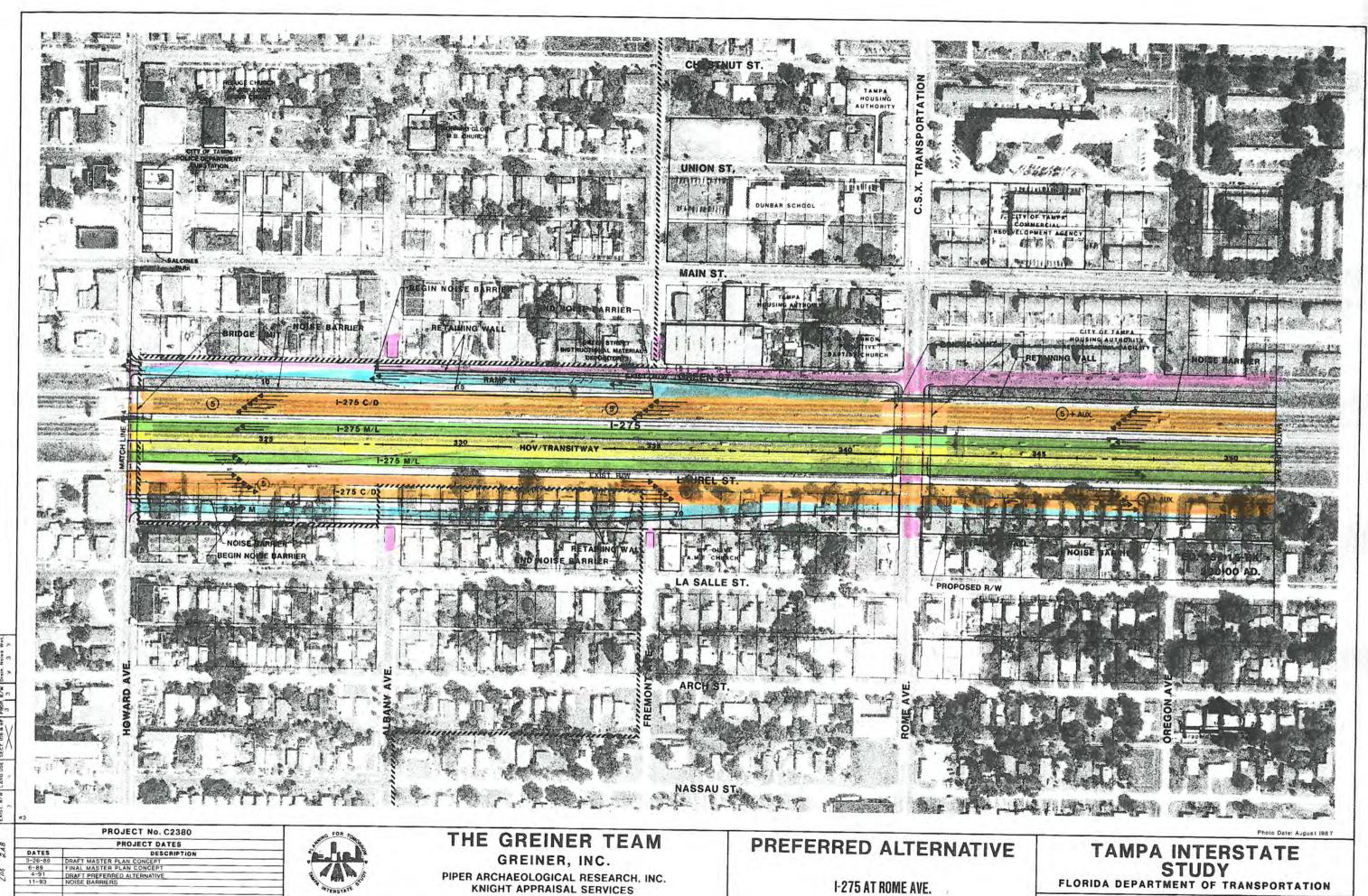


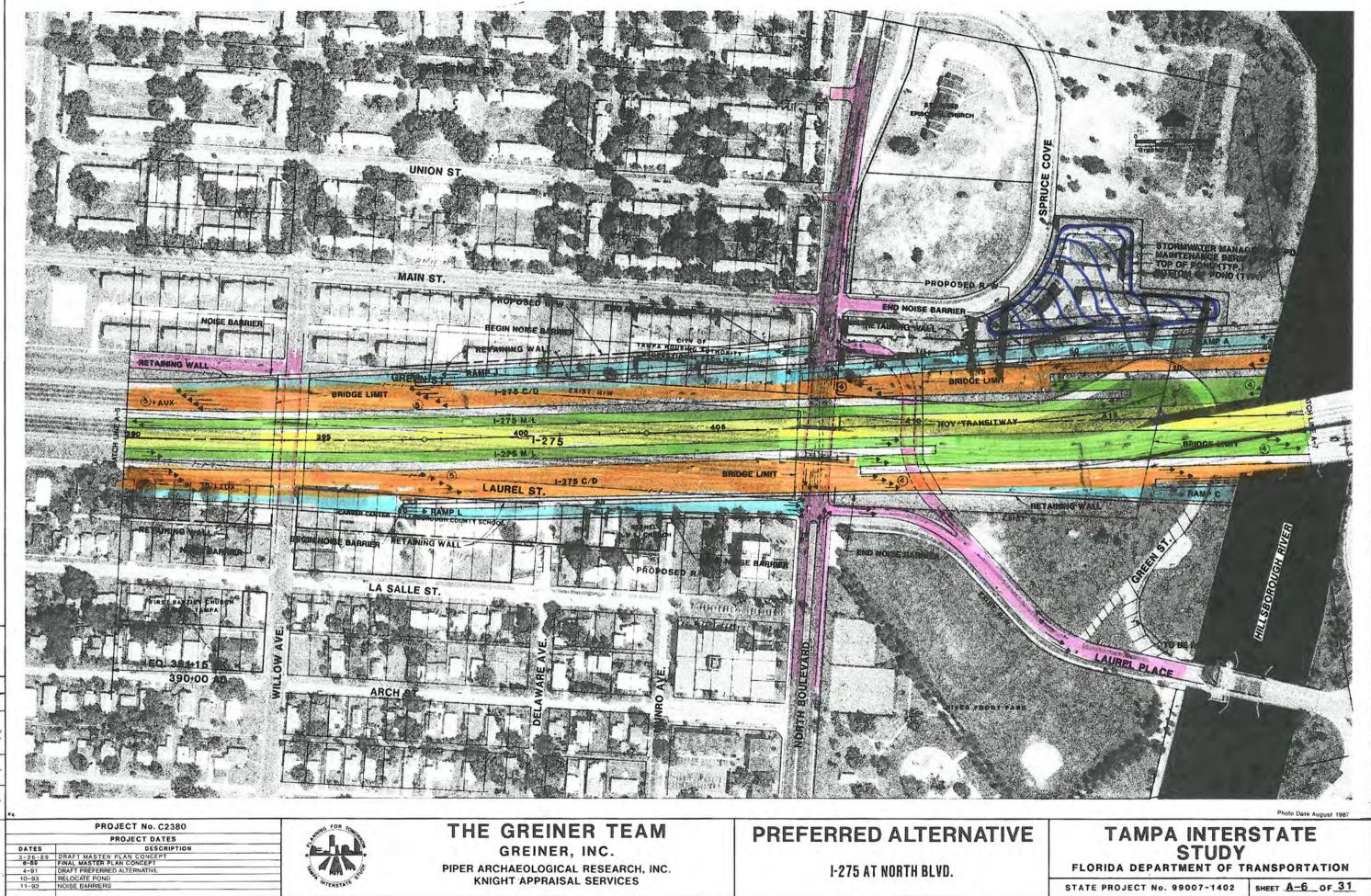
### **APPENDIX G**

Colorized Exhibits
of the Plans for
TIS FEIS
Long Term Preferred
Alternative



1-275 AT ROME AVE.

FLORIDA DEPARTMENT OF TRANSPORTATION STATE PROJECT No. 99007-1402 SHEET A-5 OF 31



GREINER, INC. PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

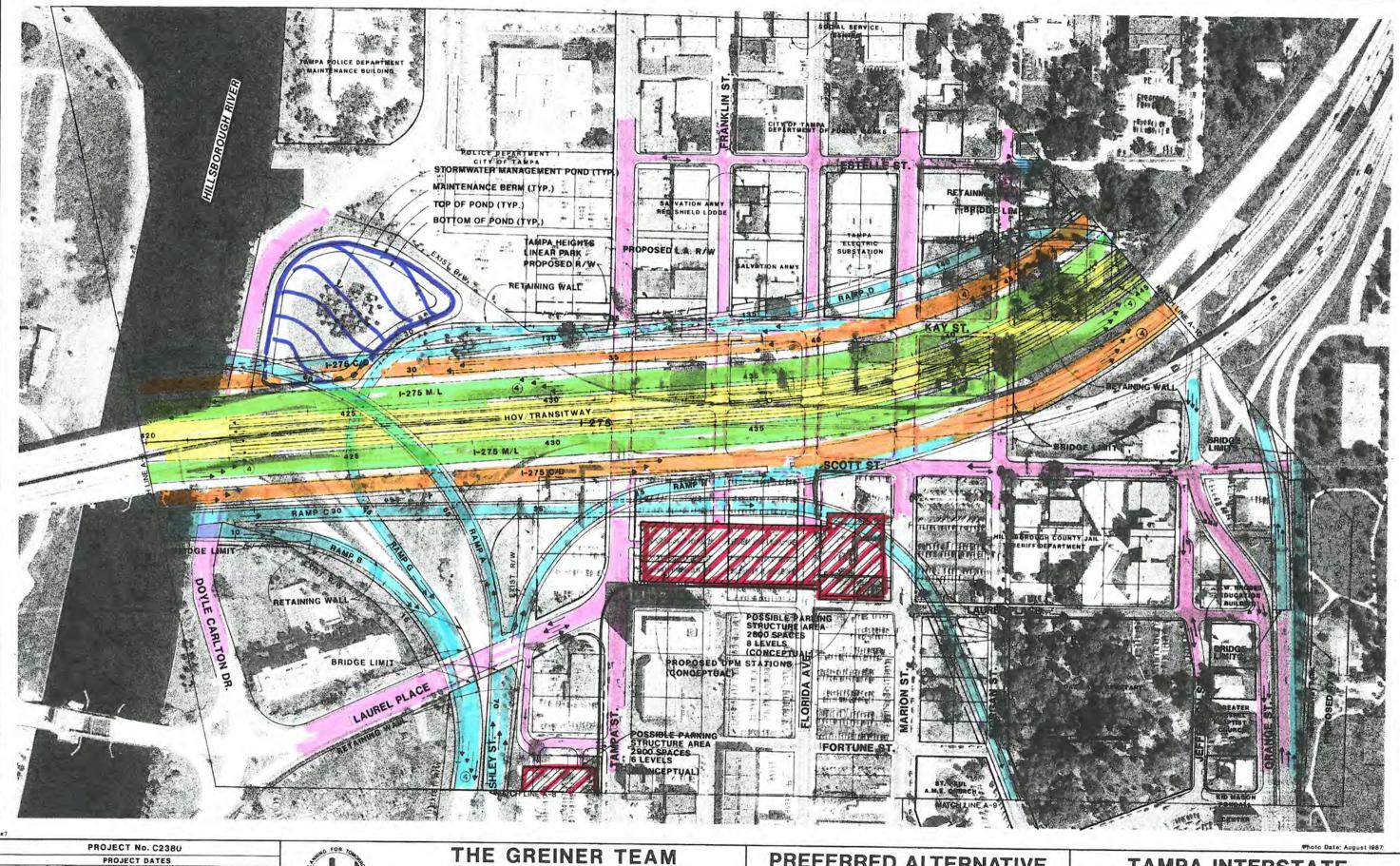
1-275 AT NORTH BLVD.

#### TAMPA INTERSTATE STUDY

FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402

SHEET A-6 OF 31



DESCRIPTION

#### THE GREINER TEAM GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

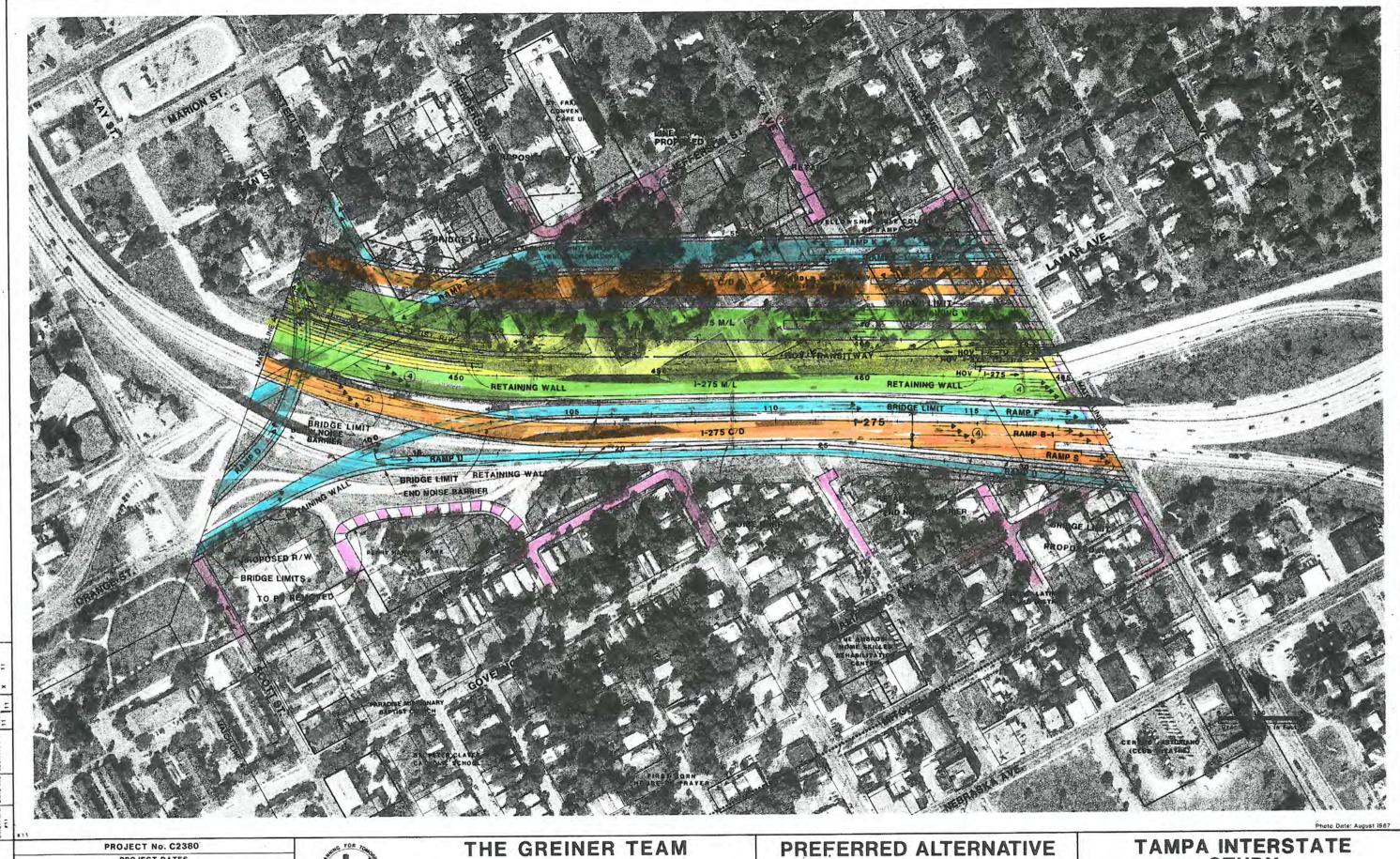
### PREFERRED ALTERNATIVE

1-275 AT ASHLEY STREET AND ORANGE STREET

#### TAMPA INTERSTATE STUDY

FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-7 OF 31



DATES DESCRIPTION

3-26-89 DRAFT MASTER PLAN CONCEPT
6-89 FINAL MASTER PLAN CONCEPT
4-91 DRAFT PREFERRED ALTERNATIVE
6-10-91 TAMPA HEIGHTS LINEAR PARK PROPOSED R/W
9-91 REVISIONS
11-93 NOISE BARRIERS

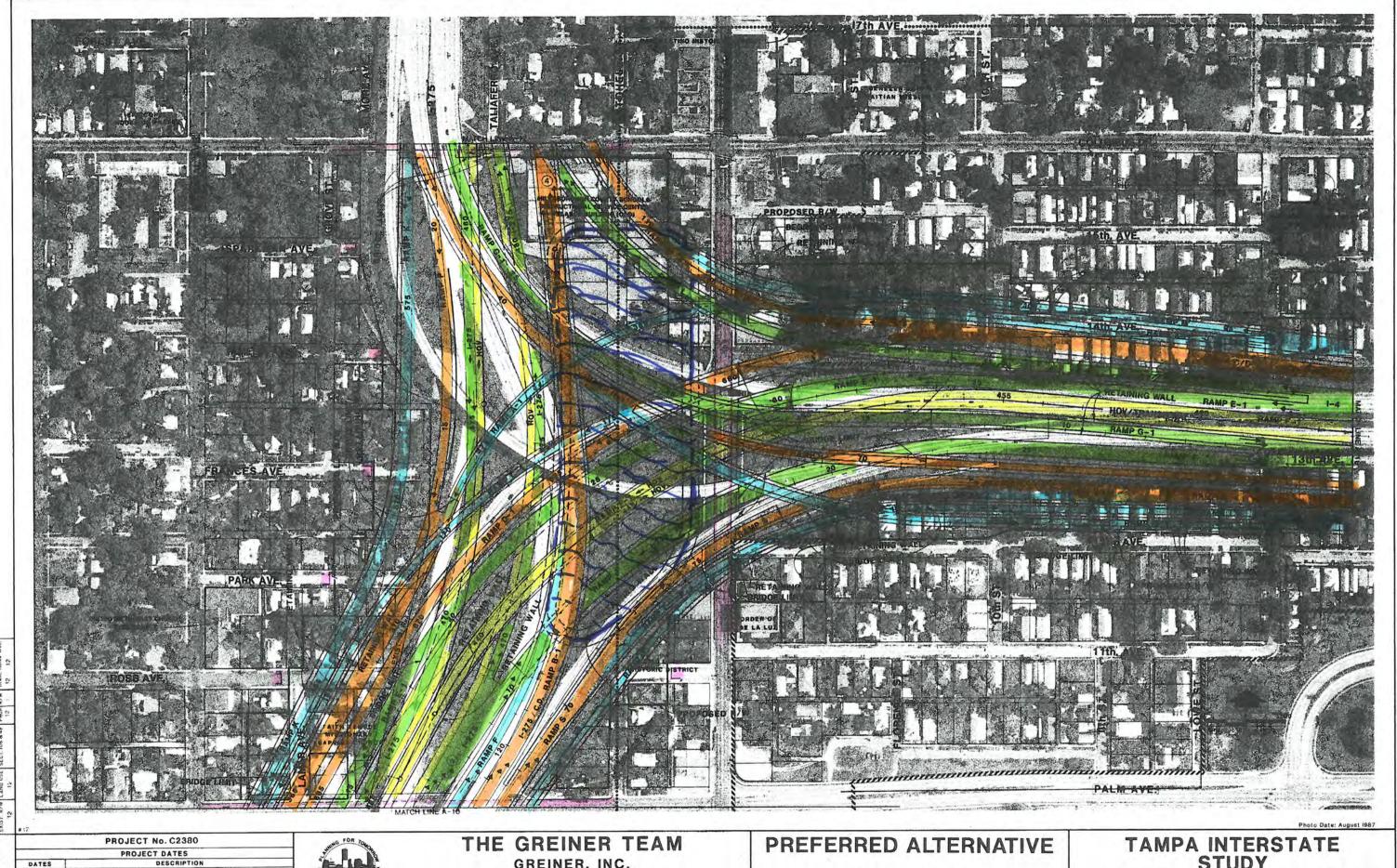
## GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

1-275 AT HENDERSON STREET

# TAMPA INTERSTATE STUDY FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-10 OF 31



I-275 AT I-4 INTERCHANGE

GREINER, INC.

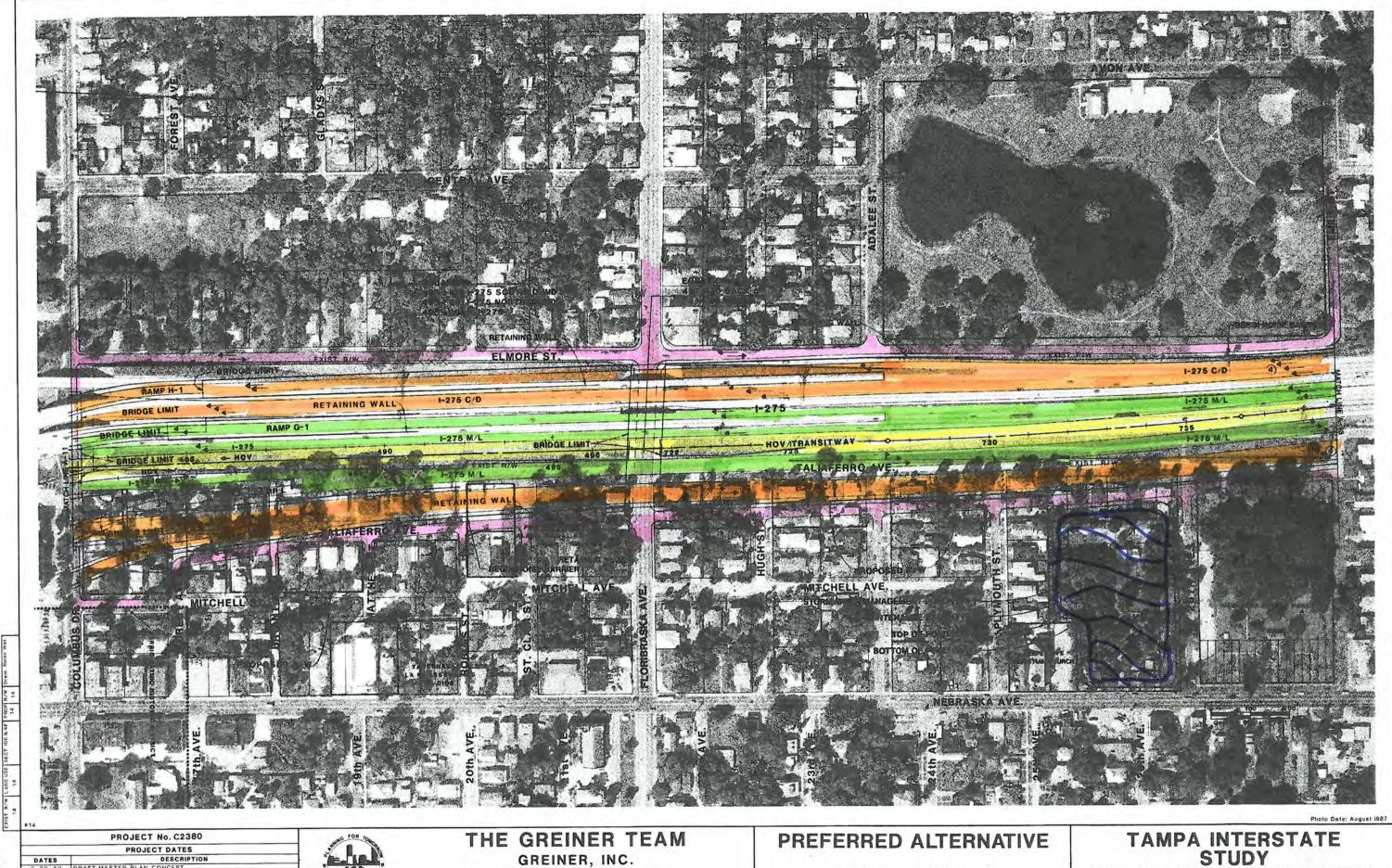
PIPER ARCHAEOLOGICAL RESEARCH, INC.

KNIGHT APPRAISAL SERVICES

STUDY
FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-11 OF 31

2810 -0.



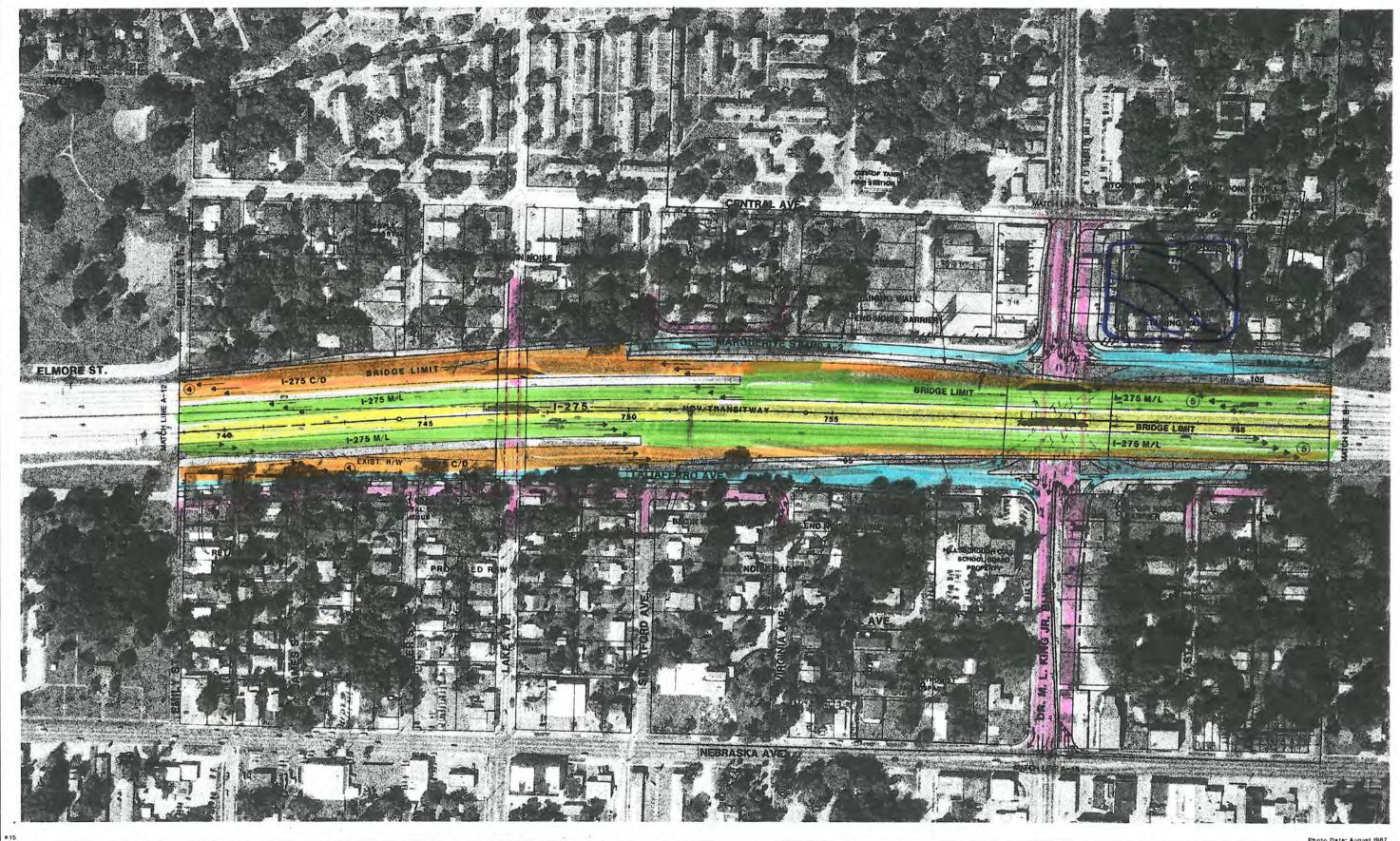
1-275 AT FLORIBRASKA AVENUE

FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-12 OF 31

GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES



PROJECT No. C2380

PROJECT DATES



## THE GREINER TEAM

GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

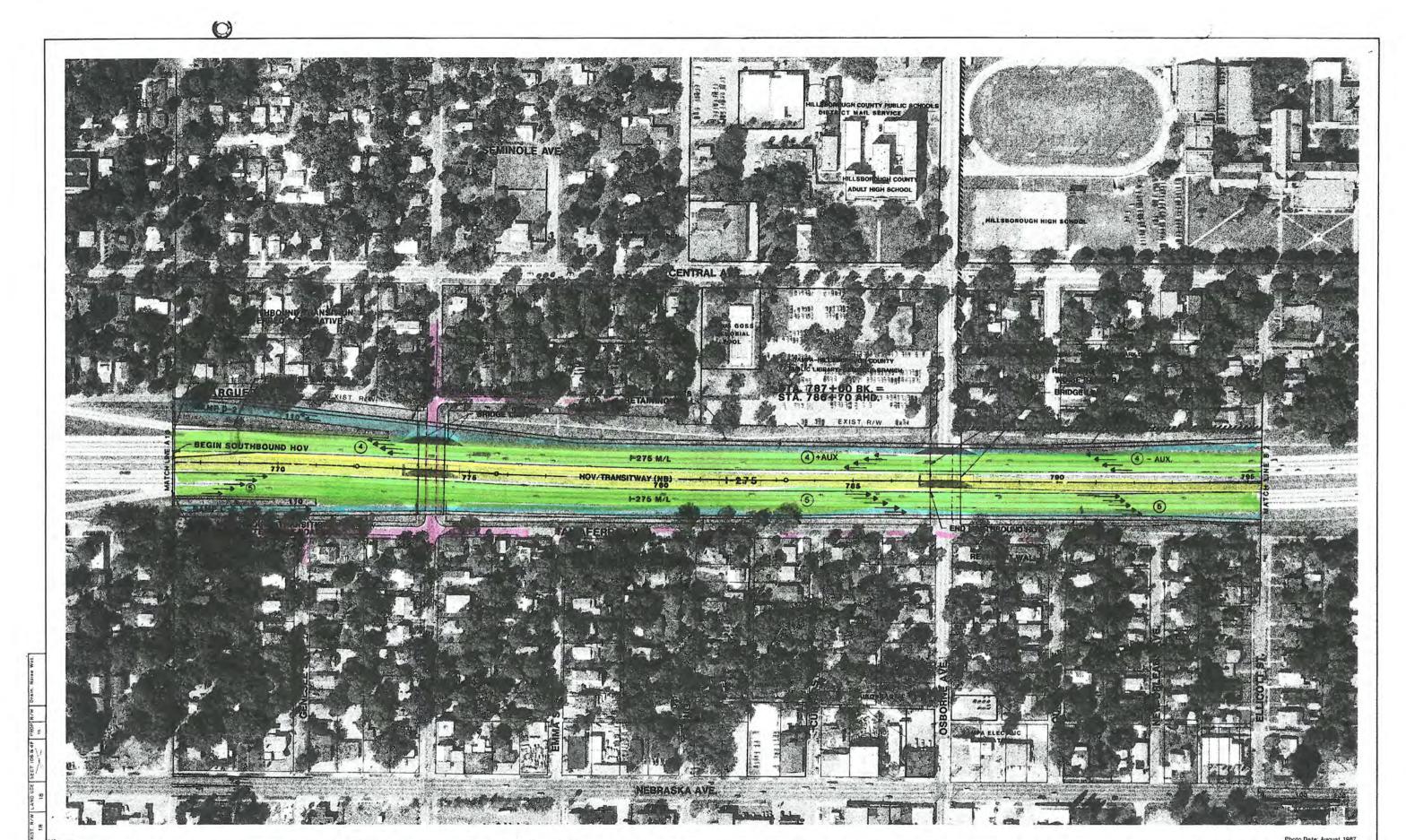
#### PREFERRED ALTERNATIVE

1-275 AT DR. MARTIN LUTHER KING JR. BLVD. (BUFFALO AVE.)

#### TAMPA INTERSTATE STUDY

FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-13 OF 3:



PROJECT No. C2380

PROJECT DATES

DATES

0 DESCRIPTION

3-26-89 DRAFT MASTER PLAN CONCEPT

6-89 FINAL MASTER PLAN CONCEPT

2-91 TRANSITION CONCEPT (EIS)

7-91 RETENTION PONDS

10-92 RETENTION PONDS

## THE GREINER TEAM GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

#### TRANSITION CONCEPT

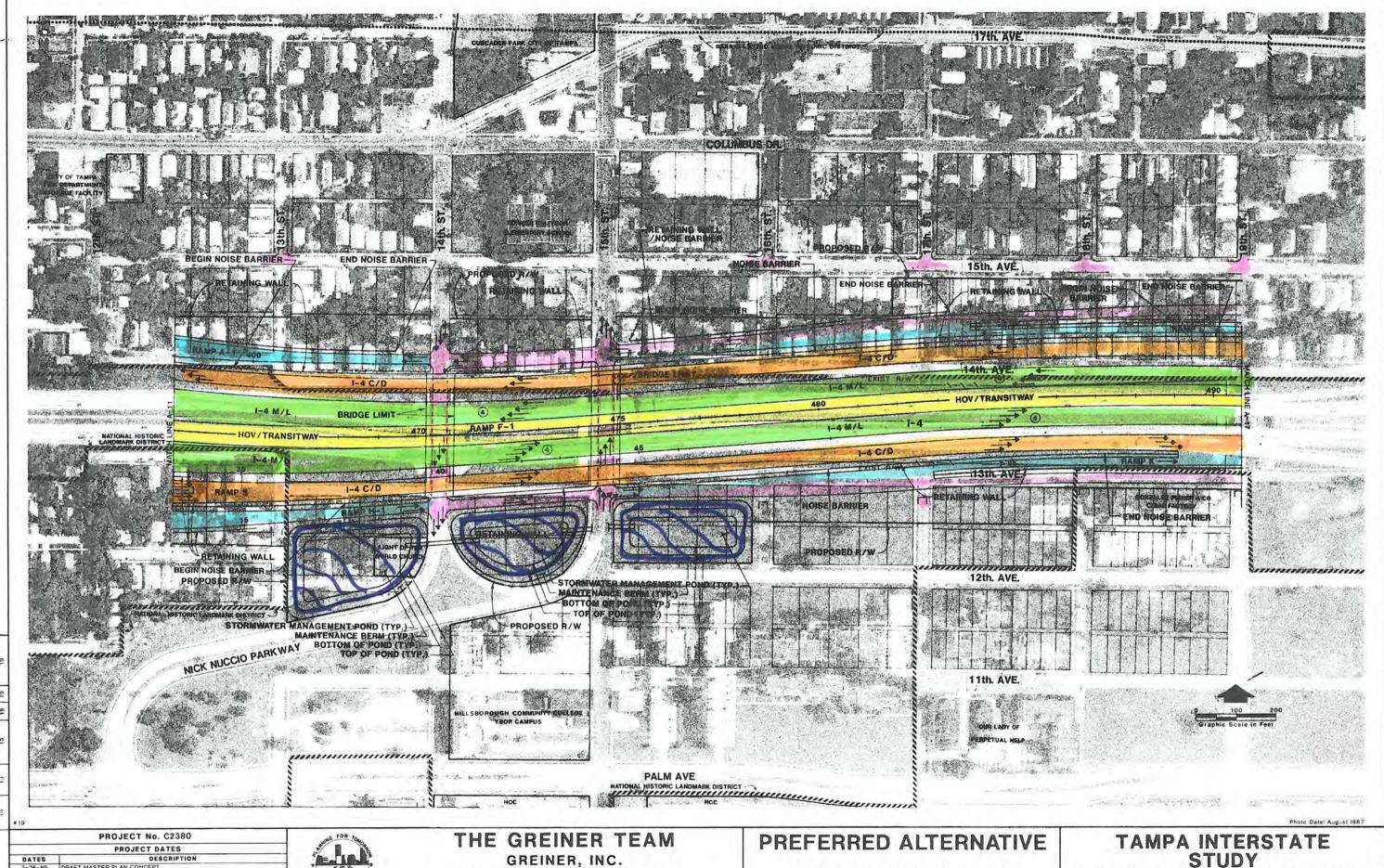
I-275 AT OSBORNE AVENUE

## TAMPA INTERSTATE STUDY

FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET B-1 OF 2

5-93 HISTORIC DIST 2-94 RETENTION PONDS



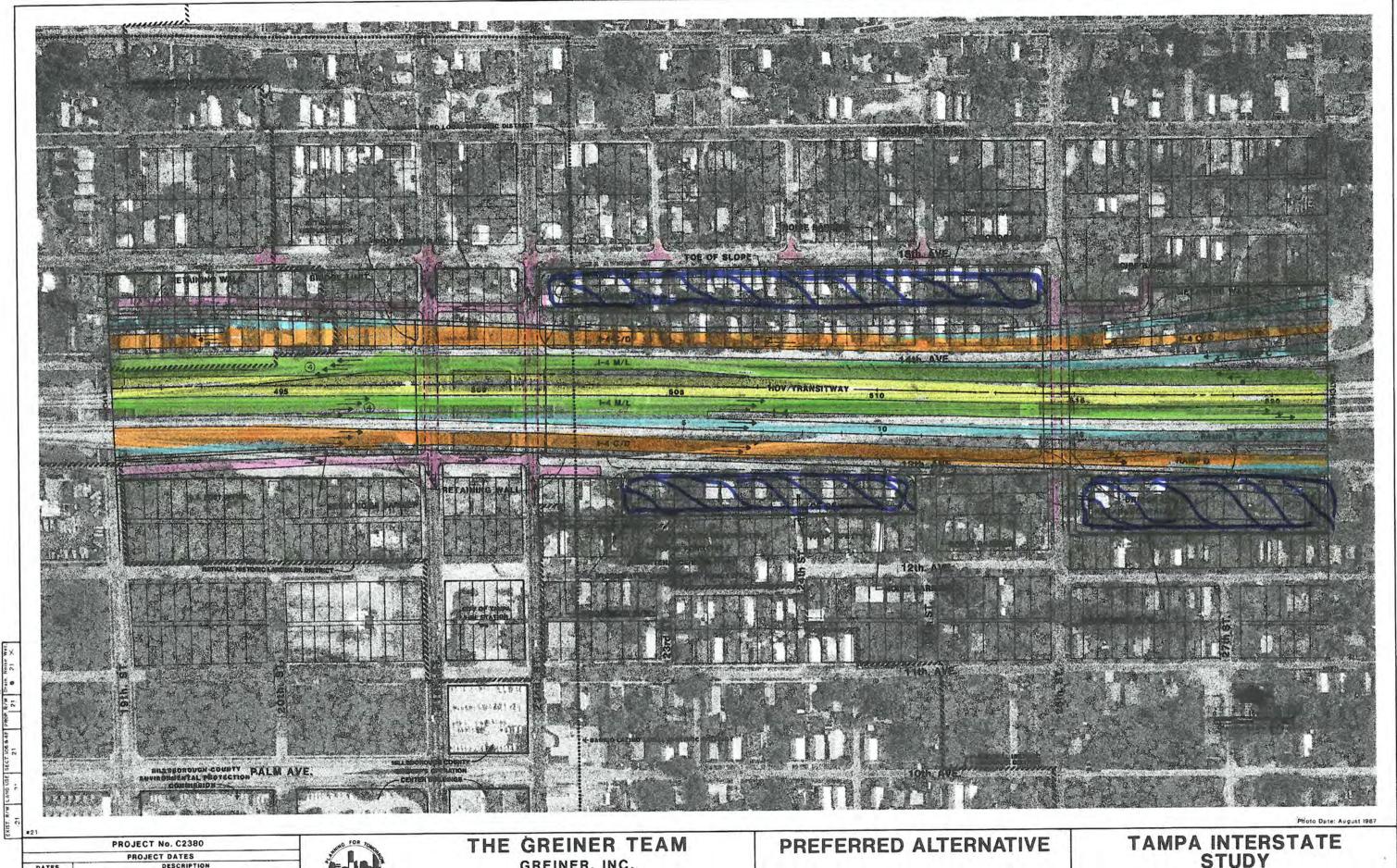
I-4 AT 14TH STREET AND 15TH STREET

FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402

SHEET A-16 OF 31

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES



I-4 AT 21ST & 22ND ST.

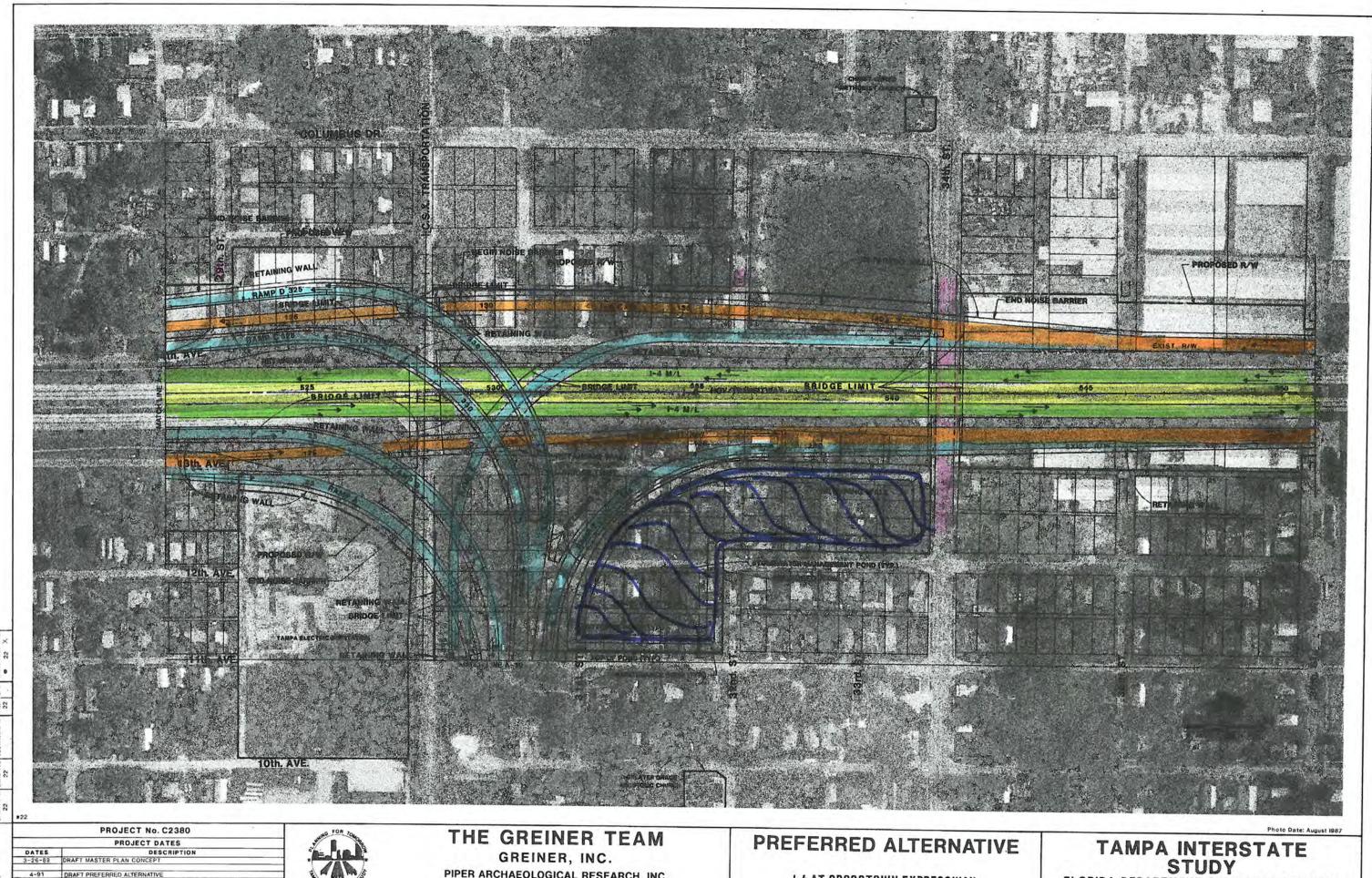
FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-17 OF 31

GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

DATES DESCRIPTION
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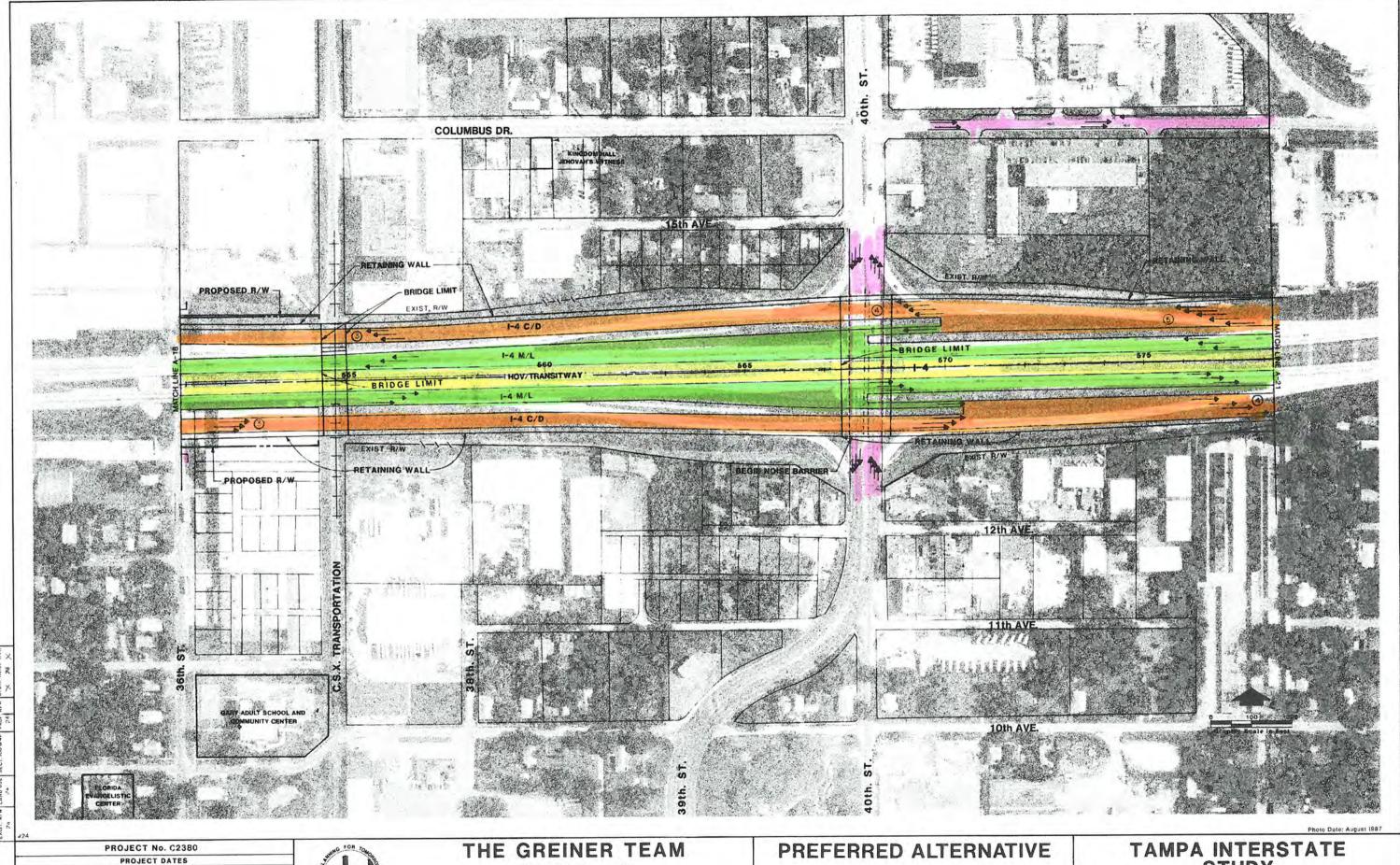


I-4 AT CROSSTOWN EXPRESSWAY CONNECTOR INTERCHANGE

FLORIDA DEPARTMENT OF TRANSPORTATION
STATE PROJECT No. 99007-1402 SHEET A-18 OF 31

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

349 347



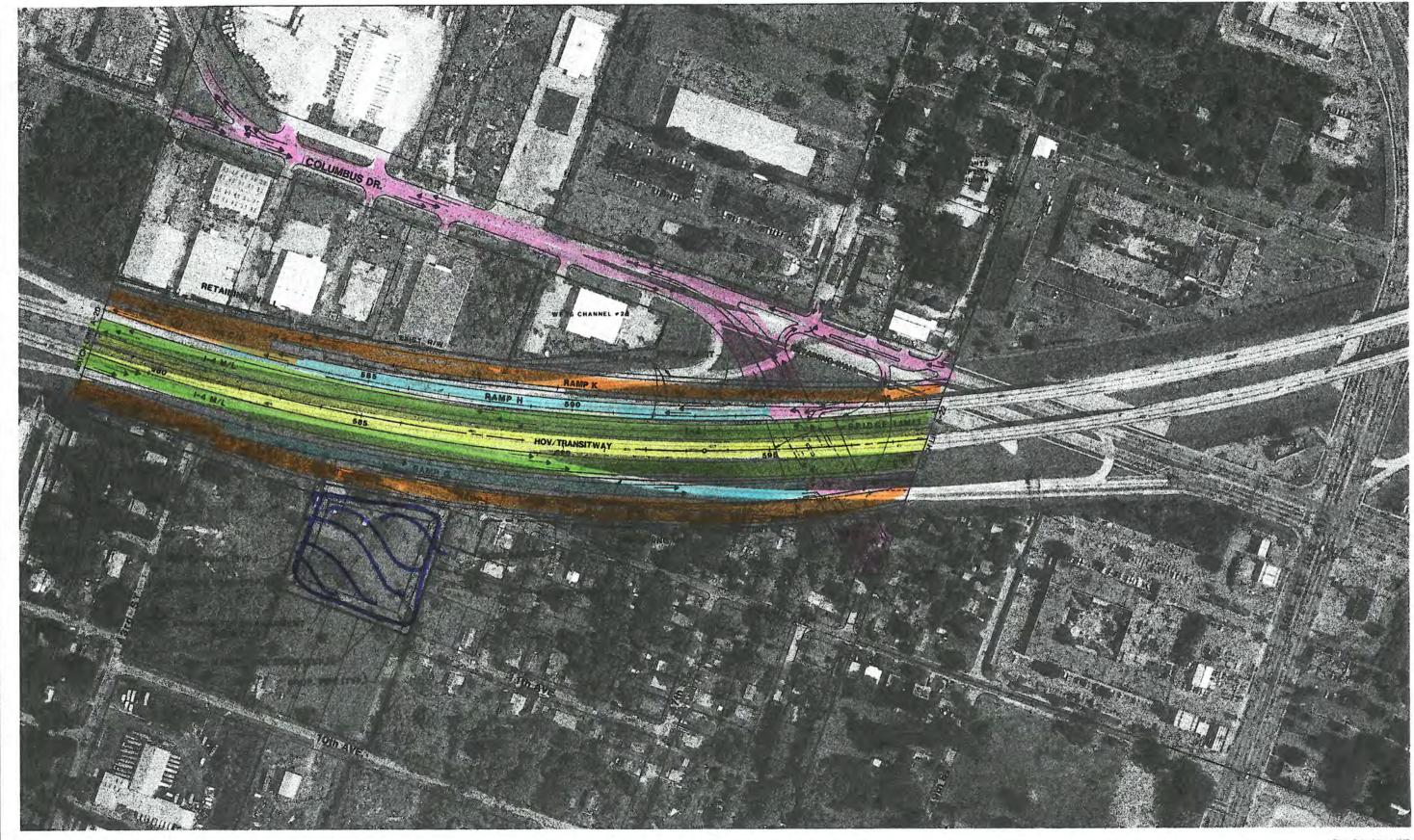
#### THE GREINER TEAM GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

I-4 AT 40TH ST.

# STUDY FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-20 of 31



PROJECT No. C2380

PROJECT No. C2380

PROJECT DATES

DATES

3-26-89

BRAFT MASTER PLAN CONCEPT
FINAL MASTER PLAN CONCEPT
FINAL MASTER PLAN CONCEPT
FINAL MASTER PLAN CONCEPT
11-93

NOISE BARRIERS



#### THE GREINER TEAM GREINER, INC.

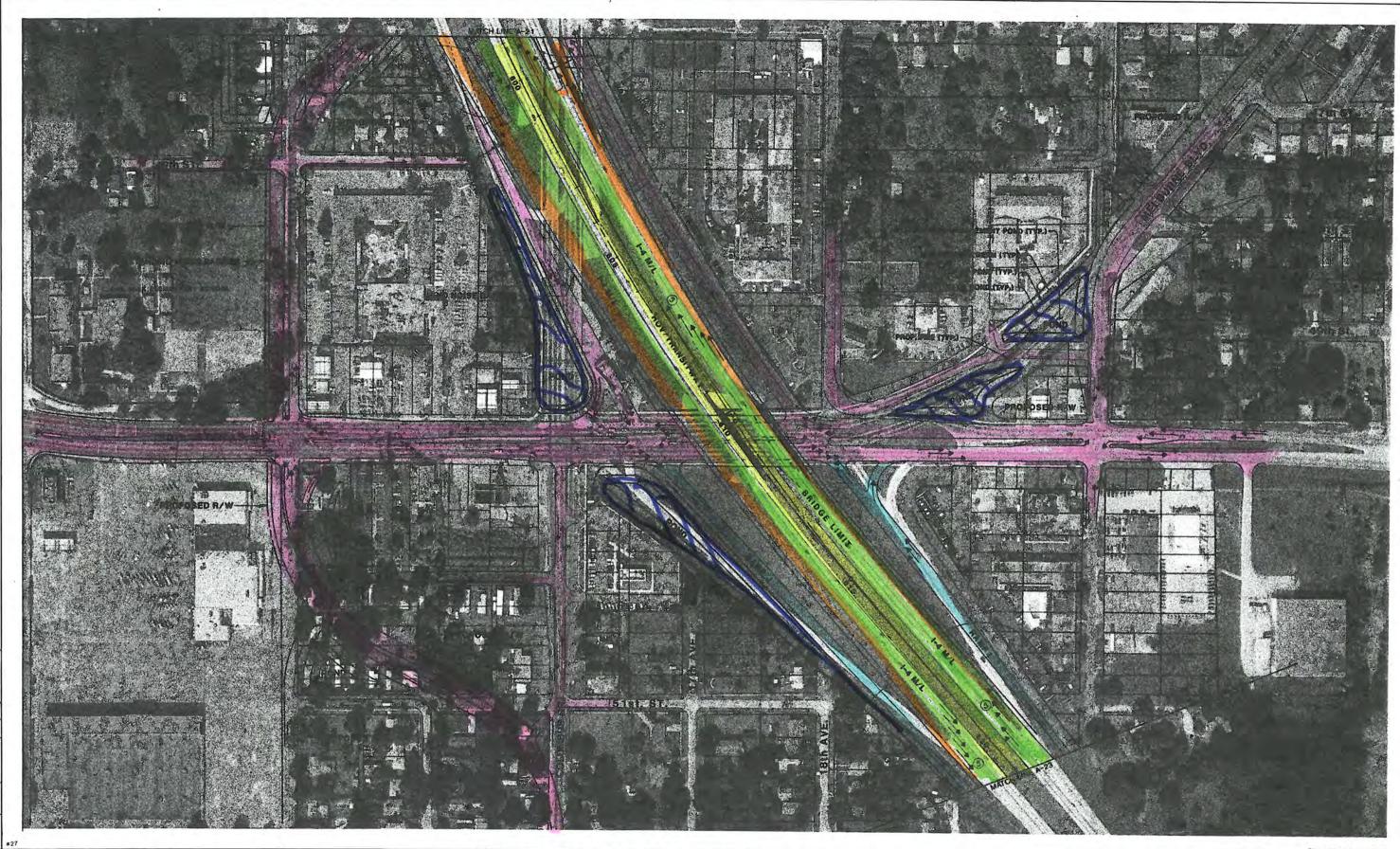
PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

#### PREFERRED ALTERNATIVE

I-4 AT COLUMBUS DR.

# TAMPA INTERSTATE STUDY FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-21 OF 31



PROJECT No. C2380

#### THE GREINER TEAM GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

### PREFERRED ALTERNATIVE

I-4 AT 50TH ST.

### TAMPA INTERSTATE STUDY FLORIDA DEPARTMENT OF TRANSPORTATION

STATE PROJECT No. 99007-1402 SHEET A-22 OF 31

PROJECT No. C2380 PROJECT DATES

DESCRIPTION

IFT MASTER PLAN CONCEPT

L MASTER PLAN CONCEPT



#### THE GREINER TEAM GREINER, INC.

PIPER ARCHAEOLOGICAL RESEARCH, INC. KNIGHT APPRAISAL SERVICES

### PREFERRED ALTERNATIVE

I-4 AT 26TH AVE.

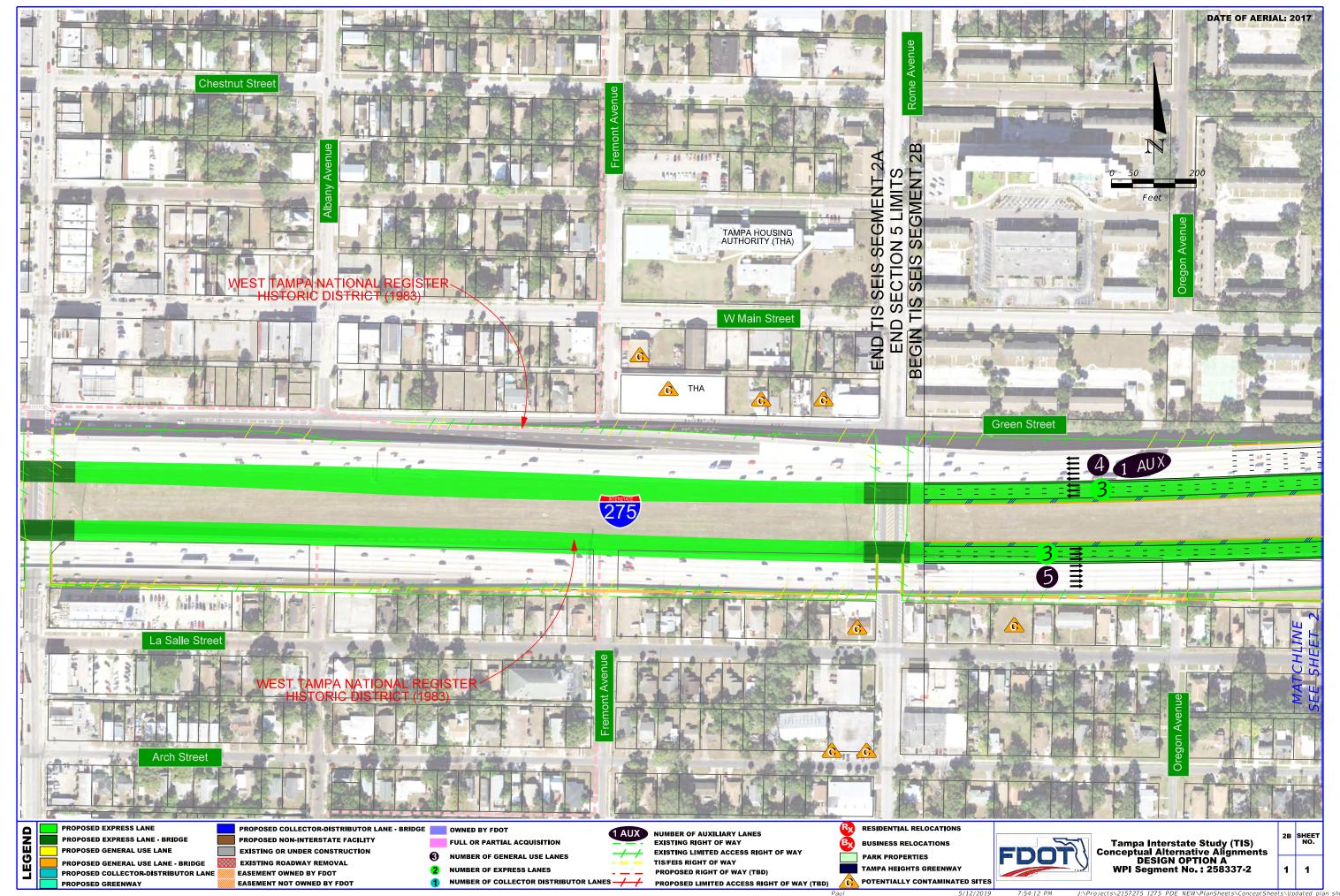
# TAMPA INTERSTATE STUDY FLORIDA DEPARTMENT OF TRANSPORTATION

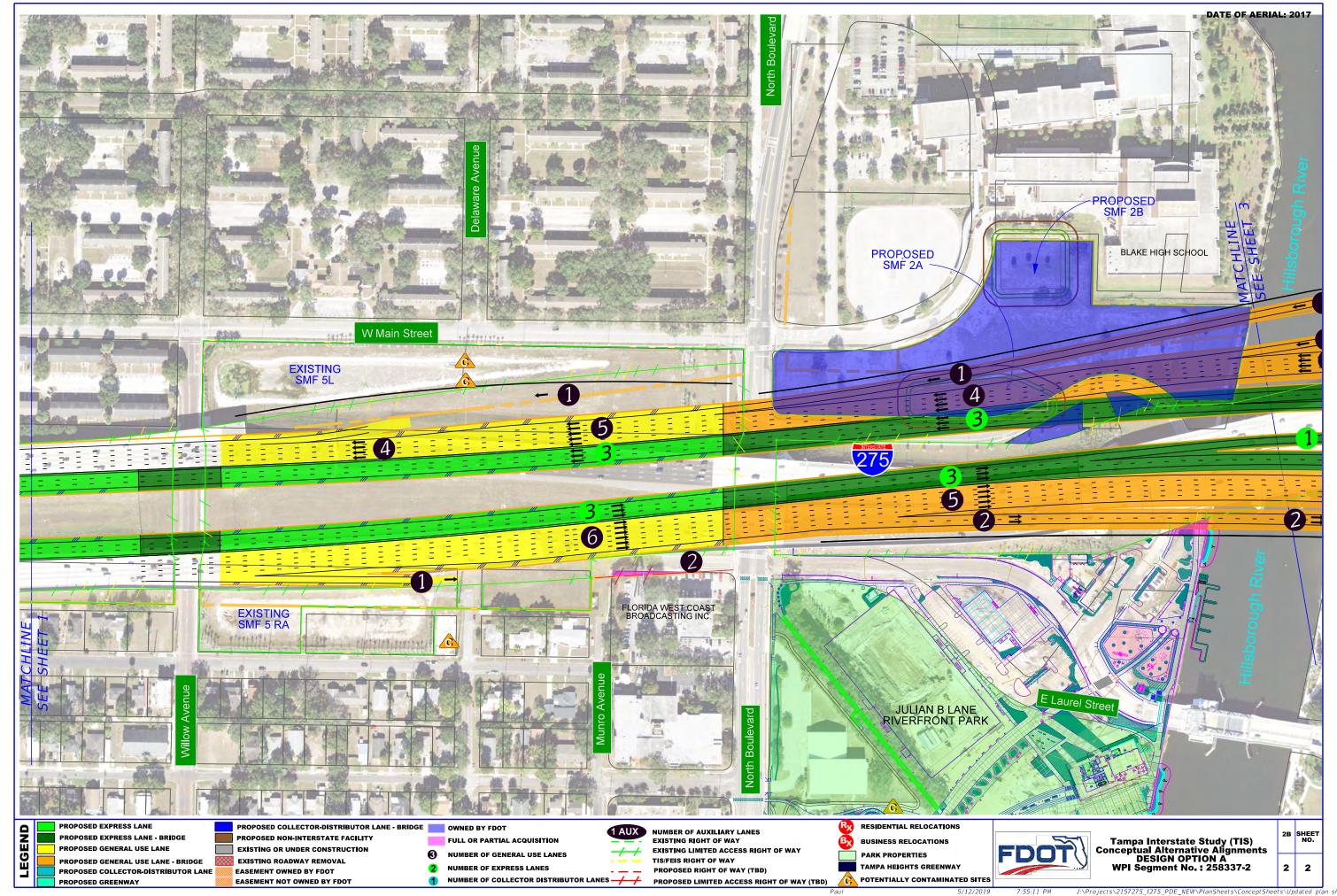
STATE PROJECT No. 99007-1402 SHEET A-23 OF 31

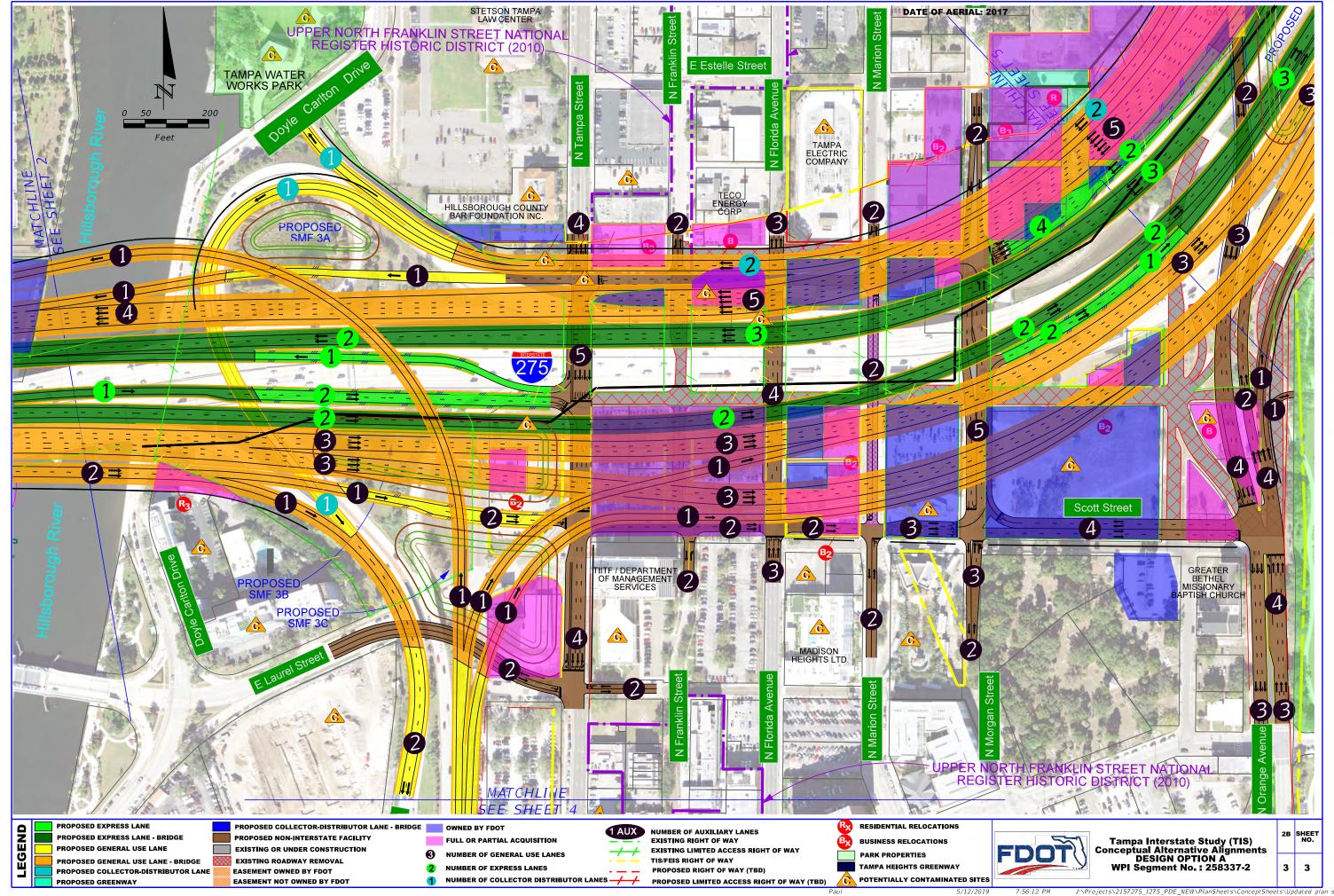


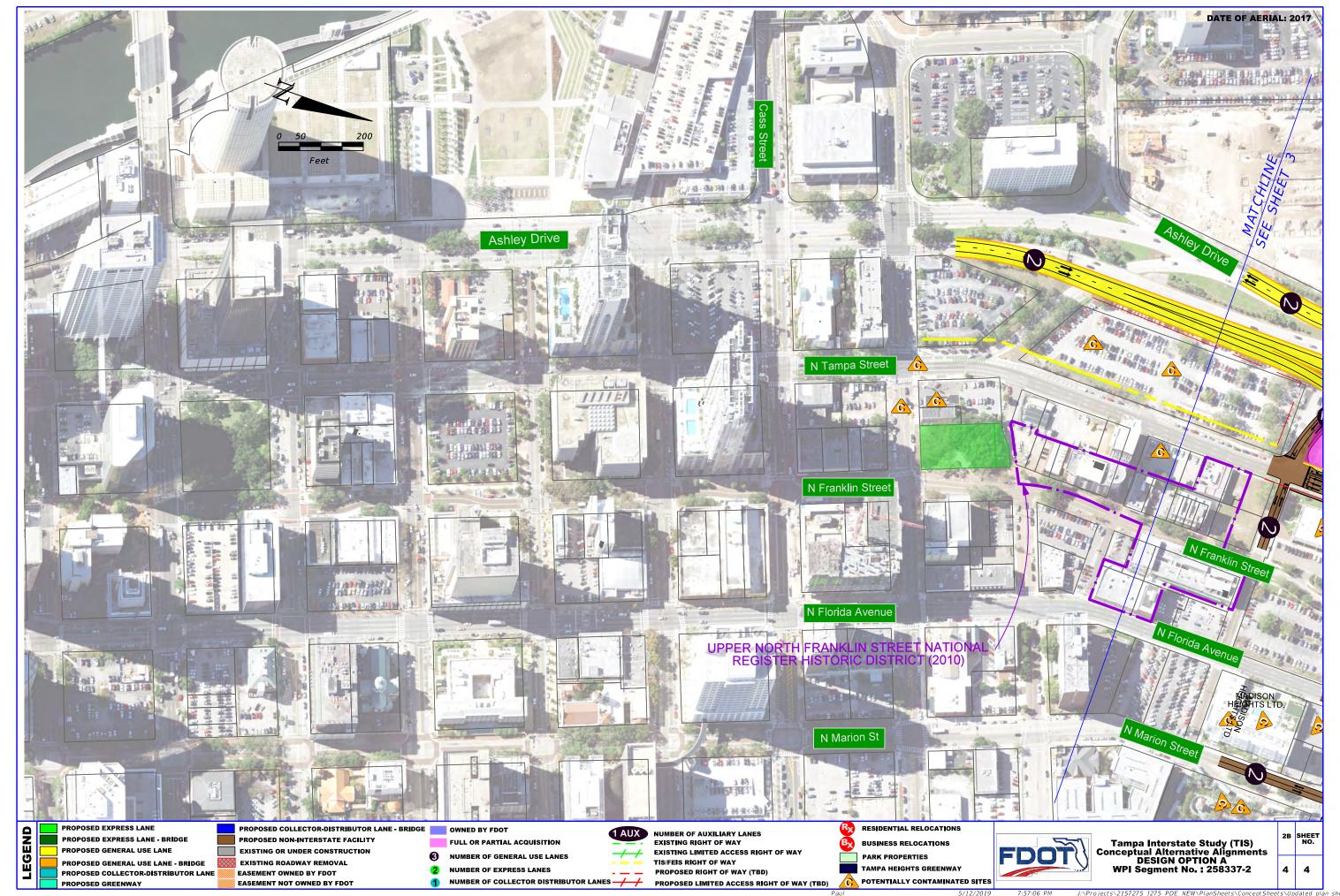
### **APPENDIX H**

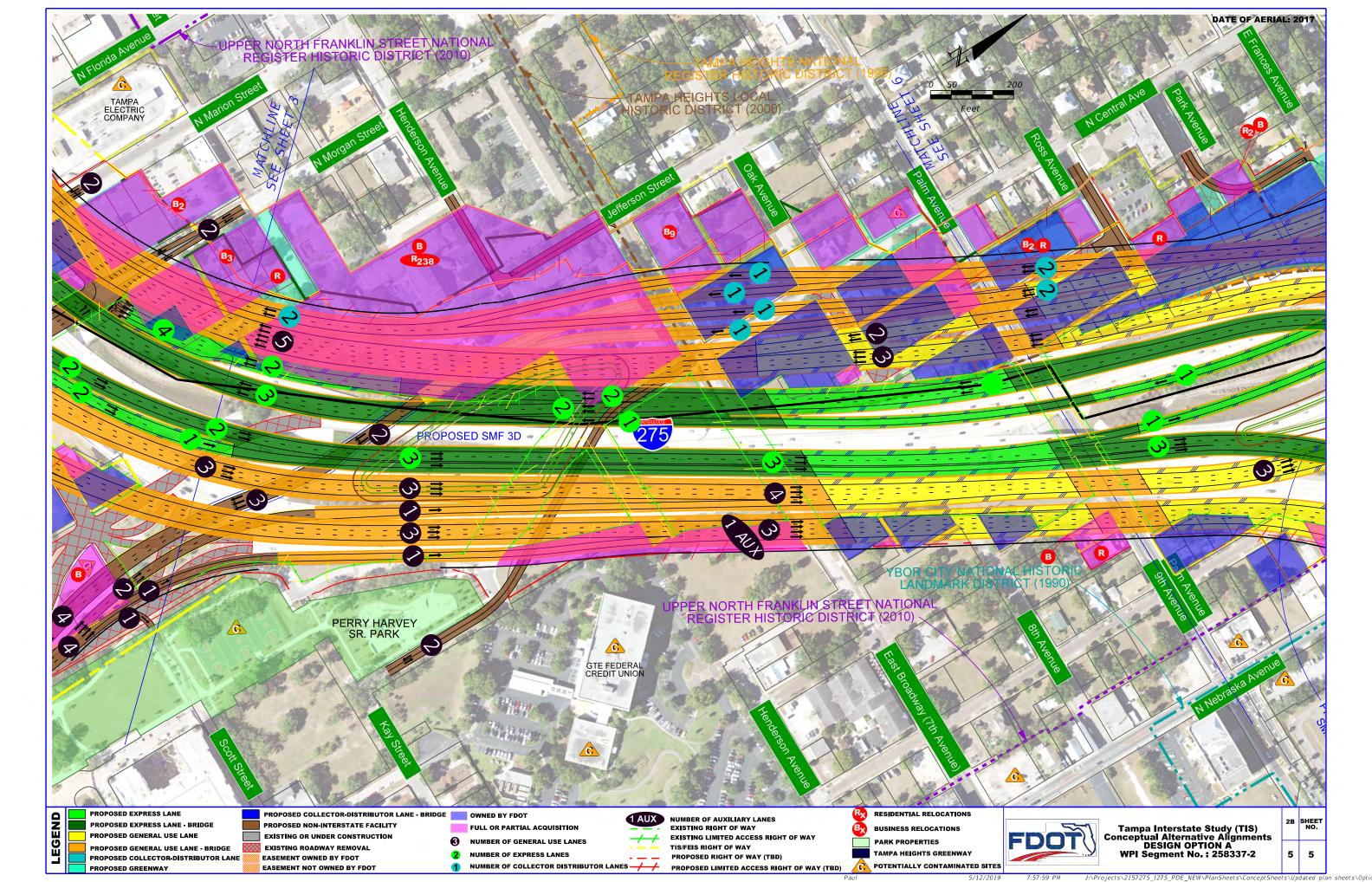
Concept Plans including Downtown Interchange Design Options A, B, C & D

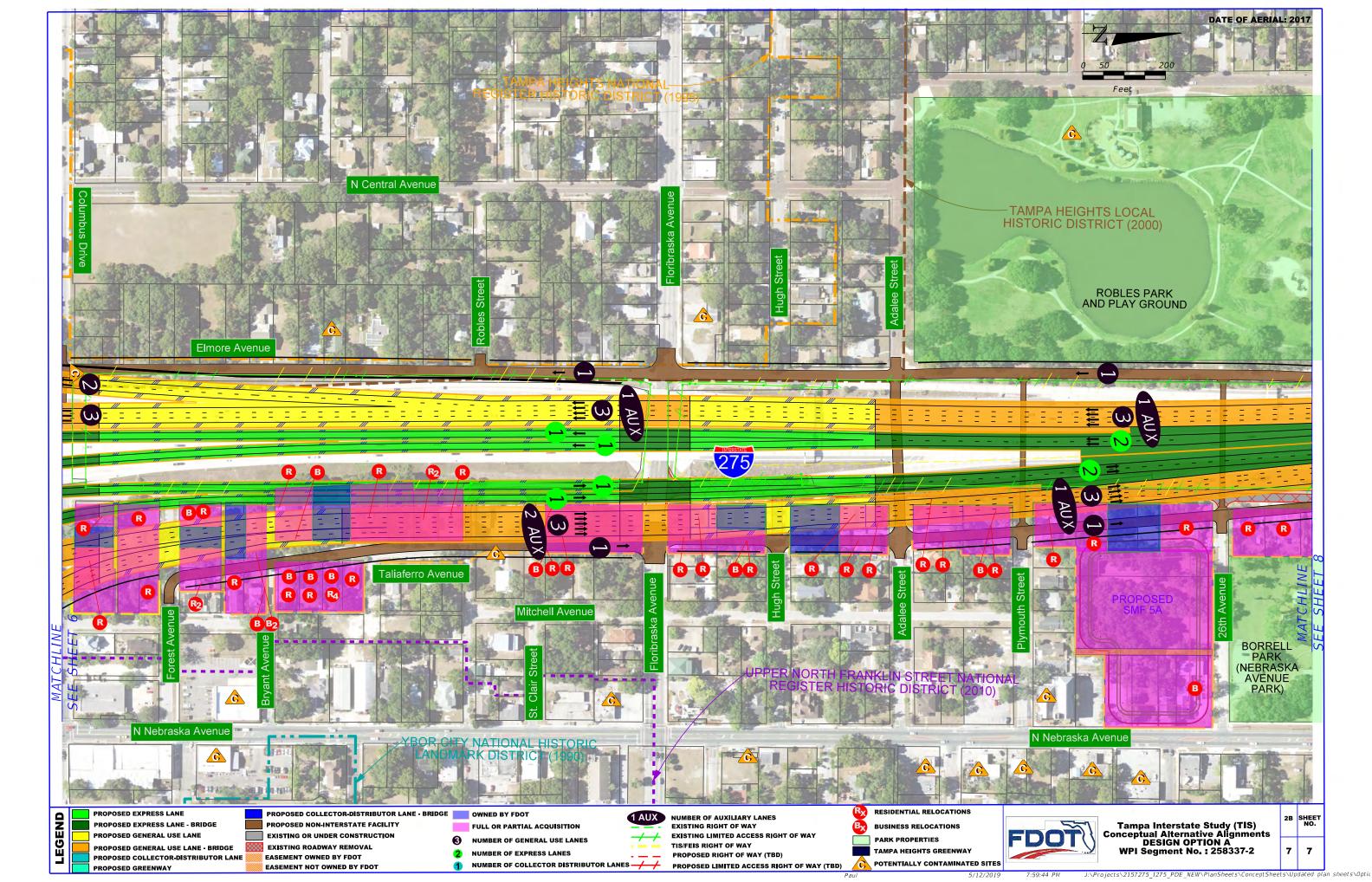


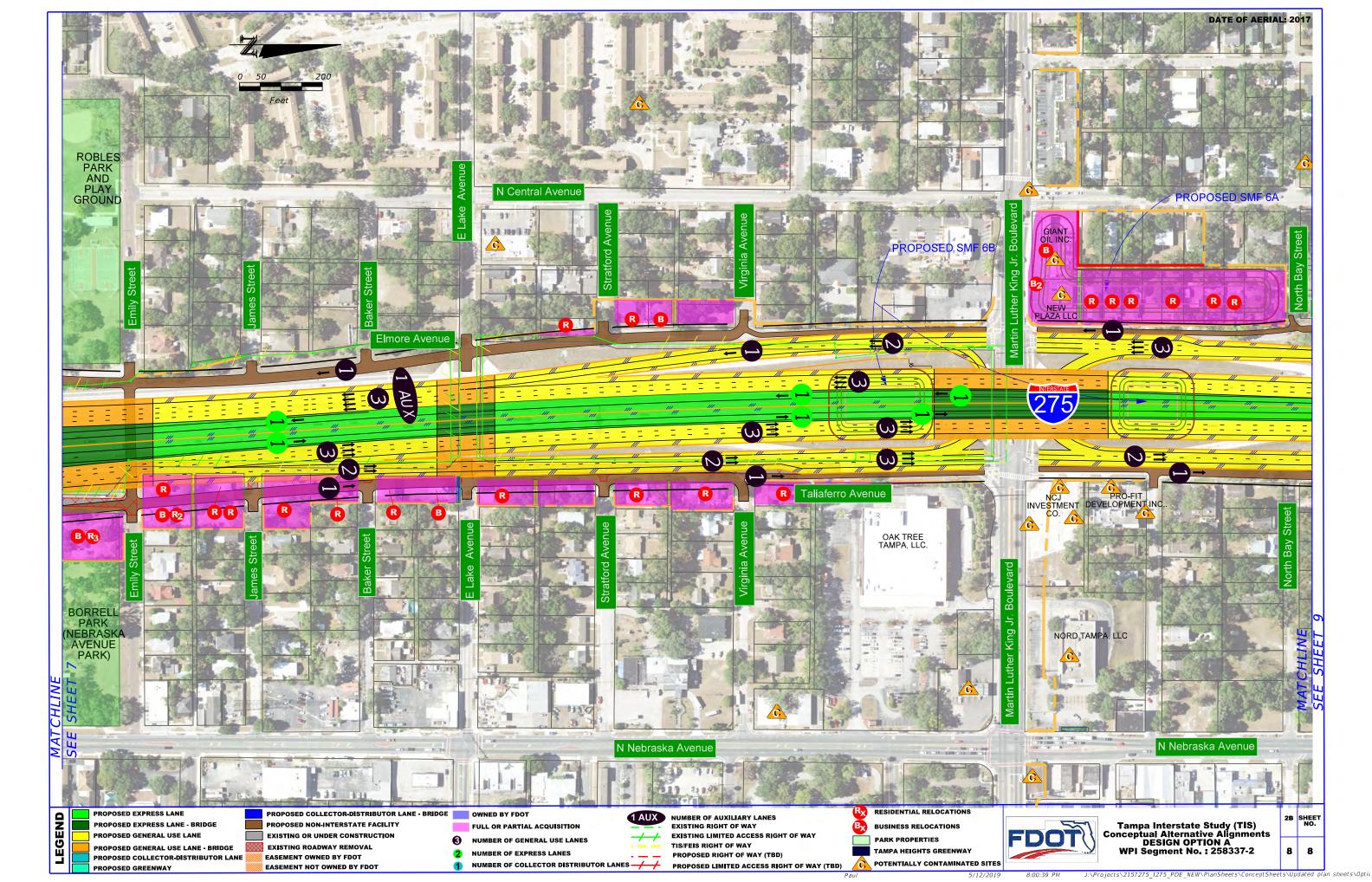


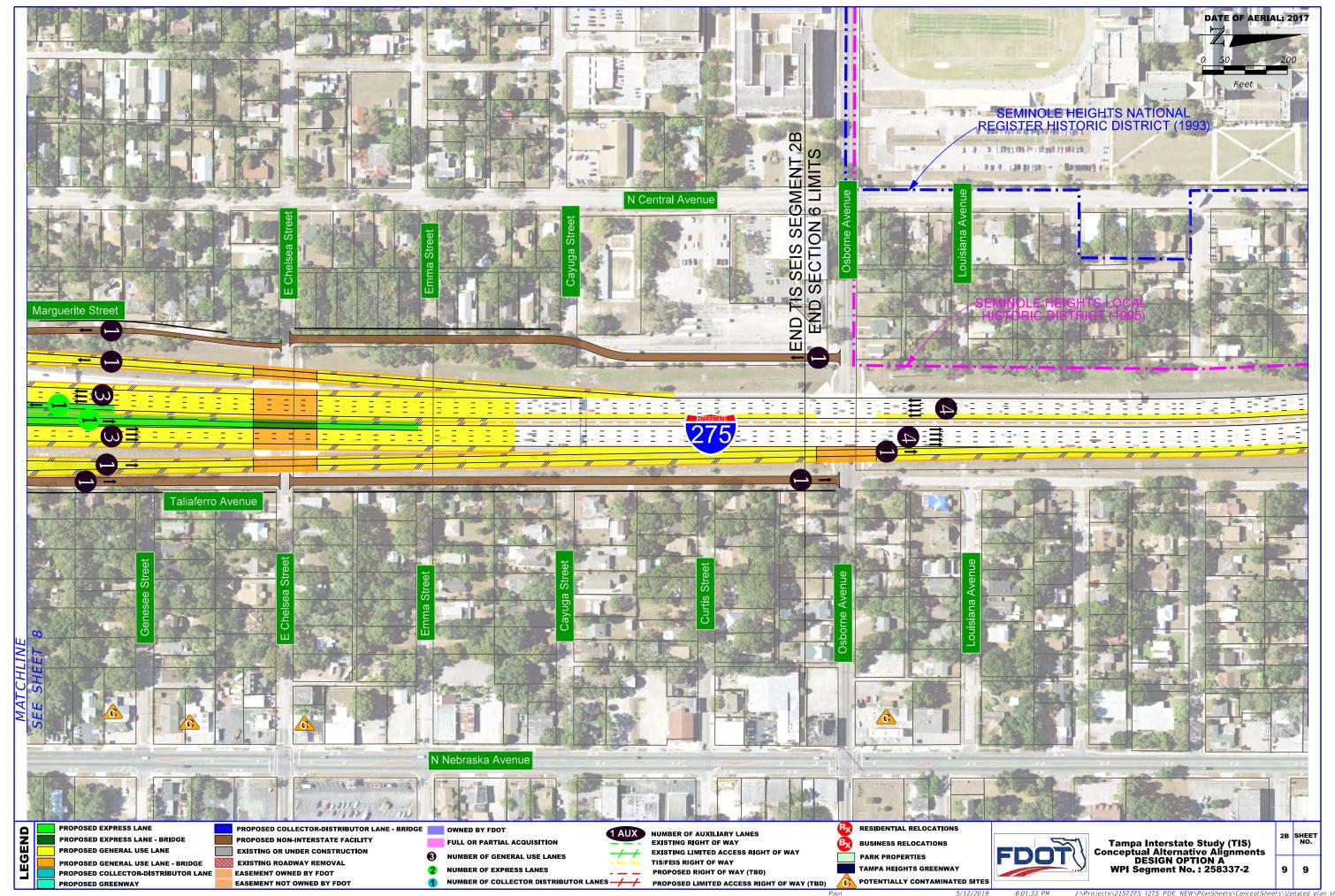


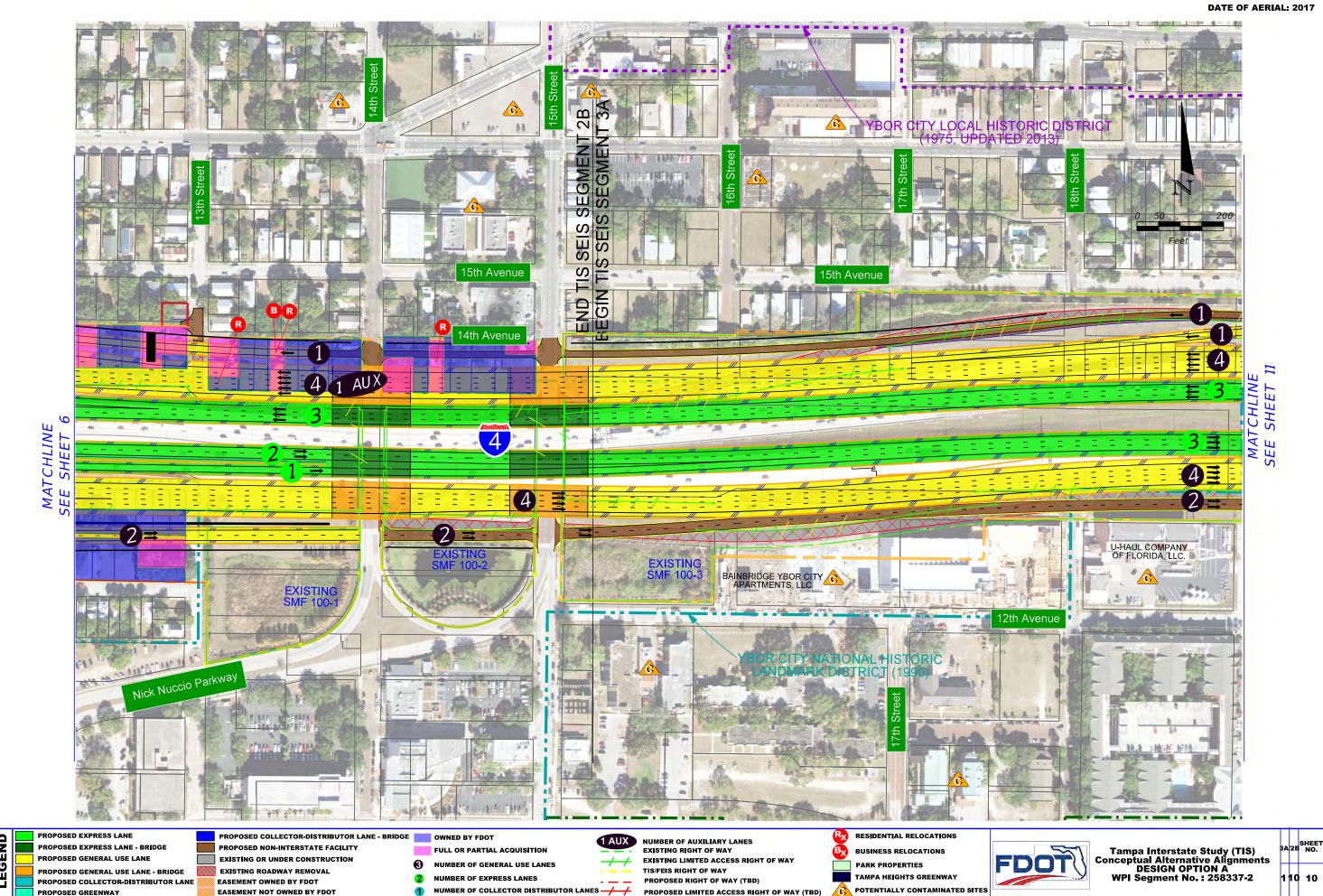




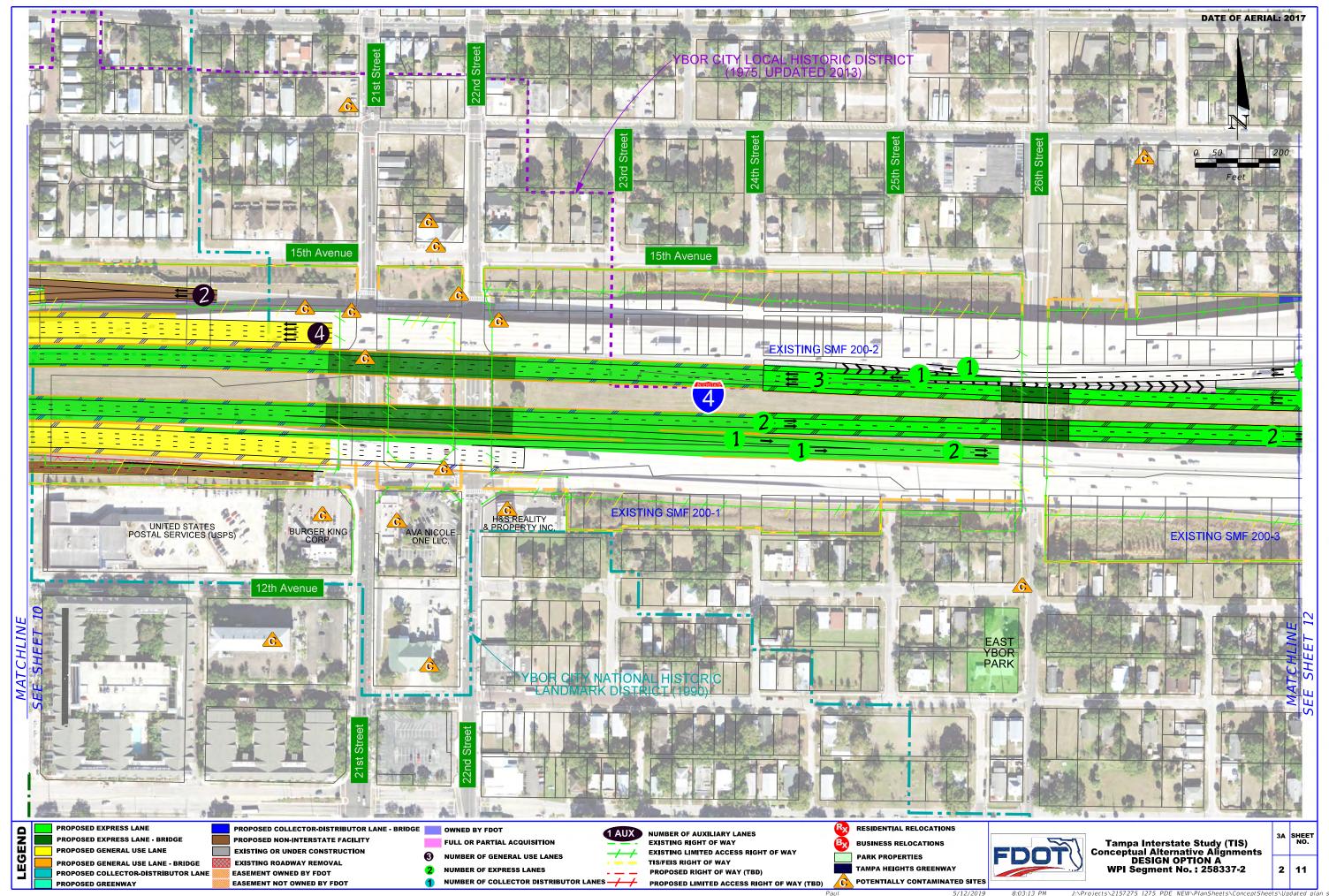


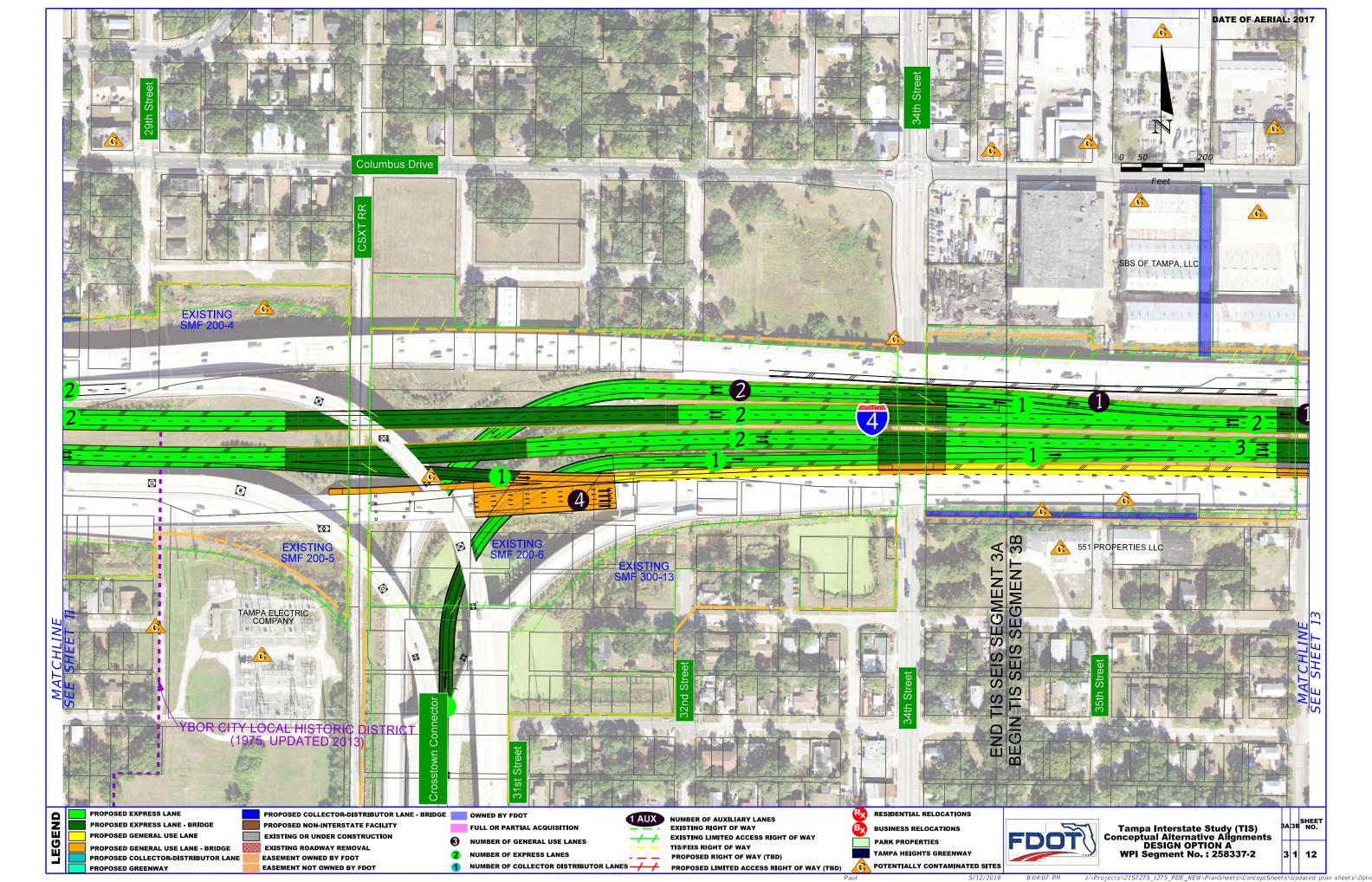


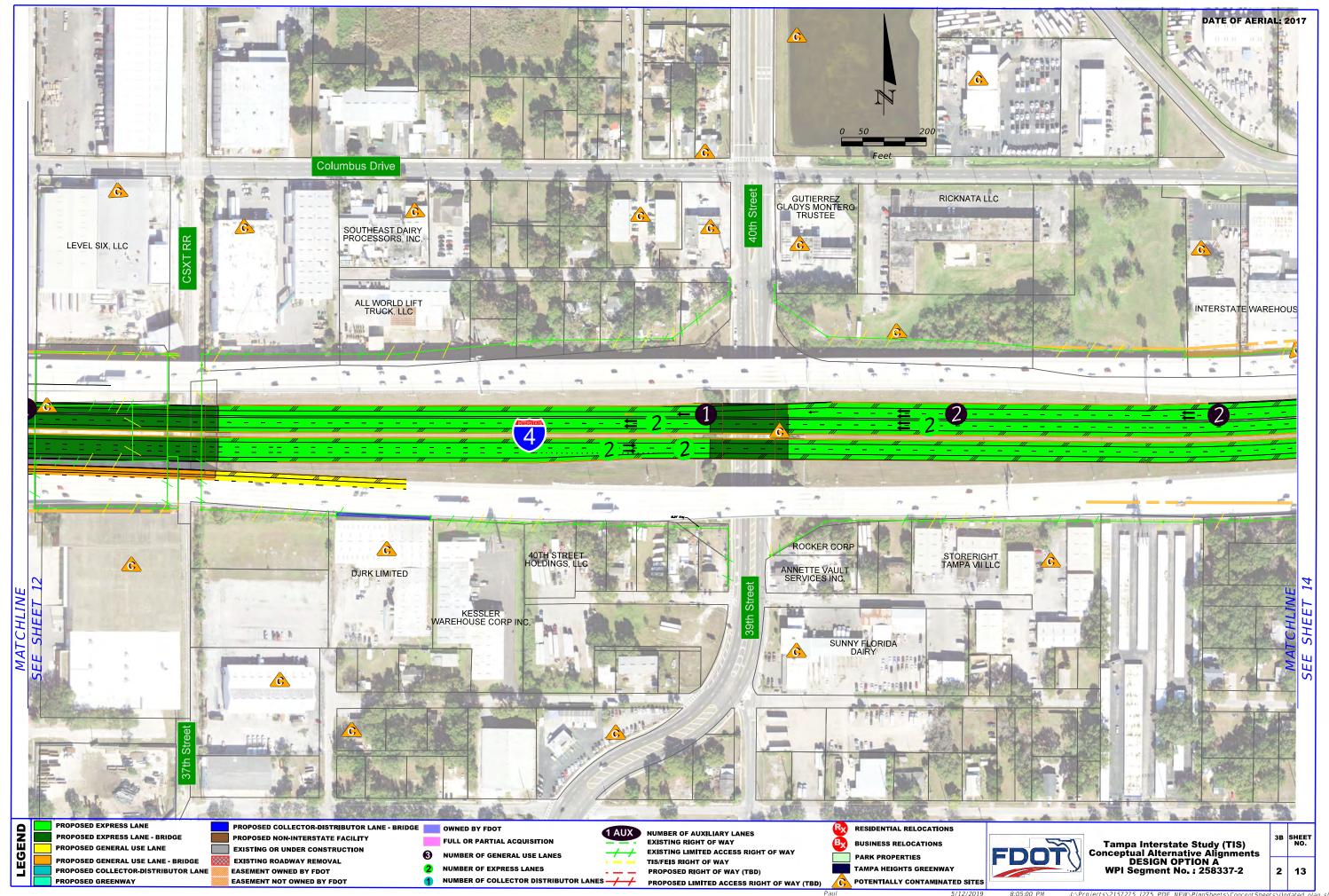


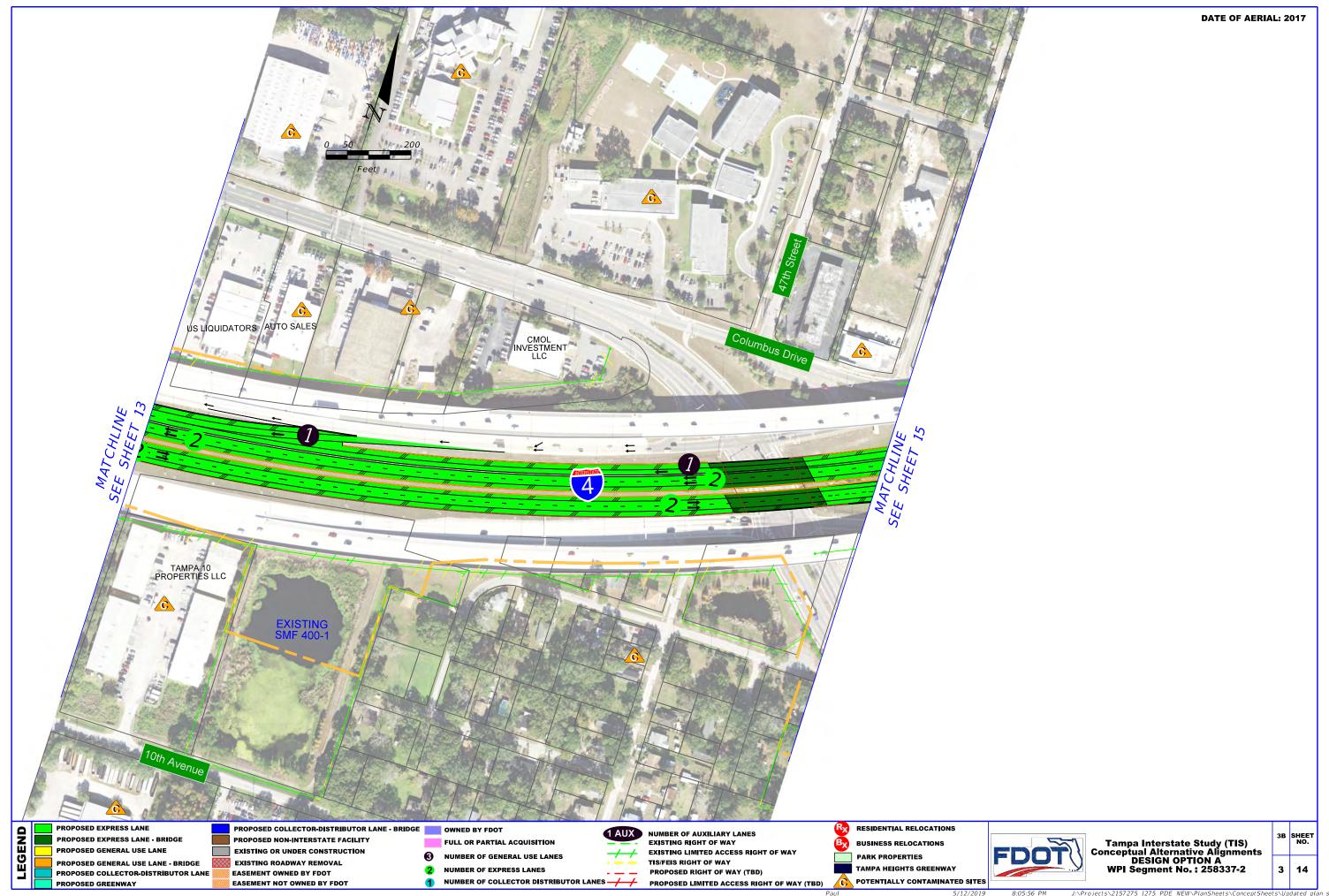


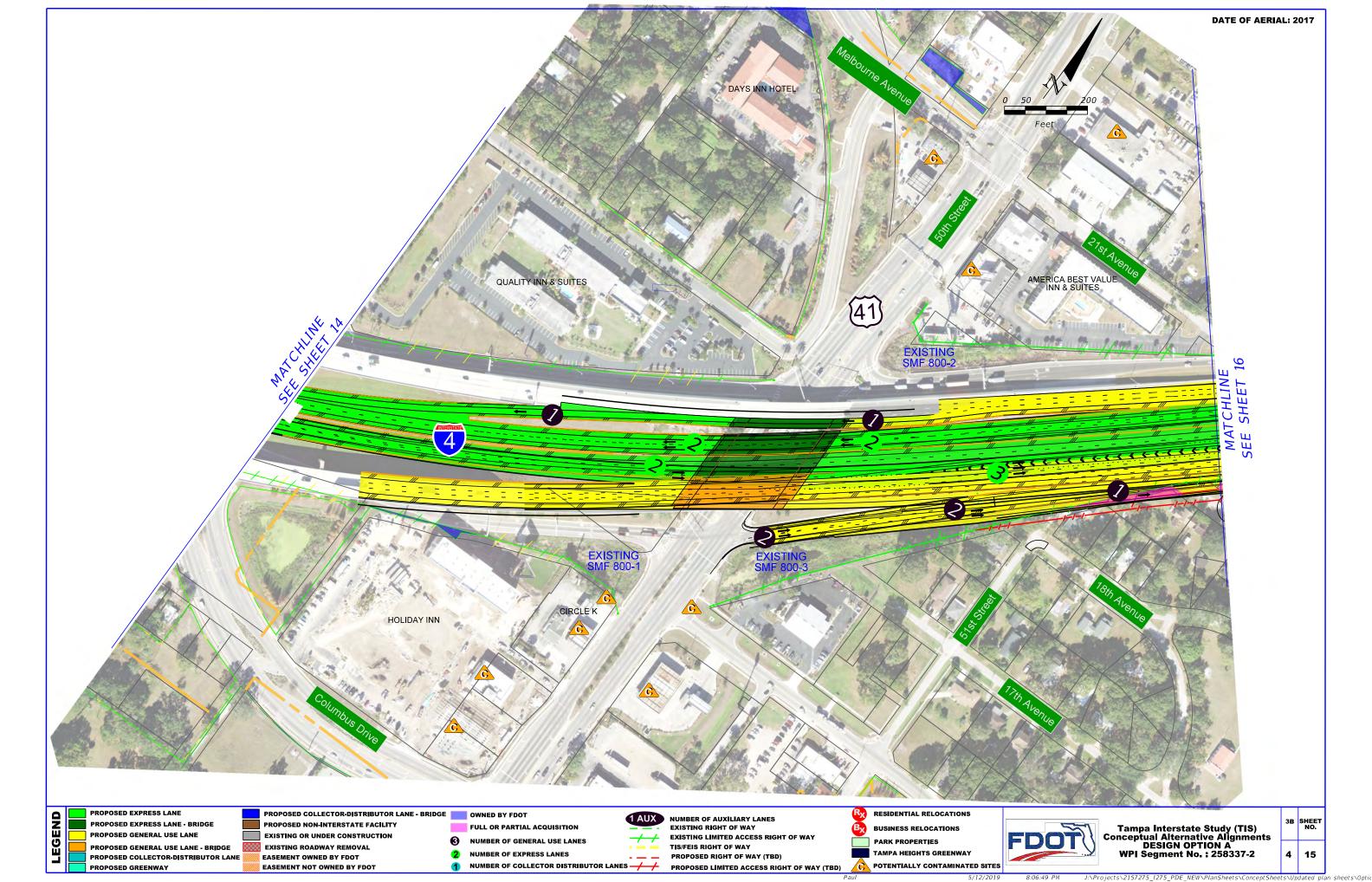
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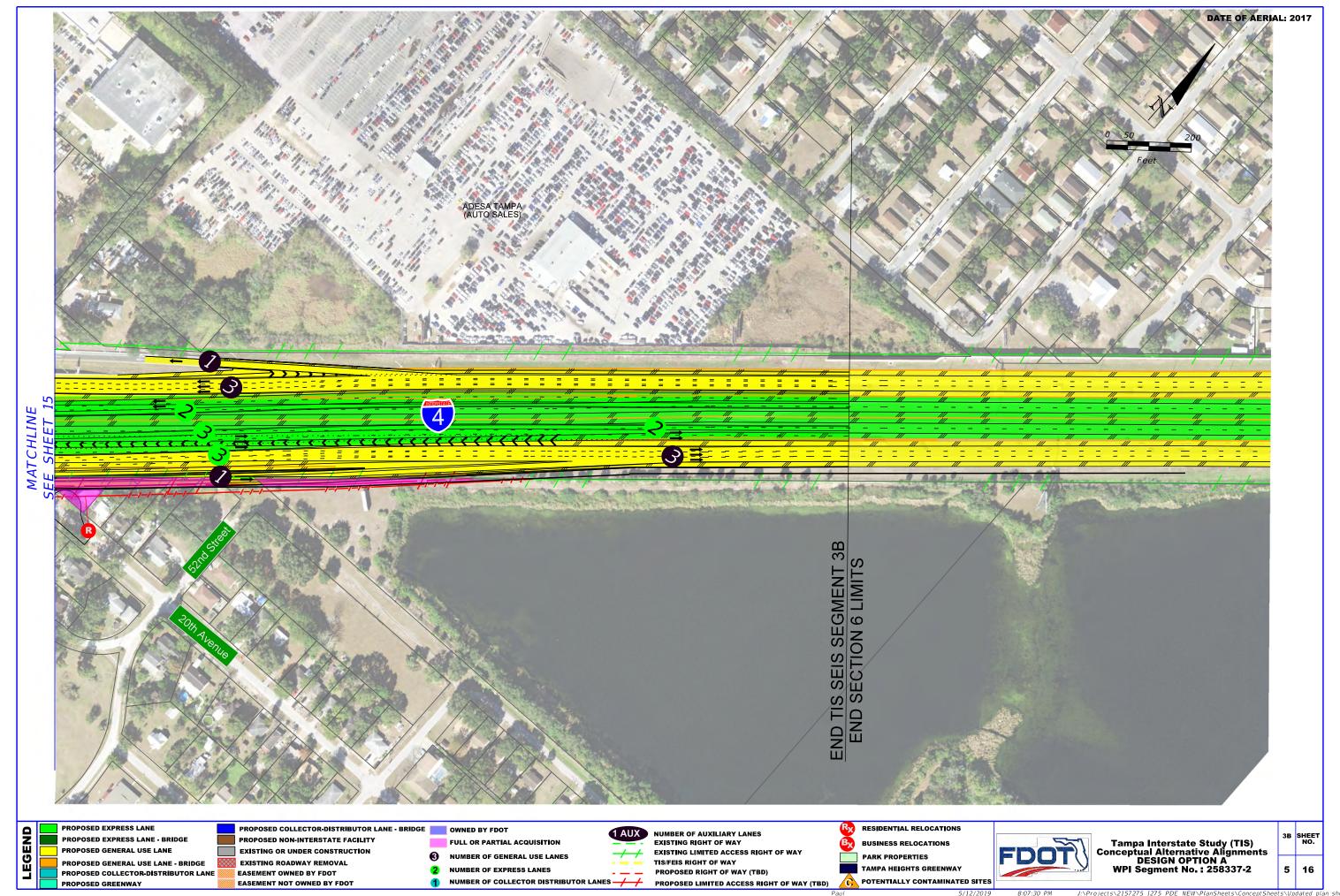


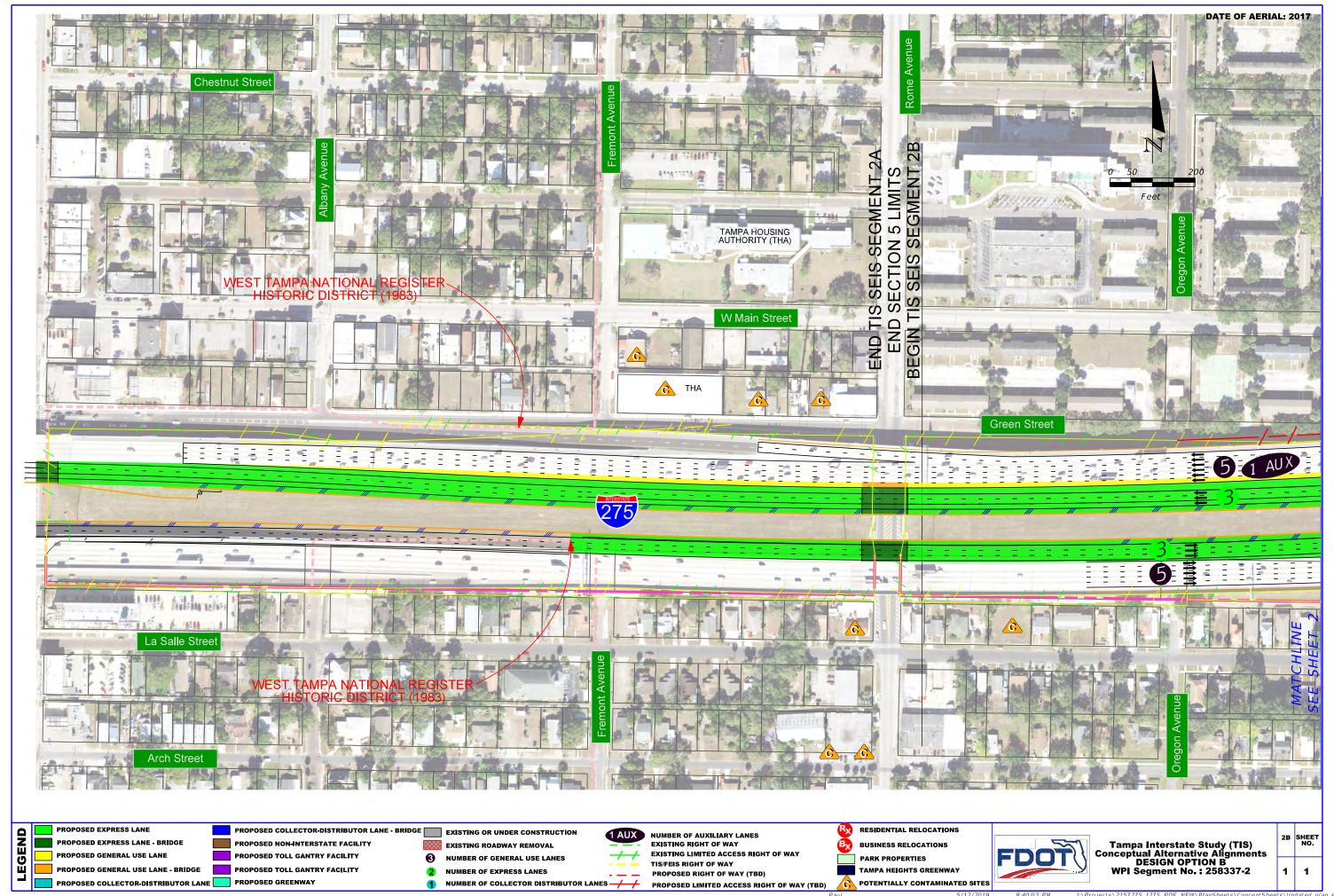


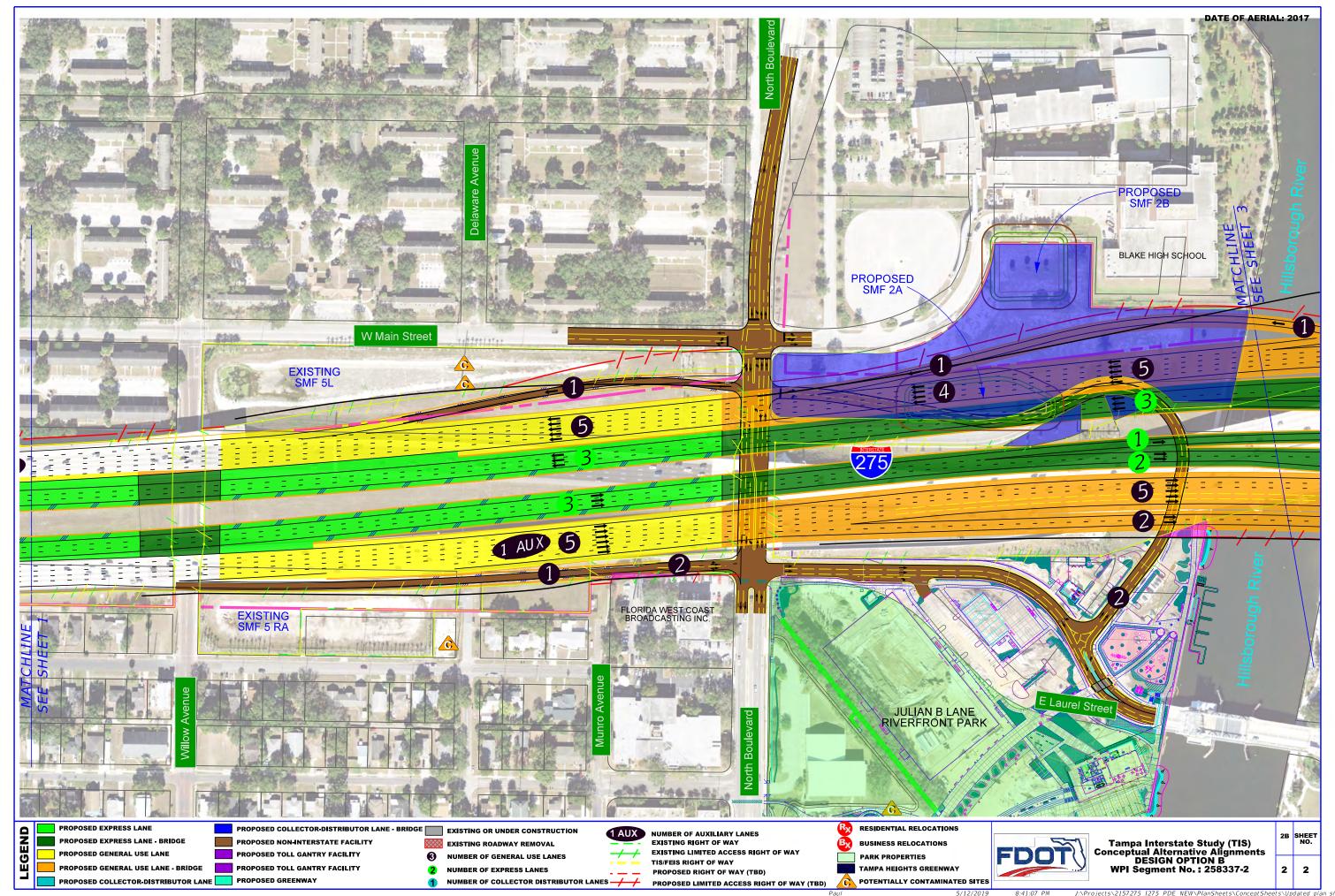


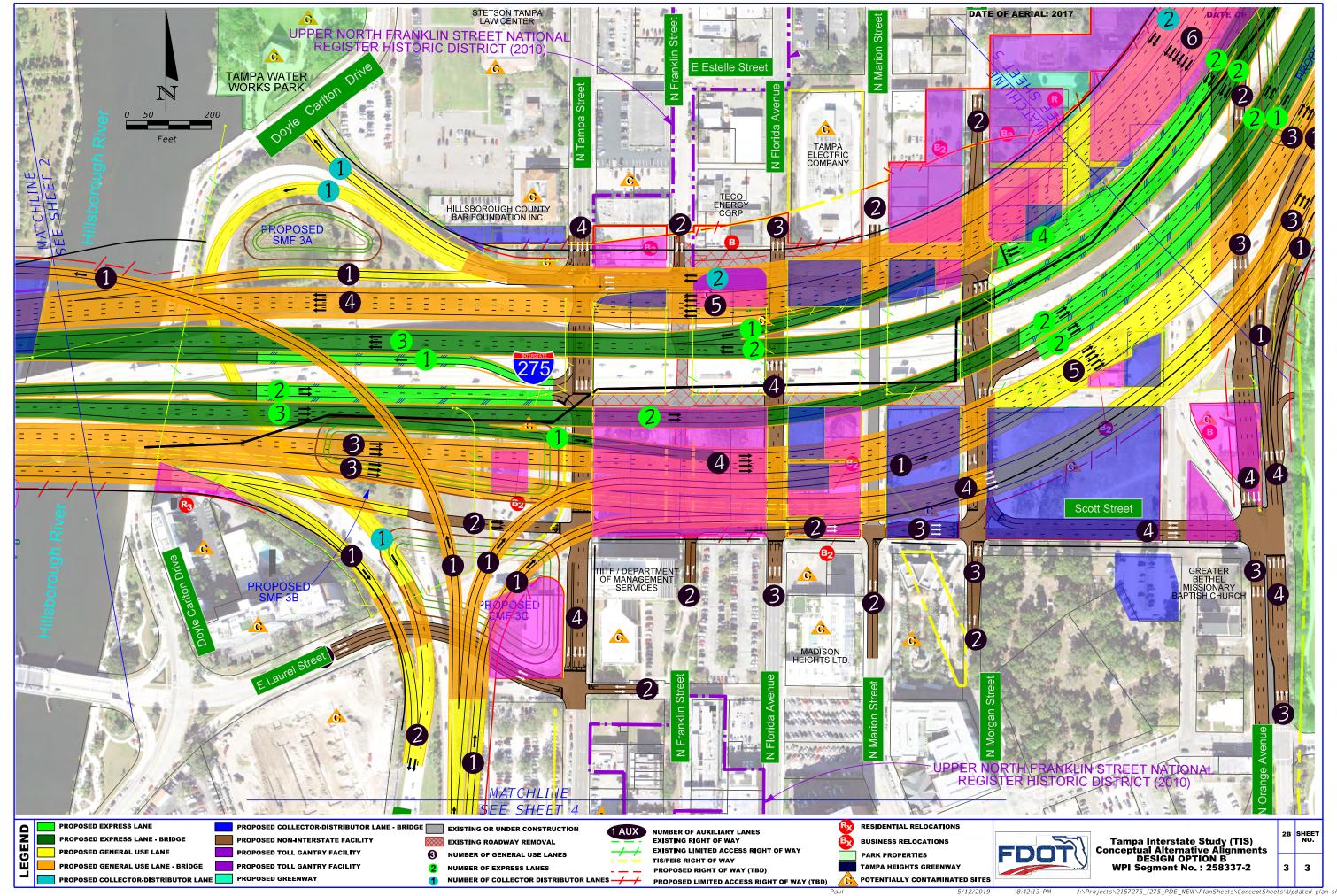


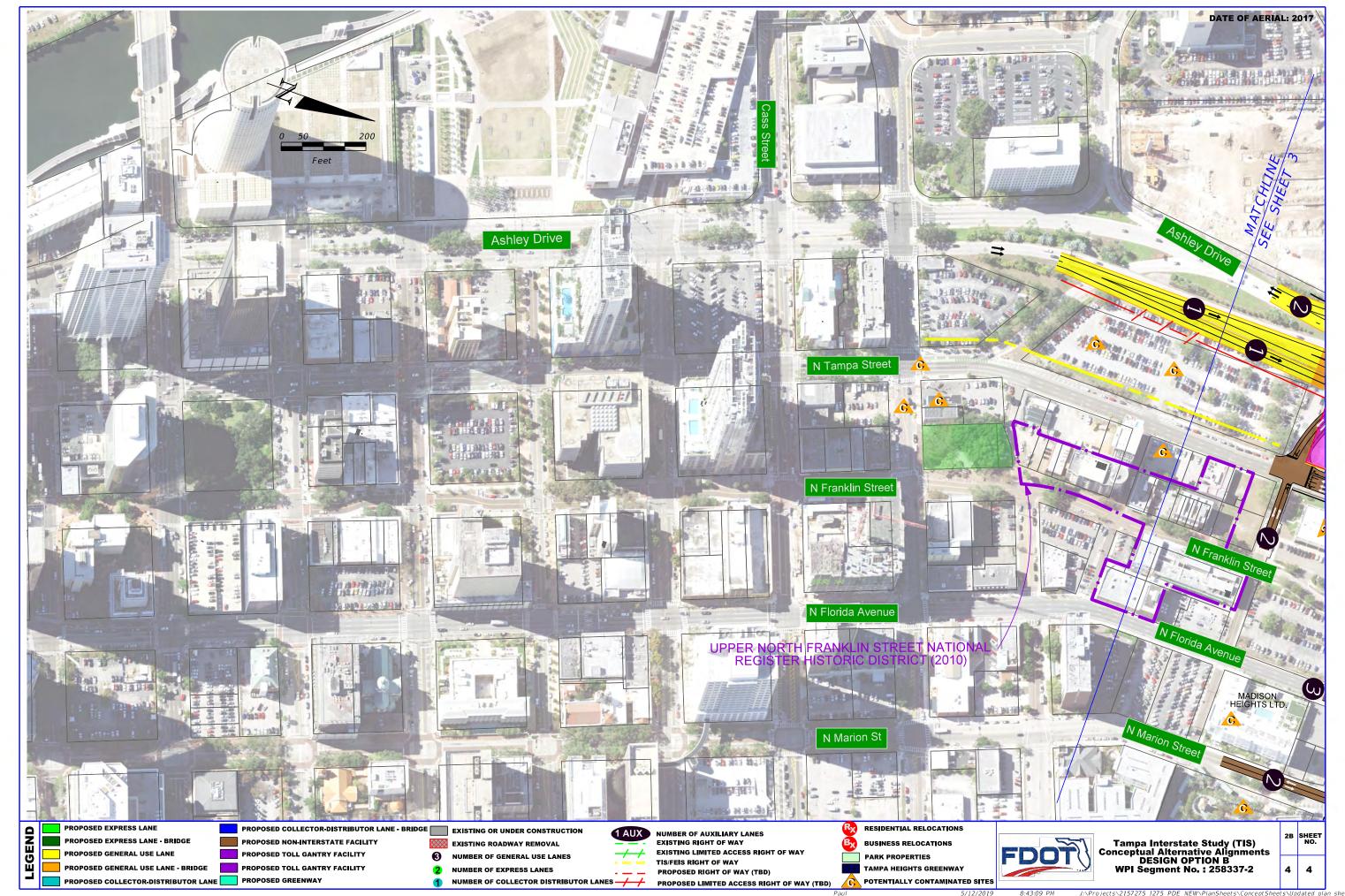


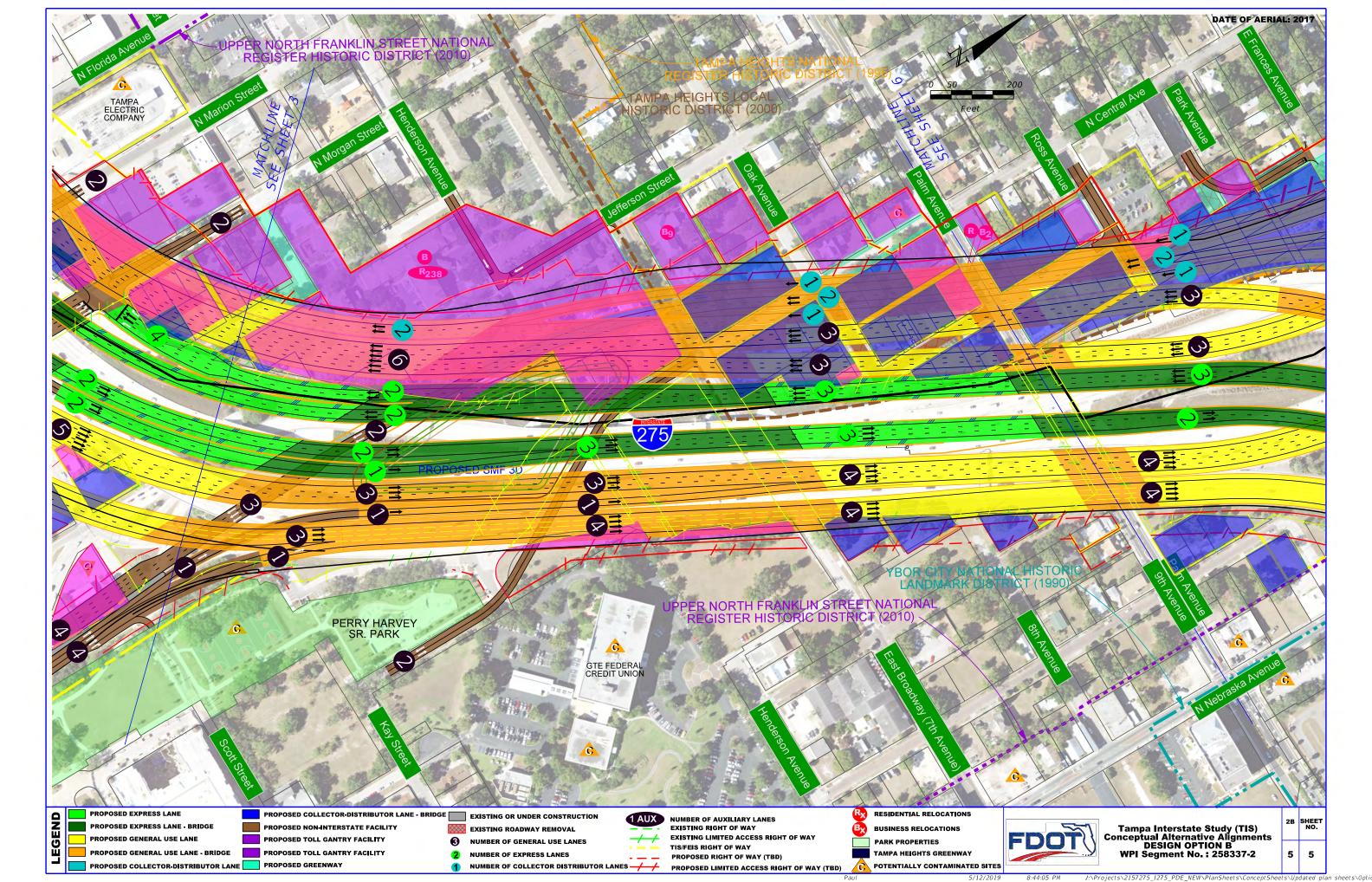


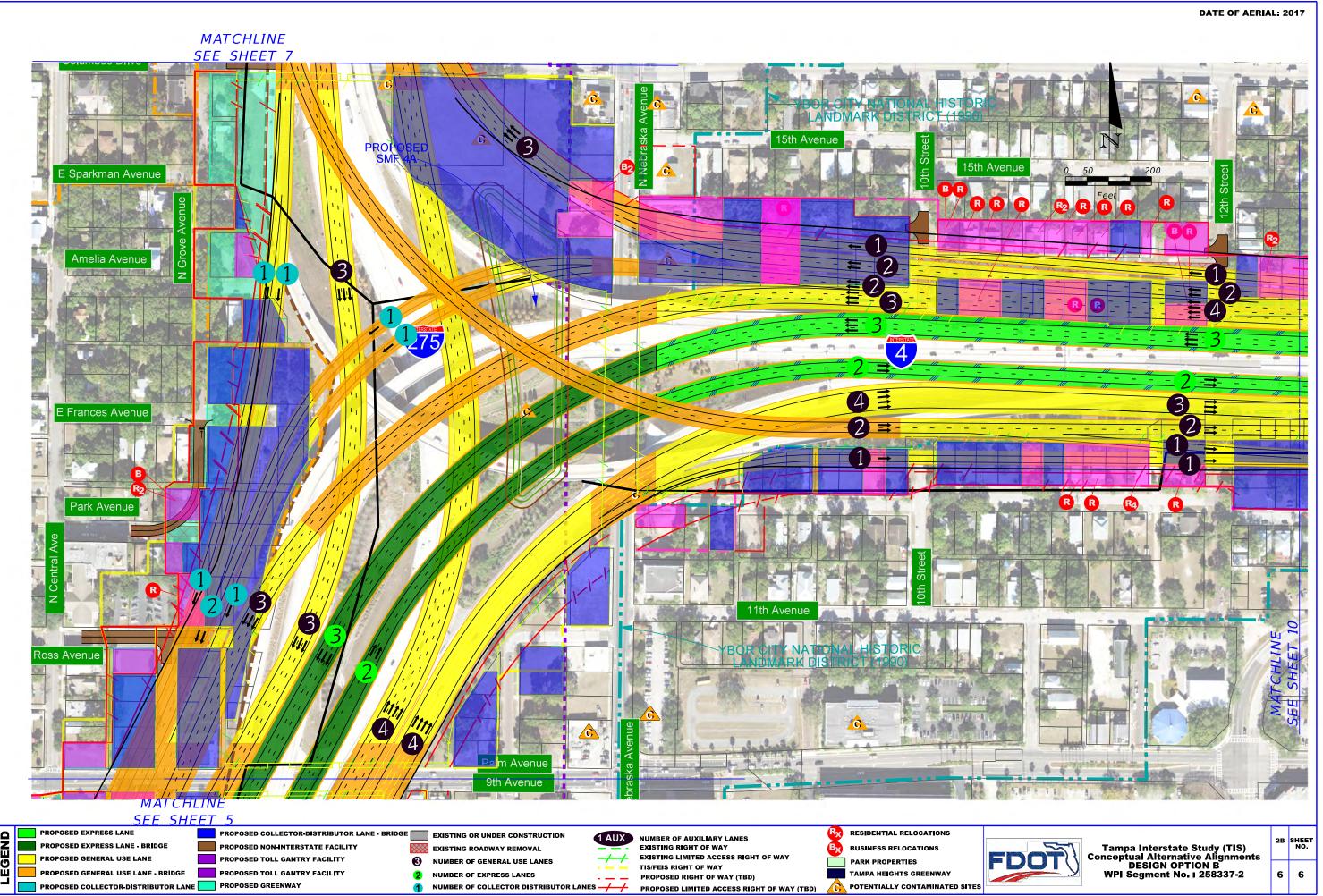


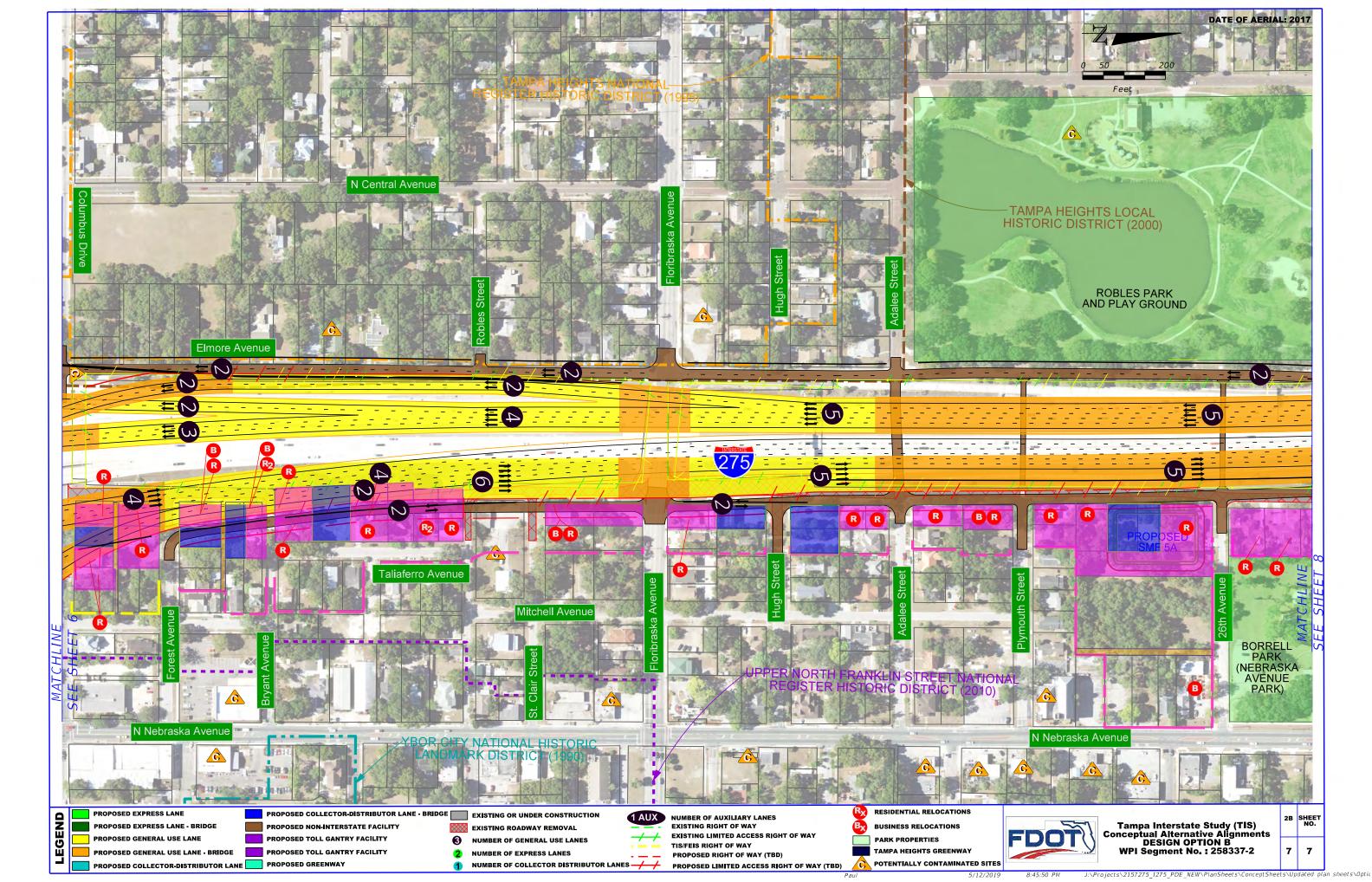


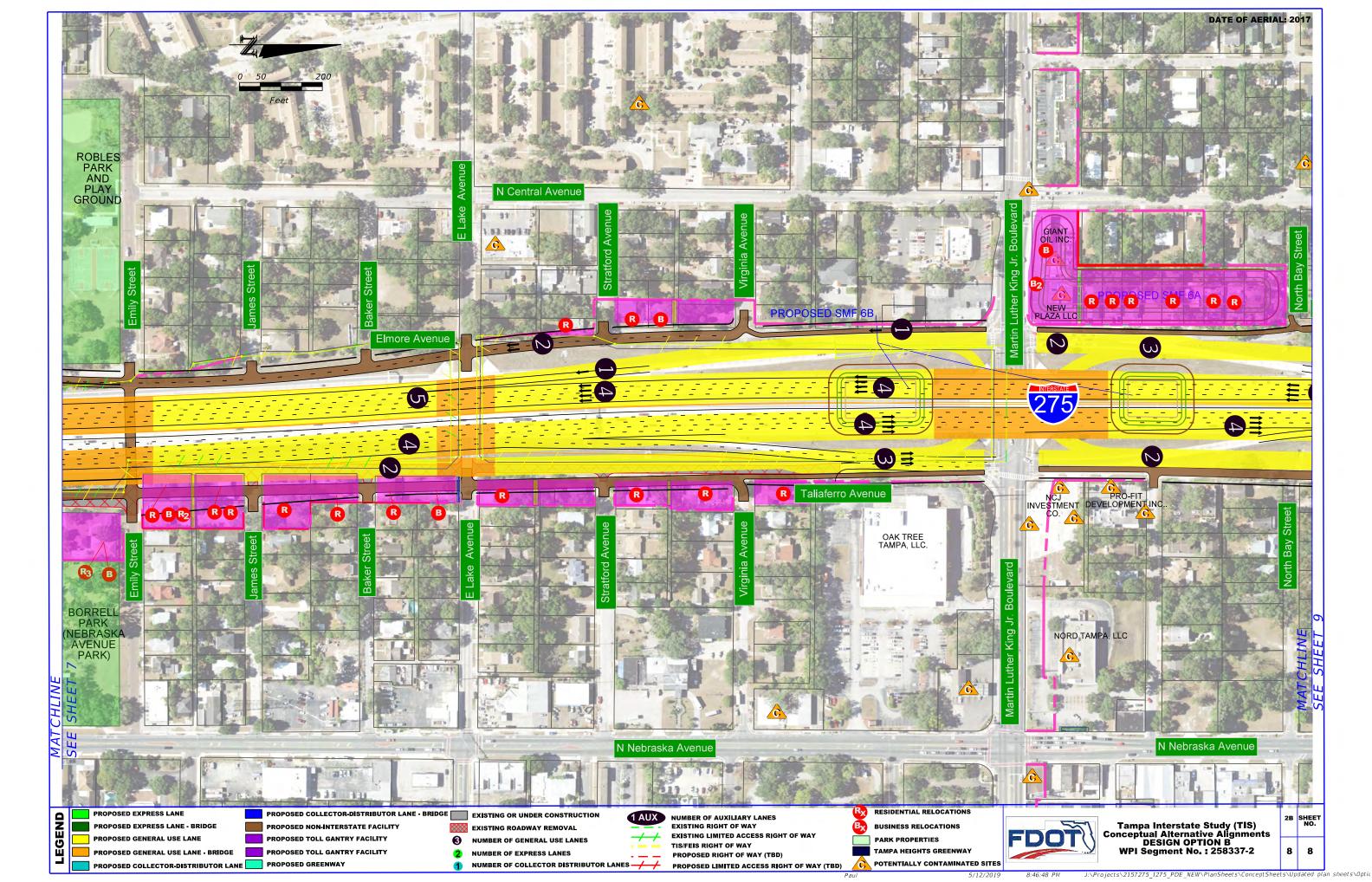


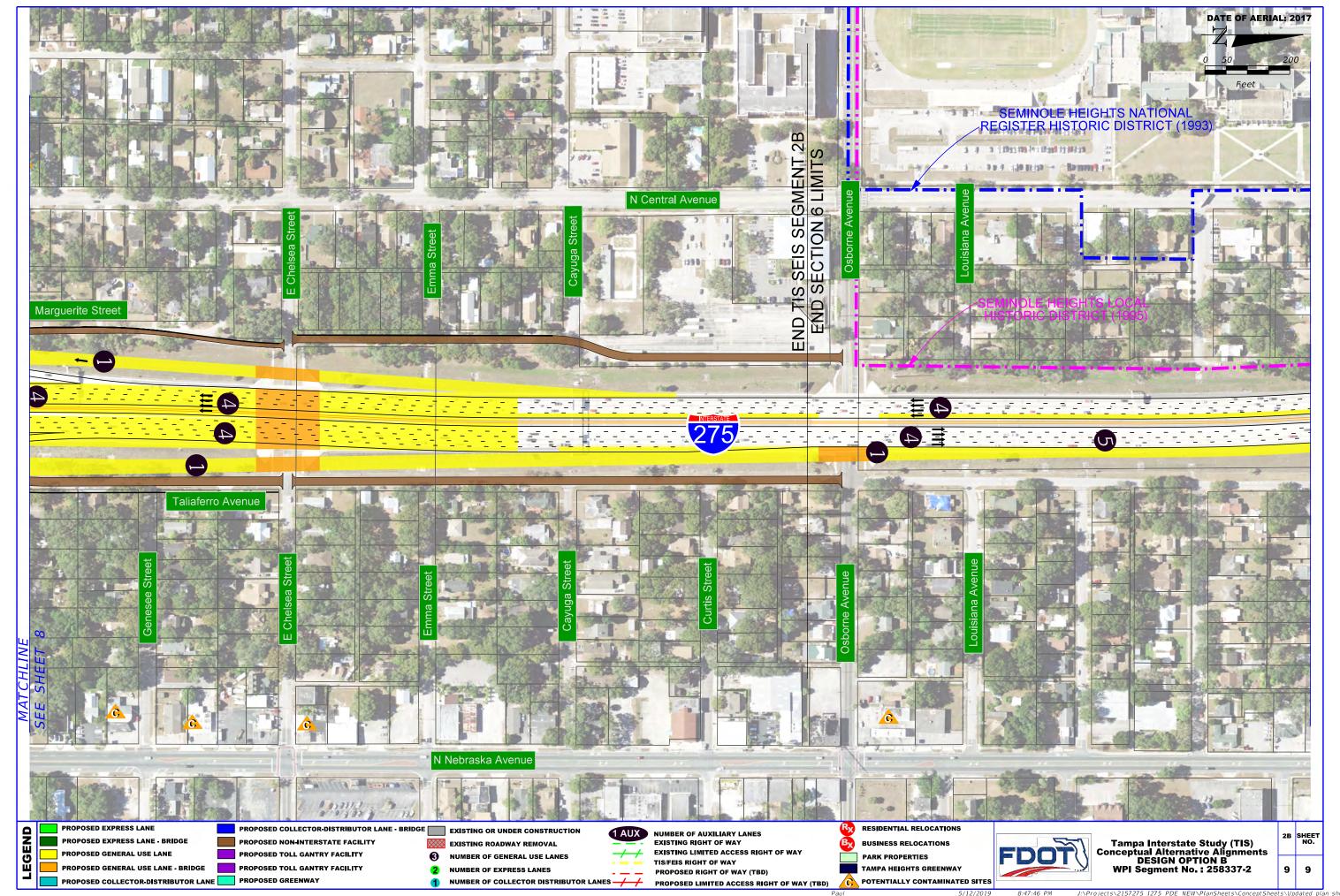


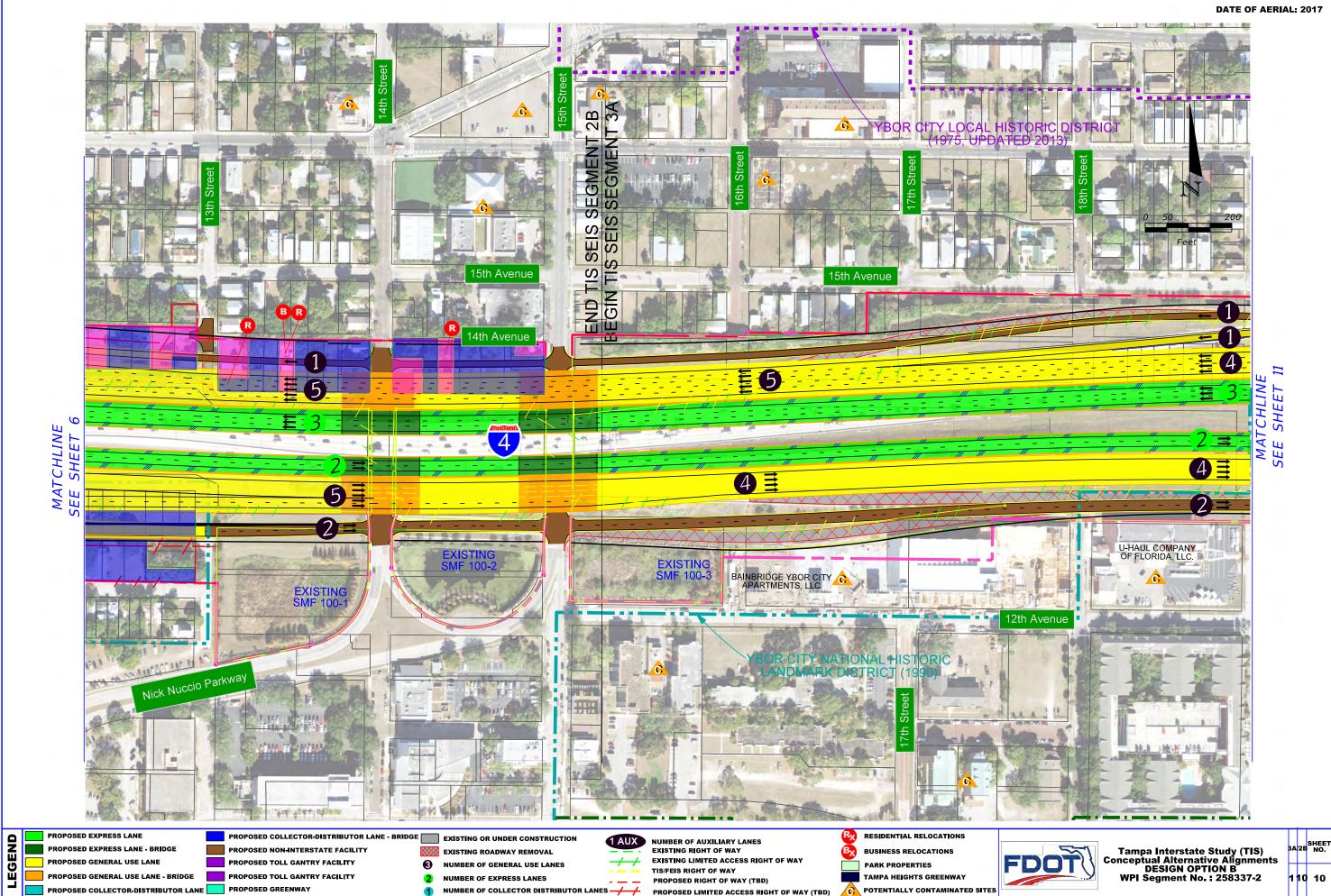




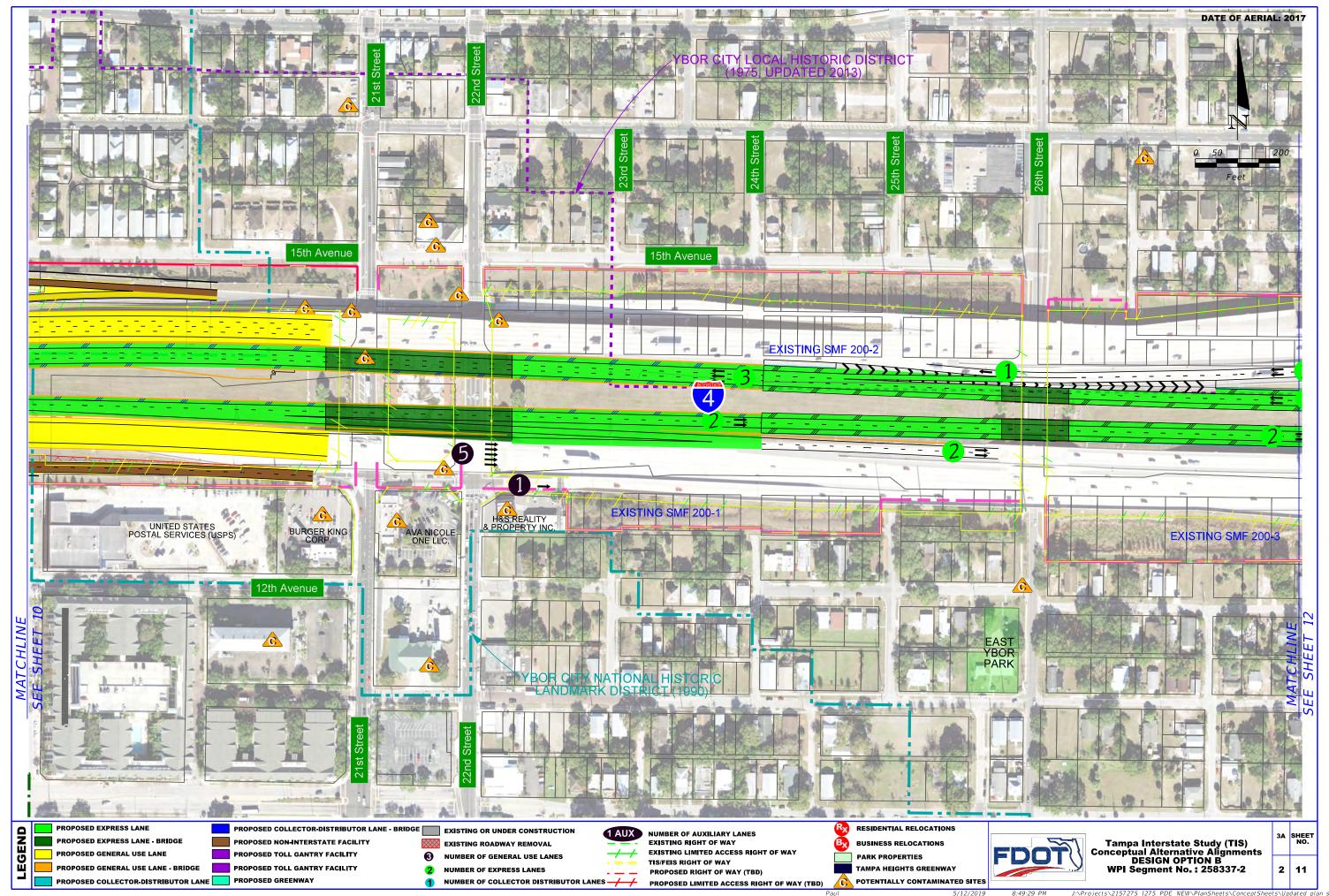


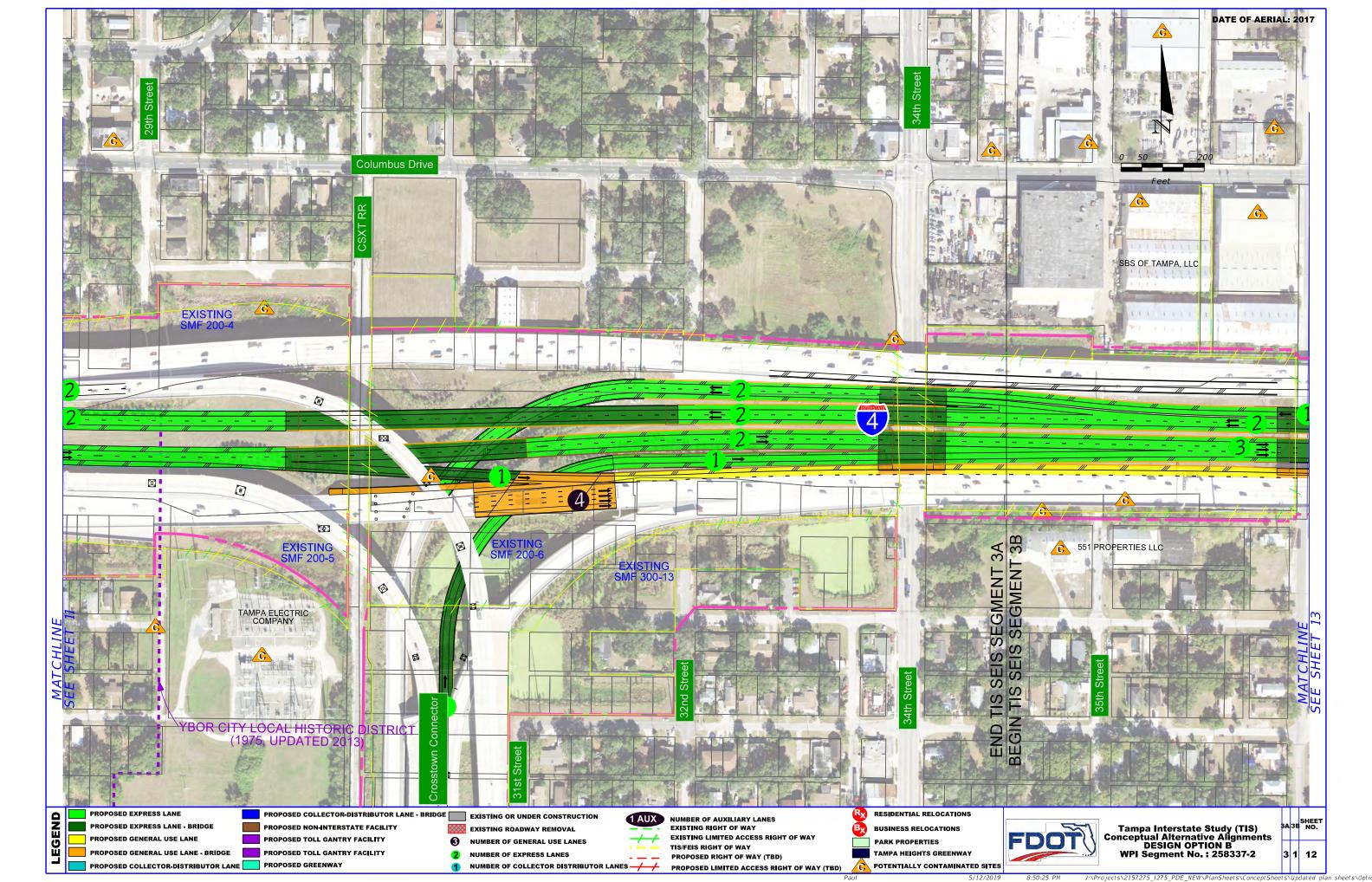


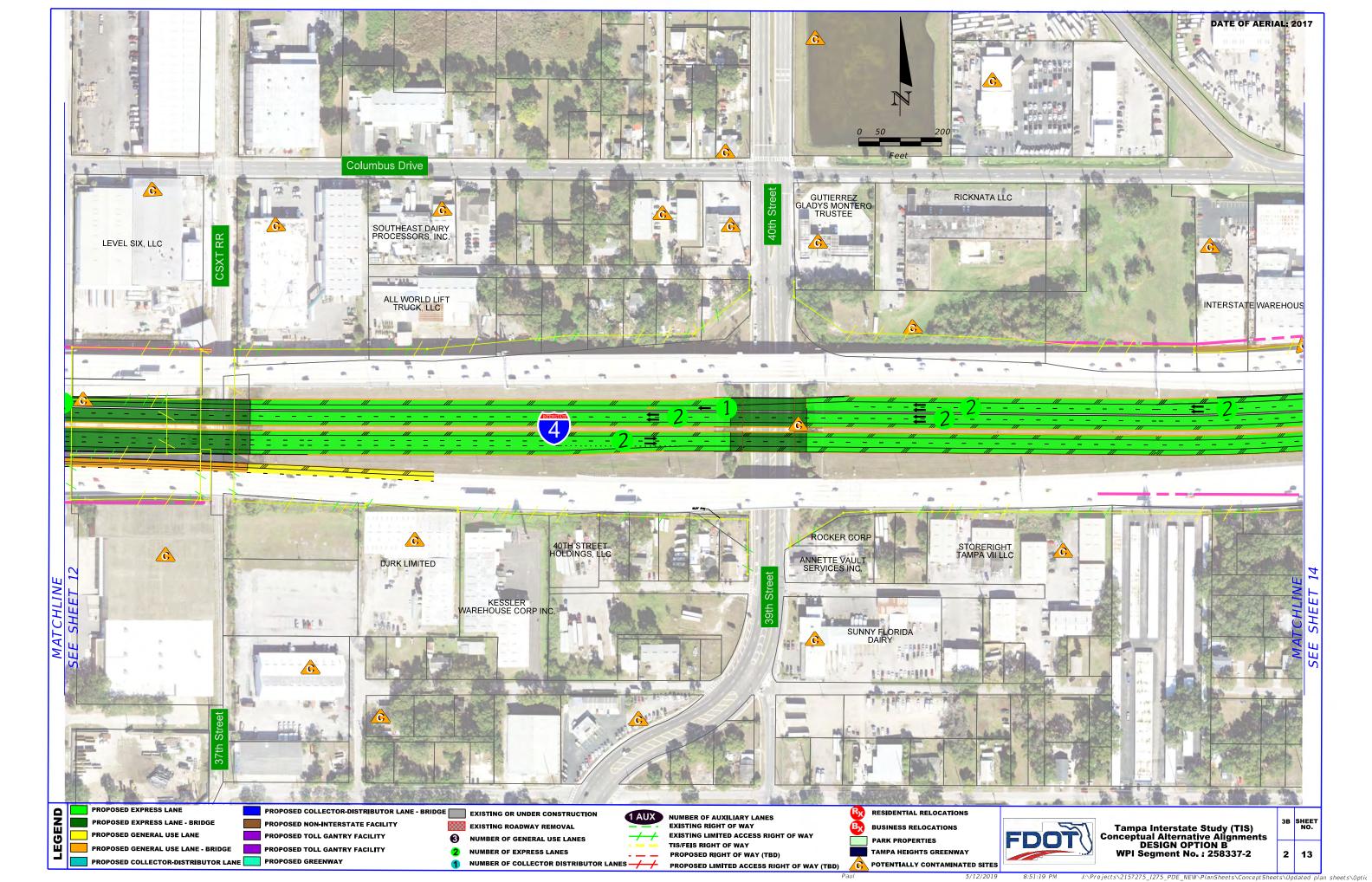


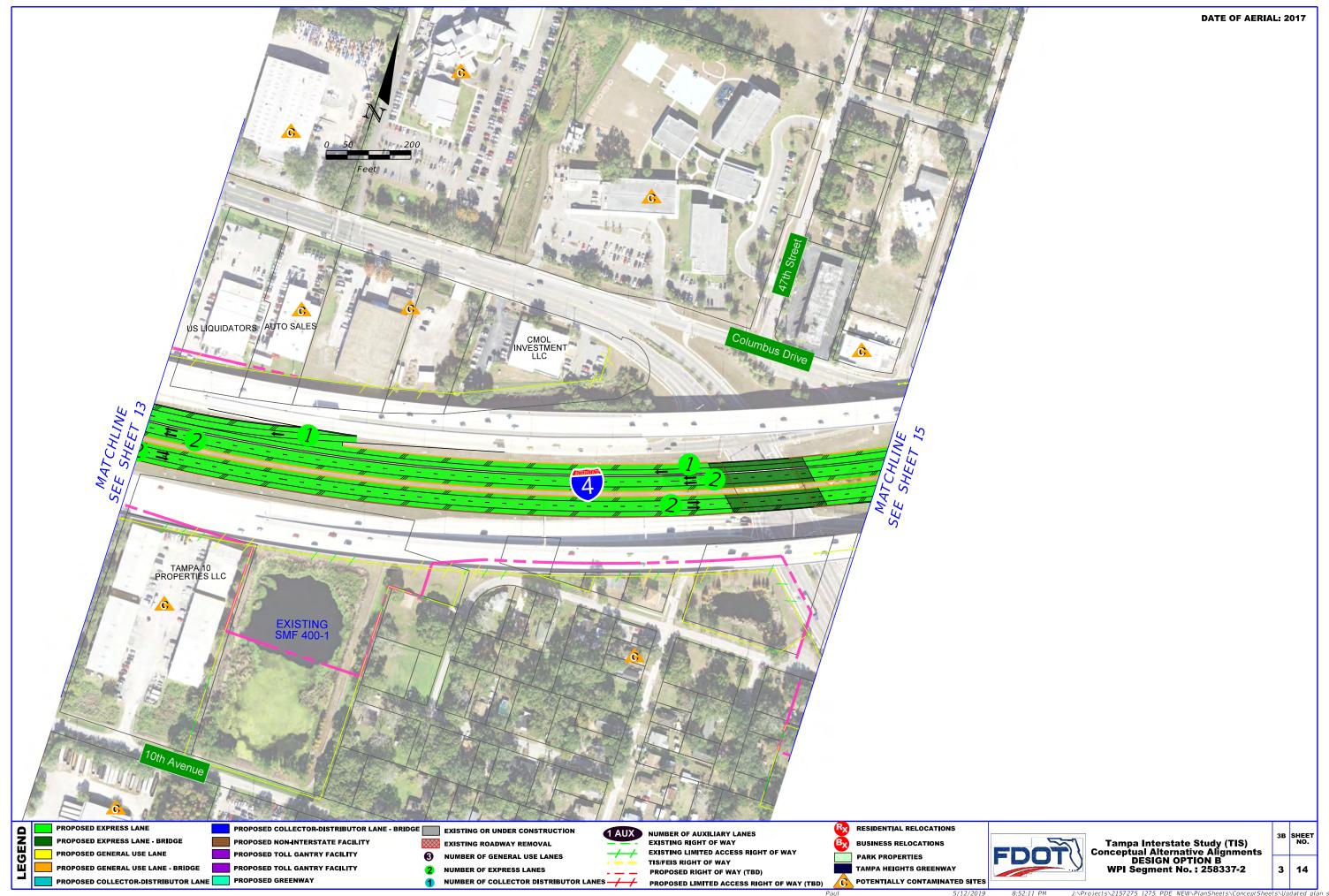


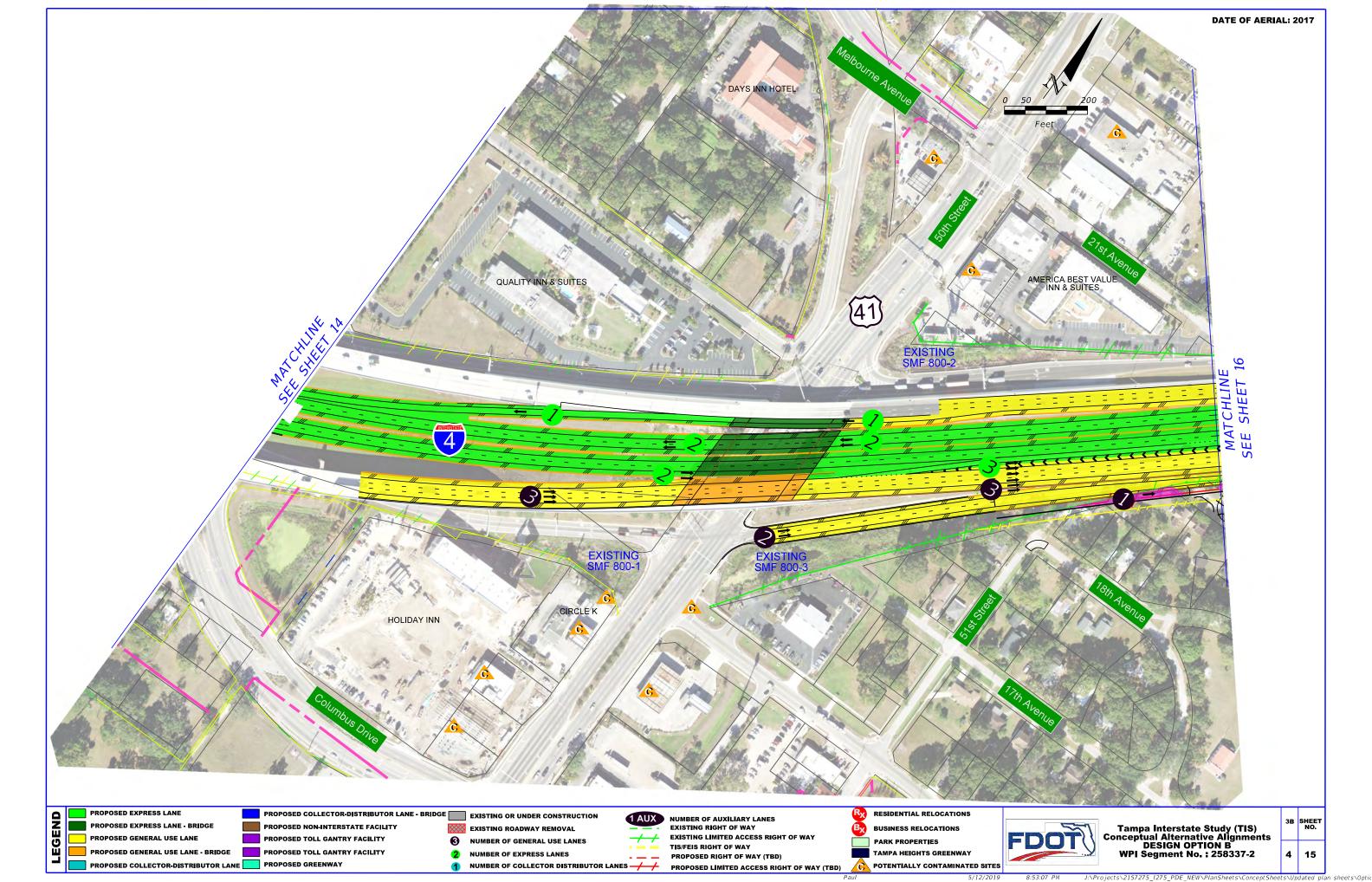
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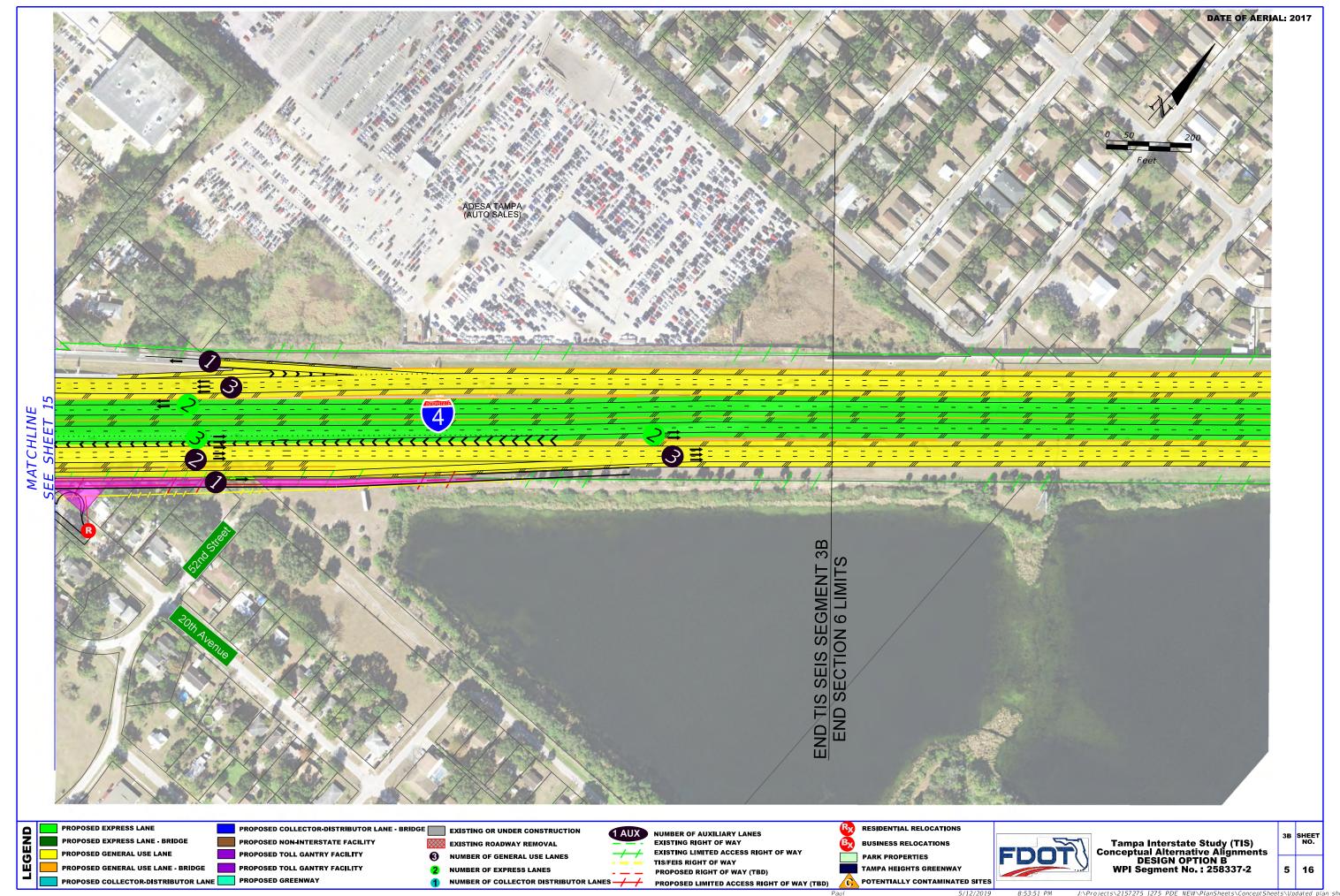


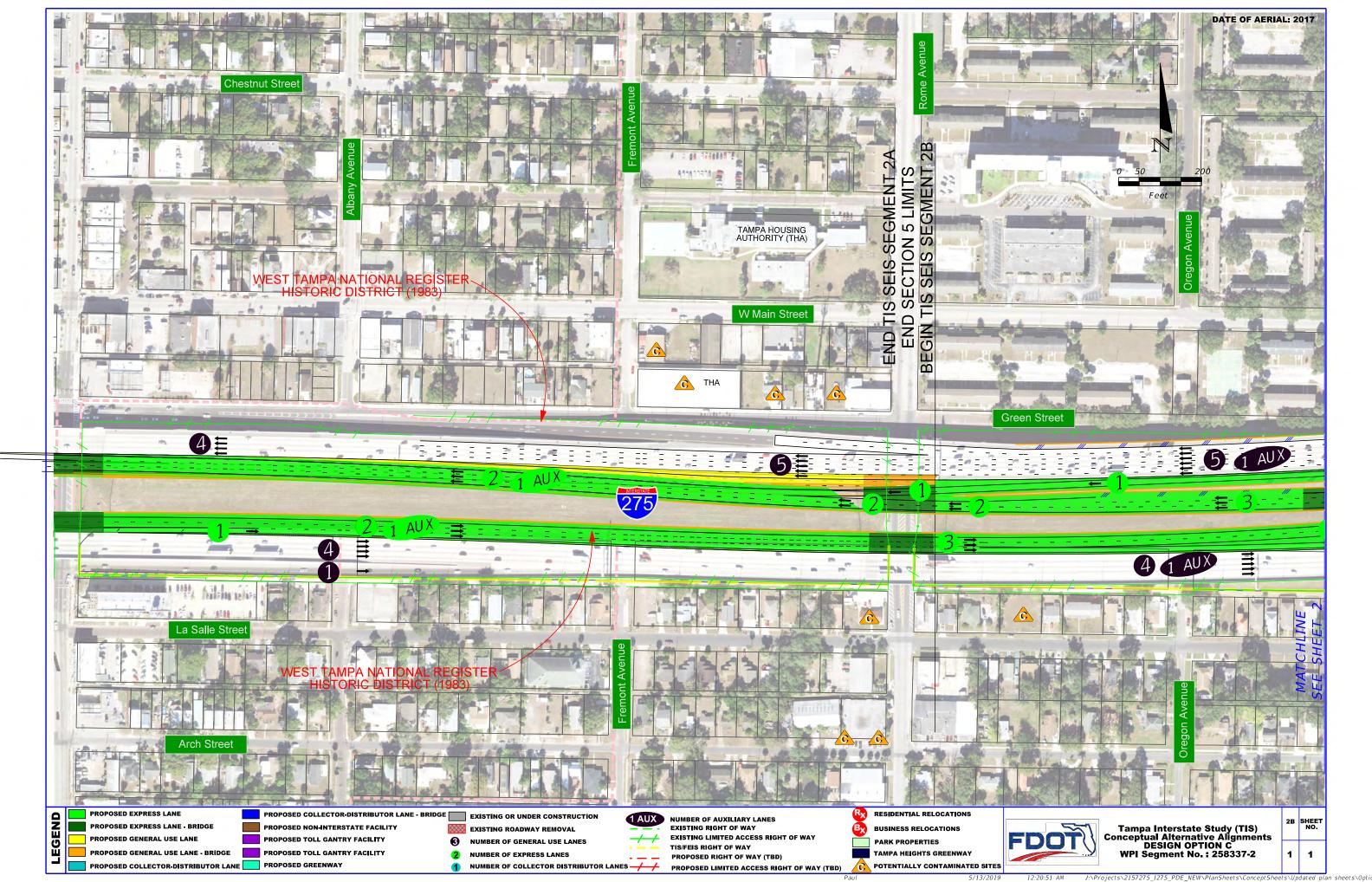


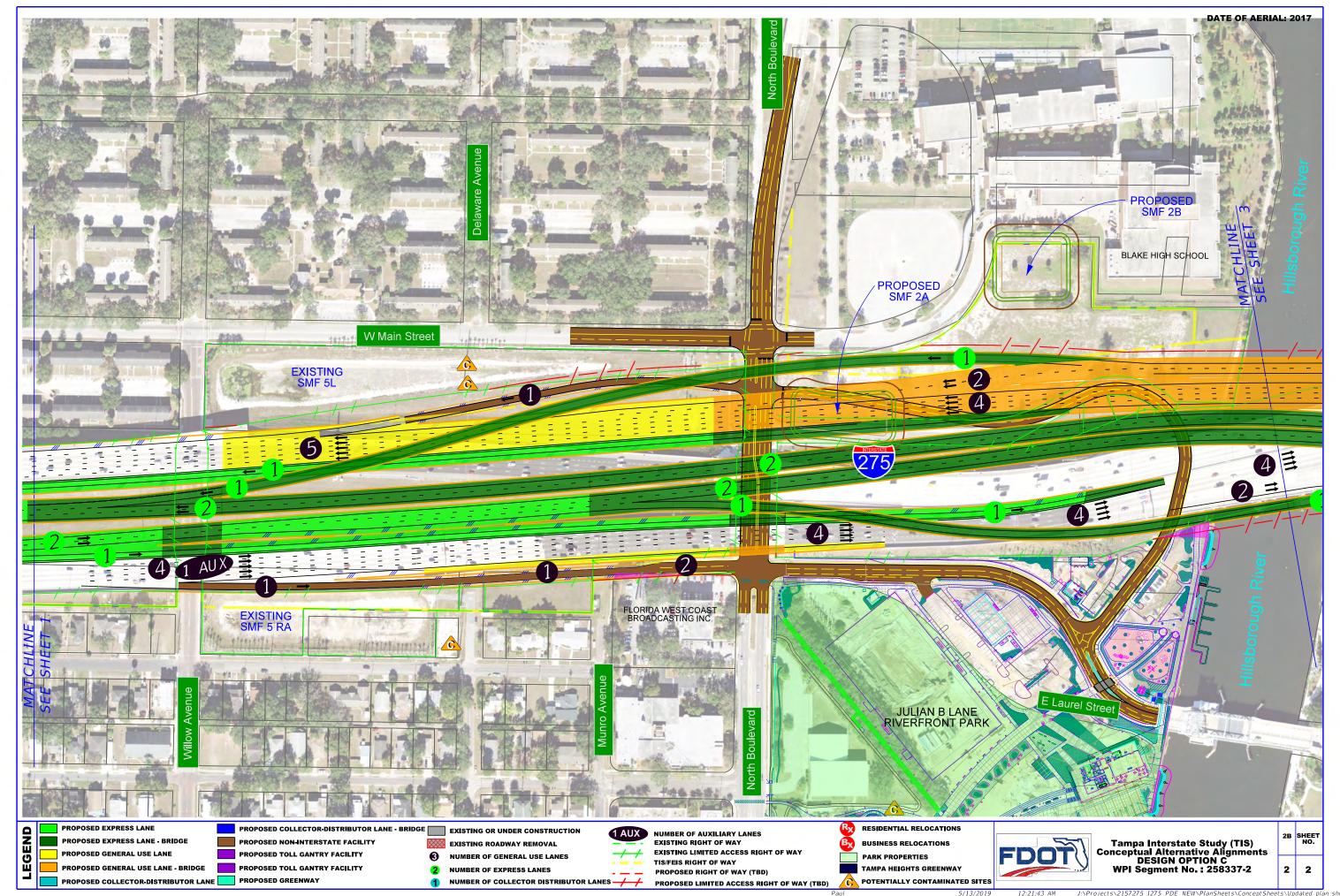


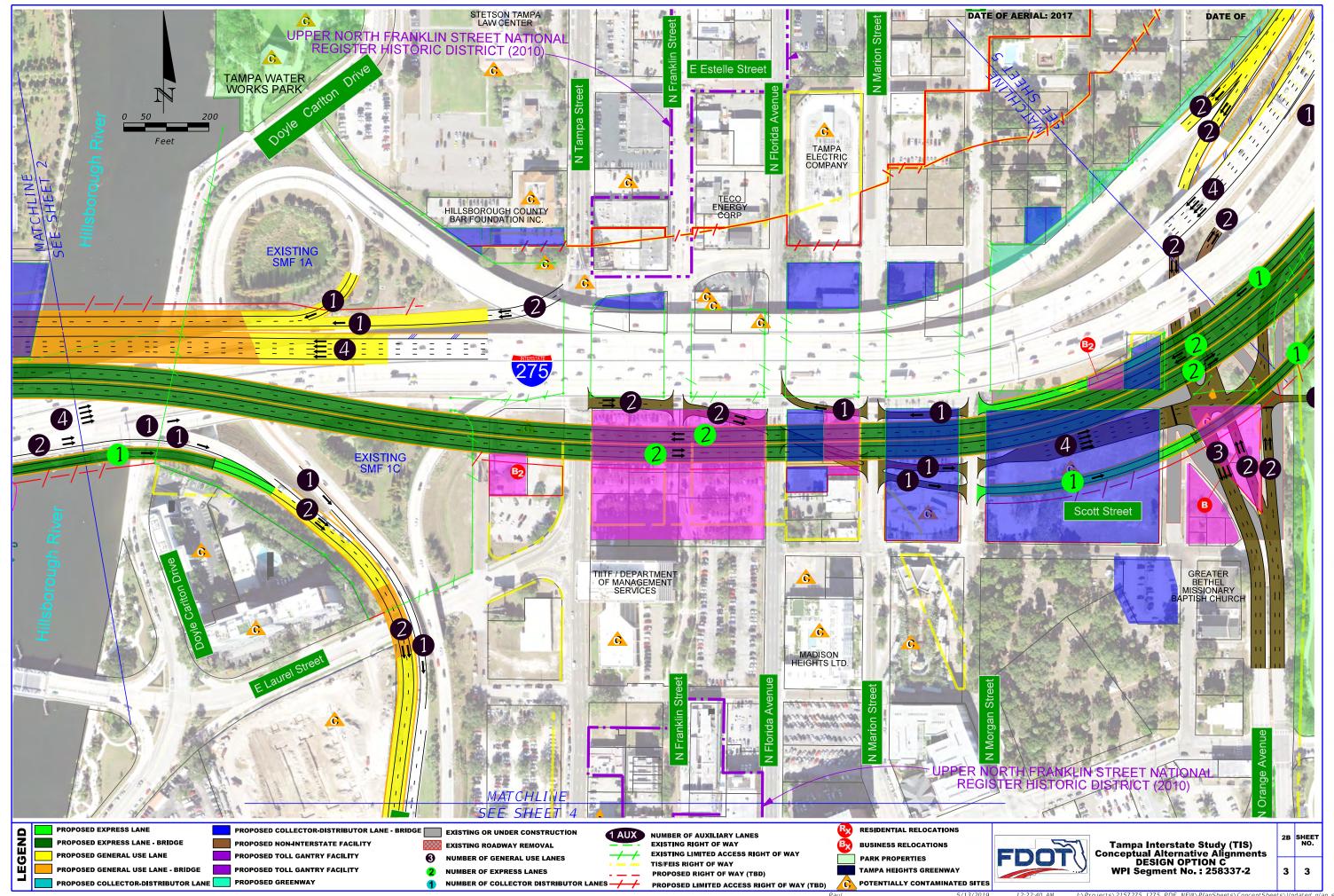


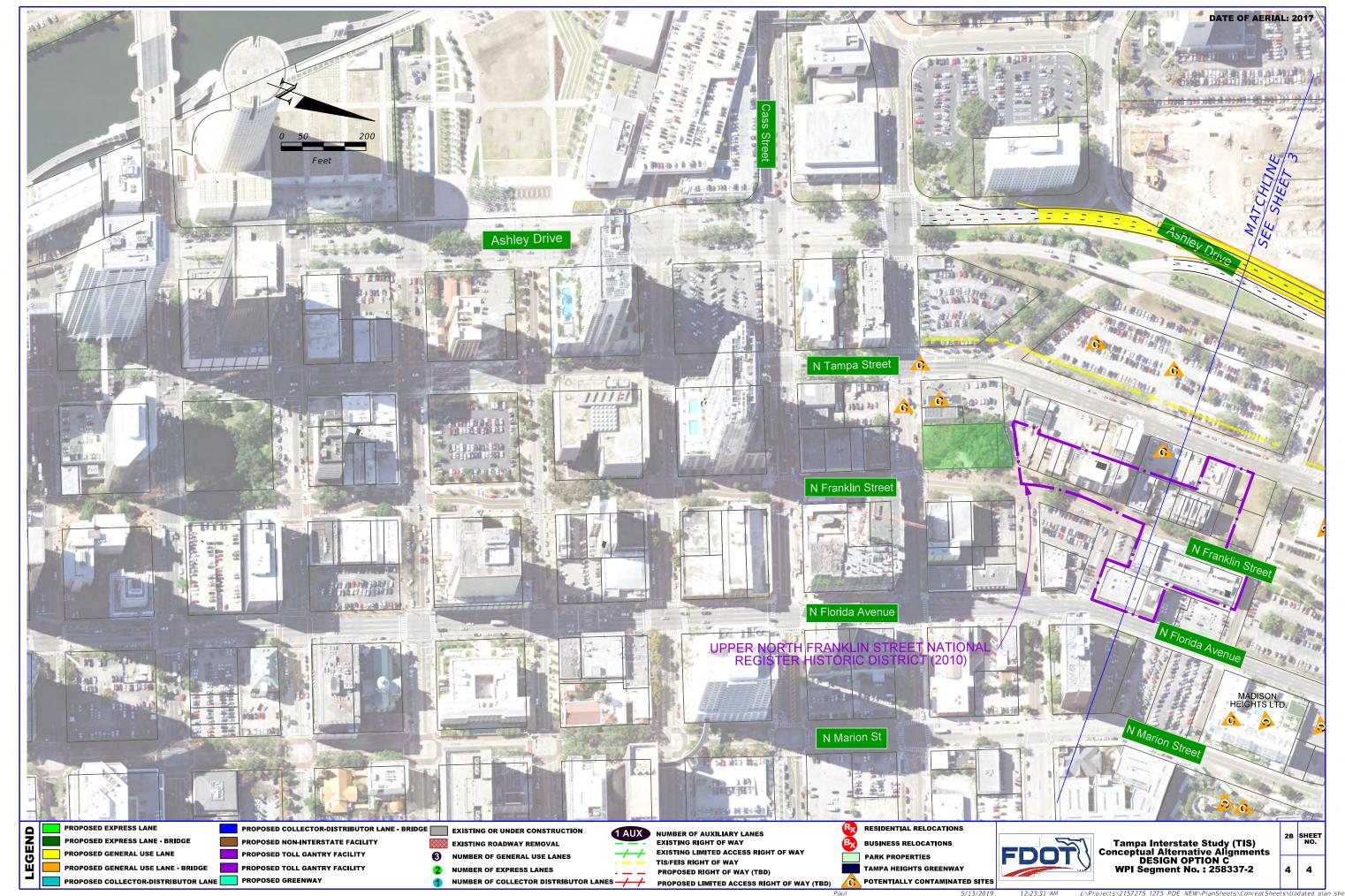


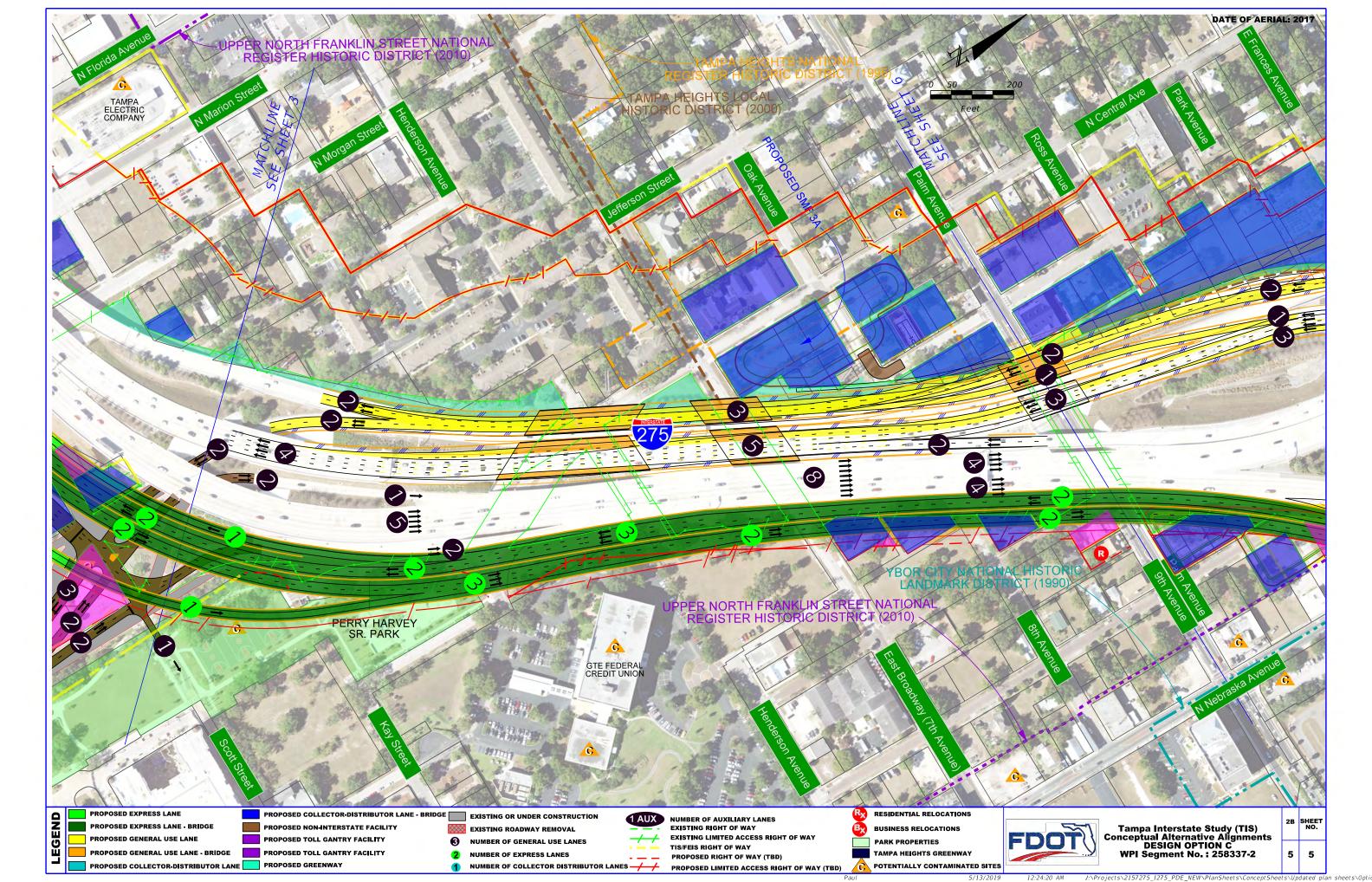


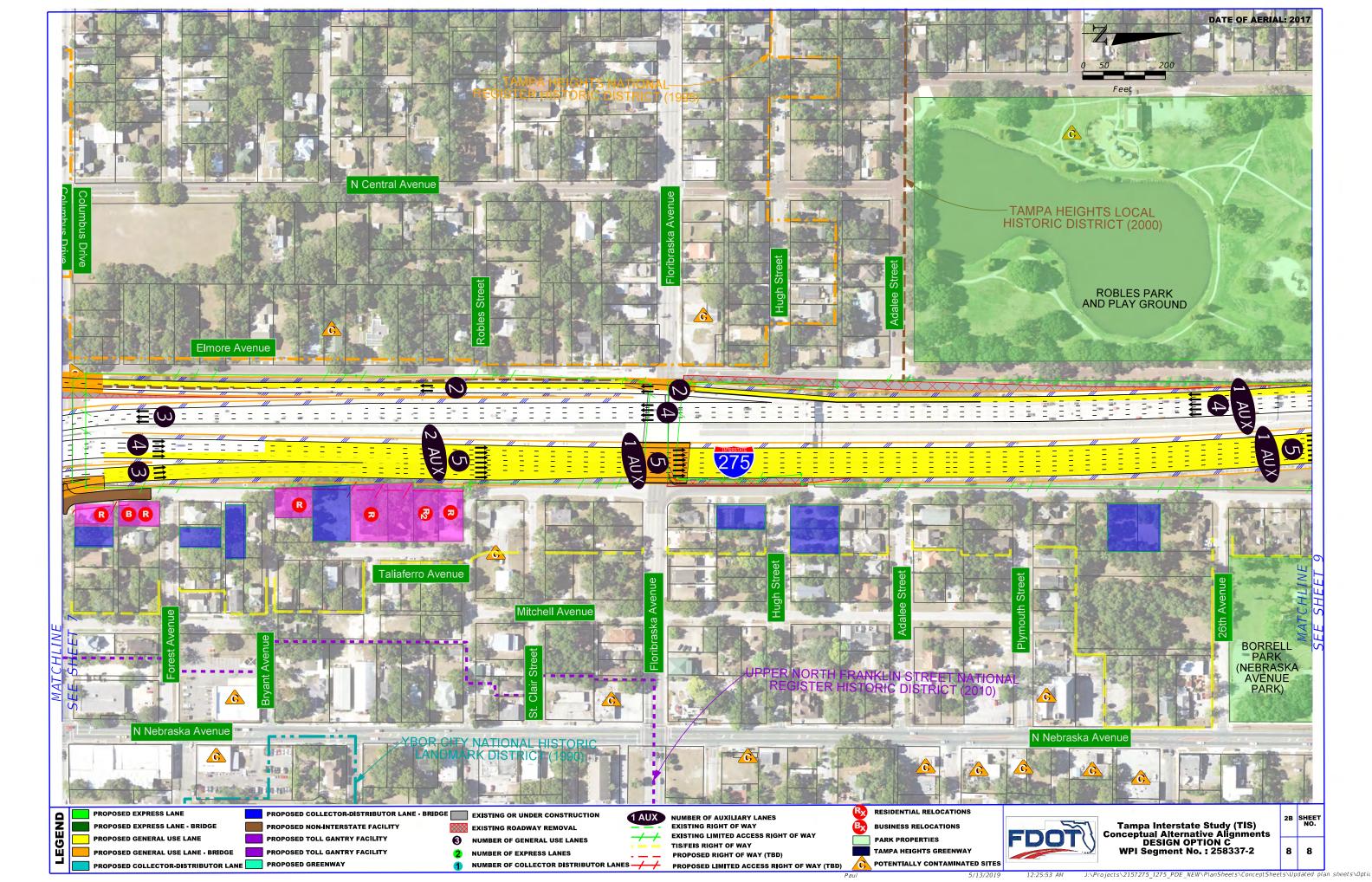


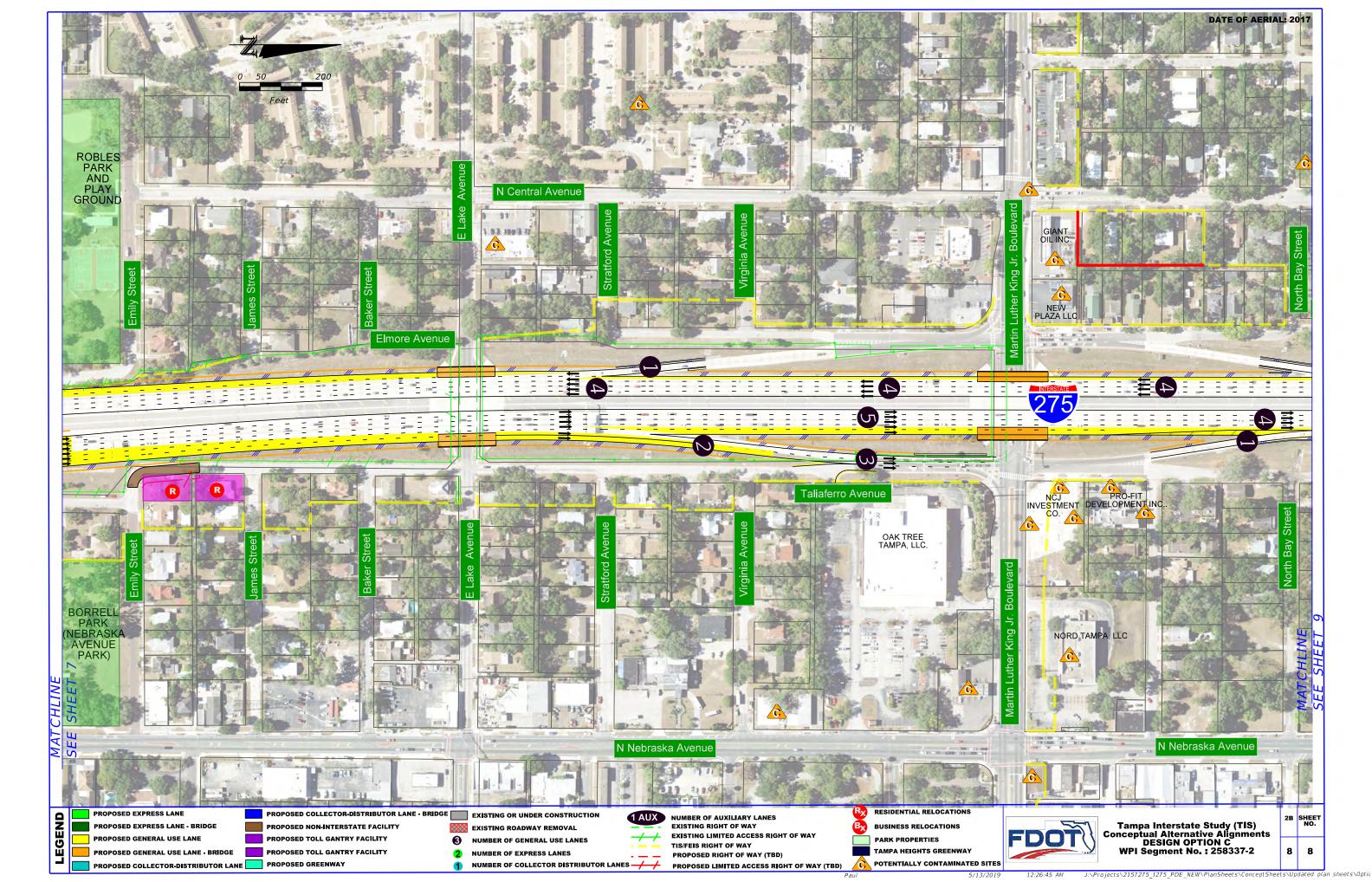


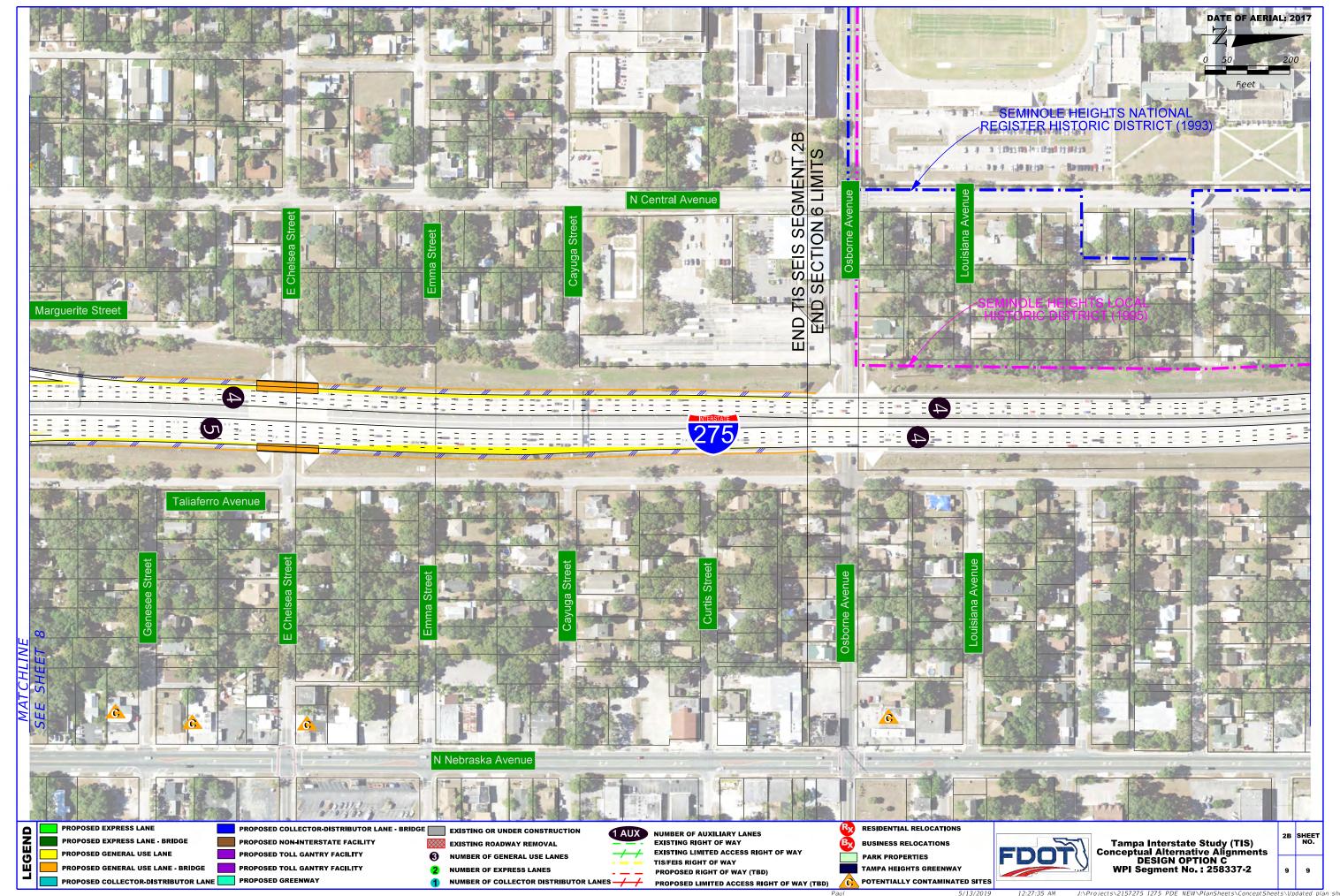


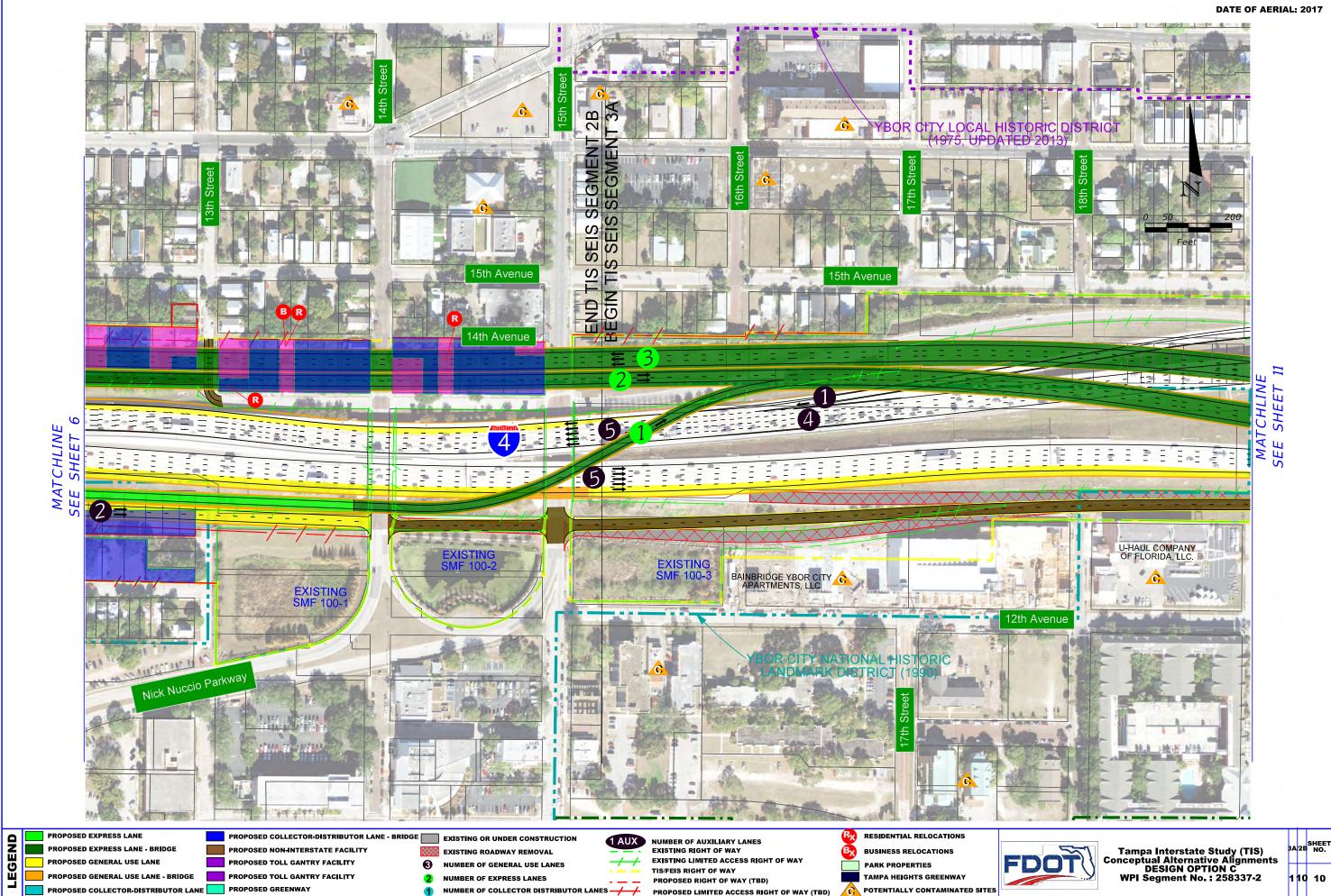


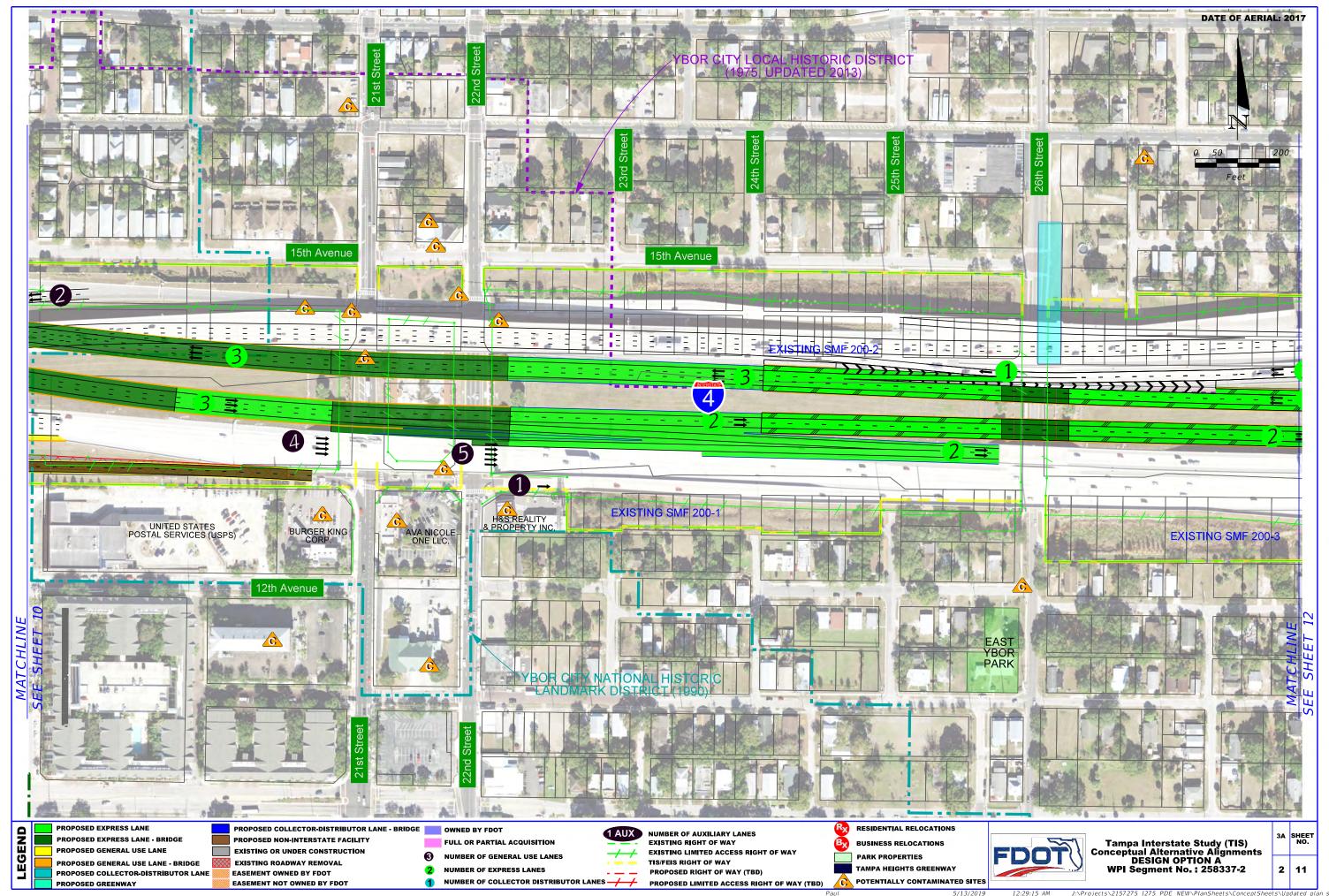


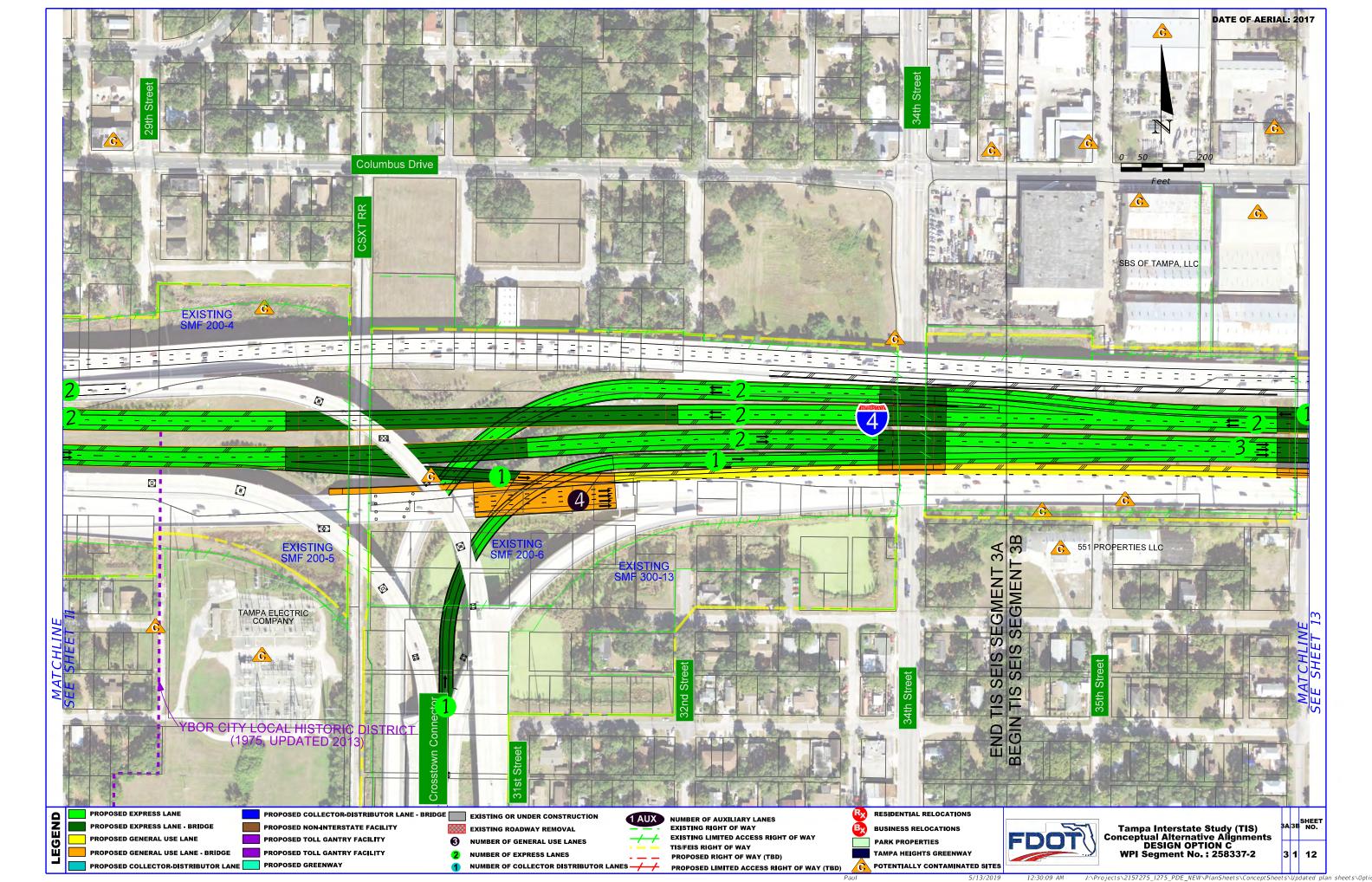


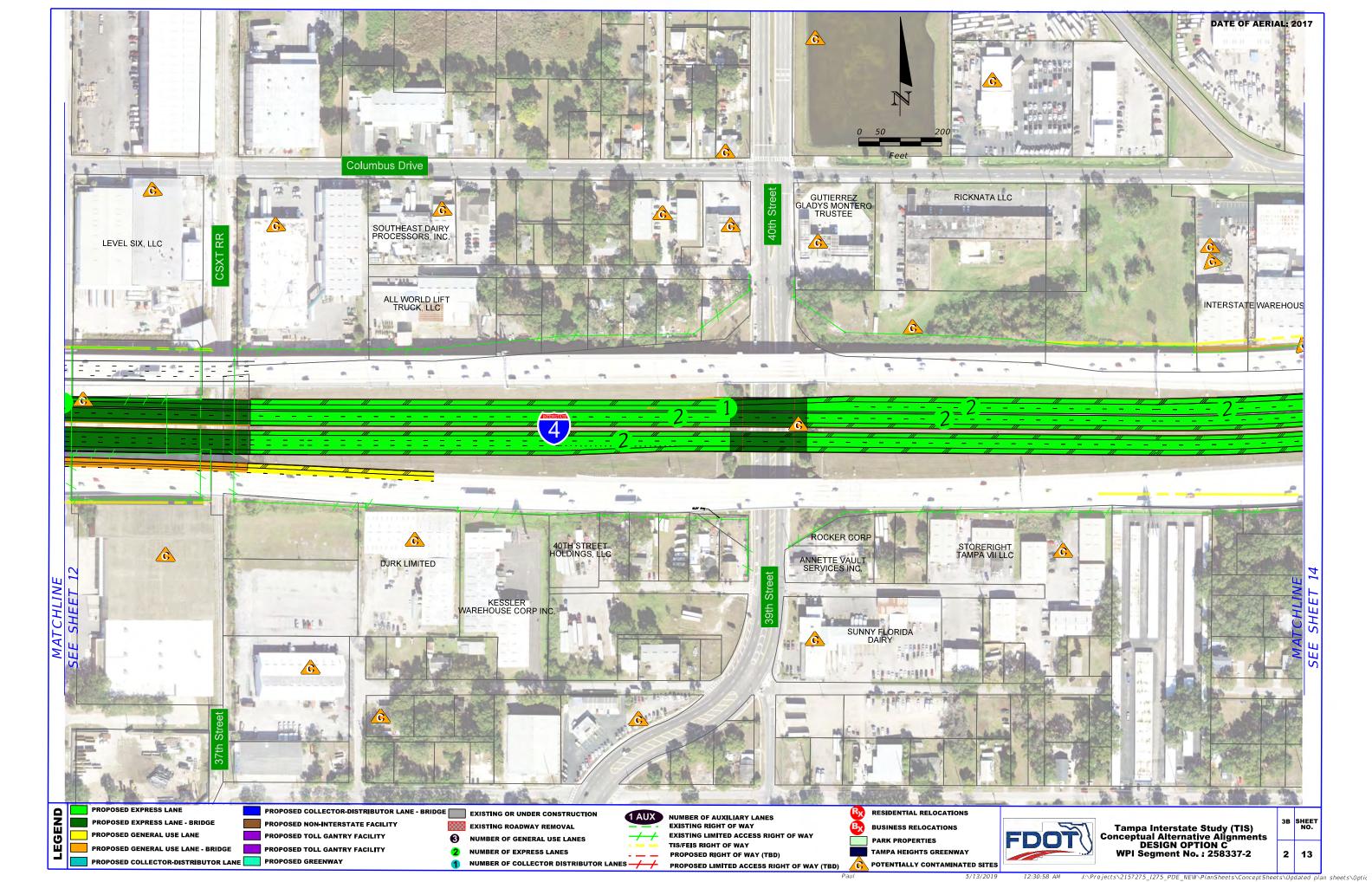


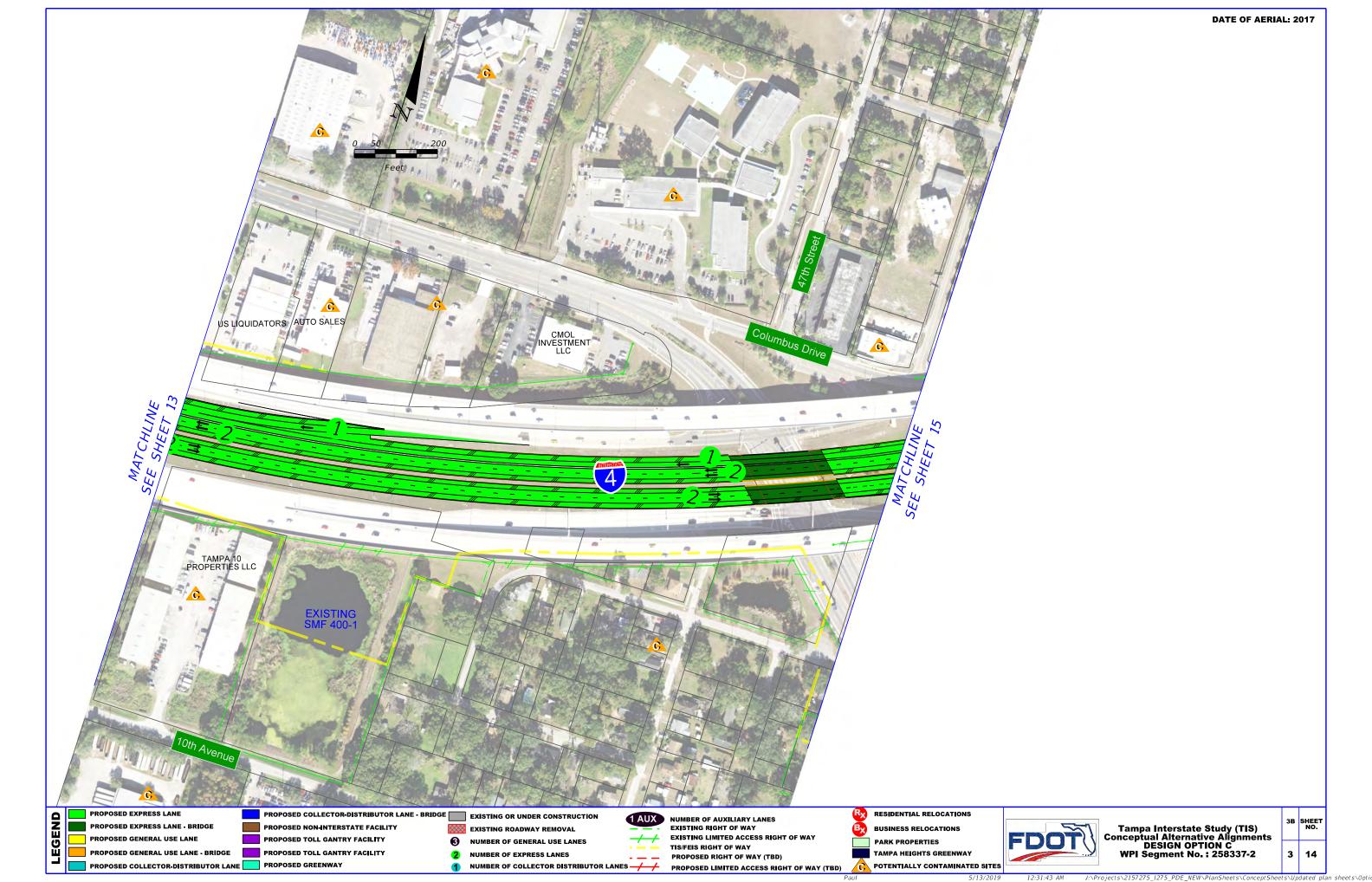


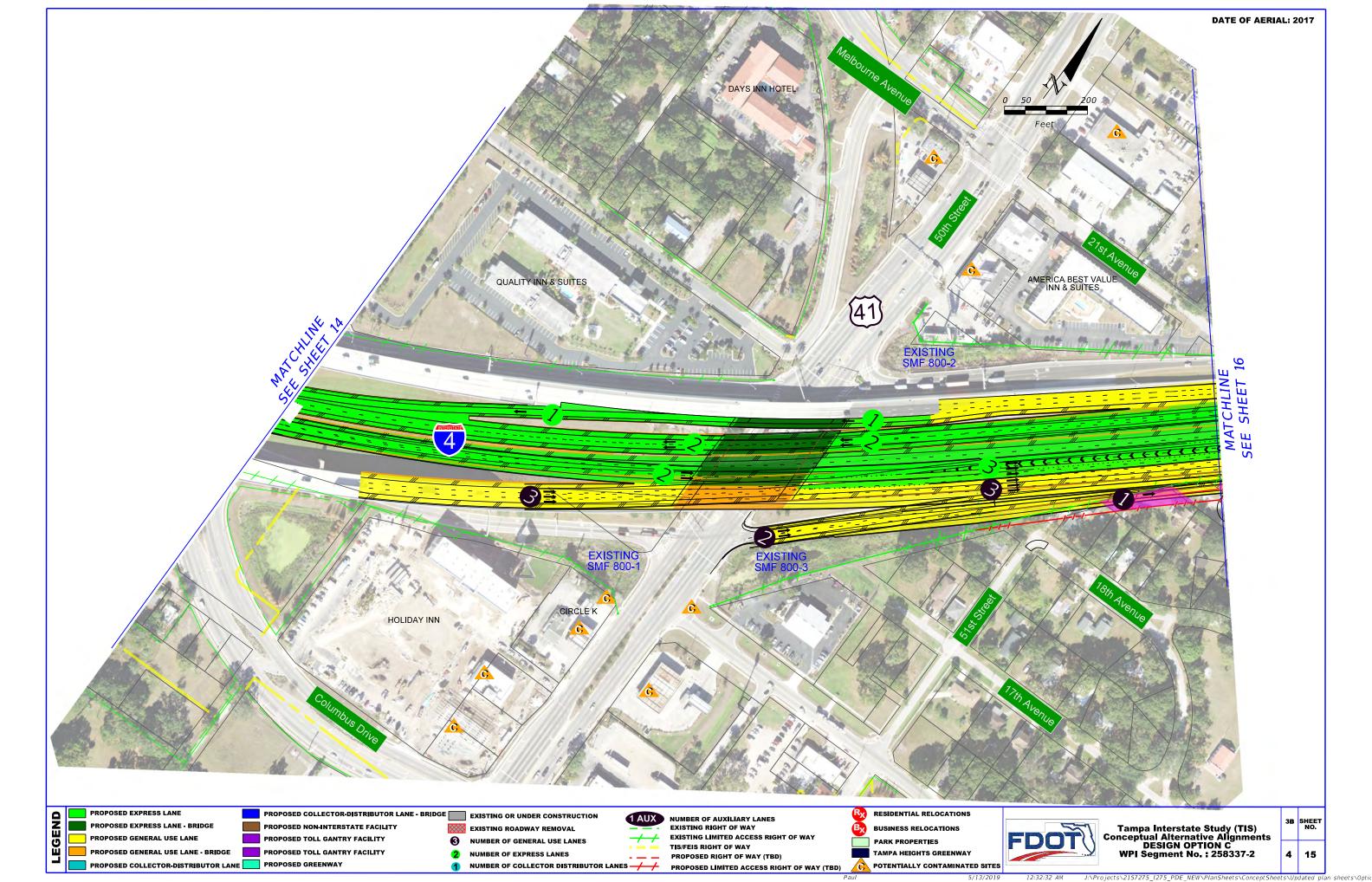


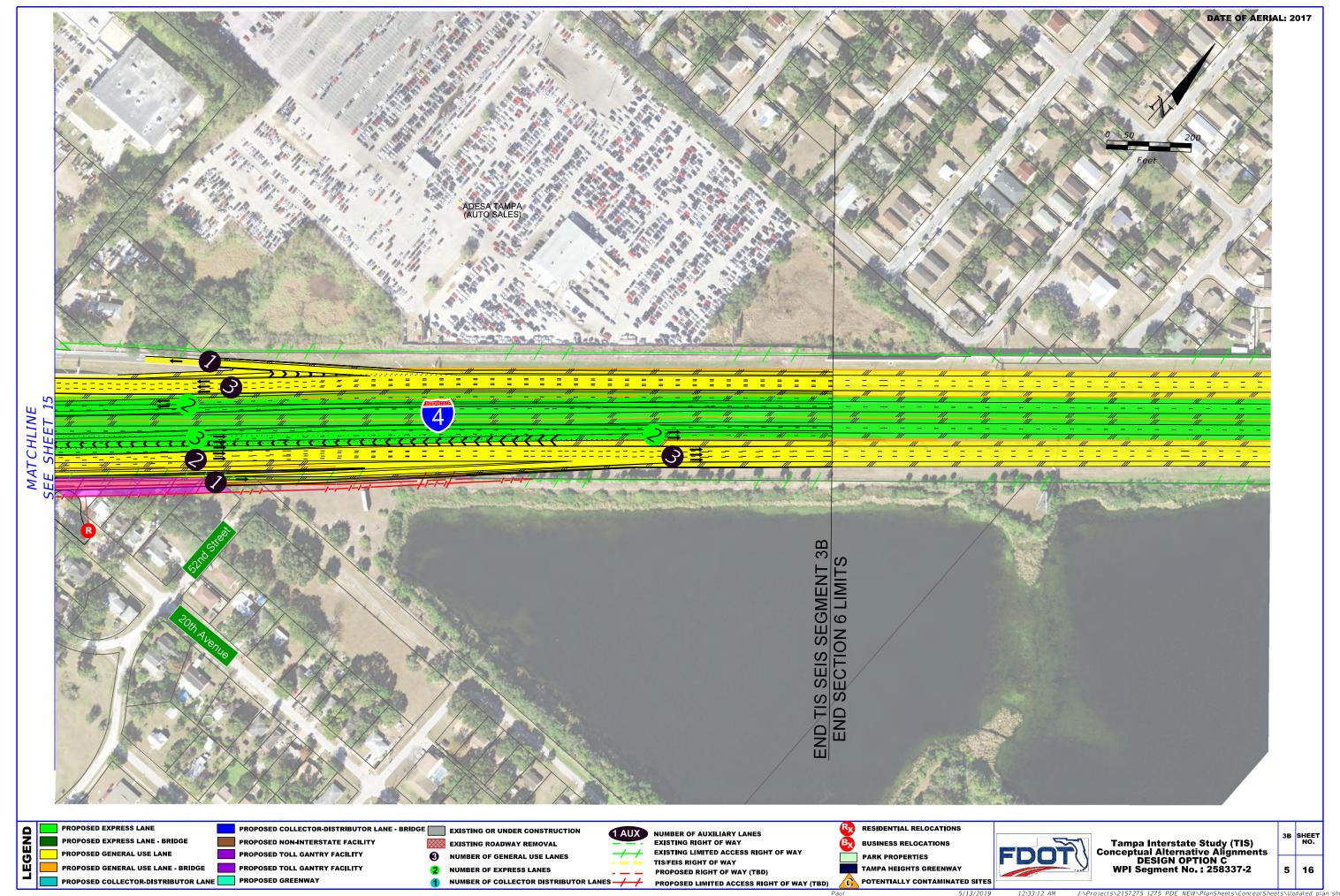


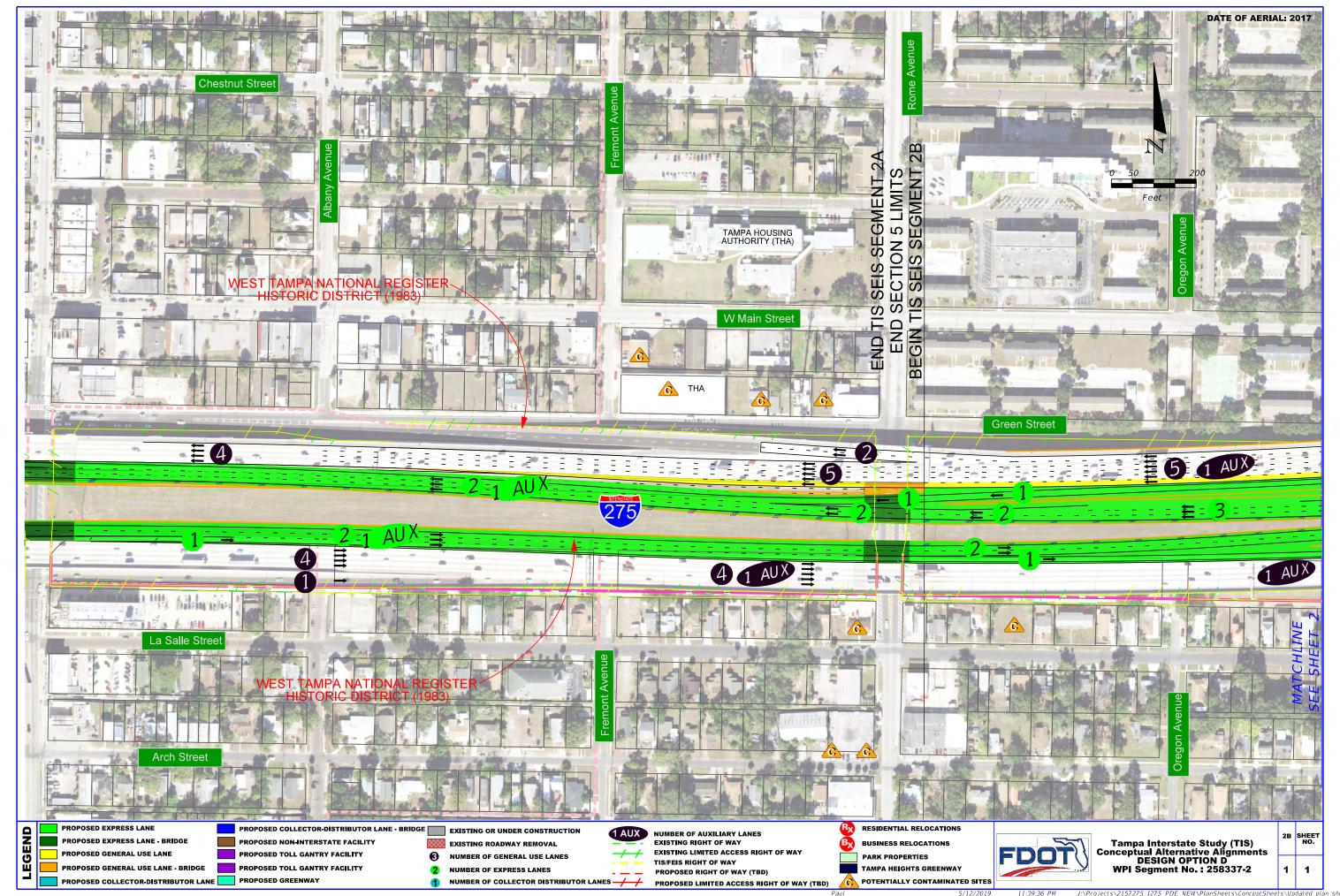


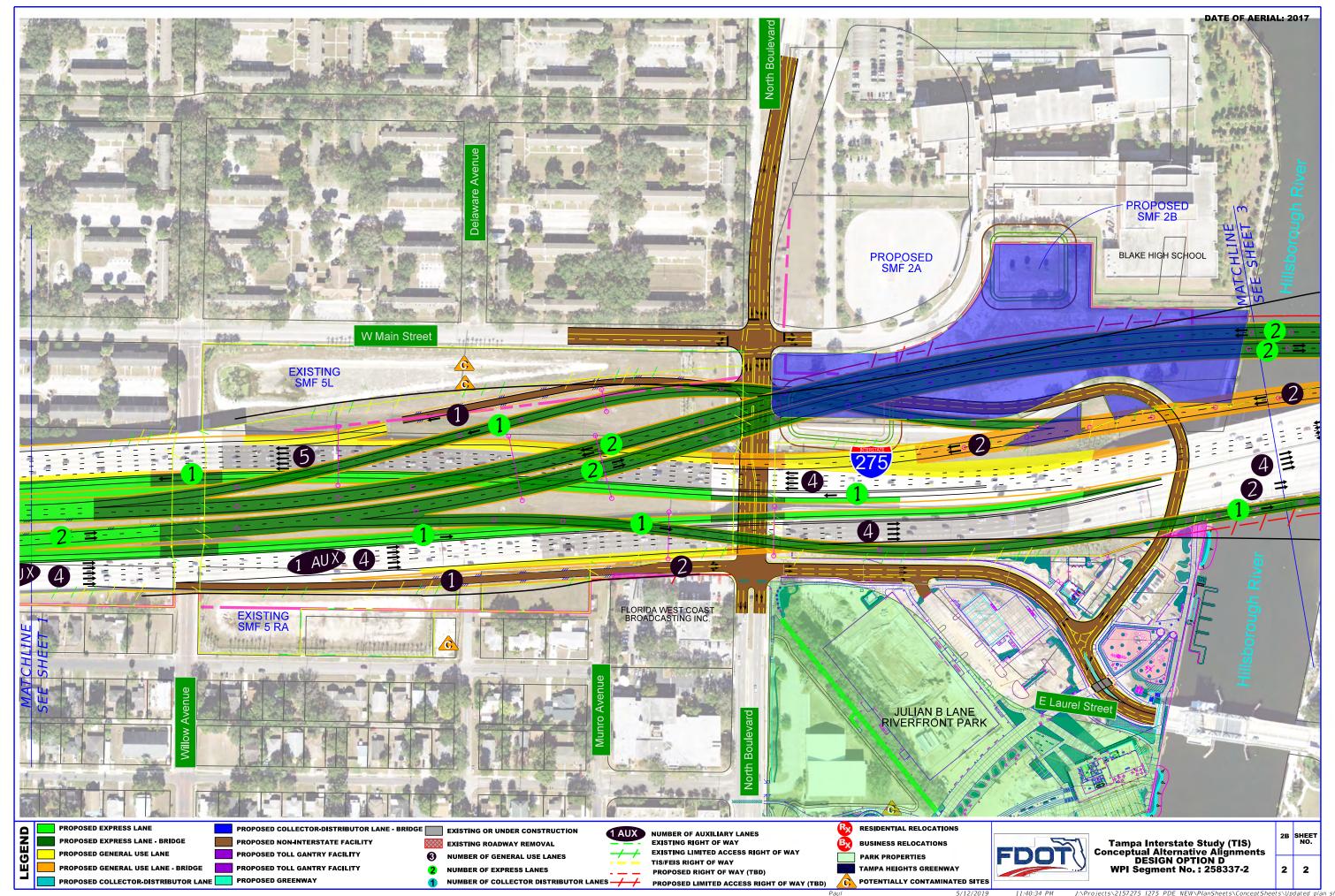


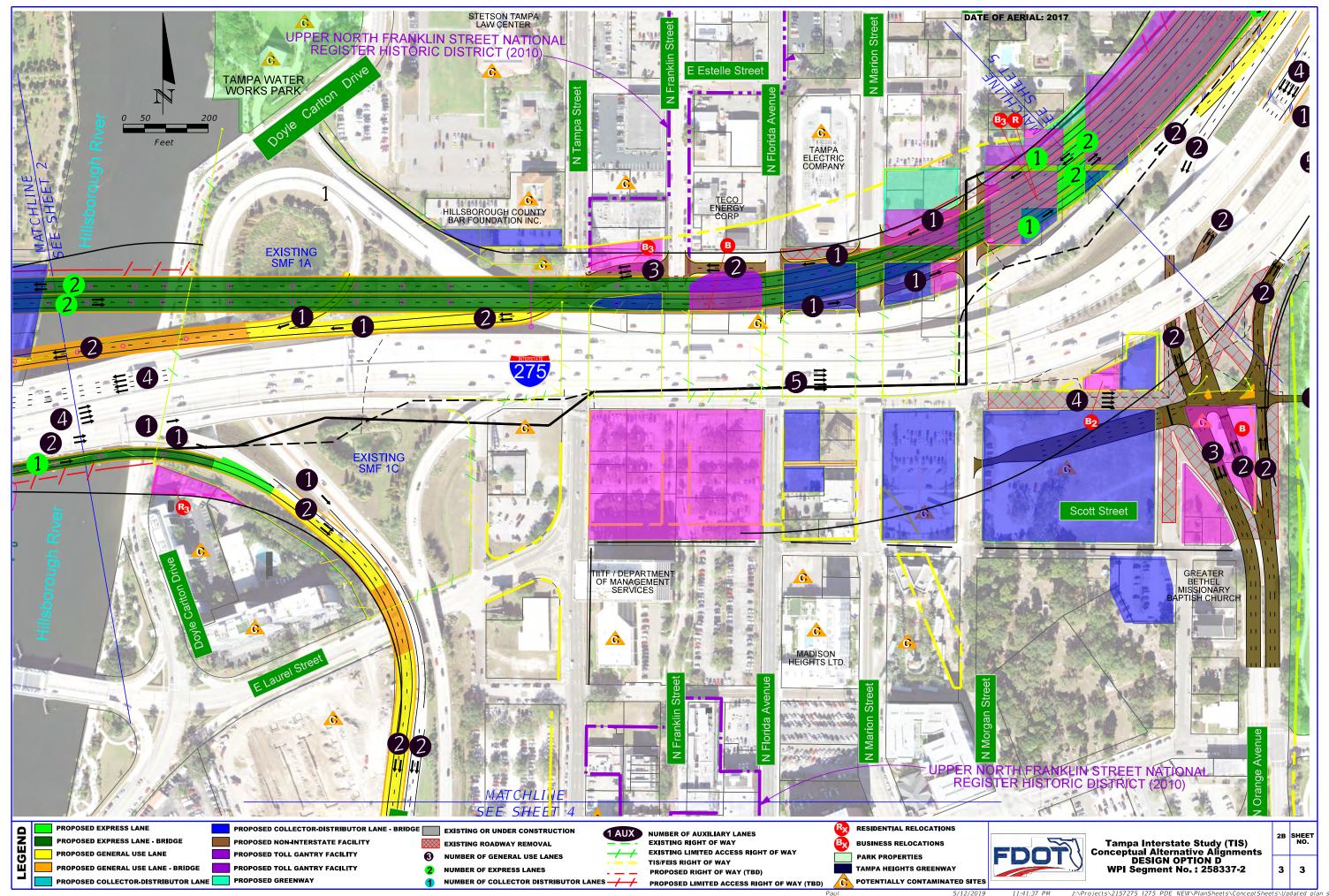


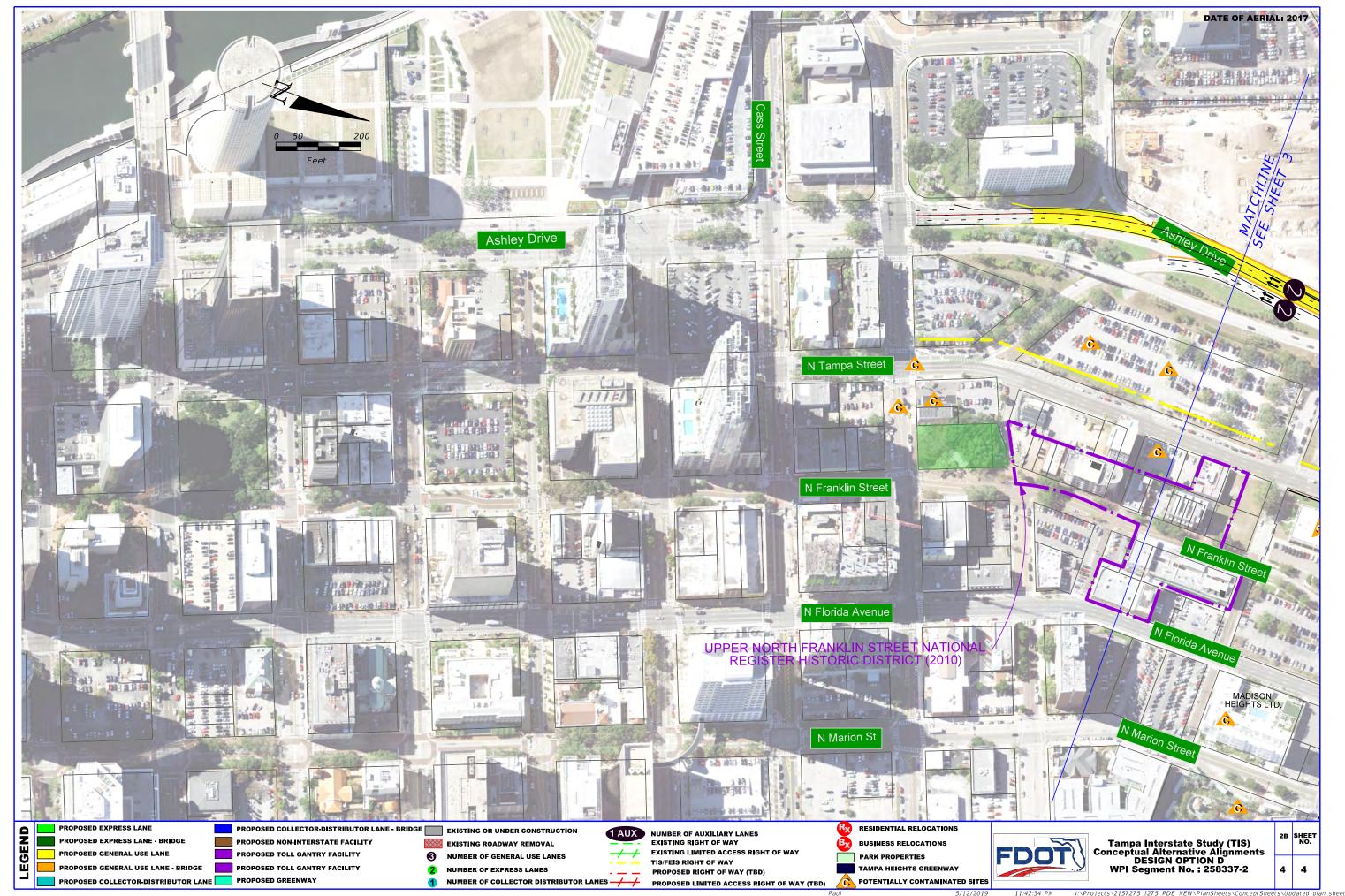


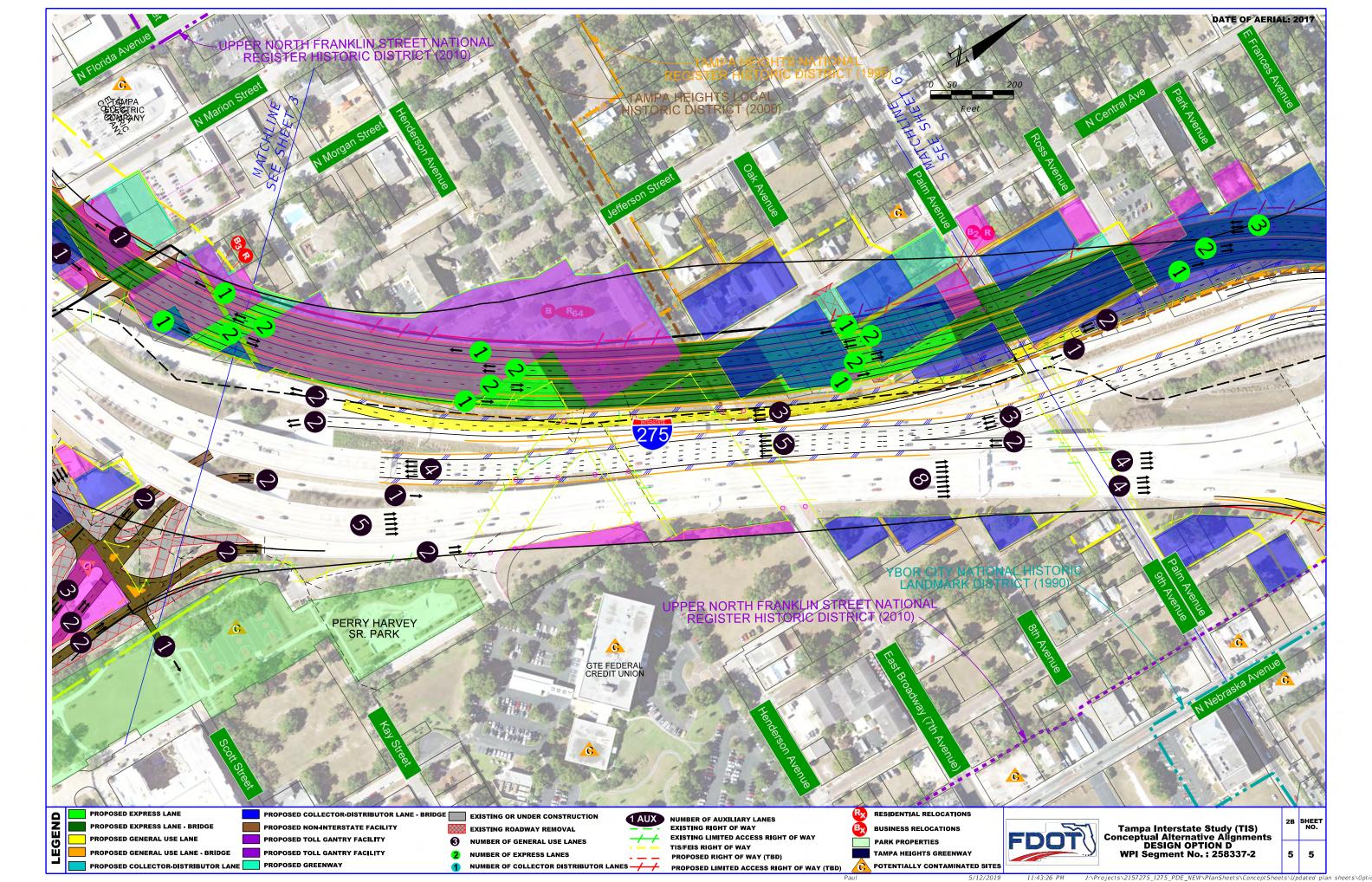




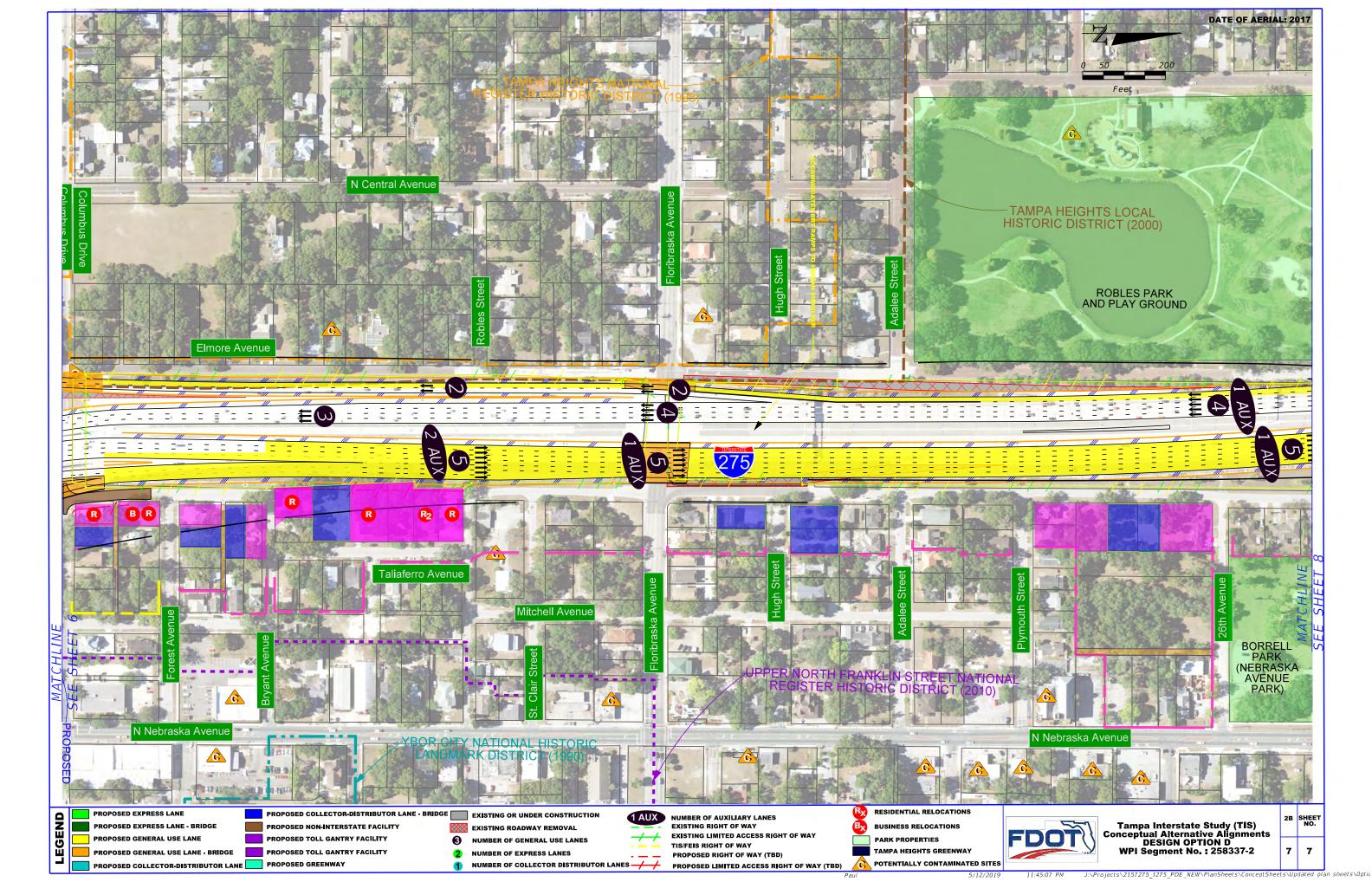


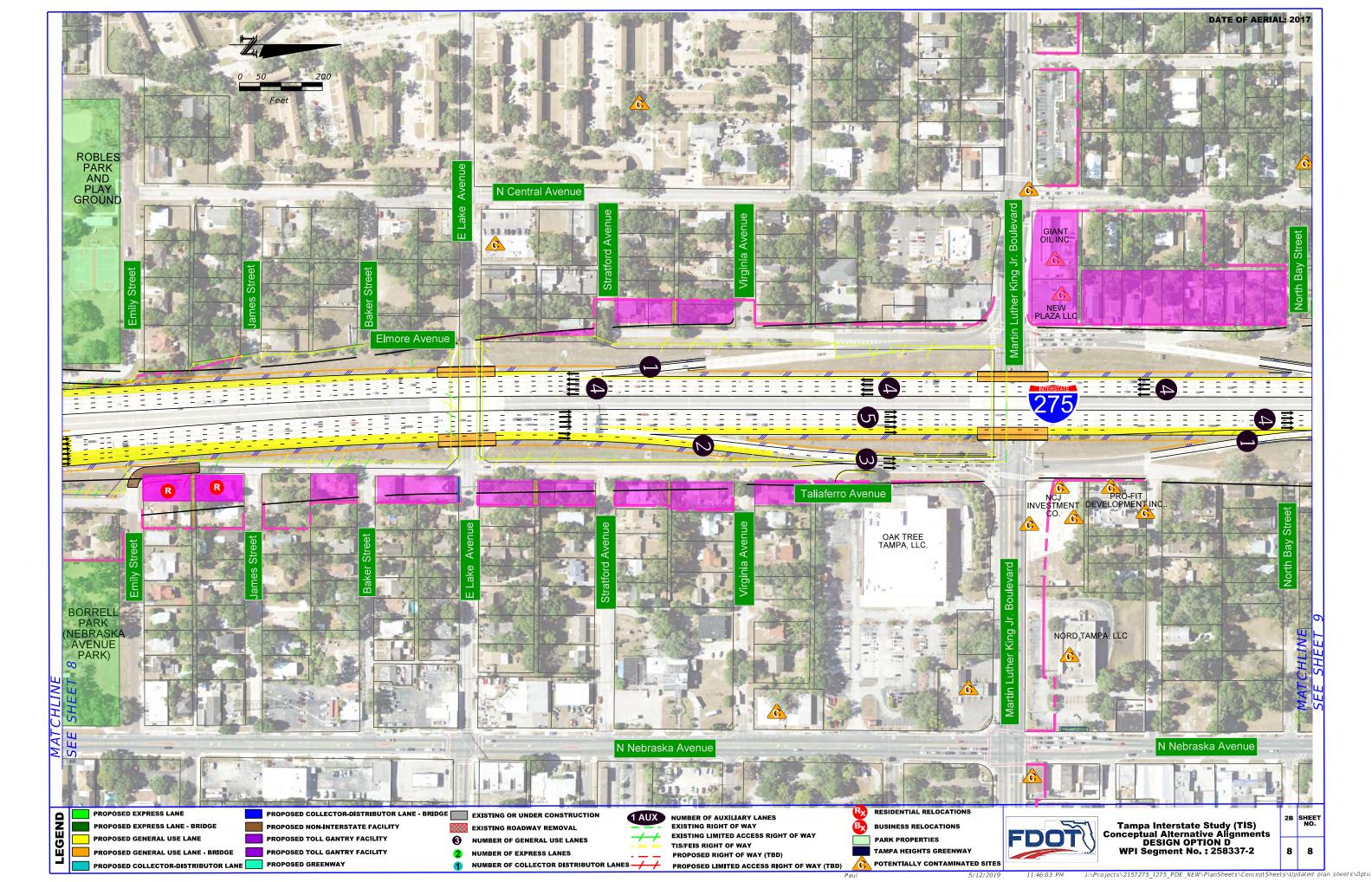


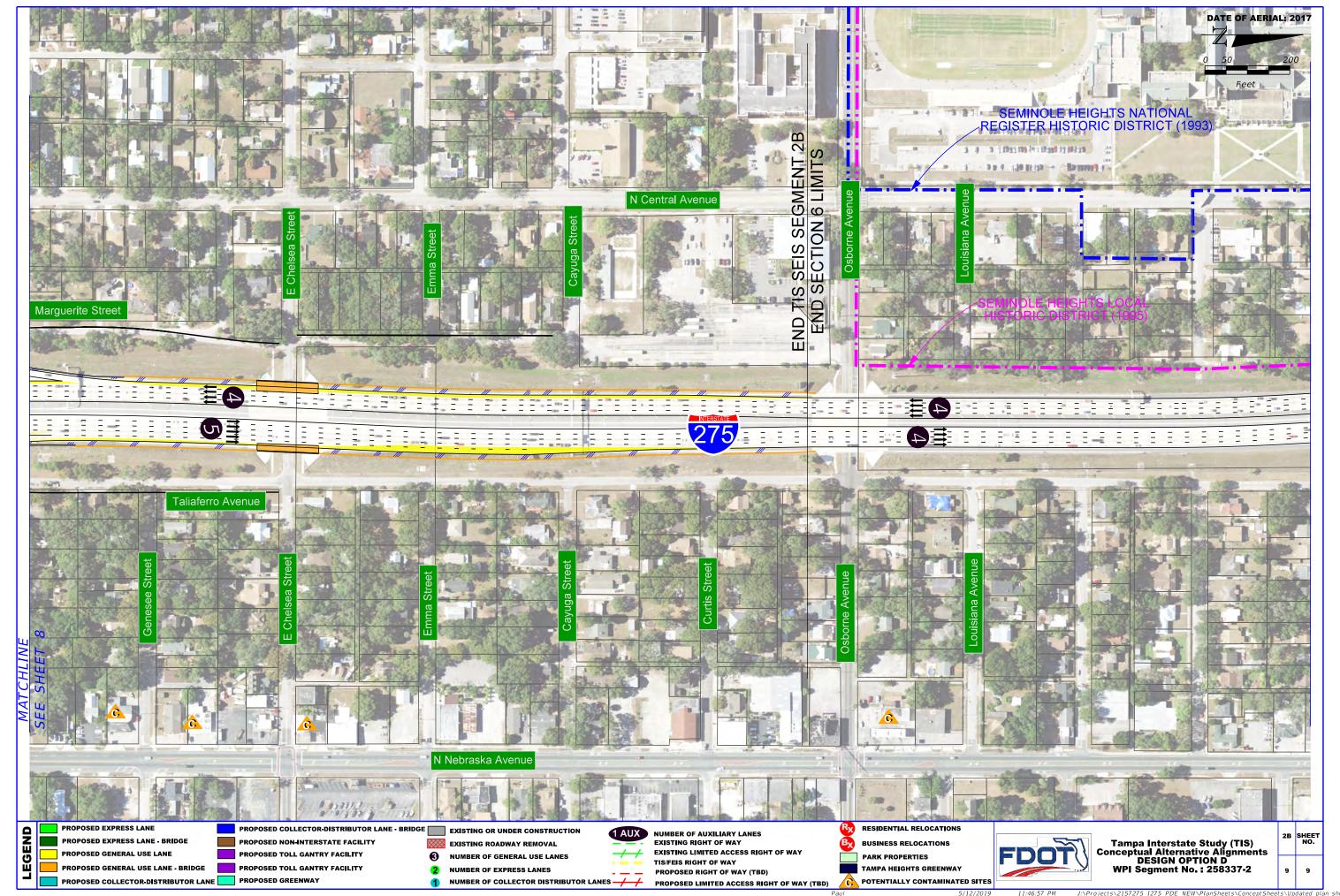


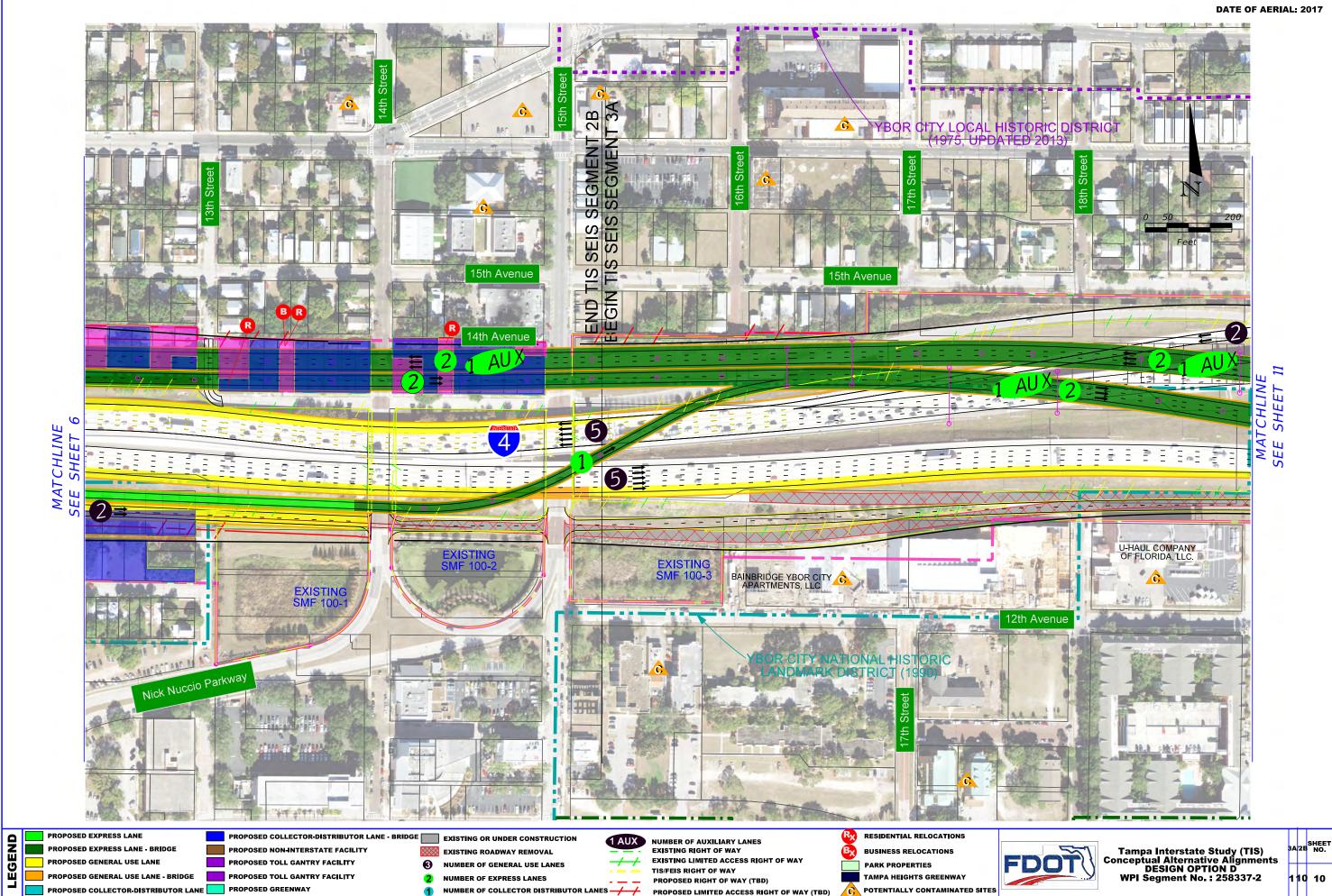


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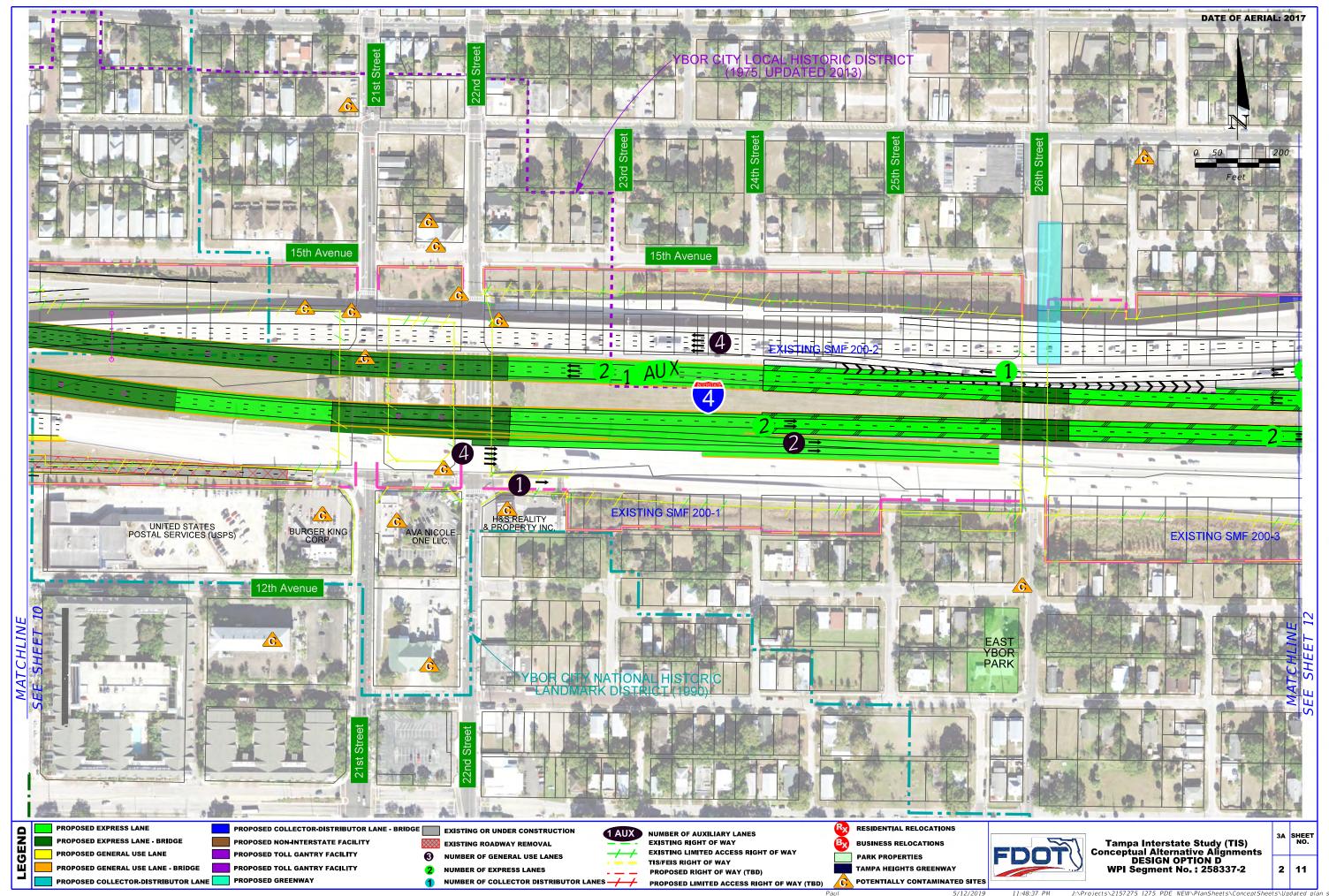


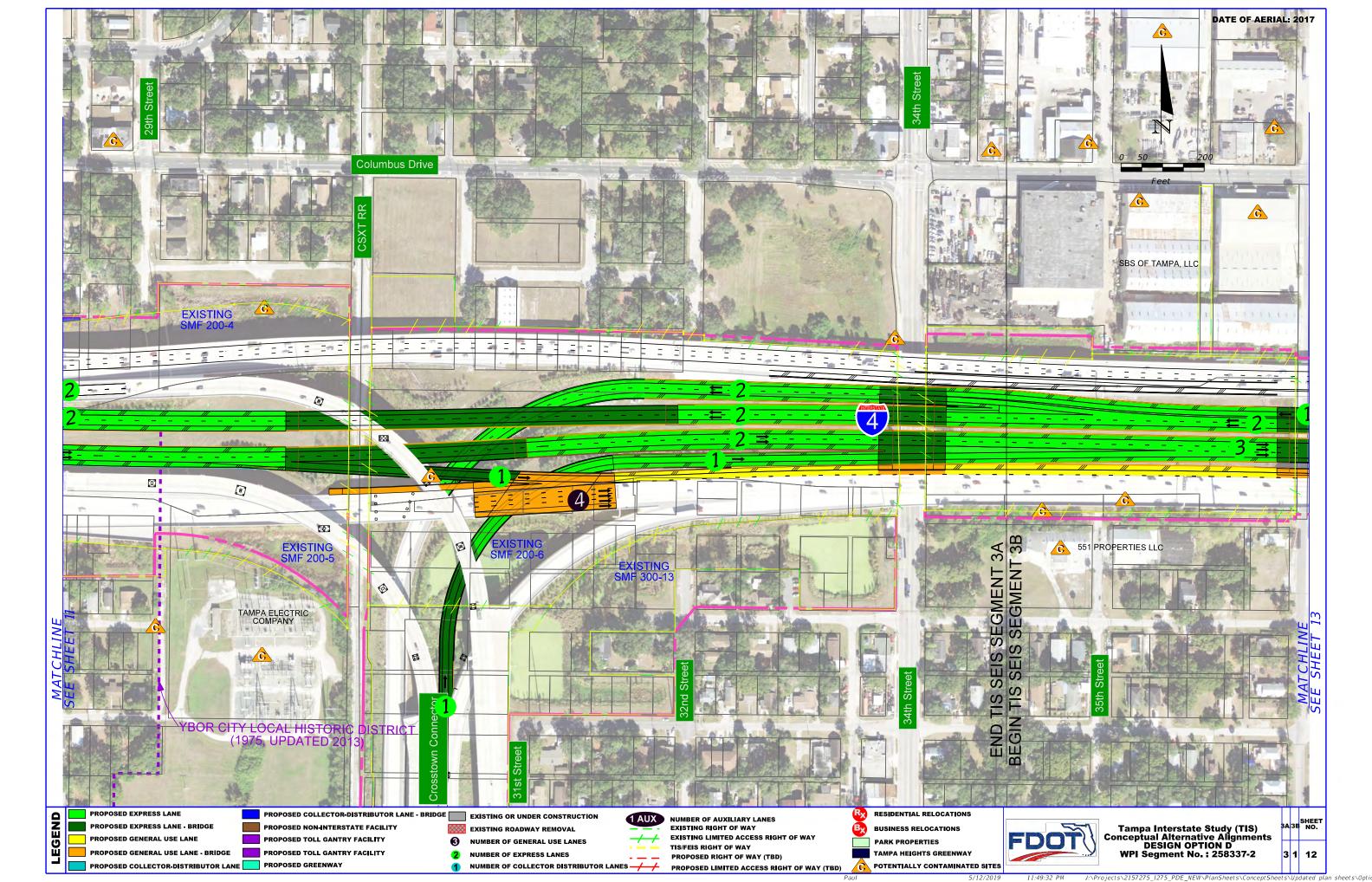


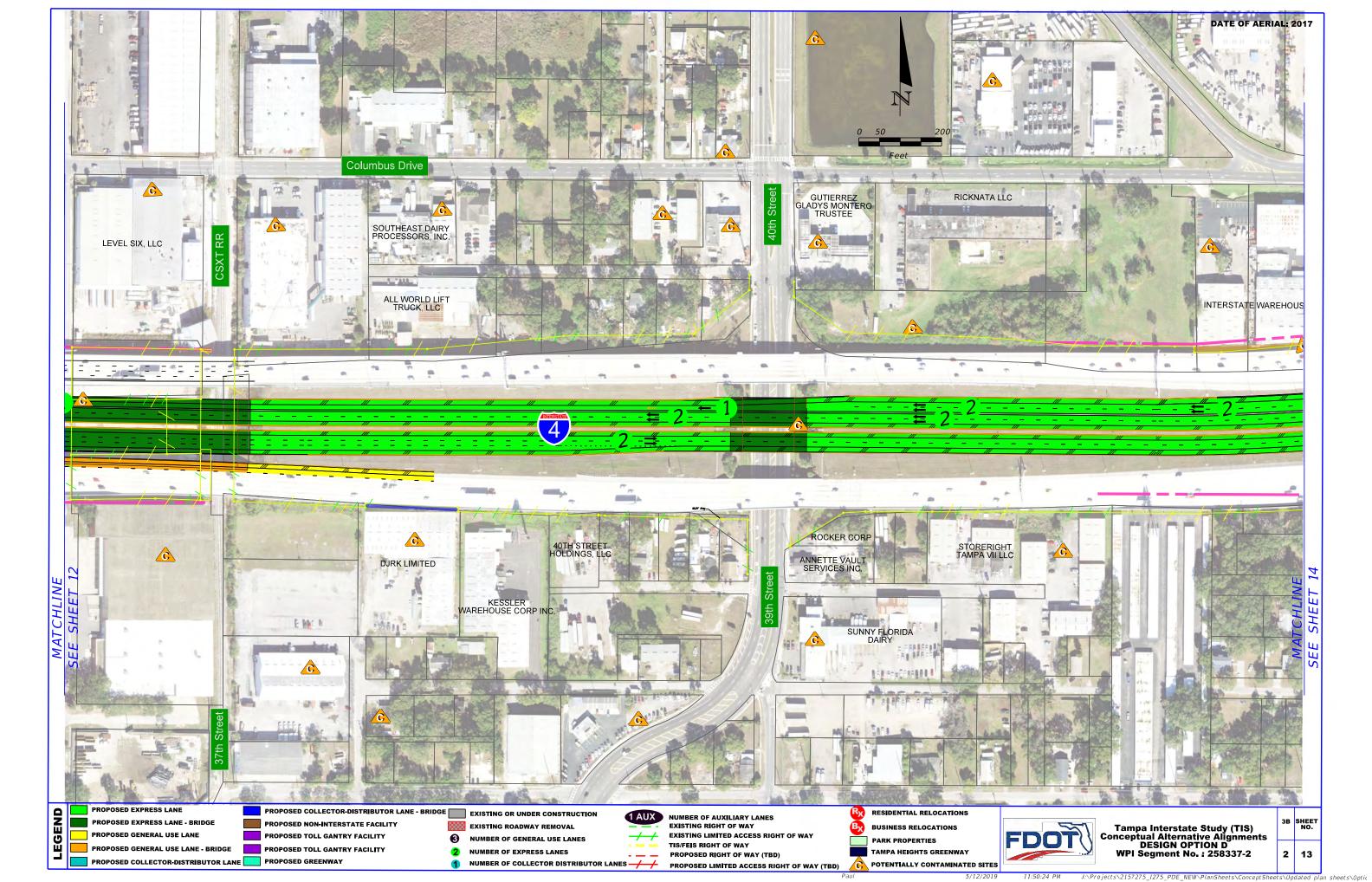


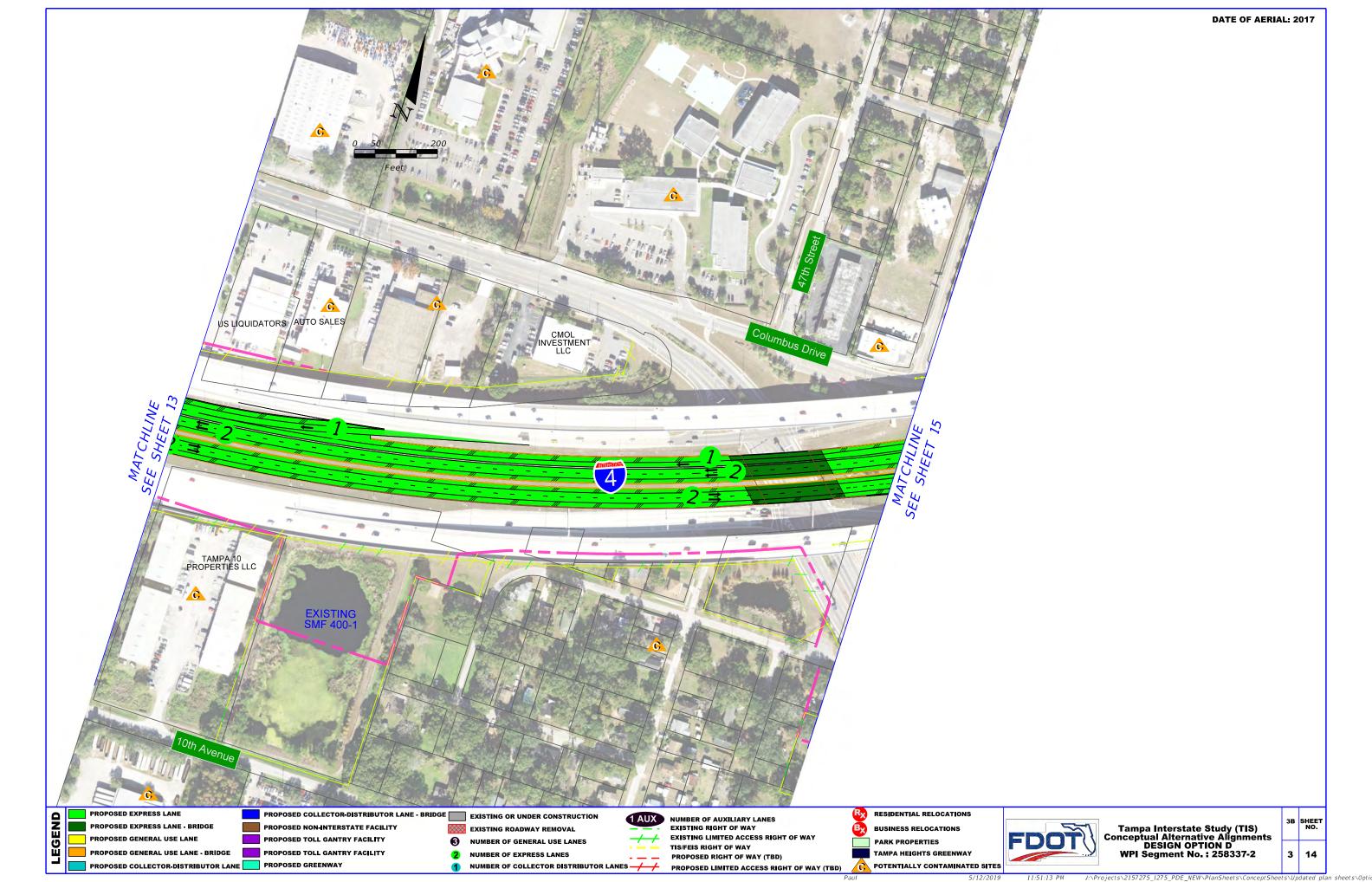


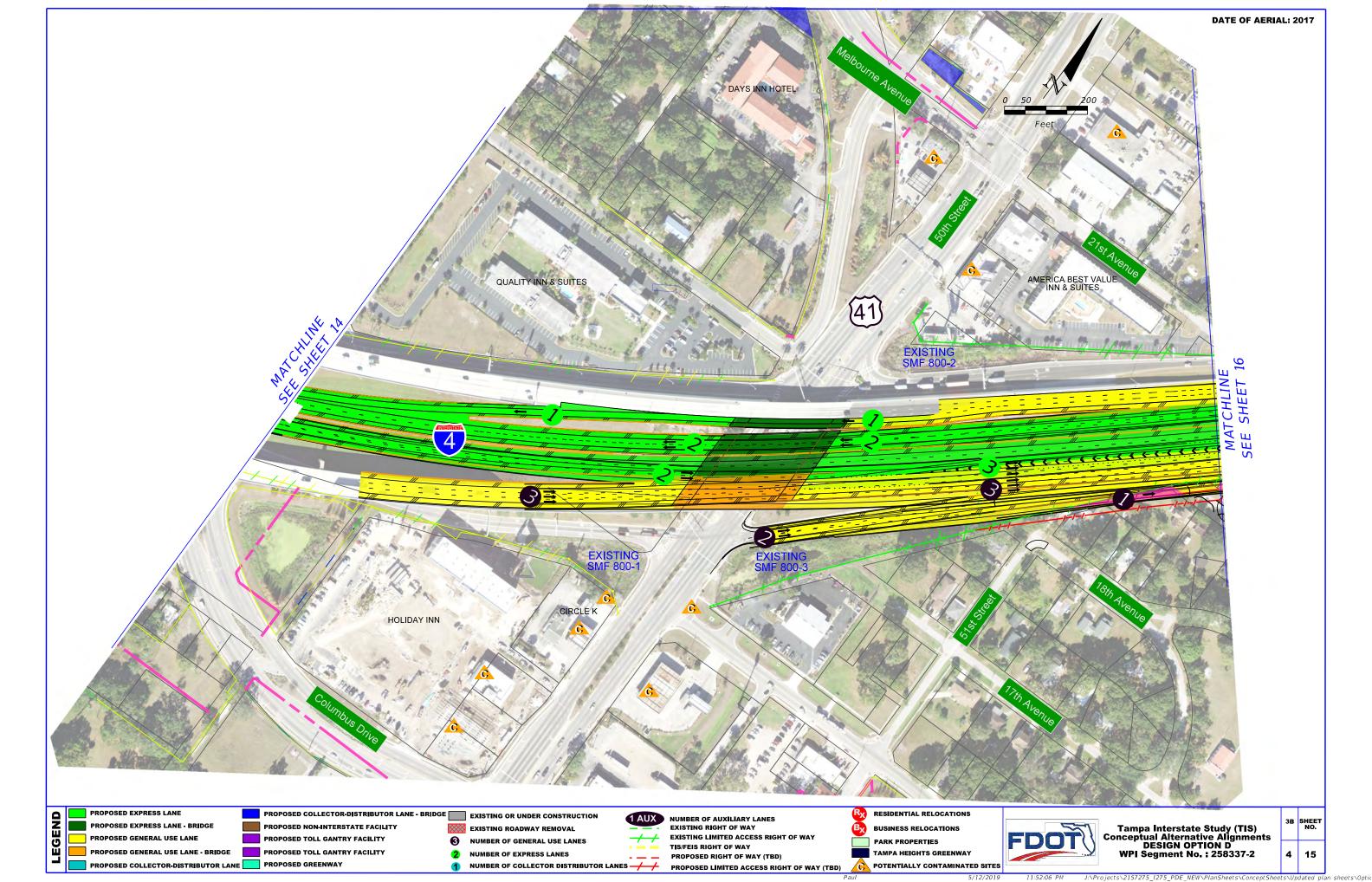
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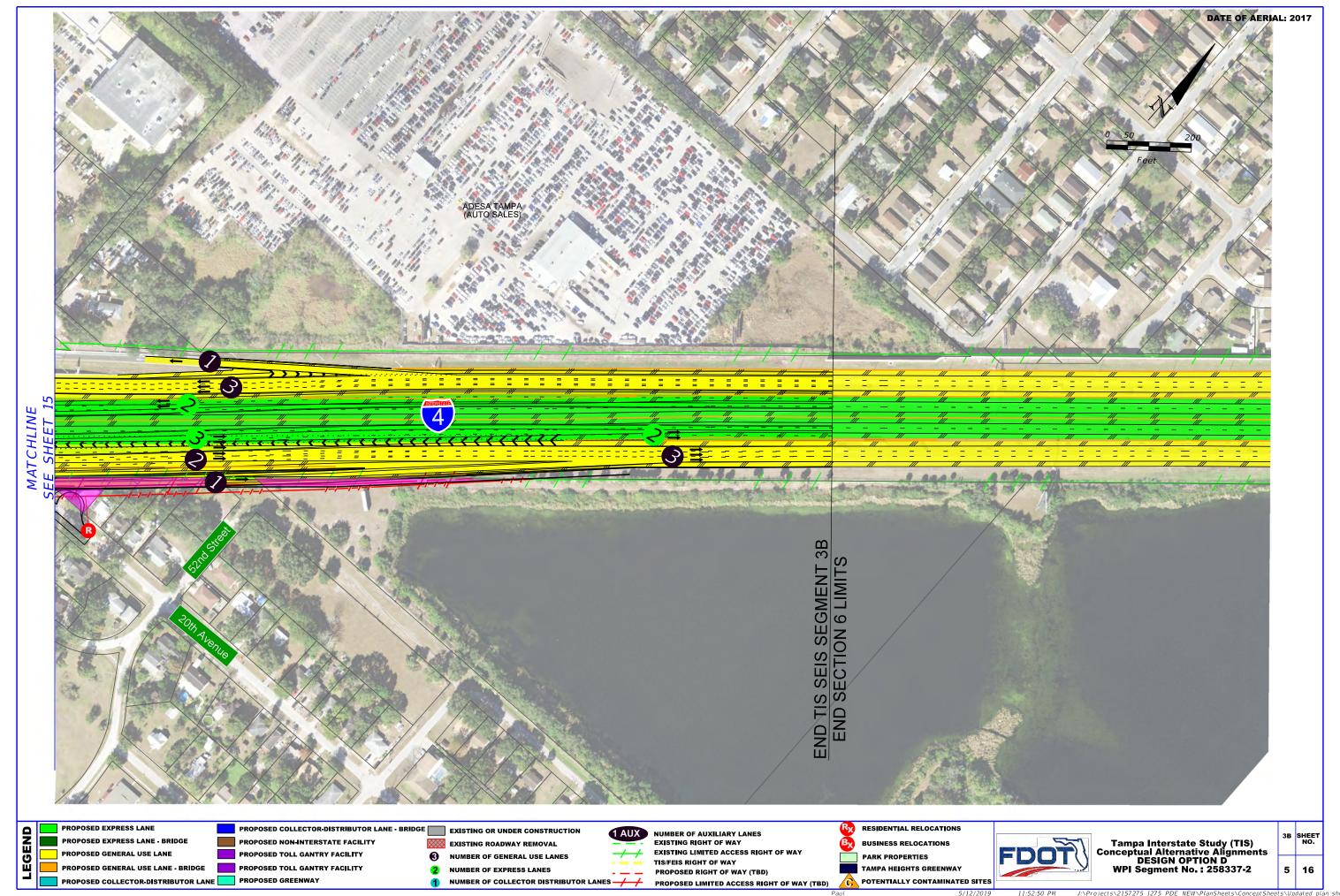














### **APPENDIX I**

# Traffic Related Data and Figures

The following pages are pertinent figures and tables from the PTAR referenced in Section 7 of this Report

#### PROJECT TRAFFIC ANALYSIS REPORT



## Tampa Interstate Study Supplemental Environmental Impact Statement

I-275 from Howard Frankland Bridge to
North of Dr. Martin Luther King, Jr. Boulevard
and
SR 60 from I-275 to North of Cypress Street
and
I-4 from I-275 to East of 50th Street

ETDM Number: N/A
Work Program Segment # 258337-2

Date: November 2019



Table E-1 MOE Comparison Build Options (A, B, C, D and E) vs No Further Action (NFA)

Measures of Effectiveness (MOEs)	Time Period	Build Option A vs NFA		Build Option B vs NFA		Build Option C vs NFA		Build Option D vs NFA		Build Option E vs NFA	
		2025 Opening Year	2045 Design Year								
Average Speed (MPH)	AM Peak Hour	51%	86%	51%	82%	53%	72%	54%	72%	29%	48%
	PM Peak Hour	80%	59%	84%	54%	58%	40%	55%	40%	69%	46%
Total Travel Delay (Hours)	AM Peak Hour	-71%	-61%	-70%	-58%	-76%	-53%	-77%	-52%	-41%	-30%
	PM Peak Hour	-67%	-38%	-70%	-33%	-49%	-16%	-47%	-18%	-59%	-25%
Delay per Vehicle-Mile (min/veh/mi)	AM Peak Hour	-77%	-74%	-76%	-72%	-80%	-68%	-81%	-67%	-53%	-53%
	PM Peak Hour	-77%	-63%	-80%	-59%	-65%	-48%	-62%	-49%	-72%	-54%

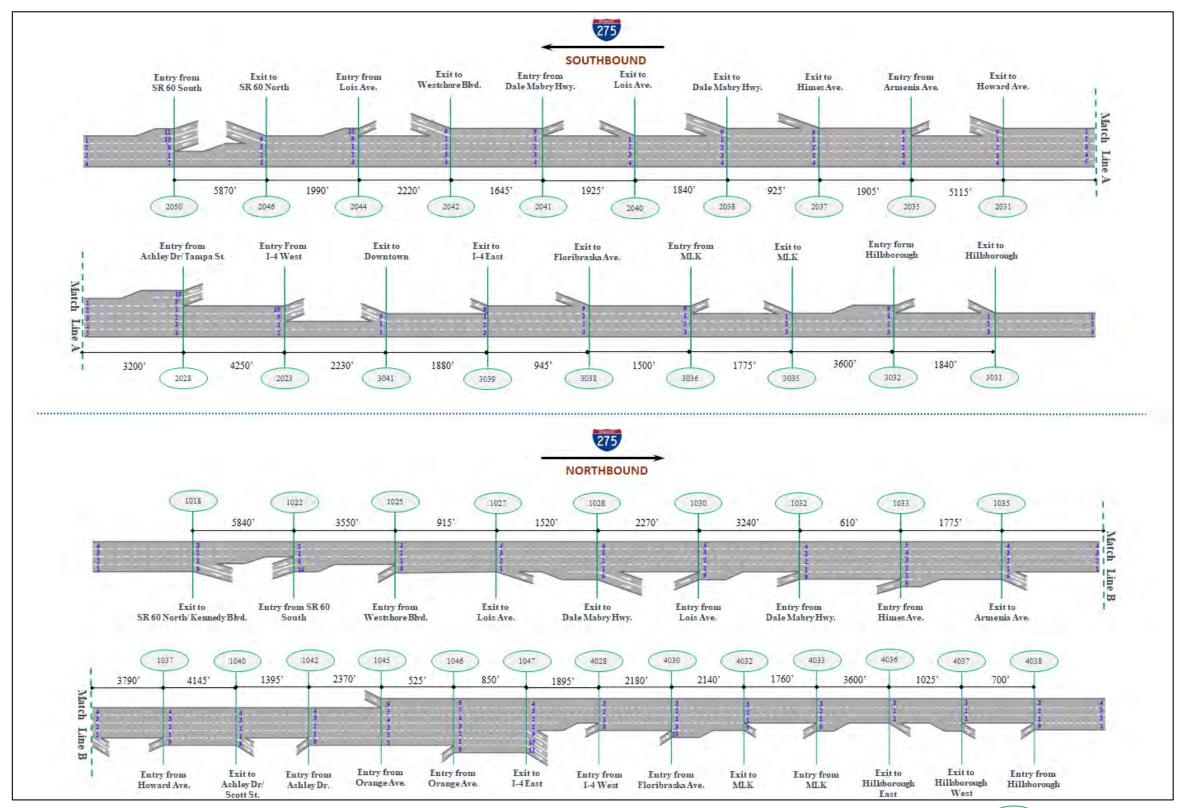


#### Figure E-1 Project Traffic Assumption Summary

Traffic forecast for the project was developed using:								
	☐ Growth Rates							
Type of Travel Demand Model Used:  ☐ Metropolitan Planning Model  ☐ Other Model  ☐ D7 Tampa Bay Regional Planning Model V8.1 ML	Section 3.3 provides discussion on the use of the growth rates to develop future year design hour volumes							
Is the travel demand model based on the latest adopted LRTP?								
	□ NO							
2014 Date when MPO adopted the latest LRTP	Explain why?							
2010 Base Year of Travel Demand Model								
2040 Horizon Year of Travel Demand Model								
LRTP documentation is available at (provide web address): http://www.planhillsborough.org/2040-lrtp/								
Traffic Data and Factors								
Standard K = <u>0.09</u> D Factor = <u>0.57 for I-275 and SR 60</u> D Factor = <u>0.535 for I-4</u> TDaily = <u>4.5</u>	Data Collection Year = 2018 Opening Year = 2025 Design Year = 2045							
2040 CF model socio-economic data was extrapolated to 2 and Build models and was adjusted to include developmer not accounted for in the socio-economic data. The Build m with the Tampa Bay Next program for all the sections.	nt that is currently under construction and							
Traffic Analysis Assumptions								
The proposed improvements would involve the reconstruction/widening of I-275 from east of Howard Frankland Bridge (HFB) to North of State Road (SR) 574 (Dr. Martin Luther King [MLK] Jr. Boulevard), and I-4 from I-275 to east of 50th Street. As part of the Build alternatives, five (5) alternatives are being evaluated along with the NFA alternative								
<ul> <li>As seen in Section 2.4.3, the calibration/validation parameters include raw balanced counts, travel time and speed.</li> </ul>								
<ul> <li>The analysis tools used for the study include CORSIM for operational analysis, and ISATe predictive analysis tool based on the Highway Safety Analysis for safety analysis.</li> </ul>								
• The analysis period includes AM peak period from 6:30 am – 9:30 am and for the PM peak period from 3:30 pm – 6:30 pm.								
<ul> <li>The MOE's used for the operational analysis include speed, density for individual links, and VMT, Delay, Move-Time and Travel Time as part of the systemwide MOE's. As part of the safety MOE's, the KABCO scale was used to compare the NFA and build analysis.</li> </ul>								

FDOT

Figure 2-1 Existing Year (2018) Lane Schematics for I-275 Corridor



CORSIM Node Number



Figure 2-2 Existing Year (2018) Lane schematics for I-4 Corridor

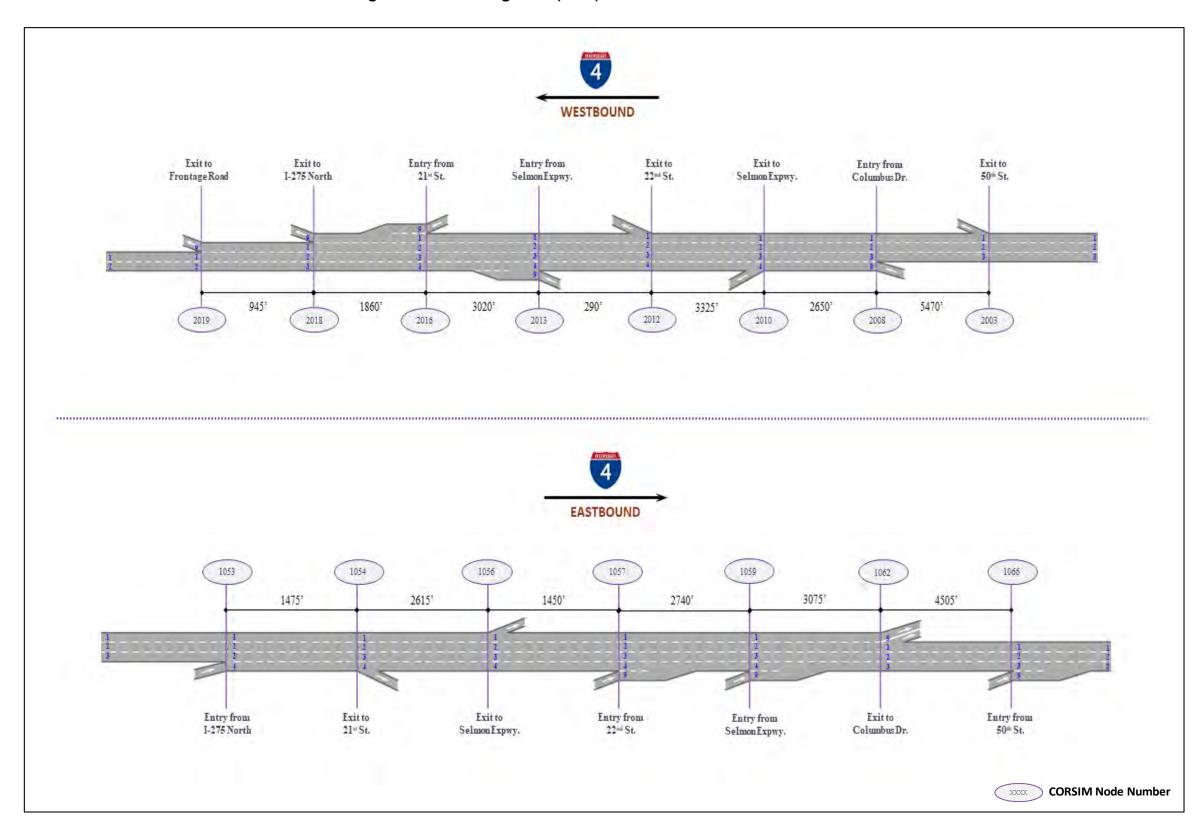




Figure 2-4 Existing Year (2018) AM Peak Hour Congestion

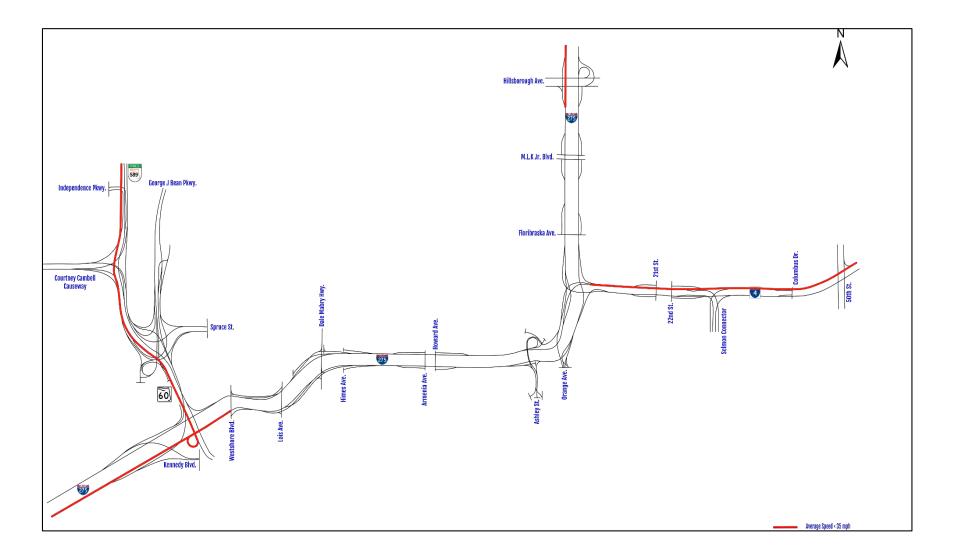
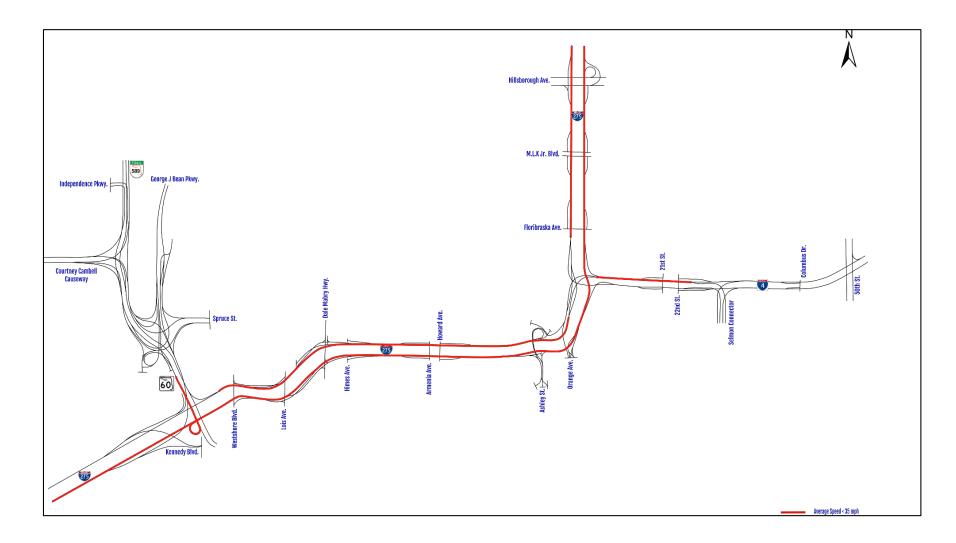
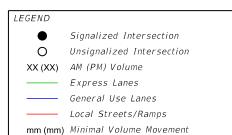




Figure 2-5 Existing Year (2018) PM Peak Hour Congestion







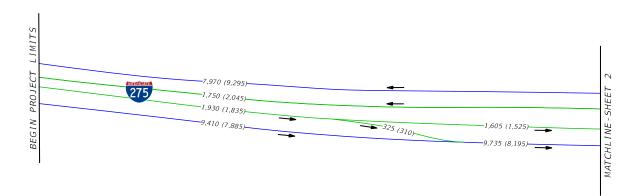
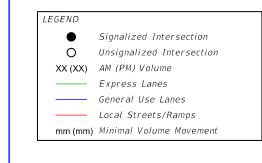




Figure 3-18

Sheet 1 of 16





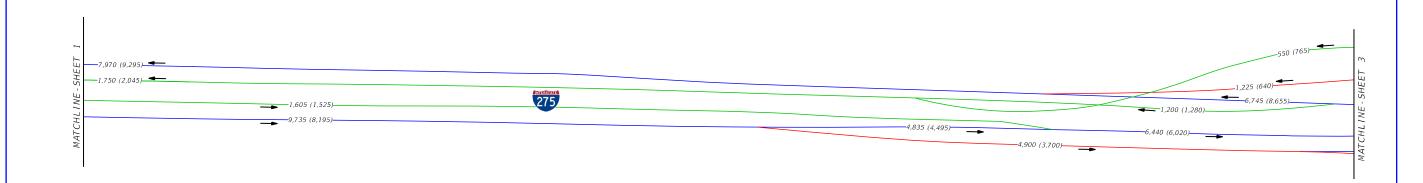
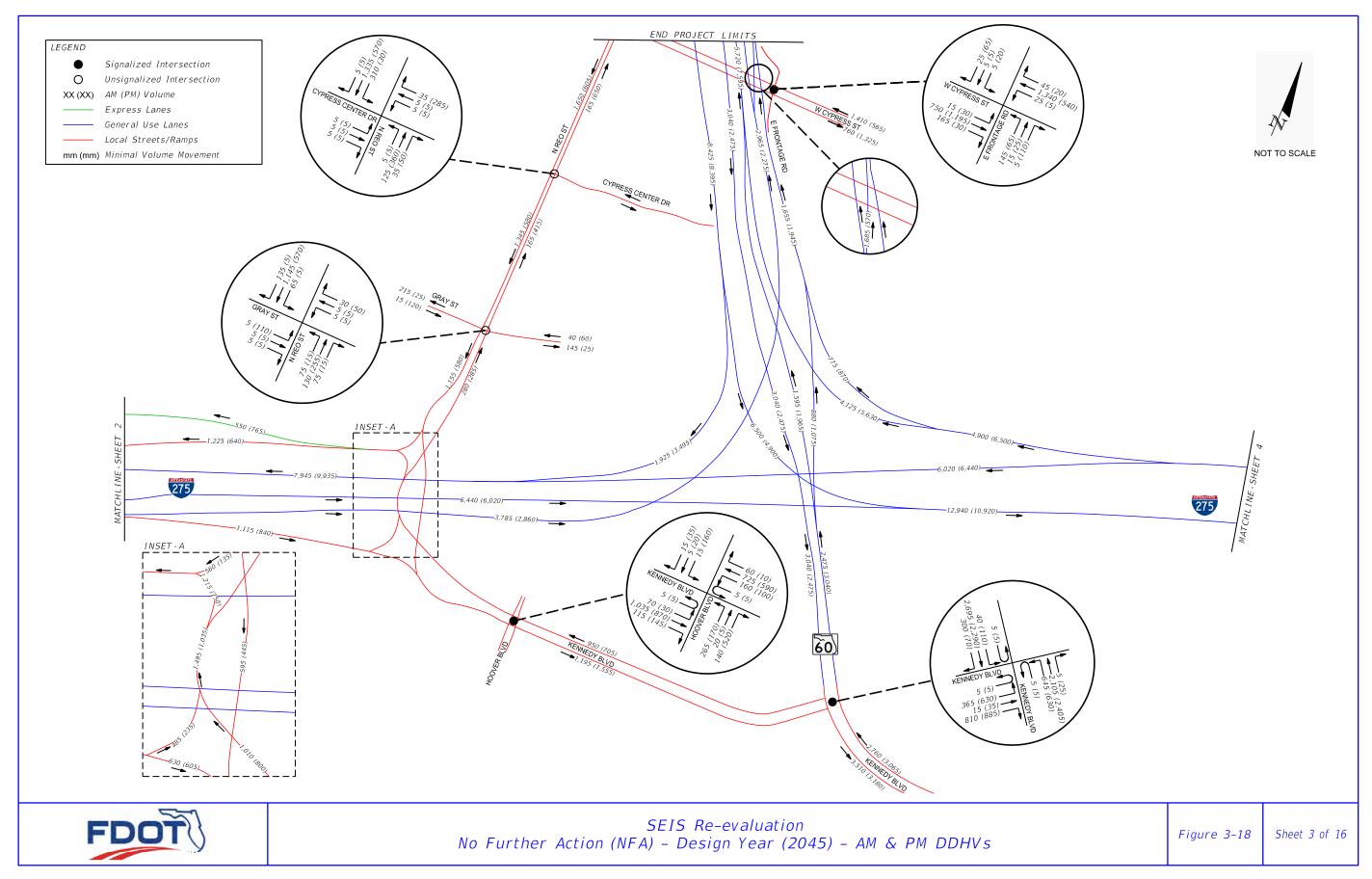
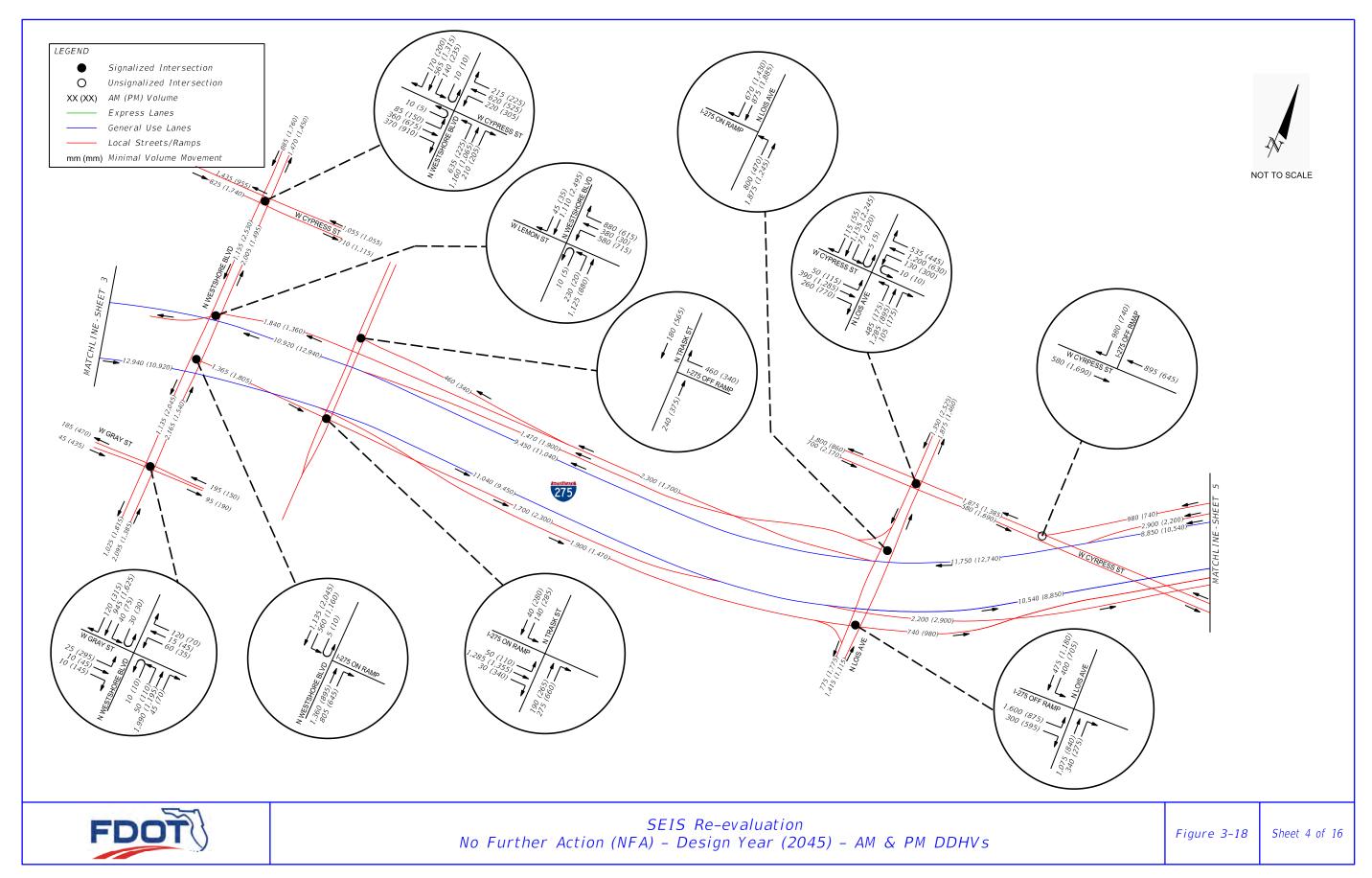


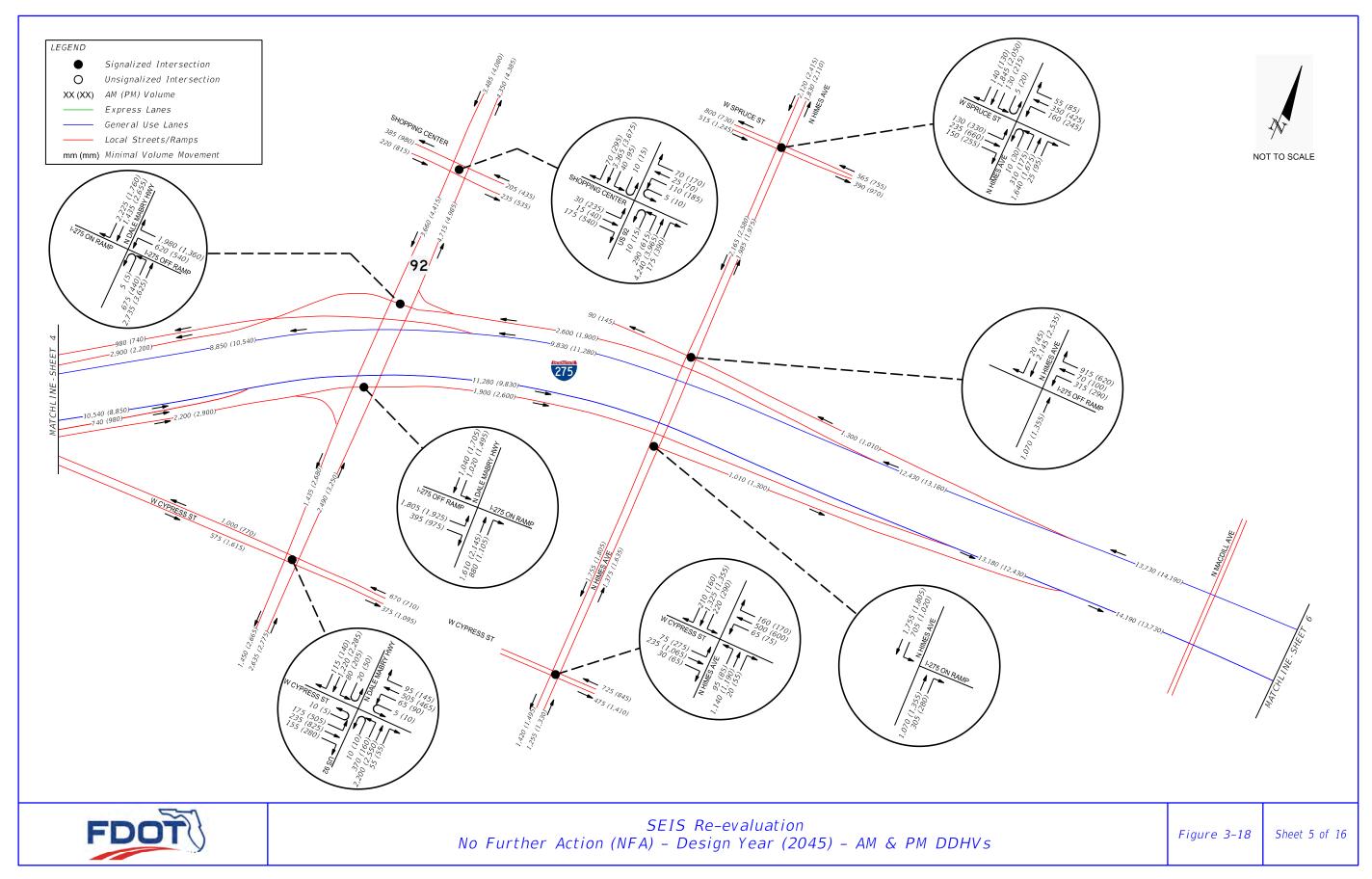


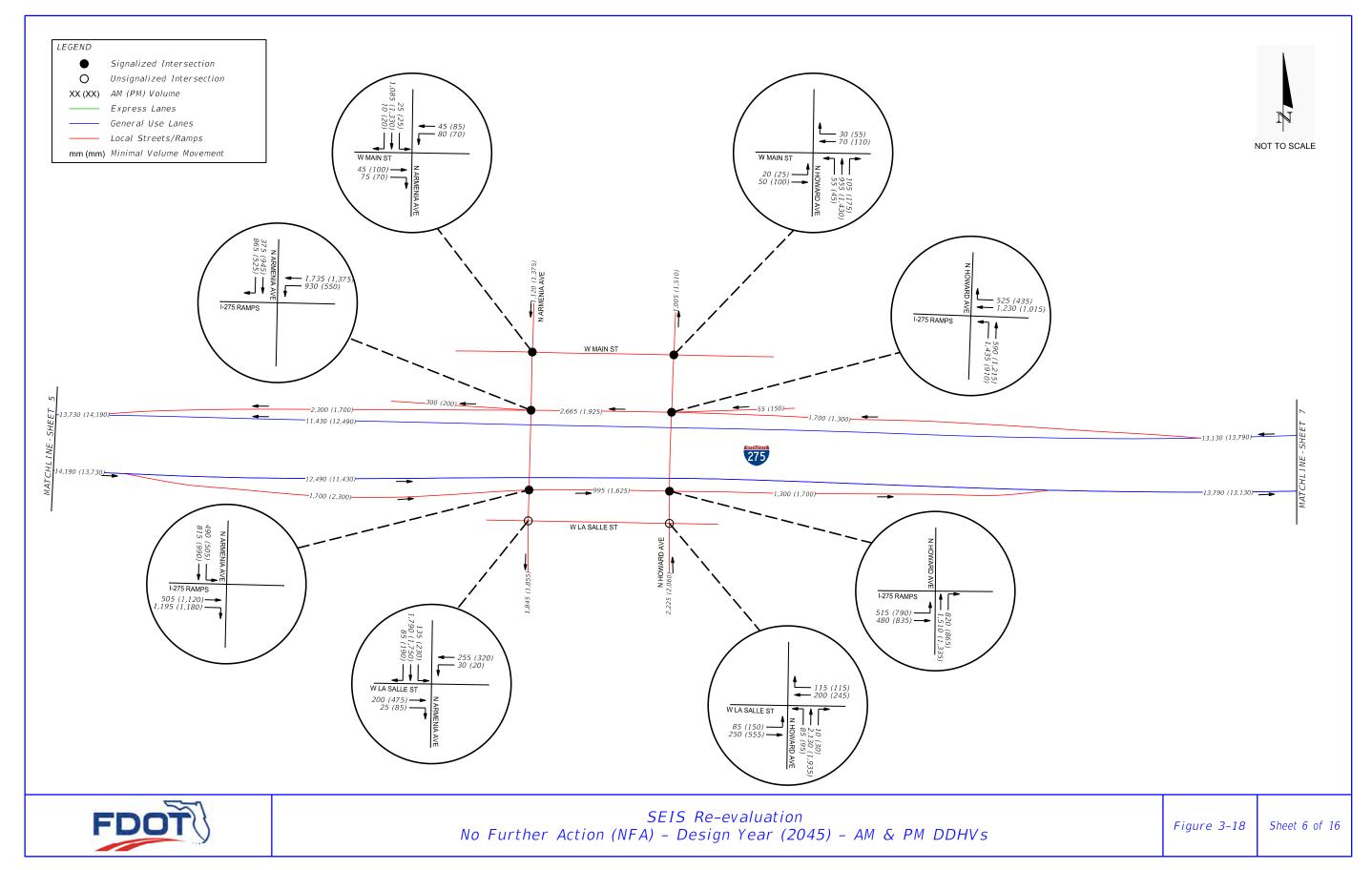
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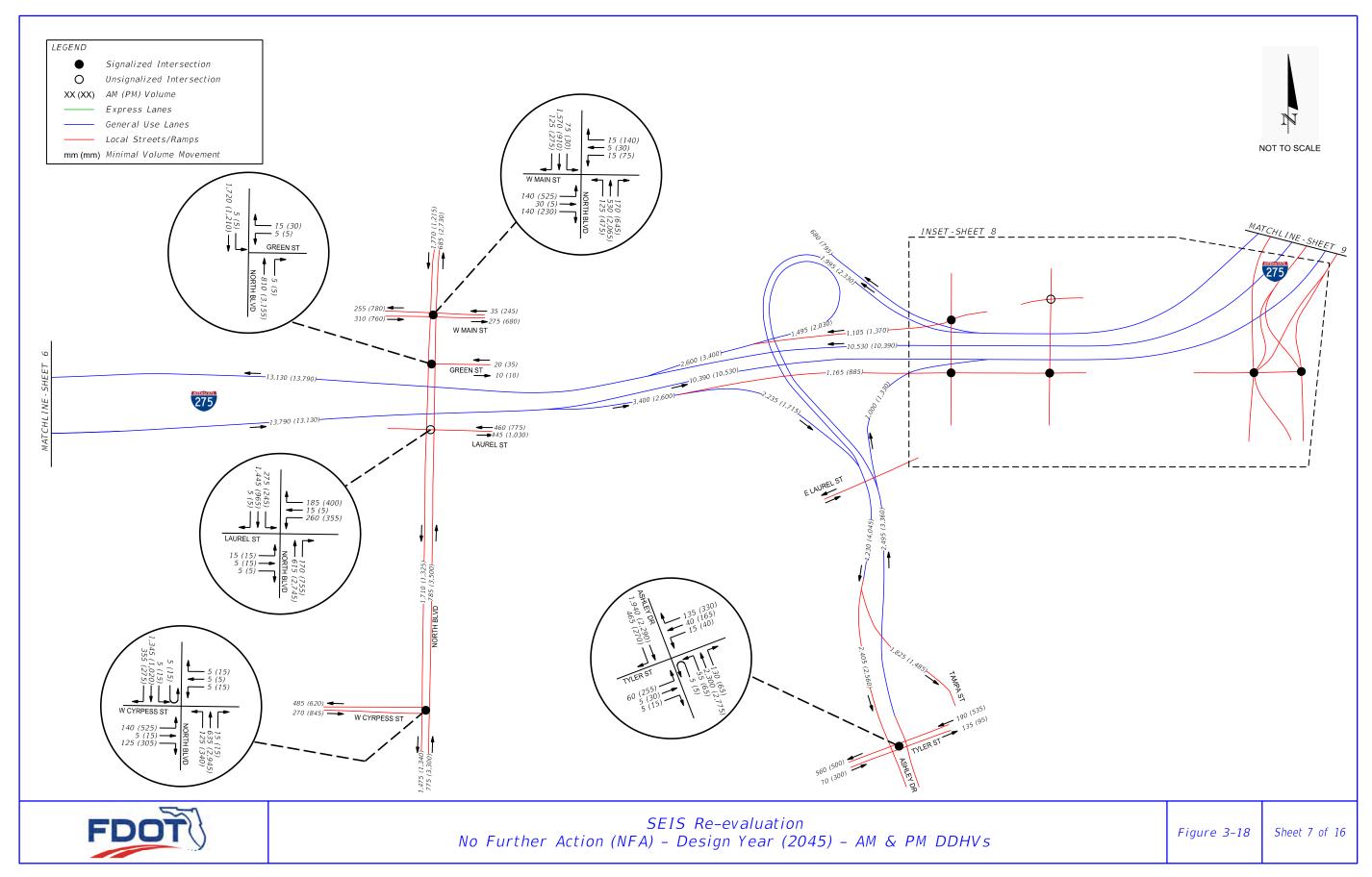
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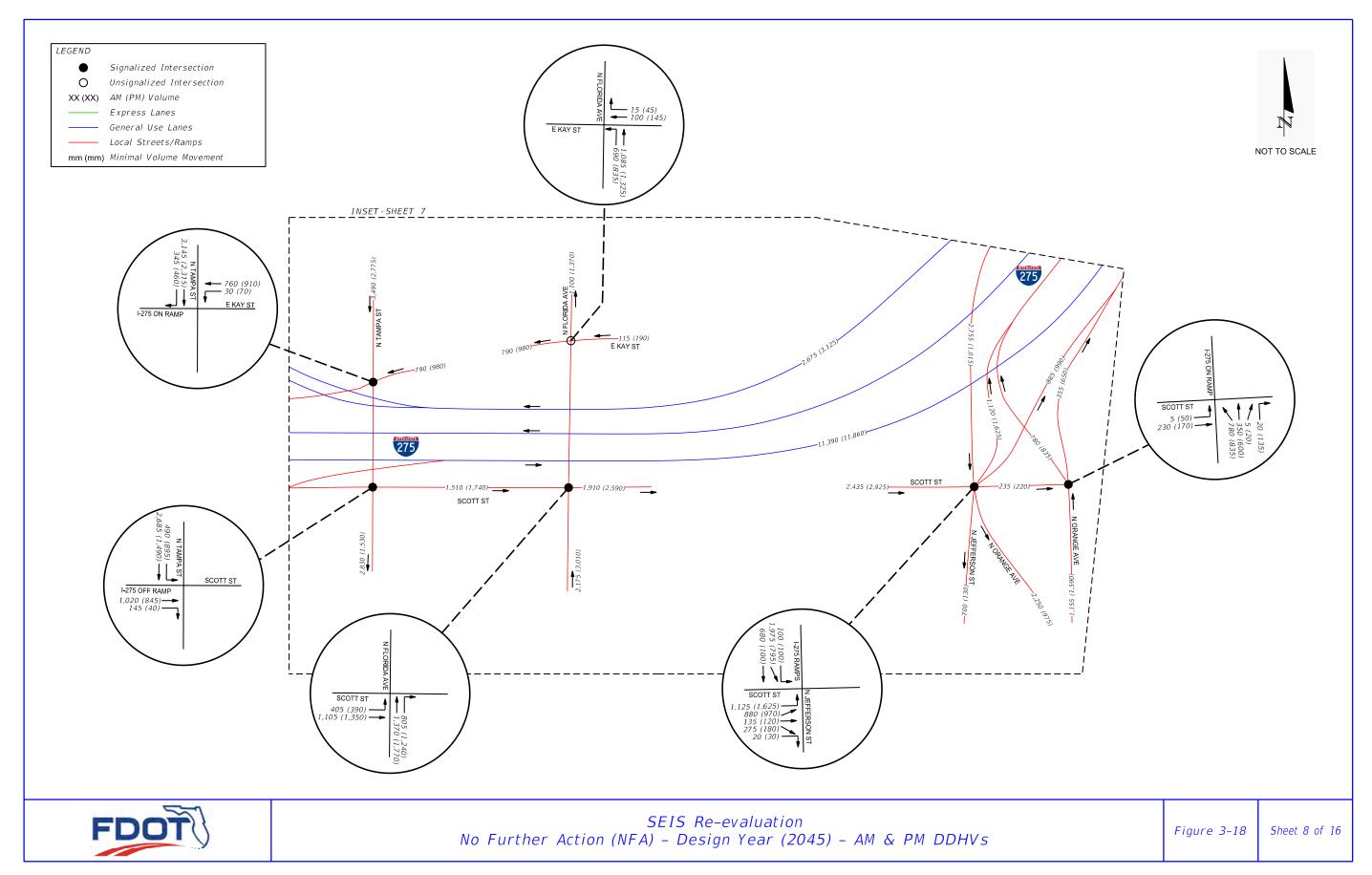


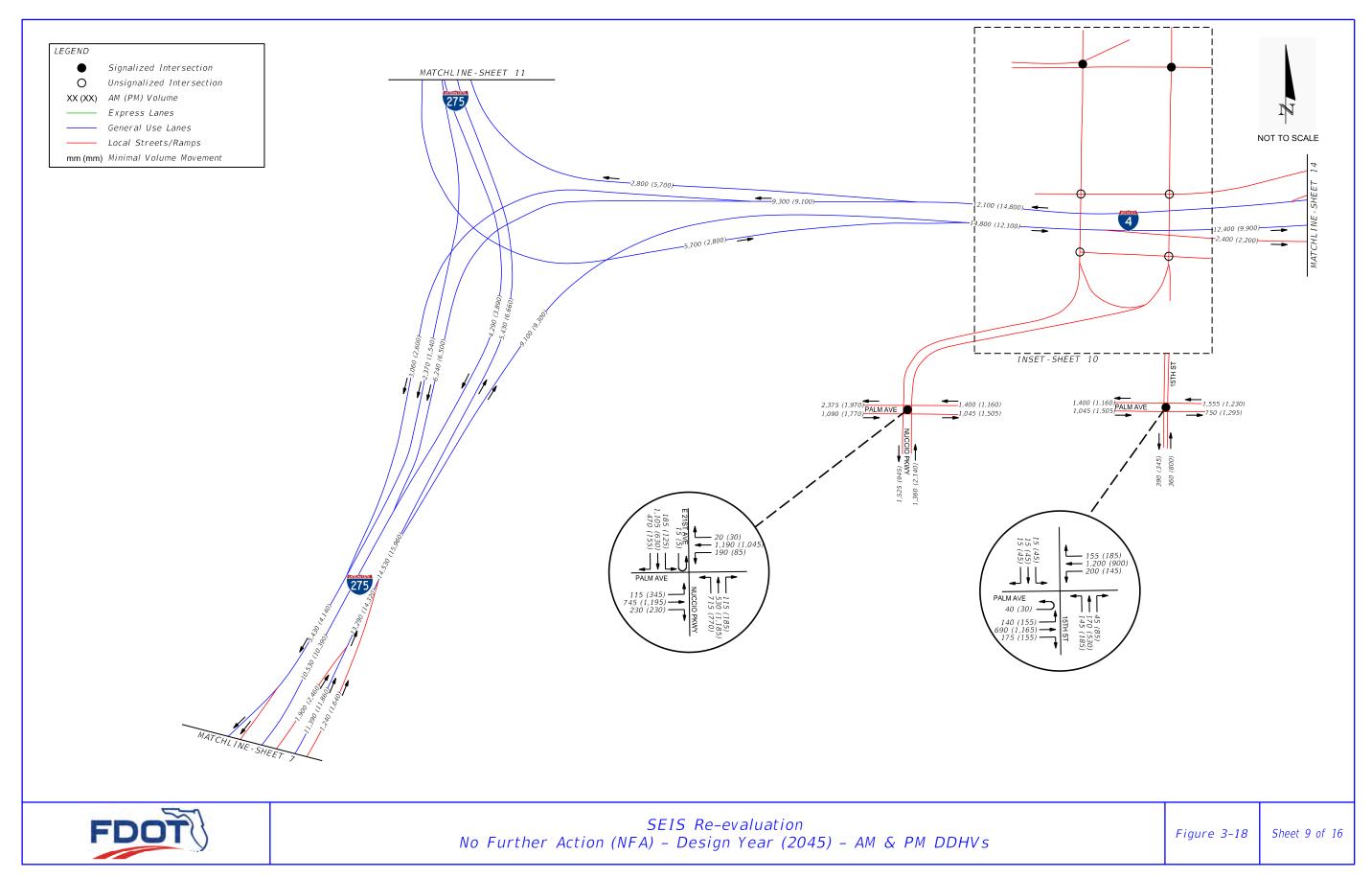


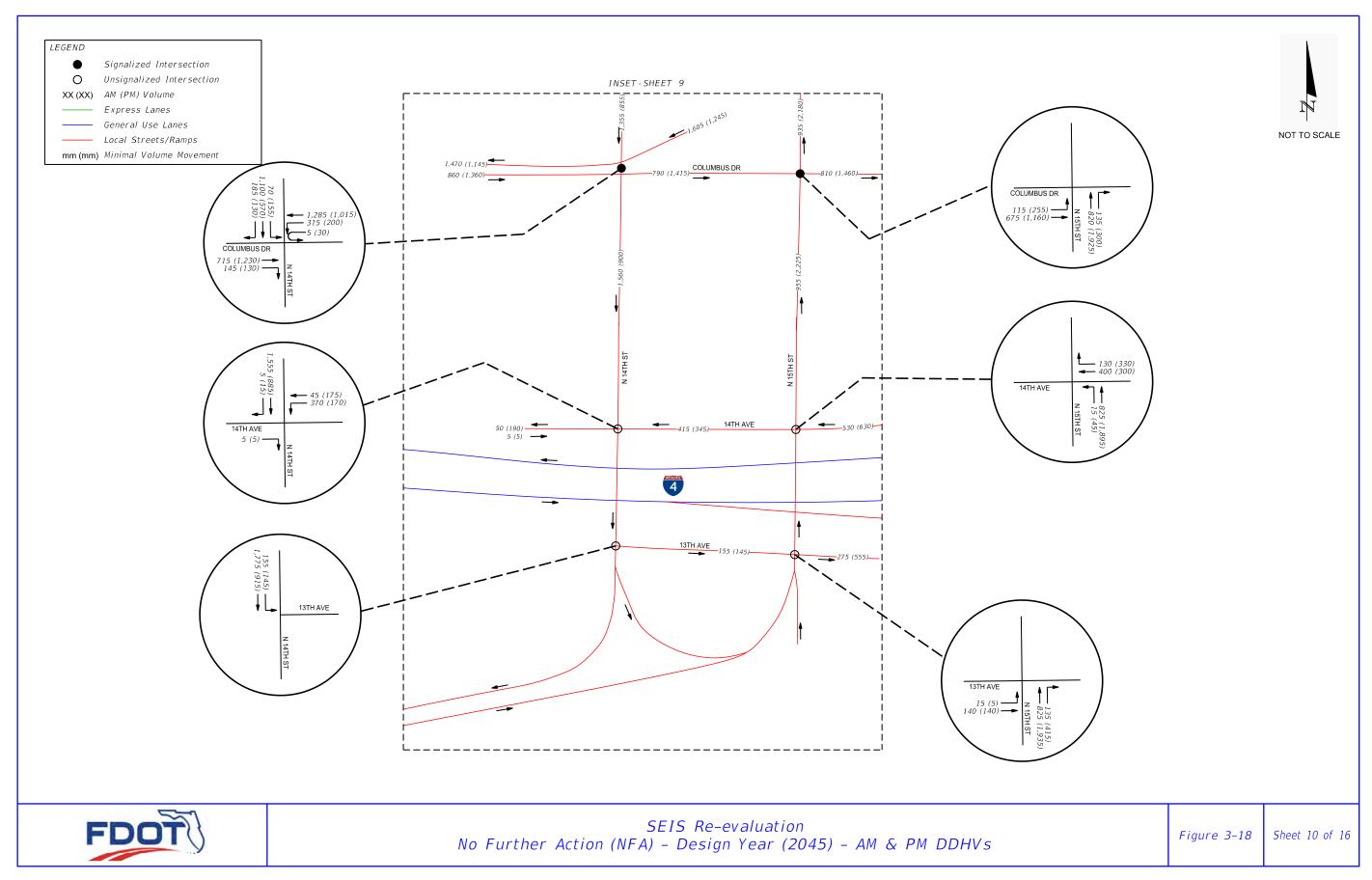


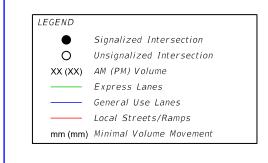












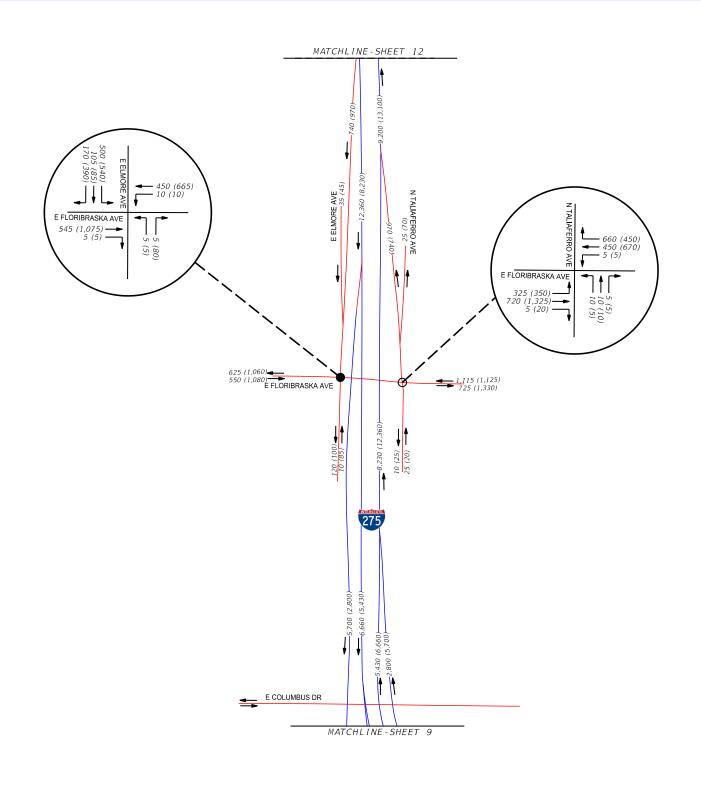
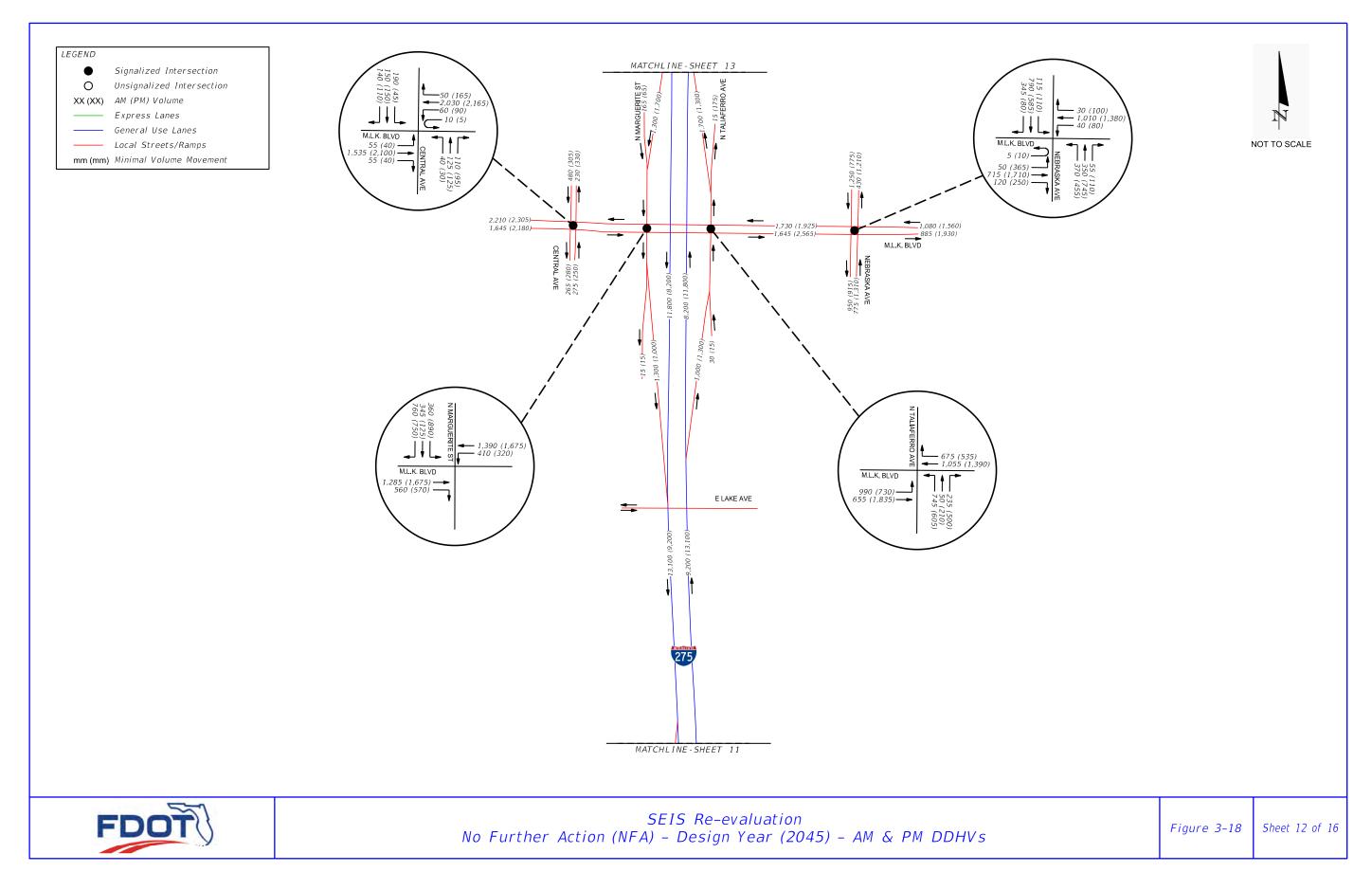
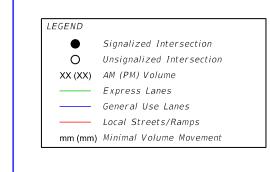




Figure 3-18

Sheet 11 of 16





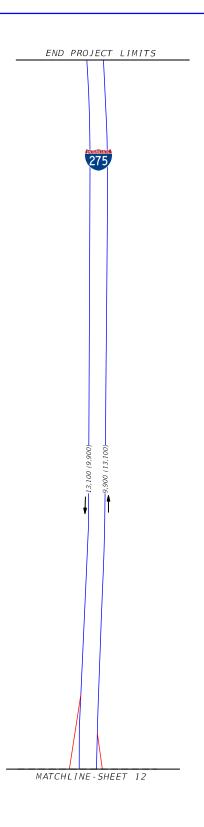
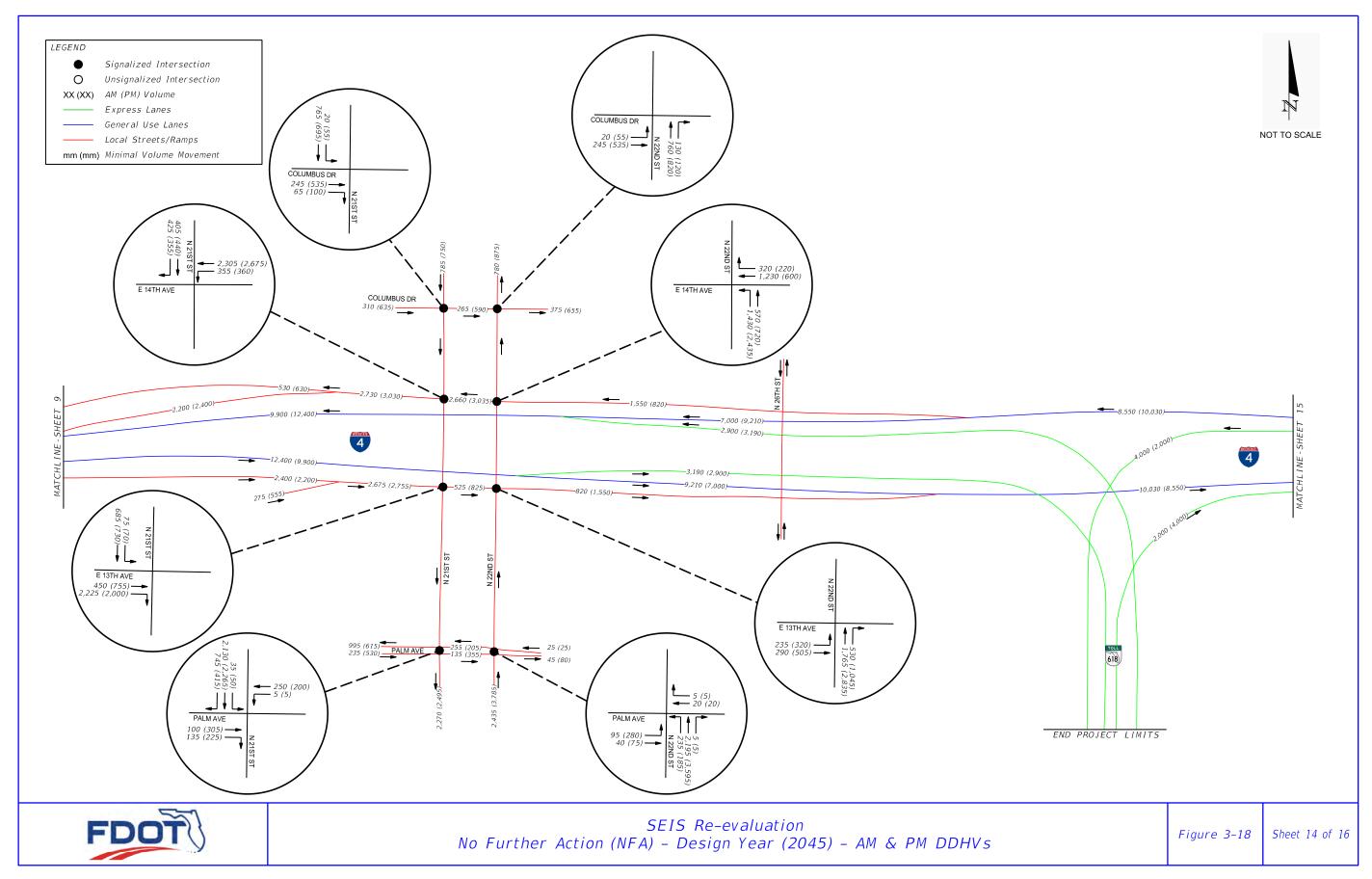


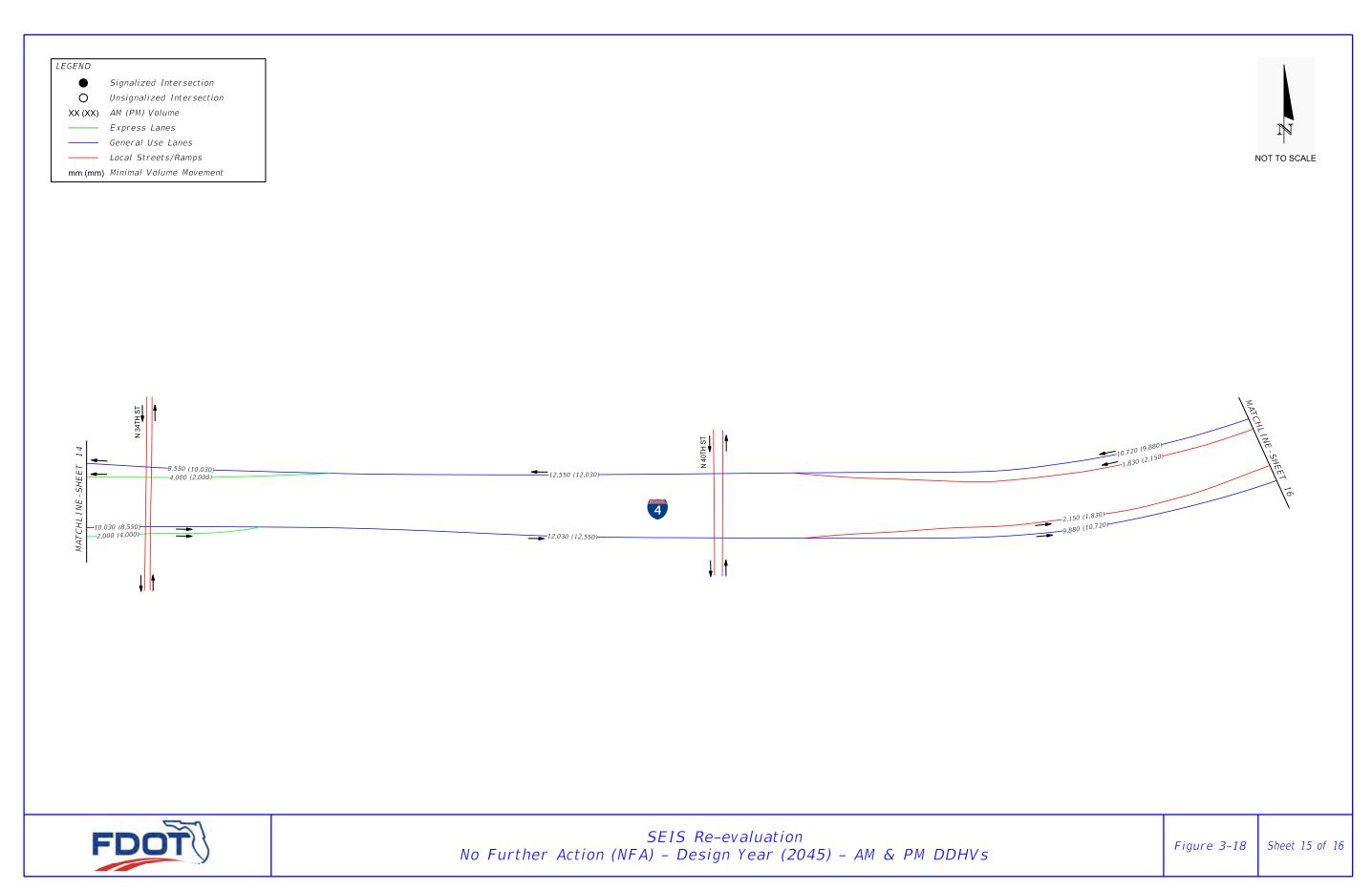


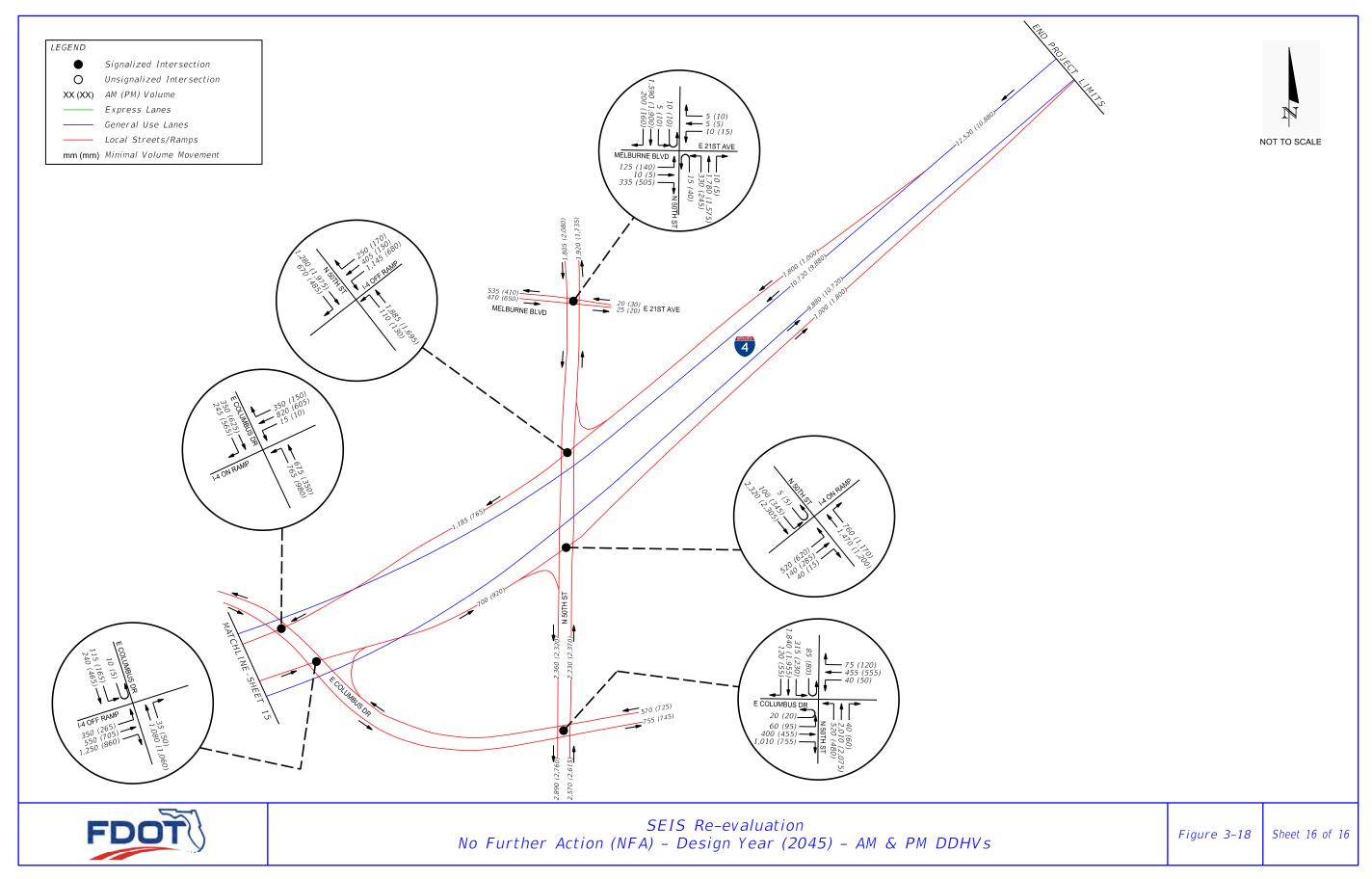
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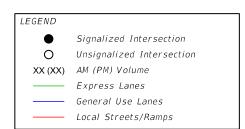
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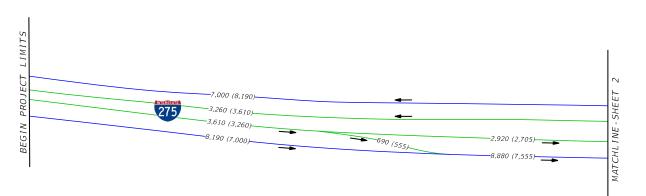












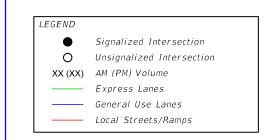


SEIS Re-evaluation

Build Alternative - Option E - Design Year (2045) - AM & PM DDHVs

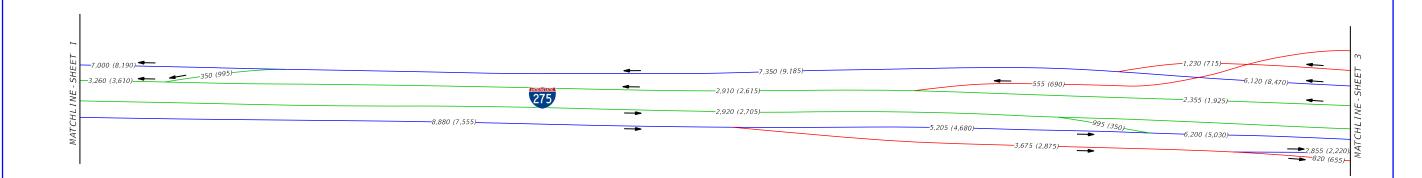
Figure 3-23

Sheet 1 of 16





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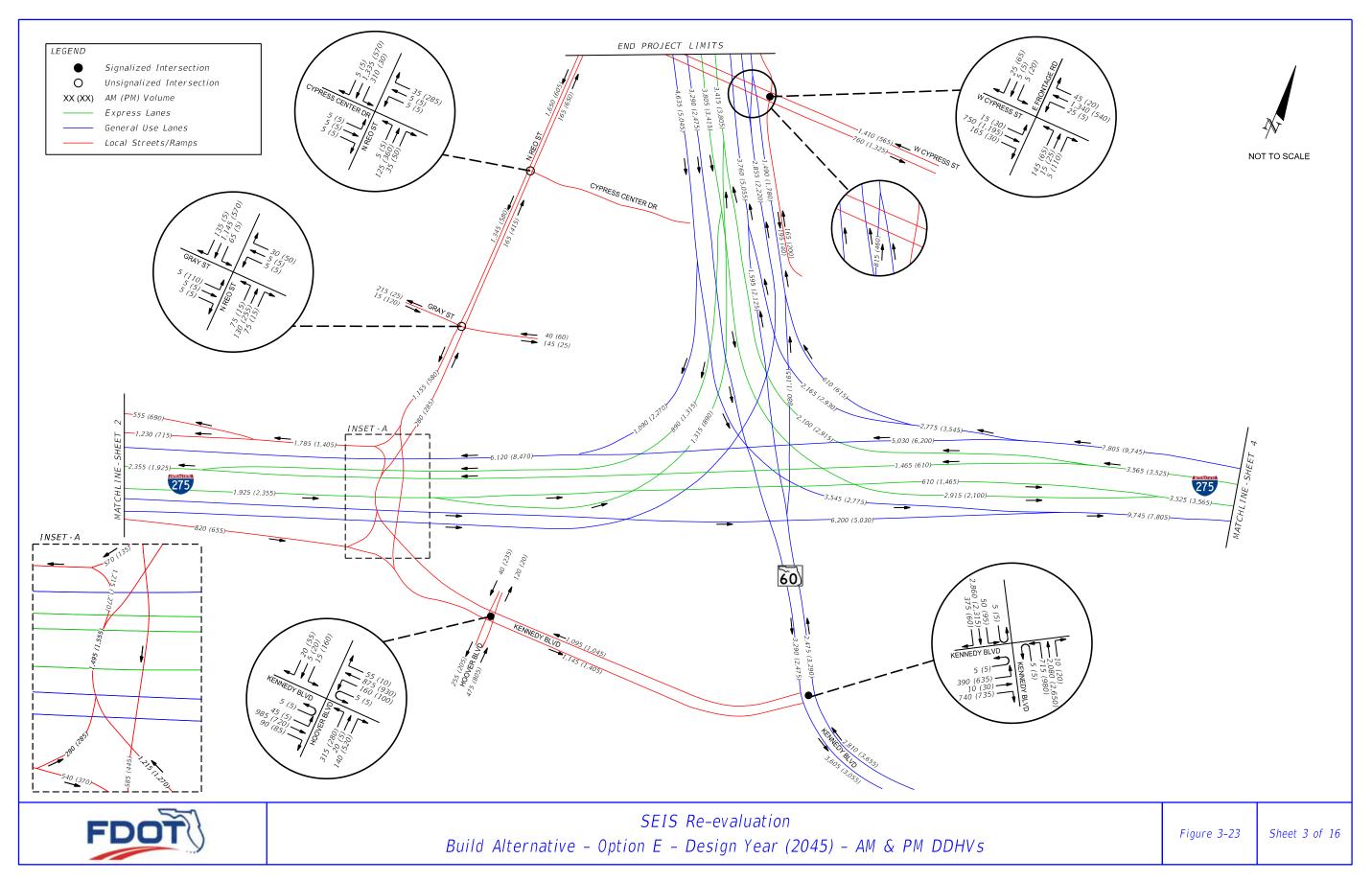


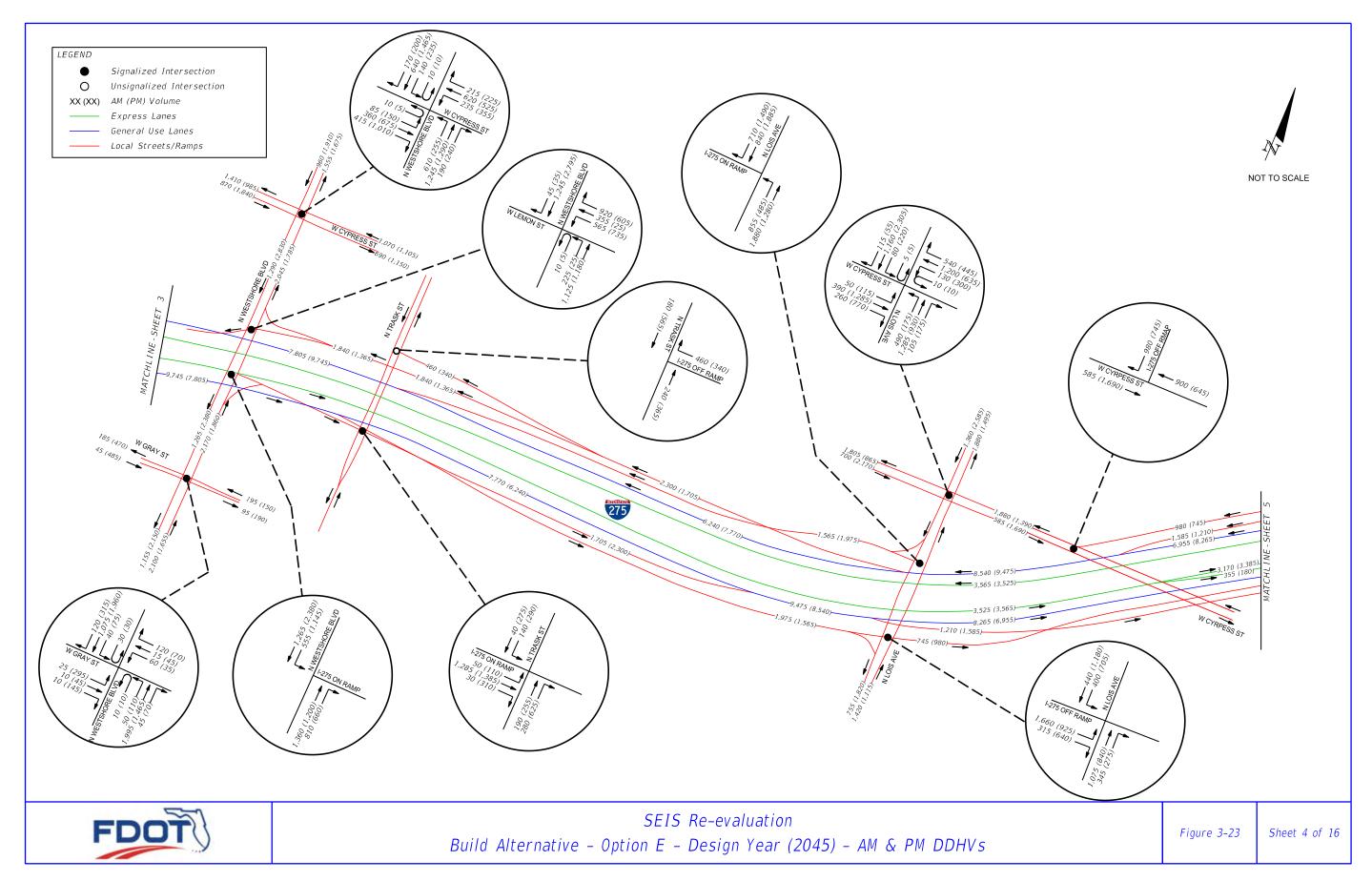
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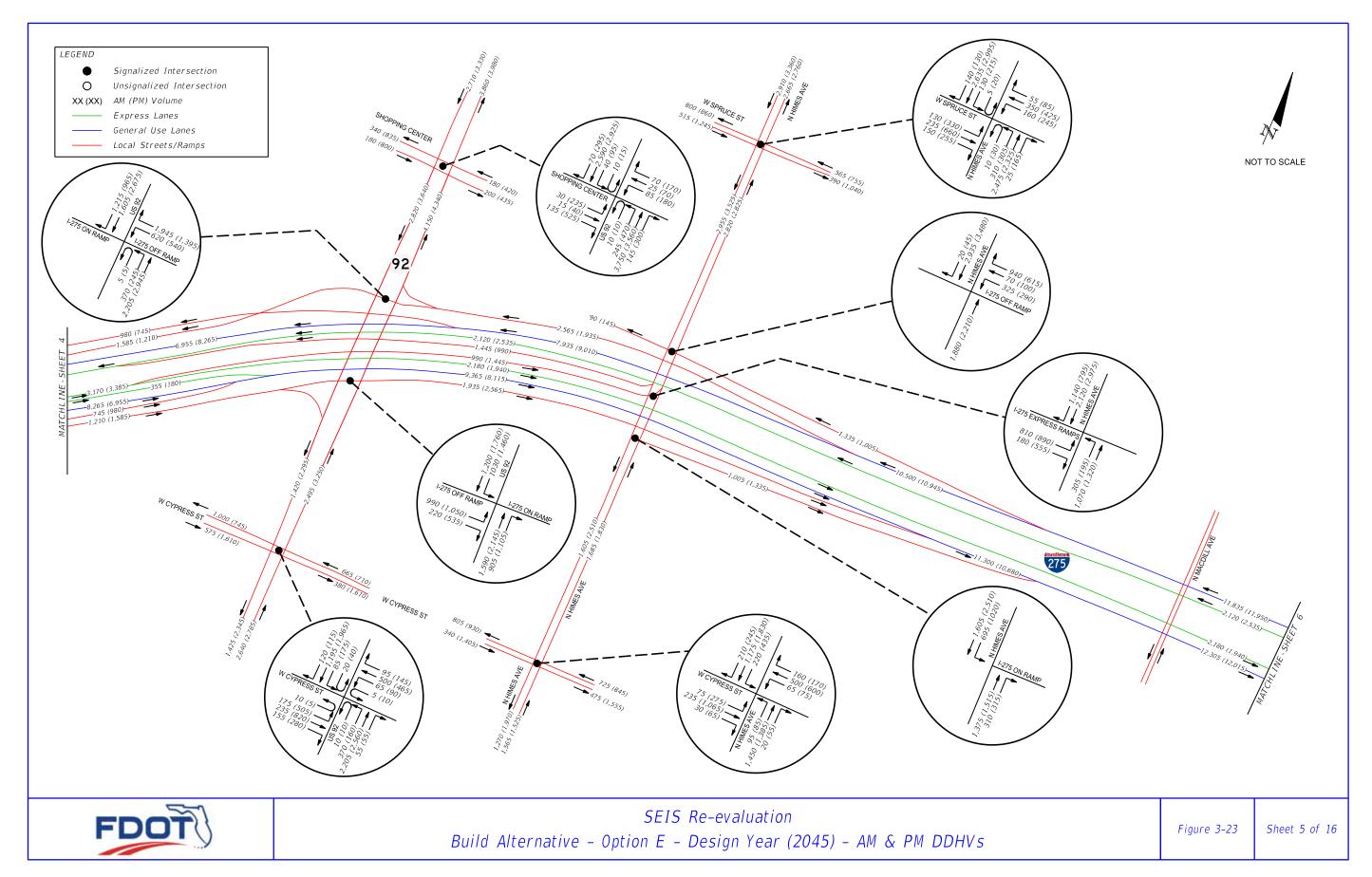
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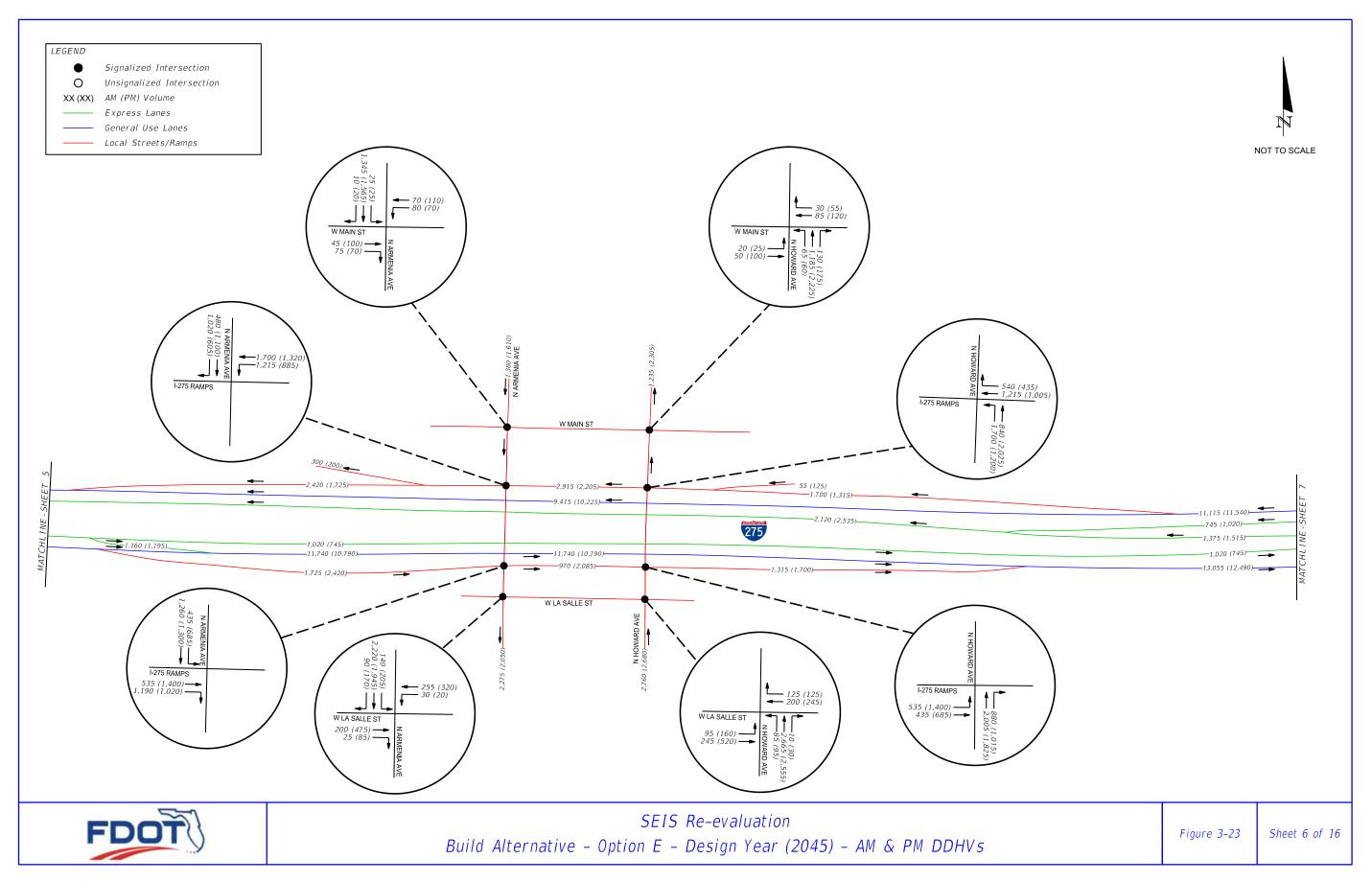
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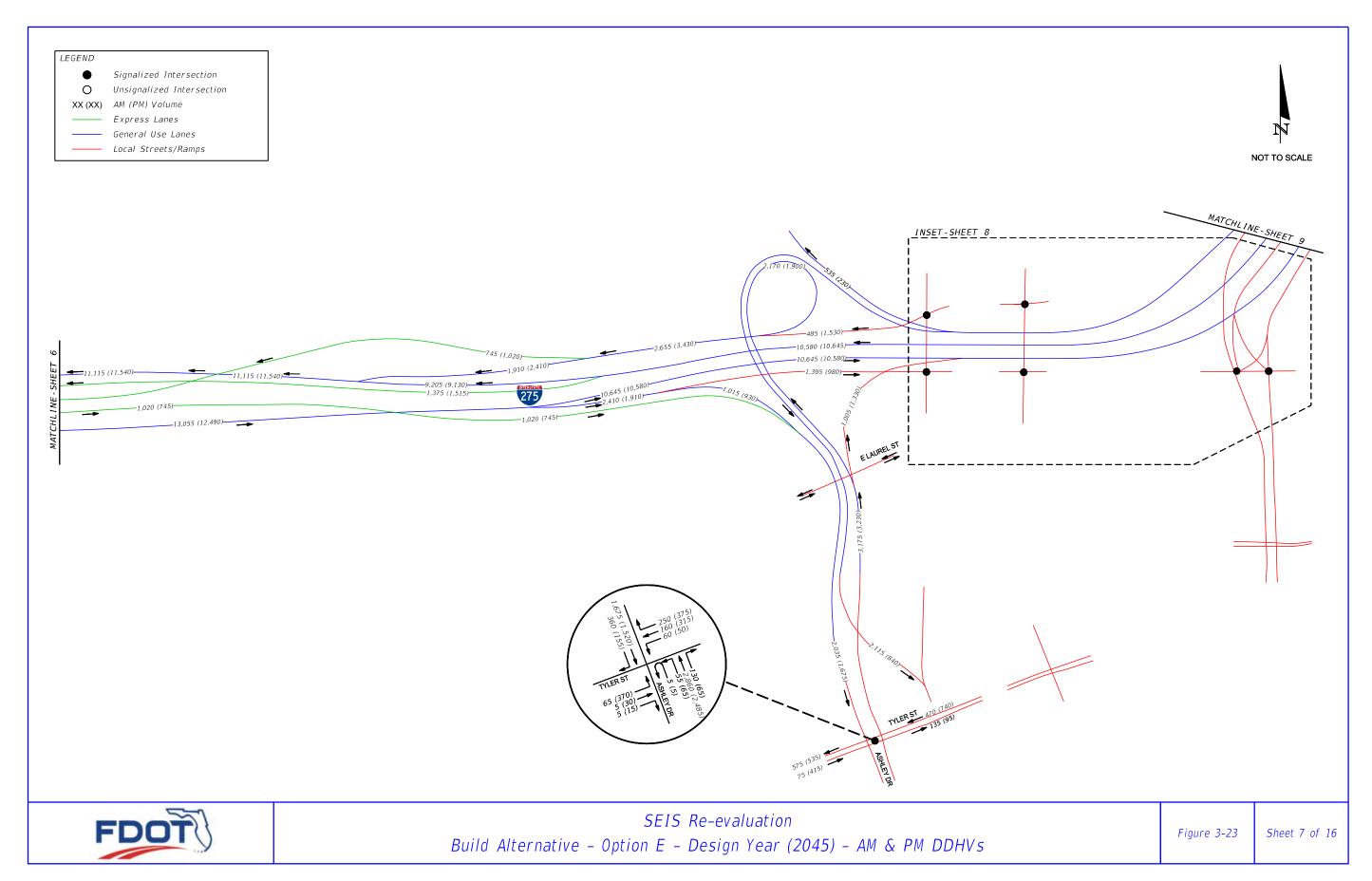
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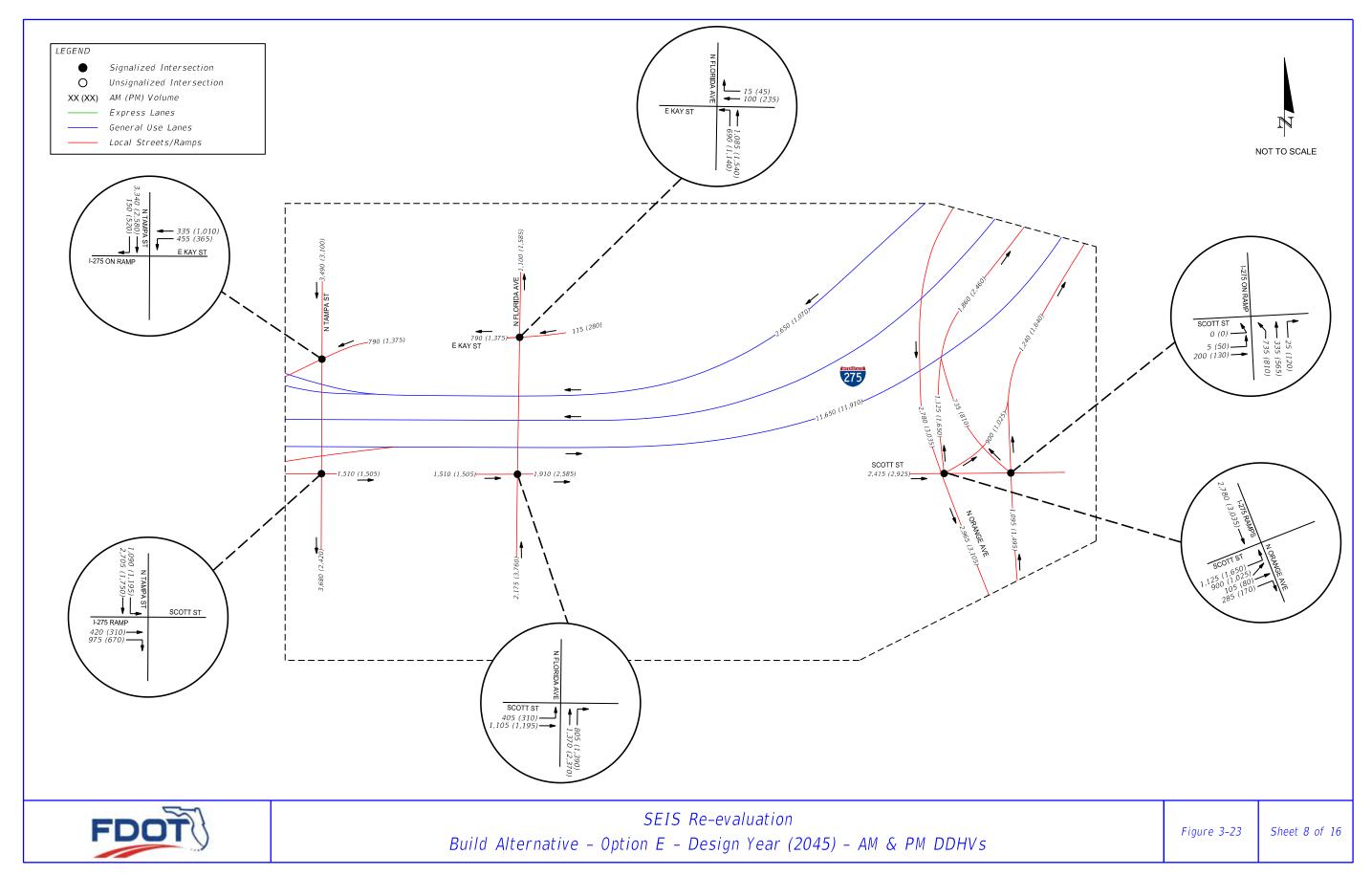


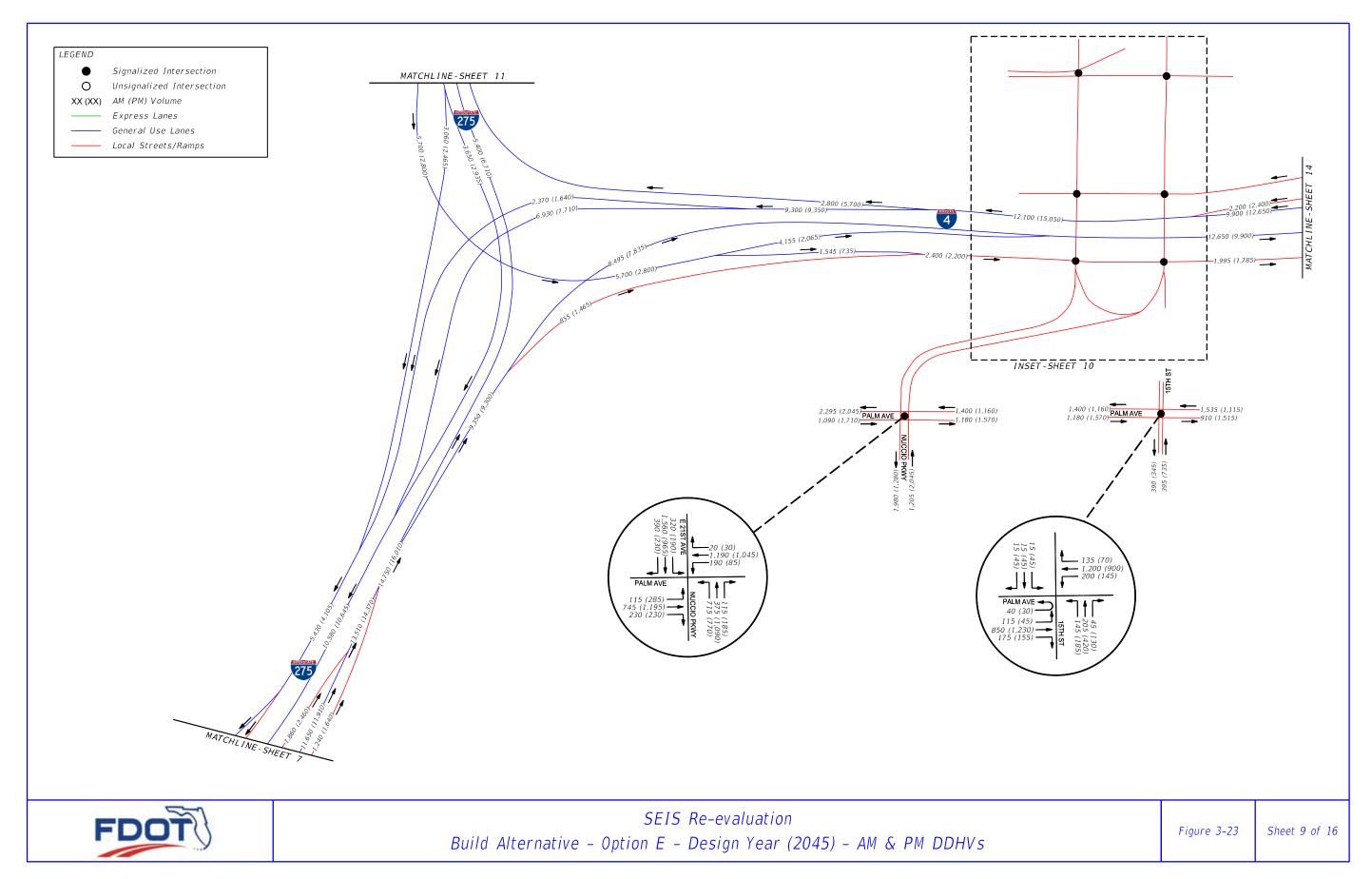


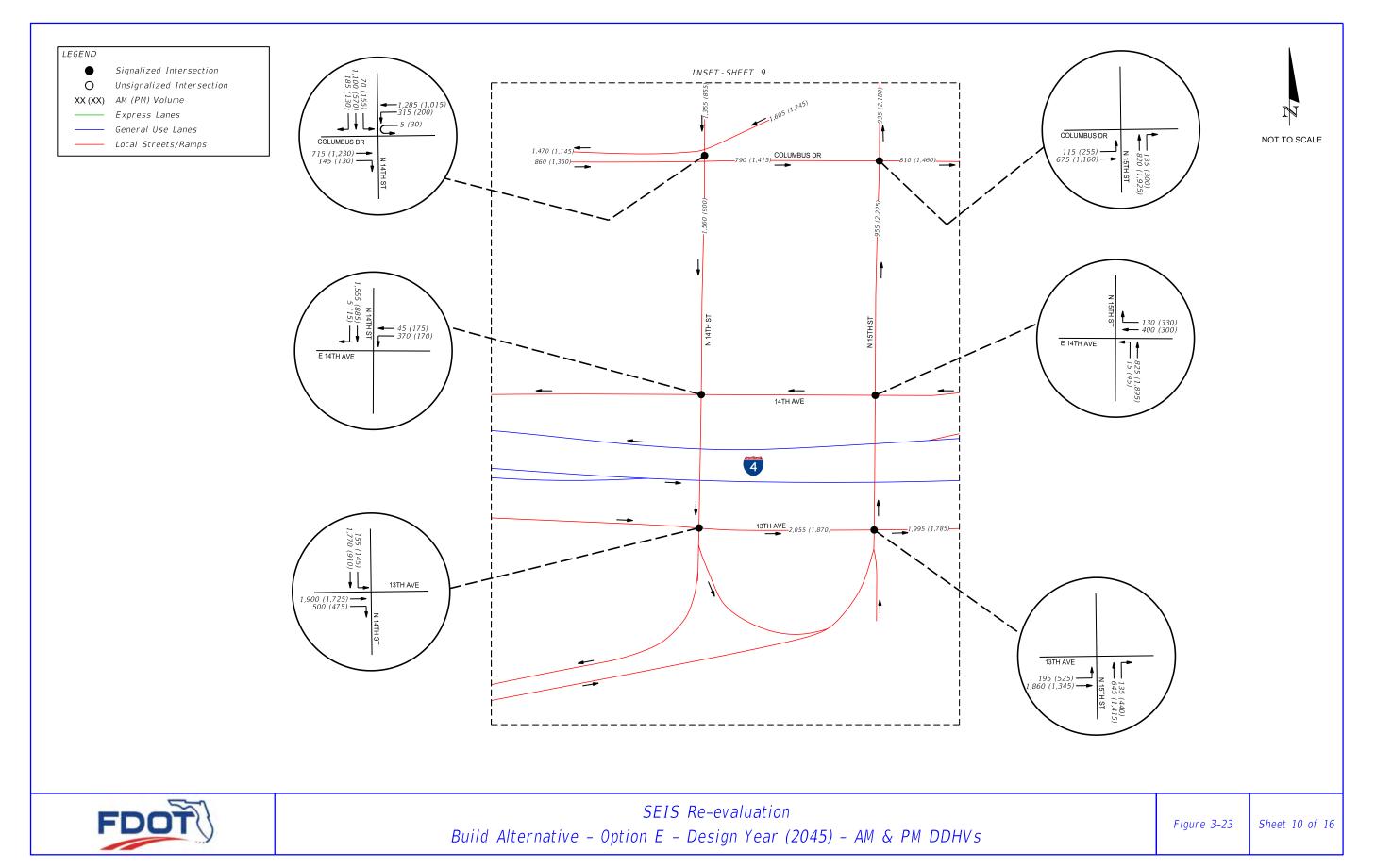


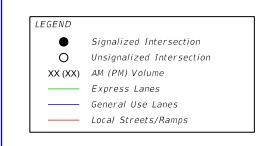


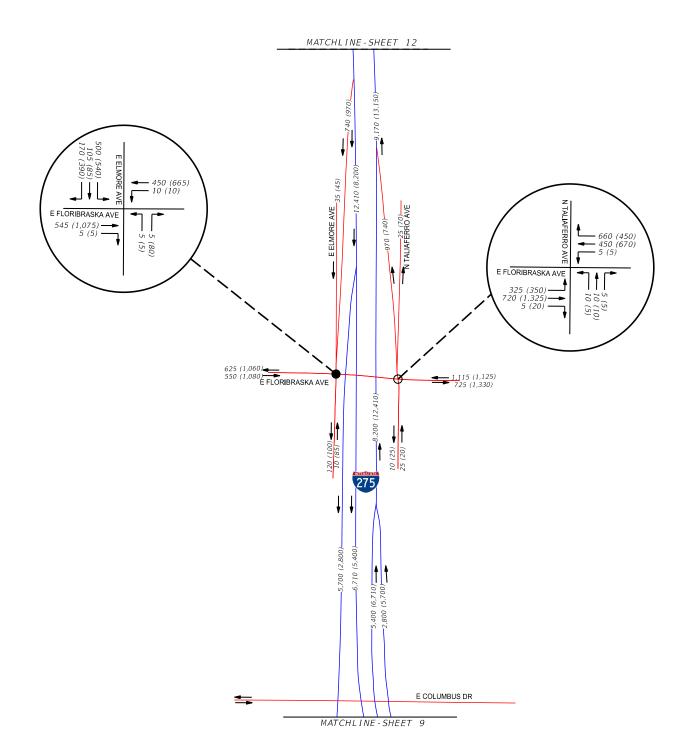


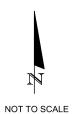












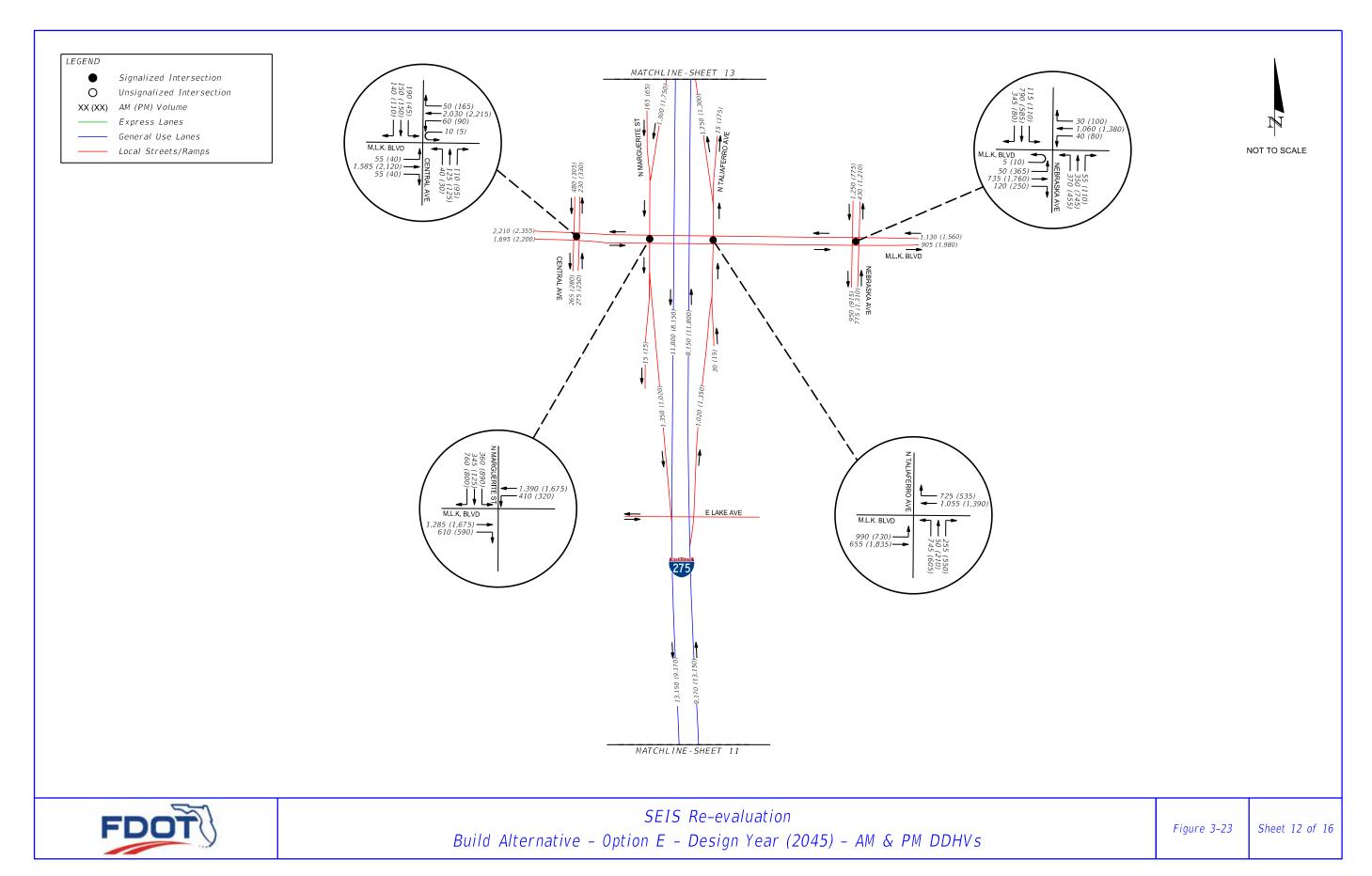
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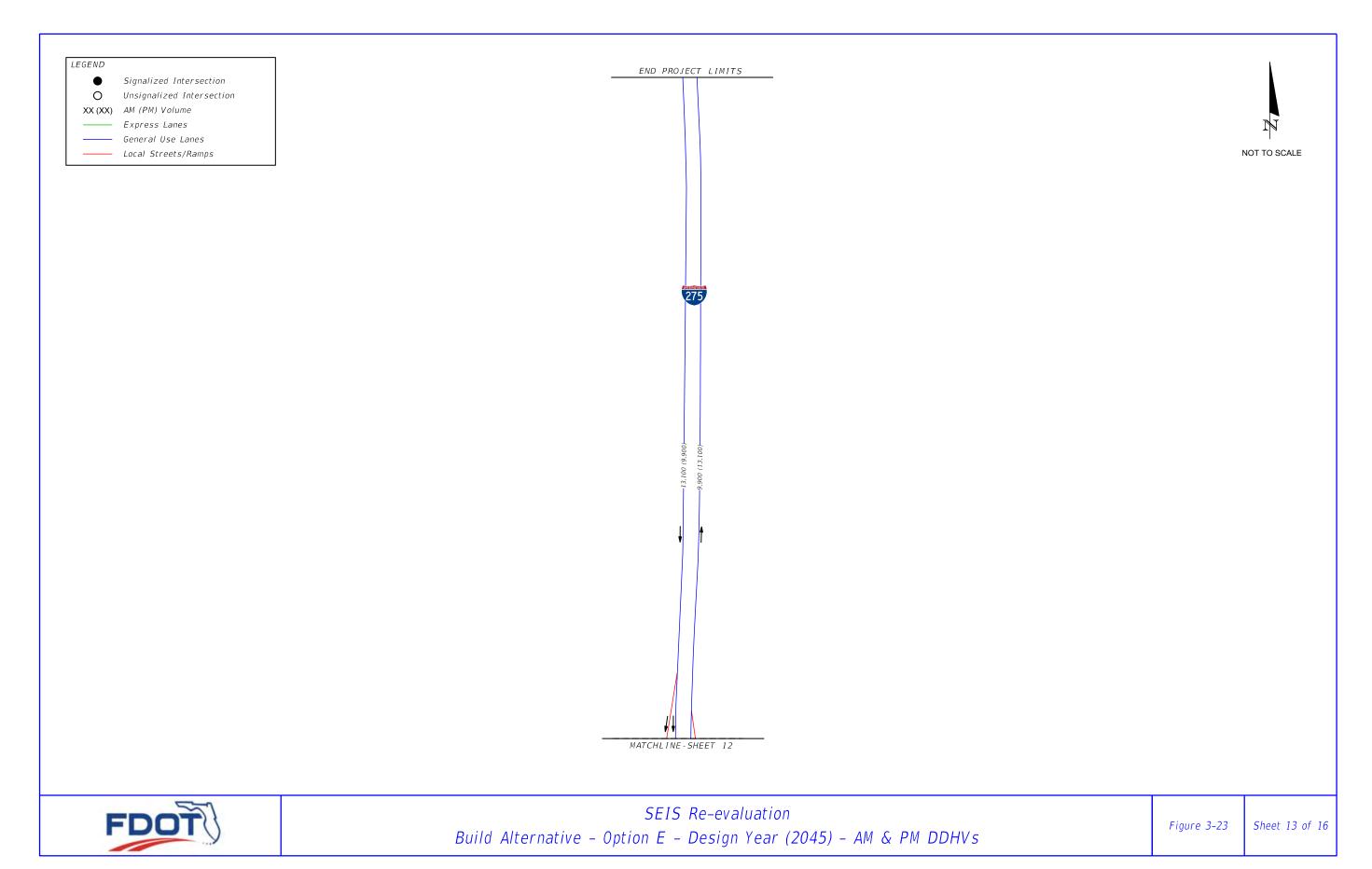
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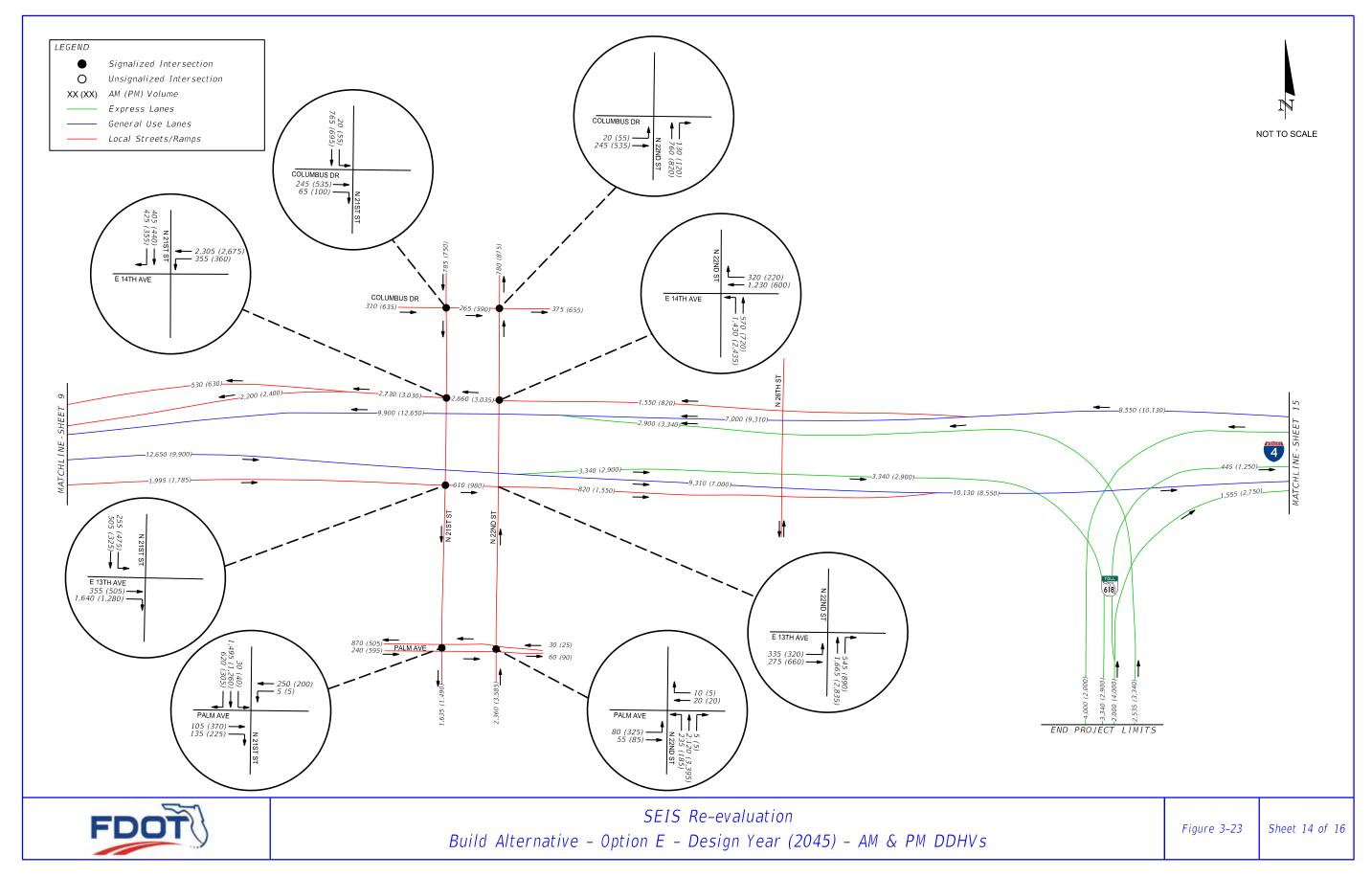
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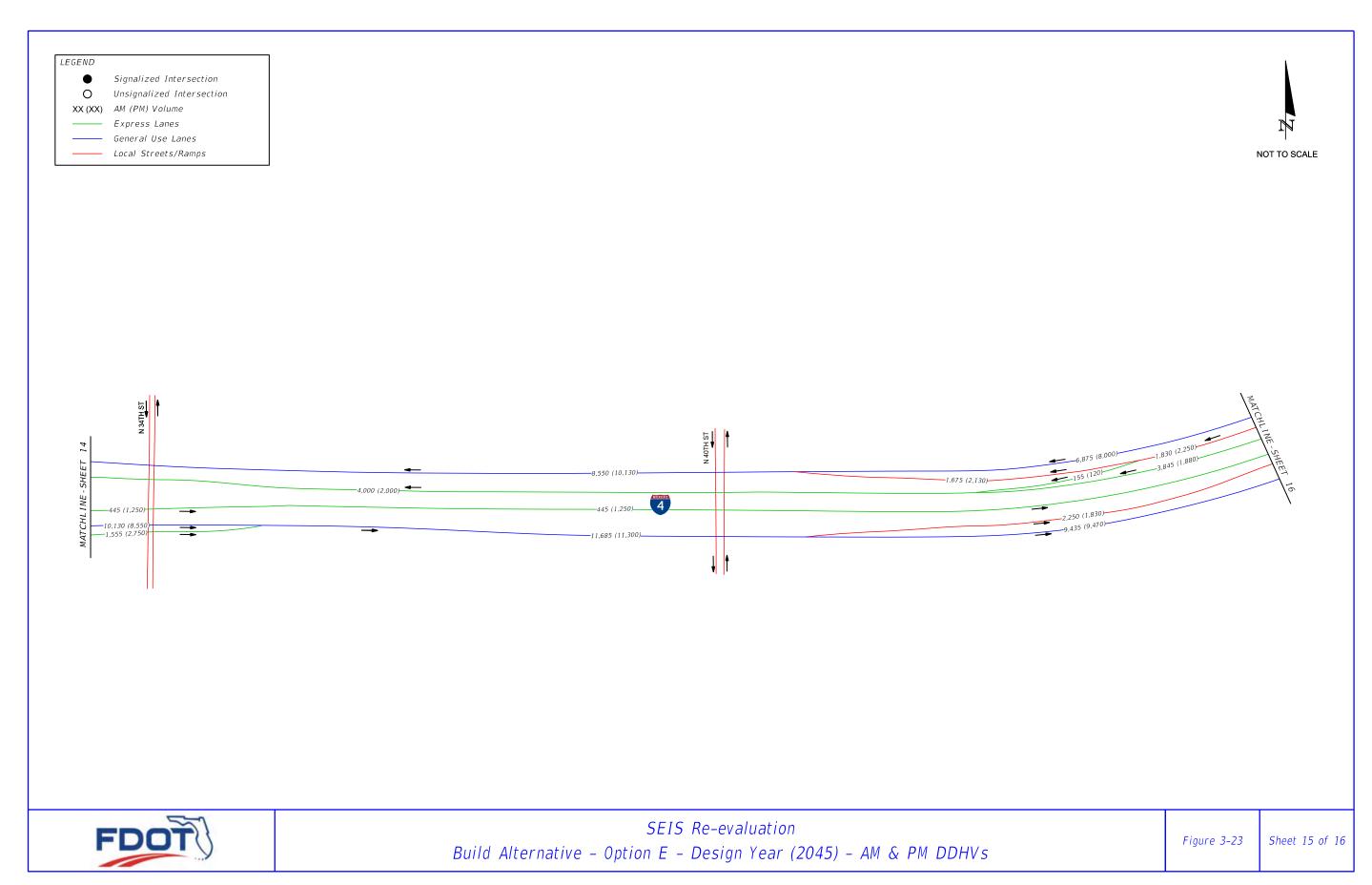
Build Alternative - Option E - Design Year (2045) - AM & PM DDHVs

Figure 3-23









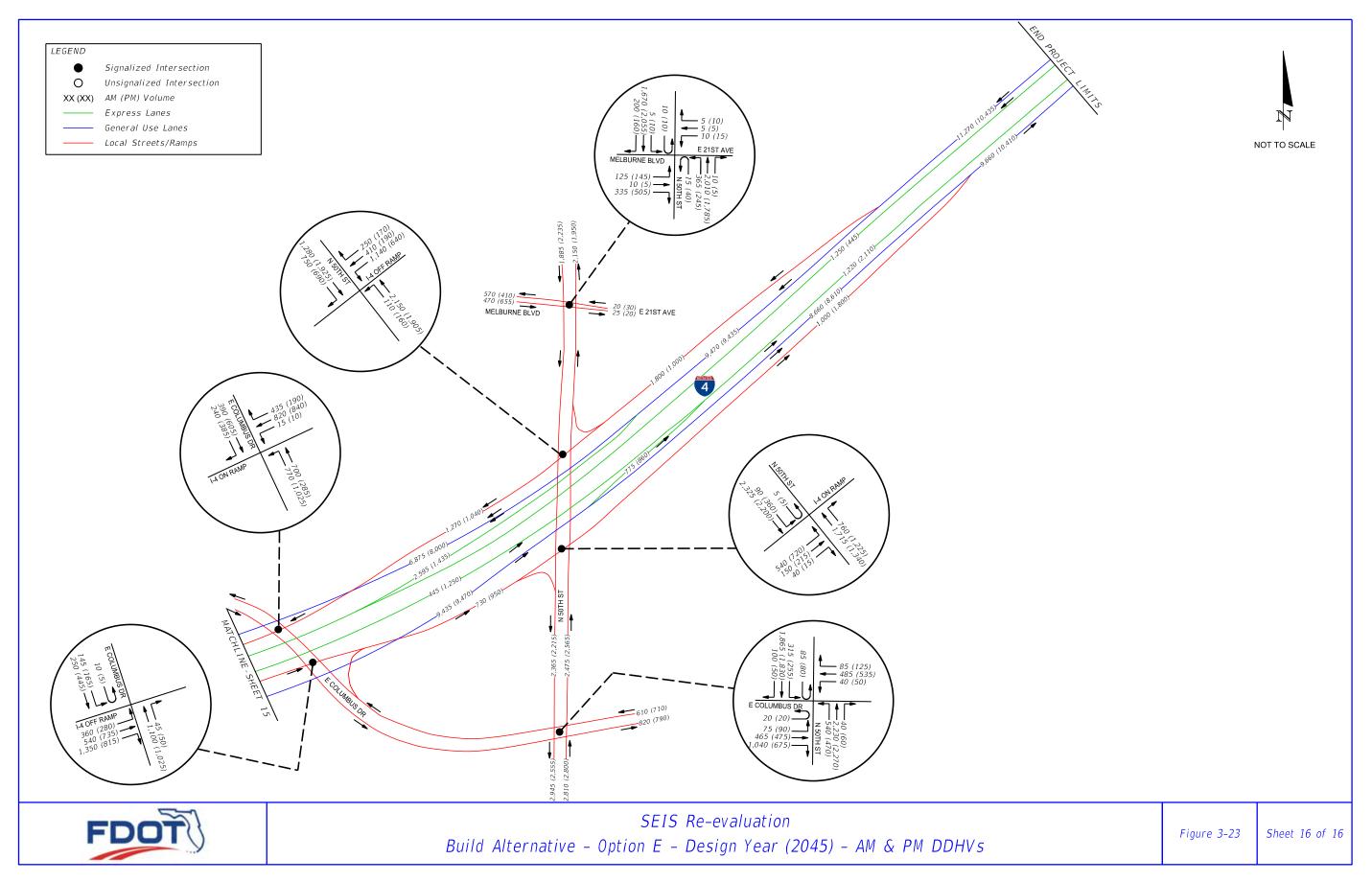




Table 3-6 2045 Alternatives Operations Summary Matrix – AM Peak Hour

Segment	No Further Action	Build Option A	Build Option B	Build Option C	Build Option D	Build Option E
I-275 Between Howard Frankland Bridge & Himes Avenue Interchange	<ul> <li>Northbound:</li> <li>On average, 48 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>Heavy congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 54 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 91 percent of the demand is processed.</li> <li>Moderate congestion between SR 60 and Lois Ave.</li> <li>Heavy congestion between Lois Ave and Himes Ave.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 68 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 91 percent of the demand is processed.</li> <li>Moderate congestion between SR 60 and Lois Ave.</li> <li>Heavy congestion between Lois Ave. and Himes Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 65 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> </ul>	<ul> <li>demand is processed.</li> <li>Moderate congestion South of Dale Mabry Hwy.</li> <li>Heavy congestion North of Dale Mabry Hwy.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 63 percent of the demand is processed.</li> </ul>	<ul> <li>Northbound: <ul> <li>On average, 87 percent of the demand is processed.</li> <li>Moderate congestion South of Dale Mabry Hwy.</li> <li>Heavy congestion North of Dale Mabry Hwy.</li> <li>Moderate congestion near SR 60 on Express Lanes.</li> </ul> </li> <li>Southbound</li> <li>On average, 63 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 74 percent of the demand is processed.</li> <li>Moderate congestion south of Lois.</li> <li>Heavy congestion between Lois and Himes.</li> <li>Moderate congestion on Express Lanes near slip ramp near SR 60.</li> <li>Southbound</li> <li>On average, 68 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No Significant Congestion on Express Lanes.</li> </ul>
I-275 Between Himes Avenue & North Boulevard Interchanges	<ul> <li>Northbound:</li> <li>On average, 70 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>Southbound</li> <li>On average, 57 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 87 percent of the demand is processed.</li> <li>Moderate congestion South of Armenia Ave and near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 74 percent of the demand is processed.</li> <li>Moderate congestion between North Blvd. and Howard Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 87 percent of the demand is processed.</li> <li>Moderate congestion South of Armenia Ave, and North of Howard Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>On average, 69 percent of the demand is processed.</li> <li>Moderate congestion between North Blvd. and Howard Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 87 percent of the demand is processed.</li> <li>Heavy congestion near Himes Ave.</li> <li>Moderate congestion North of Armenia Ave.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 68 percent of the demand is processed.</li> <li>Moderate congestion near Armenia Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 85 percent of the demand is processed.</li> <li>Heavy congestion between Himes Ave. and Armenia Ave.</li> <li>Moderate congestion North of Armenia Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 69 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 74 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>No Significant Congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 78 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No Significant Congestion on Express Lanes.</li> </ul> </li> </ul>
I-275 Between North Blvd. & I-4 Interchanges	<ul> <li>Northbound:</li> <li>On average, 74 percent of the demand is processed.</li> <li>Moderate congestion near I-4.</li> <li>Southbound</li> <li>On average, 47 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> </ul>	North Blvd. and Ashley Dr.	<ul> <li>Northbound:</li> <li>On average, 89 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 67 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> </ul>	Northbound:	<ul> <li>Northbound:         <ul> <li>On average, 85 percent of the demand is processed.</li> <li>Moderate congestion near Orange Ave.</li> <li>Moderate congestion near Orange Ave. on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 62 percent of the demand is processed.</li> </ul> </li> <li>No significant congestion was observed.</li> <li>Moderate congestion near Orange Ave. on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 74 percent of the demand is processed.</li> <li>Heavy congestion between Ashley and Orange.</li> <li>Moderate congestion near I-4 interchange.</li> <li>Southbound</li> <li>On average, 68 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> </ul>



Table 3-6 cont'd 2045 Alternatives Operations Summary Matrix – AM Peak Hour

Segment	No Further Action	Build Option A	Build Option B	Build Option C	Build Option D	Build Option E
I-275 Between I- 4 & North of Martin Luther King Jr. Boulevard Interchanges	<ul> <li>Northbound:</li> <li>On average, 78 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>Southbound</li> <li>On average, 41 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 89 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 74 percent of the demand is processed.</li> <li>Moderate congestion North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 88 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 75 percent of the demand is processed.</li> <li>Moderate congestion near I-4 and North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>demand is processed.</li> <li>Moderate congestion North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 65 percent of the demand is processed.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 89 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 64 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion South of MLK and Heavy congestion North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 81 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>Southbound</li> <li>On average, 63 percent of the demand is processed.</li> <li>Moderate congestion South of Dr. MLK, Jr. Boulevard.</li> <li>Heavy congestion North of Dr. MLK, Jr. Boulevard.</li> </ul>
I-4 Between I- 275 & West of Selmon Connector	<ul> <li>Eastbound:         <ul> <li>On average, 61 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion         <ul> <li>North of 22<sup>nd</sup> St. and South of 21st St. was observed.</li> </ul> </li> <li>Westbound:         <ul> <li>On average, 55 percent of the demand is processed.</li> </ul> </li> <li>Moderate to Heavy congestion was observed.</li> </ul>	<ul> <li>Eastbound:</li> <li>On average, 83 percent of the demand is processed.</li> <li>Moderate congestion between I-275 and Selmon Connector.</li> <li>No significant congestion on Express Lanes.</li> <li>Westbound:</li> <li>On average, 71 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Eastbound:         <ul> <li>On average, 80 percent of the demand is processed.</li> <li>Moderate congestion West of 21<sup>st</sup> St. and heavy congestion east of Selmon Connector.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Westbound:         <ul> <li>On average, 68 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> </ul>	<ul> <li>Eastbound:</li> <li>On average, 86 percent of the demand is processed.</li> <li>Heavy congestion near Selmon Connector.</li> <li>No significant congestion on Express Lanes.</li> <li>Westbound:</li> <li>On average, 64 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Eastbound:         <ul> <li>On average, 81 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion near Selmon Connector.</li> <li>No significant congestion on Express Lanes.</li> <li>Westbound:         <ul> <li>On average, 69 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion near 50<sup>th</sup> St.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Eastbound:</li> <li>On average, 68 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>Westbound:</li> <li>On average, 83 percent of the demand is processed.</li> <li>Heavy congestion near Selmon.</li> <li>Moderate congestion West of 21st St.</li> </ul>



Table 3-7 2045 Alternatives Operations Summary Matrix – PM Peak Hour

	Table 3-7 2045 Aternatives Operations Summary Matrix - PM Feak Hour											
Segment	No Further Action	Build Option A	Build Option B	Build Option C	Build Option D	Build Option E						
I-275 Between Howard Frankland Bridge & Himes Avenue Interchange	<ul> <li>Northbound:</li> <li>On average, 36 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>Heavy congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 53 percent of the demand is processed.</li> <li>Moderate congestion between Lois Ave. and SR 60.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound: <ul> <li>On average, 93 percent of the demand is processed.</li> <li>Moderate congestion North of SR 60.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Southbound <ul> <li>On average, 69 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 94 percent of the demand is processed.</li> </ul> </li> <li>Moderate to Heavy congestion South of Lois Ave.</li> <li>Moderate congestion North of Dale Mabry Hwy.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 68 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 85 percent of the demand is processed.</li> <li>Moderate to Heavy congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 65 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Express Lanes.</li> <li>Southbound</li> <li>On average, 64 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 83 percent of the demand is processed.</li> <li>Moderate congestion south of Lois.</li> <li>Heavy congestion between Lois and Himes.</li> <li>No Significant Congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 63 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No Significant Congestion on Express Lanes.</li> </ul> </li> </ul>						
I-275 Between Himes Avenue & North Boulevard Interchanges	<ul> <li>Northbound:</li> <li>On average, 53 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>Southbound</li> <li>On average, 47 percent of the demand is processed.</li> <li>Moderate congestion North of Howard Ave.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 88 percent of the demand is processed.</li> <li>Moderate congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 73 percent of the demand is processed.</li> <li>Moderate congestion South of Armenia Ave. and North of Howard Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> </ul>	<ul> <li>Northbound:</li> <li>On average, 89 percent of the demand is processed.</li> <li>Moderate congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 72 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 78 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 73 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion near Howard Ave.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Express Lanes.</li> <li>Southbound</li> <li>On average, 69 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 75 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>No Significant Congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 73 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No Significant Congestion on Express Lanes.</li> </ul>						
I-275 Between North Blvd. & I-4 Interchanges	<ul> <li>Northbound:</li> <li>On average, 61 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> <li>Southbound</li> <li>On average, 29 percent of the demand is processed.</li> <li>Moderate congestion from Tampa St. to Orange Ave.</li> <li>Heavy congestion between Orange Ave. and I-4.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 86 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 77 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 85 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 75 percent of the demand is processed.</li> <li>Moderate congestion near North Blvd.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 77 percent of the demand is processed.</li> <li>Heavy congestion South of Tampa St.</li> <li>Moderate congestion near Orange St.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 73 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 77 percent of the demand is processed.</li> </ul> </li> <li>Heavy congestion South of Tampa St.</li> <li>Moderate congestion between Tampa St. and Orange St.</li> <li>Moderate congestion near Orange Ave. on Express Lanes.</li> </ul> <li>Southbound</li> <ul> <li>On average, 69 percent of the demand is processed.</li> </ul> <li>No significant congestion was observed.</li> <li>Moderate congestion near Orange Ave. on Express Lanes.</li>	<ul> <li>Northbound:</li> <li>On average, 74 percent of the demand is processed.</li> <li>Heavy congestion between Ashley and Orange.</li> <li>Moderate congestion near I-4 interchange.</li> <li>Southbound</li> <li>On average, 76 percent of the demand is processed.</li> <li>Moderate congestion near Express Lane entry.</li> </ul>						



Table 3-7 cont'd 2045 Alternatives Operations Summary Matrix – PM Peak Hour

Segment	No Further Action	Build Option A	Build Option B	Build Option C	Build Option D	Build Option E
I-275 Between I-4 & North of Martin Luther King Jr. Boulevard Interchanges	<ul> <li>Northbound:</li> <li>On average, 63 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>Southbound</li> <li>On average, 74 percent of the demand is processed.</li> <li>Moderate congestion South of Dr. MLK, Jr. Boulevard.</li> <li>Heavy congestion North of Dr. MLK, Jr. Boulevard.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 81 percent of the demand is processed.</li> <li>Moderate congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 91 percent of the demand is processed.</li> <li>Heavy congestion North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 78 percent of the demand is processed.</li> <li>Moderate congestion South of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 89 percent of the demand is processed.</li> <li>Heavy congestion North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:</li> <li>On average, 85 percent of the demand is processed.</li> <li>Moderate congestion South of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> <li>Southbound</li> <li>On average, 88 percent of the demand is processed.</li> <li>Moderate congestion North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Northbound:         <ul> <li>On average, 83 percent of the demand is processed.</li> <li>Moderate congestion was observed.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Southbound         <ul> <li>On average, 86 percent of the demand is processed.</li> <li>Moderate congestion South of MLK.</li> <li>Heavy congestion North of Dr. MLK, Jr. Boulevard.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> </ul>	<ul> <li>Northbound:</li> <li>On average, 73 percent of the demand is processed.</li> <li>Moderate congestion near Dr. MLK, Jr. Boulevard.</li> <li>Southbound</li> <li>On average, 89 percent of the demand is processed.</li> <li>Moderate congestion North of Dr. MLK, Jr. Boulevard.</li> </ul>
I-4 Between I-275 & West of Selmon Connector	<ul> <li>Eastbound:</li> <li>On average, 58 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>Westbound:</li> <li>On average, 27 percent of the demand is processed.</li> <li>Heavy congestion was observed.</li> </ul>	<ul> <li>Eastbound:         <ul> <li>On average, 90 percent of the demand is processed.</li> <li>Heavy congestion east of Selmon connector.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Westbound:         <ul> <li>On average, 76 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion near N 21<sup>st</sup>/22<sup>nd</sup> St.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Eastbound:         <ul> <li>On average, 83 percent of the demand is processed.</li> <li>Heavy congestion east of Selmon connector.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Westbound:         <ul> <li>On average, 74 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion near N 21<sup>st</sup>/22<sup>nd</sup> St.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Eastbound:         <ul> <li>On average, 84 percent of the demand is processed.</li> </ul> </li> <li>Moderate to Heavy congestion east of 22<sup>nd</sup> St.</li> <li>No significant congestion on Express Lanes.</li> <li>Westbound:         <ul> <li>On average, 73 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion West of 22<sup>st</sup> St.</li> <li>No significant congestion on Express Lanes.</li> </ul>	<ul> <li>Eastbound:         <ul> <li>On average, 88 percent of the demand is processed.</li> <li>Heavy congestion east of 22<sup>nd</sup> St.</li> <li>No significant congestion on Express Lanes.</li> </ul> </li> <li>Westbound:         <ul> <li>On average, 72 percent of the demand is processed.</li> </ul> </li> <li>Moderate congestion near 50<sup>th</sup> St.</li> </ul>	<ul> <li>Eastbound:</li> <li>On average, 75 percent of the demand is processed.</li> <li>No significant congestion was observed.</li> <li>Westbound:</li> <li>On average, 73 percent of the demand is processed.</li> <li>Heavy congestion between 21st St. and Selmon.</li> <li>Moderate congestion near l-275.</li> </ul>



Figure 3-51 I-275 NB Analysis Summary - 2045 No Further Action (NFA)

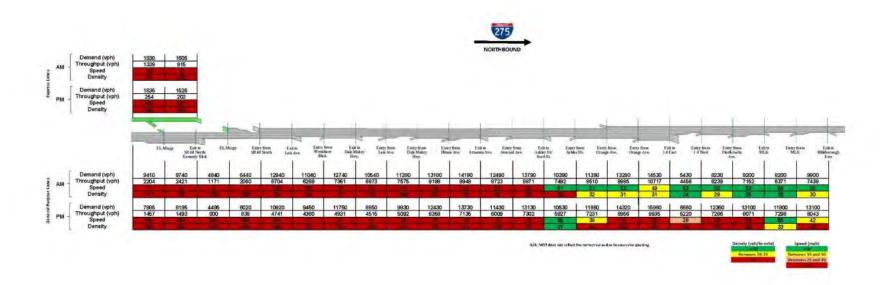




Figure 3-52 I-275 SB Analysis Summary - 2045 No Further Action (NFA)

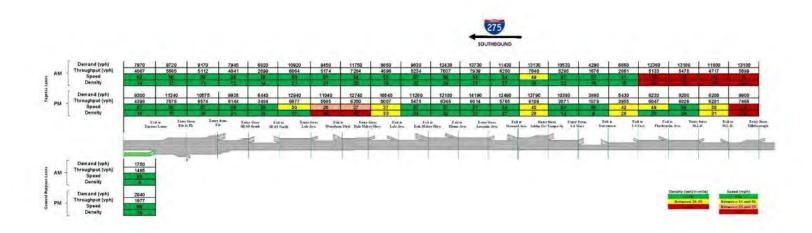




Figure 3-53 I-4 EB Analysis Summary - 2045 No Further Action (NFA)

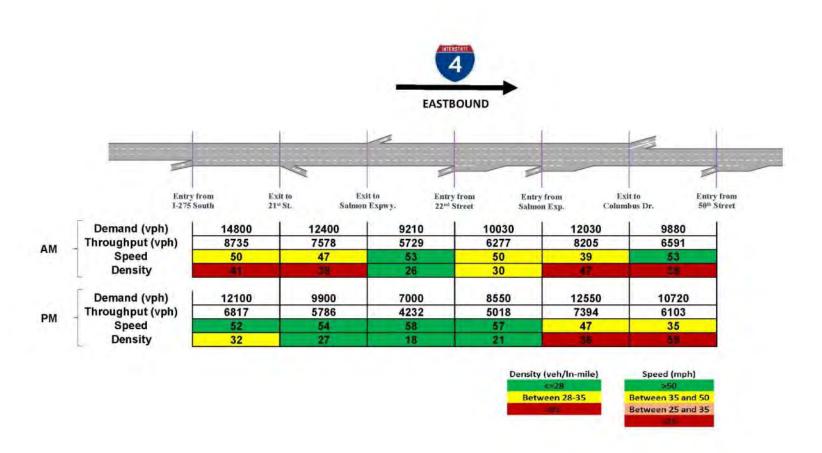




Figure 3-54 I-4 WB Analysis Summary - 2045 No Further Action (NFA)

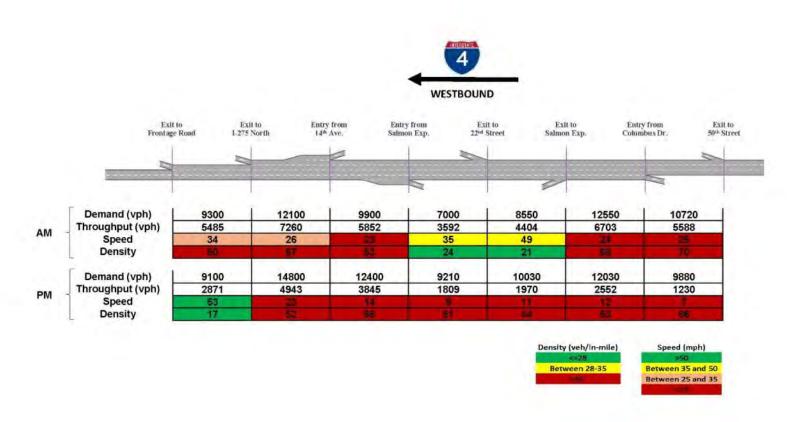




Figure 3-71 I-275 NB Analysis Summary - 2045 Build Option E

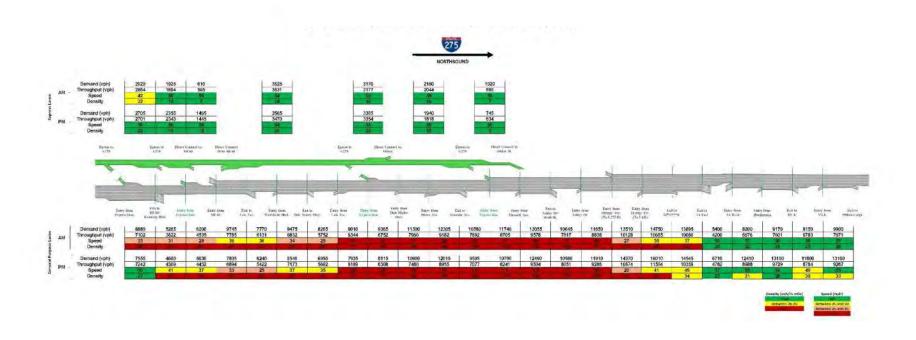




Figure 3-72 I-275 SB Analysis Summary - 2045 Build Option E

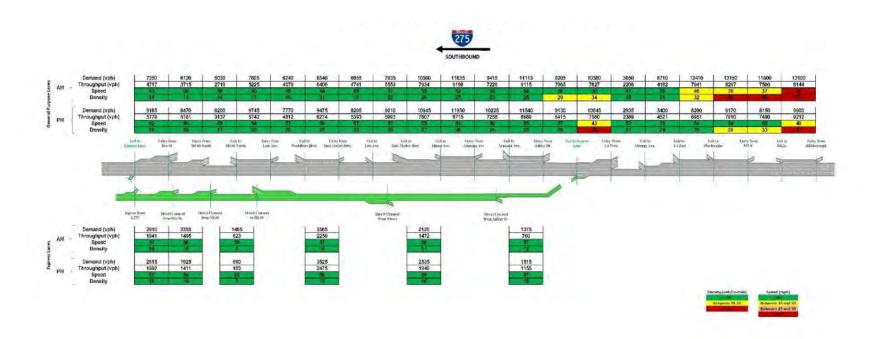




Figure 3-73 I-4 EB Analysis Summary - 2045 Build Option E

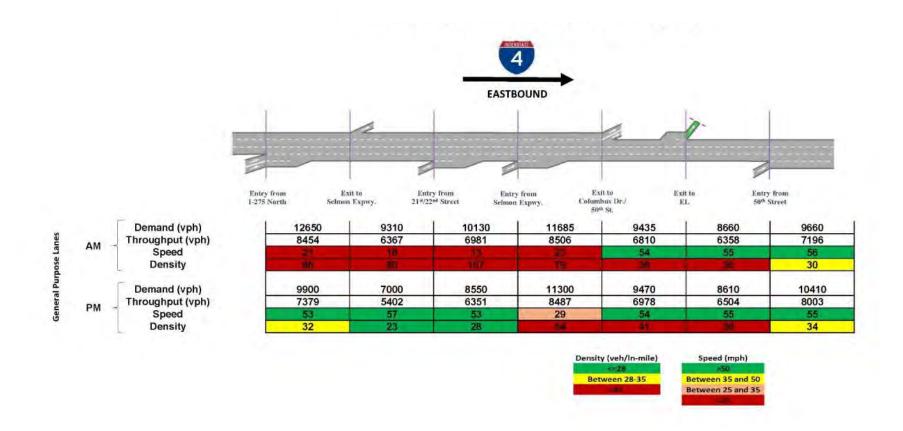




Figure 3-74 I-4 WB Analysis Summary - 2045 Build Option E

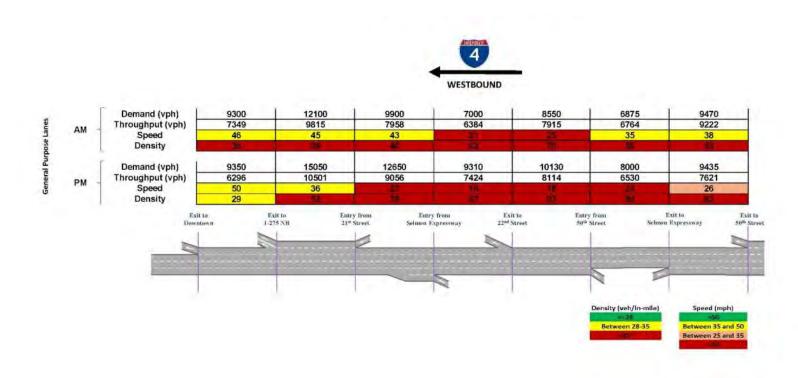




Figure 3-75 Average Peak Hour Speed Summary for 2045 Design Year

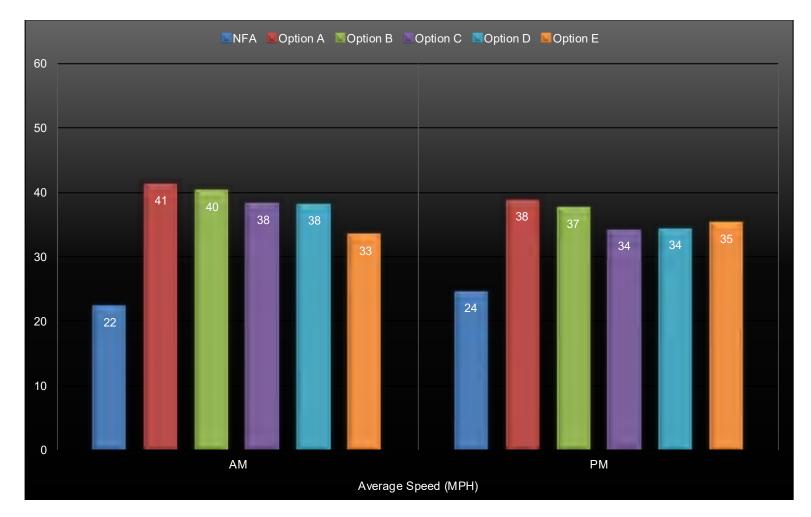




Figure 3-76 Total Peak Hour Travel Delay Summary for 2045 Design Year

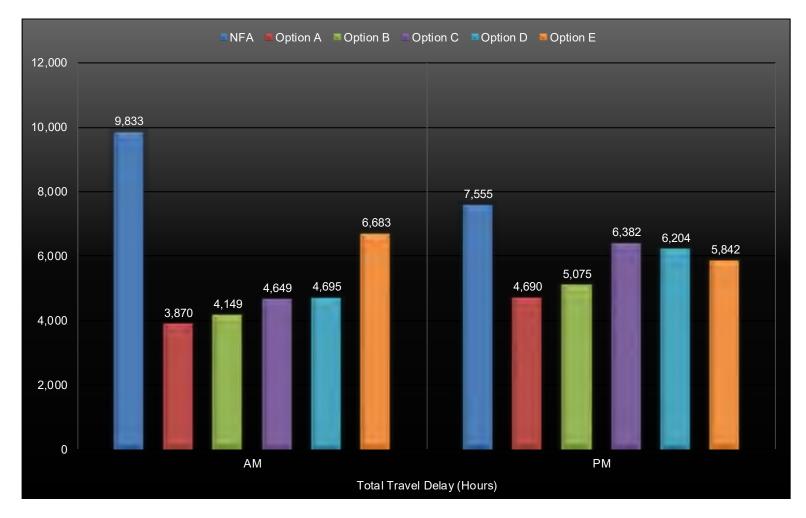




Figure 3-77 Peak Hour Delay per Vehicle-Mile Summary for 2045 Design Year

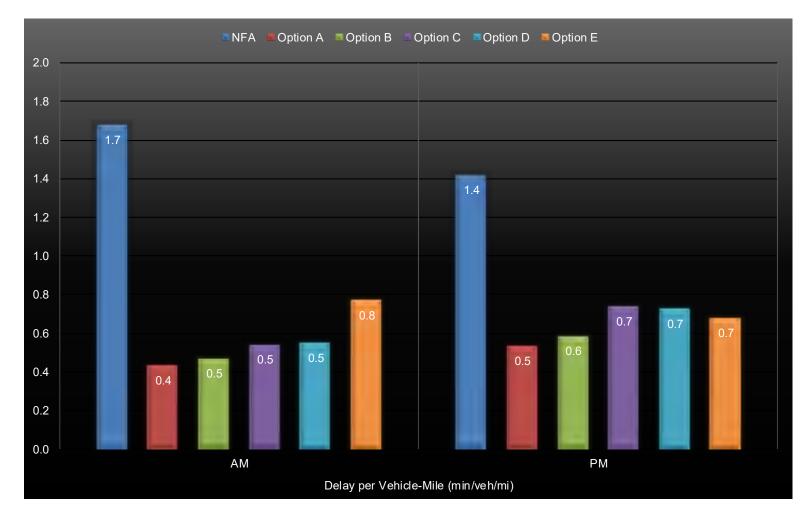




Figure 4-4 Average Peak Hour Speed Improvement Vs NFA (2045 Design Year)

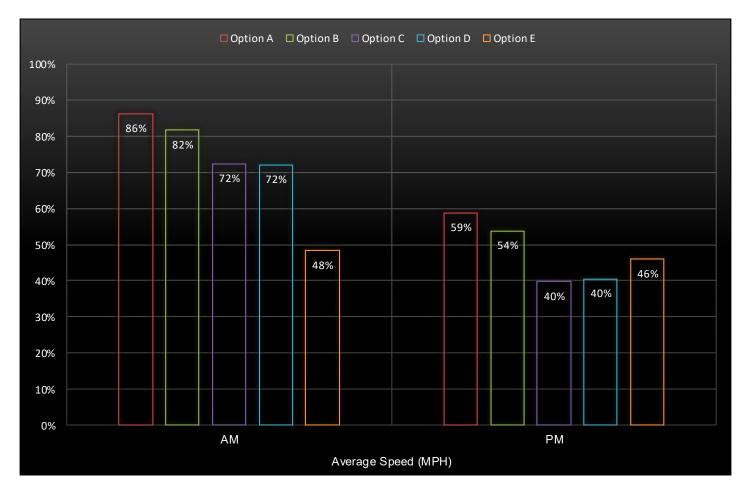




Figure 4-5 Total Peak Hour Travel Delay Reduction Vs NFA (2045 Design Year)

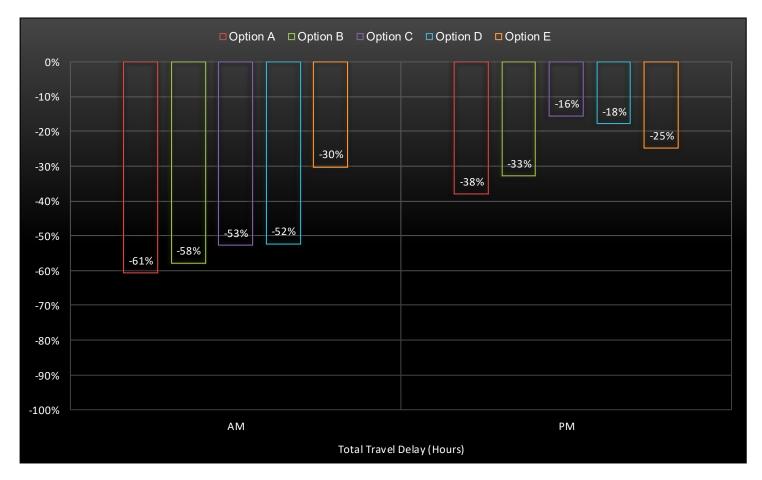
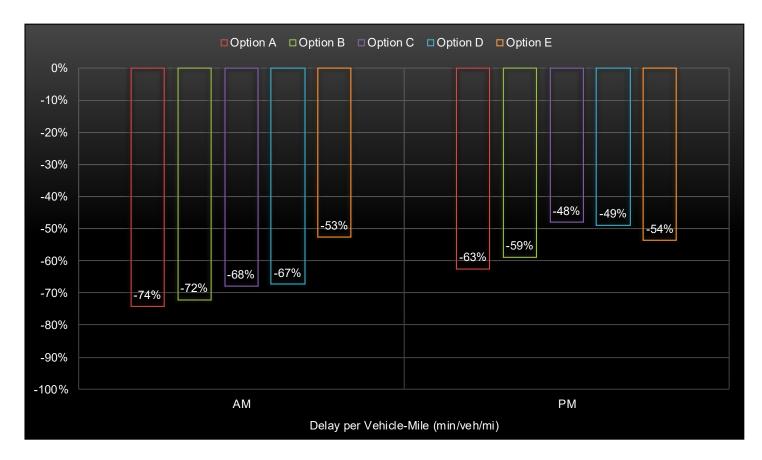




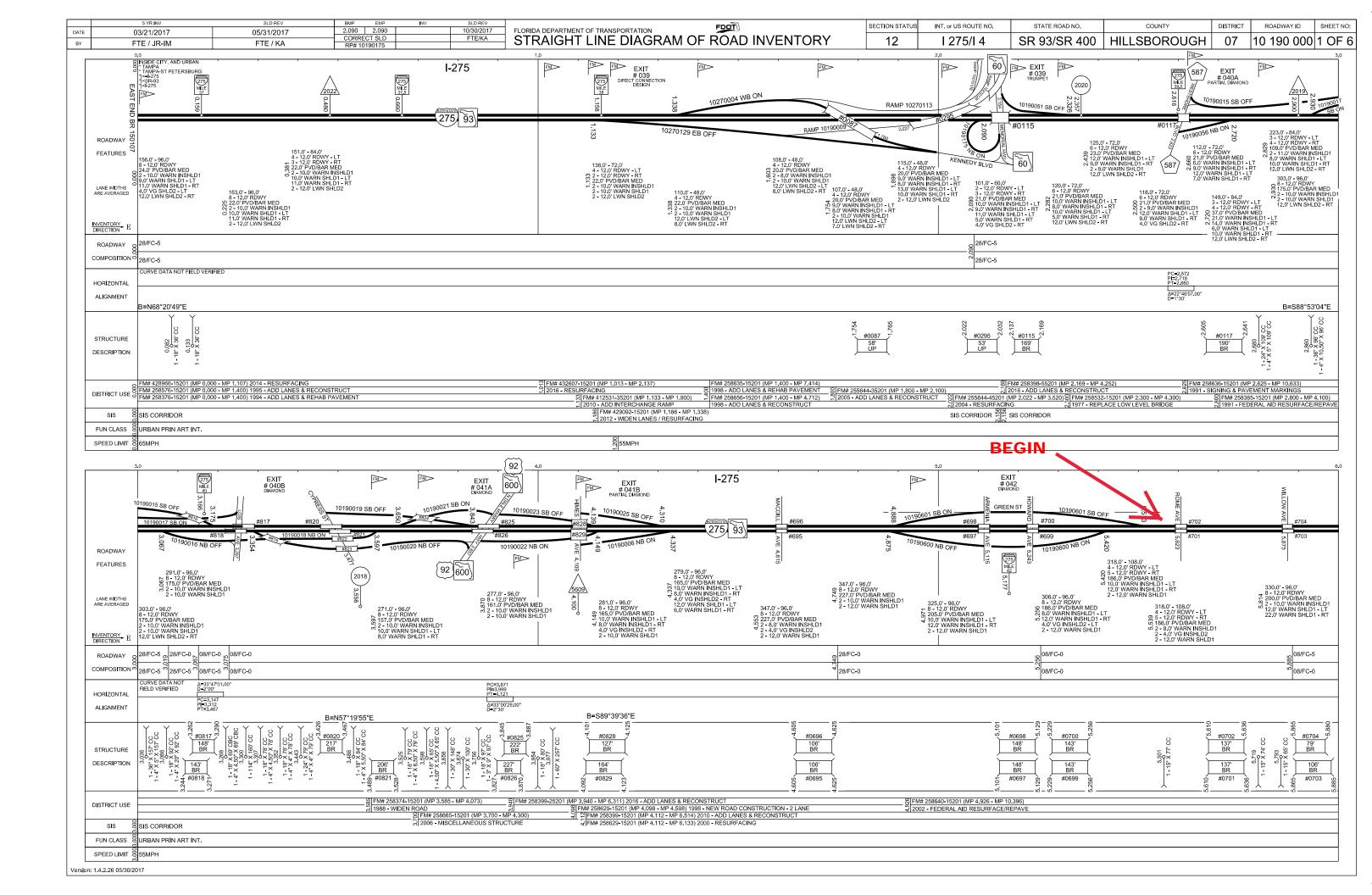
Figure 4-6 Peak Hour Travel Delay per Vehicle-Mile Reduction Vs NFA (2045 Design Year)

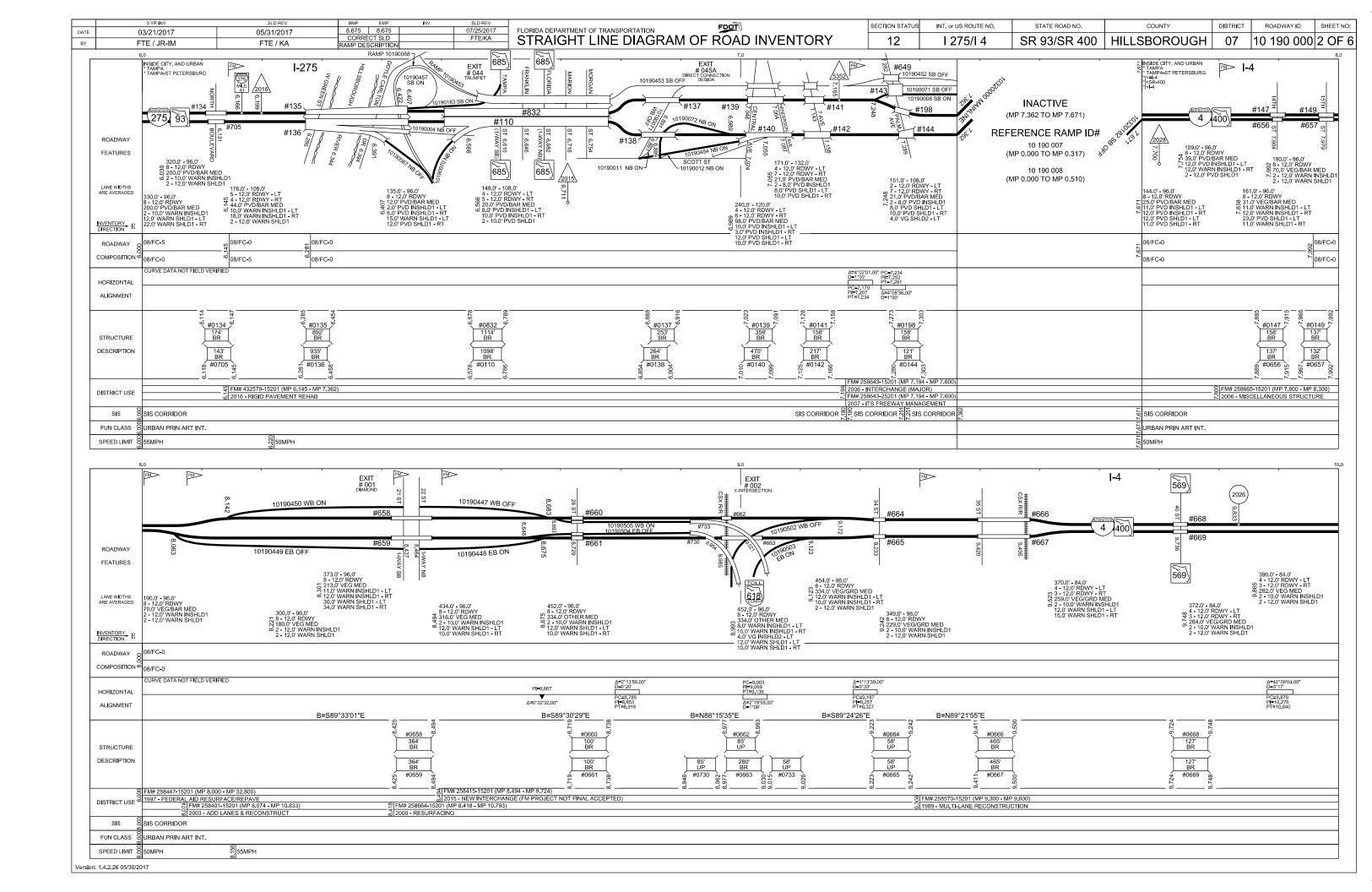


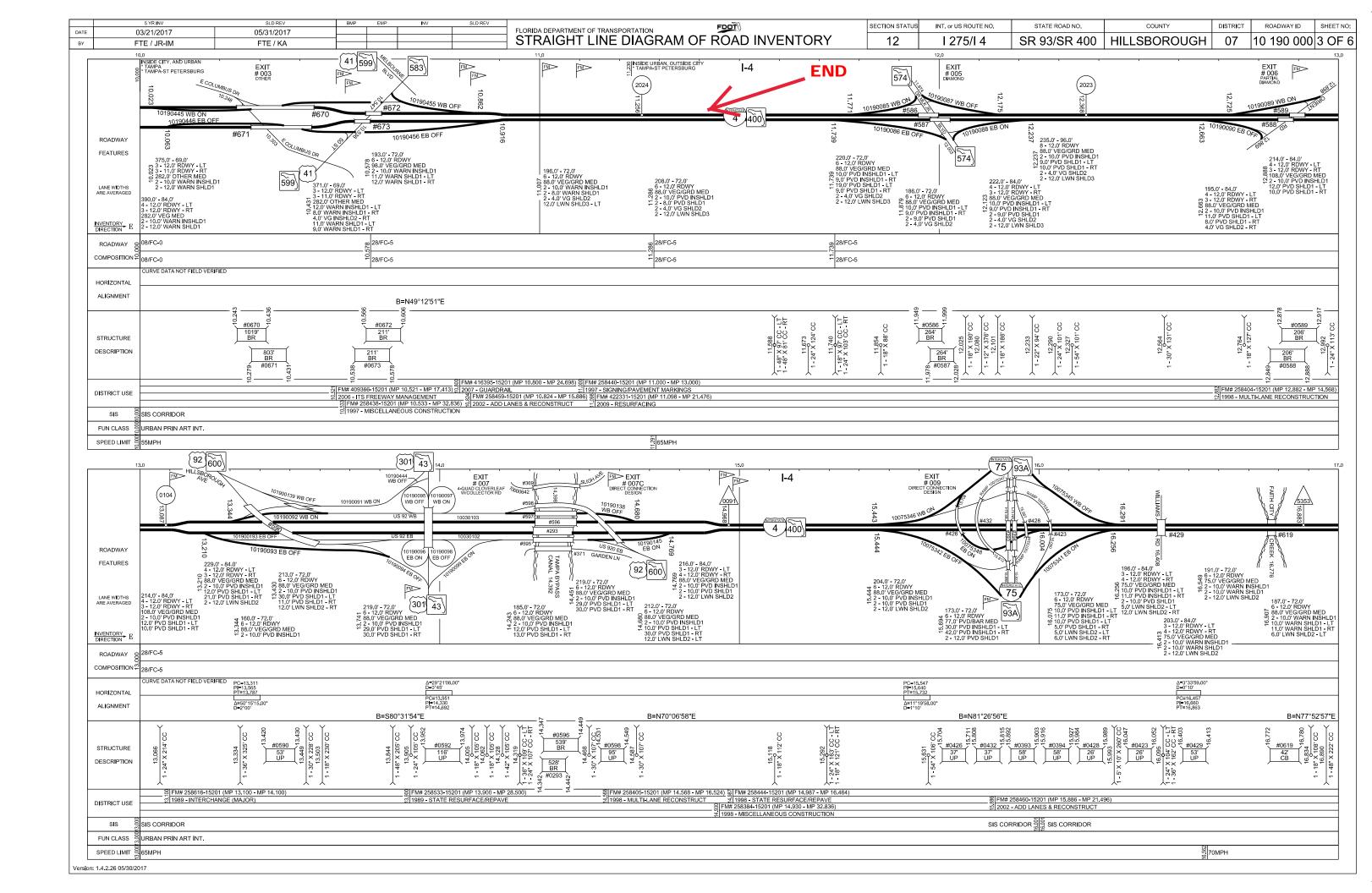


## **APPENDIX J**

## Straight Line Diagram Inventory



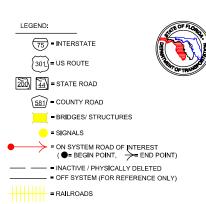




	5 YR INV	SLD REV	BMP	EMP	INV	SLD REV	EDG#	SECTION STATUS	INT. or US POLITE NO	STATE POAD NO	COLINTY	DISTRICT	BOADWAY ID	SHEET NO:
DATE	03/21/2017	05/31/2017					FLORIDA DEPARTMENT OF TRANSPORTATION	OLO HON STATOS	1141: 61 66 10612 146.	STATE ROAD NO.	6061411		NOADWATID	0.1.2
<b>-</b>	ETE / ID IM						STRAIGHT LINE DIAGRAM OF ROAD INVENTORY	12	1 275/1 4	SR 93/SR 400	HILLSBOROUGH	07	10 190 000	16 OF 6
BY	FIE/JR-IM	FTE / KA					OTTAIGHT LINE DIAGRAM OF ROAD INVENTORY	12	12/3/14	011 33/311 400	THEESBOROOGH	01	110 130	000

## NOTE:

THE AERIAL IMAGES USED IN THIS INTERSECTION DETAIL SHEET ARE DATED 2017. REFER TO THE SLD MAIN SHEETS AND THE RCI DATABASE FOR MORE INFORMATION. SEE SECTION 10-190-000 SHEET 2



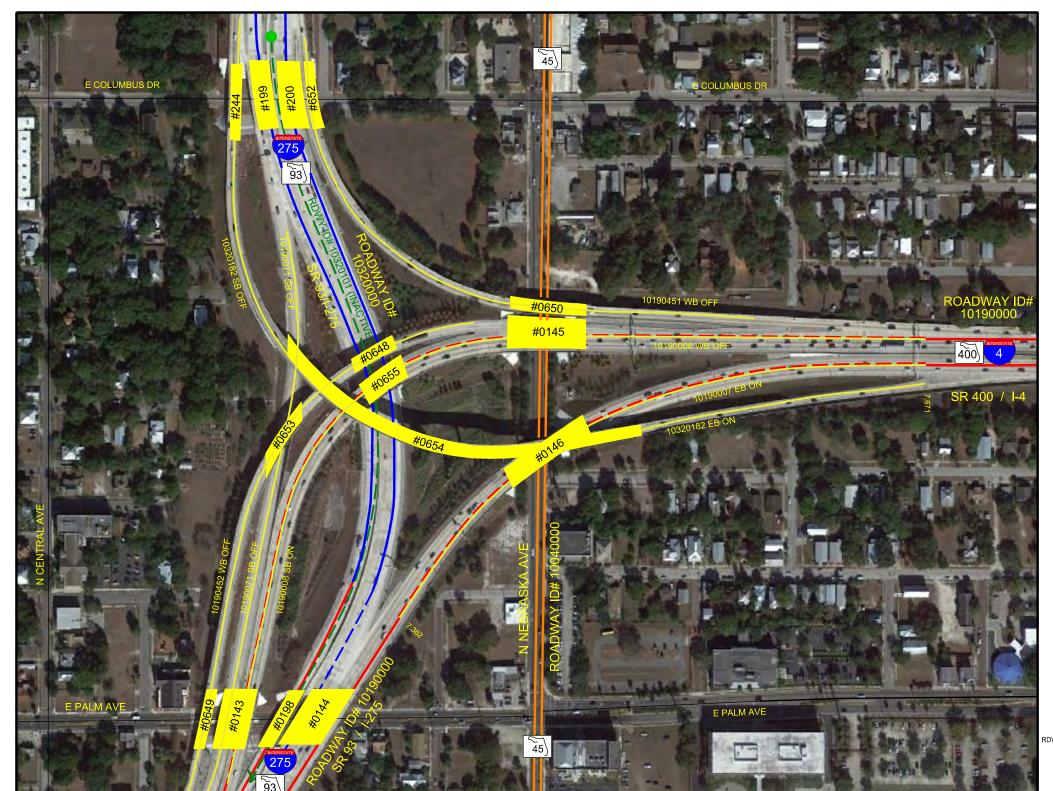
NOTE: COLORS BESIDES RED ARE NOT ROAD OF INTEREST, BUT ARE ON SYSTEM ROADS

THESE STRAIGHT LINE DIAGRAMS (SLD'S AND SECTION INSET SHEETS WERE PREPARED BY DISTRICT SEVEN MAINTENANCE OFFICE. IF YOU HAVE ANY QUESTIONS OR COMMENTS CONCERNING ANY INFORMATION ON THE SLD'S OR SECTION KEY SHEETS, PLEASE CALL OUR OFFICE AT (81.3) 975-8423

THE PURPOSE OF THESE SECTION INSETS SHEETS IS TO SHOW THE ALIGNMENTS, LOCATIONS, AND SECTION NUMBERS OF DISTRICT SEVEN ON-SYSTEM ROADWAYS. THE DOT ON THE SECTION ALIGNMENTS CORRESPONDS TO THE BEGIN POINT OF THAT SECTION, AND THE ARROW HEAD CORRESPONDS TO THE END POINT OF THAT SECTION.

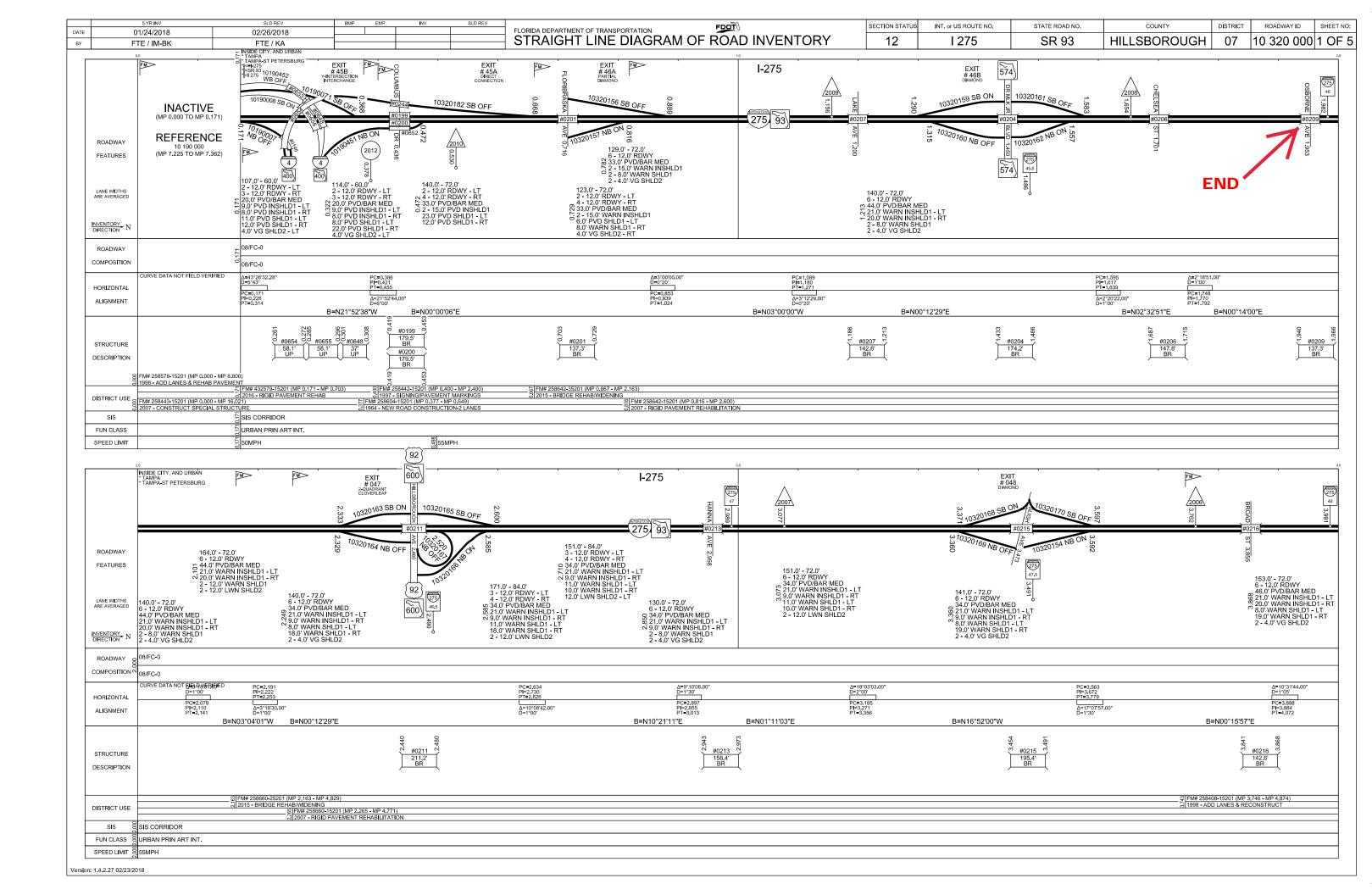
THE USE OF COLOR-CODED KEY SHEETS IS FOR DISTINGUISHING ONE SECTION'S ALIGNMENT FROM ANOTHER SECTION'S ALIGNMENT. THEREFORE WE STRONGLY RECOMMEND THAT ALL COPIES OF THESE KEY SHEETS BE REPRODUCED IN COLOR.

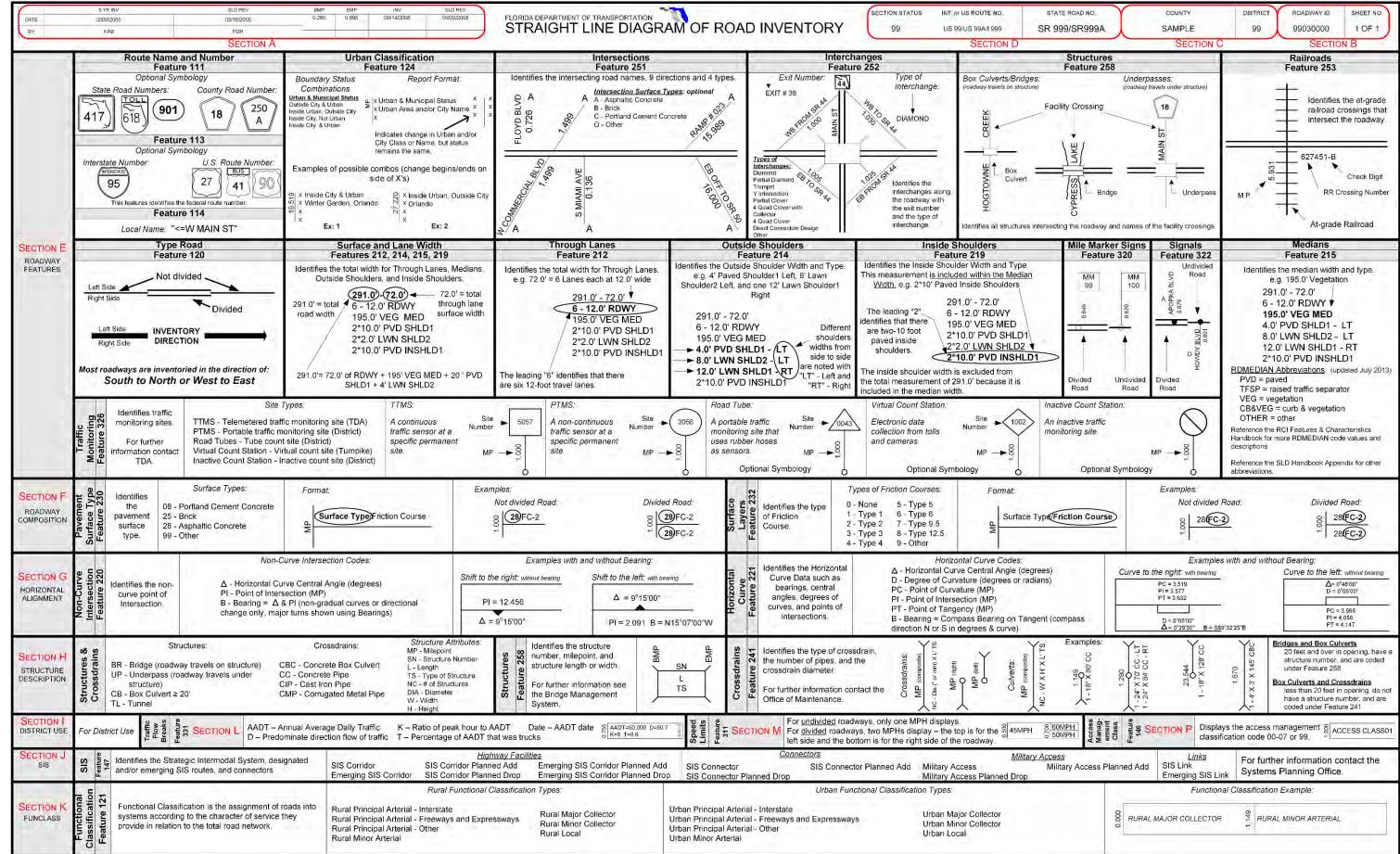
SEVERAL ENHANCEMENTS HAVE BEEN MADE TO THESE INSET SHEETS TO MAKE THEM MORE USER FRIENDLY AND CLEAR. WE HAVE INCLUDED INSETS TO COVER AREAS OF COMPLEX SECTION ALIGNMENTS, WHICH SHOW MORE DETAILS AND LOCAL ROADWAYS. LOCATIONS AND BRIDGE NUMBERS OF CERTAIN BRIDGE STRUCTURES WERE SHOWN IN THE INSETS ONLY AS A POINT OF REFERENCE. NOTE THAT THE LOCATIONS OF THESE BRIDGE STRUCTURES IN THE INSETS ARE ONLY APPROXIMATIONS. PLEASE REFERENCE THE APPROPRIATE SECTION SLD'S FOR PRECISE MILEPOINT LOCATIONS OF STRUCTURES.











Milepoint Conversion: 0.001 miles = 5.28 feet, 0.010 miles = 52.8 feet, 0.100 miles = 528 feet, 1.000 miles = 5,280 feet NOTES: •

Inventory Tolerance: Within Urban Areas, 0.010 miles or 52.8 feet, within Rural Areas, 0.050 miles or 264.0 feet

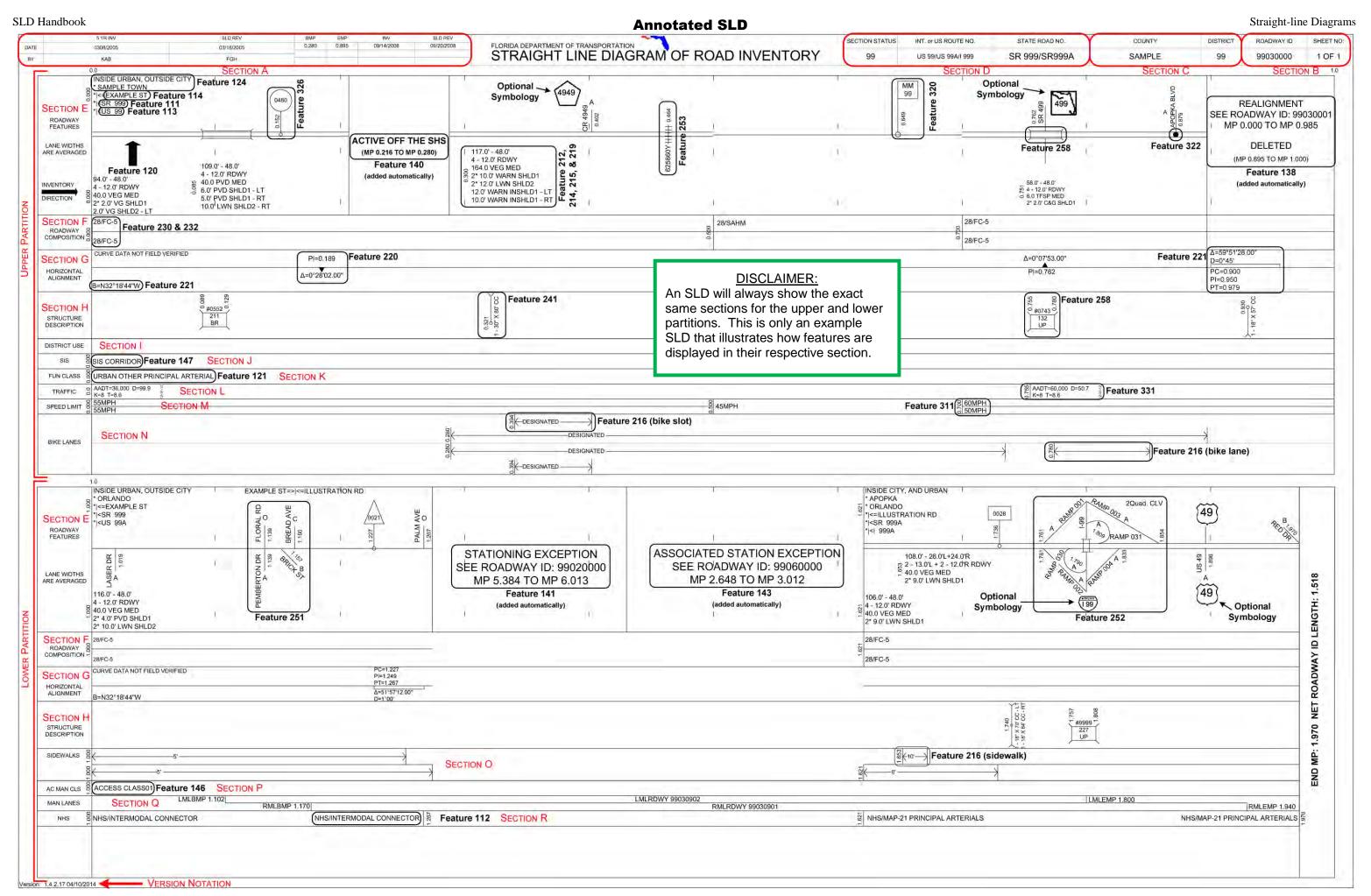
For further information on feature data refer to the RCI Features & Characteristics Handbook,

For further information on straight-line diagram production refer to the SLD Handbook.

Purpose: To guide and direct users in reading SLDs Prepared by: Transportation Data & Analytics Office Date: 06/30/2017



SLDs consist of two partitions, an upper and lower. The upper and lower partitions contain the same sections, however the data in each partition differs.



SLD Handbook SLD Handbook Appendix

# **APPENDIX**

# Abbreviated SLD Descriptions for Features 214, 215, & 219

Feature	Characteristic	Code	Abbreviation	Description
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	0	RC	RAISED CURB
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	1	PVD	PAVED
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	2	WARN	PAVED WITH WARNING DEVICE
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	3	LWN	LAWN
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	4	GRVL	GRAVEL/MARL
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	5	VG	VALLEY GUTTER
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	6	C&G	CURB & GUTTER
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	7	OTHER	OTHER
214	SHLDTYPE, SHLDTYP2, SHLDTYP3	8	CRG	CURB WITH RESURFACED GUTTER

Feature	Characteristic	Code	Abbreviation	Description
215	MDBARTYP	03	CBL	CABLE BARRIER
215	MDBARTYP	04	GRD	GUARDRAIL
215	MDBARTYP	05	FNC	FENCE
215	MDBARTYP	06	BAR	BARRIER WALL
215	MDBARTYP	20	OTHER	OTHER
215	MDBARTYP	28	CRW	CANAL, RIVER, WATERWAY

Feature	Characteristic	Old Code	Old Abbreviations	Old Description	New Code	New Abbreviation	New Description
215	RDMEDIAN	01	PTD	PAINTED/TWO-WAY LEFT TURN	01	PVD	PAVED
215	RDMEDIAN	02	CRB	TRAFFIC SEPARATOR/CONCRETE CRB	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	03	C>6	CURB>6 INCHES	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	08	LWN	LAWN/TURF	08	VEG	VEGETATION
215	RDMEDIAN	09	GRVL	GRAVEL/MARL	20	OTHER	OTHER
215	RDMEDIAN	10	PVD	PAVED/HATCHING AND GORES	01	PVD	PAVED
215	RDMEDIAN	11	DEPMED	DEPRESSED MEDIAN	08	VEG	VEGETATION
215	RDMEDIAN	12	PVD/GR	PAVED WITH GUARDRAIL	01	PVD	PAVED
215	RDMEDIAN	13	PVD/BAR	PAVED WITH BARRIER	01	PVD	PAVED
215	RDMEDIAN	14	CB<6/GR	CURB<6 INCHES & GUARDRAIL	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	15	CB<6/FNC	CURB<6 INCHES & FENCE	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	16	CB<6/BAR	CURB<6 INCHES & BARRIER	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	17	C/LWN	CURB WITH LAWN/TURF	17	CB&VEG	CURB & VEGETATION
215	RDMEDIAN	18	CB>6/GR	CURB>6 INCHES & GUARDRAIL	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	19	CB>6/FNC	CURB>6 INCHES & FENCE	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	20	OTHER	OTHER	20	OTHER	OTHER
215	RDMEDIAN	21	CB>6/BAR	CURB>6 INCHES & BARRIER	02	TFSP	RAISED TRAFFIC SEPARATOR
215	RDMEDIAN	22	CB>6/LWN	CURB>6 INCHES & LAWN	17	CB&VEG	CURB & VEGETATION
215	RDMEDIAN	23	LWN/GR	LAWN & GUARDRAIL	08	VEG	VEGETATION
215	RDMEDIAN	24	LWN/FNC	GRASSED WITH FENCE	08	VEG	VEGETATION
215	RDMEDIAN	25	LWN/BAR	LAWN & BARRIER WALL	08	VEG	VEGETATION
215	RDMEDIAN	26	LWN/BAR/CB<6	LAWN, BARRIER WALL, & CURB<6 INCHES	17	CB&VEG	CURB & VEGETATION
215	RDMEDIAN	27	LWN/BAR/CB>6	LAWN, BARRIER WALL, & CURB>6 INCHES	17	CB&VEG	CURB & VEGETATION
215	RDMEDIAN	28	CANAL/DITCH	CANAL, DITCH, ETC.	20	OTHER	OTHER
215	RDMEDIAN	29	COMBO 2,3,28	COMBINATION OF 02,03,& 28	20	OTHER	OTHER
215	RDMEDIAN	30	COMBO 2,3,5,28	COMBINATION OF 02,03,05,28	20	OTHER	OTHER
215	RDMEDIAN	31	LWN/DBL GR	LAWN W/DOUBLE GUARDRAIL	08	VEG	VEGETATION
215	RDMEDIAN	32	UNPVD w/LSCP	UNPAVED W/LANDSCAPING	08	VEG	VEGETATION
215	RDMEDIAN	33	WOOD	WOODED	08	VEG	VEGETATION
215	RDMEDIAN	34	C/LSCP	CURB W/LANDSCAPING	17	CB&VEG	CURB & VEGETATION
215	RDMEDIAN	41	RND	ROUNDABOUT	NO CHANGE	RND	ROUNDABOUT
215	RDMEDIAN	42	NC RND	NON-COUNTED ROUNDABOUT	NO CHANGE	NC RND	NON-COUNTED ROUNDABOUT
215	RDMEDIAN	43	CIR	TRAFFIC CIRCLE	NO CHANGE	CIR	TRAFFIC CIRCLE
215	RDMEDIAN	44	NC CIR	NON-COUNTED TRAFFIC CIRCLE	NO CHANGE	NC CIR	NON-COUNTED TRAFFIC CIRCLE
215	RDMEDIAN	50	NC MNG LN	NON-COUNTED MANAGED LANE	NO CHANGE	NC MNG LN	NON-COUNTED MANAGED LANE

Page 28 July 2017 July 2017

Feature	Characteristic	Code	Abbreviation	Description
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	0	RC	RAISED CURB
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	1	PVD	PAVED
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	2	WARN	PAVED WITH WARNING DEVICE
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	3	LWN	LAWN
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	4	GRVL	GRAVEL/MARL
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	5	VG	VALLEY GUTTER
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	6	C&G	CURB & GUTTER
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	7	OTHER	OTHER
219	ISLDTYPE, ISLDTYP2, ISLDTYP3	8	CRG	CURB WITH RESURFACED GUTTER



# **APPENDIX K**

# **Bridge Rehabilitation Recommendations Memo**

# Memorandum

# APPENDIX K

Bridge Rehabilitation Recommendations Memo September 26, 2019

Date: September 26, 2019

To: Marshall Hampton, P.E., Special Project Administrator, FDOT District 7

From: Brad Flom, P.E., Program Manager, Tampa Bay Next Program Consultant

Jeff Drapp, P.E., Section Manager, Tampa Bay Next Program Consultant

Julian Gutierrez, P.E., Structural Engineer, Tampa Bay Next Program Consultant

Subject: Review of Existing Bridges in Section 6 - Downtown Interchange

# **Executive Summary**

The purpose of this memo is to summarize the findings of a structural review of the existing bridge structures within Section 6 of the Tampa Bay Next (TBN) Program (see *Table 1* and *Figure 1*), make a recommendation on potential rehabilitation of existing bridges, and provide a cost estimate for potential deck replacements. The Section 6 bridges included in this memo are within the downtown interchange of I-275 and I-4 from Floribraska Avenue to the north, North Boulevard to the south and west, and 15<sup>th</sup> Avenue to the east. The review considers only structural issues and does not consider the current or future geometrics of the mainline or cross streets.





Four options are being considered as potential improvements in Section 6 within approximately the next 10 years. Some of the options being considered would require all the existing bridges to be replaced, while others include combinations of replacing, widening, retaining, and removing bridges.

A summary of how each design option impacts the existing bridges is as follows:

- Option A replace all 40 existing bridges
- Option B replace all 40 existing bridges
- Option C replace 7 bridges, widen 16 bridges, retain 15 bridges, remove 2 bridges
- Option D replace 2 bridges, widen 16 bridges, retain 22 bridges
- Option E replace 4 bridges, widen 10 bridges, retain 24 bridges, remove 2 bridges

The older existing bridges (constructed in the 1960s) will likely need deck replacements in the next 15 years. The addition of express lanes as part of the TBN program would provide an opportunity to minimize traffic impacts while completing the deck replacements and performing additional rehabilitation that would otherwise cause a significant disruption to existing traffic patterns (see the detailed discussion on maintenance of traffic considerations that follows).

The anticipated funding availability for Design Options C and D would correspond with the need for bridge rehabilitation and those improvements provide additional travel lane capacity via express lanes that can be used to mitigate traffic impacts. Therefore, should Design Options C or D be the selected alternative the recommendation would be to replace all the existing bridge decks as part of the project.

The anticipated funding availability for the substantially lower cost of Design Option E would be sooner than the need for bridge rehabilitation. Additionally, it does not provide additional travel lane capacity to mitigate traffic impacts since there are no express lanes. Therefore, should Design Option E be the selected alternative, the recommendation would be to replace only the existing bridge decks where existing traffic can still be maintained as part of that project.

**Figures 2, 3 and 4** illustrate the locations of all the bridges in Options C, D and E, respectively, to remain or be widened.

The deck replacement costs as provided in *Table 2* for these existing 1960s bridges is estimated to be:

- \$50 million for Option C
- \$62 million for Option D
- \$62 million for Option E

Since Design Option E does not include express lanes and would not provide additional travel lane capacity to mitigate traffic impacts, only Bridge Nos. 100139 and 100141 would include deck replacement as part of the construction project at a cost of \$3 million. Deck replacement for the remaining bridges would be included in a separate rehabilitation project at a cost of \$59 million.

Option C - Existing Bridges to Remain/Widen

Legend
1960s Bridges
2000s Bridges
Coodle Earth

Figure 2: Map of Option C Existing Bridges to Remain/Widen



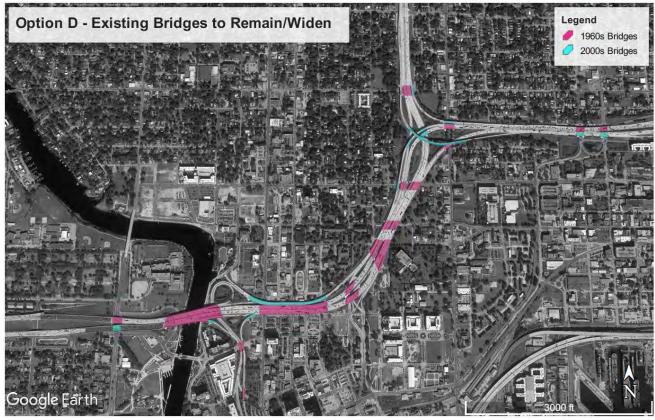




Figure 4: Map of Option E Existing Bridges to Remain/Widen

# **Existing Bridges**

There are 40 existing bridge structures within the Section 6 limits, which includes one city-owned bridge (Bridge No. 105610) on the ramp connecting northbound Ashley Street to I-275.

All the bridges were built between 1962 and 2009, making them between 57 and 10 years old, respectively, as of 2019. Most of the bridges are constructed with prestressed concrete girders, but there are six that are constructed with steel girders. The structural information – materials, geometry, and condition – for all 40 bridges has been collected from the respective BIRs from 2017 and 2018 and provided in *Table 1*.

Those bridges designated for widening in the design options above are examined more closely in terms of structural condition, vertical clearance, and load capacity. One existing bridge (Bridge No. 100143) will remain in Design Options C, D and E, but may be subject to a median barrier relocation and/or a partial removal of the bridge in Options C, D and E. The condition of this bridge will also be considered. In all there are 22 bridges to evaluate for widening in Design Options C, D and E. In the summaries that follow, the bridges indicated as potential widenings in Design Options C, D and E are listed in blue.

#### Structural Evaluation Criteria

The following criteria have been identified and reviewed for each bridge within the section limits. Those bridges not meeting the minimum criteria specified herein are identified in the sections that follow.

Structural Condition: The BIRs provide detailed information on the condition of various bridge components (e.g. deck, girders, bearings, barriers, slope protections, etc.); rate the condition of major components (e.g. deck, superstructure, substructure); and provide an overall health index rating. In general, a health index less than 85 indicates that some repairs are needed, though they do not impact the safety of the structure. The higher the index value, the better the condition of the bridge; the lower the index, the more likely it needs to be replaced.

*Fracture Critical*: This condition applies when bridges lack redundancy of support in the load path. Structures with fracture critical components must undergo special inspections of those components.

Vertical Clearance: The minimum vertical clearance of a bridge is set to ensure that vehicles passing underneath do not strike and cause damage to the superstructure. Per FDM (2019) Section 260, Table 260.6.1, new construction that affects existing bridges is required to maintain 16 feet of vertical clearance. As summarized in FDM (2019) Section 122.5.9, the AASHTO criteria for minimum vertical clearance of existing bridges is as little as 14.5 feet, including a 6-inch future resurfacing allowance. Variations and exceptions to the above criteria may require mitigation (e.g. signage, bridge jacking, etc.), vehicle restrictions, and alternate routes.

Load Capacity: The load carrying capacity of each structure is determined by the Inventory and Operating rating factors. Per the FDOT Bridge Load Rating Manual, unlimited application of live loads at the inventory rating will not damage the bridge and minimizes the permissible stress; however, unlimited application of the operating live loads may shorten the life of the bridge as this rating maximizes the stress permitted on the bridge. Per Chapter 2 of the 2019 FDOT Bridge Load Rating Manual, the inventory rating must be at least 36 tons (HS-20) and the operating rating must be at least 60.1 tons (1.67 x HS-20) for a bridge to be eligible for widening or rehabilitation.

#### **Existing Bridges that Meet or Exceed Structural Condition Criteria**

Of the 40 bridges reviewed, only six have ratings at or above all the criteria previously mentioned. The six bridges (four of which are indicated as widenings in Design Options C and D; two of which are indicated as widenings in Option E) that currently provide at least 16 feet of vertical clearance, 36 tons of inventory load capacity, 60.1 tons of operating load capacity, and a rating of "7-Good" or better for each structural component group are as follows:

- Bridge No. 100611 I-275 NB Ramp to Ashley Street
- Bridge No. 100648 I-4 WB (Ramp to Downtown) over I-275
- Bridge No. 100649 I-4 WB (Ramp to Downtown) over Palm Avenue
- Bridge No. 100650 I-4 WB (Ramp to I-275 NB) over Nebraska Avenue
- Bridge No. 100652 I-4 WB (Ramp to I-275 NB) over Columbus Drive
- Bridge No. 100705 I-275 NB over North Boulevard

#### **Existing Bridges with the Lowest Structural Condition Ratings**

Generally, the bridges are in good overall condition. Most of the superstructure and substructure ratings are "7-Good"; however, one bridge has a superstructure rating of "6-Satisfactory" and one other bridge has a substructure rating of "6-Satisfactory". Both bridges are designated for widening in Design Options C and D, but are to remain in Design Option E. Most of the decks are also rated as "7-Good" or better, although six are rated as "6-Satisfactory" (see *Figure 5*). Of the six, two are included in Design Options C and D for widening. For Option E, five are to remain with one being replaced.

Existing Bridges Deck Rating

Legend
6 or Less

Google Earth

Figure 5: Map of Existing Bridges with Deck Ratings of 6 or Less

For a detailed description of the scales used for superstructure, substructure, and deck ratings, please refer to Attachment A. The bridges with ratings of "6-Satisfactory" are as follows:

#### Substructure Rating:

• Bridge No. 100135 – I-275 SB over Hillsborough River

#### Superstructure Rating:

• Bridge No. 100144 – I-275 NB over Palm Avenue

#### Deck Rating:

- Bridge No. 100134 I-275 SB over North Boulevard
- Bridge No. 100200 I-275 NB over Columbus Drive
- Bridge No. 100244 I-275 SB (Ramp to I-4 WB) over Columbus Drive
- Bridge No. 100290 Ashley St. SB (Ramp from I-275) over Laurel Street
- Bridge No. 100291 Ashley St. NB (Ramp to I-275) over Laurel Street
- Bridge No. 100832 I-275 SB (Viaduct) over Tampa St. to Morgan St.

#### **Functionally Obsolete and Fracture Critical Bridges**

Although none of the bridges are noted as structurally deficient, ten bridges total (seven in Option C, ten in Option D and two in Option E) are considered functionally obsolete and three total (two in Option C, three in Option D and one in Option E) contain fracture critical components (see Attachment B for detailed definitions of these terms). Those bridges that are considered functionally obsolete are:

- Bridge No. 100074 I-275 SB (Ramp to Downtown) over 7th Ave.
- Bridge No. 100082 I-275 SB (Ramp to Downtown) over Central & Henderson Ave.
- Bridge No. 100135 I-275 SB over Hillsborough River
- Bridge No. 100136 I-275 NB over Hillsborough River
- Bridge No. 100139 I-275 SB over Central & Henderson Ave.
- Bridge No. 100141 I-275 SB over 7th Ave.
- Bridge No. 100198 I-275 SB over Palm Ave.
- Bridge No. 100290 Ashley St. SB (Ramp from I-275) over Laurel St.
- Bridge No. 100291 Ashley St. NB (Ramp to I-275) over Laurel St.
- Bridge No. 100651 I-275 SB (Viaduct Ramp) over Tampa St. to Morgan St.

Those bridges that are considered fracture critical are:

- Bridge No. 100082 I-275 SB (Ramp to Downtown) over Central & Henderson Ave.
   Fracture Critical Component: Integral pier caps where columns outside or close to exterior girders at piers 2, 3, 4, and 5
- Bridge No. 100654 I-275 SB (Ramp to I-4 EB) over I-275 & I-4 Ramps Fracture Critical Component: Integral pier cap beams at piers 2 and 3
- Bridge No. 100831 I-275 NB (Ramp from Ashley St.) over Scott St.
   Fracture Critical Component: Integral pier cap at pier 3 that straddles Scott St.

## **Widening and Rehabilitation Considerations**

In terms of widening existing bridges, there are two primary considerations: the existing vertical clearance and the existing load capacity. Widening a bridge with any sort of cross-slope may result in reduced vertical clearances, so it is important to consider how much clearance is currently being provided and how the widening may impact it. Additionally, existing bridges that do not meet current load capacity requirements may have to be strengthened to accommodate proposed rehabilitation or widening; if strengthening is not possible, the bridge may have to be replaced if a design variation/exception is not granted.

#### Vertical Clearance

The bridges can be grouped into three main categories based on the current vertical clearances they provide:

- 1. Bridges that currently meet FDOT criteria and provide at least 16 feet of vertical clearance.
- 2. Bridges that currently meet AASHTO but not FDOT criteria by providing at least 14.5 feet but less than 16 feet of vertical clearance.
- 3. Bridges that do not meet AASHTO or FDOT criteria and provide less than 14.5 feet of vertical clearance.

**Table 3A** lists all 40 bridges in order of increasing vertical clearance each provides and groups them by the vertical clearance criteria for FDOT and AASHTO. The locations of each bridge with vertical clearance less than 16 feet are depicted in **Figure 6**. The rows shaded in gray in **Table 3A** indicate bridges that are being replaced in all design options. In summary, of the 40 bridges in TBN Section 6 there are:

- 13 that meet both FDOT and AASHTO criteria.
- 17 that meet only AASHTO criteria.
- 9 that do not meet either FDOT or AASHTO criteria.
- 1 that is not subject to vertical clearance criteria as it does not cross a designated facility.

Existing Bridges Vertical Clearance

Legend

14.5' to 16'
Under 14.5'

Cocode Esith

Figure 6: Map of Existing Bridges with Vertical Clearance Under 16'

**Table 3B** lists only the 22 bridges considered for widening in Design Options C, D and E in order of increasing vertical clearance each provides and groups them by the vertical clearance criteria for FDOT and AASHTO. In summary, of the 22 bridges considered for widening in TBN Section 6 there are:

- 8 that meet both FDOT and AASHTO criteria.
- 7 that meet only AASHTO criteria.
- 7 that do not meet either FDOT or AASHTO criteria.

Twenty-six of the bridges in Section 6 have been noted to have insufficient vertical clearance per FDOT criteria. Thirteen of the 26 are being considered for widening in Design Options C and D, so additional consideration is required to determine the plausibility of a design variation/exception or mitigation for the substandard vertical clearance. In addition to these 26 structures, two structures (Bridge Nos. 100651 and 100656) currently provide only the minimum allowed FDOT vertical clearance. Bridge No. 100656 should be carefully evaluated to determine if widening to the outside (low side) will adversely affect the vertical clearance at this location.

#### **Load Capacity**

According to the values in the BIR, there are a total of 17 bridges that do not meet the inventory and/or operating ratings needed for widening or rehabilitation. *Table 4A* lists and *Figure 7* depicts inventory ratings for all the bridges in Section 6 and *Table 4B* lists those being considered for widening in Design Options C, D and E in order of increasing inventory rating. Similarly, *Table 5A* lists and *Figure 8* depicts operating ratings for all bridges in Section 6 and *Table 5B* only lists those being considered for widening in Design Options C, D and E in order of increasing operating rating. The rows shaded in gray in *Tables 4A* and *5A* indicate bridges that are being replaced in all design options. There is one bridge (Bridge No. 100650) that may contain a discrepancy in the reported

load rating capacities; additional analysis is recommended to investigate the load capacity of this bridge.

Figure 7: Map of Existing Bridges with Inventory Rating Under 36 Tons



Figure 8: Map of Existing Bridges with Operating Rating Under 60.1 Tons



Through this review, 17 bridges have been identified as having insufficient load capacity; 10 of these are being recommended for widening in Design Options C, D and E and six more are candidates for deck replacements. Eight bridges have deck, substructure, or superstructure ratings of "6-Satisfactory". Performing repairs to the structures may improve their structural condition ratings; though strengthening may be required to increase the load capacity. Per the FDOT District 7 maintenance staff, in the event deck strengthening or additional deck overlays are considered as potential rehabilitation, then beam strengthening should also be considered.

## **Deck Replacement Considerations**

In terms of the condition of the decks on the 1960s bridges, there are signs of overall cracking and wear, while many of the joint headers are damaged and need to be rebuilt. Both items can be addressed by a deck replacement or overlay. Maintenance personnel with FDOT District 7 suggest these items may require attention within the next 15 years, but that a full deck replacement and rehabilitation of additional components in addition to regular maintenance will help extend the life of the existing bridges for another 40 years or more.

It should be noted, however, that many older bridges were constructed with thinner decks, typically 7 inches thick, compared to current design standards that call for at least an 8-inch deck. If the replacement deck is to meet current design standards it may be necessary to strengthen the existing beams to accommodate the additional dead load and meet load rating requirements. Beam strengthening, or possibly even beam replacement, may also be necessary to address damage from a beam strike due to oversized vehicles or sub-standard vertical clearance. If a bridge has a low vertical clearance, a deck replacement may also provide an opportunity to improve vertical clearance by raising the beam seats and/or swapping out existing beams for lower profile beams. In either case, care should be taken to ensure the rehabilitation minimizes lengthy roadway profile modifications.

Replacement of the bridge deck also provides an opportunity to rehabilitate other bridge components, such as the drainage systems and traffic barriers, which may be obsolete compared to current FDOT design standards and should be considered for potential upgrade. Additionally, the inspection reports note there are elastomeric bearing pads that are bulging and cracking. Replacement of the bearing pads will require jacking to lift the beams. If a deck replacement or bridge widening is recommended, then these additional items should also be considered to extend the service life and safety of the existing bridge structures.

Design Options C, D and E propose that some of the existing bridges remain while others are to be widened. The cost estimates for the deck replacements associated with Design Options C, D and E are summarized in *Table 2;* the bridges constructed in 2004 or later are not being considered for deck replacement. The cost of the deck replacement is based on the bid price for the I-275 SB to I-75 NB (Bridge No. 130112) deck replacement project currently underway in north Manatee County. Additional cost factors for maintenance of traffic, mobilization, design/build, and unknowns are considered as noted in the table. This deck replacement cost is in addition to the cost of bridge widening.

Assuming the above-mentioned items are rehabilitated, the overall bridge condition should improve. The deck will be new, and maintenance should be comparable to the proposed new bridges. The existing girders and substructure units will still be original, but additional maintenance compared to the new bridges is not anticipated based on the current inspection reports. The most likely exception will be the bridges over water, which have submerged piers and pilings. At some point in the next 40 years, the condition of the substructure under water may require additional maintenance, such as pile jackets or galvanic protection to reduce the rate of corrosion.

#### **Maintenance of Traffic Considerations**

Replacing the existing bridge decks within the downtown interchange as a stand-alone project will result in major impacts to traffic. The primary objective in any maintenance of traffic plan is always to maintain the existing number of travel lanes while minimizing the number of construction phases or traffic shifts. However, as a stand-alone rehabilitation project, it would not be possible to meet those objectives.

Along the mainline, it would not be possible to maintain the existing number of travel lanes. Where existing bridges have full width shoulders, a minimum of one general purpose lane would most likely need to be closed for the bridge deck replacement. There are several bridges that have little to no shoulder width. On those bridges it is most likely that two general purpose lanes would need to be closed for the bridge deck replacement. The number of lanes could also vary depending on the location of beam lines and the curvature of roadway in relation to the beam lines. Multiple construction phases would be required for the deck replacement with some phases needing to split the general-purpose lanes around both sides of the work zone, which is typically avoided due to additional safety and operational concerns as well as restrictive access to the work zone. The duration of each phase could vary anywhere from four to twelve weeks depending on the length of the bridge, restrictive working area, and the bridge type.

The maintenance of traffic for ramps would vary depending on the number of existing lanes and location of the bridge. Ramps with ramp terminals in close proximity to mainline bridges requiring deck replacement would most likely require those ramps to be closed during some phases of the mainline bridge deck replacement. Bridges located along two-lane ramps would require a two-phase construction with one lane closed during the deck replacement. Bridges located along single lane ramps would require the complete closure of the ramp.

To minimize the traffic impacts, replacement of existing bridge decks is normally performed in conjunction with capacity projects where existing bridges are being widened or there are opportunities to relocate traffic lanes on temporary diversions. Performing the deck replacement in conjunction with Design Option C or D will minimize the traffic impacts associated with deck replacement to the minimum amount possible.

With the construction of express lanes on an elevated viaduct through the downtown interchange, the opportunity exists to utilize the elevated viaduct for maintenance of traffic to maintain existing capacity to the greatest extent possible. The deck replacement would occur after the construction of the elevated viaduct is complete and before the express lanes are opened. Once construction of the viaduct is complete, traffic connecting I-4 to I-275 to the west side of downtown could be temporarily diverted onto the elevated viaduct to help alleviate the traffic impacts associated with the need to close lanes along the existing mainline general-purpose lanes. There would still be issues associated with the ramps; however, the greatest impacts associated with the mainline would be mitigated substantially.

For Design Option E, the anticipated maintenance of traffic phasing does allow for the re-decking of Bridge Nos. 100139 and 100141. However, since this design option does not include express lanes, replacing the remainder of the existing bridge decks within the downtown interchange will result in major impacts to traffic.

#### **Conclusion & Recommendations**

The existing bridge structures are in overall good condition when considering their age. There are some signs of minor to moderate wear, which is to be expected, but only two bridges (Bridge Nos. 100654 and 100705) have a health index below 85. None of the noted deficiencies in the inspection reports suggest that the bridges are nearing the end of their useful service life, which suggests that

regular maintenance and rehabilitation on a case by case basis will allow these bridges to remain in service for many years to come.

Since only four bridges being recommended for widening and/or rehabilitation are suitable in their current condition based on the criteria described herein, the remaining bridges may likely need to be investigated for improvements or replacement.

When taking into consideration the approximate 10-year timeline for the TBN Section 6 improvements and the anticipated 15-year service life of the existing bridges without any rehabilitation, it is the recommendation that major rehabilitation – including but not limited to deck replacement, expansion joint replacement, bearing pad replacement, beam strengthening – be included with Design Option C or D should either be selected as the desired alternative. In doing so, the maintenance of traffic required for these efforts will be included as part of a single project that will have the advantage of utilizing the new express lanes while minimizing traffic impacts to the existing facilities.

Design Option E has a much lower construction cost that Design Options C and D and funding availability is anticipated to reduce the timeline to approximately 5 years. Also, there are no express lanes in Design Option E, so traffic impacts cannot be mitigated like Design Options C and D. Therefore, it is the recommendation that major rehabilitation be limited to only the bridges where existing traffic can be maintained. This would include only Bridge Nos. 100139 and 100141. Rehabilitation of the remaining bridges is recommended to be completed in a separate project.

# **Table 1: Summary of Existing Bridge Conditions**

Source: Bridge Inspection Reports

Legend:  $\overline{\mathbb{N}}$  = New bridge to replace existing;  $\overline{\mathbb{E}}$  = Existing bridge to remain;  $\overline{\mathbb{W}}$  = Widen existing bridge;  $\mathbb{R}$  = Remove the existing bridge

March   Parally Centred   Pa	Bridge			Year	Age	Main Span	Max Span	Vertical	Inventory	Operating	Deck	Super-	Sub-	Health	Functionally	Fracture		Section	6 Desigr	n Option	
1995   1975		Facility Carried	Facility Crossed		as of 2019	Girder Material	Length	Clearance (ft)	Rating (tons)	Rating (tons)		structure Rating	structure Rating				Α	В	С	D	E
1,000   1,00	100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	PS Concrete	64.0	14.4	31.4	52.4	7	7	7	96.53	Х		N	N	N	W	N
No.	100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	Steel	66.3	14.6	44.0	74.0	7	7	7	97.41	Х	Х	N	N	N	W	N
	100110	I-275 NB (Viaduct)	Tampa St. to Morgan St.	1964	55	PS Concrete	84.5	14.9	38.2	61.6	7	7	7	96.45			N	N	Е	Е	Е
March   Miller Reprint   Miller Reprint   March   Miller Reprint   March   M	100134	I-275 SB	North Blvd.	1963	56	PS Concrete	84.3	14.8	49.0	53.3	6	7	7	99.77			N	N	N	W	Е
	100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	PS Concrete	104.5	20.1	36.0	48.6	7	7	6	99.15	Х		N	N	N	W	Е
	100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	PS Concrete	105.0	15.8	39.1	61.0	7	7	7	95.72	Х		N	N	W	W	Е
1903126   275 SG   Central A Hardmonton Ave.   1961   56   95 Carcate   1967   1968   1967   1968	100137	I-275 SB	Jefferson St. Ramp	1963	56	PS Concrete	78.7	15.3	36.3	60.6	7	7	8	99.66			N	N	Е	Е	Е
	100138	I-275 NB	Jefferson St. Ramp	1963	56	PS Concrete	93.8	15.0	39.6	66.2	7	7	8	97.31			N	N	Е	Е	Е
	100139	I-275 SB	Central & Henderson Ave.	1963	56	PS Concrete	67.3	14.2	54.0	62.0	7	7	7	95.18	Х		N	N	W	Е	W
	100140	I-275 NB	Central & Henderson Ave.	1963	56	PS Concrete	102.7	14.0	25.0	41.6	7	7	7	98.08			N	N	W	W	Е
1901-14   14-70-165   Pair Ance   1905   36   PS Controlls   65-2   14-1   33-4   55-7   7   7   7   90-42     N   N   E   E   E   E   1901-164   14-70-165	100141	I-275 SB	7th Ave.	1964	55	PS Concrete	64.6	14.2	59.0	67.0	7	7	7	93.37	Х		N	N	W	Е	W
	100142	I-275 NB	7th Ave.	1964	55	PS Concrete	63.7	14.3	44.6	69.9	7	7	8	97.41			N	N	W	W	Е
100145   14 WB   Networks Ave.   1983   56   P8 Concrete   84 1   14 0   36.9   61.5   7   7   7   96.96   N   N   N   W   E   W   W   W   W   W   W   W   W	100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	PS Concrete	65.2	14.1	33.4	55.7	7	7	7	99.42			N	N	Е	Е	Е
100166   1275 NB (Ramp to I-4 EB)   Nebraska Ave.   1963   56   PS Concrete   103.0   14.8   33.9   36.7   7   7   7   98.43   N   N   N   E   E   E   E   100164   14 WB   14 m St.   1962   57   PS Concrete   50.9   15.2   39.2   42.5   7   7   7   98.48   N   N   N   W   W   E   E   E   100164   14 WB   15 m St.   1962   57   PS Concrete   50.7   14.9   34.2   41.7   7   7   7   7   98.48   N   N   N   W   E   E   E   100169   1275 SB   Palm Ave.   1963   56   PS Concrete   50.7   14.9   56.5   92.6   7   7   7   7   06.93   X   N   N   N   E   E   E   E   E   100169   1275 SB   Palm Ave.   1963   56   PS Concrete   50.0   15.2   52.3   37.1   7   7   7   06.93   X   N   N   N   E   E   E   E   E   E   E	100144	I-275 NB	Palm Ave.	1963	56	PS Concrete	76.1	14.2	36.5	60.8	7	6	7	95.74			N	N	W	W	Е
100147   14 WB	100145	I-4 WB	Nebraska Ave.	1963	56	PS Concrete	84.1	14.9	36.9	61.5	7	7	7	98.38			N	N	W	Е	W
100149   1-4 WB	100146	I-275 NB (Ramp to I-4 EB)	Nebraska Ave.	1963	56	PS Concrete	103.0	14.5	33.9	56.7	7	7	7	98.43			N	N	Е	Е	Е
100199   1-275 8B	100147	I-4 WB	14th St.	1962	57	PS Concrete	50.9	15.2	39.2	42.5	7	7	7	95.88			N	N	W	W	Е
100199   1-275 8B	100149	I-4 WB	15th St.	1962	57	PS Concrete	50.7	14.9	34.2	41.7	7	7	7	98.49			N	N	Е	Е	Е
100200   1-275 NB   Columbus Dr.   1963   56   PS Concrete   64.0   14.8   45.4   51.1   7   7   7   94.69	100198	I-275 SB	Palm Ave.	1963	56	PS Concrete	72.8	14.2	55.5	92.6	7	7	7	98.93	Х		N	N	Е	Е	Е
100201   1.275 NB & SB   Floribraska Ave.   1966   53   PS Concrete   64.0   14.8   45.4   51.1   7   7   7   95.12   N   N   N   N   N   N   N   N   N	100199	I-275 SB	Columbus Dr.	1963	56	PS Concrete	85.0	15.2	52.3	87.1	7	7	7	95.91			N	N	Е	Е	Е
100244   1-275 SB (Ramp to 1-4 EB)   Columbus Dr.   1963   56   PS Concrete   83.9   19.1   50.6   84.4   6   7   8   95.70   N   N   N   N   N   N   N   N   N	100200	I-275 NB	Columbus Dr.	1963	56	PS Concrete	85.0	14.5	66.2	99.0	6	7	7	94.69			N	N	Е	Е	Е
100290   Ashley St. St. (Ramp from I-275)   Laurel St.   1964   55   PS Concrete   63.9   14.7   56.5   94.1   6   7   8   95.37   X   N   N   W   W   E   100291   Ashley St. NB (Ramp to I-275)   Laurel St.   1964   55   PS Concrete   64.3   14.9   54.0   60.0   6   7   8   92.72   X   N   N   N   E   E   E   E   E   100611   I-275 NB (Ramp to Ashley St.)   None – Embarkment Slope   2009   10   PS Concrete   64.8   46.7   78.0   8   8   8   8   99.94   N   N   N   E   E   E   E   E   E   E	100201	I-275 NB & SB	Floribraska Ave.	1966	53	PS Concrete	64.0	14.8	45.4	51.1	7	7	7	95.12			N	N	N	N	W
100291   Ashley St. NB (Ramp to 1-275)   Laurel St.   1964   55   PS Concrete   64.3   14.9   54.0   60.0   6   7   8   92.72   X   N   N   N   E   E   E   E   E   E   E	100244	I-275 SB (Ramp to I-4 EB)	Columbus Dr.	1963	56	PS Concrete	83.9	19.1	50.6	84.4	6	7	8	95.70			N	N	N	N	N
100611   1-275 NB (Ramp to Ashley St.)   None - Embankment Slope   2009   10   PS Concrete   64.8	100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	PS Concrete	63.9	14.7	56.5	94.1	6	7	8	95.37	Х		N	N	W	W	Е
100648   I-4 WB (Ramp to Downtown)   I-275 NB   NB N	100291	Ashley St. NB (Ramp to I-275)	Laurel St.	1964	55	PS Concrete	64.3	14.9	54.0	60.0	6	7	8	92.72	Х		N	N	Е	Е	Е
100649   14 WB (Ramp to Downtown)   Palm Ave.   2004   15   PS Concrete   64.7   17.3   49.2   82.0   8   7   8   99.85   N   N   N   N   E   N   100650   14 WB (Ramp to I-275 NB)   Nebraska Ave.   2005   14   PS Concrete   84.7   16.7   38.4   115.1   8   7   7   99.11   N   N   N   W   W   W   W   W   W   W	100611	I-275 NB (Ramp to Ashley St.)	None – Embankment Slope	2009	10	PS Concrete	64.8	*	46.7	78.0	8	8	8	99.94			N	N	Е	Е	Е
100650   I-4 WB (Ramp to I-275 NB)   Nebraska Ave.   2005   14   PS Concrete   84.7   16.7   38.4   115.1   8   7   7   99.11   N   N   W   W   W   W   W   W   W   W	100648	I-4 WB (Ramp to Downtown)	I-275	2006	13	Steel	151.1	16.8	39.2	65.5	8	8	8	99.75			N	N	R	Е	R
100651   I-275 SB (Viaduct Ramp)   Tampa St. to Morgan St.   2005   14   PS Concrete   143.0   16.0   36.5   59.3   7   7   7   99.66   X   N   N   E   E   E   E   E   E   E   E	100649	I-4 WB (Ramp to Downtown)	Palm Ave.	2004	15	PS Concrete	64.7	17.3	49.2	82.0	8	7	8	99.85			N	N	N	Е	N
100652   I-4 WB (Ramp to I-275 NB)   Columbus Dr.   2005   14   PS Concrete   84.9   16.5   37.9   63.2   8   8   8   8   99.61   N   N   W   W   W   W   W   W   W   W	100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	PS Concrete	84.7	16.7	38.4	115.1	8	7	7	99.11			N	N	W	W	W
100653   1-4 WB (Ramp to Downtown)   1-275 (Ramp to Downtown)   2005   14   Steel   194.7   16.7   34.5   51.8   8   8   8   8   99.21   N N N R E R R   100654   1-275 SB (Ramp to I-4 EB)   I-275 S I-4 Ramps   2004   15   Steel   206.0   17.0   33.1   42.8   8   8   8   8   8   8   8   8   8	100651	I-275 SB (Viaduct Ramp)	Tampa St. to Morgan St.	2005	14	PS Concrete	143.0	16.0	36.5	59.3	7	7	7	99.66	Х		N	N	Е	Е	Е
100654   I-275 SB (Ramp to I-4 EB)   I-275 & I-4 Ramps   2004   15   Steel   206.0   17.0   33.1   42.8   8   8   8   8   8   8   8   8   8	100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	PS Concrete	84.9	16.5	37.9	63.2	8	8	8	99.61			N	N	W	W	W
100655       I-4 WB (Ramp to I-275 SB)       I-275       2005       14       Steel       163.1       17.0       29.5       38.5       7       8       8       99.45       N       N       N       W       E       W         100656       I-4 EB       14th St.       2006       13       PS Concrete       50.6       16.0       41.7       54.0       7       8       8       99.94       N       N       N       W       W       W         100657       I-4 EB       15th St.       2006       13       PS Concrete       50.6       20.5       40.7       52.6       7       8       8       99.96       N       N       N       W       W       W         100705       I-275 NB       North Blvd.       2009       10       PS Concrete       123.0       16.8       41.0       89.7       8       8       8       84.79       N       N       N       W       W       W       W       W       E<	100653	I-4 WB (Ramp to Downtown)	I-275 (Ramp to Downtown)	2005	14	Steel	194.7	16.7	34.5	51.8	8	8	8	99.21			N	N	R	Е	R
100656       I-4 EB       14th St.       2006       13       PS Concrete       50.6       16.0       41.7       54.0       7       8       8       99.94       N       N       N       W       W         100657       I-4 EB       15th St.       2006       13       PS Concrete       50.6       20.5       40.7       52.6       7       8       8       99.96       N       N       N       W       W       W         100705       I-275 NB       North Blvd.       2009       10       PS Concrete       123.0       16.8       41.0       89.7       8       8       8       84.79       N       N       N       W	100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	Steel	206.0	17.0	33.1	42.8	8	8	8	83.68		Х	N	N	W	W	W
100657       I-4 EB       15th St.       2006       13       PS Concrete       50.6       20.5       40.7       52.6       7       8       8       99.96       N       N       N       W	100655	I-4 WB (Ramp to I-275 SB)	I-275	2005	14	Steel	163.1	17.0	29.5	38.5	7	8	8	99.45			N	N	W	Е	W
100705       I-275 NB       North Blvd.       2009       10       PS Concrete       123.0       16.8       41.0       89.7       8       8       84.79       N       N       N       N       W       W       E         100831       I-275 NB (Ramp from Ashley St.)       Scott St.       2005       14       Steel       71.3       15.1       37.0       61.7       8       8       98.78       X       N       N       E       E       E         100832       I-275 SB (Viaduct)       Tampa St. to Morgan St.       1964       55       PS Concrete       84.5       14.0       38.2       61.6       6       7       7       96.47       N       N       N       E       E       E	100656	I-4 EB	14th St.	2006	13	PS Concrete	50.6	16.0	41.7	54.0	7	8	8	99.94			N	N	W	W	W
100831       I-275 NB (Ramp from Ashley St.)       Scott St.       2005       14       Steel       71.3       15.1       37.0       61.7       8       8       98.78       X       N       N       E       E       E         100832       I-275 SB (Viaduct)       Tampa St. to Morgan St.       1964       55       PS Concrete       84.5       14.0       38.2       61.6       6       7       7       96.47       N       N       N       E       E       E	100657	I-4 EB	15th St.	2006	13	PS Concrete	50.6	20.5	40.7	52.6	7	8	8	99.96			N	N	W	W	W
100831       I-275 NB (Ramp from Ashley St.)       Scott St.       2005       14       Steel       71.3       15.1       37.0       61.7       8       8       98.78       X       N       N       E       E       E         100832       I-275 SB (Viaduct)       Tampa St. to Morgan St.       1964       55       PS Concrete       84.5       14.0       38.2       61.6       6       7       7       96.47       N       N       N       E       E       E	100705	I-275 NB	North Blvd.	2009	10	PS Concrete	123.0	16.8	41.0	89.7	8	8	8	84.79			N	N	W	W	Е
100832 I-275 SB (Viaduct) Tampa St. to Morgan St. 1964 55 PS Concrete 84.5 14.0 38.2 61.6 6 7 7 96.47 N N E E E	100831	I-275 NB (Ramp from Ashley St.)	Scott St.	2005	14	Steel	71.3	15.1	37.0	61.7	8	8	8	98.78		Х	N	N	Е	Е	
	100832	I-275 SB (Viaduct)	Tampa St. to Morgan St.	1964	55	PS Concrete	84.5	14.0	38.2	61.6	6	7	7	96.47			N	N	Е	Е	
	105610	Ashley St. NB (Ramp to I-275)	Ashley St. SB (Ramp to Tampa St.)	1964	55	PS Concrete	67.9	15.1	35.6	41.2	7	7	7	96.16			N	N	Е	Е	

<sup>\*</sup> No vertical clearance provided in the inspection report since the bridge does not cross an underlying roadway or waterway.

# Table 2: Deck Replacement Costs

Source: Bridge Inspection Reports

Legend: N = New bridge to replace existing; E = Existing bridge to remain; W = Widen existing bridge; R = Remove the existing bridge. Note: Bridges in gray were built in 2004 or later and are not considered for potential deck replacement.

Bridge	Facility Carried	Facility Crossed	Year	Age	Main Span	Max Span	Deck Width	Structure	Bridge Deck Area	Opt	ion C	Opti	ion D	Opt	tion E	
No.	Facility Carried	Facility Clossed	Built	as of 2019	Girder Material	Length (ft)	(ft)	Length (ft)	(ft)	С	Base Cost	D	Base Cost	E	Base Cost	
100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	PS Concrete	64.0	44.3	164.3	7,279	N	\$0	W	\$464,764	N	\$0	
100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	Steel	66.3	45.9	246.7	11,324	N	\$0	W	\$723,037	N	\$0	
100110	I-275 NB (Viaduct)	Tampa St. to Morgan St.	1964	55	PS Concrete	84.5	82.3	1093.1	92,367	E	\$5,897,631	E	\$5,897,631	E	\$5,897,631	
100134	I-275 SB	North Blvd.	1963	56	PS Concrete	84.3	95.7	163.4	15,637	N	\$0	W	\$998,422	Е	\$998,422	
100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	PS Concrete	104.5	81.0	907.1	87,126	N	\$0	W	\$5,562,995	E	\$5,562,995	
100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	PS Concrete	105.0	77.4	930.0	86,334	W	\$5,512,426	W	\$5,512,426	E	\$5,512,426	
100137	I-275 SB	Jefferson St. Ramp	1963	56	PS Concrete	78.7	81.9	180.8	14,808	E	\$945,491	E	\$945,491	E	\$945,491	
100138	I-275 NB	Jefferson St. Ramp	1963	56	PS Concrete	93.8	89.5	265.1	23,727	E	\$1,514,969	E	\$1,514,969	E	\$1,514,969	
100139	I-275 SB	Central & Henderson Ave.	1963	56	PS Concrete	67.3	54.5	297.9	18,708	W	\$1,194,506	E	\$1,194,506	W	\$1,194,506	
100140	I-275 NB	Central & Henderson Ave.	1963	56	PS Concrete	102.7	98.0	432.0	51,789	W	\$3,306,728	W	\$3,306,728	E	\$3,306,728	
100141	I-275 SB	7th Ave.	1964	55	PS Concrete	64.6	55.5	165.4	9,180	W	\$586,143	E	\$586,143	W	\$586,143	
100142	I-275 NB	7th Ave.	1964	55	PS Concrete	63.7	100.0	164.6	16,460	W	\$1,050,970	W	\$1,050,970	Е	\$1,050,970	
100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	PS Concrete	65.2	93.7	144.3	14,242	E	\$909,351	E	\$909,351	Е	\$909,351	
100144	I-275 NB	Palm Ave.	1963	56	PS Concrete	76.1	110.5	164.4	18,528	W	\$1,183,012	W	\$1,183,012	Е	\$1,183,012	
100145	I-4 WB	Nebraska Ave.	1963	56	PS Concrete	84.1	79.6	169.5	14,329	W	\$914,907	E	\$914,907	W	\$914,907	
100146	I-275 NB (Ramp to I-4 EB)	Nebraska Ave.	1963	56	PS Concrete	103.0	58.2	210.6	12,257	Е	\$782,609	E	\$782,609	Е	\$782,609	
100147	I-4 WB	14th St.	1962	57	PS Concrete	50.9	80.1	135.0	10,814	W	\$690,474	W	\$690,474	Е	\$690,474	
100149	I-4 WB	15th St.	1962	57	PS Concrete	50.7	83.8	133.7	11,205	E	\$715,439	Е	\$715,439	E	\$715,439	
100198	I-275 SB	Palm Ave.	1963	56	PS Concrete	72.8	34.1	158.5	5,404	E	\$345,045	Е	\$345,045	Е	\$345,045	
100199	I-275 SB	Columbus Dr.	1963	56	PS Concrete	85.0	60.0	181.1	10,866	Е	\$693,794	Е	\$693,794	Е	\$693,794	
100200	I-275 NB	Columbus Dr.	1963	56	PS Concrete	85.0	70.1	181.7	12,745	Е	\$813,768	Е	\$813,768	Е	\$813,768	
100201	I-275 NB & SB	Floribraska Ave.	1966	53	PS Concrete	64.0	165.4	140.0	23,156	N	\$0	N	\$0	W	\$1,478,511	
100244	I-275 SB (Ramp to I-4 EB)	Columbus Dr.	1963	56	PS Concrete	83.9	30.2	182.1	5,499	N	\$0	N	\$0	N	\$0	
100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	PS Concrete	63.9	34.1	147.6	5,034	W	\$321,421	W	\$321,421	Е	\$321,421	
100291	Ashley St. NB (Ramp to I-275)	Laurel St.	1964	55	PS Concrete	64.3	41.0	150.9	6,187	E	\$395,040	E	\$395,040	Е	\$395,040	
100611	I-275 NB (Ramp to Ashley St.)	None – Embankment Slope	2009	10	PS Concrete	64.8	39.0	64.8	2,541	E	\$0	E	\$0	E	\$0	
100648	I-4 WB (Ramp to Downtown)	I-275	2006	13	Steel	151.1	35.6	151.1	5,380	R	\$0	E	\$0	R	\$0	
100649	I-4 WB (Ramp to Downtown)	Palm Ave.	2004	15	PS Concrete	64.7	29.6	144.4	4,275	N	\$0	E	\$0	N	\$0	
100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	PS Concrete	84.7	35.6	169.6	6,038	W	\$0	W	\$0	W	\$0	
100651	I-275 SB (Viaduct Ramp)	Tampa St. to Morgan St.	2005	14	PS Concrete	143.0	44.1	1299.0	63,341	Е	\$0	E	\$0	Е	\$0	
100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	PS Concrete	84.9	35.6	180.7	6,433	W	\$0	W	\$0	W	\$0	
100653	I-4 WB (Ramp to Downtown)	I-275 (Ramp to Downtown)	2005	14	Steel	194.7	35.6	194.7	6,932	R	\$0	E	\$0	R	\$0	
100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	Steel	206.0	35.6	1068.5	34,994	W	\$0	W	\$0	W	\$0	
100655	I-4 WB (Ramp to I-275 SB)	I-275	2005	14	Steel	163.1	60.2	163.1	9,819	W	\$0	E	\$0	W	\$0	
100656	I-4 EB	14th St.	2006	13	PS Concrete	50.6	70.1	135.0	9,465	W	\$0	W	\$0	W	\$0	
100657	I-4 EB	15th St.	2006	13	PS Concrete	50.6	78.4	133.5	10,881	W	\$0	W	\$0	W	\$0	
100705	I-275 NB	North Blvd.	2009	10	PS Concrete	123.0	89.0	123.0	11,439	W	\$0	W	\$0	Е	\$0	
100831	I-275 NB (Ramp from Ashley St.)	Scott St.	2005	14	Steel	71.3	30.7	176.3	5,413	E	\$0	E	\$0	E	\$0	
100832	I-275 SB (Viaduct)	Tampa St. to Morgan St.	1964	55	PS Concrete	84.5	64.7	1096.0	70,912	E	\$4,527,731	E	\$4,527,731	E	\$4,527,731	
105610	Ashley St. NB (Ramp to I-275)	Ashley St. SB (Ramp to Tampa St.)	1964	55	PS Concrete	67.9	33.8	174.9	5,912	E	\$377,481	E	\$377,481	E	\$377,481	
	<u> </u>	1		1		ıssumes a base								\$40,718,865		
		ΤΟΤΔΙ	(including 1	10% for M	•				,		348,189		68,786		112,231	
TOTAL (including 10% for MOT, 8% for Mobilization, 20% for unknowns, and 7% for Design/Build)									Ψ+3,0	,	Ψ01,0	00,100	Ψ02, Ι	, - v :		

# Table 3A: All Existing Bridges by Increasing Vertical Clearance

Source: Bridge Inspection Reports

Note: Bridges in gray are to be replaced in each of the proposed design options.

Vertical Clearance Criteria	Bridge No.	Facility Carried	Facility Crossed	Year Built	Age as of 2019	Vertical Clearance (ft)
F	100140	I-275 NB	Central & Henderson Ave.	1963	56	14.0
FDC	100832	I-275 SB (Viaduct)	Tampa St. to Morgan St.	1964	55	14.0
Does not meet AASHTO or FDOT (MVC < 14.5 ft)	100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	14.1
3HTC 4.5 ft	100139	I-275 SB	Central & Henderson Ave.	1963	56	14.2
A 45	100141	I-275 SB	7th Ave.	1964	55	14.2
neet	100144	I-275 NB	Palm Ave.	1963	56	14.2
not n (I	100198	I-275 SB	Palm Ave.	1963	56	14.2
oes i	100142	I-275 NB	7th Ave.	1964	55	14.3
Ŏ	100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	14.4
	100146	I-275 NB (Ramp to I-4 EB)	Nebraska Ave.	1963	56	14.5
	100200	I-275 NB	Columbus Dr.	1963	56	14.5
	100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	14.6
	100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	14.7
	100134	I-275 SB	North Blvd.	1963	56	14.8
	100201	I-275 NB & SB	Floribraska Ave.	1966	53	14.8
only 5 ft)	100110	I-275 NB (Viaduct)	Tampa St. to Morgan St.	1964	55	14.9
70 0	100145	I-4 WB	Nebraska Ave.	1963	56	14.9
ASH.	100149	I-4 WB	15th St.	1962	57	14.9
Meets AASHTO only (16 ft > MVC ≥ 14.5 ft)	100291	Ashley St. NB (Ramp to I-275)	Laurel St.	1964	55	14.9
Mee 16 ft	100138	I-275 NB	Jefferson St. Ramp	1963	56	15.0
Ŭ	100831	I-275 NB (Ramp from Ashley St.)	Scott St.	2005	14	15.1
	105610	Ashley St. NB (Ramp to I-275)	Ashley St. SB (Ramp to Tampa St.)	1964	55	15.1
	100147	I-4 WB	14th St.	1962	57	15.2
	100199	I-275 SB	Columbus Dr.	1963	56	15.2
	100137	I-275 SB	Jefferson St. Ramp	1963	56	15.3
	100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	15.8
	100651	I-275 SB (Viaduct Ramp)	Tampa St. to Morgan St.	2005	14	16.0
	100656	I-4 EB	14th St.	2006	13	16.0
	100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	16.5
0	100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	16.7
)H	100653	I-4 WB (Ramp to Downtown)	I-275 (Ramp to Downtown)	2005	14	16.7
AAS 6ft)	100648	I-4 WB (Ramp to Downtown)	I-275	2006	13	16.8
% T.	100705	I-275 NB	North Blvd.	2009	10	16.8
FDC	100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	17.0
Meets FDOT & AASHTO (MVC ≥ 16ft)	100655	I-4 WB (Ramp to I-275 SB)	I-275	2005	14	17.0
Ž	100649	I-4 WB (Ramp to Downtown)	Palm Ave.	2004	15	17.3
	100244	I-275 SB (Ramp to I-4 EB)	Columbus Dr.	1963	56	19.1
	100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	20.1
	100657	I-4 EB	15th St.	2006	13	20.5
N/A	100611	I-275 NB (Ramp to Ashley St.)	None – Embankment Slope	2009	10	*

<sup>\*</sup> No vertical clearance provided in the inspection report since the bridge does not cross an underlying roadway or waterway.

# Table 3B: Existing Bridges to be Widened by Increasing Vertical Clearance

Source: Bridge Inspection Reports

Vertical Clearance Criteria	Bridge No.	Facility Carried	Facility Crossed	Year Built	Age as of 2019	Vertical Clearance (ft)	Option(s)	Remarks
	100140	I-275 NB	Central & Henderson Ave.	1963	56	14.0	C/D	Widen entrance ramp portion only to outside (high side)
Does not meet AASHTO or FDOT (MVC < 14.5 ft)	100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	14.1	C/D/E	Opt. C/E: Relocate median barrier wall. Opt. D/E: Potentially remove a portion of outside.
ASH .5 ft)	100144	I-275 NB	Palm Ave.	1963	56	14.2	C/D	Widen outside (low side)
not meet AASH FDOT (MVC < 14.5 ft)	100139	I-275 SB	Central & Henderson Ave.	1963	56	14.2	C/E	Widen both sides
not n	100141	I-275 SB	7th Ave.	1964	55	14.2	C/E	Widen both sides
Soos	100142	I-275 NB	7th Ave.	1964	55	14.3	C/D	Widen outside (low side)
	100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	14.4	D	Widen outside (low side)
	100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	14.6	D	Widen outside (low side)
ylr (j)	100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	14.7	C/D	Widen outside (low side)
Meets AASHTO only (16 ft > MVC ≥ 14.5 ft)	100134	I-275 SB	North Blvd.	1963	56	14.8	D	Widen outside (low side)
ASH'	100201	I-275 NB & SB	Floribraska Ave.	1966	53	14.8	E	Widen outside (low side)
eets A	100145	I-4 WB	Nebraska Ave.	1963	56	14.9	C/E	Widen inside (low side), remove a portion of outside
Me (16	100147	I-4 WB	14th St.	1962	57	15.2	C/D	Widen outside (low side)
	100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	15.8	C/D	Widen portion of inside at south end
	100656	I-4 EB	14th St.	2006	13	16.0	C/D/E	Widen outside (low side)
0	100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	16.5	C/D/E	Widen outside
ASHT	100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	16.7	C/D/E	Opt. C/E: Widen inside. Opt. D: Widen outside
~ & A⁄ ≥ 16fl	100705	I-275 NB	North Blvd.	2009	10	16.8	C/D	Widen both sides
100655 I-4 WB (Ramp to I-27		I-4 WB (Ramp to I-275 SB)	I-275	2005	13	17.0	C/E	Widen both sides
Meets FDOT & AASHTO (MVC ≥ 16ft)	100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	17.0	C/D/E	Widen both sides
Ž	100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	20.1	D	Widen portion of outside at south end
	100657	I-4 EB	15th St.	2006	13	20.5	C/D/E	Widen outside

# Table 4A: All Existing Bridges by Increasing Inventory Rating

Source: Bridge Inspection Reports

Note: Bridges in gray are to be replaced in each of the proposed design options.

Bridge No.	Facility Carried	Facility Crossed	Year Built	Age as of 2019	Inventory Rating (tons)	Operating Rating (tons)
100140	I-275 NB	Central & Henderson Ave.	1963	56	25.0	41.6
100655	I-4 WB (Ramp to I-275 SB)	I-275	2005	14	29.5	38.5
100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	31.4	52.4
100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	33.1	42.8
100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	33.4	55.7
100146	I-275 NB (Ramp to I-4 EB)	Nebraska Ave.	1963	56	33.9	56.7
100149	I-4 WB	15th St.	1962	57	34.2	41.7
100653	I-4 WB (Ramp to Downtown)	I-275 (Ramp to Downtown)	2005	14	34.5	51.8
105610	Ashley St. NB (Ramp to I-275)	Ashley St. SB (Ramp to Tampa St.)	1964	55	35.6	41.2
100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	36.0	48.6
100137	I-275 SB	Jefferson St. Ramp	1963	56	36.3	60.6
100651	I-275 SB (Viaduct Ramp)	Tampa St. to Morgan St.	2005	14	36.5	59.3
100144	I-275 NB	Palm Ave.	1963	56	36.5	60.8
100145	I-4 WB	Nebraska Ave.	1963	56	36.9	61.5
100831	I-275 NB (Ramp from Ashley St.)	Scott St.	2005	14	37.0	61.7
100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	37.9	63.2
100832	I-275 SB (Viaduct)	Tampa St. to Morgan St.	1964	55	38.2	61.6
100110	I-275 NB (Viaduct)	Tampa St. to Morgan St.	1964	55	38.2	61.6
100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	38.4	115.1
100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	39.1	61.0
100147	I-4 WB	14th St.	1962	57	39.2	42.5
100648	I-4 WB (Ramp to Downtown)	I-275	2006	13	39.2	65.5
100138	I-275 NB	Jefferson St. Ramp	1963	56	39.6	66.2
100657	I-4 EB	15th St.	2006	13	40.7	52.6
100705	I-275 NB	North Blvd.	2009	10	41.0	89.7
100656	I-4 EB	14th St.	2006	13	41.7	54.0
100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	44.0	74.0
100142	I-275 NB	7th Ave.	1964	55	44.6	69.9
100201	I-275 NB & SB	Floribraska Ave.	1966	53	45.4	51.1
100611	I-275 NB (Ramp to Ashley St.)	None – Embankment Slope	2009	10	46.7	78.0
100134	I-275 SB	North Blvd.	1963	56	49.0	53.3
100649	I-4 WB (Ramp to Downtown)	Palm Ave.	2004	15	49.2	82.0
100244	I-275 SB (Ramp to I-4 EB)	Columbus Dr.	1963	56	50.6	84.4
100199	I-275 SB	Columbus Dr.	1963	56	52.3	87.1
100291	Ashley St. NB (Ramp to I-275)	Laurel St.	1964	55	54.0	60.0
100139	I-275 SB	Central & Henderson Ave.	1963	56	54.0	62.0
100198	I-275 SB	Palm Ave.	1963	56	55.5	92.6
100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	56.5	94.1
100141	I-275 SB	7th Ave.	1964	55	59.0	67.0
100200	I-275 NB	Columbus Dr.	1963	56	66.2	99.0

# Table 4B: Existing Bridges to be Widened by Increasing Inventory Rating Source: Bridge Inspection Reports

Bridge No.	Facility Carried	Facility Crossed	Year Built	Age as of 2019	Inventory Rating (tons)	Operating Rating (tons)
100140	I-275 NB	Central & Henderson Ave.	1963	56	25.0	41.6
100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	31.4	52.4
100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	33.1	42.8
100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	33.4	55.7
100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	36.0	48.6
100144	I-275 NB	Palm Ave.	1963	56	36.5	60.8
100145	I-4 WB	Nebraska Ave.	1963	56	36.9	61.5
100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	37.9	63.2
100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	38.4	115.1
100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	39.1	61.0
100147	I-4 WB	14th St.	1962	57	39.2	42.5
100648	I-4 WB (Ramp to Downtown)	I-275	2006	13	39.2	65.5
100657	I-4 EB	15th St.	2006	13	40.7	52.6
100705	I-275 NB	North Blvd.	2009	10	41.0	89.7
100656	I-4 EB	14th St.	2006	13	41.7	54.0
100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	44.0	74.0
100142	I-275 NB	7th Ave.	1964	55	44.6	69.9
100201	I-275 NB & SB	Floribraska Ave.	1966	53	45.4	51.1
100134	I-275 SB	North Blvd.	1963	56	49.0	53.3
100139	I-275 SB	Central & Henderson Ave.	1963	56	54.0	62.0
100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	56.5	94.1
100141	I-275 SB	7th Ave.	1964	55	59.0	67.0

# Table 5A: All Existing Bridges by Increasing Operating Rating

Source: Bridge Inspection Reports

Note: Bridges in gray are to be replaced in each of the proposed design options.

Bridge No.	Facility Carried	Facility Crossed	Year Built	Age as of 2019	Inventory Rating (tons)	Operating Rating (tons)
100655	I-4 WB (Ramp to I-275 SB)	I-275	2005	14	29.5	38.5
105610	Ashley St. NB (Ramp to I-275)	Ashley St. SB (Ramp to Tampa St.)	1964	55	35.6	41.2
100140	I-275 NB	Central & Henderson Ave.	1963	56	25.0	41.6
100149	I-4 WB	15th St.	1962	57	34.2	41.7
100147	I-4 WB	14th St.	1962	57	39.2	42.5
100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	33.1	42.8
100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	36.0	48.6
100201	I-275 NB & SB	Floribraska Ave.	1966	53	45.4	51.1
100653	I-4 WB (Ramp to Downtown)	I-275 (Ramp to Downtown)	2005	14	34.5	51.8
100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	31.4	52.4
100657	I-4 EB	15th St.	2006	13	40.7	52.6
100134	I-275 SB	North Blvd.	1963	56	49.0	53.3
100656	I-4 EB	14th St.	2006	13	41.7	54.0
100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	33.4	55.7
100146	I-275 NB (Ramp to I-4 EB)	Nebraska Ave.	1963	56	33.9	56.7
100651	I-275 SB (Viaduct Ramp)	Tampa St. to Morgan St.	2005	14	36.5	59.3
100291	Ashley St. NB (Ramp to I-275)	Laurel St.	1964	55	54.0	60.0
100137	I-275 SB	Jefferson St. Ramp	1963	56	36.3	60.6
100144	I-275 NB	Palm Ave.	1963	56	36.5	60.8
100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	39.1	61.0
100145	I-4 WB	Nebraska Ave.	1963	56	36.9	61.5
100832	I-275 SB (Viaduct)	Tampa St. to Morgan St.	1964	55	38.2	61.6
100110	I-275 NB (Viaduct)	Tampa St. to Morgan St.	1964	55	38.2	61.6
100831	I-275 NB (Ramp from Ashley St.)	Scott St.	2005	14	37.0	61.7
100139	I-275 SB	Central & Henderson Ave.	1963	56	54.0	62.0
100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	37.9	63.2
100648	I-4 WB (Ramp to Downtown)	I-275	2006	13	39.2	65.5
100138	I-275 NB	Jefferson St. Ramp	1963	56	39.6	66.2
100141	I-275 SB	7th Ave.	1964	55	59.0	67.0
100142	I-275 NB	7th Ave.	1964	55	44.6	69.9
100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	44.0	74.0
100611	I-275 NB (Ramp to Ashley St.)	None – Embankment Slope	2009	10	46.7	78.0
100649	I-4 WB (Ramp to Downtown)	Palm Ave.	2004	15	49.2	82.0
100244	I-275 SB (Ramp to I-4 EB)	Columbus Dr.	1963	56	50.6	84.4
100199	I-275 SB	Columbus Dr.	1963	56	52.3	87.1
100705	I-275 NB	North Blvd.	2009	10	41.0	89.7
100198	I-275 SB	Palm Ave.	1963	56	55.5	92.6
100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	56.5	94.1
100200	I-275 NB	Columbus Dr.	1963	56	66.2	99.0
100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	38.4	115.1

# Table 5B: Existing Bridges to be Widened by Increasing Operating Rating Source: Bridge Inspection Reports

Bridge No.	Facility Carried	Facility Crossed	Year Built	Age as of 2019	Inventory Rating (tons)	Operating Rating (tons)
100140	I-275 NB	Central & Henderson Ave.	1963	56	25.0	41.6
100147	I-4 WB	14th St.	1962	57	39.2	42.5
100654	I-275 SB (Ramp to I-4 EB)	I-275 & I-4 Ramps	2004	15	33.1	42.8
100135	I-275 SB	Hillsborough River to Ashley St.	1964	55	36.0	48.6
100201	I-275 NB & SB	Floribraska Ave.	1966	53	45.4	51.1
100074	I-275 SB (Ramp to Downtown)	7th Ave.	1963	56	31.4	52.4
100657	I-4 EB	15th St.	2006	13	40.7	52.6
100134	I-275 SB	North Blvd.	1963	56	49.0	53.3
100656	I-4 EB	14th St.	2006	13	41.7	54.0
100143	I-4 WB (Ramp to I-275 SB)	Palm Ave.	1963	56	33.4	55.7
100144	I-275 NB	Palm Ave.	1963	56	36.5	60.8
100136	I-275 NB	Hillsborough River to Ashley St.	1964	55	39.1	61.0
100145	I-4 WB	Nebraska Ave.	1963	56	36.9	61.5
100139	I-275 SB	Central & Henderson Ave.	1963	56	54.0	62.0
100652	I-4 WB (Ramp to I-275 NB)	Columbus Dr.	2005	14	37.9	63.2
100648	I-4 WB (Ramp to Downtown)	I-275	2006	13	39.2	65.5
100141	I-275 SB	7th Ave.	1964	55	59.0	67.0
100142	I-275 NB	7th Ave.	1964	55	44.6	69.9
100082	I-275 SB (Ramp to Downtown)	Central & Henderson Ave.	1963	56	44.0	74.0
100705	I-275 NB	North Blvd.	2009	10	41.0	89.7
100290	Ashley St. SB (Ramp from I-275)	Laurel St.	1964	55	56.5	94.1
100650	I-4 WB (Ramp to I-275 NB)	Nebraska Ave.	2005	14	38.4	115.1

Figure 1: Map of Existing Bridges in Section 6 **Existing Bridges in Section 6** Legend Existing Bridge

Figure 2: Map of Option C Existing Bridges to Remain/Widen Option C - Existing Bridges to Remain/Widen Legend 1960s Bridges 2000s Bridges

Figure 3: Map of Option D Existing Bridges to Remain/Widen Option D - Existing Bridges to Remain/Widen Legend 1960s Bridges 2000s Bridges

Figure 4: Map of Option E Existing Bridges to Remain/Widen Option E - Existing Bridges to Remain/Widen Legend 1960s Bridges 2000s Bridges

Figure 5: Map of Existing Bridges with Deck Ratings of 6 or Less **Existing Bridges Deck Rating** Legend 6 or Less

Page 25 | 33

Figure 6: Map of Existing Bridges with Vertical Clearance Under 16' **Existing Bridges Vertical Clearance** Legend / 14.5' to 16' Under 14.5'

Figure 7: Map of Existing Bridges with Inventory Rating Under 36 Tons **Existing Bridges Inventory Rating** Legend Under 36 Tons

Figure 8: Map of Existing Bridges with Operating Rating Under 60.1 Tons **Existing Bridges Operating Rating** Legend Under 60.1 Tons

# **Excerpts from:**

# FDOT Bridge Management System (BMS) Coding Guide, December 3, 2018

Source: <a href="https://www.fdot.gov/maintenance/Inspection.shtm">https://www.fdot.gov/maintenance/Inspection.shtm</a>

# **TABLE 58-1 CONCRETE DECKS**

RATING	CONDITION	DESCRIPTION
9	EXCELLENT	No noticeable or noteworthy deficiencies which affect the condition of the deck.
8	VERY GOOD	Minor transverse cracks and no spalling, scaling, delamination or water saturation.
7	GOOD	Sealable deck cracks, light scaling (less than 6 mm depth) or less than 10% of the deck is water saturated. This area would include any repaired areas and/or areas in need of corrective action. No spalling but with visible tire wear in the wheel lines.
6	SATISFACTORY	Excessive number of open cracks with or without efflorescence (excessive being at 1.5 meter intervals or less over the entire deck). Medium scaling (6 mm to 13 mm in depth), 2% or less of the deck spalled, or 10% to 20% of the deck area is water saturated and/or deteriorating. This area would include any repaired areas and/or areas in need of corrective action. Deterioration of deck edges or around scuppers. Some partial but no full depth failures.
5	FAIR	Excessive cracking resulting in 2% to 5% of the deck spalled. Heavy scaling (13 mm to 25mm in depth) or 20% to 40% of the deck is water saturated and/or deteriorating. This area would include any repaired areas and/or areas in need of corrective action.  Disintegration of deck edges or around scuppers. Some partial and full depth failures. Considerable leaching through deck.
4	POOR	More than 5% of the deck is spalled or 40% to 60% of the deck is water saturated and/or deteriorating. This area would include any repaired areas and/or areas in need of corrective action. Many full depth failures present or imminent. Leaching throughout deck.
3	SERIOUS	More than 60% of the deck is water saturated and/or deteriorating. This area would include any repaired areas and/or areas in need of corrective action. Many full depth failures. This rating will apply if severe or critical signs of structural distress are visible on bridges where the deck is integral with the superstructure.
2	CRITICAL	The deck has advanced deterioration. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	"IMMINENT" FAILURE	The bridge deck is considered unsafe for vehicular use and the bridge is closed; however, corrective action may enable the structure to be placed into light service.
0	FAILED	The bridge deck is Out-of-Service and replacement is necessary.

#### TABLE 59-2 PRESTRESSED CONCRETE SUPERSTRUCTURE

RATING	CONDITION	DESCRIPTION
9	EXCELLENT	New condition.
8	VERY GOOD	No problems noted.
7	GOOD	Non-structural cracks less than 0.4 mm in width may be evident. No rust stains apparent.
6	SATISFACTORY	Minor concrete damage or deterioration. Non-structural cracks over 0.4 mm. Isolated and minor exposure of mild steel reinforcement may be present.
5	FAIR	Isolated and minor exposure of prestressing stands may be present. Structural cracks with little or no rust staining. Primary members sound, but may be cracked or spalled.
4	POOR	Moderate damage or deterioration to concrete portions of the member exposing reinforcing bars or prestressing strands. Possible bond loss. Structural cracks with medium to heavy rust staining may be present. May be loss of camber.
3	SERIOUS	Severe damage to concrete and reinforcing elements of the member. Severed prestressing strand(s), or strand(s) are visibly deformed. Major or total loss of concrete section in bottom flange. Major loss of concrete section in the web, but not occurring at the same location as of concrete section in the bottom flange. Horizontal misalignment to member or negative camber. Unless closely monitored it may be necessary to restrict or close the bridge until corrective action is taken.
2	CRITICAL	Critical damage to concrete and reinforcing elements of member. This damage may consist of one or more of the following:  a. Cracks extend across the bottom flange or in the web directly above the bottom flange damage that are not closed below the surface damage. (This indicates that the prestressing strands have exceeded yield strength.)  b. An abrupt lateral offset as measured along the bottom flange or lateral distortion of exposed prestressing strands. (This also Indicates that the prestressing strands have exceeded yield strength.)  c. Loss of prestress force to the extent that calculations show that repair cannot be made.  d. Excessive vertical misalignment.  e. Longitudinal cracks at the interface of the web and the top flange that are not substantially closed below the surface damage. (This indicates permanent deformation of stirrups.)
1	"IMMINENT" FAILURE	Critical damage requiring the replacement of a member. Bridge is closed to traffic, and installation of temporary falsework to safeguard the public and the bridge should be taken at the time of inspection.
0	FAILED	Bridge closed and out-of-service.

#### **TABLE 59-3 STEEL SUPERSTRUCTURES**

RATING	CONDITION	DESCRIPTION
9	EXCELLENT	No noticeable or noteworthy deficiencies which affect the condition of the superstructure.
8	VERY GOOD	No visible corrosion.
7	GOOD	Minor surface rust without any section loss.
6	SATISFACTORY	Rusting evident but with no initial section loss (minor pitting, scaling, or flaking) in critical areas.
5	FAIR	Initial section loss in critical stress areas. Fatigue or out-of-plane distortion cracks may be present in non-critical area. Hinges may be showing significant corrosion problems.  Fracture Critical Members:
		Defective welds, nicks or gouges without fatigue cracks.
4	POOR	Significant section loss in critical stress area. Fatigue or out-of-plane distortion cracks may be present in major structural elements. Hinges may be frozen from corrosion. Load carrying capacity of structural members affected.  Fracture Critical Members:  Defective welds, nicks or gouges with corresponding fatigue cracks. Any cracks located in the steel which are parallel to primary stress. Steps should be initiated for in-depth or non-destructive testing inspection and prompt repair of the damaged or fatigue prone areas of the bridge.
3	SERIOUS	Severe section loss or cracking in critical stress areas. Significant weakening of primary members evident.  Fracture Critical Members:  Any crack in the steel which is perpendicular to the primary stress will result in serious consideration of bridge closure and immediate repair of the structure.
2	CRITICAL	Severe section loss in many areas with holes rusted through at numerous locations. Bridge closure or close monitoring is required.
1	"IMMINENT" FAILURE	The bridge is closed to vehicular traffic. Corrective action may put back into light service.
0	FAILED	The bridge is - Out-of-Service. Replacement of the superstructure is required.

#### **TABLE 60-1 SUBSTRUCTURE**

RATING	CONDITION	DESCRIPTION
9	EXCELLENT	No noticeable or noteworthy deficiencies which affect the condition of the substructure. Insignificant scrape marks caused by drift or collision.
8	VERY GOOD	Shrinkage cracks, light scaling or insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift or collision with no misalignment and not requiring corrective action.
7	GOOD	Minor deterioration or initial disintegration, minor water saturation, cracking with some leaching or spalls on concrete or masonry unit with no effect on bearing area. Leakages of expansion devices have initiated minor cracking. Some rusting of steel without section loss. Insignificant decay, cracking, splitting or crushing of timber.
6	SATISFACTORY	Moderate deterioration or disintegration, spalls, moderate cracking and leaching on concrete or masonry units with little or no loss of bearing area. Initial (discernible) loss of steel section. Moderate decay, cracking, splitting or crushing of timber.
5	FAIR	Many concrete or masonry units show loss with exposed reinforcing steel. Significant but minor (measurable) section loss in steel members. Some timber piles require replacement. Repaired elements in good condition. Substantial decay, cracking, splitting or crushing of timber members. Minor exposure of piling as a result of erosion or scour. Additional cross bracing or backfilling is required. For fracture critical members, defective welds, nicks or gouges without fatigue cracks.
4	POOR	Structural cracks in concrete and masonry units. Extensive section loss in steel members. For fracture critical members, defective welds, nicks or gouges without corresponding fatigue cracks located in the steel which are parallel to the primary stress. Some piling and/or timber bents require replacement due to decay, cracking, splitting or crushing. Moderate scouring or undermining of footings starting to affect the stability of the unit. Minor settlement of the substructure may have occurred.
3	SERIOUS	Bearing area may be seriously deteriorated considerable loss of bearing area. Blocking and shoring considered necessary (not just precautionary) to maintain the safety and alignment of the structure. For fracture critical members: any crack in the steel which is perpendicular to the primary stress will result in serious consideration of bridge closure and immediate repair of the structure. Local failures are possible. Any further deterioration of other conditions noted in Rating 4.
2	CRITICAL	Concrete cap may be soft and spalling with bottom row of reinforcing steel exposed with no bond to the concrete. Top of pier cap is split or concrete column has undergone shear failure. Scour is sufficient that substructure is near state of collapse. Pier has settled.
1	"IMMINENT" FAILURE	Bridge is closed to vehicular traffic. Corrective action may put the structure back into light service.
0	FAILED	The bridge is Out-of-Service. Replacement of the substructure is required.

#### **Excerpts from:**

Terminology and Process, August 27, 2008

Source: https://www.fdot.gov/maintenance/BridgeInfo.shtm

The term "structurally deficient" means that the department believes a bridge should undergo a series of repairs or replacement within the next six years. The department's policy is to repair or replace all the structurally deficient state owned bridges during that time. The department also recommends that local governments follow the same schedule for their structurally deficient bridges.

The term "functionally obsolete" only means that a bridge does not meet current road design standards. For example, some bridges are "functionally obsolete" because they were built at a time when lane widths were narrower than the current standard.

The "health index" is a tool that measures the overall condition of a bridge. The health index typically includes about 10 to 12 different elements that are evaluated by the department. A lower health index means that more work would be required to improve the bridge to an ideal condition. A health index below 85 generally indicates that some repairs are needed, although it doesn't mean the bridge is unsafe. A low health index may also indicate that it would be more economical to replace the bridge than to repair it.

#### **Excerpt from:**

FDOT Bridge Management System (BMS) Coding Guide, December 3, 2018

Source: https://www.fdot.gov/maintenance/Inspection.shtm

By definition, "**fracture critical**" members are steel elements sustaining tensile stresses whose failure will probably cause a portion of or the entire bridge to collapse.