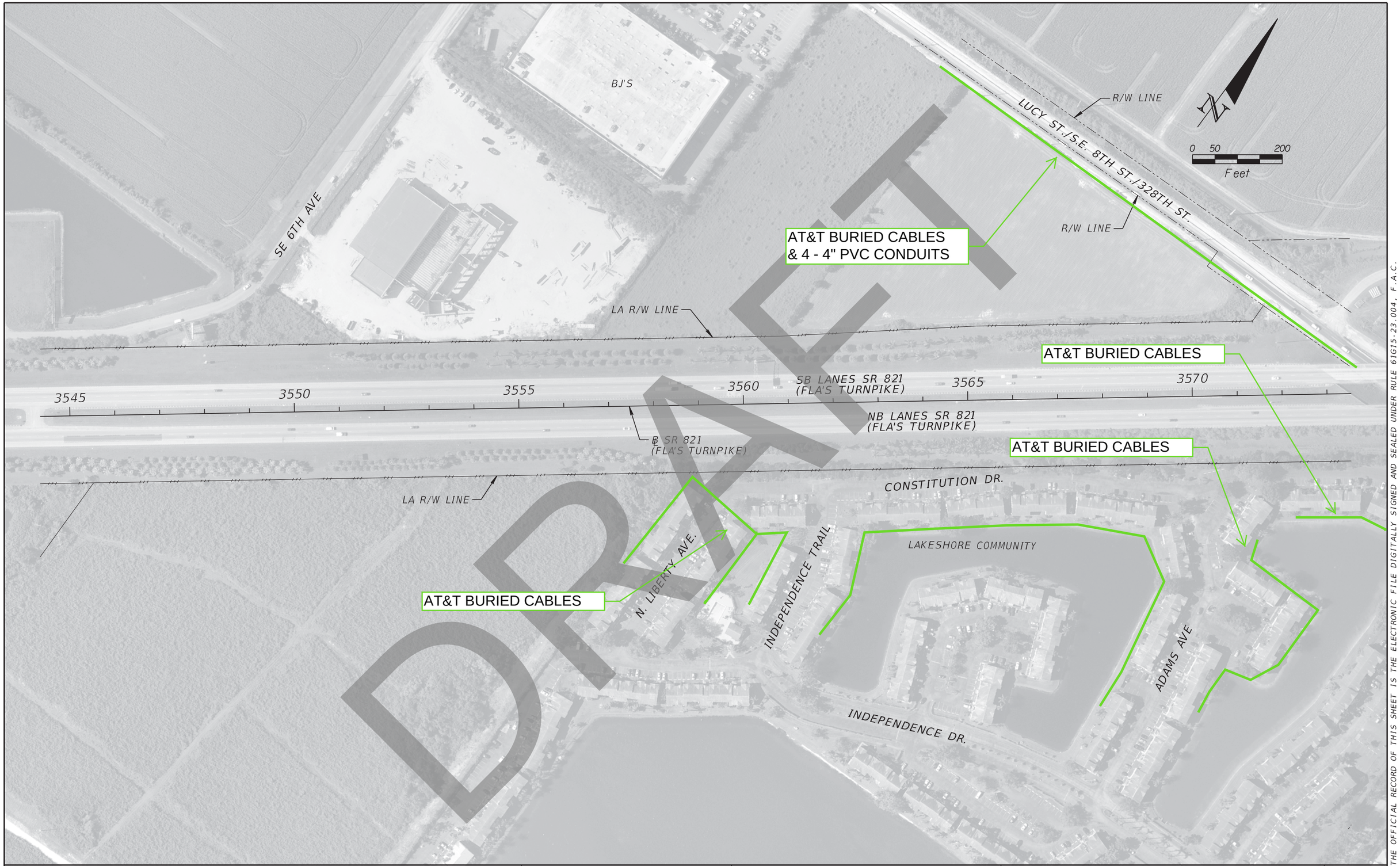
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 4



REVISIONS			
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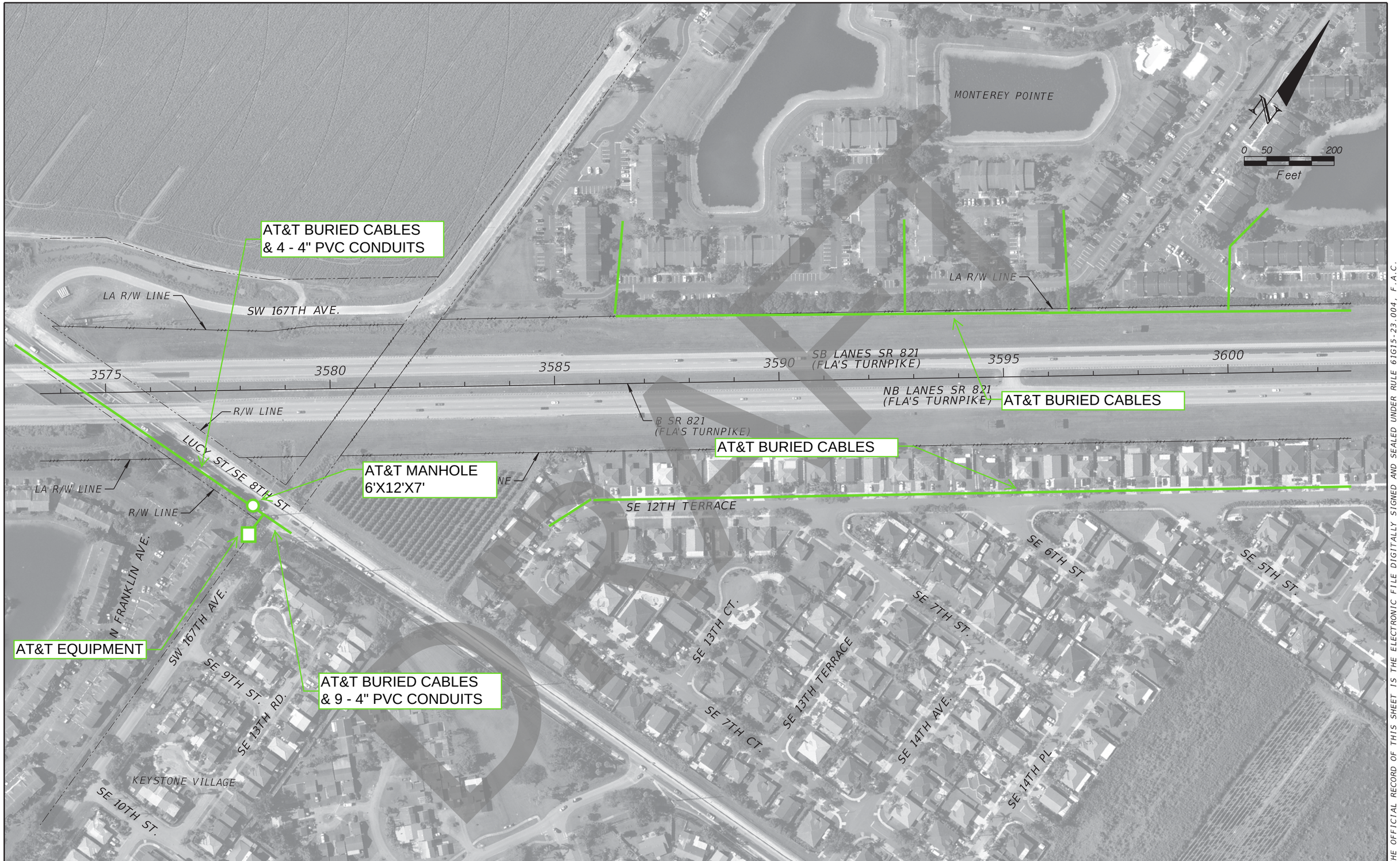
Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 5



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

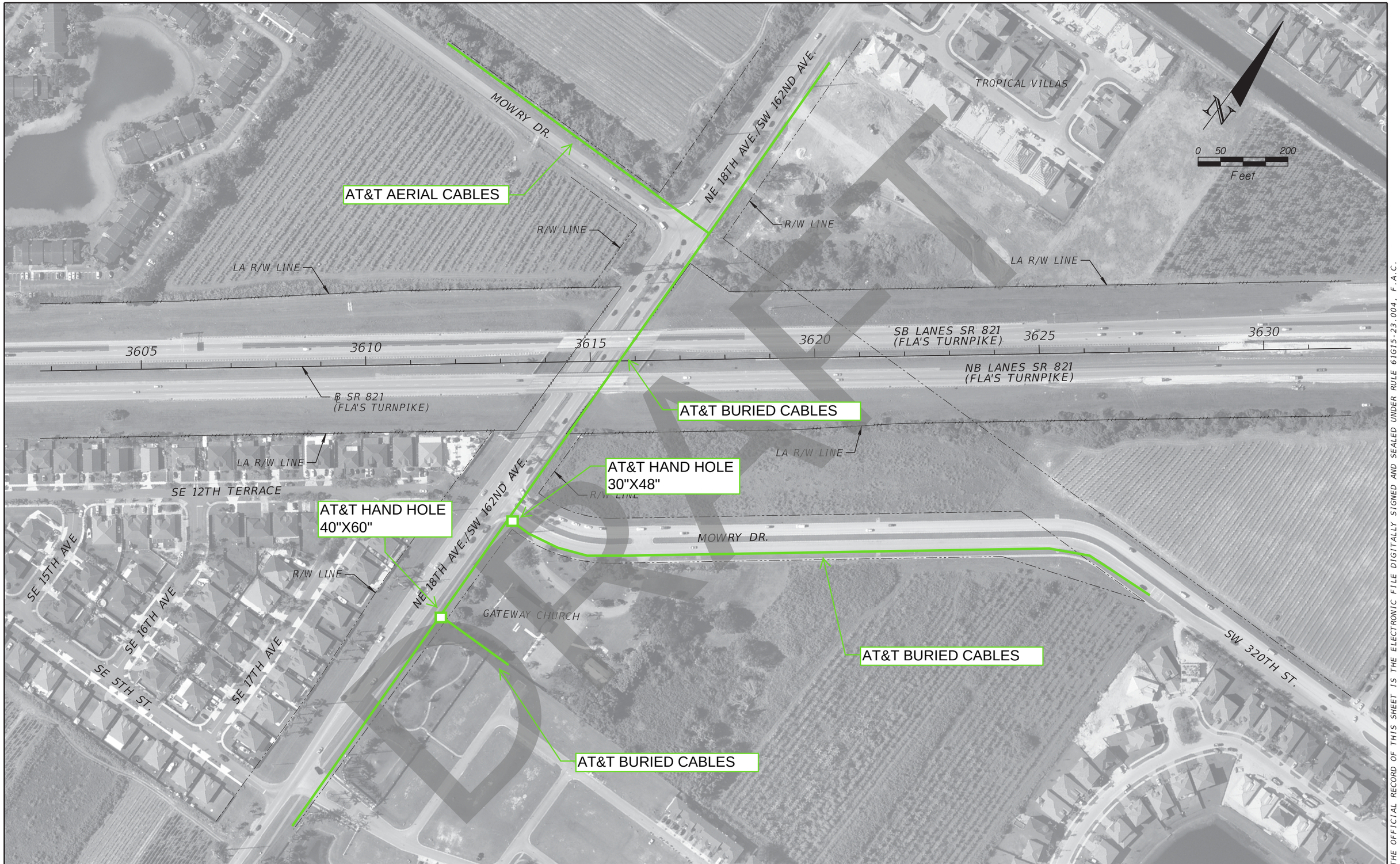
Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 6



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
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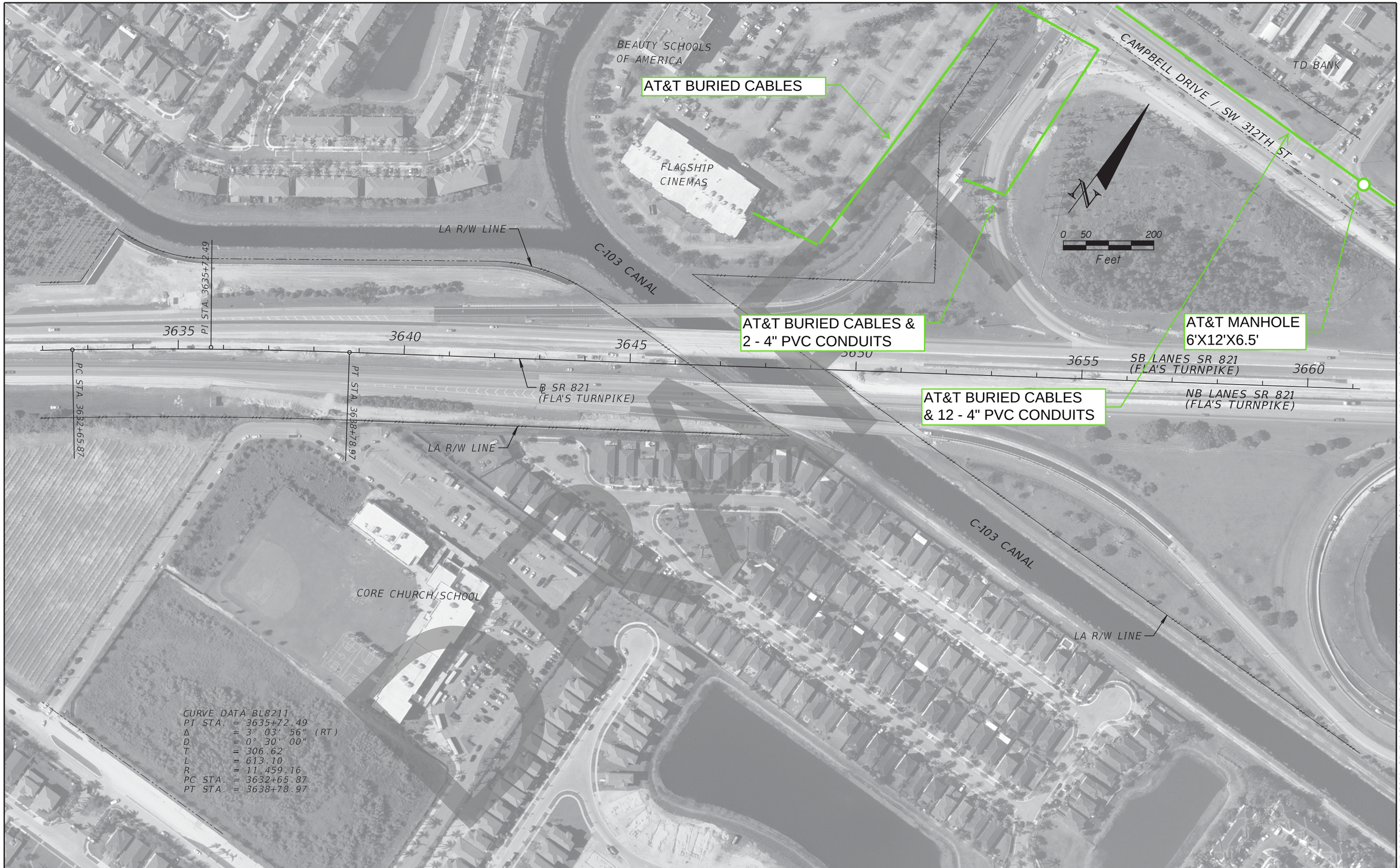
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 7



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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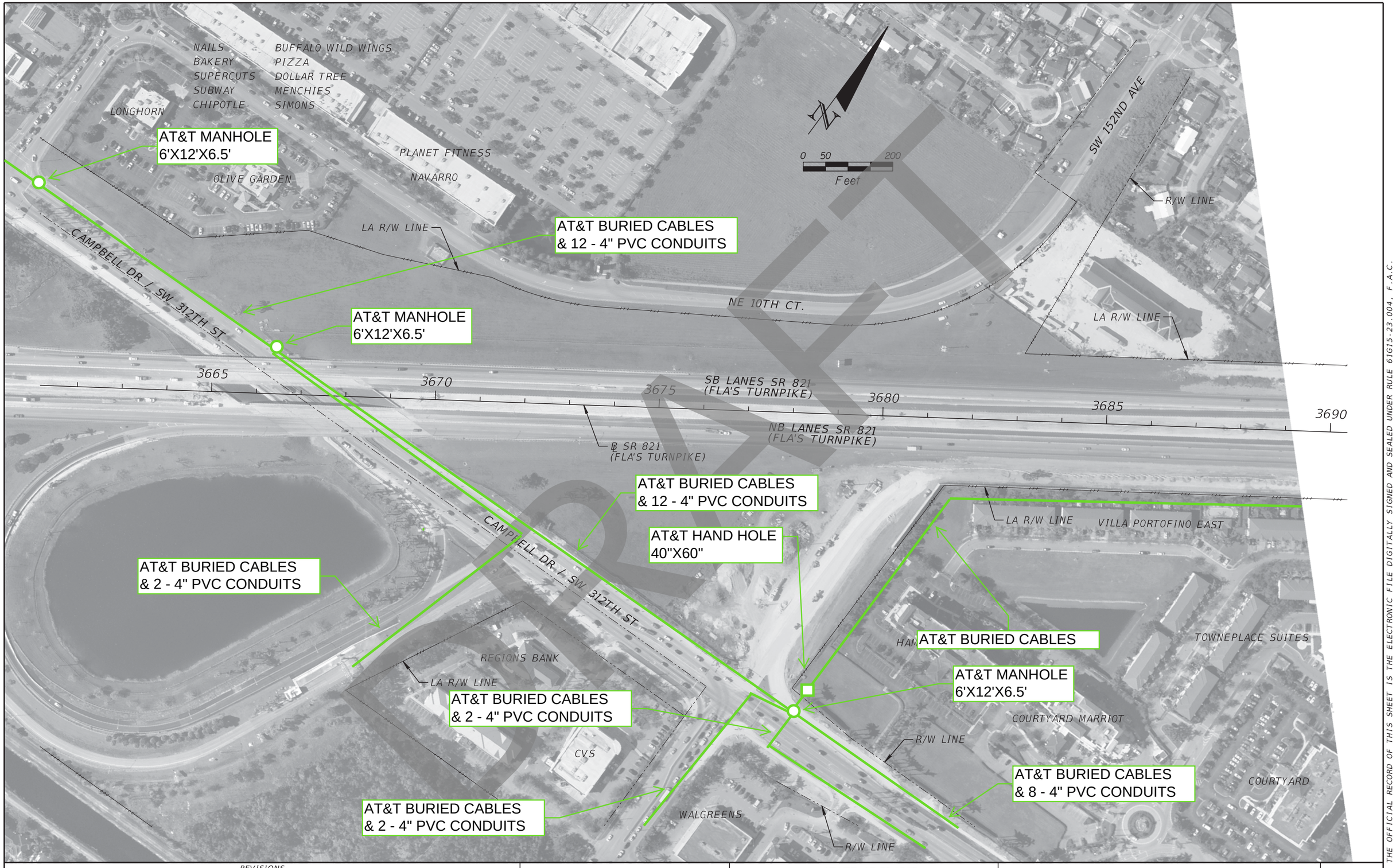
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 8



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 9

APPENDIX C

Utility Agency Owner Responses

City of Florida City Water & Wastewater

COMPONENTS OF CONTRACT PLANS SET

CONCEPT PLANS

INDEX OF CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2 thru 9	ROADWAY PLAN

STATE OF FLORIDA

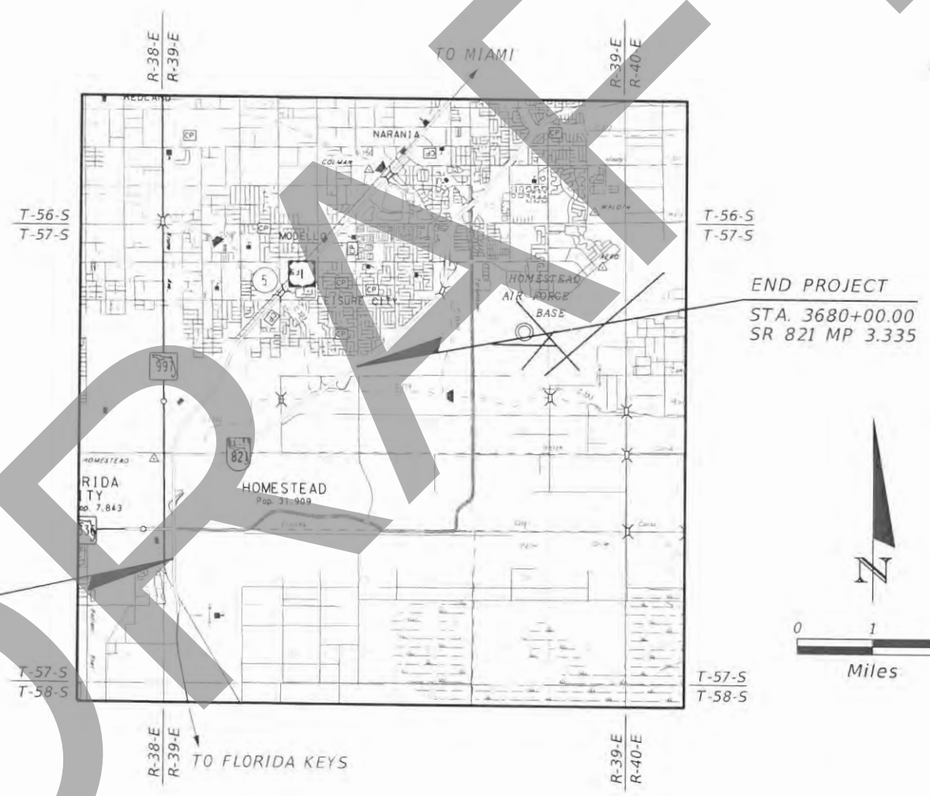
DEPARTMENT OF TRANSPORTATION

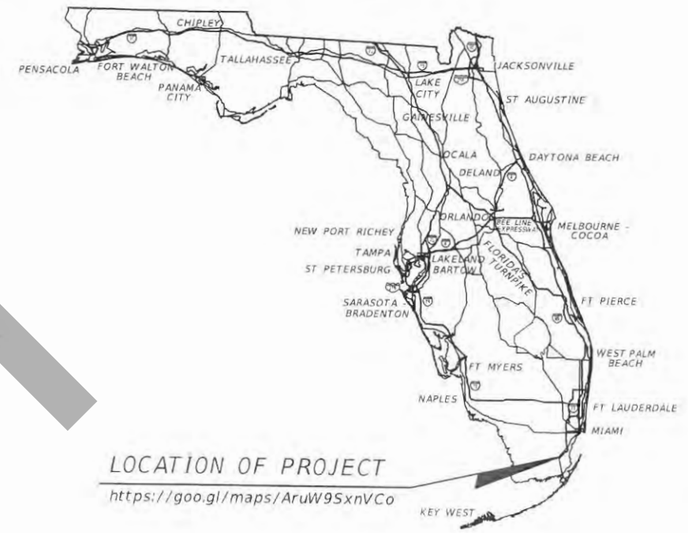
CONTRACT PLANS

FINANCIAL PROJECT ID 439545-1-22-01

MIAMI-DADE COUNTY (874710)

SR 5 (US 1) AND SR 821 (FLORIDA'S TURNPIKE) WIDENING
FROM SOUTH OF PALM DRIVE TO CAMPBELL DRIVE





LOCATION OF PROJECT

https://goo.gl/maps/AruW9SxnVCo

30% Submittal
3/27/19

PLANS PREPARED BY:

STANLEY CONSULTANTS, INC.
1641 WORTHINGTON ROAD, SUITE 400
WEST PALM BEACH, FL 33409
CERTIFICATE OF AUTHORIZATION 1978
VENDOR NO. VF-421320758-001
CONTRACT NO. C9X28

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2018-19 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs:

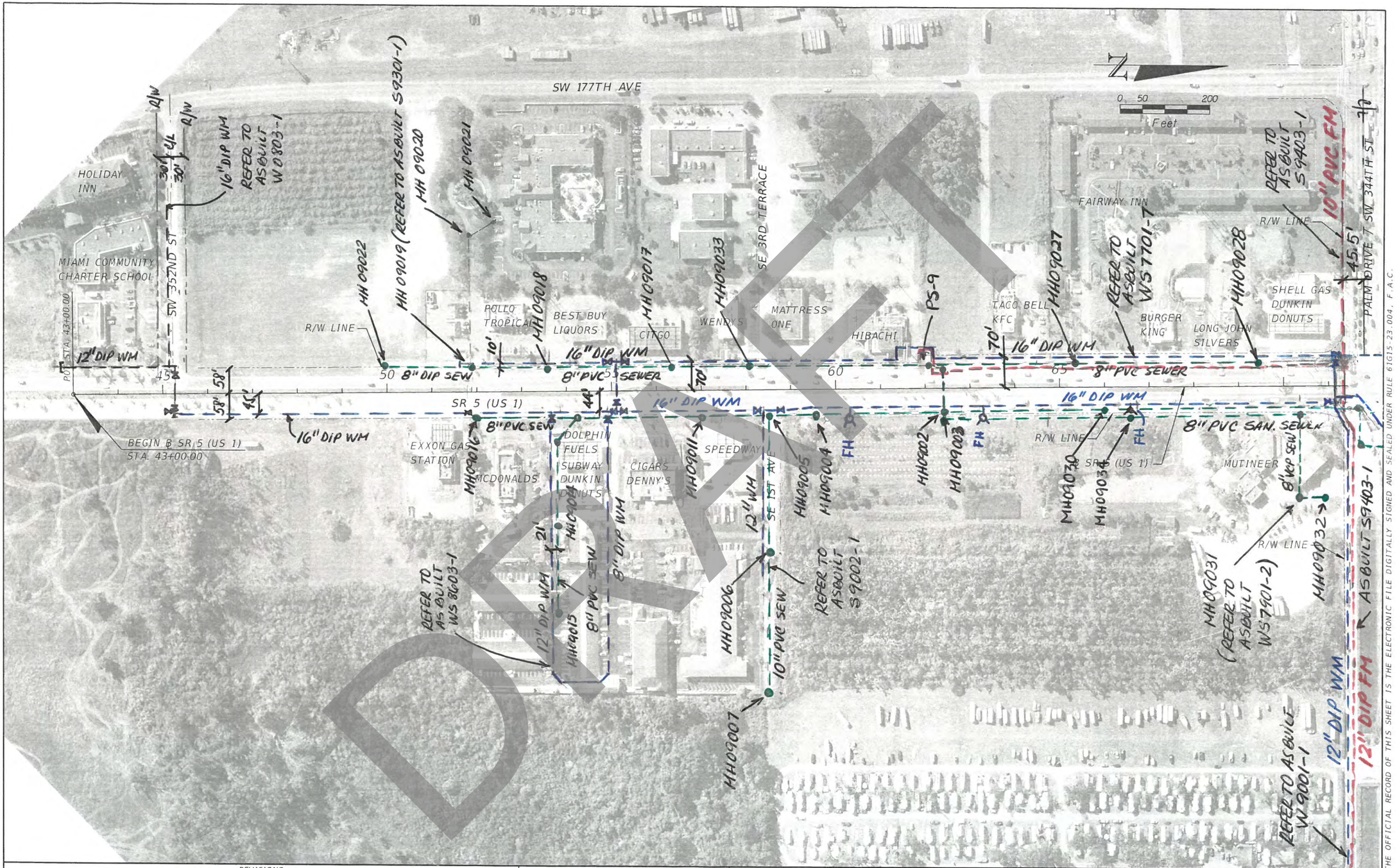
GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, January 2019 Standard Specifications for Road and Bridge Construction at the following website:
http://www.fdot.gov/programmanagement/Implemented/SpecBooks

INITIAL UTILITY COORDINATION
AUGUST, 2018

FDOT PROJECT MANAGER: RAX JUNG, P.E.
GEC PROJECT MANAGER: BRIAN P. RIBARIC, P.E.

FISCAL YEAR	SHEET NO.
22	1



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
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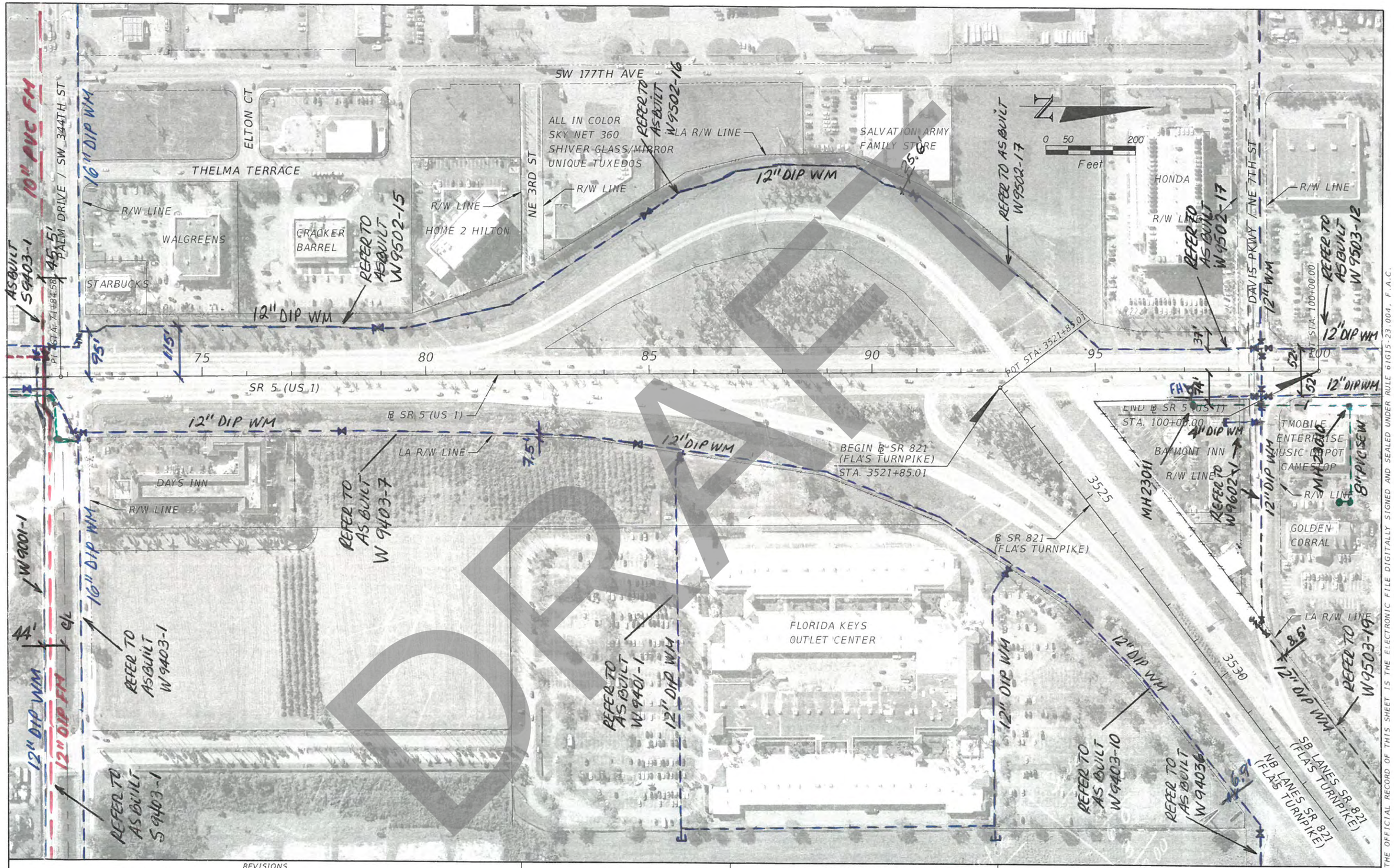
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 2



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

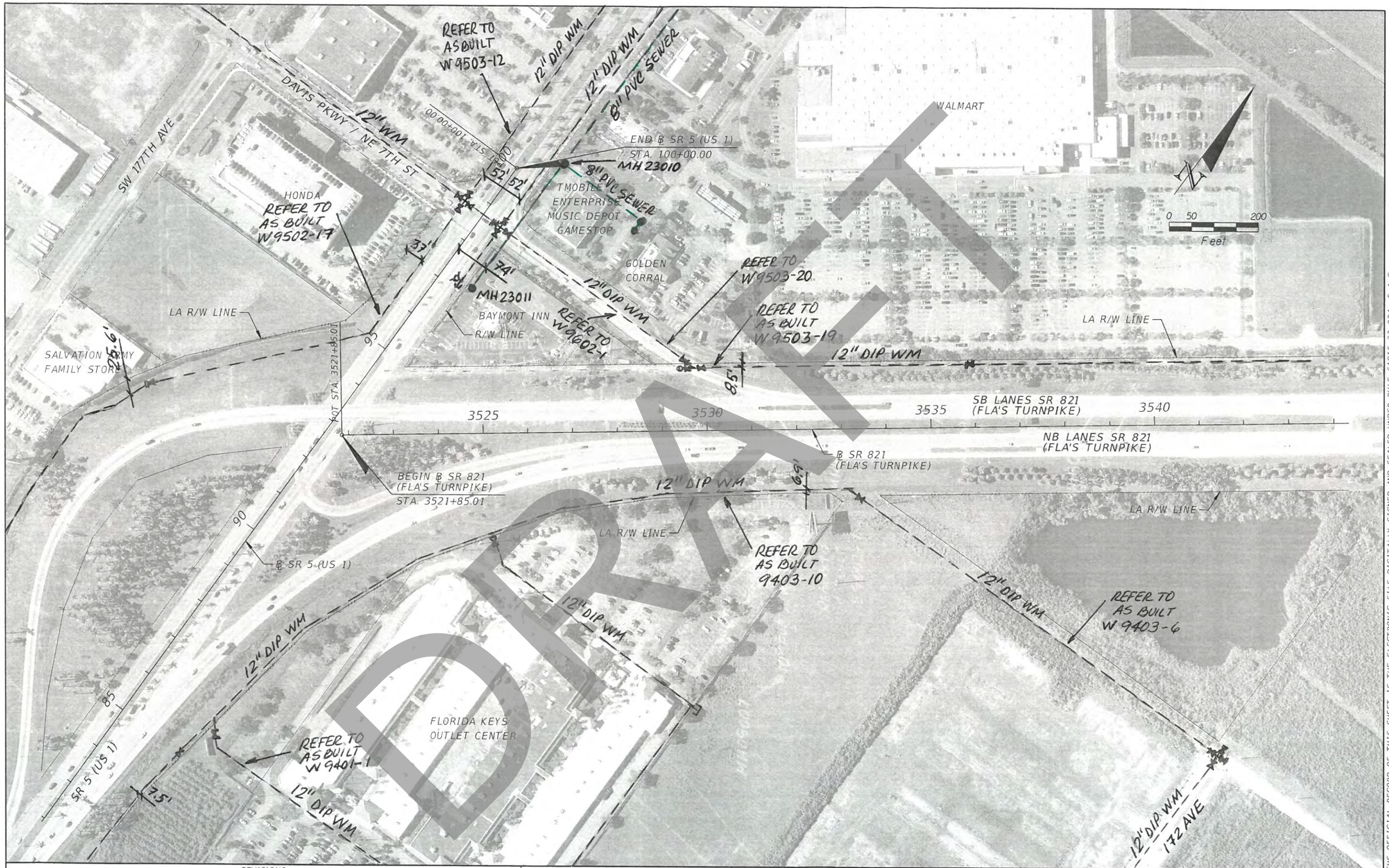
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 3

5426

8/7/2018 3:52:22 PM Q:\CADD\439545122O1\roadway\PLANRD02.dgn



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
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West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 4

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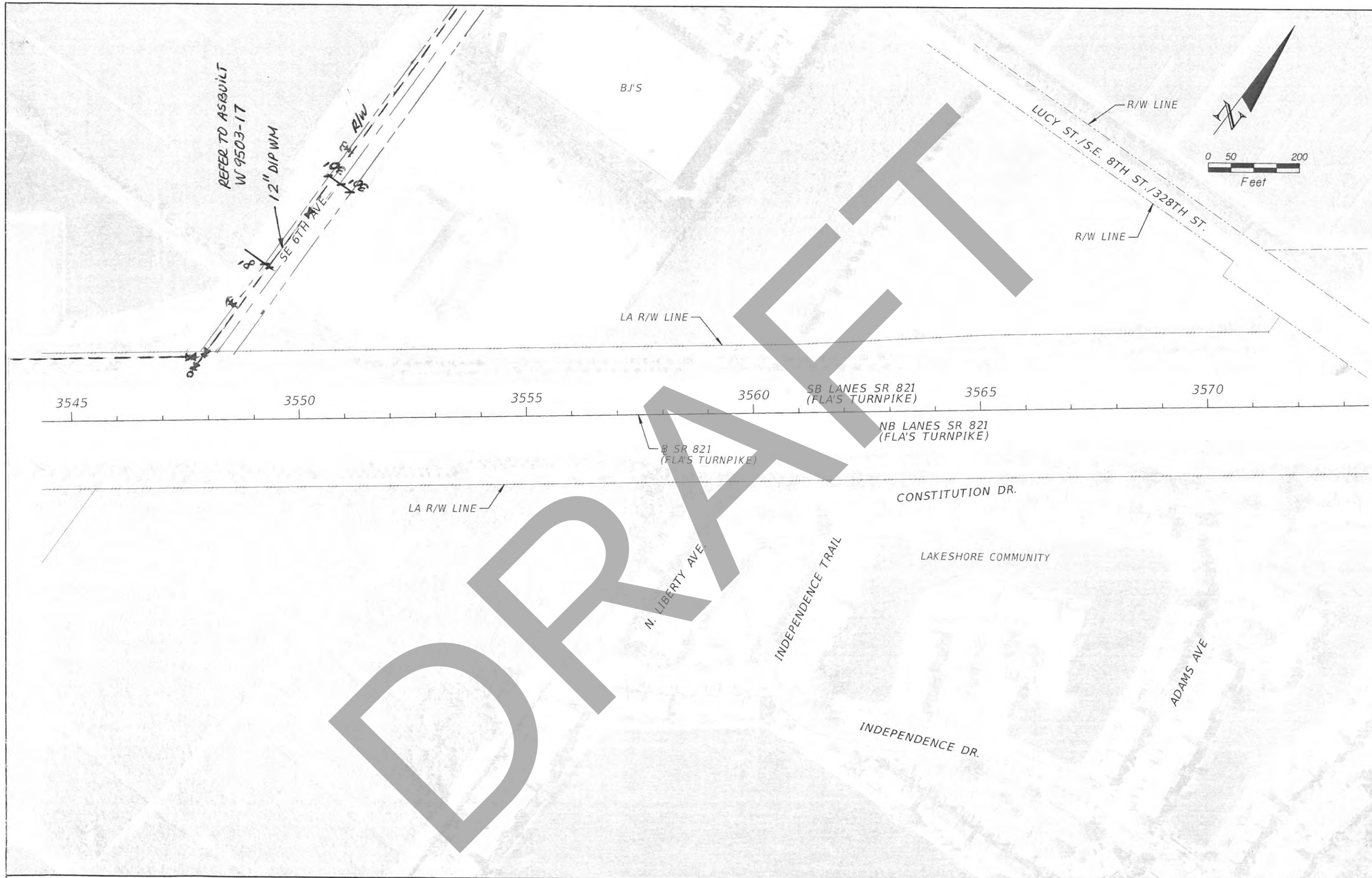


REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

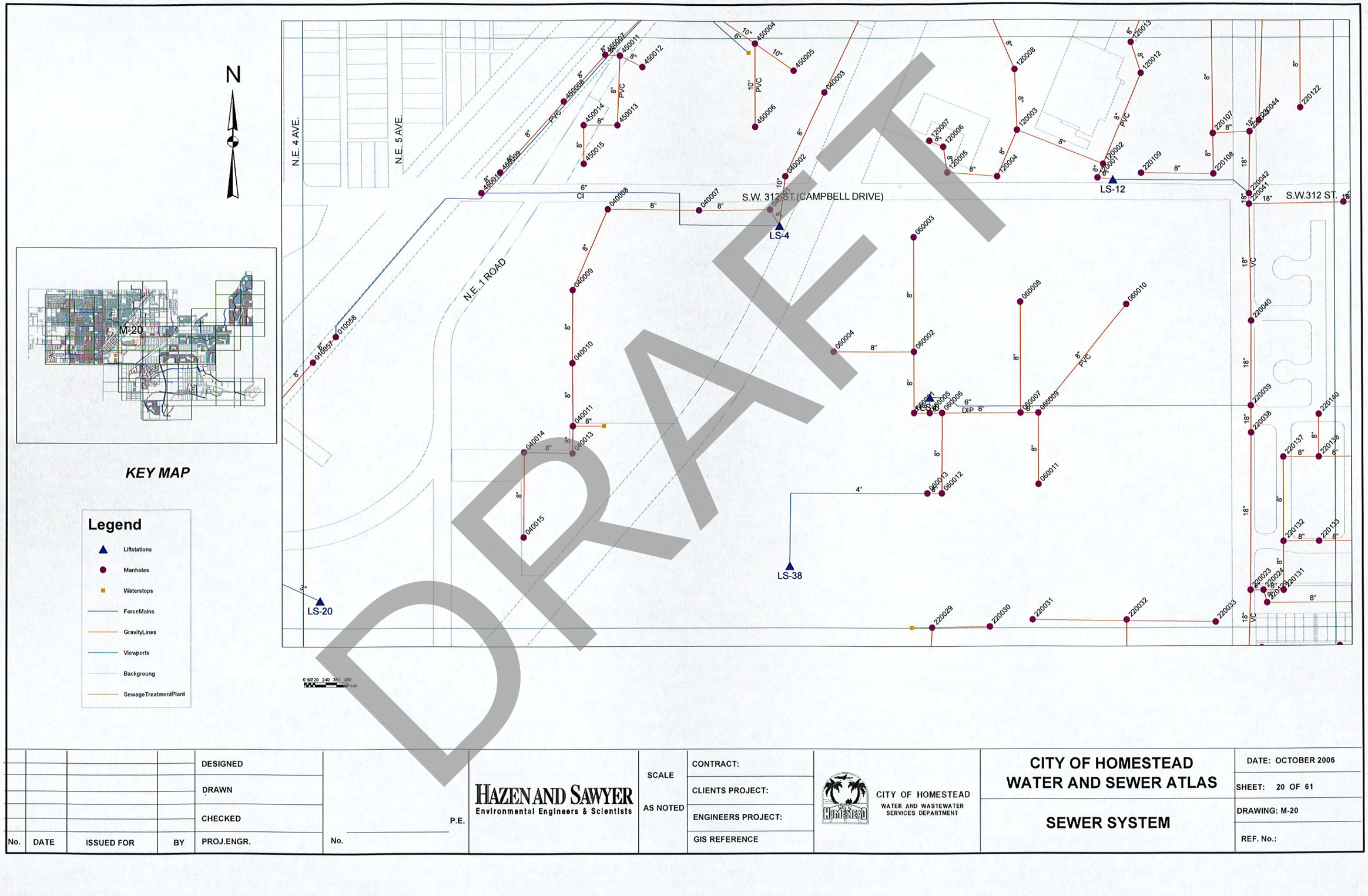
SHEET NO. 5

8/7/2018 4:00:00 PM O:\CADD\43954512201\roadway\PLANRD04.dgn

APPENDIX C

Utility Agency Owner Responses

City of Homestead Water & Wastewater



No.	DATE	ISSUED FOR	BY

DESIGNED
DRAWN
CHECKED
PROJ.ENGR.

No. _____ P.E.

HAZEN AND SAWYER
Environmental Engineers & Scientists

SCALE
AS NOTED

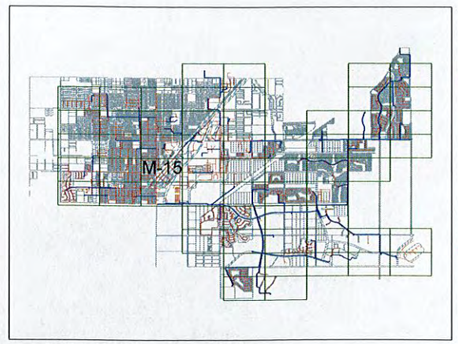
CONTRACT:
CLIENTS PROJECT:
ENGINEERS PROJECT:
GIS REFERENCE

CITY OF HOMESTEAD
WATER AND WASTEWATER SERVICES DEPARTMENT

CITY OF HOMESTEAD WATER AND SEWER ATLAS

SEWER SYSTEM

DATE: OCTOBER 2006
SHEET: 20 OF 61
DRAWING: M-20
REF. No.:



KEY MAP

Legend

- Liftstations
- Manholes
- Waterstops
- ForceMains
- GravityLines
- Viewports
- Backgroung
- SewageTreatmentPlant

N

N.W.3 ST.
N.W.2 ST.
N.W.1 ST.
S.W.2 ST.
S.W. 320 ST.(MOWRY)
N.W.1 AVE.
S.W.1 AVE.
S.W.2 AVE.
S.W. 177 AVE.
WASHINGTON AVE.
CIVIC CT.
PARKWAY
FLORIDA EAST COAST R.R.
NORTH FLAGLER AVE.
N.E. 3 DRIVE
N.E. 2 DRIVE
N.E. 1 DRIVE
N.E. 1 ROAD
N.E. 2 ROAD
N.E. 3 ROAD
EAST MOWRY
S.E. 1 ROAD
S.E. 1 DRIVE
S.E. 3 ROAD
S.E. 4 ROAD
S.E. 4 AVE.
S.E. 1 ST.
U.S. NO

0 60 120 240 360 480 Feet

DRAFT

No.	DATE	ISSUED FOR	BY	PROJ.ENGR.
				DESIGNED
				DRAWN
				CHECKED

No. _____ P.E.

HAZEN AND SAWYER
Environmental Engineers & Scientists

SCALE
AS NOTED

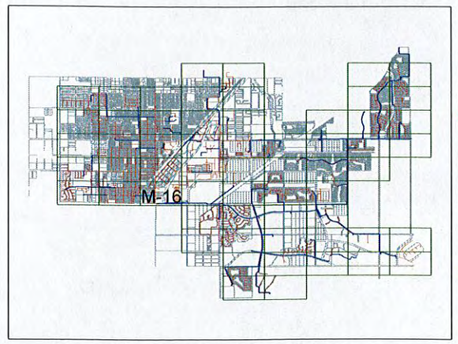
CONTRACT:
CLIENTS PROJECT:
ENGINEERS PROJECT:
GIS REFERENCE

CITY OF HOMESTEAD
WATER AND WASTEWATER SERVICES DEPARTMENT

CITY OF HOMESTEAD
WATER AND SEWER ATLAS

SEWER SYSTEM

DATE: OCTOBER 2006
SHEET: 15 OF 61
DRAWING: M-15
REF. No.:



KEY MAP

N

Legend
- Liftstations
- Manholes
- Waterstops
- ForceMains
- GravityLines
- Viewports
- Backgroung
- SewageTreatmentPlant

S.W.3 CT.
S.W.3 ST.
S.W.4 ST.
S.W.5 ST.
FLORIDA ST.
FLAGLER AVE.
FLORIDA EASTCOAST R.R.
S.W.1 AVE.
S.W.177 AVE (KROME AVE.)
S.W. KROME TER.
S.E. 2 ROAD
S.E. 2 DRIVE
S.E. 4 ROAD
S.E. 4 ST.
S.E. 5 ST.
S.E. 6 ST.
S.E. 3 ST.
HOMESTEAD BLVD.
US NO. 1
S.R. NO. 5
S.E. 8 ST.(LUCY ST.)
LS-1
PLS-14
LS-21
32" Gravity
0 60120 240 360 480 Feet

DRAFT

No.	DATE	ISSUED FOR	BY	PROJ.ENGR.
				DESIGNED
				DRAWN
				CHECKED

No. _____ P.E.

HAZEN AND SAWYER
Environmental Engineers & Scientists

SCALE
AS NOTED

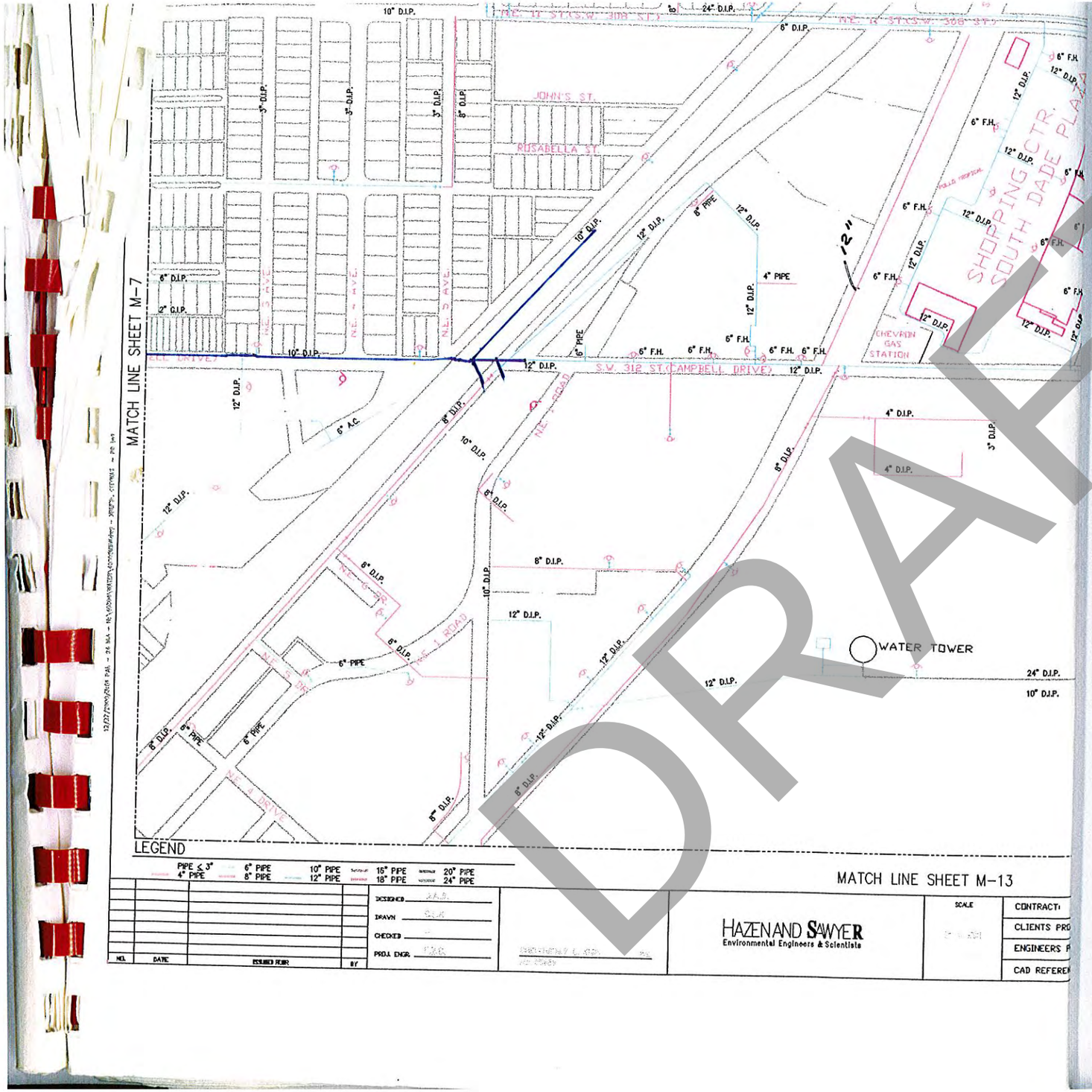
CONTRACT:
CLIENTS PROJECT:
ENGINEERS PROJECT:
GIS REFERENCE

CITY OF HOMESTEAD
WATER AND WASTEWATER SERVICES DEPARTMENT

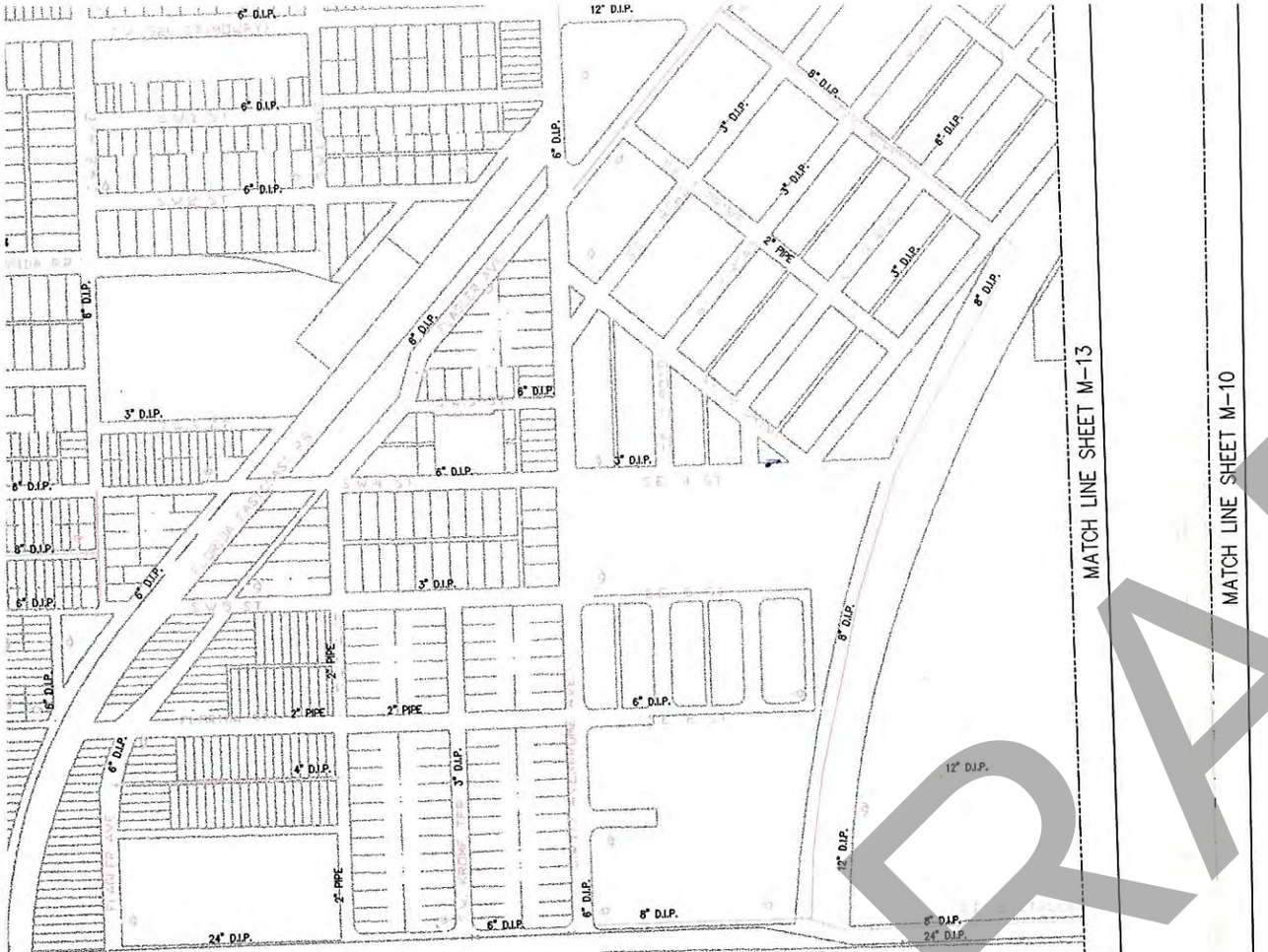
CITY OF HOMESTEAD WATER AND SEWER ATLAS

SEWER SYSTEM

DATE: OCTOBER 2006
SHEET: 16 OF 61
DRAWING: M-16
REF. No.:


MATCH LINE SHEET M-7
JOHN'S ST.
RUSABELLA ST.
SHOPPING CTR.
SOUTH DADE PLAZA
CHEVRON GAS STATION
S.W. 312 ST.(CAMPBELL DRIVE)
WATER TOWER
MATCH LINE SHEET M-13
LEGEND
PIPE ≤ 3"
4" PIPE
6" PIPE
8" PIPE
10" PIPE
12" PIPE
16" PIPE
18" PIPE
20" PIPE
24" PIPE
HAZEN AND SAWYER
Environmental Engineers & Scientists

MATCH LINE SHEET M-12
MATCH LINE SHEET M-8
SW 328 ST LUCY ST
SW 320 ST GADWAY
SE 3 ST
24" D.I.P.
12" D.I.P.
8" D.I.P.
6" D.I.P.



NOTE:

1. THE WATER ATLAS DRAWINGS HAVE BEEN PREPARED UTILIZING AS-BUILT INFORMATION PROVIDED BY THE CITY OF HOMESTEAD.

N.A.	
PROJECT: -----	
S PROJECT: 40305	
RENCE: 40305H12W	

CITY OF HOMESTEAD
WATER AND WASTEWATER
SERVICES DEPARTMENT

CITY OF HOMESTEAD WATER AND SEWER ATLAS

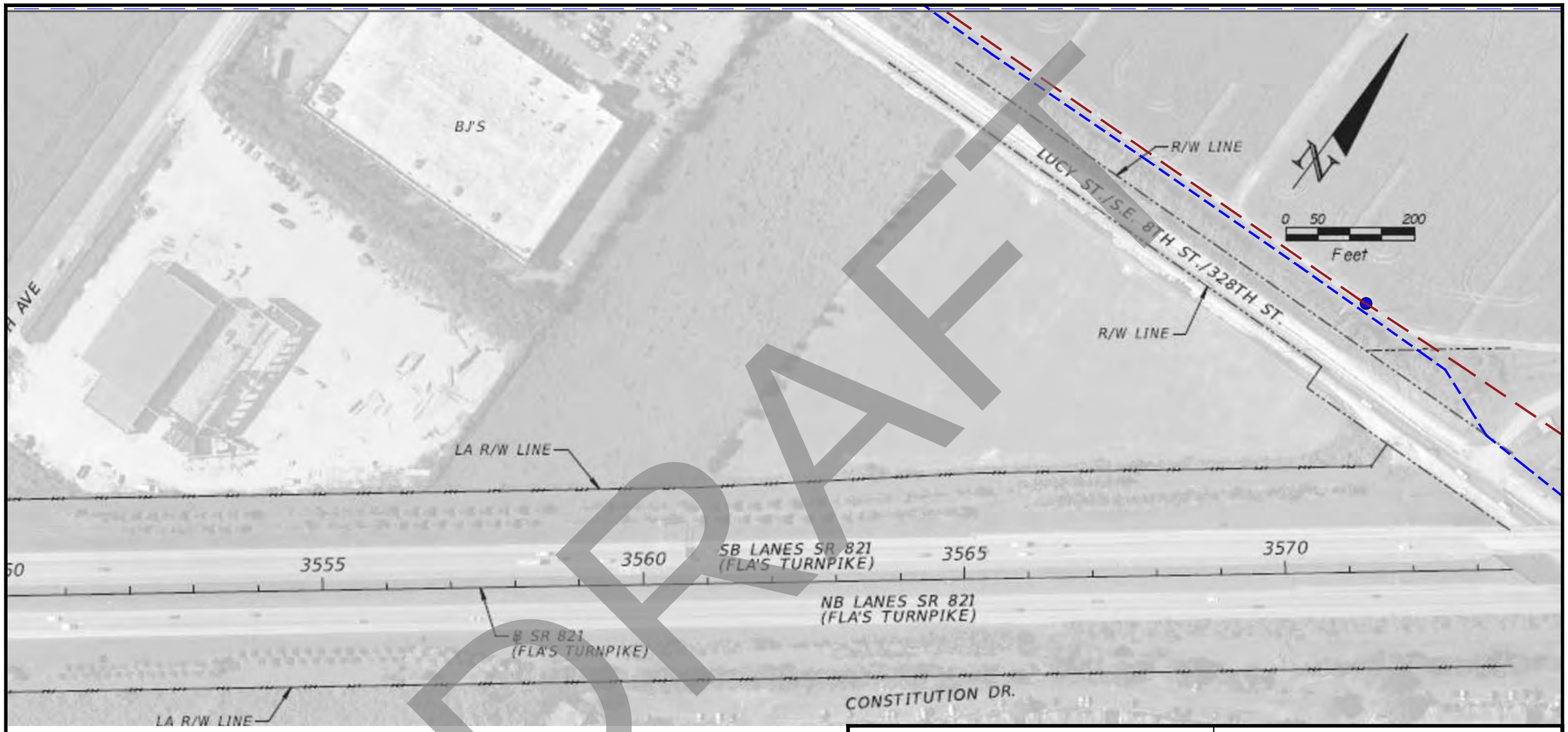
WATER ATLAS PLAN
SHEET 11

DATE: MAY 2001
SHEET: 13 OF 26
DRAWING: M-12
REF. NO.: -

APPENDIX C

Utility Agency Owner Responses

City of Homestead Electric



LEGEND:

EXISTING UNDERGROUND 3 PHASE PRIMARY LINE

105' TRANSMISSION POLE

EXISTING OVERHEAD TRANSMISSION LINE

ALL DISTANCES ARE APPROXIMATIONS

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :

Rural Location: SEC. 08 , TWP. 57 S., RNG. 39 E.

Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

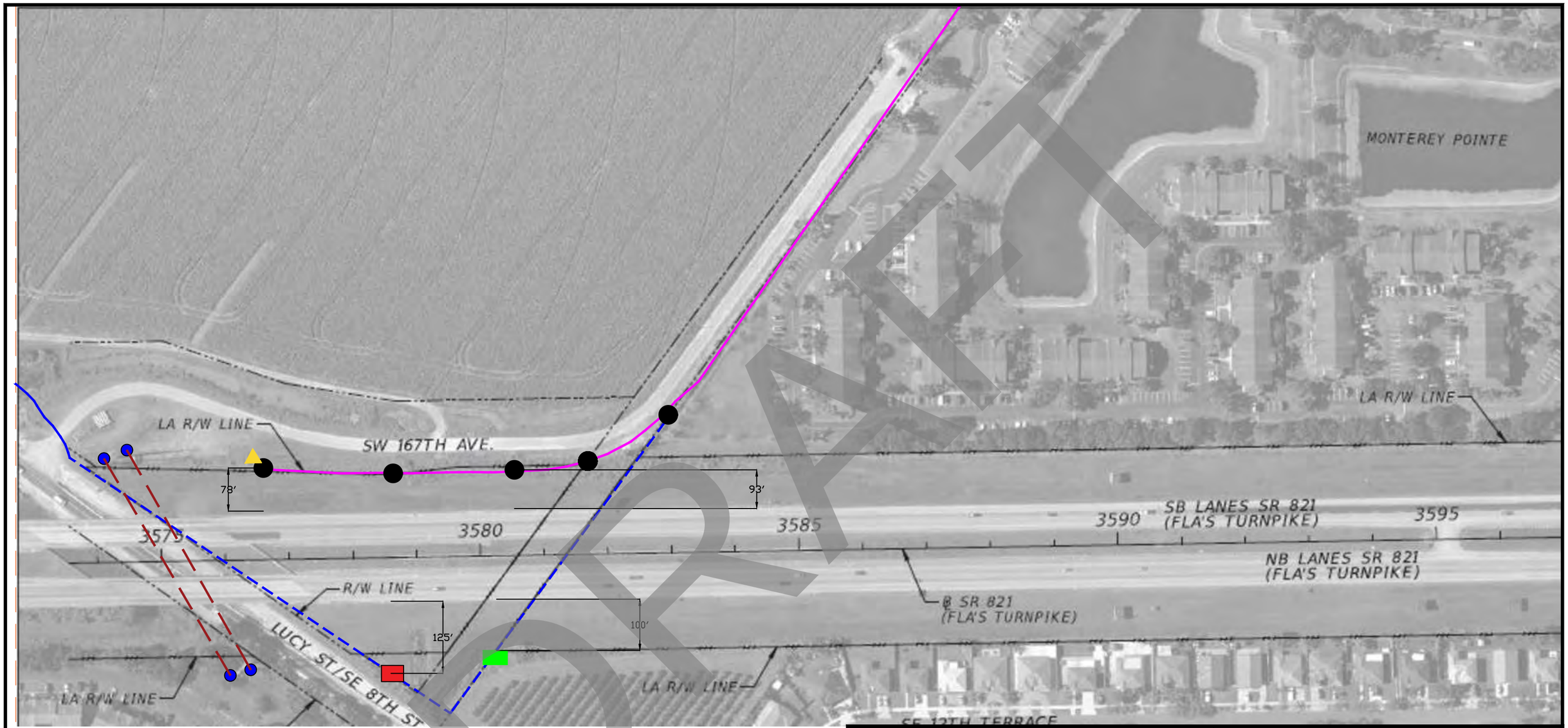
CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
328ST AND TURNPIKE

S. SALINAS	J. GARCIA	Date: 07/08/19
Designer	Checked by:	Scale: NTS

Work Order #: -

Pri Map #: -



LEGEND:

- EXISTING OVERHEAD 3 PHASE PRIMARY LINE
- EXISTING UNDERGROUND 3 PHASE PRIMARY LINE
- 105' TRANSMISSION POLE
- EXISTING OVERHEAD TRANSMISSION LINE
- ALL DISTANCES ARE APPROXIMATIONS
- 45' WOOD POLE
- PRIMARY PULLBOX
- OVERHEAD TRANSFORMER
- SWITCH CABINET

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :
Rural Location: SEC. 08 , TWP. 57 S., RNG. 39 E.

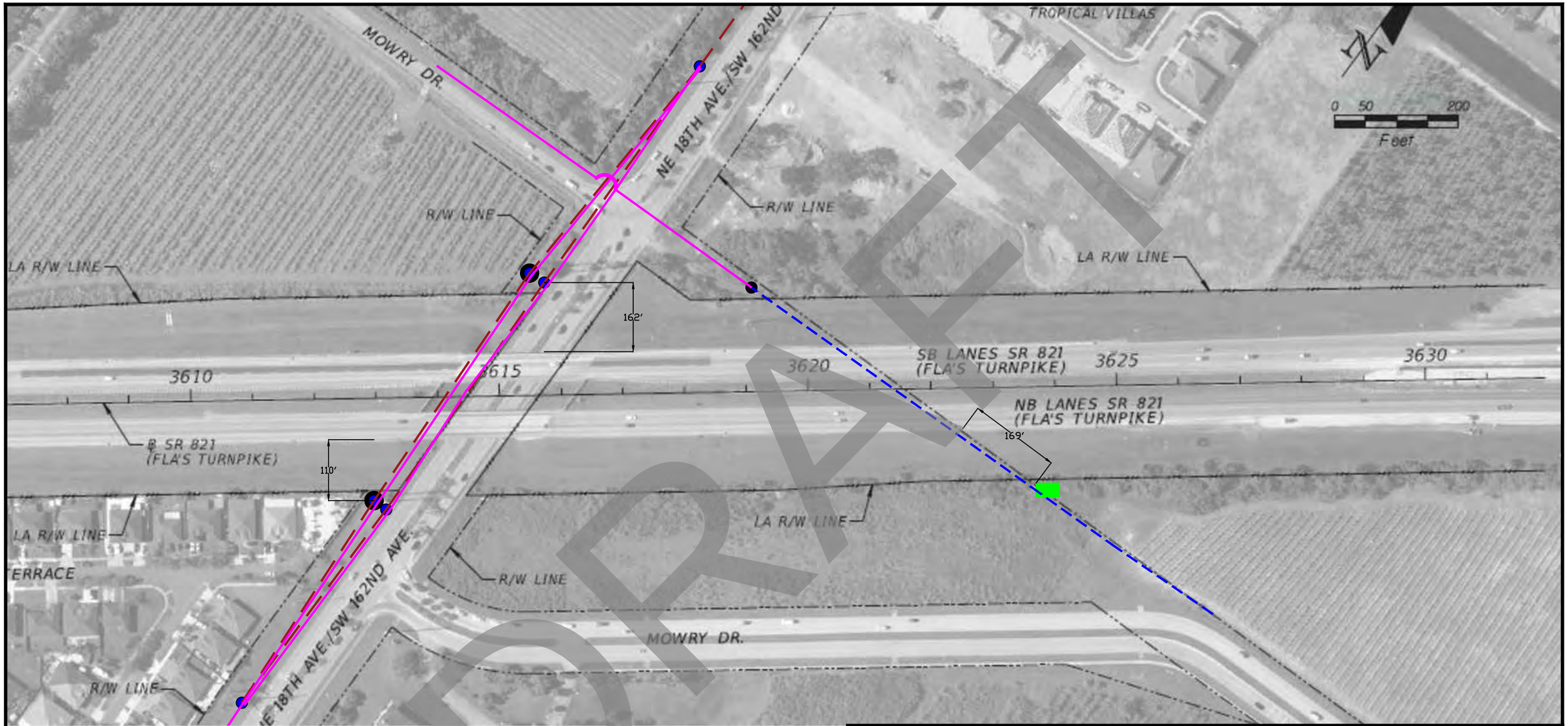
Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
328ST AND TURNPIKE

S. SALINAS — Designer
J. GARCIA — Checked by:
Date: 7/8/19
Scale: NTS

Work Order #: _____ Pri Map #: _____



LEGEND:

- EXISTING OVERHEAD 3 PHASE PRIMARY LINE
- EXISTING UNDERGROUND 3 PHASE PRIMARY LINE
- 105' TRANSMISSION POLE
- EXISTING OVERHEAD TRANSMISSION LINE
- 45' WOOD POLE
- PRIMARY PULLBOX

ALL DISTANCES ARE APPROXIMATIONS

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :

Rural Location: SEC. 08 , TWP. 57 S., RNG. 39 E.

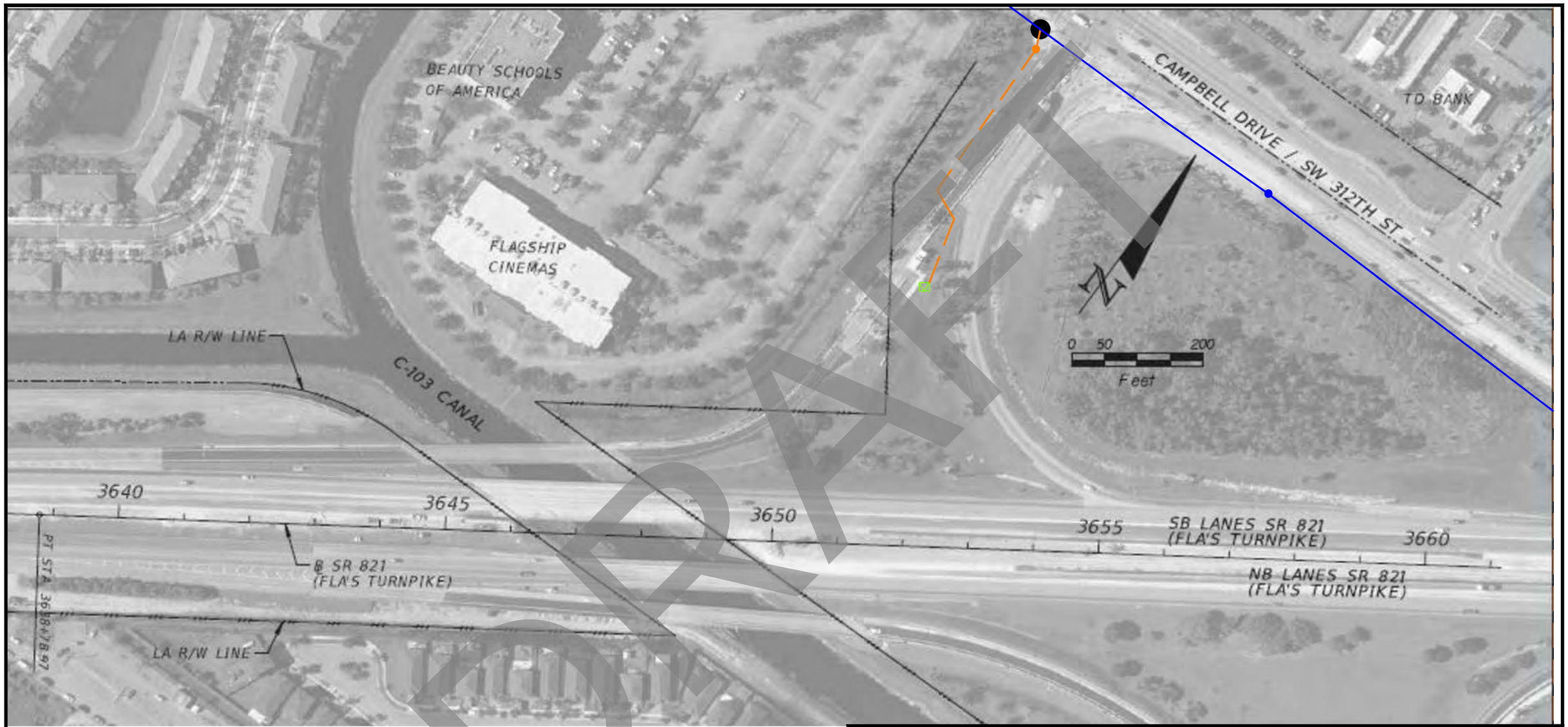
Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
320ST AND TURNPIKE

S. SALINAS — Designer | J. GARCIA — Checked by: | Date: 07/8/19 | Scale: NTS

Work Order #: _____ Pri Map #: _____



LEGEND:

EXISTING UNDERGROUND SINGLE PHASE PRIMARY LINE

EXISTING PADMOUNT TRANSFORMER

EXISTING OVERHEAD THREE PHASE PRIMARY LINE

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :
Rural Location: SEC. –____ , TWP. –____ S., RNG. –____ E.

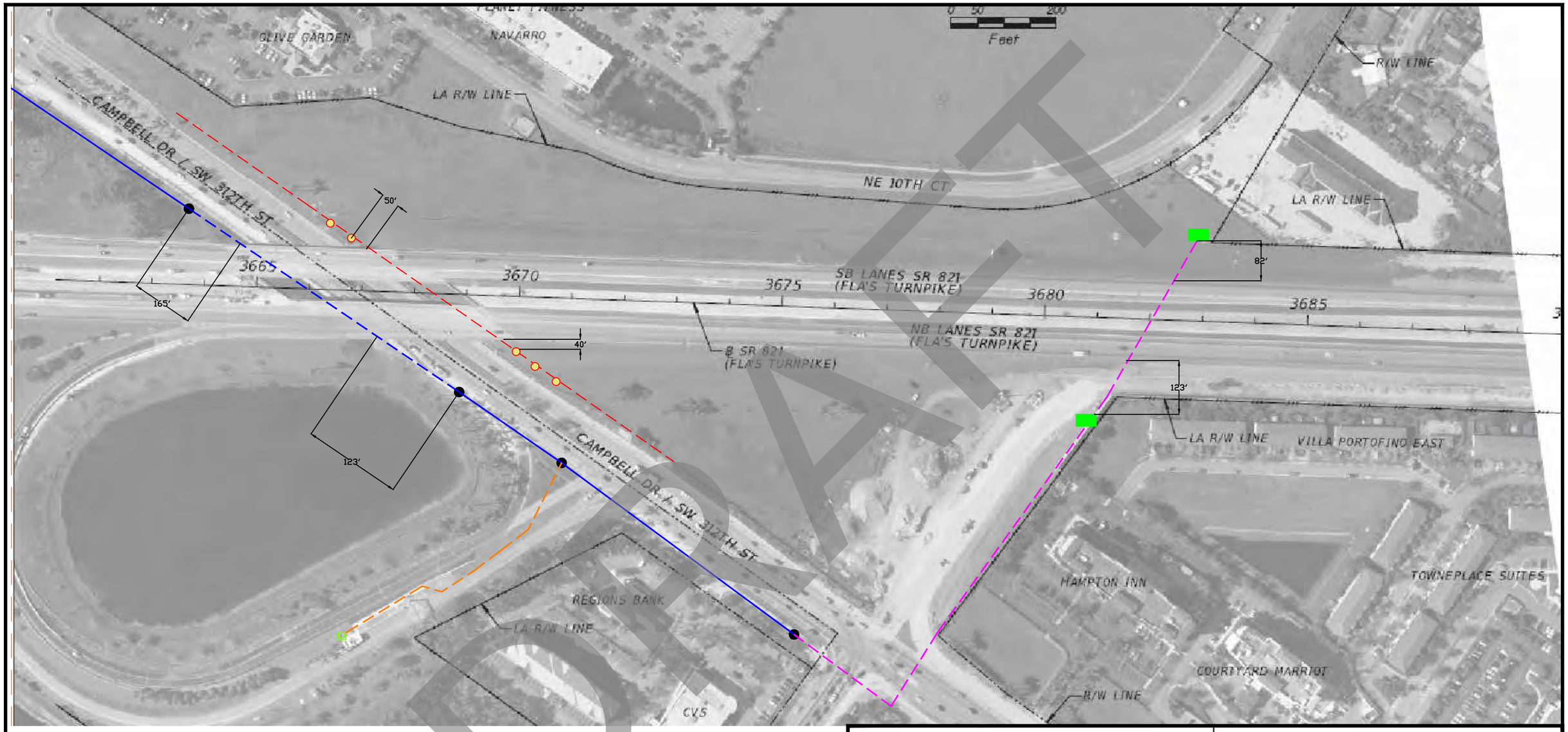
Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
312ST AND TURNPIKE

S. SALINAS	J. GARCIA	Date: 07/08/19
Designer	Checked by:	Scale: NTS

Work Order #: –_____ Pri Map #: –_____



LEGEND:

- EXISTING UNDERGROUND SINGLE PHASE PRIMARY LINE
- EXISTING PADMOUNT TRANSFORMER
- EXISTING OVERHEAD THREE PHASE PRIMARY LINE
- EXISTING UNDERGROUND THREE PHASE PRIMARY LINE
- EXISTING UNDERGROUND THREE PHASE PRIMARY LINE
- DECORATIVE STREET LIGHT
- EXISTING UNDERGROUND SECONDARY LINE
- 45' WOOD POLE
- PRIMARY PULLBOX

ALL DISTANCES ARE APPROXIMATIONS

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :

Rural Location: SEC. _____ , TWP. _____ S., RNG. _____ E.

Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
312ST AND TURNPIKE

S. SALINAS	J. GARCIA	Date: 07/08/19
Designer	Checked by:	Scale: NTS

Work Order #: _____ Pri Map #: _____

APPENDIX C

Utility Agency Owner Responses

Comcast

COMPONENTS OF CONTRACT PLANS SET

CONCEPT PLANS

INDEX OF CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2 thru 9	ROADWAY PLAN

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION

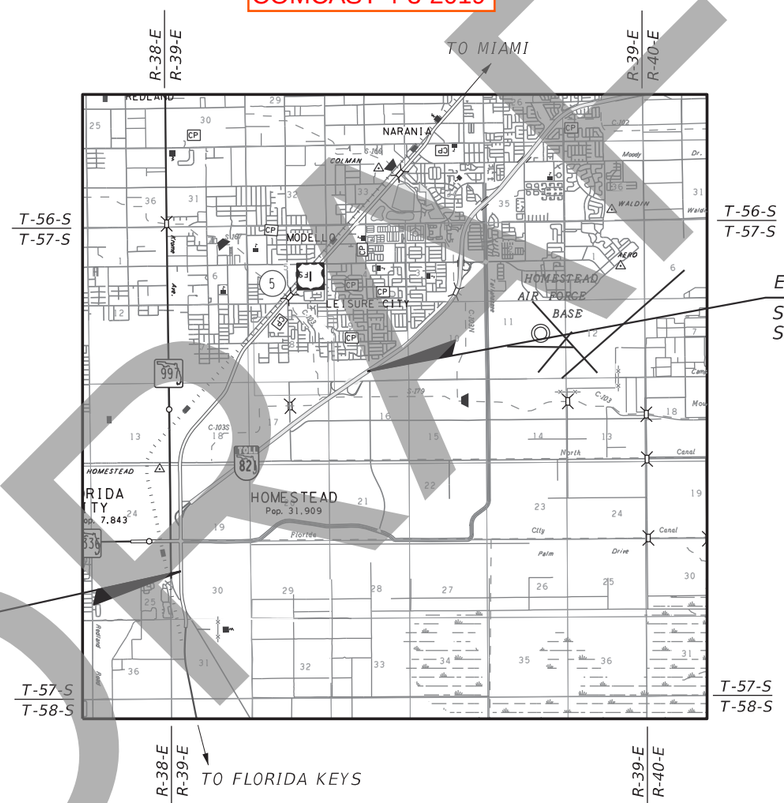
CONTRACT PLANS

FINANCIAL PROJECT ID 439545-1-22-01

MIAMI-DADE COUNTY (874710)

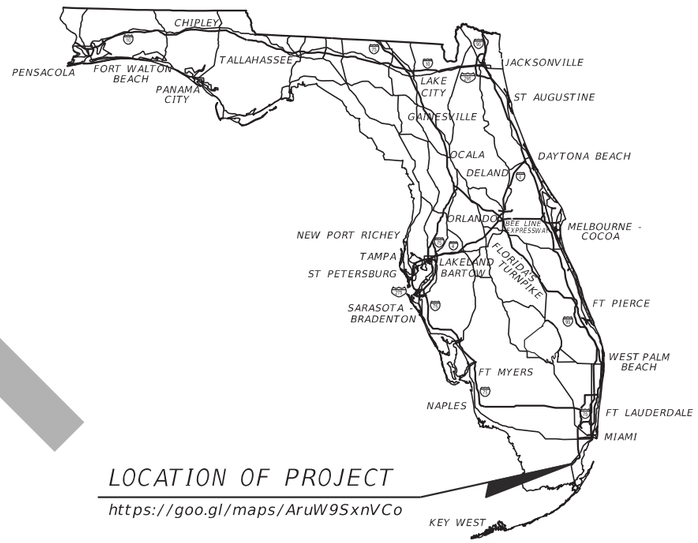
SR 5 (US 1) AND SR 821 (FLORIDA'S TURNPIKE) WIDENING
FROM SOUTH OF PALM DRIVE TO CAMPBELL DRIVE

COMCAST 4-3-2019



BEGIN PROJECT
STA. 50+00.00
SR 5 (US 1)
MP 0.448

END PROJECT
STA. 3680+00.00
SR 821 MP 3.335



LOCATION OF PROJECT
https://goo.gl/maps/AruW9SxnVCo

N

0 1 2
Miles

PLANS PREPARED BY:

STANLEY CONSULTANTS, INC.
1641 WORTHINGTON ROAD, SUITE 400
WEST PALM BEACH, FL 33409
CERTIFICATE OF AUTHORIZATION 1978
VENDOR NO. VF-421320758-001
CONTRACT NO. C9X28

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

INITIAL UTILITY COORDINATION
AUGUST, 2018

GOVERNING STANDARD PLANS:

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APPLICABLE IRs:

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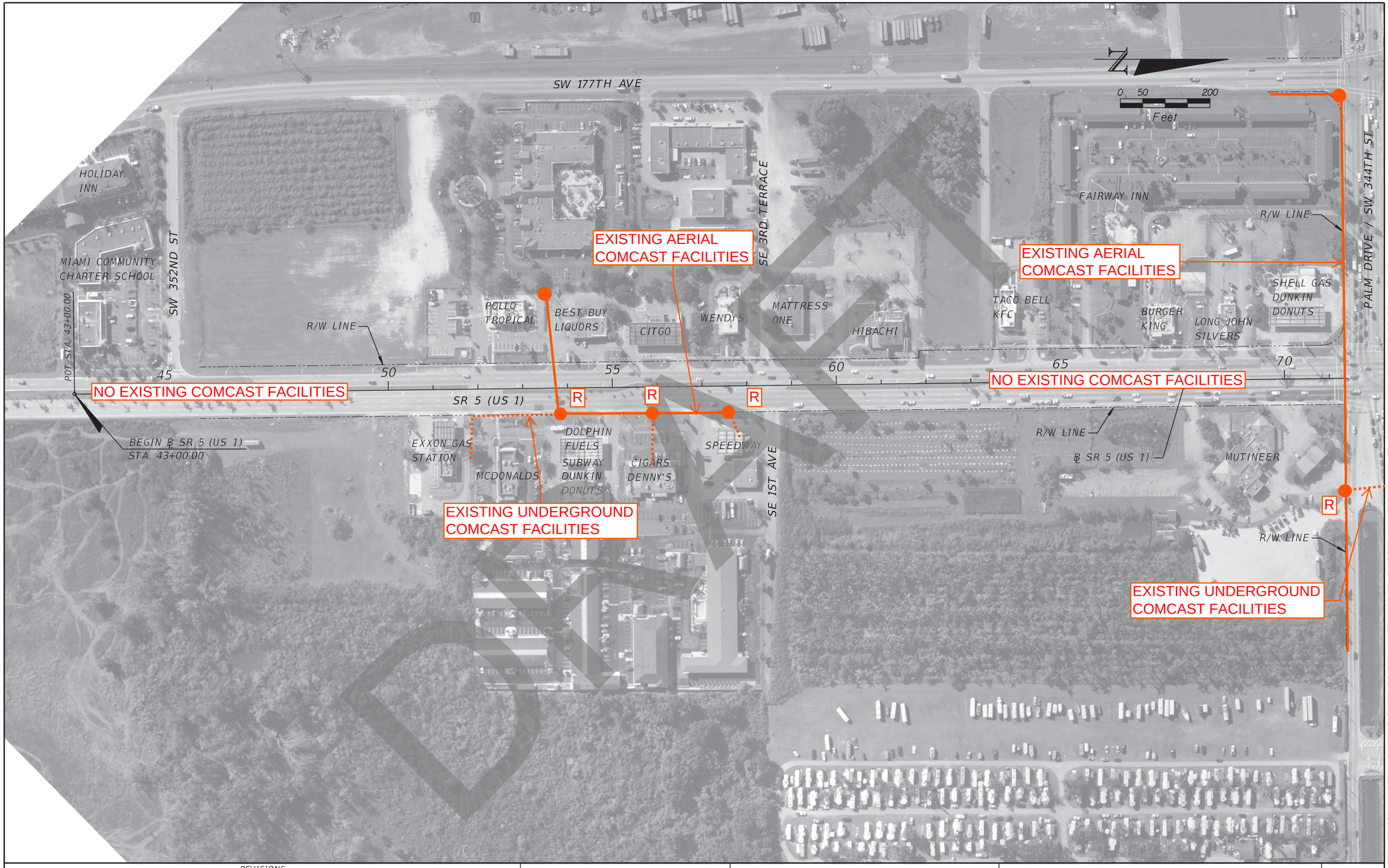
FDOT PROJECT MANAGER: RAX JUNG, P.E.
GEC PROJECT MANAGER: BRIAN P. RIBARIC, P.E.

FISCAL YEAR	SHEET NO.
22	1



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

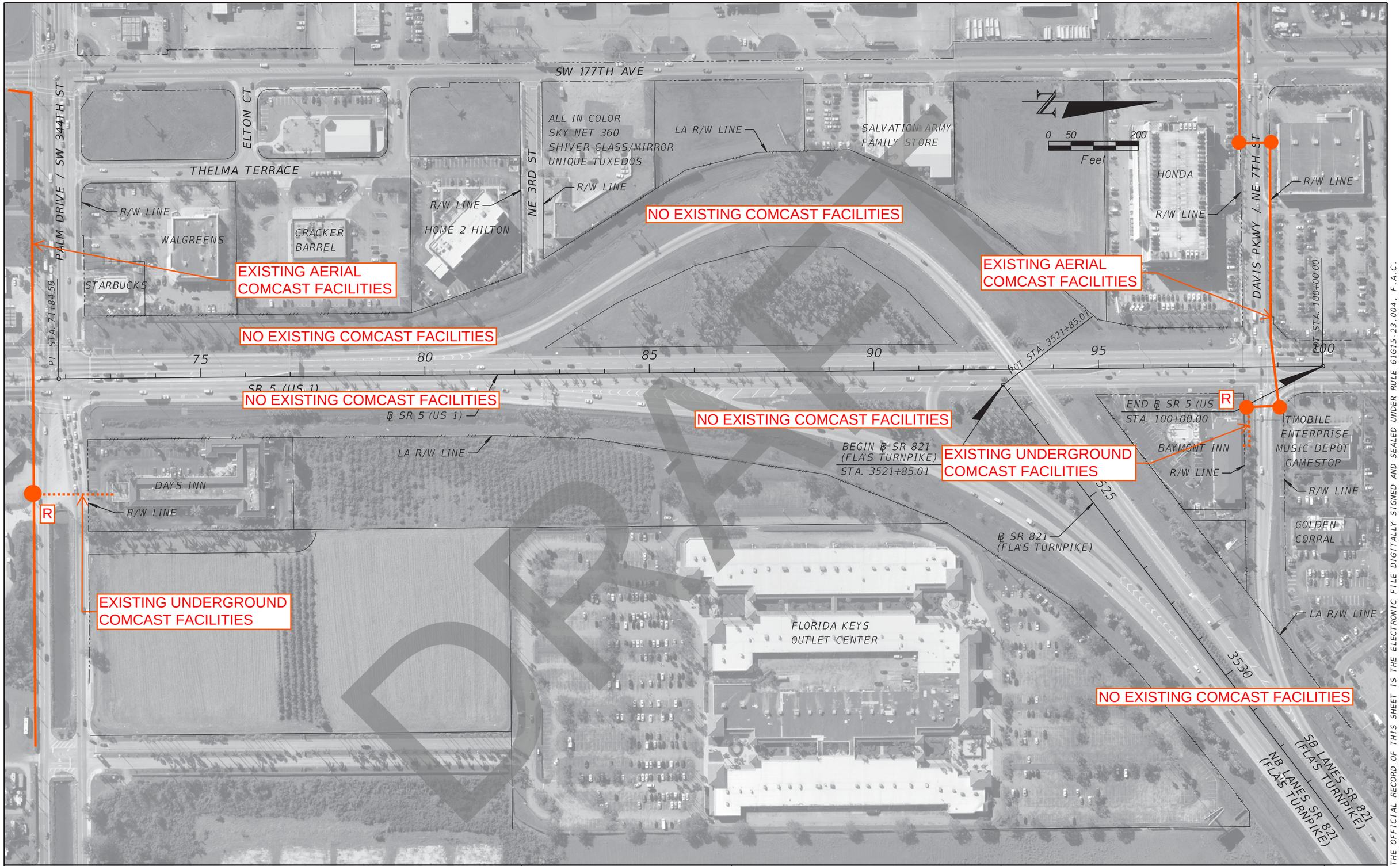
Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 2



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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 3

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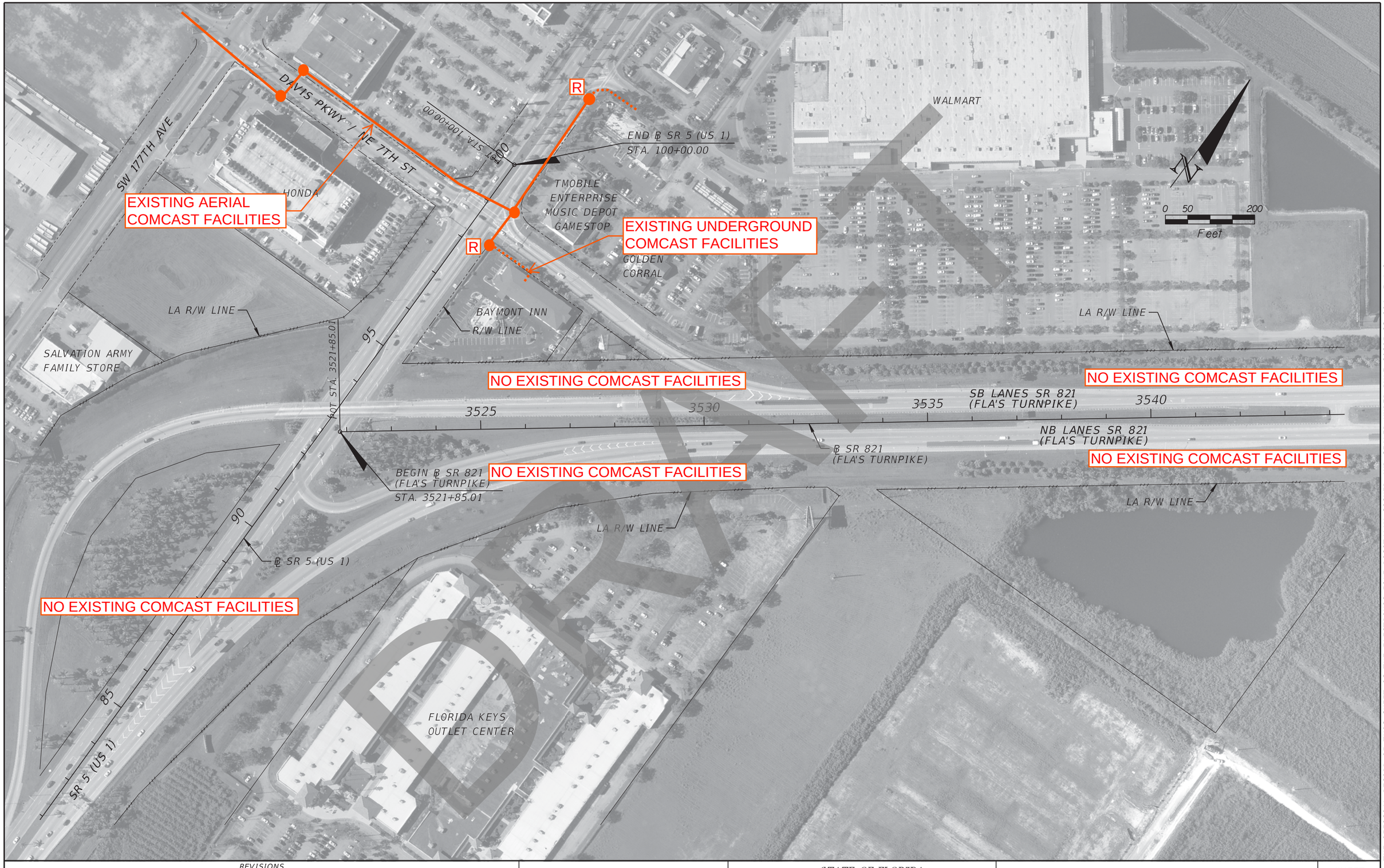

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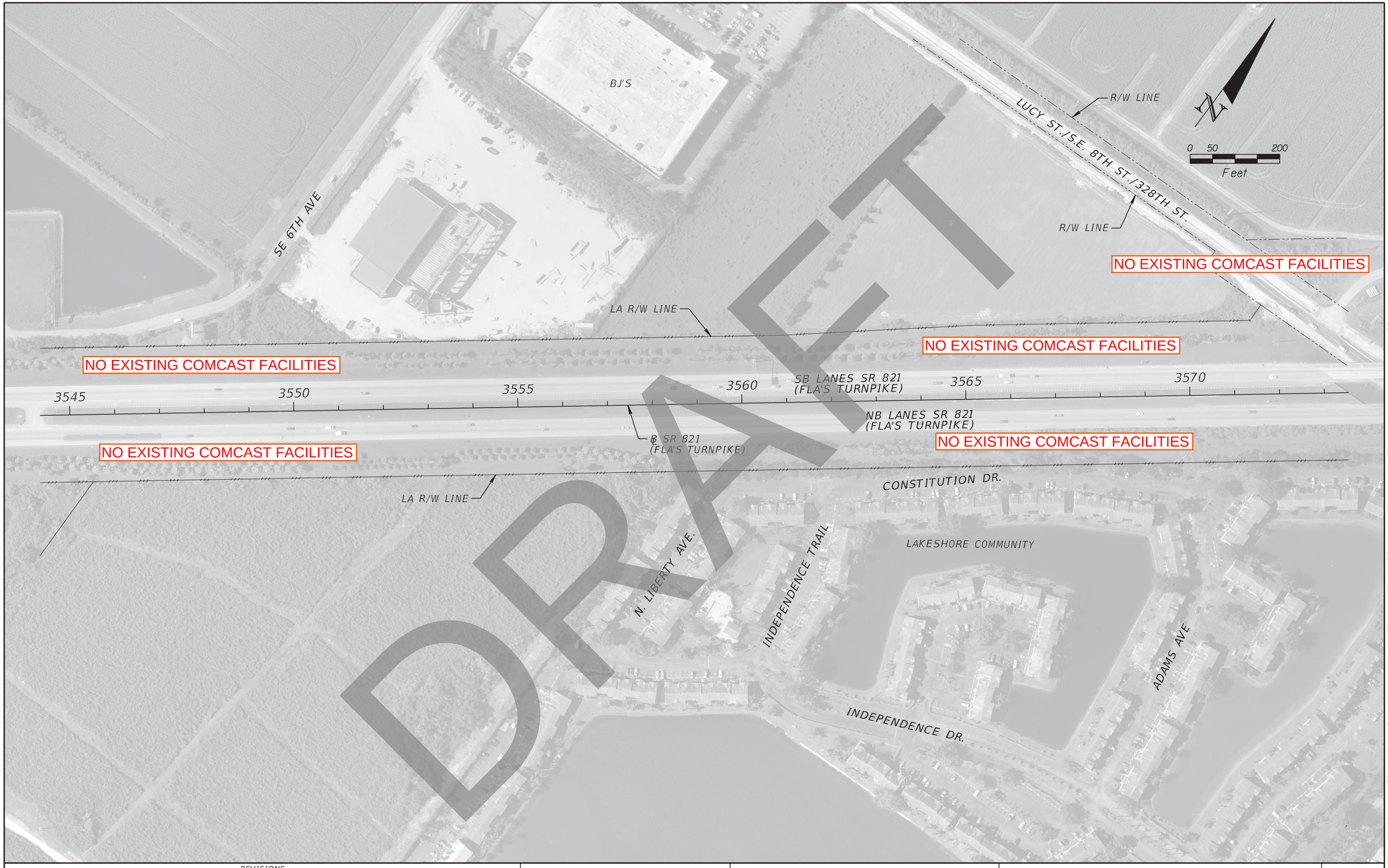
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 4



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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 5

EXISTING UNDERGROUND COMCAST FACILITIES

NO EXISTING COMCAST FACILITIES

NO EXISTING COMCAST FACILITIES

NO EXISTING COMCAST FACILITIES

NO EXISTING COMCAST FACILITIES

MONTEREY POINTE

0 50 200
Feet

LA R/W LINE

SW 167TH AVE.

3575 3580 3585 3590 3595 3600

SB LANES SR 821 (FLA'S TURNPIKE)

NB LANES SR 821 (FLA'S TURNPIKE)

℄ SR 821 (FLA'S TURNPIKE)

R/W LINE

LUCY ST/SE 8TH ST.

LA R/W LINE

R/W LINE

LA R/W LINE

SE 12TH TERRACE

N FRANKLIN AVE.

SW 167TH AVE.

SE 9TH ST.

SE 13TH RD.

KEYSTONE VILLAGE

SE 10TH ST.

SE 13TH CT.

SE 7TH CT.

SE 13TH TERRACE

SE 7TH ST.

SE 14TH AVE.

SE 14TH PL.

SE 6TH ST.

SE 5TH ST.

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REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 6

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 7

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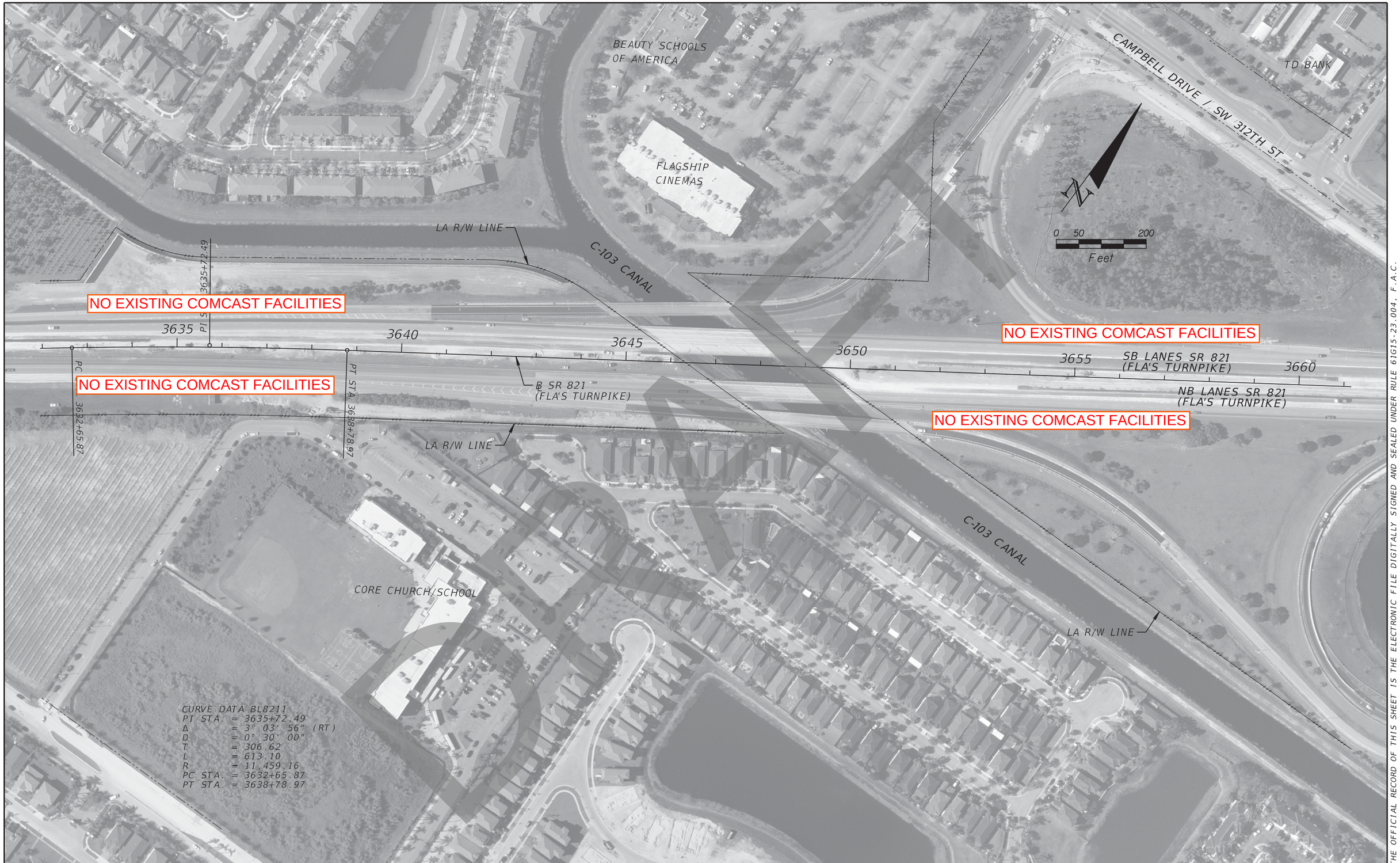

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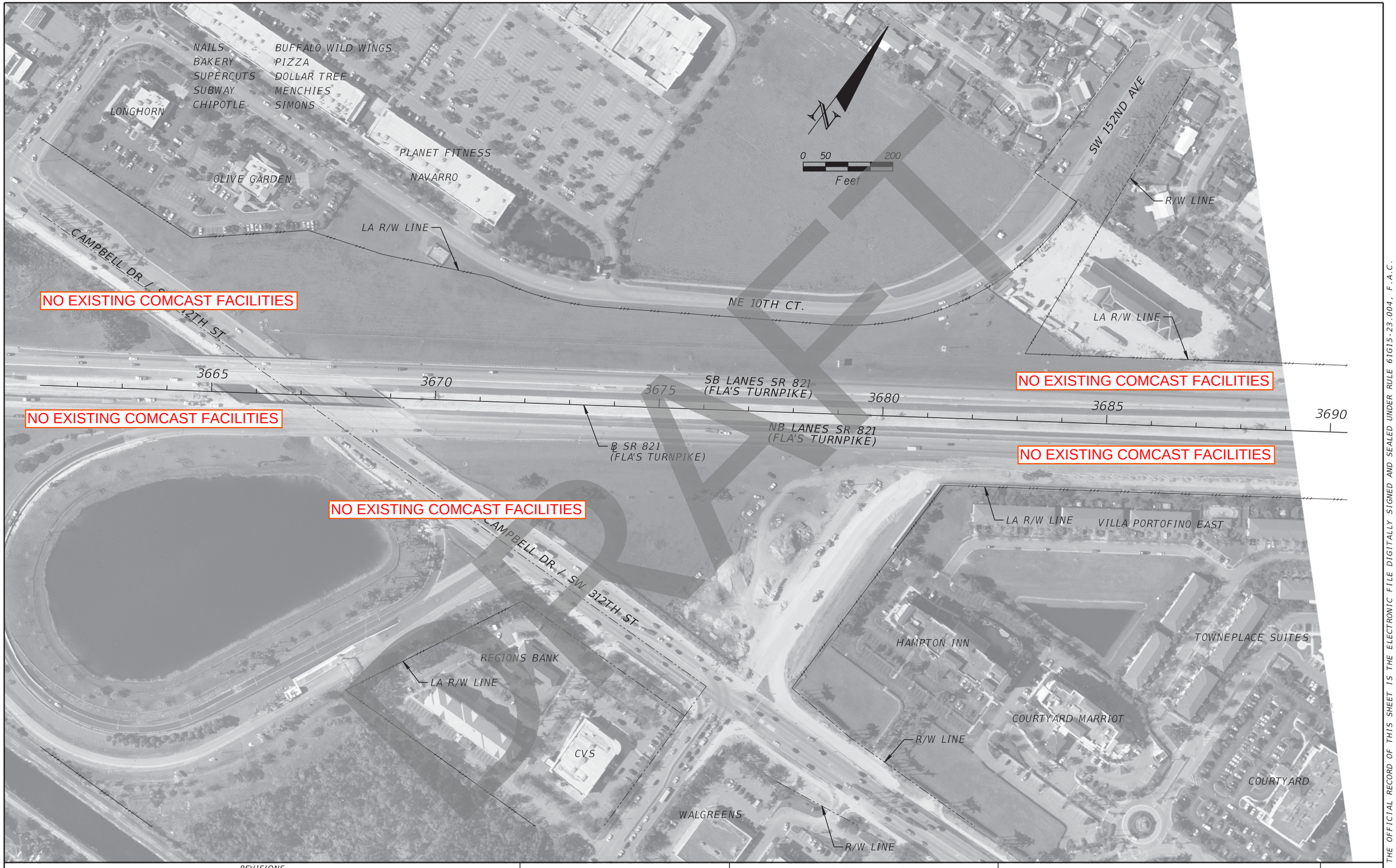
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 8



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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 9

APPENDIX C

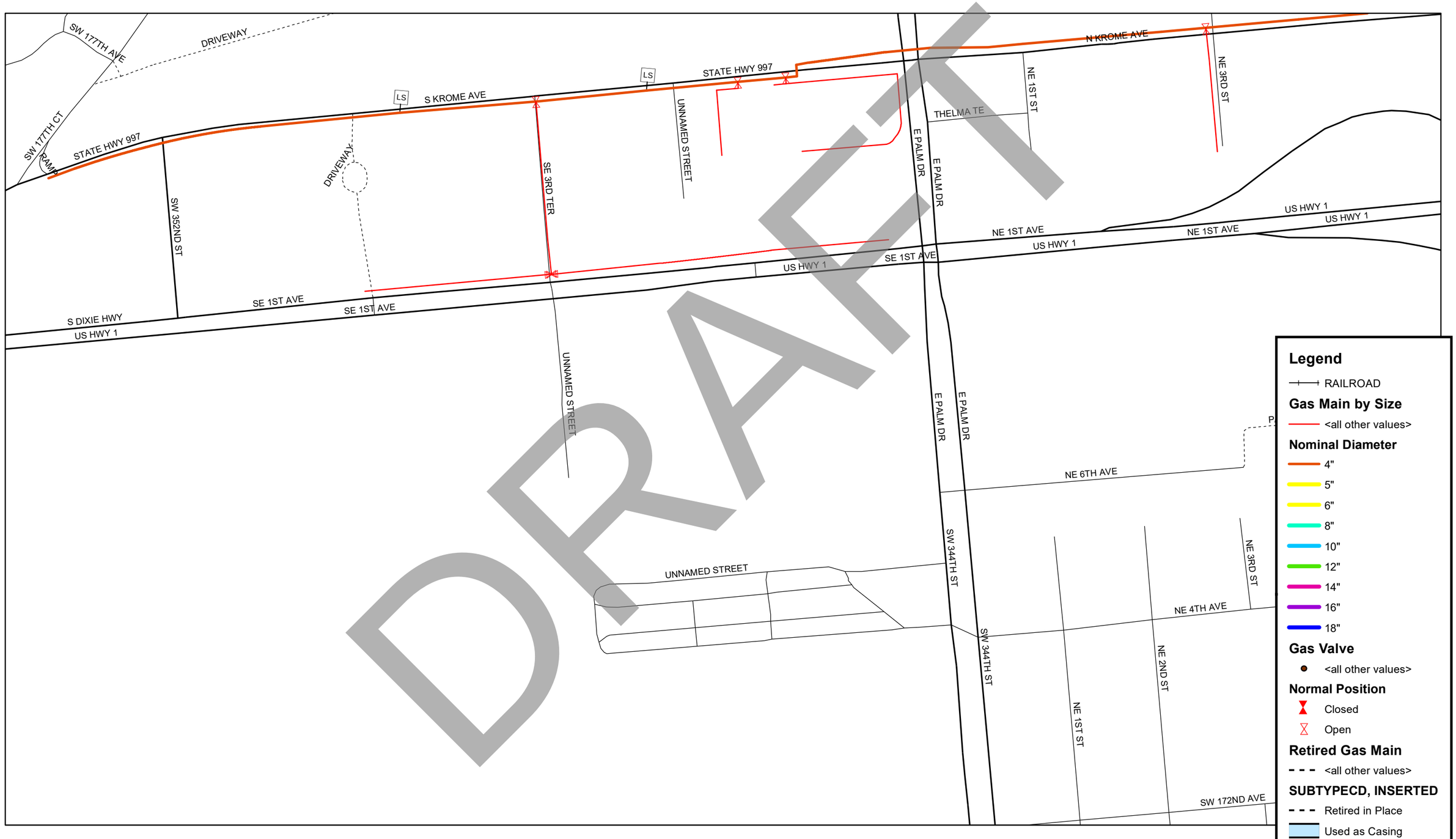
Utility Agency Owner Responses

Florida City Gas

Florida City Gas

FPID # 439545-1-52-01
HEFT Widening from S/o E Palm Dr on US-1 to Campbell Dr.
Florida City Gas Overall Map

N



Legend

RAILROAD

Gas Main by Size

<all other values>

Nominal Diameter

4"
5"
6"
8"
10"
12"
14"
16"
18"

Gas Valve

<all other values>

Normal Position

Closed
Open

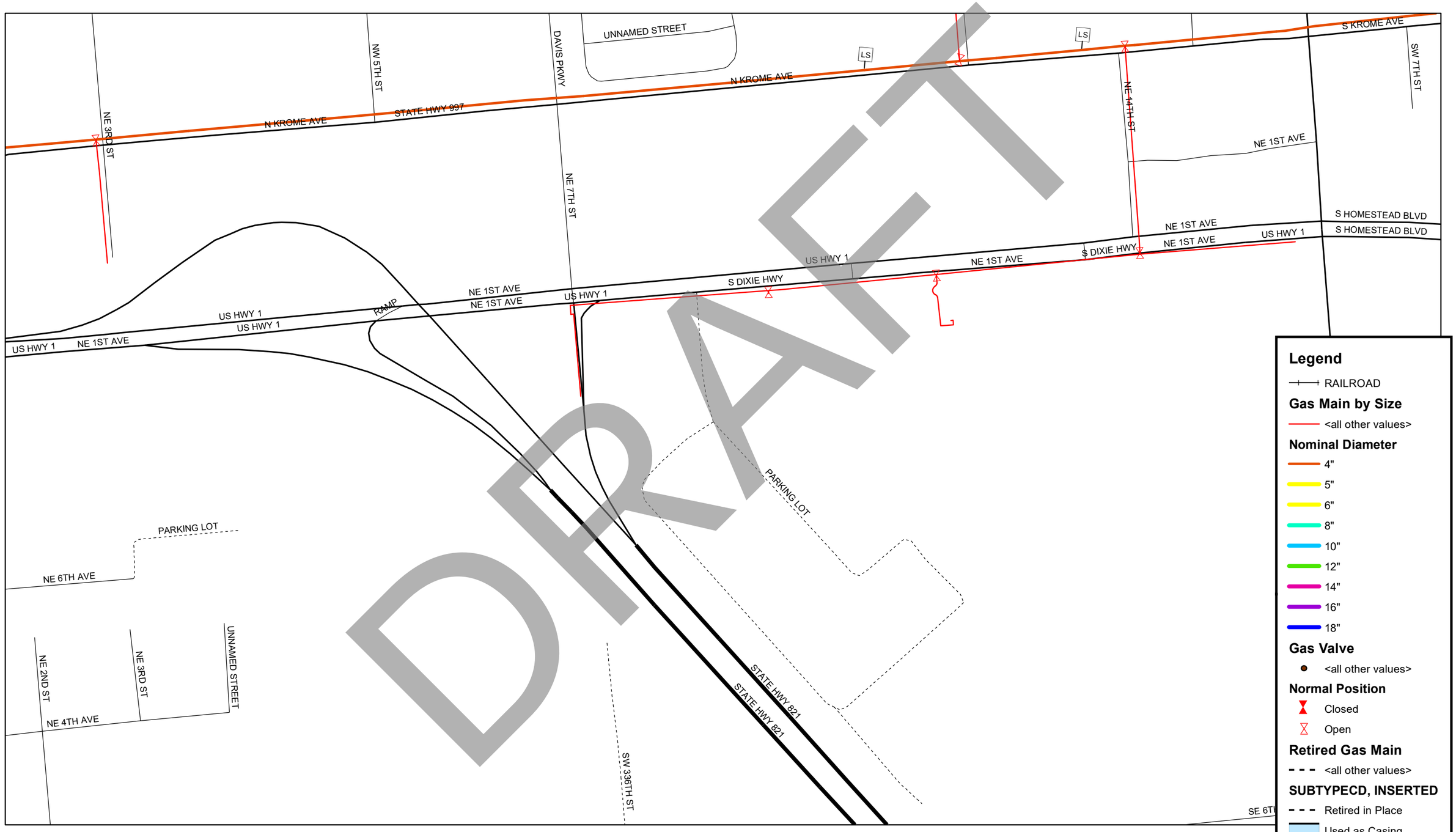
Retired Gas Main

<all other values>

SUBTYPECD, INSERTED

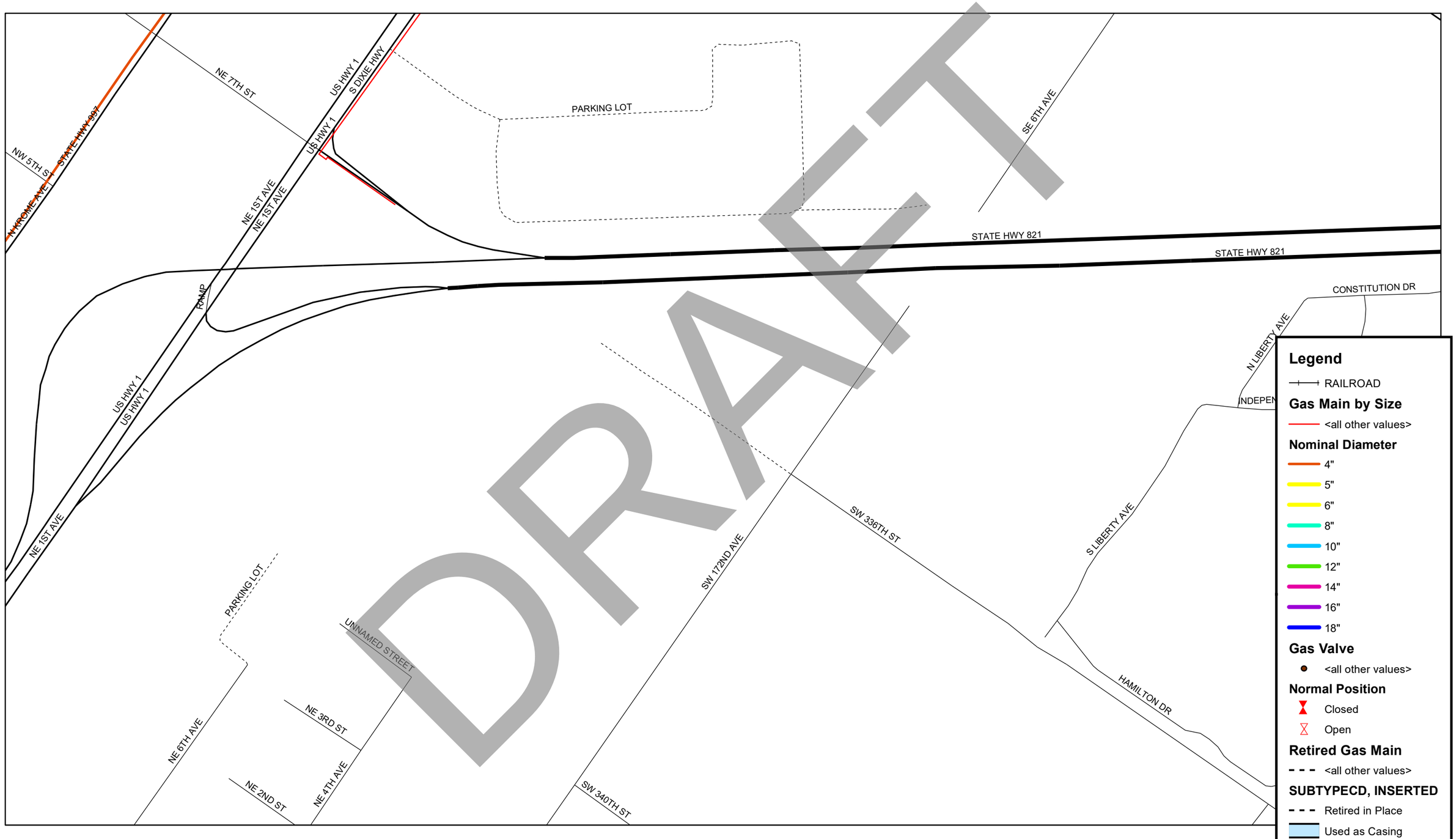
Retired in Place
Used as Casing

FPID # 439545-1-52-01
HEFT Widening from S/o E Palm Dr on US-1 to Campbell Dr.
Florida City Gas Overall Map



Florida City Gas

FPID # 439545-1-52-01
HEFT Widening from S/o E Palm Dr on US-1 to Campbell Dr.
Florida City Gas Overall Map



Florida City Gas

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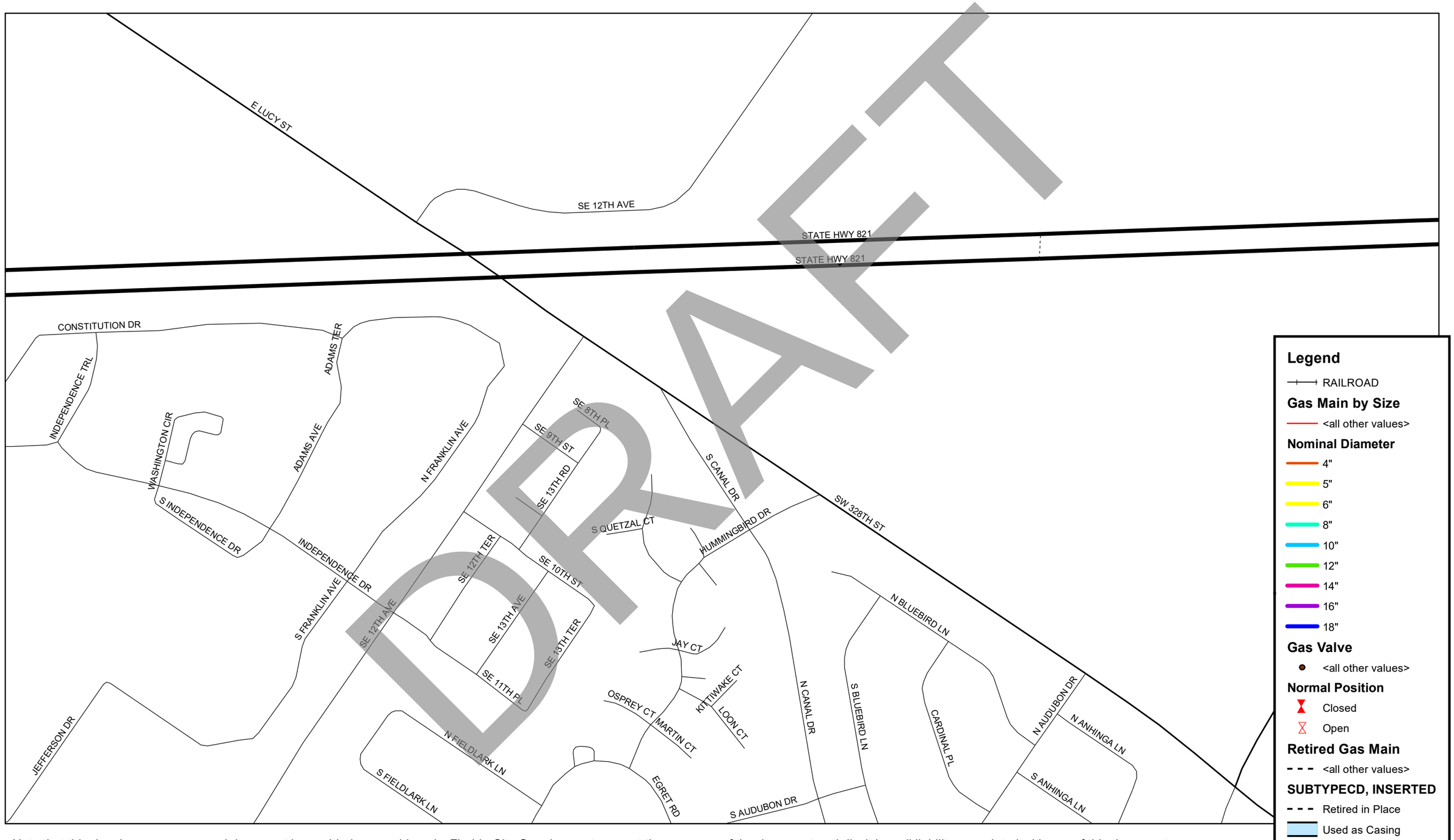
Florida City Gas Overall Map



Legend

- RAILROAD

Gas Main by Size

- <all other values>

Nominal Diameter

- 4"
- 5"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- 18"

Gas Valve

- <all other values>

Normal Position

- Closed
- Open

Retired Gas Main

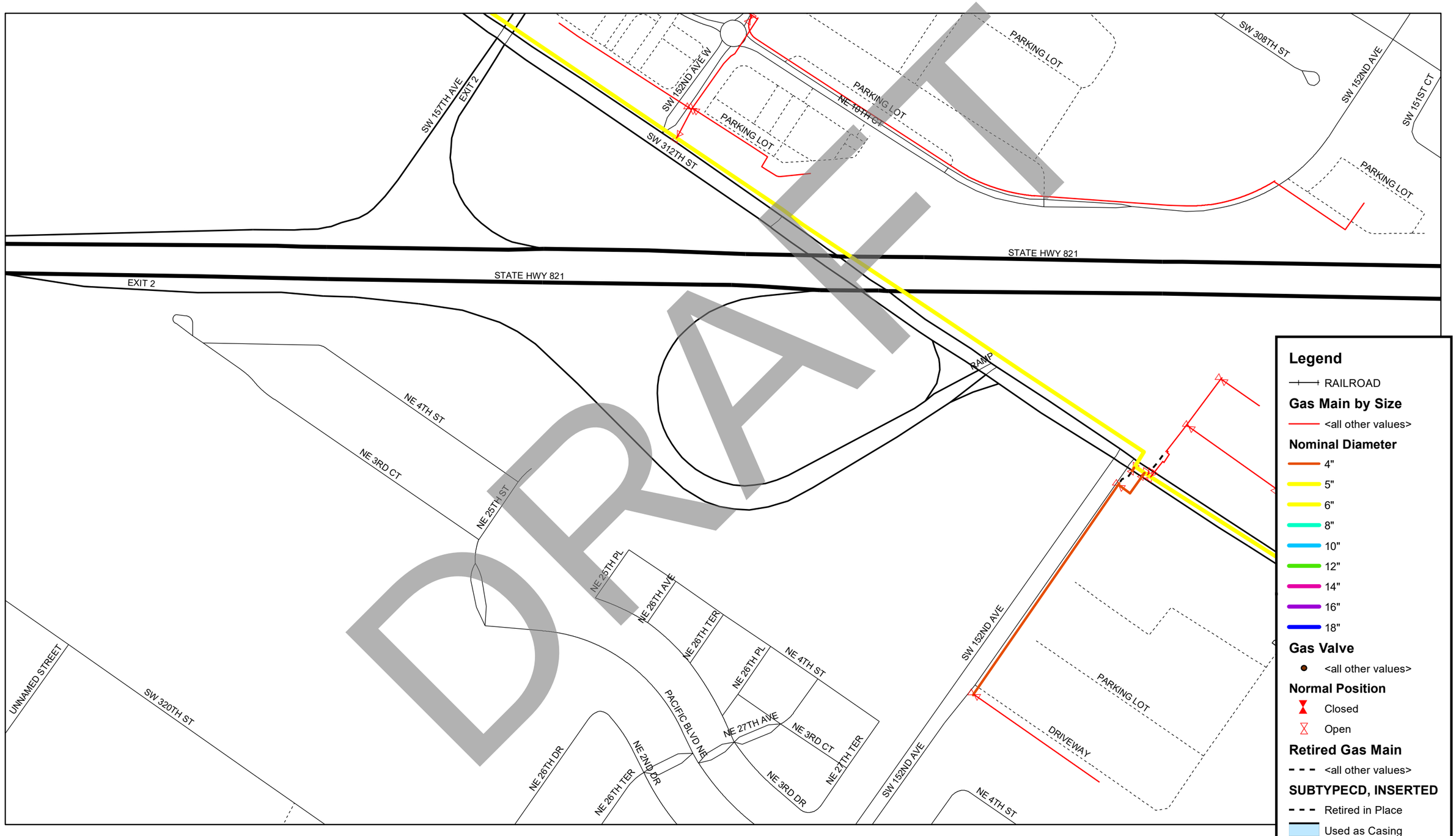
- <all other values>

SUBTYPECD, INSERTED

- Retired in Place
- Used as Casing

Florida City Gas

FPID # 439545-1-52-01
HEFT Widening from S/o E Palm Dr on US-1 to Campbell Dr.
Florida City Gas Overall Map



Legend

RAILROAD

Gas Main by Size

<all other values>

Nominal Diameter

4"
5"
6"
8"
10"
12"
14"
16"
18"

Gas Valve

<all other values>

Normal Position

Closed
Open

Retired Gas Main

<all other values>

SUBTYPECD, INSERTED

Retired in Place
Used as Casing

2" PE END CAP
666' S C/L SE 3RD TER
656' S S/EOP SE 3RD TER
44' W C/L US 1
8' W W/EOP US 1
36" DEEP

CAPTAINS REST.
#404 SE 1ST AVE

INSTALLED 2" PE
BY HDD @36" DEEP

672'

SEE MATCH LINE SHEET 1

SE 3 TER

117'

GREGORY'S
GRILL & BAR
#326 SE 1ST AVE

INSTALLED 2"
PE BY HDD
@36" DEEP

ROW
EOP
C/L

US1 (SR 5) (FDOT)

8' 44'
7' 44'
3' 44'
3'
7'
3' 44'
3' 44'
5'
7'
46'
48'

SEE MATCH LINE BELOW

2" PE POLYVALVE
5' N C/L SE 3RD TER
4' S N/EOP SE 3RD TER
44' W C/L US 1
3' W W/EOP US 1
36" DEEP

2" PE 3 WAY TEE
6' N C/L SE 3RD TER
3' S N/EOP SE 3RD TER
44' W C/L US 1
3' W W/EOP US 1
36" DEEP

2" PE POLYVALVE
7' N C/L SE 3RD TER
2' S N/EOP SE 3RD TER
44' W C/L US 1
3' W W/EOP US 1
36" DEEP

NOTE THIS DRAWING, MAP, OR RECORD DOCUMENT IS PROVIDED AS A GUIDE ONLY. FLORIDA CITY GAS DOES NOT WARRANT THE ACCURACY OF THIS DOCUMENT. THIS DOCUMENT IS NOT A MEANS FOR LOCATING UNDERGROUND FACILITIES. UNDER FLORIDA LAW, YOU MUST CONTACT THE SUNSHINE STATE ONE CALL OF FLORIDA AT 811 PRIOR TO ANY EXCAVATIONS.

COMFORT INN
333 SE 1ST AVE

TRAVEL LODGE
409 SE 1ST AVE

SW 344TH ST (PALM AVE)

2" PE END CAP
122' S C/L SW 344TH ST
66' S S/EOP SW 344TH ST
44' W C/L US 1
8' W W/EOP US 1
36" DEEP

66'
122'

INSTALLED 2" PE
BY HDD @36" DEEP

To be installed

SEE MATCH LINE ABOVE

7'
1,218' from tee above to end cap
3'
52'
52'

US1 (SR 5) (FDOT)

To be installed

MUTINEERS
REST.
11 SE 1ST AVE

RAMADA INN
124 SW 344TH ST.

Footage this sheet
2007' -2"

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SEE MATCH LINE SHEET 4

SEE MATCH LINE BELOW

US 1 (SR 5) (FDOT)

NE 14TH ST

E. LUCY ST.

SW 328 ST

745' of 2" PE from tee at Krome Ave to tee at US1

INSTALLED 2" PE BY HDD @36" DEEP

560'

2" PE END CAP
87' S C/L E. LUCY ST
67' S S/EOP E. LUCY ST
31' E C/L US1
3' W E/EOP US1
36" DEEP

2" PE 3 WAY TEE
21' N C/L NE 14TH ST
9' N N/EOP NE 14TH ST
31' E C/L US1
7' W E/EOP US1
36" DEEP

AMERICLEAN
1199 NE 1ST AVE

APPLEBEE'S REST.
33009 S. DIXIE HWY.

Driveway

NE 7TH ST (W Davis Pkwy)

2.030' of 2" PE from tee at NE 14th St to Elbow at NE 7th St

INSTALLED 2" PE BY HDD @36" DEEP

SEE MATCH LINE ABOVE

Trench Method

Trench

206'

Off Ramp from Fl. Turnpike

2" PE 90 DEGREE ELBOW
33' S C/L NE 7TH ST (DAVIS PKWY)
14' S S/EOP NE 7TH ST (DAVIS PKWY)
32' E C/L US1
6' W E/EOP US1
36" DEEP

2" PE 90 DEGREE ELBOW
33' S C/L NE 7TH ST (DAVIS PKWY)
14' S S/EOP NE 7TH ST (DAVIS PKWY)
64' E C/L US1
26' E E/EOP US1
36" DEEP

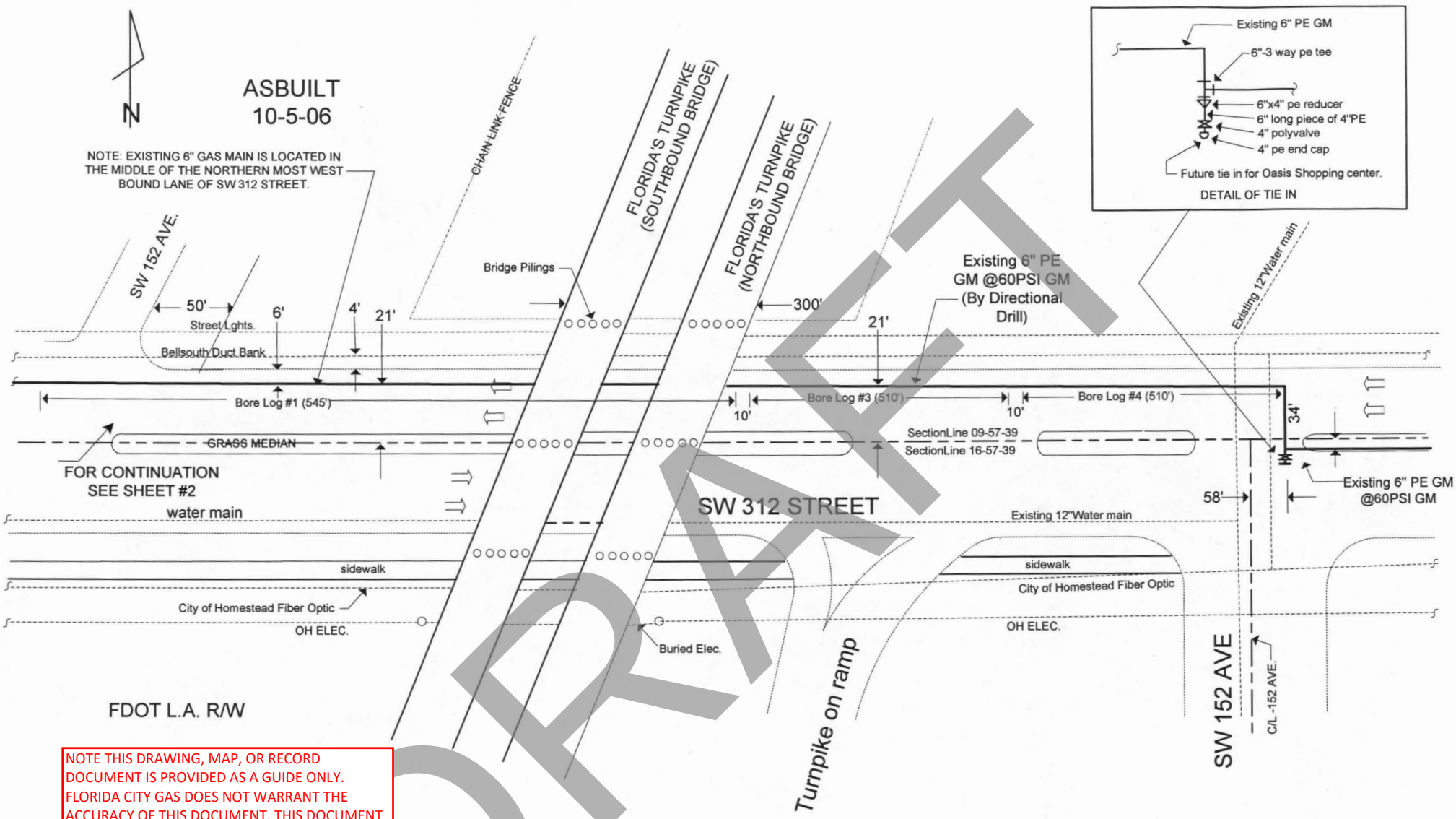
2" PE 90 DEGREE ELBOW
23' S C/L NE 7TH ST (DAVIS PKWY)
4' S S/EOP NE 7TH ST (DAVIS PKWY)
64' E C/L US1
26' E E/EOP US1
36" DEEP

2" PE END CAP
23' S C/L NE 7TH ST (DAVIS PKWY)
4' S S/EOP NE 7TH ST (DAVIS PKWY)
360' E C/L US1
322' E E/EOP US1
36" DEEP

INSTALLED 2" PE BY HDD @36" DEEP

SHEET 10

Footage this sheet
3,673' total - 2"



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EDGE OF PAVM'T. =
CENTERLINE =
RIGHT OF WAY LINE =
EXIST. GAS =
PROPOSED GAS =
EXISTING UTILITIES =

TP = LIGHT OR TRAFFIC POLE
FH = FIRE HYDRANT

FDOT (TURNPIKE) , Miami-Dade County, City of Homestead, & SFWMD Permits required.

EXISTING FOOTAGES:
Sheet #3
6"PE GM = 1619'

SHEET#3 of 3
(N.T.S.)

Project Name: Homestead Baptist Hospital	Date: 6-16-06
	Drawn By: AW
Location: SW 312 St btwn 152 – 162 Avenue.	Plate Map#AR68
Job Description: Install a 6"PE Gas Main to serve Baptist Hospital Homstead	
Designed by: Infrasoucre Inc.for Florida City Gas	

APPENDIX C

Utility Agency Owner Responses

Florida Power & Light - Distribution

COMPONENTS OF CONTRACT PLANS SET

CONCEPT PLANS

INDEX OF CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
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2 thru 9	ROADWAY PLAN

STATE OF FLORIDA

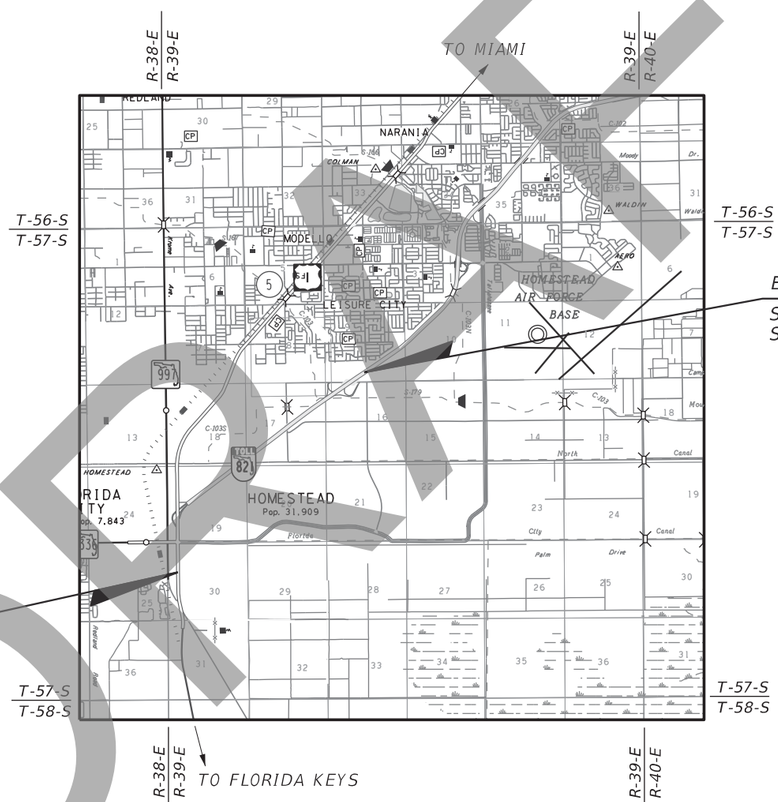
DEPARTMENT OF TRANSPORTATION

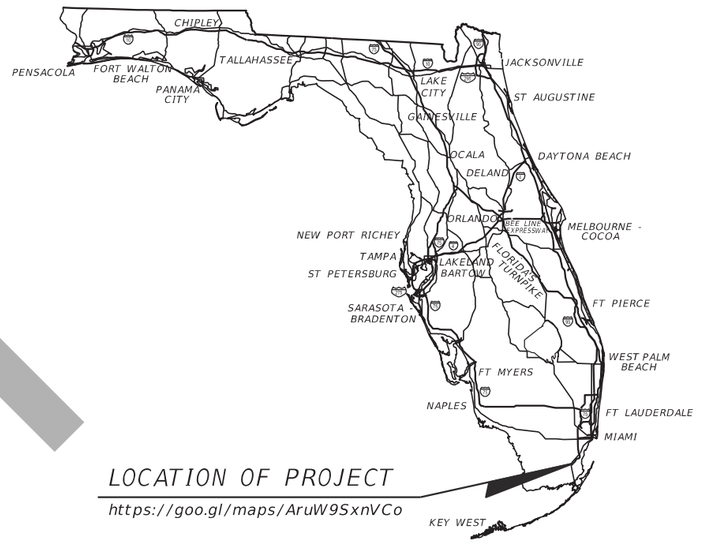
CONTRACT PLANS

FINANCIAL PROJECT ID 439545-1-22-01

MIAMI-DADE COUNTY (874710)

SR 5 (US 1) AND SR 821 (FLORIDA'S TURNPIKE) WIDENING
FROM SOUTH OF PALM DRIVE TO CAMPBELL DRIVE





LOCATION OF PROJECT

https://goo.gl/maps/AruW9SxnVCo

N

0 1 2

Miles

PLANS PREPARED BY:

STANLEY CONSULTANTS, INC.
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AUGUST, 2018

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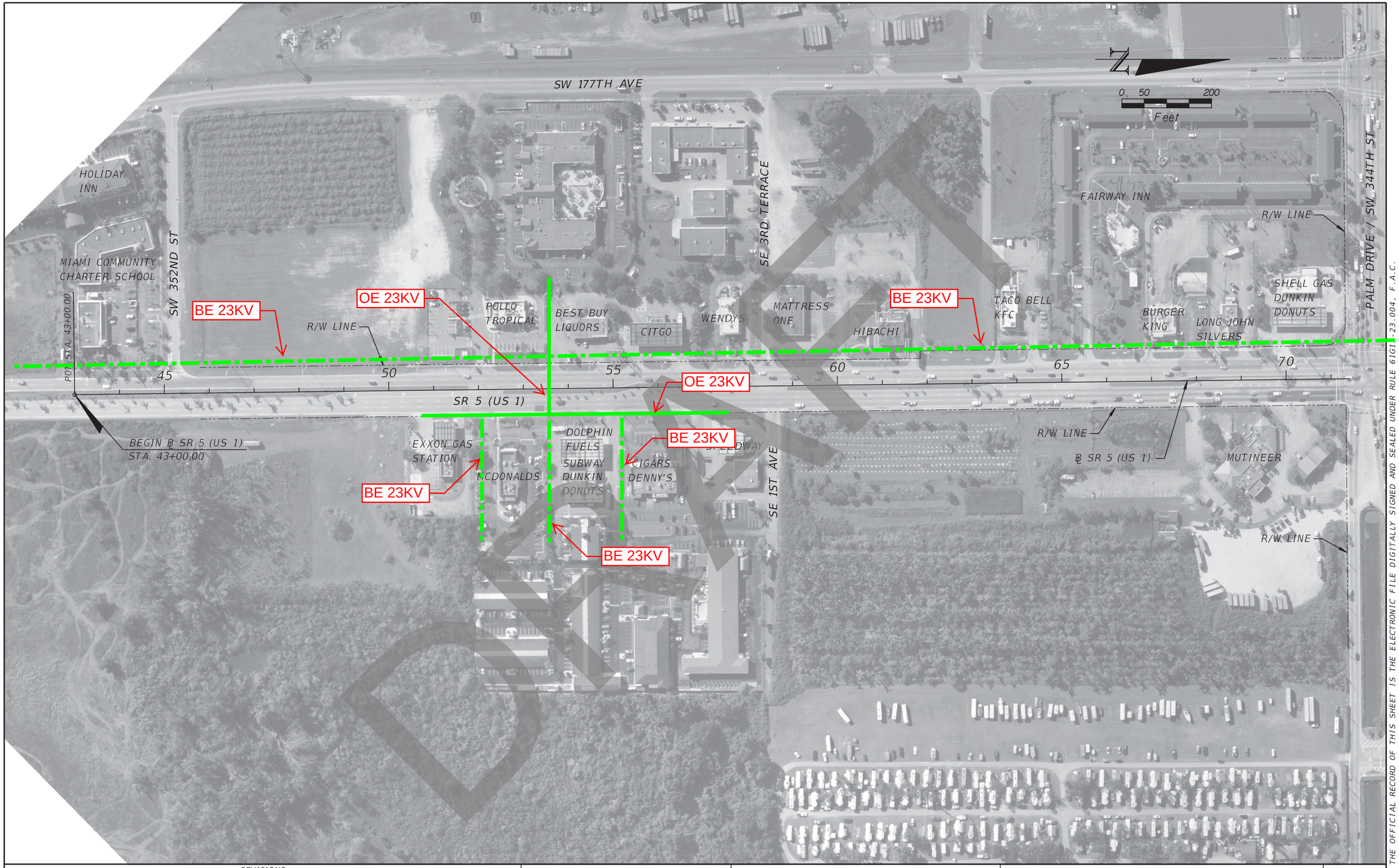
FDOT PROJECT MANAGER: RAX JUNG, P.E.
GEC PROJECT MANAGER: BRIAN P. RIBARIC, P.E.

FISCAL YEAR	SHEET NO.
22	1



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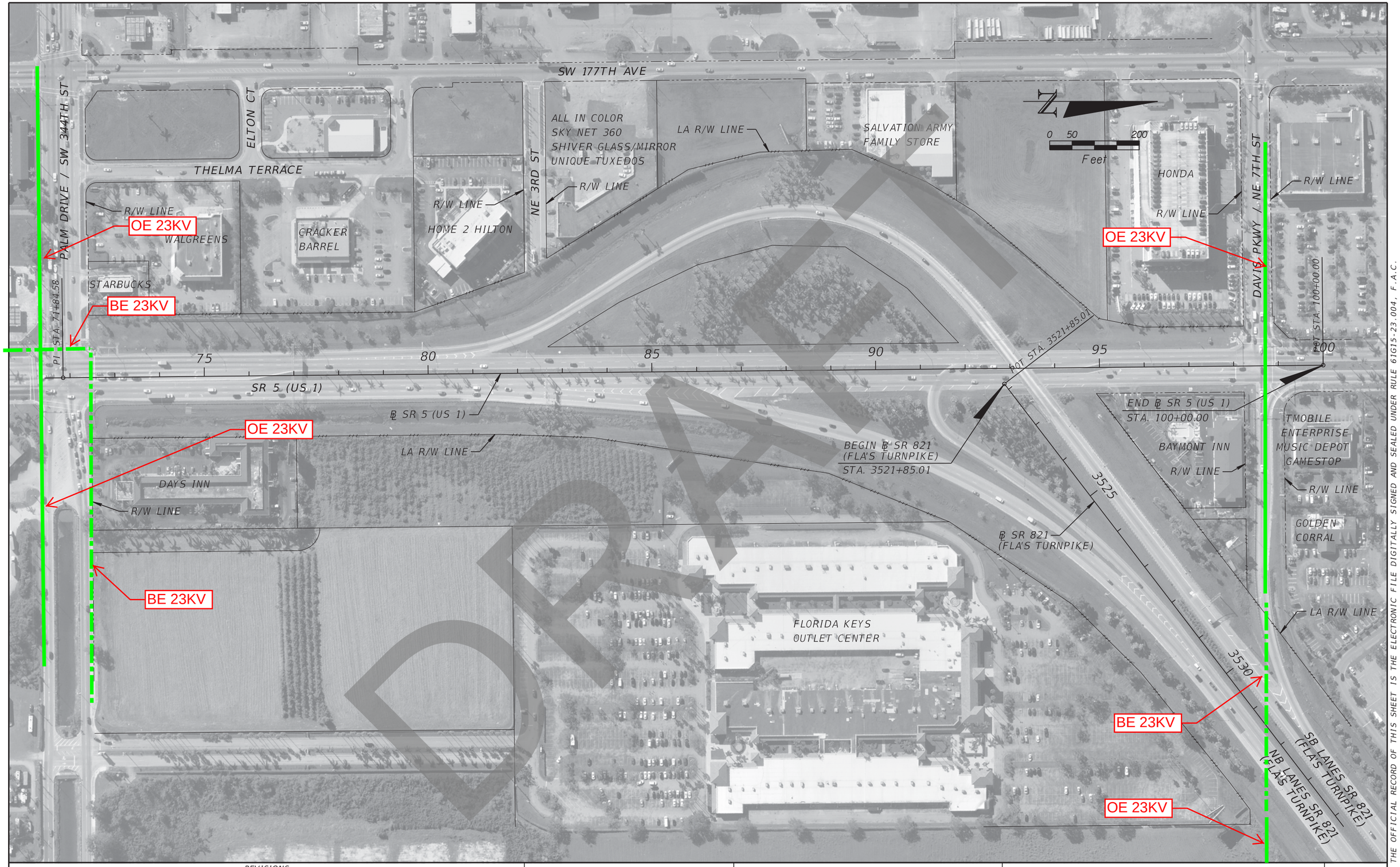
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 2



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DATE	DESCRIPTION	DATE	DESCRIPTION

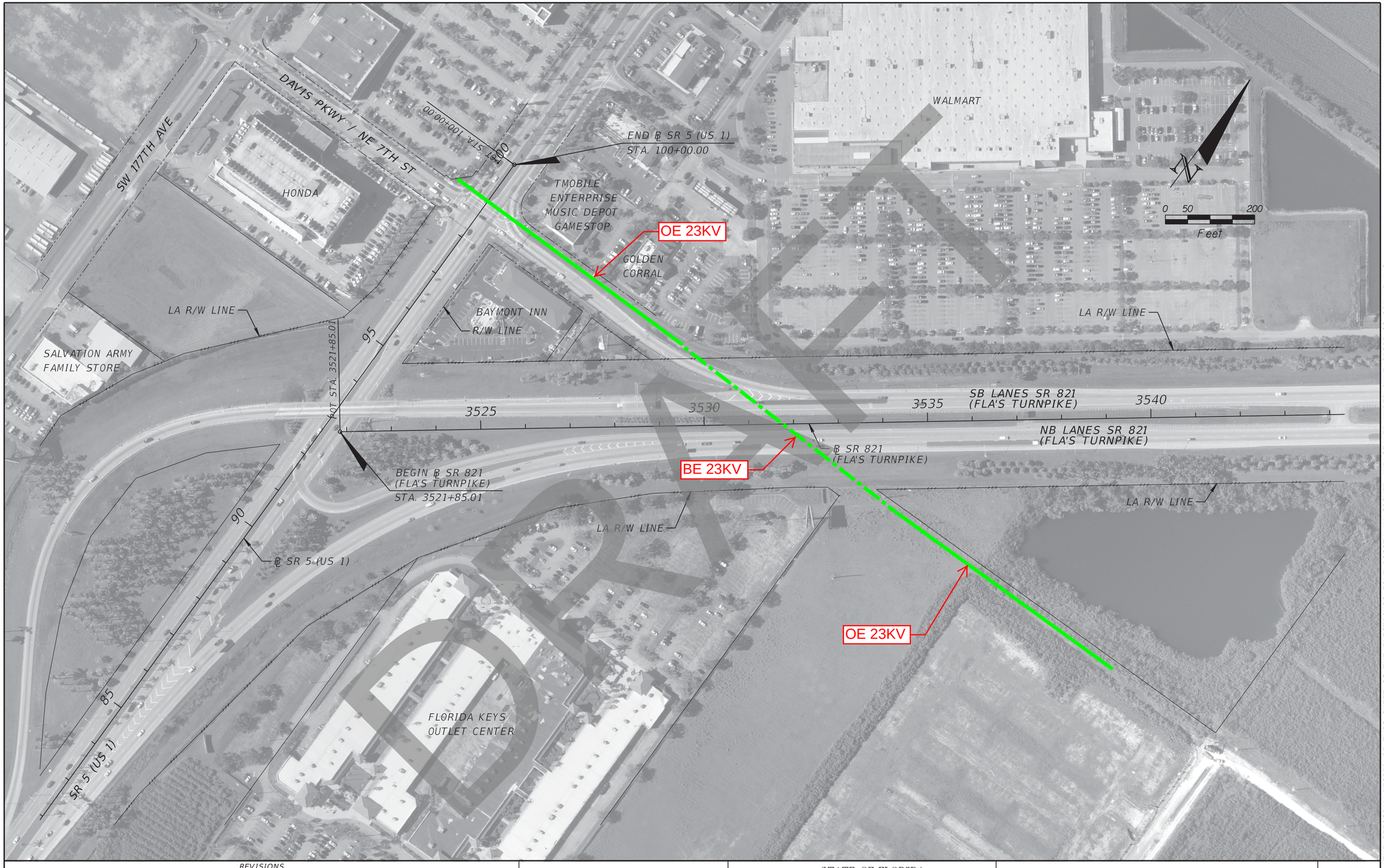
Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 3



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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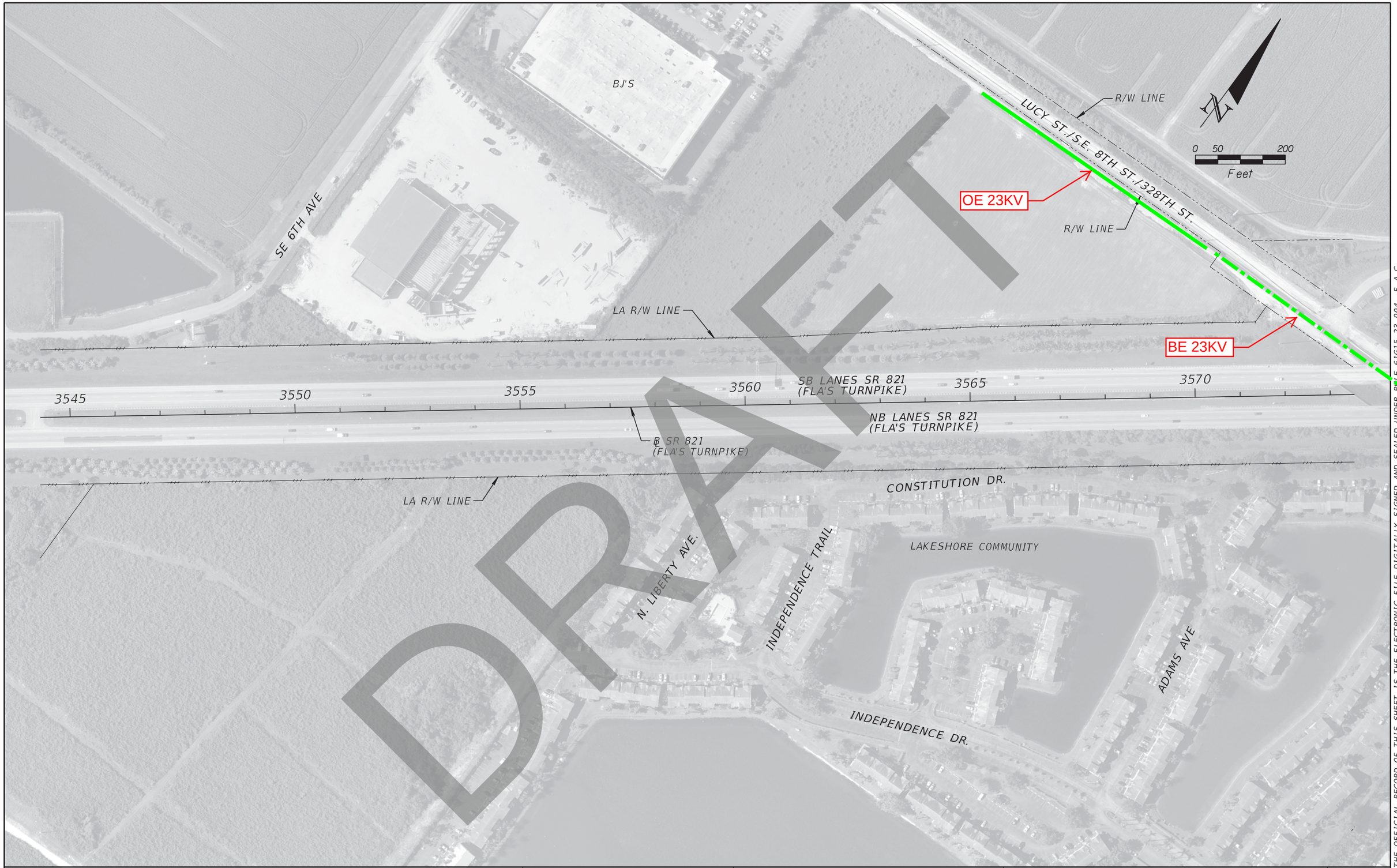
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 4



REVISIONS			
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West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 5

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 6

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
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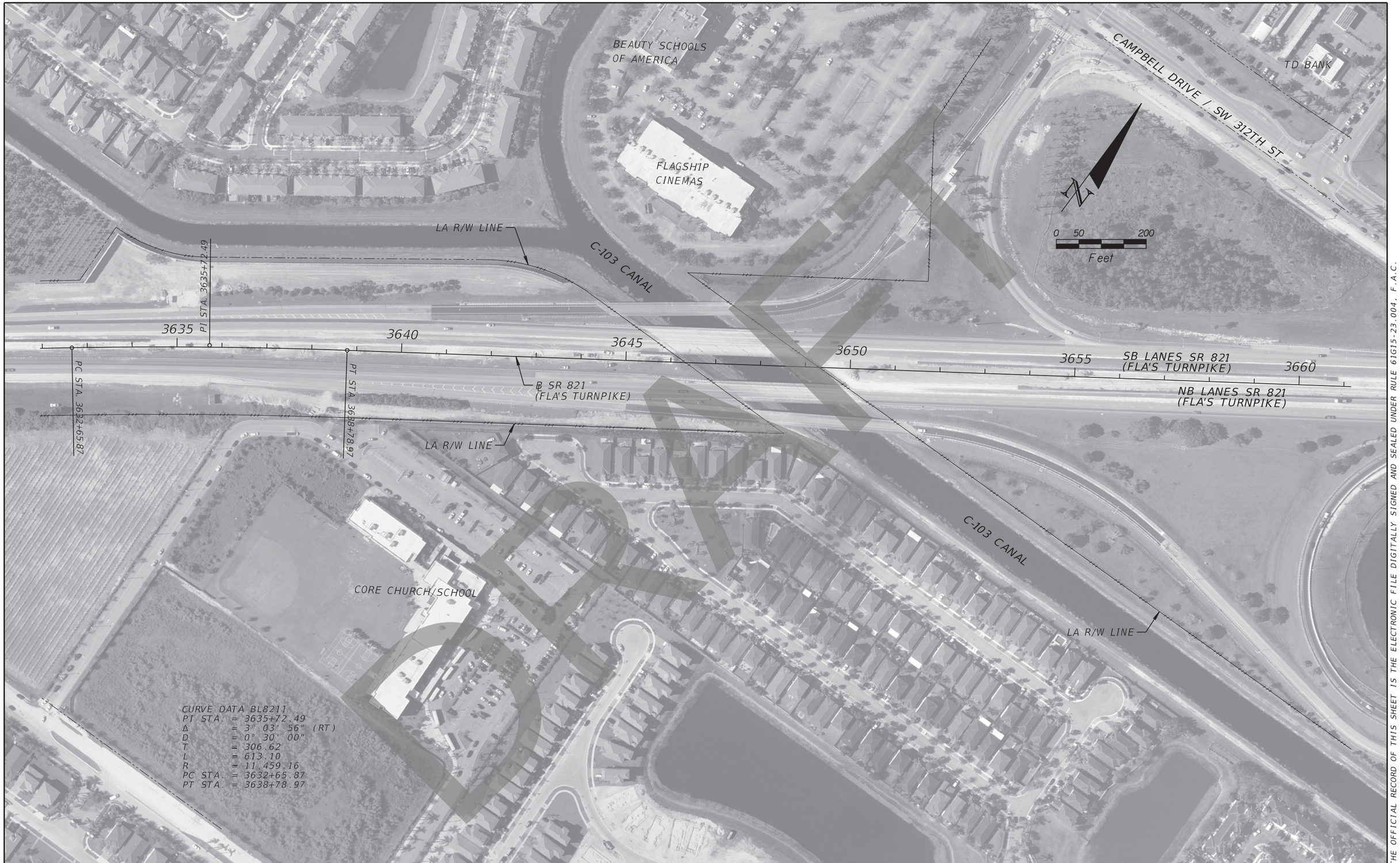
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 7



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 8

NAILS
BAKERY
SUPERCUTS
SUBWAY
CHIPOTLE
BUFFALO WILD WINGS
PIZZA
DOLLAR TREE
MENCHIES
SIMONS
LONGHORN
PLANET FITNESS
NAVARRO
OLIVE GARDEN
LA R/W LINE
CAMPBELL DR / SW 312TH ST
NE 10TH CT.
SW 152ND AVE
R/W LINE
LA R/W LINE
3665
3670
3675
3680
3685
3690
SB LANES SR 821
(FLA'S TURNPIKE)
NB LANES SR 821
(FLA'S TURNPIKE)
℄ SR 821
(FLA'S TURNPIKE)
N
0 50 200
Feet
CAMPBELL DR / SW 312TH ST
REGIONS BANK
LA R/W LINE
CVS
WALGREENS
R/W LINE
LA R/W LINE
VILLA PORTOFINO EAST
HAMPTON INN
TOWNEPLACE SUITES
COURTYARD MARRIOT
R/W LINE
COURTYARD

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 9

Call before you dig! 1-800-432-4770 | BH-0190 | Confidential: For Florida Power & Light Company use only.

1:300

BK-0187

SPC: (831500,410100)

Lat/Long: 25.4609 N 80.4686 W

Lat/Long: 25.4756 N 80.4431 W

SPC: (839900,415500)

BE-0187

Updated: 11/17/2018

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-4770
CAUTION: This drawing is an approximation.
Determine exact location of the cable/duct lines/conduit prior to any subsurface operation in this area

County: Dade | Mgmt Area: South Dade | Svc Ctr: South Dade | BH-0184 | 0' 600' 1200' | Primary Map: BH-0187

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-4770
CAUTION: This drawing is an approximation.
Determine exact location of the cable/duct lines/conduit prior to any subsurface operation in this area

Call before you dig! 1-800-432-4770

BK-0187

Confidential: For Florida Power & Light Company use only.

1:300

BN-0184

Lat/Long: 25.4461 N 80.4941 W

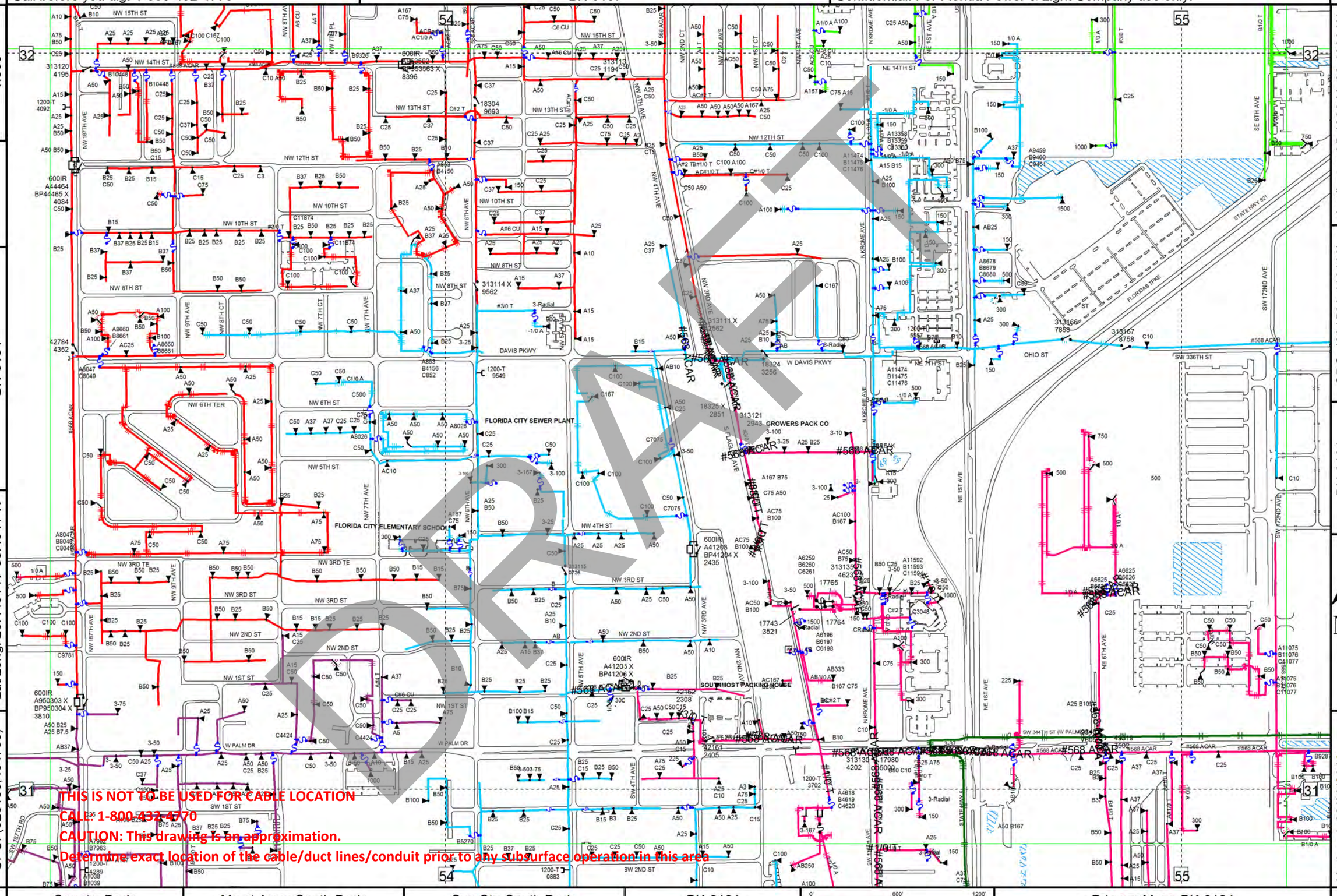
SPC: (823100,404700)

SPC: (831500,410100)

Lat/Long: 25.4609 N 80.4686 W

BH-0184

Updated: 03/06/2019



County: Dade

Mgmt Area: South Dade

Svc Ctr: South Dade

BK-0181

0' 600' 1200'

Primary Map: BK-0184

INACCESSIBLE ☐ 13KV ☒ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ ROCK ☒

SCALES SUBDIVISION

DIRECT BORE 520' 2-6" HDPE W/ 3CC 1000MCM AL 25KV XPE-J 18" REAMER WITH 180" MIN COVER UNDERNEATH FDOT PAVEMENT N.T.S.

#124 RAMADA INN
UN-18.0.0
N.T.S.

MIAMI LAND AND DEVELOPMENT COMPANY

FDR SPL BOX

PLUG & MARK 16

UG INSTALLED ON WR# 5968006

STA. 42+00

R/W

5' SWK

SN

W

16" W

12" W

UNK

BW SWK

UNK 60" CMP UNK

DIRECT BORE 125' 2-6" HDPE W/ 3CC 1000MCM AL 25KV XPE-J 18" REAMER WITH 180" MIN COVER UNDERNEATH FDOT PAVEMENT N.T.S.

STA. 350+00 STA. 349+00 STA. 348+00 STA. 347+00 STA. 346+00 STA. 345+20 STA. 345+00

℄ ℄ ℄ ℄

SW 344 ST(E PALM DR)

MATCHLINE SEE DWG. MEPP5002

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-4770
CAUTION: This drawing is an approximation.
Determine exact location of the cable/duct lines/conduit prior to any subsurface operation in this area

28' 60' 110' 125' 65' 63' 50' 60'

12" FM

FM

5' SWK

R/W

STA. 41+00

STA. 40+55

16.5

FDR SPL BOX UN-18.0.0 @ STA.40+55

8' 58'

STA.348+55 BORE

SEE MEPP5435 FOR CONTINUATION

US-1(DIXIE HWY)

CONSTRUCTION NOTES - WR# 6679799

REQUIRED DRAWINGS
FOR REQUIRED DRAWINGS & NOTES SEE 7115-5
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

STA.350+40 PLUG & MARK

+8 +7 +6 +5 +4 +3 +2 +1 0 -1 -2 -3 -4 -5 -6 -7 -8 -9 -10

GRADE

PLUG & MARK

SN(EL UNK) (SIZE UNK)

12" MIN

60" MIN

W(EL UNK) (SIZE UNK)

PROP 2-6" HDPE

180" MIN COVER UNDERNEATH FDOT PAVEMENT

8" SN

12" W

42" MIN

60" CMP
ELEV UNKNOWN

12" MIN

The location and existence of any facilities may not be relied upon by the supplier in responding to a bid or in complying with any contract. Supplier is responsible for evaluating site conditions both above and below ground including underground facility locations.

REFERENCE DWG's

MEPP5002
MEPP5004
MEPP5435

TWNP: 57 RNG: 39 SEC: 30 QTR: 0

PLOT DATE: 2/9/2017 PLOT TIME: 11:55:59 AM CAD NAME: BWB

	6679799	2	04/06/16	ADDED STATION POINTS ALONG DIXIE HWY
	5968006	1	12/09/15	PULL FDR#3132 AS PART OF TOP CIF EW HARDENING
	5968006	0	04/27/15	PRELIMINARY BKG
ASBUILT	AUTH NO.	NO.	DATE	REVISION

AS-BUILT COPY — Initials / Cert. Date

AS-BUILT CREW PRINT — Foreman's Signature / Date

Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.

Supervisor's Signature / Date

All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.

Foreman's Signature / Date

Posted by

Easement? YES ☐ NO ☒	Survey/Stake? YES ☒ NO ☐	Work with SMO? YES ☐ NO ☒	
Tree Work? YES ☐ NO ☒	Designer/Stake? YES ☐ NO ☒	CT/Special Mtr? YES ☐ NO ☒	
Map Posting? YES ☒ NO ☐	Trench Feet	Duct Bank Feet	
PERMIT REQ'D	CITY X / DR. DIST. / COUNTY AIR / STATE RD X / FAA		
	WMD / RR XING / COUNTY RD. / TRANSM.		
Telephone Request? YES ☐ NO ☒	CATV Request? YES ☐ NO ☒		

FPL

DESIGNED BY	S. PRESTON
DRAWN BY	K. ARIAS
DATE	04/06/16
MAP NO.	DJ-0541

HORIZ. 0 10 20 40 — VERT. 0 1.0 2.0 4.0

M/k SD
MIAMI UNDERGROUND SYSTEM
SW 344 ST TO KROME AVE TO DIXIE HWY
FLORIDA CITY/DADE CNTY, FL

DWG NO. MEPP5003

WR: 6679799 IWR: D066-79-799

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NULL

N

CONSTRUCTION NOTES – WR# 6679799

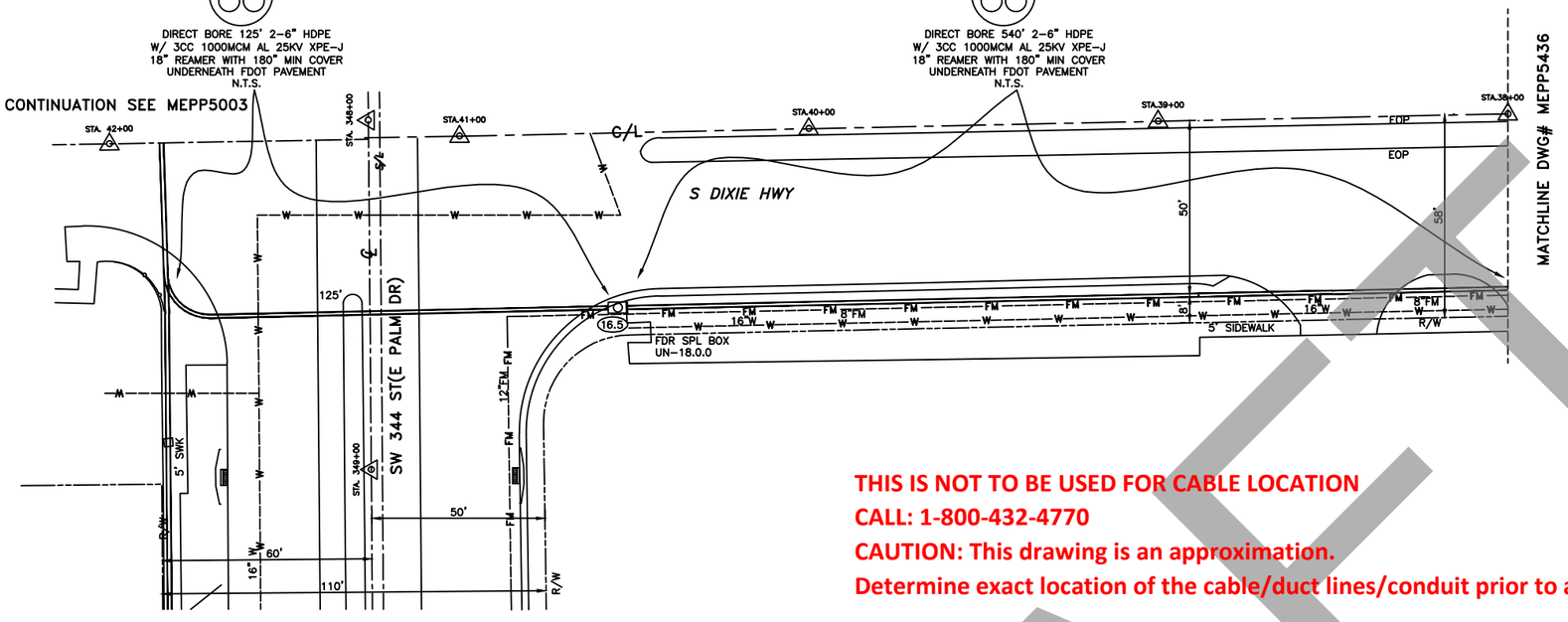
REQUIRED DRAWINGS
FOR REQUIRED DRAWINGS & NOTES SEE 7115-5
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

The location and existence of any facilities may not be relied upon by the supplier in responding to a bid or in complying with any contract. Supplier is responsible for evaluating site conditions both above and below ground including underground facility locations.

DIRECT BORE 125' 2-6" HDPE
W/ 3CC 1000MCM AL 25KV XPE-J
18" REAMER WITH 180" MIN COVER
UNDERNEATH FDOT PAVEMENT
N.T.S.

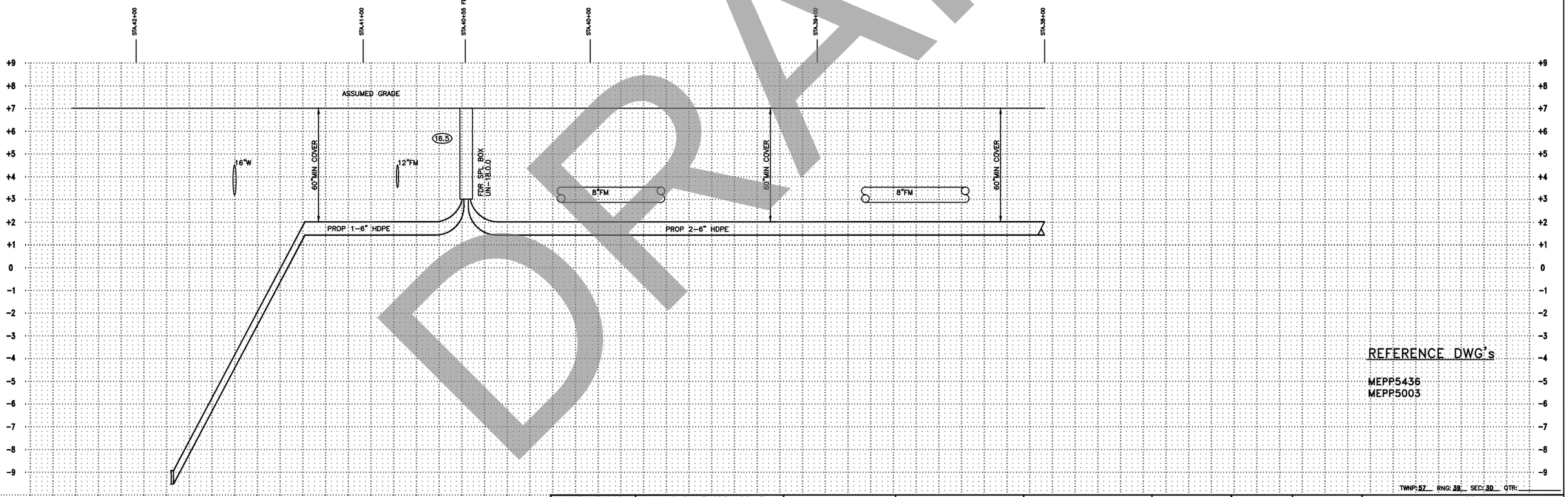
DIRECT BORE 540' 2-6" HDPE
W/ 3CC 1000MCM AL 25KV XPE-J
18" REAMER WITH 180" MIN COVER
UNDERNEATH FDOT PAVEMENT
N.T.S.

FOR CONTINUATION SEE MEPP5003



FOR CONTINUATION SEE MEPP5003

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-4770
CAUTION: This drawing is an approximation.
Determine exact location of the cable/duct lines/conduit prior to any subsurface operation in this area



REFERENCE DWG's

MEPP5436
MEPP5003

TWNP: 57 RNG: 39 SEC: 30 QTR:

PLOT DATE: 2/9/2017 PLOT TIME: 11:45:17 AM CAD NAME: BWB

	6679799	0	05/11/16	PRELIMINARY BACKGROUND
ASBUILT	AUTH NO.	NO.	DATE	REVISION

AS-BUILT COPY — AS-BUILT CREW PRINT

Initials Cert. Date — Foreman's Signature — Date

Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.

Supervisor's Signature — Date

All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.

Foreman's Signature — Date

Easement?	YES ☐ NO ☐	Survey/Stake?	YES ☐ NO ☐	Work with SMO?	YES ☐ NO ☐
Tree Work?	YES ☐ NO ☐	Designer/Stake?	YES ☐ NO ☐	CT/Special Mtr?	YES ☐ NO ☐
Map Posting?	YES ☒ NO ☐	Trench Feet		Duct Bank Feet	

Posted by

PERMIT REQD: CITY ☐ DR. DIST. ☐ COUNTY AIR ☐ STATE RD ☐ FAA ☐ WMD ☐ RR XING ☐ COUNTY RD. ☐ TRANSM. ☐

Telephone Request? YES ☐ NO ☐ CATV Request? YES ☐ NO ☐

FPL

DESIGNED BY	S. PRESTON
DRAWN BY	R. SMITH
DATE	05/11/16
MAP NO.	DJ-0541

HORIZ. 0 10 20 40 — VERT. 0 1.0 2.0 4.0

M/A: SD

FLORIDA CITY CIF UNDERGROUND SYSTEM

SW 344 ST TO DIXIE HWY
FLORIDA CITY/MIAMI-DADE COUNTY,FL

DWG NO. MEPP5435

WR: 6679799 IWR: D066-79-799

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-4770
CAUTION: This drawing is an approximation.
Determine exact location of the cable/duct lines/conduit prior to any subsurface operation in this area

☐ INACCESSIBLE ☒ 13KV ☐ FUTURE 23KV ☐ 23KV ☐ SALT SPRAY ☐ NULL

N

CONSTRUCTION NOTES – WR# 6679799

REQUIRED DRAWINGS
FOR REQUIRED DRAWINGS & NOTES SEE 7115-5
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

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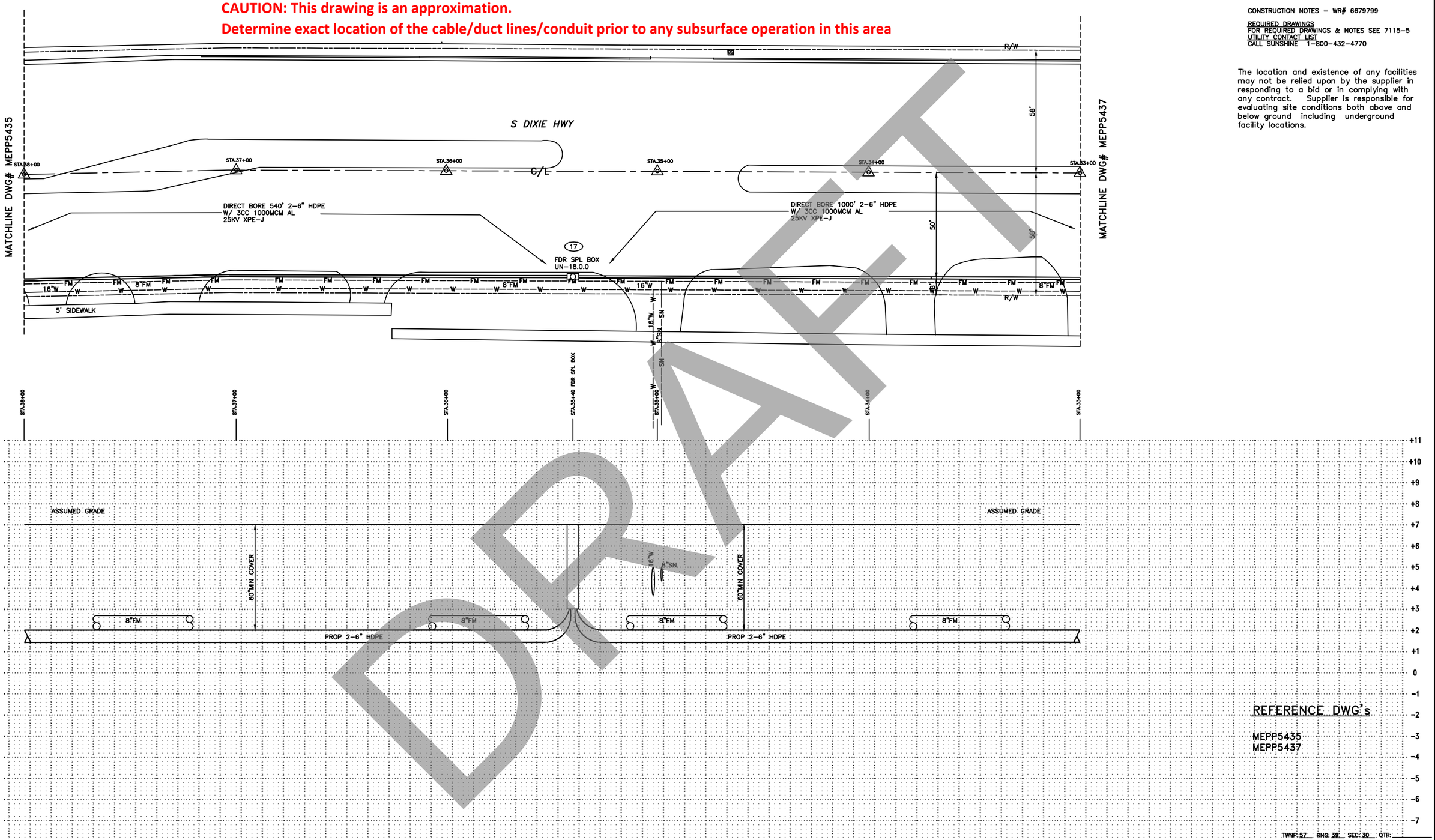

REFERENCE DWG's

MEPP5435
MEPP5437

TWNP: 57 RNG: 39 SEC: 30 QTR:

PLOT DATE: 9/20/2016 PLOT TIME: 1:26:39 PM CAD NAME: JSO

	6679799	0	05/12/16	PRELIMINARY BACKGROUND
ASBUILT	AUTH NO.	NO.	DATE	REVISION

AS-BUILT COPY — Initials / Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature / Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature / Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature / Date

Easement? YES ☐ NO ☐
Tree Work? YES ☐ NO ☐
Map Posting? YES ☒ NO ☐
Posted by

Survey/Stake? YES ☐ NO ☐
Designer/Stake? YES ☐ NO ☐
Trench Feet
Work with SMO? YES ☐ NO ☐
CT/Special Mtr? YES ☐ NO ☐
Duct Bank Feet

PERMIT REQ'D: CITY ☐ DR. DIST. ☐ COUNTY AIR ☐ STATE RD ☐ FAA ☐ WMD ☐ RR XING ☐ COUNTY RD. ☐ TRANSM. ☐

Telephone Request? YES ☐ NO ☐ CATV Request? YES ☐ NO ☐

DESIGNED BY	S. PRESTON
DRAWN BY	R. SMITH
DATE	05/12/16
MAP NO.	DJ-0541

HORIZ. 0 10 20 40 — VERT. 0 1.0 2.0 4.0

M/A: SD
FLORIDA CITY CIF
UNDERGROUND SYSTEM
SW 344 ST TO DIXIE HWY
FLORIDA CITY/MIAMI-DADE COUNTY,FL
DWG NO. MEPP5436
WR: 6679799 IWR: D066-79-799

INACCESSIBLE | [X] 13KV | FUTURE 23KV | 23KV | SALT SPRAY | NULL

THIS IS NOT TO BE USED FOR CABLE LOCATION
CALL: 1-800-432-4770
CAUTION: This drawing is an approximation.
Determine exact location of the cable/duct lines/conduit prior to any subsurface operation in this area

N

CONSTRUCTION NOTES – WR# 6679799

REQUIRED DRAWINGS
FOR REQUIRED DRAWINGS & NOTES SEE 7115-5
UTILITY CONTACT LIST
CALL SUNSHINE 1-800-432-4770

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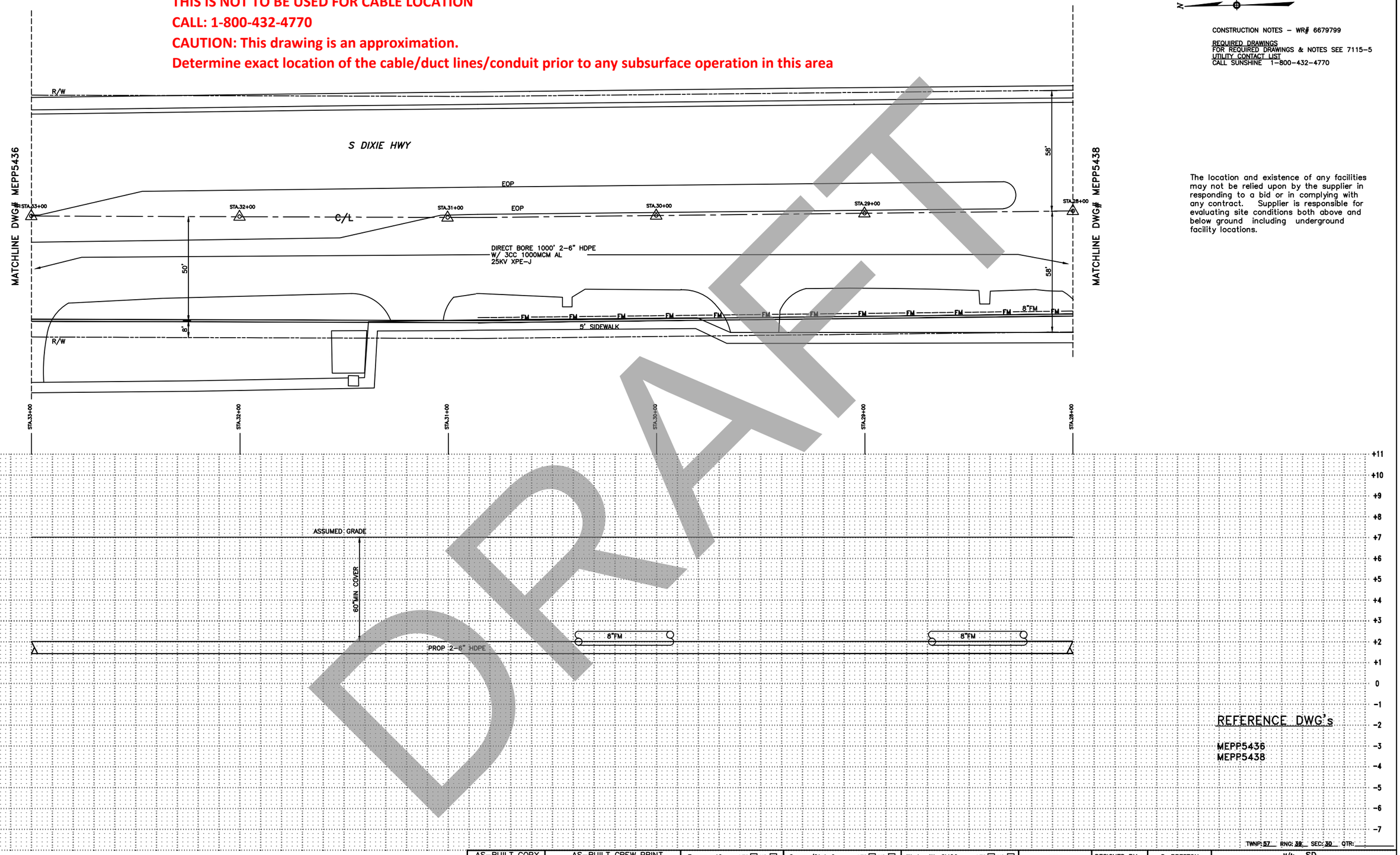


REFERENCE DWG's

MEPP5436
MEPP5438

TWNP: 57 RNG: 39 SEC: 30 QTR:

PLOT DATE: 9/20/2016 PLOT TIME: 1:22:11 PM CAD NAME: JGO

	6679799	0	05/12/16	PRELIMINARY BACKGROUND
ASBUILT	AUTH NO.	NO.	DATE	REVISION

AS-BUILT COPY — Initials — Cert. Date
AS-BUILT CREW PRINT — Foreman's Signature — Date
Job CERTIFIED COMPLETED as shown on this AS-BUILT print. Material changes shown on ROS.
Supervisor's Signature — Date
All required ground rods Have been driven & verified to be within FPL standards. Values are shown at all locations.
Foreman's Signature — Date

Easement? YES [ ] NO [ ]	Survey/Stake? YES [ ] NO [ ]	Work with SMO? YES [ ] NO [ ]	
Tree Work? YES [ ] NO [ ]	Designer/Stake? YES [ ] NO [ ]	CT/Special Mtr? YES [ ] NO [ ]	
Map Posting? YES [X] NO [ ]	Trench Feet	Duct Bank Feet	
Posted by	PERMIT REQD: CITY, DR. DIST., COUNTY AIR, STATE RD, FAA; WMD, RR XING, COUNTY RD., TRANSM.		
	Telephone Request? YES [ ] NO [ ]	CATV Request? YES [ ] NO [ ]	

FPL

DESIGNED BY	S. PRESTON
DRAWN BY	R. SMITH
DATE	05/12/16
MAP NO.	DJ-0541

HORIZ. 0 10 20 40 — VERT. 0 1.0 2.0 4.0

M/A: SD
FLORIDA CITY CIF
UNDERGROUND SYSTEM
SW 344 ST TO DIXIE HWY
FLORIDA CITY/MIAMI-DADE COUNTY,FL

DWG NO. **MEPP5437**
WR: **6679799** IWR: **D066-79-799**

APPENDIX C

Utility Agency Owner Responses

Florida Power & Light - Transmission


159A7
159A7
159A8
159A8
E Mowry Dr
159A9
159A9
159A10
159A10
Mowry Dr
West Dade Expy
West Dade Expy
FLORIDA TURNPIKE
159A11
159A11
NE 18th Ave
159A12
159A12

APPENDIX C

Utility Agency Owner Responses

Florida Gas Transmission

COMPONENTS OF CONTRACT PLANS SET

CONCEPT PLANS

INDEX OF CONCEPT PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2 thru 9	ROADWAY PLAN

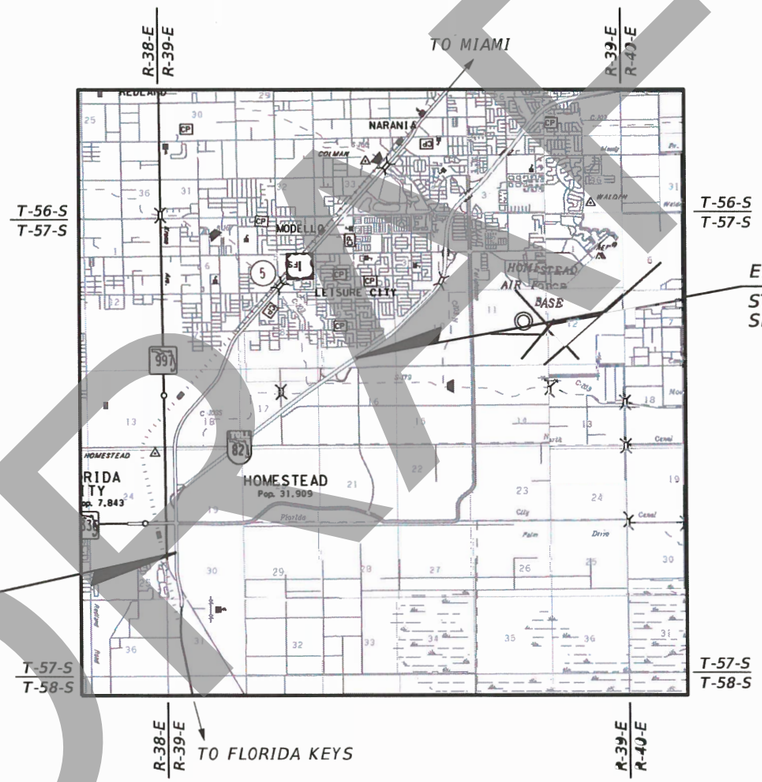
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

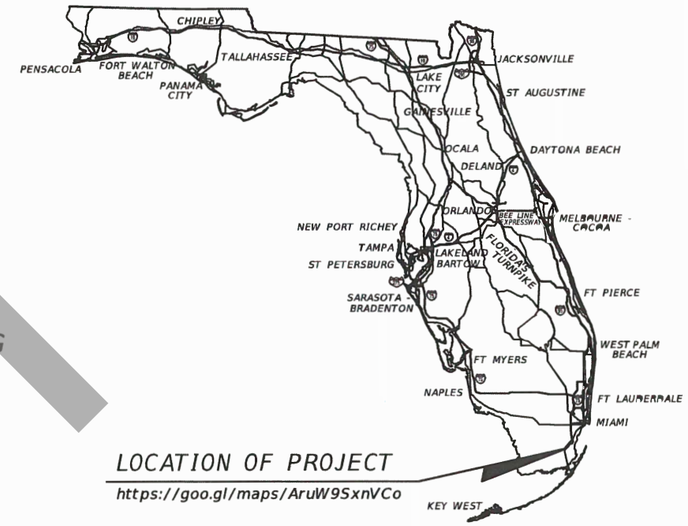
CONTRACT PLANS

FINANCIAL PROJECT ID 439545-1-22-01

MIAMI-DADE COUNTY (874710)

SR 5 (US 1) AND SR 821 (FLORIDA'S TURNPIKE) WIDENING
FROM SOUTH OF PALM DRIVE TO CAMPBELL DRIVE





LOCATION OF PROJECT
https://goo.gl/maps/AruW9SxnVCo

N

1 0 1 2
Miles

PLANS PREPARED BY:

STANLEY CONSULTANTS, INC.
1641 WORTHINGTON ROAD, SUITE 400
WEST PALM BEACH, FL 33409
CERTIFICATE OF AUTHORIZATION 1978
VENDOR NO. VF-421329758-001
CONTRACT NO. C9X28

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2018-19 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: http://www.fdot.gov/design/standardplans

APPLICABLE IRs:

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, January 2019 Standard Specifications for Road and Bridge Construction at the following website: http://www.fdot.gov/programmanagement/Implemented/SpecBooks

INITIAL UTILITY COORDINATION
AUGUST, 2018

FDOT PROJECT MANAGER: RAX JUNG, P.E.
GEC PROJECT MANAGER: BRIAN P. RIBARIC, P.E.

FISCAL YEAR	SHEET NO.
22	1

WARNING:

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0 50 200
Feet

EXISTING 6.625" O.D. x 0.188" W.T., GRADE B, NATURAL GAS TRANSMISSION PIPELINE (FLBUY)

MOWRY DR.

NE 18TH AVE./SW 162ND AVE.

R/W LINE

LA R/W LINE

3605 3610 3615 3620 3625 3630

SB LANES SR 821 (FLA'S TURNPIKE)

NB LANES SR 821 (FLA'S TURNPIKE)

SE 12TH TERRACE

SE 15TH AVE

SE 16TH AVE

SE 17TH AVE

SE 5TH ST.

GATEWAY CHURCH

SW 320TH ST.

DRAFT

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REVISIONS			
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ROADWAY PLAN

SHEET NO. 7

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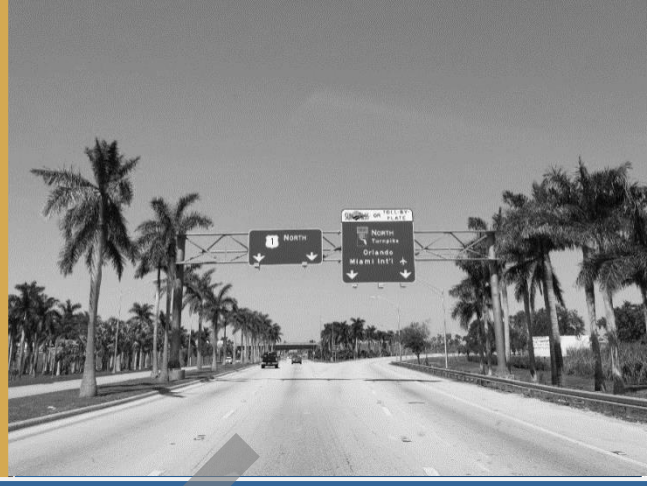
Appendix J

Landscape Aesthetic Assessment Technical Memorandum



Draft Landscape Aesthetic Assessment Technical Memorandum

Florida's Turnpike (SR 821) Widening
Project Development and Environment (PD&E) Study
from US 1 (South of Palm Drive) to Campbell Drive | Miami-Dade County, Florida

FM No. 439545-1-22-01

Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069 | Ocoee, FL 34761

September, 2020

FDOT

FLORIDA'S TURNPIKE

Draft Landscape Aesthetic Assessment Technical Memorandum

Miami-Dade County, Florida
FM No: 439545-1-22-01| ETDM No: 14322

Prepared for
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Florida's Turnpike Mile Post 263
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September 2020

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FIGURES

Section 1

Introduction

1.1 Introduction

This memorandum documents the preliminary Landscape Aesthetic Assessment process and coordination efforts used to develop and evaluate the Turnpike Extension (SR 821) Widening Project Development and Environment (PD&E) Study from US 1 (south of Palm Drive) to Campbell Drive.

1.2 Project Description

The Turnpike Extension (SR 821) is a Strategic Intermodal System (SIS) limited access toll highway connecting the Florida Keys, the City of Florida City, and the City of Homestead with the greater Miami-Dade County region. The Turnpike Extension is the primary evacuation route connecting with the Florida Turnpike (SR 91) near the Miami-Dade/Broward County line.

This PD&E Study evaluates the southern three (3) miles of the Turnpike Extension within Miami-Dade County and the two local municipalities which are the City of Florida City and the City of Homestead. The PD&E study limits are from US 1 (south of Palm Drive) to Campbell Drive/SW 312nd Street. Turnpike milepost (MP) 0.00 is located at US 1 and MP 3.0 is located at the Campbell Drive interchange. (See **Figure 1-1**).

The proposed improvements include widening the existing four-lane expressway and bridges to six (6) lanes between US 1 and Campbell Drive; improving the US 1 interchange with a new ramp over Palm Drive, adding a partial interchange at Lucy Street, and converting the taper ramps to parallel ramps at the Campbell Drive interchange. Bridge widening and/or minor improvements are proposed at Lucy Street, SW 162nd Avenue, C-103 Canal and Campbell Drive. Two new bridges are proposed over the US 1 northbound lanes and over Palm Drive. This project

does anticipate acquisition of new right of way along the east side of US 1 south of Palm Drive and at the Lucy Street interchange.

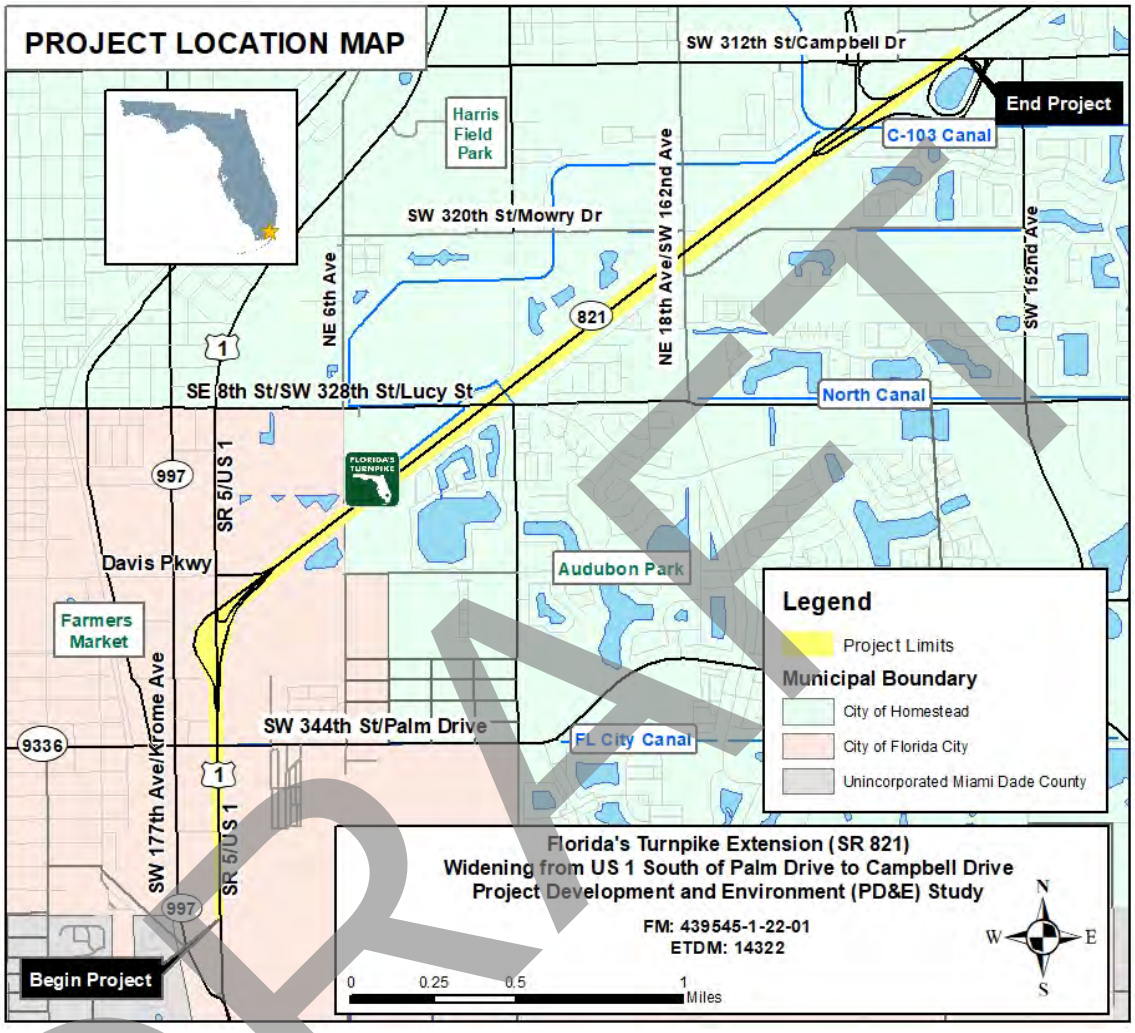


Figure 1-1 Project Location Map

1.3 Purpose and Need

The primary purpose of the project is to enhance traffic operations and safety. The secondary purpose of this project is to accommodate the existing and future traffic demand, enhance regional mobility and improve evacuation/emergency response.

The existing four-lane divided tollway experiences congestion in the typical am/pm peak hour and during the heavy inbound peak periods when traffic is heading south to the Florida Keys. The traffic operations continue to deteriorate through the Design Year 2045 dropping to Level of Service (LOS) F. The detailed analysis is documented in the Systems Interchange Justification Report (SIJR).

The local municipality, City of Homestead identified the need for improved regional mobility with additional Turnpike access between the US 1 and Campbell Drive interchanges. The US 1 interchange is in Florida City and the Campbell Drive interchange is located at the north boundary of the City of Homestead. The central region lacks adequate access to the Turnpike system and the City of Homestead requested a new interchange at Lucy Street.

Section 2

Existing Context & Landscape Approach

2.1 Existing Context & Landscape Approach

For the purpose of this Landscape aesthetic assessment, the limits of the project have been divided into three distinct areas in order to analyze their existing context and the design and aesthetic considerations that will form the landscape approach for each area. US 1/SR 5/ South Dixie Highway (Sta. 38+00.00 to Sta. 80+00.00); US 1 Interchange and Turnpike Homestead Extension (SR 821) on/off ramps; and Turnpike Homestead Extension/SR 821 (Sta. 3535+00.00 to Sta. 3680+00.00).

US 1/SR 5/ South Dixie Highway (Sta. 38+00.00 to Sta. 80+00.00)

- This is the southernmost section of the project, located within the limits of the City of Florida City, near the City of Homestead and Unincorporated Miami-Dade. This portion of the US 1 corridor represents a primary gateway to the Florida Keys and the Everglades. The character of the corridor is for the most part a commercial thoroughfare with some large tracts of undeveloped land. There are numerous commercial signs and some billboards along both sides of the corridor.

- It is evident that District 6 and the City of Florida City have invested in the aesthetic of the corridor in key areas. Most of the long, curbed medians are planted with large and small palms, as well as the approaches to the on/off ramps to and from the Turnpike Extension (SR 821). A gateway electronic sign structure, at the southernmost point of the corridor, reinforces Florida City's character as the last stop on the mainland north of the Florida Keys.

- The proposed south bridge along US 1 over Palm Drive will impact the existing landscape assets in the medians and the Turnpike on/off ramp approaches. All these desirable trees should be relocated to new locations in coordination with the corresponding jurisdictional agencies.

- The ramps' MSE walls in this section provide opportunities for artful aesthetic enhancements, including graphic insets with themes that can help enhance the corridor's gateway character. Plantings in medians under bridges is not recommended per Florida's Turnpike guidance. Hardscape alternatives, such as stamped / colored concrete or paver installation will be carefully evaluated during the final design phase of project development.

US 1 Interchange and Turnpike Extension (SR 821) on/off ramps

- This interchange is located within the limits of the City of Florida City. The on/off ramp approaches to this interchange as well as the median along US 1 have been extensively landscaped with a variety of palms, mostly Bismarck and Royal palms, and trees. This is evidence of the investment in the pleasing aesthetic landscape character of this interchange. The elevated off ramp to US 1 provides extensive views of the landscaped dry retention infield areas.

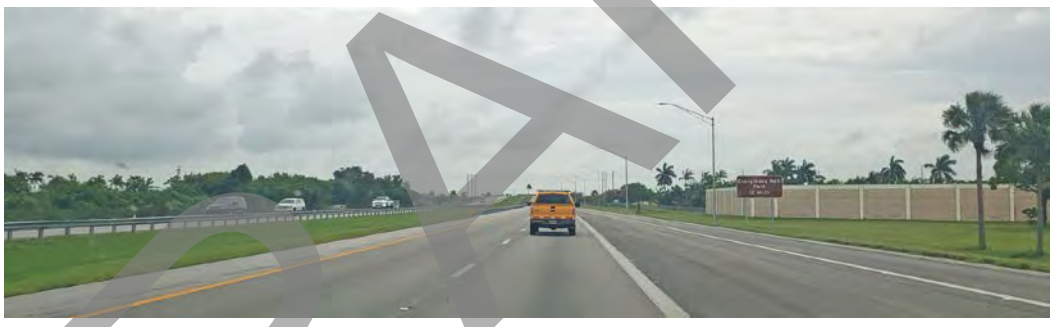
- The roadway improvements proposed at the US 1 Interchange will impact the existing landscape areas along the ramps. The two proposed ponds and new ramps will impact the existing landscaped dry retention infield areas. These existing trees represent valuable landscape assets that should be relocated prior to construction.

- The ramps MSE walls on this section provide additional opportunities for artful aesthetic enhancements, including graphic insets with themes that can help enhance the corridor character. The new infield areas and areas along the proposed north bridge provide opportunities for future landscape enhancement and large tree planting, creating opportunities for aesthetically pleasing views from the ramps and the north bridge.

Turnpike Extension/ SR 821

- The southern portion of this section of the project is located within the City of Florida City, most of this southern portion of the corridor is located within the City of Homestead. It is characterized by flush shoulders and flush medians with guardrail, for the most part on one side, alternating from the north and south side. The Florida Turnpike has invested largely in enhancing the open road character of this corridor by planting a large number of palm trees along both sides of the Turnpike Extension right of way, south of Lucy Street/SE 8th St.

- North of Lucy Street/SE 8th St. the corridor is very open with just grass and almost no trees planted on either side of the Turnpike Extension right of way, except for a couple of trees along the northbound lanes. There are groups of sabal palms south of the C-103 Canal along both sides of the corridor and some sporadic Royals palms in the median on both sides of the of the bridges over the C-103 Canal and Campbell Drive.

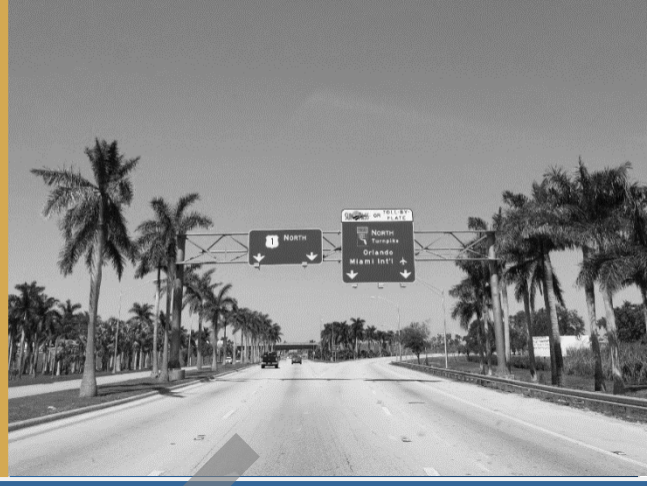


- The widening of the Turnpike Extension will impact the landscape assets on both sides of the right of way, south of Lucy Street/SE 8th St. The trees impacted by roadway improvements and new clear zone requirements should be relocated prior to construction and the rest should be protected from construction activities if feasible.

- This corridor provides opportunities to continue and improve on the existing landscape aesthetic theme north of Lucy Street/SE 8th St, such as planting palms and canopy trees along both sides of the corridor's right of way. Landscape improvements should take special consideration to enhance the approaches to the bridges over the C-103 Canal and Campbell Drive. During the design phase, it would be beneficial to evaluate the feasibility of adding protective guardrail to both sides of the median to be able to provide trees within the median and continue to improve the landscape aesthetic of the corridor.

Appendix K

Interchange Alternatives Analysis Technical Memorandum



Draft Interchange Alternatives Analysis Technical Memorandum

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Florida Department of Transportation
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January 2020

FDOT

FLORIDA'S TURNPIKE

Executive Summary

This memorandum documents the analysis process used to develop and evaluate interchange alternatives for the Turnpike Extension (SR 821) Widening Project Development and Environment (PD&E) Study from US 1 South of Palm Drive to Campbell Drive. The following documents provide additional information noted in this memorandum:

- Typical Section Analysis Technical Memorandum
- Lucy Street Interchange Feasibility Study Technical Memorandum

The interchange analysis was a comprehensive effort that considered the purpose and need, existing conditions, safety, evacuation needs, environmental effects, constructability, cost and adjacent projects either under study, design or construction.

The PD&E study focuses on widening the freeway segment within the median from four to six lanes between US 1 and Campbell Drive; improving the US 1 interchange, adding a new partial interchange at Lucy Street, and improving the auxiliary lanes at the Campbell Drive interchange. The Lucy Street interchange was evaluated separately and documented in a feasibility study which is included in **Appendix A**. The Campbell Drive interchange was evaluated during a previous PD&E study and modified with a subsequent design build project.

The US 1 interchange analysis incorporated a multi-step process starting with high-level concepts, reducing the concepts to several sketch-level concepts and selecting four concepts for detailed evaluation. An increasing level of traffic analysis was conducted as the alternatives were refined and carried forward to the environment, engineering and cost analysis portion of the study. The No-Build Alternative and two Build Alternatives A & B were advanced to PD&E for the US 1 interchange:

- No-Build Alternative
- Alternative A – Direct Connect
- Alternative B – Direct Connect plus Additional Improvements

An evaluation matrix was used to document advantages and effects of both Build Alternatives. It was found that Alternative B better addresses the weave issue on southbound US 1 with the existing Turnpike Extension off-ramp north of the Palm Drive intersection and provides better traffic operation with a slightly higher construction cost.

The Lucy Street interchange alternative advancing to the PD&E stage has one northbound on-ramp, one southbound off-ramp.

The Campbell Drive interchange improvements advancing to the PD&E stage modify the northbound on-ramp to a parallel merge lane over the bridge structure; add a southbound auxiliary lane to the loop-type off-ramp and add an auxiliary lane from the southbound on-ramp to the off-ramp at Lucy Street.

During the development of the concepts listed above, local agency coordination was conducted to solicit input on the concepts prior to the scheduled public meeting in January 2020. The agencies contacted include FDOT District 6, Miami-Dade County, City of Homestead and City of Florida City. These agencies were in support of the project concepts and recognized the need for the improvements.

The final recommended interchange alternative and the findings from the PD&E engineering and environmental analyses, public involvement, cost risk analyses and value engineering will be documented in the *Preliminary Engineering Report (PER)* and potential environmental effects will be documented in the *State Environmental Impact Report (SEIR)*.

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Appendices

1.0 Introduction

This memorandum documents the analysis process used to develop and evaluate interchange alternatives for the Turnpike Extension (SR 821) Widening Project Development and Environment (PD&E) Study from US 1 South of Palm Drive to Campbell Drive. The following documents provide additional information noted in this memorandum:

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1.1 Project Location

The Turnpike Extension from US 1 South of Palm Drive to Campbell Drive is located in Miami-Dade County spanning between the City of Florida City and the City of Homestead. Most of the land use adjacent to the mainline consists of residential with some farmlands. Land use adjacent to the two existing interchanges at both termini of the study limits are mostly commercial. A project location map is provided in **Figure 1**.

1.2 Project Purpose and Need

The purpose of the Turnpike Extension (SR 821) widening from US 1 South of Palm Drive to Campbell Drive PD&E Study is to provide additional capacity on this main expressway and reduce queuing spillback on the US 1 southbound off-ramp. The need for freeway capacity improvements is based on the travel demand increasing from 39,800 Annual Average Daily Traffic (AADT) to 75,300 AADT by year 2045. The existing four lane freeway will require widening to six lanes to meet Level of Service (LOS) standards. The US 1 southbound off-ramp experiences queueing into the mainline freeway segment up to 10,000 feet north of US 1 creating delay and poor safety conditions. This segment of Florida's Turnpike is a critical evacuation route. The needs for the PD&E study are as follows:

- Enhance operations and safety
- Accommodate travel demands
- Enhance evacuation and emergency response

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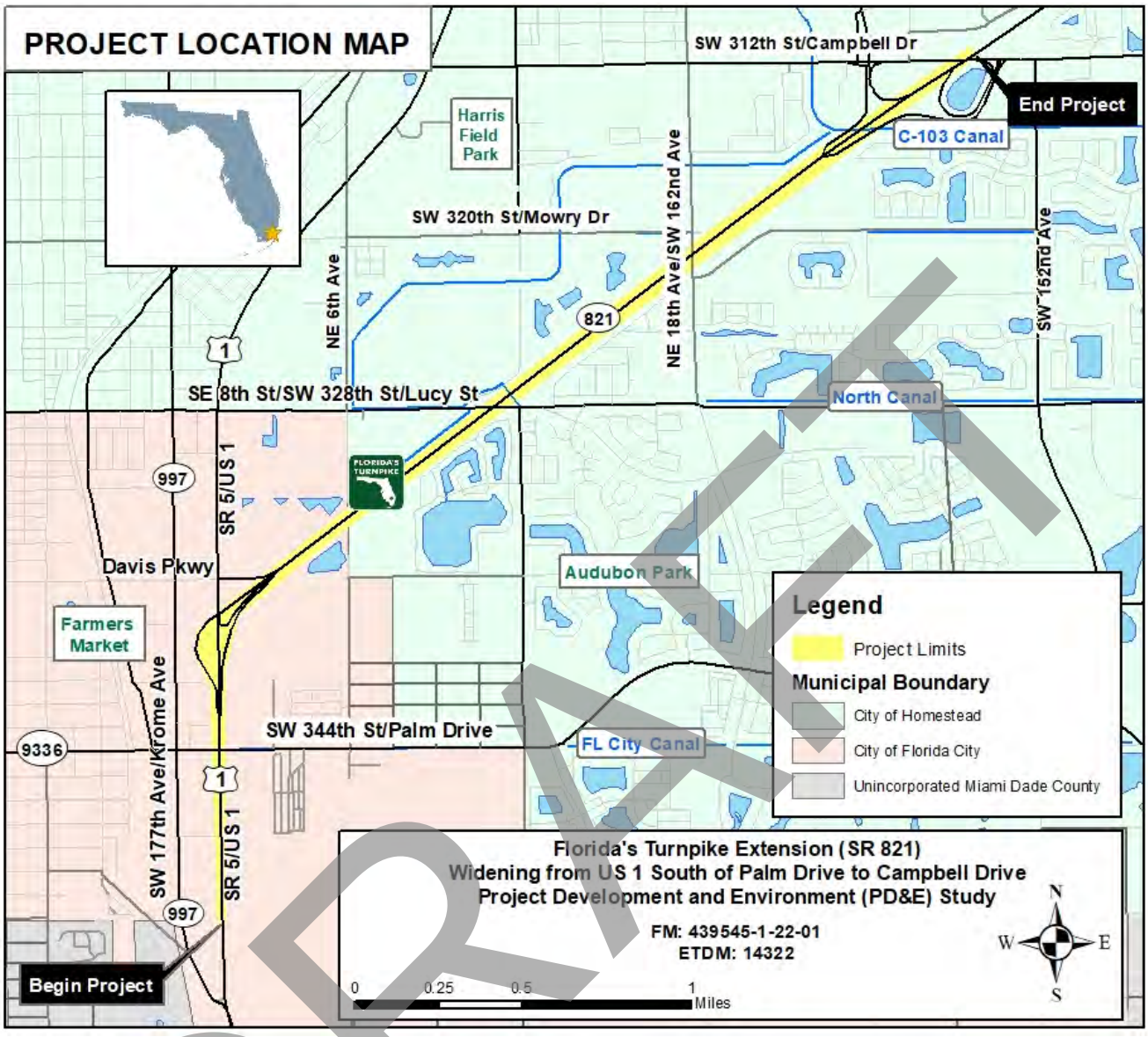

Figure 1 – Project Location Map

1.3 Turnpike Mainline Typical Section

1.3.1 Existing Turnpike Mainline Typical Section

The alignment of the Turnpike Extension PD&E segment is primarily oriented southwest to northeast within the PD&E study limits, located within a 300-foot right of way.

The existing four (4) lane typical section has a 64-foot median from north of the US 1 interchange up to the mainline curvature from milepost (MP) 2.438 to MP 2.554, just south of the Campbell Drive interchange, where the median width transitions/widens to 88-feet. North of the mainline curve, the ongoing design-build project is widening the mainline from 4-lanes to 6-lanes towards the median, reducing the existing 88-foot median to 64-feet. **Figure 2** shows the existing mainline typical section within the PD&E segment.

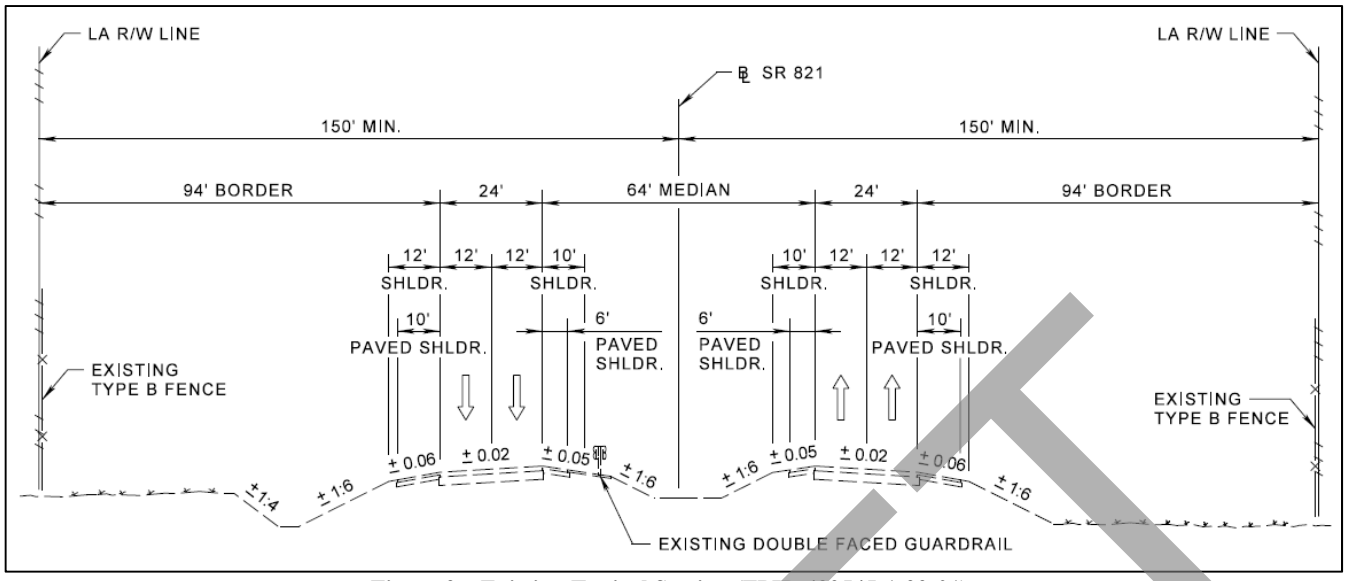

Figure 2 – Existing Typical Section (FPID 439545-1-22-01)

1.3.2 Proposed Turnpike Mainline Typical Section

The typical section analysis was documented in the Typical Section Analysis Technical Memorandum. All travel lanes are general toll lanes. Express lanes were not recommended in this section. The recommended typical section was Alternative 3 which widens northbound and southbound, one lane in the median with cross slope towards the centerline with the break between lane L1 and L2. Other typical section elements of this alternative include:

- 40-foot median
- Crown between L1 and L2 (Lane L1 slopes to median at 0.02 and L2 and L3 slope to outside at 0.02)
- No overbuild of existing cross slopes

All the interchange alternatives evaluated in this memo are compatible with this typical section mainline widening alternative. See **Figure 3** for Typical Section Widening Alternative 3.

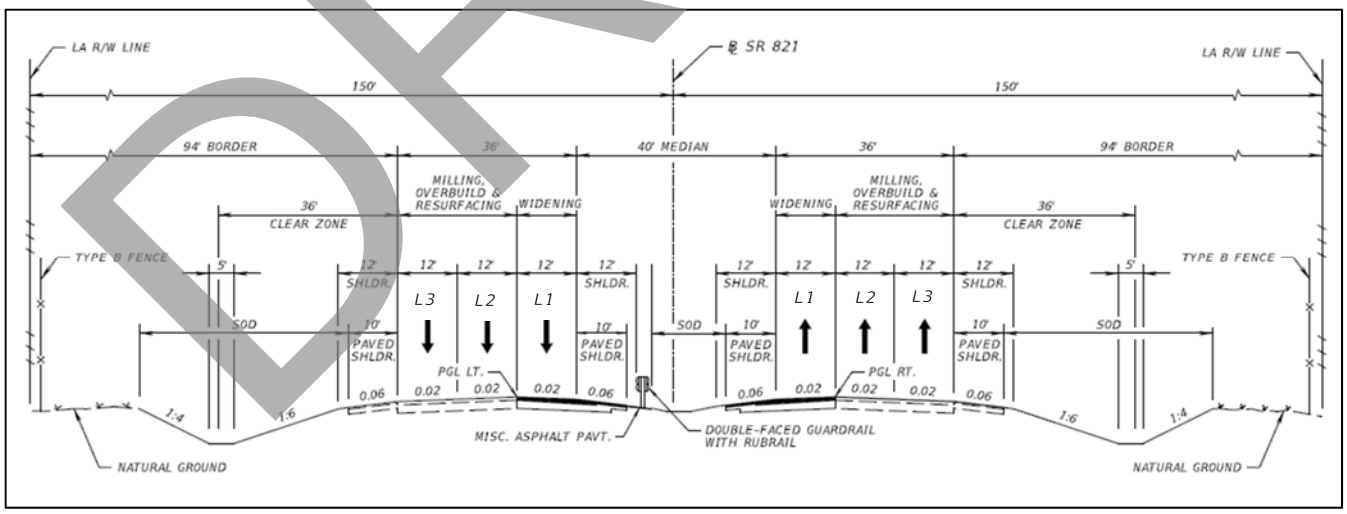

Figure 3 – Proposed Turnpike Typical Section Widening Alternative 3

1.4 Compatibility with Typical Section at Campbell Drive

1.4.1 Adjacent PD&E Study – Campbell Drive Interchange and Mainline

An adjacent PD&E Study was completed in 2014 for the Turnpike Extension from Campbell Drive north eleven (11) miles to the other US 1/SR 5 (MP 13.00) interchange (FPID 423372-1-22-01). That study proposed two ultimate recommended typical sections, one 6-lane typical section for the south section (Campbell Drive to SW 137th Avenue) and one 8-lane typical section for the north section (SW 137th Avenue to SW 216th Street). **Figure 4** shows the 6-lane typical section where the two studies connect at Campbell Drive. This section proposed a 63-foot median, with two general toll lanes and one express toll lane, separated by a 2-foot buffer.

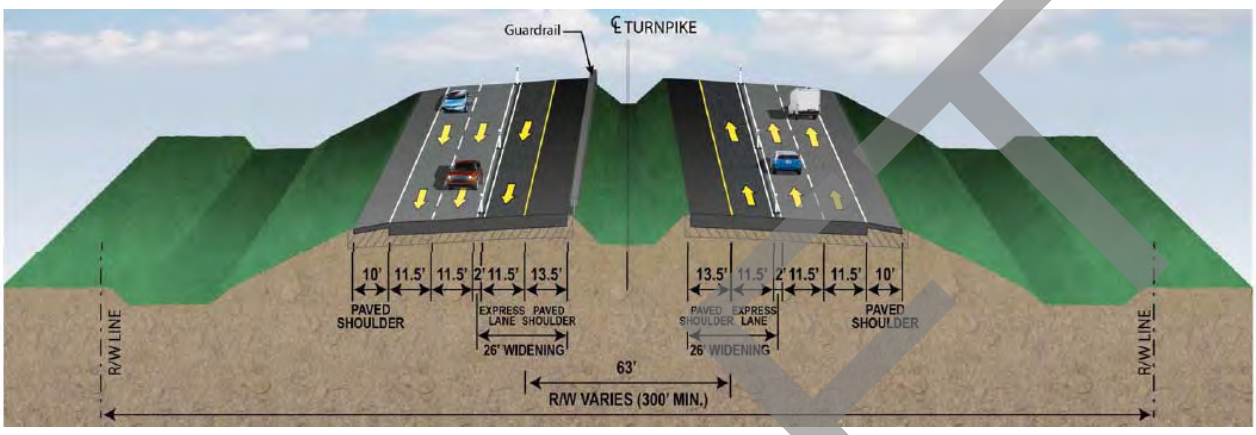

Figure 4 – Six-Lane Typical Section for Campbell Drive Interchange PD&E Study (FPID 423372-1-22-01)

1.4.2 Campbell Drive Interchange Design-Build Project

In 2018, a design-build project began construction at the Turnpike interchange at Campbell Drive (FPID 435462-1-52-01). At the time of this memorandum, construction is approaching completion. The design-build project is constructing interchange improvements, including a new northbound on-ramp. The design-build project includes inside mainline widening through the interchange area, with some pavement striped out for future use with the 6-lane widening south of Campbell Drive. At MP 2.60, where the PD&E study will connect, the design-build typical section provides a 64-foot wide median. The typical section from the design-build project can be seen in **Figure 5**.

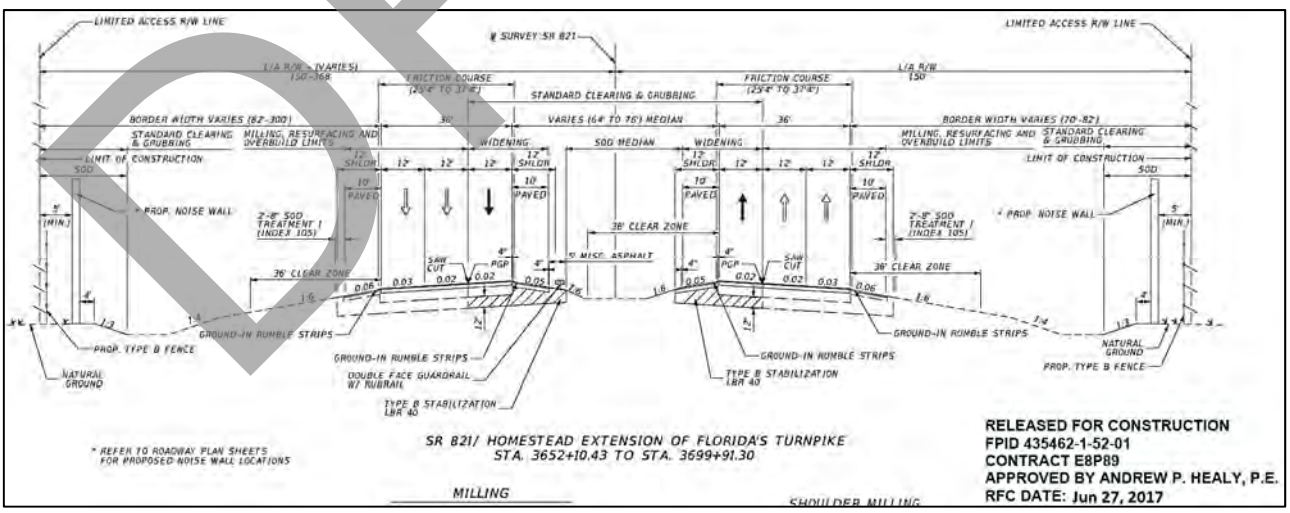

Figure 5 – Six-Lane Typical Section for Campbell Drive Design-Build Project (FPID 435462-1-52-01)

1.4.3 Turnpike Extension Express Lane Master Plan

According to the draft Turnpike Extension Conceptual Express Lane Master Plan (dated 1/31/2018), the planned express lanes will begin north of the Campbell Drive interchange. Express lane ingress and egress openings would occur north of the Campbell Drive interchange between Campbell Drive and SW 288th Street/Biscayne Drive.

The typical section analysis for the PD&E Study for the Turnpike Extension from US 1 to Campbell Drive concluded that all six proposed travel lanes (three each way) would be general toll lanes and that express lanes are not suitable for the Turnpike Extension south of Campbell Drive.

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1.5 Other Committed Improvements

Other "committed" roadway projects that were considered during the analysis of the interchange alternatives are listed below and shown as existing conditions in the concept plans.

1.5.1 East Palm Drive Widening

The City of Florida City along with Miami-Dade County have planned improvements along East Palm Drive from US 1 to SW 172nd Avenue. These improvements include widening the roadway to provide a six-lane divided facility and piping the existing canal. Palm Drive is owned and maintained by Florida City east of US 1 within these limits. The 100% design plans are dated May 2017.

1.5.2 US 1 and Palm Drive Intersection Improvements

FDOT District 6 has planned improvements along Palm Drive from SR 997/Krome Avenue to SR 5/US 1 (Truck By-Pass) (FPID 405575-8-52-01). These improvements include the addition of a southbound right turn lane at the intersection of US 1 and Palm Drive.

1.5.3 Davis Parkway

The Davis Parkway reconstruction project has planned improvements along Davis Parkway from west of SR 997/Krome Avenue to US 1 by District 6 Florida Department of Transportation (FDOT) (FPID 405575-7). These improvements include modifications to the two intersections at Krome Avenue and US 1. Krome Avenue ownership will transfer to Miami-Dade County between US 1 and Campbell Drive and will be removed from the State Highway System (SHS). US 1 will become the Strategic Intermodal System (SIS) roadway within these limits and Krome Avenue will become a local road maintained by Miami-Dade County as part of the SR 997/Krome Avenue Truck By-Pass PD&E Study.

Improvements planned at the Davis Parkway and Krome Avenue intersection include adding turn lanes on all approach legs of the intersection.

Improvements planned at the Davis Parkway and US 1 intersection include widening Davis Parkway west of US 1 and include adding turn lanes on the north and west leg of the intersection.

1.5.4 Lucy Street Widening

Lucy Street (SW 328th Street) was under construction in 2019 to reconstruct the two (2) lane rural roadway to an urban four-lane divided roadway from US 1 to SW 162nd Avenue. This project was underway by Miami-Dade County Public Works (Project Number 20040556) during the writing of this memorandum. These improvements include roadway reconstruction, drainage, lighting, signals, sidewalks, bicycle lanes and providing pier protection for the existing Turnpike bridge piers.

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2.0 Methodology

There are two existing interchanges within the PD&E Study area: US 1/SR 5 and Campbell Drive. The proposed interchange at Lucy Street was evaluated in a separate feasibility study.

2.1 US 1/SR 5 Interchange Alternatives Methodology

The Interchange Alternative Analysis for the US 1/SR 5 interchange was a multi-step process of evaluating and reducing the range of alternatives to move forward through detailed PD&E Study. These major steps were:

- High Level Concept Development
- Sketch-Level Concept Development
- Refined Concept Development
- Detailed Interchange Concept Development

The detailed interchange concepts underwent comprehensive analysis related to detailed traffic operations, typical sections, alignment geometry, turn lane needs, express use vs. general use, toll facility compatibility, access management, environmental effects, right-of-way needs, directional signing and business access. A long-range estimate (LRE) was prepared for these two interchange concepts.

- Alternative A
- Alternative B

2.2 Lucy Street Interchange Alternatives Methodology

A separate study, Lucy Street Feasibility Study, evaluated a new interchange with a northbound on-ramp and a southbound off-ramp. The feasibility study can be found in **Appendix A**.

2.3 Campbell Drive Interchange Alternatives Methodology

The Campbell Drive Interchange was evaluated during a prior PD&E study (FPN 423372-1), completed in 2014, for the Turnpike Extension corridor from Campbell Drive north to MP 13.00. An Interchange Modification Report (IMR) was completed in 2014, followed by a Design Traffic Report, which was completed in 2015. Therefore, all aspects of the Campbell Drive interchange were not evaluated under this PD&E study (FM 439545-1). However, improvements were identified by the Campbell Drive interchange design team that were incorporated into the alternatives for this PD&E study.

The design-build plans were reviewed to determine if minor interchange ramp modifications were required to better serve the widening south of Campbell Drive and to confirm all committed improvements meet current design criteria. A need to convert the northbound on-ramp and southbound off -ramp terminals from taper to parallel ramp connections was identified. This improvement is consistent with the Turnpike Design Handbook (TDH) section 211.13 which states that "to optimize safety and operations within interchanges, all new construction, widening, capacity improvement projects must provide parallel entrance and exits unless project specific circumstances warrant the need for tapered designs."

The geometric elements of the Campbell Drive interchange included in the PD&E study alternatives are:

- Northbound off-ramp parallel deceleration lane
- Northbound on-ramp parallel acceleration lane
- Southbound off-ramp parallel deceleration lane
- Southbound on-ramp auxiliary lane

2.4 Design Criteria

The design criteria and standards are based on design parameters outlined in A Policy on Geometric Design of Highways and Streets (AASHTO, 2011), FDOT Design Manual (FDM) (FDOT, 2020), Turnpike Design Handbook (TDH) (FTE, 2020), Load Rating Manual (FDOT, 2020), Roadside Design Guide (AASHTO, 2011) Load and Resistance Factor Design (LRFD) Bridge Design Specifications (AASHTO, Eighth Edition and 2018 Interims), Turnpike Supplemental to the FDOT Structures Manual (FTE, 2020), Turnpike Supplemental to the FDOT Drainage Manual (FTE, 2020) and General Tolling Requirements (GTR) (FTE 2019).

Tables 1 through **4** list the design criteria established for the interchange alternatives analysis.

Table 1 – Design Control Criteria

Design Element	Facility Type	Design Control		
		FDOT FDM	FTE TDH	AASHTO
Design Vehicle	All	WB-62FL	-	WB-62
Functional Classification		Interstate: Turnpike Extension;	Interstate & Ramps: Turnpike Extension	Interstate, Arterial
		Urban Arterial: US 1, Campbell Dr., Palm Dr.		
Design Year	All	2045	2045	2045
Design Speed	Ramp – Direct Connect	50 mph	-	40 mph
	Loop Ramp	30 mph	-	25 mph
	Urban Arterial – US 1, Campbell Drive	45 mph	-	30 mph

Table 2 – Horizontal Curve Criteria

Design Element	Facility Type	Design Control		
		FDOT FDM	FTE TDH	AASHTO
Maximum degree of Curve:	Ramps @ 50 mph – Direct Connect	8°15" (R=694 ft)	-	8°15" (R=694 ft)
	Urban Arterial @ 45 mph	10°15" (R=559 ft)	-	10°37" (R=540 ft)
Length of Horizontal Curve	Ramps – Direct Connect (V=Design Speed)	Desirable 30V= 1500 ft (50 mph);	-	-
		Minimum 15V=750 ft (50 mph)		
	Arterials	675 ft (45 mph)		
Minimum Stopping Sight Distance:	Ramps @ 50 mph	425 ft	-	425 ft
	Arterials @ 45 mph	360 ft	-	360 ft
Decision Sight Distance:	Ramps @ 50 mph	-	-	750 ft
	Arterials @ 45 mph	-	-	675 ft
Superelevation Transition	Tangent	80%	80%	50%-80%
	Curve	20%	20%	50%-20%
Maximum Superelevation	Ramps	10%	-	10%
	Arterials - Urban	10%	10%	6%
	Arterial - Curve	10%	10%	12%

Table 3 – Vertical Curve Criteria

Design Element	Facility Type	Design Standard		
		FDOT FDM	FTE TDH	AASHTO
Maximum Profile Grade	Ramp @ 50 mph	5%	-	4% level, 5% rolling, 6% mountainous
	Arterials @ 45 mph	6%	-	7% level, 8% rolling, 10% mountainous
Maximum Change in Grade without Vertical Curve	Ramp @ 50 mph	0.6	Min. distance between VPI's is 3 times DS = 150 ft	-
	Arterials @ 45 mph	0.7	-	-
Crest Vertical Curve	Ramps @ 50 mph	K=136, Minimum Length = 300 ft	Use K values for higher system ramp design speeds except at platform area	K=84 for DS=50 mph
	Arterials @ 45 mph	K=98 for DS=45 mph; Min Length = 90 ft	-	K=61 for DS=45 mph
Sag Vertical Curve	Ramps @ 50 mph	K=96, Minimum Length=200 ft	Use K values for higher system ramp design speeds except at platform area	K=96 for DS=50 mph
	Arterials @ 45 mph	K=79 for DS=45 mph; Min Length = 135 ft	-	K=79 for DS=45 mph
Minimum Vertical Clearance	Bridges over Mainline (Limited Access)	16.5' New; 16.0' Exist	-	14' Existing; 16' New
	Bridges over Cross Roads (Non-LA)	16.5' New; 16.0' Exist	-	14' Existing; 16' New
	Overhead Signs	17.5'	18.0' New	17'
	Dynamic Message Signs	19.5'	20.0' New	17'
	Toll Gantries		18.0'	
	Structure	-	18.0'	-
	Antennas & Cameras	-	18.5'	-
	VDAC	-	24.5'	-

Table 4 – Typical Section Criteria

Design Element	Facility Type	Design Standard		
		FDOT FDM	FTE TDH	AASHTO
Lane Widths:	One Lane Ramp	15 ft	-	15 ft
	Two Lane Ramp	24 ft	-	-
	Arterial (Urban General, DS=45 mph)	11 ft	-	10 ft – 12 ft
Shoulder Width – Roadway Inside (or Left):		Total (Paved)	Total (Paved)	Total (Paved)
	One Lane Ramp	6 ft (2 ft)	6 ft (4 ft)	4 ft (2 ft-4 ft)
	Two Lane Ramp	8 ft (4 ft)	8 ft(4 ft)	4 ft (2 ft-4 ft)
	Arterials – w/o shoulder gutter	10 ft (5 ft)	-	6 ft-8 ft (2 ft)
	With shoulder gutter	15.5 ft (8 ft)		
Shoulder Width – Roadway Outside (or Right):		Total (Paved)	Total (Paved)	Total (Paved)
	One Lane Ramp	6 ft (4 ft)	(4 ft)	6ft-10ft (6ft-10ft)
	Two Lane Ramp	12 ft (10 ft)	(10 ft)	6ft-10ft (6ft-10ft)
	Arterials – w/o shoulder gutter	10 ft (0 ft)	-	(2 ft)
	With shoulder gutter	15.5 ft (8 ft)		
Inside Shoulder Width – Bridge Structure	One Lane Ramp	6 ft	4 ft	4 ft
	Two Lane Ramp	10 ft	-	4 ft
	Arterials	10 ft	-	4 ft
Outside Shoulder Width – Bridge Structure	One Lane Ramp	6 ft	-	8 ft
	Two Lane Ramp	10 ft	-	8 ft
	Arterials	10 ft	-	10 ft
Typical Roadway Cross Section Slopes:	Ramps (New)	2%	3%	2% - 3%
	Inside Shoulder	5%	-	2% - 6%
	Outside Shoulder	6%	-	2% - 6%
	Arterials	2%, 2%, 3%	-	1.5% - 3%
Recoverable Terrain (Min. from edge of travel):	One Lane Ramp (50/30 mph)	14 ft/10 ft	Add Aux Lane CZ – 14 ft	-
	Two Lane Ramp (50/30 mph)	24 ft/12 ft	Add Aux Lane CZ – 14 ft	22 ft/14 ft
	Arterials – 45 mph	24 ft	-	20 ft-24 ft
Border Width:	Ramps/Mainline	94 ft (for new construction, where no r/w use items listed in 211.6.1)	-	-
	Arterials	14 ft – Urban General	-	8 ft

3.0 Future Traffic Conditions

3.1 Future Traffic Volumes

Design year 2045 traffic volumes were forecasted for two scenarios: typical AM and PM peak hours and heavy inbound traffic to the Florida Keys. The phrase "heavy inbound traffic" relates to the period when the highest southbound volumes heading from the mainland inbound to the Florida Keys. **Figures 6** and **7** depict the mainline and ramp design hour link volumes for the typical scenario and the heavy-inbound keys scenario, respectively. Detailed traffic forecasting methodology and results can be found in the Draft Design Traffic Technical Memorandum (DTTM) in **Appendix B**.

Mile Post-Interchange	DDHV			
	AM Peak		PM Peak	
	SB	NB	SB	NB
	5,870	4,000	4,000	5,870
2 – Campbell Drive	2,090	1,620	1,620	2090
	510	480	480	510
	4,290	2,860	2,860	4,290
0 – US 1 (To/From North)	1,270	850	850	1270
0 – US 1 (To/From South)	3,020	2,000	2,000	3,020

Figure 6 – 2045 DDHVs - Typical Scenario

Mile Post-Interchange	DDHV	
	SB	NB
	3,600	2,590
0 – US 1 (To/From North)	1,230	920
0 – US 1 (To/From South)	2,920	1,910

Figure 7 – DDHVs - Heavy Inbound Keys Scenario

The express lane tolling analysis was conducted early in the concept development. The tolling analysis determined the express lanes and direct connect ramps for Alternatives A and B were not sufficiently utilized to resolve the traffic congestion on the mainline off-ramps or at Palm Drive. Therefore, the express lane toll condition was dropped from further consideration for the segment between US 1 and Campbell Drive.

The AM (PM) directional design hourly volumes (DDHV) for Alternative A and Alternative B are listed in **Figures 8** and **9** below obtained from the DTTM.

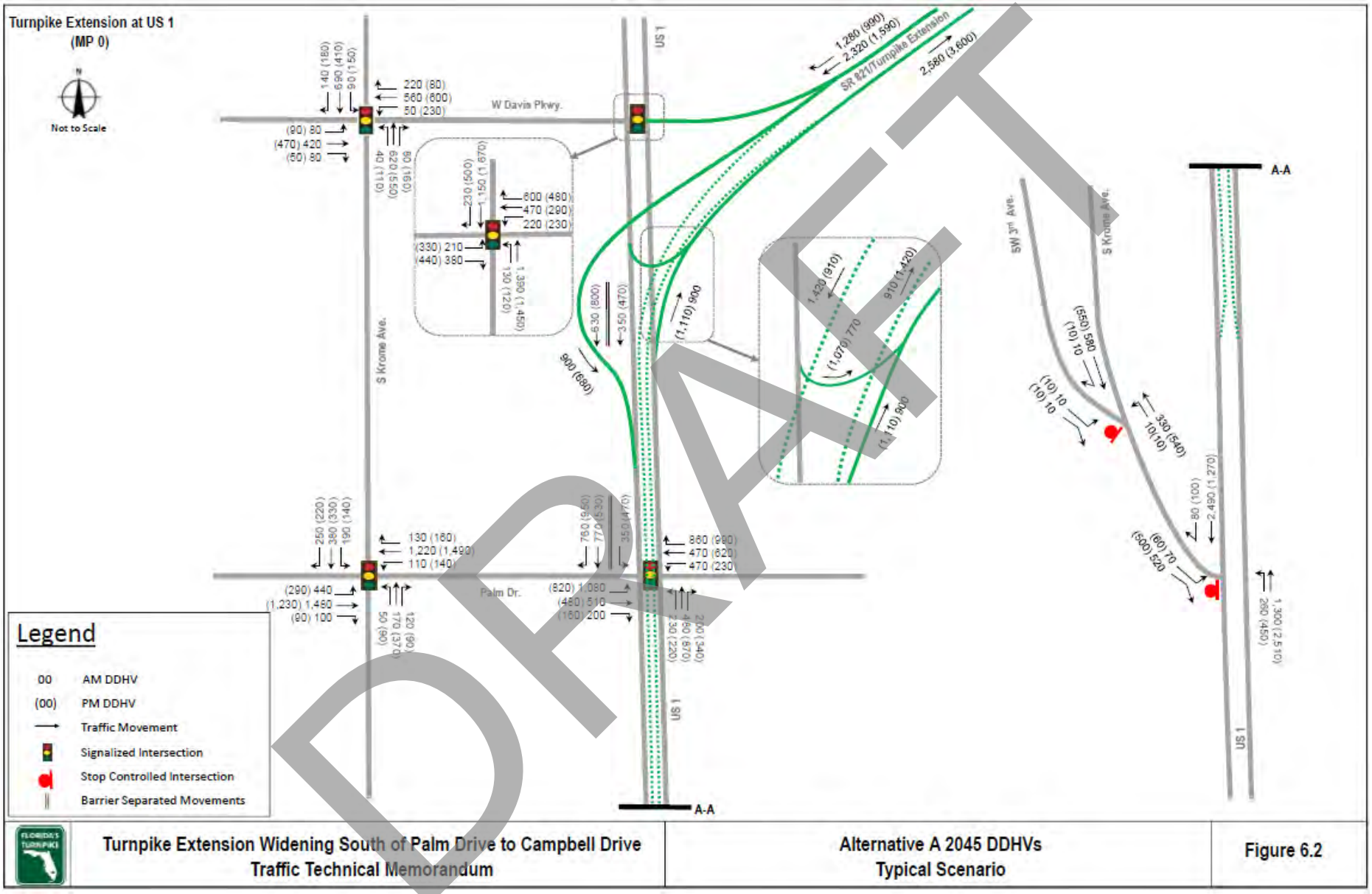

Figure 8 – Alternative A 2045 DDHVs Typical Scenario

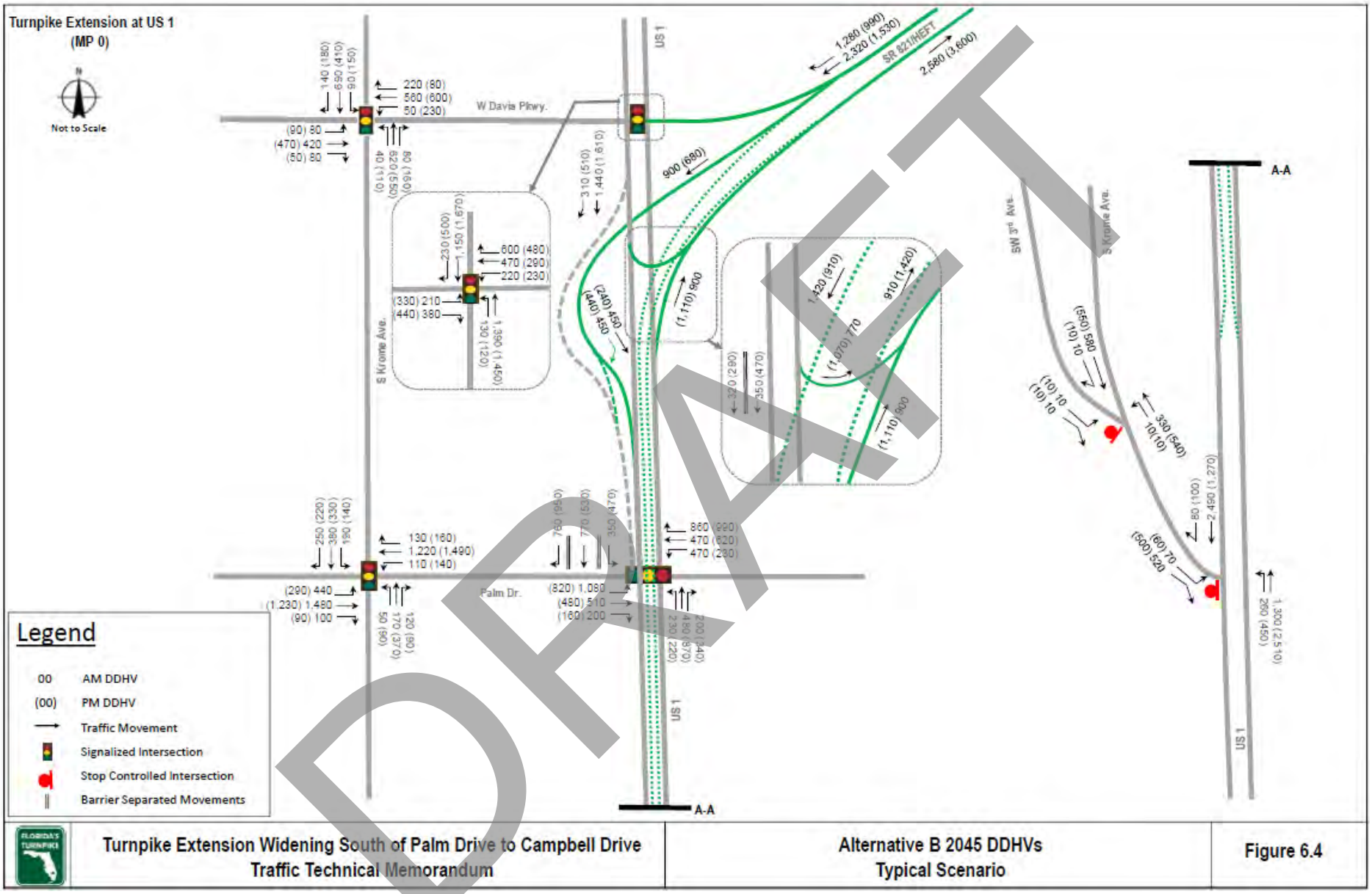

Figure 9 – Alternative B 2045 DDHVs Typical Scenario

4.0 US 1 Interchange Alternatives Analysis

4.1 Existing US 1 Interchange

The US 1 interchange is the southern terminus of the Turnpike tollway system and does not have a typical interchange layout. At the interchange area, US 1 is a Strategic Intrastate System (SIS) four (4) lane divided highway. The interchange has four ramps:

- 2 southbound off-ramps
  - 1 off-ramp to Davis Parkway
  - 1 off-ramp crossing over US 1 and merging with southbound US 1.
- 2 northbound on-ramps
  - 1 ramp (dual lanes) from northbound US 1
  - 1 ramp from southbound US 1.

The US 1 interchange ramps are depicted in **Figure 10** and are described as follows:

- Ramp 01 (Northbound US 1 to Northbound Turnpike On-Ramp) is a two-lane ramp with 12-foot lanes, 12-foot (10-foot paved) outside shoulder and 8-foot (6-foot paved) inside shoulder. The ramp slopes to the outside shoulder with a varying cross slope of approximately 0.02 to 0.07. A grassed swale exists adjacent to the outside shoulder. The inside shoulder drains away from the ramp to the interchange infield area.

- Ramp 02 (Southbound US 1 to Northbound Turnpike On-Ramp) is a one-lane ramp with a 15-foot lane, 6-foot (4-foot paved) outside shoulder and 6-foot (2-foot paved) inside shoulder. The ramp slopes to the inside shoulder at approximately 0.02 cross slope and then to the interchange infield area. The outside shoulder drains away from the ramp to a grassed swale.

- Ramp 03 (Southbound Turnpike to Davis Parkway Off-Ramp) is a one-lane ramp with a 15-foot lane, 6-foot (4-foot paved) outside shoulder and 6-foot (2-foot paved) inside shoulder. The ramp slopes to the outside shoulder at approximately 0.02 cross slope. Guardrail exists along both sides of the ramp. A grassed swale exists adjacent to the outside shoulder.

- Ramp 04 (Southbound Turnpike to Southbound US 1 Off-Ramp) is a one-lane ramp that bridges over US 1 and merges with southbound US 1. It has a 15 to 16-foot lane, 6-foot (4-foot paved) outside shoulder and 6-foot (2-foot paved) inside shoulder. The ramp slopes to the inside shoulder with a varying cross slope of approximately 0.04 to 0.10. Guardrail exists along both sides of the ramp and shoulder gutter is provided adjacent to the inside shoulder. A grassed swale or embankment slope exists adjacent to the outside shoulder.

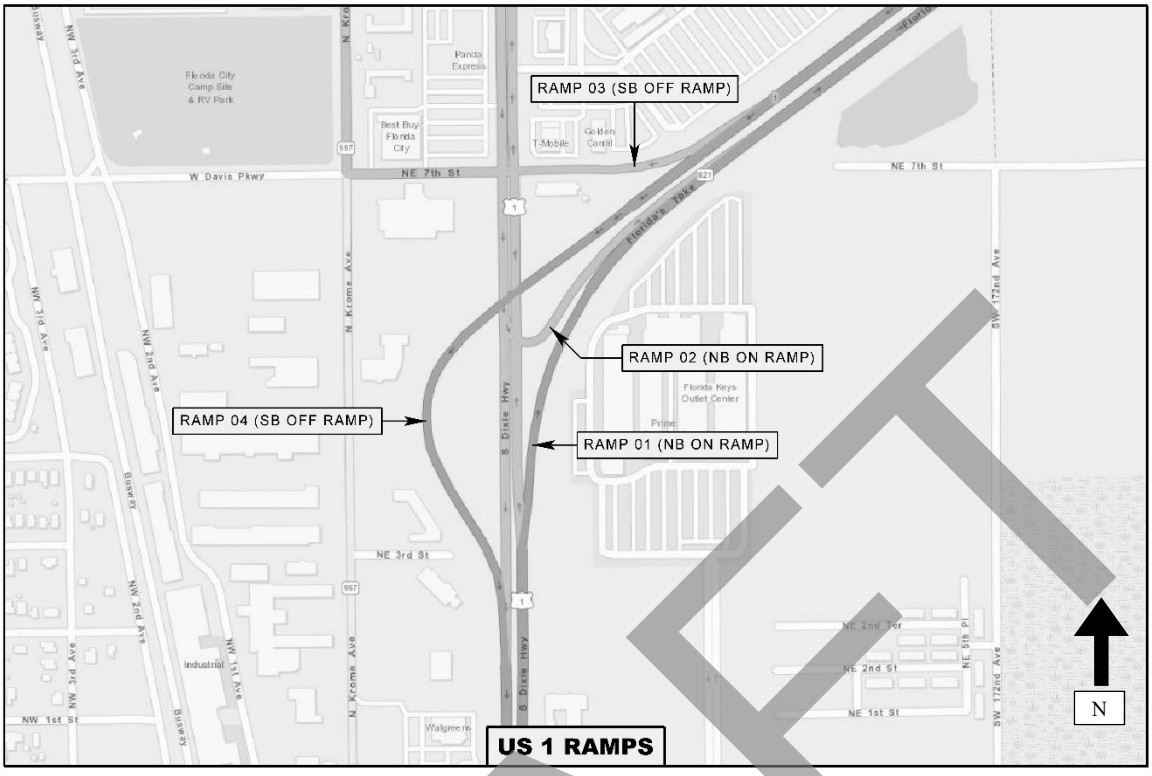

Figure 10 – Existing US 1/SR 5 Interchange

4.2 Initial US 1/SR 5 Interchange Concepts

4.2.1 High-Level Concept Development

Planning level or high-level concepts were developed initially based on known traffic operational issues which included:

(1) Weaving on southbound US 1 with Turnpike southbound off-ramp traffic,
(2) Delay and congestion at the intersection of US 1 and Palm Drive.

The overall goal was to identify those concepts to move forward for further review with traffic information. These concepts were reviewed during the first FTE Traffic Workshop held February 7, 2018. The following summarizes these high-level concepts, team review comments and whether the concept moves forward for further review.

High-Level Concept 1 – Direct Connect Over Palm Drive

Concept 1, seen in **Figure 11**, features a north-south grade-separated two-lane-two-way ramp connecting directly from the median of US 1 (south of Palm Drive) to the median of the Turnpike. The ramp allows much of the Florida Keys traffic to bypass the signalized intersection with Palm Drive, significantly improving intersection and overall interchange operations. ***Concept 1 moved forward for further review.***

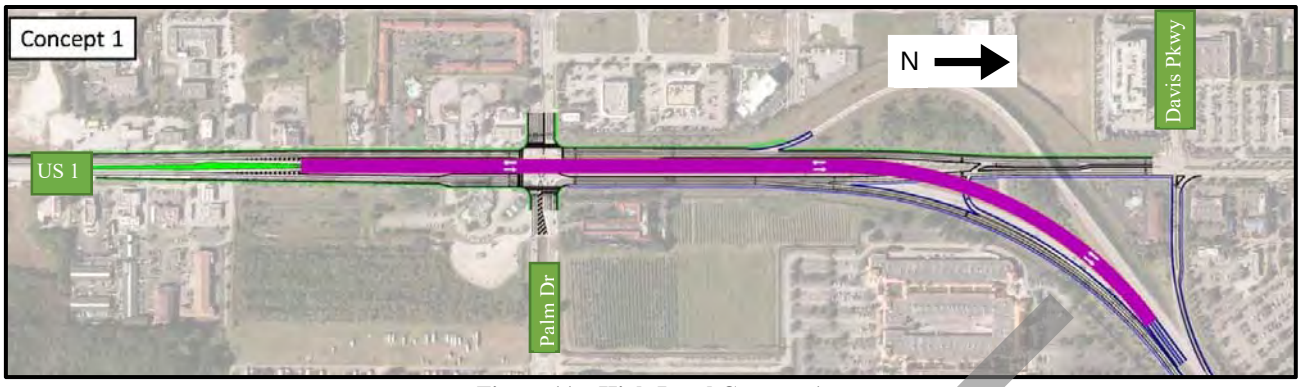

Figure 11 – High-Level Concept 1

High-Level Concept 2 – Direct Connect Over Palm Drive with Signal Exit Ramp

Concept 2, seen in **Figure 12**, provides a direct connect over Palm Drive just like Concept 1 but a signal is proposed at the Turnpike southbound exit ramp at US 1. Discussion with the Turnpike Traffic and Design team raised the concern of a signal at the off-ramp and creating additional backup on the Turnpike southbound exit ramp. Also, this concept does not address the congestion issues at the Palm Drive and US 1 intersection. ***This concept was dropped from further evaluation.***

Figure 12 – High-Level Concept 2

High-Level Concept 3 – Direct Connect Over Palm Drive with Signal at US 1 SB and Exit Ramp

Concept 3, seen in **Figure 13**, also provides a direct connect over Palm Drive like concept 1. It also provides a signal at the intersection of southbound US 1 and the southbound Turnpike exit ramp. The southbound off-ramp has higher traffic volumes than US 1. Team discussion raised the concern of a signal at the off-ramp similar to concept 2. ***This concept was dropped from further evaluation.***

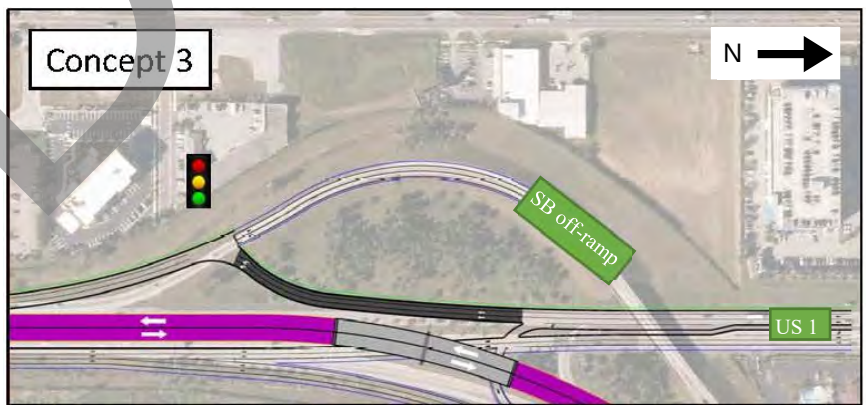

Figure 13 – High-Level Concept 3

High-Level Concept 4 – Direct Connect Over Palm Drive with SB Loop Ramp

Concept 4, seen in **Figure 14**, is the same as concept 1 (direct connect) with the addition of a southbound loop ramp to southbound US 1. The existing southbound ramp is removed with this concept. Although the loop ramp reduces the weaving concern by moving the ramp connection away from Palm Drive, the available area to provide a southbound exit loop ramp is limited and would require approximately a 350-foot radius which may have operational challenges. This concept has right-of-way impacts and requires business relocations. ***This concept was dropped from further evaluation.***

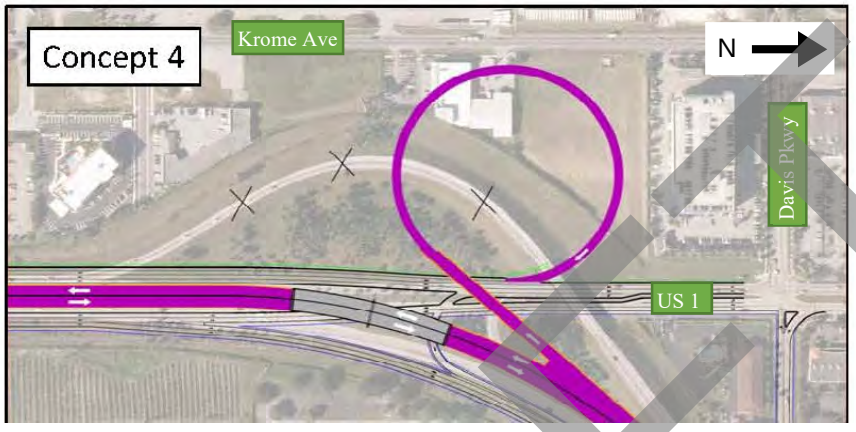

Figure 14 – High-Level Concept 4

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High-Level Concept 5 – Direct Connect Over Palm Drive with SB exit to Krome Avenue

Concept 5, seen in **Figure 15**, is the direct connect (Concept 1) with the addition of a widened southbound exit ramp and providing a connection to Krome Avenue. A signal is proposed at the Turnpike southbound exit ramp at US 1. Team discussions on this concept included that the signal at the off-ramp is not ideal and that the connection to Krome Avenue would require additional coordination with Florida City. Additional right-of-way and modification to the limited access right-of-way line would be required for the concept. The purpose of the connection to Krome Avenue was an attempt to distribute the southbound right turn and eastbound left turn traffic at the US 1/Palm Drive intersection to the Krome Avenue/Palm Drive intersection. Conducting a link analysis to explore origin/destination of drivers was suggested. This would help the PD&E team in knowing where to propose flyover ramps or displaced left or right turns. The link analysis would also assist in determining typical commuter traffic vs. in-bound Florida Keys traffic. ***Concept 5 moved forward for further review.***

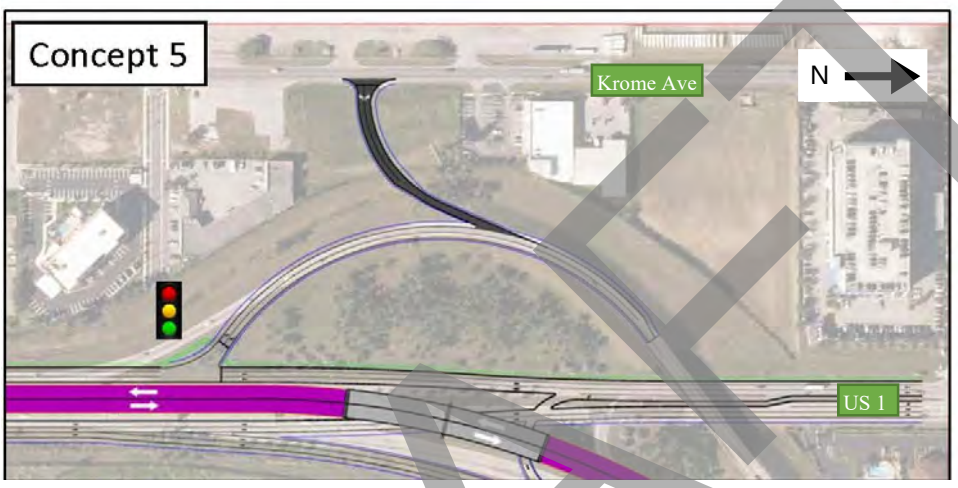

Figure 15 – High-Level Concept 5

High-Level Concept 6 – Direct Connect Over Palm Drive with SB Loop Ramp and exit to Krome Avenue

Concept 6, seen in **Figure 16**, is a combination of concepts 1, 4 and 5 and proposes a direct connect with a southbound loop ramp and an exit to Krome Avenue. The existing southbound ramp is removed with this concept. This concept would also have the potential for right-of-way impacts and business relocations. It would also require additional coordination with Florida City. ***This concept was dropped from further evaluation.***

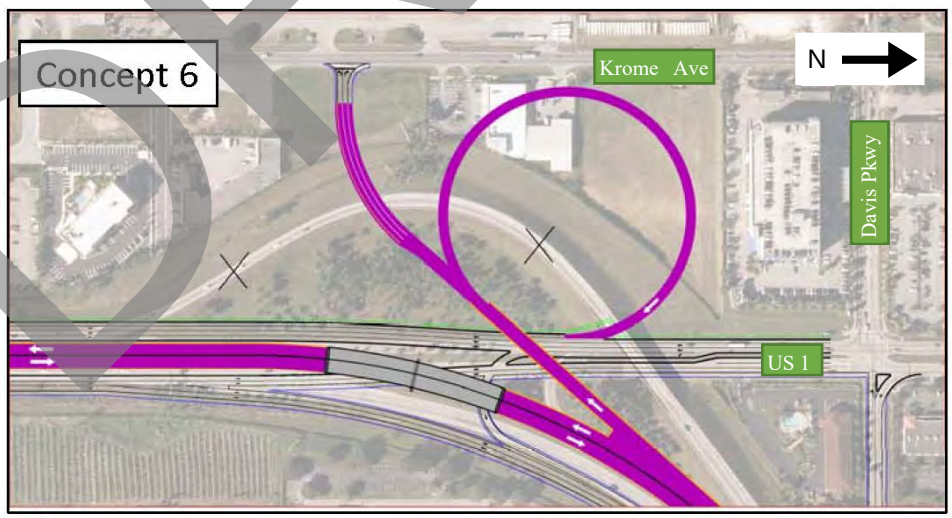

Figure 16 – High-Level Concept 6

High-Level Concept 7 – Two-Way connection to Krome Avenue with SB Loop Ramp

Concept 7, seen in **Figure 17**, is a two-way connection to Krome Avenue with a southbound loop ramp to provide a connection to southbound US 1. The existing southbound ramp is removed with this concept. The proposed connection at Krome Avenue requires additional coordination with Florida City and additional improvements may be needed along Krome Avenue. There are also potential social impacts as well as business relocations and the need for additional right-of-way. ***This concept was dropped from further evaluation.***

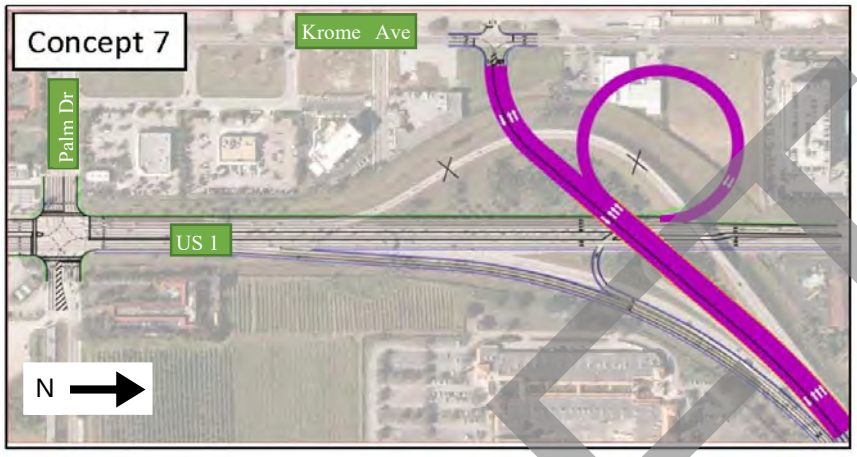

Figure 17 – High-Level Concept 7

High-Level Concept 8 – Two-Way connection to Krome Avenue with SB Loop Ramp and US 1 Diverging Diamond Interchange (DDI)

Concept 8, seen in **Figure 18**, is like concept 7 but includes a DDI along US 1. A direct connection from the Turnpike to Krome Avenue is provided. A southbound exit ramp to US 1 is provided. The existing southbound ramp is removed with this concept. Team discussion concluded that the DDI may not solve the congestion issue at the Palm Drive and US 1 intersection. However, a more detailed link or origin/destination analysis is required to identify the volumes of traffic that would shift to Krome Avenue and potentially relieve Palm Drive. Turnpike Traffic will review the available origin/destination data and trip distribution of the model. ***Concept 8 moved forward for further review***.

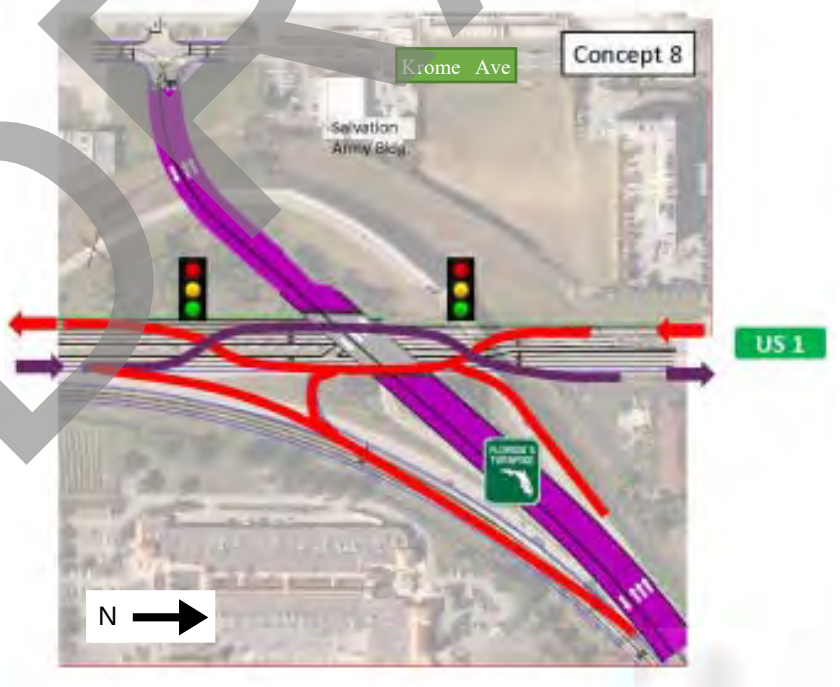

Figure 18 – High-Level Concept 8

Table 5 – US 1/SR 5 Interchange High-Level Concept Analysis

High-Level Concept	Move Forward		Comments
	Yes	No	
Concept 1 – Direct Connect Over Palm Drive	X		Moves forward for further review.
Concept 2 – Direct Connect Over Palm Drive with Signal Exit Ramp		X	The team raised the concern with a signal at the off-ramp location and creating additional backups on the Turnpike southbound exit ramp. Concept does not address the congestion issues at Palm Drive and US 1.
Concept 3 – Direct Connect Over Palm Drive with Signal at US 1 SB and Exit Ramp		X	The team had similar concerns as Concept 2 with the signal at the off-ramp.
Concept 4 – Direct Connect Over Palm Drive with SB Loop Ramp		X	Loop ramp reduces weaving, but the limited area for the loop ramp and would require a tight ramp and operational challenges. Potential for right-of-way impacts and business relocations.
Concept 5 –Direct Connect Over Palm Drive with SB exit to Krome Avenue	X		Purpose of connection to Krome Avenue connection is to distribute the southbound right turn and eastbound left turn traffic at US 1 and Palm Drive intersection. Recommend performing a link analysis to explore where drivers want to go. Moves forward for further review.
Concept 6 – Direct Connect Over Palm Drive with SB Loop Ramp and exit to Krome Avenue.		X	Potential for right-of-way impacts and business relocations. Requires additional coordination with Florida City.
Concept 7 – Two-Way connection to Krome Avenue with SB Loop Ramp		X	Required additional coordination with Florida City. Potential social impacts and business relocations. Requires additional right-of-way.
Concept 8 – Two-Way connection to Krome Avenue with SB Loop Ramp and US 1 DDI	X		DDI may not solve congestion at the Palm Drive/US 1 intersection. Recommend performing a link or origin destination analysis to identify volumes of traffic that would shift to Krome Avenue and relieve Palm Drive. Moves forward for further review.

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4.2.2 Sketch-Level Concept Development

The second step in the interchange analysis process included development of ten (10) sketch-level Build Concepts for additional screening by the project team and FTE staff along with the No-Build alternative. This sketch level review was held at the second FTE Traffic Workshop, on April 24, 2018 that included identification of any fatal flaws. Preliminary traffic projections were conducted to evaluate traffic operations during the future 2045 build condition.

The following summary describes the sketch level concept alternatives considered. **Table 6** summarizes team review comments and whether the concept moves forward for further review.

Sketch-Level Concept 1 – Direct Connect Over Palm Drive (Northbound & Southbound)

Concept 1, seen in **Figure 19**, features a north-south grade separated two-lane two-way ramp connecting directly from the median of US 1 (south of Palm Drive) to the median of the Turnpike. The ramp allows much of the Florida Keys traffic to bypass the signalized intersection with Palm Drive, significantly improving intersection and overall interchange operations. The grade separated ramp begins in the median of US 1 and crosses over Palm Drive via a bridge and continues to be elevated over US 1 before it connects back down at grade in the median of the Turnpike. In the southbound direction, this alternative maintains the single-lane exit to Davis Parkway and the southbound ramp bridge over US 1. Southbound and northbound US 1 are realigned to accommodate the new grade separated ramp in the median.

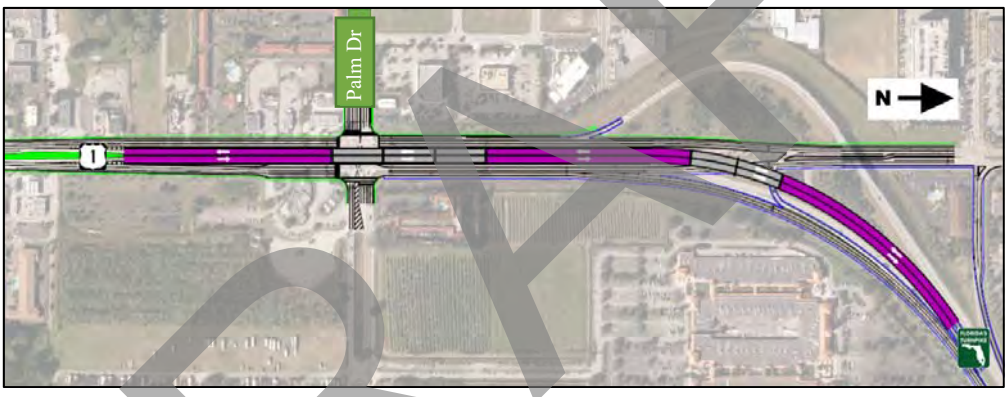

Figure 19 – Sketch-Level Concept 1

Sketch-Level Concept 2 – Direct Connect Over Palm Drive (SB Only)

Concept 2, seen in **Figure 20**, features a north-south grade separated two-lane ramp, but both ramp lanes are southbound; no northbound grade-separated lane is proposed. This concept does not improve emergency evacuation time from the Florida Keys and was not moved forward in the alternative analysis.

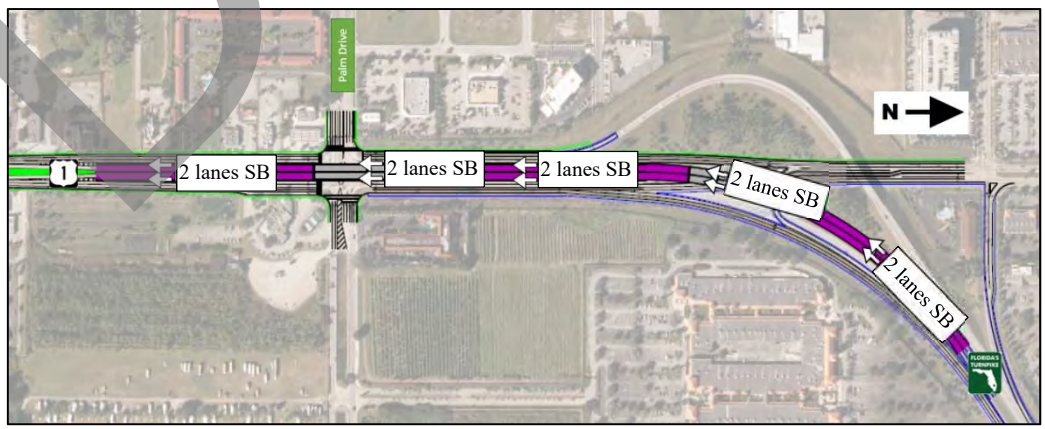

Figure 20 – Sketch-Level Concept 2

Sketch-Level Concept 3 – Existing SB Ramp widens to 2 Lanes

Concept 3, seen in **Figure 21** leaves the existing interchange as is, except it widens the southbound exit ramp and bridge over US 1 to a two-lane ramp. This two-lane ramp would merge with southbound US 1, similar to the existing condition. This concept does not address the weave issue on US 1 with the southbound off-ramp and was dropped from further evaluation.

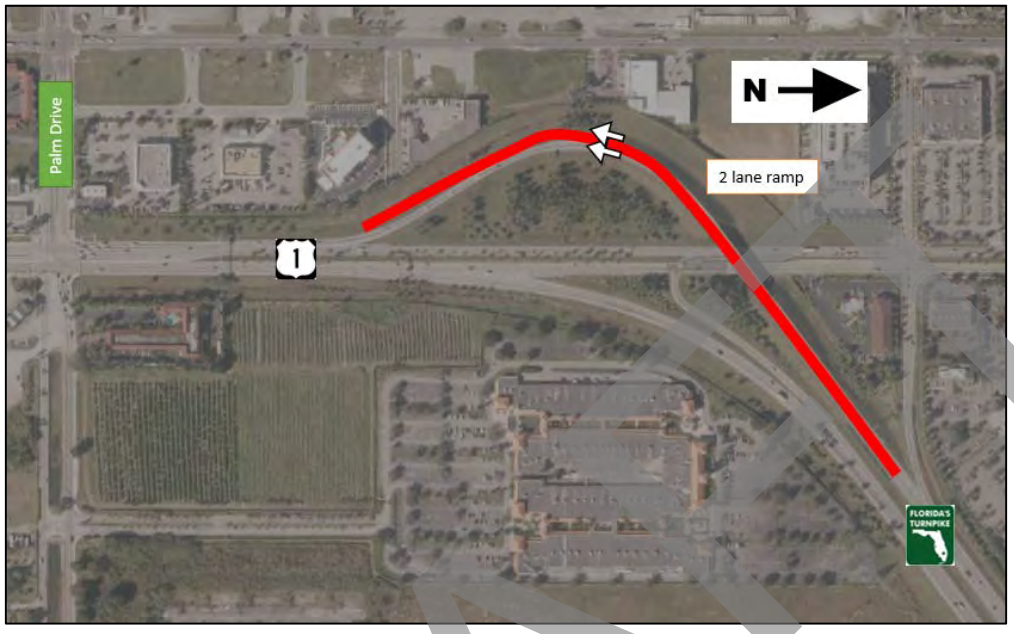

Figure 21 – Sketch-Level Concept 3

Sketch-Level Concept 4 – Southbound US 1 to Krome Avenue Diversion

Concept 4, seen in **Figure 22**, widens the southbound exit ramp and bridge over US 1 to a two-lane ramp, but also creates a diversion ramp from southbound US 1 beginning south of Davis Parkway and extending around the west side of the existing southbound exit ramp, within the limited access right-of-way, to a right-turn at the intersection with Palm Drive. The purpose of the diversion ramp is to reduce or eliminate current concerns with southbound US 1 weaving approaching Palm Drive. This concept did not provide adequate LOS and was dropped from the evaluation.

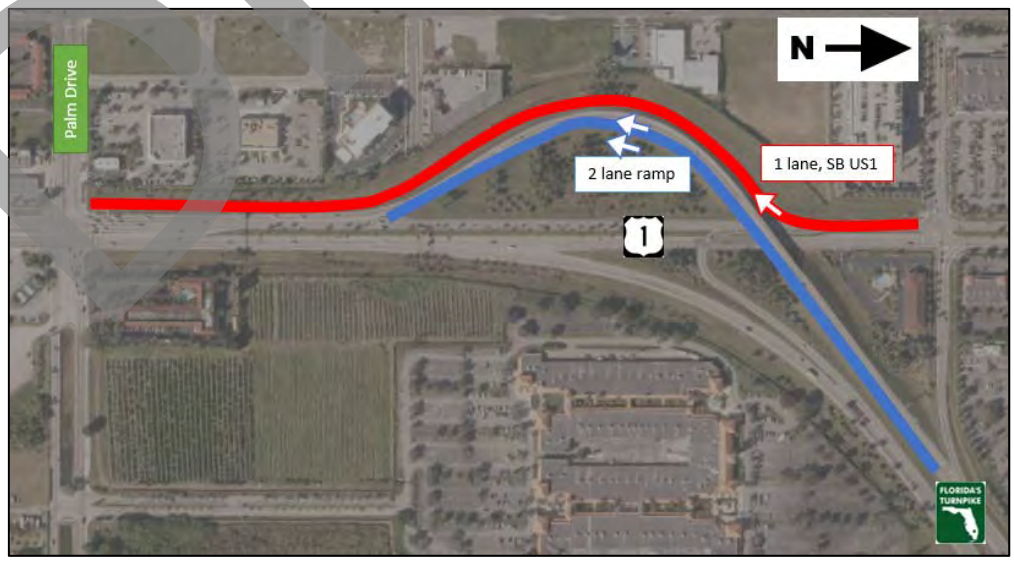

Figure 22 – Sketch-Level Concept 4

Sketch-Level Concept 5 – Direct Connect with Southbound Ramp to Krome Avenue

Concept 5, seen in **Figure 23**, includes the grade separated ramps from Concept 1, plus it widens the southbound exit ramp and bridge over US 1 to two lanes, then signalizes the exit ramp connection to southbound US 1. In addition, a one-way slip ramp departs the right side of the southbound two-lane exit ramp and connects to Krome Avenue. Additional right-of-way is required for this concept. Due to the impacts on Krome Avenue this concept was dropped from evaluation.

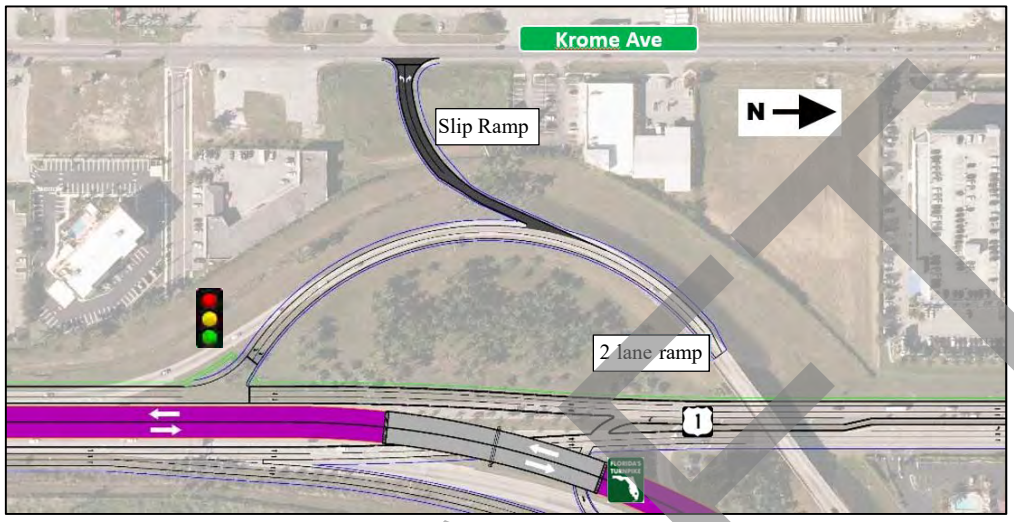

Figure 23 – Sketch-Level Concept 5

Sketch-Level Concept 6 – Dedicated Northbound Right On-Ramp

Concept 6, seen in **Figure 24**, includes widening the southbound exit ramp and bridge over US 1 to two lanes like Concept 3, plus it adds a dedicated westbound-to-northbound right-turn-on-ramp, allowing that movement to proceed unimpeded at all times, freeing up more signal time for the other movements at the US 1/Palm Drive intersection. This concept only benefits the northbound traffic from Palm Drive and does not address the southbound off-ramp queuing.

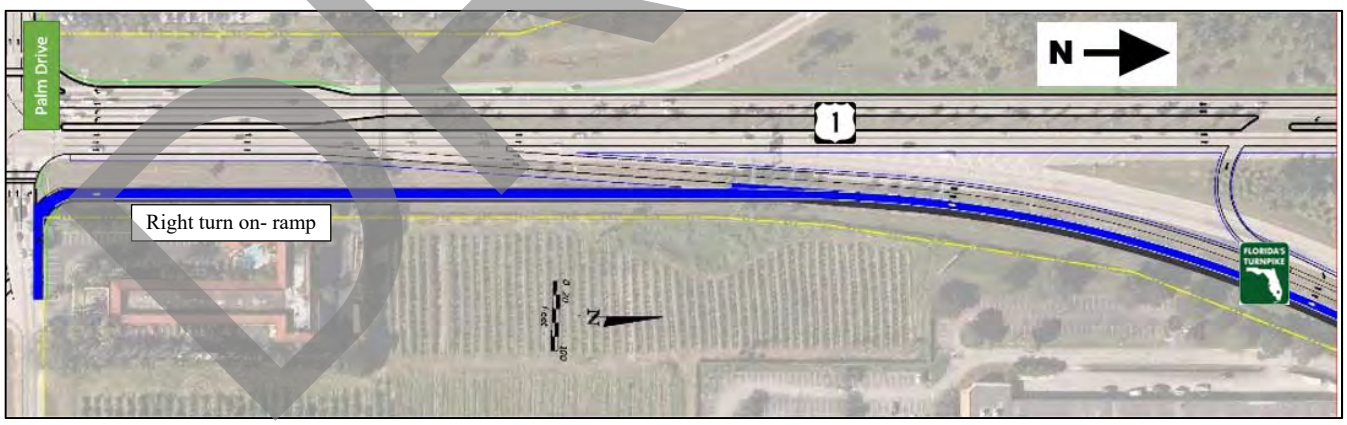

Figure 24 – Sketch-Level Concept 6

Sketch-Level Concept 7 – Displaced Left Turns at Palm Drive

Concept 7, seen in **Figure 25**, widens the southbound exit ramp and bridge over US 1 to two (2) lanes and reconstructs Palm Drive with "displaced" left-turns. These "displaced" left-turns provide access from eastbound Palm Drive to northbound Turnpike and from westbound Palm Drive to southbound US 1. This concept did not provide adequate LOS and was dropped from the evaluation.

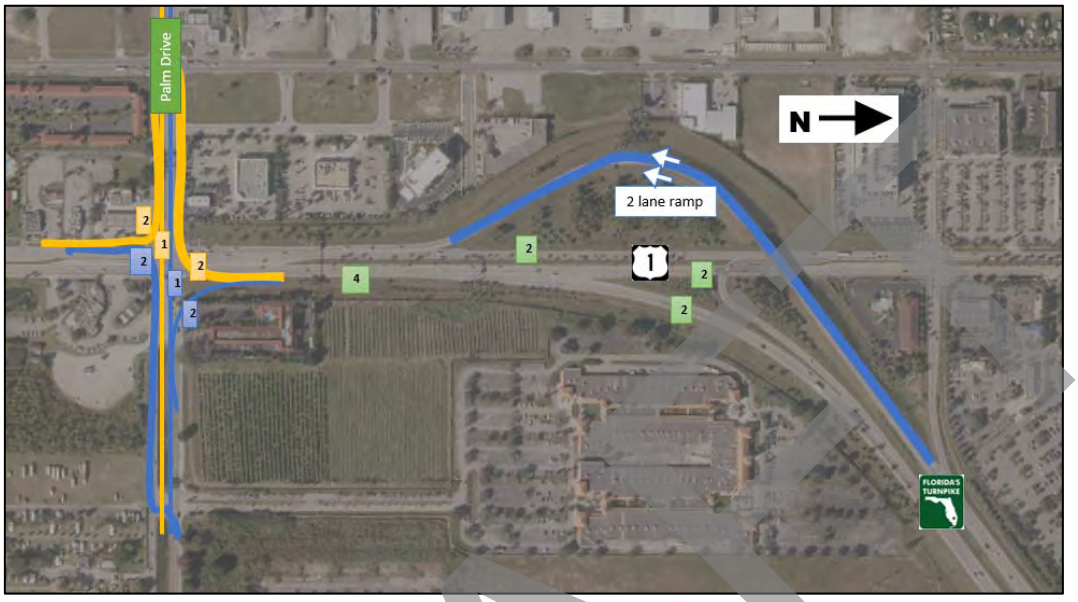

Figure 25 – Sketch-Level Concept 7

Sketch-Level Concept 8 – Displaced Left Turns at Palm Drive with US 1 Diversion

Concept 8, seen in **Figure 26**, provides displaced left turns at Palm Drive like Concept 7. The existing southbound exist ramp and bridge over US 1 remains. A one-lane southbound diversion ramp from southbound US 1 beginning south of Davis Parkway and extending around the west side of the existing southbound exit ramp, within the limited access right-of-way, to a right-turn at the intersection with Palm Drive is provided. This concept did not provide adequate LOS and was dropped from the evaluation.

Figure 26 – Sketch-Level Concept 8

Sketch-Level Concept 9 – DDI with North Intersection at Davis Parkway

Concept 9, seen in **Figure 27**, widens the southbound exit ramp and bridge over US 1 to two lanes like Concept 3. It also provides a DDI along US 1 south of Davis Parkway. A signal would be provided at the Davis Parkway/US 1 intersection and at the northbound on-ramp/US 1 intersection north of Palm Drive. This concept was discarded due to right-of-way constraints and the DDI not addressing the major traffic issues.

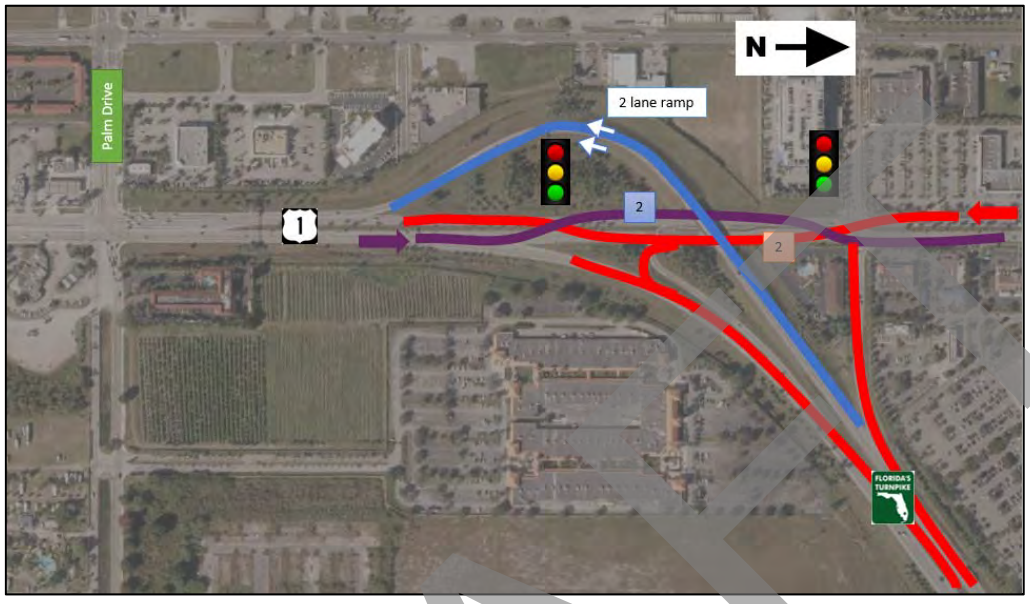

Figure 27 – Sketch-Level Concept 9

Sketch-Level Concept 10 – US 1 Over Palm Drive

Concept 10, seen in **Figure 28**, raises US 1 so that it crosses over Palm Drive. A northbound on-ramp from elevated US 1 is provided along with a southbound off-ramp connection to elevated US 1. A one-lane southbound diversion ramp from southbound US 1 beginning south of Davis Parkway and extending around the west side of the existing southbound exit ramp, within the limited access right-of-way connecting to Palm Drive is provided. A northbound on-ramp from Palm Drive is provided as well. This concept was discarded due to an over-design of US 1 and not directly addressing the Turnpike off-ramp queuing.

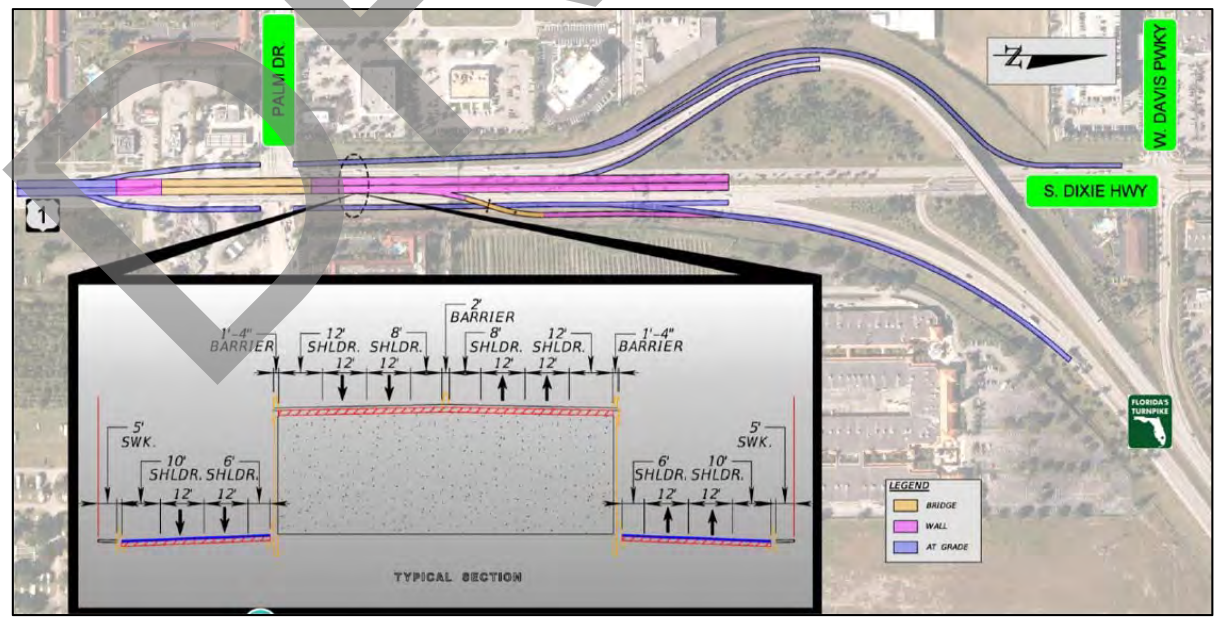

Figure 28 – Sketch-Level Concept 10

Sketch-Level Concept – No-Build

This concept leaves the Turnpike Extension connection to US 1 as is, with no improvements or modifications.

Table 6 – US 1/SR 5 Interchange Sketch-Level Concept Analysis

Sketch-Level Concept	Move Forward		Comments
	Yes	No	
Concept 1 – Direct Connect Over Palm Drive (NB & SB)	X		Move forward as Alternative A.
Concept 2 – Direct Connect Over Palm Drive (SB Only)		X	Dual SB lanes on direct connect is not a viable option as it does not address all the critical movements or assist in emergency evacuation.
Concept 3 – Existing SB Ramp widens to 2 Lanes		X	Widening the SB ramp does not address all the traffic needs.
Concept 4 – Southbound US 1 to Krome Avenue Diversion		X	Widening the SB ramp does not address all the traffic needs and re-routing SB US 1 to the west of the SB ramp could cause more weave issues.
Concept 5 – Direct Connect with Southbound Ramp to Krome Avenue		X	Connection to Krome Avenue should be avoided due to District 6 Truck By-Pass PD&E. Does not eliminate the queue backing up on the Turnpike mainline.
Concept 6 – Dedicated NB Right On-Ramp		X	Preliminary traffic analysis shows that the WB thru traffic queues so that right turning traffic can't access the slip ramp. The NB slip on-ramp does not address all the traffic issues in the interchange area.
Concept 7 – Displaced Left Turns at Palm Drive		X	Displaced left turn geometry does not give an acceptable LOS for predicted traffic volumes.
Concept 8 – Displaced Left Turns at Palm Drive with US 1 Diversion		X	Displaced left turn geometry does not give an acceptable LOS for predicted traffic volumes.
Concept 9 – DDI with North Intersection at Davis Parkway		X	Discarded due to right-of-way constraints and DDI not addressing the major traffic issues.
Concept 10 – US 1 Over Palm Drive	X		Raising US 1 and adding an additional slip ramp from Turnpike to US 1 would be costly and more of a benefit to local traffic and not fulfill the purpose and need of the PD&E. Move forward as Alternative C.
Concept 11 – No-Build	X		Moves forward as No-Build.

The outcome of the sketch-level concept development and concepts to move forward as Alternatives for further review are:

- Alternative A – Based on Concept 1 (Direct Connect)
- Alternative B – A mix of Concept 1 (Direct Connect), Concept 4 (southbound US 1 diversion), and Concept 6 (northbound on slip ramp)
- Alternative C – Based on Concept 10 (US 1 flyover) with minor modifications including the elimination of the braided northbound on-ramp, direct connecting with Turnpike southbound off-ramp and eliminate additional at grade lanes south of Palm Drive on US 1.
- Alternative D - An at-grade alternative was developed and moved forward for evaluation.

4.3 Refined Development of Concept Alternatives

Alternatives A, B, C and D noted above were carried forward for traffic modeling, operations analysis and further refinement. Several variations of Alternatives A, B, and C were developed so that impacts to existing roadway facilities, properties, businesses and other features could be evaluated. The following summary describes the refined concept alternatives considered. Layouts of these refined alternatives are provided in **Appendix D** for reference.

Alternative A – Direct Connect

The direct connect by-pass flyover includes one (1) 15-foot lane in each direction with 6-foot inside and outside shoulders to provide a connection from the median of US 1 (south of Palm Drive) to the median of the Turnpike. South of the interchange area and Palm Drive, a 7-foot buffered bike lane, curb and gutter and a 6-foot sidewalk along with a 14-foot border width are provided in each direction. This alternative requires median access modifications along US 1 south of Palm Drive. Some key items to note for Alternative A are:

- Static toll on elevated direct connect by-pass ramps
- Texas U-turn provided on the northbound approach to mitigate two (2) full and one (1) directional median closures
- Four (4) versions with different alignments analyzed

Four direct connect ramp alignments on US 1 were reviewed for impacts to existing roadway facilities, properties, businesses and other features:

Alternative A.1 – Center Alignment

Alternative A.1 centers the direct connect within the US 1 right-of-way. This alternative requires reconstruction of both northbound and southbound US 1 along the proposed direct connect flyover. It also requires additional right-of-way along both the east and west side of US 1 south of Palm Drive.

Alternative A.2 – East Alignment

This alternative shifts the direct connect to the east to avoid any right-of-way taking along the west side of US 1. To accommodate the proposed direct connect ramps footprint, northbound US 1 would need to be widened. Southbound US 1, along the west right of way line, would require reconstruction. This alternative requires right-of-way along the east side of US 1 and does impact several parcels, including two (2) vacant parcels, at the southeast corner of US 1 and Palm Drive.

Alternative A.3 – West Alignment

This alternative shifts the direct connect alignment to the west to minimize right-of-way impacts along the east side of US 1. Widening of southbound US 1 is required along with reconstruction of the northbound roadway. This alternative requires right-of-way on the west side of US 1 with many business impacts along the west side of US 1. The alternative was discarded prior to concept plan development due to the number of effected parcels and being unfavorable.

Alternative A.4 - Northbound East Alignment

This alternative splits the direct connect ramps and moves the northbound elevated ramp to the east side of US 1. The southbound US 1 direct connect ramp remains in the median of US 1. Both direct connect ramps remain one-lane ramps. The existing southbound exit ramp remains and provides a connection to the southbound right turn lane at Palm Drive. This alternative blocks property access at the southeast corner of Palm Drive and creates an undesirable tunnel effect for northbound US 1.

Recommendation: Alternative A.2 East Alignment minimizes business impacts and right-of-way needs along the west side of US 1 and is the preferred alignment of Alternative A - Direct Connect over Palm Drive. Alternative A.2 moved forward as Alternative A for engineering evaluation and cost review.

Alternative B – Direct Connect Plus Additional Improvements

Alternative B is a hybrid alternative which contains the direct connect ramps of Alternative A with additional improvement features. Several variations of this alternative were developed with varying features in attempt to minimize weaving in the southbound direction and to redistribute traffic. Below is a summary of various versions of Alternative B:

Alternative B.1 – Direct Connect Plus, SB US 1 Diversion, NB Slip Ramp

This alternative provides the direct connect ramps from Alternative A.2 and adds one-lane southbound on US 1 that diverts the southbound right turn traffic around the west side of the existing Turnpike southbound off-ramp. The southbound right turn traffic is separated from the southbound through and left traffic, reducing weaving at the Palm Drive intersection. It provides a northbound slip ramp from westbound Palm Drive. The effectiveness of the northbound right turn slip ramp at Palm Drive is limited by the westbound through traffic queuing. Additionally, the northbound slip ramp would require additional right-of-way and business impacts on the northside of Palm Drive.

Alternative B.2 – Direct Connect Plus – Dual NB Lanes

This alternative keeps the direct connect ramps between US 1 and the Turnpike with one southbound lane and two northbound lanes. With this alternative the existing southbound exit ramp is removed. The proposed southbound off-ramp widens to provide two (2) lanes; one lane that exits to southbound US 1 and lane that goes over Palm Drive. The alignment of this alternative holds the west right-of-way line of US 1 and any additional right-of-way needs are acquired on the east side of US 1.

This alternative has several disadvantages. It does not provide the number of lanes needed at the Palm Drive/US 1 intersection and does not solve the weaving issue on southbound US 1 north of Palm Drive.

Alternative B.3 – Direct Connect Plus – Dual NB lanes, Krome Ave Connection

This alternative is like Alternative B.2 but with a new connection from southbound US 1, just south of Davis Parkway, to Krome Avenue.

This alternative has several disadvantages. It does not provide the number of lanes needed at the Palm Drive/US 1 intersection. It also does not solve the weaving issues on US 1 and it only provides one at grade southbound lane along US 1. Additionally, the southbound US 1 connection to Krome Avenue is not ideal due to Krome Avenue's SIS designation and the on-going District 6 Krome Avenue Truck By-pass PD&E study improvements.

Alternative B.4 – Direct Connect Plus, Dual NB & SB lanes, SB US 1 Diversion, Two-lane NB On-Ramp

This alternative provides two direct connect ramp lanes in each direction over Palm Drive. It also provides two northbound lanes at grade north of Palm Drive. These lanes split north of Palm Drive to provide two northbound lanes along US 1 and a two-lane northbound on-ramp. A one-lane southbound US 1diversion roadway beginning south of Davis Parkway and extending around the west side of the existing southbound exit ramp, within the limited access right-of-way, is provided.

The existing southbound off-ramp is widened to provide two diverging lanes, one right and one thru. The right lane connects with the right lane from the southbound US 1 diversion road to provide dual southbound right turn lanes at Palm Drive. The thru and the right turn lanes are separated by a traffic separator/raised median. This alternative minimizing the US 1 weaving with the use of a traffic separator/raised median. Along US 1, two southbound thru lanes are provided along with two left turn lanes at the Palm Drive intersection and continue through the intersection. Two lanes along northbound US 1 are provided under the direct connect flyover. This alternative maintains the existing southbound ramp.

The alignment of this alternative holds the west right-of-way line of US 1 and any additional right-of-way needs are acquired on the east side of US 1 and impacts to businesses at the SE corner of US 1 and Palm

Drive are anticipated. This alternative requires median modifications along US 1 south of Palm Drive. Reconstruction of northbound US 1 from beginning of project to just south of Davis Parkway is required.

The alternative has several disadvantages including an overbuild of the direct connect ramps. According to predicted year 2045 traffic volumes, two (2) direct connect lanes in each direction are not necessary.

Alternative B.5 – Direct Connect Plus, Dual NB & SB lanes, SB US 1 Diversion, One-lane NB On-Ramp

This is similar to alternative B.4 with a few differences. The existing southbound off-ramp remains one (1) lane and vehicles must turn right at Palm Drive. The at-grade northbound on-ramp is reduced to one (1) lane. This alternative minimizes the US 1 weaving with the use of a traffic separator/raised median. Disadvantages for this alternative are similar to Alternative B.4.

Alternative B.6 – Direct Connect Plus, Dual NB & SB lanes, SB US 1 Diversion, SB Right Turn Lane

This alternative is the same as alternative B.4 except that a southbound US 1 right turn lane has been added between Davis Parkway and Palm Drive. This right turn lane allows southbound US 1 to traffic to access the right turn lane at Palm Drive. Alternatives B.4 and B.5 do not allow this movement. Disadvantages for this alternative are similar to Alternative B.4 and B.5.

Alternative B.7 – Direct Connect Plus SB US 1 Diversion

This alternative provides the direct connect from alternative A.2 and adds a one-lane southbound diversion road from southbound US 1 beginning south of Davis Parkway and extending around the west side of the existing southbound exit ramp, within the limited access right-of-way.

Recommendation: Alternative B.7 moves forward for further review as Alternative B for engineering evaluation and cost review.

Alternative C – US 1 Over Palm Drive

This alternative provides a grade separated alternative in which US 1 crosses over Palm Drive and requires additional bridge structures. Two variations of this alternative were reviewed:

Alternative C.1 - US 1 Over Palm Drive, SB US 1 Diversion, with NB US 1 Connection

This alternative provides a grade separated flyover in which US 1 crosses of Palm Drive. Two lanes are provided in each direction on the flyover. A one-lane southbound diversion ramp from southbound US 1 beginning south of Davis Parkway and extending around the west side of the existing southbound exit ramp, within the limited access right-of-way, to a right-turn at the intersection with Palm Drive is provided. This alternative requires reconstruction of the existing southbound ramp to provide a two-lane ramp which splits to allow one lane for the right turn lane at Palm Drive and another to access the thru movement of southbound US 1. Southbound US 1 merges from two lanes to one lane through the interchange area south of Davis Parkway. Two northbound at grade lanes are provided along US 1. These lanes split to provide one lane for the northbound on-ramp to Turnpike and one lane for northbound US 1. This alternative maintains the southbound US 1 to northbound Turnpike connection. This alternative requires median modifications on US 1.

This alternative has several disadvantages. It does not solve the weaving issue between southbound US 1 and the off-ramp traffic, and therefore, does not directly address the off-ramp queue to the Turnpike mainline. The alternative requires extensive reconstruction of the Turnpike ramps, the US 1 arterial and requires additional bridge structures and is therefore considered a costlier alternative than Alternative A. ***This alternative was deemed an over design and was dropped from further review.***

Alternative C.2 - US 1 Over Palm Drive, SB US 1 Diversion, without NB US 1 Connection
Alternative C.2 is similar to Alternative C.1 except that the one (1) lane connection to northbound US 1 has been eliminated north of Palm Drive. Therefore, access from Palm Drive to northbound US 1 is not provided. All other Alternative C.1 access connections are maintained with this alternative.

This alternative has several disadvantages. Access from Palm Drive to northbound US 1 is not provided. It does not solve the weaving issue between southbound US 1 and the Turnpike exiting traffic, and therefore, does not directly address the off-ramp queue to the Turnpike mainline. The alternative requires extensive reconstruction of the Turnpike ramps, the US 1 arterial and requires additional bridge structures and is therefore considered a costlier alternative then Alternative A.
This alternative was deemed an over design and was dropped from further review.

Alternative D – At Grade Alternative
This alternative provides an at grade intersection at the US 1 and the Turnpike connection. The proposed number of lanes needed for each leg of the intersection was determined by FTE to achieve an acceptable LOS D. This alternative required five (5) through lanes in the northbound and southbound direction as well as triple left turn lanes at all legs of the intersection. This alternative requires an extensive number of lanes needed to meet an acceptable LOS. Pedestrian crosswalks are approximately 200 feet long. Due to right-of-way requirements, roadway geometric restrictions and poor LOS this alternative was considered not feasible.

No-Build Alternative
This alternative leaves the Turnpike connection to US 1 as is, with no improvements or modifications. This alternative does not provide any traffic improvements at the US 1/Turnpike connection and therefore does not meet the purpose and need of the project.

Table 7 summarizes team review comments and whether the concept moves forward for further review. Layouts of these refined alternatives are provided in **Appendix C** for reference.

Table 7 – US 1/SR 5 Interchange Refined Alternative Analysis

Refined Alternative	Move Forward		Comments
	Yes	No	
Alternative A.1 – Direct Connect Over Palm Drive - Center Alignment		X	Alignment alternatives for direct connect were evaluated. East Alignment (Alternative A.2) preferred. Alternative A.1 dropped from further review.
Alternative A.2 – Direct Connect Over Palm Drive - East Alignment	X		Moves forward as Alternative A.
Alternative A.3 – Direct Connect Over Palm Drive - West Alignment		X	Alignment alternatives for direct connect were evaluated. East Alignment (Alternative A.2) preferred. Alternative A.3 dropped from further review.
Alternative A.4 – Northbound West Alignment		X	This alternative has undesirable tunnel effect and is therefore not preferred. East Alignment (Alternative A.2) preferred. Alternative A.4 dropped from further review.
Alternative B.1 – Direct Connect Plus, SB US 1 Diversion, NB Slip Ramp		X	Does not address the weaving issue between southbound US 1 and traffic exiting the direct connect north of Palm Drive. The northbound slip ramp requires additional right-of-way and has additional business impacts. Queuing on Palm Drive restricts access to the slip ramp. Alternative B.1 dropped from further review.

Refined Alternative	Move Forward		Comments
	Yes	No	
Alternative B.2 – Direct Connect Plus, Dual NB Lanes		X	Alternative does not provide number of lanes needed at Palm Drive/US 1 intersection. Does not address weaving issue between southbound US 1 and traffic exiting the direct connect north of Palm Drive. Alternative B.2 dropped from further review.
Alternative B.3 – Direct Connect Plus, Dual NB Lanes, Krome Ave Connection		X	Alternative does not provide number of lanes needed at Palm Drive/US 1 intersection. Does not address weaving issue, and only provides one at grade lane southbound lane along US 1. Also, Krome Avenue connection not desirable. Alternative B.3 dropped from further review.
Alternative B.4 – Direct Connect Plus, Dual NB & SB Lanes, SB US 1 Diversion, two-lane northbound on-ramp		X	Southbound US 1 traffic wanting to go right on Palm Drive would have to use diversion ramp. Dual lanes in each direction on the direct connect are not necessary. Alternative B.4 dropped from further review.
Alternative B.5 – Direct Connect Plus, Dual NB & SB Lanes, SB US 1 Diversion, one-lane northbound on-ramp		X	Same disadvantages as alternative B.4 Alternative B.5 dropped from further review.
Alternative B.6 – Direct Connect Plus, Dual NB & SB Lanes, SB US 1 Diversion, SB right turn lane		X	Same disadvantages as alternative B.4 Alternative B.6 dropped from further review.
Alternative B.7 – Direct Connect Plus, SB US 1 Diversion	X		Moves forward as Alternative B.
Alternative C.1 – US 1 Over Palm Drive, SB US 1 Diversion, with NB US 1 connection		X	Does not solve the weaving issue along southbound US 1 and the traffic exiting the US 1 direct connect north of Palm Drive. Does not directly address the off-ramp queue to Turnpike. Requires additional bridge structures. Considered a costlier alternative than Alternative A. Alternative C.1 dropped from further review.
Alternative C.2 – US 1 Over Palm Drive, SB US 1 Diversion, without NB US 1 connection		X	Does not provide access from Palm Drive to northbound US 1. Does not solve the weaving issue along southbound US 1 and the traffic exiting the US 1 direct connect north of Palm Drive. Does not directly address the off-ramp queue to Turnpike. Requires additional bridge structures. Considered a costlier alternative than Alternative A. Alternative C.2 dropped from further review.
Alternative D -At Grade		X	Requires an extensive number of lanes to meet an acceptable LOS. Due to right-of-way requirements and geometric restrictions this alternative was considered not feasible and dropped from further review.
Alternative E – No-Build	X		Moves forward as No-Build

4.4 US 1/SR 5 Alternatives for Engineering and Cost Analysis

Two (2) build alternatives and the No-Build alternative moved forward for detailed engineering, environment, traffic and cost analysis review. The two (2) build alternatives analyzed in this section were confirmed to meet the Study's purpose and need, have compatibility with the mainline widening and not require any design variations or exceptions.

4.4.1 Alternative A - Direct Connect

Alternative A (referred to as the Direct Connect Alternative) features a two-lane, two-way grade-separated ramp connecting directly from the median of US 1 (south of Palm Drive) to the median of the Turnpike. The grade-separated ramp begins in the median of US 1, about 1,250 feet south of Palm Drive, rises in profile on retained earth, with northbound and southbound US 1 at-grade. The ramp raises on bridge structure over Palm Drive, then extends north on retained earth, then on bridge structure over northbound US 1 and the southbound-to-northbound Turnpike on-ramp. The ramps descend back to grade in the Turnpike median. This ramp reliever connection provides a tolled Turnpike ramp over the US 1 and Palm Drive intersection, improves the at-grade traffic operations and reduces the queuing on the southbound off-ramp.

For this alternative, in the southbound direction, a two-lane exit ramp at Davis Parkway is provided and keeps the existing southbound off-ramp bridge over US 1. Southbound and northbound US 1 are realigned to accommodate the new grade-separated ramp in the median. Further south, the ramp touches down, and merges with southbound US 1 south of Palm Drive. The US 1 intersection with Palm Drive is expanded to provide appropriate turn lanes, and a northbound Texas-U-turn to address access management. A new tolling facility is proposed on the south end of the direct connect ramps just south of Palm Drive.

On US 1, south of Davis Parkway, three southbound through lanes varying from 11 to 12-feet are provided. Approximately 950 feet south of Davis Parkway, a southbound US 1 left-turn lane provides a ramp connection to northbound Turnpike. At the Palm Drive intersection, southbound US 1 opens up to dual left turn lanes, three (3) through lanes and dual right turn lanes. A raised four-foot traffic separator is located between the left and thru movements to minimize weaving. South of Palm Drive, the three southbound through lanes merge to two lanes. The southbound direct connect ramp reaches grade approximately 1,500 feet south of the Palm Drive intersection where a third US 1 lane is provided for free flow ramp traffic. Further south, the outside through lane becomes a drop right turn lane approximately 2,000 feet south of Palm Drive or 500 feet south of the end ramp location.

Northbound US 1 remains three (3) lane until the inside lane develops into the northbound direct connect ramp. At the Palm Drive intersection, northbound US 1 approach has one (1) U-turn lane, one (1) left turn lane, two (2) through lanes and one (1) shared right-thru lane. North of Palm Drive, US 1 northbound is two (2) 11-foot lanes and one (1) 12-foot outside lane. The outside lane diverges to become dual northbound Turnpike on-ramp lanes approximately 1,250 feet north of Palm Drive.

4.4.2 Alternative B – Direct Connect Plus Additional Improvements

Alternative B, moving forward with engineering analysis and evaluation, is similar to Alternative A but contains additional improvements. The additional improvements include a southbound US 1 right turn diversion roadway, an additional traffic separator at the Palm Drive intersection and two (2) southbound US 1 lanes south of Palm Drive. The direct connect ramps over Palm Drive in Alternative B are the same ramp and bridge typical sections proposed in Alternative A.

The existing southbound off-ramp to southbound US 1 is modified as in Alternative A. The southbound off-ramp remains a one-lane ramp as it exits from the Turnpike mainline and bridges over US 1 but widens to two (2) lanes to access the right turn lanes and southbound US 1 through lanes. No access to the dual left turn lanes is provided from this ramp. An additional traffic separator is provided at the Palm Drive intersection separating the right and through movements.

A new southbound US 1 diversion roadway is proposed south of Davis Parkway. The road provides a one-lane ramp with 6-foot inside and outside shoulders. Access to the diversion road is provided from the US 1 southbound outside through lane just south of Davis Parkway. This diversion road allows southbound US 1 traffic to make a right turn onto westbound Palm Drive. No other movements are allowed from the diversion road at the Palm Drive intersection.

4.4.3 No-Build Alternative

The No-Build alternative does not provide any improvements to the existing Turnpike connection to US 1. While this alternative does not have any associated construction costs, business impacts or right-of-way needs, it does not address the safety, evacuation, queuing or weaving issue from the Turnpike off-ramp.

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5.0 US 1 Interchange Alternative Comparison

5.1 Engineering Alternative Comparison

The No-Build Alternative, Alternative A and Alternative B were evaluated and compared to determine which alternative provided the most benefit with minimal impacts and cost. Both alternatives are compatible with the mainline widening and the adjacent projects currently planned or under construction in the interchange area.

5.1.1 Traffic Performance Comparison

Detailed Synchro, HCS and VISSIM traffic analysis was completed on the No-Build and Build Alternatives for year 2045 traffic conditions. **Tables 8** through **12** summarize results.

The No-Build Alternative operational conditions are failing for most movements and most peak hours. Most notable results are the maximum queue lengths for the off-ramps reaching 1.6 miles (8,341feet) to 2.1 miles (10,613 feet) into the main high-speed freeway portion of the Turnpike Extension.

Alternatives A and B achieve acceptable operational performance at the US 1 and Davis Parkway ramps. One difference in performance occurs during heavy inbound Florida Keys traffic where Alternative A maximum queue reaches 973 feet and Alternative B does not have a queue. Alternative A does have enough storage within auxiliary lanes to keep this queue off of the mainline lanes. One contributing factor giving Alternative B less queuing is the additional traffic separator provided at the Palm Drive intersection separating the right and through movements.

A summary of the Queue Length, LOS and speed analysis for both alternatives is noted below:

- Max Queue length for typical peak hour for both Alternatives = 0 feet
- Davis Parkway off-ramp maximum queue length for heavy inbound hour (Alt. A and B) = 973 ft and 0 ft
- Palm Drive intersection = LOS D
- Freeway off-ramp diverge = LOS B
- Davis Parkway off ramp = LOS B, C
- Operating speed of off-ramps = ≥ 35 mph

Table 8 – 2045 Scenarios Freeway Segment Analysis Results

Location	Direction	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
North of Campbell Drive (MP 2)	Southbound	F	F	F	D	C	D	D	C	D
	Northbound	F	F	F	C	D	D	C	D	D
North of US 1 (MP 0) to Campbell Drive (MP 2)	Southbound	F	D	F	C	B	D	C	B	D
	Northbound	D	F	F	B	C	B	B	C	B

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Table 9 – 2045 Scenarios Ramp Merge/Diverge Level of Service Results

Mile Post-Interchange	Ramp	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
MP 2 – Campbell Drive	Southbound off-ramp	F	F	F	D	C	D	D	C	D
	Northbound on-ramp	F	F	F	D	C	D	D	C	D
	Southbound on-ramp	F	C	F	D	C	D	D	C	D
	Northbound off-ramp	D	F	F	C	D	C	C	D	C
MP 0 – US 1	Southbound off-ramp to north	F	C	F	A	A	B	A	A	B
	Northbound on-ramp from north	C	F	F	B	C	B	B	C	B

Table 10 – 2045 Scenarios Intersection Analysis Results

Intersection	No-Build Scenario						Alternative A						Alternative B					
	Typical				Heavy Inbound		Typical				Heavy Inbound		Typical				Heavy Inbound	
	AM		PM				AM		PM				AM		PM			
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
US 1 / NE 7th Street (West Davis Parkway)	F	107	F	83	F	82	B	14	C	22	B	13	B	17	C	23	B	15
US 1 / Palm Drive	F	345	F	384	F	223	D	42	D	47	D	43	D	48	D	49	D	46
Krome Avenue / NE 7th Street (West Davis Parkway)	C	25	C	27	B	17	C	21	C	33	C	21	C	21	C	35	C	22
Krome Avenue / Palm Drive	D	45	E	58	D	48	D	37	D	41	D	37	D	36	D	44	D	37

Table 11 – 2045 Typical Design Hour (Worst Case AM)

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS AROUND THE STUDY AREA	Delay [sec/veh]	LOS	Delay [sec/veh]	LOS	Delay [sec/veh]	LOS	Alternative A	Alternative B
US-1/ Palm Drive	70.3	E	36.5	D	36.8	D	-48%	-48%
Krome Avenue/ Palm Drive	34.0	C	27.0	C	26.0	C	-20%	-24%
HEFT Off-Ramp at Davis Parkway/US-1	23.8	C	15.5	B	15.3	B	-35%	-36%
Krome Avenue/ Davis Parkway	24.7	C	20.8	C	20.8	C	-15%	-16%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	Density [veh/mi/ln]	LOS	Density [veh/mi/ln]	LOS	Density [veh/mi/ln]	LOS	Alternative A	Alternative B
Southbound Off to Davis Parkway and US-1	88	F	13	B	13	B	-85%	-85%
Southbound Off to Palm Drive and US-1	91	F	10	B	10	B	-89%	-89%
OFF RAMP PERFORMANCE	Max. Queue [ft]**	Average Speed [mph]	Max. Queue [ft]**	Average Speed [mph]	Max. Queue [ft]**	Average Speed [mph]	Alternative A	Alternative B
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	8,341	11	0	32	0	35	183%	215%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	8,341	11	0	37	0	40	244%	268%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	57	0	57	--	--

Table 12 – 2045 Heavy Inbound Florida Keys

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS AROUND THE STUDY AREA	Delay [sec/veh]	LOS	Delay [sec/veh]	LOS	Delay [sec/veh]	LOS	Alternative A	Alternative B
US-1/ Palm Drive	73.4	E	36.2	D	36.0	D	-51%	-51%
Krome Avenue/ Palm Drive	34.6	C	22.5	C	21.0	C	-35%	-39%
HEFT Off-Ramp at Davis Parkway/US-1	72.9	E	55.0	D	49.2	D	-25%	-33%
Krome Avenue/ Davis Parkway	39.8	D	29.3	C	20.8	C	-26%	-48%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	Density [veh/mi/ln]	LOS	Density [veh/mi/ln]	LOS	Density [veh/mi/ln]	LOS	Alternative A	Alternative B
Southbound Off to Davis Parkway and US-1	138	F	14	B	13	B	-90%	-90%
Southbound Off to Palm Drive and US-1	102	F	12	B	12	B	-89%	-88%
OFF RAMP PERFORMANCE	Max. Queue [ft]**	Average Speed [mph]	Max. Queue [ft]**	Average Speed [mph]	Max. Queue [ft]**	Average Speed [mph]	Alternative A	Alternative B
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	10,613	3	973	25	0	35	606%	918%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	10,613	9	0	27	0	40	217%	370%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	56	0	53	--	--

5.1.2 Access Management

Alternatives A and B have the same access management impacts. Both alternatives require modifications to the existing median openings along US 1 south of Palm Drive. The full median openings located approximately 630 feet and 1,350 feet south of Palm Drive will be closed. The full median opening located approximately 2,000 feet south of Palm Drive will be modified to a northbound directional opening. A new southbound left turn lane is provided at the existing median opening located approximately 3,400 feet south of Palm Drive to accommodate U-Turn movements. Additionally, a northbound Texas U-turn, just south of the Palm Drive intersection, is proposed to mitigate the closed median access locations. Several local streets connect to US 1 providing a local access circulation network to Krome Avenue and Palm Drive.

5.1.3 Signing

Overhead signing for both proposed interchanges is important to guide the motorist to the proper lane as well as providing notification on tolling. Alternative B requires additional signing due to the US 1 southbound diversion ramp and traffic separators at the Palm Drive intersection. Directional guide sign plan is provided in the Systems Interchange Modification and Justification Report (SIMJR).

5.1.4 Multimodal

Existing bus stops will have access to the sidewalk along both sides of US 1. Coordination with Miami-Dade Transit during design will be required to adjust the bus stop locations in the construction plans. Bike lanes and sidewalks are provided along northbound and southbound US 1 south of Palm Drive and north of Davis Parkway. No bike lanes are provided along Palm Drive. On Davis Parkway west of US 1 “sharrows” are provided on the outside travel lanes for shared bicycle and vehicular use. The existing sidewalk along northbound and southbound US 1 north of Davis Parkway is to remain.

5.1.5 Toll Facility and Intelligent Transportation System (ITS)

A conceptual toll site plan was developed during the detailed concept development stage. The initial site was located at the north end of the direct connect ramp on the Turnpike mainline. The toll location was chosen at the northbound entrance section to the direct connect ramps. A conceptual toll typical site cross section was developed for an offset toll gantry. The Toll Siting Report and Conceptual ITS Plan will be developed and included in technical reports. The conceptual toll site cross section is included in **Appendix C**.

5.1.6 Utilities

Utility relocations for both alternatives are anticipated to be similar with Alternative B having slightly more impacts due to the additional roadway work. There are potential powerline relocation work outside of the west right of way due to the toll site buffer distance to electrical transformers.

5.1.7 Drainage

Drainage needs for both Build Alternatives can be met within the proposed interchange area. Both Alternatives require piping approximately 1,200 feet of the drainage ditch located on the east side of US 1, north of Palm Drive within the interchange area.

Alternative A allows stormwater near the southbound off-ramp and southbound US 1 to sheet flow to the existing infield area. By not requiring additional land to be acquired for drainage purposes this alternative keeps drainage related costs at minimum.

Alternative B is more challenging and perhaps costlier due to the southbound US 1 diversion road and Turnpike southbound off-ramp. Drainage between the US 1 diversion road and Turnpike off-ramp will need additional consideration with this Alternative. It is anticipated that this Alternative will need more drainage structures and piping than Alternative A.

5.1.8 Right of Way

Alternative A and B impact seven (7) parcels on the east side of US 1 south of Palm Drive. All the parcels are commercial use properties and consist of drive-in restaurants, restaurants/cafeterias, service stations, hotels or vacant land.

5.1.9 Transportation Management Plan

Temporary traffic control plans are necessary to maintain traffic while constructing the interchange improvement. It is anticipated that widening of US 1 northbound would be completed first to accommodate the work zone for the direct connect ramps. Alternative B temporary traffic control is expected to be more complex than Alternative A as it includes construction of the US 1 southbound diversion ramp. Detailed traffic control plans should be developed during the design phase of the project.

5.1.10 Environment

Environmental impacts are anticipated to be similar for both alternatives. Minimal to no natural environmental impacts are anticipated within the interchange area. This includes wetlands, protected species and habitat, farmlands (none within interchange area) and floodplains (none within interchange area). Physical environmental impacts are also similar with both alternatives having the same number of contaminated parcels and similar noise impacts, air impacts and water quality impacts. Alternative A has slightly more delay which will increase air quality impacts. Both alternatives are anticipated to have the same social and economic impacts, with Alternative B

resulting in less impacts due to less traffic delay and improved safety conditions.

5.1.11 Public Input

Meetings were held with local stakeholders including FDOT District 6, Miami-Dade County, Miami-Dade Transportation Planning Organization, City of Florida City and City of Homestead. Stakeholders agreed on the need for improvements at Palm Drive and generally supported the Build Alternatives using grade separated ramps to address the bottleneck congestion of the Palm Drive intersection and the improved evacuation operations. It was noted that Alternative B operated better by effectively solving the weaving issue on southbound US 1.

5.2 Alternatives Cost Analysis

A long-range estimate (LRE) was prepared for each of the two build alternatives to determine the anticipated construction costs for each. The LRE reports for Alternative A and B are included in **Appendix D**. **Table 13** summarizes the anticipated construction cost for each alternative. The No-Build alternative does not have any associated construction costs.

Table 13 – Approximate Cost for Each Alternative

ALT A Direct Connect	ALT B Direct Connect Plus Additional Improvements	No-Build
$ 119,600,000	$ 125,600,000	$ 0.00

5.3 US 1/SR 5 Alternatives Evaluation Matrix

The three (3) US 1/SR 5 Interchange alternatives were analyzed, and the advantages and effects of each alternative were identified. This analysis is summarized in **Table 14.** Based on this qualitative comparison, Alternative B is more advantageous than Alternative A and the No-Build Alternative.

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Table 14 – US 1/SR 5 Interchange Alternatives Evaluation Matrix

Advantages & Effects		US 1 Interchange Alternatives		
		A Direct Connect	**B Direct Connect Plus Additional Improvements**	**No Build**
Traffic/ LOS/ Safety	Improve Traffic Operations and Safety for Roadway users	78% reduction in Delay	78% reduction in Delay	None
	Enhance Evacuation Route	Yes	Yes	None
	Access Impacts (median closures/modification)	Yes (2 full closures and 1 modified)	Yes (2 full closures and 1 modified)	None
Cost	Right of Way Impacts and Cost	7 parcels (2.345 Ac) $ 10.6 Million	7 parcels (2.345 Ac) $ 10.6 Million	None
	LRE Construction Costs	$119.6 Million	$125.6 Million	$0
Environmental Impacts	Cultural (Recreational Areas, Historic, Archaeological Sites)	Minimal	Minimal	None
	Physical (Contamination and Noise)	Minimal	Minimal	None
	Natural (Species & Wetlands)	Minimal	Minimal	None
	Social (Public, Community & Businesses)	Minimal	Minimal	None
Other Engineering Impacts	Compatible with Adjacent Projects	Yes	Yes	No
	Utility Impacts	Yes	Yes (Additional impacts due to US 1 southbound diversion)	None
	MOT Complexity & Constructability	Will require several phases to complete	Will require several phases to complete	None

6.0 Lucy Street Interchange Analysis

The alternative advancing to the PD&E stage for the Lucy Street interchange is a new partial interchange based on a previous interchange concept prepared by The Corradino Group in 2012. This new interchange is in response to a local agency request for new access by the City of Homestead and local land developers.

The purpose of this Lucy Street interchange is to reduce congestion at adjacent Turnpike interchanges and improve mobility in the cities of Homestead and Florida City. Lucy Street crosses beneath the Turnpike Extension approximately at MP 1.37, 0.83 miles north of the US 1 interchange, and 1.74 miles south of the Campbell Drive interchange. The interchange concept creates new access to the Turnpike Extension with one (1) southbound off-ramp that expands to three (3) lanes at the Lucy Street intersection and one (1) northbound on-ramp. Concept plans are presented in **Appendix A**.

The arterial roadway connection at Lucy Street considered the Miami-Dade County Lucy Street four (4)-lane reconstruction plans as the existing roadway condition.

The new interchange would require right of way acquisition (partial or total parcel acquisition) on seven (7) parcels. No residential or business relocations are required. Other impacts of the interchange include drainage, utilities and signalization on Lucy Street. The total estimated construction cost for the interchange is approximately $13.2 million. The local funding match is half of the interchange cost.

The benefits of a new interchange access point at Lucy Street are the following:

- Reduction in traffic volumes at the US 1 and Campbell Drive interchanges
- Improved local mobility to support economic development
- Improved regional mobility
- A benefit/cost ratio of 0.54

Based on the analysis in the Lucy Street Feasibility Study, the proposed partial interchange is recommended for further study and development in a PD&E Study.

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7.0 Campbell Drive Interchange Analysis

7.1 Existing Campbell Drive Interchange

This Turnpike Extension Widening PD&E study from US 1 to Campbell Drive incorporated mainline improvements related to the proposed median widening and auxiliary or parallel ramp concepts to improve merge/diverge/weave operations at the Campbell Drive interchange. The full interchange was analyzed under a previous PD&E Study that resulted in a design build project. The design-build project at the Campbell Drive interchange incorporated the required improvements to meet the 2045 traffic needs.

The Campbell Drive Interchange was initially constructed as a partial cloverleaf interchange with loop ramps providing access to and from the north. Subsequently, in year 2000, ramps were opened to serve movements to and from the south. A PD&E study completed in 2013 included the Campbell Drive interchange (FM 423372-1-22-01) improvements that were implemented as part of a design-build project (Florida's Turnpike FPID 435462-1-52-01). This design-build project added a new northbound on-ramp connection to serve westbound Campbell Drive and modified the existing northbound on-ramp to serve eastbound Campbell Drive only. The design-build project also included median mainline widening throughout the interchange area. This additional widening is striped out in some areas and can be utilized in the future for six (6)-lane mainline widening to the south. Since the Campbell Drive design-build project was under construction during the writing of this feasibility memo, the existing condition will be considered as shown in the construction plans from the design-build project.

The Campbell Drive Interchange ramps are depicted in **Figure 29** and are described as follows:

- Ramp 05 (Northbound Turnpike to Campbell Drive Off-Ramp) is a one-lane ramp with a 15-foot lane, 6-foot (4-foot paved) outside shoulder and 6-foot (2-foot paved) inside shoulder. The ramp slopes to the outside shoulder with a varying cross slope of approximately 0.02 to 0.10. Existing guardrail and shoulder gutter is along the outside shoulder. A grassed swale is adjacent to the outside shoulder. The inside shoulder drains away from the ramp to the interchange infield area.

- Ramp 06 (Campbell Drive to Southbound Turnpike On-Ramp) is a one-lane ramp with a 15-foot lane, 6-foot (4-foot paved) outside shoulder and 6-foot (2-foot paved) inside shoulder. The ramp typically slopes to the outside shoulder with a varying cross slope of approximately 0.02 to 0.10. Guardrail and shoulder gutter exist along the outside shoulder. A drainage ditch exists beyond the guardrail. The inside shoulder drains away from the ramp to the interchange infield area.

- Ramp 07 (Southbound Turnpike to Campbell Drive Off-Ramp) is a one-lane ramp with a 15-foot lane, 6-foot (4-foot paved) outside shoulder and 6-foot (2-foot paved) inside shoulder. The ramp slopes to the outside shoulder with a varying cross slope of approximately 0.02 to 0.10. Guardrail and shoulder gutter exist along the outside shoulder. A drainage ditch exists beyond the guardrail. The inside shoulder drains away from the ramp to the interchange infield area which was previously identified as Pine Rockland.

- Ramp 08 (Campbell Drive to Northbound Turnpike On-Ramp) is a one-lane ramp with a 15-foot lane, 6-foot (4-foot paved) outside shoulder and 6-foot (2-foot paved) inside shoulder. The ramp slopes to the outside shoulder with a varying cross slope of approximately 0.02 to 0.10. Guardrail and shoulder gutter exist along the outside shoulder. The inside shoulder drains away from the ramp to the interchange infield area with a pond.

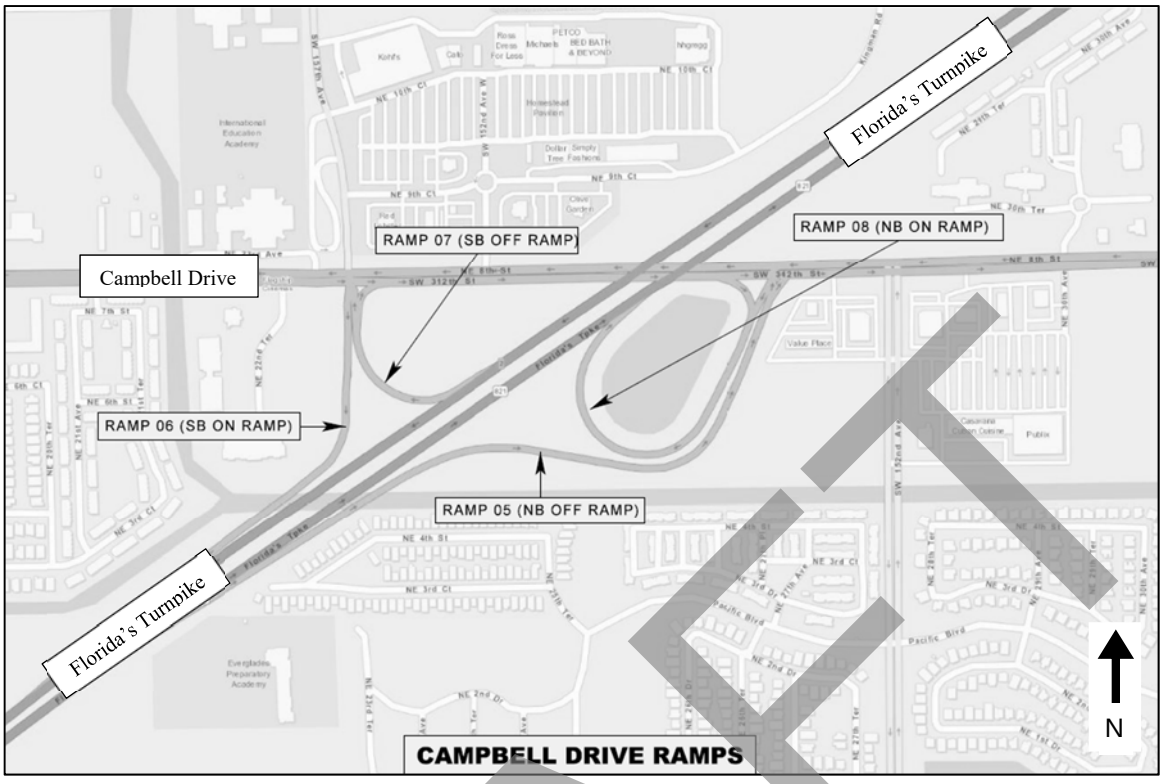

Figure 29 – Existing Campbell Drive Interchange

7.2 Campbell Drive Interchange Alternatives Recommendation

Outside widening will be needed on the Turnpike mainline to convert the current southbound off-ramp, northbound on-ramp (loop ramp) and southbound on-ramp terminals from taper-type to parallel-type ramp connections. The southbound on-ramp will connect to an auxiliary lane that continues south to the Lucy Street off-ramp. This on-ramp terminal modification is consistent with TDH section 211.13 to provide parallel entrances and exits on new construction, widening and capacity improvement projects. No other deficiencies were identified for the interchange. Therefore, the only build alternative identified for the interchange included the entrance and exit ramp modifications, which will be provided in the concept plans and in **Appendix E**. No other build alternatives were evaluated or considered for the interchange.

The proposed Campbell Drive interchange modifications noted above in the build alternative require minor widening and are necessary to comply with current TDH standards. No comparative analysis or other detailed evaluation was conducted for this interchange.

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8.0 Local Agency Coordination

During the development of the interchange concepts, a public kickoff newsletter was distributed and local agency coordination was conducted to solicit input on the concepts prior to the public information meeting in January 2020. The agencies contacted include FDOT District 6, Miami-Dade County, City of Homestead and City of Florida City. The agencies were in support of the project concepts and recognized the need for the improvements.

9.0 Summary and Recommendations

The following summarizes the interchange recommendations resulting from the analysis in this memorandum and supporting studies.

The US 1/SR 5 interchange analysis process had several iterations of concept development, from sketch-level concepts through refined alternatives development for engineering and environmental assessment. Alternative A Direct Connect and Alternative B Direct Connect Plus Additional Improvements are recommended to advance into PD&E analysis and compared to the No-Build scenario. Both Build Alternatives will require coordination with FDOT District Six (6) and other local stakeholders.

The Lucy Street interchange is recommended for further analysis in the PD&E study based on the results documented in the Lucy Street Feasibility Study.

The Campbell Drive interchange underwent analysis in a previous PD&E Study (FPN 423372-1), completed in 2014 and the ramp improvements identified in this memorandum are recommended for advancing into the PD&E study.

Additional environmental evaluations and public input are necessary to make final recommendations for the interchanges. The alternatives will be presented to the public at the Public Information Meeting in January 2020 and the preferred alternative will be presented to the public at the Public Hearing anticipated for summer 2020. The final recommended alternative and any refinements made from the environmental analyses, design evaluations, cost risk analyses, value engineering and FTE input, will be documented in the *Preliminary Engineering Report* and the *State Environmental Impact Report*.

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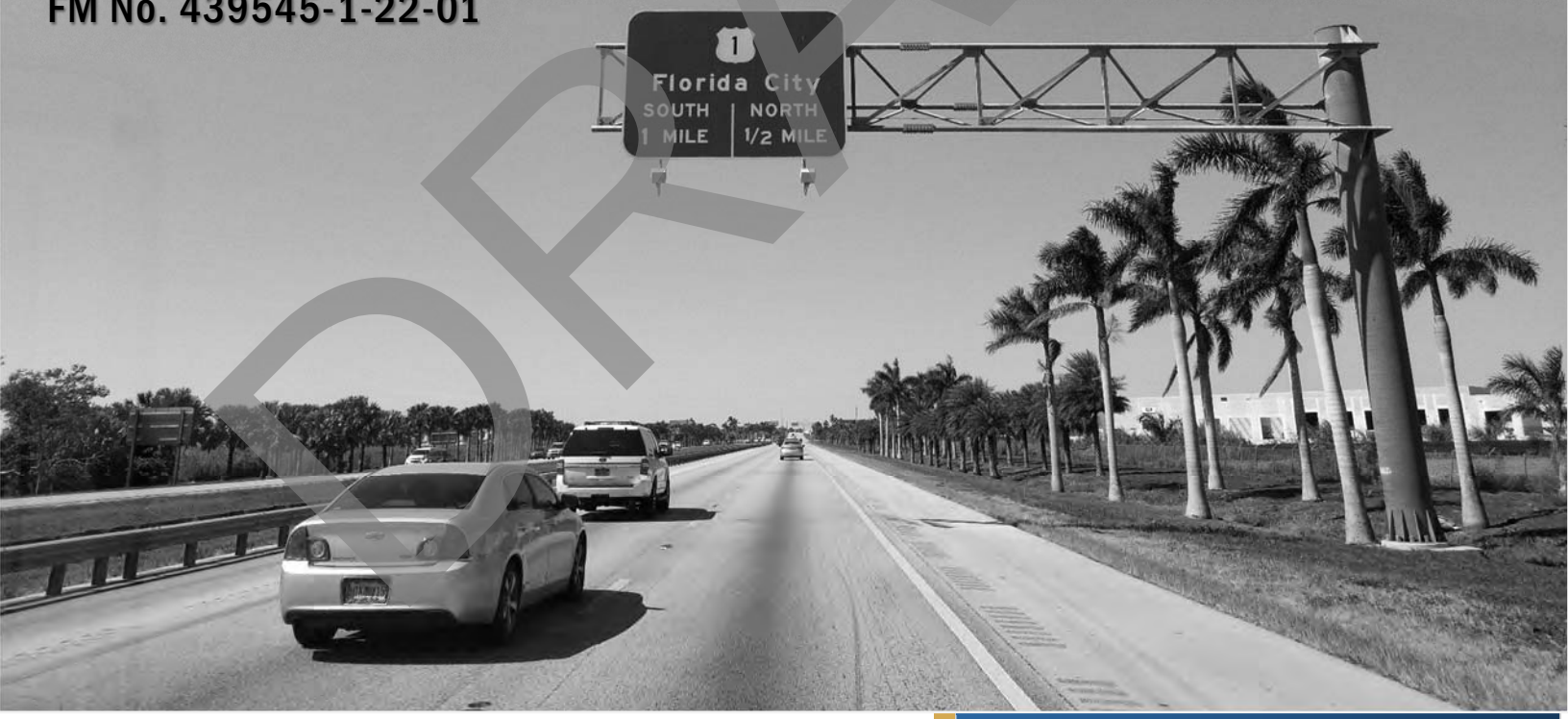
APPENDIX A

Lucy Street Feasibility Study Technical Memorandum

Draft Lucy Street Feasibility Study Technical Memorandum

Turnpike Extension (SR 821) Widening
Project Development and Environment (PD&E) Study
From US 1 South of Palm Drive to Campbell Drive | Miami-Dade County, Florida

FM No. 439545-1-22-01



Florida Department of Transportation
Florida's Turnpike Enterprise
P.O. Box 613069 | Ocoee, FL 34761

December 2019

Executive Summary

The Florida's Turnpike Enterprise (FTE) retained Stanley Consultants, Inc., to perform a feasibility study for a new partial interchange at Lucy Street/SE 8th Street/SW 328th Street along the Turnpike Extension (SR-821) in Miami-Dade County, Florida. A previous interchange concept prepared by The Corradino Group in 2012 was provided to the study team to refine and update roadway geometry to meet current Florida Department of Transportation (FDOT) Design Manual (FDM) and Turnpike Design Handbook (TDH) design standards.

The purpose of this Lucy Street Feasibility Study memorandum is to analyze the feasibility of a new Turnpike Extension interchange at Lucy Street to reduce congestion at adjacent Turnpike interchanges and improve mobility in the cities of Homestead and Florida City. Lucy Street crosses beneath the Turnpike Extension approximately at mile post (MP) 1.37, 0.83 miles north of the US 1 interchange, and 1.74 miles south of the Campbell Drive interchange. The interchange concept creates new access to the Turnpike Extension with one (1) southbound off-ramp that expands to three (3) lanes at the Lucy Street intersection and one (1) northbound on-ramp. Concept plans are presented in **Appendix A**.

The arterial roadway connection at Lucy Street utilized the Miami-Dade County, Lucy Street four-lane reconstruction plans as the existing roadway condition.

The new interchange would require right of way acquisition (partial or total parcel acquisition) on seven (7) parcels. No residential or business relocations are required. Other impacts of the interchange include drainage, utilities and signalization on Lucy Street. The total estimated construction cost for the interchange is approximately $13.2 million.

The benefits of a new interchange access point at Lucy Street are the following:

- Reduction in traffic volumes at the US 1 and Campbell Drive interchanges
- Improvement in regional mobility
- A benefit/cost ratio of 0.54

Based on the evaluation completed in this feasibility study, the proposed partial interchange is recommended for further study and development in a PD&E Study.

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1.0 Introduction

The Florida's Turnpike Enterprise (FTE) has retained Stanley Consultants, Inc., to perform a preliminary engineering review and feasibility study of a new partial interchange concept at Lucy Street/SE 8th Street/SW 328th Street (referred to as Lucy Street in this study) in Miami-Dade County, Florida. The feasibility study was conducted concurrently with the Project Development and Environment (PD&E) Study to widen Turnpike Extension (SR 821) from US 1 South of Palm Drive to Campbell Drive.

This feasibility study responds to an interchange access request that was initiated by the City of Homestead in support of local development and enhancement of regional mobility. A previous feasibility study for this proposed interchange was completed by The Corradino Group, dated May 2012, which provided the basic configuration for the interchange concept presented in this memorandum. The concept proposes a southbound off-ramp and a northbound on-ramp at Lucy Street. This feasibility study updates the geometric design of the interchange concept to current roadway standards and documents the features, benefits and impacts related to the engineering and environmental elements associated with the potential new partial interchange. Separate toll gantries for these new ramps are not anticipated at the time of this memorandum.

1.1 Purpose and Need

The primary purpose of a new Turnpike Extension interchange at Lucy Street is provide new access to/from the Turnpike between the two existing interchanges which are approximately three (3) miles apart. The secondary purpose of the interchange is to reduce congestion at the two adjacent interchanges and improve mobility in the cities of Homestead and Florida City. Lucy Street crosses beneath the Turnpike Extension approximately at MP 1.37, 0.83 miles north of the US 1 interchange, and 1.74 miles south of the Campbell Drive interchange.

1.2 Study Description and Location

The proposed partial interchange concept includes:

1. A single-lane Turnpike Extension southbound off-ramp which widens to three turning lanes (right turn, center choice right/left turn, and left turn lanes) at Lucy Street with a directional median opening for southbound left turns.

2. A single-lane Turnpike Extension northbound on-ramp, which allows for access from eastbound/westbound Lucy Street and northbound SW 167th Avenue.

3. Minor improvements to Lucy Street to accommodate the new interchange intersections.

4. Relocation (by others) of the local road SE 12th Avenue/Tennessee Road, west of the proposed interchange.

5. Stormwater treatment and attenuation improvements for the new impervious area.

The study area along Lucy Street is 0.7 miles long from west of NE 6th Avenue to east of SW 167th Avenue/Tennessee Road, as depicted on the project location map in **Figure 1**.

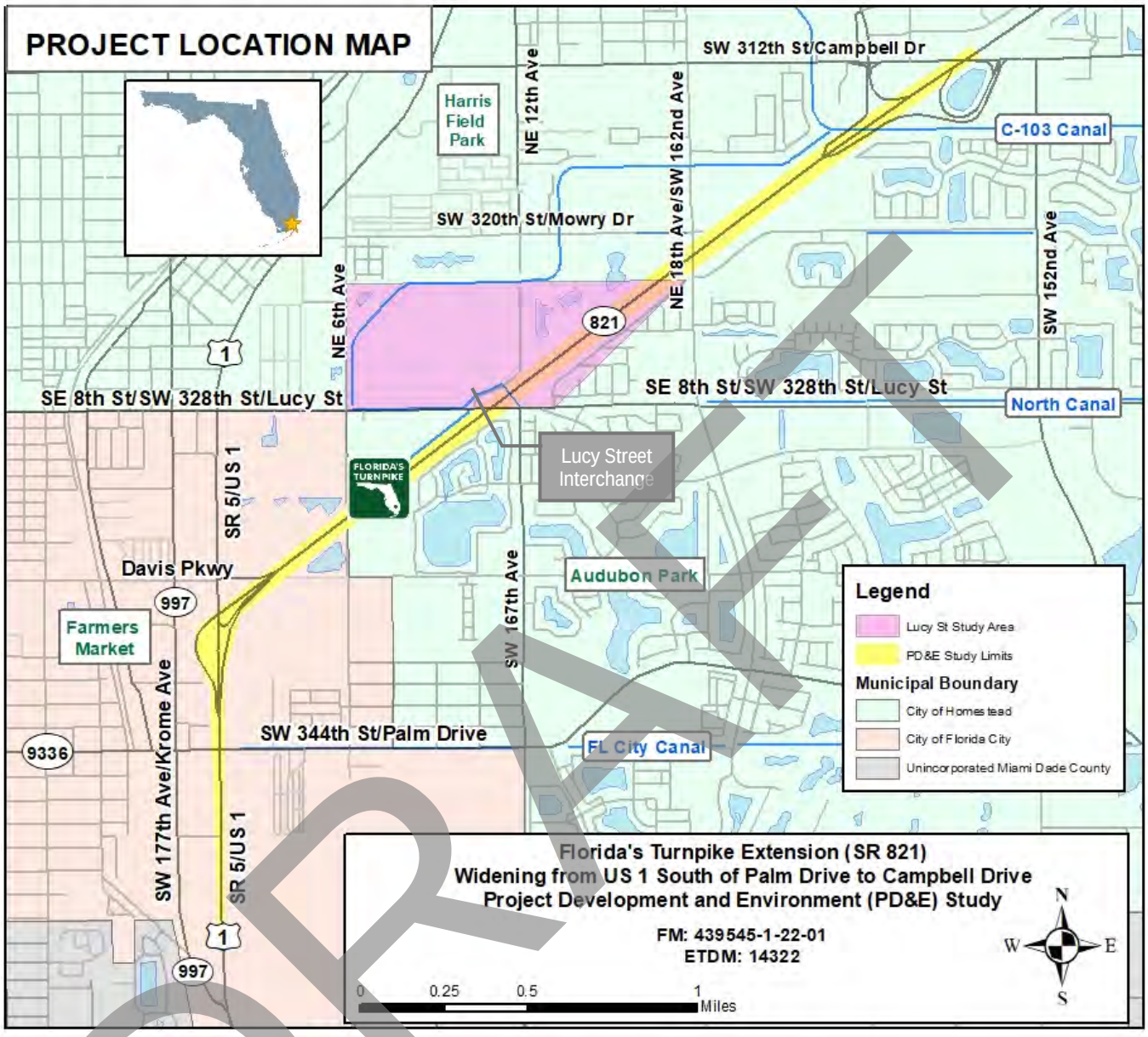

Figure 1 - Project Location Map

2.0 Existing Conditions

Lucy Street within the study area runs east to west and was under construction in 2019 to become a four-lane divided roadway. See **Appendix B** for the Lucy Street Widening Construction Plans. The arterial does not provide access to the Turnpike Extension. Adjacent land use is predominately farmland with surrounding residential land use.

The four-lane widening construction plans were prepared by Jacobs Engineering Group, Inc for Miami-Dade County Public Works and Waste Management Department Highway Division (Project Number 20040558). Since the Lucy Street reconstruction project is under construction during development of this feasibility memo, the existing condition will be considered, as shown in those reconstruction design plans, an urban four-lane divided major collector.

As shown in **Figure 2**, Tennessee Road north of Lucy Street is a paved local-access-only roadway that leads to a gated and locked secondary entry to the Monterey Pointe development. The roadway terminates at this gate (shown in **Figure 3**) and no longer connects to the closed bridge over C-103 canal. In coordination with the City, this bridge and road is not scheduled for improvement or opening to public traffic.

South of Lucy Street, Tennessee Road will be referred to as SW 167th Avenue which is an active local collector roadway with a signalized intersection.

Figure 2 - Interchange Study Area

Figure 3 - Termini of Tennessee Road North of Lucy Street

2.1 Roadway Features

The Lucy Street reconstruction project provides an urban four-lane divided typical section with two 11-foot through lanes, 16-foot median, four-foot bike lanes, and five-foot sidewalks with a 40-mph design and posted speed.

2.2 Traffic and Safety

The Turnpike Extension segment that crosses over Lucy Street has a 2016 Annual Average Daily Traffic (AADT) volume of approximately 39,800 vehicles. According to the FDOT Florida Traffic Online website, Lucy Street has a 2018 AADT of 9,400 vehicles (west of the Turnpike Extension) and 4,100 vehicles (east of the Turnpike Extension). The Turnpike Extension operates at LOS B (2016) between US 1 and Campbell Drive.

Crash data was collected for the five-year period from 2011 to 2015 and a crash analysis was conducted to identify crash patterns and contributing causes within the proposed interchange limits. The full crash analysis can be found in **Appendix C**.

A total of 55 crashes were reported during the referenced five-year period on the Turnpike Extension within the Feasibility Study limits, between mileposts 1.579 and 2.469. See **Figures 4** through **8** for crash distributions by year, type, lighting conditions, roadway surface, and severity, respectively.

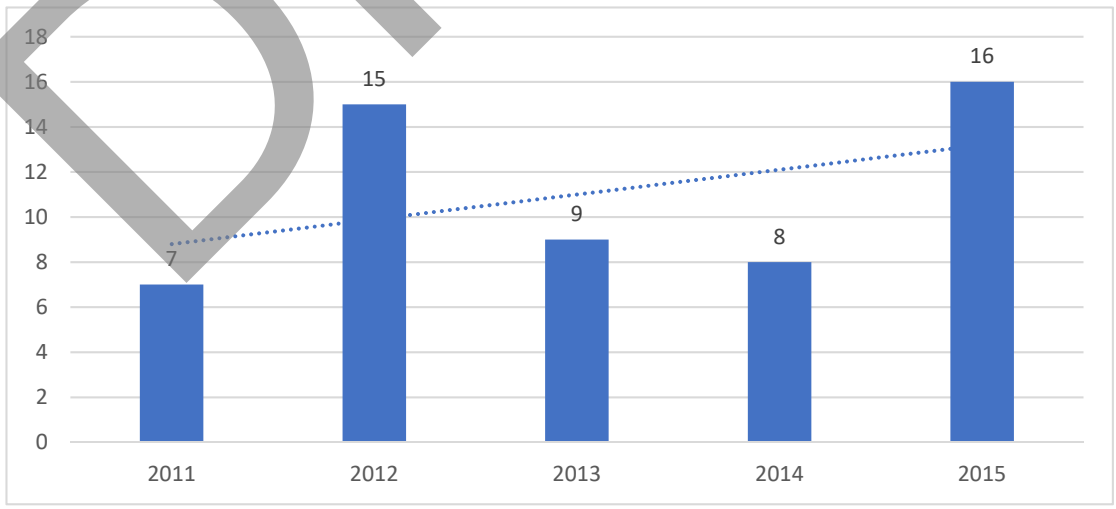

Figure 4 - Turnpike Extension Crash Distribution by Year

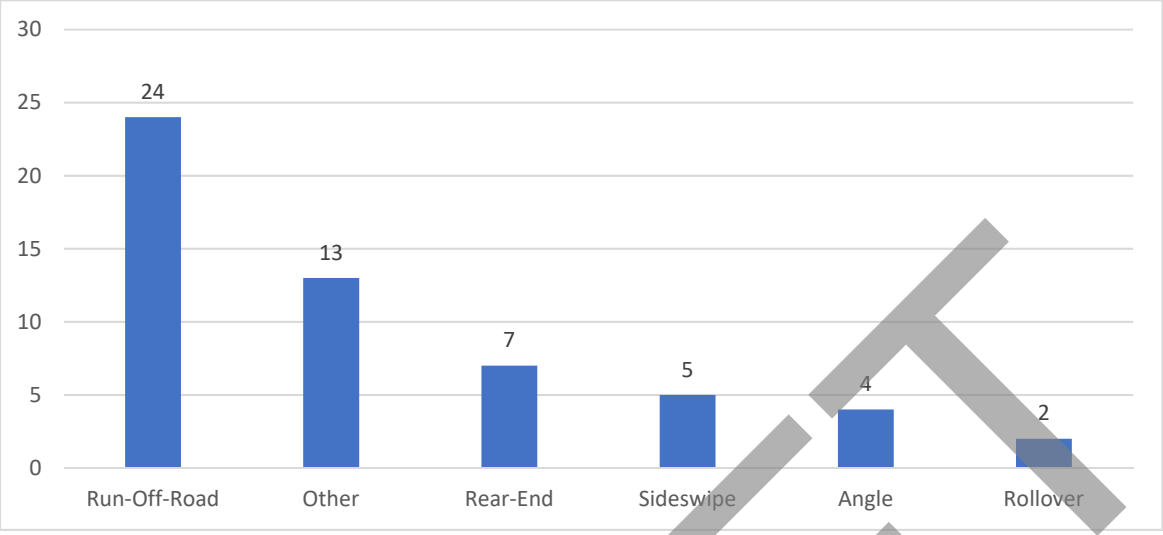

Figure 5 - Turnpike Extension Crash Distribution by Type

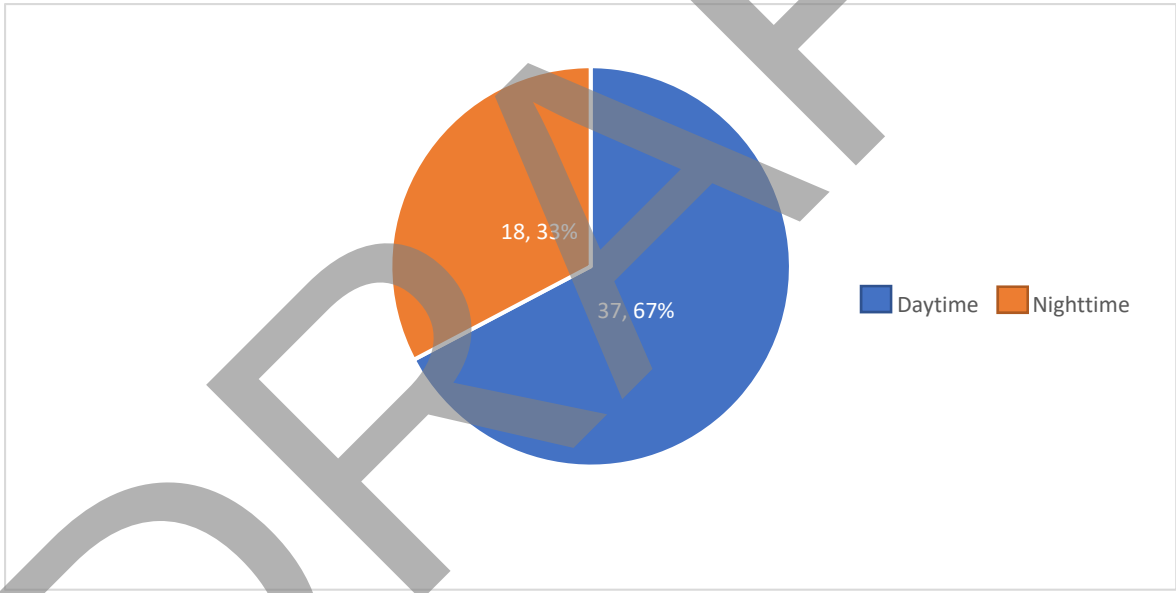

Figure 6 - Turnpike Extension Crash Distribution by Lighting Condition

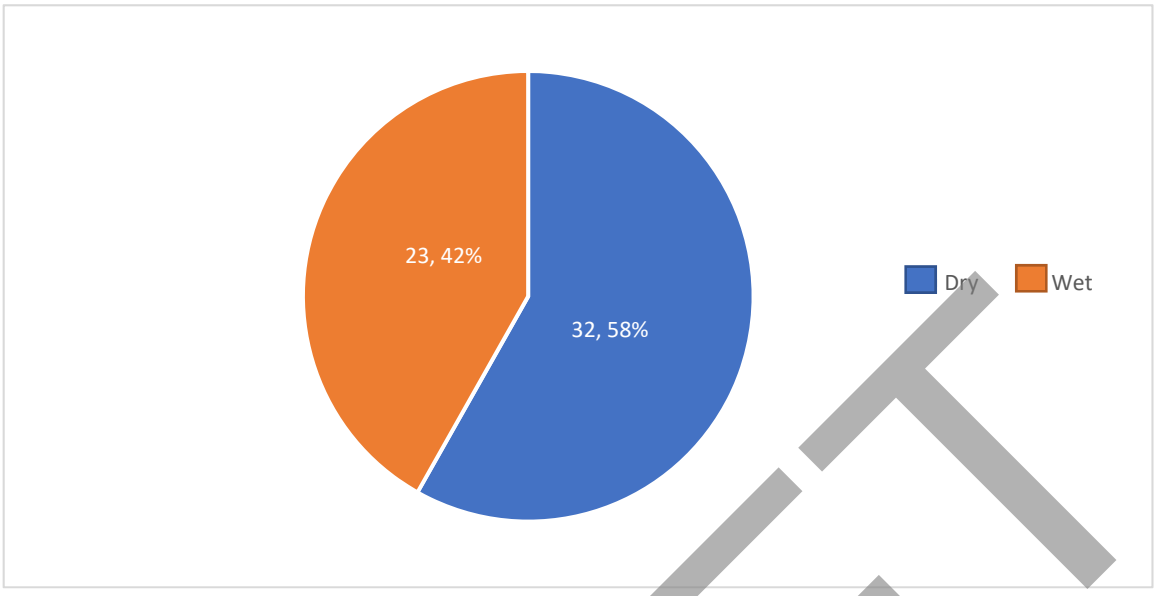

Figure 7 - Turnpike Extension Crash Distribution by Roadway Surface Condition

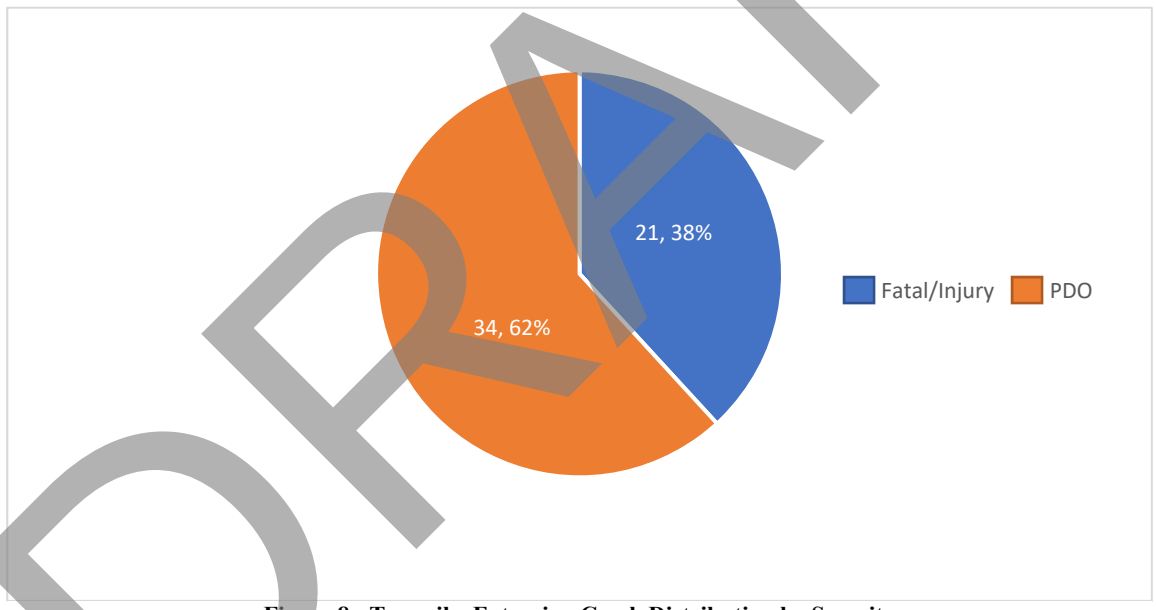

Figure 8 - Turnpike Extension Crash Distribution by Severity

One fatal crash occurred in the southbound direction of the Turnpike Extension, approximately one and a half miles north of the southbound off-ramp to US 1 northbound, on a Saturday at approximately 2 PM on a dry roadway. The crash involved a southbound motorcycle and a southbound passenger vehicle. Four people were involved in the crash, which resulted in one fatality.

A total of sixteen (16) crashes were reported during the referenced five-year period along Lucy Street. See **Figures 9 and 10** for crash distributions by year and type, respectively.

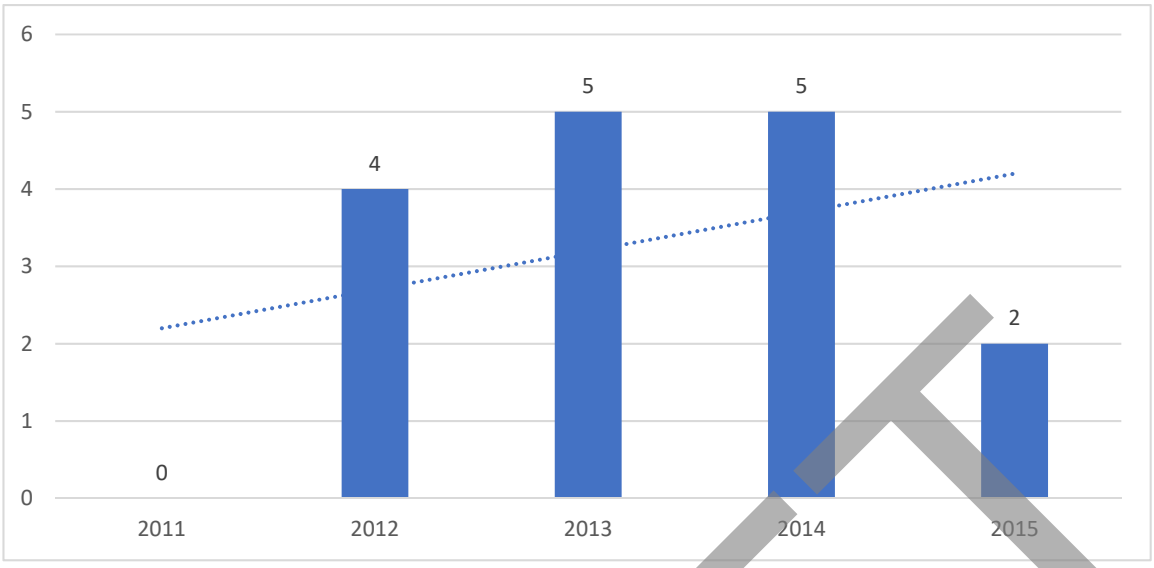

Figure 9 - Lucy Street Crash Distribution by Year

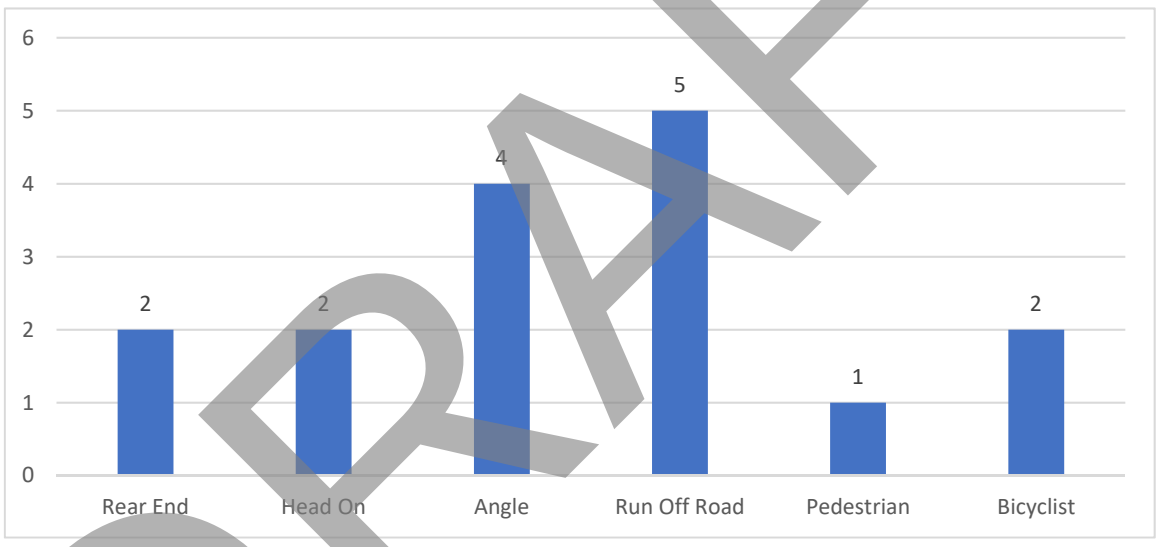

Figure 10 - Lucy Street Crash Distribution by Type

2.3 Turnpike Extension Interchange Access

No existing access to the Turnpike Extension is available from Lucy Street. To access the Turnpike Extension, a driver must either go south to the US 1 interchange (MP 0.00) or go north to the Campbell Drive interchange (MP 3.00).

2.4 Structures

Lucy Street passes beneath the Turnpike under spans 2 and 3 of bridges 870192 and 870399. The existing vertical clearance is 16 feet - 4.5 inches. The bridges have four spans with AASHTO girders, founded on abutments and column piers with 18-inch prestressed concrete piles. The construction plans call for 54-inch pier protection at the median and outside piers. Both abutments have concrete slope protection underneath spans 1 and 4 as seen in **Figure 11**.

Figure 11 - Existing Southbound SR 821 Bridge (looking east)

2.5 Pedestrian and Bike Facilities

According to the Lucy Street construction plans, five-foot concrete sidewalk and four-foot bicycle lane will be provided on both sides of the roadway beneath the Turnpike overpass. Miami-Dade Transit route 344 services Lucy Street from SE 6th Avenue to Tennessee Road east of the Turnpike Extension.

2.6 Drainage

The North Canal crosses under the Turnpike Extension via a double 60-inch major cross drain, approximately 250 feet north of Lucy Street, and leads east to a piped portion of the North Canal. The North Canal eventually discharges to Biscayne Bay and is the outfall location for Lucy Street as well. Lucy Street has a closed drainage system consisting of curb inlets and pipes. There are 36-inch French drain cells located on the north side of the road that provide water quality.

An existing double 42-inch cross drain provides drainage connectivity to the North Canal for discharge from the Turnpike Extension south of Lucy Street. The cross drain is located 200 feet west of the center Turnpike pier. There is an agricultural ditch located, outside of the Lucy Street right of way, on the north side of Lucy Street west of the Turnpike Extension and is used for irrigation purposes.

2.7 Lighting

Reconstruction project improvements include providing decorative lighting along the north and south back of sidewalk along Lucy Street and under the Turnpike Extension bridges. The Turnpike Extension mainline does not have existing roadway lighting within the study area.

2.8 Signalization

The intersection of SW 167th Avenue and Lucy Street is a signalized T-intersection with three approaches. The signal system is comprised of three (3) mast arms located on the north, east and west corners. **Figure 12** shows an existing signal mast arm on Lucy Street east of the Turnpike mainline.

Figure 12 - Existing Mast Arm Signal at Lucy Street

2.9 Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems (ITS) facilities exist along the Turnpike Extension in the vicinity of Lucy Street and are further detailed in Section 3.11.

No ITS facilities are indicated on the Lucy Street reconstruction plans.

2.10 Utilities

Overhead utilities were verified during a field review and buried utilities were identified in the Lucy Street reconstruction plans from the Miami-Dade County SW 328th Street from US 1 to SW 162nd Avenue design plans. There are overhead electric transmission lines, owned by the City of Homestead that run parallel along Lucy Street. All known utility owners within the study limits are:

- Miami-Dade County Water and Sewer Dept.
- Miami-Dade County Public Works
- Advantage Group of Florida Communications
- AT&T
- Florida Power and Light
- Bellsouth
- Florida Power and Light
- City of Homestead
- City of Homestead (Electric Department)
- City of Florida City

2.11 Landscaping

No landscaping exists within the right of way of Lucy Street or the Turnpike within the Study area.

2.12 Environmental

Wetland and Surface Waters

The ditch that runs adjacent on the north side of Lucy Street flows east and continues to flow underneath the Turnpike Extension via box culverts. The ditch continues flowing east to the North Canal just east of NE 18th Avenue. There is wetland vegetation along the banks and within the ditch (i.e. torpedo grass, white duck potato, and maidencane grass).

Protected Species and Habitat

The land cover within the study area is predominantly agricultural. Based on the data and literature review, federally listed species that may occur include the American Crocodile, Florida Bonneted Bat, Eastern Indigo Snake, and the Wood Stork. The study area is within the United States Fish and Wildlife Service's (USFWS) Consultation Areas for the American Crocodile and the Florida Bonneted Bat. It is also within the Grossman Ridge West Core Foraging Area (CFA) for the Wood Stork. The project area is not within any USFWS designated critical habitat.

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3.0 Proposed Interchange Concept Evaluation

3.1 Concept Description

The proposed feasibility concept (see **Appendix A**) is a partial interchange with a southbound off-ramp and northbound on-ramp. A southbound 12-foot auxiliary lane is proposed along the Turnpike Extension from Campbell Drive to the Lucy Street southbound off-ramp. The mainline posted speed is 65 mph.

To accommodate the southbound off-ramp, the existing Tennessee Road roadway will be relocated by others. The final location and alignment of Tennessee Road will be determined by the local agencies and/or property owners at a later date and is not part of the Lucy Street Feasibility Study. The concept plans provided in this study show a potential connection to Lucy Street from Tennessee Road, 900 feet west of the new ramp location with the new limited access right of way line extending to the newly relocated driveway. This location is an equal distance from NE 6th Avenue and the new off-ramp intersection. Other possible relocations of Tennessee Road could connect to NE 6th Avenue directly.

The southbound off-ramp includes a 15-foot wide single-lane ramp, which widens to three (3) 12-foot wide turning lanes (one right turn lane, one left turn lane and one shared right/left turn lane) at Lucy Street. A signalized intersection will be developed at the southbound off-ramp and Lucy Street intersection. The ramp exit design speed is 50 mph, which lowers to 30 mph approaching the Lucy Street intersection.

A single-lane northbound on-ramp connects to the mainline as a parallel ramp with a 1,135 foot long acceleration lane. Lucy Street modifications include adding a new eastbound left and a right turn lane, adding a westbound right turn lane, and adding a through lane on the south leg of the intersection. The on-ramp design speed is 50 mph.

3.2 Future Traffic and Safety

The future year 2045 traffic analysis shows that when the Lucy Street interchange is added to the freeway system it reduces the overall travel demand on the Campbell Drive and US 1 interchanges by 7,700 and 14,500 AADT respectively (**Table 1**). The freeway travel demand increases south of Campbell Drive by 8,100 AADT and decreases south of Lucy Street by 14,500. The net benefit is reduced delay and travel time throughout the study

Table 1 - 2045 Mainline and Ramp AADT

Mile Post-Interchange	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
	108,600	**108,600**	**0**
2 – Campbell Drive	43,700	36,000	-7,700
	10,400	10,800	400
1 - Lucy Street (SW 328th St)	**75,300**	**83,400**	**8,100**
	0	22,600	22,600
	75,300	**60,800**	**-14,500**
0 – US 1 (To/From North)	22,300	12,800	-9,500
0 – US 1 (To/From South)	53,000	48,000	-5,000

area. Compared to the No Build alternative, with the Lucy Street interchange implemented, the overall regional delay is reduced 78%, which results in a net cumulative benefit of over $12 million to the region's transportation

network. A benefit-cost ratio of 0.54 was determined based on travel time, time value and time benefit in respect with cost. The analysis can be found in **Appendix D**.

The future year 2045 traffic volumes exceed the capacity of the existing four lane freeway segment in the No Build Scenario resulting in LOS D/F. Widening to a six-lane freeway section will provide sufficient capacity to achieve acceptable LOS D or better with typical traffic volumes operating at LOS B/C (**Table 2**).

Table 2 - 2045 Scenarios Freeway Segment Analysis Results

Location	Direction	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
North of Campbell Drive (MP 2)	Southbound	F	F	F	D	C	D	D	C	D
	Northbound	F	F	F	C	D	D	C	D	D
North of US 1 (MP 0) to Campbell Drive (MP 2)	Southbound	F	D	F	C	B	D	C	B	D
	Northbound	D	F	F	B	C	B	B	C	B

The proposed partial interchange at Lucy Street will provide additional access to the Turnpike Extension for the City of Homestead/Florida City area residents, both to and from the Greater Miami Area, thereby reducing traffic volumes and related congestion experienced along the US 1, Palm Drive, and Campbell Drive arterials and intersections. New traffic flow on Lucy Street will result as motorist use the closer and more convenient Turnpike access point. Traffic analyses shows the Lucy Street ramp terminal intersections operating at acceptable LOS in the design year and overall traffic volumes, congestion and delay at the existing Palm Drive and Campbell Drive intersections would be reduced. The proposed partial interchange would provide an overall positive effect to regional mobility and provide congestion relief at the adjacent Turnpike interchanges by reducing total network delay, reducing travel times, and reducing emissions.

The congestion relief that would occur at the existing US 1, Palm Drive, and Campbell Drive arterials and intersections due to the new Lucy Street interchange will have a positive impact on overall safety in the study area. Although the number of crashes along Lucy Street will likely increase in the future given the higher traffic volumes, overall intersection-related crashes within the study area should decrease, when compared to the No-Build Alternative, including high severity angle and left-turn crashes as congestion is reduced and gaps in conflicting traffic are increased. Sideswipe and rear-end Turnpike crashes will also decrease, when compared to the No-Build Alternative, at the existing on and off-ramps along with mitigated mainline nighttime crashes due to additional interchange lighting. The reduction in volumes at the Campbell Drive interchange will also mitigate lane departure crashes along the loop ramps. Pedestrians and bicyclists should experience safer conditions from reduced congestion and the new signalization along Lucy Street that allows for better pedestrian access to potential bus stops.

For the traffic and safety impacts to the study area, the proposed interchange provides an overall positive effect.

3.3 Right of Way Needs

Right of way is required for both proposed ramps. A 94-foot border width was used for the mainline and ramps except where the border width was reduced to 24 feet to mitigate residential right of way impacts.

This study provides a potential connection for a future relocated Tennessee Road connecting to Lucy Street midway from the new southbound off-ramp and NE 6th Avenue. The final location and design of the realigned roadway is to be determined later by local agencies and property owner coordination. Right of way for the Tennessee Road relocation will be provided by the owner/developer per the local agency coordination meeting held on November 4, 2019. See **Appendix E** for meeting minutes.

4, 2019. See **Appendix E** for meeting minutes.

No residential or business relocations were identified with the proposed partial interchange concept. **Table 3** summarizes the right of way needed from each parcel. A right of way exhibit corresponding to the table is provided in **Appendix F**. A preliminary right of way cost estimate was $5.5 million.

Table 3 - Approximate Right of Way Areas Needed

Folio Number	Area (SF)
1079180010150	345,945
1079170010360	8,405
1079190130001	420
1079190120001	260
1079170010410	95,435
Total SF	**450,465**

3.4 Roadway and Access

The proposed Lucy Street interchange would be located within the limits of the City of Homestead and approximately 1.74 miles from the existing Campbell Drive interchange and 0.83 mile from the US 1/SR 5 interchange. The Lucy Street interchange is a directional interchange with located ramps between Lucy Street and the Campbell Drive interchange which is 1.74 miles to the north. The Lucy Street interchange does not introduce ramps in the shorter 0.83-mile section to the south towards the US 1 interchange.

According to the City of Homestead Economic Development Book 2019, the city is home to 70,000 residents and an additional 400,000 people are within a 20-minute commute. The FDOT Quality/Level of Service Handbook 2013, page 58 defines an Other Urbanized Area as having a minimum population of 50,000. Therefore, according to the FDOT Design Manual (FDM) and Access Management Rule 14-97 Table 201.3.1, Freeway Interchange Spacing is Area Type 2, and Existing Urbanized Areas Other Than Area Type 1 with interchange spacing at two (2) miles.

The proposed interchange substantially satisfies the spacing criterion where the ramps are proposed between Lucy Street and Campbell Drive. An auxiliary lane is provided between the southbound on-ramp at Campbell Drive and the southbound off-ramp at Lucy Street. Traffic projections and operational analysis identified adequate LOS for the ramps, mainline and merge/diverge/weave areas. Overall regional mobility and access is anticipated to have a positive effect due to the proposed interchange.

3.5 Structures

The proposed interchange does not impact the existing Turnpike Extension bridges over Lucy Street. However, the improvements would require other miscellaneous structural work for a potential box culvert on the north side of Lucy Street as well foundations for the proposed mast arm signals. Potential new overhead sign structures could be needed to sign the new interchange. Potential minimal impacts are anticipated to structures.

No improvements are expected under or to the Turnpike bridges due to the new interchange improvements.

3.6 Pedestrian and Bike Facilities

Sidewalk modifications are required on the north side of Lucy Street due to the proposed ramps. Sidewalk modifications are minor and include sidewalk relocation, additional curb ramps and additional sidewalk to the relocated Tennessee Road.

The proposed interchange improvements maintain the bike lanes along Lucy Street. Bike keyholes will be provided between the proposed right turn lane and the through lanes at the northbound on-ramp location. Potential minimal impacts are anticipated to pedestrian and bicycle facilities.

3.7 Drainage

Drainage modifications include inlet, manhole and headwall adjustments. New side drain pipes are required at the southbound off-ramp terminus at Lucy Street to provide positive drainage for the existing irrigation ditch utilized by the adjacent agricultural property.

The proposed interchange concept does not impact the existing double 60-inch cross drain under the Turnpike Extension or the double 42-inch cross drain under Lucy Street, however the headwall of the piped segment of the North Canal will be impacted near the proposed northbound on-ramp intersection with Lucy Street. The piped segment of the North Canal should be modified to be located beyond the clear zone of the proposed ramp. The new southbound auxiliary lane from Campbell Drive to the Lucy Street off-ramp requires regrading the existing swales of the mainline and possible adjustments to the existing drainage inlets.

Stormwater management treatment for the southbound off-ramp can occur within linear ponds located within the proposed limited access right of way of the southbound off-ramp. Stormwater management of the northbound on-ramp can occur within a linear pond located within the proposed limited access right of way of the northbound on-ramp. Potential minimal impacts are anticipated to drainage.

3.8 Signing and Pavement Marking

Additional interchange signage is required along Lucy Street and the Turnpike Extension. A conceptual signing plan should be prepared as part of the PD&E Interchange Access Report process. Minor pavement marking modifications are required along Lucy Street due to the addition of the southbound off-ramp and northbound on-ramp. Investigation and coordination of the freeway guide sign placement should consider the location of the express lane guide and toll signs associated with the express lane entry/exit point just north of Campbell Drive.

3.9 Lighting

Some of the recently constructed light poles along Lucy Street will require modification. The proposed southbound off-ramp impacts approximately one (1) light pole. The proposed northbound on-ramp impacts five (5) light poles for the westbound to northbound right turn lane. New lighting should be evaluated during the PD&E phase along with any lighting modifications along Lucy Street. Potential minimal impacts are anticipated to lighting.

3.10 Signalization

New mast arm signals will be required at the southbound off-ramp and modifications required for the existing mast arm signals and traffic controller located at the SW 167th Avenue and northbound on-ramp intersection.

3.11 Intelligent Transportation Systems (ITS)

The proposed Lucy Street interchange may impact the existing ITS facilities along the Turnpike Extension. A fiber optic cable backbone and electrical service wires buried west of and running parallel to the mainline. Lateral cable and electrical service wire drops service ITS subsystems 821-1.2SB and 821-1.2MD. ITS subsystem 821-1.2SB is located just south of Lucy Street along the southbound side of the mainline, 39 feet from the face of guardrail that has CCTV, microwave vehicle detection system (MVDS), and travel-time system (TTS) transponder readers mounted on a 76-foot concrete pole. ITS subsystem 821-1.2MD is located just south of Lucy Street in the grass median of the mainline, seven feet from the face of guardrail that has TTS mounted on a 34-foot concrete pole.

The roadway modifications from the proposed interchange at Lucy Street will have impacts in the northwest and

The roadway modifications from the proposed interchange at Lucy Street will have impacts in the northwest and northeast quadrants of the interchange. No impacts are anticipated in the southwest or southeast quadrants. Based on a preliminary assessment of the existing ITS infrastructure, ITS subsystems 821-1.2 SB and 821-1.2 MD will not be impacted due to the new interchange. However, 821-1.2 MD is anticipated to be relocated due to incidental construction of the proposed inside widening from the proposed Homestead Extension Florida's Turnpike project (439545-1-52-01). There do not appear to be any fiber pull boxes or splice vaults within the vicinity of the proposed alignments and it is anticipated that no excavation will be required within the vicinity of the fiber optic cable backbone along the west side of Florida's Turnpike, thus, the backbone will not be impacted.

The existing power service is located in the northwest quadrant of Lucy Street and Florida's Turnpike. It is anticipated that the overhead utilities will be impacted due to the profile of the proposed off-ramp alignment, however, the power service point for the ITS devices located south of the new alignment is not expected to be impacted. Accommodations should be made to ensure that service shall be retained to the existing ITS infrastructure through this service point during any potential modifications to the overhead utilities.

Future arterial dynamic message signs on the three approaches to the northbound on-ramp will require consideration.

3.12 Utilities

The proposed interchange ramps will impact existing utilities. The underground and overhead transmission lines have been identified as belonging to the City of Homestead Electric. See **Appendix G** for the electrical utility plans.

At the northbound on-ramp the underground three phase primary line will be crossed and the switch cabinet and primary pull box will need relocation. Coordination is required regarding the location of the eastbound right turn lane, sidewalk, existing 105-foot transmission poles and utility cabinets to identify horizontal clearance requirements. **Figure 13,** facing west, shows the current configuration of cabinets on the southwest quadrant of the intersection that will potentially be impacted by proposed curb return improvements.

Figure 13 - Existing Utility Cabinets on Southwest Corner of Lucy Street and SW 167th Avenue

The proposed alignment for the southbound off-ramp avoids the existing transmission power poles along the northside of Lucy Street, as seen on the left side of **Figure 14**. However, potential powerline relocations needed for the northbound on-ramp at SW 167th Avenue may affect the transmission poles near the southbound off-ramp. The southbound off-ramp will pass under a distribution powerline along the existing western limited access right

Figure 14 - Transmission Pole West of Turnpike on Lucy Street

of way line and affect the powerline, five (5) 45-foot wood power poles and one (1) overhead transformer to meet vertical clearance requirements over the ramp. Along Lucy Street, the underground three phase primary line will be crossed with the new off-ramp construction.

Potential substantial impacts are anticipated for utilities within the study area. During the design phase potential utility conflicts should be reviewed with the proposed improvements including potential conflicts at new signal and light pole locations and at drainage modifications.

3.13 Landscape

No landscape impacts are anticipated with the proposed new interchange.

3.14 Environmental

Wetland and Surface Waters

Any proposed improvements (i.e. new culverts or relocation of culverts) within the ditch running parallel to Lucy Street could result in minimal impacts to the wetland vegetation identified along the banks and within the ditch.

Protected Species and Habitat

Based on subsequent field reviews and the land cover within the study area, the likelihood of the occurrence of the American Crocodile, the Florida Bonneted Bat and Eastern Indigo Snake is very low. The ditch does provide some habitat for fish and foraging birds such as the Wood Stork.

Minimal wetland and protected species impacts are anticipated and coordination with federal agencies will need to be completed in the PD&E and design phases.

Noise effects on the nearby residential areas should be evaluated during the PD&E phase.

Farmland Protection Policy Act is not applicable to projects that do not use federal funding.

3.15 Design Variations

The proposed new interchange requires design variations for border width. The proposed interchange requires a border width variation at the start of the southbound off-ramp adjacent to the Monterey Pointe residential community. A proposed border width of 23.33 feet at this location minimizes right of way acquisition and other impacts to this community. Similarly, a reduced border width of 22.16 feet is also proposed along the northbound on-ramp adjacent to the Tennessee Estates residential community. No other design variations are anticipated for the proposed partial interchange.

3.16 Construction Cost

To calculate an estimated construction cost of the new proposed partial interchange a Long Range Estimate (LRE) was completed. The LRE cost is approximately $13.2 million.

3.17 Evaluation Matrix

The advantages and disadvantages of the proposed new partial interchange are summarized in **Table 4.**

Table 4 - Concept Advantages vs. Disadvantages

Criteria	Advantages	Disadvantages
Traffic	• New access to and from the Turnpike, thereby reducing volumes along Palm Drive and Campbell Drive. • Improved reduced trip length, • Reduced network delay on regional network by 78% • Acceptable future LOS at new Lucy Street interchange • Improves regional mobility. • Improves EMT response time. • Provides additional evacuation access. • Provides additional trucking access.	• Signals at southbound off-ramp adds delay on Lucy Street.
Safety	• Congestion relief at US 1 and Palm Drive intersection and at Campbell Dr & SW 157th Ave & SW 152nd Ave intersections, thereby reducing intersection crashes. • Reduction of Turnpike mainline crashes at Campbell Dr on/off-ramps; net reduction of mainline crashes due to equalization/metering of on-ramps within study area. • Reduction in volume/lane departure crashes along Campbell Drive loop ramps. • Reduction in volume/left-turn delay and left-turn crashes along arterials and minor roadways leading to/from Palm Drive and Campbell Drive.	• Increase in intersection crashes along Lucy Street at new interchange intersections. • Increase in Turnpike mainline crashes at Lucy Street on/off-ramp connections.
Right of Way Needs		• Total Right of Way acquisition required is approximately 10.3 acres. • Approximate cost of Right of Way required is $5.5 million.
New Interchange	• Proper interchange spacing.	

Criteria	Advantages	Disadvantages
Access Effects	• Added southbound auxiliary lane along the Turnpike Extension main line. • Improved access to/from Turnpike for daily use and evacuation periods from southern City of Homestead and northern section of Florida City. • Reduction in traffic at the interchanges with US 1 and Campbell Drive. • Reduction in trips on local arterial roadways. • AADT reduction in mainline Turnpike traffic south of new interchange. • Significantly enhances regional mobility. • Congestion reduction at adjacent interchanges.	
Adjacent Property Operations	• New access to Turnpike Extension.	• Reduction in land use that can be used for farming purposes.
Structure Impacts		• Impacts to existing box culvert under SW 167th Ave/Tennessee Road. • New culvert required under southbound off-ramp.
Bike and Pedestrian	• Reduced congestion at Palm Drive and Campbell Drive intersections should improve safety for bicyclists & pedestrians.	• Adds conflict points at the proposed ramp termini.
Drainage		• The new ramps and realigned access road impact existing canals and culverts. However, these impacts can be addressed with standard methods (canal realignment, culvert replacement/extension).
Lighting Impacts	• Nighttime crashes along Turnpike mainline in the vicinity of Lucy Street should reduce due to new interchange lighting.	
Signalization		• One (1) new signal required at southbound off-ramp and Lucy Street.
ITS	No impacts	
Utility		• Utility relocations will be needed, specifically FPL overhead transmission lines and poles at the southwest corner of Lucy Street and SW 167th Avenue.
Landscaping	No impacts	
Environment		• Increase in noise along the proposed ramps, adjacent to residential land use. • Coordination with NCSR for farmland impacts.
Cost	Based on Time Benefit a Cumulative Benefit Difference of $12,392,500 is achieved when compared to the No Build.	• Right of Way is approximately $5.5 million. • Construction cost is approximately $13.2 million. • Relocation of utility costs are approximately $500,000 per transmission pole.

Criteria	Advantages	Disadvantages
Design Variations		• Border width variation needed for new ramps.

The proposed new partial interchange was evaluated for impacts and effects against a No-Build scenario. **Table 5** shows the rating system used for each evaluation criteria and **Table 6** shows the results of the no Build scenario compared to the proposed Build concept.

Table 5 - Criteria Rating System

Rating System
Positive Effect
No Impact
Potential Minimal Impact
Potential Substantial Impact
Fatal Flaw

Table 6 - Evaluation Matrix

Item No.	Criteria	No Build	Build
1	Regional Mobility	**Potential Substantial Impact**	**Positive Effect**
2	Congestion relief at adjacent interchanges	**Potential Substantial Impact**	**Positive Effect**
3	Traffic and Safety	**Potential Substantial Impact**	**Positive Effect**
4	Right of way needs	**No Impact**	**Potential Substantial Impact**
5	Local Property Access	**No Impact**	**Positive Effect**
6	Structures	**No Impact**	**Potential Minimal Impact**
7	Bike and Pedestrian	**No Impact**	**Potential Minimal Impact**
8	Drainage	**No Impact**	**Potential Minimal Impact**
9	Lighting Impacts	**No Impact**	**Potential Minimal Impact**
10	Signalization	**No Impact**	**Potential Minimal Impact**
11	ITS	**No Impact**	**No Impact**
12	Utility	**No Impact**	**Potential Substantial Impact**
12	Landscaping	**No Impact**	**No Impact**
13	Environment	**No Impact**	**Potential Minimal Impact**
14	Cost	**No Impact**	**Potential Substantial Impact**
16	Design Variations	**No Impact**	**No Impact**

4.0 Conclusion

4.1 Findings and Recommendations

This study evaluated existing conditions along Lucy Street within vicinity of the Turnpike Extension for the consideration of a new interchange.

Considerations for the design include but are not limited to:

- Adding northbound on-ramp and southbound off-ramp,
- New southbound auxiliary lanes to the proposed southbound off-ramp,
- Widening along Lucy Street at the new northbound on-ramp location to account for additional turn lanes,
- Extending the sidewalk from Tennessee Road to the new southbound off-ramp.

The proposed new interchange for the Turnpike Extension at Lucy Street will have a positive impact on the traffic operations at the existing adjacent interchanges located at termini of the Turnpike at US 1 and Campbell Drive. A benefit-cost ratio of 0.54 was determined.

Potential impacts at the proposed new interchange include right of way, utility and construction cost impacts. The preliminary LRE cost is $13.2 million and the right of way cost is an approximate $5.5 million. Utility costs to relocate Homestead Electric transmission lines will need to be coordinated with the utility owner in the design phase.

Based on the initial review of potential environmental and social impacts, there are no substantive issues identified that would preclude the construction of an interchange at the subject location. Additional coordination with local, state and federal agencies would need to occur in the PD&E and Design stage.

The evaluation of a new interchange for the Turnpike Extension at Lucy Street will require processing through the FDOT Interchange Access Request process.

Based on the evaluation and analysis of this memo, the new partial interchange at Lucy Street is recommended for further evaluation in the PD&E stage.

4.2 Local Funding Match Requirements

A new interchange at Lucy Street would require a large amount of right of way acquisition, improvements to the Lucy Street arterial and the relocation of the local access road, SW 167th Avenue/Tennessee Road. Based on the letter dated July 16, 2012 from then FDOT Secretary Ananth Prasad, PE the local matching fund requirement is half the cost of the interchange cost.

APPENDIX A
Concept Plans

CURVE DATA CURVE LUCY OFF-1
PI STA. = 205+99.94
Δ = 88° 10' 51" (RT)
D = 16° 22' 13"
T = 339.06'
L = 538.67'
R = 350.00'
PC STA. = 202+60.88
PT STA. = 207+99.55
e = 0.090

CURVE DATA CURVE LUCY OFF-2
PI STA. = 214+88.72
Δ = 36° 04' 15" (LT)
D = 4° 00' 04"
T = 466.26'
L = 901.52'
R = 1,432.00'
PC STA. = 211+22.46
PT STA. = 220+23.98
e = 0.072

CURVE DATA CURVE LUCY ON-1
PI STA. = 102+51.43
Δ = 45° 12' 39" (RT)
D = 20° 02' 01"
T = 119.08'
L = 225.68'
R = 286.00'
PC STA. = 101+32.35
PT STA. = 103+58.02
e = 0.05

CURVE DATA CURVE LUCY ON-2
PI STA. = 111+82.00
Δ = 1° 56' 58" (RT)
D = 0° 15' 35"
T = 375.18'
L = 750.28'
R = 22,050.00'
PC STA. = 108+06.82
PT STA. = 115+57.11
e = NC

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

LUCY STREET FEASIBILITY STUDY

SHEET NO. 01

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

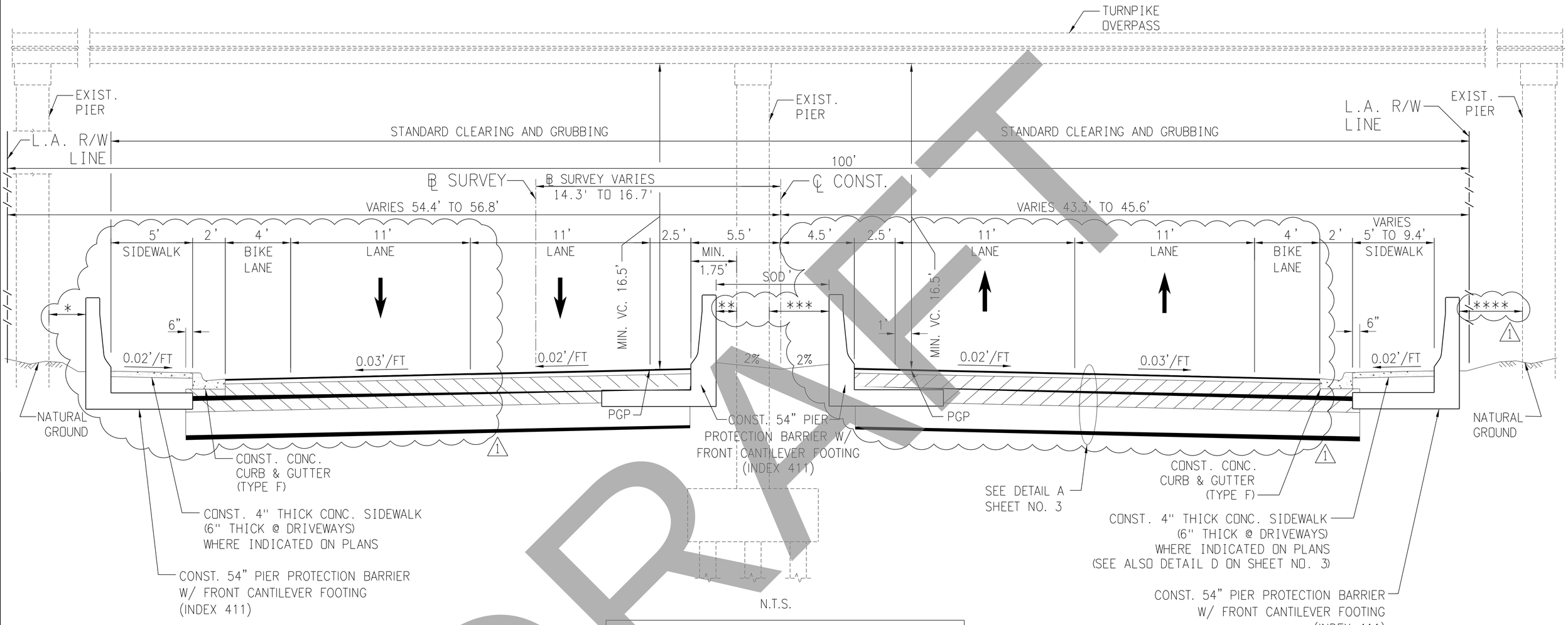
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

LUCY STREET FEASIBILITY STUDY

SHEET NO. 02

APPENDIX B
Lucy Street Construction Plans



STA.1041+17.00 TO STA. 1044+52.00

NEW CONSTRUCTION / WIDENING

LIMEROCK BASE (12" THICK) DOUBLE COURSE WITH GEOGRID LAYER (PRIMED) WITH HOT MIX ASPHALT SP-12.5 (THICK.2") (TRAFFIC C) AND FRICTION COURSE FC-9.5 (THICK.1")

1
* VARIES 4' TO 5'
** VARIES (2' TO NB TPK PIERS AND 3.5' TO 4' TO SB TPK PIERS)
*** VARIES 2.8' TO 4.4'
**** VARIES 2.5' TO 2.7'

TYPICAL SECTION NOTES:

1. ALL EXISTING LIMEROCK BASE THAT IS REMOVED IS TO BE INCORPORATED INTO THE STABILIZED PORTION OF THE SUBGRADE AND IS NOT TO BE USED IN CONSTRUCTION OF THE PROPOSED BASE.
2. EXTEND LIMEROCK BASE (12" THICK) 6" OUTSIDE EDGES OF PAVEMENT AT ALL CONNECTIONS AND INTERSECTIONS TO COUNTY STREETS AND ROADS.
3. SEE SHEET 3 FOR ADDITIONAL TYPICAL SECTION DETAILS.

DESIGN SPEED 40 MPH

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
2/24/2017	JC	1 REVISED PIER PROTECTION BARRIERS TO ACCOMMODATE DESIGNATED BIKE LANES.						

Jacobs Engineering Group Inc.
3750 N.W. 87th Avenue, Suite 750
Miami, FL. 33178
Tel.:(305)718-0599
CERTIFICATE OF AUTHORIZATION NO. 2822
ENGINEER OF RECORD:
DOUGLAS E. MORRIS P.E. NO. 44543

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
PUBLIC WORKS AND WASTE MANAGEMENT DEPARTMENT
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST.
MIAMI, FLORIDA 33128

TYPICAL SECTION

MIAMI-DADE COUNTY PUBLIC WORKS AND WASTE MANAGEMENT DEPT.
HIGHWAY DIVISION

SW 328TH STREET
FROM US-1 TO SW 162ND AVENUE

PROJECT NO. 20040556 SHEET ___ OF ___

N

0 5 20
Feet

596

595

59 60 61

1042 1013 1044

L

EOP EL=6.72
BEAM EL=23.89
VC=17.17

EOP EL=6.18
BEAM EL=23.96
VC=17.78

EOP EL=6.90
BEAM EL=24.771
VC=17.87

℄ SURVEY
SW 328 STREET

EOP EL=6.36
BEAM EL=24.777
VC=18.417

EOP EL=6.87
BEAM EL=24.72
VC=17.85

EOP EL=6.13
BEAM EL=24.57
VC=18.44

17.10' MIN. VERT.
CLEARANCE
STA +13.71

EOP EL=6.69
BEAM EL=23.79
VC=17.10

EOP EL=5.95
BEAM EL=23.51
VC=17.56

5.76' 6.69 6.75 5.46' 6.80 5.16' 6.85 5.1'

3.65' 6.89 6.84 3.57' 6.79 3.47' 6.73 3.63'

5.25' 6.69 6.75 5.61' 6.80 5.92' 6.85 5.96'

6.89' 6.89 6.84 6.82' 6.79 6.73' 6.73 6.32'

EOP EL=6.64
BEAM EL=23.83
VC=17.19

17.19' MIN. VERT.
CLEARANCE
STA +37.64

EOP EL=6.82
BEAM EL=24.68
VC=17.86

℄ CONST
SW 328 STREET

EOP EL=6.95
BEAM EL=24.723
VC=17.773

EOP EL=6.76
BEAM EL=23.88
VC=17.12

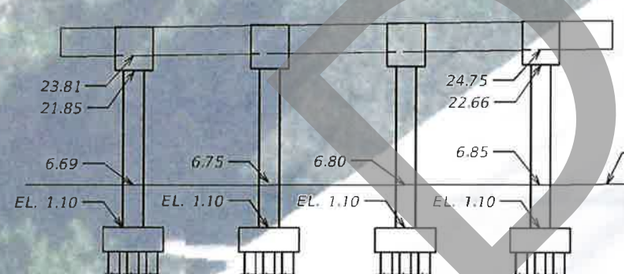
EOP EL=6.37
BEAM EL=24.735
VC=18.365

EOP EL=6.23
BEAM EL=23.97
VC=17.74

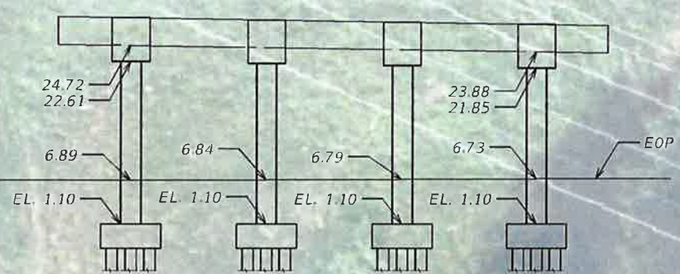
EOP EL=5.90
BEAM EL=23.59
VC=17.69

EOP EL=6.07
BEAM EL=24.46
VC=18.39

59A



7.03



DRAFT

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

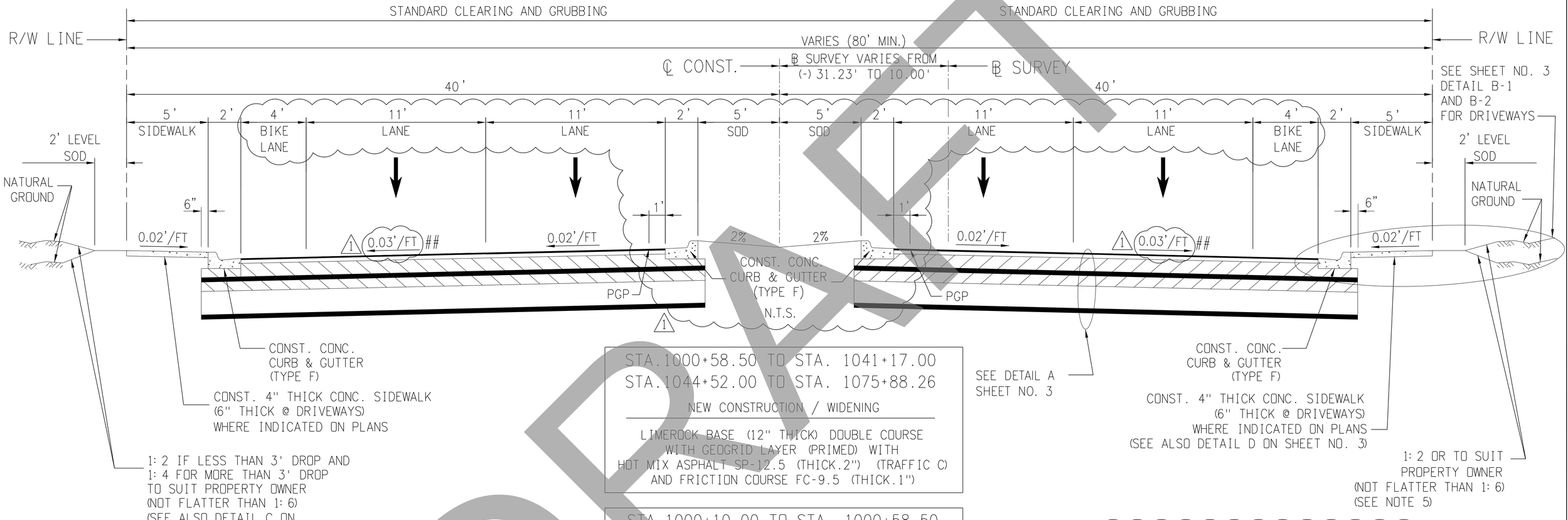
Jacobs Engineering Group Inc.
3750 N.W. 87th Avenue, Suite 750
Miami, FL 33178
Tel. (305)718-0599
CERTIFICATE OF AUTHORIZATION NO. 2822
ENGINEER OF RECORD

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
QUALITY CONTROL BY					

MIAMI-DADE COUNTY

PUBLIC WORKS AND WASTE MANAGEMENT DEPARTMENT
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

USER: DMOTLEY P:\ENGDOT\DOL_CANAL_DRIVE\ROADWAY\CADD\200405556 Roadway PLPROBE_BRIDGE.dgn 8/12/2015 4:34:46 PM



STA.1000+58.50 TO STA. 1041+17.00
STA.1044+52.00 TO STA. 1075+88.26

NEW CONSTRUCTION / WIDENING

LIMEROCK BASE (12" THICK) DOUBLE COURSE WITH GEOGRID LAYER (PRIMED) WITH HOT MIX ASPHALT SP-12.5 (THICK.2") (TRAFFIC C) AND FRICTION COURSE FC-9.5 (THICK.1")

STA.1000+10.00 TO STA. 1000+58.50
STA.1075+88.26 TO STA. 1079+12.90

MILLING AND RESURFACING W/ OVERBUILD

MILLING

MILL EXISTING ASPHALT PAVEMENT ($1\frac{1}{2}$" AVG. DEPTH)

RESURFACING

HOT MIX ASPHALT SP 12.5 (2") (TRAF. C) OVERBUILD (VAR. $\frac{1}{2}$"-6") AND FRICTION COURSE FC-9.5 (THICK.1")

1 ## : 2% FROM STA.1000+10.00 TO STA. 1003+25.00 AND FROM STA.1077+75.00 TO STA. 1079+12.90

TYPICAL SECTION NOTES:

1. ALL EXISTING LIMEROCK BASE THAT IS REMOVED IS TO BE INCORPORATED INTO THE STABILIZED PORTION OF THE SUBGRADE AND IS NOT TO BE USED IN CONSTRUCTION OF THE PROPOSED BASE.
2. EXTEND LIMEROCK BASE (12" THICK) 6" OUTSIDE EDGES OF PAVEMENT AT ALL CONNECTIONS AND INTERSECTIONS TO COUNTY STREETS AND ROADS.
3. STABILIZE ALL TURNOUTS AND INTERSECTIONS TO COUNTY ROADS AND STREETS TO A DEPTH OF 12" (MIN CBR OF 30) AND 12" OUTSIDE EDGES OF PAVEMENT, 6" BACK OF CURB.
4. DROP CURB & DRIVEWAY CONNECTIONS SHALL BE PROVIDED FOR ACCESS TO ALL PRIVATE PROPERTIES ADJACENT TO THE PROJECT CONSTRUCTION. FINAL LOCATION OF DRIVEWAY ACCESS TO BE DETERMINED BY THE ENGINEER.
5. SEE SHEET 2A & 3 FOR ADDITIONAL TYPICAL SECTION DETAILS.
6. SEE PLAN SHEETS AND PLATEAU INTERSECTION SHEETS FOR LOCATIONS WHERE DESIGN DEVIATES FROM TYPICAL CROSS-SLOPES.
7. TURNPIKE OVERPASS FROM STA. 1041+17.00 TO STA. 1044+52.00.

DESIGN SPEED 40 MPH

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
2/24/2017	JC	1 REVISED MEDIAN TO ACCOMMODATE DESIGNATED BIKE LANES.						

Jacobs Engineering Group Inc.
3750 N.W. 87th Avenue, Suite 750
Miami, FL. 33178
Tel.:(305)718-0599
CERTIFICATE OF AUTHORIZATION NO. 2822
ENGINEER OF RECORD:
DOUGLAS E. MORRIS P.E. NO. 44543

	NAME	DATE		NAME	DATE
DESIGNED BY			DRAWN BY		
CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY

PUBLIC WORKS AND WASTE MANAGEMENT DEPARTMENT
HIGHWAY DIVISION
STEPHEN P. CLARK CENTER
111 NW 1 ST
MIAMI, FLORIDA 33128

TYPICAL SECTION

MIAMI-DADE COUNTY PUBLIC WORKS AND WASTE MANAGEMENT DEPT.
HIGHWAY DIVISION
SW 328TH STREET
FROM US-1 TO SW 162ND AVENUE
PROJECT NO. 20040558 SHEET 13 OF 154

SEE SHEET 26 FOR INTERSECTING STREET PROFILE
+24.76 (58.62'LT) ℄ CONST. END CURB & GUTTER TYPE "F" W/ FLARE
+23.25 (58.65' LT) (℄ CONST.) END GUARDRAIL
CONST. MISC. ASPHALT
CONST. PARALLEL END ANCHORAGE
+48.25 (65.66'LT) ℄ CONST. END CURB & GUTTER TYPE "F" W/ FLARE
SE 12TH AVE.
S2°10'36"W
+50.00 (59.72'LT) (℄ CONST.) BEGIN SIDEWALK
L.A. R/W LINE
CONST. CURB & GUTTER TYPE "F"
EXIST. FENCE (TO REMAIN)
+39.89 (℄ CONST.) BEGIN 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
FLORIDA'S TURNPIKE SB
℄ CONST. TURNPIKE
EXIST. BRIDGE PIER (TYP.)
EXIST. GUARDRAIL (TO BE REMOVED)
1044+90, END FRONT CANTILEVER BEGIN BACK CANTILEVER
CONST. 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
+80.00 (℄ CONST.) END 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411) BEGIN TRANSITION
+85.00 (41.75' LT), END 54" PIER PROTECTION BARRIER W/ BACK CANTILEVER FOOTING (INDEX 411) BEGIN 10 LF TRANSITION
EXIST. FENCE (TO REMAIN)
S-38 S-38A S-40 S-41
CONST. 5' CONC. SWK.
CONST. 36" EXFILTRATION DRAIN
STA 1046+00.00
+99.94 34.16'LT
CONST. 18" PIPE
+70.37 36.06'LT
5.93
CONST. 36" EXFILTRATION DRAIN
STA. 1041+49.00 CONST. 36" PIPE
6.04
6.30
S-38B
+80.42 (℄ CONST.) BEGIN 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
17.05' VERT. CLEARANCE STA +95.60
+59.28 10.81'LT EL 6.98
CONST. 36" PIPE
℄ SURVEY SW 328 STREET
EXIST. EOP
EXIST. BRIDGE PIER (TYP.)
CONST. 36" PIPE
5.88
6.14
S-40A
1045+25 END SOLID PIPE BEGIN PERFORATE PIPE
5.58
+84.76 10.21'LT EL 6.56
91°24'18"
R 3.5'
1041 1042 1043 1044 1045
595
16.98' VERT. CLEARANCE STA +13.71
N88°35'46"E
EXIST. BRIDGE PIER (TYP.)
EXIST. EOP
PT STA. 1044+29.35
N87°31'51"E
℄ SE 12TH AVE.
R 100'
+30.24 7.00'RT EL 6.68
EXIST. BRIDGE PIER (TYP.)
+47.23 (℄ CONST.) BEGIN 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
CONST. CURB & GUTTER TYPE "F"
+79.80 7.00'RT EL 7.11
PLACE MEDIAN SOD
EXIST. GUARDRAIL (TO BE REMOVED)
CONST. 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
+05.34 (℄ CONST.) END 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
CONST. CURB & GUTTER TYPE "F"
CONST. 18" PIPE
CONST. 15" PIPE
5.91
S-39
L.A. R/W LINE
℄ CONST SW 328 STREET
PLACE SOD
5.61
CONST. CONC. SWK. (VARIES)
CONST. 5' CONC. SWK.
STA 1040+00.00
100'
26'
100'
26'
MATCH LINE
MATCH LINE
+52.0 (48.09'RT) (℄ CONST.) END 10 LF TRANSITION BEGIN 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
STA. 57+00
FD CUT NAIL & TIN TAB
STA. 1040+33.38 ℄ CONST. SW 328TH ST. = STA. 100+00.00 ℄ SE 12TH AVENUE
N 88° 35' 46" E
REFERENCE POINTS
EXIST. BRIDGE PIER (TYP.)
℄ SURVEY SW 328 STREET
STA. 60+00
FD CUT NAIL & TIN
N 52° 31' 34" E
+02.68 33.00'RT EL 6.35
RELOC. PULL BOX (BY OTHERS)
CONST. 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411)
EXIST. FENCE (TO REMAIN)
FLORIDA'S TURNPIKE NB
EXIST. BRIDGE PIER (TYP.)
+40.00 (43.50' RT), END 54" PIER PROTECTION BARRIER W/ FRONT CANTILEVER FOOTING (INDEX 411) BEGIN 10 LF TRANSITION

CURVE NO. 2

PI STA.	= 1042+02.76
DELTA	= 3° 42' 38" (LT)
D	= 0° 49' 07"
T	= 226.74
L	= 453.33
R	= 7,000.00
PRC STA.	= 1039+76.02
PT STA.	= 1044+29.35
e	= NC

L.A. R/W LINE
+00.00 38.25'RT
TREE REMOVAL (SEE NOTE 3)
21 BOTTLE BRUSH CALLISTEMON VIMINALIS 10'-16' DBH TYPICAL 14'-16' HGHT. TYPICAL 14'-16' SPR TYPICAL
EXIST. FENCE (TO REMAIN)
EXIST. GUY WIRE (TO BE RELOCATED BY OTHERS)
R/W LINE
+79.00 39.40'RT
S-42

SEE SHEET 5 FOR "LEGEND AND NOTES"

REFERENCE POINTS

STA. 57+00	FD CUT NAIL & TIN TAB
STA. 60+00	FD CUT NAIL & TIN
N 88° 35' 46" E	

BRIDGE #870192 ENVELOPE (TURNPIKE SB)
BRIDGE #870399 ENVELOPE (TURNPIKE NB)
17.05' MIN. VERT. CLEARANCE STA. 1041+95.60
16.98' MIN. VERT. CLEARANCE STA. 1044+13.71
PROPOSED PROFILE GRADE
S-38 S-39 S-38A S-38B S-40 S-40A S-41 S-42
6.85
PI +00.00 EL. 6.55
PI +00.00 EL. 7.15
PI +00.00 EL. 6.25
EXIST. SAN MANHOLE
EXIST. ELECT MANHOLE
(-) 0.300%
(+) 0.300%
(-) 0.300%
(-) 0.300%
EXIST. GRADE
TOP OF EXF. TRENCH EL. 3.30 STA. 1041+49
TOP OF EXF. TRENCH EL. 4.00
CONST. 21 LF OF 36" PIPE
EXIST. 2-5" PVC BE DUCTS (FPL)
EXIST. 13KV BE
EXIST. BST BURIED CABLE
EXIST. BST BURIED FIBER CABLE
EXIST. 24" DIP FM
EXIST. 24" DIP WM
CONST. 140 LF OF 15" PIPE
INV. EL. 2.05
CONST. 51 LF OF 36" PERF. PIPE
CONST. 340 LF OF 36" PIPE
CONST. 75 LF OF 36" PERFORATED PIPE
CONST. 18" PIPE INV. EL. 1.25
CONST. 176 LF OF 18" PIPE
INV. EL. (-) 0.70
INV. EL. (-) 0.25
CONST. 36" PIPE INV. EL. (-) 0.25
CONST. 36" PIPE INV. EL. (-) 0.50
INV. EL. (-) 0.70
1045+25 END SOLID PIPE, BEGIN PERFORATED PIPE
INV. EL. (-) 0.70
INV. EL. (-)2.2
BOTTOM OF EXF. TRENCH EL. (-) 10.00
BOTT. EL. (-) 2.25
BOTT. EL. (-) 2.70
BOTT. EL. (-) 4.20
BOTT. EL. (-) 4.2
ITS EL. (-) 13.25
BOTTOM OF EXF. TRENCH EL. (-) 10.00
10 8 6 4 2 0 -2 -4
1040+00 1041+00 1042+00 1043+00 1044+00 1045+00 1046+00
SCALE: 1"=20' (HOR.) 1"=2' (VER.)

DRAFT

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
2/24/2017	JC	1 REVISED PIER PROTECTION BARRIERS (WB OUTSIDE AND EB INSIDE) TO ACCOMMODATE DESIGNATED BIKE LANES						

Jacobs Engineering Group Inc.
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Miami, FL. 33178
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CERTIFICATE OF AUTHORIZATION NO. 2822
ENGINEER OF RECORD: DOUGLAS E. MORRIS P.E. NO. 44543

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CHECKED BY			CHECKED BY		
SUPERVISED BY:					

MIAMI-DADE COUNTY
PUBLIC WORKS AND WASTE MANAGEMENT DEPARTMENT HIGHWAY DIVISION
STEPHEN P. CLARK CENTER 111 NW 1 ST MIAMI, FLORIDA 33128

PLAN AND PROFILE

APPENDIX C
Crash Analysis

ARCADIS Design & Consultancy for natural and built assets

Florida's Turnpike Enterprise

FLORIDA'S TURNPIKE AND SW 328TH STREET/LUCY STREET PROPOSED INTERCHANGE

In Miami-Dade County
FPID#: 439545-1-22-01

Crash Analysis

June 17, 2019

1 SAFETY ANALYSIS

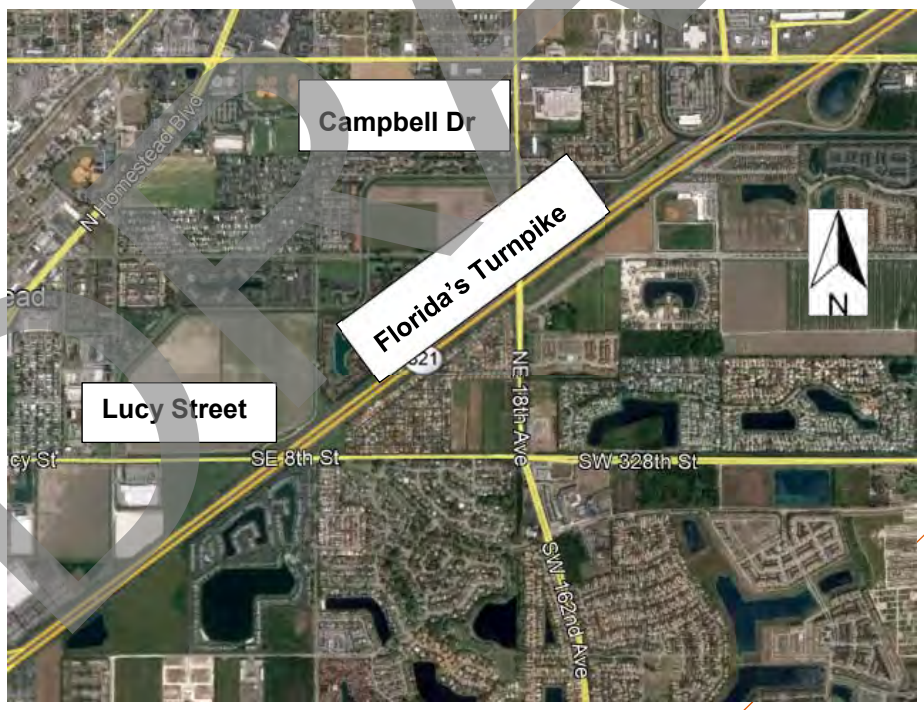
As part of this feasibility study, crash data was collected for the five-year period from 2011 to 2015 and a crash analysis was conducted to identify crash patterns and contributing causes within the proposed interchange limits. Subsequently, a safety analysis was conducted to identify the impacts the proposed interchange will have on traffic safety. The analysis was conducted along the following roadways:

- Florida's Turnpike from south of the proposed interchange to north the proposed northbound on and off-ramps (MPs 1.579 to 2.469)
- SW 328th Street/Lucy Street 0.25 miles east and west of SR 821/HEFT (Off-system)

The following summarizes the findings/results of the analyses conducted as part of this study.

1.1 Existing Conditions

The study limits include the Florida's Turnpike from south of Lucy Street to the southbound on-ramp from Campbell Drive and Lucy Street under the Florida's Turnpike overpass (see **Aerial Map**).



Aerial Map

Florida's Turnpike is a Strategic Intermodal System (SIS) limited access toll road that is primarily a four-lane, divided highway with a 64 foot wide grass median within the project limits. The typical section has 12 foot wide asphalt lanes and 12 foot outside and 10 foot inside flush shoulders. The median has guardrail installed along one of its sides throughout the study limits and rumble strips are located on both the inside and outside shoulders. Roadway lighting does not exist along the study segment except at the ramps. The facility carried an annual average daily traffic (AADT) of 59,800 vehicles in 2016 with 5.3% trucks north of Campbell Drive according to Count Station 970430.

Lucy Street is currently under construction that will alter the typical section to a four-lane divided arterial with sidewalks and bicycle lanes. During the analysis years, Lucy Street was a two-lane undivided minor arterial near the HEFT during the five-year analysis years. The Florida's Turnpike was and will continue to be grade-separated over Lucy Street with no current interchange access. The bridge columns were protected by guardrail along the north and south sides of Lucy Street. There was a stop-controlled T-intersection west of Florida's Turnpike at SE 12th Avenue and a signalized T-intersection at SE 12th Avenue east of Florida's Turnpike. A separated sidewalk was located on the north side of the roadway west of the HEFT and on the south side east of the HEFT. Roadway lighting nor bicycle lanes existed along Lucy Street in the vicinity of the Florida's Turnpike.

1.1.1 Crash Data Analysis – Florida's Turnpike

- A total of 55 crashes were reported during the referenced five-year period within the feasibility study limits, between mileposts 1.579 and 2.469. Seven (7) crashes occurred in 2011, 15 in 2012, 9 in 2013, 8 in 2014 and 16 in 2015. See **Figure 1** for crash distribution by year.
- Of the 55 crashes, 24 (44%) were run-off-road, seven (7 or13%) rear-end, five (5 or 9%) sideswipe, four (4 or 7%) angle, and two (2 or 4%) were rollover crashes. Thirteen (13 or 24%) were considered as "other"-type crashes. See **Figure 2** for distribution by crash type.
- **Figure 3** shows the crash distribution by milepost.
- **Figure 4** shows the overall crash distribution by time of day.
- Fifty-eight percent (58%) of the crashes along the HEFT occurred in the southbound direction.
- Based on the crash distribution by month, the highest frequency of crashes along the HEFT occurred during the month of July with 11 total vs. the rest of the year (4 for each of those months on average). See **Figure 5** for crash distribution by month.
- Eighteen (18) of the crashes, or 33%, occurred during non-daylight hours, which is slightly above the statewide average for nighttime crashes (for all roadways).
- Twenty-three (23) of the crashes, or 42%, occurred on a wet roadway surface, which is above the statewide average (for all roadways).
- Based on crash severity, of the 55 crashes reported along the HEFT, 34 (62%) were property damage only crashes, 20 (36%) were injury type crashes, and one (1) fatal crash was reported during the referenced five-year period.
- The fatal crash occurred in the southbound direction of the HEFT, approximately one and a half miles north of the southbound off-ramp to US 1 northbound, on a Saturday at approximately 2PM on a dry roadway. The crash involved a southbound motorcycle and a southbound passenger vehicle. Four people were involved in the crash, which resulted in one fatality.

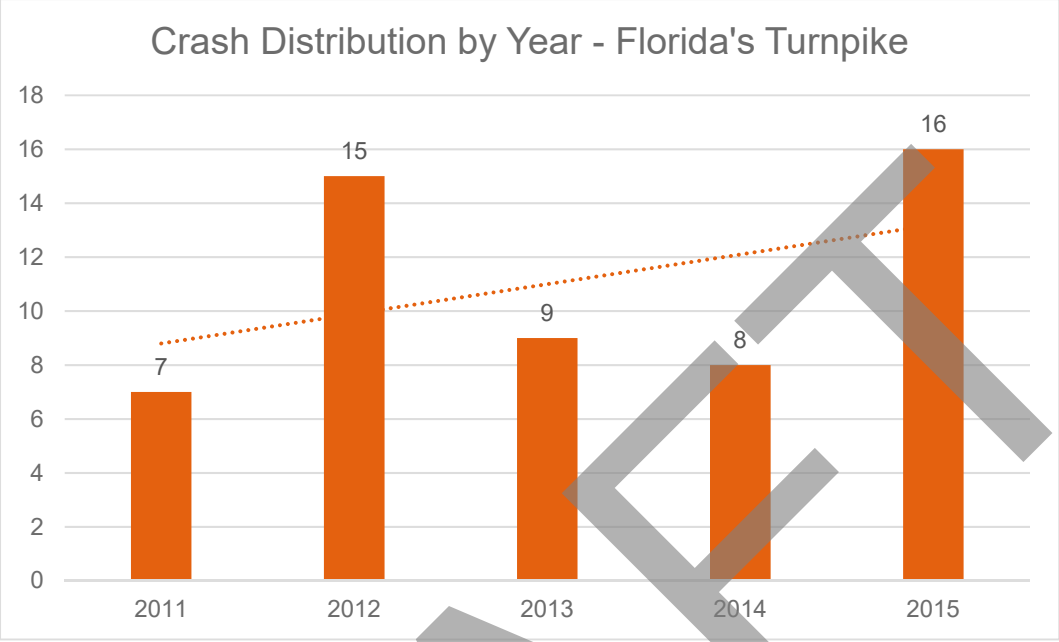


Figure 1 – Crash Distribution by Year

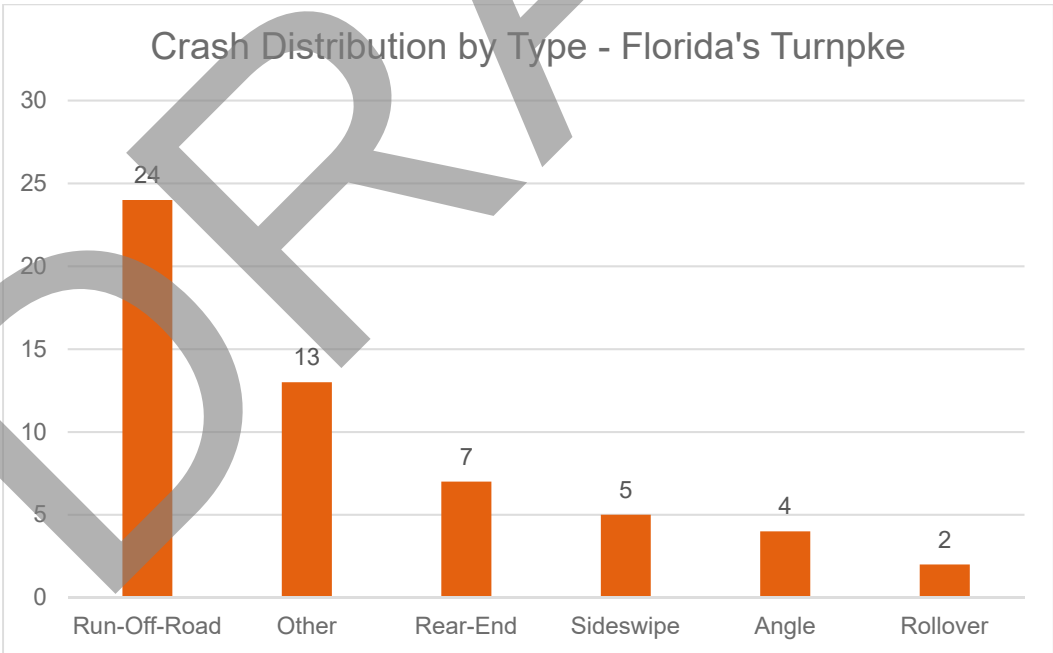


Figure 2 – Distribution by Crash Type

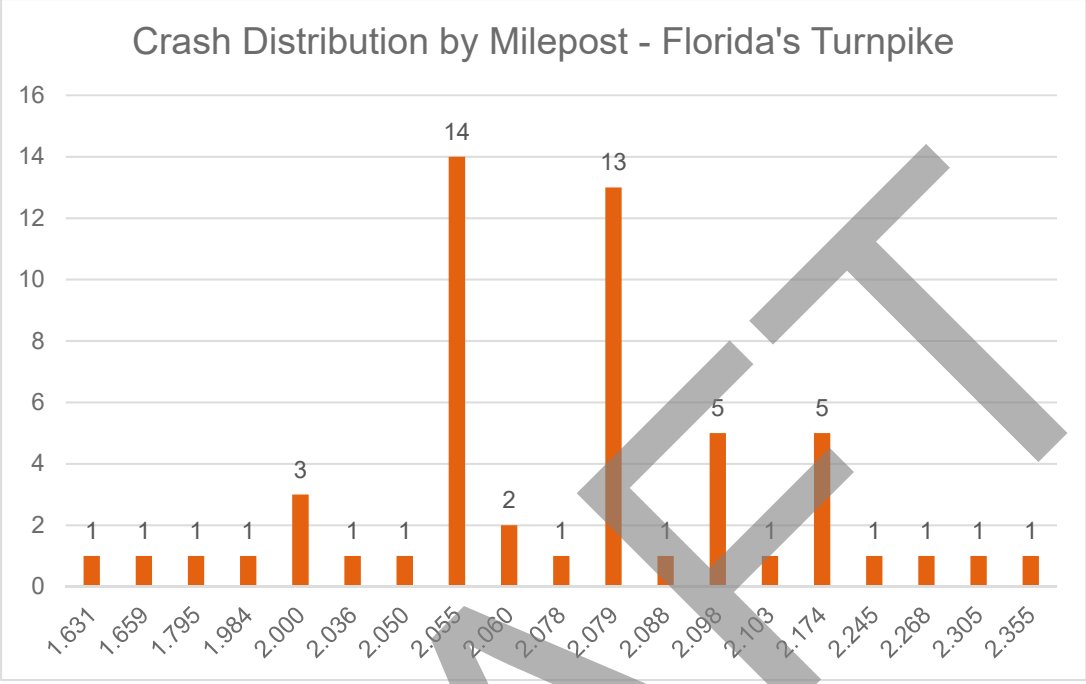


Figure 3 – Crash Distribution by Milepost

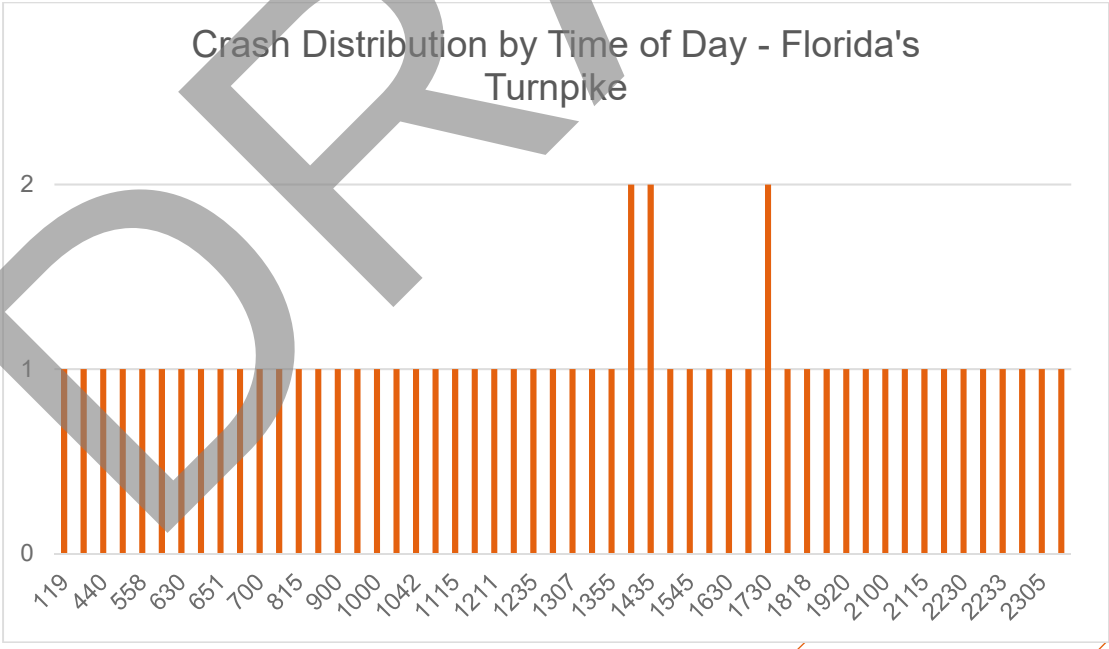


Figure 4 - Crash Distribution by Time of Day

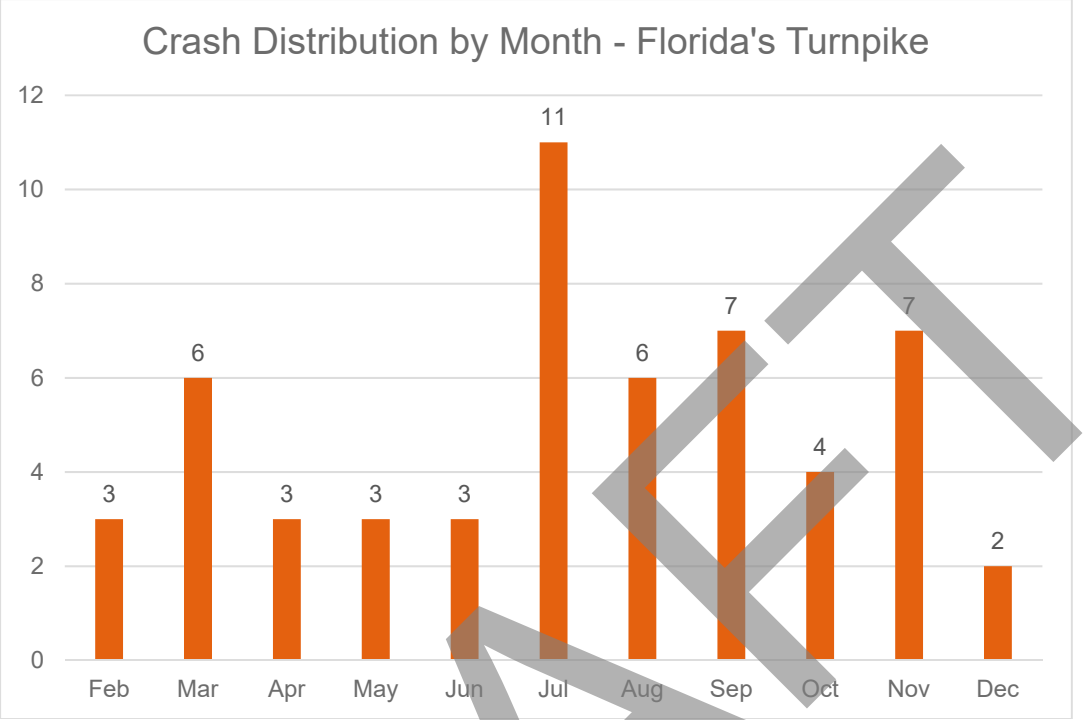


Figure 5 - Crash Distribution by Month

1.1.2 Crash Data Analysis – Lucy Street

- A total of sixteen (16) crashes were reported during the referenced five-year period along Lucy Street. Four (4) crashes occurred in 2012, five (5) in 2013, five (5) in 2014, and two (2) in 2015. See **Figure 6** for crash distribution by year.
- Of these sixteen (16) total crashes, five (5) were run-off-road, four (4) angle, two (2) rear-end, two (2) head-on, two (2) bicycle, and one (1) pedestrian crash. See **Figure 7** for distribution by crash type.
- See **Figures 8 through 10** for crash distributions by time of day, month, and day of week, respectively.
- Six (6) of the 16 crashes occurred during non-daylight hours.
- Four (4) of the 16 crashes occurred on a wet roadway surface.

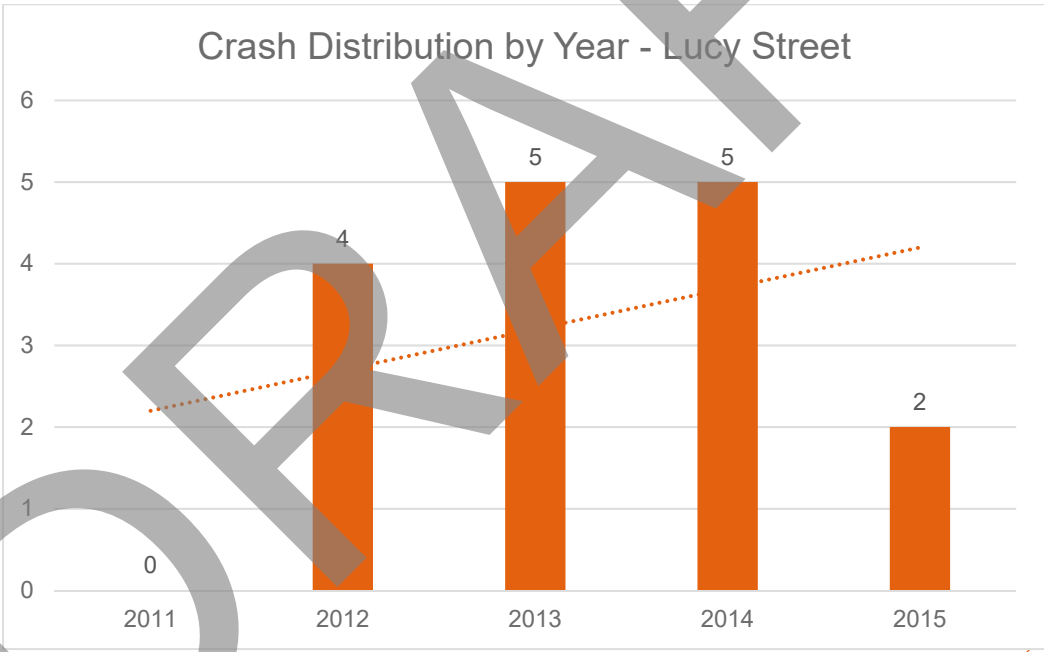


Figure 6 – Crash Distribution by Year

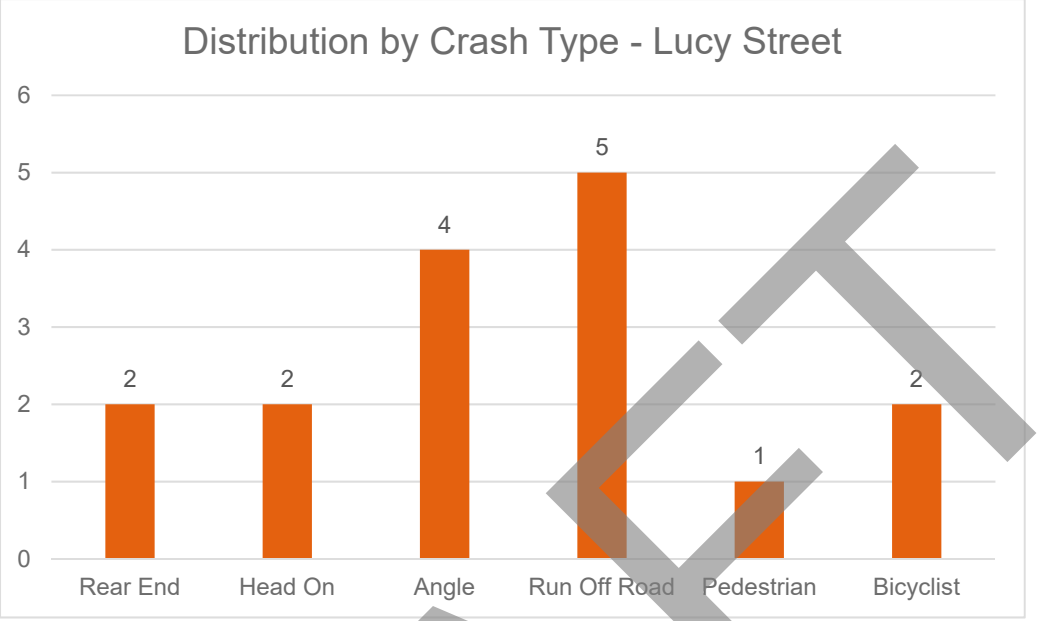


Figure 7 – Distribution by Crash Type

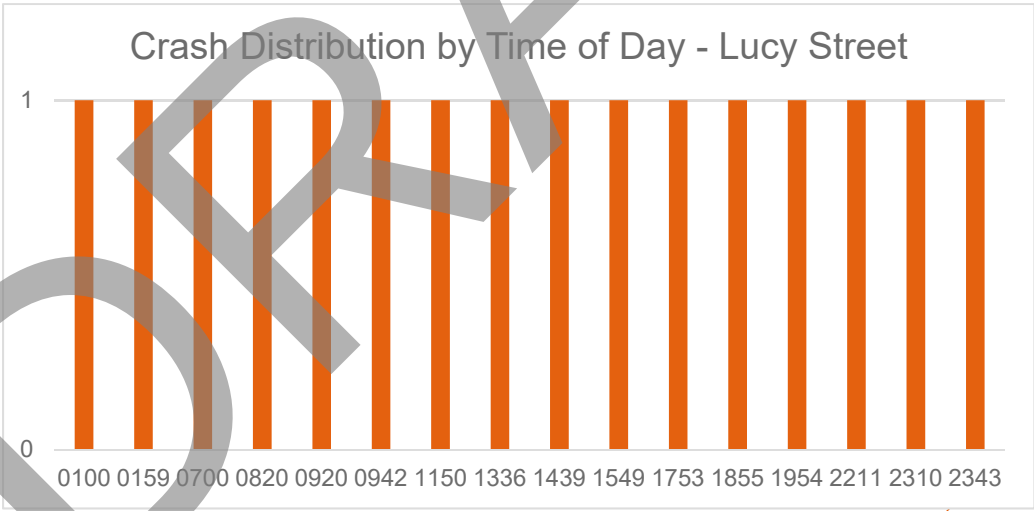


Figure 8 - Crash Distribution by Time of Day

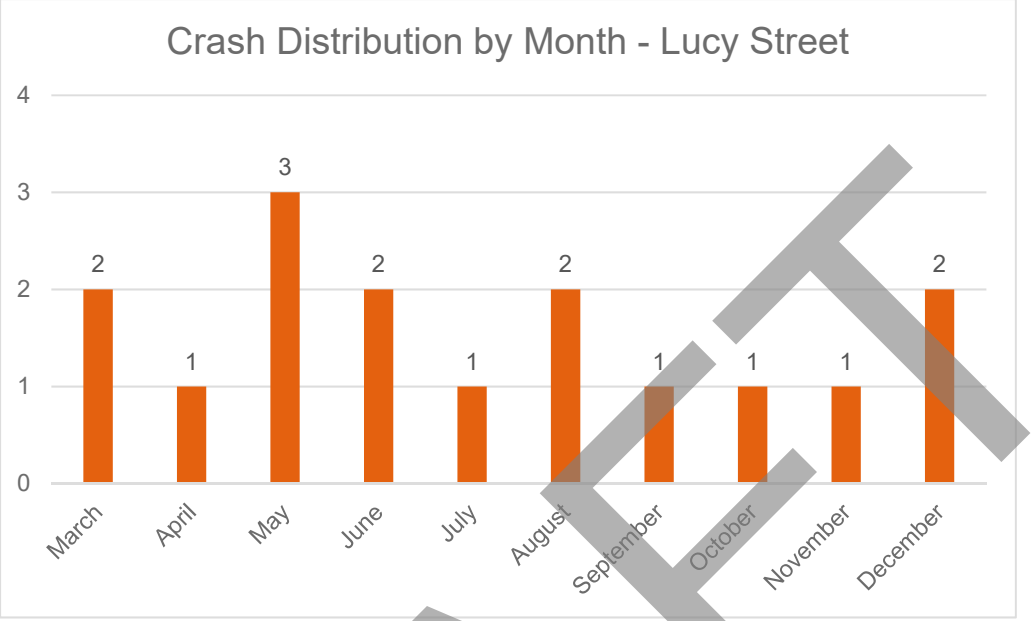


Figure 9 - Crash Distribution by Month

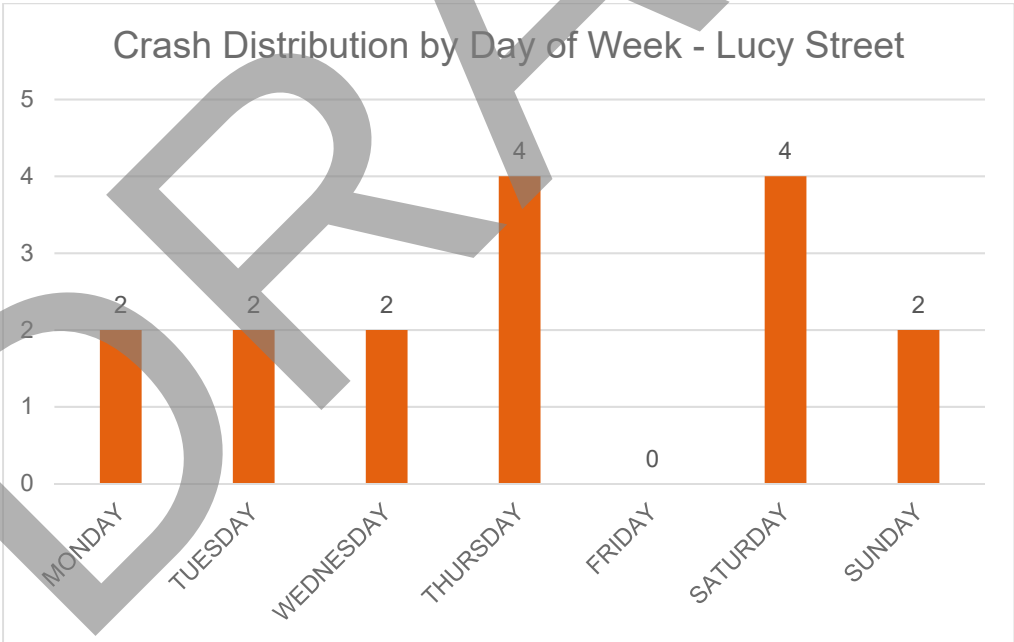


Figure 10 – Crash Distribution by Day of Week

APPENDIX D
Benefit-Cost Analysis

Table A: 2045 Mainline and Ramp AADT

Mile Post-Interchange DRAFT	2045 Forecast		
	Without Lucy St. Interchange	With Lucy St. Interchange	Impact
	108,600	108,600	0
2 – Campbell Drive	43,700	36,000	-7,700
	10,400	10,800	400
1 - Lucy Street (SW 328th St)	75,300	83,400	8,100
	0	22,600	22,600
	75,300	60,800	-14,500
0 – US 1 (To/From North)	22,300	12,800	-9,500
0 – US 1 (To/From South)	53,000	48,000	-5,000

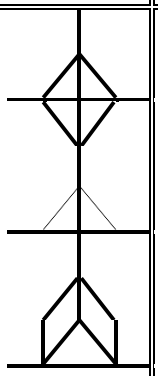


Figure A: 2045 AM Design Hour Volumes

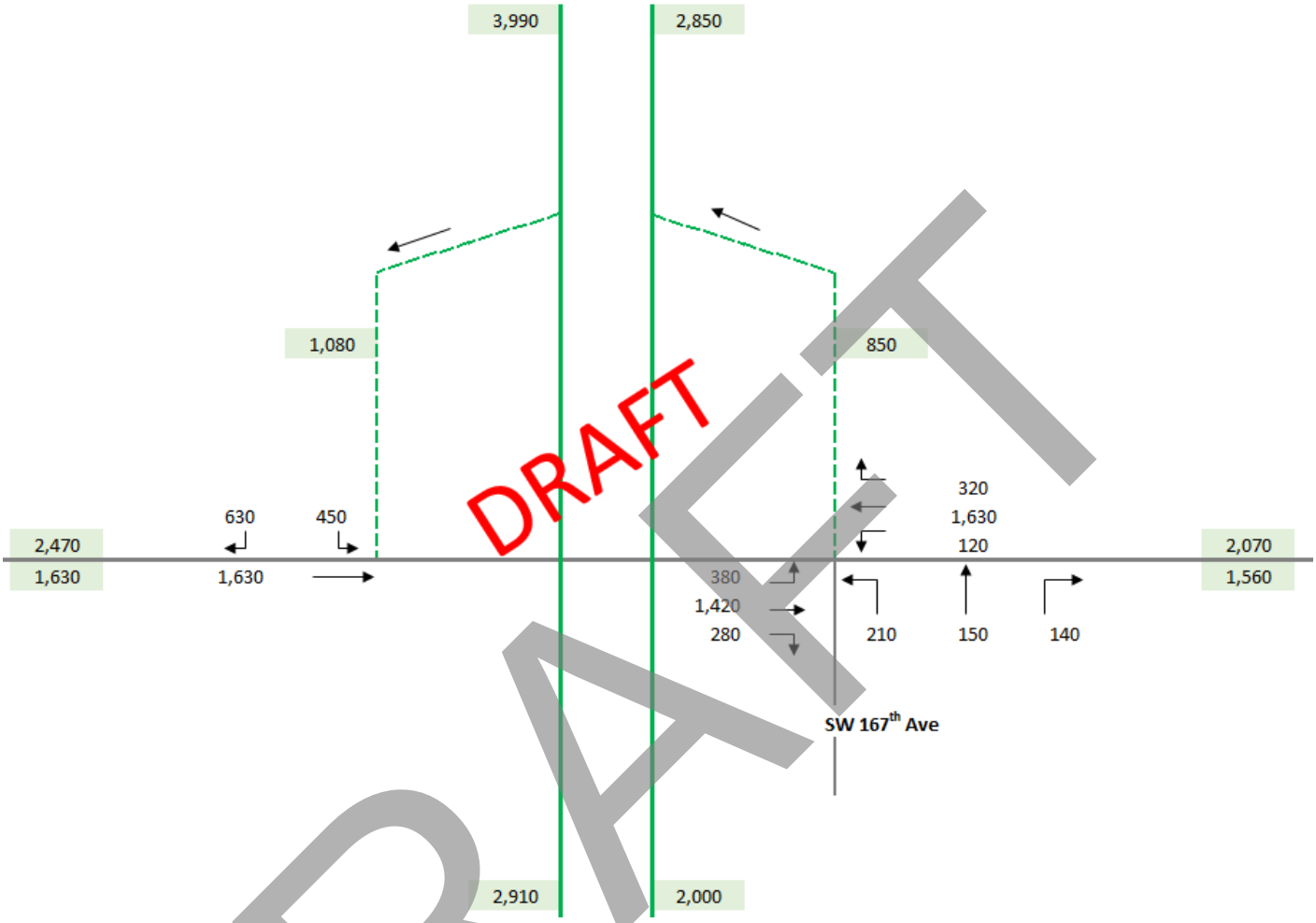
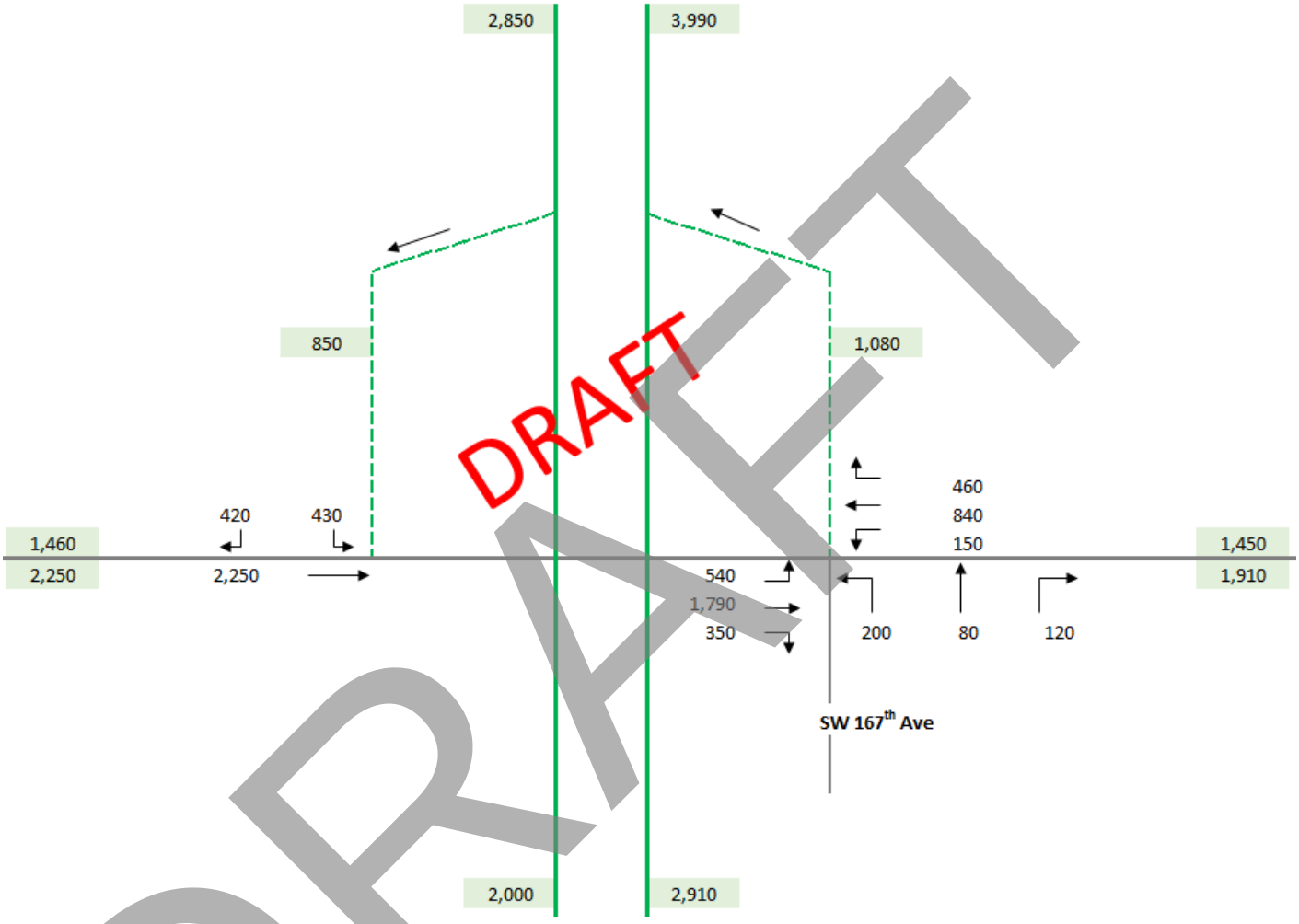


Figure B: 2045 PM Design Hour Volumes



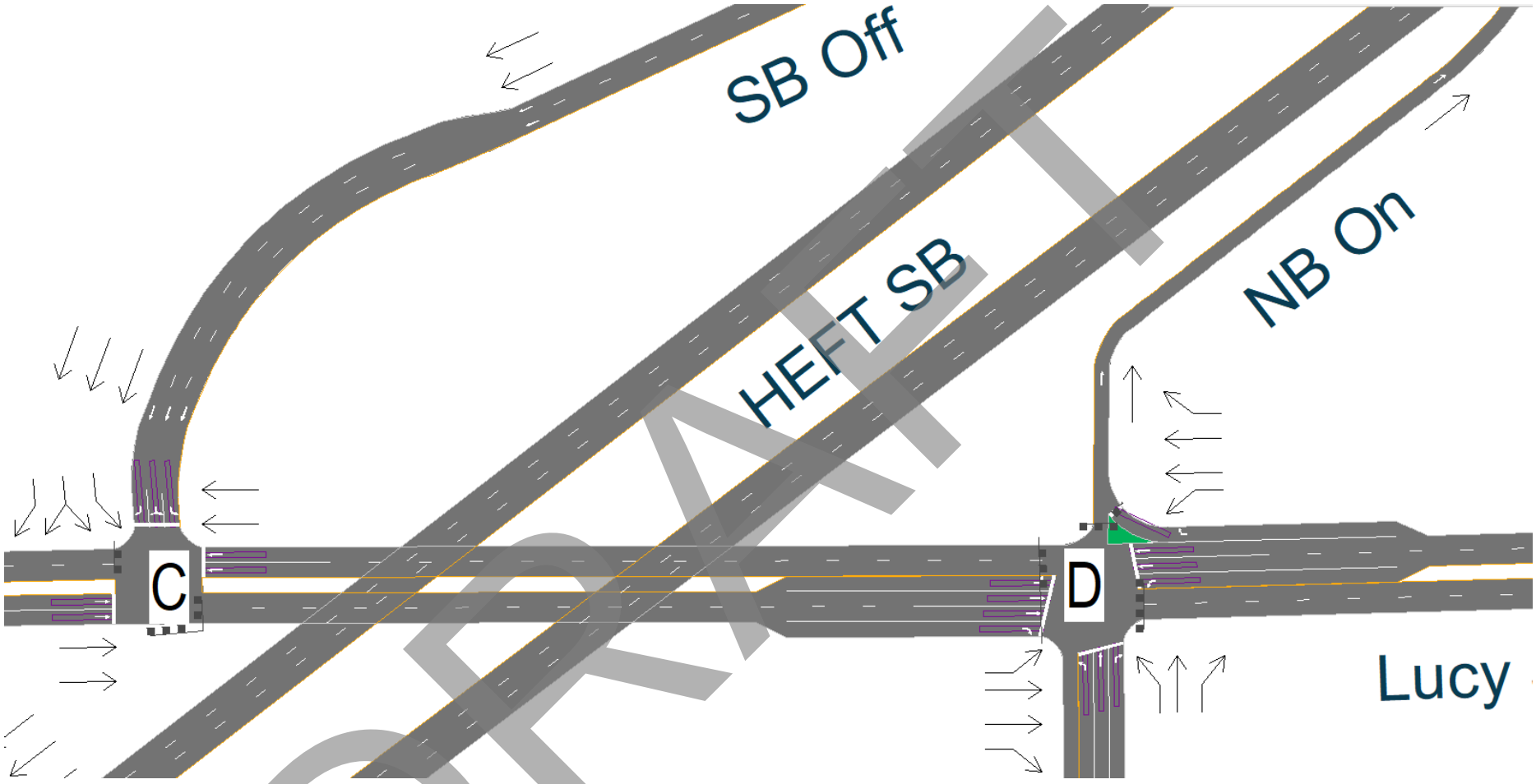


Figure C: 2045 AM Synchro Model

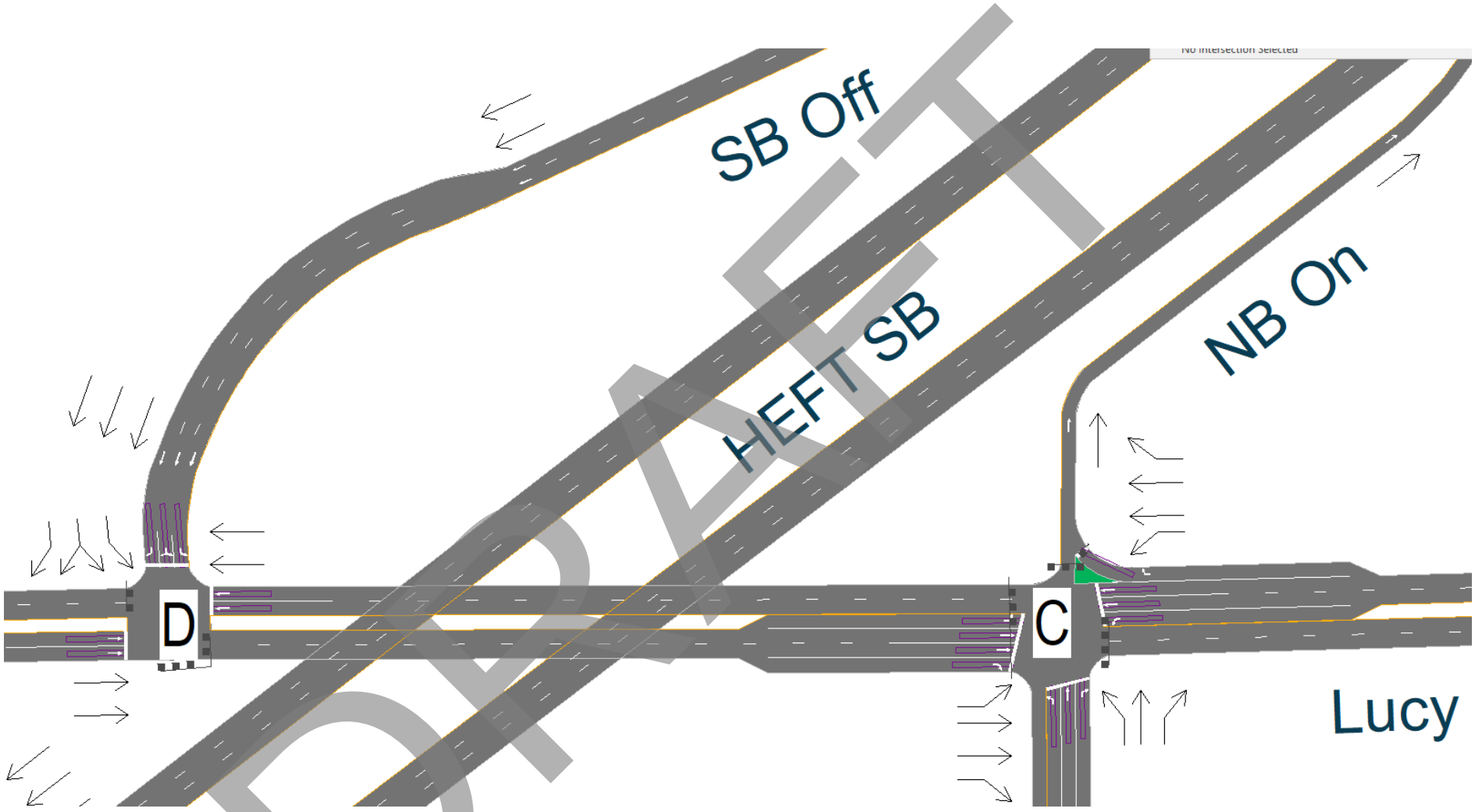


Figure D: 2045 PM Synchro Model

Table B: 2045 Synchro Queue Results

Location		AM Peak	PM Peak	Storage from Concept
SB Off Ramp Intersection	EBT	731	#912	
	WBT	m124	35	
	SBL	427	#304	900
	SBR	#560	#258	300
NB On Ramp Intersection	EBL	m#556	m#242	200
	EBT	320	m#657	
	EBR	m124	m7	
	WBL	110	#197	
	WBT	#1,025	#393	
	WBR	163	113	250
	NBL	#322	174	
	NBT	213	77	
	NBR	63	18	

Notes:

95th percentile volume exceeds capacity, queue may be longer

m Volume for 95th percentile queue is metered by upstream signal

Turnpike Extension Widening [FPN 439545-1]

Lucy Street Partial Interchange Benefit-Cost Analysis: Scenario 3

Year	Travel Time (Veh-hrs)		TIME VALUE				TIME BENEFIT	
			No-Build		Build Lucy Interchange		No-Build vs Build Lucy Interchange	
	No-Build	Build Lucy	Dollars ($/yr)	2019 Dollars ($/yr)	Dollars ($/yr)	2019 Dollars ($/yr)	Dollars ($/yr)	2019 Dollars ($/yr)
2025	1,656	1,576	$10,196,800	$7,609,000	$9,707,800	$7,244,100	$489,000	$364,900
2035	2,519	2,399	$15,510,900	$7,105,700	$14,773,800	$6,768,000	$737,100	$337,700
2045	4,738	4,090	$29,179,000	$8,206,300	$25,185,600	$7,083,200	$3,993,400	$1,123,100
2025	**1,656**	**1,576**	**$10,196,800**	**$7,609,000**	**$9,707,800**	**$7,244,100**	**$489,000**	**$364,900**
2026	1,742	1,659	$10,728,200	$7,624,300	$10,214,400	$7,259,200	$513,800	$365,100
2027	1,828	1,741	$11,259,600	$7,620,900	$10,721,000	$7,256,400	$538,600	$364,500
2028	1,915	1,823	$11,791,000	$7,600,600	$11,227,600	$7,237,400	$563,400	$363,200
2029	2,001	1,905	$12,322,400	$7,564,900	$11,734,200	$7,203,800	$588,200	$361,100
2030	2,087	1,988	$12,853,900	$7,515,400	$12,240,800	$7,156,900	$613,100	$358,500
2031	2,173	2,070	$13,385,300	$7,453,400	$12,747,400	$7,098,200	$637,900	$355,200
2032	2,260	2,152	$13,916,700	$7,380,300	$13,254,000	$7,028,900	$662,700	$351,400
2033	2,346	2,234	$14,448,100	$7,297,300	$13,760,600	$6,950,000	$687,500	$347,200
2034	2,432	2,317	$14,979,500	$7,205,400	$14,267,200	$6,862,800	$712,300	$342,600
2035	**2,519**	**2,399**	**$15,510,900**	**$7,105,700**	**$14,773,800**	**$6,768,000**	**$737,100**	**$337,700**
2036	2,741	2,568	$16,877,700	$7,363,700	$15,815,000	$6,900,000	$1,062,700	$463,700
2037	2,962	2,737	$18,244,500	$7,581,000	$16,856,200	$7,004,100	$1,388,400	$576,900
2038	3,184	2,906	$19,611,300	$7,760,900	$17,897,300	$7,082,600	$1,714,000	$678,300
2039	3,406	3,075	$20,978,100	$7,906,400	$18,938,500	$7,137,700	$2,039,600	$768,700
2040	3,628	3,244	$22,345,000	$8,020,600	$19,979,700	$7,171,600	$2,365,300	$849,000
2041	3,850	3,413	$23,711,800	$8,105,900	$21,020,900	$7,186,000	$2,690,900	$919,900
2042	4,072	3,582	$25,078,600	$8,164,900	$22,062,100	$7,182,800	$3,016,500	$982,100
2043	4,294	3,751	$26,445,400	$8,199,900	$23,103,200	$7,163,600	$3,342,100	$1,036,300
2044	4,516	3,920	$27,812,200	$8,213,000	$24,144,400	$7,129,900	$3,667,800	$1,083,100
2045	**4,738**	**4,090**	**$29,179,000**	**$8,206,300**	**$25,185,600**	**$7,083,200**	**$3,993,400**	**$1,123,100**

Benefit of:	No-Build vs Build	
Present Day 2019	Cumulative Benefit Difference	$12,392,500
	Cost Difference	$23,028,464
	Benefit-Cost Ratio	0.54

Current year	2019
Opening Year	2025
Assumed Interest Rate	5.0%
Consumer Price Index	1.6%

2015 Texas Transportation Institute (TTI) - Urban Mobility Scorecard (Exhibit A-10: National Congestion Constants for 2015 Urban Mobility Scorecard)			
2014 cost of person time in congestion	$	17.67	Source: TTI Urban Mobility Scorecard, 2015
Average Occupancy during peak conditions		1.25	Source: TTI Urban Mobility Scorecard, 2015
2014 cost of truck time in congestion	$	94.04	Source: TTI Urban Mobility Scorecard, 2015
Southern Coin Percent Trucks (peak hour)		3.00%	Source: CY 2016 Traffic Factors (Truck_Factors_2016_V0.xlsx
2014 Weighted Value of Time	$	**24.25**	

Scenario 3- Tennessee Road by others	
ROW	$5,502,980
CST/LRE	$13,177,056
Design (20% of LRE)	$2,635,411
CEI (13% of LRE)	$1,713,017
Total Cost	**$23,028,464**

Hess, Linda

From: Mtoi, Enock <Enock.Mtoi@dot.state.fl.us>
Sent: Friday, December 13, 2019 11:48 AM
To: Heywood, Jazlyn
Cc: Evans, Bill; Hess, Linda; Samson, Kim C.; Emam, Emam B.
Subject: RE: 439545-1 Palm to Campbell: DELAY for Public meeting board

Hi Jazlyn,

Here is the summary table for the US 1 – Campbell alternatives:

Alternative	2045 Scenarios					
	Cumulative Average Delay (sec/veh)			Percent Delay Reduction		
	AM	PM	Total	AM	PM	Overall
No Build	446	454	900	--	--	--
Without Lucy Street Interchange						
ALT. A	100	292	392	78%	36%	56%
ALT. B	105	267	372	77%	41%	59%
With Lucy Street Interchange						
ALT. A	95	106	201	79%	77%	78%
ALT. B	99	97	196	78%	79%	78%

Please let me know if you have any questions.

Thanks,

Enock T. Mtoi, Ph.D., P.E
Transportation Engineer
FTE - Traffic & Revenue Engineering Consultants
D +1-954-934-1292
enock.mtoi@dot.state.fl.us

……..
AECOM – Imagine It. Delivered
Florida's Turnpike Enterprise
Pompano Operations Center
P.O. Box 9828
Ft. Lauderdale, FL 33310

……

From: Emam, Emam B.
Sent: Friday, December 13, 2019 7:38 AM
To: Hess, Linda <HessLinda@stanleygroup.com>; Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Cc: Evans, Bill <William.Evans@arcadis.com>; Samson, Kim C. <Kim.Samson@dot.state.fl.us>; Mtoi, Enock <Enock.Mtoi@dot.state.fl.us>
Subject: RE: 439545-1 Palm to Campbell: DELAY for Public meeting board

Hi Linda,

Enock will send out the design year total delays (AM + PM) for the No-Build and the two Build options shortly. Please note that these values are included in the traffic report submitted to the team.

Thanks,

Emam B. Emam, PhD, PE, PTOE
Group Manager – Planning Traffic Engineering
FTE - Traffic & Revenue Engineering Consultants
D (407) 264–3820 / M (321) 246–3935
F (407) 822–6612
Email: emam.emam@dot.state.fl.us

AECOM - Built to deliver a better world
Florida's Turnpike Enterprise
Milepost 263, Bldg 5315
P.O. Box 613069
Ocoee, FL 34761

From: Hess, Linda [mailto:HessLinda@stanleygroup.com]
Sent: Thursday, December 12, 2019 7:25 PM
To: Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Cc: Evans, Bill <William.Evans@arcadis.com>; Emam, Emam B. <Emam.Emam@dot.state.fl.us>
Subject: 439545-1 Palm to Campbell: DELAY for Public meeting board

Hi Jazlyn,

We are still waiting for the delay numbers to add to the evaluation matrix board for the public information meeting.

Thank you,

Linda Hess, P.E., Transportation Engineer
STANLEYCONSULTANTS, 1641 Worthington Road Suite 400, West Palm Beach, FL 33409
T: 561-689-7444 | M: 561-818-8344 | stanleyconsultants.com

APPENDIX E
Local Agency Coordination Meeting Minutes

Hess, Linda

From: Heywood, Jazlyn <Jazlyn.Heywood@dot.state.fl.us>
Sent: Thursday, December 12, 2019 2:53 PM
To: John Alger; Amanda Quirke; jbrea@cityofhomestead.com
Cc: Jung, Rax; Velasquez, Andrew; Emam, Emam B.; Samson, Kim C.; Mtoi, Enock; Pinzon, Henry; Evans, Bill; Hess, Linda
Subject: 439545-1 TPK Widening (US 1 to Campbell): Turnpike Project Discussion
Attachments: 439545-1_Alger&Homestead PPT_110419.pdf

Hi Julio, John, Carla and Amanda:

Thank you for meeting with us on November 4, 2019 to discuss the Florida's Turnpike Widening PD&E Study with limits from US 1 (south of Palm Drive) to Campbell Drive. The proposed improvements include widening of the Florida's Turnpike, modifications to the existing US 1 interchange and a new interchange at Lucy Street/SW 328th Street. Attached is the PowerPoint presentation used during the meeting.

The following are the main discussion points as it relates to the potential Lucy Street interchange:

- The relocation of Tennessee Road will be shown as 'by others' on the concept plans. Tennessee Road terminates at the Mowry Canal and does not continue south to Lucy Street. The City of Homestead currently has no plans to replace the bridge over Mowry Canal or reconnect Tennessee Road to Lucy Street. Also, the locked gate on the west side of Monterey Pointe is currently not in use.
- A driveway entrance onto Parcel 10-7918-001-0150 will be shown on the concept plans, at the recommended distance from the southbound off-ramp.
- The City of Homestead will provide a funding strategy/commitment letter to be included in Turnpike's Systems Interchange Justification Report. This letter should be provided by the end of January 2020.
- A Public Information Meeting will be held on January 21, 2020 at the Phichol Williams Community Center from 5:30 pm to 7:30 pm. Notifications will be distributed at the end of December.

We look forward to continued coordination efforts. Please don't hesitate to contact me with any questions or comments. Thanks.

Jazlyn Heywood P.E.

Senior Project Manager
North America
Engineering, Design and Project Management
Office: +1.407.264.3298 Mobile: +1.407.235.2042

Atkins, member of the SNC-Lavalin Group
Florida's Turnpike Milepost 263, Building 5315
P.O. Box 613069, Ocoee, Florida 34761

LUCY STREET INTERCHANGE

Historical Context.

2012

- FDOT commitment letter to Mayor of Homestead
  - — Conduct a PD&E Study
  - – Construct the interchange provided that there are:
    1. Executed contracts for development of adjacent properties
    2. Development partners fund half the cost

Florida Department of Transportation

RICK SCOTT
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

ANANTH PRASAD, P.E.
SECRETARY

July 16, 2012

Honorable Steven C. Bateman
Mayor, City of Homestead
790 N. Homestead Boulevard
Homestead, FL 33030

Re: City of Homestead – Turnpike Interchange

Dear Mayor Bateman:

The Florida Department of Transportation (FDOT) has reviewed your request for a southbound exit ramp and a northbound entrance ramp at Lucy Street and the Homestead Extension of Florida's Turnpike. There do not appear to be any fatal flaws in the preliminary review of the request and I am pleased to advise that the Department is committed to begin the Project Development and Environmental Study, and ultimately construct the interchange as described, provided that there are executed contracts in place for the development of the adjacent properties and that the development partners are willing to fund half the cost of the interchange.

Thank you for the opportunity to partner with FDOT. We look forward to working with you as, together, we seek to make positive contributions towards job creation and long-term economic opportunities for the City of Homestead. If you have any questions, please do not hesitate to contact FTE Executive Director Diane Scaccetti at 407-264-3100 or via email at diane.scaccetti@dot.state.fl.us.

Sincerely,

Ananth Prasad, P.E.
Secretary

cc: Diane Gutierrez-Scaccetti

www.dot.state.fl.us

APPENDIX F
Right of Way Exhibit

LEGEND

- EXISTING R/W LINE
- EXISTING LA R/W LINE
- PROPOSED R/W LINE
- PROPOSED LA R/W LINE
- PARCEL BOUNDARY (COLOR VARIES)
- ACQUISITION AREA (COLOR VARIES)
- ROAD CLOSURE AREA (CONVEY ROADWAY R/W TO TURNPIKE)
- TO BE DEVELOPED BY OTHERS

LUCY STREET FEASIBILITY STUDY
(A SEPARATE STUDY UNDER FPID: 439545-1-22-01)

PARTIAL INTERCHANGE IMPROVEMENTS:
- NEW SOUTHBOUND OFF-RAMP TO LUCY STREET
- NEW NORTHBOUND ON-RAMP TO FLORIDA'S TURNPIKE FROM LUCY STREET

N

0 20 100
Feet

MONTEREY POINTE APARTMENTS

SE 12TH AVE./TENNESSEE RD. TO BE DEVELOPED BY OTHERS

PARCEL ID: 24
10-7917-001-0360
8405 SF

PARCEL ID: 21
10-7918-001-0150
345,946 SF

PARCEL ID: 27
10-7917-001-0410
95,434 SF

PARCEL ID: 25
10-7919-013-0001
420 SF

PARCEL ID: 26
10-7919-012-0001
261 SF

FUTURE ACCESS POINT BY OTHERS

SW 328TH ST./LUCY ST.

PORTION OF SE 12TH AVE./TENNESSEE RD. TO BE CLOSED

FLORIDA'S TURNPIKE

3590
3585
3580
3575
3570
3565

SE 6TH AVE.

SE 12TH TER.

TENNESSEE ESTATES

SE 9TH ST.

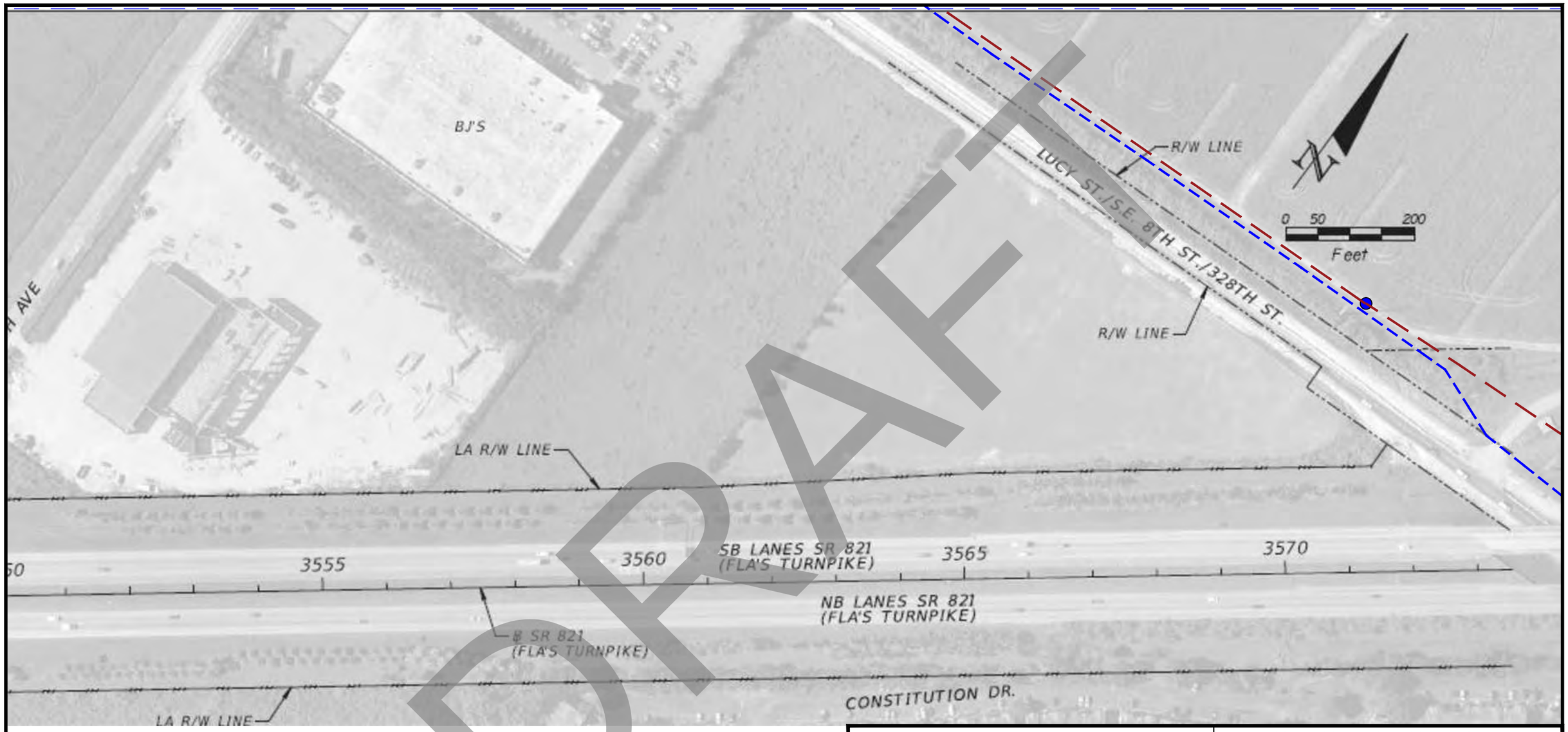
SE 13TH RD.

SE 10TH ST.

LAKESHORE COMMUNITY

DRAFT
11-20-2019

APPENDIX G
Electrical Utility Plans



LEGEND:

EXISTING UNDERGROUND 3 PHASE PRIMARY LINE

105' TRANSMISSION POLE

EXISTING OVERHEAD TRANSMISSION LINE

ALL DISTANCES ARE APPROXIMATIONS

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :

Rural Location: SEC. 08 , TWP. 57 S., RNG. 39 E.

Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

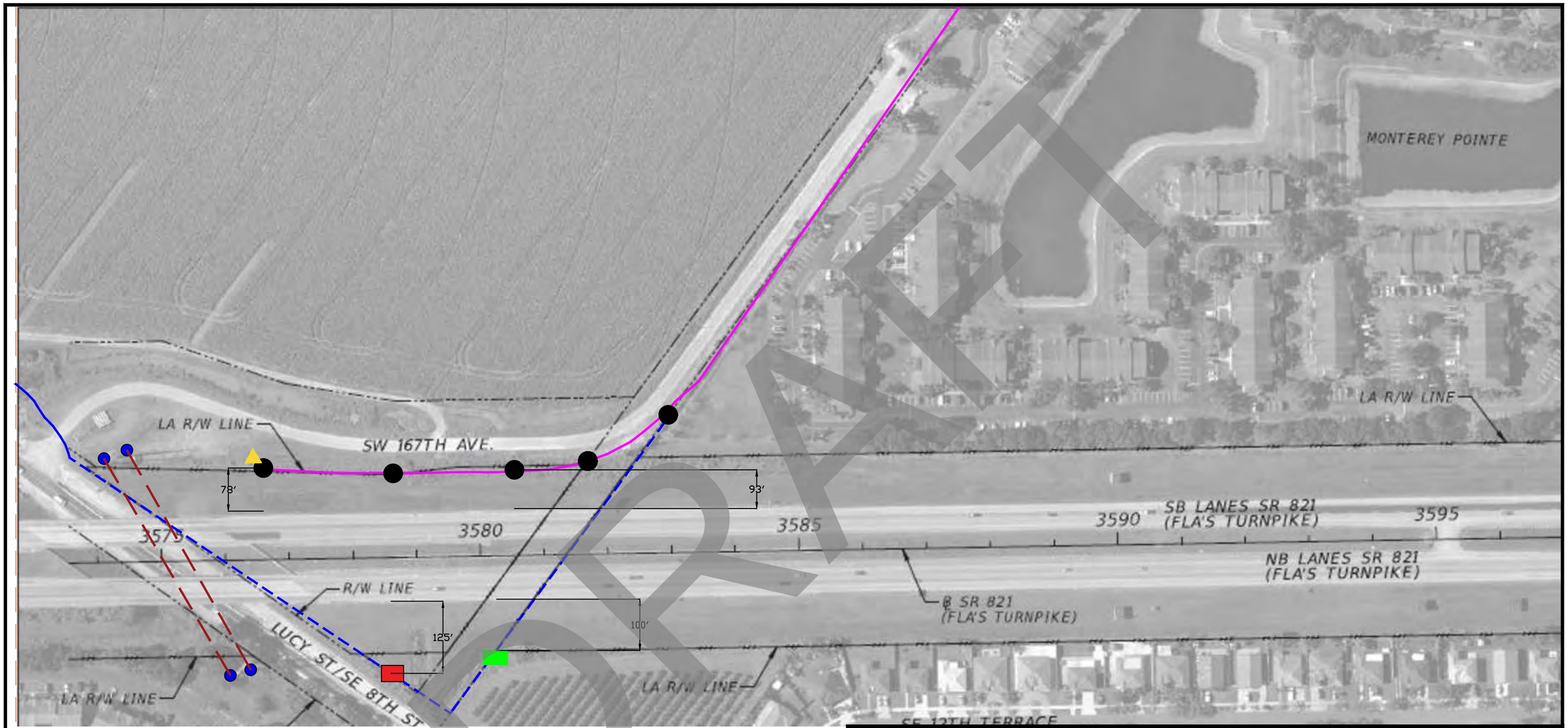
CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
328ST AND TURNPIKE

S. SALINAS	J. GARCIA	Date: 07/08/19
Designer	Checked by:	Scale: NTS

Work Order #: -

Pri Map #: -



LEGEND:

- EXISTING OVERHEAD 3 PHASE PRIMARY LINE
- EXISTING UNDERGROUND 3 PHASE PRIMARY LINE
- 105' TRANSMISSION POLE
- EXISTING OVERHEAD TRANSMISSION LINE
- ALL DISTANCES ARE APPROXIMATIONS
- 45' WOOD POLE
- PRIMARY PULLBOX
- OVERHEAD TRANSFORMER
- SWITCH CABINET

Easement Req'd Yes ☐ No ☒ UG Location Req'd Yes ☐ No ☐
Tree Work Req'd Yes ☐ No ☒ UG Location # _____
Map Posting Req'd Yes ☒ No ☐ Posted By: _____

Request Tel Co Set Poles Yes ☐ No ☒ Tel Co Attachment Permit # _____
Request Tel Co Transfer Yes ☐ No ☒
Request CATV Transfer Yes ☐ No ☒

Pole Line Feet: | Cable Feet:

Tax Folio # :
Rural Location: SEC. 08 , TWP. 57 S., RNG. 39 E.

Permits Required:
City ☐ County Rd ☐ SFWMD ☐ _____ ☐
☐ State Rd ☐ RR Xing ☐ _____ ☐

CITY OF HOMESTEAD ELECTRICAL UTILITIES

CITY OF HOMESTEAD
ELECTRIC FACILITIES
328ST AND TURNPIKE

S. SALINAS — Designer
J. GARCIA — Checked by:
Date: 7/8/19
Scale: NTS

Work Order #: _____ Pri Map #: _____

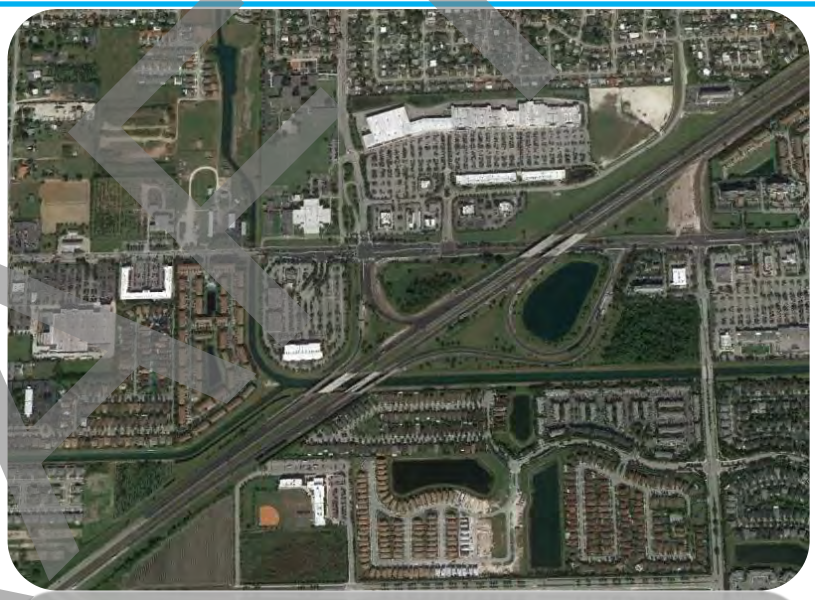
APPENDIX B

Design Traffic Technical Memorandum

Florida's Turnpike
Miami – Dade County

Turnpike Extension Widening

South of Palm Drive to Campbell Drive
[FPN 439545-1]
Draft Traffic Technical Memorandum



July 2019

Table of Contents

Tables

Figures

Attachments

1.1 PROJECT OVERVIEW

This memorandum supports a Project Development and Environment (PD&E) study [FPN 439545-1] of the southern end of the Turnpike Extension between US 1 (MP 0) and Campbell Drive (MP 2). Included in this document are existing (Year 2016) and future traffic information, and traffic analysis supporting the development of project capacity enhancements. Project objectives are to development improvements which will serve existing and future demand and to improve safety by eliminating the potential for unsafe queues on the Turnpike Extension. Alternatives being considered include mainline widening, interchange improvements and enhancement at the intersection of US 1 and Palm Drive. The project evaluation also includes examining whether modifications to project area express lanes implementation plan are warranted. The study area is extended on to the local roads south of the Turnpike Extension which are critical to addressing current capacity deficiencies and future network changes. This includes the interchange and cross street intersections at US 1 (NE 1st Avenue / SR 5), NE 7th Street (SW 336th Street / West Davis Parkway), Palm Drive (SW 344th Street / SR 9336), and Krome Avenue (SW 177th Avenue / SR 997).

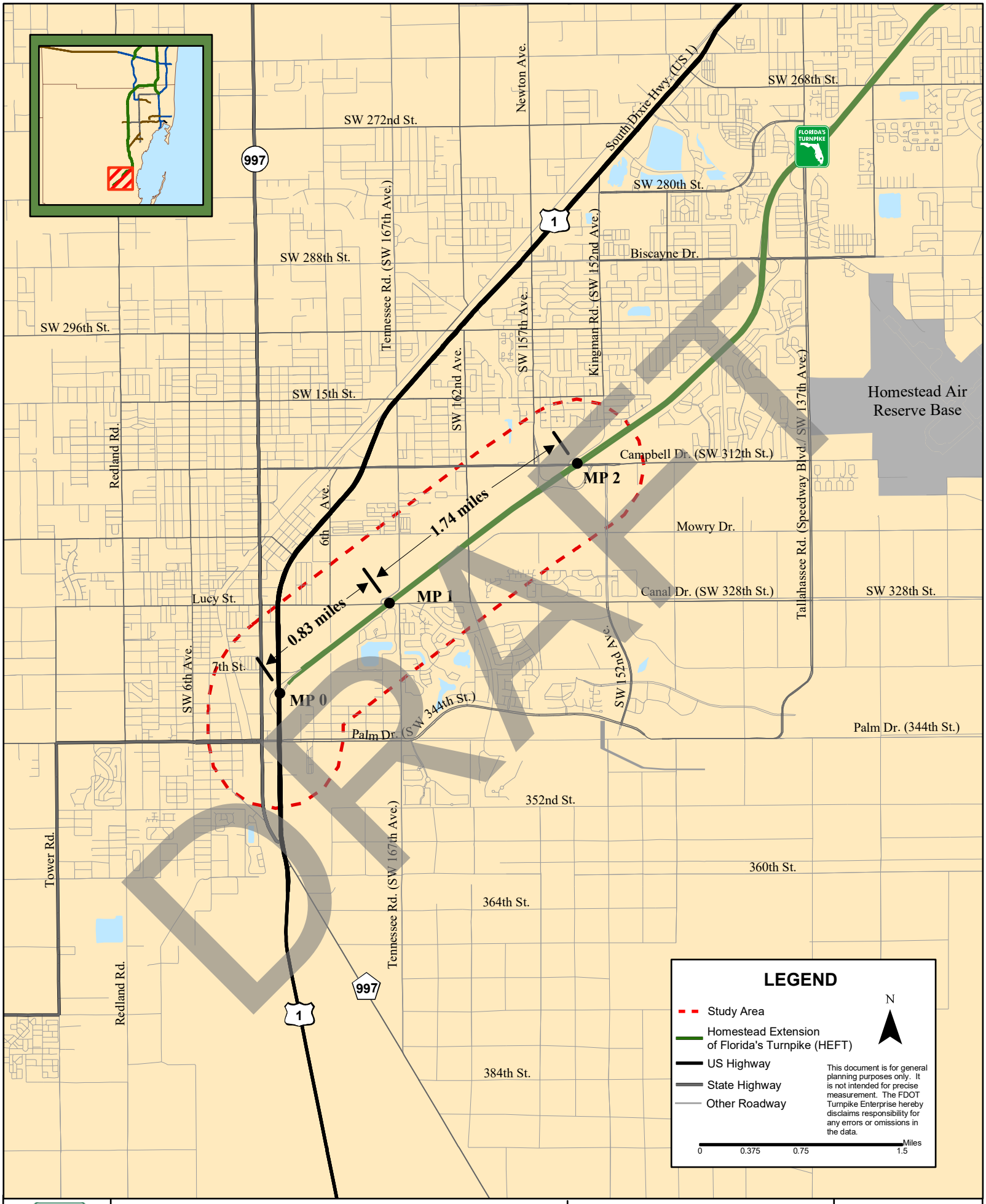
The Turnpike Extension, within this project area, is the only portion not included in the programmed widening projects with express lanes. Improvements to the ramp terminus have been studied several times in the last decade. Given the capacity constraints of the southern terminus and limited development potential to the south, previous efforts concluded that additional widening was not warranted until local roadway network deficiencies were addressed. The previous efforts also evaluated ultimate needs and determined improvements needed at the Campbell Drive (SW 312th Street) Interchange. An Interchange Modification Report (IMR) and Design Traffic Report (DTR) for the Turnpike Extension and Campbell Drive interchange were completed in 2014 and 2015, respectively. The improvements identified at the Campbell Drive interchange were recently completed.

The Turnpike Extension/US 1 corridor connects the Florida mainland and the Florida Keys – a chain of small islands popular to tourists of the state and permanent home to over 73,000 residents (based on 2010 Census). During heavy tourist timeframes and weekends, the Keys inbound traffic alone or in combination with typical traffic, results in queues into the mainline lanes of the southern Turnpike Extension segment. The recorded frequency of southbound exit ramps queue backups onto mainlines has been steadily increasing since 2015. There were 105 incidents of queuing observed in 2017, 80 in 2016, and 93 in 2015. Queue incidents typically occur during non-typical peak hours, the worst case occurs when the in-bound Keys traffic mixes with heavy commuter/typical traffic.

The US 1 / Turnpike Extension connection also serves as a critical evacuation route during events such as a hurricane higher than Category 3. The signalized intersection of US 1 and Palm Street located within 900 feet south of the Turnpike Extension southbound off-ramp is a choke point on the evacuation route and several improvement options were studied in a 2012 evacuation planning assessment.

The current study effort is scoped to provide future traffic demand and evaluate capacity and operational improvement alternatives for the southern 2-mile segment including the terminus at US 1. This memorandum provides existing conditions and operations in the No-Build conditions (No-Build) and Build

alternatives. Traffic analysis and forecasts are provided for existing (2016) and design year (2045). The project study area is shown on **Figure 1.1**.



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum**	**Project Location Map**	**Figure 1.1**

1.2 TRANSPORTATION FACILITIES

The Turnpike Extension southern point begins at US 1 and runs along a north/south alignment through Miami-Dade County to approximately the Miami-Dade/Broward County line, where the alignment shifts to east/west and connects to Florida's Turnpike. The Turnpike Extension has been converted to All-Electronic Tolling (AET).

The focus of this study is a four-lane facility in the Turnpike Extension at the southern end between US 1 (MP 0) and Campbell Drive (MP 2). The mainline posted speed limit is 65 mph. The Campbell Drive interchange is a Partial Cloverleaf (Parclo) Interchange with tolls collected on to/from the south ramps. The southern connection with US 1 includes two southbound off-ramps; an off-ramp connecting to Davis Parkway and US 1 intersection, and another off-ramp to US 1 just north of Palm Drive/US 1 intersection. There are also two northbound on-ramps, serving the northbound and southbound traffic from US 1, respectively. The existing aerial photographs of the interchanges within the study area are shown on **Figures 1.2** and **1.3**. This study also includes the city street network between Krome Avenue and US 1, adjacent to the Turnpike Extension MP 0. The existing interchange configuration and cross street lane geometry within the study area are shown on **Figure 1.4**.

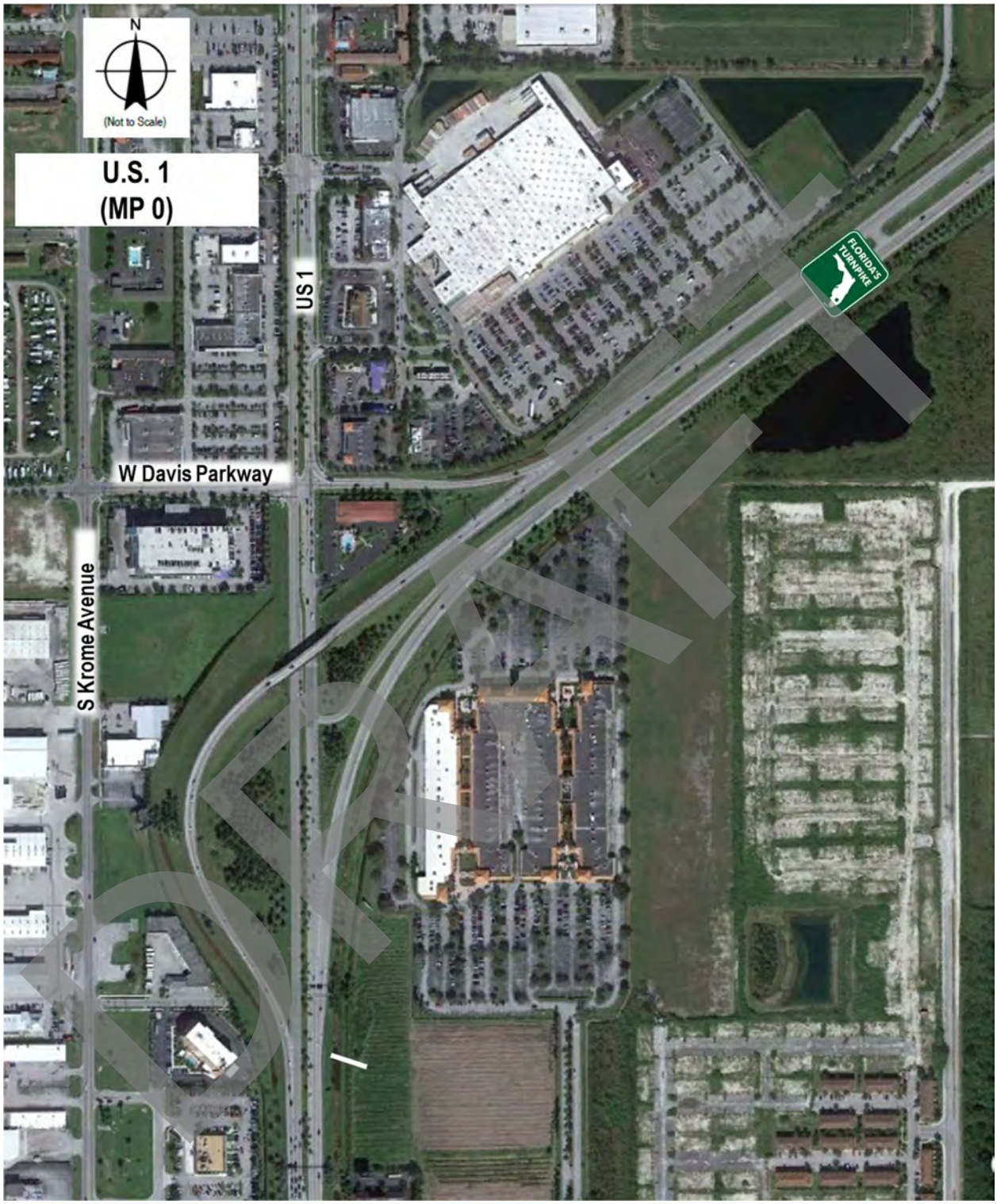
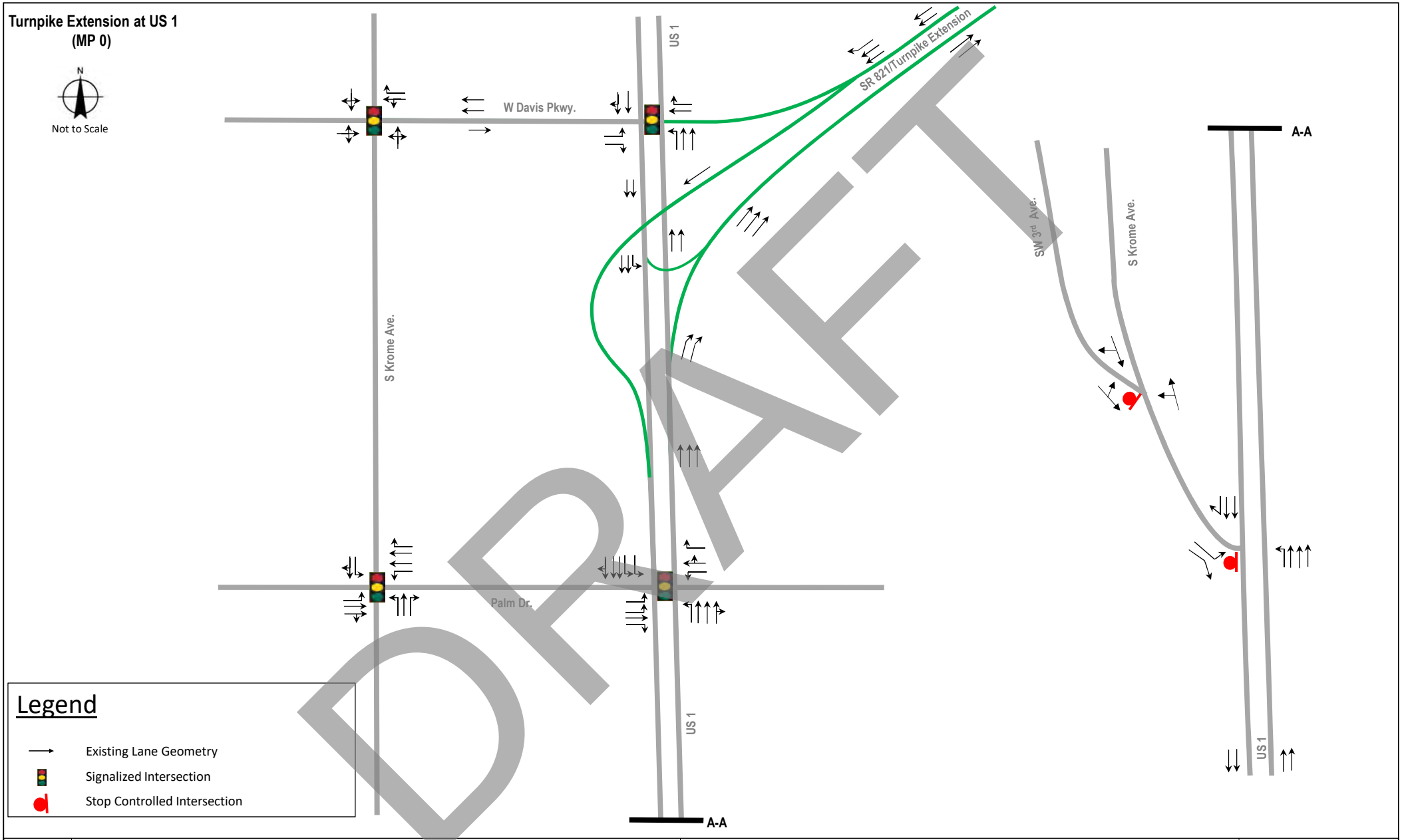


Figure 1.2
US 1 Interchange Aerial Photograph

Figure 1.3
Campbell Drive Interchange Aerial Photograph



FLORIDA'S TURNPIKE

Turnpike Extension Widening South of Palm Drive to Campbell Drive
Traffic Technical Memorandum

Existing (2016) Lane Geometry

Figure 1.4

2.1 DATA COLLECTION

Figure 2.1 illustrates the data collected for this project. Intersection turning movement counts were collected for AM peak, mid-day, and PM peak periods. The 24-hour directional counts were collected on the ramps for a week from Tuesday, March 8, 2016 through Monday, March 14, 2016, and on arterials of US 1, Palm Drive, and Krome Avenue for a week from Monday, March 7, 2016 to Sunday, March 13, 2016. Other resources include toll data at the Campbell Drive Interchange and the 2016 Florida Traffic Information (FTI) database.

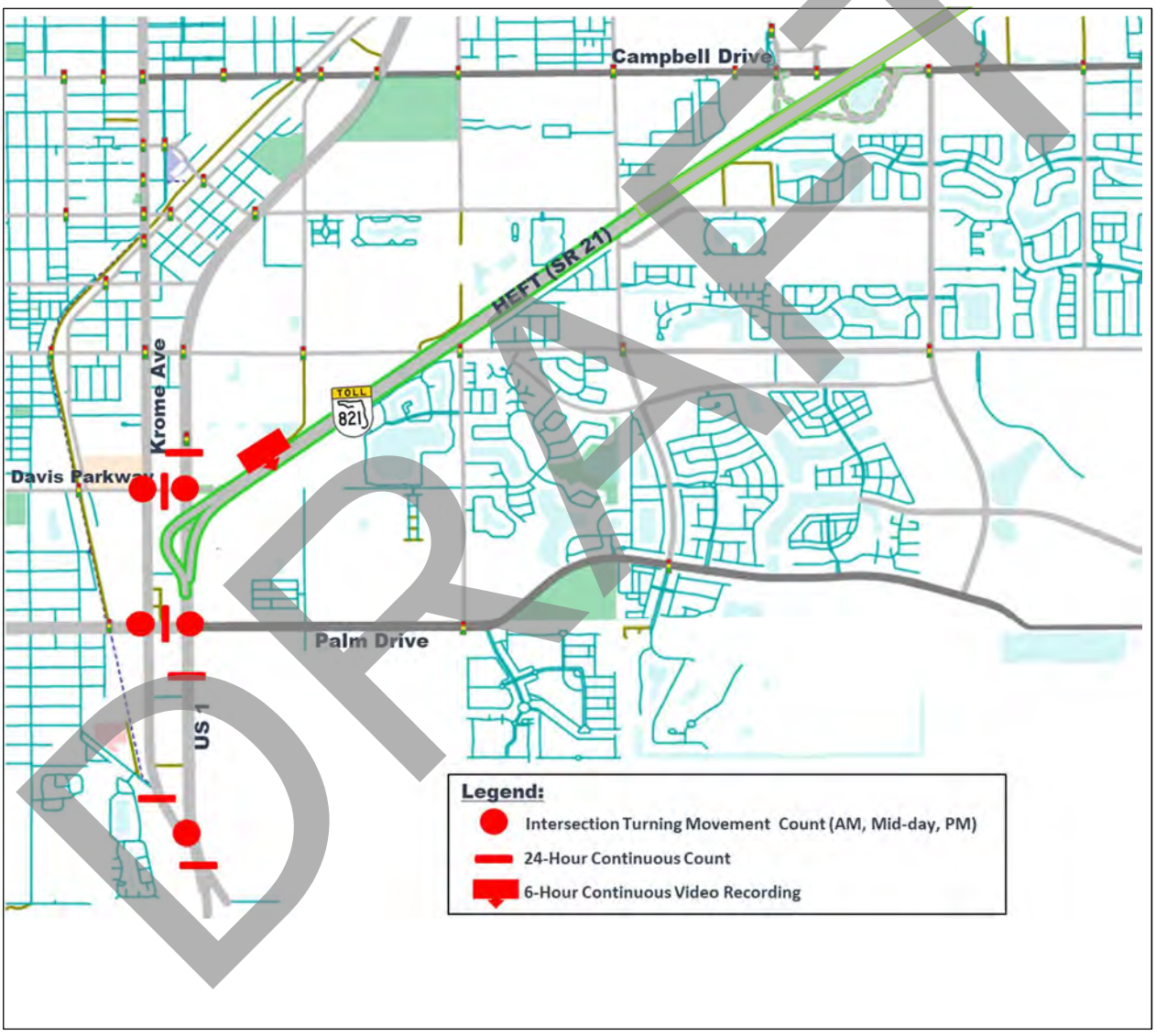


Figure 2.1
7-Day Machine Count and Intersection Turning Movement Count Locations

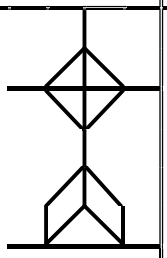
In addition, the field video data were collected on the 2016 Labor Day weekend (periods from 11:00 AM to 5:00 PM on September 2, 2016 to September 5, 2016), at the southbound off-ramp location as shown on **Figure 2.1**. Continuous southbound off-ramp queue backups to the mainline were observed on Saturday, September 3, 2016, from 11:00 AM to 1:30 PM. The longest observed queue length is approximately 1,200 feet onto the mainline. Queue backups were also observed on September 4, 2016, with the impact from an accident that occurred around 1:20 PM. Based on the data on September 3, 2016, the maximum hourly volume on the Turnpike Extension mainline between US 1 and Campbell Drive was 1,785 southbound and 1,014 northbound during 12:30 to 1:30 PM. To determine traffic splits between US 1 and Card Sound Road, and the amount of traffic entering and exiting the driveways on the south-west quadrant of Palm Drive/US 1 intersection, a follow-up data collection was conducted from Tuesday, February 11, 2019 through Saturday, February 16, 2019.

2.2 ANNUAL AVERAGE DAILY TRAFFIC VOLUMES

In order to calculate the existing (2016) Annual Average Daily Traffic (AADT) volumes, an analysis of the three-day traffic counts was conducted. Three-day averages were adjusted to account for seasonal variations and axle corrections to develop the AADT volumes. The most recent peak seasonal factor and weekly axle factor for the study region are 0.96 and 0.96, respectively, based on the 2015 Factor Category report from FTI. The existing (2016) AADT volumes resulting from these calculations are provided in **Table 2.1**.

Table 2.1
Turnpike Extension 2016 Annual Average Daily Traffic (AADT) Volumes

Mile Post-Interchange	2016
	61,000
MP 2 – Campbell Drive	24,500
	3,300
	39,800
MP 0 – US 1 (To/From North)	11,800
MP 0 – US 1 (To/From South)	28,000



Bold = Mainline Volumes

The existing (2016) arterial street AADT volumes are provided in **Table 2.2**.

Table 2.2
2016 Annual Average Daily Traffic (AADT) Volumes on Arterial Streets

City Street	Location	2016 AADT
NE 7th Street	East of US 1	6,500
Palm Drive	East of Krome Avenue	22,400
US 1	South of Palm Drive	34,400

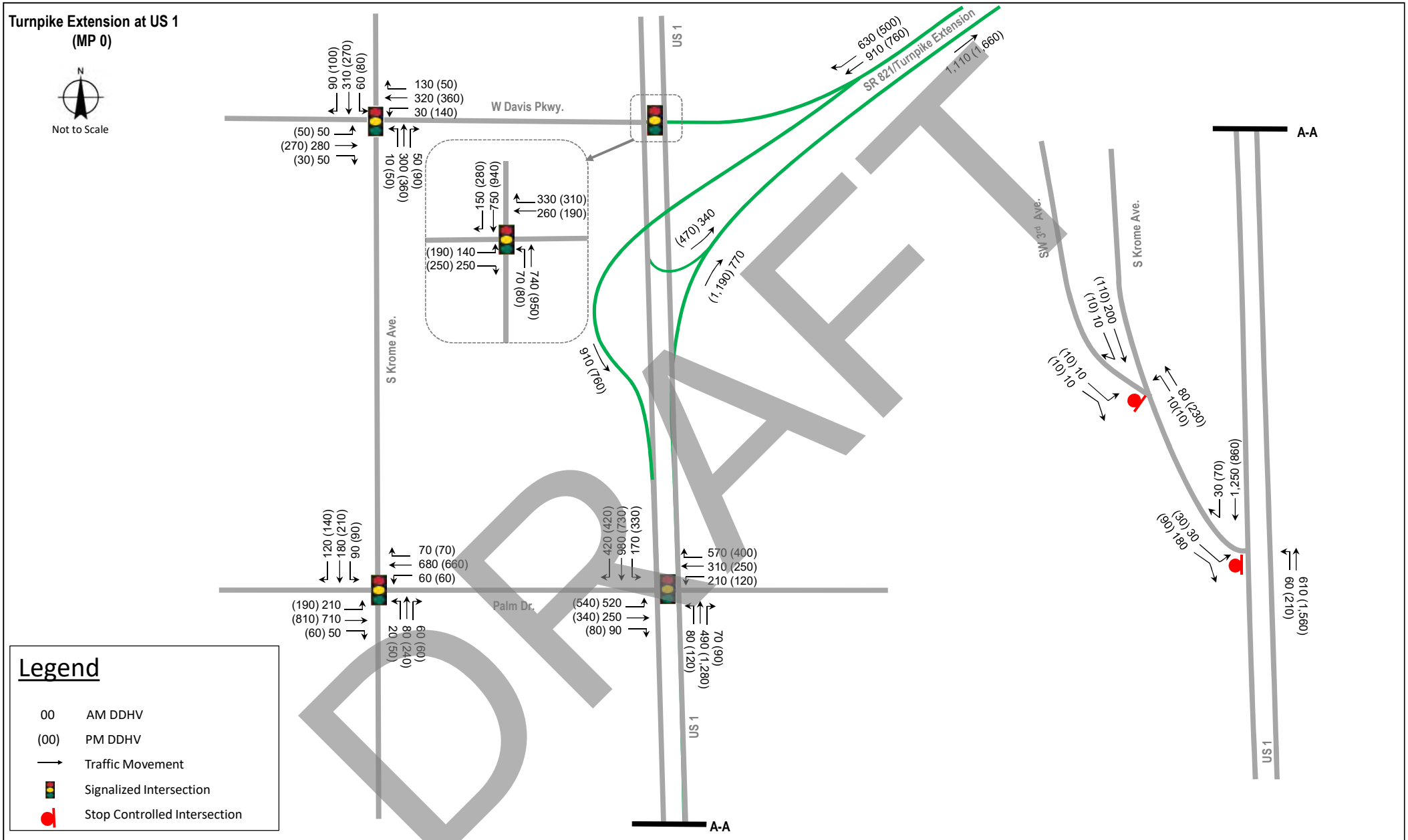
2.3 PEAK HOUR VOLUMES

The study area AM and PM peak hour traffic counts were summarized and adjusted to develop peak season existing AM and PM peak hour volumes. Mainline and ramps traffic volumes are summarized in **Table 2.3**. The cross street volumes are developed based on collected traffic counts and adjusted to match the ramp volumes, which were taken as the control points. The peak season peak hour volumes for the Turnpike Extension south end and US 1 study area is shown on **Figure 2.2**.

Table 2.3
Existing (2016) Peak Hour Volumes

Milepost-Interchange	Existing 2016			
	AM Peak		PM Peak	
	SB	NB	SB	NB
MP 2 – Campbell Drive	**2,530**	**2,220**	**2,220**	**2,530**
	860	1,110	1,110	860
	150	160	160	150
MP 0 – US 1 (To/From North)	**1,820**	**1,270**	**1,270**	**1,820**
	630	500	500	630
MP 0 – US 1 (To/From South)	1,190	770	770	1,190

Bold = Mainline Volumes



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum**	**Existing (2016) Peak Season Peak Hour Volumes**

Figure 2.2

The configuration at US 1/Palm Drive intersection as shown on **Figure 3.1** presents complex driving conditions where drivers must observe traffic signal phases and weave among other vehicles to position themselves in the appropriate lane according to their turning movement at the intersection. The effective length of the weaving zone at US 1/Palm Drive intersection is about 500 feet, which is too short for drivers to make several complex driving tasks before reaching the intersection. This has been the main cause of inefficient and unsafe intersection operations leading to mainline queue backups and increased delays. The condition is even worse during peak heavy inbound to the Keys when most drivers are unfamiliar with the area.

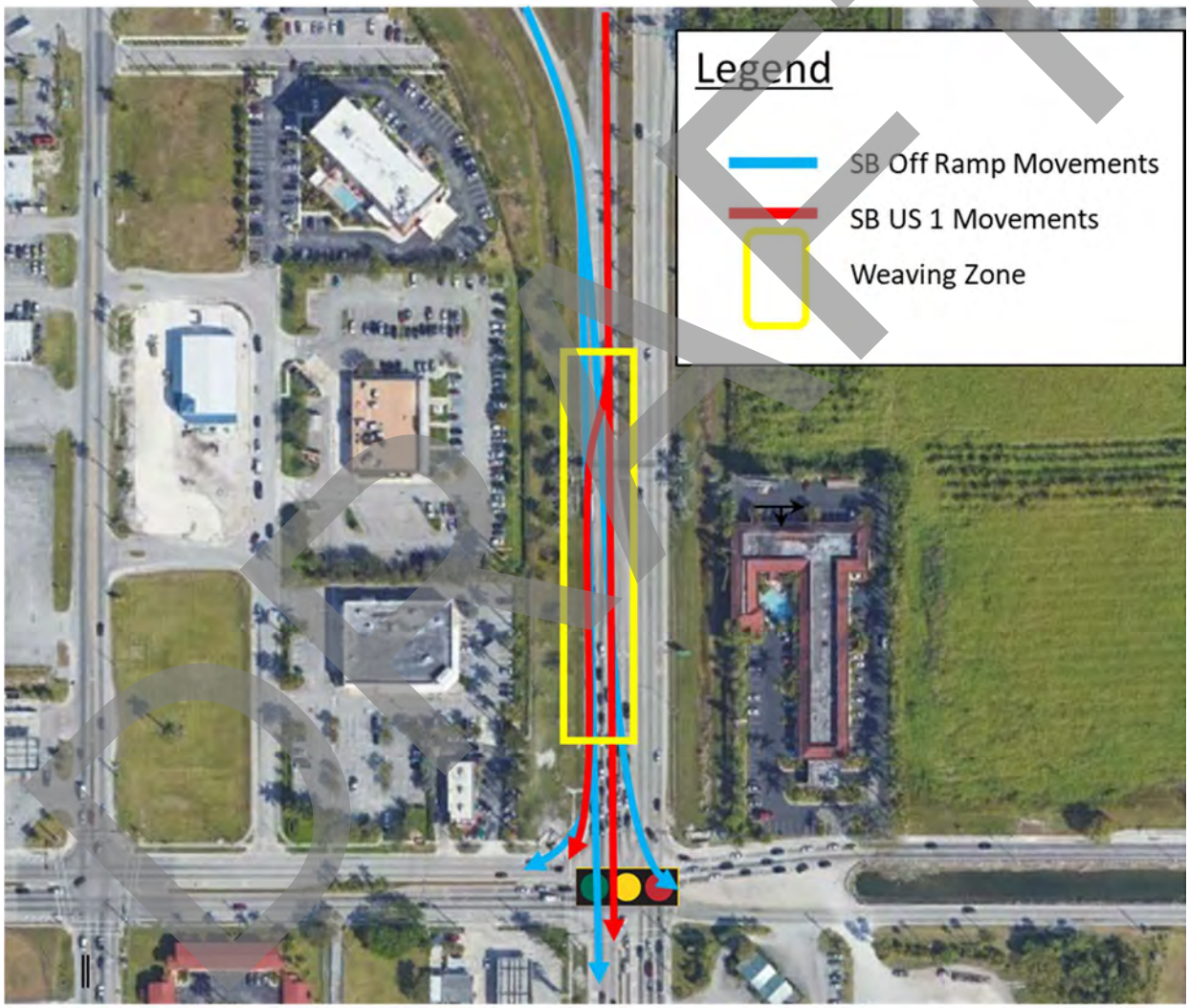


Figure 3.1
Existing Operational Complexity at US 1/Palm Drive Intersection

The traffic operations analysis for the existing Turnpike Mainline segments and ramps is based on Highway Capacity Manual Edition 7 (HCM) methodologies. Highway Capacity Software (HCS 7) was used to analyze the mainline segments and ramp merge/diverge areas. The Level of Service (LOS) was determined directionally for the highway segments within the study area. Intersections were analyzed based on Synchro control delay (Version 10.1, Build 2, revision 20). This was used because the HCM methodology has limitations regarding intersections that are not controlled by the standard National Electric Manufacturers Association (NEMA) phasing. For example, the eastbound and westbound lanes of the intersection at US 1 and Palm Drive are under the control of a split phase, which is not the standard NEMA phasing.

3.1 FREEWAY SEGMENT ANALYSIS

The existing AM and PM peak hour traffic was evaluated in each direction for the freeway segment analysis. The HCS software was calibrated based on the adjusted Florida Department of Transportation (FDOT) capacities. Since the freeway segment analysis modules in HCS lack a capacity reduction factor, the Speed Adjustment Factor and Capacity Adjustment Factor were used to adjust capacity to the LOS E density threshold of 45 passenger cars per mile per lane (pcpmpl) for a basic segment. The resulting adjustment factors were 0.88.

Other factors used to evaluate the level of service include number of lanes, truck percentage, and free-flow speed (FFS) in miles per hour. The input assumptions for the basic freeway segments are:

- Free-flow speed = 65 mph
- Peak Hour Truck percentage (T_f) = 3%
- Peak Hour Factor (PHF) = 0.95

The FDOT minimum desired operational requirements for urban freeway facilities is LOS D. The analysis results are shown in Table 3.1.

Table 3.1
Existing (2016) Freeway Level of Service

Location	Direction	LOS	
		AM	PM
North of Campbell Drive (MP 2)	Southbound	C	C
	Northbound	C	C
North of US 1 (MP 0) to Campbell Drive (MP 2)	Southbound	B	B
	Northbound	B	B

3.2 FREEWAY RAMP MERGE/DIVERGE INFLUENCE AREA ANALYSIS

For the merge and diverge level of service analysis, the mainline free-flow speeds were lowered for the US 1 interchange ramps because this is the end of the Florida's Turnpike facility. It is assumed that drivers slow down to 60 mph before the exiting ramps so they can be ready to get off the Turnpike and drivers on the northbound on-ramp from the south speed up to 55 mph before merging with the northbound on-ramp from the north traffic. The free-flow speed is 45 mph for curved ramps and 50 mph for straight or diagonal ramps. Other factors were consistent with the freeway mainline segment analysis.

The HCS results of the merge and diverge influence areas within the study area are provided in **Table 3.2**.

Table 3.2
Existing (2016) Freeway Ramp Merge/Diverge Influence Area Level of Service

Mile Post-Interchange	Ramp	LOS	
		AM	PM
MP 2 – Campbell Drive	Southbound off-ramp	C	B
	Northbound on-ramp	B	C
	Southbound on-ramp	B	B
	Northbound off-ramp	B	B
MP 0 – US 1	Southbound off-ramp to north	B	A
	Northbound on-ramp from north	A	B

3.3 INTERSECTION ANALYSIS

The results of the existing signalized intersection analysis are provided in **Table 3.3**. As shown in **Table 3.3**, the intersection at US 1 and Palm Drive, located immediately south of the Turnpike southbound off-ramp going to US 1 southbound, is operating at LOS E. The southbound through movement fails in the AM, which can potentially result in queues and delays for Turnpike the southbound off-ramp. Other intersections are currently operating at acceptable levels of service.

Table 3.3
Existing (2016) Intersection Analysis

Intersection Name	Intersection LOS / Delay (sec)	
	AM	PM
US 1 / NE 7th Street (West Davis Parkway)	C / 24.8	C / 25.0
US 1 / Palm Drive	E / 65.7	E / 65.0
Krome Avenue (SW 177th Avenue) / NE 7th Street (West Davis Parkway)	C / 23.6	D / 52.6
Krome Avenue (SW 177th Avenue) / Palm Drive	C / 25.7	C / 33.9
Krome Avenue (SW 177th Avenue) / US 1	A / 3.3 *	A / 3.6 *

*HCM 2010 LOS for the non-signalized intersection.

This section describes the development of the future No-Build and Build alternatives traffic forecast for 2045.

4.1 PROJECT FORECAST MODEL

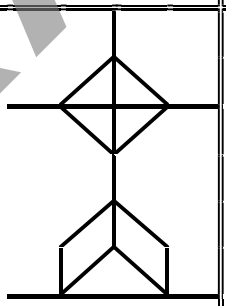
The latest official model, Southeast Florida Regional Planning Model (SERPM) version 7.0, was downloaded from the FDOT website, along with the 2010 and 2040 seed skims and add-on PopSyn-III module. The initial highway network and socio-demographic data were acquired from the FDOT District 4, which include roadway edits made for use of the transit projects studies in the region. A 2015 scenario was run with the acquired network and socio-demographic data to assess the current traffic estimates in the study area. Overall, the model performed very well replicating the average daily traffic (ADT) within a reasonable range. The model calibration, validation and future year trip table development report is included in **Attachment A**.

4.2 PROJECT NO-BUILD FORECASTS

Project Mainline and ramp AADTs traffic forecasts were developed using the 2017 Annual Traffic Trends Report and SERPM 7.0. The cross street AADTs were projected using estimated historical annual growth rates based on the FTI database and the SERPM 7.0 output for year 2045. The 2045 daily forecasts for the Turnpike Mainline, ramps and the cross streets, are shown in **Tables 4.1** and **4.2**, respectively.

Table 4.1
2045 No-Build AADT Volumes

Mile Post-Interchange	AADT
	108,600
2 – Campbell Drive	43,700
	10,400
	75,300
0 – US 1 (To/From North)	22,300
0 – US 1 (To/From South)	53,000



Bold = Mainline Volumes

Table 4.2
2045 Cross Street AADT

City Street	Location	AADT
Palm Drive	East of Krome Avenue	36,100
US 1	South of Palm Drive	49,200

4.3 FUTURE DIRECTIONAL DESIGN HOUR VOLUMES

The future Directional Design Hour Volumes (DDHVs) are calculated by applying the K factors and existing directional splits (directional distribution factor [D]) to the AADTs at interchange ramp pairs and the Turnpike Mainline control points. The K factor is the proportion of AADT occurring during the selected design hour. The D factor is the proportion of traffic in the design hour traveling in the peak direction.

Consistent with the FDOT districts, the Turnpike has developed standard K factors for use in planning and design applications. The K factor for the mainline section between Campbell Drive and US 1 is based on the Telemetered Traffic Monitoring Site (TTMS) 972262 data in the 2016 Florida Traffic Information (FTI) database, and is the same as the K factor for the US 1 Interchange ramps.

The K factors for the ramps at Campbell Drive are based on toll data. The D factors for the Campbell Drive Interchange ramps are based on 2016 toll data.

The Turnpike Extension interchange at US 1 serves both tourist and regular commute traffic. Therefore, future DDHVs were developed for two scenarios: the typical peak commuter design hour and the design hour for a heavy-inbound-keys scenario. The heavy-inbound-keys scenario considers a combination of peak season southbound tourists traveling to the Keys and a non-peak-hour commuter traffic for other movements. For the typical peak hour scenario, DDHVs were calculated based on the standard K factor and the D factor based on existing counts. For the heavy-inbound-keys scenario, the K and D factors were adjusted for the southbound off-ramp to make sure the design will be able to operate acceptably in the tourist traffic peaks. As mentioned in **Section 1.1**, over 81 percent of the queue incidents in 2015 occurred during non-typical peak hours, as a result of weekend and holiday tourist travel demand. Therefore, the directional splits from the FTI database, peak-season peak-hour counts, and peak period counts during typical holidays and weekends were studied and compared. In addition, a one-hour (11:30 AM to 12:30 PM) video was analyzed for the 2016 Labor Day Saturday to derive the D factors when upstream queues were present. Finally, a D factor of 60 percent was selected to produce the volume forecast representing a tourist-considered design volume.

For this specific location, the US 1 interchange ramp volumes are equal to the upstream mainline volumes. Therefore, the ramps (at both US 1 and Campbell Drive) are treated as control points. And mainline traffic volumes were then balanced throughout the system by adding and subtracting the ramp volumes.

Cross streets are forecasted with K factors in the 2016 FTI database and D factors were determined based on 2016 peak-season peak-hour counts.

The truck factor (T_f) is the percentage of truck traffic during the peak hours. The T_f can be estimated as half of the 24-hour truck factor (T), which is the percentage of truck traffic in 24 hours. T factors are based on the 2016 FTI database for cross streets and 2015 Turnpike Truck Factors for mainline segments and ramps.

The traffic factors used for future design hour traffic volumes and traffic operational analysis are provided in **Table 4.3**.

Table 4.3
Design Traffic Factors

Roadway Segment		K_{STD}	D	T	T_f	PHF
Turnpike Mainline						
North of US 1 (MP 0) to Campbell (MP 2)		8.50%	58.10%	5.6	3	0.95
Interchange Ramps						
Campbell Drive (MP 2)	South Ramps	9.50%	51.61%	5.6	3	0.95
	North Ramps	8.50%	56.35%	5.6	3	0.95
US 1 (MP 0) [Typical Scenario]	South Ramps	8.50%	58.10%	5.6	3	0.95
	North Ramps	8.50%	58.10%	5.6	3	0.95
US 1 (MP 0) [Heavy-Inbound-Keys Scenario]	South Ramps	9.50%	60.00%	5.6	3	0.95
	North Ramps	9.50%	60.00%	5.6	3	0.95
Cross Streets						
US 1	South of Interchange	9.50%	60.00%	9.5	5	0.95
Palm Drive	West of US 1, East of Krome	9.00%	55.00%	10.7	5	0.95

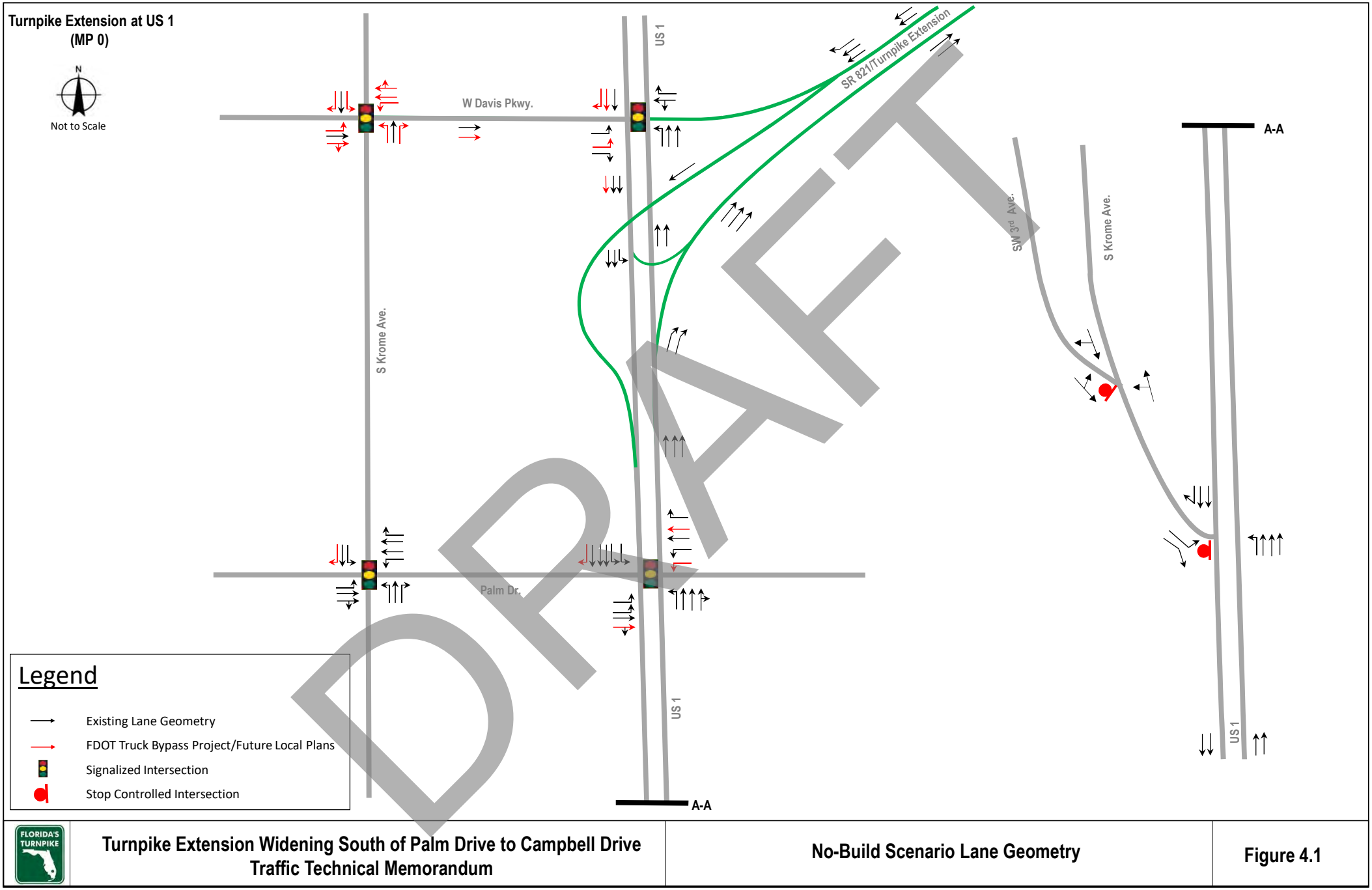
The DDHV volumes for the typical scenario are shown in **Table 4.4**. The DDHV volumes for the heavy-inbound-keys scenario were developed for 2045 as shown in **Table 4.5**. **Figure 4.1** shows No-Build Scenario lane geometry and **Figures 4.2** and **4.3** depict the mainline design hour through volumes and turning movements at the intersections included in the study area for the typical scenario and the heavy-inbound-keys scenario, respectively.

Table 4.4
2045 DDHVs – Typical Scenario

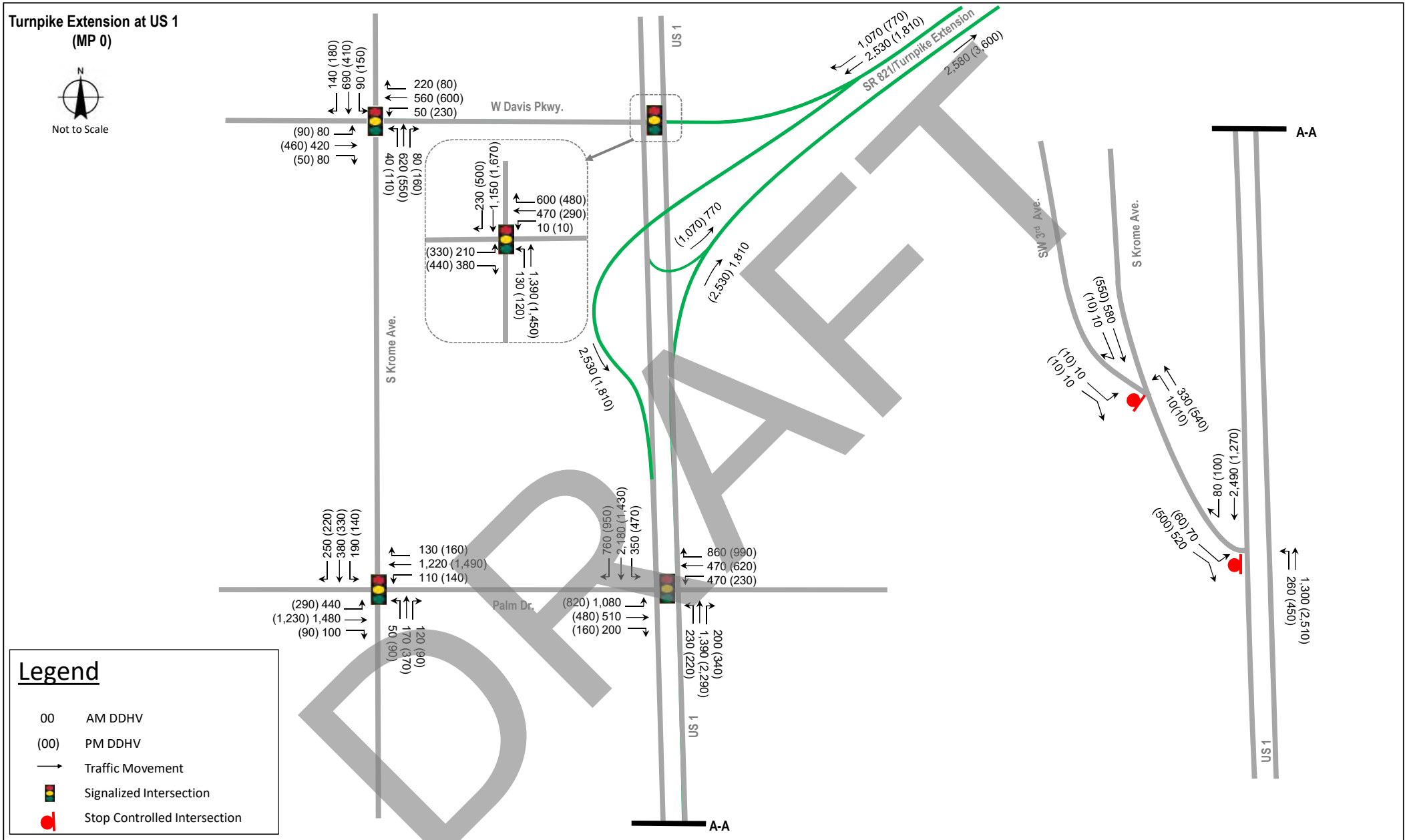
Mile Post-Interchange	DDHV			
	AM Peak		PM Peak	
	SB	NB	SB	NB
	5,870	**4,000**	**4,000**	**5,870**
2 – Campbell Drive	2,090	1,620	1,620	2090
	510	480	480	510
	4,290	**2,860**	**2,860**	**4,290**
0 – US 1 (To/From North)	1,270	850	850	1270
0 – US 1 (To/From South)	3,020	2,000	2,000	3,020

Table 4.5
2045 DDHVs – Heavy-Inbound-Keys Scenario

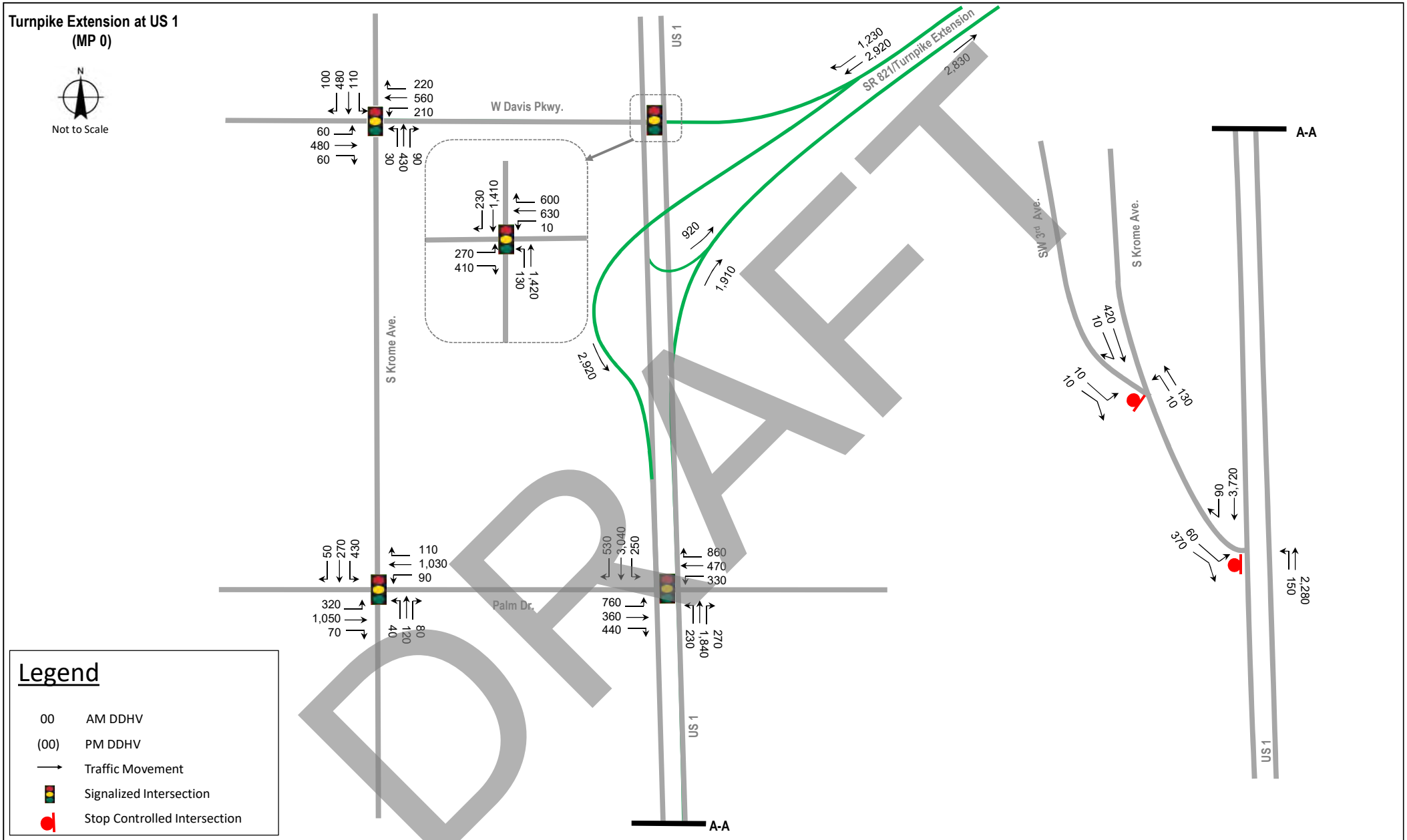
Mile Post-Interchange	DDHV	
	SB	NB
	3,600	**2,590**
0 – US 1 (To/From North)	1,230	920
0 – US 1 (To/From South)	2,920	1,910



Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	No-Build Scenario Lane Geometry	Figure 4.1



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive** **Traffic Technical Memorandum**	**2045 No-Build DDHVs** **Typical Scenario**
		Figure 4.2



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive** **Traffic Technical Memorandum**	**2045 No-Build DDHVs** **Heavy-Inbound-Keys Scenario**

Figure 4.3

The No-Build (i.e., without the southbound off and northbound on flyover ramps) Turnpike Extension mainline and ramp lane requirements within the study area for the years 2020 through 2045 using mainline LOS D and ramp capacity thresholds (LOS E) are shown in **Table 5.1**. This summary is based on the lane requirement capacity analysis shown in **Table 5.2**. The colors highlight the required directional number of lanes. This analysis is based on the DDHVs for both typical and heavy inbound scenarios.

Table 5.1
Lane Requirements by Year

Turnpike Extension Segment	Number of Lanes per Direction		
	Existing	Typical Scenario Lanes Needed (Year)	Heavy Inbound Scenario Lanes Needed (Year)
North of Campbell Drive Interchange	2	3 (2025)	3 (2022)
US 1 Interchange to South of Campbell Drive Interchange	2	3 (2042)	3 (2034)
Campbell Drive Interchange (MP 2)			
To/From north	1	2 (2037)	2 (2037)
To/From south	1	-	-
Campbell Drive Interchange (MP 0)			
US 1 To/From north	1	1	1
US 1 To/From south	1	2 (2028)	2 (2024)

The number of ramp roadway lanes required was determined based on LOS E capacity as shown in **Table 5.2**. The analysis summary in **Table 5.1** indicates a need to widen the south end of the Turnpike Extension between US 1 and Campbell Drive by 2042 under typical scenario and by 2034 when considering heavy inbound scenario. In addition, the southbound off-ramp to the south will need to be widened by 2028 under typical scenario and by 2024 when considering heavy inbound scenario.

Table 5.2
Mainline (LOS D) and Ramp Capacity (LOS E) Lane Requirements

Typical Scenario Mainline (LOS D) and Ramp Capacity (LOS E MSV) Lane Requirements

Description	Year																									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
	2,940	**3,040**	**3,140**	**3,250**	**3,350**	**3,450**	**3,510**	**3,560**	**3,620**	**3,670**	**3,730**	**3,780**	**3,840**	**3,890**	**3,950**	**4,000**	**4,070**	**4,150**	**4,220**	**4,300**	**4,370**	**4,440**	**4,520**	**4,590**	**4,670**	**4,740**
2 - Campbell Drive	1,300	1,350	1,400	1,440	1,490	1,540	1,570	1,590	1,620	1,640	1,670	1,700	1,720	1,750	1,770	1,800	1,830	1,860	1,890	1,920	1,950	1,970	2,000	2,030	2,060	2,090
	1,930	**2,000**	**2,060**	**2,130**	**2,190**	**2,260**	**2,300**	**2,330**	**2,370**	**2,400**	**2,440**	**2,470**	**2,510**	**2,540**	**2,580**	**2,610**	**2,660**	**2,710**	**2,760**	**2,810**	**2,870**	**2,920**	**2,970**	**3,020**	**3,070**	**3,120**
	190	190	200	210	210	220	240	270	290	310	340	360	380	400	430	450	460	460	470	470	480	490	490	500	500	510
	2,110	**2,180**	**2,250**	**2,330**	**2,400**	**2,470**	**2,530**	**2,580**	**2,640**	**2,690**	**2,750**	**2,810**	**2,860**	**2,920**	**2,970**	**3,030**	**3,090**	**3,140**	**3,200**	**3,260**	**3,320**	**3,370**	**3,430**	**3,490**	**3,540**	**3,600**
0 - US 1 to/from north	670	690	700	710	720	730	750	760	780	800	820	830	850	870	880	900	920	930	950	970	990	1,000	1,020	1,040	1,050	1,070
0 - US 1 to/from south	1,430	1,500	1,560	1,620	1,680	1,740	1,780	1,820	1,860	1,900	1,940	1,970	2,010	2,050	2,090	2,130	2,170	2,210	2,250	2,290	2,330	2,370	2,410	2,450	2,490	2,530

Heavy Inbound Scenario Mainline (LOS D) and Ramp Capacity (LOS E MSV) Lane Requirements

Description	Year																									
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
	3,150	**3,310**	**3,460**	**3,620**	**3,770**	**3,930**	**4,000**	**4,070**	**4,150**	**4,220**	**4,290**	**4,360**	**4,430**	**4,510**	**4,580**	**4,650**	**4,670**	**4,680**	**4,700**	**4,710**	**4,730**	**4,740**	**4,760**	**4,770**	**4,790**	**4,800**
2 - Campbell Drive	1,300	1,350	1,400	1,440	1,490	1,540	1,570	1,590	1,620	1,640	1,670	1,700	1,720	1,750	1,770	1,800	1,830	1,850	1,880	1,900	1,930	1,960	1,980	2,010	2,030	2,060
	2,150	**2,260**	**2,380**	**2,500**	**2,620**	**2,740**	**2,790**	**2,840**	**2,900**	**2,950**	**3,000**	**3,050**	**3,100**	**3,160**	**3,210**	**3,260**	**3,300**	**3,340**	**3,380**	**3,420**	**3,470**	**3,510**	**3,550**	**3,590**	**3,630**	**3,670**
	190	190	200	210	210	220	240	270	290	310	340	360	380	400	430	450	470	480	500	520	540	550	570	590	600	620
	2,280	**2,390**	**2,510**	**2,620**	**2,740**	**2,850**	**2,920**	**2,980**	**3,050**	**3,110**	**3,180**	**3,240**	**3,310**	**3,370**	**3,440**	**3,500**	**3,570**	**3,630**	**3,700**	**3,760**	**3,830**	**3,890**	**3,960**	**4,020**	**4,090**	**4,150**
0 - US 1 to/from north	720	750	770	790	820	840	860	880	900	920	940	960	980	1,000	1,020	1,040	1,060	1,080	1,100	1,120	1,140	1,150	1,170	1,190	1,210	1,230
0 - US 1 to/from south	1,550	1,650	1,740	1,830	1,920	2,010	2,060	2,100	2,150	2,190	2,240	2,280	2,330	2,370	2,420	2,460	2,510	2,550	2,600	2,640	2,690	2,740	2,780	2,830	2,870	2,920

Assumptions	
Total Trucks % (T_f)	3.00%
Peak Hour Factor (PHF)	0.95
Speed/Capacity Adjustment Factor	0.88
Intersection Density (ID)	0.20
Grade	0.00%
Terrain	Level
Lane width	12 ft
Right-shoulder Lateral Clearance (LC)	10 ft

Number of Mainline Lanes by LOS D Maximum Service Volume (MSV)	
Number of Lanes	South
	LOS D
2	3,420
3	5,220
4	6,840
5	8,550
6	10,260
FFS	65

Number of Ramp Lanes by Capacity (LOS E MSV)	
Number of Lanes	Capacity (veh/hr)
1	1,840
2	3,680

Free-Flow Speed 31-50 mph

In addition to the mainline widening evaluation, there are interchange improvements being explored at Campbell Drive and US 1, and a potential partial interchange at Lucy Street providing access to/from north. The alternatives at these interchanges are described below:

Campbell Drive Interchange Alternatives

Ultimate improvement needs at the Campbell Drive Interchange were evaluated and determined during a PD&E study [FPN 423372-1] for the Turnpike Extension corridor from Campbell Drive (MP 2) north to the Government Center area (MP 12) which was completed in 2013. An IMR to support the access modification proposed at the Turnpike Extension and Campbell Drive interchange was completed in 2014, followed by a DTR, which was provided in 2015. There were preliminary transportation systems management and operations (TSM&O) improvements which were explored to supplement the ultimate needs recommended in previous studies. The TSM&O solutions explored include turbo lanes and several turn lane reconfigurations. Detailed analysis of the TSM&O alternatives at Campbell Drive Interchange will be provided later in an updated version of the memorandum.

Lucy Street Interchange Alternatives

A proposed Lucy Street Interchange was requested as a developer funded project by the Alger Family due to the potential changes in land use development on the parcels they owned. An interchange feasibility study for the potential Turnpike Extension interchange at Lucy Street (SW 328th Street) was conducted in 2005 followed by an Interchange Justification Report (IJR) in 2008. This ongoing PD&E is reevaluating the interchange feasibility consistent with current land use amendments within the study area. Similar to the previous feasibility study, a partial interchange providing access to/from north has been proposed and preliminary analyses have been performed. Detailed analyses for this proposed interchange will be provided later in an updated version of the memorandum.

US 1 Interchange Alternatives

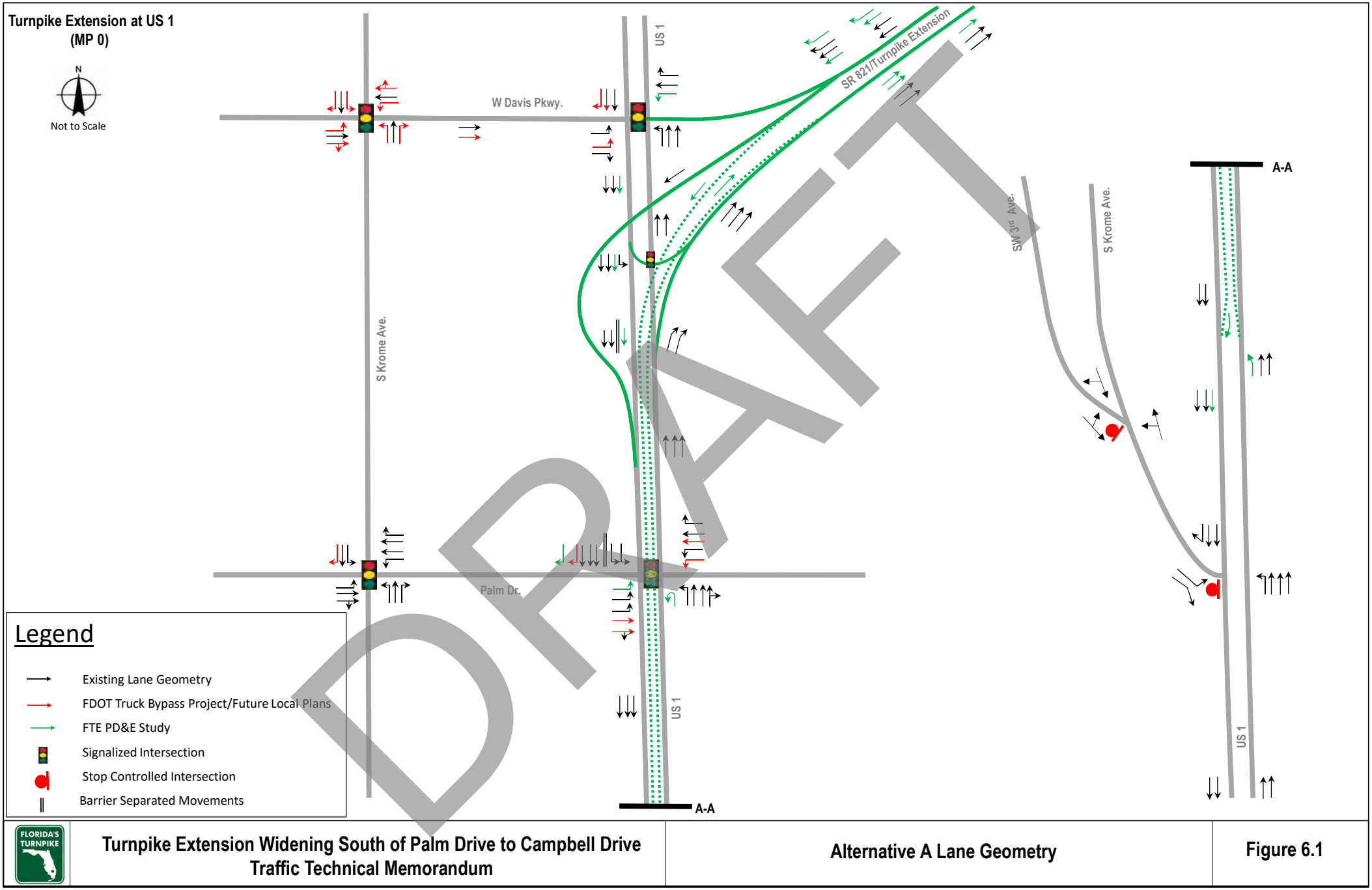
Preliminary screening and Synchro analyses were performed for the 11 US 1 / Palm Drive Interchange configuration alternatives. The preliminary analyses included several at grade and grade separated concepts. The lanes needed by an at grade alternative were not feasible and also required more right of way acquisition than viable. Based on the preliminary analyses results, three grade separated alternatives were advanced for more development and detailed analysis in Synchro, HCS, and VISSIM. The three alternatives analyzed were Alternatives A, B, and C. The results showed that Alternative C did not provide more operational benefits compared to Alternatives A or B despite its complex design requirements. Therefore, Alternative C was dropped from further consideration.

Due to alternatives complexity and in order to capture operational performance at both the intersection and the link levels, VISSIM models were also developed in addition to Synchro and HCS analysis. The following alternatives, including the No-Build Scenario, were advanced for further consideration and traffic operational analysis:

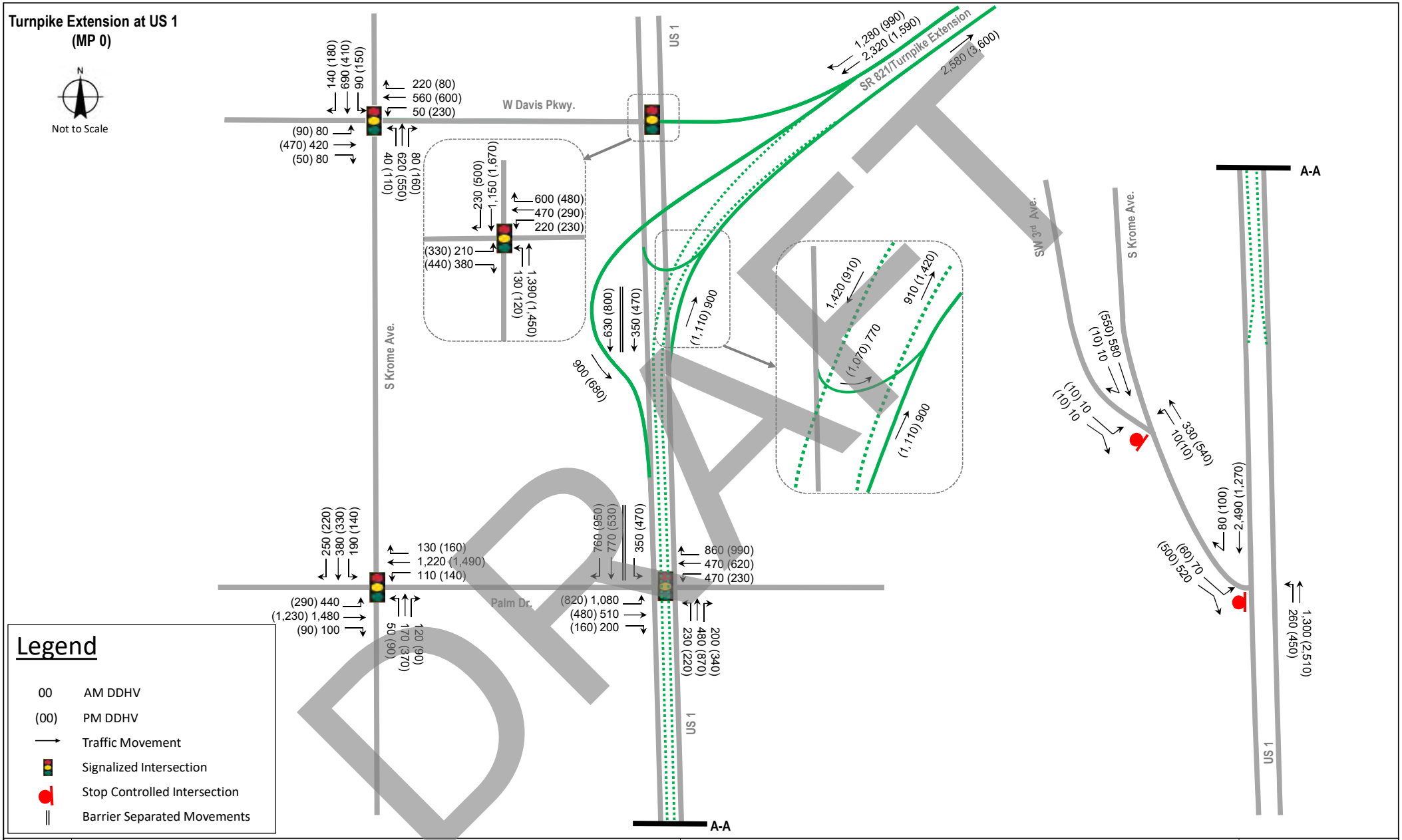
- **No-Build Scenario:** This alternative assumes existing conditions and all committed improvements. Future No-Build Scenario lane geometry and typical design hour volumes were previously provided in **Section Four**.

- **Alternative A**: Turnpike Extension southbound off and northbound on flyover ramps bypassing US 1 and Palm Drive intersection. This bypass flyover provides unconstrained travel to/from US 1 south of Palm Drive intersection for the traffic whose destinations are not within Florida City.
- **Alternative B**: This alternative includes the bypass flyover discussed in **Alternative A** with an additional diversion for the US 1 southbound right-turn traffic to the westbound Palm Drive. A single-lane westbound diversion is provided just south of US 1 / West Davis Parkway intersection, looping around west of the existing southbound off-ramp. The provided diversion becomes a two-lane segment after the loop, to provide a connection for the southbound off-ramp traffic to westbound Palm Drive.

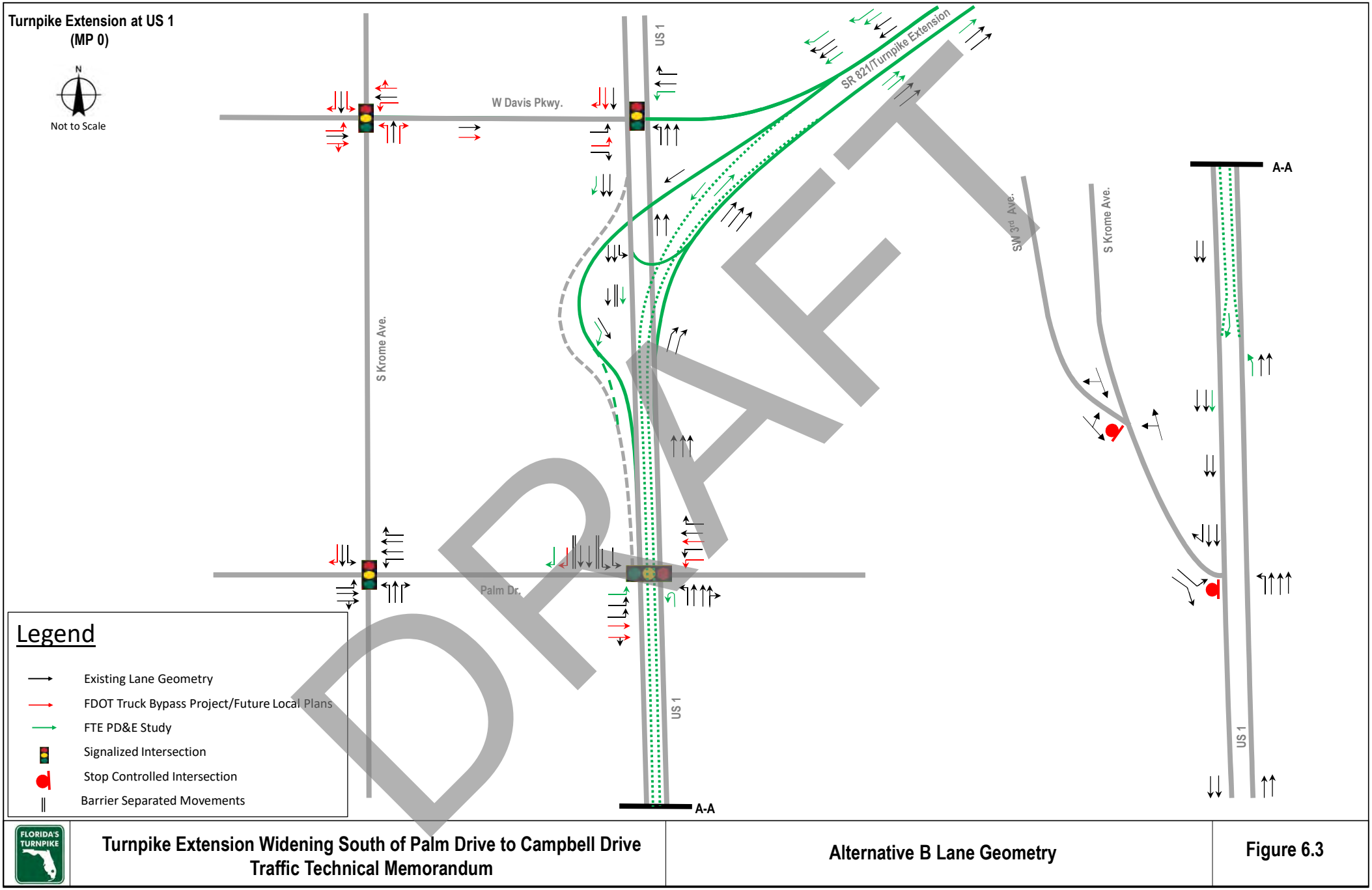
The lane geometries and design volumes for the Alternatives A and B are given on **Figures 6.1** through **6.6**, respectively. The alternatives design concepts are included in **Attachment B**.



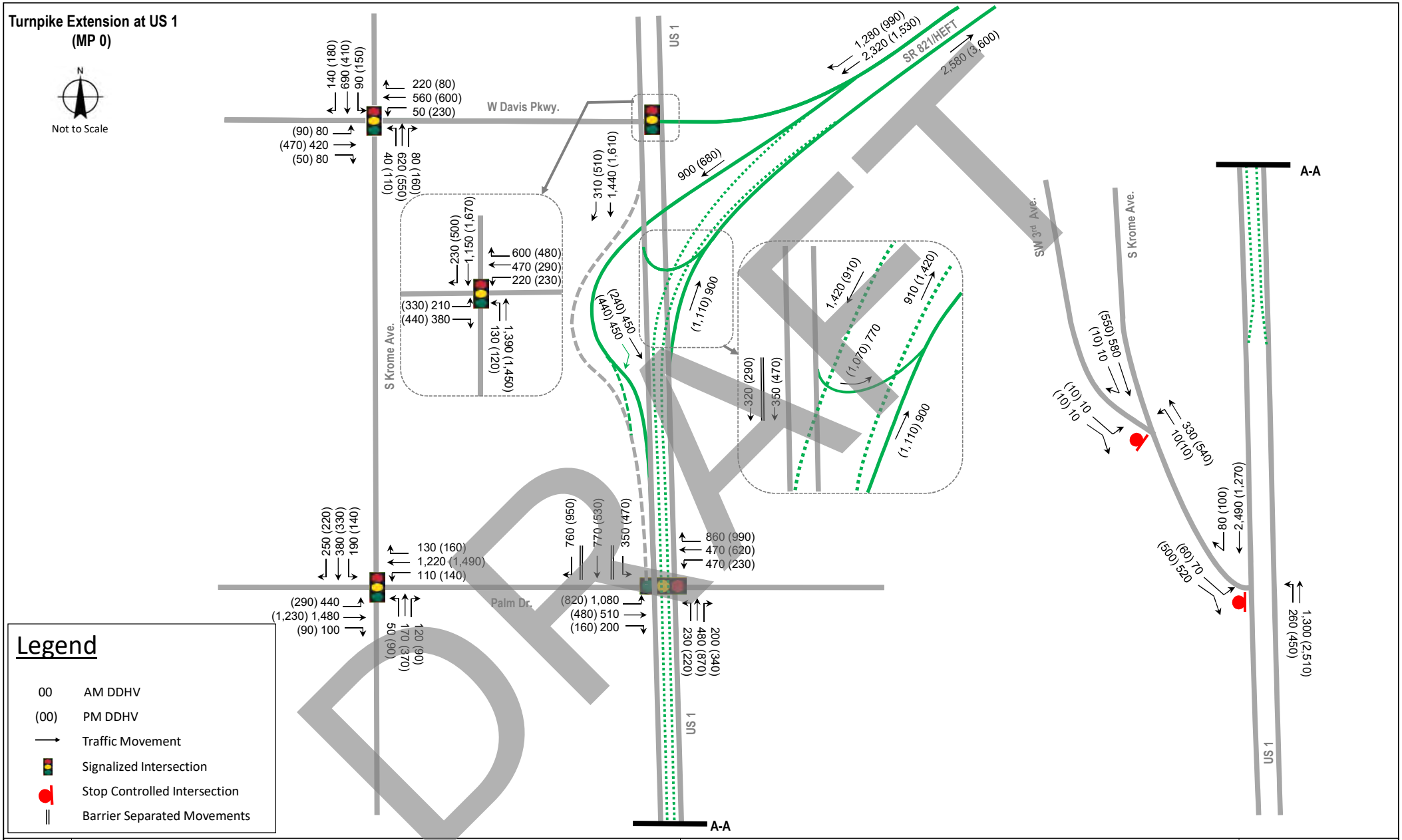
Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative A Lane Geometry	Figure 6.1



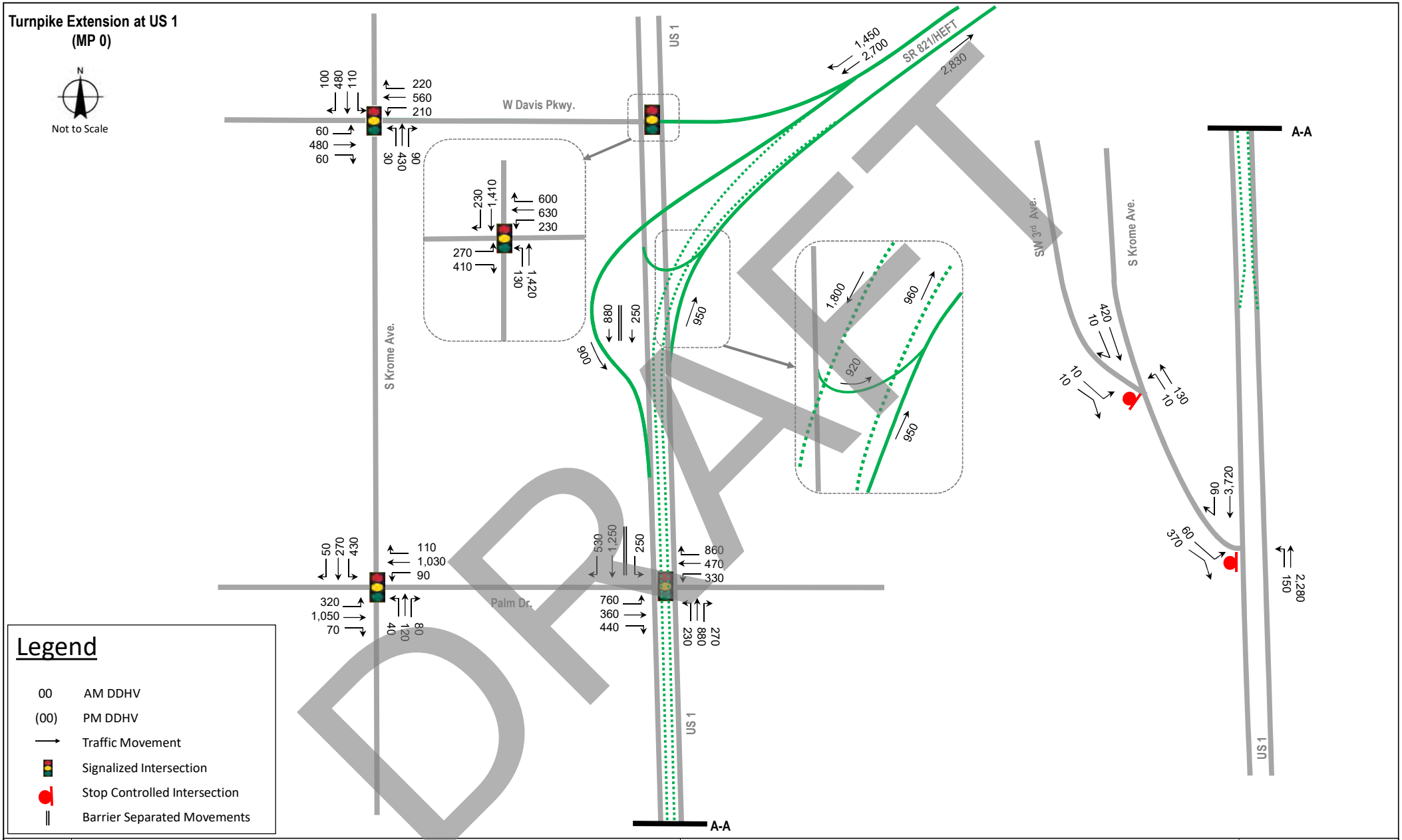
Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative A 2045 DDHVs Typical Scenario	Figure 6.2



Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative B Lane Geometry	Figure 6.3

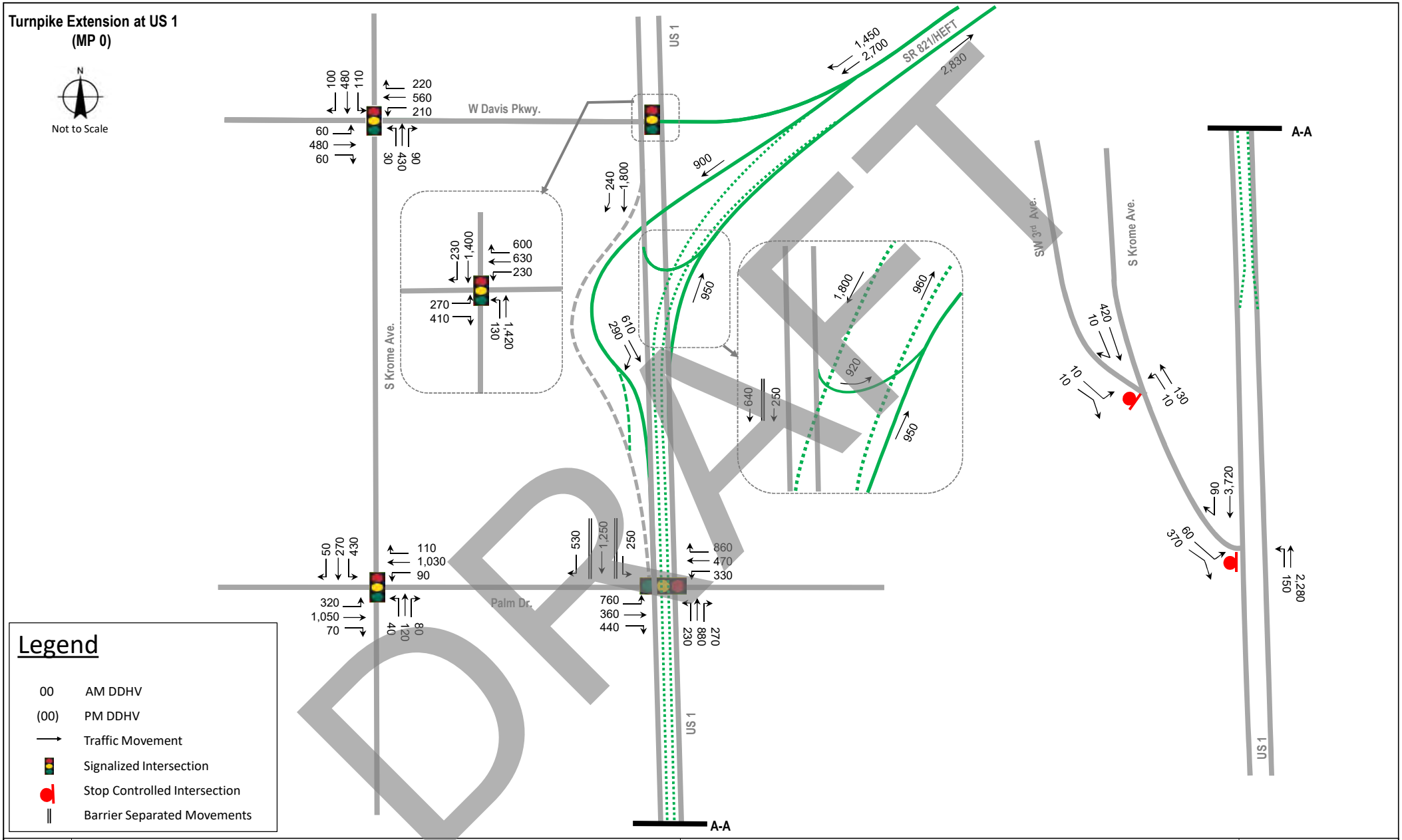


Turnpike Extension Widening South of Palm Drive to Campbell Drive Traffic Technical Memorandum	Alternative B 2045 DDHVs Typical Scenario	Figure 6.4



FLORIDA'S TURNPIKE	**Turnpike Extension Widening South of Palm Drive to Campbell Drive** **Traffic Technical Memorandum**	**Alternative A 2045 DDHVs** **Heavy-Inbound-Keys Scenario**

Figure 6.5



Turnpike Extension Widening South of Palm Drive to Campbell Drive
Traffic Technical Memorandum

Alternative B 2045 DDHVs
Heavy-Inbound-Keys Scenario

Figure 6.6

6.1 FREEWAY SEGMENT ANALYSIS

The freeway segment analyses were performed for the No-Build, Alternative A, and Alternative B using future directional typical AM and PM design hour, and heavy inbound traffic volumes. The results for each year are summarized in **Table 6.1**.

6.2 FREEWAY RAMP MERGE/DIVERGE INFLUENCE AREA ANALYSIS

The ramp merge/diverge influence areas were analyzed for the No-Build, Alternative A, and Alternative B using future directional typical AM and PM design hour, and heavy inbound traffic volumes. Similar to Existing and No-Build conditions, HCS was used to assess level of service at the ramp merge / diverge areas. The 2045 ramp merge/diverge analysis level of service results are shown in **Table 6.2**.

6.3 INTERSECTION ANALYSIS

The No-Build, Alternative A, and Alternative B analyses of the study area intersections were performed for year 2045 using Synchro. The Synchro levels of service and delay (in seconds per vehicle) for the No-Build, Alternative A, and Alternative B design hour and heavy inbound volumes, reflecting Synchro-optimized signal timing / phasing, are summarized in **Table 6.3**.

Synchro and HCS are static analytical tools that lack the capability to capture bottleneck locations in a congested network. In order to capture operational performance at both the intersection and the link level, VISSIM models were developed in addition to Synchro and HCS analysis.

6.4 VISSIM ANALYSIS

A base VISSIM model was developed and calibrated to replicate existing traffic conditions following guidelines in the Florida Department of Transportation (FDOT) *Traffic Analysis Handbook: A Reference for Planning and Operations*. The traffic counts were used to develop demand profiles for input into base VISSIM models. The calibration is achieved by iteratively changing model parameters to replicate the traffic patterns, congestion, bottlenecks, and driver behavior observed within the study area. The VISSIM model parameters used for calibration are categorized as vehicle following (longitudinal vehicle movement) and lane change (lateral vehicle movements). The main vehicle following behavior parameters are look ahead distance, look back distance, number of observed vehicles, and temporary lack of attention. After the base model was calibrated, VISSIM models were developed for the No-Build, Alternative A, and Alternative B using future directional typical AM and PM design hour and heavy inbound traffic volumes.

The VISSIM analysis results for AM, PM, and heavy-inbound design demand volumes are shown in **Tables 6.4** through **6.6**. The tables provide performance measures for the freeway diverge influence area and off-ramps to assess potential queue backups into the mainline. Intersection delays are also provided to compare effectiveness between alternatives. The provided LOS are for interpretation and comparison purposes only and not as substitutes for Synchro or HCS results.

Table 6.1
2045 Scenarios Freeway Segment Analysis Results

Location	Direction	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
North of Campbell Drive (MP 2)	Southbound	**F**	**F**	**F**	D	C	D	D	C	D
	Northbound	**F**	**F**	**F**	C	D	D	C	D	D
North of US 1 (MP 0) to Campbell Drive (MP 2)	Southbound	**F**	D	**F**	C	B	D	C	B	D
	Northbound	D	**F**	**F**	B	C	B	B	C	B

Table 6.2
2045 Scenarios Ramp Merge / Diverge Level of Service Results

Mile Post-Interchange	Ramp	No-Build Scenario			Alternative A			Alternative B		
		Typical		Heavy Inbound	Typical		Heavy Inbound	Typical		Heavy Inbound
		AM	PM		AM	PM		AM	PM	
MP 2 – Campbell Drive	Southbound off-ramp	**F**	**F**	**F**	D	C	D	D	C	D
	Northbound on-ramp	**F**	**F**	**F**	D	C	D	D	C	D
	Southbound on-ramp	**F**	C	**F**	D	C	D	D	C	D
	Northbound off-ramp	D	**F**	**F**	C	D	C	C	D	C
MP 0 – US 1	Southbound off-ramp to north	**F**	C	**F**	A	A	B	A	A	B
	Northbound on-ramp from north	C	**F**	**F**	B	C	B	B	C	B

Table 6.3
2045 Scenarios Intersection Analysis Results

Intersection	No-Build Scenario						Alternative A						Alternative B					
	Typical				Heavy Inbound		Typical				Heavy Inbound		Typical				Heavy Inbound	
	AM		PM				AM		PM				AM		PM			
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
US 1 / NE 7th Street (West Davis Parkway)	**F**	107	**F**	83	**F**	82	B	14	C	22	B	13	B	17	C	23	B	15
US 1 / Palm Drive	**F**	345	**F**	384	**F**	223	D	42	D	47	D	43	D	48	D	49	D	46
Krome Avenue / NE 7th Street (West Davis Parkway)	C	25	C	27	B	17	C	21	C	33	C	21	C	21	C	35	C	22
Krome Avenue / Palm Drive	D	45	E	58	D	48	D	37	D	41	D	37	D	36	D	44	D	37

Table 6.4
2045 Typical AM Design Hour VISSIM Alternatives Analysis Results

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS ALONG GLADES ROAD	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Alternative A**	**Alternative B**
US-1/ Palm Drive	70.3	E	36.5	D	36.8	D	-48%	-48%
Krome Avenue/ Palm Drive	34.0	C	27.0	C	26.0	C	-20%	-24%
HEFT Off-Ramp at Davis Parkway/US-1	23.8	C	15.5	B	15.3	B	-35%	-36%
Krome Avenue/ Davis Parkway	24.7	C	20.8	C	20.8	C	-15%	-16%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1	88	F	13	B	13	B	-85%	-85%
Southbound Off to Palm Drive and US-1	91	F	10	B	10	B	-89%	-89%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	8,341	11	0	32	0	35	183%	215%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	8,341	11	0	37	0	40	244%	268%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	57	0	57	--	--

Table 6.5
2045 Typical PM Design Hour VISSIM Alternatives Analysis Results

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS ALONG GLADES ROAD	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Alternative A**	**Alternative B**
US-1/ Palm Drive	68.8	E	41.4	D	49.1	D	-40%	-29%
Krome Avenue/ Palm Drive	25.1	C	24.0	C	23.0	C	-4%	-8%
HEFT Off-Ramp at Davis Parkway/US-1	43.6	D	40.0	D	38.0	D	-8%	-13%
Krome Avenue/ Davis Parkway	48.0	D	29.4	C	28.0	C	-39%	-42%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1	12	B	11	B	11	B	-6%	-6%
Southbound Off to Palm Drive and US-1	22	C	20	C	18	B	-10%	-19%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	0	36	0	35	0	35	0%	0%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	0	36	0	37	0	40	4%	12%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	58	0	58	--	--

Table 6.6
2045 Heavy-Inbound VISSIM Alternatives Analysis Results

LOCATION/SEGMENT	No-Build Scenario		Alternative A		Alternative B		Improvements	
INTERSECTIONS ALONG GLADES ROAD	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Delay [sec/veh]**	**LOS**	**Alternative A**	**Alternative B**
US-1/ Palm Drive	73.4	E	36.2	D	36.0	D	-51%	-51%
Krome Avenue/ Palm Drive	34.6	C	22.5	C	21.0	C	-35%	-39%
HEFT Off-Ramp at Davis Parkway/US-1	72.9	E	55.0	D	49.2	D	-25%	-33%
Krome Avenue/ Davis Parkway	39.8	D	29.3	C	20.8	C	-26%	-48%
FREEWAY-OFF RAMP DIVERGE INFLUENCE AREA	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Density [veh/mi/ln]**	**LOS**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1	138	F	14	B	13	B	-90%	-90%
Southbound Off to Palm Drive and US-1	102	F	12	B	12	B	-89%	-88%
OFF RAMP PERFORMANCE	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Max. Queue [ft]****	**Average Speed [mph]**	**Alternative A**	**Alternative B**
Southbound Off to Davis Parkway and US-1 (Operating Speed = 35 mph)	10,613	3	973	25	0	35	606%	918%
Southbound Off to Palm Drive and US-1 via Existing Ramp (Operating Speed = 40 mph)	10,613	9	0	27	0	40	217%	370%
Southbound Off to US-1 via Direct Connect (Operating Speed = 45 mph)	--	--	0	56	0	53	--	--

To be finalized prior to Public Hearing.

ATTACHMENT A

Model Calibration, Validation and Future Year Trip Table Development Report

Turnpike Extension – US 1 to Campbell Drive PD&E
Project Traffic and Alternative Analysis Support
[FPN 437206-1]
Miami-Dade County

Contents

1. Background and Purpose

The Homestead Extension of Florida's Turnpike (SR-821) southern point begins at US 1 and runs along a north/south alignment through Miami-Dade County to approximately the Miami-Dade/Broward County line where the alignment shifts to east/west and connects to Florida's Turnpike. Programmed projects are currently underway to provide 60 % more capacity on the Turnpike Extension north of Campbell Drive to the Turnpike. The Turnpike Extension within the project is the only portion not being widened with express lanes. Improvements to the terminus have been studied several times in the last decade. Previous studies over the past decade had determined that no additional widening is needed south of the Campbell Drive Interchange given the limited capacity of the southern connection configuration, the remote location within the urban development boundary and limited development potential in The Florida Keys.

The capacity of Turnpike Extension's southern terminus on US 1 is constrained by the reduction of number of lanes and the signalized intersection at US 1. Therefore, the SB exit ramps have queue backup problems during holidays and weekends with heavy traffic traveling to Keys and on Fridays afternoon when the increase in Key travels overlaps with regular PM commuter traffic. There were 90 incidents of queuing observed to date in 2015, 43 in 2014 and 32 in 2013. Only 19% of the queue incidents in 2015 occurred during typical peak hours. The northbound Turnpike Extension is a critical element for evacuation planning and implementation. US 1/Turnpike Extension can be a choke point for the evacuation route for the Florida Keys during a major hurricane event such as a Category 3, 4, or 5 storms, if not planned adequately. This effort will estimate future traffic demand and evaluate capacity and operational improvement alternatives for the southern 2-mile segment.

2. Current Model Estimates

The latest official model, SERPM version 7.071 from FDOT District 4, was used along with 2010, 2040 seed skims and add-on PopSyn-III module. The initial highway network and socio-demographic data are acquired from District 4, which include roadway edits made for the use of the transit projects studies in the region. A 2015 scenario was run with the acquired network and interpolated socio-demographic data to assess the current traffic estimates in the study area. Overall, the model performed reasonably well replicating the daily traffic (ADT) within the acceptable range. Figure 1 shows the intersection and ramp count locations within the study area, and Table 1 shows 2015 average weekday observed counts and model estimates.

Figure 1 Location Map

Table 1 Observed 2015 Counts versus Initial Model Estimates

Location	SERPM 7 (2015) SB	NB	AAWDT	TEAR (2016)	2015 Counts SB	NB	AAWDT
Turnpike Extension (mainline)	16,042	16,577	32,619	39,800	28,000	11,800	39,80
M1C (ramp)	3,982		3,982				
M1B (ramp)		3,058	3,058				
M1D (ramp)	12,060		12,060				
M1A (ramp)		13,519	13,519				
A	9623	9623	19,246				
B	8224	8267	16,491				24,50
C	10686	10390	21,076				30,00
D	714	389	1,103				2,80
E	9309	9333	18,642				

Table 2 Model Validation at Subarea Level

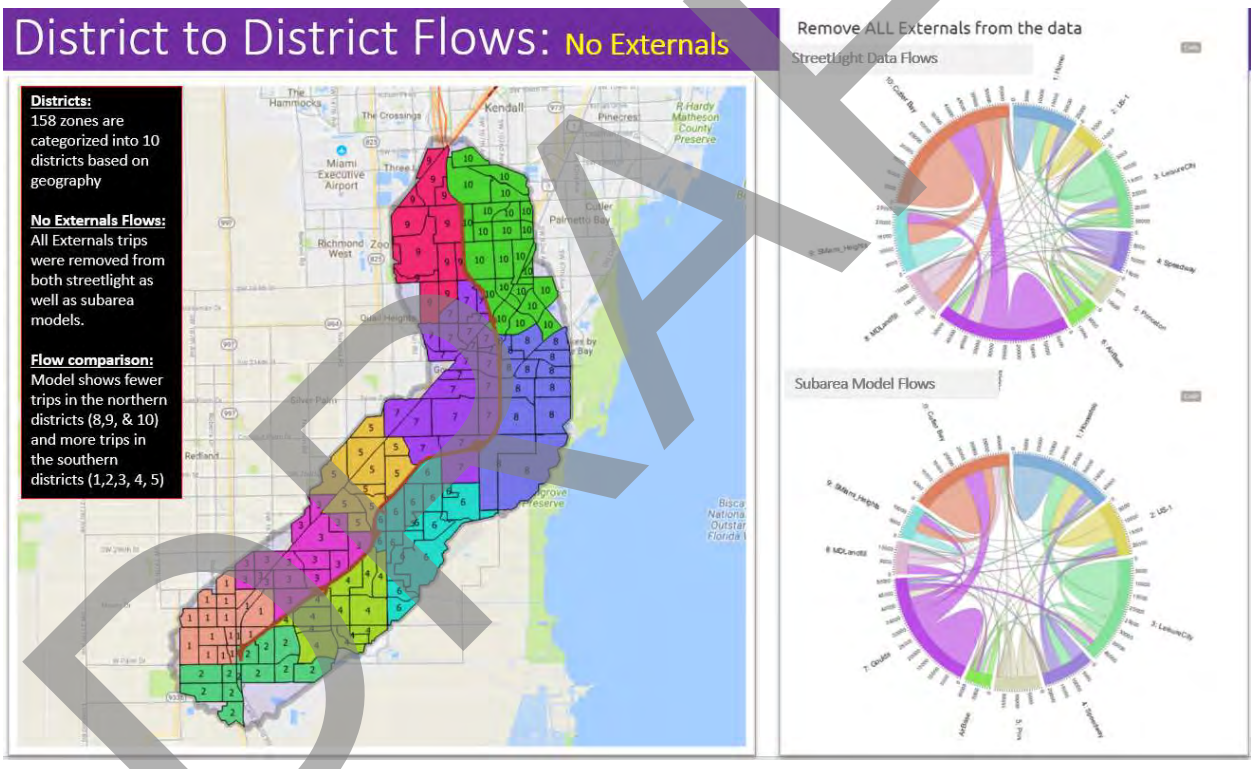
	volBin	Links	Obs.Count	Model.Est	Target	PRMSE	R.Squared
1	1 - 5,000	14	34998	18831	45% - 55%	94.63%	0.868
2	10,000 - 20,000	17	269326	184545	27% - 35%	48.85%	0.5468
3	20,000 - 30,000	4	97284	84744	24% - 27%	16.22%	0.853
4	30,000 - 40,000	2	65642	50796	22% - 24%	29.34%	1
5	40,000 - 50,000	2	94400	80824	20% - 22%	16.84%	1
6	5,000 - 10,000	13	92252	59608	35% - 45%	64.87%	0.2662
7	All	52	653902	479348	32% - 39%	44.29%	0.9666

3. Modeling Approach

3.1. Model Input

The overall SERPM model performance at the daily level looks reasonable. The subarea, which is defined as a 2-Mile buffer along the southern Turnpike Extension corridor consists of 158 zones. These zones are grouped into ten districts for comparison purposes since it's hard to visualize flows to/from 158 OD pairs. Figure 2 shows the comparison of the model estimates to observed daily flows where the OD flows were compared in districts. All external flows were removed from both the observed and model estimates the OD flows to/from the subarea zones are compared and analyzed. A detailed review shows fewer modeled trips in the northern districts (8,9, & 10) and higher than observed trips in the southern districts (1,2,3, 4, 5). While this is only a slight skew of the trip table and is acceptable in a regional model, it might pose inaccuracies in project forecasts. Thus, the model trips tables were corrected through the ODME process.

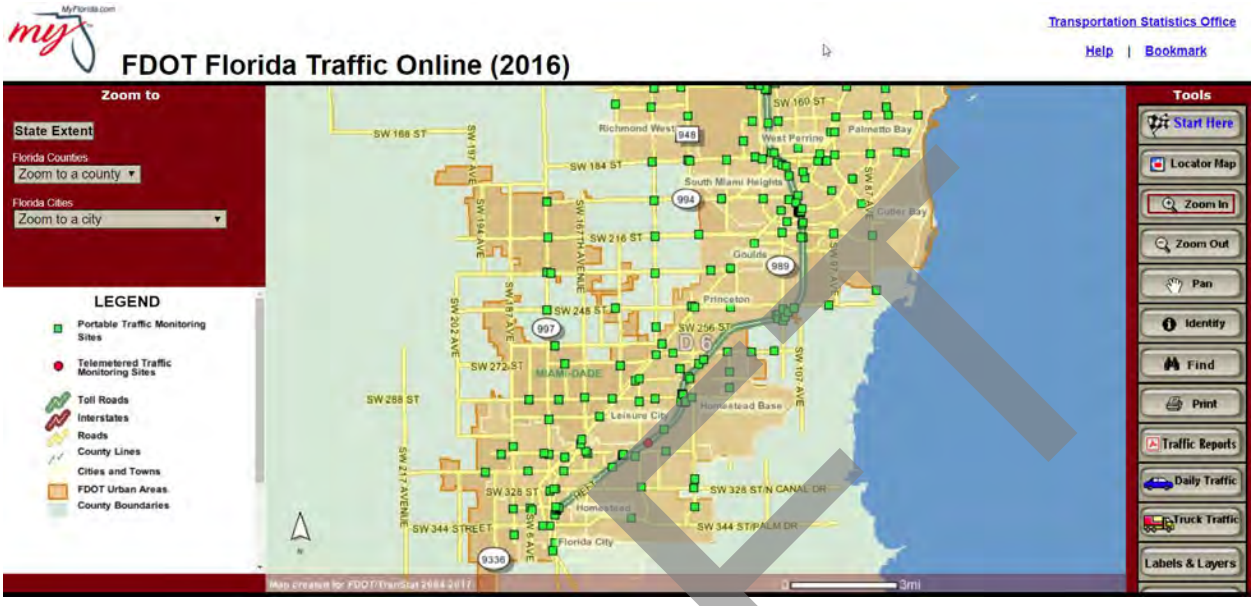
Figure 2 Subarea OD Flow Comparison to Observed Flows



Three model inputs were reviewed and updated:

1. *Networks and Counts:* Both 2015 and 2040 extracted highway networks were reviewed for accuracy of Turnpike Extension corridor and ramps coding at major interchanges. A set of 2015 counts for the subarea, shown in Figure 3**Error! Reference source not found.**, were collected and appended to the network.

Figure 3 Subarea Traffic Count Locations



2. *Socio-Demographics*: The current land use in the study area was reviewed and updates to population, households, and employment inputs at TAZ and MAZ data were completed. With the revised socio-demographic data, a new set of synthetic household and person data was generated through the PopSyn-III application.

3. *Subarea and ODME*: A 2015 scenario was developed from the updated count network and revised synthetic population. A subarea covering the study area was extracted to perform Origin-Destination Matrix Estimation (ODME). Using extracted subarea as seed matrix and observed 2015 counts by time periods as targets, a set of OD distributions by time period were estimated through CUBE ODME process. A set of adjustment factors were developed from the estimated trip tables and the original extracted subarea seed trip tables by time of day.

3.2. Model Add-On Features

To better estimate the traffic backups on the southern terminus of Turnpike Extension during weekends and Friday evenings from PM commuter flows overlapping with holiday traffic traveling to the Keys on the southbound direction, a few add-on features were explored. Table 3 shows the list of add-on features and along with their limitations.

The scoped approach, ODME and Subarea Analysis, is ideal for typical weekday peak hour and peak period traffic estimates due to reliance weekday distribution from the regional model and calibration to match observed traffic counts at targeted locations within the study area. However, one limitation is extending to weekends as the regional model lacks this distribution. To overcome this limitation, a second approach: observed weekend traffic flows can be acquired to develop a weekend OD distribution to use as a

supplemental seed to the above approach. Although the second approach overcomes the weekend limitation, it is hard to forecast the future weekend traffic flows due to lack of weekend demand in the regional model.

A third approach is to expand the weekend, and weekday OD flows for the subarea to match to the traffic at the external stations. The total traffic at the external stations can be apportioned by day, time period, and trip purpose. This approach estimates weekend future year growth as a function of overall weekday traffic growth at the external stations. Although this approach overcomes the future year forecasts, it still lacks the predictive capability to changes in land use activities outside the study area. A fourth approach is to model external geography as a visitor model to capture all weekend travel to and from the study area. The time and effort required to develop a visitor add-on model is well outside the scope of the project and cost-benefit of this approach is too high.

After a detailed review of pros and cons along with add-on features versus limitations of each approach, it is decided to proceed with an approach that can be implemented within a reasonable time and address the missing weekend component. While all options except the first one can address the weekend issue, only option #2 can be implemented in a reasonable time frame. For this reason, option 2, Mobile Phone OD Data for weekend subarea model expansion was chosen. The ODME approach, however, was relaxed as the model lacks weekend demand to apply ODME factors for future years.

Table 3 List of Add-On Features

	Add-On Feature	Description	Limitations
1	ODME & Subarea Analysis	Estimate traffic ODs based on 2015 traffic count data and SERPM v7 model (average weekday distribution). Independent of geographic characteristics and constraints (land use) Develop ODME adjustment factors to use with SERPM v7 future year scenario. A common practice for peak hour or period traffic estimates.	Doesn't address the problem statement (no weekend/holiday traffic). Difficult to forecast future years
2	Mobile Phone OD Data (Bluetooth / AirSage / StreetLight):	OD patterns for the weekend can be acquired via mobile phone data (Bluetooth, StreetLight, and AirSage). ODME can be extended with acquired weekend seed and traffic counts.	Difficult to forecast future years
3	Enhance External-model	Use OD data to identify travel patterns to/ from external stations into Miami-Dade County. Enables to implement route choice for all external travel (given the destinations). The generation rates can be developed to relate trip ends to demographics of Key-West to forecast future years efficiently instead of using a forecasted external station count. Further trip types can be identified from the external station to better model visitor, resident, weekday, and weekend traffic.	Trip types were limited to external stations and not socio-demographics (land use)
4	Simplified Visitor Model	A simple visitor model can be developed to account for traffic flows between Miami-Dade and Key-West. Visitor model relies on hotel occupancy and destination activities to estimate: Short-term and long-term traffic, Pleasure and business trip purpose types, Dependent on socio-demographic characteristics of the region	Time and Budget

3.3. Model OD Trip Tables

The project traffic was developed for 2045 forecast years. The official SERPM model consists of only two scenarios 2010 and 2040, which are not the project forecast years. Additionally, by design, the regional model produces average weekday traffic, and for all project alternative evaluations, both weekday and weekend traffic estimates are required. SERPM model was used to get initial trip tables to estimate average weekday traffic and mobile data shall be used to get weekend trip tables for 2015.

The socio-demographic data for 2015 was interpolated between 2010 and 2040 and further reviewed to match to the current conditions. Figure 4 and Figure 5 show updated zones in subarea with household and population respectively, and Figure 6 show percent frequency distribution of zones by the magnitude of change in households and persons. Similarly, 2045 land use projections within a 2-mile buffer along the Turnpike Extension corridor, south of Coral Reef Drive was reviewed for planned major developments, including DRIs in the study area. The SERPM regional model was run for these two years, 2015 and 2045, and respective subarea OD matrices were extracted.

Figure 4 Updated Households in Subarea

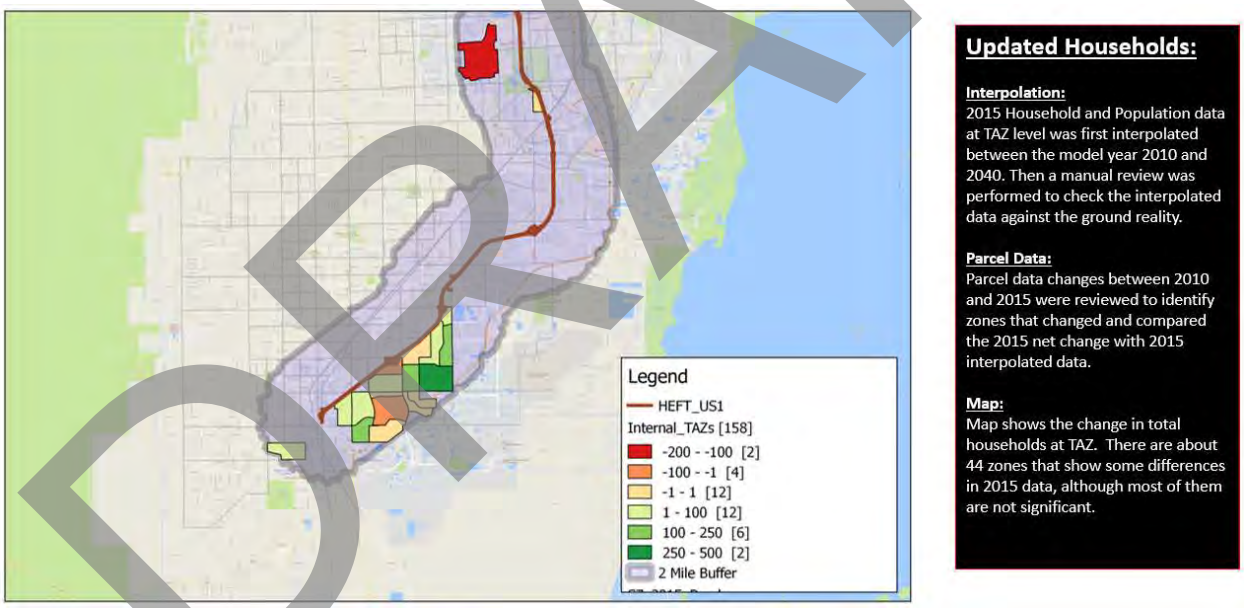
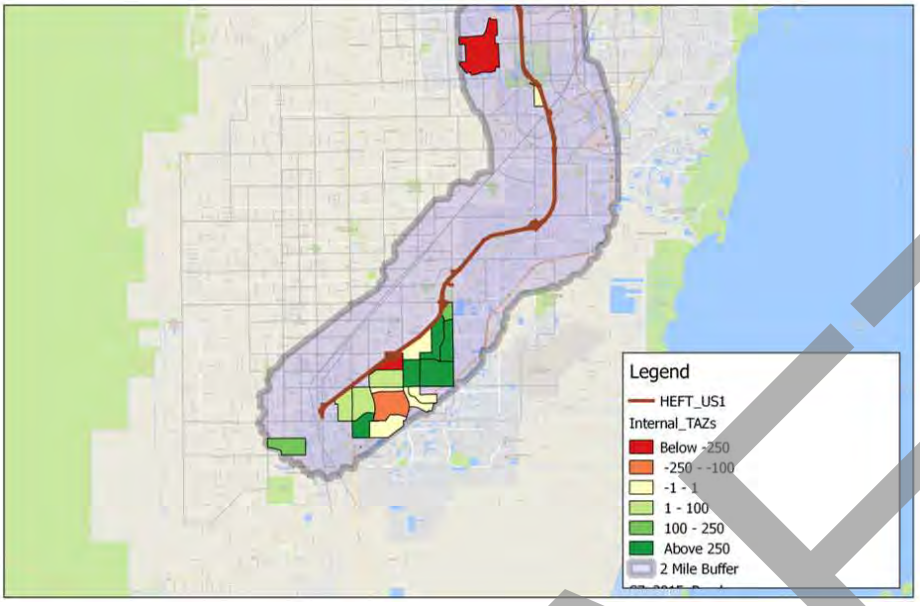


Figure 5 Updated Population in Subarea



Updated Population:

Interpolation:
2015 Household and Population data at TAZ level was first interpolated between the model year 2010 and 2040. Then a manual review was performed to check the interpolated data against the ground reality.

Parcel Data:
Parcel data changes between 2010 and 2015 were reviewed to identify zones that changed and compared the 2015 net change with 2015 interpolated data.

Map:
Map shows the change in total persons at TAZ. There are about 44 zones that show some differences in 2015 data, although most of them are not significant.

Figure 6 Distribution of Households and Population by Number of Zones

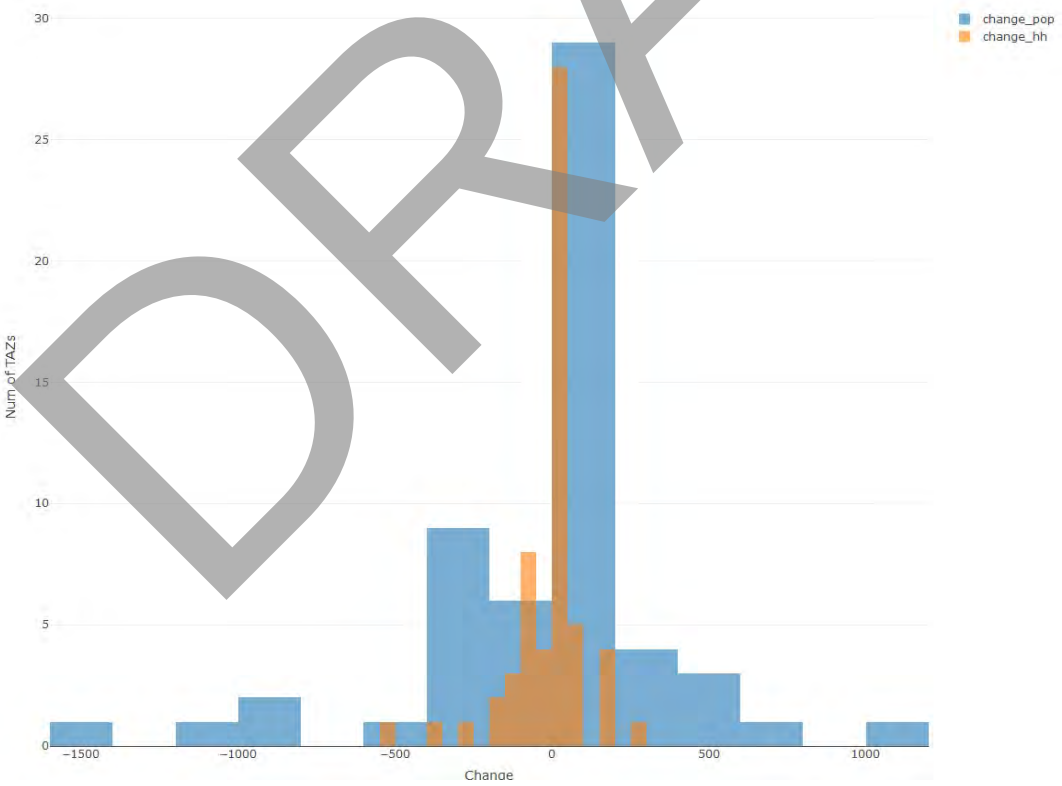


Figure 7 shows the location of traffic counts on southern Turnpike Extension, and Figure 8 shows sample count data by average weekday and weekend. With 2015 extracted trip table as seed and 2015 counts as targets, 2015 OD table was estimated through the ODME process. The weekday adjustment factors were developed from the extracted and estimated trip tables by time period. The 2015 factors used in developing 2045 trip tables to account for ODME based adjustments.

Figure 7 Turnpike Extension Traffic Count Locations

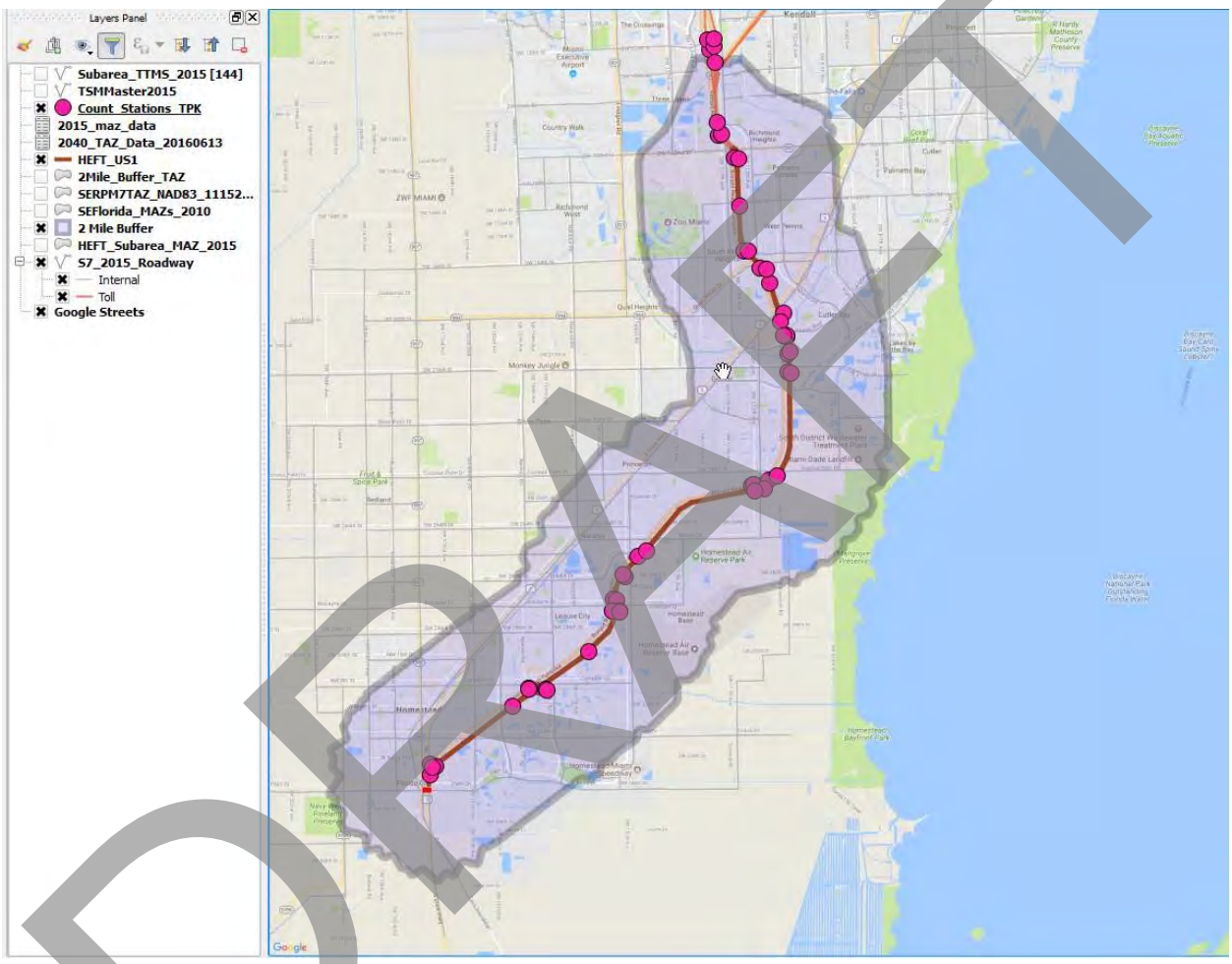


Figure 8 Turnpike Extension Traffic Counts by Average Weekday and Weekend

PLAZA	HOUR	AVG_TRAFFIC_COUNT	WEEKDAY_WEEKEND
006220	00	133.50	WEEKDAY
006220	00	272.36	WEEKEND
006220	01	86.26	WEEKDAY
006220	01	196.78	WEEKEND
006220	02	61.29	WEEKDAY
006220	02	124.98	WEEKEND

4. Model Validation

The regional model produced reasonable daily estimates for the study area. However, it did not perform well by time of day, particularly with the peak periods. Additionally, it also displayed a distorted OD flow distribution between the northern and southern ends of the study area.

Figure 9 and Figure 10 show before and after ODME validation for the AM period where the overall fitness (R-Square) of the curve improves with ODME as the procedure tries to match the counts while preserving the OD distributions from the seed. Table 4 and Table 5 shows the AM period before and after ODME model estimates and statistics by facility types where it shows the initial model underperformed on ramps, which were fixed with the ODME approach. Similarly, Figure 11 and Figure 12 show PM period before and after ODME validation plots, and Table 6 and Table 7 show the PM validation metrics by facility types.

Figure 9 Subarea Validation before ODME - AM

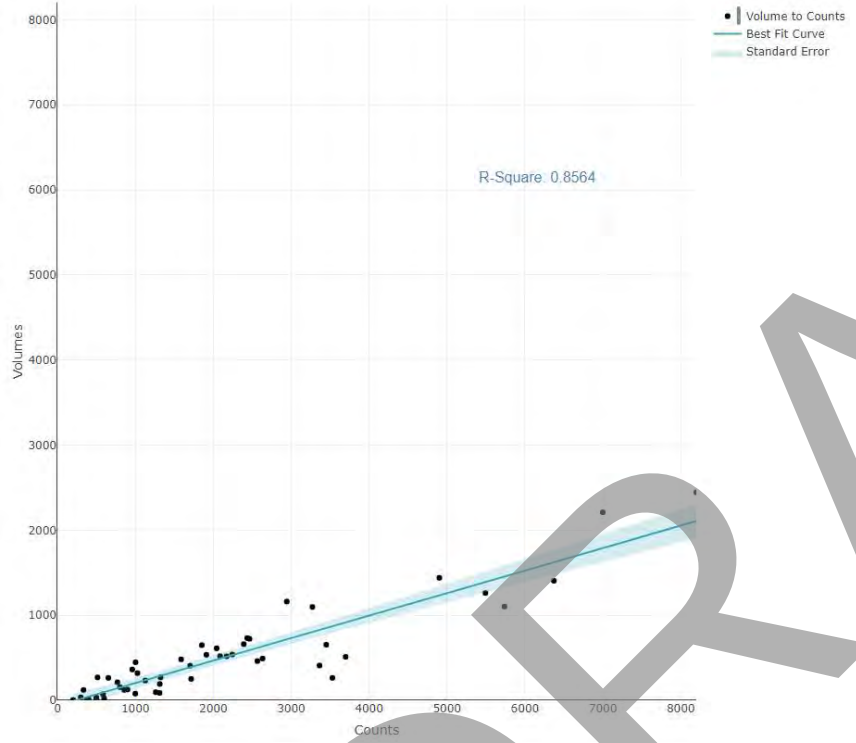


Figure 10 Subarea Validation after ODME - AM

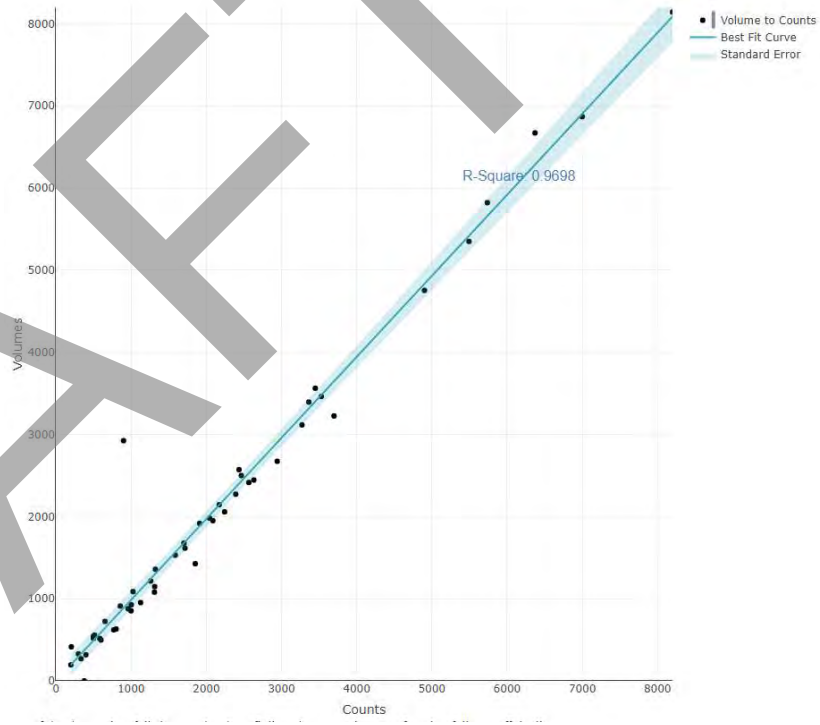


Table 4 Subarea Validation by Facility Types before ODME - AM

Subarea - Before ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	2224.58	2379	14799	6	561.05%	0.0003
2	Collectors	1119.04	1077	4890	4	415.61%	0.9628
3	HEFT	3502.76	8945	33382	8	313.27%	0.962
4	Ramps	1654.04	12702	54042	34	442.74%	0.7951

Table 5 Subarea Validation by Facility Types after ODME - AM

Subarea - After ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	113.7	14393	14799	6	4.74%	0.9872
2	Collectors	117.01	4972	4890	4	9.41%	0.983
3	HEFT	725.52	35022	33382	8	16.57%	0.9298
4	Ramps	174.09	51134	54042	34	11.58%	0.9893

Figure 11 Subarea Validation before ODME - PM

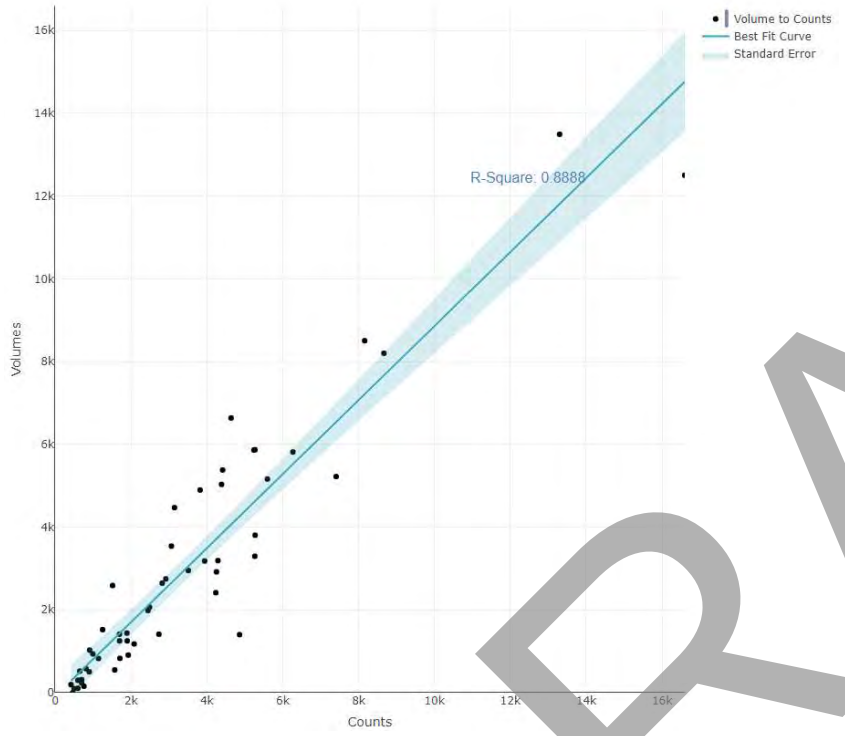


Figure 12 Subarea Validation after ODME - PM

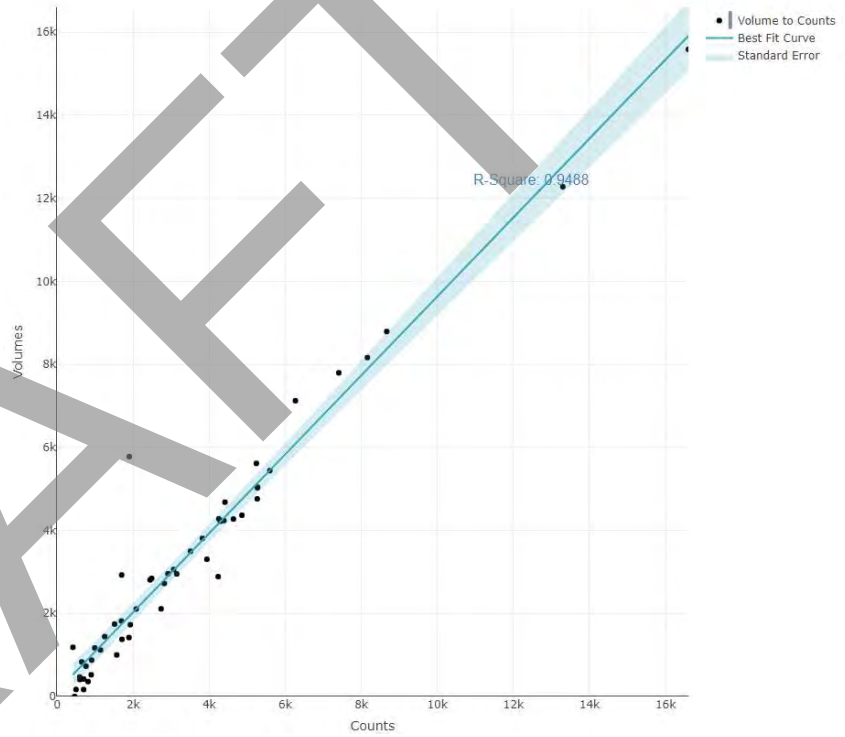


Table 6 Subarea Validation by Facility Types before ODME - PM

Subarea - Before ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	1211.75	23895	27318	6	30.43%	0.0375
2	Collectors	435.91	5950	7514	4	29.30%	0.9787
3	HEFT	1544.84	56450	59990	8	21.89%	0.9215
4	Ramps	1056.25	67069	81644	34	53.55%	0.7418

Table 7 Subarea Validation by Facility Types after ODME - PM

Subarea - After ODME

	FTG	RMSE	Model.Est	Obs.Count	Links	PRMSE	R.Squared
1	Arterials	237.68	26329	27318	6	5.42%	0.9763
2	Collectors	385.95	8135	7514	4	18.98%	0.9419
3	HEFT	1534.46	63816	59990	8	19.24%	0.9471
4	Ramps	427.79	76110	81644	34	19.11%	0.9576

ATTACHMENT B

Alternatives Design Concepts

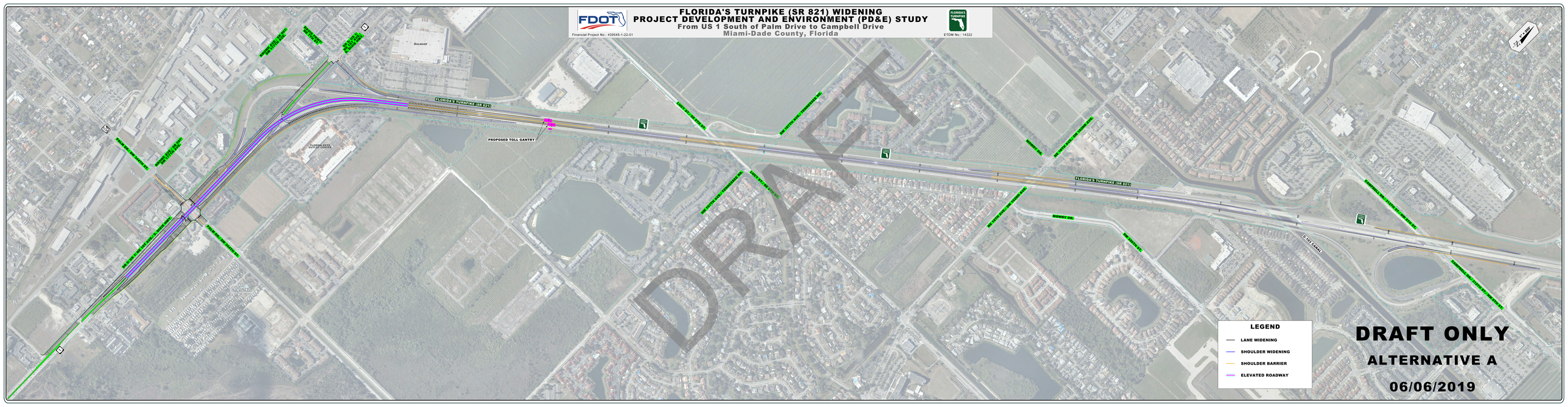
FLORIDA'S TURNPIKE (SR 821) WIDENING
PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY

From US 1 South of Palm Drive to Campbell Drive

Miami-Dade County, Florida

Financial Project No.: 439545-1-22-01

ETDM No.: 14322



DRAFT ONLY

ALTERNATIVE A

06/06/2019

FLORIDA'S TURNPIKE (SR 821) WIDENING
PROJECT DEVELOPMENT AND ENVIRONMENT (PD&E) STUDY

From US 1 South of Palm Drive to Campbell Drive

Miami-Dade County, Florida

Financial Project No.: 439545-1-22-01

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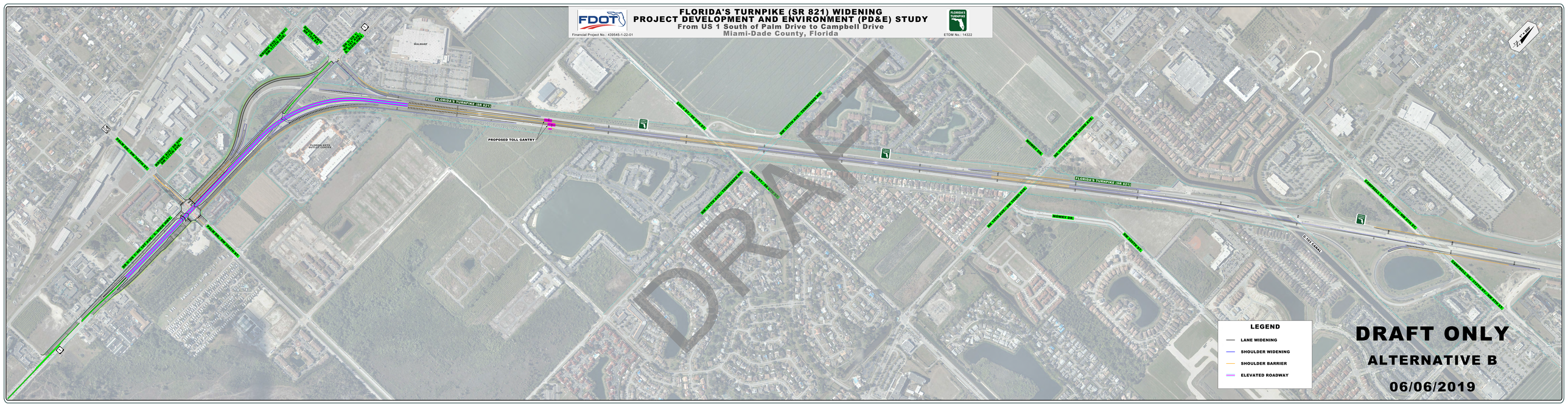


LEGEND

- LANE WIDENING
- SHOULDER WIDENING
- SHOULDER BARRIER
- ELEVATED ROADWAY

DRAFT ONLY

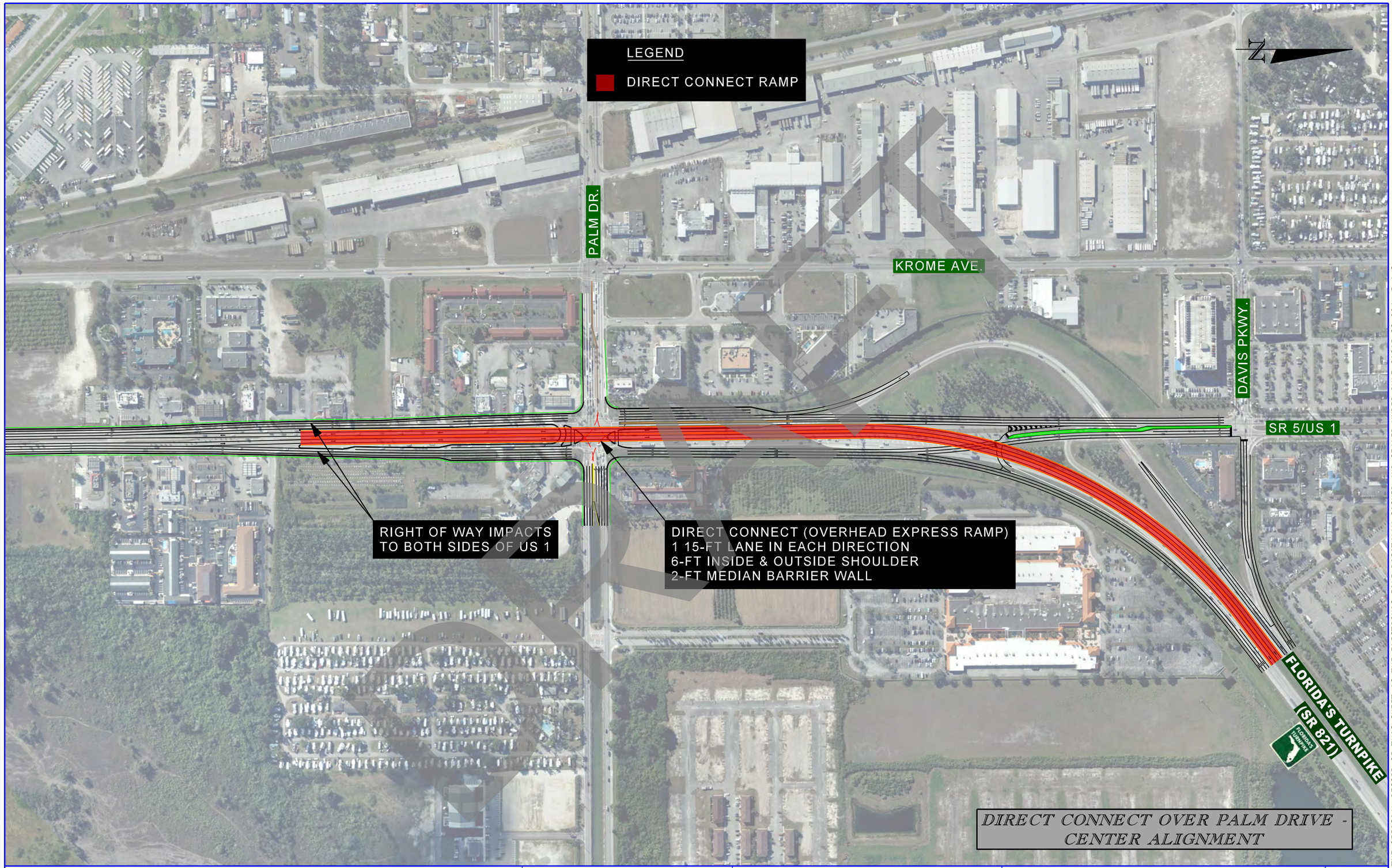
ALTERNATIVE B

06/06/2019

Florida's Turnpike Enterprise
Turnpike Milepost 263
Building 5315
Ocoee, Florida 34761

APPENDIX C

Refined Alternatives



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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

ALTERNATIVE A.1

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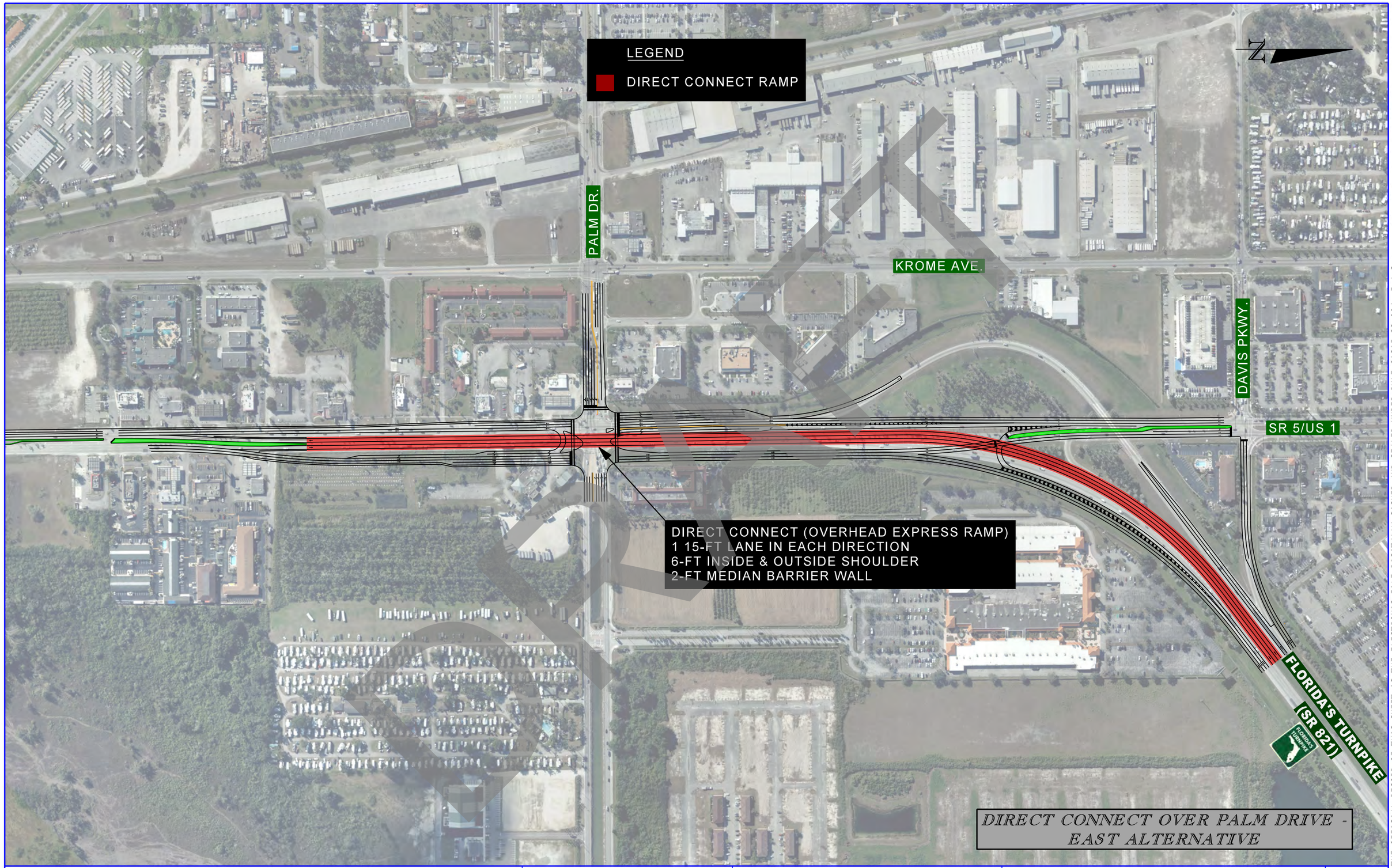

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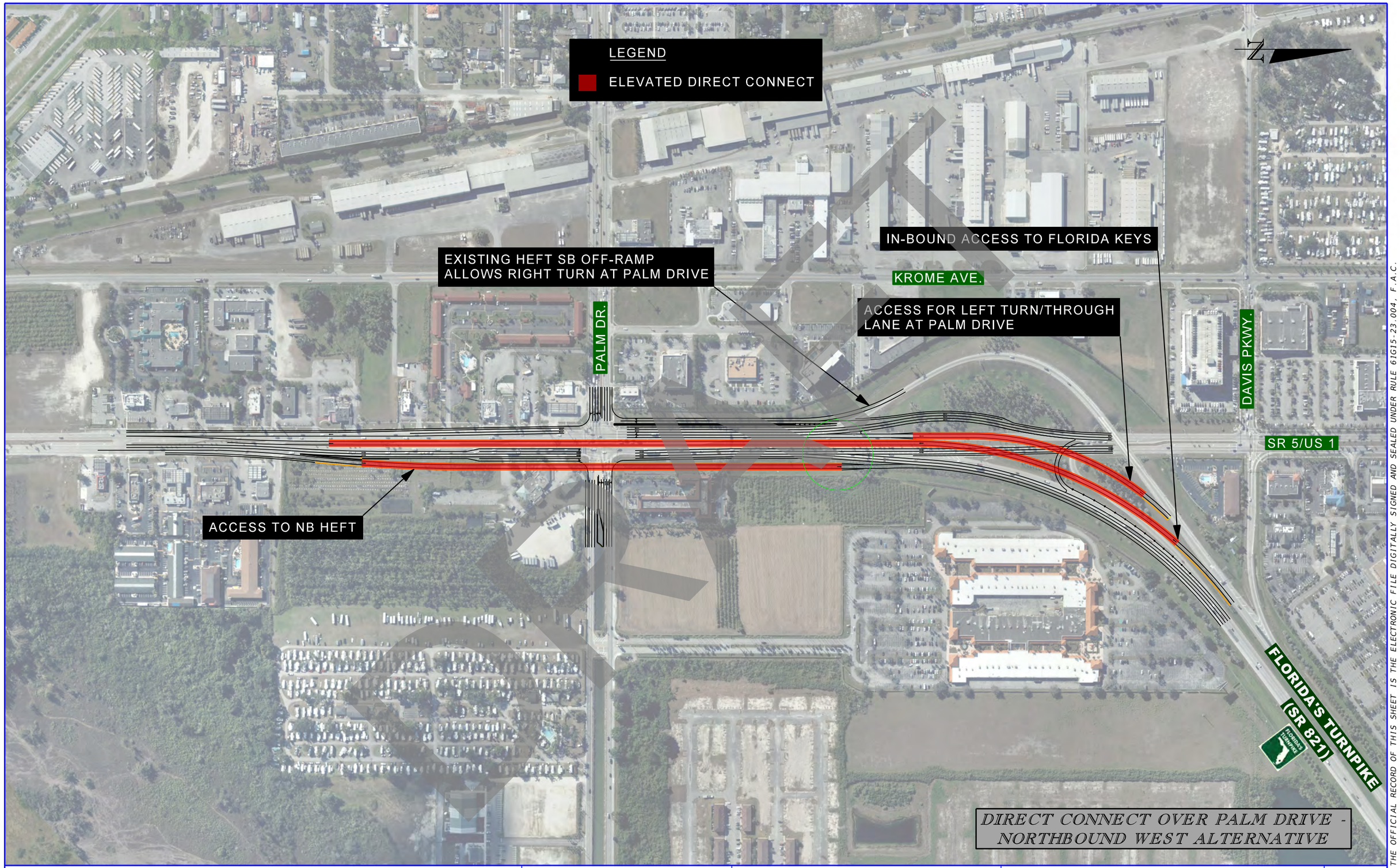

DIRECT CONNECT OVER PALM DRIVE - NORTHBOUND WEST ALTERNATIVE

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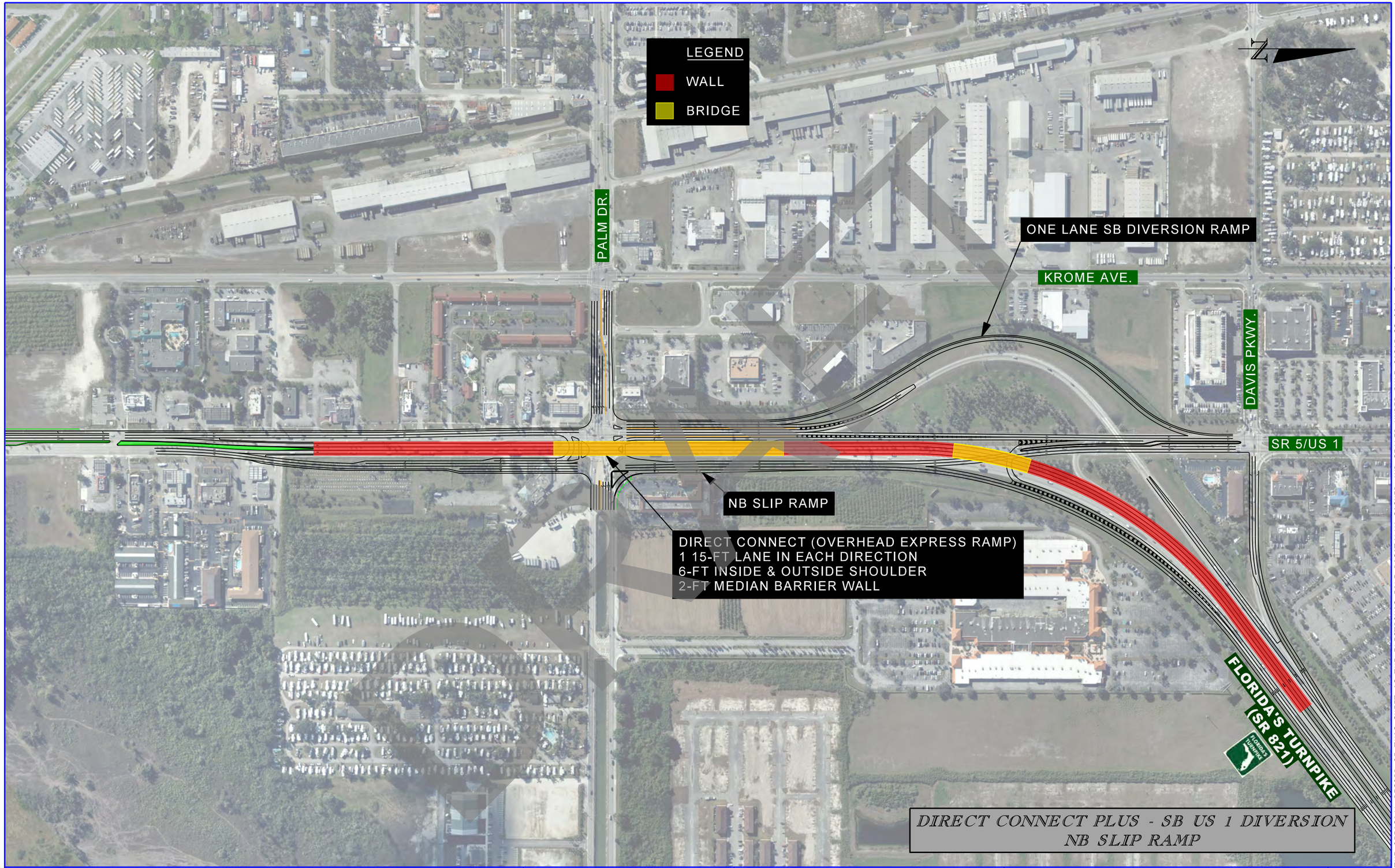

DIRECT CONNECT PLUS - SB US 1 DIVERSION
NB SLIP RAMP

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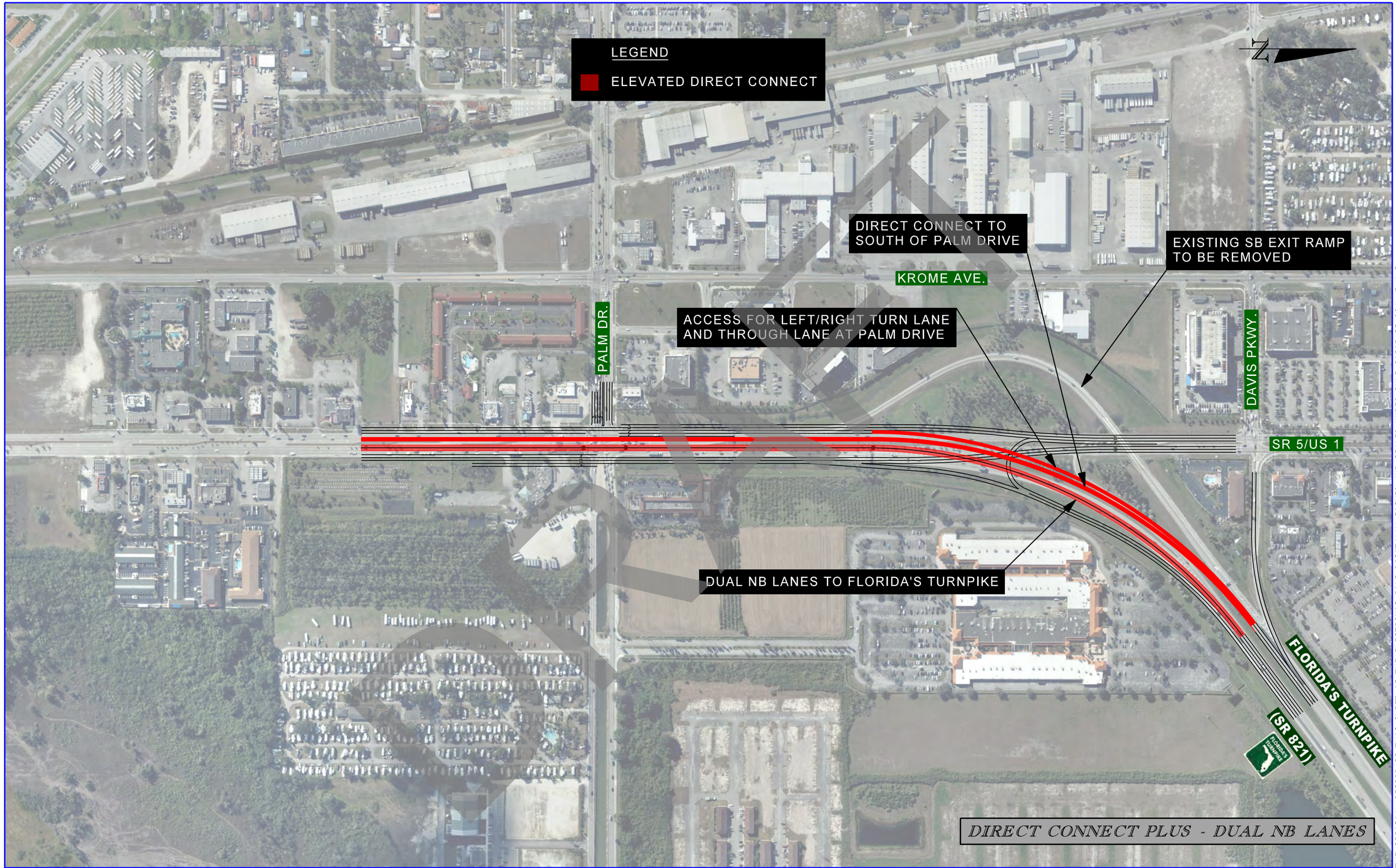

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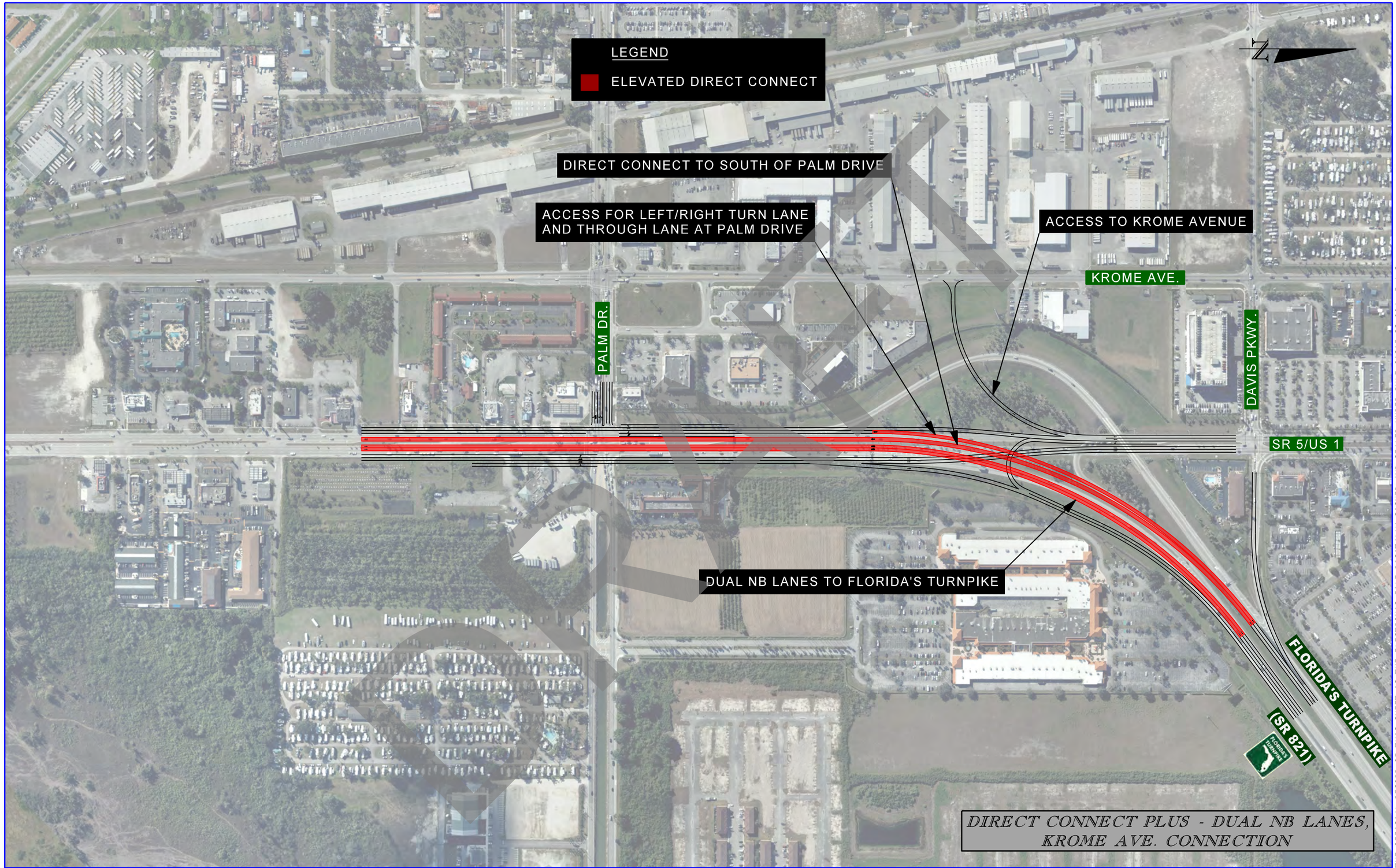

DIRECT CONNECT PLUS - DUAL NB LANES, KROME AVE. CONNECTION

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ALTERNATIVE B.3

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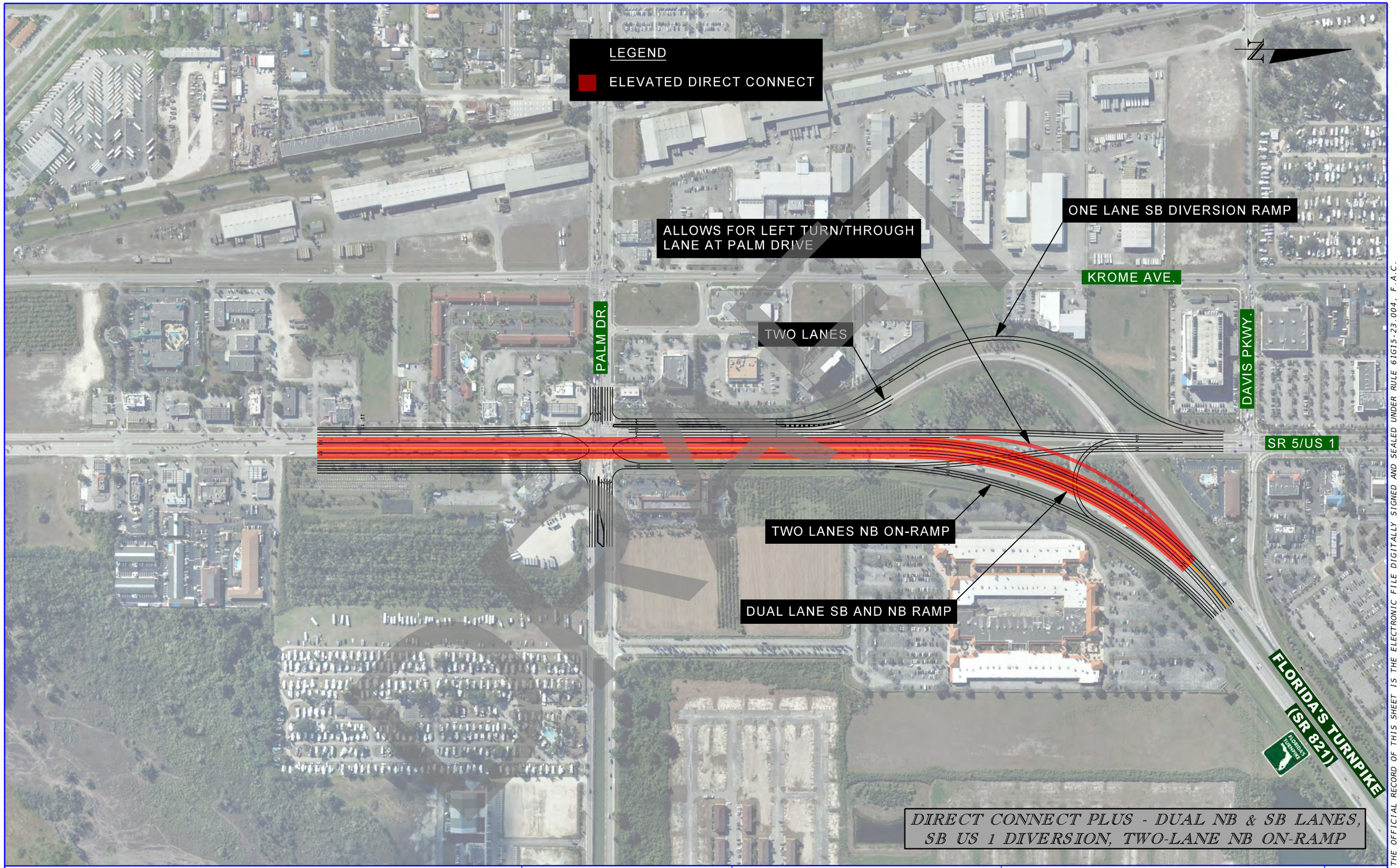

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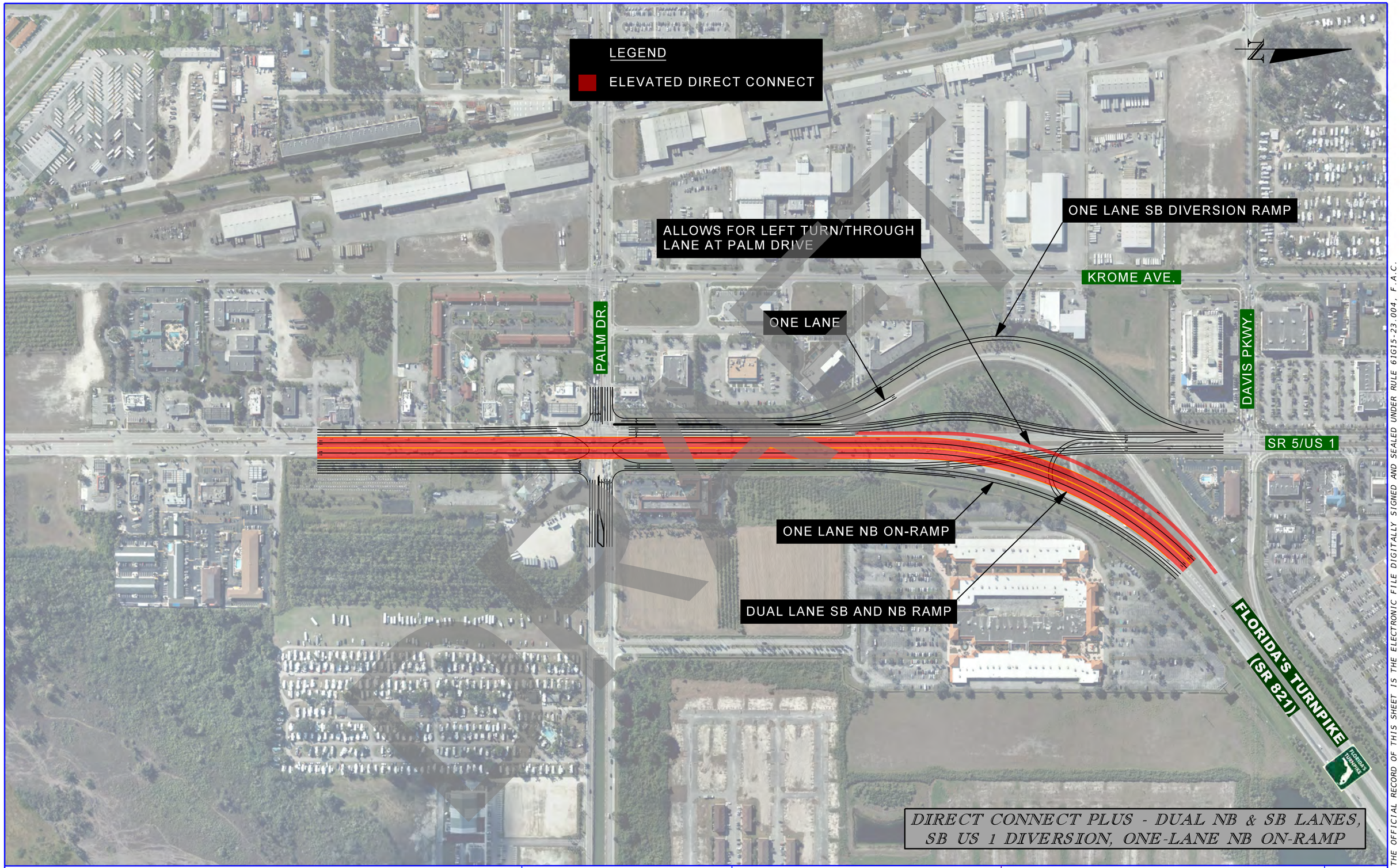

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ALTERNATIVE B.5

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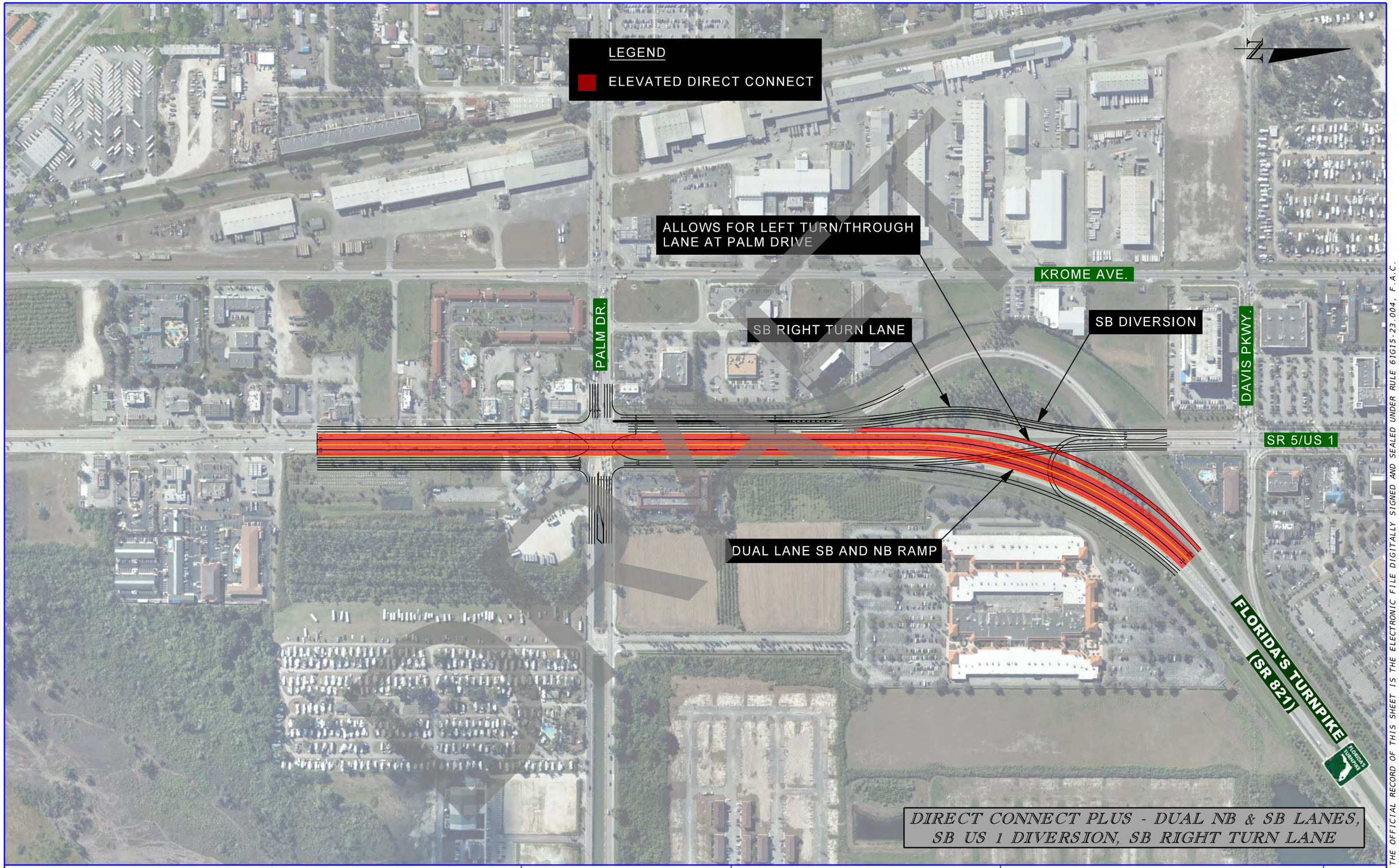

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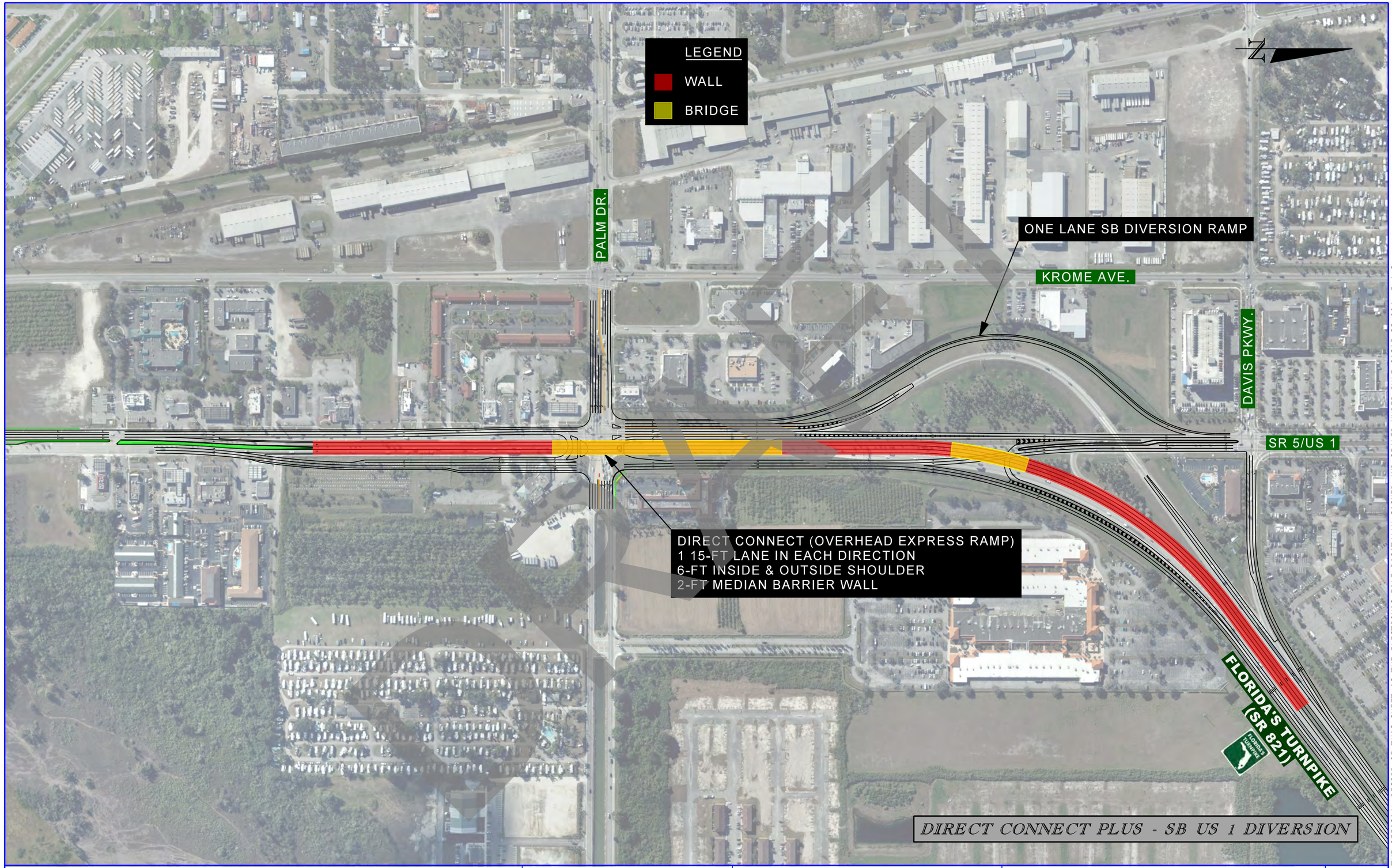

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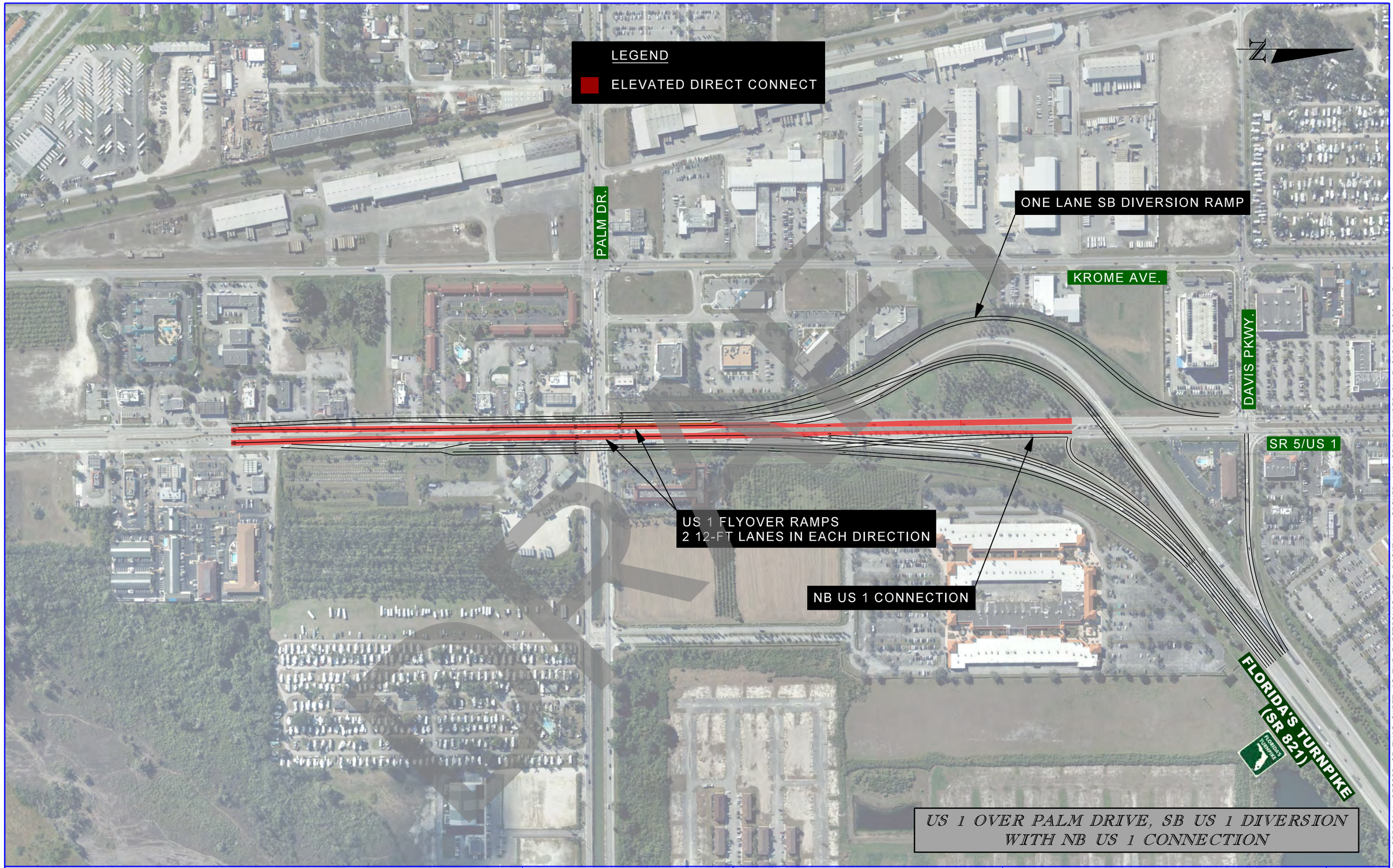

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ALTERNATIVE C.1

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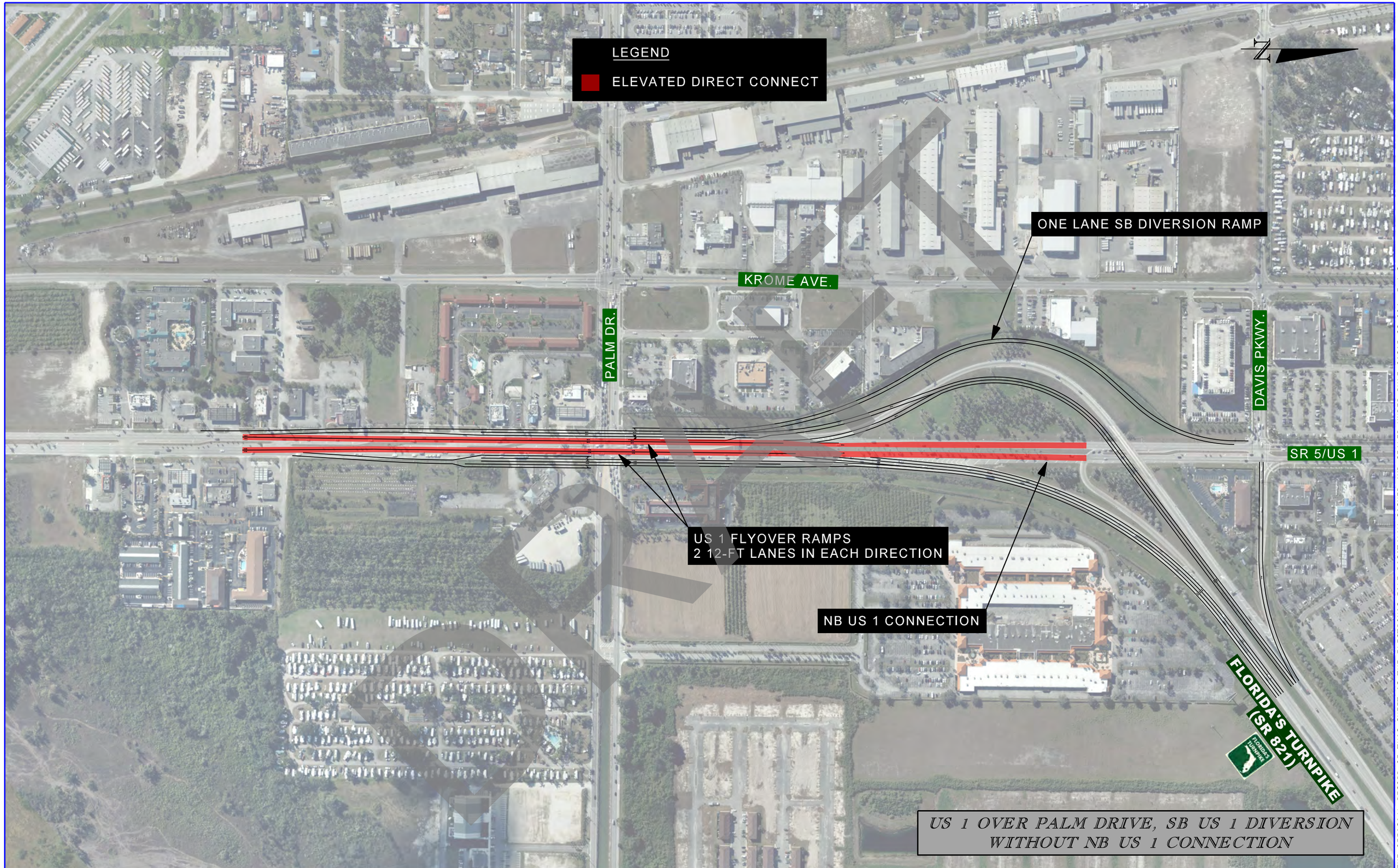

US 1 OVER PALM DRIVE, SB US 1 DIVERSION WITHOUT NB US 1 CONNECTION

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ALTERNATIVE C.2

SHEET NO.

FM: 439545-1-22-01

Date 10/7/2019

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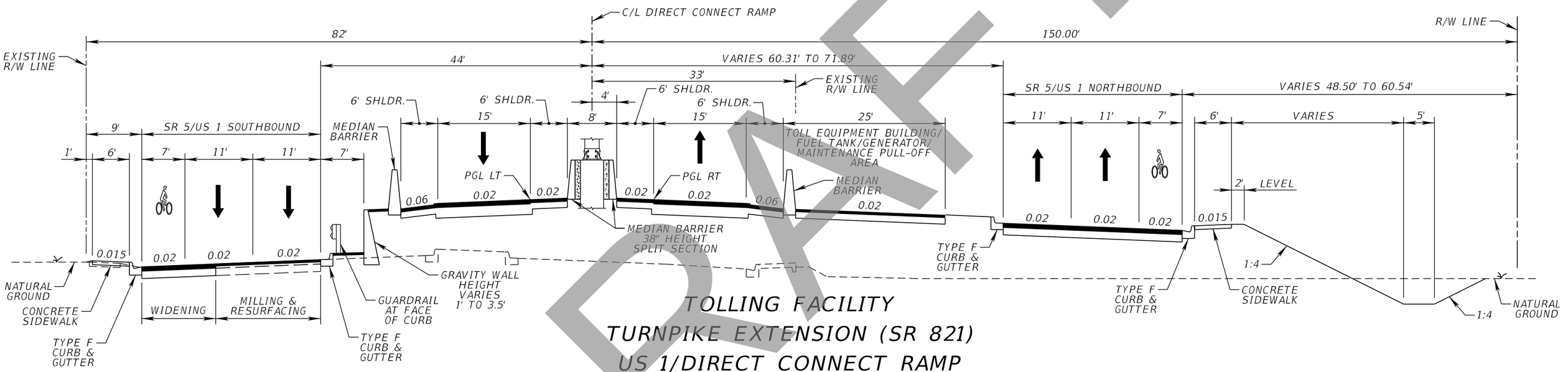

TOLLING FACILITY

TURNPIKE EXTENSION (SR 821)

US 1/DIRECT CONNECT RAMP

STA. 201+97.50 TO STA. 203+52.50

DESIGN SPEED 45 MPH

APPENDIX D

Long Range Estimate Construction Costs

Date: 12/23/2019 8:32:17 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 439545-1-22-01 **Letting Date:** 01/2099

Description: PD&E FOR WIDEN HEFT FROM US-1/SOUTH OF PALM DR TO CAMPBELL DR (MP 0-2)

District: 08 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.500 MI

Project Manager: HEYWOOD

Version 8 Project Grand Total **$34,176,157.38**
Description: Widening of Florida's Turnpike Mainline. Revised 12/10/19.

Sequence: 1 WDR - Widen/Resurface, Divided, Rural **Net Length:** 2.180 MI
11,510 LF

Description: 11.A & 12A PK Mainline widening. fill sections with MSE Walls, 2 lanes, 3,300-feet, widen towards the median 22', M&R current 4 lanes, L=11,500'

Special Conditions: ADD EXPRESS LANES (12' + 4 ' buffer, for full depth for potential future ELs) NB & SB from Palm to Campbell Drive. Includes required bridge replacement

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	64.00 / 64.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	2.180
Top of Structural Course For Begin Section	134.50
Top of Structural Course For End Section	134.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	33.82 AC	$30,000.00	$1,014,600.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	35,051.30 CY	$25.00	$876,282.50
	Earthwork Component Total			$1,890,882.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	0.00 / 0.00
Widened Inside Pavement Width L/R	16.00 / 16.00
Widened Structural Spread Rate	440
Widened Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	92,078.98	SY	$4.50	$414,355.41
285-709	OPTIONAL BASE,BASE GROUP 09	41,768.05	SY	$25.00	$1,044,201.25
327-70-11	MILLING EXIST ASPH PAVT,2 1/4" AVG DEPTH	61,385.98	SY	$4.11	$252,296.38
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	5,064.34	TN	$110.00	$557,077.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	9,003.28	TN	$110.00	$990,360.80
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	2,455.44	TN	$150.00	$368,316.00
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	1,636.96	TN	$150.00	$245,544.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
102-71-16	TEMPORARY BARRIER, F&I, FREE STAND	15,000.00	LF	$24.00	$360,000.00
455-133-2	SHEET PILING STEEL, TEMPORARY-CRITICAL **Comment:** 3 locations	121,760.00	SF	$20.00	$2,435,200.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	1,471.00	EA	$5.00	$7,355.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	8.72	GM	$1,000.00	$8,720.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	8.72	GM	$400.00	$3,488.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	8.72	GM	$5,000.00	$43,600.00
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	8.72	GM	$1,400.00	$12,208.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
339-1	MISCELLANEOUS ASPHALT PAVEMENT	575.00	TN	$250.00	$143,750.00
536-1-3	GUARDRAIL- ROADWAY, DOUBLE FACE	17,250.00	LF	$28.96	$499,560.00
	Roadway Component Total				$7,386,032.24

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 12.00
New Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Existing Paved Outside Shoulder Width L/R	10.00 / 10.00
New Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	26,421.55	SY	$15.00	$396,323.25
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	25,577.49	SY	$3.00	$76,732.47
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,110.14	TN	$110.00	$232,115.40
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	1,023.10	TN	$150.00	$153,465.00
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	4.36	PM	$2,000.00	$8,720.00
570-1-1	PERFORMANCE TURF	5,115.50	SY	$2.70	$13,811.85

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	26,472.71	LF	$2.00	$52,945.42
104-11	FLOATING TURBIDITY BARRIER	217.99	LF	$14.00	$3,051.86
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	217.99	LF	$7.00	$1,525.93
104-15		3.00	EA	$3,500.00	$10,500.00

	SOIL TRACKING PREVENTION DEVICE			
107-1	LITTER REMOVAL	15.85 AC	$50.00	$792.50
107-2	MOWING	15.85 AC	$100.00	$1,585.00
	Shoulder Component Total			$951,568.68

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	40.00
Performance Turf Width	5.34
New Total Median Shoulder Width L/R	8.00 / 8.00
New Paved Median Shoulder Width L/R	6.00 / 6.00
Existing Total Median Shoulder Width L/R	12.00 / 12.00
Existing Paved Median Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	16,190.55	SY	$15.00	$242,858.25
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	25,577.49	SY	$3.00	$76,732.47
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	1,266.09	TN	$174.81	$221,325.19
337-7-22	ASPH CONC FC,INC BIT,FC-5,PG76-22,PMA	613.86	TN	$150.00	$92,079.00
521-72-40	SHLDR CONC BARRIER,38" OR 44" HEIGHT	3,020.00	LF	$210.00	$634,200.00
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	4.00	PM	$2,000.00	$8,000.00
570-1-1	PERFORMANCE TURF	6,829.19	SY	$2.70	$18,438.81
	Median Component Total				$1,293,633.72

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	39.24	CY	$1,540.03	$60,430.78
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	1,744.00	LF	$101.98	$177,853.12
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	176.00	LF	$117.50	$20,680.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	88.00	EA	$1,663.67	$146,402.96
570-1-1	PERFORMANCE TURF	1,534.65	SY	$2.70	$4,143.56
	Drainage Component Total				$409,510.42

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	$340.80	$1,704.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	53.00	AS	$1,094.22	$57,993.66
700-1-50	SINGLE POST SIGN, RELOCATE	5.00	AS	$288.23	$1,441.15
700-1-60	SINGLE POST SIGN, REMOVE	53.00	AS	$22.74	$1,205.22
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	5.00	AS	$4,696.82	$23,484.10
700-2-60	MULTI- POST SIGN, REMOVE	5.00	AS	$557.37	$2,786.85
	Signing Component Total				$88,614.98

INTELLIGENT TRAFFIC SYSTEM (ITS) COMPONENT

Description of Work

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
ITS-01	ITS/DMS SIGNS	1.00	LS	$1,500,000.00	$1,500,000.00
	Intelligent Traffic System (ITS) Component Total				$1,500,000.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	117

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	23,400.00	LF	$9.00	$210,600.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	117.00	EA	$800.00	$93,600.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	70,200.00	LF	$2.20	$154,440.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	117.00	EA	$6,089.10	$712,424.70
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	117.00	EA	$1,000.00	$117,000.00
	Subcomponent Total				$1,288,064.70
	Lighting Component Total				$1,288,064.70

BRIDGES COMPONENT

Bridge 870399

Description	Value
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	870399
Geographic District	06
Segment Count	1
Bridge Length (LF)	293.00

Average Bridge Width (LF)	18.83
Average Skew Angle	15.00
Construction Type	Widening
Widening Side	Left
Widening Type	A
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Left
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	2,935
Final Bridge Cost	**$818,938.88**
Calculated Final Cost per SF	**$148.43**
Description	NB - SR 821 OVER 38TH ST (LUCY ST) 320'X(56'). BR 870399

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,055.00 SF	$50.00	$52,750.00
400-2-10	CONC CLASS II, APPROACH SLABS	43.94 CY	$450.00	$19,773.00
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	621.39 SY	$10.00	$6,213.90
415-1-9	REINF STEEL- APPROACH SLABS	8,382.53 LB	$1.00	$8,382.53
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	353.00 LF	$87.37	$30,841.61
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	353.00 LF	$88.00	$31,064.00

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Land
Segment Length (LF)	293
Segment Width (LF)	18.83
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	70
No. of Intermediate Supports	3
Superstructure / Beam Type	I-Beam
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 18"
Design Load Demand Weight	2,935
Total Segment Cost	**$722,663.84**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	159.66 CY	$1,000.00	$159,660.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	72.50 CY	$1,000.00	$72,500.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	132.02 CY	$1,000.00	$132,020.00

400-147	COMPOSITE NEOPRENE PADS	2.82 CF	$1,300.00	$3,666.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	36,721.80 LB	$1.00	$36,721.80
415-1-5	REINF STEEL- SUBSTRUCTURE	9,787.50 LB	$1.00	$9,787.50
415-1-5	REINF STEEL- SUBSTRUCTURE	28,384.30 LB	$1.00	$28,384.30
450-2-36	PREST BEAMS: FLORIDA-I BEAM 36"	293.00 LF	$240.14	$70,361.02
455-34-3	PRESTRESSED CONCRETE PILING, 18" SQ	1,450.80 LF	$120.00	$174,096.00
455-143-3	TEST PILES-PREST CONCRETE,18" SQ	161.20 LF	$220.02	$35,467.22
	Bridge 870399 Total			$871,688.88

Bridge 870193

Description	**Value**
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	870193
Geographic District	06
Segment Count	1
Bridge Length (LF)	211.50
Average Bridge Width (LF)	33.67
Average Skew Angle	15.00
Construction Type	Widening
Widening Side	Left
Widening Type	A
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Left
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	3,514
Final Bridge Cost	**$988,262.34**
Calculated Final Cost per SF	**$138.78**
Description	SB SR-821 OVER 162ND AVE (FARM LIFE RD) BR 870193

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,593.00 SF	$50.00	$79,650.00
400-2-10	CONC CLASS II, APPROACH SLABS	78.57 CY	$450.00	$35,356.50
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	806.21 SY	$10.00	$8,062.10
415-1-9	REINF STEEL- APPROACH SLABS	14,988.83 LB	$1.00	$14,988.83
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	271.50 LF	$87.37	$23,720.96
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	271.50 LF	$88.00	$23,892.00

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Land

Segment Length (LF)	211.5
Segment Width (LF)	33.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	85
No. of Intermediate Supports	1
Superstructure / Beam Type	I-Beam
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	3,514
Total Segment Cost	**$882,241.95**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	212.93 CY	$1,000.00	$212,930.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	96.00 CY	$1,000.00	$96,000.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	100.75 CY	$1,000.00	$100,750.00
400-147	COMPOSITE NEOPRENE PADS	4.24 CF	$1,300.00	$5,512.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	48,973.90 LB	$1.00	$48,973.90
415-1-5	REINF STEEL- SUBSTRUCTURE	12,960.00 LB	$1.00	$12,960.00
415-1-5	REINF STEEL- SUBSTRUCTURE	21,661.25 LB	$1.00	$21,661.25
450-2-45	PREST BEAMS: FLORIDA-I BEAM 45"	634.50 LF	$270.00	$171,315.00
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	1,397.70 LF	$124.00	$173,314.80
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	155.30 LF	$250.00	$38,825.00
	Bridge 870193 Total			$1,067,912.34

Bridge 870192

Description	**Value**
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	870192
Geographic District	06
Segment Count	1
Bridge Length (LF)	293.00
Average Bridge Width (LF)	18.84
Average Skew Angle	15.00
Construction Type	Widening
Widening Side	Left
Widening Type	A
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Left
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	2,936
Final Bridge Cost	**$819,119.43**
Calculated Final Cost per SF	**$148.39**
Description	SB SR-821 OVER 328TH ST (LUCY ST). BR 870178

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,055.00	SF	$50.00	$52,750.00
400-2-10	CONC CLASS II, APPROACH SLABS	43.97	CY	$450.00	$19,786.50
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	621.72	SY	$10.00	$6,217.20
415-1-9	REINF STEEL- APPROACH SLABS	8,386.98	LB	$1.00	$8,386.98
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	353.00	LF	$87.37	$30,841.61
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	353.00	LF	$88.00	$31,064.00

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Land
Segment Length (LF)	293
Segment Width (LF)	18.84
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	70
No. of Intermediate Supports	3
Superstructure / Beam Type	I-Beam
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 18"
Design Load Demand Weight	2,936
Total Segment Cost	**$722,823.14**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	159.75	CY	$1,000.00	$159,750.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	72.50	CY	$1,000.00	$72,500.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	132.06	CY	$1,000.00	$132,060.00
400-147	COMPOSITE NEOPRENE PADS	2.82	CF	$1,300.00	$3,666.00
415-1-4	REINF STEEL- SUPERSTRUCTURE	36,742.50	LB	$1.00	$36,742.50
415-1-5	REINF STEEL- SUBSTRUCTURE	9,787.50	LB	$1.00	$9,787.50
415-1-5	REINF STEEL- SUBSTRUCTURE	28,392.90	LB	$1.00	$28,392.90
450-2-36	PREST BEAMS: FLORIDA-I BEAM 36"	293.00	LF	$240.14	$70,361.02
455-34-3	PRESTRESSED CONCRETE PILING, 18" SQ	1,450.80	LF	$120.00	$174,096.00
455-143-3	TEST PILES-PREST CONCRETE,18" SQ	161.20	LF	$220.02	$35,467.22
	Bridge 870192 Total				$871,869.43

Bridge 870400

Description	Value
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	870400
Geographic District	06
Segment Count	1
Bridge Length (LF)	211.50
Average Bridge Width (LF)	19.17
Average Skew Angle	15.00
Construction Type	Widening
Widening Side	Left
Widening Type	A
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Left
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	2,120
Final Bridge Cost	**$635,921.54**
Calculated Final Cost per SF	**$156.85**
Description	NB SR-821 OVER 162ND AV (FARM LIFE ROAD). BR 870400

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	797.00 SF	$50.00	$39,850.00
400-2-10	CONC CLASS II, APPROACH SLABS	44.74 CY	$450.00	$20,133.00
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	459.02 SY	$10.00	$4,590.20
415-1-9	REINF STEEL- APPROACH SLABS	8,533.89 LB	$1.00	$8,533.89
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	271.50 LF	$87.37	$23,720.96
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	271.50 LF	$88.00	$23,892.00

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Land
Segment Length (LF)	211.5
Segment Width (LF)	19.17
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	70
No. of Intermediate Supports	1
Superstructure / Beam Type	I-Beam
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 18"
Design Load Demand Weight	2,120
Total Segment Cost	**$555,051.49**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	121.97 CY	$1,000.00	$121,970.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	60.08 CY	$1,000.00	$60,080.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	60.17 CY	$1,000.00	$60,170.00
400-147	COMPOSITE NEOPRENE PADS	2.82 CF	$1,300.00	$3,666.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	28,053.10 LB	$1.00	$28,053.10
415-1-5	REINF STEEL- SUBSTRUCTURE	8,122.95 LB	$1.00	$8,122.95
415-1-5	REINF STEEL- SUBSTRUCTURE	12,917.20 LB	$1.00	$12,917.20
450-2-45	PREST BEAMS: FLORIDA-I BEAM 45"	423.00 LF	$270.00	$114,210.00
455-34-3	PRESTRESSED CONCRETE PILING, 18" SQ	1,009.80 LF	$120.00	$121,176.00
455-143-3	TEST PILES-PREST CONCRETE,18" SQ	112.20 LF	$220.02	$24,686.24
	Bridge 870400 Total			$675,771.54

Bridge 870389

Description	Value
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	870389
Geographic District	06
Segment Count	1
Bridge Length (LF)	272.00
Average Bridge Width (LF)	19.17
Average Skew Angle	15.00
Construction Type	Widening
Widening Side	Left
Widening Type	A
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Left
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	3,475
Final Bridge Cost	**$1,015,738.84**
Calculated Final Cost per SF	**$194.80**
Description	NB SR-821 OVER CANAL C-103. BR 870389

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	988.00 SF	$50.00	$49,400.00
400-2-10	CONC CLASS II, APPROACH SLABS	44.74 CY	$450.00	$20,133.00
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	587.88 SY	$10.00	$5,878.80
415-1-9	REINF STEEL- APPROACH SLABS	8,533.89 LB	$1.00	$8,533.89
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	332.00 LF	$87.37	$29,006.84

521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	332.00 LF	$88.00	$29,216.00

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Water
Segment Length (LF)	272
Segment Width (LF)	19.17
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	70
No. of Intermediate Supports	4
Superstructure / Beam Type	I-Beam
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 18"
Design Load Demand Weight	3,475
Total Segment Cost	**$922,970.31**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	160.07 CY	$1,000.00	$160,070.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	133.39 CY	$1,000.00	$133,390.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	170.46 CY	$1,000.00	$170,460.00
400-147	COMPOSITE NEOPRENE PADS	7.06 CF	$1,300.00	$9,178.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	36,816.10 LB	$1.00	$36,816.10
415-1-5	REINF STEEL- SUBSTRUCTURE	18,007.65 LB	$1.00	$18,007.65
415-1-5	REINF STEEL- SUBSTRUCTURE	36,648.90 LB	$1.00	$36,648.90
450-2-36	PREST BEAMS: FLORIDA-I BEAM 36"	544.00 LF	$240.14	$130,636.16
455-34-3	PRESTRESSED CONCRETE PILING, 18" SQ	1,576.80 LF	$120.00	$189,216.00
455-143-3	TEST PILES-PREST CONCRETE,18" SQ	175.20 LF	$220.02	$38,547.50
	Bridge 870389 Total			$1,065,138.84

Bridge 870179

Description	Value
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	870179
Geographic District	06
Segment Count	1
Bridge Length (LF)	329.00
Average Bridge Width (LF)	15.00
Average Skew Angle	15.00
Construction Type	Widening
Widening Side	Right

Widening Type	A
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Right
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	2,991
Final Bridge Cost	**$807,133.81**
Calculated Final Cost per SF	**$163.55**
Description	SB SR-821 OVER SW 312TH ST (CAMPBELL DR)

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,169.00 SF	$50.00	$58,450.00
400-2-10	CONC CLASS II, APPROACH SLABS	35.00 CY	$450.00	$15,750.00
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	555.00 SY	$10.00	$5,550.00
415-1-9	REINF STEEL- APPROACH SLABS	6,677.53 LB	$1.00	$6,677.53
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	389.00 LF	$87.37	$33,986.93

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Land
Segment Length (LF)	329
Segment Width (LF)	15
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	70
No. of Intermediate Supports	1
Superstructure / Beam Type	I-Beam
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 18"
Design Load Demand Weight	2,991
Total Segment Cost	**$745,169.35**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	152.52 CY	$1,000.00	$152,520.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	58.82 CY	$1,000.00	$58,820.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	60.17 CY	$1,000.00	$60,170.00
400-147	COMPOSITE NEOPRENE PADS	4.72 CF	$1,300.00	$6,136.00
415-1-4	REINF STEEL- SUPERSTRUCTURE	35,079.60 LB	$1.00	$35,079.60
415-1-5	REINF STEEL- SUBSTRUCTURE	8,122.95 LB	$1.00	$8,122.95
415-1-5	REINF STEEL- SUBSTRUCTURE	12,646.30 LB	$1.00	$12,646.30
450-2-78	PREST BEAMS: FLORIDA-I BEAM 78"	658.00 LF	$334.82	$220,311.56

455-34-3	PRESTRESSED CONCRETE PILING, 18" SQ	1,324.80 LF	$120.00	$158,976.00
455-143-3	TEST PILES-PREST CONCRETE,18" SQ	147.20 LF	$220.02	$32,386.94
	Bridge 870179 Total			$865,583.81

Bridge 870390

Description	**Value**
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	870390
Geographic District	06
Segment Count	1
Bridge Length (LF)	329.00
Average Bridge Width (LF)	15.00
Average Skew Angle	15.00
Construction Type	Widening
Widening Side	Right
Widening Type	A
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	Right
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	2,890
Final Bridge Cost	**$729,704.67**
Calculated Final Cost per SF	**$147.86**
Description	NB SR-821 OVER SW 312TH ST (CAMPBELL DR)

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURES/BRIDGES	1,169.00 SF	$50.00	$58,450.00
400-2-10	CONC CLASS II, APPROACH SLABS	35.00 CY	$450.00	$15,750.00
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	555.00 SY	$10.00	$5,550.00
415-1-9	REINF STEEL- APPROACH SLABS	6,677.53 LB	$1.00	$6,677.53
521-5-4	CONC TRAF RAIL- BRG, 32" VERT FACE	389.00 LF	$87.37	$33,986.93

BRIDGE SEGMENTS

Segment 1

Segment Position	First/Last
Segment Over	Land
Segment Length (LF)	329
Segment Width (LF)	15
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	70
No. of Intermediate Supports	3
Superstructure / Beam Type	I-Beam
Substructure / Pier Type	Multi Columns

Foundation Type	Pre-stressed Sq. Piles 18"
Design Load Demand Weight	2,890
Total Segment Cost	**$667,740.21**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	143.15 CY	$1,000.00	$143,150.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	75.03 CY	$1,000.00	$75,030.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	116.52 CY	$1,000.00	$116,520.00
400-147	COMPOSITE NEOPRENE PADS	2.82 CF	$1,300.00	$3,666.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	32,924.50 LB	$1.00	$32,924.50
415-1-5	REINF STEEL- SUBSTRUCTURE	10,129.05 LB	$1.00	$10,129.05
415-1-5	REINF STEEL- SUBSTRUCTURE	25,051.80 LB	$1.00	$25,051.80
450-2-36	PREST BEAMS: FLORIDA-I BEAM 36"	329.00 LF	$240.14	$79,006.06
455-34-3	PRESTRESSED CONCRETE PILING, 18" SQ	1,261.80 LF	$120.00	$151,416.00
455-143-3	TEST PILES-PREST CONCRETE,18" SQ	140.20 LF	$220.02	$30,846.80
	Bridge 870390 Total			$788,154.67
	Bridges Component Total			$6,206,119.51

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	1,243.00
Begin height	18.50
End Height	18.50
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	22,995.50 SF	$30.00	$689,865.00

Retaining Wall 2

Description	Value
Length	1,801.00
Begin height	18.50
End Height	18.50
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	33,318.50 SF	$30.00	$999,555.00

Retaining Walls Component Total	$1,689,420.00
Sequence 1 Total	$22,703,846.75

Sequence: 2 WDR - Widen/Resurface, Divided, Rural **Net Length:** 0.379 MI
2,000 LF

Description: 13A-SB Auxiliary Lane, Widening from 3 Lanes to 4 Lanes, No Milling to Existing Mainline Lanes. Bridge widening and MSE walls included in Mainline widening sequence.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	15.00 / 15.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.000
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Slope L/R	0 to 1 / 0 to 1
Existing Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	0 to 1 / 0 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	3.00 % / 3.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.38	AC	$30,000.00	$41,400.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	1,012.98	CY	$25.00	$25,324.50
	Earthwork Component Total				$66,724.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	12.00 / 12.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	440
Widened Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	16,889.43	SY	$4.50	$76,002.44
285-709	OPTIONAL BASE,BASE GROUP 09	5,480.18	SY	$25.00	$137,004.50
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	10,667.01	SY	$3.73	$39,787.95

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,173.37 TN	$110.00	$129,070.70
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,173.37 TN	$110.00	$129,070.70
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	213.34 TN	$167.96	$35,832.59

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-1-1	RAISED PAVMT MARK, TYPE B W/O FINAL SURF	256.00 EA	$25.14	$6,435.84
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	3.03 GM	$1,000.00	$3,030.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	3.03 GM	$400.00	$1,212.00
	Roadway Component Total			$557,446.72

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 12.00
New Total Outside Shoulder Width L/R	24.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	14.00 / 0.00
Existing Paved Outside Shoulder Width L/R	10.00 / 10.00
New Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	4,591.26 SY	$15.00	$68,868.90
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	366.68 TN	$110.00	$40,334.80
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	177.78 TN	$167.96	$29,859.93
570-1-1	PERFORMANCE TURF	3,111.21 SY	$2.70	$8,400.27

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price

				Extended Amount
104-10-3	SEDIMENT BARRIER	4,600.15 LF	$2.00	$9,200.30
104-11	FLOATING TURBIDITY BARRIER	37.88 LF	$14.00	$530.32
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	37.88 LF	$7.00	$265.16
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	2.75 AC	$50.00	$137.50
107-2	MOWING	2.75 AC	$100.00	$275.00
	Shoulder Component Total			$161,372.18

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	6.82	CY	$1,540.03	$10,503.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	304.00	LF	$101.98	$31,001.92
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	32.00	LF	$117.50	$3,760.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	16.00	EA	$1,663.67	$26,618.72
570-1-1	PERFORMANCE TURF	266.68	SY	$2.70	$720.04
	Drainage Component Total				$72,603.68

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$340.80	$340.80
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	10.00	AS	$1,094.22	$10,942.20
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$288.23	$288.23
700-1-60	SINGLE POST SIGN, REMOVE	10.00	AS	$22.74	$227.40
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,696.82	$4,696.82
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$557.37	$557.37
	Signing Component Total				$17,052.82

LIGHTING COMPONENT

High Mast Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	500.00	LF	$9.00	$4,500.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	$800.00	$1,600.00

715-1-12	LIGHTING CONDUCTORS, F&I, INSUL,NO.8-6	500.00 LF	$1.97	$985.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,500.00 LF	$2.20	$3,300.00
715-7-11	LOAD CENTER, F&I, SECONDARY VOLTAGE	1.00 EA	$12,384.45	$12,384.45
715-19-13	HIGH MAST LIGHT POLE, F&I, 120'	1.00 EA	$59,227.75	$59,227.75
715-500-2	POLE CABLE DISTRIBUTION SYS, HIGH MAST	1.00 EA	$555.00	$555.00
	Subcomponent Total			$82,552.20
	Lighting Component Total			$82,552.20
Sequence 2 Total				$957,752.10

Sequence: 3 NUR - New Construction, Undivided, Rural **Net Length:** 0.106 MI
560 LF

Description: 13B-NB On-Ramp from Campbell Drive-560 feet; Bridge widening included under mainline sequence

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	15.00 / 15.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.106
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.39	AC	$30,000.00	$11,700.00
120-6	EMBANKMENT	3,580.09	CY	$27.68	$99,096.89
	Earthwork Component Total				$110,796.89

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,676.55	SY	$4.50	$12,044.48
285-709	OPTIONAL BASE,BASE GROUP 09	954.22	SY	$25.00	$23,855.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	205.41	TN	$110.00	$22,595.10
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	37.35	TN	$167.96	$6,273.31

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.42	GM	$1,000.00	$420.00
	Roadway Component Total				$65,188.39

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	22.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	12.00 / 4.00
Paved Outside Shoulder Width L/R	10.00 / 2.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	788.03	SY	$15.00	$11,820.45
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	61.62	TN	$110.00	$6,778.20
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	29.88	TN	$167.96	$5,018.64
570-1-1	PERFORMANCE TURF	995.93	SY	$2.70	$2,689.01

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,456.54	LF	$2.00	$2,913.08
104-11	FLOATING TURBIDITY BARRIER	26.52	LF	$14.00	$371.28
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	26.52	LF	$7.00	$185.64
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	1.29	AC	$50.00	$64.50
107-2	MOWING	1.29	AC	$100.00	$129.00
	Shoulder Component Total				$33,469.80

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.91	CY	$1,540.03	$2,941.46
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	88.00	LF	$101.98	$8,974.24
430-175-136		24.00	LF	$117.50	$2,820.00

	PIPE CULV, OPT MATL, ROUND, 36"S/CD			
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	5.00 EA	$1,663.67	$8,318.35
570-1-1	PERFORMANCE TURF	74.69 SY	$2.70	$201.66
	Drainage Component Total			$23,255.71

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$340.80	$340.80
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00	AS	$1,094.22	$3,282.66
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,696.82	$4,696.82
	Signing Component Total				$8,320.28

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	200.00	LF	$9.00	$1,800.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	1.00	EA	$800.00	$800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	600.00	LF	$2.20	$1,320.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	1.00	EA	$6,089.10	$6,089.10
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	1.00	EA	$1,000.00	$1,000.00
	Subcomponent Total				$11,009.10
	Lighting Component Total				$11,009.10
Sequence 3 Total					$252,040.17

Sequence: 4 WDR - Widen/Resurface, Divided, Rural **Net Length:** 0.208 MI
1,100 LF

Description: 13C-NB Auxiliary Lane, Widening from 3 Lanes to 4 Lanes, No Milling to Existing Mainline Lanes.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	15.00 / 15.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	1.000
Top of Structural Course For Begin Section	102.00
Top of Structural Course For End Section	102.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Slope L/R	0 to 1 / 0 to 1
Existing Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	0 to 1 / 0 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	3.00 % / 3.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.76	AC	$30,000.00	$22,800.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	717.69	CY	$25.00	$17,942.25
	Earthwork Component Total				$40,742.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Existing Roadway Pavement Width L/R	24.00 / 24.00
Structural Spread Rate	220
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	15.00 / 15.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	440
Widened Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	9,776.21	SY	$4.50	$43,992.94
285-709	OPTIONAL BASE,BASE GROUP 09	3,746.73	SY	$25.00	$93,668.25
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	5,865.73	SY	$3.73	$21,879.17
334-1-13		645.23	TN	$110.00	$70,975.30

	SUPERPAVE ASPHALTIC CONC, TRAFFIC C			
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	806.54 TN	$110.00	$88,719.40
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	146.64 TN	$167.96	$24,629.65

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.67 GM	$1,000.00	$1,670.00
	Roadway Component Total			$345,534.72

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 12.00
New Total Outside Shoulder Width L/R	10.00 / 24.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 14.00
Existing Paved Outside Shoulder Width L/R	10.00 / 10.00
New Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,524.71 SY	$15.00	$37,870.65
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	201.63 TN	$110.00	$22,179.30
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	97.76 TN	$167.96	$16,419.77
570-1-1	PERFORMANCE TURF	1,710.84 SY	$2.70	$4,619.27

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,529.60 LF	$2.00	$5,059.20
104-11	FLOATING TURBIDITY BARRIER	20.83 LF	$14.00	$291.62
104-12		20.83 LF	$7.00	$145.81

	STAKED TURBIDITY BARRIER-NYL REINF PVC			
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	1.51 AC	$50.00	$75.50
107-2	MOWING	1.51 AC	$100.00	$151.00
	Shoulder Component Total			$90,312.12

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.75	CY	$1,540.03	$5,775.11
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	168.00	LF	$101.98	$17,132.64
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$117.50	$1,880.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	9.00	EA	$1,663.67	$14,973.03
570-1-1	PERFORMANCE TURF	146.64	SY	$2.70	$395.93
	Drainage Component Total				$40,156.71

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$340.80	$340.80
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,094.22	$5,471.10
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$288.23	$288.23
700-1-60	SINGLE POST SIGN, REMOVE	5.00	AS	$22.74	$113.70
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$4,696.82	$4,696.82
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$557.37	$557.37
	Signing Component Total				$11,468.02

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	200.00	LF	$9.00	$1,800.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	1.00	EA	$800.00	$800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	600.00	LF	$2.20	$1,320.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	1.00	EA	$6,089.10	$6,089.10

715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	1.00 EA	$1,000.00	$1,000.00
	Subcomponent Total			$11,009.10
	Lighting Component Total			$11,009.10
Sequence 4 Total				$539,222.92

Date: 12/23/2019 8:32:19 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 439545-1-22-01 **Letting Date:** 01/2099

Description: PD&E FOR WIDEN HEFT FROM US-1/SOUTH OF PALM DR TO CAMPBELL DR (MP 0-2)

District: 08 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.500 MI

Project Manager: HEYWOOD

Version 8 Project Grand Total **$34,176,157.38**
Description: Widening of Florida's Turnpike Mainline. Revised 12/10/19.

Project Sequences Subtotal **$24,452,861.94**

102-1	Maintenance of Traffic	10.00 %	$2,445,286.19
101-1	Mobilization	10.00 %	$2,689,814.81

Project Sequences Total **$29,587,962.94**

Project Unknowns	15.00 %	$4,438,194.44
Design/Build	0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00

Project Non-Bid Subtotal **$150,000.00**

Version 8 Project Grand Total **$34,176,157.38**

Date: 12/23/2019 8:29:17 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 439545-1-22-01 **Letting Date:** 01/2099

Description: PD&E FOR WIDEN HEFT FROM US-1/SOUTH OF PALM DR TO CAMPBELL DR (MP 0-2)

District: 08 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.500 MI

Project Manager: HEYWOOD

Version 9 Project Grand Total **$85,391,849.37**
Description: Widening & Interchange Evaluation of Direct Connect Concept A. Revised 12-17-19 per EOR markups.

Sequence: 1 NDR - New Construction, Divided, Rural **Net Length:** 0.625 MI
3,300 LF

Description: 1.A Direct Connect Ramp, Fill Sections with MSE Wall, 2 Lanes, 3300-feet
Special Conditions: Direct Connect Ramp, Fill Sections with MSE Wall, 2 Lanes, 3300-feet, 987' (Begin MSE wall to begin south bridge) +683' (MSE wall between south bridge and north bridge) +1508' (End north bridge to end MSE wall) =3200'

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	58.00 / 58.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.187
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	130.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %
Alignment Number	2
Distance	0.129
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	107.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %
Alignment Number	3
Distance	0.286

Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	138.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	8.79	AC	$30,000.00	$263,700.00
120-6	EMBANKMENT	442,411.91	CY	$25.00	$11,060,297.75
	Earthwork Component Total				$11,323,997.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	20,533.33	SY	$6.00	$123,199.98
285-709	OPTIONAL BASE,BASE GROUP 09	11,484.00	SY	$30.00	$344,520.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,420.00	TN	$125.00	$302,500.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	440.00	TN	$160.00	$70,400.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-72-40	SHLDR CONC BARRIER,38" OR 44" HEIGHT	6,400.00	LF	$185.00	$1,184,000.00
	Comment: 3200x2				
550-10-230	FENCING, TYPE B, 6.1-7.0', STANDARD	200.00	LF	$20.00	$4,000.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	84.00	EA	$5.00	$420.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.50	GM	$1,000.00	$2,500.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	2.50	GM	$5,000.00	$12,500.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $2,044,039.98

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	4,642.00	SY	$25.00	$116,050.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	363.00	TN	$125.00	$45,375.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	176.00	TN	$160.00	$28,160.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.25	GM	$1,800.00	$2,250.00

Erosion Control Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	8,580.00	LF	$2.25	$19,305.00
104-11	FLOATING TURBIDITY BARRIER	156.25	LF	$14.00	$2,187.50
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	156.25	LF	$7.00	$1,093.75
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	4.00	EA	$100.00	$400.00
107-1	LITTER REMOVAL	15.15	AC	$50.00	$757.50
107-2	MOWING	15.15	AC	$100.00	$1,515.00

Shoulder Component Total $220,593.75

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	14.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	7.00 / 7.00
Paved Median Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	4,642.00	SY	$25.00	$116,050.00
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	363.00	TN	$120.00	$43,560.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	176.00	TN	$160.00	$28,160.00
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	3,200.00	LF	$130.00	$416,000.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.00	GM	$1,800.00	$1,800.00
570-1-1	PERFORMANCE TURF	1,958.00	SY	$2.00	$3,916.00
	Median Component Total				$609,486.00

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	11.25	CY	$1,600.00	$18,000.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	4.00	EA	$4,400.00	$17,600.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	504.00	LF	$110.00	$55,440.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	216.00	LF	$110.00	$23,760.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	192.00	LF	$135.00	$25,920.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	25.00	EA	$1,800.00	$45,000.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	1,250.00	SY	$65.00	$81,250.00
570-1-1	PERFORMANCE TURF	440.00	SY	$2.00	$880.00
	Drainage Component Total				$267,850.00

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	$450.00	$900.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	15.00	AS	$1,300.00	$19,500.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	2.00	AS	$5,900.00	$11,800.00

700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	4.00 AS	$6,600.00	$26,400.00
	Signing Component Total			$58,600.00

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	987.00
Begin height	5.00
End Height	24.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	14,311.50	SF	$28.00	$400,722.00

Retaining Wall 2

Description	Value
Length	683.00
Begin height	24.00
End Height	25.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	16,733.50	SF	$28.00	$468,538.00

Retaining Wall 3

Description	Value
Length	1,508.00
Begin height	25.00
End Height	2.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	20,358.00	SF	$28.00	$570,024.00
	Retaining Walls Component Total				$1,439,284.00

Sequence 1 Total $15,963,851.48

Sequence: 2 NDR - New Construction, Divided, Rural **Net Length:** 0.076 MI
400 LF

Description: 1.B Direct Connect Ramp At-Grade Section Before Begin MSE Wall, 400-feet 388?? (Direct Connect Ramp At-Grade Section Before Begin MSE Wall) 400'

Special Conditions: Direct Connect Ramp At-Grade Section Before Begin MSE Wall, 400-feet 388' (Direct Connect Ramp At-Grade Section Before Begin MSE Wall) 400'

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	58.00 / 58.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.076
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	106.20
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.07 AC	$30,000.00	$32,100.00
120-6	EMBANKMENT	5,945.63 CY	$25.00	$148,640.75
	Earthwork Component Total			$180,740.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,490.28 SY	$6.00	$14,941.68
285-709	OPTIONAL BASE,BASE GROUP 09	1,392.78 SY	$30.00	$41,783.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	293.50 TN	$125.00	$36,687.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	53.36 TN	$160.00	$8,537.60

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
521-72-40		800.00 LF	$185.00	$148,000.00

SHLDR CONC BARRIER,38" OR 44" HEIGHT

Comment: 2x400'

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	10.00	EA	$5.00	$50.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.30	GM	$1,000.00	$300.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.30	GM	$5,000.00	$1,500.00
	Roadway Component Total				$251,800.18

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	562.98	SY	$25.00	$14,074.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	44.02	TN	$125.00	$5,502.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	21.35	TN	$160.00	$3,416.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.15	GM	$1,800.00	$270.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,040.58	LF	$2.25	$2,341.31
104-11	FLOATING TURBIDITY BARRIER	18.95	LF	$14.00	$265.30
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.95	LF	$7.00	$132.65

104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	1.00 EA	$100.00	$100.00
107-1	LITTER REMOVAL	1.84 AC	$50.00	$92.00
107-2	MOWING	1.84 AC	$100.00	$184.00
	Shoulder Component Total			$29,878.26

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	14.00
Performance Turf Width	6.00
Total Median Shoulder Width L/R	7.00 / 7.00
Paved Median Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	562.98	SY	$25.00	$14,074.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	44.02	TN	$125.00	$5,502.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	21.35	TN	$160.00	$3,416.00
570-1-1	PERFORMANCE TURF	266.82	SY	$2.00	$533.64

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	400.00	LF	$130.00	$52,000.00
	Median Component Total				$75,526.64

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.36	CY	$1,600.00	$2,176.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	1.00	EA	$4,400.00	$4,400.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	64.00	LF	$110.00	$7,040.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	32.00	LF	$110.00	$3,520.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00	LF	$135.00	$3,240.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	4.00	EA	$1,800.00	$7,200.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	151.60	SY	$65.00	$9,854.00
570-1-1	PERFORMANCE TURF	53.36	SY	$2.00	$106.72

	Drainage Component Total	$37,536.72

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,300.00	$2,600.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$15,550.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	600.00	LF	$10.00	$6,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00	EA	$700.00	$2,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,800.00	LF	$2.80	$5,040.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	3.00	EA	$6,100.00	$18,300.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00	EA	$650.00	$1,950.00
	Subcomponent Total				$33,390.00
	Lighting Component Total				$33,390.00
Sequence 2 Total					$624,422.55

Sequence: 3 NDR - New Construction, Divided, Rural **Net Length:** 0.189 MI
1,000 LF

Description: 1.C Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, includes striped gore,1000 feet.

Special Conditions: Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, includes striped gore,1000 feet.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.190
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	2.00 % / 2.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.75 AC	$30,000.00	$82,500.00
120-6	EMBANKMENT	7,422.19 CY	$25.00	$185,554.75
	Earthwork Component Total			$268,054.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,889.17 SY	$6.00	$53,335.02
285-709	OPTIONAL BASE,BASE GROUP 09	3,480.11 SY	$30.00	$104,403.30
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	733.36 TN	$125.00	$91,670.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	133.34 TN	$160.00	$21,334.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4

Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	26.00	EA	$5.00	$130.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76	GM	$1,000.00	$760.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.76	GM	$5,000.00	$3,800.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $275,432.72

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,740.09	SY	$25.00	$68,502.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	220.01	TN	$125.00	$27,501.25
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	106.67	TN	$160.00	$17,067.20
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.38	GM	$1,800.00	$684.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,600.08	LF	$2.25	$5,850.18
104-11	FLOATING TURBIDITY BARRIER	47.35	LF	$14.00	$662.90
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	47.35	LF	$7.00	$331.45
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	4.59	AC	$50.00	$229.50

107-2	MOWING	4.59 AC	$100.00	$459.00
	Shoulder Component Total			$124,987.73

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	27.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	13.00 / 13.00
Paved Median Shoulder Width L/R	13.00 / 13.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,962.32	SY	$25.00	$74,058.00
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	238.34	TN	$120.00	$28,600.80
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	115.56	TN	$160.00	$18,489.60
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	2,000.00	LF	$130.00	$260,000.00
570-1-1	PERFORMANCE TURF	593.35	SY	$2.00	$1,186.70
	Median Component Total				$382,335.10

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.41	CY	$1,600.00	$5,456.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00	EA	$4,400.00	$8,800.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	152.00	LF	$110.00	$16,720.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	72.00	LF	$110.00	$7,920.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00	LF	$135.00	$8,640.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	8.00	EA	$1,800.00	$14,400.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	378.80	SY	$65.00	$24,622.00
570-1-1	PERFORMANCE TURF	133.34	SY	$2.00	$266.68
	Drainage Component Total				$86,824.68

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00

700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,300.00	$6,500.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,600.00	$13,200.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
705-11-4	DELINEATOR, FLEX HIGH PERFORMANCE 48"	200.00	EA	$120.00	$24,000.00

Signing Component Total $50,050.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.00	LF	$10.00	$12,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,600.00	LF	$2.80	$10,080.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	6.00	EA	$6,100.00	$36,600.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00	EA	$650.00	$3,900.00

Subcomponent Total $66,780.00

Lighting Component Total $66,780.00

Sequence 3 Total $1,254,464.98

Sequence: 4 NDR - New Construction, Divided, Rural **Net Length:** 0.284 MI
1,500 LF

Description: 1.D Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, no striped gore,1500 feet.

Special Conditions: 1.D Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, no striped gore,1500 feet.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.190
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	2.00 % / 2.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.07	AC	$30,000.00	$62,100.00
120-6	EMBANKMENT	15,374.23	CY	$25.00	$384,355.75
	Earthwork Component Total				$446,455.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,667.04	SY	$6.00	$70,002.24
285-709	OPTIONAL BASE,BASE GROUP 09	5,220.17	SY	$30.00	$156,605.10
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,100.04	TN	$125.00	$137,505.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	200.01	TN	$160.00	$32,001.60

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4

Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	38.00	EA	$5.00	$190.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.14	GM	$1,000.00	$1,140.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	1.14	GM	$5,000.00	$5,700.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $403,143.94

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	4.00 / 4.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	4.00 / 4.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,443.38	SY	$25.00	$36,084.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	110.00	TN	$125.00	$13,750.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	53.34	TN	$160.00	$8,534.40
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.57	GM	$1,800.00	$1,026.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,900.12	LF	$2.25	$8,775.27
104-11	FLOATING TURBIDITY BARRIER	71.03	LF	$14.00	$994.42
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	71.03	LF	$7.00	$497.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	6.89	AC	$50.00	$344.50

107-2	MOWING	6.89 AC	$100.00	$689.00
	Shoulder Component Total			$74,395.30

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	33.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	16.00 / 16.00
Paved Median Shoulder Width L/R	16.00 / 16.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	5,443.51	SY	$25.00	$136,087.75
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	440.01	TN	$120.00	$52,801.20
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	213.34	TN	$160.00	$34,134.40
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	3,000.00	LF	$130.00	$390,000.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.00	GM	$1,800.00	$1,800.00
570-1-1	PERFORMANCE TURF	890.03	SY	$2.00	$1,780.06
	Median Component Total				$616,603.41

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	5.11	CY	$1,600.00	$8,176.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00	EA	$4,400.00	$8,800.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	232.00	LF	$110.00	$25,520.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	104.00	LF	$110.00	$11,440.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	88.00	LF	$135.00	$11,880.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	12.00	EA	$1,800.00	$21,600.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	568.20	SY	$65.00	$36,933.00
570-1-1	PERFORMANCE TURF	200.01	SY	$2.00	$400.02
	Drainage Component Total				$124,749.02

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11		1.00	AS	$450.00	$450.00

	SINGLE POST SIGN, F&I GM, <12 SF			
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	7.00 AS	$1,300.00	$9,100.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00 AS	$6,600.00	$13,200.00
	Signing Component Total			$28,650.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	**Value**
Multiplier (Number of Poles)	9

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,800.00	LF	$10.00	$18,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$700.00	$6,300.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,400.00	LF	$2.80	$15,120.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	9.00	EA	$6,100.00	$54,900.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00	EA	$650.00	$5,850.00
	Subcomponent Total				$100,170.00
	Lighting Component Total				$100,170.00
Sequence 4 Total					$1,794,167.42

Sequence: 5 NDR - New Construction, Divided, Rural **Net Length:** 0.246 MI
1,300 LF

Description: 1.E. Direct Connect Bridges, South Bridge (944') and North Bridge (367'), Total 1,300 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	58.00 / 58.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.000
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.46	AC	$30,000.00	$103,800.00
	Earthwork Component Total				$103,800.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	0
Roadway Pavement Width L/R	0.00 / 0.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.97	GM	$1,000.00	$1,970.00
	Roadway Component Total				$1,970.00

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	0.00 / 0.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,379.83	LF	$2.25	$7,604.62
104-11	FLOATING TURBIDITY BARRIER	61.55	LF	$14.00	$861.70
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	61.55	LF	$7.00	$430.85
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	5.97	AC	$50.00	$298.50
107-2	MOWING	5.97	AC	$100.00	$597.00
	Shoulder Component Total				$13,492.67

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.43	CY	$1,600.00	$7,088.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00	EA	$4,400.00	$8,800.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	200.00	LF	$110.00	$22,000.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	88.00	LF	$110.00	$9,680.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	72.00	LF	$135.00	$9,720.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	10.00	EA	$1,800.00	$18,000.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	492.40	SY	$65.00	$32,006.00
570-1-1	PERFORMANCE TURF	173.32	SY	$2.00	$346.64
	Drainage Component Total				$107,640.64

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	6.00	AS	$1,300.00	$7,800.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,600.00	$13,200.00

Signing Component Total	$27,350.00

BRIDGES COMPONENT

Bridge NORTH

Description	**Value**
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	000001
Geographic District	05
Segment Count	2
Bridge Length (LF)	358.00
Average Bridge Width (LF)	58.67
Average Skew Angle	0.00
Construction Type	New/Replacement
Typical Section	Rural Divided
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	7,946
Final Bridge Cost	**$5,200,335.03**
Calculated Final Cost per SF	**$247.59**
Description	NORTH BRIDGE

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	132.25	CY	$450.00	$59,512.50
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	2,359.84	SY	$13.00	$30,677.92
415-1-9	REINF STEEL- APPROACH SLABS	25,228.10	LB	$1.00	$25,228.10
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	418.00	LF	$88.00	$36,784.00

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	388.00	LF	$88.00	$34,144.00
	Comment: changed from 521-5-4, segment 1				
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	776.00	LF	$79.24	$61,490.24
	Comment: changed from 521-5-4, segment 1				

BRIDGE SEGMENTS

Segment 1

Segment Position	First
Segment Over	Land
Segment Length (LF)	179
Segment Width (LF)	58.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	110

No. of Intermediate Supports	0
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	3,741
Total Segment Cost	**$2,228,645.36**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	275.51	CY	$800.00	$220,408.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	47.52	CY	$1,100.00	$52,272.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	77,142.80	LB	$1.00	$77,142.80
415-1-5	REINF STEEL- SUBSTRUCTURE	10,216.80	LB	$1.00	$10,216.80
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	576.00	LF	$170.00	$97,920.00
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	64.00	LF	$260.00	$16,640.00
460-2-2	STRUCT STEEL, LOW ALLOY	552,681.92	LB	$3.00	$1,658,045.76
461-113-13	MULTIROT BRNG ASM FX, F&I, 501- 750KIPS	12.00	EA	$8,000.00	$96,000.00

Segment 2

Segment Position	Last
Segment Over	Land
Segment Length (LF)	179
Segment Width (LF)	58.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	110
No. of Intermediate Supports	0
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	4,205
Total Segment Cost	**$2,723,852.91**

Segment 2 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	275.51	CY	$800.00	$220,408.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	96.00	CY	$1,100.00	$105,600.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	139.29	CY	$1,100.00	$153,219.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	77,142.80	LB	$1.00	$77,142.80
415-1-5	REINF STEEL- SUBSTRUCTURE	12,960.00	LB	$1.00	$12,960.00
415-1-5	REINF STEEL- SUBSTRUCTURE	29,947.35	LB	$1.00	$29,947.35
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	1,863.00	LF	$170.00	$316,710.00

455-143-5	TEST PILES-PREST CONCRETE,24" SQ	207.00 LF	$260.00	$53,820.00
460-2-2	STRUCT STEEL, LOW ALLOY	552,681.92 LB	$3.00	$1,658,045.76
461-113-13	MULTIROT BRNG ASM FX, F&I, 501- 750KIPS	12.00 EA	$8,000.00	$96,000.00
	Bridge NORTH Total			$5,200,335.03

Bridge SOUTH

Description	**Value**
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	000002
Geographic District	06
Segment Count	2
Bridge Length (LF)	944.00
Average Bridge Width (LF)	58.67
Average Skew Angle	0.00
Construction Type	New/Replacement
Typical Section	Rural Divided
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	21,422
Final Bridge Cost	**$13,334,335.91**
Calculated Final Cost per SF	**$240.76**
Description	SOUTH BRIDGE

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	132.25 CY	$450.00	$59,512.50
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	6,179.91 SY	$13.00	$80,338.83
415-1-9	REINF STEEL- APPROACH SLABS	25,228.10 LB	$1.00	$25,228.10
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	1,004.00 LF	$88.00	$88,352.00

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
455-88-21	DRILLED SHAFT, 96" DIA	140.00 LF	$1,100.00	$154,000.00
	Comment: Bridge South, Segment 1 - 70 LF, segment 2 - 70 LF			
462-2-13	POST TENSIONING TENDONS, SUBSTR STRAND G	5,868.00 LB	$6.40	$37,555.20
	Comment: Bridge South, Segment 1 - 2934 LF, segment 2 - 2934 LF			
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	974.00 LF	$88.00	$85,712.00
	Comment: Bridge South, updated on 12/17/19 per EOR mark-ups			
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	1,948.00 LF	$79.24	$154,359.52

Comment: Bridge South, updated on 12/17/19 per EOR mark-ups

BRIDGE SEGMENTS

Segment 1

Segment Position	First
Segment Over	Land
Segment Length (LF)	472
Segment Width (LF)	58.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	85
No. of Intermediate Supports	2
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	10,479
Total Segment Cost	**$6,197,419.18**

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	726.49	CY	$800.00	$581,192.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	192.00	CY	$1,100.00	$211,200.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	231.05	CY	$1,100.00	$254,155.00
415-1-4	REINF STEEL- SUPERSTRUCTURE	203,417.20	LB	$1.00	$203,417.20
415-1-5	REINF STEEL- SUBSTRUCTURE	25,920.00	LB	$1.00	$25,920.00
415-1-5	REINF STEEL- SUBSTRUCTURE	49,675.75	LB	$1.00	$49,675.75
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	2,911.50	LF	$170.00	$494,955.00
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	323.50	LF	$260.00	$84,110.00
460-2-2	STRUCT STEEL, LOW ALLOY	1,374,931.41	LB	$3.00	$4,124,794.23
461-113-12	MULTIROT BRNG ASM FX, F&I, 251- 500KIPS	24.00	EA	$7,000.00	$168,000.00

Segment 2

Segment Position	Last
Segment Over	Land
Segment Length (LF)	472
Segment Width (LF)	58.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	85
No. of Intermediate Supports	2
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	10,943

Total Segment Cost **$6,451,858.58**

Segment 2 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	726.49	CY	$800.00	$581,192.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	288.00	CY	$1,100.00	$316,800.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	322.81	CY	$1,100.00	$355,091.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	203,417.20	LB	$1.00	$203,417.20
415-1-5	REINF STEEL- SUBSTRUCTURE	38,880.00	LB	$1.00	$38,880.00
415-1-5	REINF STEEL- SUBSTRUCTURE	69,404.15	LB	$1.00	$69,404.15
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	2,988.00	LF	$170.00	$507,960.00
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	332.00	LF	$260.00	$86,320.00
460-2-2	STRUCT STEEL, LOW ALLOY	1,374,931.41	LB	$3.00	$4,124,794.23
461-113-12	MULTIROT BRNG ASM FX, F&I, 251- 500KIPS	24.00	EA	$7,000.00	$168,000.00
	Bridge SOUTH Total				$13,334,335.91
	Bridges Component Total				$18,534,670.94
Sequence 5 Total					$18,788,924.25

Sequence: 6 NUU - New Construction, Undivided, Urban **Net Length:** 0.189 MI
1,000 LF

Description: 2.A US-1 South of Palm Drive, 2 NB Lanes with 7-foot bike lane, 1000 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	75.00 / 75.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.189
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.44 AC	$30,000.00	$103,200.00
120-6	EMBANKMENT	7,900.57 CY	$25.00	$197,514.25
	Earthwork Component Total			$300,714.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Roadway Pavement Width L/R	34.00 / 34.00
Structural Spread Rate	330
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,129.15 SY	$6.00	$48,774.90
285-709	OPTIONAL BASE,BASE GROUP 09	7,555.80 SY	$30.00	$226,674.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,246.71 TN	$125.00	$155,838.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	415.57 TN	$170.00	$70,646.90

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	153.00	EA	$5.00	$765.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76	GM	$1,000.00	$760.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.76	GM	$400.00	$304.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.76	GM	$5,000.00	$3,800.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.76	GM	$1,400.00	$1,064.00
	Roadway Component Total				$508,627.55

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	666.69	SY	$45.00	$30,001.05
570-1-1	PERFORMANCE TURF	1,111.15	SY	$2.00	$2,222.30

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,000.06	LF	$2.25	$4,500.14
104-11	FLOATING TURBIDITY BARRIER	47.35	LF	$14.00	$662.90
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	47.35	LF	$7.00	$331.45
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	10.00	EA	$100.00	$1,000.00
107-1	LITTER REMOVAL	2.30	AC	$50.00	$115.00
107-2	MOWING	2.30	AC	$100.00	$230.00
	Shoulder Component Total				$82,564.04

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.41	CY	$1,600.00	$5,456.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00	EA	$5,600.00	$39,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00

425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	448.00 LF	$110.00	$49,280.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	40.00 LF	$135.00	$5,400.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	952.00 LF	$200.00	$190,400.00
570-1-1	PERFORMANCE TURF	57.58 SY	$2.00	$115.16
	Drainage Component Total			$314,751.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$450.00	$1,800.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$9,700.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.03	LF	$10.00	$10,000.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	130.50	LF	$20.00	$2,610.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$700.00	$2,800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,391.59	LF	$2.80	$9,496.45
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	4.00	EA	$6,000.00	$24,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$650.00	$2,600.00
	Subcomponent Total				$51,506.75
	Lighting Component Total				$51,506.75

Sequence 6 Total $1,267,863.75

Sequence: 7 NUU - New Construction, Undivided, Urban **Net Length:** 0.114 MI 600 LF

Description: 2.B US-1 North of Palm Drive, 5 NB Lanes with 7-foot bike lane, 600 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	86.00 / 86.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.120
Top of Structural Course For Begin Section	101.80
Top of Structural Course For End Section	101.80
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.38 AC	$30,000.00	$71,400.00
120-6	EMBANKMENT	1,480.28 CY	$25.00	$37,007.00
	Earthwork Component Total			$108,407.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Roadway Pavement Width L/R	33.00 / 29.00
Structural Spread Rate	330
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,475.90 SY	$6.00	$26,855.40
285-709	OPTIONAL BASE,BASE GROUP 09	4,132.01 SY	$30.00	$123,960.30
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	681.78 TN	$125.00	$85,222.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	227.26 TN	$170.00	$38,634.20

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	92.00	EA	$5.00	$460.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$1,000.00	$450.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.45	GM	$400.00	$180.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.45	GM	$5,000.00	$2,250.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.45	GM	$1,400.00	$630.00
	Roadway Component Total				$278,642.40

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
570-1-1	PERFORMANCE TURF	666.45	SY	$2.00	$1,332.90

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,199.62	LF	$2.25	$2,699.14
104-11	FLOATING TURBIDITY BARRIER	28.40	LF	$14.00	$397.60
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	28.40	LF	$7.00	$198.80
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	6.00	EA	$100.00	$600.00
107-1	LITTER REMOVAL	1.38	AC	$50.00	$69.00
107-2	MOWING	1.38	AC	$100.00	$138.00
	Shoulder Component Total				$32,927.85

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

400-2-2	CONC CLASS II, ENDWALLS	2.04 CY	$1,600.00	$3,264.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00 EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	272.00 LF	$110.00	$29,920.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00 LF	$135.00	$3,240.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	568.00 LF	$200.00	$113,600.00
570-1-1	PERFORMANCE TURF	34.53 SY	$2.00	$69.06
	Drainage Component Total			$202,993.06

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$9,250.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	599.81	LF	$10.00	$5,998.10
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	78.27	LF	$20.00	$1,565.40
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00	EA	$700.00	$2,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,034.24	LF	$2.80	$5,695.87
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	3.00	EA	$6,000.00	$18,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00	EA	$650.00	$1,950.00
	Subcomponent Total				$35,309.37
	Lighting Component Total				$35,309.37

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value

Length	599.00
Begin height	5.00
End Height	5.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	2,995.00	SF	$28.00	$83,860.00
	Retaining Walls Component Total				$83,860.00
Sequence 7 Total					$751,389.68

Sequence: 8 NUU - New Construction, Undivided, Urban **Net Length:** 0.265 MI
1,400 LF

Description: 3.A US-1 North of Palm Drive, 3 NB Lanes, 1400 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	72.00 / 72.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.270
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.63	AC	$30,000.00	$138,900.00
120-6	EMBANKMENT	8,539.87	CY	$25.00	$213,496.75
	Earthwork Component Total				$352,396.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,403.84	SY	$6.00	$38,423.04
285-709	OPTIONAL BASE,BASE GROUP 09	5,601.02	SY	$30.00	$168,030.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,232.23	TN	$125.00	$154,028.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	224.04	TN	$170.00	$38,086.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	143.00	EA	$5.00	$715.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.06	GM	$1,000.00	$1,060.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.53	GM	$400.00	$212.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.06	GM	$5,000.00	$5,300.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.53	GM	$1,400.00	$742.00
	Roadway Component Total				$406,598.19

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,400.26	LF	$20.00	$28,005.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,400.26	LF	$20.00	$28,005.20
570-1-1	PERFORMANCE TURF	1,555.84	SY	$2.00	$3,111.68

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,800.51	LF	$2.25	$6,301.15
104-11	FLOATING TURBIDITY BARRIER	66.30	LF	$14.00	$928.20
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	66.30	LF	$7.00	$464.10
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	14.00	EA	$100.00	$1,400.00
107-1	LITTER REMOVAL	3.21	AC	$50.00	$160.50
107-2	MOWING	3.21	AC	$100.00	$321.00
	Shoulder Component Total				$72,197.03

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.77	CY	$1,600.00	$7,632.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	10.00	EA	$5,600.00	$56,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$8,400.00	$25,200.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$3,700.00	$7,400.00
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,400.00	$8,800.00
430-175-124		624.00	LF	$110.00	$68,640.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	56.00 LF	$135.00	$7,560.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,328.00 LF	$200.00	$265,600.00
570-1-1	PERFORMANCE TURF	80.62 SY	$2.00	$161.24
	Drainage Component Total			$446,993.24

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	6.00	AS	$450.00	$2,700.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$10,600.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,400.26	LF	$10.00	$14,002.60
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	182.72	LF	$20.00	$3,654.40
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,748.94	LF	$2.80	$13,297.03
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	6.00	EA	$6,000.00	$36,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00	EA	$650.00	$3,900.00
	Subcomponent Total				$75,054.03

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	6.00	EA	$550.00	$3,300.00
	Comment: REMOVE L1,L2,L3,L4,L5,L6 (SEE ERCAR)				
	Lighting Component Total				$78,354.03

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value

Length	1,400.00
Begin height	5.00
End Height	5.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	7,000.00	SF	$28.00	$196,000.00
	Retaining Walls Component Total				$196,000.00

Sequence 8 Total $1,563,139.24

Sequence: 9 NUU - New Construction, Undivided, Urban **Net Length:** 0.057 MI
300 LF

Description: 3.B US-1 NB North of Palm Drive, 2 Lanes, 300 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	36.00 / 36.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.060
Top of Structural Course For Begin Section	101.00
Top of Structural Course For End Section	101.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50 AC	$30,000.00	$15,000.00
120-6	EMBANKMENT	202.05 CY	$25.00	$5,051.25
	Earthwork Component Total			$20,051.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	971.69 SY	$6.00	$5,830.14
285-709	OPTIONAL BASE,BASE GROUP 09	799.74 SY	$30.00	$23,992.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	175.94 TN	$125.00	$21,992.50
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	31.99 TN	$170.00	$5,438.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	8.00	EA	$5.00	$40.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.23	GM	$1,000.00	$230.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.06	GM	$400.00	$24.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.23	GM	$5,000.00	$1,150.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.06	GM	$1,400.00	$84.00
	Roadway Component Total				$58,781.14

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	299.90	LF	$20.00	$5,998.00
520-1-10	CONCRETE CURB & GUTTER, TYPE F	299.90	LF	$20.00	$5,998.00
570-1-1	PERFORMANCE TURF	333.23	SY	$2.00	$666.46

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	599.81	LF	$2.25	$1,349.57
104-11	FLOATING TURBIDITY BARRIER	14.20	LF	$14.00	$198.80
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	14.20	LF	$7.00	$99.40
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	3.00	EA	$100.00	$300.00
107-1	LITTER REMOVAL	0.69	AC	$50.00	$34.50
107-2	MOWING	0.69	AC	$100.00	$69.00
	Shoulder Component Total				$18,213.73

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

400-2-2	CONC CLASS II, ENDWALLS	1.02 CY	$1,600.00	$1,632.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	3.00 EA	$5,600.00	$16,800.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00 EA	$8,400.00	$8,400.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	136.00 LF	$110.00	$14,960.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00 LF	$135.00	$2,160.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	288.00 LF	$200.00	$57,600.00
570-1-1	PERFORMANCE TURF	17.27 SY	$2.00	$34.54
	Drainage Component Total			$109,686.54

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	$450.00	$900.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$8,800.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	299.90	LF	$10.00	$2,999.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	39.14	LF	$20.00	$782.80
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	$700.00	$1,400.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,017.12	LF	$2.80	$2,847.94
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	2.00	EA	$6,000.00	$12,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	$650.00	$1,300.00
	Subcomponent Total				$21,329.74

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	1.00	EA	$550.00	$550.00
	Comment: REMOVE L7 (SEE ERCAR)				

Lighting Component Total	$21,879.74
Sequence 9 Total	$237,412.40

Sequence: 10 NUU - New Construction, Undivided, Urban **Net Length:** 0.038 MI
200 LF

Description: 3.C US-1 SB On-Ramp to NB Turnpike, 1 Lane, 200 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.040
Top of Structural Course For Begin Section	101.00
Top of Structural Course For End Section	101.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.28 AC	$30,000.00	$8,400.00
120-6	EMBANKMENT	49.20 CY	$25.00	$1,230.00
	Earthwork Component Total			$9,630.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	390.89 SY	$6.00	$2,345.34
285-709	OPTIONAL BASE,BASE GROUP 09	333.52 SY	$30.00	$10,005.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	73.37 TN	$125.00	$9,171.25
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	13.34 TN	$170.00	$2,267.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.15	GM	$1,000.00	$150.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.15	GM	$5,000.00	$750.00

Roadway Component Total $24,689.99

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	200.11	LF	$20.00	$4,002.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	200.11	LF	$20.00	$4,002.20
570-1-1	PERFORMANCE TURF	222.35	SY	$2.00	$444.70

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	400.22	LF	$2.25	$900.50
104-11	FLOATING TURBIDITY BARRIER	9.48	LF	$14.00	$132.72
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	9.48	LF	$7.00	$66.36
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	0.46	AC	$50.00	$23.00
107-2	MOWING	0.46	AC	$100.00	$46.00

Shoulder Component Total $13,317.68

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	0.68	CY	$1,600.00	$1,088.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	2.00	EA	$5,600.00	$11,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$8,400.00	$8,400.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124		96.00	LF	$110.00	$10,560.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00 LF	$135.00	$1,080.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	192.00 LF	$200.00	$38,400.00
570-1-1	PERFORMANCE TURF	11.52 SY	$2.00	$23.04
	Drainage Component Total			$78,851.04

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$8,350.00

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	2 Lane Strain Pole
Multiplier	1
Description	Pole Location

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	150.00	LF	$20.00	$3,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
634-4-143	SPAN WIRE ASSEMBLY, F&I, SINGLE PT, BOX	1.00	PI	$7,045.71	$7,045.71
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	30.00	LF	$9.00	$270.00
641-2-16	PREST CNC POLE,F&I,TYP P-VI	4.00	EA	$8,676.06	$34,704.24
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00	AS	$1,000.00	$8,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00	EA	$400.00	$3,200.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00	AS	$1,200.00	$9,600.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00

670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00 AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00 EA	$400.00	$1,600.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$45,982.33	$45,982.33

Signalization 2

Description	Value
Type	2 Lane Strain Pole
Multiplier	1
Description	Pole Location

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	150.00	LF	$20.00	$3,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
634-4-143	SPAN WIRE ASSEMBLY, F&I, SINGLE PT, BOX	1.00	PI	$7,045.71	$7,045.71
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	30.00	LF	$9.00	$270.00
641-2-16	PREST CNC POLE,F&I,TYP P-VI	4.00	EA	$8,676.06	$34,704.24
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00	AS	$1,000.00	$8,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00	EA	$400.00	$3,200.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00	AS	$1,200.00	$9,600.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$400.00	$1,600.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$45,982.33	$45,982.33

Signalizations Component Total $346,444.56

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	200.11	LF	$10.00	$2,001.10
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	26.11	LF	$20.00	$522.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	1.00	EA	$700.00	$700.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	678.68	LF	$2.80	$1,900.30
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	1.00	EA	$6,000.00	$6,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	1.00	EA	$650.00	$650.00
	Subcomponent Total				$11,773.60
	Lighting Component Total				$11,773.60
Sequence 10 Total					$493,056.87

Sequence: 11 NUU - New Construction, Undivided, Urban **Net Length:** 0.227 MI
1,200 LF

Description: 4.A US-1 NB On-Ramp to Turnpike NB, 3 NB Lanes, 1200 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	70.00 / 70.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.230
Top of Structural Course For Begin Section	103.60
Top of Structural Course For End Section	103.60
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	5.90 % / 5.90 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.85 AC	$30,000.00	$115,500.00
120-6	EMBANKMENT	7,796.90 CY	$25.00	$194,922.50
	Earthwork Component Total			$310,422.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,488.66 SY	$6.00	$32,931.96
285-709	OPTIONAL BASE,BASE GROUP 09	4,800.58 SY	$30.00	$144,017.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,056.13 TN	$125.00	$132,016.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	192.02 TN	$170.00	$32,643.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	123.00	EA	$5.00	$615.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.91	GM	$1,000.00	$910.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.45	GM	$400.00	$180.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.91	GM	$5,000.00	$4,550.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.45	GM	$1,400.00	$630.00
	Roadway Component Total				$348,494.01

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,200.14	LF	$20.00	$24,002.80
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,200.14	LF	$20.00	$24,002.80
570-1-1	PERFORMANCE TURF	1,333.49	SY	$2.00	$2,666.98

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,400.29	LF	$2.25	$5,400.65
104-11	FLOATING TURBIDITY BARRIER	56.82	LF	$14.00	$795.48
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	56.82	LF	$7.00	$397.74
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	12.00	EA	$100.00	$1,200.00
107-1	LITTER REMOVAL	2.75	AC	$50.00	$137.50
107-2	MOWING	2.75	AC	$100.00	$275.00
	Shoulder Component Total				$62,378.95

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.09	CY	$1,600.00	$6,544.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	9.00	EA	$5,600.00	$50,400.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$8,400.00	$25,200.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$3,700.00	$7,400.00
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,400.00	$8,800.00
430-175-124		536.00	LF	$110.00	$58,960.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$135.00	$6,480.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,144.00 LF	$200.00	$228,800.00
570-1-1	PERFORMANCE TURF	69.10 SY	$2.00	$138.20
	Drainage Component Total			$392,722.20

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	$450.00	$2,250.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$10,150.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.14	LF	$10.00	$12,001.40
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	156.61	LF	$20.00	$3,132.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,070.26	LF	$2.80	$11,396.73
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	5.00	EA	$6,000.00	$30,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$63,280.33

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	7.00	EA	$550.00	$3,850.00
	Comment: REMOVE L8,L9,L10,L11,L12,L13,L14 (SEE ERCAR)				
	Lighting Component Total				$67,130.33

Sequence 11 Total $1,191,297.99

Sequence: 12 NUR - New Construction, Undivided, Rural **Net Length:** 0.284 MI 1,500 LF

Description: 4.B US-1 On-Ramp to Turnpike NB, 3 NB Lanes, 1500 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.284
Top of Structural Course For Begin Section	104.50
Top of Structural Course For End Section	104.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.13	AC	$30,000.00	$123,900.00
120-6	EMBANKMENT	13,038.05	CY	$25.00	$325,951.25
	Earthwork Component Total				$449,851.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,000.26	SY	$6.00	$48,001.56
285-709	OPTIONAL BASE,BASE GROUP 09	4,110.13	SY	$30.00	$123,303.90
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	880.03	TN	$125.00	$110,003.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	160.01	TN	$170.00	$27,201.70

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	38.00	EA	$5.00	$190.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.57	GM	$1,000.00	$570.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.28	GM	$400.00	$112.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.57	GM	$5,000.00	$2,850.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.28	GM	$1,400.00	$392.00
	Roadway Component Total				$312,624.91

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	3,443.44	SY	$25.00	$86,086.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	275.01	TN	$125.00	$34,376.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	133.34	TN	$170.00	$22,667.80
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.57	GM	$1,800.00	$1,026.00
570-1-1	PERFORMANCE TURF	666.69	SY	$2.00	$1,333.38

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,900.12	LF	$2.25	$8,775.27
104-11	FLOATING TURBIDITY BARRIER	71.03	LF	$14.00	$994.42
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	71.03	LF	$7.00	$497.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	3.44	AC	$50.00	$172.00
107-2	MOWING	3.44	AC	$100.00	$344.00
	Shoulder Component Total				$159,772.33

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	5.11	CY	$1,600.00	$8,176.00

430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	232.00 LF	$110.00	$25,520.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$135.00	$6,480.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	12.00 EA	$1,800.00	$21,600.00
570-1-1	PERFORMANCE TURF	200.01 SY	$2.00	$400.02
	Drainage Component Total			$62,176.02

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	6.00	AS	$1,300.00	$7,800.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$14,150.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	9

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,800.00	LF	$10.00	$18,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$700.00	$6,300.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,400.00	LF	$2.80	$15,120.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	9.00	EA	$6,100.00	$54,900.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00	EA	$650.00	$5,850.00
	Subcomponent Total				$100,170.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	5.00	EA	$550.00	$2,750.00
	Comment: REMOVE L16,L17,L18,L19,L20 (SEE ERCAR)				
	Lighting Component Total				$102,920.00

Sequence 12 Total $1,101,494.51

Sequence: 13 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.152 MI
800 LF

Description: 4.C US-1 NB On-Ramp to Turnpike NB, Widening from 2 to 3 Lanes, 800 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.152
Top of Structural Course For Begin Section	102.40
Top of Structural Course For End Section	102.40
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.11	AC	$30,000.00	$33,300.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	223.23	CY	$25.00	$5,580.75
	Earthwork Component Total				$38,880.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	440
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,199.68	SY	$6.00	$19,198.08
285-709	OPTIONAL BASE,BASE GROUP 09	1,095.89	SY	$30.00	$32,876.70
327-70-11	MILLING EXIST ASPH PAVT,2 1/4" AVG DEPTH	2,133.12	SY	$5.00	$10,665.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	175.98	TN	$125.00	$21,997.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	234.64	TN	$125.00	$29,330.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	85.32	TN	$170.00	$14,504.40

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	87.99 TN	$170.00	$14,958.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	82.00	EA	$5.00	$410.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.30	GM	$1,000.00	$300.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.30	GM	$400.00	$120.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.30	GM	$5,000.00	$1,500.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.30	GM	$1,400.00	$420.00
	Roadway Component Total				$146,280.58

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 12.00
New Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Existing Paved Outside Shoulder Width L/R	10.00 / 10.00
New Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,836.26	SY	$25.00	$45,906.50
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	1,777.60	SY	$3.70	$6,577.12
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	146.65	TN	$120.00	$17,598.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	71.10	TN	$160.00	$11,376.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.30	GM	$1,800.00	$540.00
570-1-1	PERFORMANCE TURF	355.52	SY	$2.00	$711.04

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,839.82	LF	$2.25	$4,139.60
104-11	FLOATING TURBIDITY BARRIER	15.15	LF	$14.00	$212.10
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	15.15	LF	$7.00	$106.05
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.37	AC	$50.00	$18.50
107-2	MOWING	0.37	AC	$100.00	$37.00
	Shoulder Component Total				$90,821.91

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	2.73	CY	$1,600.00	$4,368.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	24.00	LF	$110.00	$2,640.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,800.00	$3,600.00
570-1-1	PERFORMANCE TURF	61.21	SY	$2.00	$122.42
	Drainage Component Total				$12,890.42

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00	AS	$1,300.00	$5,200.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$50.00	$200.00
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,600.00	$4,600.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$11,600.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	5

Pay Items

Pay item	Description	Quantity	Unit	Extended Amount

			Unit Price	
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.00 LF	$10.00	$10,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00 EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,000.00 LF	$2.80	$8,400.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	5.00 EA	$6,100.00	$30,500.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00 EA	$650.00	$3,250.00
	Subcomponent Total			$55,650.00
	Lighting Component Total			$55,650.00
Sequence 13 Total				$356,123.66

Sequence: 14 NUR - New Construction, Undivided, Rural **Net Length:** 0.076 MI
400 LF

Description: 5.A Turnpike SB Exit to Davis Parkway Exit, 3-Lanes, 400 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.010
Top of Structural Course For Begin Section	101.20
Top of Structural Course For End Section	101.20
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.03 AC	$30,000.00	$30,900.00
120-6	EMBANKMENT	6.24 CY	$25.00	$156.00
	Earthwork Component Total			$31,056.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,757.10 SY	$6.00	$16,542.60
285-709	OPTIONAL BASE,BASE GROUP 09	1,630.25 SY	$30.00	$48,907.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	352.20 TN	$125.00	$44,025.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	64.04 TN	$170.00	$10,886.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	41.00	EA	$5.00	$205.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.15	GM	$1,000.00	$150.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.15	GM	$400.00	$60.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.15	GM	$5,000.00	$750.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.15	GM	$1,400.00	$210.00
	Roadway Component Total				$121,736.90

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 16.00
Total Outside Shoulder Perf. Turf Width L/R	6.00 / 6.00
Paved Outside Shoulder Width L/R	4.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	651.92	SY	$25.00	$16,298.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	51.36	TN	$125.00	$6,420.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	24.90	TN	$170.00	$4,233.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.15	GM	$1,800.00	$270.00
570-1-1	PERFORMANCE TURF	533.63	SY	$2.00	$1,067.26

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,040.58	LF	$2.25	$2,341.31
104-11	FLOATING TURBIDITY BARRIER	18.95	LF	$14.00	$265.30
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.95	LF	$7.00	$132.65
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	0.92	AC	$50.00	$46.00
107-2	MOWING	0.92	AC	$100.00	$92.00
	Shoulder Component Total				$34,665.52

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.36	CY	$1,600.00	$2,176.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	64.00	LF	$110.00	$7,040.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	4.00	EA	$1,800.00	$7,200.00
570-1-1	PERFORMANCE TURF	53.36	SY	$2.00	$106.72
	Drainage Component Total				$18,682.72

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,300.00	$2,600.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$8,950.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	5

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.00	LF	$10.00	$10,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,000.00	LF	$2.80	$8,400.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	5.00	EA	$6,100.00	$30,500.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$55,650.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	3.00	EA	$550.00	$1,650.00
	Comment: REMOVE L48,L49,L50 (SEE ERCAR)				
	Lighting Component Total				$57,300.00

Sequence 14 Total	$272,391.14

Sequence: 15 NUR - New Construction, Undivided, Rural **Net Length:** 0.095 MI
500 LF

Description: 5.B Turnpike SB Exit to Davis Parkway Exit, 2-Lanes, 500 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	46.00 / 46.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.095
Top of Structural Course For Begin Section	101.50
Top of Structural Course For End Section	101.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.06 AC	$30,000.00	$31,800.00
120-6	EMBANKMENT	345.18 CY	$25.00	$8,629.50
	Earthwork Component Total			$40,429.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,666.75 SY	$6.00	$16,000.50
285-709	OPTIONAL BASE,BASE GROUP 09	1,370.04 SY	$30.00	$41,101.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	293.34 TN	$125.00	$36,667.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	53.34 TN	$170.00	$9,067.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	13.00	EA	$5.00	$65.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.19	GM	$1,000.00	$190.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.09	GM	$400.00	$36.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.19	GM	$5,000.00	$950.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.09	GM	$1,400.00	$126.00
	Roadway Component Total				$104,204.00

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	8.00 / 16.00
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 4.00
Paved Outside Shoulder Width L/R	4.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	925.59	SY	$25.00	$23,139.75
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	73.34	TN	$125.00	$9,167.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	35.56	TN	$170.00	$6,045.20
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.19	GM	$1,800.00	$342.00
570-1-1	PERFORMANCE TURF	444.46	SY	$2.00	$888.92

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,300.04	LF	$2.25	$2,925.09
104-11	FLOATING TURBIDITY BARRIER	23.68	LF	$14.00	$331.52
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	23.68	LF	$7.00	$165.76
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	1.15	AC	$50.00	$57.50
107-2	MOWING	1.15	AC	$100.00	$115.00
	Shoulder Component Total				$46,678.24

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.70	CY	$1,600.00	$2,720.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	80.00	LF	$110.00	$8,800.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	4.00	EA	$1,800.00	$7,200.00
570-1-1	PERFORMANCE TURF	66.67	SY	$2.00	$133.34
	Drainage Component Total				$21,013.34

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,300.00	$2,600.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$8,950.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$700.00	$2,800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,400.00	LF	$2.80	$6,720.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	4.00	EA	$6,100.00	$24,400.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$650.00	$2,600.00
	Subcomponent Total				$44,520.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	3.00	EA	$550.00	$1,650.00
	Comment: REMOVE L46,L47,L48 (SEE ERCAR)				
	Lighting Component Total				$46,170.00

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	500.00
Begin height	3.00
End Height	3.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	1,500.00	SF	$28.00	$42,000.00
	Retaining Walls Component Total				$42,000.00

Sequence 15 Total $309,445.08

Sequence: 16 NUR - New Construction, Undivided, Rural **Net Length:** 0.227 MI
1,200 LF

Description: 5.C Turnpike Mainline SB to Davis Parkway Exit/Existing Off-Ramp to US-1, 1200 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	48.00 / 48.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.230
Top of Structural Course For Begin Section	103.60
Top of Structural Course For End Section	103.60
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.64 AC	$30,000.00	$79,200.00
120-6	EMBANKMENT	7,919.69 CY	$25.00	$197,992.25
	Earthwork Component Total			$277,192.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,000.96 SY	$6.00	$48,005.76
285-709	OPTIONAL BASE,BASE GROUP 09	4,888.59 SY	$30.00	$146,657.70
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,056.13 TN	$125.00	$132,016.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	192.02 TN	$170.00	$32,643.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	123.00	EA	$5.00	$615.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$1,000.00	$450.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.45	GM	$400.00	$180.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.45	GM	$5,000.00	$2,250.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.45	GM	$1,400.00	$630.00
	Roadway Component Total				$363,448.11

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,755.00	SY	$25.00	$68,875.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	220.03	TN	$125.00	$27,503.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	106.68	TN	$170.00	$18,135.60
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.45	GM	$1,800.00	$810.00
570-1-1	PERFORMANCE TURF	533.40	SY	$2.00	$1,066.80

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,120.37	LF	$2.25	$7,020.83
104-11	FLOATING TURBIDITY BARRIER	56.82	LF	$14.00	$795.48
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	56.82	LF	$7.00	$397.74
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	2.75	AC	$50.00	$137.50
107-2	MOWING	2.75	AC	$100.00	$275.00
	Shoulder Component Total				$128,517.70

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.09	CY	$1,600.00	$6,544.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	184.00	LF	$110.00	$20,240.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	40.00	LF	$135.00	$5,400.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	10.00	EA	$1,800.00	$18,000.00
570-1-1	PERFORMANCE TURF	160.02	SY	$2.00	$320.04
	Drainage Component Total				$50,504.04

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,300.00	$6,500.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$12,850.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	7

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,400.00	LF	$10.00	$14,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	7.00	EA	$700.00	$4,900.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,200.00	LF	$2.80	$11,760.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	7.00	EA	$6,100.00	$42,700.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	7.00	EA	$650.00	$4,550.00
	Subcomponent Total				$77,910.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	4.00	EA	$550.00	$2,200.00
	Comment: REMOVE L21,L22,L23,L24 (SEE ERCAR)				
	Lighting Component Total				$80,110.00

Sequence 16 Total	$912,622.10

Sequence: 17 WUR - Widen/Resurface, Undivided, Rural **Net Length:** 0.171 MI
900 LF

Description: 5.D Turnpike Mainline SB to Davis Pkwy Exit/Existing Off-Ramp to US 1, Widening from 2 to 3 Lanes, 900 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	102.70
Top of Structural Course For End Section	102.70
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.24	AC	$30,000.00	$37,200.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	355.05	CY	$25.00	$8,876.25
	Earthwork Component Total				$46,076.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	440
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,600.96	SY	$6.00	$21,605.76
285-709	OPTIONAL BASE,BASE GROUP 09	1,233.33	SY	$30.00	$36,999.90
327-70-11	MILLING EXIST ASPH PAVT,2 1/4" AVG DEPTH	2,400.64	SY	$5.00	$12,003.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	198.05	TN	$125.00	$24,756.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	264.07	TN	$125.00	$33,008.75
337-7-83		96.03	TN	$170.00	$16,325.10

	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22			
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	99.03 TN	$170.00	$16,835.10

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	92.00 EA	$5.00	$460.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.34 GM	$1,000.00	$340.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.34 GM	$400.00	$136.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.34 GM	$5,000.00	$1,700.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.34 GM	$1,400.00	$476.00
	Roadway Component Total			$164,646.06

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 12.00
New Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Existing Paved Outside Shoulder Width L/R	10.00 / 10.00
New Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,066.55 SY	$25.00	$51,663.75
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	2,000.53 SY	$3.70	$7,401.96
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	165.04 TN	$120.00	$19,804.80
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	80.02 TN	$160.00	$12,803.20
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.34 GM	$1,800.00	$612.00
570-1-1	PERFORMANCE TURF	400.11 SY	$2.00	$800.22

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,070.55	LF	$2.25	$4,658.74
104-11	FLOATING TURBIDITY BARRIER	17.05	LF	$14.00	$238.70
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	17.05	LF	$7.00	$119.35
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.41	AC	$50.00	$20.50
107-2	MOWING	0.41	AC	$100.00	$41.00
	Shoulder Component Total				$101,764.22

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.07	CY	$1,600.00	$4,912.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	32.00	LF	$110.00	$3,520.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,800.00	$3,600.00
570-1-1	PERFORMANCE TURF	68.88	SY	$2.00	$137.76
	Drainage Component Total				$14,329.76

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00	AS	$1,300.00	$5,200.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$50.00	$200.00
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,600.00	$4,600.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$11,600.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.00	LF	$10.00	$12,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,600.00	LF	$2.80	$10,080.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	6.00	EA	$6,100.00	$36,600.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00	EA	$650.00	$3,900.00
	Subcomponent Total				$66,780.00
	Lighting Component Total				$66,780.00
Sequence 17 Total					$405,196.29

Sequence: 18 NUR - New Construction, Undivided, Rural **Net Length:** 0.265 MI 1,400 LF

Description: 6.A Turnpike SB Off-Ramp to US-1, 1-lane, 1400 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	39.00 / 39.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.270
Top of Structural Course For Begin Section	104.20
Top of Structural Course For End Section	104.20
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.51	AC	$30,000.00	$75,300.00
120-6	EMBANKMENT	5,495.42	CY	$25.00	$137,385.50
	Earthwork Component Total				$212,685.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	12.00 / 0.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,601.02	SY	$6.00	$33,606.12
285-709	OPTIONAL BASE,BASE GROUP 09	1,918.35	SY	$30.00	$57,550.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	410.74	TN	$125.00	$51,342.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	74.68	TN	$170.00	$12,695.60

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.53	GM	$1,000.00	$530.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.53	GM	$5,000.00	$2,650.00
	Roadway Component Total				$158,374.72

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	3,214.37	SY	$25.00	$80,359.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	256.71	TN	$125.00	$32,088.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	124.47	TN	$170.00	$21,159.90
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.53	GM	$1,800.00	$954.00
570-1-1	PERFORMANCE TURF	622.34	SY	$2.00	$1,244.68

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,640.67	LF	$2.25	$8,191.51
104-11	FLOATING TURBIDITY BARRIER	66.30	LF	$14.00	$928.20
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	66.30	LF	$7.00	$464.10
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	3.21	AC	$50.00	$160.50
107-2	MOWING	3.21	AC	$100.00	$321.00
	Shoulder Component Total				$149,371.89

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.77	CY	$1,600.00	$7,632.00

430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	216.00 LF	$110.00	$23,760.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$135.00	$6,480.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	11.00 EA	$1,800.00	$19,800.00
570-1-1	PERFORMANCE TURF	186.70 SY	$2.00	$373.40
	Drainage Component Total			$58,045.40

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	6.00	AS	$1,300.00	$7,800.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$14,150.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	8

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,600.00	LF	$10.00	$16,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	8.00	EA	$700.00	$5,600.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,800.00	LF	$2.80	$13,440.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	8.00	EA	$6,100.00	$48,800.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	8.00	EA	$650.00	$5,200.00
	Subcomponent Total				$89,040.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	6.00	EA	$550.00	$3,300.00
	Comment: REMOVE L25,L26,L27,L28,L37, L38 (SEE ERCAR)				
	Lighting Component Total				$92,340.00

Sequence 18 Total $684,967.51

Sequence: 19 RSU - Resurfacing, Undivided **Net Length:** 0.246 MI
1,300 LF

Description: 6.B Turnpike SB Off-Ramp to US-1, 1-lane, 1300 feet

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 0.00
Structural Spread Rate	165
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-11	MILLING EXIST ASPH PAVT,2 1/4" AVG DEPTH	1,733.25	SY	$5.00	$8,666.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	142.99	TN	$125.00	$17,873.75
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	69.33	TN	$160.00	$11,092.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	33.00	EA	$5.00	$165.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.49	GM	$1,000.00	$490.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.25	GM	$400.00	$100.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.49	GM	$5,000.00	$2,450.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.25	GM	$1,400.00	$350.00
	Roadway Component Total				$41,187.80

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80

Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	1,444.37	SY	$3.70	$5,344.17
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	79.44	TN	$125.00	$9,930.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	57.77	TN	$160.00	$9,243.20
570-1-1	PERFORMANCE TURF	771.30	SY	$2.00	$1,542.60

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-11	FLOATING TURBIDITY BARRIER	24.62	LF	$14.00	$344.68
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	24.62	LF	$7.00	$172.34
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.60	AC	$50.00	$30.00
107-2	MOWING	0.60	AC	$100.00	$60.00
	Shoulder Component Total				$26,766.99

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE **Comment:** REMOVE L8,L9,L10,L11,L12,L13,L14 (SEE ERCAR)	7.00	EA	$550.00	$3,850.00
	Lighting Component Total				$3,850.00

Sequence 19 Total $71,804.79

Sequence: 20 WUU - Widen/Resurface, Undivided, Urban **Net Length:** 0.133 MI
700 LF

Description: 7.A US 1 SB North of Palm Drive, widening from 5 to 7-lane with 7-foot bike lane, 700-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	50.00 / 50.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.133
Top of Structural Course For Begin Section	102.10
Top of Structural Course For End Section	102.10
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.61	AC	$30,000.00	$48,300.00
	Earthwork Component Total				$48,300.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	7
Existing Roadway Pavement Width L/R	22.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	11.00 / 18.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,657.37	SY	$6.00	$15,944.22
285-709	OPTIONAL BASE,BASE GROUP 09	2,307.31	SY	$30.00	$69,219.30
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	4,278.56	SY	$4.00	$17,114.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	705.96	TN	$125.00	$88,245.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	372.23	TN	$125.00	$46,528.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	235.32	TN	$170.00	$40,004.40
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	124.08	TN	$170.00	$21,093.60

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	700.00	LF	$45.00	$31,500.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	143.00	EA	$5.00	$715.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.53	GM	$1,000.00	$530.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.80	GM	$400.00	$320.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.53	GM	$5,000.00	$2,650.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.80	GM	$1,400.00	$1,120.00
	Roadway Component Total				$334,984.51

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13	LF	$20.00	$14,002.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13	LF	$20.00	$14,002.60
570-1-1	PERFORMANCE TURF	777.92	SY	$2.00	$1,555.84

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,400.26	LF	$2.25	$3,150.58
104-11	FLOATING TURBIDITY BARRIER	13.26	LF	$14.00	$185.64

104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	13.26 LF	$7.00	$92.82
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	7.00 EA	$100.00	$700.00
107-1	LITTER REMOVAL	0.61 AC	$50.00	$30.50
107-2	MOWING	0.61 AC	$100.00	$61.00
	Shoulder Component Total			$37,281.59

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	256.00	LF	$110.00	$28,160.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	664.00	LF	$200.00	$132,800.00
570-1-1	PERFORMANCE TURF	40.31	SY	$2.00	$80.62
	Drainage Component Total				$213,940.62

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	$50.00	$150.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.13	LF	$10.00	$7,001.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	91.36	LF	$20.00	$1,827.20
635-2-11		3.00	EA	$700.00	$2,100.00

	PULL & SPLICE BOX, F&I, 13" x 24"				
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,374.47	LF	$2.80	$6,648.52
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	3.00	EA	$6,000.00	$18,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00	EA	$650.00	$1,950.00
	Subcomponent Total				$37,527.02

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	2.00	EA	$550.00	$1,100.00
	Comment: Remove L39, L40 (See ERCAR)				
	Lighting Component Total				$38,627.02

Sequence 20 Total $682,983.74

Sequence: 21 WUU - Widen/Resurface, Undivided, Urban **Net Length:** 0.189 MI 1,000 LF

Description: 7.B US 1 SB , widening from 2 to 3-lane, 1000-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.190
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.37	AC	$30,000.00	$41,100.00
	Earthwork Component Total				$41,100.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	0.00 / 11.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,508.94	SY	$6.00	$9,053.64
285-709	OPTIONAL BASE,BASE GROUP 09	1,258.93	SY	$30.00	$37,767.90
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	2,444.52	SY	$4.00	$9,778.08
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	403.35	TN	$125.00	$50,418.75
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	201.67	TN	$125.00	$25,208.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	134.45	TN	$170.00	$22,856.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	67.22	TN	$170.00	$11,427.40

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	700.00	LF	$45.00	$31,500.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	102.00	EA	$5.00	$510.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76	GM	$1,000.00	$760.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.38	GM	$400.00	$152.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.76	GM	$5,000.00	$3,800.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.38	GM	$1,400.00	$532.00
	Roadway Component Total				$203,765.02

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
570-1-1	PERFORMANCE TURF	1,111.15	SY	$2.00	$2,222.30

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,000.06	LF	$2.25	$4,500.14
104-11	FLOATING TURBIDITY BARRIER	18.94	LF	$14.00	$265.16

104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.94 LF	$7.00	$132.58
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	10.00 EA	$100.00	$1,000.00
107-1	LITTER REMOVAL	0.87 AC	$50.00	$43.50
107-2	MOWING	0.87 AC	$100.00	$87.00
	Shoulder Component Total			$51,751.88

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00	EA	$5,600.00	$39,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	368.00	LF	$110.00	$40,480.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	952.00	LF	$200.00	$190,400.00
570-1-1	PERFORMANCE TURF	57.58	SY	$2.00	$115.16
	Drainage Component Total				$295,095.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$450.00	$1,800.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$50.00	$200.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$10,350.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.03	LF	$10.00	$10,000.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	130.50	LF	$20.00	$2,610.00
635-2-11		4.00	EA	$700.00	$2,800.00

	PULL & SPLICE BOX, F&I, 13" x 24"			
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,391.59 LF	$2.80	$9,496.45
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	4.00 EA	$6,000.00	$24,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00 EA	$650.00	$2,600.00
	Subcomponent Total			$51,506.75
	Lighting Component Total			$51,506.75
Sequence 21 Total				$653,568.81

Sequence: 22 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.171 MI
900 LF

Description: 7.C US 1 SB North of Palm Drive, widening from 5 to 6-lanes with 7-foot bike lane, 900-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	102.70
Top of Structural Course For End Section	102.70
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.24 AC	$30,000.00	$37,200.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	554.52 CY	$25.00	$13,863.00
	Earthwork Component Total			$51,063.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	22.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	11.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,358.36 SY	$6.00	$8,150.16
285-709	OPTIONAL BASE,BASE GROUP 09	1,133.30 SY	$30.00	$33,999.00
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	5,501.47 SY	$4.00	$22,005.88
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	907.74 TN	$125.00	$113,467.50
334-1-13		181.55 TN	$125.00	$22,693.75

	SUPERPAVE ASPHALTIC CONC, TRAFFIC C			
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	302.58 TN	$170.00	$51,438.60
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	60.52 TN	$170.00	$10,288.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	115.00 EA	$5.00	$575.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.36 GM	$1,000.00	$1,360.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.36 GM	$400.00	$544.00
	Roadway Component Total			$264,522.29

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	900.24 LF	$20.00	$18,004.80
520-1-10	CONCRETE CURB & GUTTER, TYPE F	900.24 LF	$20.00	$18,004.80
570-1-1	PERFORMANCE TURF	1,000.27 SY	$2.00	$2,000.54

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,800.48 LF	$2.25	$4,051.08
104-11	FLOATING TURBIDITY BARRIER	17.05 LF	$14.00	$238.70
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	17.05 LF	$7.00	$119.35
104-15		1.00 EA	$3,500.00	$3,500.00

	SOIL TRACKING PREVENTION DEVICE			
104-18	INLET PROTECTION SYSTEM	8.00 EA	$100.00	$800.00
107-1	LITTER REMOVAL	1.49 AC	$50.00	$74.50
107-2	MOWING	1.49 AC	$100.00	$149.00
	Shoulder Component Total			$46,942.77

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	14.00
Performance Turf Width	10.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	1,000.27 SY	$2.00	$2,000.54
	Median Component Total			$2,000.54

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.07 CY	$1,600.00	$4,912.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00 EA	$5,600.00	$39,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	$8,400.00	$16,800.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	96.00 LF	$110.00	$10,560.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	32.00 LF	$135.00	$4,320.00
570-1-1	PERFORMANCE TURF	51.83 SY	$2.00	$103.66
	Drainage Component Total			$75,895.66

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00 AS	$450.00	$1,800.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00 AS	$50.00	$200.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$850.00	$850.00
	Signing Component Total			$10,350.00

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	2 Lane Strain Pole
Multiplier	1
Description	Pole Signal + 1 MA

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	150.00	LF	$20.00	$3,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
634-4-143	SPAN WIRE ASSEMBLY, F&I, SINGLE PT, BOX	1.00	PI	$7,045.71	$7,045.71
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	30.00	LF	$9.00	$270.00
641-2-16	PREST CNC POLE,F&I,TYP P-VI	4.00	EA	$8,676.06	$34,704.24
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00	AS	$1,000.00	$8,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00	EA	$400.00	$3,200.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00	AS	$1,200.00	$9,600.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$400.00	$1,600.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$45,982.33	$45,982.33

Signalizations Component Total $173,222.28

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	900.24	LF	$10.00	$9,002.40
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	178.68	LF	$20.00	$3,573.60
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00

715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,287.92 LF	$2.80	$9,206.18
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	6.00 EA	$6,000.00	$36,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00 EA	$650.00	$3,900.00
	Subcomponent Total			$65,882.18
	Lighting Component Total			$65,882.18
Sequence 22 Total				$689,878.72

Sequence: 24 WUU - Widen/Resurface, Undivided, Urban **Net Length:** 0.114 MI 600 LF

Description: 9.A US 1 Palm Drive west of Palm/Us1 Intersection, widening from 6 to 7-lanes and adding traffic separator, 600-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	20.00 / 20.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.120
Top of Structural Course For Begin Section	101.80
Top of Structural Course For End Section	101.80
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.55	AC	$30,000.00	$16,500.00
	Earthwork Component Total				$16,500.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	7
Existing Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	0.00 / 11.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	905.04	SY	$6.00	$5,430.24
285-709	OPTIONAL BASE,BASE GROUP 09	755.09	SY	$30.00	$22,652.70
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	4,398.59	SY	$4.00	$17,594.36
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	725.77	TN	$125.00	$90,721.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	120.96	TN	$125.00	$15,120.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	241.92	TN	$170.00	$41,126.40
337-7-83		40.32	TN	$170.00	$6,854.40

ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	600.00	LF	$45.00	$27,000.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	123.00	EA	$5.00	$615.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$1,000.00	$450.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.68	GM	$400.00	$272.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.45	GM	$5,000.00	$2,250.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.68	GM	$1,400.00	$952.00
	Roadway Component Total				$231,038.35

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
570-1-1	PERFORMANCE TURF	666.45	SY	$2.00	$1,332.90

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

104-10-3	SEDIMENT BARRIER	1,199.62 LF	$2.25	$2,699.14
104-11	FLOATING TURBIDITY BARRIER	11.36 LF	$14.00	$159.04
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	11.36 LF	$7.00	$79.52
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	6.00 EA	$100.00	$600.00
107-1	LITTER REMOVAL	0.52 AC	$50.00	$26.00
107-2	MOWING	0.52 AC	$100.00	$52.00
	Shoulder Component Total			$32,441.01

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$110.00	$24,640.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	568.00	LF	$200.00	$113,600.00
570-1-1	PERFORMANCE TURF	34.53	SY	$2.00	$69.06
	Drainage Component Total				$191,209.06

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	$50.00	$150.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	599.81	LF	$10.00	$5,998.10
630-2-12		78.27	LF	$20.00	$1,565.40

	CONDUIT, F& I, DIRECTIONAL BORE			
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00 EA	$700.00	$2,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,034.24 LF	$2.80	$5,695.87
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	3.00 EA	$6,000.00	$18,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00 EA	$650.00	$1,950.00
	Subcomponent Total			$35,309.37

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	2.00	EA	$550.00	$1,100.00
	Comment: Remove L39, L40 (See ERCAR)				
	Lighting Component Total				$36,409.37

Sequence 24 Total $517,447.79

Sequence: 25 MIS - Miscellaneous Construction **Net Length:** 0.189 MI
1,000 LF

Description: 9.B Reconstructing Intersection to incorporate proposed improvements (Palm Drive/US 1 Intersection, includes islands and U-Turn), 5,300 SY.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.10 AC	$30,000.00	$33,000.00
	Earthwork Component Total			$33,000.00

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,900.00 SY	$6.00	$35,400.00
285-709	OPTIONAL BASE,BASE GROUP 09	5,900.00 SY	$30.00	$177,000.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	973.50 TN	$125.00	$121,687.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	324.50 TN	$160.00	$51,920.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $386,007.50

MEDIAN COMPONENT

User Input Data

Description	Value

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,100.00 LF	$20.00	$22,000.00
	Median Component Total			$22,000.00

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value

Type	6 Lane Mast Arm
Multiplier	1
Description	Mast Arms 78'

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$10.00	$7,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$700.00	$15,400.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$9.00	$540.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,300.00	$1,300.00
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	9.00	EA	$45,982.33	$413,840.97
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	26.00	AS	$1,000.00	$26,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	21.00	EA	$400.00	$8,400.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	21.00	AS	$1,200.00	$25,200.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$400.00	$1,600.00
	Signalizations Component Total				$550,100.97

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	10

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,000.00	LF	$10.00	$20,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,000.00	LF	$2.80	$16,800.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	10.00	EA	$6,100.00	$61,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	10.00	EA	$650.00	$6,500.00
	Subcomponent Total				$111,300.00
	Lighting Component Total				$111,300.00

Sequence 25 Total $1,102,408.47

Sequence: 26 RSU - Resurfacing, Undivided **Net Length:** 0.019 MI
100 LF

Description: 9.C Palm Drive East of Palm/US-1 Intersection, resurfacing existing 8-lanes, adding traffic separator and sidewalk, 100-feet

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	8
Roadway Pavement Width L/R	44.00 / 44.00
Structural Spread Rate	110
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	975.74	SY	$4.00	$3,902.96
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	53.67	TN	$125.00	$6,708.75
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	53.67	TN	$160.00	$8,587.20

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	100.00	LF	$45.00	$4,500.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	7

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	23.00	EA	$5.00	$115.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.04	GM	$1,000.00	$40.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.13	GM	$400.00	$52.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.04	GM	$5,000.00	$200.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.13	GM	$1,400.00	$182.00

Roadway Component Total $24,287.91

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	110.88	SY	$3.70	$410.26
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	6.10	TN	$125.00	$762.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	4.44	TN	$160.00	$710.40
570-1-1	PERFORMANCE TURF	59.21	SY	$2.00	$118.42

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6"	67.00	SY	$60.00	$4,020.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-11	FLOATING TURBIDITY BARRIER	1.89	LF	$14.00	$26.46
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	1.89	LF	$7.00	$13.23
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.05	AC	$50.00	$2.50
107-2	MOWING	0.05	AC	$100.00	$5.00

Shoulder Component Total $6,168.77

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	400.00	LF	$10.00	$4,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	$700.00	$1,400.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,200.00	LF	$2.80	$3,360.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	2.00	EA	$6,100.00	$12,200.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	$650.00	$1,300.00

Subcomponent Total	$22,260.00
Lighting Component Total	$22,260.00
Sequence 26 Total	$52,716.68

Sequence: 27 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.133 MI
700 LF

Description: 10.A US 1 SB South of Palm Drive and US 1 Intersection, widening to add RT turn lane with bike lane 18' and median 12', M&R existing 2 SB lanes, 700'

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.140
Top of Structural Course For Begin Section	102.10
Top of Structural Course For End Section	102.10
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.97 AC	$30,000.00	$29,100.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	343.86 CY	$25.00	$8,596.50
	Earthwork Component Total			$37,696.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	22.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	11.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,056.42 SY	$6.00	$6,338.52
285-709	OPTIONAL BASE,BASE GROUP 09	881.38 SY	$30.00	$26,441.40
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	4,278.56 SY	$4.00	$17,114.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	705.96 TN	$125.00	$88,245.00

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	141.19 TN	$125.00	$17,648.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	235.32 TN	$170.00	$40,004.40
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	47.06 TN	$170.00	$8,000.20

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	90.00	EA	$5.00	$450.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.53	GM	$1,000.00	$530.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.53	GM	$400.00	$212.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.53	GM	$5,000.00	$2,650.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.53	GM	$1,400.00	$742.00
	Roadway Component Total				$208,376.51

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	13.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13	LF	$20.00	$14,002.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13	LF	$20.00	$14,002.60
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	466.75	SY	$45.00	$21,003.75
570-1-1	PERFORMANCE TURF	777.92	SY	$2.00	$1,555.84

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

104-10-3	SEDIMENT BARRIER	1,400.26 LF	$2.25	$3,150.58
104-11	FLOATING TURBIDITY BARRIER	13.26 LF	$14.00	$185.64
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	13.26 LF	$7.00	$92.82
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	7.00 EA	$100.00	$700.00
107-1	LITTER REMOVAL	1.16 AC	$50.00	$58.00
107-2	MOWING	1.16 AC	$100.00	$116.00
	Shoulder Component Total			$58,367.84

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	14.00
Performance Turf Width	10.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	777.92	SY	$2.00	$1,555.84
	Median Component Total				$1,555.84

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	2.39	CY	$1,600.00	$3,824.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	80.00	LF	$110.00	$8,800.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00	LF	$135.00	$3,240.00
570-1-1	PERFORMANCE TURF	40.31	SY	$2.00	$80.62
	Drainage Component Total				$60,744.62

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	$50.00	$150.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00

700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	**Value**
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.13	LF	$10.00	$7,001.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	138.96	LF	$20.00	$2,779.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,557.06	LF	$2.80	$7,159.77
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	5.00	EA	$6,000.00	$30,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$53,690.27
	Lighting Component Total				$53,690.27
Sequence 27 Total					$430,281.58

Sequence: 28 WDU - Widen/Resurface, Divided, Urban **Net Length:** 0.095 MI
500 LF

Description: 10.B South of Palm Drive/Us 1 intersection, widening from 5 to 6-lanes with 6-foot bike lane, 500-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	20.00 / 20.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	101.50
Top of Structural Course For End Section	101.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.46	AC	$30,000.00	$13,800.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	1,719.40	CY	$25.00	$42,985.00
	Earthwork Component Total				$56,785.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	22.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	11.00 / 7.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,286.71	SY	$6.00	$7,720.26
285-709	OPTIONAL BASE,BASE GROUP 09	1,036.70	SY	$30.00	$31,101.00
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	3,055.65	SY	$4.00	$12,222.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	504.18	TN	$125.00	$63,022.50

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	165.01 TN	$125.00	$20,626.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	168.06 TN	$170.00	$28,570.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	55.00 TN	$170.00	$9,350.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	64.00 EA	$5.00	$320.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76 GM	$1,000.00	$760.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.76 GM	$400.00	$304.00
	Roadway Component Total			$173,996.81

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	500.02 LF	$20.00	$10,000.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	500.02 LF	$20.00	$10,000.40
570-1-1	PERFORMANCE TURF	555.57 SY	$2.00	$1,111.14

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	750.00 LF	$20.00	$15,000.00

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price

				Extended Amount
104-10-3	SEDIMENT BARRIER	1,000.03 LF	$2.25	$2,250.07
104-11	FLOATING TURBIDITY BARRIER	9.47 LF	$14.00	$132.58
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	9.47 LF	$7.00	$66.29
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	5.00 EA	$100.00	$500.00
107-1	LITTER REMOVAL	0.83 AC	$50.00	$41.50
107-2	MOWING	0.83 AC	$100.00	$83.00
	Shoulder Component Total			$42,685.38

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	19.00
Performance Turf Width	15.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	833.36	SY	$2.00	$1,666.72
	Median Component Total				$1,666.72

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.70	CY	$1,600.00	$2,720.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00	EA	$5,600.00	$22,400.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$8,400.00	$8,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	56.00	LF	$110.00	$6,160.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
570-1-1	PERFORMANCE TURF	28.79	SY	$2.00	$57.58
	Drainage Component Total				$41,897.58

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	$50.00	$150.00

700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$850.00	$850.00
	Signing Component Total			$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	**Value**
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	500.02	LF	$10.00	$5,000.20
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	99.25	LF	$20.00	$1,985.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$700.00	$2,800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,826.19	LF	$2.80	$5,113.33
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	4.00	EA	$6,000.00	$24,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$650.00	$2,600.00
	Subcomponent Total				$41,498.53
	Lighting Component Total				$41,498.53
Sequence 28 Total					$368,380.02

Sequence: 29 WUU - Widen/Resurface, Undivided, Urban **Net Length:** 0.398 MI
2,100 LF

Description: 10.C US 1 SB, South of Palm Drive and US1 Intersection, widening from 9'-to add bike lane and type F curb & gutter, 2-lanes, 1500-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.390
Top of Structural Course For Begin Section	101.80
Top of Structural Course For End Section	101.80
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.89	AC	$30,000.00	$86,700.00
	Earthwork Component Total				$86,700.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	330
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	5,132.98	SY	$4.00	$20,531.92
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	846.94	TN	$125.00	$105,867.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	282.31	TN	$170.00	$47,992.70

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	600.00	LF	$45.00	$27,000.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	54.00	EA	$5.00	$270.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.59	GM	$1,000.00	$1,590.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.40	GM	$400.00	$160.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.59	GM	$5,000.00	$7,950.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.40	GM	$1,400.00	$560.00
	Roadway Component Total				$211,922.12

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,099.86	LF	$20.00	$41,997.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,099.86	LF	$20.00	$41,997.20
570-1-1	PERFORMANCE TURF	2,333.17	SY	$2.00	$4,666.34

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,199.71	LF	$2.25	$9,449.35
104-11	FLOATING TURBIDITY BARRIER	39.77	LF	$14.00	$556.78
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	39.77	LF	$7.00	$278.39
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	21.00	EA	$100.00	$2,100.00
107-1	LITTER REMOVAL	1.83	AC	$50.00	$91.50
107-2	MOWING	1.83	AC	$100.00	$183.00
	Shoulder Component Total				$104,819.76

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	15.00	EA	$5,600.00	$84,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$8,400.00	$33,600.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$3,700.00	$7,400.00
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,400.00	$8,800.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	776.00	LF	$110.00	$85,360.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,992.00	LF	$200.00	$398,400.00
570-1-1	PERFORMANCE TURF	120.90	SY	$2.00	$241.80
	Drainage Component Total				$617,801.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	8.00	AS	$450.00	$3,600.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	8.00	AS	$50.00	$400.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$12,350.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,099.86	LF	$10.00	$20,998.60
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	274.02	LF	$20.00	$5,480.40
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$700.00	$6,300.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	7,121.61	LF	$2.80	$19,940.51
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	9.00	EA	$6,000.00	$54,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00	EA	$650.00	$5,850.00
	Subcomponent Total				$112,569.51

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71		2.00	EA	$550.00	$1,100.00

LIGHT POLE COMPLETE, REMOVE POLE

Comment: Remove L39, L40 (See ERCAR)

Lighting Component Total	$113,669.51
Sequence 29 Total	$1,147,263.19

Sequence: 30 MIS - Miscellaneous Construction **Net Length:** 3.000 MI
15,840 LF

Description: ITS for the project

INTELLIGENT TRAFFIC SYSTEM (ITS) COMPONENT

Description of Work

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
ITS-01	ITS FOR THE PROJECT **Comment:** Assumes 5% of construction cost at this level.	1.00	LS	$4,500,000.00	$4,500,000.00
	Intelligent Traffic System (ITS) Component Total				$4,500,000.00
Sequence 30 Total					$4,500,000.00

Sequence: 31 MIS - Miscellaneous Construction **Net Length:** 3.000 MI
15,840 LF

Description: Toll Plaza (Gantry & Building)

ARCHITECTURAL COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
735-74-1	TOLL PLAZA, LOCATION 1	1.00	LS	$1,300,000.00	$1,300,000.00
	Architectural Component Total				$1,300,000.00
Sequence 31 Total					$1,300,000.00

Sequence: 32 MIS - Miscellaneous Construction **Net Length:** 3.000 MI
15,840 LF

Description: Signing (Trusses for the Project)

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-4-113	OH STATIC SIGN STR, F&I, C 31-40 FT	3.00	EA	$90,000.00	$270,000.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-4-126	OH STATIC SIGN STR, F&I, S 101-150 FT	6.00	EA	$250,000.00	$1,500,000.00

Signing Component Total $1,770,000.00

Sequence 32 Total $1,770,000.00

Date: 12/23/2019 8:29:27 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 439545-1-22-01 **Letting Date:** 01/2099

Description: PD&E FOR WIDEN HEFT FROM US-1/SOUTH OF PALM DR TO CAMPBELL DR (MP 0-2)

District: 08 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.500 MI

Project Manager: HEYWOOD

Version 9 Project Grand Total **$85,391,849.37**
Description: Widening & Interchange Evaluation of Direct Connect Concept A. Revised 12-17-19 per EOR markups.

Project Sequences Subtotal			**$61,258,964.69**
102-1	Maintenance of Traffic	10.00 %	$6,125,896.47
101-1	Mobilization	10.00 %	$6,738,486.12
Project Sequences Total			**$74,123,347.28**
Project Unknowns		15.00 %	$11,118,502.09
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					**$150,000.00**
Version 9 Project Grand Total					**$85,391,849.37**

Date: 12/23/2019 8:36:55 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 439545-1-22-01 **Letting Date:** 01/2099

Description: PD&E FOR WIDEN HEFT FROM US-1/SOUTH OF PALM DR TO CAMPBELL DR (MP 0-2)

District: 08 **County:** 87 MIAMI-DADE **Market Area:** 13 **Units:** English
Contract Class: 7 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.500 MI

Project Manager: HEYWOOD

Version 10 Project Grand Total **$91,441,298.69**
Description: Widening & Interchange Evaluation of Direct Connect Concept B. Revised 12/18/19 per EOR mark-ups.

Sequence: 1 NDR - New Construction, Divided, Rural **Net Length:** 0.625 MI 3,300 LF

Description: 1.A Direct Connect Ramp, Fill Sections with MSE Wall, 2 Lanes, 3300-feet
Special Conditions: Direct Connect Ramp, Fill Sections with MSE Wall, 2 Lanes, 3300-feet, 987' (Begin MSE wall to begin south bridge) +683' (MSE wall between south bridge and north bridge) +1508' (End north bridge to end MSE wall) =3200'

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	58.00 / 58.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.187
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	130.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %
Alignment Number	2
Distance	0.129
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	107.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %
Alignment Number	3
Distance	0.286

Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	138.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	8.79	AC	$30,000.00	$263,700.00
120-6	EMBANKMENT	468,787.44	CY	$25.00	$11,719,686.00
	Earthwork Component Total				$11,983,386.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	20,533.33	SY	$6.00	$123,199.98
285-709	OPTIONAL BASE,BASE GROUP 09	11,484.00	SY	$30.00	$344,520.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	2,420.00	TN	$125.00	$302,500.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	440.00	TN	$160.00	$70,400.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	84.00	EA	$5.00	$420.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	2.50	GM	$1,000.00	$2,500.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	2.50	GM	$5,000.00	$12,500.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $856,039.98

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	4,642.00	SY	$25.00	$116,050.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	363.00	TN	$125.00	$45,375.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	176.00	TN	$160.00	$28,160.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.25	GM	$1,800.00	$2,250.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-72-43	SHLDR CONC BARRIER, CURB AND GUTTER BARR	6,400.00	LF	$374.08	$2,394,112.00
	Comment: both sides, 3,200x2 = 6,400 LF				

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	8,580.00	LF	$2.00	$17,160.00
104-11	FLOATING TURBIDITY BARRIER	156.25	LF	$14.00	$2,187.50
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	156.25	LF	$7.00	$1,093.75
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	4.00	EA	$100.00	$400.00
107-1	LITTER REMOVAL	15.15	AC	$50.00	$757.50
107-2	MOWING	15.15	AC	$100.00	$1,515.00

Shoulder Component Total $2,612,560.75

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	28.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	7.00 / 7.00
Paved Median Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	4,642.00	SY	$25.00	$116,050.00
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	363.00	TN	$120.00	$43,560.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	176.00	TN	$160.00	$28,160.00
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	3,200.00	LF	$130.00	$416,000.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.00	GM	$1,800.00	$1,800.00
570-1-1	PERFORMANCE TURF	1,958.00	SY	$2.00	$3,916.00
	Median Component Total				$609,486.00

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	11.25	CY	$1,600.00	$18,000.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	4.00	EA	$4,400.00	$17,600.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	504.00	LF	$110.00	$55,440.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	216.00	LF	$110.00	$23,760.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	192.00	LF	$135.00	$25,920.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	25.00	EA	$1,800.00	$45,000.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	1,250.00	SY	$65.00	$81,250.00
570-1-1	PERFORMANCE TURF	440.00	SY	$2.00	$880.00
	Drainage Component Total				$267,850.00

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	$450.00	$900.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	15.00	AS	$1,300.00	$19,500.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	2.00	AS	$5,900.00	$11,800.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	4.00	AS	$6,600.00	$26,400.00

	Signing Component Total	$58,600.00

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	987.00
Begin height	5.00
End Height	24.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	14,311.50	SF	$28.00	$400,722.00

Retaining Wall 2

Description	Value
Length	683.00
Begin height	24.00
End Height	25.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	16,733.50	SF	$28.00	$468,538.00

Retaining Wall 3

Description	Value
Length	1,508.00
Begin height	25.00
End Height	2.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	20,358.00	SF	$28.00	$570,024.00

	Retaining Walls Component Total	$1,439,284.00
Sequence 1 Total		$17,827,206.73

Sequence: 2 NDR - New Construction, Divided, Rural Net Length: 0.076 MI
400 LF

Description: 1.B Direct Connect Ramp At-Grade Section Before Begin MSE Wall, 400-feet 388?? (Direct Connect Ramp At-Grade Section Before Begin MSE Wall) 400'

Special Conditions: Direct Connect Ramp At-Grade Section Before Begin MSE Wall, 400-feet 388' (Direct Connect Ramp At-Grade Section Before Begin MSE Wall) 400'

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	58.00 / 58.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.076
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	106.20
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.07 AC	$30,000.00	$32,100.00
120-6	EMBANKMENT	5,945.63 CY	$25.00	$148,640.75
	Earthwork Component Total			$180,740.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,490.28 SY	$6.00	$14,941.68
285-709	OPTIONAL BASE,BASE GROUP 09	1,392.78 SY	$30.00	$41,783.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	293.50 TN	$125.00	$36,687.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	53.36 TN	$160.00	$8,537.60

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt

Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	10.00	EA	$5.00	$50.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.30	GM	$1,000.00	$300.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.30	GM	$5,000.00	$1,500.00
	Roadway Component Total				$103,800.18

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	6.00 / 6.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	562.98	SY	$25.00	$14,074.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	44.02	TN	$125.00	$5,502.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	21.35	TN	$160.00	$3,416.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.15	GM	$1,800.00	$270.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-72-43	SHLDR CONC BARRIER, CURB AND GUTTER BARR	800.00	LF	$374.08	$299,264.00
	Comment: shoulder barrier wall on both sides				

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,040.58	LF	$2.00	$2,081.16
104-11	FLOATING TURBIDITY BARRIER	18.95	LF	$14.00	$265.30
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.95	LF	$7.00	$132.65
104-15		1.00	EA	$3,500.00	$3,500.00

	SOIL TRACKING PREVENTION DEVICE			
104-18	INLET PROTECTION SYSTEM	1.00 EA	$100.00	$100.00
107-1	LITTER REMOVAL	1.84 AC	$50.00	$92.00
107-2	MOWING	1.84 AC	$100.00	$184.00
	Shoulder Component Total			$328,882.11

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	14.00
Performance Turf Width	6.00
Total Median Shoulder Width L/R	7.00 / 7.00
Paved Median Shoulder Width L/R	6.00 / 6.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	562.98	SY	$25.00	$14,074.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	44.02	TN	$125.00	$5,502.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	21.35	TN	$160.00	$3,416.00
570-1-1	PERFORMANCE TURF	266.82	SY	$2.00	$533.64

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	400.00	LF	$130.00	$52,000.00
	Median Component Total				$75,526.64

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.36	CY	$1,600.00	$2,176.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	1.00	EA	$4,400.00	$4,400.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	64.00	LF	$110.00	$7,040.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	32.00	LF	$110.00	$3,520.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00	LF	$135.00	$3,240.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	4.00	EA	$1,800.00	$7,200.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	151.60	SY	$65.00	$9,854.00
570-1-1	PERFORMANCE TURF	53.36	SY	$2.00	$106.72

	Drainage Component Total	$37,536.72

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,300.00	$2,600.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$15,550.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	600.00	LF	$10.00	$6,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00	EA	$700.00	$2,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,800.00	LF	$2.80	$5,040.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	3.00	EA	$6,100.00	$18,300.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00	EA	$650.00	$1,950.00
	Subcomponent Total				$33,390.00
	Lighting Component Total				$33,390.00
Sequence 2 Total					$775,426.40

Sequence: 3 NDR - New Construction, Divided, Rural Net Length: 0.189 MI
1,000 LF

Description: 1.C Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, includes striped gore,1000 feet.

Special Conditions: Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, includes striped gore,1000 feet.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.190
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	2.00 % / 2.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.75 AC	$30,000.00	$82,500.00
120-6	EMBANKMENT	7,422.19 CY	$25.00	$185,554.75
	Earthwork Component Total			$268,054.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,889.17 SY	$6.00	$53,335.02
285-709	OPTIONAL BASE,BASE GROUP 09	3,480.11 SY	$30.00	$104,403.30
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	733.36 TN	$125.00	$91,670.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	133.34 TN	$160.00	$21,334.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4

Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	26.00	EA	$5.00	$130.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76	GM	$1,000.00	$760.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.76	GM	$5,000.00	$3,800.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $275,432.72

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,740.09	SY	$25.00	$68,502.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	220.01	TN	$125.00	$27,501.25
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	106.67	TN	$160.00	$17,067.20
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.38	GM	$1,800.00	$684.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,600.08	LF	$2.00	$5,200.16
104-11	FLOATING TURBIDITY BARRIER	47.35	LF	$14.00	$662.90
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	47.35	LF	$7.00	$331.45
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	4.59	AC	$50.00	$229.50

107-2	MOWING	4.59 AC	$100.00	$459.00
	Shoulder Component Total			$124,337.71

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	27.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	13.00 / 13.00
Paved Median Shoulder Width L/R	13.00 / 13.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,962.32 SY	$25.00	$74,058.00
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	238.34 TN	$120.00	$28,600.80
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	115.56 TN	$160.00	$18,489.60
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	2,000.00 LF	$130.00	$260,000.00
570-1-1	PERFORMANCE TURF	593.35 SY	$2.00	$1,186.70
	Median Component Total			$382,335.10

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.41 CY	$1,600.00	$5,456.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00 EA	$4,400.00	$8,800.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	152.00 LF	$110.00	$16,720.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	72.00 LF	$110.00	$7,920.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00 LF	$135.00	$8,640.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	8.00 EA	$1,800.00	$14,400.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	378.80 SY	$65.00	$24,622.00
570-1-1	PERFORMANCE TURF	133.34 SY	$2.00	$266.68
	Drainage Component Total			$86,824.68

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	$450.00	$450.00

700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,300.00	$6,500.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,600.00	$13,200.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
705-11-4	DELINEATOR, FLEX HIGH PERFORMANCE 48"	200.00	EA	$120.00	$24,000.00

Signing Component Total $50,050.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.00	LF	$10.00	$12,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,600.00	LF	$2.80	$10,080.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	6.00	EA	$6,100.00	$36,600.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00	EA	$650.00	$3,900.00
	Subcomponent Total				$66,780.00

Lighting Component Total $66,780.00

Sequence 3 Total $1,253,814.96

Sequence: 4 NDR - New Construction, Divided, Rural Net Length: 0.284 MI
1,500 LF

Description: 1.D Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, no striped gore,1500 feet.

Special Conditions: 1.D Direct Connect Ramp, At-grade from end of MSE Wall to connection with Florida's Turnpike NB, no striped gore,1500 feet.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.190
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	2.00 % / 2.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.07	AC	$30,000.00	$62,100.00
120-6	EMBANKMENT	15,374.23	CY	$25.00	$384,355.75
	Earthwork Component Total				$446,455.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.00 / 15.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	11,667.04	SY	$6.00	$70,002.24
285-709	OPTIONAL BASE,BASE GROUP 09	5,220.17	SY	$30.00	$156,605.10
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,100.04	TN	$125.00	$137,505.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	200.01	TN	$160.00	$32,001.60

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4

Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	38.00	EA	$5.00	$190.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.14	GM	$1,000.00	$1,140.00
711-15-101	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	1.14	GM	$5,000.00	$5,700.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $403,143.94

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	4.00 / 4.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	4.00 / 4.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,443.38	SY	$25.00	$36,084.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	110.00	TN	$125.00	$13,750.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	53.34	TN	$160.00	$8,534.40
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.57	GM	$1,800.00	$1,026.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,900.12	LF	$2.00	$7,800.24
104-11	FLOATING TURBIDITY BARRIER	71.03	LF	$14.00	$994.42
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	71.03	LF	$7.00	$497.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	6.89	AC	$50.00	$344.50

107-2	MOWING	6.89 AC	$100.00	$689.00
	Shoulder Component Total			$73,420.27

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	33.00
Performance Turf Width	5.34
Total Median Shoulder Width L/R	16.00 / 16.00
Paved Median Shoulder Width L/R	16.00 / 16.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	5,443.51	SY	$25.00	$136,087.75
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	440.01	TN	$120.00	$52,801.20
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	213.34	TN	$160.00	$34,134.40
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	3,000.00	LF	$130.00	$390,000.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	1.00	GM	$1,800.00	$1,800.00
570-1-1	PERFORMANCE TURF	890.03	SY	$2.00	$1,780.06
	Median Component Total				$616,603.41

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	5.11	CY	$1,600.00	$8,176.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00	EA	$4,400.00	$8,800.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	232.00	LF	$110.00	$25,520.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	104.00	LF	$110.00	$11,440.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	88.00	LF	$135.00	$11,880.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	12.00	EA	$1,800.00	$21,600.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	568.20	SY	$65.00	$36,933.00
570-1-1	PERFORMANCE TURF	200.01	SY	$2.00	$400.02
	Drainage Component Total				$124,749.02

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11		1.00	AS	$450.00	$450.00

	SINGLE POST SIGN, F&I GM, <12 SF			
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	7.00 AS	$1,300.00	$9,100.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00 AS	$6,600.00	$13,200.00
	Signing Component Total			$28,650.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description Value

Multiplier (Number of Poles) 9

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,800.00	LF	$10.00	$18,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$700.00	$6,300.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,400.00	LF	$2.80	$15,120.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	9.00	EA	$6,100.00	$54,900.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00	EA	$650.00	$5,850.00
	Subcomponent Total				$100,170.00
	Lighting Component Total				$100,170.00
Sequence 4 Total					$1,793,192.39

Sequence: 5 NDR - New Construction, Divided, Rural Net Length: 0.246 MI
1,300 LF

Description: 1.E. Direct Connect Bridges, South Bridge (944') and North Bridge (367'), Total 1,300 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	58.00 / 58.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.000
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.46	AC	$30,000.00	$103,800.00
	Earthwork Component Total				$103,800.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	0
Roadway Pavement Width L/R	0.00 / 0.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.97	GM	$1,000.00	$1,970.00
	Roadway Component Total				$1,970.00

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	0.00 / 0.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	0.00 / 0.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,379.83	LF	$2.00	$6,759.66
104-11	FLOATING TURBIDITY BARRIER	61.55	LF	$14.00	$861.70
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	61.55	LF	$7.00	$430.85
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	5.97	AC	$50.00	$298.50
107-2	MOWING	5.97	AC	$100.00	$597.00
	Shoulder Component Total				$12,647.71

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.43	CY	$1,600.00	$7,088.00
425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00	EA	$4,400.00	$8,800.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	200.00	LF	$110.00	$22,000.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	88.00	LF	$110.00	$9,680.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	72.00	LF	$135.00	$9,720.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	10.00	EA	$1,800.00	$18,000.00
524-1-1	CONCRETE DITCH PAVT, NR, 3"	492.40	SY	$65.00	$32,006.00
570-1-1	PERFORMANCE TURF	173.32	SY	$2.00	$346.64
	Drainage Component Total				$107,640.64

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	6.00	AS	$1,300.00	$7,800.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	2.00	AS	$6,600.00	$13,200.00

Signing Component Total	$27,350.00

BRIDGES COMPONENT

Bridge SOUTH

Description	Value
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	000001
Geographic District	05
Segment Count	2
Bridge Length (LF)	944.00
Average Bridge Width (LF)	58.67
Average Skew Angle	0.00
Construction Type	New/Replacement
Typical Section	Rural Divided
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	21,422
Final Bridge Cost	$13,727,341.53
Calculated Final Cost per SF	$247.86
Description	SOUTH BRIDGE

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	132.25	CY	$450.00	$59,512.50
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	6,179.91	SY	$13.00	$80,338.83
415-1-9	REINF STEEL- APPROACH SLABS	25,228.10	LB	$1.00	$25,228.10
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	1,004.00	LF	$88.00	$88,352.00

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
455-88-21	DRILLED SHAFT, 96" DIA	140.00	LF	$1,100.00	$154,000.00
	Comment: Segment 1 & 2				
462-2-11	POST TENSIONING TENDONS, SUPSTR STRAND G	5,868.00	LB	$29.00	$170,172.00
	Comment: Segment 1 & 2				
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	974.00	LF	$88.00	$85,712.00
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	1,948.00	LF	$79.24	$154,359.52

BRIDGE SEGMENTS

Segment 1

Segment Position	First
Segment Over	Land
Segment Length (LF)	472
Segment Width (LF)	58.67

Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	110
No. of Intermediate Supports	2
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	10,479
Total Segment Cost	$6,396,086.60

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	726.49	CY	$800.00	$581,192.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	231.05	CY	$1,100.00	$254,155.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	300.00	CY	$1,156.30	$346,890.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	203,417.20	LB	$1.00	$203,417.20
415-1-5	REINF STEEL- SUBSTRUCTURE	40,500.00	LB	$1.07	$43,335.00
415-1-5	REINF STEEL- SUBSTRUCTURE	49,675.75	LB	$1.00	$49,675.75
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	3,942.00	LF	$138.08	$544,311.36
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	438.00	LF	$183.37	$80,316.06
460-2-2	STRUCT STEEL, LOW ALLOY	1,374,931.41	LB	$3.00	$4,124,794.23
461-113-12	MULTIROT BRNG ASM FX, F&I, 251- 500KIPS	24.00	EA	$7,000.00	$168,000.00

Segment 2

Segment Position	Last
Segment Over	Land
Segment Length (LF)	472
Segment Width (LF)	58.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	110
No. of Intermediate Supports	2
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	10,943
Total Segment Cost	$6,513,579.98

Segment 2 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	726.49	CY	$800.00	$581,192.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	288.00	CY	$1,100.00	$316,800.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	322.81	CY	$1,100.00	$355,091.00

415-1-4	REINF STEEL-SUPERSTRUCTURE	203,417.20 LB	$1.00	$203,417.20
415-1-5	REINF STEEL- SUBSTRUCTURE	38,880.00 LB	$1.00	$38,880.00
415-1-5	REINF STEEL- SUBSTRUCTURE	69,404.15 LB	$1.00	$69,404.15
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	4,140.00 LF	$138.08	$571,651.20
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	460.00 LF	$183.37	$84,350.20
460-2-2	STRUCT STEEL, LOW ALLOY	1,374,931.41 LB	$3.00	$4,124,794.23
461-113-12	MULTIROT BRNG ASM FX, F&I, 251- 500KIPS	24.00 EA	$7,000.00	$168,000.00
	Bridge SOUTH Total			$13,727,341.53

Bridge NORTH

Description	Value
Estimate Type	Detailed Estimate
Primary Estimate	YES
Structure No.	000002
Geographic District	05
Segment Count	2
Bridge Length (LF)	358.00
Average Bridge Width (LF)	58.67
Average Skew Angle	0.00
Construction Type	New/Replacement
Typical Section	Rural Divided
Sidewalk Width Left	0.00
Sidewalk Width Right	0.00
Concrete Traffic Railing	
Pedestrian/Bicycle Railing	
Total Design Load Demand Weight	7,946
Final Bridge Cost	$5,193,013.02
Calculated Final Cost per SF	$247.24
Description	NORTH BRIDGE

Bridge Deck and Approach Slab Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	132.25	CY	$450.00	$59,512.50
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	2,359.84	SY	$13.00	$30,677.92
415-1-9	REINF STEEL- APPROACH SLABS	25,228.10	LB	$1.00	$25,228.10
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	418.00	LF	$88.00	$36,784.00

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
455-88-21	DRILLED SHAFT, 96" DIA	70.00	LF	$1,100.00	$77,000.00
	Comment: 1 per segment				
462-2-13	POST TENSIONING TENDONS, SUBSTR STRAND G	2,234.00	LB	$6.40	$14,297.60
521-5-12	CONC TRAF RAIL- BRG, 36" MED SING SLOPE	388.00	LF	$88.00	$34,144.00
521-5-13	CONC TRAF RAIL- BRIDGE, 36" SING SLOPE	776.00	LF	$79.24	$61,490.24

BRIDGE SEGMENTS

Segment 1

Segment Position	First
Segment Over	Land
Segment Length (LF)	179
Segment Width (LF)	58.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	110
No. of Intermediate Supports	0
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	3,741
Total Segment Cost	$2,205,355.12

Segment 1 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	275.51	CY	$800.00	$220,408.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	47.52	CY	$1,100.00	$52,272.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	77,142.80	LB	$1.00	$77,142.80
415-1-5	REINF STEEL- SUBSTRUCTURE	10,216.80	LB	$1.00	$10,216.80
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	576.00	LF	$138.08	$79,534.08
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	64.00	LF	$183.37	$11,735.68
460-2-2	STRUCT STEEL, LOW ALLOY	552,681.92	LB	$3.00	$1,658,045.76
461-113-13	MULTIROT BRNG ASM FX, F&I, 501- 750KIPS	12.00	EA	$8,000.00	$96,000.00

Segment 2

Segment Position	Last
Segment Over	Land
Segment Length (LF)	179
Segment Width (LF)	58.67
Average Clearance (LF)	25
End Bent Fill Height (LF)	18
Average Pile Length (LF)	110
No. of Intermediate Supports	0
Superstructure / Beam Type	Steel Plate Girder
Substructure / Pier Type	Multi Columns
Foundation Type	Pre-stressed Sq. Piles 24"
Design Load Demand Weight	4,205
Total Segment Cost	$2,648,523.54

Segment 2 Superstructure, Substructure and Foundation Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

400-2-4	CONC CLASS II, BRIDGE SUPERSTRUCTURE	275.51 CY	$800.00	$220,408.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	96.00 CY	$1,100.00	$105,600.00
400-4-5	CONC CLASS IV, SUBSTRUCTURE	139.29 CY	$1,100.00	$153,219.00
415-1-4	REINF STEEL-SUPERSTRUCTURE	77,142.80 LB	$1.00	$77,142.80
415-1-5	REINF STEEL- SUBSTRUCTURE	12,960.00 LB	$1.00	$12,960.00
415-1-5	REINF STEEL- SUBSTRUCTURE	29,947.35 LB	$1.00	$29,947.35
455-34-5	PRESTRESSED CONCRETE PILING, 24" SQ	1,863.00 LF	$138.08	$257,243.04
455-143-5	TEST PILES-PREST CONCRETE,24" SQ	207.00 LF	$183.37	$37,957.59
460-2-2	STRUCT STEEL, LOW ALLOY	552,681.92 LB	$3.00	$1,658,045.76
461-113-13	MULTIROT BRNG ASM FX, F&I, 501- 750KIPS	12.00 EA	$8,000.00	$96,000.00
	Bridge NORTH Total			$5,193,013.02
	Bridges Component Total			$18,920,354.55
Sequence 5 Total				$19,173,762.90

Sequence: 6 NUU - New Construction, Undivided, Urban Net Length: 0.189 MI
1,000 LF

Description: 2.A US-1 South of Palm Drive, 2 NB Lanes with 7-foot bike lane, 1000 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	75.00 / 75.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.189
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.44 AC	$30,000.00	$103,200.00
120-6	EMBANKMENT	7,900.57 CY	$25.00	$197,514.25
	Earthwork Component Total			$300,714.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Roadway Pavement Width L/R	34.00 / 34.00
Structural Spread Rate	330
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,129.15 SY	$6.00	$48,774.90
285-709	OPTIONAL BASE,BASE GROUP 09	7,555.80 SY	$30.00	$226,674.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,246.71 TN	$125.00	$155,838.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	415.57 TN	$170.00	$70,646.90

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	153.00	EA	$5.00	$765.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76	GM	$1,000.00	$760.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.76	GM	$400.00	$304.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.76	GM	$5,000.00	$3,800.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.76	GM	$1,400.00	$1,064.00
	Roadway Component Total				$508,627.55

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	666.69	SY	$45.00	$30,001.05
570-1-1	PERFORMANCE TURF	1,111.15	SY	$2.00	$2,222.30

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,000.06	LF	$2.00	$4,000.12
104-11	FLOATING TURBIDITY BARRIER	47.35	LF	$14.00	$662.90
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	47.35	LF	$7.00	$331.45
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	10.00	EA	$100.00	$1,000.00
107-1	LITTER REMOVAL	2.30	AC	$50.00	$115.00
107-2	MOWING	2.30	AC	$100.00	$230.00
	Shoulder Component Total				$82,064.02

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.41	CY	$1,600.00	$5,456.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00	EA	$5,600.00	$39,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00

425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	448.00 LF	$110.00	$49,280.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	40.00 LF	$135.00	$5,400.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	952.00 LF	$200.00	$190,400.00
570-1-1	PERFORMANCE TURF	57.58 SY	$2.00	$115.16
	Drainage Component Total			$314,751.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$450.00	$1,800.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$9,700.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description

Value

Spacing

MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.03	LF	$10.00	$10,000.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	130.50	LF	$20.00	$2,610.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$700.00	$2,800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,391.59	LF	$2.80	$9,496.45
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	4.00	EA	$6,000.00	$24,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$650.00	$2,600.00
	Subcomponent Total				$51,506.75
	Lighting Component Total				$51,506.75

Sequence 6 Total $1,267,363.73

Sequence: 7 NUU - New Construction, Undivided, Urban Net Length: 0.114 MI
600 LF

Description: 2.B US-1 North of Palm Drive, 5 NB Lanes with 7-foot bike lane, 600 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	86.00 / 86.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.120
Top of Structural Course For Begin Section	101.80
Top of Structural Course For End Section	101.80
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.38 AC	$30,000.00	$71,400.00
120-6	EMBANKMENT	1,764.22 CY	$25.00	$44,105.50
	Earthwork Component Total			$115,505.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	5
Roadway Pavement Width L/R	33.00 / 29.00
Structural Spread Rate	330
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,475.90 SY	$6.00	$26,855.40
285-709	OPTIONAL BASE,BASE GROUP 09	4,132.01 SY	$30.00	$123,960.30
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	681.78 TN	$125.00	$85,222.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	227.26 TN	$170.00	$38,634.20

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	92.00	EA	$5.00	$460.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$1,000.00	$450.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.45	GM	$400.00	$180.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.45	GM	$5,000.00	$2,250.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.45	GM	$1,400.00	$630.00
	Roadway Component Total				$278,642.40

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	13.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	399.87	SY	$45.00	$17,994.15
570-1-1	PERFORMANCE TURF	666.45	SY	$2.00	$1,332.90

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,199.62	LF	$2.00	$2,399.24
104-11	FLOATING TURBIDITY BARRIER	28.40	LF	$14.00	$397.60
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	28.40	LF	$7.00	$198.80
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	6.00	EA	$100.00	$600.00
107-1	LITTER REMOVAL	1.38	AC	$50.00	$69.00
107-2	MOWING	1.38	AC	$100.00	$138.00
	Shoulder Component Total				$50,622.09

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	2.04	CY	$1,600.00	$3,264.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	272.00	LF	$110.00	$29,920.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00	LF	$135.00	$3,240.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	568.00	LF	$200.00	$113,600.00
570-1-1	PERFORMANCE TURF	34.53	SY	$2.00	$69.06
	Drainage Component Total				$202,993.06

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$9,250.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	599.81	LF	$10.00	$5,998.10
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	78.27	LF	$20.00	$1,565.40
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00	EA	$700.00	$2,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,034.24	LF	$2.80	$5,695.87
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	3.00	EA	$6,000.00	$18,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00	EA	$650.00	$1,950.00
	Subcomponent Total				$35,309.37
	Lighting Component Total				$35,309.37

Sequence 7 Total $692,322.42

Sequence: 8 NUU - New Construction, Undivided, Urban Net Length: 0.265 MI
1,400 LF

Description: 3.A US-1 North of Palm Drive, 3 NB Lanes, 1400 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	72.00 / 72.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.270
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.63 AC	$30,000.00	$138,900.00
120-6	EMBANKMENT	8,539.87 CY	$25.00	$213,496.75
	Earthwork Component Total			$352,396.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,403.84 SY	$6.00	$38,423.04
285-709	OPTIONAL BASE,BASE GROUP 09	5,601.02 SY	$30.00	$168,030.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,232.23 TN	$125.00	$154,028.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	224.04 TN	$170.00	$38,086.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	143.00	EA	$5.00	$715.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.06	GM	$1,000.00	$1,060.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.53	GM	$400.00	$212.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.06	GM	$5,000.00	$5,300.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.53	GM	$1,400.00	$742.00
	Roadway Component Total				$406,598.19

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,400.26	LF	$20.00	$28,005.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,400.26	LF	$20.00	$28,005.20
570-1-1	PERFORMANCE TURF	1,555.84	SY	$2.00	$3,111.68

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,800.51	LF	$2.00	$5,601.02
104-11	FLOATING TURBIDITY BARRIER	66.30	LF	$14.00	$928.20
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	66.30	LF	$7.00	$464.10
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	14.00	EA	$100.00	$1,400.00
107-1	LITTER REMOVAL	3.21	AC	$50.00	$160.50
107-2	MOWING	3.21	AC	$100.00	$321.00
	Shoulder Component Total				$71,496.90

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.77	CY	$1,600.00	$7,632.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	10.00	EA	$5,600.00	$56,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$8,400.00	$25,200.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$3,700.00	$7,400.00
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,400.00	$8,800.00
430-175-124		624.00	LF	$110.00	$68,640.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	56.00 LF	$135.00	$7,560.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,328.00 LF	$200.00	$265,600.00
570-1-1	PERFORMANCE TURF	80.62 SY	$2.00	$161.24
	Drainage Component Total			$446,993.24

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	6.00	AS	$450.00	$2,700.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$10,600.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,400.26	LF	$10.00	$14,002.60
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	182.72	LF	$20.00	$3,654.40
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,748.94	LF	$2.80	$13,297.03
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	6.00	EA	$6,000.00	$36,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00	EA	$650.00	$3,900.00
	Subcomponent Total				$75,054.03

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	6.00	EA	$550.00	$3,300.00
	Comment: REMOVE L1,L2,L3,L4,L5,L6 (SEE ERCAR)				
	Lighting Component Total				$78,354.03

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value

Length	1,400.00
Begin height	5.00
End Height	5.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	7,000.00	SF	$28.00	$196,000.00
	Retaining Walls Component Total				$196,000.00

Sequence 8 Total $1,562,439.11

Sequence: 9 NUU - New Construction, Undivided, Urban Net Length: 0.057 MI
300 LF

Description: 3.B US-1 NB North of Palm Drive, 2 Lanes, 300 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	36.00 / 36.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.060
Top of Structural Course For Begin Section	101.00
Top of Structural Course For End Section	101.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.50 AC	$30,000.00	$15,000.00
120-6	EMBANKMENT	202.05 CY	$25.00	$5,051.25
	Earthwork Component Total			$20,051.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	971.69 SY	$6.00	$5,830.14
285-709	OPTIONAL BASE,BASE GROUP 09	799.74 SY	$30.00	$23,992.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	175.94 TN	$125.00	$21,992.50
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	31.99 TN	$170.00	$5,438.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	8.00	EA	$5.00	$40.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.23	GM	$1,000.00	$230.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.06	GM	$400.00	$24.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.23	GM	$5,000.00	$1,150.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.06	GM	$1,400.00	$84.00
	Roadway Component Total				$58,781.14

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	299.90	LF	$20.00	$5,998.00
520-1-10	CONCRETE CURB & GUTTER, TYPE F	299.90	LF	$20.00	$5,998.00
570-1-1	PERFORMANCE TURF	333.23	SY	$2.00	$666.46

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	599.81	LF	$2.00	$1,199.62
104-11	FLOATING TURBIDITY BARRIER	14.20	LF	$14.00	$198.80
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	14.20	LF	$7.00	$99.40
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	3.00	EA	$100.00	$300.00
107-1	LITTER REMOVAL	0.69	AC	$50.00	$34.50
107-2	MOWING	0.69	AC	$100.00	$69.00
	Shoulder Component Total				$18,063.78

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

400-2-2	CONC CLASS II, ENDWALLS	1.02 CY	$1,600.00	$1,632.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	3.00 EA	$5,600.00	$16,800.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00 EA	$8,400.00	$8,400.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00 EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00 EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	136.00 LF	$110.00	$14,960.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00 LF	$135.00	$2,160.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	288.00 LF	$200.00	$57,600.00
570-1-1	PERFORMANCE TURF	17.27 SY	$2.00	$34.54
	Drainage Component Total			$109,686.54

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	$450.00	$900.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$8,800.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description

Value

Spacing MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	299.90	LF	$10.00	$2,999.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	39.14	LF	$20.00	$782.80
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	$700.00	$1,400.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,017.12	LF	$2.80	$2,847.94
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	2.00	EA	$6,000.00	$12,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	$650.00	$1,300.00
	Subcomponent Total				$21,329.74

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	1.00	EA	$550.00	$550.00
	Comment: REMOVE L7 (SEE ERCAR)				

Lighting Component Total	$21,879.74
Sequence 9 Total	$237,262.45

Sequence: 10 NUU - New Construction, Undivided, Urban Net Length: 0.038 MI
200 LF

Description: 3.C US-1 SB On-Ramp to NB Turnpike, 1 Lane, 200 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.040
Top of Structural Course For Begin Section	101.00
Top of Structural Course For End Section	101.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.28 AC	$30,000.00	$8,400.00
120-6	EMBANKMENT	49.20 CY	$25.00	$1,230.00
	Earthwork Component Total			$9,630.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	390.89 SY	$6.00	$2,345.34
285-709	OPTIONAL BASE,BASE GROUP 09	333.52 SY	$30.00	$10,005.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	73.37 TN	$125.00	$9,171.25
337-7-82	ASPH CONC FC,TRAFFIC C,FC-9.5,PG 76-22	13.34 TN	$170.00	$2,267.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.15	GM	$1,000.00	$150.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.15	GM	$5,000.00	$750.00
	Roadway Component Total				$24,689.99

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	200.11	LF	$20.00	$4,002.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	200.11	LF	$20.00	$4,002.20
570-1-1	PERFORMANCE TURF	222.35	SY	$2.00	$444.70

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	400.22	LF	$2.00	$800.44
104-11	FLOATING TURBIDITY BARRIER	9.48	LF	$14.00	$132.72
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	9.48	LF	$7.00	$66.36
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	2.00	EA	$100.00	$200.00
107-1	LITTER REMOVAL	0.46	AC	$50.00	$23.00
107-2	MOWING	0.46	AC	$100.00	$46.00
	Shoulder Component Total				$13,217.62

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	0.68	CY	$1,600.00	$1,088.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	2.00	EA	$5,600.00	$11,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$8,400.00	$8,400.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124		96.00	LF	$110.00	$10,560.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	8.00 LF	$135.00	$1,080.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	192.00 LF	$200.00	$38,400.00
570-1-1	PERFORMANCE TURF	11.52 SY	$2.00	$23.04
	Drainage Component Total			$78,851.04

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$8,350.00

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	2 Lane Strain Pole
Multiplier	1
Description	Pole Location

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	150.00	LF	$20.00	$3,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
634-4-143	SPAN WIRE ASSEMBLY, F&I, SINGLE PT, BOX	1.00	PI	$7,045.71	$7,045.71
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	30.00	LF	$9.00	$270.00
641-2-16	PREST CNC POLE,F&I,TYP P-VI	4.00	EA	$11,544.25	$46,177.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00	AS	$1,000.00	$8,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00	EA	$400.00	$3,200.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00	AS	$1,200.00	$9,600.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00

670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$400.00	$1,600.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$45,982.33	$45,982.33

Signalization 2

Description	Value
Type	2 Lane Strain Pole
Multiplier	1
Description	Signalization 2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	150.00	LF	$20.00	$3,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
634-4-143	SPAN WIRE ASSEMBLY, F&I, SINGLE PT, BOX	1.00	PI	$7,045.71	$7,045.71
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	30.00	LF	$9.00	$270.00
641-2-16	PREST CNC POLE,F&I,TYP P-VI	4.00	EA	$11,544.25	$46,177.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00	AS	$1,000.00	$8,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00	EA	$400.00	$3,200.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00	AS	$1,200.00	$9,600.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$400.00	$1,600.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$45,982.33	$45,982.33

	Signalizations Component Total	$369,390.08

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description Value
Spacing MAX
Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	200.11	LF	$10.00	$2,001.10
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	26.11	LF	$20.00	$522.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	1.00	EA	$700.00	$700.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	678.68	LF	$2.80	$1,900.30
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	1.00	EA	$6,000.00	$6,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	1.00	EA	$650.00	$650.00
	Subcomponent Total				$11,773.60
	Lighting Component Total				$11,773.60
Sequence 10 Total					$515,902.33

Sequence: 11 NUU - New Construction, Undivided, Urban Net Length: 0.227 MI
1,200 LF

Description: 4.A US-1 NB On-Ramp to Turnpike NB, 3 NB Lanes, 1200 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	70.00 / 70.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.230
Top of Structural Course For Begin Section	103.60
Top of Structural Course For End Section	103.60
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	5.90 % / 5.90 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	3.85 AC	$30,000.00	$115,500.00
120-6	EMBANKMENT	7,796.90 CY	$25.00	$194,922.50
	Earthwork Component Total			$310,422.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,488.66 SY	$6.00	$32,931.96
285-709	OPTIONAL BASE,BASE GROUP 09	4,800.58 SY	$30.00	$144,017.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,056.13 TN	$125.00	$132,016.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	192.02 TN	$170.00	$32,643.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	123.00	EA	$5.00	$615.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.91	GM	$1,000.00	$910.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.45	GM	$400.00	$180.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.91	GM	$5,000.00	$4,550.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.45	GM	$1,400.00	$630.00
	Roadway Component Total				$348,494.01

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,200.14	LF	$20.00	$24,002.80
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,200.14	LF	$20.00	$24,002.80
570-1-1	PERFORMANCE TURF	1,333.49	SY	$2.00	$2,666.98

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,400.29	LF	$2.00	$4,800.58
104-11	FLOATING TURBIDITY BARRIER	56.82	LF	$14.00	$795.48
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	56.82	LF	$7.00	$397.74
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	12.00	EA	$100.00	$1,200.00
107-1	LITTER REMOVAL	2.75	AC	$50.00	$137.50
107-2	MOWING	2.75	AC	$100.00	$275.00
	Shoulder Component Total				$61,778.88

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.09	CY	$1,600.00	$6,544.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	9.00	EA	$5,600.00	$50,400.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$8,400.00	$25,200.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$3,700.00	$7,400.00
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,400.00	$8,800.00
430-175-124		536.00	LF	$110.00	$58,960.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$135.00	$6,480.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,144.00 LF	$200.00	$228,800.00
570-1-1	PERFORMANCE TURF	69.10 SY	$2.00	$138.20
	Drainage Component Total			$392,722.20

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	$450.00	$2,250.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$10,150.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description
Value
Spacing
MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.14	LF	$10.00	$12,001.40
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	156.61	LF	$20.00	$3,132.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,070.26	LF	$2.80	$11,396.73
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	5.00	EA	$6,000.00	$30,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$63,280.33

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	7.00	EA	$550.00	$3,850.00
	Comment: REMOVE L8,L9,L10,L11,L12,L13,L14 (SEE ERCAR)				
	Lighting Component Total				$67,130.33

Sequence 11 Total $1,190,697.92

Sequence: 12 NUR - New Construction, Undivided, Rural Net Length: 0.284 MI
1,500 LF

Description: 4.B US-1 On-Ramp to Turnpike NB, 3 NB Lanes, 1500 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	60.00 / 60.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.284
Top of Structural Course For Begin Section	104.50
Top of Structural Course For End Section	104.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	4.13 AC	$30,000.00	$123,900.00
120-6	EMBANKMENT	13,038.05 CY	$25.00	$325,951.25
	Earthwork Component Total			$449,851.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,000.26 SY	$6.00	$48,001.56
285-709	OPTIONAL BASE,BASE GROUP 09	4,110.13 SY	$30.00	$123,303.90
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	880.03 TN	$125.00	$110,003.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	160.01 TN	$170.00	$27,201.70

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	38.00	EA	$5.00	$190.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.57	GM	$1,000.00	$570.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.28	GM	$400.00	$112.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.57	GM	$5,000.00	$2,850.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.28	GM	$1,400.00	$392.00
	Roadway Component Total				$312,624.91

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	3,443.44	SY	$25.00	$86,086.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	275.01	TN	$125.00	$34,376.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	133.34	TN	$170.00	$22,667.80
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.57	GM	$1,800.00	$1,026.00
570-1-1	PERFORMANCE TURF	666.69	SY	$2.00	$1,333.38

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,900.12	LF	$2.00	$7,800.24
104-11	FLOATING TURBIDITY BARRIER	71.03	LF	$14.00	$994.42
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	71.03	LF	$7.00	$497.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	3.44	AC	$50.00	$172.00
107-2	MOWING	3.44	AC	$100.00	$344.00
	Shoulder Component Total				$158,797.30

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	5.11	CY	$1,600.00	$8,176.00

430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	232.00 LF	$110.00	$25,520.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$135.00	$6,480.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	12.00 EA	$1,800.00	$21,600.00
570-1-1	PERFORMANCE TURF	200.01 SY	$2.00	$400.02
	Drainage Component Total			$62,176.02

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	6.00	AS	$1,300.00	$7,800.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$14,150.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	9

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,800.00	LF	$10.00	$18,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$700.00	$6,300.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	5,400.00	LF	$2.80	$15,120.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	9.00	EA	$6,100.00	$54,900.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00	EA	$650.00	$5,850.00
	Subcomponent Total				$100,170.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	5.00	EA	$550.00	$2,750.00
	Comment: REMOVE L16,L17,L18,L19,L20 (SEE ERCAR)				
	Lighting Component Total				$102,920.00

Sequence 12 Total $1,100,519.48

Sequence: 13 WUR - Widen/Resurface, Undivided, Rural Net Length: 0.152 MI
800 LF

Description: 4.C US-1 NB On-Ramp to Turnpike NB, Widening from 2 to 3 Lanes, 800 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.152
Top of Structural Course For Begin Section	102.40
Top of Structural Course For End Section	102.40
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.11	AC	$30,000.00	$33,300.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	223.23	CY	$25.00	$5,580.75
	Earthwork Component Total				$38,880.75

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	440
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,199.68	SY	$6.00	$19,198.08
285-709	OPTIONAL BASE,BASE GROUP 09	1,095.89	SY	$30.00	$32,876.70
327-70-11	MILLING EXIST ASPH PAVT,2 1/4" AVG DEPTH	2,133.12	SY	$5.00	$10,665.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	175.98	TN	$125.00	$21,997.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	234.64	TN	$125.00	$29,330.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	85.32	TN	$170.00	$14,504.40

337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	87.99 TN	$170.00	$14,958.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	82.00 EA	$5.00	$410.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.30 GM	$1,000.00	$300.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.30 GM	$400.00	$120.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.30 GM	$5,000.00	$1,500.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.30 GM	$1,400.00	$420.00
	Roadway Component Total			$146,280.58

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 12.00
New Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Existing Paved Outside Shoulder Width L/R	10.00 / 10.00
New Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,836.26 SY	$25.00	$45,906.50
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	1,777.60 SY	$3.70	$6,577.12
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	146.65 TN	$120.00	$17,598.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	71.10 TN	$160.00	$11,376.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.30 GM	$1,800.00	$540.00
570-1-1	PERFORMANCE TURF	355.52 SY	$2.00	$711.04

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,839.82	LF	$2.00	$3,679.64
104-11	FLOATING TURBIDITY BARRIER	15.15	LF	$14.00	$212.10
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	15.15	LF	$7.00	$106.05
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.37	AC	$50.00	$18.50
107-2	MOWING	0.37	AC	$100.00	$37.00
	Shoulder Component Total				$90,361.95

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	2.73	CY	$1,600.00	$4,368.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	24.00	LF	$110.00	$2,640.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,800.00	$3,600.00
570-1-1	PERFORMANCE TURF	61.21	SY	$2.00	$122.42
	Drainage Component Total				$12,890.42

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00	AS	$1,300.00	$5,200.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$50.00	$200.00
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,600.00	$4,600.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$11,600.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	5

Pay Items

Pay item	Description	Quantity	Unit	Extended Amount

			Unit Price	
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.00 LF	$10.00	$10,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00 EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,000.00 LF	$2.80	$8,400.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	5.00 EA	$6,100.00	$30,500.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00 EA	$650.00	$3,250.00
	Subcomponent Total			$55,650.00
	Lighting Component Total			$55,650.00
Sequence 13 Total				$355,663.70

Sequence: 14 NUR - New Construction, Undivided, Rural Net Length: 0.076 MI
400 LF

Description: 5.A Turnpike SB Exit to Davis Parkway Exit, 3-Lanes, 400 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	56.00 / 56.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.010
Top of Structural Course For Begin Section	101.20
Top of Structural Course For End Section	101.20
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.03 AC	$30,000.00	$30,900.00
120-6	EMBANKMENT	6.24 CY	$25.00	$156.00
	Earthwork Component Total			$31,056.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,757.10 SY	$6.00	$16,542.60
285-709	OPTIONAL BASE,BASE GROUP 09	1,630.25 SY	$30.00	$48,907.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	352.20 TN	$125.00	$44,025.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	64.04 TN	$170.00	$10,886.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	41.00	EA	$5.00	$205.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.15	GM	$1,000.00	$150.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.15	GM	$400.00	$60.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.15	GM	$5,000.00	$750.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.15	GM	$1,400.00	$210.00
	Roadway Component Total				$121,736.90

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 16.00
Total Outside Shoulder Perf. Turf Width L/R	6.00 / 6.00
Paved Outside Shoulder Width L/R	4.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	651.92	SY	$25.00	$16,298.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	51.36	TN	$125.00	$6,420.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	24.90	TN	$170.00	$4,233.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.15	GM	$1,800.00	$270.00
570-1-1	PERFORMANCE TURF	533.63	SY	$2.00	$1,067.26

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,040.58	LF	$2.00	$2,081.16
104-11	FLOATING TURBIDITY BARRIER	18.95	LF	$14.00	$265.30
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.95	LF	$7.00	$132.65
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	0.92	AC	$50.00	$46.00
107-2	MOWING	0.92	AC	$100.00	$92.00
	Shoulder Component Total				$34,405.37

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.36	CY	$1,600.00	$2,176.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	64.00	LF	$110.00	$7,040.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	4.00	EA	$1,800.00	$7,200.00
570-1-1	PERFORMANCE TURF	53.36	SY	$2.00	$106.72
	Drainage Component Total				$18,682.72

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,300.00	$2,600.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$8,950.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	5

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.00	LF	$10.00	$10,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,000.00	LF	$2.80	$8,400.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	5.00	EA	$6,100.00	$30,500.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$55,650.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	3.00	EA	$550.00	$1,650.00
	Comment: REMOVE L48,L49,L50 (SEE ERCAR)				
	Lighting Component Total				$57,300.00

Sequence 14 Total	$272,130.99

Sequence: 15 NUR - New Construction, Undivided, Rural Net Length: 0.095 MI
500 LF

Description: 5.B Turnpike SB Exit to Davis Parkway Exit, 2-Lanes, 500 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	46.00 / 46.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.095
Top of Structural Course For Begin Section	101.50
Top of Structural Course For End Section	101.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.06	AC	$30,000.00	$31,800.00
120-6	EMBANKMENT	345.18	CY	$25.00	$8,629.50
	Earthwork Component Total				$40,429.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,666.75	SY	$6.00	$16,000.50
285-709	OPTIONAL BASE,BASE GROUP 09	1,370.04	SY	$30.00	$41,101.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	293.34	TN	$125.00	$36,667.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	53.34	TN	$170.00	$9,067.80

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	13.00	EA	$5.00	$65.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.19	GM	$1,000.00	$190.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.09	GM	$400.00	$36.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.19	GM	$5,000.00	$950.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.09	GM	$1,400.00	$126.00
	Roadway Component Total				$104,204.00

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	8.00 / 16.00
Total Outside Shoulder Perf. Turf Width L/R	4.00 / 4.00
Paved Outside Shoulder Width L/R	4.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	925.59	SY	$25.00	$23,139.75
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	73.34	TN	$125.00	$9,167.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	35.56	TN	$170.00	$6,045.20
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.19	GM	$1,800.00	$342.00
570-1-1	PERFORMANCE TURF	444.46	SY	$2.00	$888.92

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,300.04	LF	$2.00	$2,600.08
104-11	FLOATING TURBIDITY BARRIER	23.68	LF	$14.00	$331.52
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	23.68	LF	$7.00	$165.76
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	1.15	AC	$50.00	$57.50
107-2	MOWING	1.15	AC	$100.00	$115.00
	Shoulder Component Total				$46,353.23

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.70	CY	$1,600.00	$2,720.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	80.00	LF	$110.00	$8,800.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	4.00	EA	$1,800.00	$7,200.00
570-1-1	PERFORMANCE TURF	66.67	SY	$2.00	$133.34
	Drainage Component Total				$21,013.34

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00	AS	$1,300.00	$2,600.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$8,950.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	4

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$700.00	$2,800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,400.00	LF	$2.80	$6,720.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	4.00	EA	$6,100.00	$24,400.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$650.00	$2,600.00
	Subcomponent Total				$44,520.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	3.00	EA	$550.00	$1,650.00
	Comment: REMOVE L46,L47,L48 (SEE ERCAR)				
	Lighting Component Total				$46,170.00

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	500.00
Begin height	3.00
End Height	3.00
Multiplier	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	1,500.00	SF	$28.00	$42,000.00
	Retaining Walls Component Total				$42,000.00
Sequence 15 Total					$309,120.07

Sequence: 16 NUR - New Construction, Undivided, Rural Net Length: 0.227 MI
1,200 LF

Description: 5.C Turnpike Mainline SB to Davis Parkway Exit/Existing Off-Ramp to US-1, 1200 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	48.00 / 48.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.230
Top of Structural Course For Begin Section	103.60
Top of Structural Course For End Section	103.60
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.64 AC	$30,000.00	$79,200.00
120-6	EMBANKMENT	7,919.69 CY	$25.00	$197,992.25
	Earthwork Component Total			$277,192.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Roadway Pavement Width L/R	12.00 / 24.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	8,000.96 SY	$6.00	$48,005.76
285-709	OPTIONAL BASE,BASE GROUP 09	4,888.59 SY	$30.00	$146,657.70
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	1,056.13 TN	$125.00	$132,016.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	192.02 TN	$170.00	$32,643.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	123.00	EA	$5.00	$615.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$1,000.00	$450.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.45	GM	$400.00	$180.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.45	GM	$5,000.00	$2,250.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.45	GM	$1,400.00	$630.00
	Roadway Component Total				$363,448.11

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	2,755.00	SY	$25.00	$68,875.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	220.03	TN	$125.00	$27,503.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	106.68	TN	$170.00	$18,135.60
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.45	GM	$1,800.00	$810.00
570-1-1	PERFORMANCE TURF	533.40	SY	$2.00	$1,066.80

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,120.37	LF	$2.00	$6,240.74
104-11	FLOATING TURBIDITY BARRIER	56.82	LF	$14.00	$795.48
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	56.82	LF	$7.00	$397.74
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	2.75	AC	$50.00	$137.50
107-2	MOWING	2.75	AC	$100.00	$275.00
	Shoulder Component Total				$127,737.61

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.09	CY	$1,600.00	$6,544.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	184.00	LF	$110.00	$20,240.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	40.00	LF	$135.00	$5,400.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	10.00	EA	$1,800.00	$18,000.00
570-1-1	PERFORMANCE TURF	160.02	SY	$2.00	$320.04
	Drainage Component Total				$50,504.04

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	5.00	AS	$1,300.00	$6,500.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$12,850.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	7

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,400.00	LF	$10.00	$14,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	7.00	EA	$700.00	$4,900.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,200.00	LF	$2.80	$11,760.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	7.00	EA	$6,100.00	$42,700.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	7.00	EA	$650.00	$4,550.00
	Subcomponent Total				$77,910.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	4.00	EA	$550.00	$2,200.00
	Comment: REMOVE L21,L22,L23,L24 (SEE ERCAR)				
	Lighting Component Total				$80,110.00

Sequence 16 Total	$911,842.01

Sequence: 17 WUR - Widen/Resurface, Undivided, Rural Net Length: 0.152 MI
800 LF

Description: 5.D Turnpike Mainline SB to Davis Pkwy Exit/Existing Off-Ramp to US 1, Widening from 2 to 3 Lanes, 900 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.152
Top of Structural Course For Begin Section	102.70
Top of Structural Course For End Section	102.70
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.11	AC	$30,000.00	$33,300.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	317.46	CY	$25.00	$7,936.50
	Earthwork Component Total				$41,236.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	3
Existing Roadway Pavement Width L/R	12.00 / 12.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Widened Outside Pavement Width L/R	0.00 / 12.00
Widened Structural Spread Rate	440
Widened Friction Course Spread Rate	165

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,199.68	SY	$6.00	$19,198.08
285-709	OPTIONAL BASE,BASE GROUP 09	1,095.89	SY	$30.00	$32,876.70
327-70-11	MILLING EXIST ASPH PAVT,2 1/4" AVG DEPTH	2,133.12	SY	$5.00	$10,665.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	175.98	TN	$125.00	$21,997.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	234.64	TN	$125.00	$29,330.00
337-7-83		85.32	TN	$170.00	$14,504.40

	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22			
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	87.99 TN	$170.00	$14,958.30

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	82.00 EA	$5.00	$410.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.30 GM	$1,000.00	$300.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.30 GM	$400.00	$120.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.30 GM	$5,000.00	$1,500.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.30 GM	$1,400.00	$420.00
	Roadway Component Total			$146,280.58

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.00 / 12.00
New Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Existing Paved Outside Shoulder Width L/R	10.00 / 10.00
New Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	1,836.26 SY	$25.00	$45,906.50
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	1,777.60 SY	$3.70	$6,577.12
334-1-12	SUPERPAVE ASPHALTIC CONC, TRAFFIC B	146.65 TN	$120.00	$17,598.00
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	71.10 TN	$160.00	$11,376.00
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.30 GM	$1,800.00	$540.00
570-1-1	PERFORMANCE TURF	355.52 SY	$2.00	$711.04

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,839.82	LF	$2.00	$3,679.64
104-11	FLOATING TURBIDITY BARRIER	15.15	LF	$14.00	$212.10
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	15.15	LF	$7.00	$106.05
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.37	AC	$50.00	$18.50
107-2	MOWING	0.37	AC	$100.00	$37.00
	Shoulder Component Total				$90,361.95

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	2.73	CY	$1,600.00	$4,368.00
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	24.00	LF	$110.00	$2,640.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	2.00	EA	$1,800.00	$3,600.00
570-1-1	PERFORMANCE TURF	61.21	SY	$2.00	$122.42
	Drainage Component Total				$12,890.42

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	4.00	AS	$1,300.00	$5,200.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$50.00	$200.00
700-2-13	MULTI- POST SIGN, F&I GM, 21-30 SF	1.00	AS	$4,600.00	$4,600.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$11,600.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.00	LF	$10.00	$12,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,600.00	LF	$2.80	$10,080.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	6.00	EA	$6,100.00	$36,600.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00	EA	$650.00	$3,900.00
	Subcomponent Total				$66,780.00
	Lighting Component Total				$66,780.00
Sequence 17 Total					$369,149.45

Sequence: 18 NUR - New Construction, Undivided, Rural Net Length: 0.284 MI
1,500 LF

Description: 6.A Turnpike SB Off-Ramp to US-1, 1-lane, 1500 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	39.00 / 39.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.280
Top of Structural Course For Begin Section	104.50
Top of Structural Course For End Section	104.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.69 AC	$30,000.00	$80,700.00
120-6	EMBANKMENT	6,427.21 CY	$25.00	$160,680.25
	Earthwork Component Total			$241,380.25

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	12.00 / 0.00
Structural Spread Rate	440
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	6,000.19 SY	$6.00	$36,001.14
285-709	OPTIONAL BASE,BASE GROUP 09	2,055.07 SY	$30.00	$61,652.10
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	440.01 TN	$125.00	$55,001.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	80.00 TN	$170.00	$13,600.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.57	GM	$1,000.00	$570.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.57	GM	$5,000.00	$2,850.00
	Roadway Component Total				$169,674.49

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	12.00 / 12.00
Total Outside Shoulder Perf. Turf Width L/R	2.00 / 2.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	3,443.44	SY	$25.00	$86,086.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	275.01	TN	$125.00	$34,376.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	133.34	TN	$170.00	$22,667.80
546-72-1	GROUND-IN RUMBLE STRIPS, 16"	0.57	GM	$1,800.00	$1,026.00
570-1-1	PERFORMANCE TURF	666.69	SY	$2.00	$1,333.38

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	3,900.12	LF	$2.00	$7,800.24
104-11	FLOATING TURBIDITY BARRIER	71.03	LF	$14.00	$994.42
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	71.03	LF	$7.00	$497.21
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
107-1	LITTER REMOVAL	3.44	AC	$50.00	$172.00
107-2	MOWING	3.44	AC	$100.00	$344.00
	Shoulder Component Total				$158,797.30

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	5.11	CY	$1,600.00	$8,176.00

430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	232.00 LF	$110.00	$25,520.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$135.00	$6,480.00
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	12.00 EA	$1,800.00	$21,600.00
570-1-1	PERFORMANCE TURF	200.01 SY	$2.00	$400.02
	Drainage Component Total			$62,176.02

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	$450.00	$450.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	6.00	AS	$1,300.00	$7,800.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
	Signing Component Total				$14,150.00

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	8

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,600.00	LF	$10.00	$16,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	8.00	EA	$700.00	$5,600.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,800.00	LF	$2.80	$13,440.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	8.00	EA	$6,100.00	$48,800.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	8.00	EA	$650.00	$5,200.00
	Subcomponent Total				$89,040.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	6.00	EA	$550.00	$3,300.00
	Comment: REMOVE L25,L26,L27,L28,L37, L38 (SEE ERCAR)				
	Lighting Component Total				$92,340.00

Sequence 18 Total $738,518.06

Sequence: 19 RSU - Resurfacing, Undivided Net Length: 0.227 MI
1,200 LF

Description: 6.B Turnpike SB Off-Ramp to US-1, 1-lane, 1200 feet

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	12.00 / 0.00
Structural Spread Rate	165
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-11	MILLING EXIST ASPH PAVT,2 1/4" AVG DEPTH	1,600.19	SY	$5.00	$8,000.95
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	132.02	TN	$125.00	$16,502.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	64.01	TN	$160.00	$10,241.60

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	31.00	EA	$5.00	$155.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$1,000.00	$450.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.23	GM	$400.00	$92.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.45	GM	$5,000.00	$2,250.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.23	GM	$1,400.00	$322.00
	Roadway Component Total				$38,014.05

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80

Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	1,333.49	SY	$3.70	$4,933.91
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	73.34	TN	$125.00	$9,167.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	53.34	TN	$160.00	$8,534.40
570-1-1	PERFORMANCE TURF	712.09	SY	$2.00	$1,424.18

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-11	FLOATING TURBIDITY BARRIER	22.73	LF	$14.00	$318.22
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	22.73	LF	$7.00	$159.11
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.55	AC	$50.00	$27.50
107-2	MOWING	0.55	AC	$100.00	$55.00
	Shoulder Component Total				$24,719.82

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.14	LF	$10.00	$12,001.40
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	156.61	LF	$20.00	$3,132.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,070.26	LF	$2.80	$11,396.73
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	5.00	EA	$6,000.00	$30,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$63,280.33

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	7.00	EA	$550.00	$3,850.00
	Comment: Remove L8,L9,L10,L11,L12,L13,L14 (SEE ERCAR)				

Lighting Component Total	$67,130.33
Sequence 19 Total	$129,864.20

Sequence: 20 WUU - Widen/Resurface, Undivided, Urban Net Length: 0.133 MI
700 LF

Description: 7.A US 1 SB North of Palm Drive, widening from 5 to 6-lane with 6-foot bike lane, 700-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	54.00 / 54.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.133
Top of Structural Course For Begin Section	102.10
Top of Structural Course For End Section	102.10
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.74	AC	$30,000.00	$52,200.00
	Earthwork Component Total				$52,200.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	7
Existing Roadway Pavement Width L/R	22.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	12.00 / 18.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,735.17	SY	$6.00	$16,411.02
285-709	OPTIONAL BASE,BASE GROUP 09	2,385.10	SY	$30.00	$71,553.00
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	4,278.56	SY	$4.00	$17,114.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	705.96	TN	$125.00	$88,245.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	256.71	TN	$125.00	$32,088.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	235.32	TN	$170.00	$40,004.40
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	128.36	TN	$170.00	$21,821.20

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	1,400.00	LF	$45.00	$63,000.00
521-1-11	MEDIAN CONC BARRIER, 38" HEIGHT	700.00	LF	$130.00	$91,000.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	143.00	EA	$5.00	$715.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.53	GM	$1,000.00	$530.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.80	GM	$400.00	$320.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.53	GM	$5,000.00	$2,650.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.80	GM	$1,400.00	$1,120.00
	Roadway Component Total				$446,572.61

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13	LF	$20.00	$14,002.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13	LF	$20.00	$14,002.60
570-1-1	PERFORMANCE TURF	777.92	SY	$2.00	$1,555.84

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

104-10-3	SEDIMENT BARRIER	1,400.26 LF	$2.00	$2,800.52
104-11	FLOATING TURBIDITY BARRIER	13.26 LF	$14.00	$185.64
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	13.26 LF	$7.00	$92.82
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	7.00 EA	$100.00	$700.00
107-1	LITTER REMOVAL	0.61 AC	$50.00	$30.50
107-2	MOWING	0.61 AC	$100.00	$61.00
	Shoulder Component Total			$36,931.52

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	256.00	LF	$110.00	$28,160.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	664.00	LF	$200.00	$132,800.00
570-1-1	PERFORMANCE TURF	40.31	SY	$2.00	$80.62
	Drainage Component Total				$213,940.62

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	$50.00	$150.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.13	LF	$10.00	$7,001.30
630-2-12		91.36	LF	$20.00	$1,827.20

	CONDUIT, F& I, DIRECTIONAL BORE			
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00 EA	$700.00	$2,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,374.47 LF	$2.80	$6,648.52
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	3.00 EA	$6,000.00	$18,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00 EA	$650.00	$1,950.00
	Subcomponent Total			$37,527.02

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	6.00	EA	$550.00	$3,300.00
	Comment: Remove L39, L40, 4 along US-1 (See ERCAR)				
	Lighting Component Total				$40,827.02

Sequence 20 Total $800,321.77

Sequence: 21 WUU - Widen/Resurface, Undivided, Urban Net Length: 0.189 MI
1,000 LF

Description: 7.B US 1 SB , minor widening, shift 2-lane, 1000-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.190
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.37	AC	$30,000.00	$41,100.00
	Earthwork Component Total				$41,100.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	4
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	11.00 / 11.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,017.87	SY	$6.00	$18,107.22
285-709	OPTIONAL BASE,BASE GROUP 09	2,517.86	SY	$30.00	$75,535.80
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	2,444.52	SY	$4.00	$9,778.08
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	403.35	TN	$125.00	$50,418.75
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	268.90	TN	$125.00	$33,612.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	134.45	TN	$170.00	$22,856.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	134.45	TN	$170.00	$22,856.50

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	700.00	LF	$45.00	$31,500.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	3

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	128.00	EA	$5.00	$640.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76	GM	$1,000.00	$760.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.57	GM	$400.00	$228.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.76	GM	$5,000.00	$3,800.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.57	GM	$1,400.00	$798.00
	Roadway Component Total				$270,891.35

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,000.03	LF	$20.00	$20,000.60
570-1-1	PERFORMANCE TURF	1,111.15	SY	$2.00	$2,222.30

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,000.06	LF	$2.00	$4,000.12
104-11	FLOATING TURBIDITY BARRIER	18.94	LF	$14.00	$265.16

104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	18.94 LF	$7.00	$132.58
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	10.00 EA	$100.00	$1,000.00
107-1	LITTER REMOVAL	0.87 AC	$50.00	$43.50
107-2	MOWING	0.87 AC	$100.00	$87.00
	Shoulder Component Total			$51,251.86

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00	EA	$5,600.00	$39,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	368.00	LF	$110.00	$40,480.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	952.00	LF	$200.00	$190,400.00
570-1-1	PERFORMANCE TURF	57.58	SY	$2.00	$115.16
	Drainage Component Total				$295,095.16

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00	AS	$450.00	$1,800.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00	AS	$50.00	$200.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$10,350.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description Value
Spacing MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,000.03	LF	$10.00	$10,000.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	130.50	LF	$20.00	$2,610.00
635-2-11		4.00	EA	$700.00	$2,800.00

	PULL & SPLICE BOX, F&I, 13" x 24"				
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,391.59	LF	$2.80	$9,496.45
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	4.00	EA	$6,000.00	$24,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$650.00	$2,600.00
	Subcomponent Total				$51,506.75

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	4.00	EA	$550.00	$2,200.00
	Lighting Component Total				$53,706.75
Sequence 21 Total					$722,395.12

Sequence: 22 WDU - Widen/Resurface, Divided, Urban Net Length: 0.171 MI
900 LF

Description: 7.C US 1 SB North of Palm Drive, widening from 4 to 5-lanes, 900-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	28.00 / 28.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	102.70
Top of Structural Course For End Section	102.70
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.15	AC	$30,000.00	$34,500.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	180.18	CY	$25.00	$4,504.50
	Earthwork Component Total				$39,004.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	22.00 / 22.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	24.00 / 12.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,117.10	SY	$6.00	$24,702.60
285-709	OPTIONAL BASE,BASE GROUP 09	3,666.98	SY	$30.00	$110,009.40
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	4,401.17	SY	$4.00	$17,604.68
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	726.19	TN	$125.00	$90,773.75
334-1-13		396.11	TN	$125.00	$49,513.75

	SUPERPAVE ASPHALTIC CONC, TRAFFIC C			
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	242.06 TN	$170.00	$41,150.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	198.05 TN	$170.00	$33,668.50

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	115.00 EA	$5.00	$575.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.36 GM	$1,000.00	$1,360.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	1.36 GM	$400.00	$544.00
	Roadway Component Total			$369,901.88

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	900.24 LF	$20.00	$18,004.80
520-1-10	CONCRETE CURB & GUTTER, TYPE F	900.24 LF	$20.00	$18,004.80
570-1-1	PERFORMANCE TURF	1,000.27 SY	$2.00	$2,000.54

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,800.48 LF	$2.00	$3,600.96
104-11	FLOATING TURBIDITY BARRIER	17.05 LF	$14.00	$238.70
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	17.05 LF	$7.00	$119.35
104-15		1.00 EA	$3,500.00	$3,500.00

	SOIL TRACKING PREVENTION DEVICE			
104-18	INLET PROTECTION SYSTEM	8.00 EA	$100.00	$800.00
107-1	LITTER REMOVAL	1.49 AC	$50.00	$74.50
107-2	MOWING	1.49 AC	$100.00	$149.00
	Shoulder Component Total			$46,492.65

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	16.00
Performance Turf Width	12.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	1,200.32 SY	$2.00	$2,400.64
	Median Component Total			$2,400.64

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	3.07 CY	$1,600.00	$4,912.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	7.00 EA	$5,600.00	$39,200.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	$8,400.00	$16,800.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	96.00 LF	$110.00	$10,560.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	32.00 LF	$135.00	$4,320.00
570-1-1	PERFORMANCE TURF	51.83 SY	$2.00	$103.66
	Drainage Component Total			$75,895.66

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	4.00 AS	$450.00	$1,800.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	4.00 AS	$50.00	$200.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00 AS	$850.00	$850.00
	Signing Component Total			$10,350.00

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value
Type	2 Lane Strain Pole
Multiplier	1
Description	Pole Location (SW Quadrant)

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	800.00	LF	$10.00	$8,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	150.00	LF	$20.00	$3,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
634-4-143	SPAN WIRE ASSEMBLY, F&I, SINGLE PT, BOX	1.00	PI	$7,045.71	$7,045.71
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	30.00	LF	$9.00	$270.00
641-2-16	PREST CNC POLE,F&I,TYP P-VI	4.00	EA	$11,544.25	$46,177.00
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	8.00	AS	$1,000.00	$8,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	8.00	EA	$400.00	$3,200.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	8.00	AS	$1,200.00	$9,600.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$400.00	$1,600.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	1.00	EA	$45,982.33	$45,982.33

Signalizations Component Total $184,695.04

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description	Value
Spacing	MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	900.24	LF	$10.00	$9,002.40
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	178.68	LF	$20.00	$3,573.60
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	6.00	EA	$700.00	$4,200.00

715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	3,287.92 LF	$2.80	$9,206.18
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	6.00 EA	$6,000.00	$36,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	6.00 EA	$650.00	$3,900.00
	Subcomponent Total			$65,882.18
	Lighting Component Total			$65,882.18
Sequence 22 Total				$794,622.55

Sequence: 24 WUU - Widen/Resurface, Undivided, Urban Net Length: 0.114 MI
600 LF

Description: 9.A US 1 Palm Drive west of Palm/Us1 Intersection, widening from 6 to 7-lanes and adding traffic separator, 600-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	20.00 / 20.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.120
Top of Structural Course For Begin Section	101.80
Top of Structural Course For End Section	101.80
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.55	AC	$30,000.00	$16,500.00
	Earthwork Component Total				$16,500.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	7
Existing Roadway Pavement Width L/R	33.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	0.00 / 11.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	905.04	SY	$6.00	$5,430.24
285-709	OPTIONAL BASE,BASE GROUP 09	755.09	SY	$30.00	$22,652.70
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	4,398.59	SY	$4.00	$17,594.36
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	725.77	TN	$125.00	$90,721.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	80.64	TN	$125.00	$10,080.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	241.92	TN	$170.00	$41,126.40
337-7-83		40.32	TN	$170.00	$6,854.40

ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	600.00	LF	$45.00	$27,000.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	6

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	123.00	EA	$5.00	$615.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.45	GM	$1,000.00	$450.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.68	GM	$400.00	$272.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.45	GM	$5,000.00	$2,250.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.68	GM	$1,400.00	$952.00
	Roadway Component Total				$225,998.35

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	599.81	LF	$20.00	$11,996.20
570-1-1	PERFORMANCE TURF	666.45	SY	$2.00	$1,332.90

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount

104-10-3	SEDIMENT BARRIER	1,199.62 LF	$2.00	$2,399.24
104-11	FLOATING TURBIDITY BARRIER	11.36 LF	$14.00	$159.04
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	11.36 LF	$7.00	$79.52
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	6.00 EA	$100.00	$600.00
107-1	LITTER REMOVAL	0.52 AC	$50.00	$26.00
107-2	MOWING	0.52 AC	$100.00	$52.00
	Shoulder Component Total			$32,141.10

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00	EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00	EA	$8,400.00	$16,800.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	1.00	EA	$3,700.00	$3,700.00
425-2-41	MANHOLES, P-7, <10'	1.00	EA	$4,400.00	$4,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	224.00	LF	$110.00	$24,640.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	568.00	LF	$200.00	$113,600.00
570-1-1	PERFORMANCE TURF	34.53	SY	$2.00	$69.06
	Drainage Component Total				$191,209.06

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	$50.00	$150.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description

Value

Spacing

MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	599.81	LF	$10.00	$5,998.10
630-2-12		78.27	LF	$20.00	$1,565.40

	CONDUIT, F& I, DIRECTIONAL BORE			
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	3.00 EA	$700.00	$2,100.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,034.24 LF	$2.80	$5,695.87
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	3.00 EA	$6,000.00	$18,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	3.00 EA	$650.00	$1,950.00
	Subcomponent Total			$35,309.37

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	2.00	EA	$550.00	$1,100.00
	Comment: Remove L39, L40 (See ERCAR)				
	Lighting Component Total				$36,409.37

Sequence 24 Total $512,107.88

Sequence: 25 MIS - Miscellaneous Construction Net Length: 0.189 MI
1,000 LF

Description: 9.B Reconstructing Intersection to incorporate proposed improvements (Palm Drive/US 1 Intersection, includes islands and U-Turn), 5,300 SY.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.10 AC	$30,000.00	$33,000.00
	Earthwork Component Total			$33,000.00

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,900.00 SY	$6.00	$35,400.00
285-709	OPTIONAL BASE,BASE GROUP 09	5,900.00 SY	$30.00	$177,000.00
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	975.50 TN	$125.00	$121,937.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	324.50 TN	$160.00	$51,920.00

Peripherals Subcomponent

Description	Value
Off Road Bike Path(s)	0
Off Road Bike Path Width L/R	0.00 / 0.00
Bike Path Structural Spread Rate	0
Noise Barrier Wall Length	0.00
Noise Barrier Wall Begin Height	0.00
Noise Barrier Wall End Height	0.00

Roadway Component Total $386,257.50

MEDIAN COMPONENT

User Input Data

Description	Value

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,100.00 LF	$20.00	$22,000.00
	Median Component Total			$22,000.00

SIGNALIZATIONS COMPONENT

Signalization 1

Description	Value

Type	6 Lane Mast Arm
Multiplier	1
Description	Mast Arms 78'

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.00	LF	$10.00	$7,000.00
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	300.00	LF	$20.00	$6,000.00
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	$6,000.00	$6,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	22.00	EA	$700.00	$15,400.00
639-1-112	ELECTRICAL POWER SRV,F&I,OH,M,PUR BY CON	1.00	AS	$3,300.00	$3,300.00
639-2-1	ELECTRICAL SERVICE WIRE, F&I	60.00	LF	$9.00	$540.00
641-2-11	PREST CNC POLE,F&I,TYP P-II,PEDESTAL	1.00	EA	$1,300.00	$1,300.00
649-21-21	STEEL MAST ARM ASSEMBLY, F&I, 78'	9.00	EA	$45,982.33	$413,840.97
650-1-14	VEH TRAF SIGNAL,F&I ALUMINUM, 3 S 1 W	26.00	AS	$1,000.00	$26,000.00
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	8.00	AS	$700.00	$5,600.00
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	21.00	EA	$400.00	$8,400.00
660-2-106	LOOP ASSEMBLY, F&I, TYPE F	21.00	AS	$1,200.00	$25,200.00
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	8.00	EA	$240.00	$1,920.00
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	$28,000.00	$28,000.00
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	4.00	EA	$400.00	$1,600.00
	Signalizations Component Total				$550,100.97

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	10

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,000.00	LF	$10.00	$20,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	10.00	EA	$700.00	$7,000.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	6,000.00	LF	$2.80	$16,800.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	10.00	EA	$6,100.00	$61,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	10.00	EA	$650.00	$6,500.00
	Subcomponent Total				$111,300.00
	Lighting Component Total				$111,300.00

Sequence 25 Total $1,102,658.47

Sequence: 26 RSU - Resurfacing, Undivided Net Length: 0.019 MI
100 LF

Description: 9.C Palm Drive East of Palm/US-1 Intersection, resurfacing existing 8-lanes, adding traffic separator and sidewalk, 100-feet

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	8
Roadway Pavement Width L/R	44.00 / 44.00
Structural Spread Rate	110
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	975.74	SY	$4.00	$3,902.96
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	53.67	TN	$125.00	$6,708.75
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	53.67	TN	$160.00	$8,587.20

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	100.00	LF	$45.00	$4,500.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	7

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	23.00	EA	$5.00	$115.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.04	GM	$1,000.00	$40.00
710-11-231	PAINTED PAVT MARK,STD,YELLOW,SKIP,6"	0.13	GM	$400.00	$52.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.04	GM	$5,000.00	$200.00
711-16-231	THERMOPLASTIC, STD-OTH, YELLOW, SKIP, 6"	0.13	GM	$1,400.00	$182.00
	Roadway Component Total				$24,287.91

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips ï¿½No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	110.88	SY	$3.70	$410.26
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	6.10	TN	$125.00	$762.50
337-7-25	ASPH CONC FC,INC BIT,FC-5,PG76-22	4.44	TN	$160.00	$710.40
570-1-1	PERFORMANCE TURF	59.21	SY	$2.00	$118.42

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
522-2	CONCRETE SIDEWALK AND DRIVEWAYS, 6"	67.00	SY	$60.00	$4,020.00

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-11	FLOATING TURBIDITY BARRIER	1.89	LF	$14.00	$26.46
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	1.89	LF	$7.00	$13.23
104-18	INLET PROTECTION SYSTEM	1.00	EA	$100.00	$100.00
107-1	LITTER REMOVAL	0.05	AC	$50.00	$2.50
107-2	MOWING	0.05	AC	$100.00	$5.00

Shoulder Component Total $6,168.77

LIGHTING COMPONENT

Rural Lighting Subcomponent

Description	Value
Multiplier (Number of Poles)	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	400.00	LF	$10.00	$4,000.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	2.00	EA	$700.00	$1,400.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,200.00	LF	$2.80	$3,360.00
715-4-14	LIGHT POLE COMPLETE, F&I-STD, 45'	2.00	EA	$6,100.00	$12,200.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	2.00	EA	$650.00	$1,300.00

Subcomponent Total	$22,260.00
Lighting Component Total	$22,260.00
Sequence 26 Total	$52,716.68

Sequence: 27 WDU - Widen/Resurface, Divided, Urban Net Length: 0.133 MI
700 LF

Description: 10.A US 1 SB South of Palm Drive and US 1 Intersection, widening to add RT turn lane with bike lane 18' and median 12', M&R existing 2 SB lanes, 700'

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.140
Top of Structural Course For Begin Section	102.10
Top of Structural Course For End Section	102.10
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.97	AC	$30,000.00	$29,100.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	399.72	CY	$25.00	$9,993.00
	Earthwork Component Total				$39,093.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	22.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	11.00 / 0.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,056.42	SY	$6.00	$6,338.52
285-709	OPTIONAL BASE,BASE GROUP 09	881.38	SY	$30.00	$26,441.40
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	4,278.56	SY	$4.00	$17,114.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	705.96	TN	$125.00	$88,245.00

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	94.13 TN	$125.00	$11,766.25
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	235.32 TN	$170.00	$40,004.40
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	47.06 TN	$170.00	$8,000.20

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	90.00 EA	$5.00	$450.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.53 GM	$1,000.00	$530.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.53 GM	$400.00	$212.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.53 GM	$5,000.00	$2,650.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.53 GM	$1,400.00	$742.00
	Roadway Component Total			$202,494.01

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	13.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	6.00 / 0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13 LF	$20.00	$14,002.60
520-1-10	CONCRETE CURB & GUTTER, TYPE F	700.13 LF	$20.00	$14,002.60
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	466.75 SY	$45.00	$21,003.75
570-1-1	PERFORMANCE TURF	777.92 SY	$2.00	$1,555.84

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount

104-10-3	SEDIMENT BARRIER	1,400.26 LF	$2.00	$2,800.52
104-11	FLOATING TURBIDITY BARRIER	13.26 LF	$14.00	$185.64
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	13.26 LF	$7.00	$92.82
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	7.00 EA	$100.00	$700.00
107-1	LITTER REMOVAL	1.16 AC	$50.00	$58.00
107-2	MOWING	1.16 AC	$100.00	$116.00
	Shoulder Component Total			$58,017.77

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	14.00
Performance Turf Width	10.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	777.92 SY	$2.00	$1,555.84
	Median Component Total			$1,555.84

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	2.39 CY	$1,600.00	$3,824.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	5.00 EA	$5,600.00	$28,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	2.00 EA	$8,400.00	$16,800.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	80.00 LF	$110.00	$8,800.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00 LF	$135.00	$3,240.00
570-1-1	PERFORMANCE TURF	40.31 SY	$2.00	$80.62
	Drainage Component Total			$60,744.62

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00 AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00 AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00 AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00 AS	$50.00	$150.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	$5,900.00	$5,900.00

700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description
Value

Spacing
MIN

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	700.13	LF	$10.00	$7,001.30
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	138.96	LF	$20.00	$2,779.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	2,557.06	LF	$2.80	$7,159.77
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	5.00	EA	$6,000.00	$30,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$53,690.27
	Lighting Component Total				$53,690.27
Sequence 27 Total					$425,445.51

Sequence: 28 WDU - Widen/Resurface, Divided, Urban Net Length: 0.095 MI
500 LF

Description: 10.B South of Palm Drive/Us 1 intersection, widening from 5 to 6-lanes with 6-foot bike lane, 500-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	20.00 / 20.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.170
Top of Structural Course For Begin Section	101.50
Top of Structural Course For End Section	101.50
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Existing Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Front Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	6.00 % / 6.00 %
Outside Shoulder Cross Slope L/R	2.00 % / 2.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	0.46	AC	$30,000.00	$13,800.00
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	1,607.70	CY	$25.00	$40,192.50
	Earthwork Component Total				$53,992.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Existing Roadway Pavement Width L/R	22.00 / 33.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	11.00 / 7.00
Widened Inside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,286.71	SY	$6.00	$7,720.26
285-709	OPTIONAL BASE,BASE GROUP 09	1,036.70	SY	$30.00	$31,101.00
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	3,055.65	SY	$4.00	$12,222.60
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	504.18	TN	$125.00	$63,022.50

334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	110.00 TN	$125.00	$13,750.00
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	168.06 TN	$170.00	$28,570.20
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	55.00 TN	$170.00	$9,350.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	N
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	2
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	2
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	64.00 EA	$5.00	$320.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.76 GM	$1,000.00	$760.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.76 GM	$400.00	$304.00
	Roadway Component Total			$167,120.56

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	500.02 LF	$20.00	$10,000.40
520-1-10	CONCRETE CURB & GUTTER, TYPE F	500.02 LF	$20.00	$10,000.40
570-1-1	PERFORMANCE TURF	555.57 SY	$2.00	$1,111.14

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	750.00 LF	$20.00	$15,000.00

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price

				Extended Amount
104-10-3	SEDIMENT BARRIER	1,000.03 LF	$2.00	$2,000.06
104-11	FLOATING TURBIDITY BARRIER	9.47 LF	$14.00	$132.58
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	9.47 LF	$7.00	$66.29
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	5.00 EA	$100.00	$500.00
107-1	LITTER REMOVAL	0.83 AC	$50.00	$41.50
107-2	MOWING	0.83 AC	$100.00	$83.00
	Shoulder Component Total			$42,435.37

MEDIAN COMPONENT

User Input Data

Description	Value
Total Median Width	19.00
Performance Turf Width	15.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
570-1-1	PERFORMANCE TURF	833.36	SY	$2.00	$1,666.72
	Median Component Total				$1,666.72

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.70	CY	$1,600.00	$2,720.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	4.00	EA	$5,600.00	$22,400.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	1.00	EA	$8,400.00	$8,400.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	56.00	LF	$110.00	$6,160.00
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00	LF	$135.00	$2,160.00
570-1-1	PERFORMANCE TURF	28.79	SY	$2.00	$57.58
	Drainage Component Total				$41,897.58

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	3.00	AS	$450.00	$1,350.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	3.00	AS	$50.00	$150.00

700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$9,850.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description
Spacing
Pay Items

Value
MIN

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	500.02	LF	$10.00	$5,000.20
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	99.25	LF	$20.00	$1,985.00
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	4.00	EA	$700.00	$2,800.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	1,826.19	LF	$2.80	$5,113.33
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	4.00	EA	$6,000.00	$24,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	4.00	EA	$650.00	$2,600.00
	Subcomponent Total				$41,498.53
	Lighting Component Total				$41,498.53
Sequence 28 Total					$358,461.26

Sequence: 29 WUU - Widen/Resurface, Undivided, Urban Net Length: 0.398 MI
2,100 LF

Description: 10.C US 1 SB, South of Palm Drive and US1 Intersection, widening from 9'-to add bike lane and type F curb & gutter, 2-lanes, 1500-feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.390
Top of Structural Course For Begin Section	101.80
Top of Structural Course For End Section	101.80
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Existing Front Slope L/R	6 to 1 / 6 to 1
Existing Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	5.00 % / 5.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.89	AC	$30,000.00	$86,700.00
	Earthwork Component Total				$86,700.00

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Existing Roadway Pavement Width L/R	11.00 / 11.00
Structural Spread Rate	330
Friction Course Spread Rate	110
Widened Outside Pavement Width L/R	0.00 / 0.00
Widened Structural Spread Rate	220
Widened Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	5,132.98	SY	$4.00	$20,531.92
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	846.94	TN	$125.00	$105,867.50
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	282.31	TN	$170.00	$47,992.70

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-5-41	TRAF SEP CONC-TYPE IV, 4' WIDE	600.00	LF	$45.00	$27,000.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE/RAISED PAVEMENT MARKERS	54.00	EA	$5.00	$270.00
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	1.59	GM	$1,000.00	$1,590.00
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.40	GM	$400.00	$160.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	1.59	GM	$5,000.00	$7,950.00
711-16-131	THERMOPLASTIC, STD-OTH, WHITE, SKIP, 6"	0.40	GM	$1,400.00	$560.00
	Roadway Component Total				$211,922.12

SHOULDER COMPONENT

User Input Data

Description	Value
Existing Total Outside Shoulder Width L/R	12.25 / 12.25
New Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,099.86	LF	$20.00	$41,997.20
520-1-10	CONCRETE CURB & GUTTER, TYPE F	2,099.86	LF	$20.00	$41,997.20
570-1-1	PERFORMANCE TURF	2,333.17	SY	$2.00	$4,666.34

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,199.71	LF	$2.00	$8,399.42
104-11	FLOATING TURBIDITY BARRIER	39.77	LF	$14.00	$556.78
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	39.77	LF	$7.00	$278.39
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	21.00	EA	$100.00	$2,100.00
107-1	LITTER REMOVAL	1.83	AC	$50.00	$91.50
107-2	MOWING	1.83	AC	$100.00	$183.00
	Shoulder Component Total				$103,769.83

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-351	INLETS, CURB, TYPE P-5, <10'	15.00	EA	$5,600.00	$84,000.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	4.00	EA	$8,400.00	$33,600.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$3,700.00	$7,400.00
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,400.00	$8,800.00
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	776.00	LF	$110.00	$85,360.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,992.00	LF	$200.00	$398,400.00
570-1-1	PERFORMANCE TURF	120.90	SY	$2.00	$241.80
	Drainage Component Total				$617,801.80

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	8.00	AS	$450.00	$3,600.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-1-50	SINGLE POST SIGN, RELOCATE	1.00	AS	$300.00	$300.00
700-1-60	SINGLE POST SIGN, REMOVE	8.00	AS	$50.00	$400.00
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	$5,900.00	$5,900.00
700-2-60	MULTI- POST SIGN, REMOVE	1.00	AS	$850.00	$850.00
	Signing Component Total				$12,350.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description Value
Spacing MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	2,099.86	LF	$10.00	$20,998.60
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	274.02	LF	$20.00	$5,480.40
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	9.00	EA	$700.00	$6,300.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	7,121.61	LF	$2.80	$19,940.51
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	9.00	EA	$6,000.00	$54,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	9.00	EA	$650.00	$5,850.00
	Subcomponent Total				$112,569.51

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71		2.00	EA	$550.00	$1,100.00

LIGHT POLE COMPLETE, REMOVE POLE Comment: Remove L39, L40 (See ERCAR)	
Lighting Component Total	$113,669.51
Sequence 29 Total	$1,146,213.26

Sequence: 30 MIS - Miscellaneous Construction Net Length: 3.000 MI
15,840 LF

Description: ITS for the project

INTELLIGENT TRAFFIC SYSTEM (ITS) COMPONENT

Description of Work

EX-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
ITS-01	ITS FOR THE PROJECT Comment: Assumes 5% of construction cost at this level.	1.00	LS	$5,000,000.00	$5,000,000.00
	Intelligent Traffic System (ITS) Component Total				$5,000,000.00
Sequence 30 Total					$5,000,000.00

Sequence: 31 MIS - Miscellaneous Construction Net Length: 3.000 MI
15,840 LF

Description: Toll Plaza (Gantry & Building)

ARCHITECTURAL COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
735-74-1	TOLL PLAZA, LOCATION 1	1.00	LS	$1,300,000.00	$1,300,000.00
	Architectural Component Total				$1,300,000.00
Sequence 31 Total					$1,300,000.00

Sequence: 32 NUU - New Construction, Undivided, Urban Net Length: 0.227 MI
1,200 LF

Description: 7.D US-1 SB Diversion Ramp, 1-lane, 1800 feet

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	30.00 / 30.00
Incidental Clearing and Grubbing Area	0.00
Alignment Number	1
Distance	0.341
Top of Structural Course For Begin Section	103.60
Top of Structural Course For End Section	103.60
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.65 AC	$30,000.00	$49,500.00
120-6	EMBANKMENT	7,529.34 CY	$25.00	$188,233.50
	Earthwork Component Total			$237,733.50

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	1
Roadway Pavement Width L/R	15.00 / 0.00
Structural Spread Rate	220
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	2,344.28 SY	$6.00	$14,065.68
285-709	OPTIONAL BASE,BASE GROUP 09	2,000.24 SY	$30.00	$60,007.20
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	220.03 TN	$125.00	$27,503.75
337-7-83	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	110.01 TN	$170.00	$18,701.70

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
710-11-101	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.91	GM	$1,000.00	$910.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.91	GM	$5,000.00	$4,550.00
	Roadway Component Total				$125,738.33

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	7.25 / 7.25
Total Outside Shoulder Perf. Turf Width L/R	5.00 / 5.00
Sidewalk Width L/R	0.00 / 0.00

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,200.14	LF	$20.00	$24,002.80
520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,200.14	LF	$20.00	$24,002.80
570-1-1	PERFORMANCE TURF	1,333.49	SY	$2.00	$2,666.98

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	2,400.29	LF	$2.00	$4,800.58
104-11	FLOATING TURBIDITY BARRIER	56.82	LF	$14.00	$795.48
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	56.82	LF	$7.00	$397.74
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	$3,500.00	$3,500.00
104-18	INLET PROTECTION SYSTEM	12.00	EA	$100.00	$1,200.00
107-1	LITTER REMOVAL	2.75	AC	$50.00	$137.50
107-2	MOWING	2.75	AC	$100.00	$275.00
	Shoulder Component Total				$61,778.88

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	4.09	CY	$1,600.00	$6,544.00
425-1-351	INLETS, CURB, TYPE P-5, <10'	9.00	EA	$5,600.00	$50,400.00
425-1-451	INLETS, CURB, TYPE J-5, <10'	3.00	EA	$8,400.00	$25,200.00
425-1-521	INLETS, DT BOT, TYPE C, <10'	2.00	EA	$3,700.00	$7,400.00
425-2-41	MANHOLES, P-7, <10'	2.00	EA	$4,400.00	$8,800.00
430-175-124		536.00	LF	$110.00	$58,960.00

	PIPE CULV, OPT MATL, ROUND, 24"S/CD			
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	48.00 LF	$135.00	$6,480.00
430-175-148	PIPE CULV, OPT MATL, ROUND, 48"S/CD	1,144.00 LF	$200.00	$228,800.00
570-1-1	PERFORMANCE TURF	69.10 SY	$2.00	$138.20
	Drainage Component Total			$392,722.20

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	5.00	AS	$450.00	$2,250.00
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	1.00	AS	$1,300.00	$1,300.00
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	1.00	AS	$6,600.00	$6,600.00
	Signing Component Total				$10,150.00

LIGHTING COMPONENT

Conventional Lighting Subcomponent

Description

Value

Spacing MAX

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
630-2-11	CONDUIT, F& I, OPEN TRENCH	1,200.14	LF	$10.00	$12,001.40
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	156.61	LF	$20.00	$3,132.20
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24"	5.00	EA	$700.00	$3,500.00
715-1-13	LIGHTING CONDUCTORS, F&I, INSUL, NO.4-2	4,070.26	LF	$2.80	$11,396.73
715-4-13	LIGHT POLE COMPLETE, F&I-STD, 40'	5.00	EA	$6,000.00	$30,000.00
715-500-1	POLE CABLE DIST SYS, CONVENTIONAL	5.00	EA	$650.00	$3,250.00
	Subcomponent Total				$63,280.33

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
715-4-71	LIGHT POLE COMPLETE, REMOVE POLE	7.00	EA	$550.00	$3,850.00
	Comment: REMOVE L8,L9,L10,L11,L12,L13,L14 (SEE ERCAR)				
	Lighting Component Total				$67,130.33

Sequence 32 Total $895,253.24

Sequence: 33 MIS - Miscellaneous Construction Net Length: 3.000 MI
15,840 LF

Description: Signing (Trusses for the Project)

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-4-113	OH STATIC SIGN STR, F&I, C 31-40 FT	3.00	EA	$90,000.00	$270,000.00

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-4-126	OH STATIC SIGN STR, F&I, S 101-150 FT	7.00	EA	$250,000.00	$1,750,000.00

Signing Component Total $2,020,000.00

Sequence 33 Total $2,020,000.00

Date: 12/23/2019 8:37:06 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 439545-1-22-01 Letting Date: 01/2099

Description: PD&E FOR WIDEN HEFT FROM US-1/SOUTH OF PALM DR TO CAMPBELL DR (MP 0-2)

District: 08 County: 87 MIAMI-DADE Market Area: 13 Units: English

Contract Class: 7 Lump Sum Project: N Design/Build: N Project Length: 0.500 MI

Project Manager: HEYWOOD

Version 10 Project Grand Total $91,441,298.69

Description: Widening & Interchange Evaluation of Direct Connect Concept B. Revised 12/18/19 per EOR mark-ups.

Project Sequences Subtotal			$65,606,395.04
102-1	Maintenance of Traffic	10.00 %	$6,560,639.50
101-1	Mobilization	10.00 %	$7,216,703.45
Project Sequences Total			$79,383,737.99
Project Unknowns		15.00 %	$11,907,560.70
Design/Build		0.00 %	$0.00

Non-Bid Components:

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)		LS	$150,000.00	$150,000.00
Project Non-Bid Subtotal					$150,000.00
Version 10 Project Grand Total					$91,441,298.69

APPENDIX E

Campbell Drive Interchange Improvements

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

CAMPBELL DRIVE INTERCHANGE

EXHIBIT NO. 1

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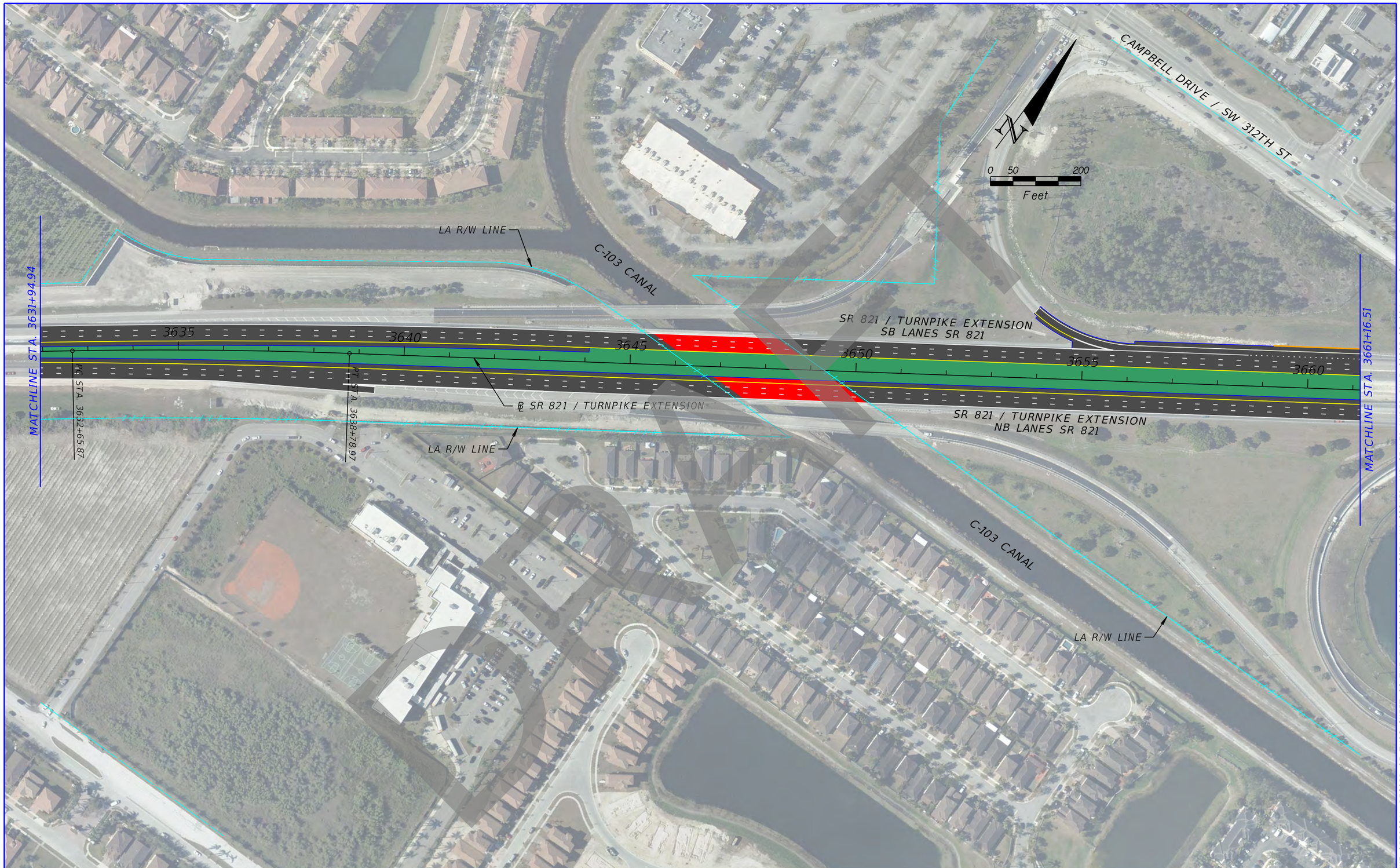

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

CAMPBELL DRIVE INTERCHANGE

EXHIBIT NO. 2

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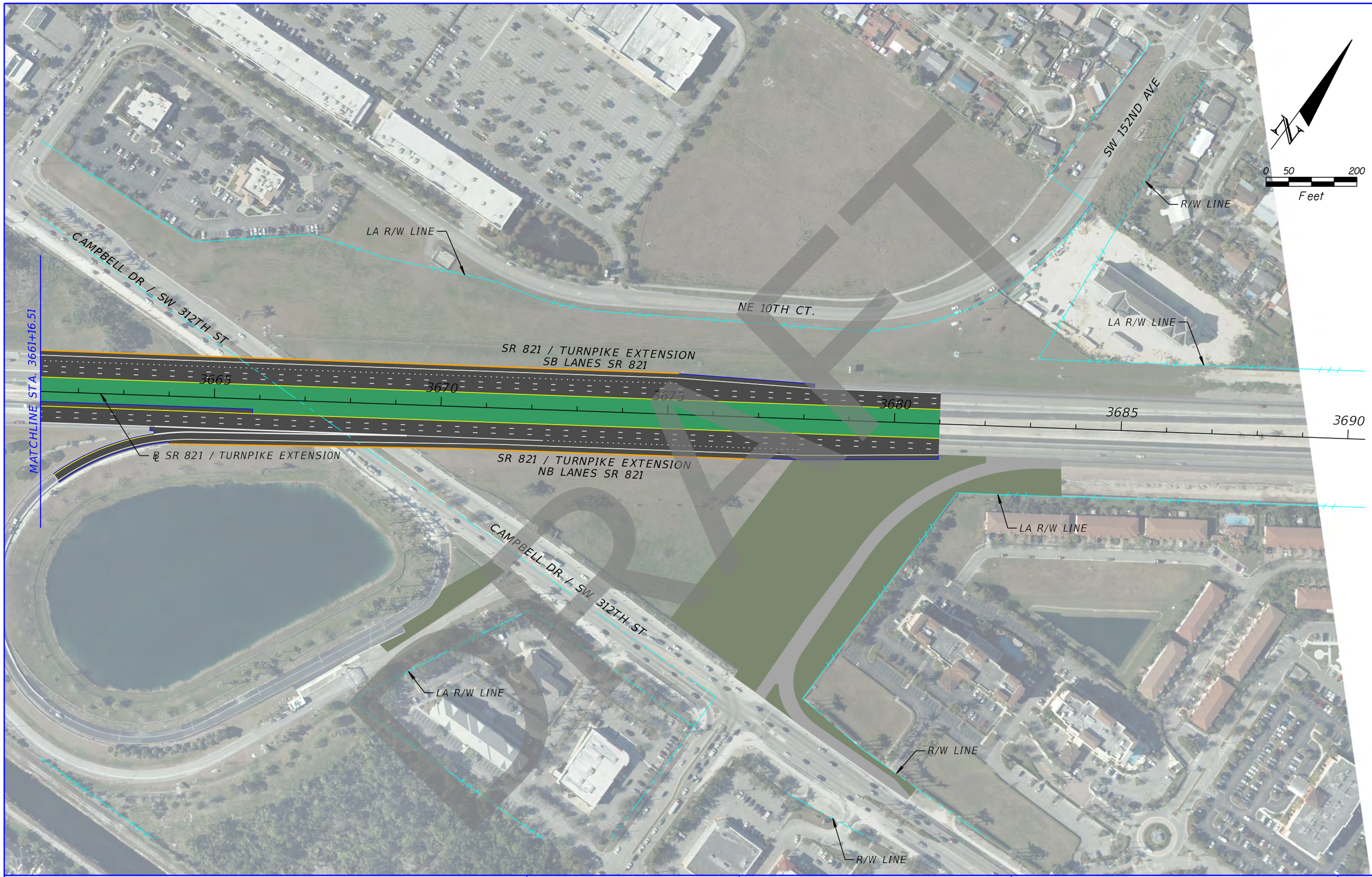


THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

CAMPBELL DRIVE INTERCHANGE

SHEET NO. 3

Appendix L

ITS Technical Memorandum and Master Signing Plan

Draft ITS Technical Memorandum and Master Signing Plan

Miami-Dade County, Florida
FM No: 439545-1-22-01| ETDM No: 14322

Prepared for
Florida's Turnpike Enterprise
Florida's Turnpike Mile Post 263
Building 5315
Ocoee, Florida 34761

Prepared by:

Arcadis US, Inc

September 2020

Table of Contents

TABLES

FIGURES

APPENDICES

Section 1

Introduction

1.1 Introduction

This Project Development and Environment (PD&E) Study, conducted on behalf of the Florida Turnpike Enterprise (FTE), proposes to address the US 1/SR 5 interchange congestion issues where the Turnpike Extension of Florida's Turnpike/SR 821 begins at US 1 (MP 0). The PD&E Study also includes widening the southernmost portion of Florida's Turnpike from 4-lanes to 6-lanes between MP 0.0 and MP 3.0 for approximately three (3) miles. This Turnpike segment is unique as it is the beginning of the Turnpike tollway system, where traffic enters and exits the system from US 1, a principal arterial that serves the Florida Keys.

1.2 Purpose

This memorandum documents the existing and proposed Master Signing and Conceptual Intelligent Transportation Systems (ITS) Layout along the mainline section of the Florida's Turnpike between MP 0.54 and MP 2.60 and associated arterials connecting to the mainline. The proposed condition considered compatibility with existing elements, adjacent projects and studies, constructability, safety, community, and project needs.

Section 2

Methodology and Approach

2.1 Signing Methodology and Approach

The Master Signing Layout is based on the needs of local and non-local road users traversing the proposed configuration of the study segment. Existing and proposed overhead and multi-post guide, warning, and regulatory signs along the Turnpike and arterials within the study area were evaluated primarily based on their applicability regarding Build Alternative B. This alternative includes several major changes to the existing configuration as destination routes differ, including the extension of the Turnpike Extension via a grade-separated ramp that connects at grade to US 1 south of Palm Drive and different southbound Turnpike Extension exits based on desired travel directions along Palm Drive and destinations for service and points of interest. Additionally, the alternative includes a new toll gantry to ingress/egress the proposed toll facility and a new partial interchange that serves origins/destinations north of Lucy Street. Existing signs were also evaluated to assess relocation needs based on the proposed widening. Signage will meet national and jurisdiction standards to provide drivers with sufficient distance to make proper decisions while providing existing accessibility to the community.

2.2 ITS Methodology and Approach

This study identifies existing ITS infrastructure along the stated proposed widening project and evaluate needs for new ITS field devices based on Turnpike Standard Design criteria. This evaluation will propose providing additional ITS devices that will provide coverage and communication to meet those standards as identified in:

> 2019 FDOT Design Manual (FDM) sections 233 and 328 ITS. Section 233 identifies the placement and installation of ITS devices, systems, and standard specifications of devices to be deployed along Florida's roadways. FDM section 328 provides for Plan set development standards for ITS.

TURNPIKE DESIGN HANDBOOK (TDH) and Section 233 ITS. The TDH was used as the higher standard to meet where both covered the same standards. The following specific design standards are notable when evaluating and locating proposed ITS elements needed to meet the Turnpike Standard design criteria for ITS when including existing ITS Devices:

Closed-Circuit Television Systems

- Locate cameras to obtain a continuous view of roadway.
- Place cameras at interchanges to view arterial traffic.
- Place PTZ cameras no further than 1,000 feet from the face of DMS.
- Locate the camera in accordance with minimum lateral offset requirements in FDM 215, or place behind existing guardrail and barrier walls.

Vehicle Detection Systems

- Cover all lanes in both directions (as a group or individually).
- Space one-third to one-half mile in urban areas (context classifications C4, C5, and C6).
- Space one-mile in suburban areas (context classifications C3R and C3C).
- Space one to two-mile in rural areas (context classifications C1, C2, and C2T).

Motorist Information Systems

Dynamic Message Sign (DMS)

- Place in advance of 1-mile exit signing.
- Place on arterials prior to major intersections and interchanges approximately 1/4 to 1/2.

Highway Advisory Radio (HAR)

- Adheres to FCC regulations Title 47 CFR, Part 90.242.
- Transmission of message that can be received by motorists traveling through the broadcast zone.
- Placement of flashing beacon signs within the HAR coverage area prior to exit signs or DMS associated with an interchange.

Citizens Band (CB) Radio

- Adheres to FCC Regulation Title 47 CFR, Part 95, Subpart D.

Additional ITS Devices

Road Weather Information System (RWIS)

- RWIS were not considered for this study.

Ramp Metering Signals

- Ramp meters were not considered in this study.

Connected Vehicle Infrastructure

- Adhere to FCC regulations, Title 47 CFR, Parts 90 and 95L.
- Colocation of devices with new or existing ITS or signal infrastructure.
- Provide the RSU locations to the State Traffic Engineering and Operations Office's ITS Communications division and the District ITS/TSM&O Engineer to file for FCC licenses for all DSRC RSUs.

Communications

Wireless

Determine the proper wireless communications type (e.g., point-to-point, point-to-multipoint).

Provide wireless links at remote ITS field devices or intersections to the nearest fiber drop point.

Fiber

Design for single mode fiber strands.

Define fiber optic cable trunk, drop buffer tube, and strand color requirements.

- Turnpike standard new utilization is 144 fiber count with a 24 count SMF drop cable.

There are additional considerations made as part of this study. Several District 6 ITS elements, devices, and communications are located within or near the proposed area of this study. Those include two butterfly median mounted DMSs and a southbound warning sign to use Card Sound Road flashing beacon on US 1 just south of the Turnpike mainline, but within the project scope area. Additionally, there are three District 6 cameras used to verify the DMS messages and monitor the area. A number of Turnpike and District 6 devices are communicating wirelessly between turnpike site locations, District 6 devices within the project study area, and a communication tower, just off the Turnpike mainline and project area identified as part of the study, used to communicate wirelessly between many of those devices as well as ITS devices through the Keys. These locations, extending fiber throughout the project, relocating devices to better serve the roadway improvements and approaches to the turnpike, and the desired interconnectivity and redundancy between Turnpike and District 6 are taken into consideration and require further coordination.

Section 3

Existing Signing and ITS

3.1 Existing Signing and ITS

Signing and ITS inventories were conducted along the Turnpike Extension within the study limits on March 8, 2018. The signing inventory was limited to the identification and locations, by mileposts and lateral offsets, of overhead and double-posted ground mounted guide, information, and warning signs. At the time of this study, a mill and resurface project (FPID 440423-1) within the study limits has completed final design and will begin construction in fiscal year 2021. The limits of the mill and resurface project are between mileposts 0.000 and 9.200, with an exception between mileposts 2.380 and 3.520 to account for the recently constructed Campbell Drive interchange improvements (FPID 435462-1). Table 3-1 provides an inventory and locations of the existing signing and signing to be replaced by the mill and resurface project in fiscal year 2021. A comprehensive sign inventory can be found in FTE's database of existing signs along the Turnpike Extension. The ITS inventory identified existing devices mounted on each pole and locations, by mileposts and lateral offsets, along the Turnpike Extension and US 1. Devices such as closed-circuit TV (CCTV), microwave vehicle detection system (MVDS), highway advisory radio (HAR), and travel time system (TTS) were identified. Inquiries were made to FTE and D6 to identify current existing ITS devices not identified during the 2018 inventory. The existing ITS inventory can be found in Table 3-2. FTE's ITS is connected and communicates through a backbone comprised of a 96-count single mode fiber optic cable system. The backbone is connected to hubs, pull boxes, and service wire drops that communicate with various ITS devices along the facility and FTE's Regional Traffic Monitoring Center (RTMC). The existing backbone terminates at ITS device 821-0.1- MD, near the begin milepost of the Turnpike Extension.

An Existing Roadway Conditions Assessment Report (ERCAR), dated February 27, 2018 under a separate contract, was conducted along the Turnpike Extension on behalf of FTE. The ERCAR included an inventory and assessment of all signing and signing components along the Turnpike Extension and associated ramps between MPs 0.000 and 5.100, with an exception along the mainline at the Campbell Drive Interchange between MPs 2.500 and 3.780 due to the design/build

project FPID 435462-1-52-01. The assessment was based on criteria from the MUTCD 2009 Edition, Standard Highway Signs Manual, FDOT Design Standards, FTE's Plans Preparation and Practices Handbook, and the Traffic Guide Drawings. The ERCAR can be found in Appendix A. The information from the ERCAR is outdated regarding devices around the Campbell Drive interchange as visual checks from site visits, site videos, and through Google Earth indicate additional ITS devices have been installed since the completion of the ERCAR.

The existing master signing and ITS layout can be found in Appendix B.

Table 3-1 Existing Signing

Sign No.	Str. No.	Roadway	Side	Location	M.P.	Type	Mount	440423-1-52-01
S-101		SR 821	NB	10.5' from guardrail	0.056	Guide	Double-Post	
S-105		SR 821	NB	6.75' from guardrail	0.147	Guide	Double-Post	To be replaced
S-106	87T303	SR 821	NB	4' from guardrail	0.206	Guide	Span	To be replaced
S-109		SR 821	NB	16' from travel lane	0.296	Guide	Single-Post	To be replaced
S-111		SR 821	NB	40' from travel lane	0.711	Information	Double-Post	To be replaced
S-115		SR 821	NB	41.25' from travel lane	0.924	Information	Double-Post	
S-116		SR 821	NB	40' from travel lane	1.053	Regulatory	Double-Post	
S-118		SR 821	NB	43.5' from travel lane	1.654	Information	Double-Post	To be replaced
S-119		SR 821	NB	41' from travel lane	1.744	Guide	Double-Post	To be replaced
S-120		SR 821	NB	41.75' from travel lane	1.771	Guide	Double-Post	
S-121		SR 821	NB	40' from travel lane	1.924	Guide	Multi-Post	To be replaced
S-121a		SR 821	NB	40' from travel lane	2.504	Guide	Double-Post	To be replaced
S-121b		SR 821	NB Off (225)	3' from guardrail	0.030	Guide	Single-Post	
S-124s		SR 821	SB	22' behind cable barrier	4.012	Service	Double-Post	
S-124t		SR 821	SB	18' behind cable barrier	3.862	Guide	Double-Post	
S-124u		SR 821	SB	51' from travel lane	3.542	Guide	Double-Post	
S-124v		SR 821	SB	38' from travel lane	3.342	Information	Double-Post	
S-124w	87T453	SR 821	SB	3.5' from guardrail	3.162	Guide	Cantilever	

S-124x	87T452	SR 821	SB	4' from guardrail	2.972	Guide	Cantilever	
S-124y		SR 821	SB Off (226)	29' from ramp	0.010	Guide	Double-Post	
S-124z		SR 821	SB On (224)	21' from ramp	2.502	Information	Double-Post	
S-125	87T069	SR 821	SB	42' from travel lane	1.962	Guide	Cantilever	To be replaced
S-126		SR 821	SB	44.5' from travel lane	1.811	Service	Double-Post	
S-129		SR 821	SB	44.5' from travel lane	1.662	Service	Double-Post	
S-130		SR 821	SB	8' from guardrail	1.560	Information	Single-Post	To be replaced
S-131		SR 821	SB	4.5' from guardrail	1.513	Service	Double-Post	
S-133	87T068	SR 821	SB	69' from travel lane	1.103	Guide	Cantilever	To be replaced
S-135		SR 821	SB	45' from travel lane	0.689	Guide	Double-Post	To be replaced
S-137		SR 821	Med	6.5' from guardrail	0.661	Guide	Double-Post	To be replaced
S-139		SR 821	SB Off (101)	14' from travel lane	0.033	Guide	Single-Post	To be replaced
S-140	87T067	SR 821	SB Off (101)	41' from travel lane	0.068	Warning	Cantilever	
S-152		SR 821	SB Off (101)	4.5' from guardrail	0.331	Information	Double-Post	
S-156	87S38	SR 821	SB	8' from guardrail	0.098	Guide	Span	To be replaced
S-163		SR 821	SB Off (105)	4.5' from guardrail	0.053	Service	Double-Post	
S-164		SR 821	SB Off (105)	5.75' from guardrail	0.071	Service	Double-Post	
S-165		SR 821	SB Off (105)	5' from guardrail	0.089	Service	Double-Post	
S-301		SR 5	Med	2' from back of curb	0.124	Guide	Single-Post	
S-302		SR 5	Med	4' from back of curb	0.692	Guide	Double-Post	
S-303		SR 5	NB	1.5' from back of sidewalk	0.732	Guide	Single-Post	

S-304		SR 5	Med	4' from back of curb	0.792	Information	Double-Post	
S-305		SR 5	SB	10' from travel lane	1.292	Toll	Single-Post	
S-306		SR 5	SB	3' from back of sidewalk	0.863	Information	Single-Post	
S-307		SR 5	SB	7.5' from back of curb	0.182	Regulatory	Double-Post	
S-308	87S674	SR 5	SB	6' from guardrail	0.070	Guide	Span	

Table 3-2 Existing ITS Devices

ITS Name	Roadway	Side	Location	M.P.	Device(s)
821-0.1-MD	SR 821	Med	15' from guardrail	0.40	CCTV; TTS (BlueToad); Wireless to FL City Hub; Land- lease to D6 RTMC
821-0.6-SB	SR 821	SB	58' from travel lane	0.90	MVDS
821-1.2-SB	SR 821	SB	39' from guardrail	1.30	CCTV; MVDS
821-1.2-MD	SR 821	Med	6.75' from guardrail	1.30	AVI
821-1.5-NB	SR 821	NB	43.5' from travel lane	1.65	HAR
821-1.7-SB	SR 821	SB	49.5' from travel lane	1.80	MVDS
821-2.1-SB	SR 821	SB	44' from guardrail	2.20	CCTV; MVDS
821-2.6-MD	SR 821	Med	14' from guardrail	2.70	MVDS; TTS (BlueToad)
821-2.8-SB	SR 821	SB	40' from travel lane	2.90	CCTV
821-2.9-SB	SR 821	SB	4' from guardrail	3.00	CCTV; MVDS; AVI; CB Radio
821-3.0-MD	SR 821	Med	7.5' from guardrail	3.10	AVI
821-3.3-SB	SR 821	SB	46' from travel lane	3.40	MVDS
821-3.7-SB	SR 821	SB	49' from travel lane	3.80	MVDS
Florida City Hub	177th Ct	NB	40' from roadway	N/A	Hub, Wireless Antennas
Card Sound Rd Beacon	SR 5	SB	2.5' from guardrail	0.06	Flashing Beacon; Radio Antenna
CCTV 348	SR 5	Med	4.5' from guardrail	0.23	CCTV; Radio
DMS 61 & 62	SR 5	Med	7' from guardrail	0.24	DMS (27X110); DMS (32X112)
CCTV 343	SR 5	SB	6' from face of curb	0.25	CCTV; MVDS; Radio; Wireless Antenna (2)
CCTV 350	SR 5	SB	6' from face of curb	0.25	CCTV
CCTV 349	SR 5	SB	6' from face of curb	0.27	CCTV

Section 4

Proposed Signing and ITS

4.1 Proposed Signing

The proposed Master Signing Layout considers the locations and applicability of the existing signs and structures with respect to the Build Alternative B. The layout includes an analysis of the proposed layout to ensure it accommodates motorists' needs of safe and efficient travel through the new roadway configuration, adheres to the FDOT Design Manual, TDH, and MUTCD and is compatible with the Turnpike General Tolling Requirements (GTR) and tolling signs, devices, and structures. Signing accommodates the proposed partial interchange at Lucy Street that serves origins and destinations north of Lucy Street. The new interchange will be located between the existing US 1 and Campbell Drive interchanges, which will change the exit number for Campbell Drive from Exit 2 to Exit 3. The Lucy Street interchange will be Exit 2. The new exit numbers adhere to exit numbering convention as US 1 is located at approximate mile marker 1, Lucy Street at approximate mile marker 2, and Campbell Drive at approximate mile marker 3 along the Turnpike Extension. Additionally, business service signs are included in the layout to ensure local business access continues upon project opening, as the community has expressed concern of potential economic impacts from this project. During a pre-draft signing meeting held on February 27, 2020, FTE staff expressed the importance of the messages the proposed guides signs will convey toward local business access. Southbound guide signs along the Turnpike Extension will convey messages that will not deter egress to the community while also adhering to the MUTCD, FDOT Design Manual, and TDH. The Master Signing Layout can be found in Appendix C and the proposed signs are provided in Table 4-1.

Table 4-1 Proposed Signing

Approx. Station	Roadway	Side	Mounting Type	Sign Panel Type
30	SR 5	NB	Double-Post	Regulatory (Toll) – Toll By Plate
37	SR 5	NB	Double-Post	Guide – FTE Ramp Only

55	SR 5	NB	Cantilever	Guide (Gore) – FTE
61	SR 5	NB	Double-Post	Recreational – Biscayne & Everglades
77	SR 5	NB	Full Span	Guide – US 1, FTE
85	SR 5	NB	Full Span	Guide (Gore) – US 1, FTE
97	SR 5	SB	Double-Post	Recreational – Everglades
97	SR 5	SB	Cantilever	Guide – West Palm Dr
94	SR 5	SB	Double-Post	Regulatory (Toll) – Toll By Plate
94	SR 5	SB	Cantilever	Guide – FTE Ramp Only
90	SR 5	SB	Double-Post	Recreational – Biscayne
89	SR 5	SB	Double-Post	Guide (Toll) – FTE
85	SR 5	SB	Full Span	Guide – East Palm Dr, US 1
3595	SR 821	NB	On Existing	Exit No. Plaque
3604	SR 821	NB	On Existing	Exit No. Plaque
3636	SR 821	NB	On Existing	Exit No. Plaque
3646	SR 821	NB	Double-Post	Guide (Gore) – Exit 3
3669	SR 821	SB	Full Span	Guide (1-1/2) – Exit 2
3659	SR 821	SB	On Existing	Exit No. Plaque
3654	SR 821	SB	Double-Post	Guide (Gore) – Exit 3
3617	SR 821	SB	Full Span	Guide – Exit 1B, 1A, 2
3591	SR 821	SB	Cantilever	Guide – Exit 2
3586	SR 821	SB	Double-Post	Guide (Gore) – Exit 2
3580	SR 821	SB	Double-Post	Service - Lodging
3577	SR 821	SB	Full Span	Guide – FTE, Exit 1B, 1A
3572	SR 821	SB	Double-Post	Service - Food
3564	SR 821	SB	Double-Post	Service – Gas
3555	SR 821	SB	Double-Post	Recreational – Biscayne & Everglades
3553	SR 821	SB	Full Span	Guide – FTE, Exit 1B, 1A
3536	SR 821	SB	Full Span	Guide – Exit 1B, 1A
	Exit 1A	SB	Double-Post	Recreational – Biscayne
	Exit 1A	SB	Double-Post	Service - Lodging
	Exit 1A	SB	Double-Post	Service - Food
	Exit 1A	SB	Double-Post	Service - Gas
	Exit 1B	SB	Double-Post	Recreational – Everglades
	Exit 1B	SB	Full Span	Guide – US 1 & West Palm Dr

4.2 Proposed ITS

The proposed Conceptual ITS Layout will use a 144-count single mode fiber optic backbone that will be extended from the existing 96 count single mode fiber optic backbone. The backbone will be extended as necessary to accommodate the new design. The Fiber Optic Cable Assignment and Allocation Scheme for general fiber allocation for the backbone can be found in Figure 4-1. The fiber backbone provides reliable communications to existing and new devices that will facilitate ITS operations for the proposed configuration. It is primarily located west of and runs parallel to the Turnpike Extension, close to the right of way line.

New and/or relocated devices will be spliced to the backbone through fiber optic pull and/or splice vaults using 24 count fiber optic cable drops and power service drops where necessary. New MVDSs are proposed along the new ramp for northbound and southbound traffic. A fiber drop will be placed at the proposed toll gantry location near the southern end of the new ramp. The layout includes an analysis of the existing ITS infrastructure and devices as they relate to the proposed layout to ensure adequate ITS operations and adherence to ITS and FDOT standards. The Conceptual ITS Layout will also include fiber drops for existing devices that communicate over wireless communications. There are two DMSs on a butterfly structure that are part of the District 6 inventory at US 1 MP 0.2, near the southern limit of the project. These DMSs need to be relocated due to widening and access modifications. A fiber drop and splice vault will be placed at the new locations. Wrong Way Detection devices are proposed at the southbound exits of the new FTE ramp, Davis Parkway ramp (Exit 1A), and Lucy Street ramp (Exit 2). The Conceptual ITS Layout can be found in Appendix C and the proposed ITS devices are provided in Table 4-2.

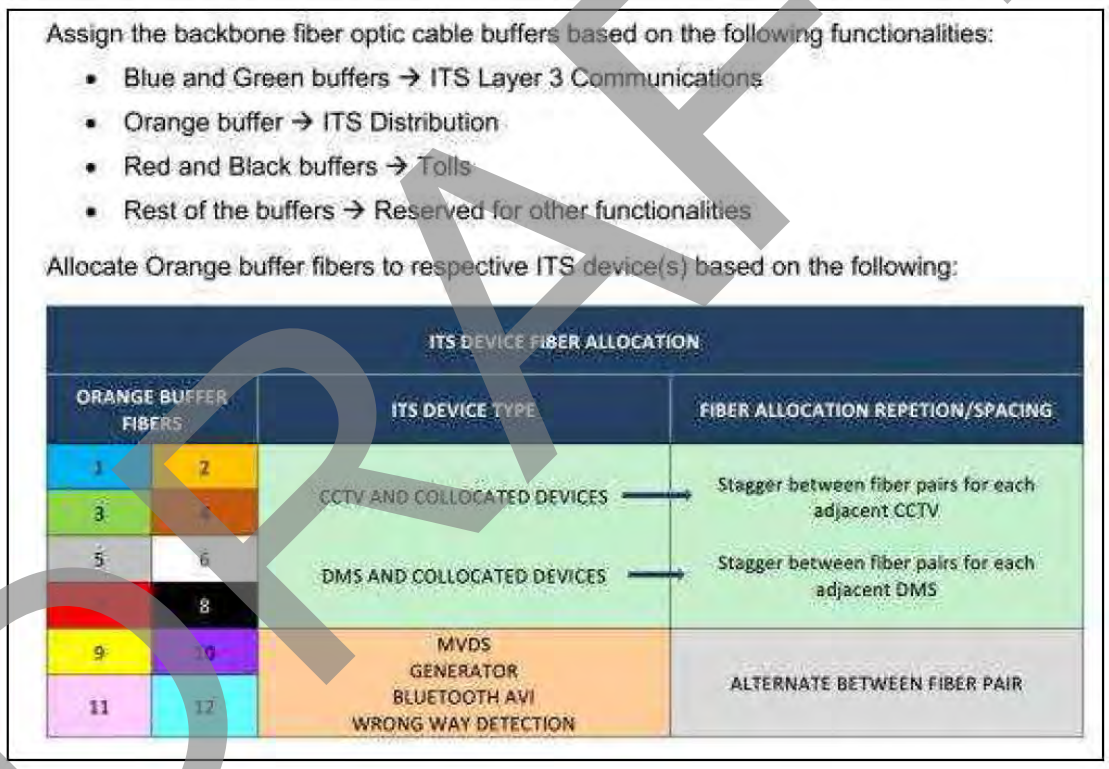


Figure 4-1 Fiber Optic Cable Assignment and Allocation Scheme

Table 4-2 Proposed ITS Devices

Approx. Station	Roadway	Side	Structure	ITS Device(s)
36	SR 5	NB	Pole	DMS Verification CCTV
42	SR 5	NB	Butterfly	NB & SB D6 DMS (Relocate)
57	SR 5	SB		WWD System
48	SR 5	SB	Pole	DMS Verification CCTV

235	SR 821	Med	Pole	MVDS & BlueToad
3572	SR 821	Med	Pole	AVI (Relocate)
3663	SR 821	SB	Pole	CCTV, MVDS, AVI, CB Radio (Relocate)
3619	SR 821	SB	Pole	CCTV, MVDS (Relocate)
	Exit 2	SB		WWD System
	Exit 1A	SB		WWD System

Section 5

Coordination

5.1 Coordination

Coordination between FTE staff, FDOT District 6 staff, and PD&E staff occurred during the development of the Master Signing and Conceptual ITS Layout and coordination continues regarding certain aspects of the layout. Michael Washburn of FTE provided an inventory and KMZ files of the existing ITS devices within the study corridor from the Turnpike SunGuide Database. Recommendations for proposed changes include using additional information provided from Turnpike SunGuide Database inventory and visual reviews from site videos. Coordination with District 6 included inquires on their existing ITS infrastructure and devices. Alejandro Motta provided an inventory of their devices including equipment, models, and communication methods as well District 6's plans for connectivity in the future. Coordination and existing device inventory can be found in Appendix D

Further discussion is required pertaining to specific items of the proposed layout:

- Proposed northbound DMS # 61 and #62 relocation
  - The proposed layout relocates District 6's DMS #61 and DMS #62 corresponding CCTVs further north within the proposed median, upstream of the proposed toll ramp.
  - A DMS should be upstream to the entry of a Toll Facility, per Section 233 ITS of the TDH.
  - Consideration for future joint use between District 6 and FTE should be considered.
  - Shared use of devices between FTE and the Districts are generally not allowed.
- Proposed northbound cantilever overhead guide sign at new toll ramp gore
  - FTE recommends a northbound pull through sign for US 1 to be collocated

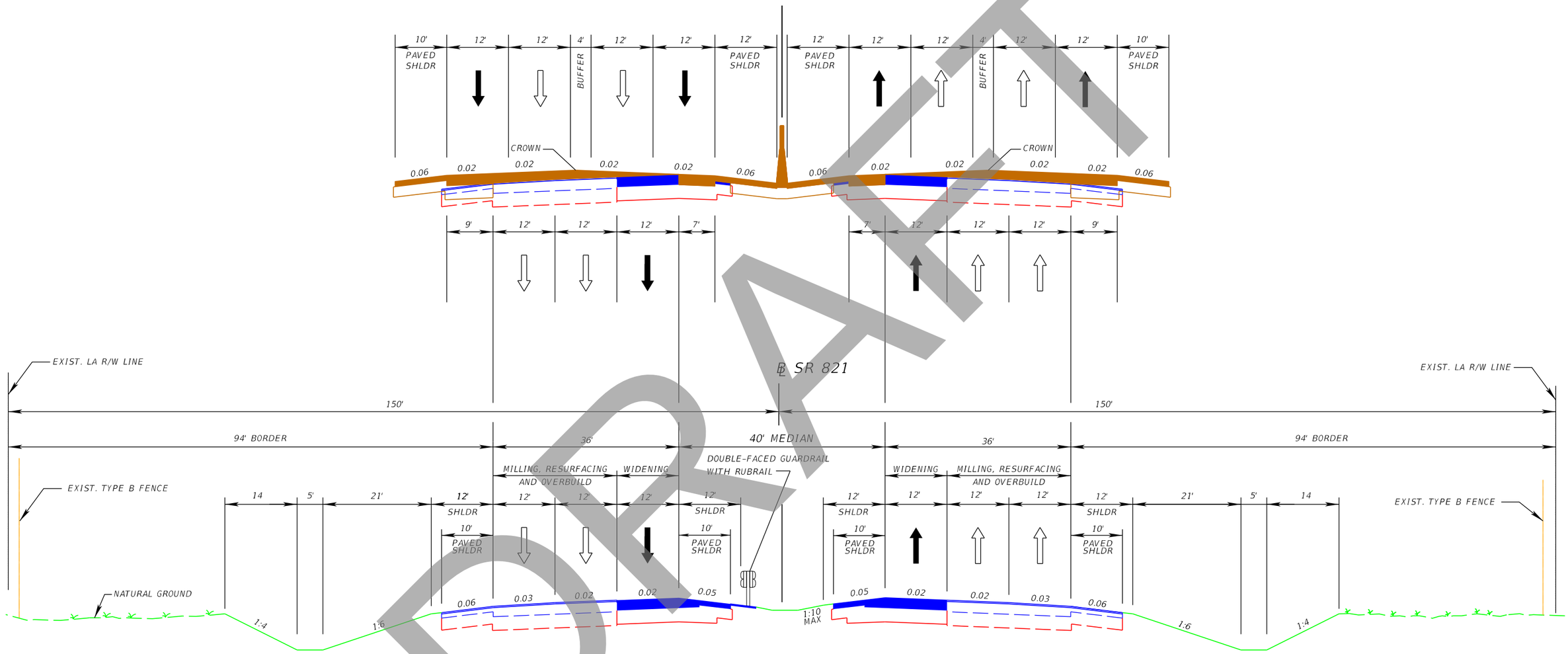
with guide sign.
- Collocation requires span structure.
- Span structure presents right-of-way challenges.

Recommendations for added value to be considered:

- Existing communications between District 6 ITS devices and hub
  - Devices communicate to Florida City Hub via wireless connection.
  - It is recommended that fiber optic cable be installed between the existing/relocated devices.
  - Design should consider extending fiber to the Florida City Hub and to new FTE toll facility.
- Existing communications between District 6 hub and RTMC
  - Florida City Hub communicates with RTMC via
    - Hub to FTE's 821-0.1-MD – wireless
    - FTE's 821-0.1-MD to D6 RTMC – leased-line
  - It is recommended that fiber optic cable be extended between the proposed FTE fiber at newtoll facility and District 6 fiber along US 1.
  - This recommendation assumes inclusion of the above recommendation as well.

APPENDIX A
Typical Section Alternatives

TYPICAL SECTION
8-LANES (4GU + 4EL)
26-FOOT MEDIAN



TRAFFIC DATA

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ESTIMATED OPENING YEAR = 2025 AADT = XX,XXX
ESTIMATED DESIGN YEAR = 2045 AADT = XX,XXX
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DESIGN HOUR T = X.X%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
NO DESIGN EXCEPTIONS/VARIATIONS NEEDED

TYPICAL SECTION (6 GU LANES)
SR 821 – INSIDE WIDENING – 0IN/30UT
MP 0.538 TO MP 3.055

DRAFT
2019-01-21

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Stanley Consultants, Inc.
1641 Worthington Road, Suite 400
West Palm Beach, FL 33409
Certificate of Authorization No. 1978
www.stanleygroup.com

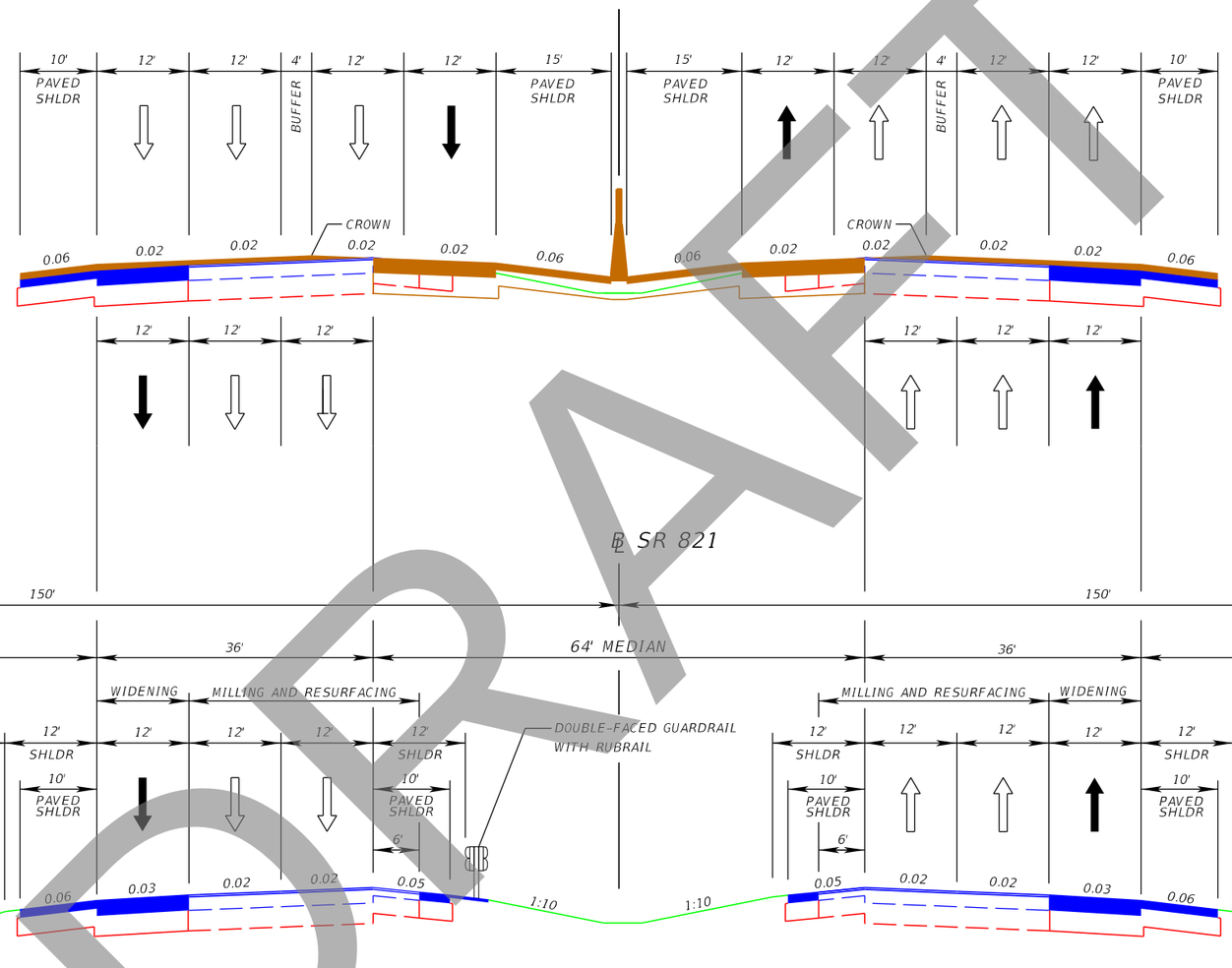
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

TYPICAL SECTION - ALT 1

SHEET NO. 1

TYPICAL SECTION
8-LANES (4GU + 4EL)
32-FOOT MEDIAN



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ESTIMATED DESIGN YEAR = 2045 AADT = XX,XXX
K = X.X% D = XX.X% T = X.X% (24 HOUR)
DESIGN HOUR T = X.X%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
DESIGN VARIATION NEEDED FOR BORDER WIDTH

TYPICAL SECTION (6 GU LANES)
SR 821 – OUTSIDE WIDENING – 0IN/30UT
MP 0.538 TO MP 3.055

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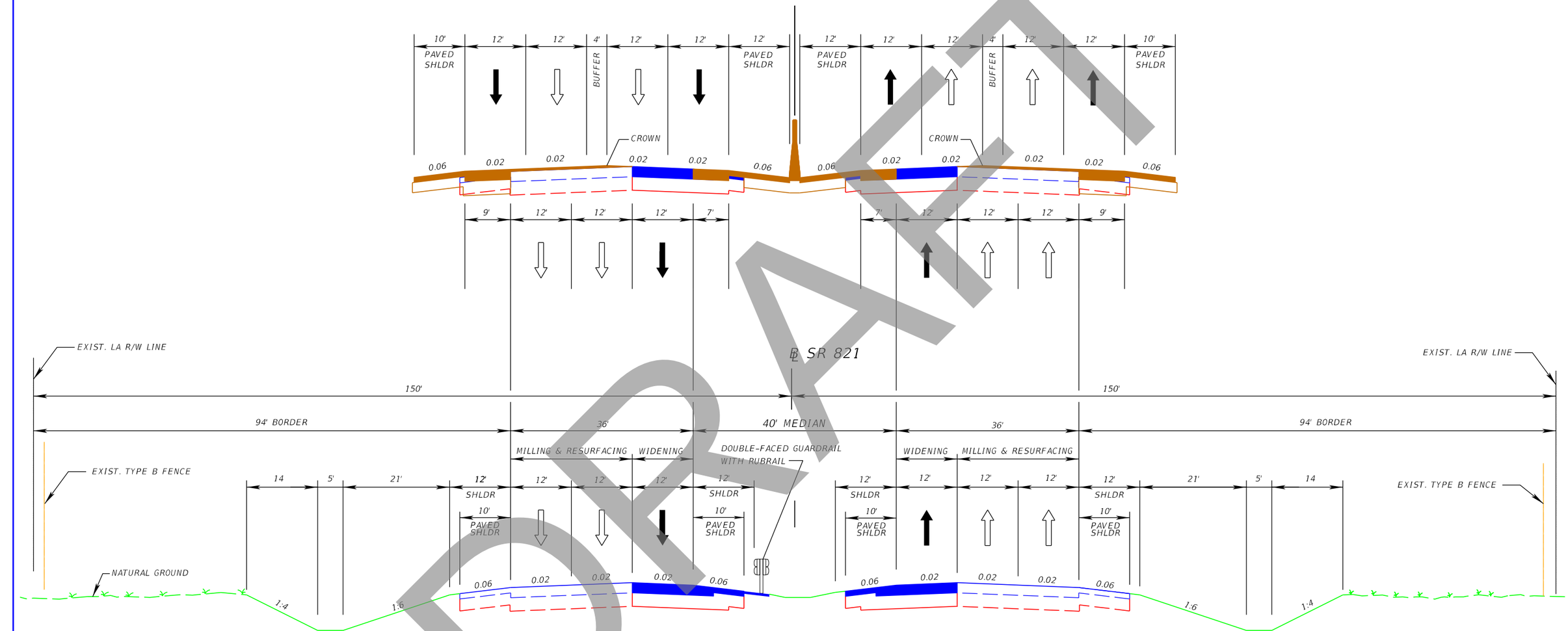
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

TYPICAL SECTION - ALT 2

SHEET NO. 2

TYPICAL SECTION
8-LANES (4GU + 4EL)
26-FOOT MEDIAN



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DESIGN HOUR T = X.X%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
NO DESIGN EXCEPTIONS/VARIATIONS NEEDED

TYPICAL SECTION (6 GU LANES)
SR 821 – INSIDE WIDENING – 1IN/2OUT
MP 0.538 TO MP 3.055

DRAFT
2019-01-21

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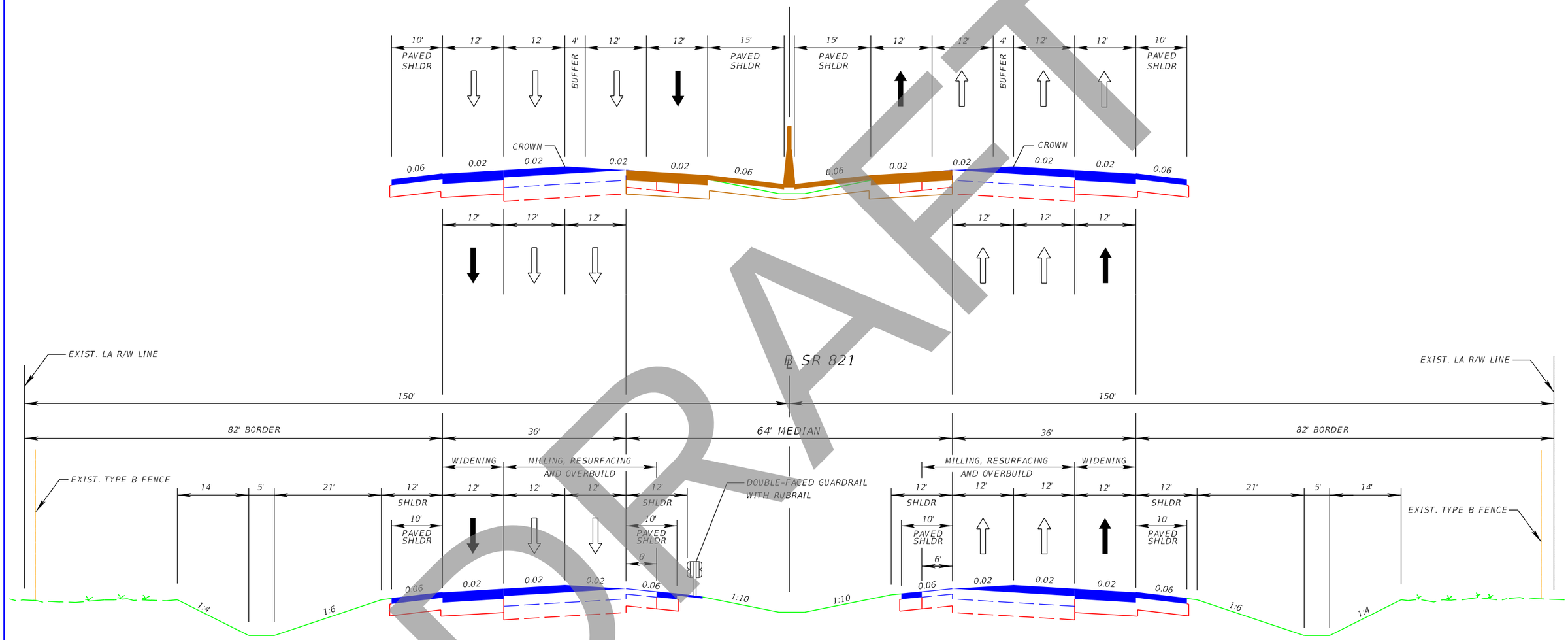
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

TYPICAL SECTION - ALT 3

SHEET NO. 3

TYPICAL SECTION
8-LANES (4GU + 4EL)
32-FOOT MEDIAN



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K = X.X% D = XX.X% T = X.X% (24 HOUR)
DESIGN HOUR T = X.X%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
DESIGN VARIATION NEEDED FOR BORDER WIDTH

TYPICAL SECTION (6 GU LANES)
SR 821 – OUTSIDE WIDENING – 1IN/2OUT
MP 0.538 TO MP 3.055

DRAFT
2019-01-21

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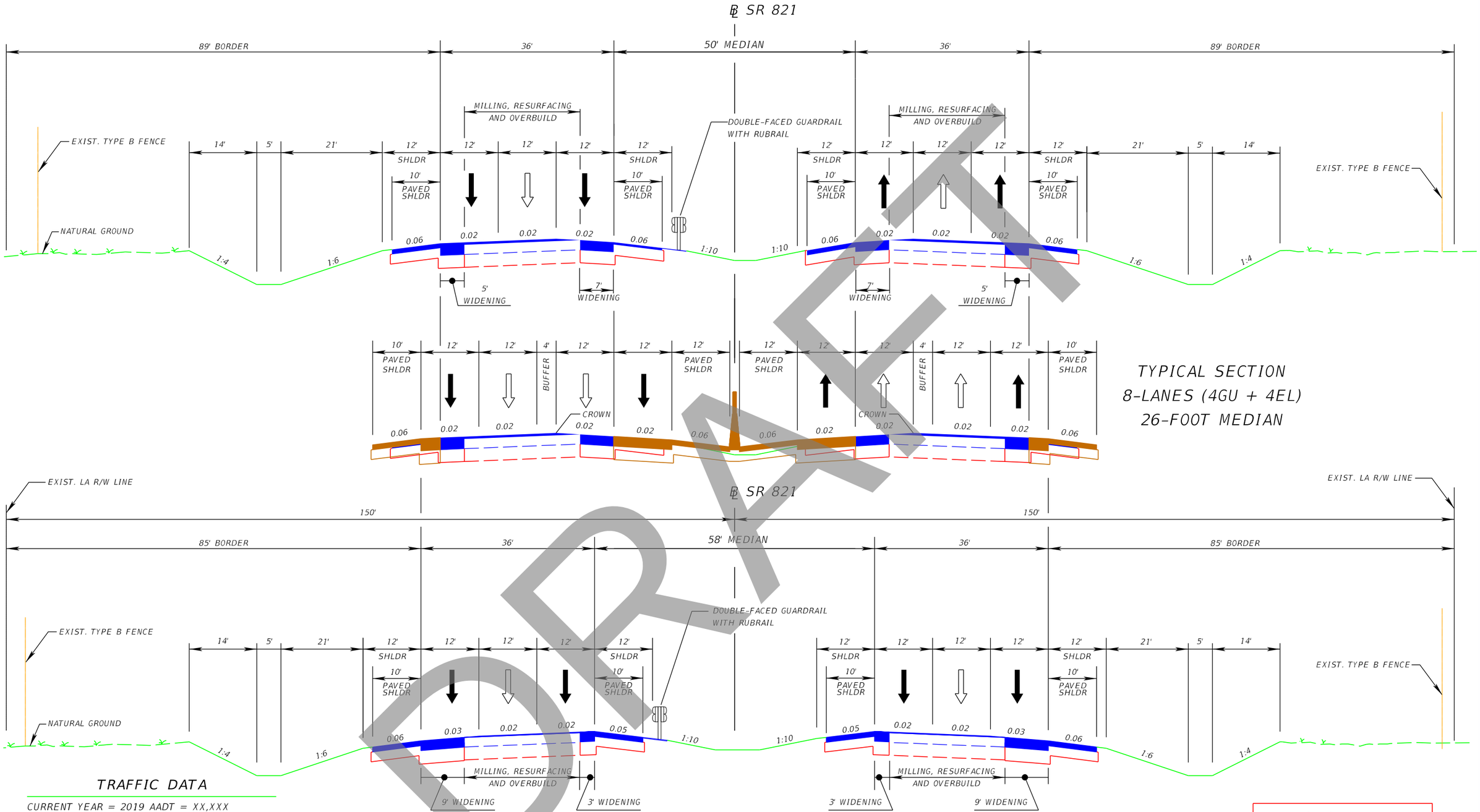
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 821	MIAMI-DADE	439545-1-22-01

TYPICAL SECTION - ALT 4

SHEET NO. 4



TRAFFIC DATA

CURRENT YEAR = 2019 AADT = XX,XXX
ESTIMATED OPENING YEAR = 2025 AADT = XX,XXX
ESTIMATED DESIGN YEAR = 2045 AADT = XX,XXX
K = X.X% D = XX.X% T = X.X% (24 HOUR)
DESIGN HOUR T = X.X%
DESIGN SPEED = 65 MPH
POSTED SPEED = 65 MPH
DESIGN VARIATION NEEDED FOR BORDER WIDTH

TYPICAL SECTION (6 GU LANES)
SR 821 – 50' MEDIAN (WIDENING) – 1IN/2OUT
MP 0.538 TO MP 3.055

DRAFT
2019-01-21

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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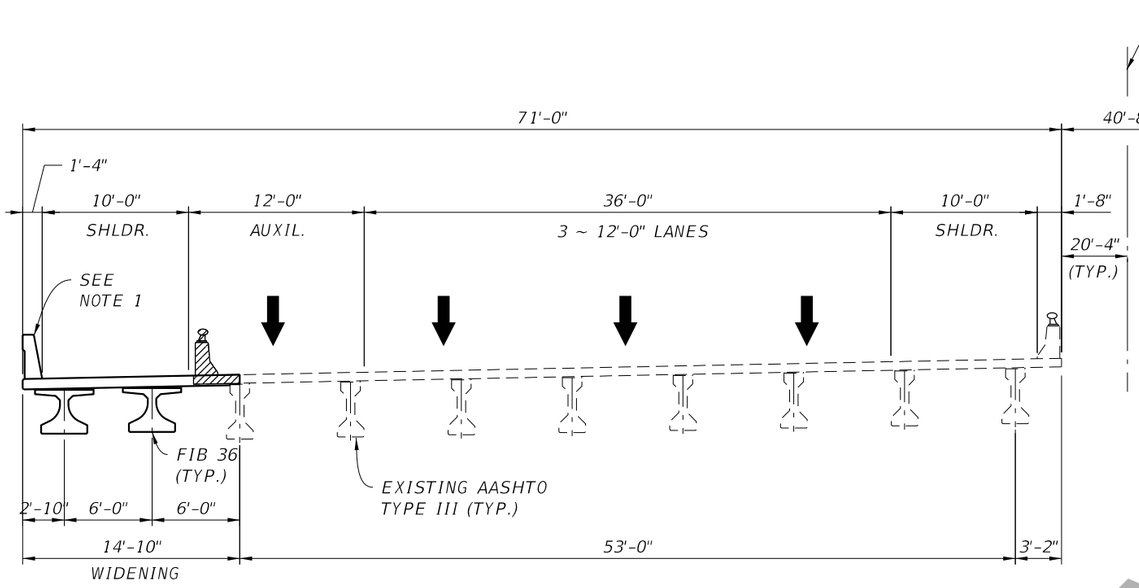
SR 821	MIAMI-DADE	439545-1-22-01

TYPICAL SECTION - ALT 5

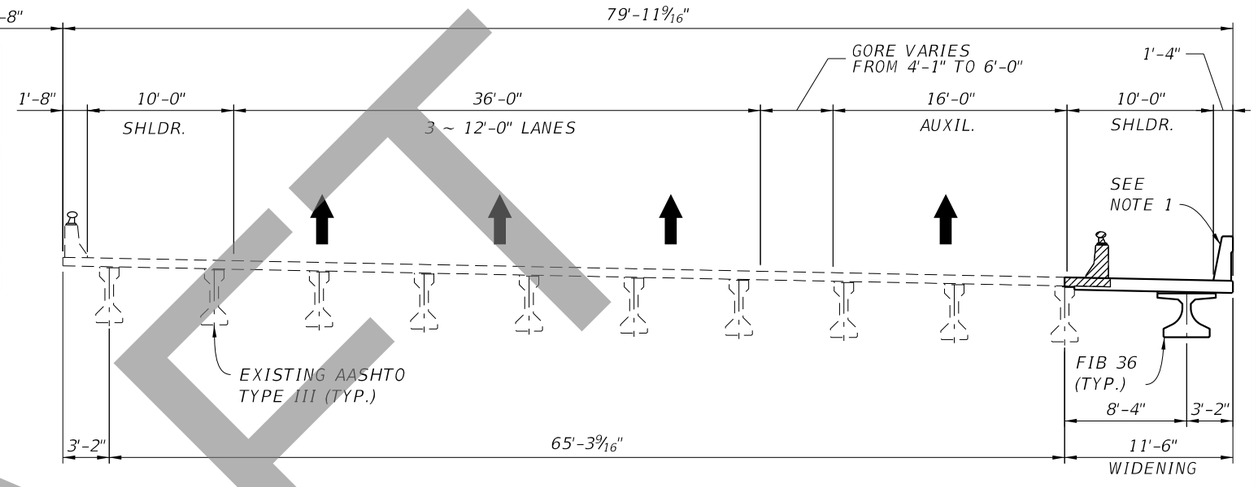
SHEET NO. 5



SOUTHBOUND TYPICAL - SPAN 1

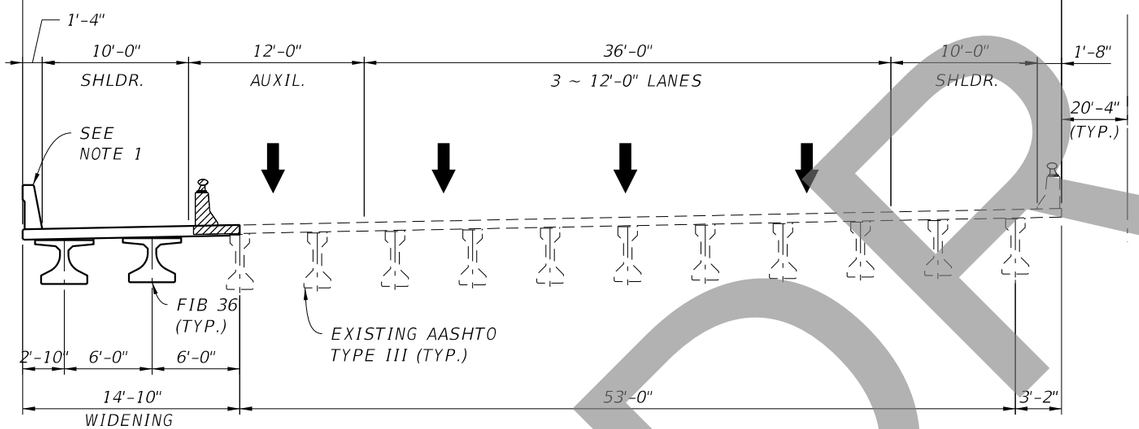
BRIDGE NO 870179

THE GORE @ BEGIN APPRH. SLAB 1 = 6'-0".



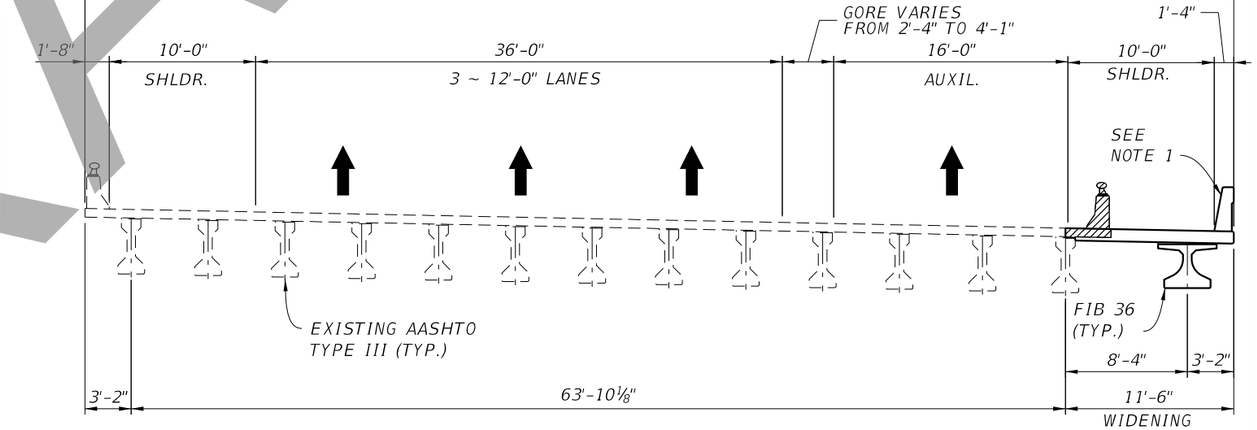
NORTHBOUND TYPICAL - SPAN 1

BRIDGE NO 870390



SOUTHBOUND TYPICAL - SPAN 2

BRIDGE NO 870179



NORTHBOUND TYPICAL - SPAN 2

BRIDGE NO 870390

LEGEND:

▨ EXISTING STRUCTURE REMOVAL

NOTE:

1. 36" SINGLE SLOPE TRAFFIC RAILING (INDEX 521-427)

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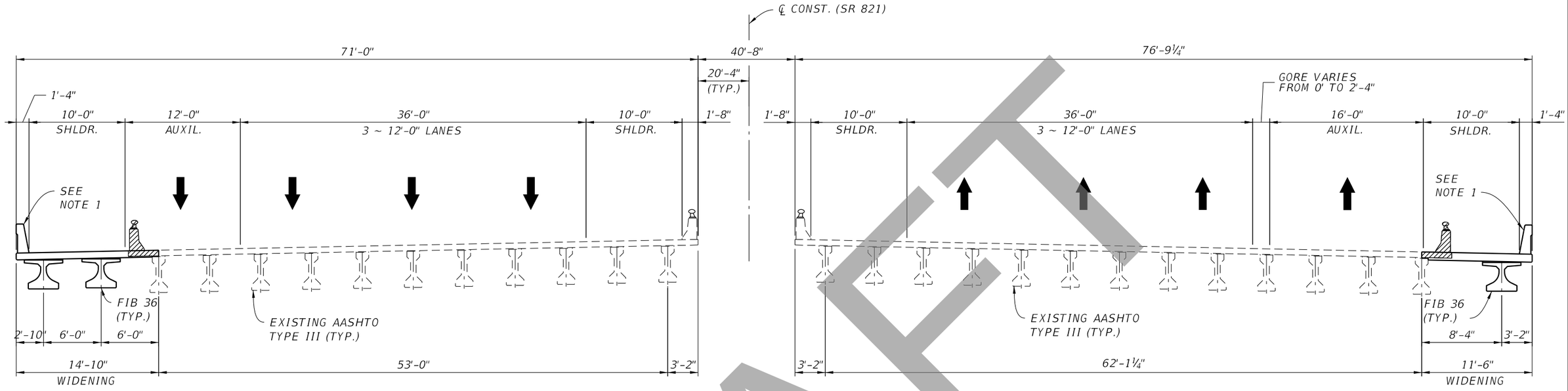
SR 821	MIAMI-DADE	439545-1-22-01

FLORIDA'S TURNPIKE OVER SW 312TH ST TYPICAL SECTION (SHEET 1 OF 2)

SHEET NO. XX

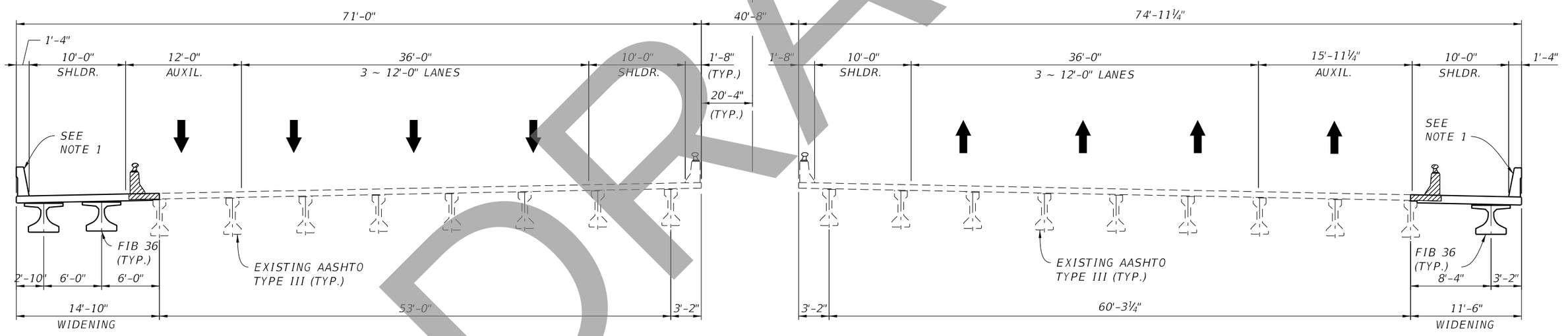


SOUTHBOUND TYPICAL - SPAN 3

BRIDGE NO 870179

NORTHBOUND TYPICAL - SPAN 3

BRIDGE NO 870390



SOUTHBOUND TYPICAL - SPAN 4

BRIDGE NO 870179

NORTHBOUND TYPICAL - SPAN 4

BRIDGE NO 870390

LEGEND:

▨ EXISTING STRUCTURE REMOVAL

NOTE:

1. 36" SINGLE SLOPE TRAFFIC RAILING (INDEX 521-427)

REVISIONS			
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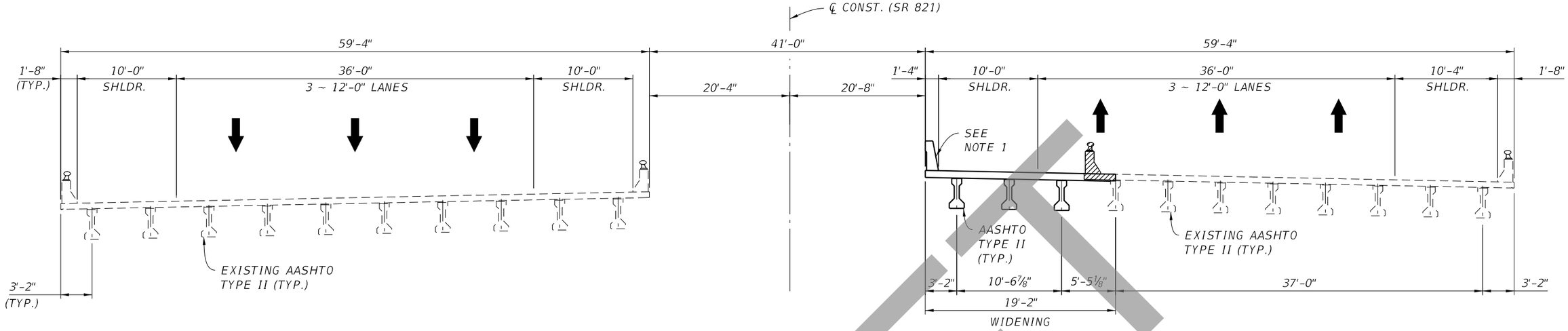
FLORIDA'S TURNPIKE OVER SW 312TH ST TYPICAL SECTION (SHEET 2 OF 2)

SHEET NO. XX

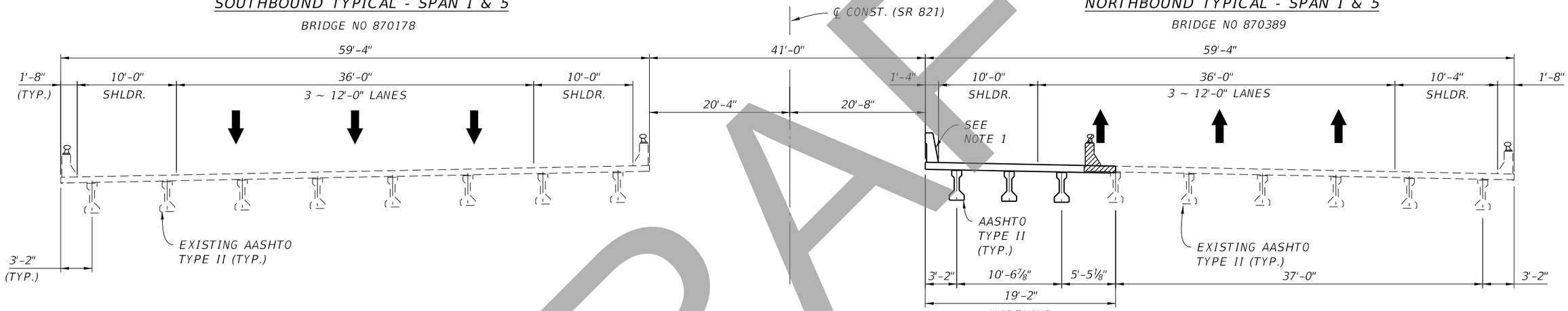


SOUTHBOUND TYPICAL - SPAN 1 & 5

BRIDGE NO 870178

NORTHBOUND TYPICAL - SPAN 1 & 5

BRIDGE NO 870389

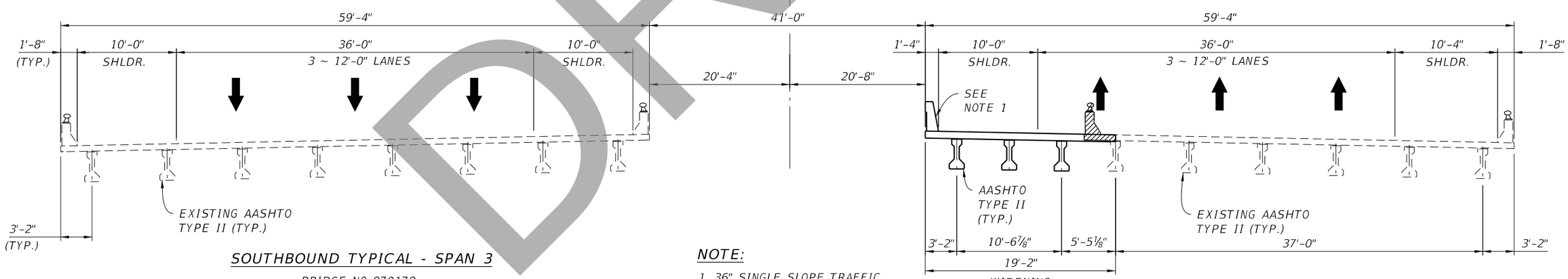


SOUTHBOUND TYPICAL - SPAN 2 & 4

BRIDGE NO 870178

NORTHBOUND TYPICAL - SPAN 2 & 4

BRIDGE NO 870389



SOUTHBOUND TYPICAL - SPAN 3

BRIDGE NO 870178

NORTHBOUND TYPICAL - SPAN 3

BRIDGE NO 870389

NOTE:

1. 36" SINGLE SLOPE TRAFFIC RAILING (INDEX 521-427)

LEGEND:

▨ EXISTING STRUCTURE REMOVAL

REVISIONS			
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DEPARTMENT OF TRANSPORTATION

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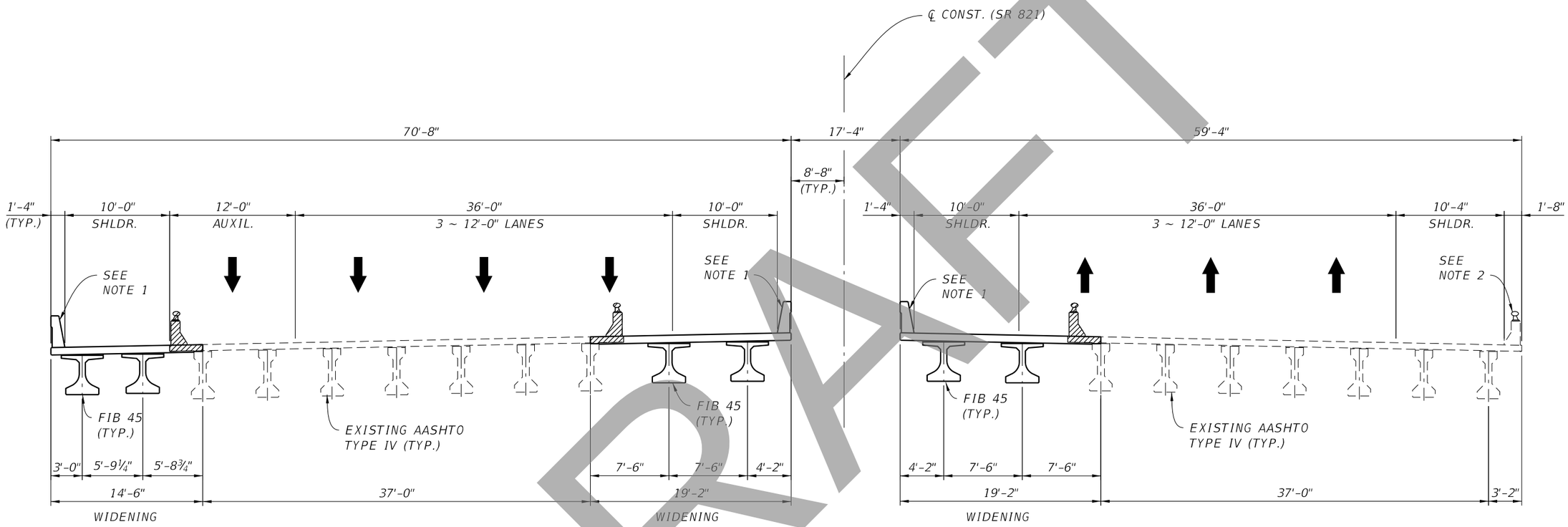
SR 821	MIAMI-DADE	439545-1-22-01

FLORIDA'S TURNPIKE OVER CANAL C-103 TYPICAL SECTION

SHEET NO. XX



SOUTHBOUND TYPICAL

BRIDGE NO 870193

NORTHBOUND TYPICAL

BRIDGE NO 870400

LEGEND:

▨ EXISTING STRUCTURE REMOVAL

NOTES:

1. 36" SINGLE SLOPE TRAFFIC RAILING (INDEX 521-427)
2. TRAFFIC RAILING RETROFIT – REPLACE METAL RAIL WITH STEEL ELLIPTICAL TUBE AND POST RAIL

DRAFT

REVISIONS			
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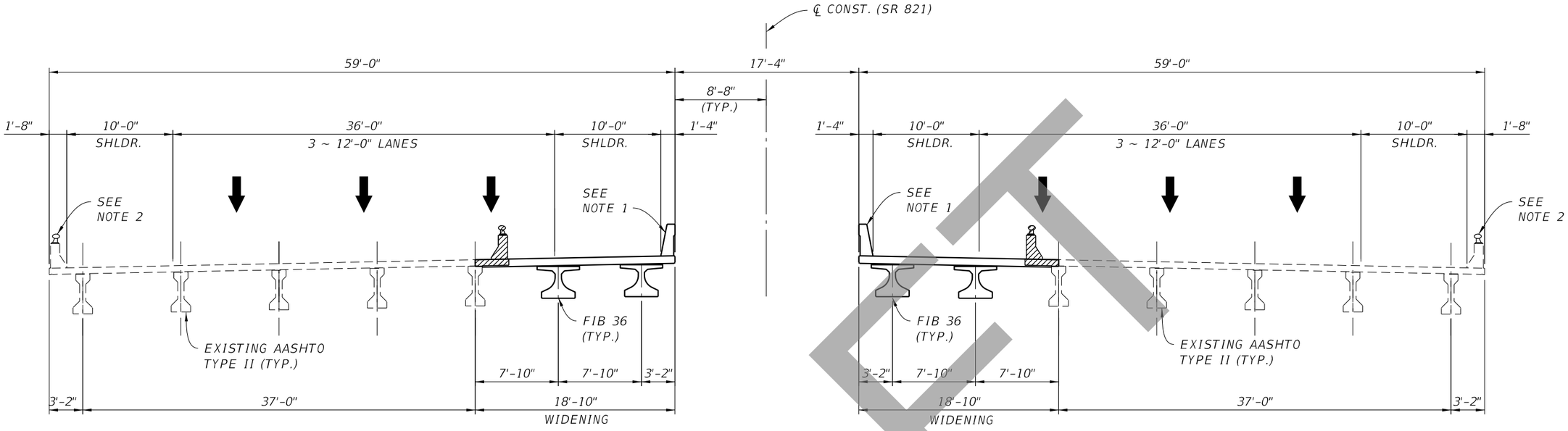
FLORIDA'S TURNPIKE OVER 162ND AVE TYPICAL SECTION

SHEET NO. XX

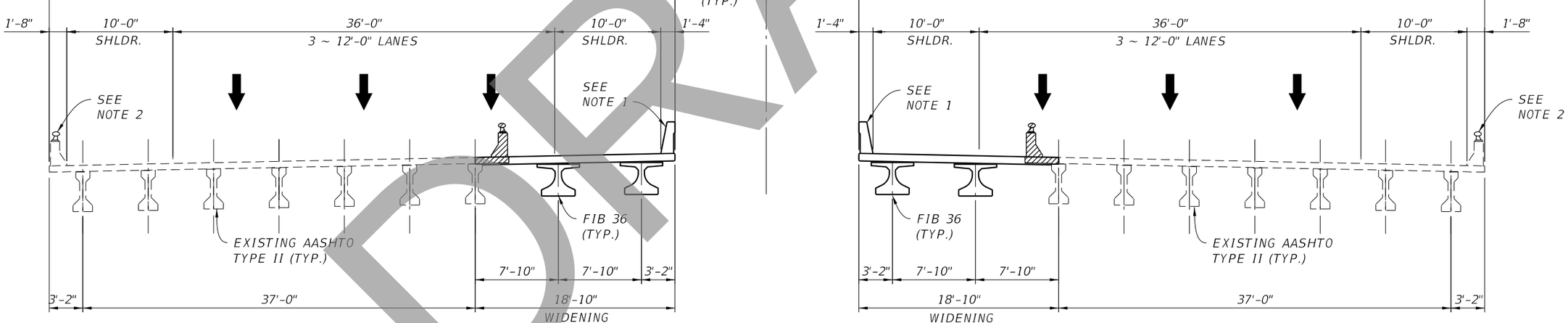


SOUTHBOUND TYPICAL - SPAN 1 & 4

BRIDGE NO 870192

NORTHBOUND TYPICAL - SPAN 1 & 4

BRIDGE NO 870399



SOUTHBOUND TYPICAL - SPAN 2 & 3

BRIDGE NO 870192

NORTHBOUND TYPICAL - SPAN 2 & 3

BRIDGE NO 870399

LEGEND:

▨ EXISTING STRUCTURE REMOVAL

NOTES:

1. 36" SINGLE SLOPE TRAFFIC RAILING (INDEX 521-427)
2. TRAFFIC RAILING RETROFIT – REPLACE METAL RAIL WITH STEEL ELLIPTICAL TUBE AND POST RAIL

DRAFT

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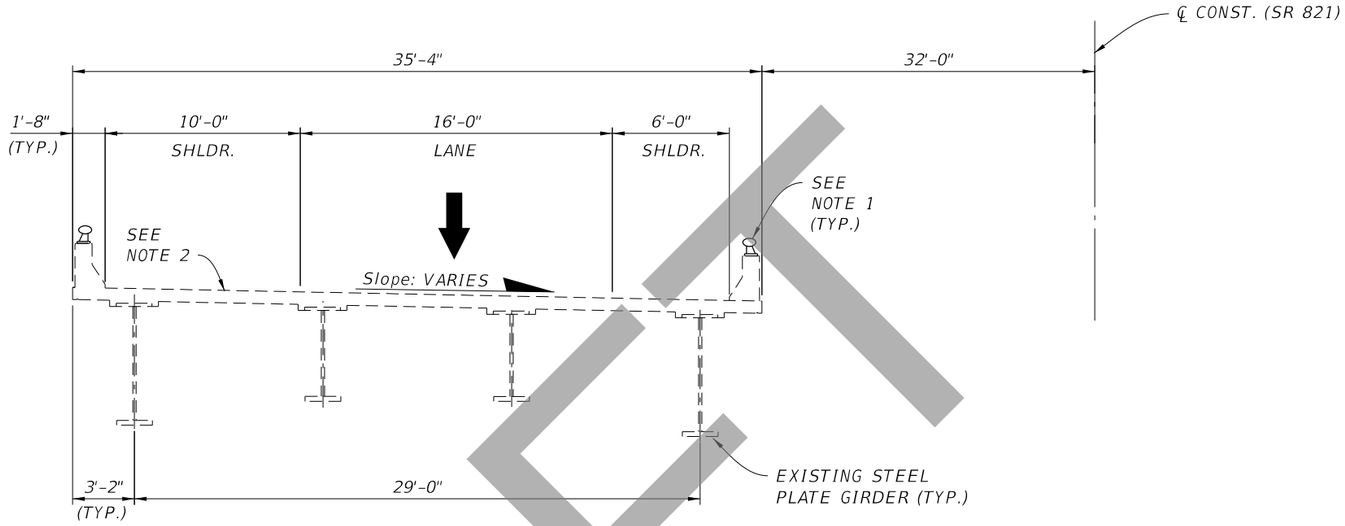
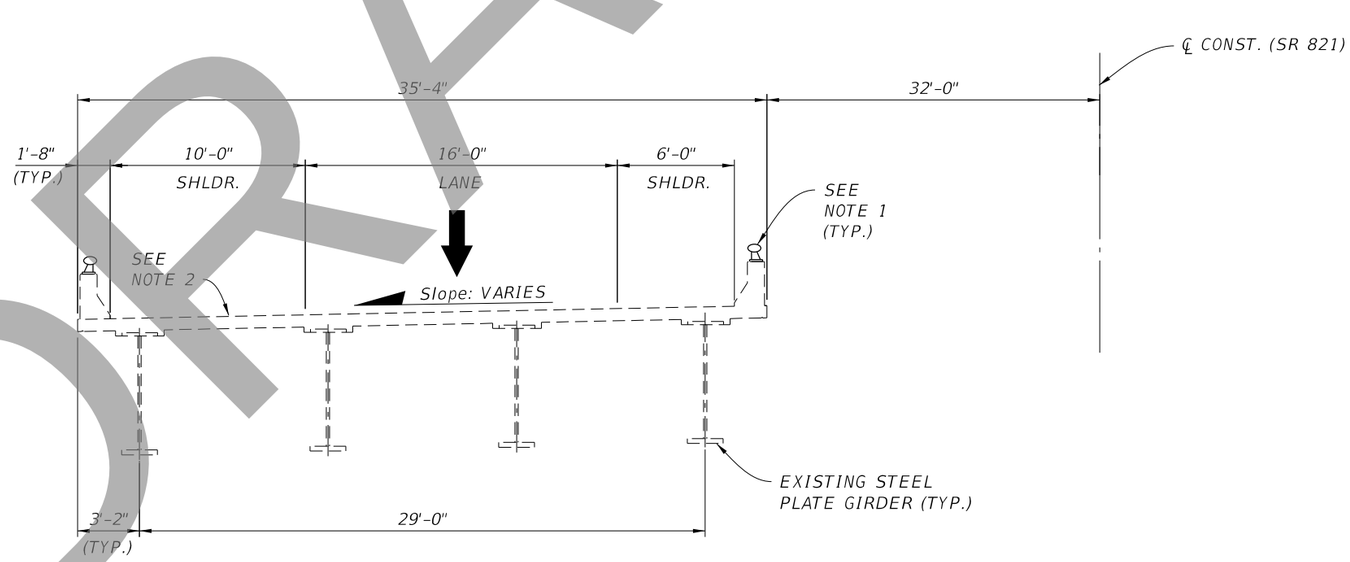
FLORIDA'S TURNPIKE OVER SW 328TH ST TYPICAL SECTION

SHEET NO. XX



SOUTHBOUND TYPICAL - SPAN 1 & 3

BRIDGE NO 870191



SOUTHBOUND TYPICAL - SPAN 2

BRIDGE NO 870191

NOTES:

1. TRAFFIC RAILING RETROFIT – REPLACE METAL RAIL WITH STEEL ELLIPTICAL TUBE AND POST RAIL.
2. SUPERELEVATION ON BRIDGE VAIRES FROM SLOPING LEFT TO SLOPING RIGHT.

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SR 821	MIAMI-DADE	439545-1-22-01

FLORIDA'S TURNPIKE
SB OFF-RAMP OVER US 1
TYPICAL SECTION

SHEET NO.
XX

APPENDIX B
Additional Alternative Cost Estimate

ALTERNATIVE 1

ITEM OF CONSTRUCTION	PAY ITEM	QUANTITY	UNIT COST	TOTAL COST
OVERBUILD EXISTING TRAVEL LANES	SP ASPHALT CONCRETE (TN)	6885	$ 150	$ 1,032,760
ADJUST EXISTING MEDIAN INLET TOPS	TYPE E DBI (EA)	10	$ 1,500	$ 15,000
INSTALL ADDITIONAL MEDIAN DRAINS	TYPE E DBI (EA)	9	$ 5,500	$ 125,820
	18" MEDIAN DRAIN (LF)	720	$ 66	
	CD MES (EA)	9	$ 3,200	
BRIDGE WIDENING		1	$ 4,006,318	$ 4,006,318
SHOULDER GUTTER DRAINAGE ADD-ONS	SHLDR GUTTER INLET (EA)	12	$ 6,000	$ 72,000
	18" GUTTED DRAIN - 18" PIPE (LF)	720	$ 66	$ 47,520
	MES W/ BAFFLE (EA)	12	$ 3,000	$ 36,000
ADDITIONAL COST ABOVE BASELINE ALTERNATIVE COST				$ 5,335,418

ALTERNATIVE 2

ITEM OF CONSTRUCTION	PAY ITEM	QUANTITY	UNIT COST	TOTAL COST
WIDEN INSIDE PAVED SHOULDERS	MILL (ASSUME 2") (SY)	7364	$ 3	$ 143,605
	OVERLAY (TN)	810	$ 150	
RE-ALIGN RAMPS @ DAVIS PKW & CAMPBELL DR	RECONSTRUCT RAMPS (MILES)	1.3	$ 665,000	$ 864,500
ADDITIONAL TTCP PHASE	1% OF TOTAL CONSTRCTION (ASSUME $12.1 M)	1	$ 121,000	$ 121,000
EXTEND EXISTING MEDIAN CROSS DRAINS	48" CONCERT PIPE (LF)	48	$ 440	$ 21,120
HIGH-FILL WIDENING ADD-ONS	SHLDR GUTTER INLET (EA)	24	$ 6,000	$ 144,000
	18" GUTTED DRAIN - 18" PIPE (LF)	1920	$ 66	$ 126,720
	MES W/ BAFFLE (EA)	24	$ 3,000	$ 72,000
	GUARDRAIL (LF)	5070	$ 21	$ 106,470
	EARTHWORK (CY)	59950	$ 15	$ 899,250
BRIDGE WIDENING		1	$ 4,194,014	$ 4,194,014
ADDITIONAL COST ABOVE BASELINE ALTERNATIVE COST				$ 6,692,679

ALTERNATIVE 3

ITEM OF CONSTRUCTION	PAY ITEM	QUANTITY	UNIT COST	TOTAL COST
INSTALL EXTENSIVE ADDITIONAL MEDIAN DRAINS	TYPE E DBI (EA)	17	$ 5,500	$ 237,660
	18" MEDIAN DRAIN (LF)	1360	$ 66	
	CD MES (EA)	17	$ 3,200	
ADJUST EXISTING MEDIAN INLET TOPS	TYPE E DBI (EA)	10	$ 1,500	$ 15,000
BRIDGE WIDENING		1	$ 4,006,318	$ 3,406,558
ADDITIONAL COST ABOVE BASELINE ALTERNATIVE COST				$ 3,659,218

SUMMARY OF COST EXTIMATE

ALT 1	ALT 2	ALT 3	ALT 4	ALT 5
$ 5,335,418	$ 6,692,679	$ 3,659,218	$ 7,913,258	$ 9,953,776.72

EACH ALTERNATIVE DICTATES:

- CONSTRUCTION OF A 12-FEET NEW TRAVEL LANE IN BOTH DIRECTIONS
- RESURFACING EXISTING TRAVEL LANES AND PAVED SHOULDERS
- SOME AMOUNT OF CLEARING AND EARTHWORK IN THE MEDIAN
- STORMWATER DETENTION IN THE OUTSIDE SWALES (OR OFFSITE PONDS)
- CONSTRUCTION MOBILIZATION MAINTENANCE OF TRAFFIC, ADMINISTRATION AND CEI

ALTERNATIVE 4

ITEM OF CONSTRUCTION	PAY ITEM	QUANTITY	UNIT COST	TOTAL COST
EXTENSIVE OVERBUILD EXISTING TRAVEL LANES	SP ASPHALT CONCRETE (TN)	9081	$ 150	$ 1,362,150
INSTALL ADDITIONAL MEDIAN DRAINS	TYPE E DBI (EA)	3	$ 5,500	$ 16,500
	18" MEDIAN DRAIN (LF)	240	$ 66	$ 15,840
	CD MES (EA)	3	$ 3,200	$ 9,600
WIDEN INSIDE PAVED SHOULDERS	MILL (ASSUME 2") (SY)	7,364	$ 3	$ 131,454
	OVERLAY (TN)	810	$ 135	
RE-ALING RAMPS @ DAVIS PKWY & CAMPBELL DR	RECONSTRUCT RAMP (MILE)	1.3	$ 665,000	$ 864,500
ADDITIONAL TTCP PHASE	1% OF TOTAL CONSTRCTION (ASSUME $12.1 M)	1	$ 121,000	$ 121,000
EXTEND EXISTING MEDIAN CROSS DRAINS	48" CONCERT PIPE (LF)	48	$ 440	$ 21,120
HIGH-FILL WIDENING ADD-ONS	SHLDR GUTTER INLET (EA)	12	$ 6,000	$ 72,000
	18" GUTTED DRAIN - 18" PIPE (LF)	960	$ 66	$ 63,360
	MES W/ BAFFLE (EA)	12	$ 3,000	$ 36,000
	GUARDRAIL (LF)	5070	$ 21	$ 106,470.00
	EARTHWORK	59,950	$ 15	$ 899,250.00
BRIDGE WIDENING		1	$ 4,194,014	$ 4,194,014
ADDITIONAL COST ABOVE BASELINE ALTERNATIVE COST				$ 7,913,258

ALTERNATIVE 5

ITEM OF CONSTRUCTION	PAY ITEM	QUANTITY	UNIT COST	TOTAL COST
EXTENSIVE OVERBUILD EXISTING TRAVEL LANES	SP ASPHALT CONCRETE (TN)	11,351	$ 150	$ 1,702,630
INSTALL ADDITIONAL MEDIAN DRAINS	TYPE E DBI (EA)	5	$ 5,500	$ 27,500
	18" MEDIAN DRAIN (LF)	400	$ 66	$ 26,400
	CD MES (EA)	5	$ 3,200	$ 16,000
ADDITIONAL TTCP PHASE	1% OF TOTAL CONSTRCTION (ASSUME $12.1 M)	1	$ 121,000	$ 121,000
RE-ALING RAMPS @ DAVIS PKWY & CAMPBELL	RECONSTRUCT RAMP (MILE)	1.3	$ 665,000	$ 864,500
HIGH-FILL WIDENING ADD-ONS	SHLDR GUTTER INLET (EA)	12	$ 6,000	$ 72,000
	18" GUTTED DRAIN - 18" PIPE (LF)	960	$ 66	$ 63,360
	MES W/ BAFFLE (EA)	12	$ 3,000	$ 36,000
	GUARDRAIL (LF)	5070	$ 21	$ 106,470
	EARTHWORK	59,950	$ 15	$ 899,250
BRIDGE WIDENING		1	$ 6,018,667	$ 6,018,667
ADDITIONAL COST ABOVE BASELINE ALTERNATIVE COST				$ 9,953,777

SUMMARY OF COST EXTIMATE

Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
$ 5,335,418	$ 6,692,679	$ 3,659,218	$ 7,913,258	$ 9,953,776.72

EACH ALTERNATIVE DICTATES:

- CONSTRUCTION OF A 12-FEET NEW TRAVEL LANE IN BOTH DIRECTIONS
- RESURFACING EXISTING TRAVEL LANES AND PAVED SHOULDERS
- SOME AMOUNT OF CLEARING AND EARTHWORK IN THE MEDIAN
- STORMWATER DETENTION IN THE OUTSIDE SWALES (OR OFFSITE PONDS)
- CONSTRUCTION MOBILIZATION MAINTENANCE OF TRAFFIC, ADMINISTRATION AND CEI

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over Campbell, Both Bridges, (Alt 1 and 3)

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantities
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	1300	$78,000	Assume 4 piles/ IB, 3 IB and 2 piles for EB, 5 EB widening at 50ft length
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)[2]	$250			
		Subtotal	$78,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
		Subtotal	

[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Concrete [1]	$775	52.0	$40,300	(24ft*3ft*3ft)*5+(10ft*3ft*3ft)+(13ft+3ft*3ft)+(13ft*3ft*3ft)
Mass Concrete [1]	$625			
Seal Concrete [1]	$375			
Bulkhead Concrete [1]	$900			
Shell Fill [1]	$30		-	
		Subtotal	$40,300	

[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.90	13000.0	$11,700	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$11,700	

Substructure Subtotal $130,000

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall [1]	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall [1]	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
		Subtotal	

[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**3.34**	**$3,006**	Assume 12"x12"x2", 2 beams x 4 bents + 1 beam x 2 bents
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$3,006**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**			
Florida-I Beam; 36	**$220**	**1316**	**$289,520**	Assume 2 beams x 4 spans + 1 beam x 2 spans, total bridge length = 329ft
Florida-I Beam; 45	**$225**			
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$289,520**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	353.4	$247,359	(14ft+3ft+3ft+9ft)*329ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
[1] Including cost of shrinkage reducing admixture.		Subtotal	$247,359	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	70674.1	$67,140	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$67,140	

6. Railings and Barriers

Traffic Railings [1]	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	1316	$122,388	329ft*4 sides
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") [1]	$65			
Single Bullet Railing [1]	$27			
Double Bullet Railing [1]	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
[1] Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$122,388	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	58	$2,320	(14ft+3ft+3ft+9ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$2,320	

	Superstructure Subtotal	$731,734

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1060.1	$10,071	(14ft+3ft+3ft+9ft)*329ft
		Grooving and Planing Subtotal	$10,071	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.		Detour Bridge Subtotal	

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
Cast-in-Place Concrete (per Cubic Yard)	$350	43.0	$15,037	(14ft+3ft+3ft+9ft)*20ft*2 Bridges
Reinforcing Steel (per Pound)	$0.95	8592.6	$8,163	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 bridges
		Approach Slab Subtotal	$37,600	

Unadjusted Total	$909,405

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.		
For construction over traffic and/or phased construction, increase by 20 %. [1]	20%	$181,881
[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.	20%	$181,881

Substructure Subtotal	$130,000
Superstructure Subtotal	$731,734
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$10,071
Detour Bridge Subtotal	
Approach Slab Subtotal	$37,600
Conditional Variables	$181,881
Total Cost	$1,091,286

Total Square Feet of Deck	9541	Area to be widened
Cost per Square Foot (not including Approach Slab)	$110	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	**135**		
Pile Bents	**145**		
Single Column Piers >25'	**210**		
Single Column Piers <25'	**150**		
Multiple Column Piers >25'	**215**		
Multiple Column Piers <25'	**195**		
Bascule Piers	**110**		
Standard Deck Slabs	**205**		
Isotropic Deck Slabs	**125**		
Concrete Box Girders, Pier Seg	**225**		
Concrete Box Girders, Typ. Seg	**165**		
C.I.P. Flat Slabs @ 30ft & 15" Deep	**220**		
Approach Slab	**200**		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span '	$115	$160
Pre-cast Concrete Slab - Simple Span '	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span '	$125	$142
Concrete Deck / Steel Girder - Continuous Span '	$135	$170
Concrete Deck / Prestressed Girder - Simple Span '	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span '	$95	$211
Concrete Deck / Steel Box Girder ' - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

' Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$110**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over Campbell, Both Bridges (Widening to both sides, Alt 5)

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantities
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	1600	$96,000	Assume 2 piles/ IB, 12 IB widenings and 2 piles for 4 EB at 50ft length
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)[2]	$250			
		Subtotal	$96,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
		Subtotal	

[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
				(7ft*3ft*3ft) * 4 EB Widening
Concrete [1]	$775	37.3	$28,933	+ 12 IB Widening
Mass Concrete [1]	$625			
Seal Concrete [1]	$375			
Bulkhead Concrete [1]	$900			
Shell Fill [1]	$30			
		Subtotal	$28,933	

[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.90	9333.3	$8,400	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$8,400	

Substructure Subtotal $133,333

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall [1]	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall [1]	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
		Subtotal	

[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**5.344**	$4,810	Assum 12"x12"x2", 2 beam x 4 Spans, 2 bridges
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$4,810**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**			
Florida-I Beam; 36	**$220**	**5264**	**$1,158,080**	Assume 2 beams, 4 spans, 2 bridges, total bridge length = 329ft
Florida-I Beam; 45	**$225**			
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$1,158,080**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	341.2	$238,830	(8ft+10ft+10ft)*329ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
		Subtotal	$238,830	

[1] Including cost of shrinkage reducing admixture.

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	68237.0	$64,825	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$64,825	

6. Railings and Barriers

Traffic Railings [1]	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	1316	$122,388	329ft*4 sides
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") [1]	$65			
Single Bullet Railing [1]	$27			
Double Bullet Railing [1]	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
		Subtotal	$122,388	

[1] Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	60	$2,400	(8ft+10ft+10ft+2ft)*2
Strip Seal	$350			2ft replacement
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$2,400	

Superstructure Subtotal	$1,591,332

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1096.7	$10,418	(8ft+7ft+10ft+2ft)*329ft
	Grooving and Planing Subtotal		$10,418	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.	Detour Bridge Subtotal		

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
Cast-in-Place Concrete (per Cubic Yard)	$350	44.4	$15,556	(8ft+10ft+10ft+2ft)*20ft*2 bridges
Reinforcing Steel (per Pound)	$0.95	8888.9	$8,444	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 Bridges
	Approach Slab Subtotal		$38,400	

Unadjusted Total	$1,773,484

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.		
For construction over traffic and/or phased construction, increase by 20 %. [1]	20%	$354,697
[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.	20%	$354,697

Substructure Subtotal	$133,333
Superstructure Subtotal	$1,591,332
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$10,418
Detour Bridge Subtotal	
Approach Slab Subtotal	$38,400
Conditional Variables	$354,697
Total Cost	$2,128,181

Total Square Feet of Deck	9212	Area to be widened
Cost per Square Foot (not including Approach Slab)	$227	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	**135**		
Pile Bents	**145**		
Single Column Piers >25'	**210**		
Single Column Piers <25'	**150**		
Multiple Column Piers >25'	**215**		
Multiple Column Piers <25'	**195**		
Bascule Piers	**110**		
Standard Deck Slabs	**205**		
Isotropic Deck Slabs	**125**		
Concrete Box Girders, Pier Seg	**225**		
Concrete Box Girders, Typ. Seg	**165**		
C.I.P. Flat Slabs @ 30ft & 15" Deep	**220**		
Approach Slab	**200**		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span '	$115	$160
Pre-cast Concrete Slab - Simple Span '	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span '	$125	$142
Concrete Deck / Steel Girder - Continuous Span '	$135	$170
Concrete Deck / Prestressed Girder - Simple Span '	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span '	$95	$211
Concrete Deck / Steel Box Girder ' - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

' Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$227**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over C-103 - NB Bridge. (Alternative 1 and 3)

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantities
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	2000	$120,000	Assume 3 piles/ bent at 100ft length, 6 bents, + 2 pile for wingwalls
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)	$250			
		Subtotal	$120,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.		**Subtotal**	

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Concrete [1]	$775	46	$35,650	23ftx3ftx3ft, 6 bents
Mass Concrete [1]	$625			
Seal Concrete [1]	$375			
Bulkhead Concrete [1]	$900			
Shell Fill [1]	$30			
[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)		**Subtotal**	$35,650	

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.90	11500	$10,350	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$10,350	

Substructure Subtotal **$166,000**

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall[1]	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall[1]	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.		**Subtotal**		

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**3.006**	**$2,705**	Assume 12"x12"x2", 3 beams x 6 bents
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$2,705**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**	816	**$89,760**	Assume 3 beams, 5 spans, total bridge length = 272ft
Florida-I Beam; 36	**$220**			
Florida-I Beam; 45	**$225**			
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$89,760**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	282.1	$197,452	(19ft+3ft+3ft+3ft)*272ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
[1] Including cost of shrinkage reducing admixture.		Subtotal	$197,452	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	44400	$42,180	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$42,180	

6. Railings and Barriers

Traffic Railings [1]	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	1088	$101,184	272ft*4 sides, Replacement
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") [1]	$65			
Single Bullet Railing[1]	$27			
Double Bullet Railing[1]	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
[1] Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$101,184	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	56	$2,240	(19ft+3ft+3ft+3ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$2,240	

Superstructure Subtotal **$435,521**

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	846.2	$8,039	(19ft+3ft+3ft+3ft)*272ft
		Grooving and Planing Subtotal	$8,039	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
		Detour Bridge Subtotal	

[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
Cast-in-Place Concrete (per Cubic Yard)	$350	20.7	$7,259	(19ft+3ft+3ft+3ft)*20ft*1 Bridge
Reinforcing Steel (per Pound)	$0.95	4148.1	$3,941	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 Bridges, Replacement
		Approach Slab Subtotal	$25,600	

Unadjusted Total	$635,160

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.	3%	$19,055
For construction over traffic and/or phased construction, increase by 20 %.[1]	20%	$127,032
	23%	$146,087

[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.

Substructure Subtotal	$166,000
Superstructure Subtotal	$435,521
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$8,039
Detour Bridge Subtotal	
Approach Slab Subtotal	$25,600
Conditional Variables	$146,087
Total Cost	$781,247

Total Square Feet of Deck	7616	Area to be widened
Cost per Square Foot (not including Approach Slab)	$99	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	**135**		
Pile Bents	**145**		
Single Column Piers >25'	**210**		
Single Column Piers <25'	**150**		
Multiple Column Piers >25'	**215**		
Multiple Column Piers <25'	**195**		
Bascule Piers	**110**		
Standard Deck Slabs	**205**		
Isotropic Deck Slabs	**125**		
Concrete Box Girders, Pier Seg	**225**		
Concrete Box Girders, Typ. Seg	**165**		
C.I.P. Flat Slabs @ 30ft & 15" Deep	**220**		
Approach Slab	**200**		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span [1]	$115	$160
Pre-cast Concrete Slab - Simple Span [1]	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span [1]	$125	$142
Concrete Deck / Steel Girder - Continuous Span [1]	$135	$170
Concrete Deck / Prestressed Girder - Simple Span [1]	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span [1]	$95	$211
Concrete Deck / Steel Box Girder [1] - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

[1] Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$99**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over C-103 - Both Bridges. (Widening to both Sides - Alt 5)

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost
14" (Driven Plumb or 1" Batter) [2]	$60		
18" (Driven Plumb or 1" Batter) [2]	$80	5200	$312,000
18" (Driven Battered) [2]	$110		
24" (Driven Plumb or 1" Batter) [2]	$90		
24" (Driven Battered) [2]	$130		
30" (Driven Plumb or 1" Batter) [2]	$120		
30" (Driven Battered) [2]	$175		
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122		
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152		
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146		
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186		
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191		
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246		
Heavy mild steel reinforcing in pile head (each) [3]	$250		
		Subtotal	$312,000

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

Assumptions for Quantities

Assume 4 piles/ bent at 100ft length, 6 bents, Both Bridges + 2 pile for

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.		**Subtotal**	

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Concrete [1]	**$775**	**74**	**$57,350**	(11ft+28ft)x3ftx3ft, 6 bents
Mass Concrete [1]	**$625**			
Seal Concrete [1]	**$375**			
Bulkhead Concrete [1]	**$900**			
Shell Fill [1]	**$30**			
[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)		**Subtotal**	**$57,350**	

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	**$0.90**	**11500**	**$10,350**	250lb/CY
Low-Carbon Chromium Reinforcing Steel	**$1.25**			
Stainless Reinforcing Steel	**$4.00**			
Post-tensioning Steel, Strand	**$4.00**			
Post-tensioning Steel, Bars	**$6.00**			
		Subtotal	**$10,350**	

Substructure Subtotal **$379,700**

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	**$28**		
Temporary	**$14**		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	**$120**		
12" x 30"	**$130**		
12" x 30" with FRP	**$265**		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	**$30**		
Permanent Anchored Wall [1]	**$55**		
Temporary Cantilever Wall	**$16**		
Temporary Anchored Wall [1]	**$35**		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	**$110**		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	**$225**		
42" F Shape or Vertical Face	**$240**		
36" Single-Slope	**$221**		
42" Single-Slope	**$240**		
[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.		**Subtotal**	

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	**$25**		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**2.004**	**$1,804**	Assume 12"x12"x2", 1 beams x 6 bents per Bridge
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$1,804**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**	**544**	**$59,840**	Assume 1 beams, 5 spans, total bridge length = 272ft, Total two beam, one per bridge
Florida-I Beam; 36	**$220**			
Florida-I Beam; 45	**$225**			
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$59,840**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	362.7	$253,867	(10ft+26ft)*272ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
[1] Including cost of shrinkage reducing admixture.		Subtotal	$253,867	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	44400	$42,180	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$42,180	

6. Railings and Barriers

Traffic Railings [1]	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	1088	$101,184	272ft*4 sides.
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") [1]	$65			
Single Bullet Railing[1]	$27			
Double Bullet Railing[1]	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
[1] Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$101,184	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	72	$2,880	(10ft+26ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$2,880	

Superstructure Subtotal	$461,754

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1088.0	$10,336	(10ft+26ft)*272ft
		Grooving and Planing Subtotal	$10,336	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
		Detour Bridge Subtotal	

[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
Cast-in-Place Concrete (per Cubic Yard)	$350	53.3	$18,667	(10ft+26ft)*20ft*2 Bridges
Reinforcing Steel (per Pound)	$0.95	10666.7	$10,133	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides *20ft*2 Bridges
		Approach Slab Subtotal	$43,200	

Unadjusted Total	$894,990

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.	3%	$26,850
For construction over traffic and/or phased construction, increase by 20 %.[1]	20%	$178,998
	23%	$205,848

[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.

Substructure Subtotal	$379,700
Superstructure Subtotal	$461,754
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$10,336
Detour Bridge Subtotal	
Approach Slab Subtotal	$43,200
Conditional Variables	$205,848
Total Cost	$1,100,838

Total Square Feet of Deck	9792	Area to be widened
Cost per Square Foot (not including Approach Slab)	$108	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	**135**		
Pile Bents	**145**		
Single Column Piers >25'	**210**		
Single Column Piers <25'	**150**		
Multiple Column Piers >25'	**215**		
Multiple Column Piers <25'	**195**		
Bascule Piers	**110**		
Standard Deck Slabs	**205**		
Isotropic Deck Slabs	**125**		
Concrete Box Girders, Pier Seg	**225**		
Concrete Box Girders, Typ. Seg	**165**		
C.I.P. Flat Slabs @ 30ft & 15" Deep	**220**		
Approach Slab	**200**		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span [1]	$115	$160
Pre-cast Concrete Slab - Simple Span [1]	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span [1]	$125	$142
Concrete Deck / Steel Girder - Continuous Span [1]	$135	$170
Concrete Deck / Prestressed Girder - Simple Span [1]	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span [1]	$95	$211
Concrete Deck / Steel Box Girder [1] - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

[1] Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$108**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over 162nd Ave, Both Bridges (Inside Widening, Alt 1).

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantities
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	1500	$90,000	Assume 6 piles/ EB at 50 ft length, Assume 6 piles/ column/ IB
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)[2]	$250			
		Subtotal	$90,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
		Subtotal	

[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Concrete [1]	$775	57	$44,175	19ftx3ftx3ft, 9 bent caps
Mass Concrete [1]	$625			
Seal Concrete [1]	$375			
Bulkhead Concrete [1]	$900			
Shell Fill [1]	$30			
		Subtotal	$44,175	

[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.90	11500	$10,350	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$10,350	

Substructure Subtotal **$144,525**

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall [1]	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall [1]	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
		Subtotal	

[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**4.008**	**$3,607**	Assume pad size = 12"x12"x2", 6 beams x 4 bents
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$3,607**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**			
Florida-I Beam; 36	**$220**			
Florida-I Beam; 45	**$225**	**1272**	**$286,200**	Assume 6 beams, 2 spans, total bridge length = 212ft
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$286,200**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	259.1	$181,378	(19ft+14ft)*212ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
' Including cost of shrinkage reducing admixture.		Subtotal	$181,378	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	51800	$49,210	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$49,210	

6. Railings and Barriers

Traffic Railings '	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	848	$78,864	212ft*4 sides
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") '	$65			
Single Bullet Railing '	$27			
Double Bullet Railing '	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
' Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$78,864	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	110	$4,400	(19ft+14ft+19ft+3ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$4,400	

Superstructure Subtotal		$603,659

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1295.6	$12,308	(19ft+14ft+19ft+3ft)*212ft
		Grooving and Planing Subtotal	$12,308	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.		Detour Bridge Subtotal	

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
Cast-in-Place Concrete (per Cubic Yard)	$350	81.5	$28,519	(19ft+14ft+19ft+3)*20ft*2 bridges
Reinforcing Steel (per Pound)	$0.95	16296.3	$15,481	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 bridges
		Approach Slab Subtotal	$58,400	

Unadjusted Total	$818,892

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.		
For construction over traffic and/or phased construction, increase by 20 %. [1]	20%	$163,778
[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.	20%	$163,778

Substructure Subtotal	$144,525
Superstructure Subtotal	$603,659
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$12,308
Detour Bridge Subtotal	
Approach Slab Subtotal	$58,400
Conditional Variables	$163,778
Total Cost	$982,670

Total Square Feet of Deck	11660	Area to be widened
Cost per Square Foot (not including Approach Slab)	$79	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	135		
Pile Bents	145		
Single Column Piers >25'	210		
Single Column Piers <25'	150		
Multiple Column Piers >25'	215		
Multiple Column Piers <25'	195		
Bascule Piers	110		
Standard Deck Slabs	205		
Isotropic Deck Slabs	125		
Concrete Box Girders, Pier Seg	225		
Concrete Box Girders, Typ. Seg	165		
C.I.P. Flat Slabs @ 30ft & 15" Deep	220		
Approach Slab	200		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span '	$115	$160
Pre-cast Concrete Slab - Simple Span '	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span '	$125	$142
Concrete Deck / Steel Girder - Continuous Span '	$135	$170
Concrete Deck / Prestressed Girder - Simple Span '	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span '	$95	$211
Concrete Deck / Steel Box Girder ' - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

' Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$79**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over 162nd Ave, Both Bridges (Outside Widening, Alt 3)

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantities
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	1500	$90,000	Assume 6 piles/ EB at 50ft length, Assume 6 piles/ column/ IB
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)[2]	$250			
		Subtotal	$90,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
		Subtotal	

[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Concrete [1]	$775	40.00	$31,000	25ft*3 bents+15ft*3 bents, Caps are 3ftx3ft
Mass Concrete [1]	$625			
Seal Concrete [1]	$375			
Bulkhead Concrete [1]	$900			
Shell Fill [1]	$30			
		Subtotal	$31,000	

[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.90	10000	$9,000	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$9,000	

Substructure Subtotal $130,000

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall [1]	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall [1]	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
		Subtotal	

[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**4.008**	**$3,607**	Assume 12"x12"x2", 6 beams x 3 bents
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$3,607**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**			
Florida-I Beam; 36	**$220**			
Florida-I Beam; 45	**$225**	**1272**	**$286,200**	Assume 6 beams, 2 spans, total bridge length = 212 ft
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$286,200**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	439.7	$307,793	(31ft+3ft+3ft+19ft)*212ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
[1] Including cost of shrinkage reducing admixture.		Subtotal	$307,793	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	87940	$83,543	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$83,543	

6. Railings and Barriers

Traffic Railings [1]	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	848	$78,864	212ft*4 sides
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") [1]	$65			
Single Bullet Railing [1]	$27			
Double Bullet Railing [1]	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
[1] Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$78,864	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	112	$4,480	(31ft+3ft+3ft+19ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$4,480	

	Superstructure Subtotal	$764,487

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1319.1	$12,532	(31ft+3ft+3ft+19ft)*212ft
		Grooving and Planing Subtotal	$12,532	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.		Detour Bridge Subtotal	

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
Cast-in-Place Concrete (per Cubic Yard)	$350	83.0	$29,037	(31ft+3ft+3ft+19ft)*20ft*2 bridges
Reinforcing Steel (per Pound)	$0.95	16592.6	$15,763	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 bridges
		Approach Slab Subtotal	$59,200	

Unadjusted Total	$966,218

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.		
For construction over traffic and/or phased construction, increase by 20 %. [1]	20%	$193,244
[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.	20%	$193,244

Substructure Subtotal	$130,000
Superstructure Subtotal	$764,487
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$12,532
Detour Bridge Subtotal	
Approach Slab Subtotal	$59,200
Conditional Variables	$193,244
Total Cost	$1,159,462

Total Square Feet of Deck	11872	Area to be widened
Cost per Square Foot (not including Approach Slab)	$93	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	135		
Pile Bents	145		
Single Column Piers >25'	210		
Single Column Piers <25'	150		
Multiple Column Piers >25'	215		
Multiple Column Piers <25'	195		
Bascule Piers	110		
Standard Deck Slabs	205		
Isotropic Deck Slabs	125		
Concrete Box Girders, Pier Seg	225		
Concrete Box Girders, Typ. Seg	165		
C.I.P. Flat Slabs @ 30ft & 15" Deep	220		
Approach Slab	200		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span '	$115	$160
Pre-cast Concrete Slab - Simple Span '	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span '	$125	$142
Concrete Deck / Steel Girder - Continuous Span '	$135	$170
Concrete Deck / Prestressed Girder - Simple Span '	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span '	$95	$211
Concrete Deck / Steel Box Girder ' - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

' Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$93**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over 162nd Ave, Widening to Both sides, Both Bridges - Alt 5

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantites
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	1500	$90,000	Assume 6 piles/ EB at 50ft length, Assume 6 piles/ column/ IB
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)[2]	$250			
		Subtotal	$90,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
		Subtotal	

[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantites
Concrete [1]	$775	63.00	$48,825	(10ft+16ft+16ft+21ft)*3 Bents, Caps are 3ftx3ft
Mass Concrete [1]	$625			
Seal Concrete [1]	$375			
Bulkhead Concrete [1]	$900			
Shell Fill [1]	$30		-	
		Subtotal	$48,825	

[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantites
Carbon Reinforcing Steel	$0.90	10000	$9,000	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$9,000	

Substructure Subtotal $147,825

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall [1]	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall [1]	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
		Subtotal	

[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantites**
Neoprene Bearing Pads	**$900**	**4.008**	**$3,607**	Assum 12"x12"x2", 8 beams x 3 bents
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$3,607**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantites**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**			
Florida-I Beam; 36	**$220**			
Florida-I Beam; 45	**$225**	**1696**	**$381,600**	Assume 8 beams, 2 spans, total bridge length = 212ft
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$381,600**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantites
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	431.9	$302,296	(8ft+14ft+14ft+19ft)*212ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
' Including cost of shrinkage reducing admixture.		Subtotal	$302,296	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantites
Carbon Reinforcing Steel	$0.95	87940	$83,543	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$83,543	

6. Railings and Barriers

Traffic Railings '	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantites
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	848	$78,864	212ft*4 sides
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") '	$65			
Single Bullet Railing '	$27			
Double Bullet Railing '	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
' Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$78,864	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantites
Poured Joint With Backer Rod	$40	110	$4,400	(8ft+14ft+14ft+19ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$4,400	

Superstructure Subtotal		$854,310

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantites
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1295.6	$12,308	(8ft+14ft+14ft+19ft)*212ft
		Grooving and Planing Subtotal	$12,308	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.		Detour Bridge Subtotal	

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantites
Cast-in-Place Concrete (per Cubic Yard)	$350	81.5	$28,519	(8ft+14ft+14ft+19ft)*20ft*2 Bridg
Reinforcing Steel (per Pound)	$0.95	16296.3	$15,481	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 bridges
		Approach Slab Subtotal	$58,400	

Unadjusted Total	$1,072,843

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.		
For construction over traffic and/or phased construction, increase by 20 %. [1]	20%	$214,569
[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.	20%	$214,569

Substructure Subtotal	$147,825
Superstructure Subtotal	$854,310
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$12,308
Detour Bridge Subtotal	
Approach Slab Subtotal	$58,400
Conditional Variables	$214,569
Total Cost	$1,287,412

Total Square Feet of Deck	11660	Area to be widened
Cost per Square Foot (not including Approach Slab)	$105	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	135		
Pile Bents	145		
Single Column Piers >25'	210		
Single Column Piers <25'	150		
Multiple Column Piers >25'	215		
Multiple Column Piers <25'	195		
Bascule Piers	110		
Standard Deck Slabs	205		
Isotropic Deck Slabs	125		
Concrete Box Girders, Pier Seg	225		
Concrete Box Girders, Typ. Seg	165		
C.I.P. Flat Slabs @ 30ft & 15" Deep	220		
Approach Slab	200		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span '	$115	$160
Pre-cast Concrete Slab - Simple Span '	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span '	$125	$142
Concrete Deck / Steel Girder - Continuous Span '	$135	$170
Concrete Deck / Prestressed Girder - Simple Span '	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span '	$95	$211
Concrete Deck / Steel Box Girder ' - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

' Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$105**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over 328th St. (Lucy St.) Alternative 1 and 3

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantities
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	1900	$114,000	Assume 4 piles/ EB at 50ft length, Assume 5 piles/ column/
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)[2]	$250			
		Subtotal	$114,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete')

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
		Subtotal	

' Cost of seal concrete included in pay item 400-3-20 or 400-4-200.

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Concrete '	$775	84.67	$65,617	29ft*4 bents+23ft*6 bents, Caps are 3x3
Mass Concrete '	$625			
Seal Concrete '	$375			
Bulkhead Concrete '	$900			
Shell Fill '	$30			
		Subtotal	$65,617	

' Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.90	21166.7	$19,050	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$19,050	

Substructure Subtotal **$198,667**

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall '	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall '	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
		Subtotal	

' Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**5.344**	**$4,810**	Assume 12"x12"x2", 4 beams x 4 bents
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$4,810**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**			
Florida-I Beam; 36	**$220**			
Florida-I Beam; 45	**$225**	**1172**	**$263,700**	Assume 4 beams, 4 spans, total bridge length = 293ft
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$263,700**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	477.5	$334,237	(19ft+3ft+3ft+19ft)*293ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
[1] Including cost of shrinkage reducing admixture.		Subtotal	$334,237	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	95496.3	$90,721	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$90,721	

6. Railings and Barriers

Traffic Railings [1]	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	1172	$108,996	293ft*4 sides
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") [1]	$65			
Single Bullet Railing [1]	$27			
Double Bullet Railing [1]	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
[1] Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$108,996	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	88	$3,520	(19ft+3ft+3ft+19ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$3,520	

Superstructure Subtotal	**$805,984**

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1432.4	$13,608	(19ft+3ft+3ft+19ft)*293ft
		Grooving and Planing Subtotal	$13,608	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.		Detour Bridge Subtotal	

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
				(19ft+3ft+3ft+19ft)*20ft*2
Cast-in-Place Concrete (per Cubic Yard)	$350	65.2	$22,815	bridges
Reinforcing Steel (per Pound)	$0.95	13037.0	$12,385	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 bridges
		Approach Slab Subtotal	$49,600	

Unadjusted Total	$1,067,859

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, For construction over traffic and/or phased construction, increase by 20 %. [1]	20%	$213,572
[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.	20%	$213,572

Substructure Subtotal	$198,667
Superstructure Subtotal	$805,984
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$13,608
Detour Bridge Subtotal	
Approach Slab Subtotal	$49,600
Conditional Variables	$213,572
Total Cost	$1,281,431

Total Square Feet of Deck	12892	Area to be widened
Cost per Square Foot (not including Approach Slab)	$96	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	135		
Pile Bents	145		
Single Column Piers >25'	210		
Single Column Piers <25'	150		
Multiple Column Piers >25'	215		
Multiple Column Piers <25'	195		
Bascule Piers	110		
Standard Deck Slabs	205		
Isotropic Deck Slabs	125		
Concrete Box Girders, Pier Seg	225		
Concrete Box Girders, Typ. Seg	165		
C.I.P. Flat Slabs @ 30ft & 15" Deep	220		
Approach Slab	200		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span '	$115	$160
Pre-cast Concrete Slab - Simple Span '	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span '	$125	$142
Concrete Deck / Steel Girder - Continuous Span '	$135	$170
Concrete Deck / Prestressed Girder - Simple Span '	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span '	$95	$211
Concrete Deck / Steel Box Girder ' -	$140	$180
Span range from 150' to 280' (for curvature, add 15% premium)		
Segmental Concrete Box Girders - Cantilever Construction	$140	$160
Span range from 150' to 280'		
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

' Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$96**

Bridge Development Report Cost Estimating

Effective 01/01/2017

This cost estimate is for the HEFT over 328th St. (Lucy St.) - Widening to Both sides, Alt 5, Both Bridges

Step One: Estimate Component Items

Utilizing the cost provided herein, develop the cost estimate for each bridge type under consideration.

A. Bridge Substructure

1. Prestressed Concrete Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot [1]	Quantity	Cost	Assumptions for Quantities
14" (Driven Plumb or 1" Batter) [2]	$60			
18" (Driven Plumb or 1" Batter) [2]	$80	3600	$216,000	Assum 6 piles/ EB at 50ft length, Assume 5 piles/ colume/ IB
18" (Driven Battered) [2]	$110			
24" (Driven Plumb or 1" Batter) [2]	$90			
24" (Driven Battered) [2]	$130			
30" (Driven Plumb or 1" Batter) [2]	$120			
30" (Driven Battered) [2]	$175			
18" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$122			
18" w/CFRP or Stainless Steel Strand (Driven Battered)	$152			
24" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$146			
24" w/CFRP or Stainless Steel Strand (Driven Battered)	$186			
30" w/CFRP or Stainless Steel Strand (Driven Plumb or 1" Batter)	$191			
30" w/CFRP or Stainless Steel Strand (Driven Battered)	$246			
Heavy mild steel reinforcing in pile head (each)[2]	$250			
		Subtotal	$216,000	

[1] When silica fume, metakaolin or ultrafine fly ash is used add $6/LF to the piling cost.

[2] When heavy mild steel reinforcing is used in the pile head, add $250.

2. Steel Piling, (furnished and installed)

Size of Piling	Cost per Lin. Foot	Quantity	Cost
14 x 73 H Section	$70		
14 x 89 H Section	$90		
18" Pipe Pile	$95		
20" Pipe Pile	$110		
24" Pipe Pile	$140		
30" Pipe Pile	$160		
		Subtotal	

3. Drilled Shaft (Total in-place cost)

Dia. (on land, casing salvaged)	Cost per Lin. Foot	Quantity	Cost
3 ft	$450		
4 ft	$550		
5 ft	$600		
6 ft	$680		
7 ft	$825		
8 ft	$1,550		
9 ft	$1,800		
Dia. (in water, casing salvaged)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$500		
4 ft	$625		
5 ft	$700		
6 ft	$825		
7 ft	$950		
8 ft	$1,650		
9 ft	$1,900		
Dia. (in water, permanent casing)	**Cost per Lin. Foot**	**Quantity**	**Cost**
3 ft	$625		
4 ft	$750		
5 ft	$850		
6 ft	$990		
7 ft	$1,250		
8 ft	$2,200		
9 ft	$2,400		
		Subtotal	

A. Bridge Substructure (continued)

4. Cofferdam Footing (Cofferdam and Seal Concrete[1])

Prorate the cost provided herein based on area and depth of water. A cofferdam footing having the following attributes cost $600,000: Area 63 ft x 37.25 ft; Depth of seal 5 ft; Depth of water over footing 16 ft

Type	Cost per Footing	Quantity	Cost
Cofferdam Footing			
		Subtotal	

[1] Cost of seal concrete included in pay item 400-3-20 or 400-4-200.

5. Substructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Concrete [1]	$775	166.67	$129,167	(9ft+16ft+16ft+9ft)*10 bents, Caps are 3x3
Mass Concrete [1]	$625			
Seal Concrete [1]	$375			
Bulkhead Concrete [1]	$900			
Shell Fill [1]	$30			
		Subtotal	$129,167	

[1] Admixtures: For Calcium Nitrite add $40/cy (@4.5 gal/cy) and for silica fume, metakaolin or ultrafine fly ash add $40/cy (@ 60 lb./cy)

6. Substructure Reinforcing and Post-tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.90	41666.7	$37,500	250lb/CY
Low-Carbon Chromium Reinforcing Steel	$1.25			
Stainless Reinforcing Steel	$4.00			
Post-tensioning Steel, Strand	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$37,500	

Substructure Subtotal $382,667

B. Walls

1. Retaining Walls

MSE Walls	Cost per Sq. Foot	Quantity	Cost
Permanent	$28		
Temporary	$14		
Sheet Pile Walls, Prestressed Concrete	**Cost per Lin. Foot**	**Quantity**	**Cost**
10" x 30"	$120		
12" x 30"	$130		
12" x 30" with FRP	$265		
Sheet Pile Walls, Steel	**Cost per Sq. Foot**	**Quantity**	**Cost**
Permanent Cantilever Wall	$30		
Permanent Anchored Wall [1]	$55		
Temporary Cantilever Wall	$16		
Temporary Anchored Wall [1]	$35		
Soil Nail Wall with Permanent Facing	**Cost per Sq. Foot**	**Quantity**	**Cost**
Soil Nail Wall with Permanent Facing	$110		
Traffic Railings with Junction Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**
32" F Shape or Vertical Face	$225		
42" F Shape or Vertical Face	$240		
36" Single-Slope	$221		
42" Single-Slope	$240		
		Subtotal	

[1] Includes the cost of anchors, waler steel, miscellaneous steel for permanent/temporary walls and concrete face for permanent walls.

2. Noise Wall

Type	Cost per Sq. Foot	Quantity	Cost
Noise Wall	$25		
		Subtotal	

Walls Subtotal

C. Box Culverts

1. Box Culverts			
Concrete	**Cost per Cubic Yard**	**Quantity**	**Cost**
Class II Concrete	**$850**		
Class IV Concrete	**$900**		
Reinforcing Steel	**Cost per Pound**	**Quantity**	**Cost**
Carbon Reinforcing Steel	**$1.00**		
		Subtotal	

Box Culvert Subtotal

D. Bridge Superstructure

1. Bearing Type				
Neoprene Bearing Pads	**Cost per Cubic Foot**	**Quantity**	**Cost**	**Assumptions for Quantities**
Neoprene Bearing Pads	**$900**	**5.344**	**$4,810**	Assum 12"x12"x2", 4 beams x 4 bents
Multirotational Bearings (Capacity in kips)	**Cost per Each**	**Quantity**	**Cost**	
1- 250	**$6,000**			
251- 500	**$7,000**			
501- 750	**$8,000**			
751-1000	**$9,500**			
1001-1250	**$9,900**			
1251-1500	**$10,000**			
1501-1750	**$11,000**			
1751-2000	**$12,500**			
>2000	**$15,000**			
		Subtotal	**$4,810**	

2. Bridge Girders				
Structural Steel (includes coating costs)	**Cost per Pound**	**Quantity**	**Cost**	**Assumptions for Quantities**
Rolled Wide Flange Sections, straight [1]	**$1.65**			
Rolled Wide Flange Sections, curved [1]	**$1.85**			
Plate Girders, Straight [1]	**$1.65**			
Plate Girders, Curved [1]	**$1.95**			
Box Girders, Straight [1]	**$1.95**			
Box Girders, Curved [1]	**$2.15**			
Prestressed Concrete Girders and Slabs	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Florida Inverted Tee; 16" [2]	**$110**			
Florida Inverted Tee; 20"	**$120**			
Florida Inverted Tee; 24" [2]	**$130**			
Truncated Florida-I Beam; 27"	**$210**			
Florida U-Beam; 48" [2]	**$650**			
Florida U-Beam; 54"	**$700**			
Florida U-Beam; 63"	**$750**			
Florida U-Beam; 72"	**$800**			
Solid Flat Slab (<48"x12")	**$170**			
Solid Flat Slab (<48"x15")	**$180**			
Solid Flat Slab (48"x12")	**$180**			
Solid Flat Slab (48"x15")	**$190**			
Solid Flat Slab (60"x12")	**$190**			
Solid Flat Slab (60"x15")	**$200**			
Florida Slab Beam 12" x 48" [3]	**$203**			
Florida Slab Beam 12" x 60" [3]	**$260**			
Florida Slab Beam 15" x 48" [3]	**$213**			
Florida Slab Beam 15" x 60" [3]	**$270**			
Florida Slab Beam 18" x 48" [3]	**$248**			
Florida Slab Beam 18" x 60" [3]	**$310**			
AASHTO Type II Beam	**$110**			
Florida-I Beam; 36	**$220**			
Florida-I Beam; 45	**$225**	**1172**	**$263,700**	Assume 4 beams, 4 spans, total bridge length = 293ft
Florida-I Beam; 54	**$240**			
Florida-I Beam; 63	**$255**			
Florida-I Beam; 72	**$270**			
Florida-I Beam; 78	**$280**			
Florida-I Beam; 84	**$295**			
Florida-I Beam; 96	**$350**			
Haunched Florida-I Beam; 78	**$750**			
Haunched Florida-I Beam; 84	**$850**			
		Subtotal	**$263,700**	

[1] When weathering steel (uncoated) is used, reduce the price by $0.04 per pound. Inorganic zinc coating systems have an expected life cycle of 20 years.

[2] Price is based on ability to furnish products without any conversions of casting beds and without purchasing of forms. If these conditions do not exist, add the following cost: Florida Inverted Tee - $202,000; Florida-U Beam - $403,000

[3] Interpolate between given prices for intermediate width FSBs.

D. Bridge Superstructure (continued)

3. Cast-in-Place Superstructure Concrete

Type	Cost per Cubic Yard	Quantity	Cost	Assumptions for Quantities
Box Girder Concrete, Straight	$950			
Box Girder Concrete, Curved	$1,200			
Deck Concrete	$700	477.5	$334,237	(8ft+14ft+14ft+8ft)*293ft
Deck Concrete (12" Wide UHPC Closure Pours) (722/LF)	$722			
Precast Deck Overlay Concrete Class IV	$700			
Topping Concrete for slab beams and units[1]	$600			
Topping Asphalt for slab beams and units ($15/SY)	$15			
' Including cost of shrinkage reducing admixture.		Subtotal	$334,237	

4. Concrete for Precast Segmental Box Girders, Cantilever Construction

Concrete Cost by Deck Area	Cost per Cubic Yard	Quantity	Cost
≤ 300,000 SF	$1,250		
> 300,000 SF AND ≤ 500,000 SF	$1,200		
> 500,000 SF	$1,150		
		Subtotal	

5. Reinforcing and Post-Tensioning Steel

Type	Cost per Pound	Quantity	Cost	Assumptions for Quantities
Carbon Reinforcing Steel	$0.95	95496.3	$90,721	Assume 200/cy
Low-Carbon Chromium Reinforcing Steel	$1.30			
Stainless Reinforcing Steel	$4.05			
Post-tensioning Steel, Strand; longitudinal	$2.50			
Post-tensioning Steel, Strand; transverse	$4.00			
Post-tensioning Steel, Bars	$6.00			
		Subtotal	$90,721	

6. Railings and Barriers

Traffic Railings '	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
32" F-Shape	$75			
32" F-Shape Median	$86			
42" F-Shape	$100			
32" Vertical Face	$90			
42" Vertical Face	$100			
32" Corral	$130			
36" Single-Slope Median	$93	1172	$108,996	293ft*4 sides
36" Single-Slope	$71			
42" Single-Slope	$97			
Thrie Beam Retrofit	$140			
Thrie Beam Panel Retrofit	$110			
Vertical Face Retrofit	$120			
Pedestrian/Bicycle Railings:	**Cost per Lin. Foot**	**Quantity**	**Cost**	
Concrete Parapet (27") '	$65			
Single Bullet Railing '	$27			
Double Bullet Railing '	$36			
Panel/Picket Railing (42") steel (Type 1 & 2)	$95			
Panel/Picket Railing (42") steel (Type 3-5)	$125			
Panel/Picket Railing (42") aluminum (Type 1 & 2)	$70			
Panel/Picket Railing (42") aluminum (Type 3-5)	$105			
Panel/Picket Railing (48") steel (Type 1 & 2)	$115			
Panel/Picket Railing (48") steel (Type 3-5)	$145			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$85			
Panel/Picket Railing (48") aluminum (Type 1 & 2)	$120			
' Combine cost of Bullet Railings with Concrete Parapet or Traffic Railing, as appropriate.		Subtotal	$108,996	

7. Expansion Joints

Type	Cost per Lin. Foot	Quantity	Cost	Assumptions for Quantities
Poured Joint With Backer Rod	$40	88	$3,520	(8ft+14ft+14ft+8ft)
Strip Seal	$350			
Finger Joint <6"	$850			
Finger Joint >6"	$1,500			
Modular 6"	$500			
Modular 8"	$700			
Modular 12"	$900			
		Subtotal	$3,520	

Superstructure Subtotal **$805,984**

E. Miscellaneous Items

1. Bridge Deck Grooving and Planing

Type	Cost per Sq. Yard	Quantity	Cost	Assumptions for Quantities
Grooving - Deck Thickness less than 8.5"	$8.00			
Grooving and Planing- Deck Thickness 8.5"+	$9.50	1432.4	$13,608	(8ft+14ft+14ft+8ft)*293ft
		Grooving and Planing Subtotal	$13,608	

2. Detour Bridges

Type	Cost per Sq. Foot	Quantity	Cost
Acrow Detour Bridge [1]	$55		
[1] Using FDOT supplied components. The cost is for the bridge proper (measured out-to-out) and does not include approach work, surfacing, or guardrail.		Detour Bridge Subtotal	

3. Approach Slab

Approach Slab Material	Cost per Unit	Quantity	Cost	Assumptions for Quantities
Cast-in-Place Concrete (per Cubic Yard)	$350	65.2	$22,815	(8ft+14ft+14ft+8ft)*20ft*2 bridges
Reinforcing Steel (per Pound)	$0.95	13037.0	$12,385	Assume 200/cy
Railing Type per Superstructure Section 6 (per Lin. Foot)	$90	160	$14,400	4 sides*20ft*2 Bridges
		Approach Slab Subtotal	$49,600	

Unadjusted Total	$1,251,859

Step Two: Estimate Conditional Variables and Cost per Square Foot

After developing the total cost estimate utilizing the unit cost, modify the cost to account for site condition variables. If appropriate, the cost will be modified by the following variables:

** Phased construction is defined as construction over traffic or construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the effected units of the superstructure and/or substructure.

Conditional Variables	% Increase/ Decrease	Cost (+/-)
For construction over open water, floodplains that flood frequently or other similar areas, increase cost by 3 %.		
For construction over traffic and/or phased construction, increase by 20 %. [1]	20%	$250,372
[1] Phased construction is defined as construction requiring multiple phases to complete the construction of the entire cross section of the bridge. The 20 percent premium is applied to the affected units of the superstructure and/or substructure.	20%	$250,372

Substructure Subtotal	$382,667
Superstructure Subtotal	$805,984
Walls Subtotal	
Box Culverts Subtotal	
Grooving and Planing Subtotal	$13,608
Detour Bridge Subtotal	
Approach Slab Subtotal	$49,600
Conditional Variables	$250,372
Total Cost	$1,502,231

Total Square Feet of Deck	12892	Area to be widened
Cost per Square Foot (not including Approach Slab)	$113	

Design Aid for Determination of Reinforcing Steel

In the absence of better information, use the following quantities of reinforcing steel pounds per cubic yard of concrete.

Location	Pounds of Steel per Cubic Yard	Cubic Yds.	Tot. Pounds
Pile Abutments	135		
Pile Bents	145		
Single Column Piers >25'	210		
Single Column Piers <25'	150		
Multiple Column Piers >25'	215		
Multiple Column Piers <25'	195		
Bascule Piers	110		
Standard Deck Slabs	205		
Isotropic Deck Slabs	125		
Concrete Box Girders, Pier Seg	225		
Concrete Box Girders, Typ. Seg	165		
C.I.P. Flat Slabs @ 30ft & 15" Deep	220		
Approach Slab	200		

Step Three: Cost Estimate Comparison to Historical Bridge Cost

The final step is a comparison of the cost estimate by comparison with historic bridge cost based on a cost per square foot. These total cost numbers are calculated exclusively for the bridge cost as defined in the General Section of this chapter. Price computed by Steps 1 and 2 should be generally within the range of cost as supplied herein. If the cost falls outside the provided range, good justification must be provided.

Bridge Superstructure Type	Total Cost per Square Foot Low	High
Short Span Bridges:		
Reinforced Concrete Flat Slab- Simple Span '	$115	$160
Pre-cast Concrete Slab - Simple Span '	$110	$200
Medium Span Bridges:		
Concrete Deck / Steel Girder - Simple Span '	$125	$142
Concrete Deck / Steel Girder - Continuous Span '	$135	$170
Concrete Deck / Prestressed Girder - Simple Span '	$90	$145
Concrete Deck / Prestressed Girder - Continuous Span '	$95	$211
Concrete Deck / Steel Box Girder ' - Span range from 150' to 280' (for curvature, add 15% premium)	$140	$180
Segmental Concrete Box Girders - Cantilever Construction Span range from 150' to 280'	$140	$160
Movable Bridge - Bascule Spans & Piers	$1,800	$2,000
Demolition Costs:		
Typical	$35	$60
Bascule	$60	$70
Project Type		
Widening (Construction Only)	$85	$160

' Increase the cost by twenty percent for phased construction

Estimated Cost per Square Foot **$113**