



COUNTRYSIDE



CORRIDORS



CENTERS



CONSERVATION



EAST CENTRAL FLORIDA



CORRIDOR EVALUATION STUDY

FUTURE CONDITIONS DATA REPORT
MARCH 2020

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Future Conditions Data Report

1. Introduction

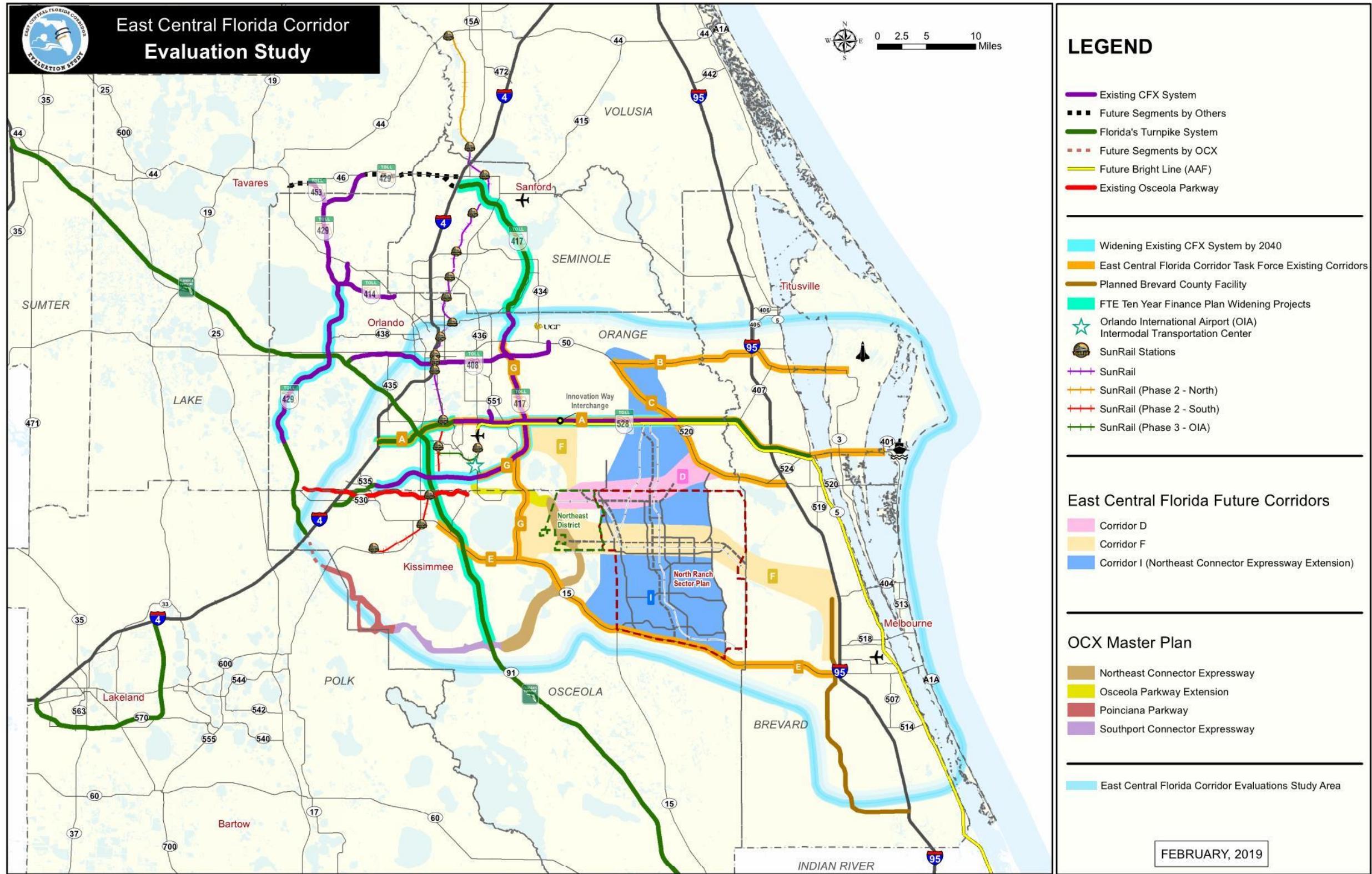
After several discussions with the Project Advisory Group (PAG) and comparison of several models available for the traffic forecast in the Central Florida area, it was concluded the Central Florida Regional Planning Model (CFRPM) version 6.1 (Time-of-Day) will be used for the travel demand forecasting of the East Central Florida Corridor Evaluation Study (ECFCES). The latest version of this model was released on December 22, 2016. This model was selected as it represents the land use and other characteristics of Orange, Brevard, and Osceola Counties. The travel demand forecasting /modeling methodology was approved by Florida Department of Transportation (FDOT) on October 17, 2018. See Appendix A. Below is the description of the five existing corridors in the study area.

- Corridor A: SR 528 spans from the I-4/SR 528 interchange in Orange County to the easternmost point of the George King Boulevard interchange ramps in Brevard County
- Corridor B: SR 50/SR 405 spans from the westernmost point of the SR 50/SR 520 interchange in Orange County to Space Commerce Way in Brevard County
- Corridor C: SR 520 spans from the westernmost point of SR 50/SR 520 interchange in Orange County to the easternmost point of the SR 520/I-95 interchange in Brevard County
- Corridor E: US 192 spans from CR 530 in Osceola County to the easternmost point of the US 192/I-95 interchange in Brevard County
- Corridor G: SR 417/Narcoossee Road spans (SR 417) from SR 50 interchange to Boggy Creek Road in Orange County and (Narcoossee Road) from SR 417 in Orange County to US 192 in Osceola County

Three new future corridors (Corridor D, F, I) were added to the model for the year 2060 Build scenario, Corridor F and Corridor I are toll facilities. There were four modeling scenarios: year 2010, year 2040, year 2060 No Build, and year 2060 Build. Figure 1.1 represents the Project Study Area.



Figure 1.1 Project Study Area



2. Model Preparation

2.1. Model Socio-Economic Data Update

Three Developments of Regional Impact (DRIs) within the project study area were taken into consideration, which are North Ranch, Northeast District, and Viera DRI. The DRI information included build out year, future population and residential unit estimates, and future year land use. Only square footage was provided in the land use information. Institute of Transportation Engineers (ITE) 9th Edition - Trip Generation Rate and CFRPM 6.1 countywide Employment/Trip Ratio were used to convert the square footage of the land use information to employment data for travel demand model. Detailed conversion steps are listed in Appendix B.

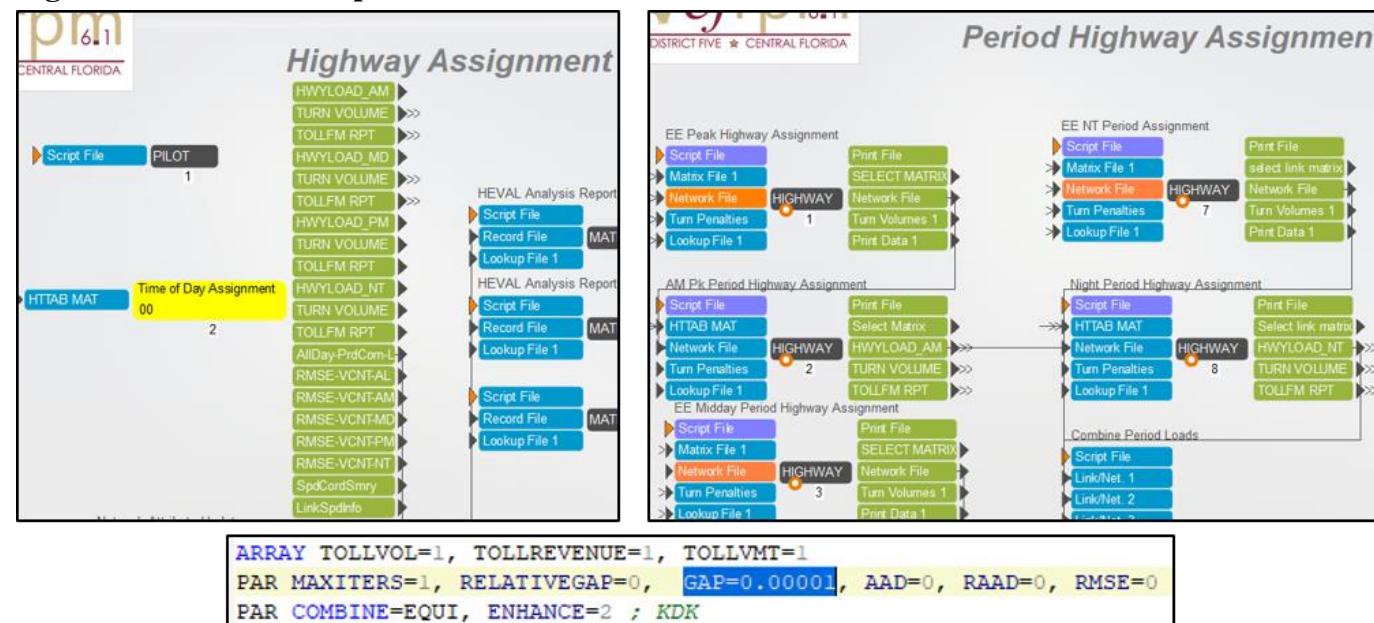
2.2. Network, Script and Trip Table Update

Based on the discussions in the ECFCES meeting at Central Florida Expressway Authority (CFX) on 02/11/2019 and the comments received after the meeting, model future year networks were modified. Year 2040, year 2060 No Build and year 2060 Build networks were updated in the model input.

The “CTOLL” model scripts in the Period Highway Assignment step were updated per Department’s suggestion.

The “GAP” factor in the model scripts for each Time-of-Day period in the Period Highway Assignment step was changed from 0.001 to 0.00001 to improve the accuracy of the model result, as shown in Figure 2.1.

Figure 2.1 Model Script



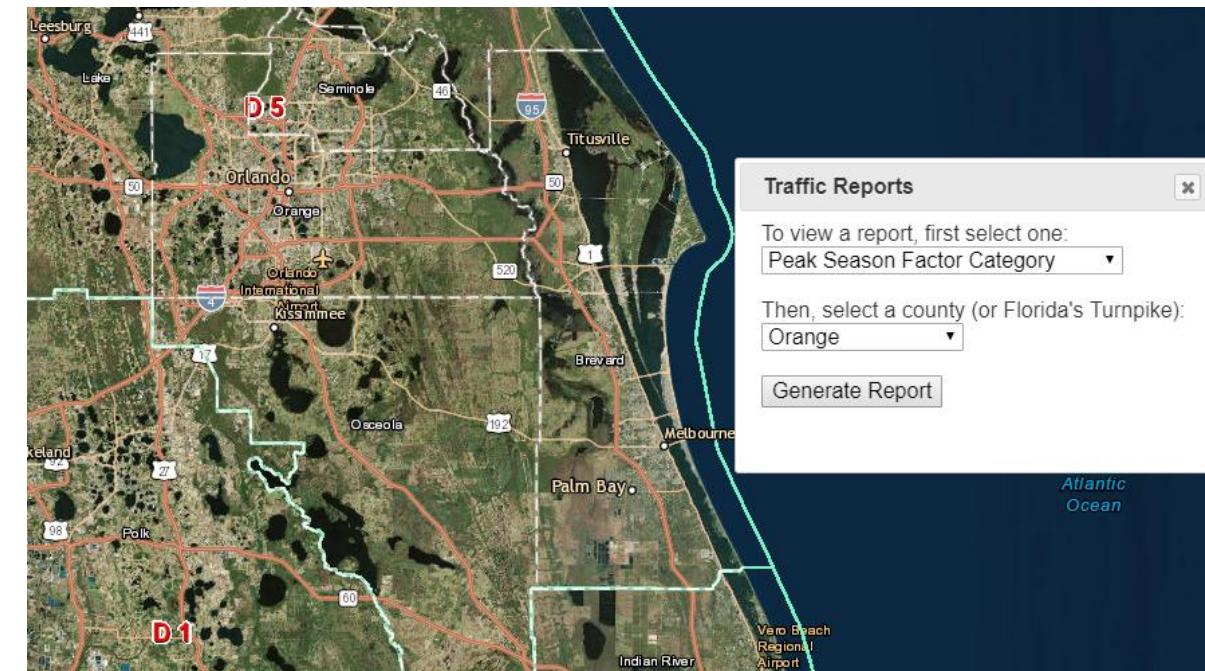
For the year 2060 Build scenario, the trip tables in year 2060 No Build scenario were used to get more reasonable results.

3. Model Result Summary and Project Traffic Development

3.1. Model Output Conversion Factor (MOCF)

The countywide MOCFs were looked up from the Peak Season Factor Reports from Florida Traffic Information (FTI) online, as shown in Figure 3.1.

Figure 3.1 Peak Season Traffic Reports



For this project, the countywide MOCFs were from year 2018 Peak Season Factor Reports of Orange County, Osceola County, and Brevard County. The MOCFs for Orange County and Osceola County are all 0.98. For Brevard County, the MOCF is 0.91.

3.2. Model Annual Average Daily Traffic (AADT)

The model AADTs were calculated based on the following formula:

$$\text{Model AADT} = \text{Model Volume} \times \text{MOCF}$$

Appropriate countywide MOCFs are applied to the model volumes based on the link location.

3.3. Future Project Traffic Development

The future project traffic was developed following the National Cooperative Highway Research Program (NCHRP) 765 procedure for the year 2040, year 2060 No Build (2060 NB), and year 2060 Build (2060 B) for the five existing corridors. The model annual growth rates were applied to the existing year (2015) AADT from counts for the year 2040 project traffic development. Year 2060 project traffic was developed based on the model growth rate and year 2040 project traffic.

Two methods were used to calculate the future AADT, ratio and difference. The results from the ratio and difference approaches were averaged to get the future year AADTs. Certain reasonableness checks were applied; and necessary adjustments were made. The detailed calculation procedure for each scenario is listed in Appendix C.

3.4. Level of Service (LOS) Criteria

The FDOT Generalized Service Volume Tables in **FDOT 2013 Quality/Level of Service Handbook** were used to determine the LOS for each segment, as shown in Figure 3.2.

Figure 3.2 Quality/Level of Service Handbook

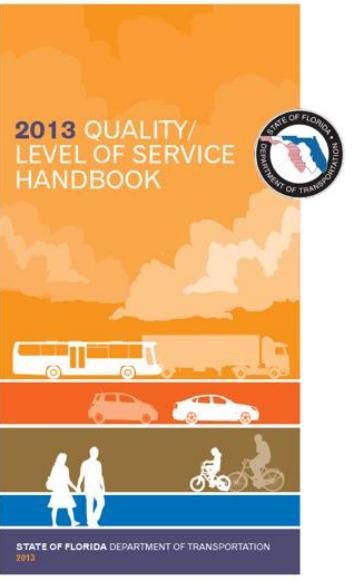


TABLE 1 Generalized Annual Average Daily Volumes for Florida's Urbanized Areas

INTERRUPTED FLOW FACILITIES		UNINTERRUPTED FLOW FACILITIES		
STATE-SIGNALIZED ARTERIALS		FREEWAYS		
Glo 1/40 mph or higher posted speed (mi)		Cen Unshaded		
Lanes	Median	B	C	D
2	Unshaded	*	16,800	17,700
4	Unshaded	*	37,800	40,000
6	Divided	*	58,400	59,900
8	Divided	**	78,800	80,100
CLW (1/25 mph or slower posted speed (mi))				
Lanes	Median	B	C	D
2	Unshaded	*	7,300	14,800
4	Unshaded	*	14,800	14,800
6	Divided	*	23,300	50,000
8	Divided	*	32,000	67,300
Non-State-Signalized Roadway Adjustments (After corresponding non-volume by the indicated percent.) Non-state-signalized arterials -10%				
Median & Turn Lane Adjustments (After corresponding non-volume by the indicated percent.) Non-state-signalized arterials -10%				
One-Way Facility Adjustment Multiple one-way vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volume as this table by 0.6				
BICYCLE MODE ¹				
*Values shown are for two-way annual average daily volumes for levels of service A through E. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the general planning principles for two-lane roads with shoulders. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the same specific planning application. This table will derive capacity models that can be used for the planning applications of the Highway Capacity Manual and the Urban Capacity Manual. The values are for a two-lane road with a center line. Considerations for headway planning apply to the use of the Highway Capacity Manual and the Urban Capacity Manual. The values are for a two-lane road with a center line. Considerations for headway planning apply to the use of the Highway Capacity Manual and the Urban Capacity Manual.				
¹ Level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode.				
PEDESTRIAN MODE ²				
*Values shown are for two-way annual average daily volumes for levels of service A through E. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the general planning principles for two-lane roads with shoulders. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the same specific planning application. This table will derive capacity models that can be used for the planning applications of the Highway Capacity Manual and the Urban Capacity Manual. The values are for a two-lane road with a center line. Considerations for headway planning apply to the use of the Highway Capacity Manual and the Urban Capacity Manual. The values are for a two-lane road with a center line. Considerations for headway planning apply to the use of the Highway Capacity Manual and the Urban Capacity Manual.				
² Level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode.				
BUS MODE (Scheduled Fixed Route) ³				
*Values shown are for two-way annual average daily volumes for levels of service A through E. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the general planning principles for two-lane roads with shoulders. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the same specific planning application. This table will derive capacity models that can be used for the planning applications of the Highway Capacity Manual and the Urban Capacity Manual. The values are for a two-lane road with a center line. Considerations for headway planning apply to the use of the Highway Capacity Manual and the Urban Capacity Manual.				
³ Level of service for the bus and rail modes in this table is based on another mode. The level of service for the bus and rail modes in this table is based on another mode. The level of service for the bus and rail modes in this table is based on another mode.				

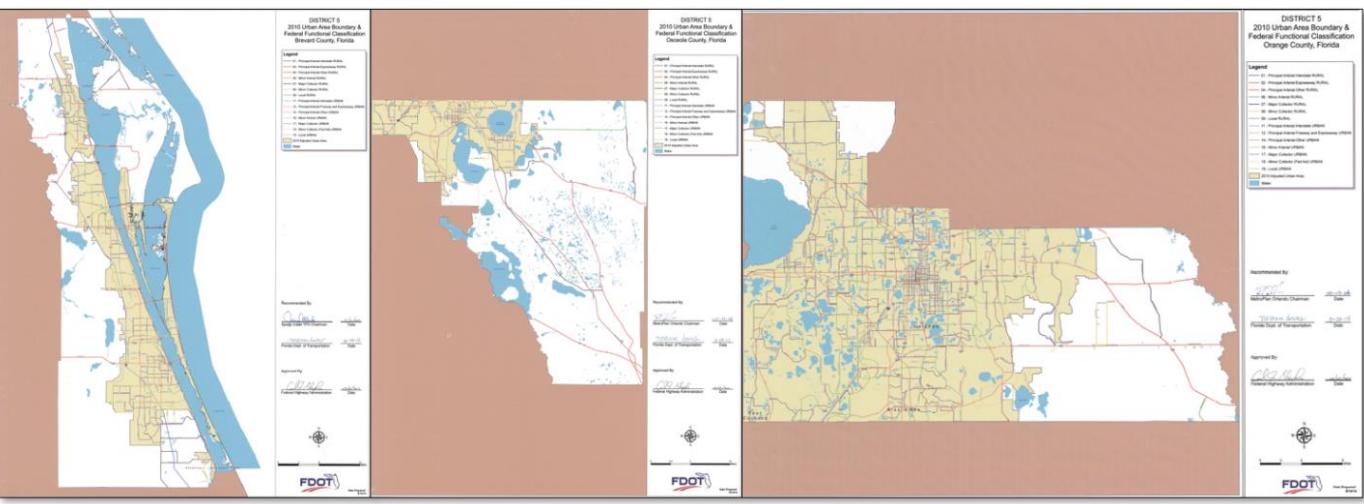
TABLE 3 Generalized Annual Average Daily Volumes for Florida's Rural Undeveloped Areas and Developed Areas Less Than 5,000 Population¹

INTERRUPTED FLOW FACILITIES		UNINTERRUPTED FLOW FACILITIES		
STATE-SIGNALIZED ARTERIALS		FREEWAYS		
Glo 1/40 mph or higher posted speed (mi)		Cen Unshaded		
Lanes	Median	B	C	D
2	Undivided	*	12,500	14,200
4	Divided	*	29,300	30,400
6	Divided	*	45,200	45,800
8	Divided	**	57,500	58,400
CLW (1/25 mph or slower posted speed (mi))				
Lanes	Median	B	C	D
2	Undivided	*	28,800	43,000
4	Divided	*	45,000	46,500
6	Divided	*	53,500	52,500
8	Divided	**	64,400	131,500
Non-State-Signalized Roadway Adjustments (After corresponding non-volume by the indicated percent.) Non-state-signalized arterials -10%				
Freeway Adjustment Auxiliary Lanes Present in Both Directions				
Median & Turn Lane Adjustment Ramps Present in Both Directions				
UNINTERRUPTED FLOW HIGHWAYS				
Rural Undeveloped				
Lanes	Median	B	C	D
2	Undivided	*	4,700	8,400
4	Divided	*	25,700	40,300
6	Divided	*	38,800	60,400
8	Divided	**	57,700	86,800
One-Way Facility Adjustment Multiply the corresponding two-directional volume by the value in 0.6				
Developed Area				
Lanes	Median	B	C	D
2	Undivided	*	8,700	16,400
4	Divided	*	23,100	31,500
6	Divided	*	38,800	61,000
8	Divided	**	59,500	87,500
BICYCLE MODE ¹				
*Values shown are for two-way annual average daily volumes for levels of service A through E. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the general planning principles for two-lane roads with shoulders. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the same specific planning application. This table will derive capacity models that can be used for the planning applications of the Highway Capacity Manual and the Urban Capacity Manual. The values are for a two-lane road with a center line. Considerations for headway planning apply to the use of the Highway Capacity Manual and the Urban Capacity Manual.				
¹ Level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode.				
Uninterrupted Flow Highway Adjustment				
Rural Undeveloped				
Lanes	Median	B	C	D
2	Divided	*	1,300	2,000
4	Divided	*	3,000	3,200
6	Divided	*	6,000	13,600
8	Divided	**	10,000	19,600
Developed Area				
Lanes	Median	B	C	D
2	Divided	*	2,700	4,000
4	Divided	*	5,700	10,300
6	Divided	*	10,000	19,600
8	Divided	**	15,000	31,500
Pavement Adjustment				
Rural Undeveloped				
Lanes	Median	B	C	D
2	Divided	*	1,000	1,300
4	Divided	*	2,600	3,900
6	Divided	*	5,200	18,500
8	Divided	**	10,000	19,600
Developed Area				
Lanes	Median	B	C	D
2	Divided	*	1,700	2,500
4	Divided	*	4,500	13,300
6	Divided	*	9,000	18,500
8	Divided	**	15,000	31,500
Pedestrian Mode ²				
*Values shown are for two-way annual average daily volumes for levels of service A through E. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the general planning principles for two-lane roads with shoulders. The values are for a two-lane road with a center line. Roads that do not contain a center line or shoulder are to use the same specific planning application. This table will derive capacity models that can be used for the planning applications of the Highway Capacity Manual and the Urban Capacity Manual. The values are for a two-lane road with a center line. Considerations for headway planning apply to the use of the Highway Capacity Manual and the Urban Capacity Manual.				
² Level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode. The level of service for the bicycle and pedestrian modes in this table is based on another mode.				
Pavement Coverage				
Sidewalk Coverage	B	C	D	E
0-49%	*	2,900	7,600	19,700
50-84%	*	1,600	8,700	15,800
85-100%	3,800	10,700	17,400	19,700
Bicycle Coverage				
Sidewalk Coverage	B	C	D	E
0-49%	5	24	33	2
50-84%	4	23	32	21
85-100%	3,600	10,200	16,700	19,200
Pavement Coverage				
Sidewalk Coverage	B	C	D	E
0-49%	5	24	33	2
50-84%	4	23	32	21
85-100%	3,600	10,200	16,700	19,200

Page 5 2012 FDOT QUALITY/LEVEL OF SERVICE HANDBOOK TABLES

The Urban Boundary Maps of Orange County, Osceola County, and Brevard County from the FDOT website were used to determine whether the selected locations belong to urban or rural areas, as shown in Figure 3.3.

Figure 3.3 Urban Boundary Maps



The model Facility Type and Google Earth images for selected locations were used to determine whether the road was interrupted, freeway or a highway.

4. Traffic Graphics

For the reporting purposes, all the corridor segmentation for the Future Conditions Data Report are kept consistent with the Existing Conditions Data report. Aside from the corridor profile, there are three figures for each corridor segment:

1. Corridor Profile
2. Existing Traffic (Year 2015)
3. Future Traffic (Year 2040)
4. Future Traffic (Year 2060)

4.1. Corridor A: SR 528 – “Super Corridor”

The SR 528 “Super Corridor” is a limited-access, multimodal highway which serves commuter, tourism, commercial, and goods mobility between Greater Orlando, Port Canaveral, and the Space Coast. It is the principal east-west corridor in the study area connecting I-4 and the Orlando International Airport (OIA) with I-95 and Port Canaveral. SR 528 is designated at the state level as part of the Strategic Intermodal System (SIS), at the federal level as part of the National Highway System (NHS), and provides a vital connection to several SIS hubs, such as Port Canaveral, Cape Canaveral Air Force Station, and Kennedy Space Center. Maintaining mobility on this corridor will serve future regional and interregional developments as well as preserve coastal emergency evacuation route and unique and critical ecosystems.

Corridor A runs from west to east spanning from the I-4/SR 528 interchange in Orange County to the George King Boulevard at the easternmost point of interchange ramps in Brevard County. Corridor A is divided into four segments: A1, A2, A3, and A4. Segment A1 forms the westernmost portion of the corridor, in the urbanized area of Orange County from I-4/ SR 528 interchange to SR 417. Segment A2 constitutes the entirety of “rural” roadway in Orange County along Corridor A, running from SR 417 to the Orange/Brevard County line. Segment A3 constitutes the entirety of “rural” roadway in Brevard County along Corridor A, running from the Orange/Brevard County line to Pine Street. Segment A4 constitutes the easternmost portion of the corridor, in the urbanized area of Brevard County from Pine Street to the end of the interchange ramps. The lengths of Corridor A segments are listed below in Table 4.1.

Table 4.1 Corridor A Segment Lengths

Segment	Length (miles)
A1	15.6
A2	20.3
A3	5.5
A4	13.0
Corridor A	54.4

Please see the following Figures:

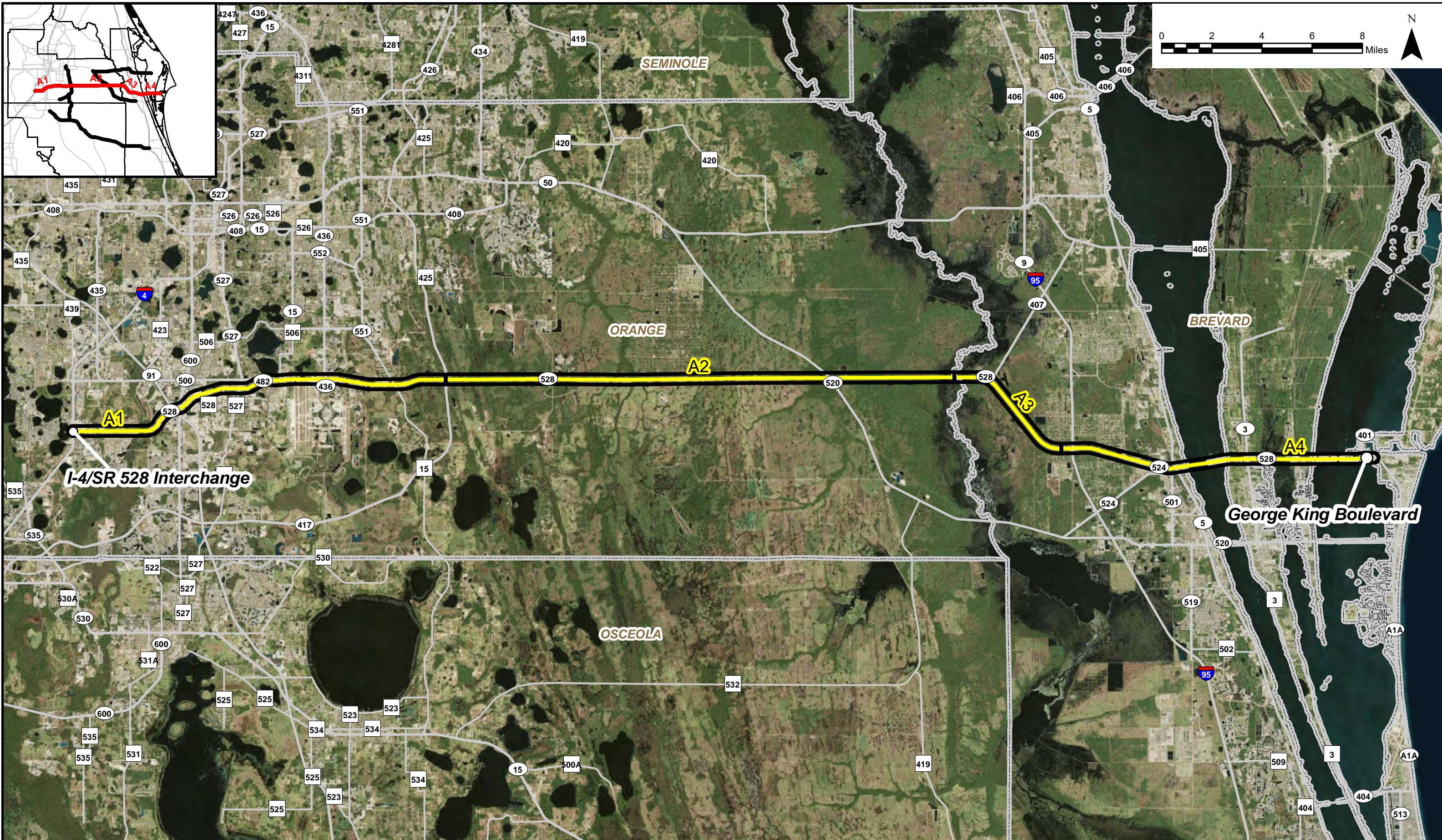
Figure 4.1.1: Corridor A Profile – SR 528

Figure 4.1.2: Corridor A Roadway Characteristics & Year 2015 Traffic

Figure 4.1.3: Corridor A Year 2040 Traffic

Figure 4.1.4: Corridor A Year 2060 Traffic





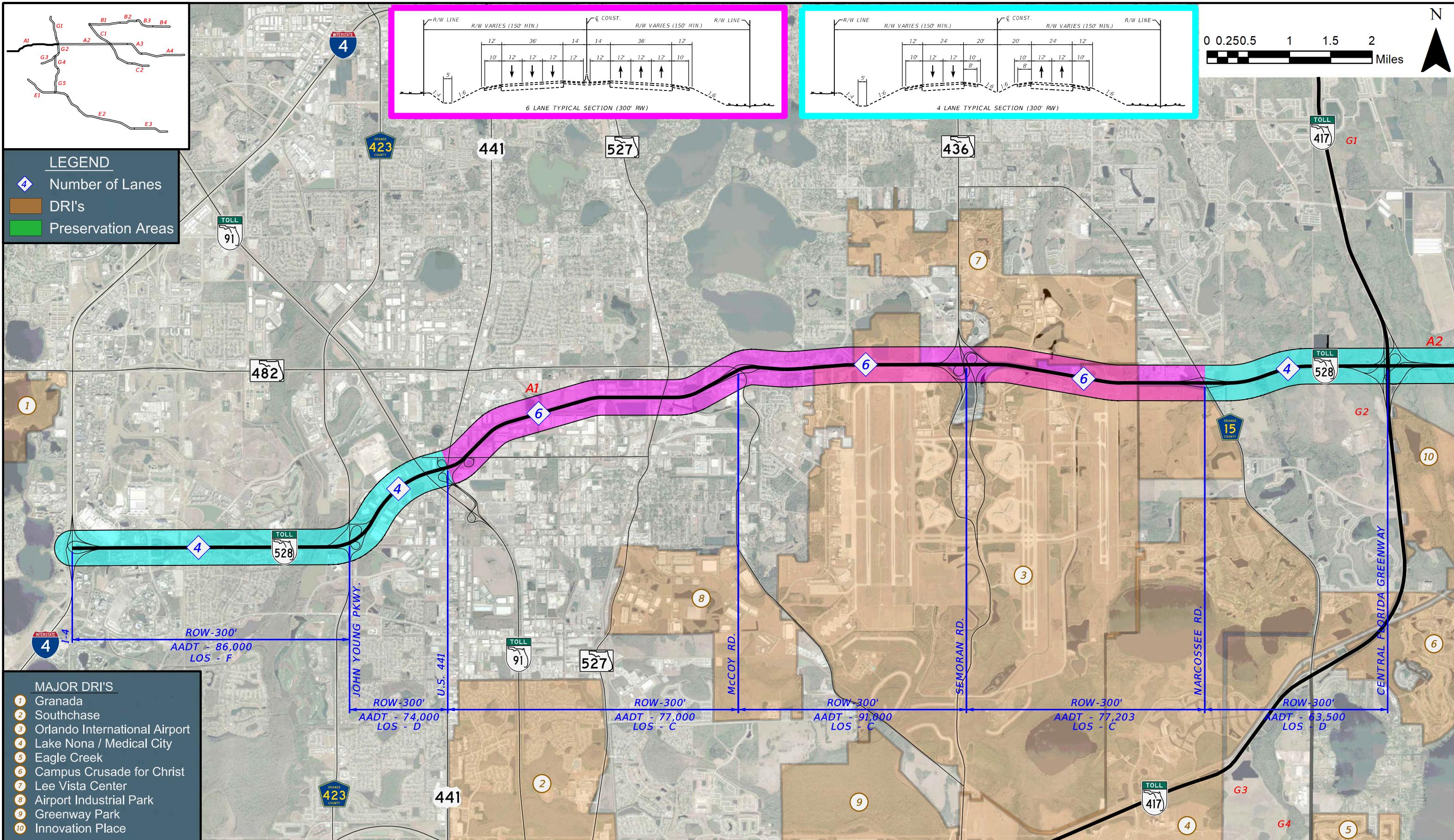
East Central Florida Corridor Evaluation Study

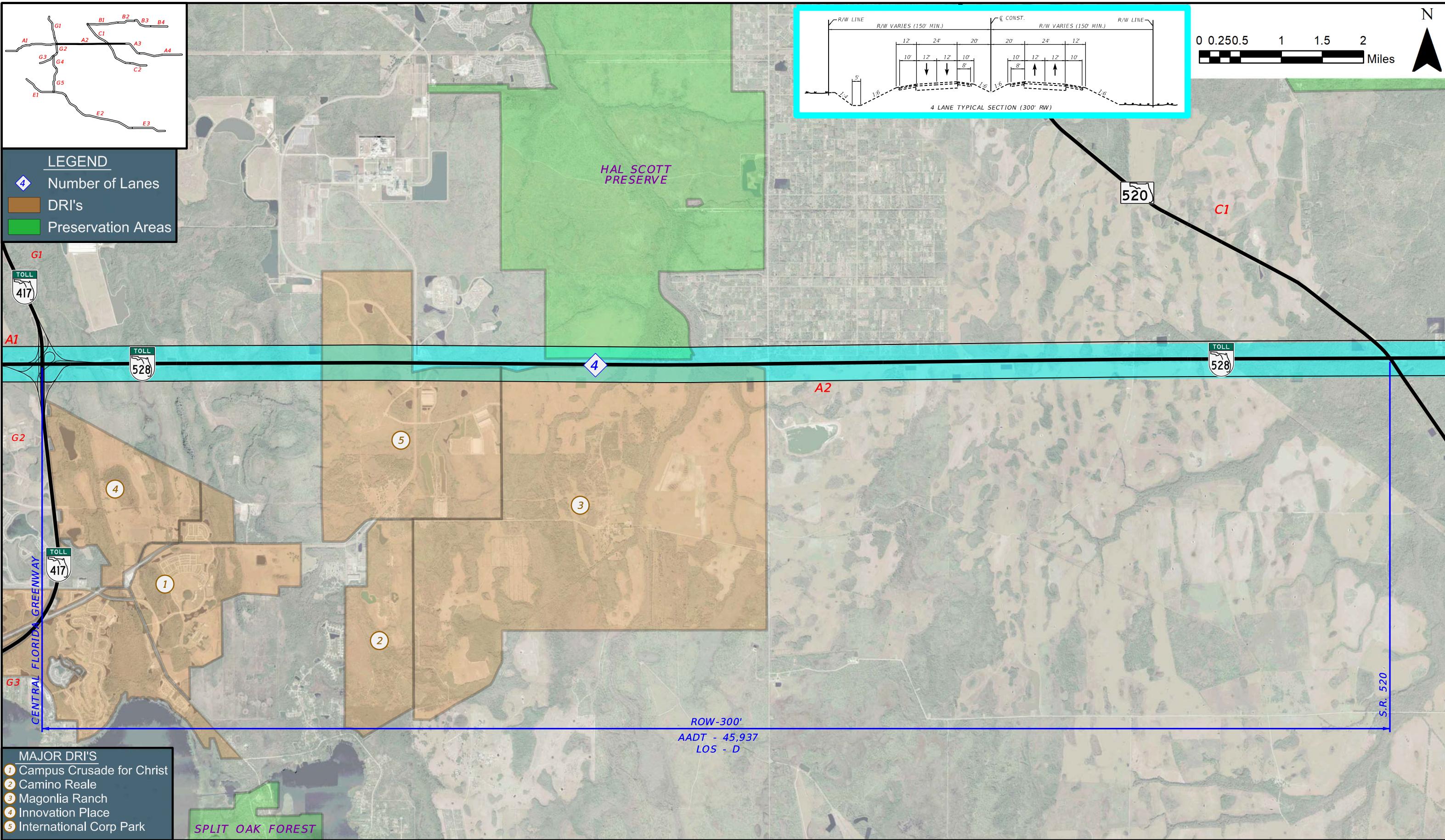


**Corridor A Profile
SR 528**



**FIGURE
4.1.1**



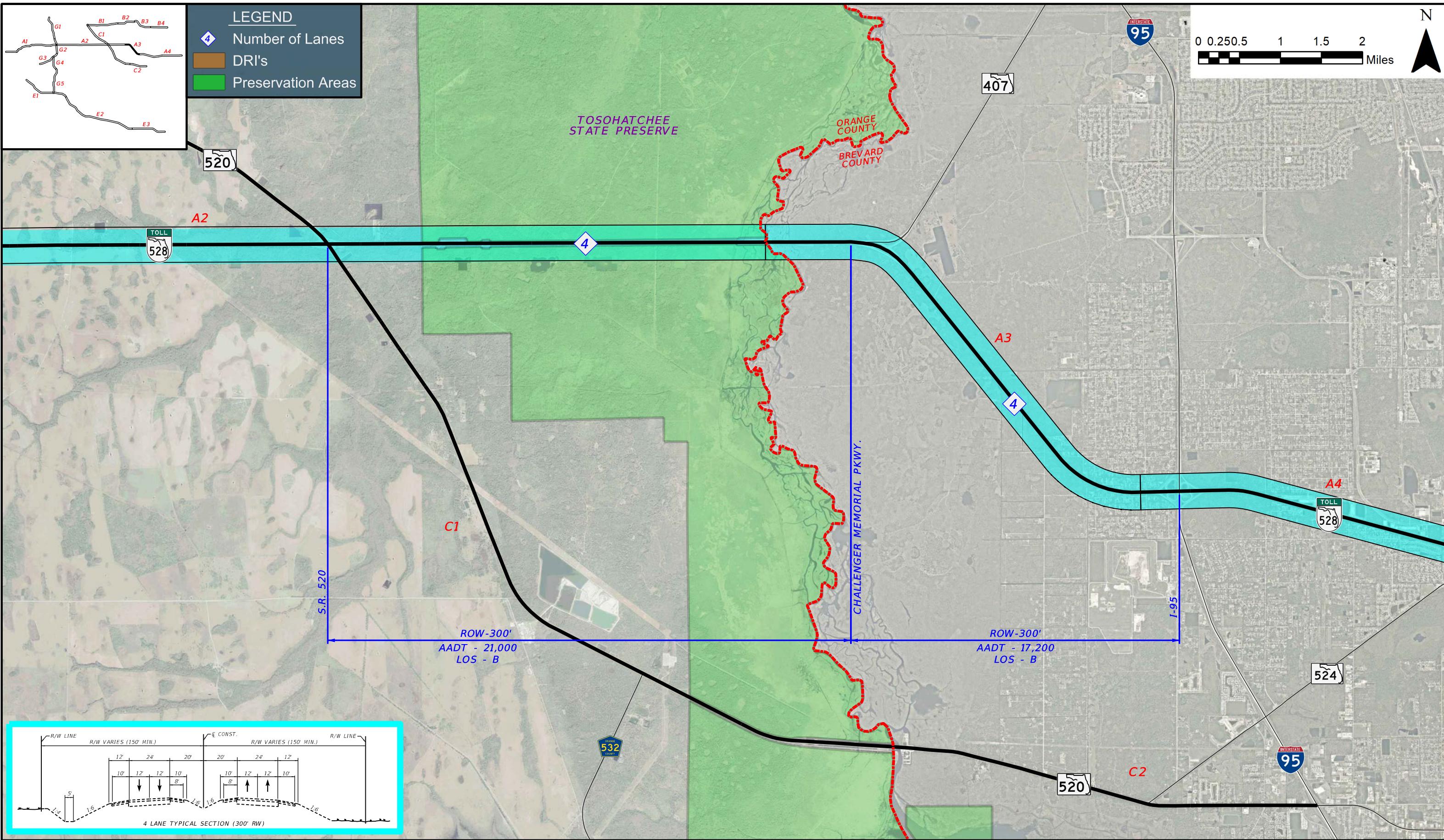


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**Corridor A
Roadway Characteristics
& Year 2015 Traffic**

**FIGURE
4.1.2-2
SEGMENT A2**

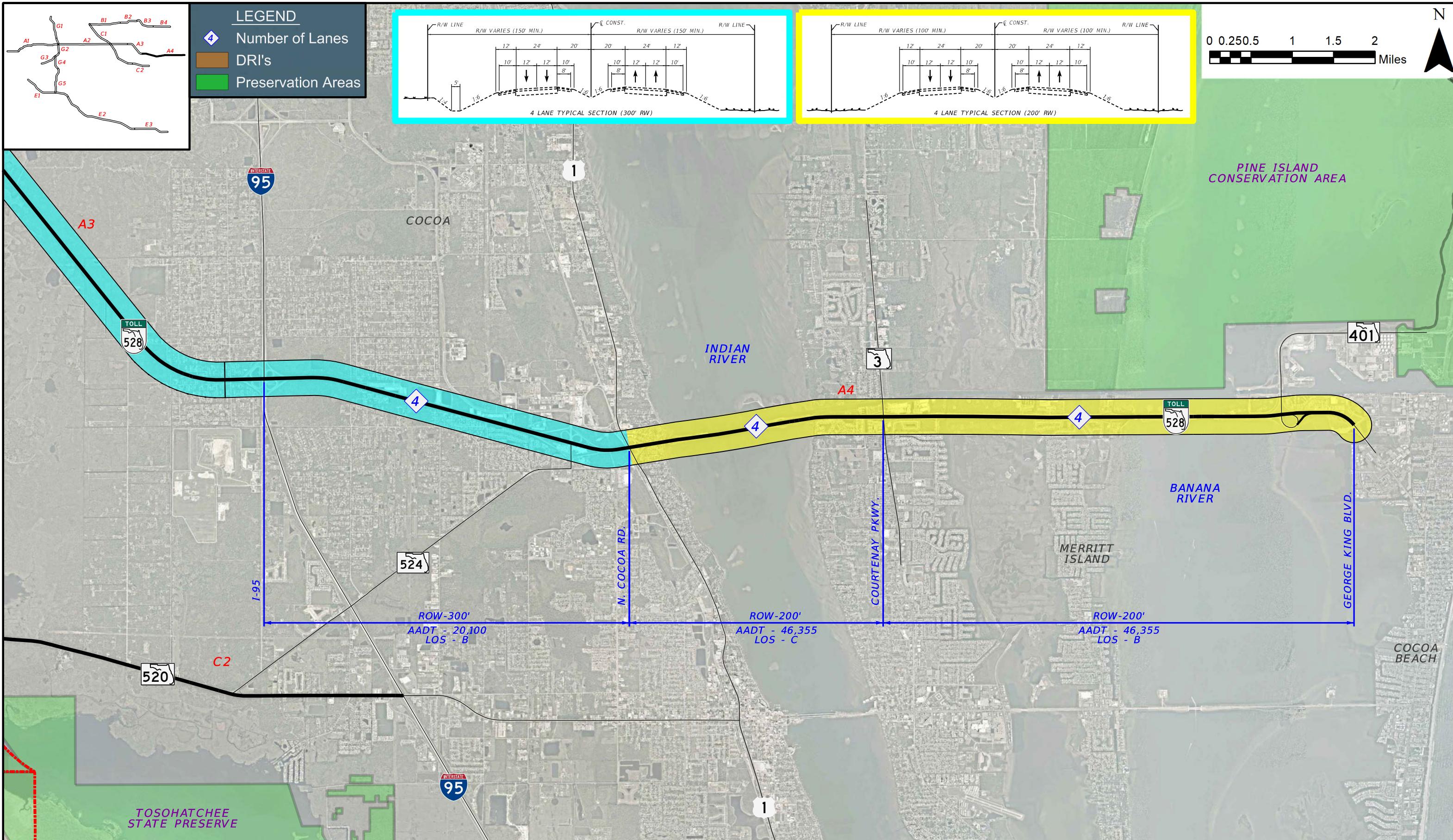


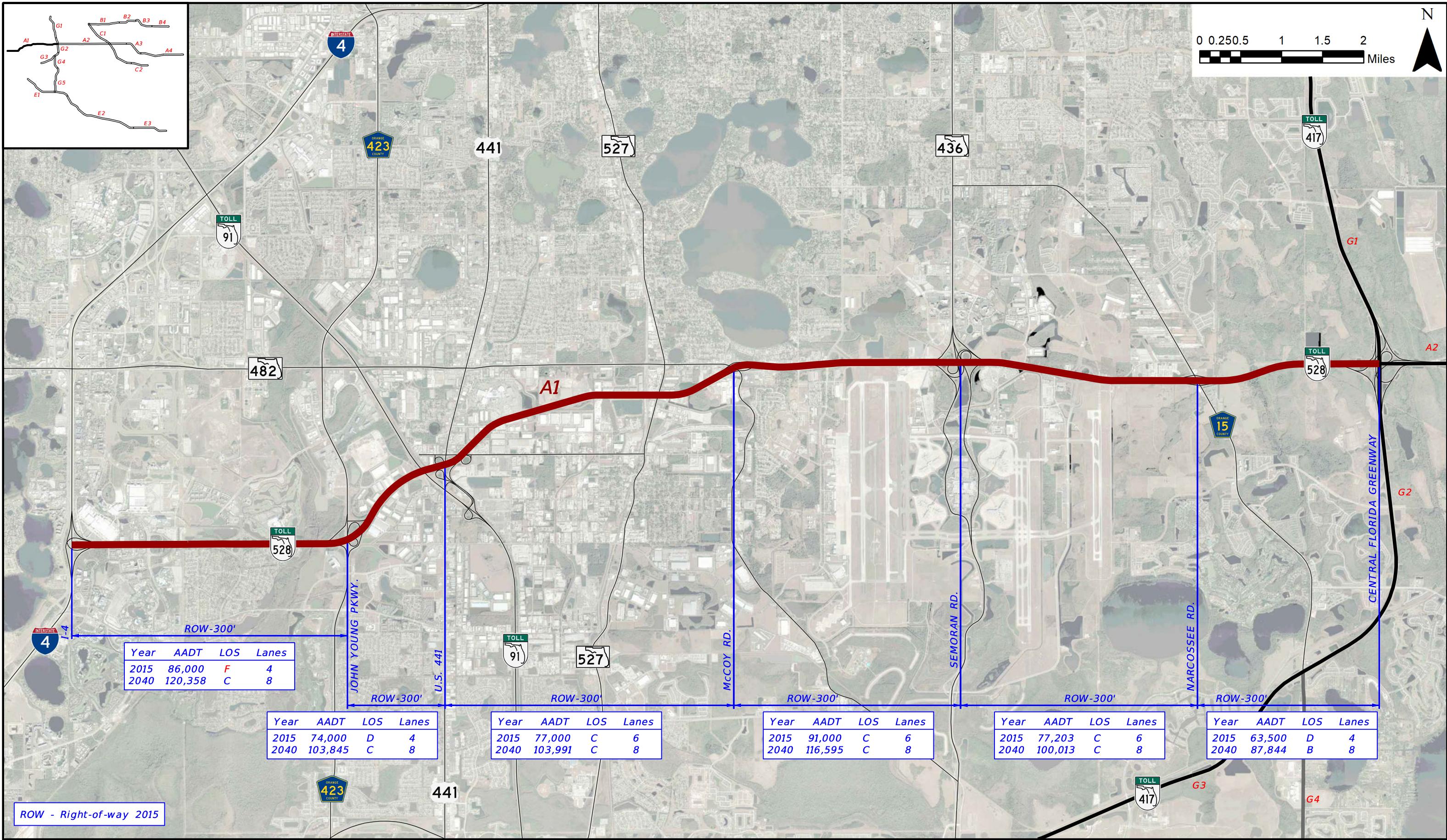
East Central Florida Corridor Evaluation Study



Corridor A
Roadway Characteristics
& Year 2015 Traffic

FIGURE
4.1.2-3
SEGMENT A3





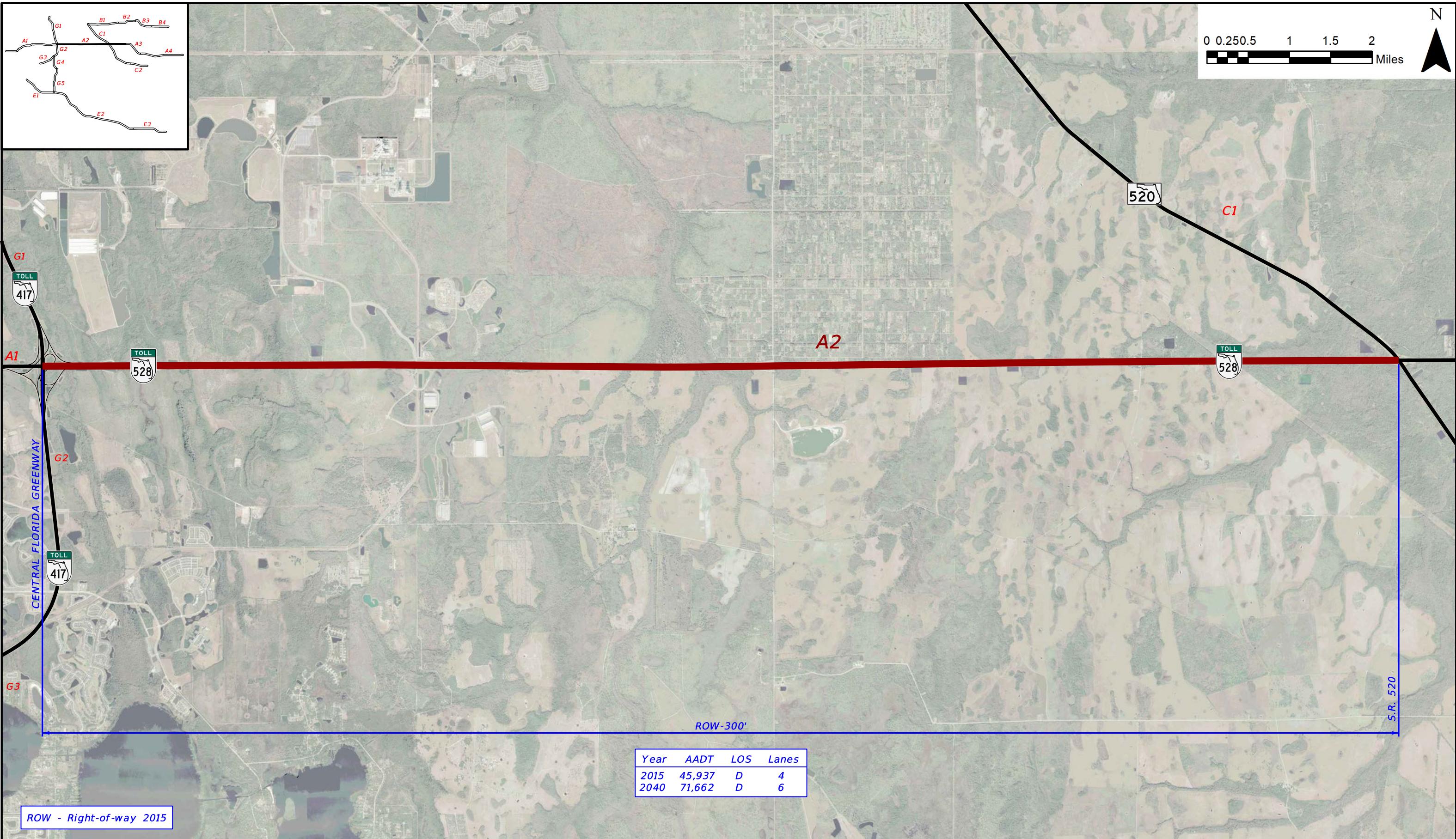
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**Corridor A
Year 2040 Traffic**



**FIGURE
4.1.3-1
SEGMENT A1**

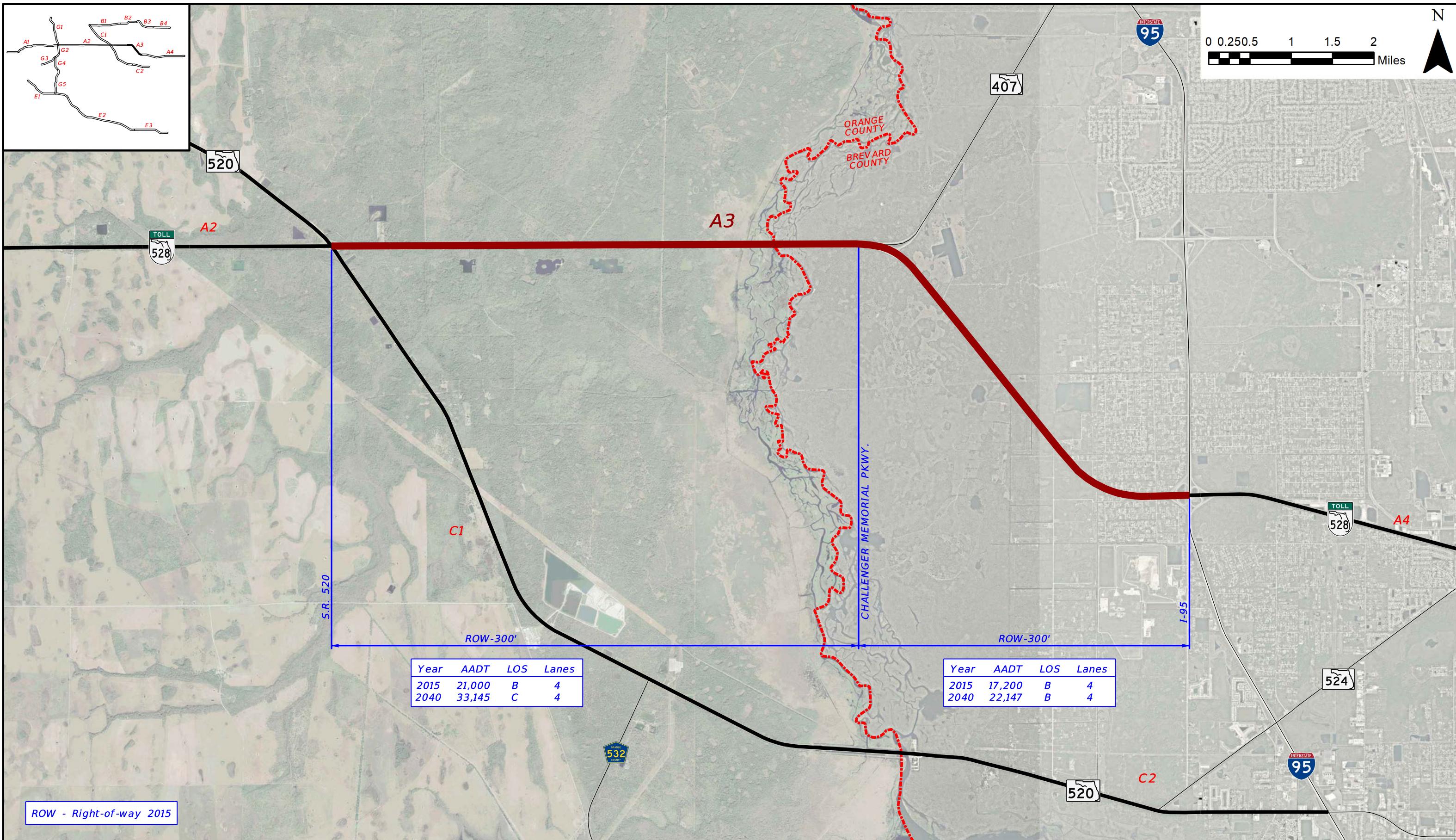


East Central Florida Corridor Evaluation Study



**Corridor A
Year 2040 Traffic**

**FIGURE
4.1.3-2
SEGMENT A2**

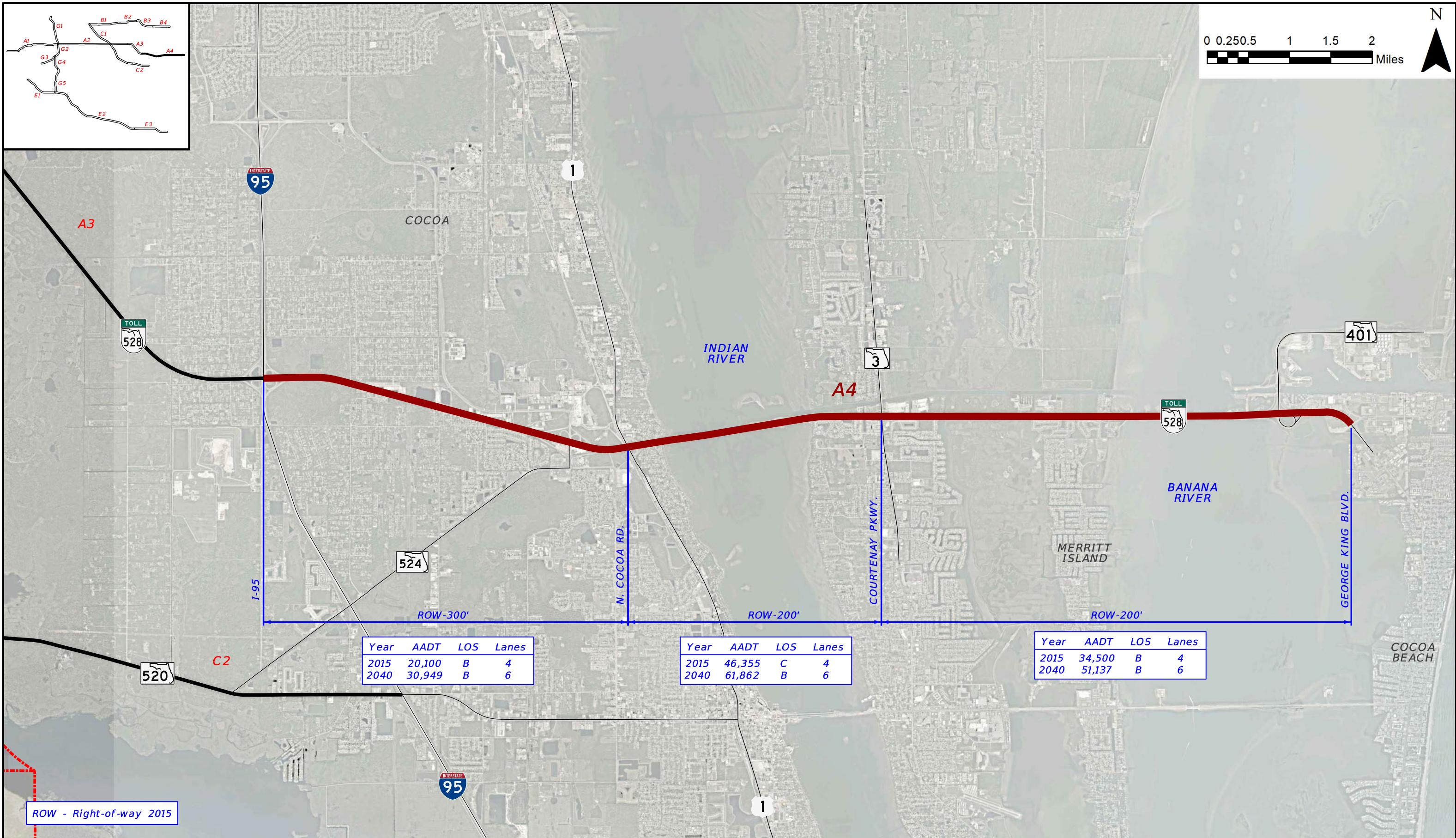


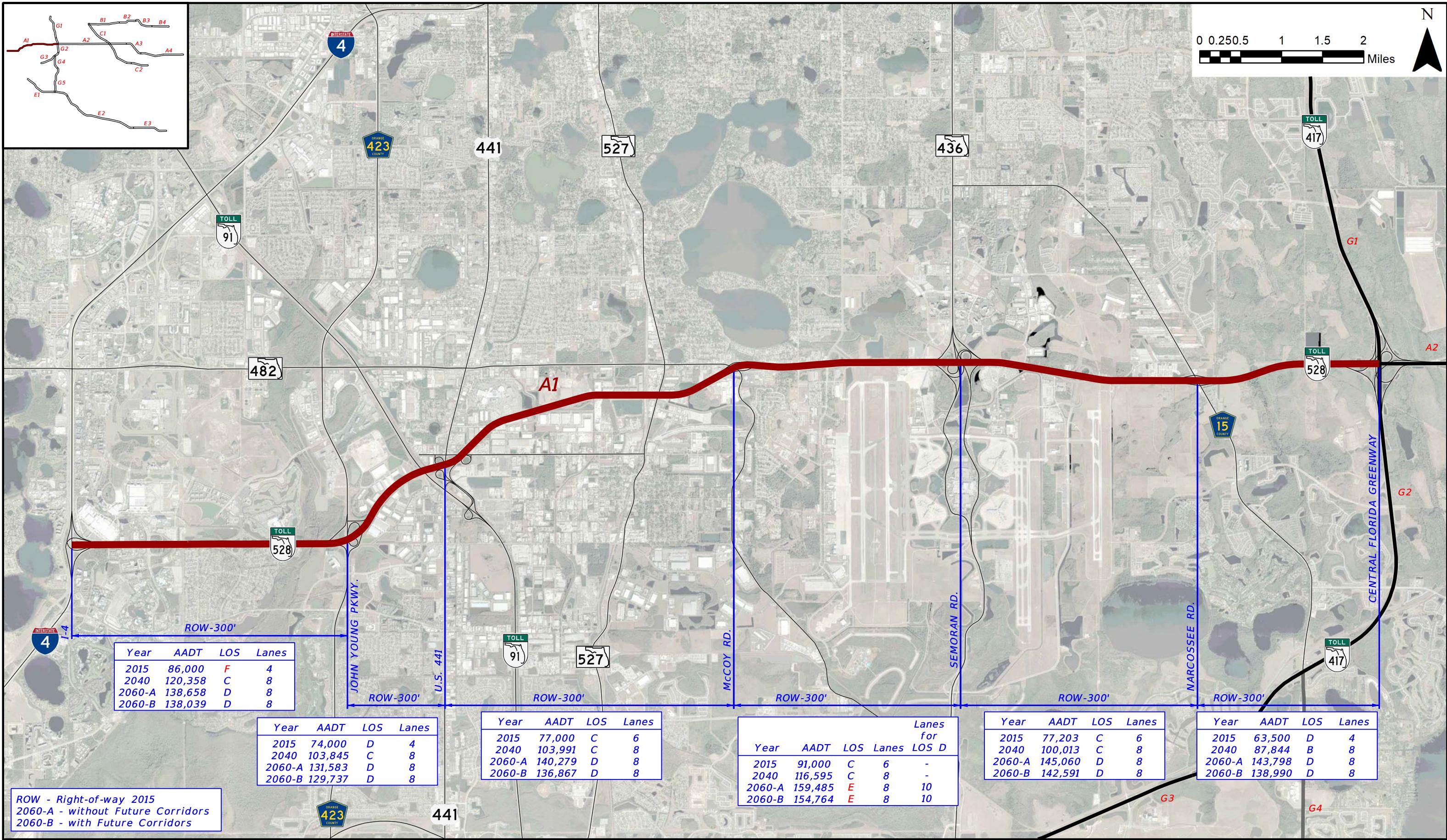
East Central Florida Corridor Evaluation Study



**Corridor A
Year 2040 Traffic**

**FIGURE
4.1.3-3
SEGMENT A3**



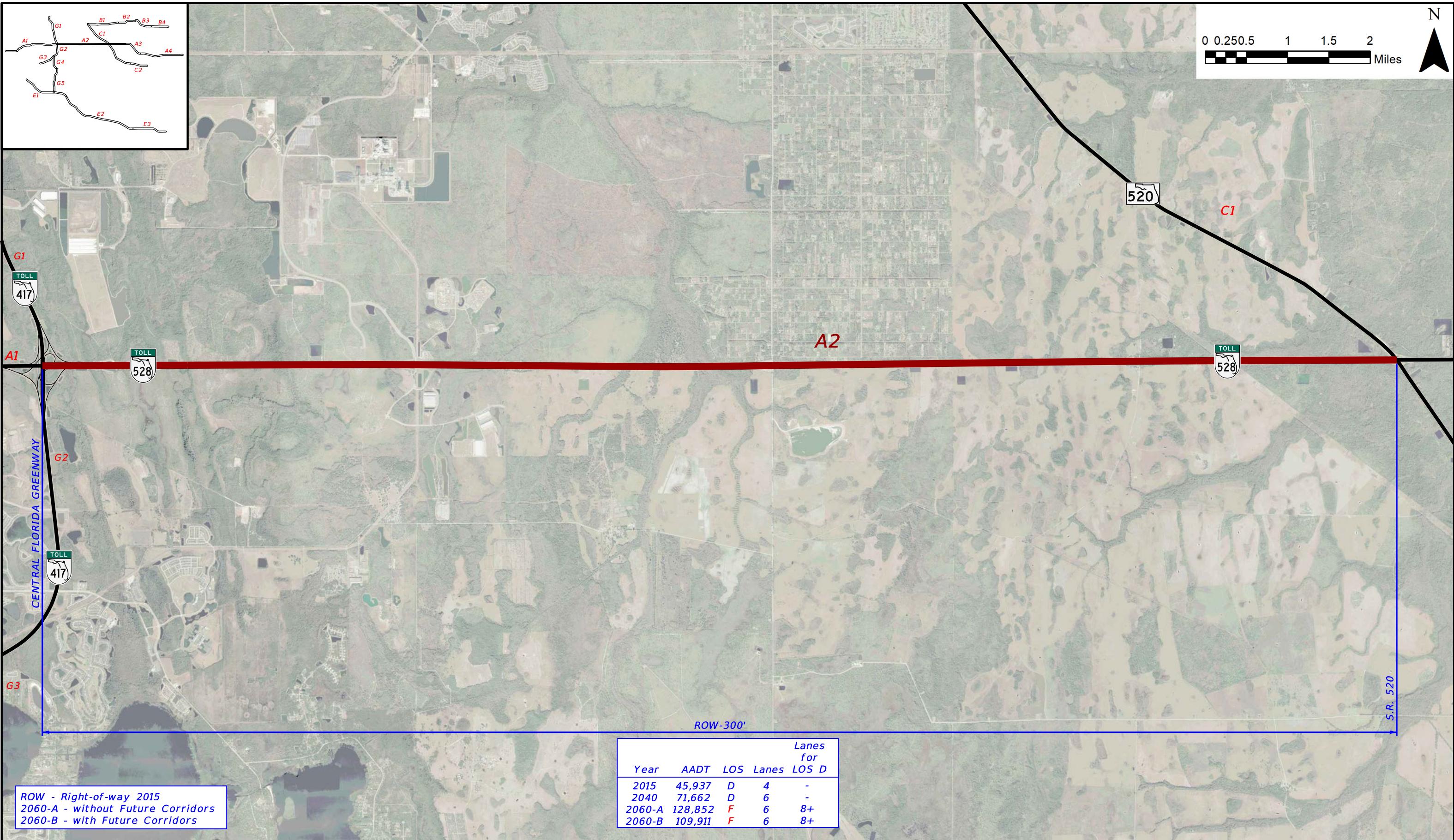


East Central Florida Corridor Evaluation Study



Corridor A
Year 2060 Traffic

FIGURE
4.1.4-1
SEGMENT A1

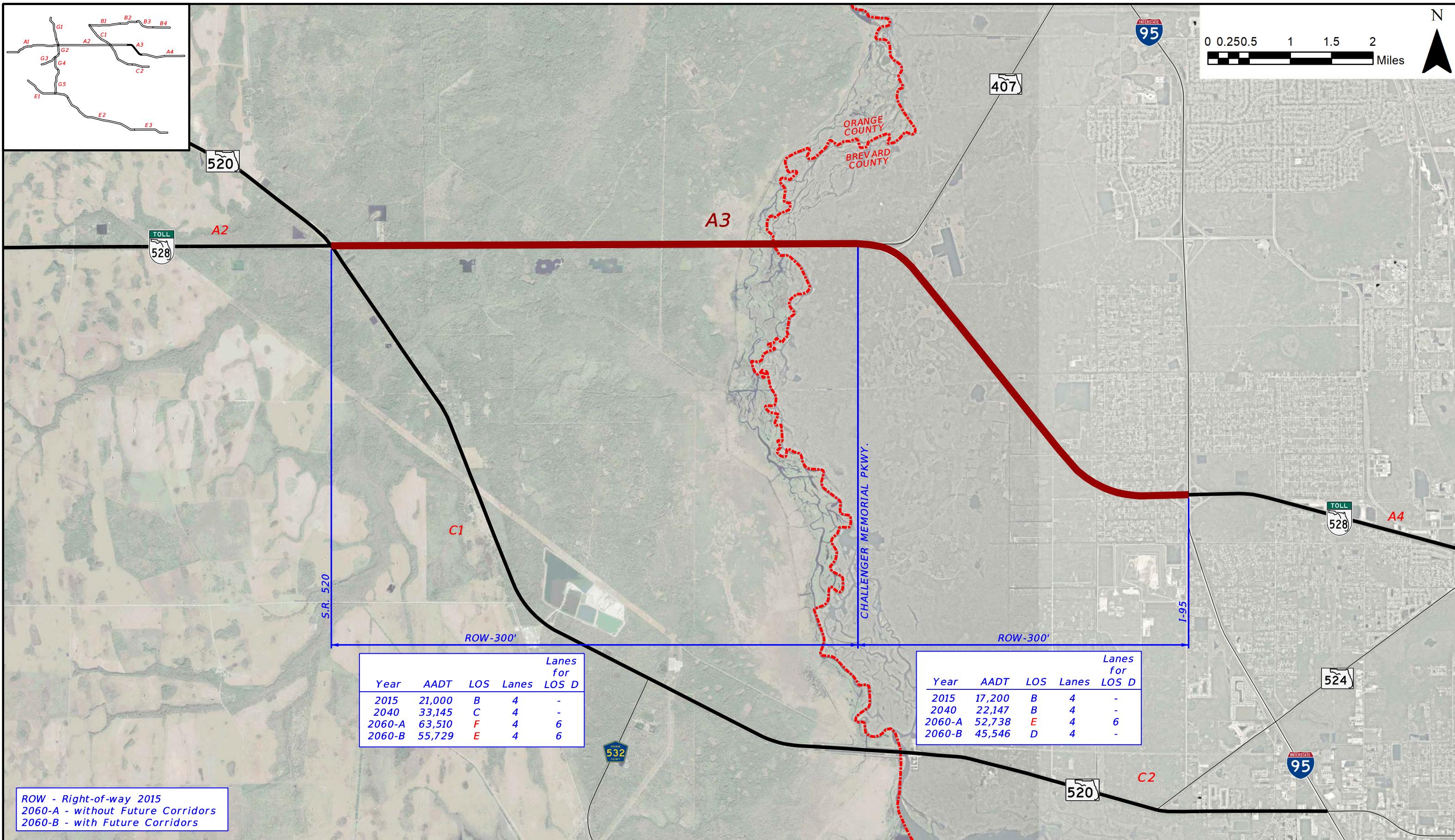


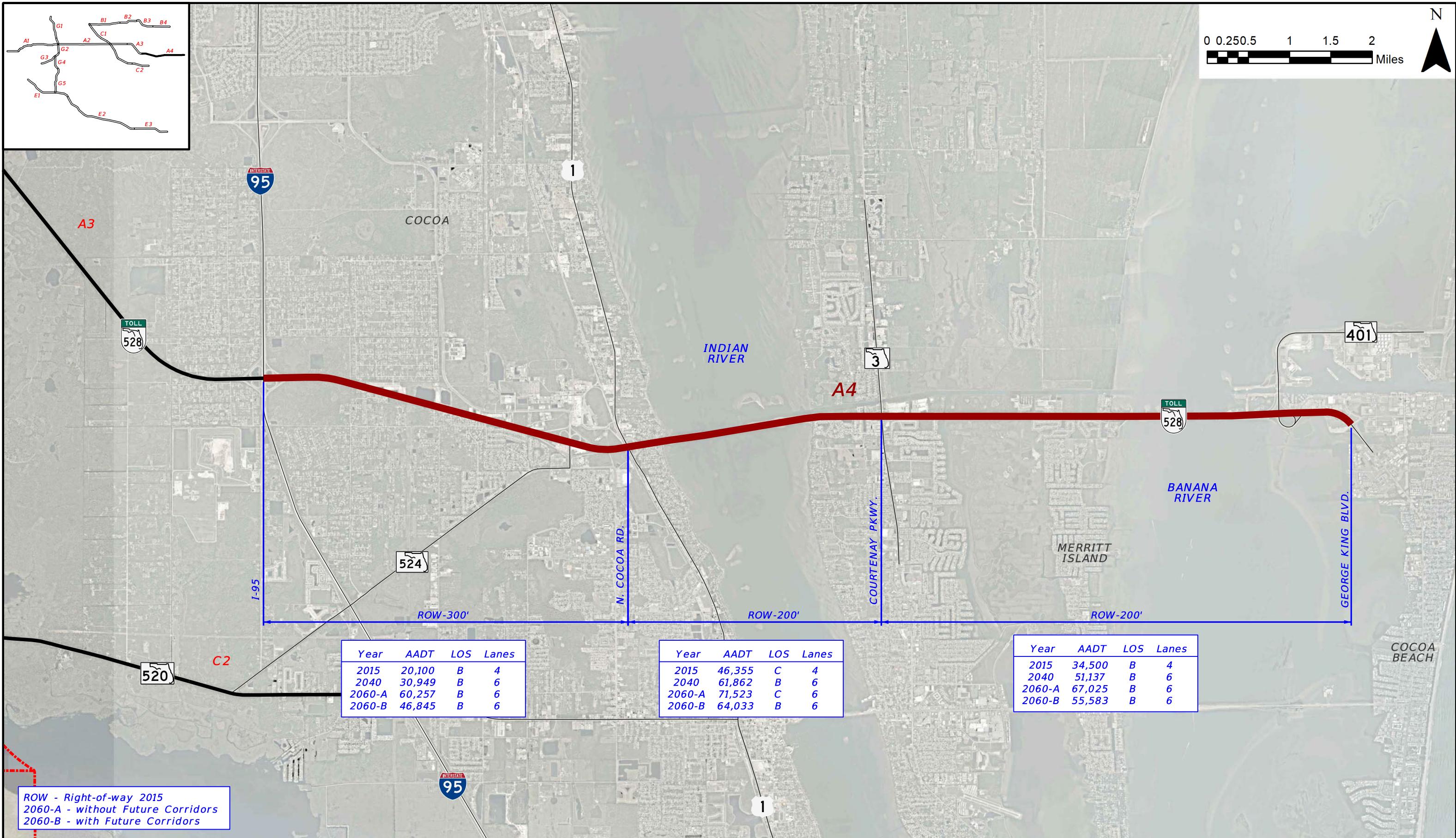
East Central Florida Corridor Evaluation Study



**Corridor A
Year 2060 Traffic**

**FIGURE
4.1.4-2
SEGMENT A2**





**Corridor A
Year 2060 Traffic**



East Central Florida Corridor Evaluation Study



**FIGURE
4.1.4-4
SEGMENT A4**

4.2. Corridor B: SR 50/SR 405

Corridor B, SR 50/SR 405, is an east-west, multimodal state highway which serves commuter, tourist, commercial, and goods mobility (notably “space freight”) travelling between Orlando and the Space Coast. This corridor serves all major targeted industries today and is designated as part of the SIS (from I-95 to the NASA Parkway bridge), and at the federal level as part of the NHS. Further, this corridor provides a major coastal evacuation route.

SR 50 connects Downtown Orlando and the University of Central Florida to Titusville; SR 405 provides a connection from Titusville to Cape Canaveral. They primarily handle regional and local traffic. SR 408, the East-West Expressway, runs parallel to SR 50 from Downtown Orlando to the University of Central Florida area and provides a limited-access tolled expressway as an alternative to SR 50.

Corridor B runs from the SR 50/SR 520 interchange in Orange County to Space Commerce Way in Brevard County. Corridor B is divided into four segments: B1, B2, B3, and B4. Segment B1 forms the westernmost portion of the corridor in the “rural” area of Orange County from the SR 50/SR 520 interchange to the Orange/Brevard County line. Segment B2 constitutes the first strip of “rural” roadway in Brevard County from Orange/Brevard County line to I-95. Segment B3 constitutes the entirety of urban roadway in Brevard County along Corridor B, running from I-95 to the Indian River. Segment B4 constitutes the easternmost portion of the corridor from the Indian River across NASA Parkway to Space Commerce Way on Merritt Island near the Kennedy Space Center. The lengths of Corridor B segments are listed below in Table 4.2.

Table 4.2 Corridor B Segment Lengths

Segment	Length (miles)
B1	9.0
B2	4.9
B3	5.6
B4	5.1
Corridor B	24.6

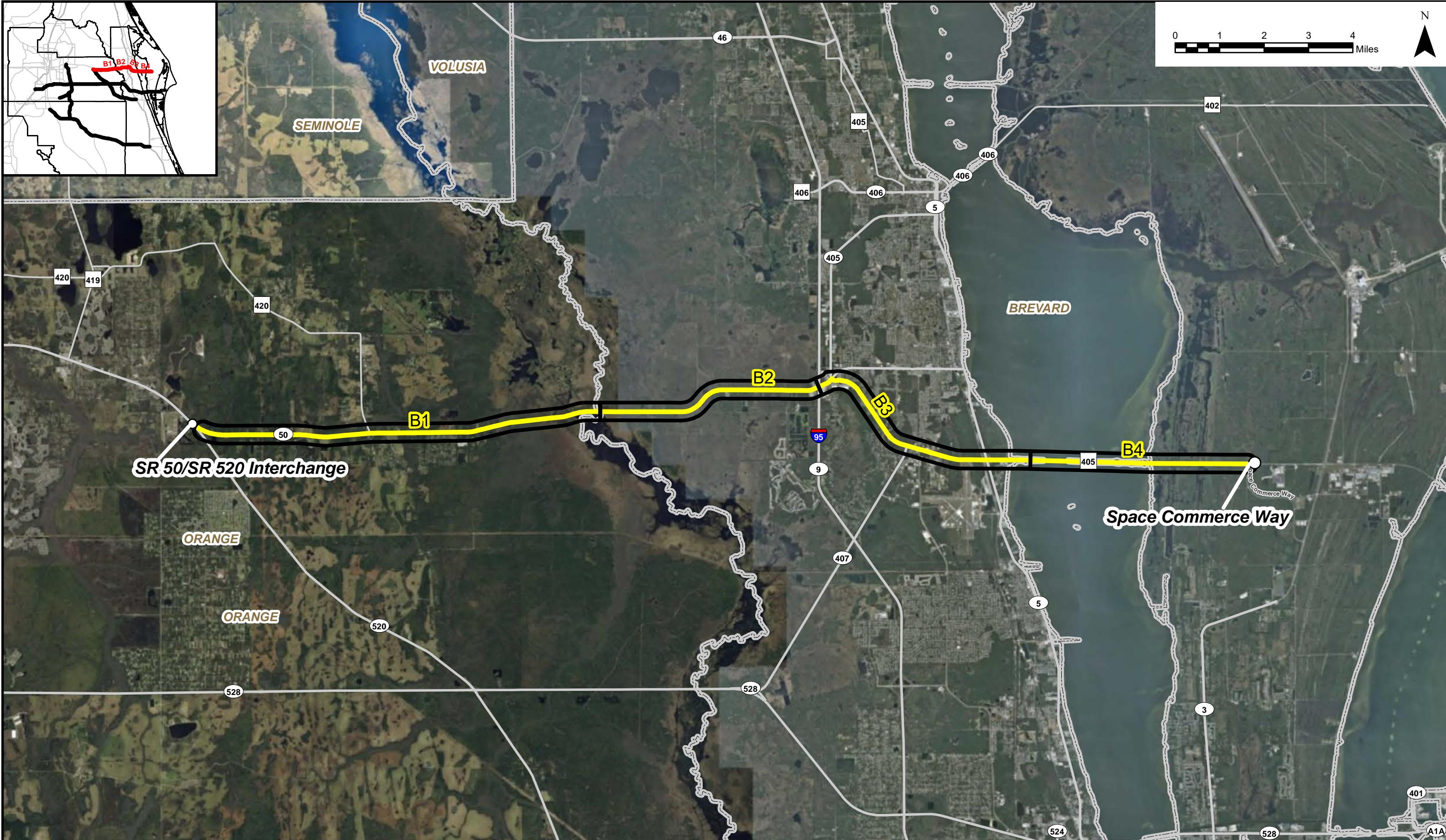
Please see the following Figures:

Figure 4.2.1: Corridor B Profile – SR 50/SR405

Figure 4.2.2: Corridor B Roadway Characteristics and Year 2015 Traffic

Figure 4.2.3: Corridor B Year 2040 Traffic

Figure 4.2.4: Corridor B Year 2060 Traffic

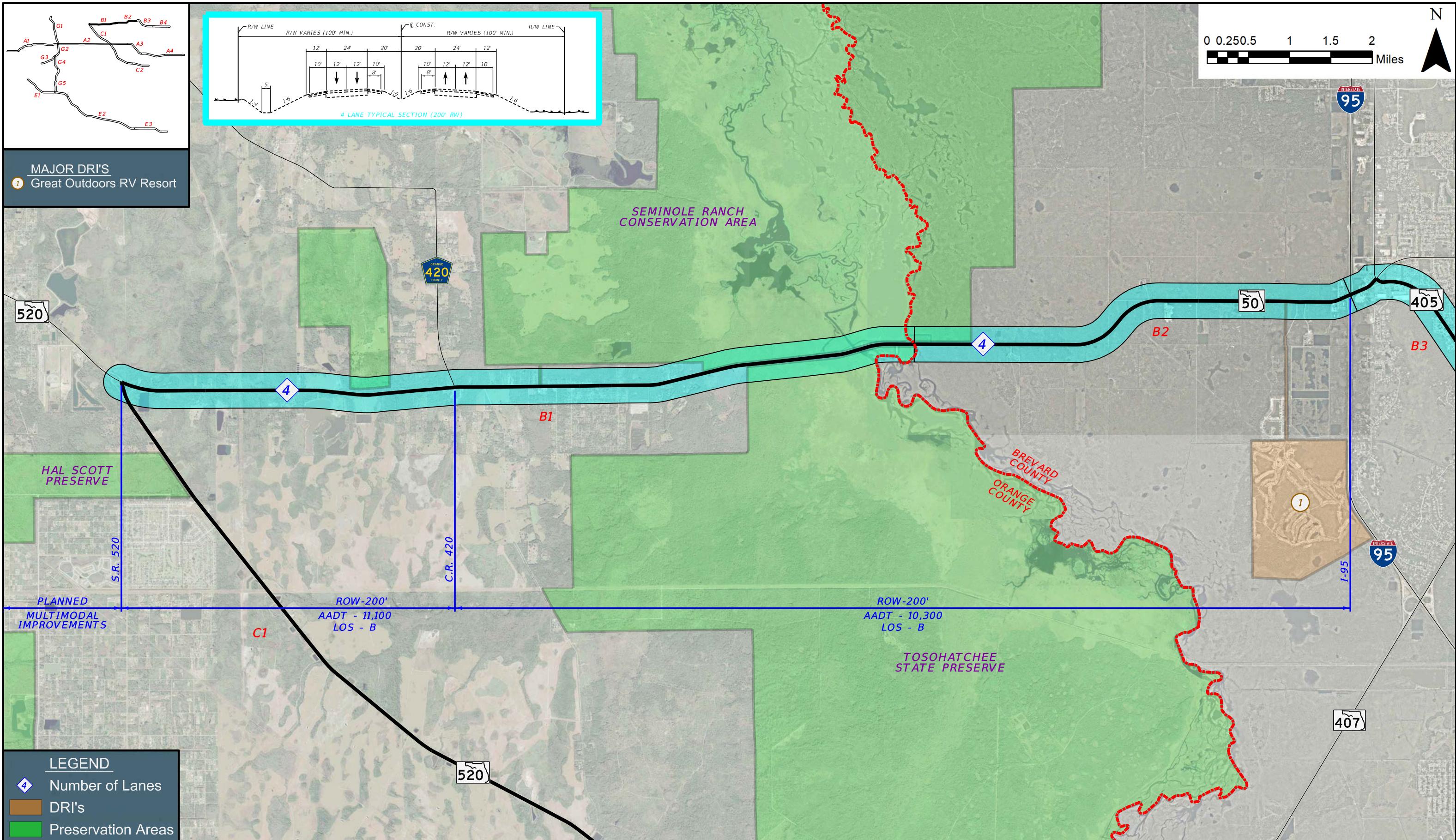


East Central Florida Corridor Evaluation Study



Corridor B Profile
SR 50/SR 405

FIGURE
4.2.1



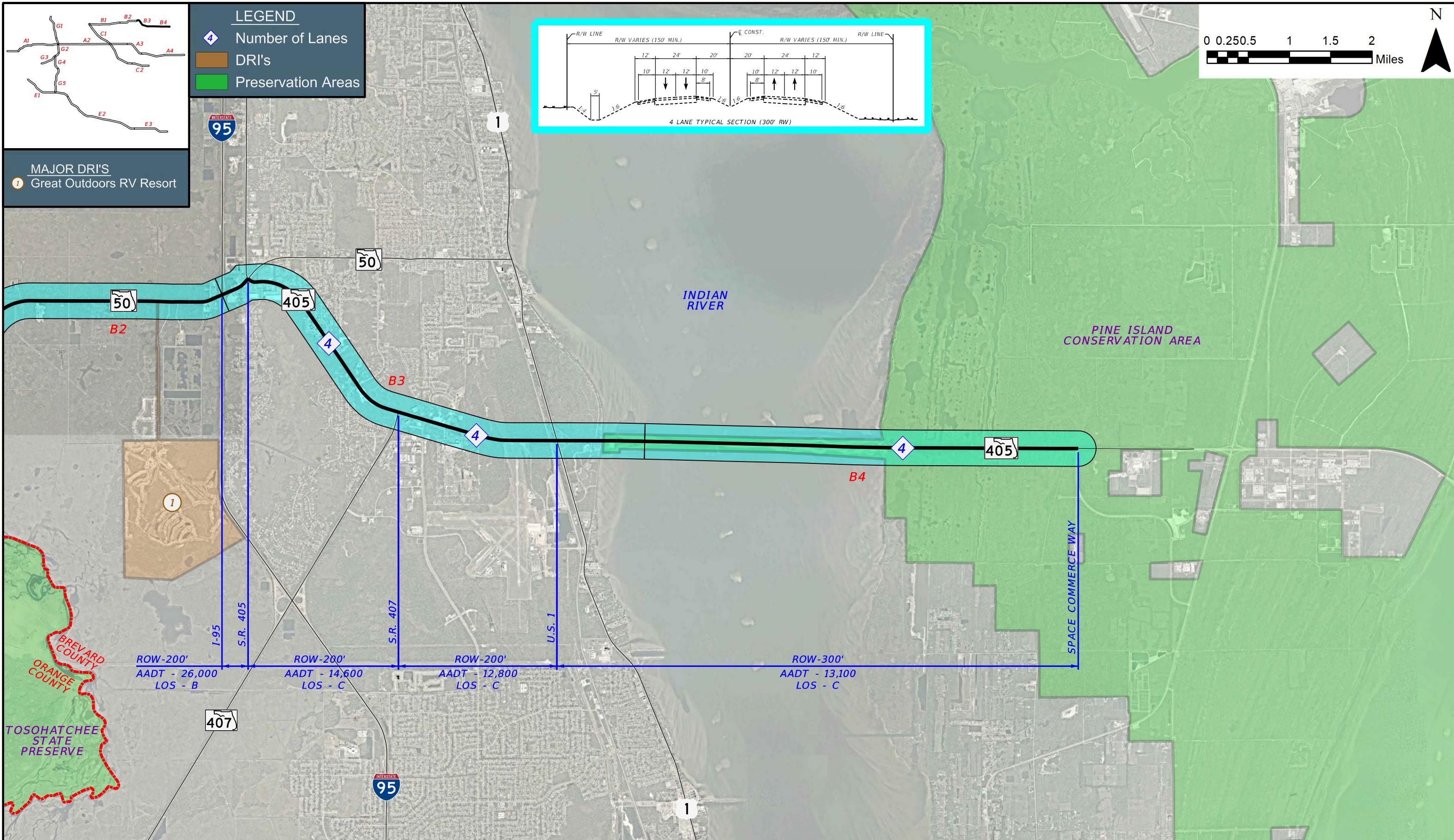
East Central Florida Corridor Evaluation Study



Corridor B
Roadway Characteristics
& Year 2015 Traffic

FIGURE
4.2.2-1

SEGMENTS B1, B2



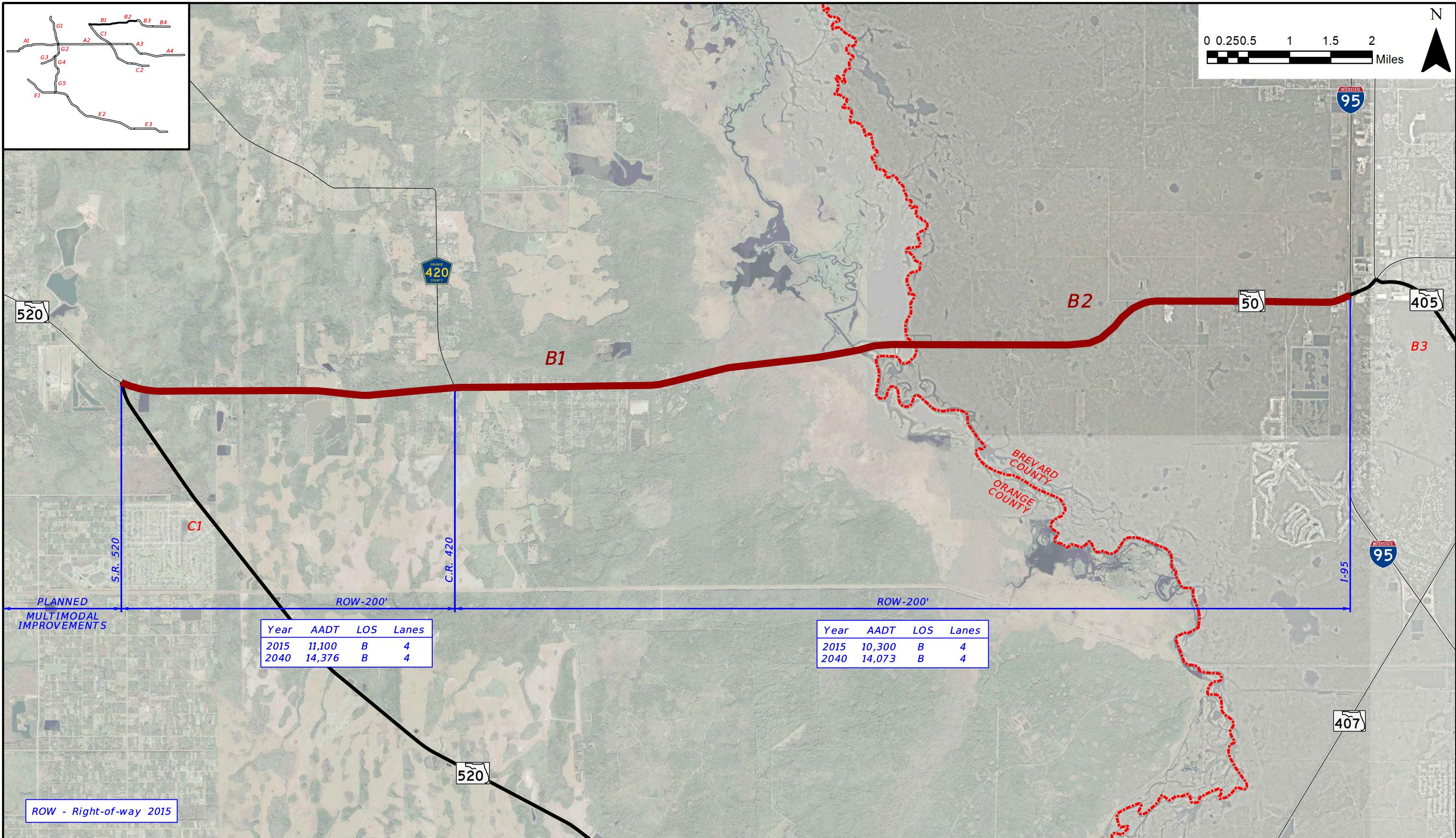
East Central Florida Corridor Evaluation Study



Corridor B
Roadway Characteristics
& Year 2015 Traffic

FIGURE
4.2.2-2

SEGMENTS B3, B4



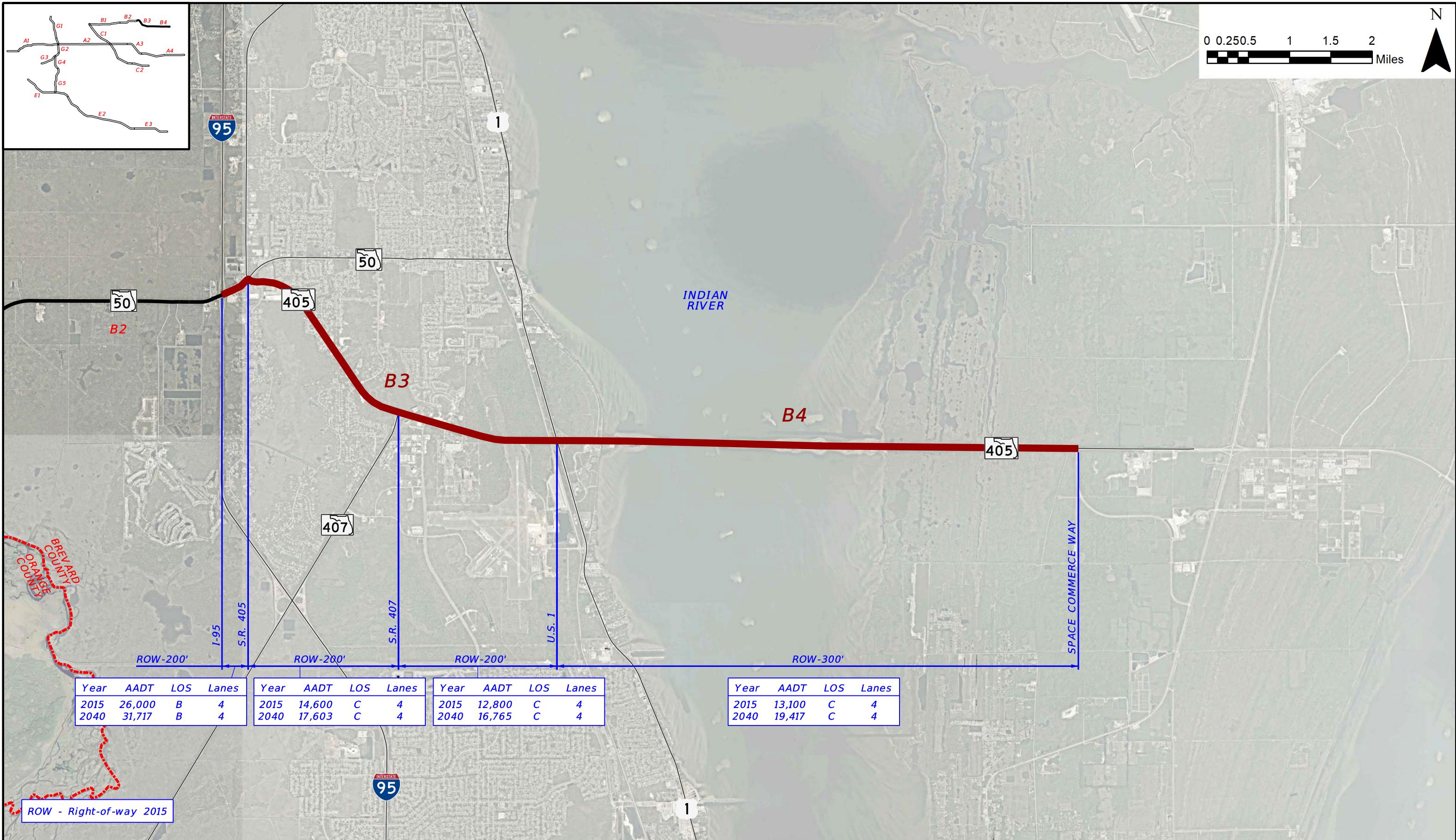
East Central Florida Corridor Evaluation Study



**Corridor B
Year 2040 Traffic**

**FIGURE
4.2.3-1**

SEGMENTS B1, B2



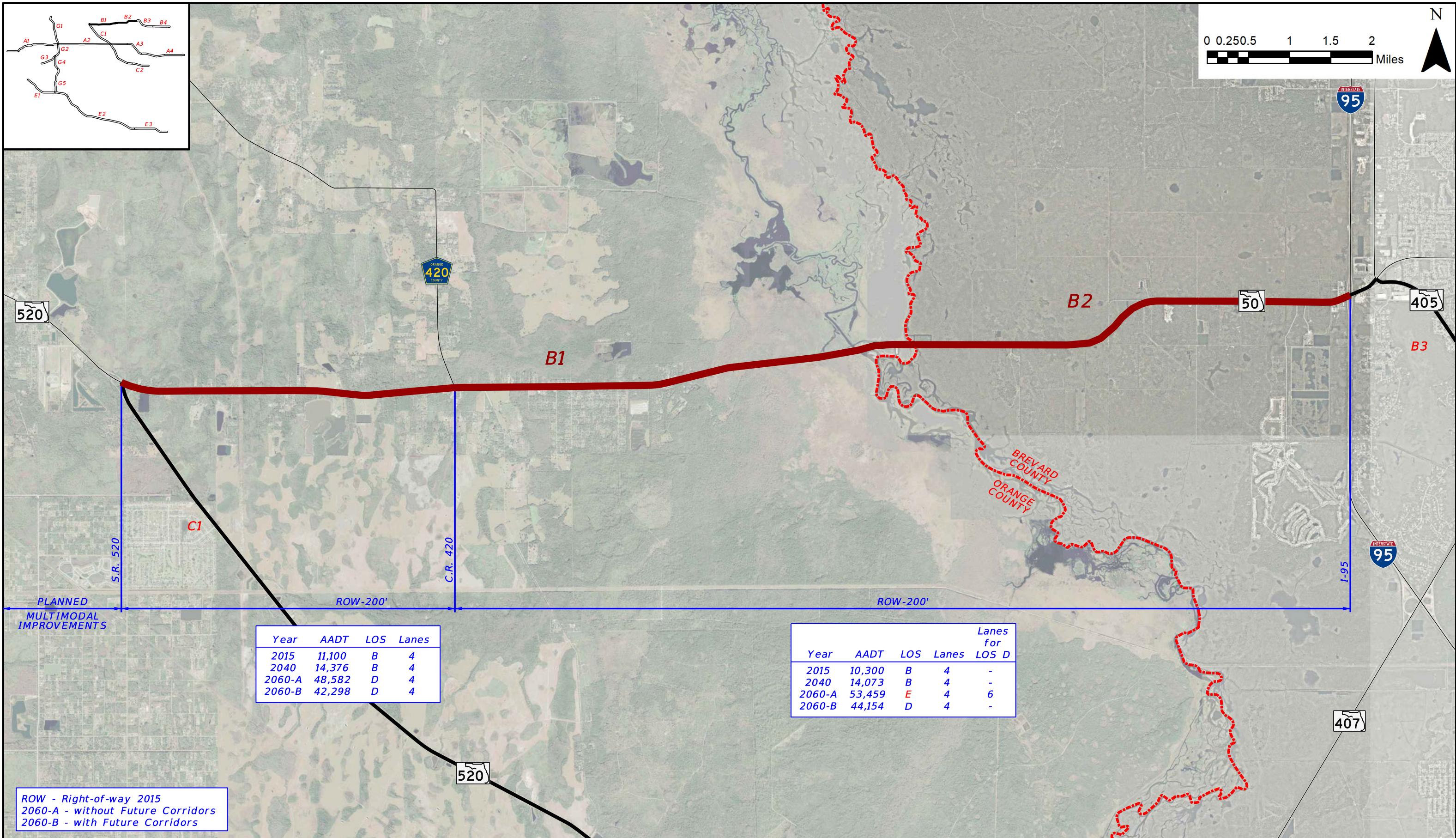
East Central Florida Corridor Evaluation Study



**Corridor B
Year 2040 Traffic**

**FIGURE
4.2.3-2**

SEGMENTS B3, B4



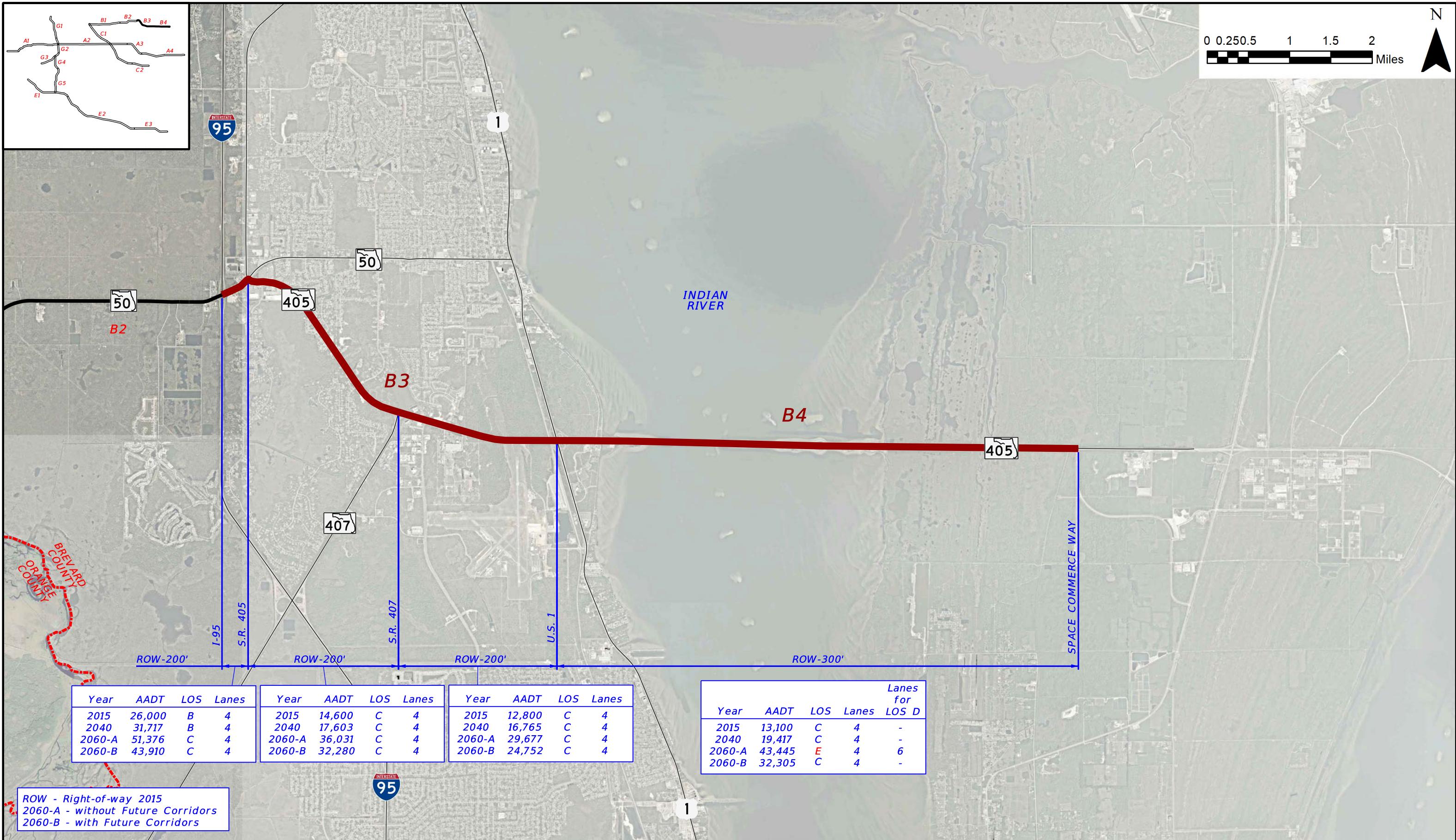
East Central Florida Corridor Evaluation Study



**Corridor B
Year 2060 Traffic**

**FIGURE
4.2.4-1**

SEGMENTS B1, B2



East Central Florida Corridor Evaluation Study



Corridor B
Year 2060 Traffic

FIGURE
4.2.4-2

SEGMENTS B3, B4

4.3. Corridor C: SR 520

SR 520 is a multimodal highway serving commuter, tourist, commercial, and goods mobility between Orlando and the Space Coast. This corridor serves as a connector between workforce and employers in targeted industries, as well as provides a major coastal evacuation route. SR 520 is a four-lane facility which connects the cities of Merritt Island and Cocoa Beach to eastern Orange County with SR 528, and I-95. At the federal level, it is designated as part of the NHS.

As shown in Figure 4.3.1, Corridor C runs from the SR 50 interchange in Orange County to the I-95 interchange in Brevard County. It is divided into two segments: C1 and C2. Segment C1 forms the westernmost portion of the corridor, in the “rural” area of Orange County from SR 50 interchange to the Orange/Brevard County line. Segment C2 constitutes the easternmost portion of the corridor, in the “rural” area of Brevard County from the Orange/Brevard County line to the I-95 interchange. The lengths of Corridor C segments are listed below in Table 4.3.

Table 4.3 Corridor C Segment Lengths

Segment	Length (miles)
C1	18.3
C2	3.6
Corridor C	21.9

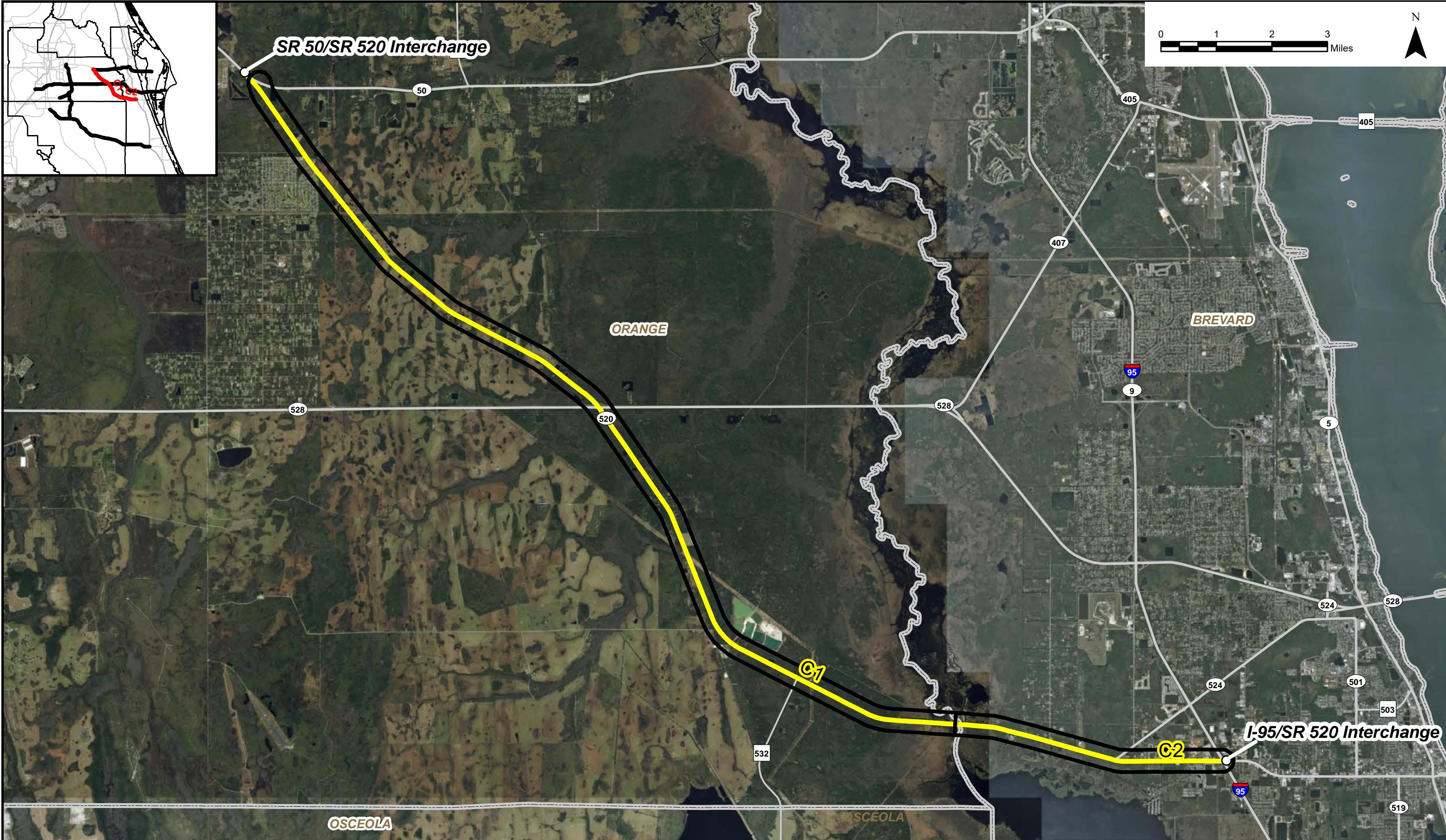
Please see the following Figures:

Figure 4.3.1: Corridor C Profile – SR 520

Figure 4.3.2: Corridor C Roadway Characteristics & Year 2015 Traffic

Figure 4.3.3: Corridor C Year 2040 Traffic

Figure 4.3.4: Corridor C Year 2060 Traffic



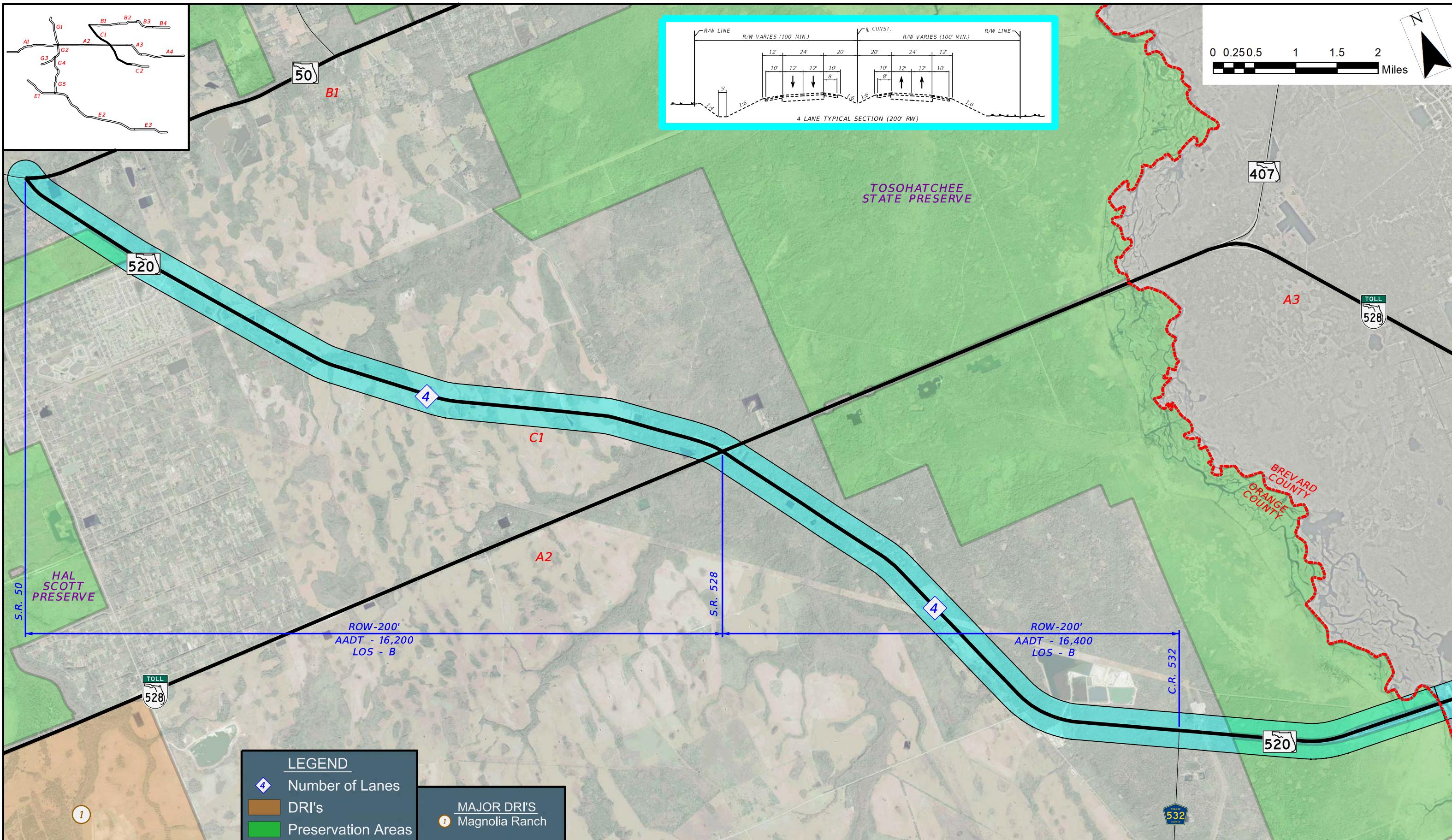
East Central Florida Corridor Evaluation Study



Corridor C Profile
SR 520



FIGURE
4.3.1

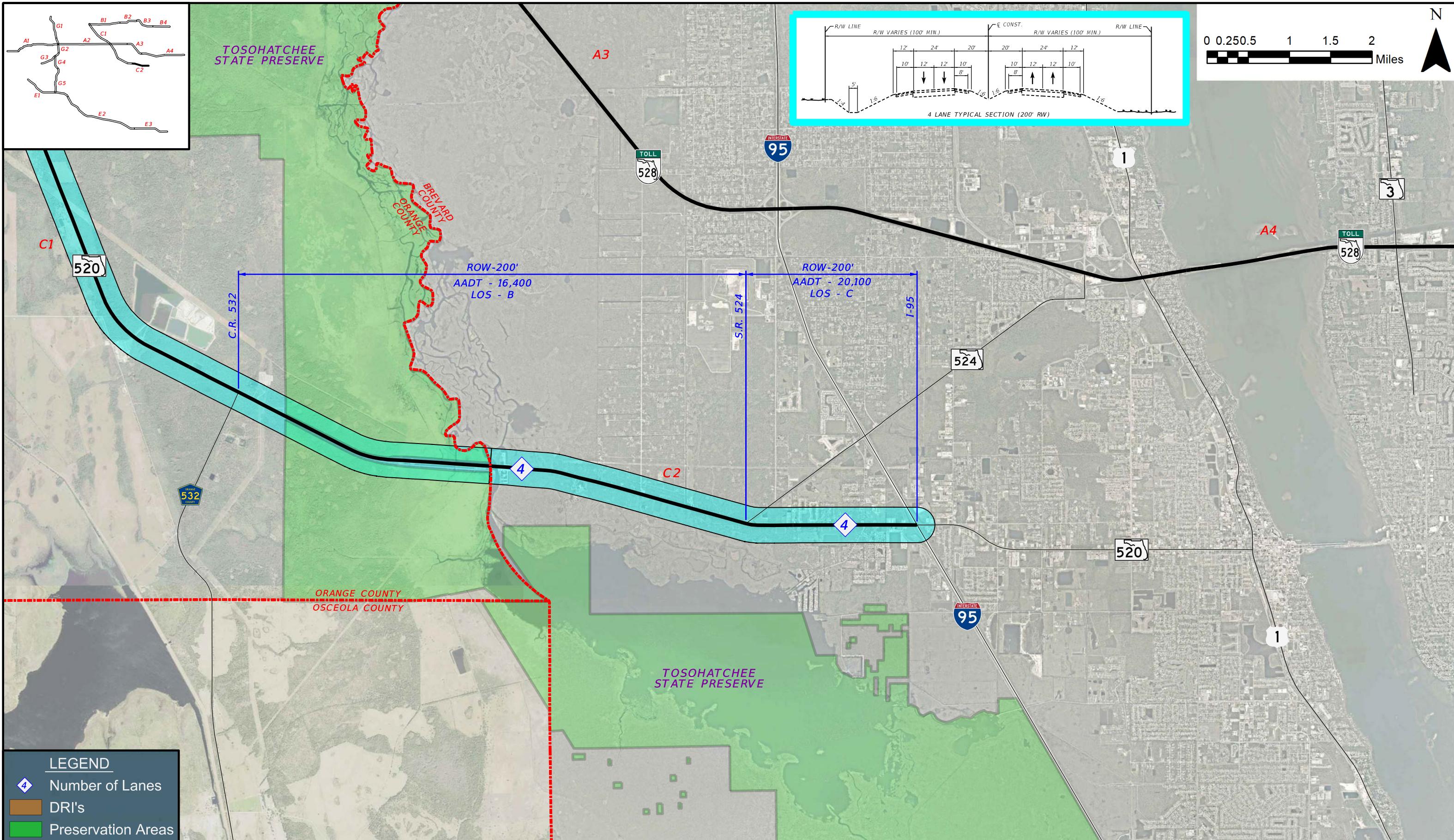


East Central Florida Corridor Evaluation Study



Corridor C
Roadway Characteristics
& Year 2015 Traffic

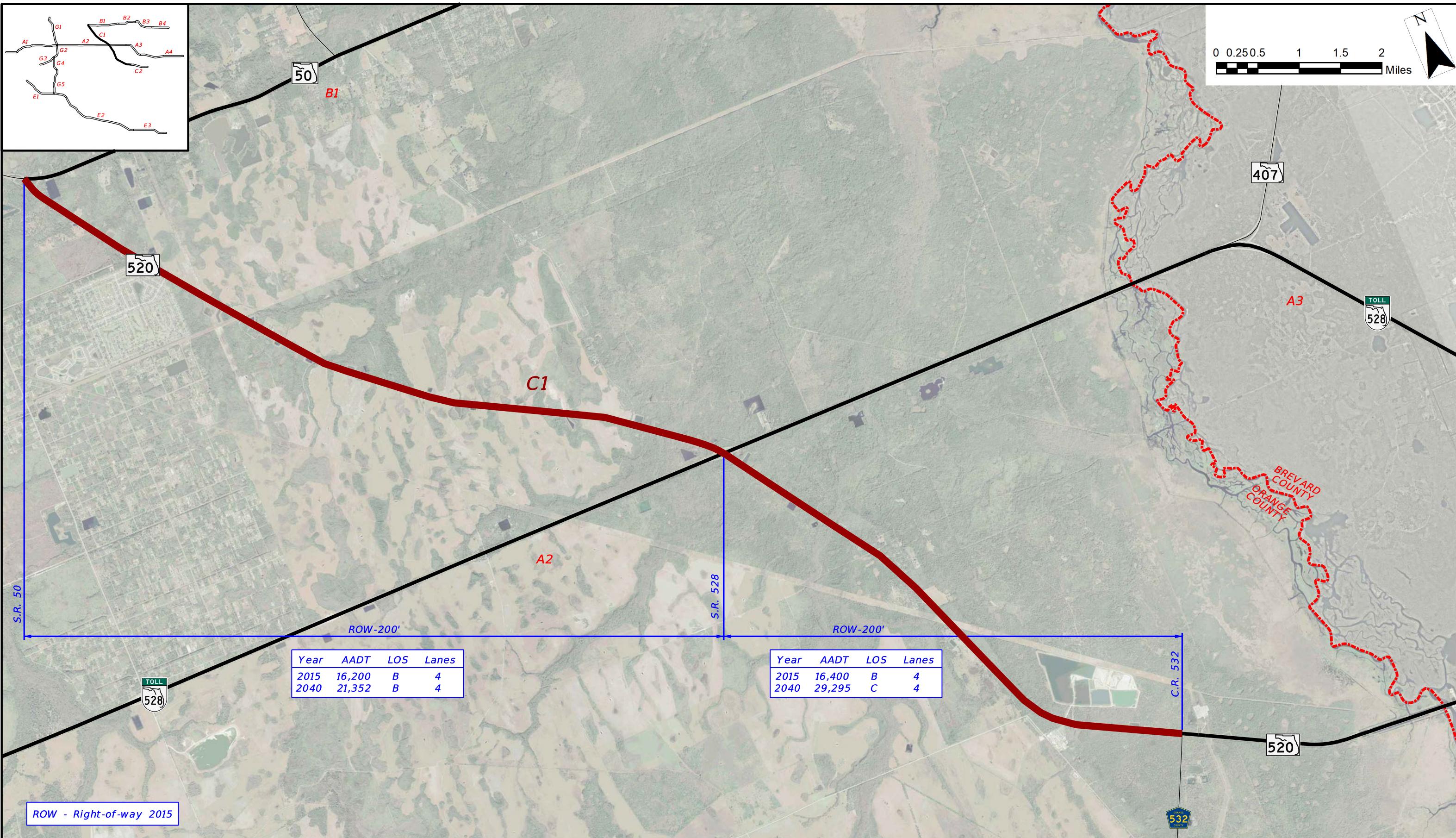
FIGURE
4.3.2-1
SEGMENT C1



**Corridor C
Roadway Characteristics
& Year 2015 Traffic**

**FIGURE
4.3.2-2
SEGMENT C2**



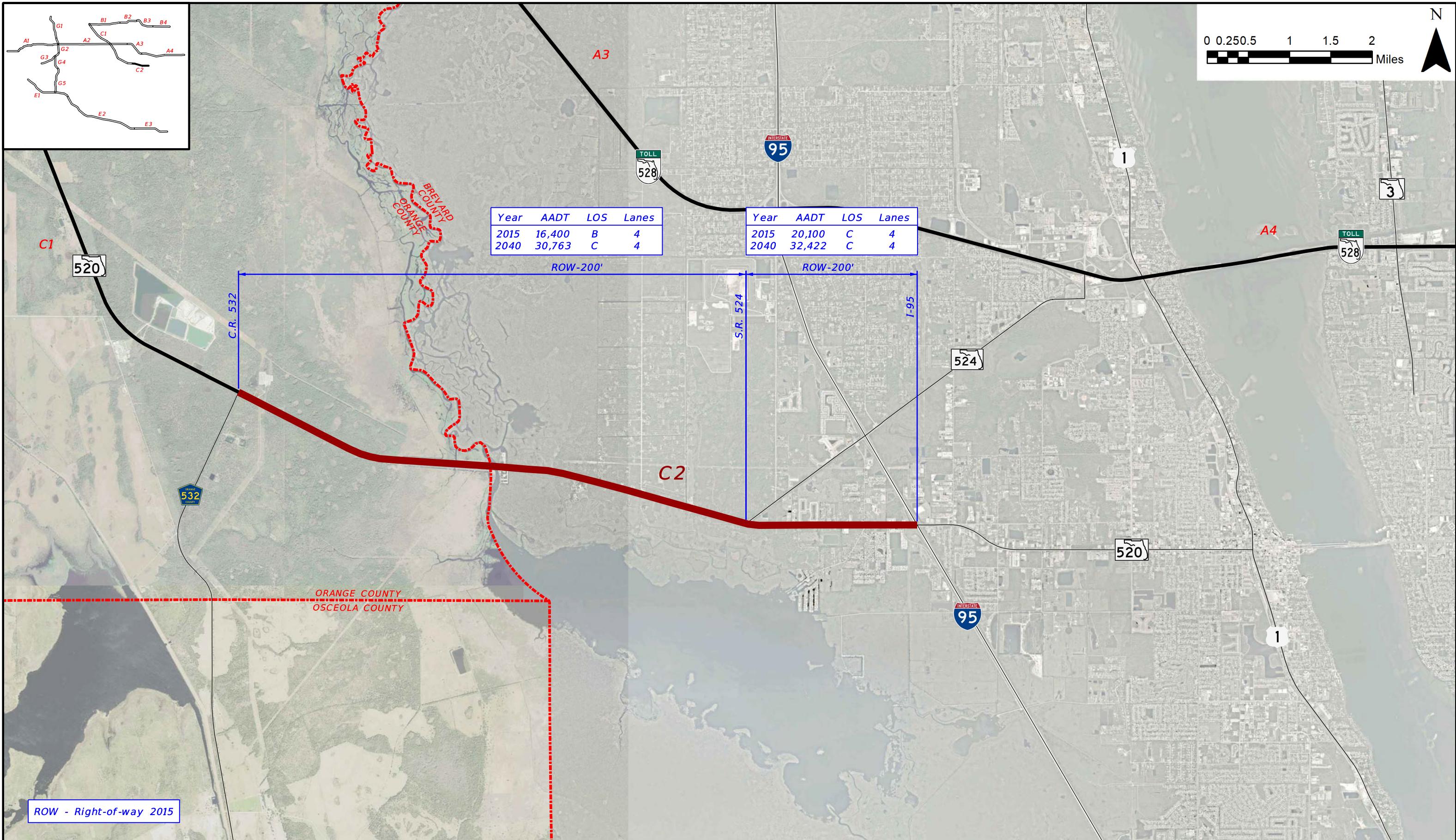


East Central Florida Corridor Evaluation Study



**Corridor C
Year 2040 Traffic**

**FIGURE
4.3.3-1
SEGMENT C1**

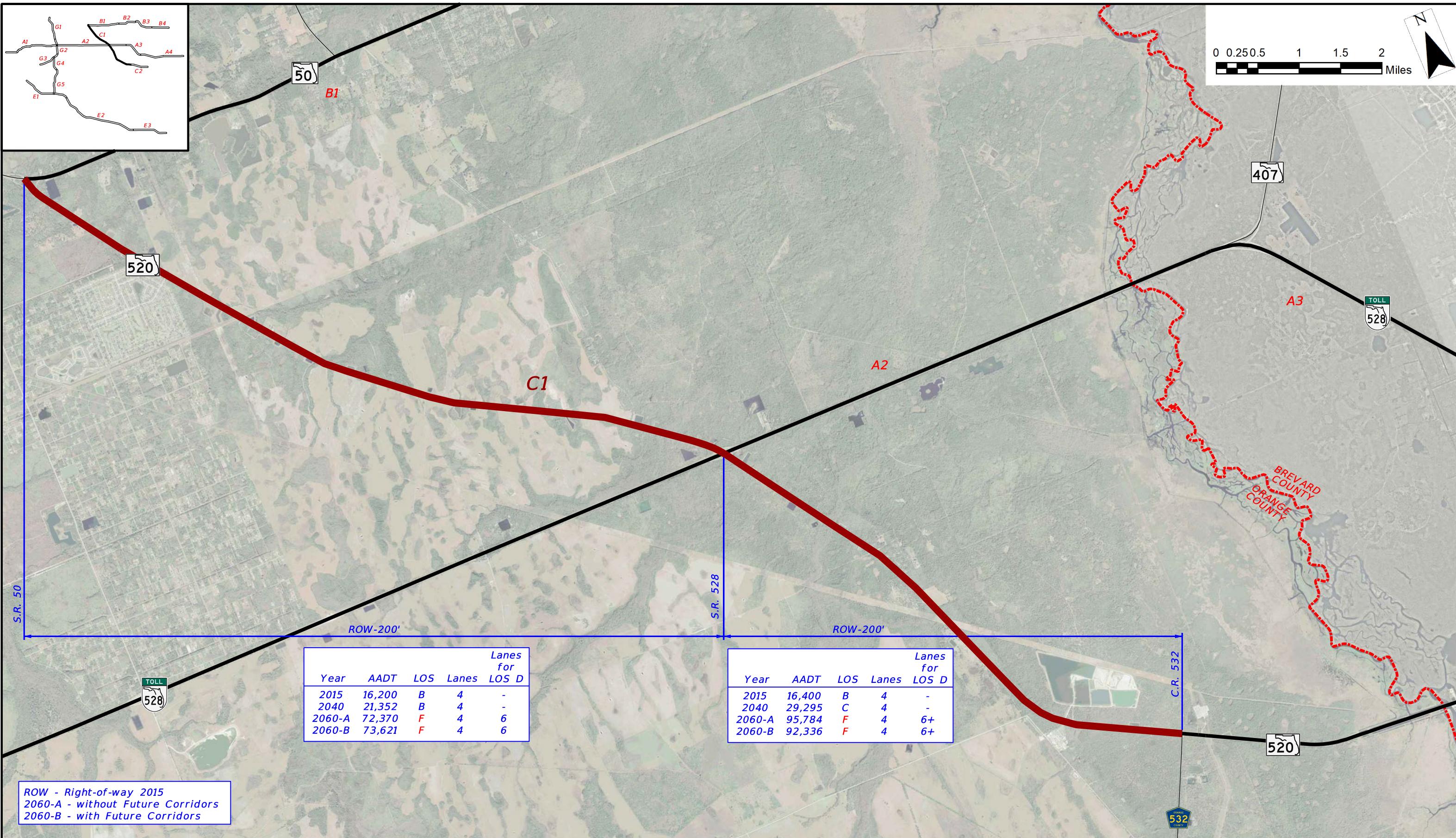


East Central Florida Corridor Evaluation Study



**Corridor C
Year 2040 Traffic**

**FIGURE
4.3.3-2
SEGMENT C2**

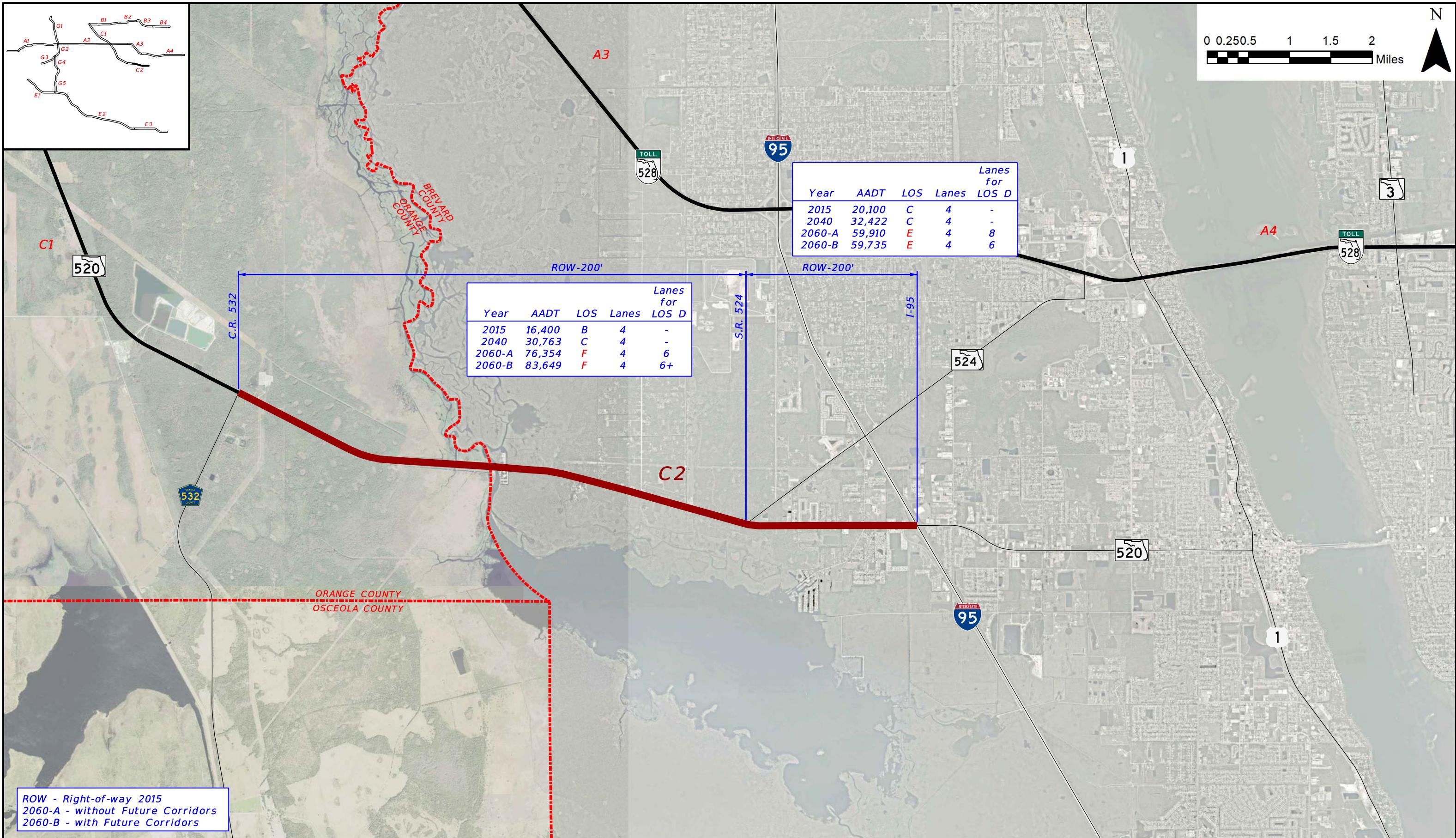


East Central Florida Corridor Evaluation Study



**Corridor C
Year 2060 Traffic**

**FIGURE
4.3.4-1
SEGMENT C1**



East Central Florida Corridor Evaluation Study



**Corridor C
Year 2060 Traffic**

**FIGURE
4.3.4-2
SEGMENT C2**

4.4. Corridor E: US 192

Corridor E, US 192 (E Irlo Bronson Memorial Highway) is a multimodal highway corridor serving commuter, tourist, commercial, and goods mobility. This corridor serves a high percentage of tourism-related traffic as it accesses the attractions in and around southern Orlando, as well as the high-tech industries clustering in and around southern Brevard and Orange Counties. This corridor also serves nearby agricultural and commercial land uses.

As shown in Figure 4.4.1, US 192 is the major corridor connecting southern Brevard County to Orange and Osceola Counties today. It serves as a high-tech corridor for workforce commuting between Palm Bay and Medical City. The existing facility runs from US 27 in Lake County through northern Osceola and southern Brevard Counties to SR A1A in Indianatlanic. Currently, US 192 from Kissimmee and St. Cloud to Melbourne is the only corridor directly connecting Osceola County and southern Brevard County. It is state highway-owned and operated by FDOT and there is no limited-access connection from Orange County to southern Brevard County.

Corridor E runs from CR 530 in Osceola County to the I-95 interchange in Brevard County. Corridor E is divided into three segments: E1, E2, and E3. Segment E1 spans the northernmost portion of the corridor, in the urban area of Osceola County from CR 530 to Old Melbourne Highway/CR500A. Segment E2 constitutes “rural” roadway in Osceola County running from Old Melbourne Highway to the Osceola/Brevard County line. Segment E3 constitutes the entirety of “rural” roadway in Brevard County from the Osceola/Brevard County line to the I-95 interchange. The lengths of Corridor E segments are listed in Table 4.4.

Table 4.4 Corridor E Segment Lengths

Segment	Length (miles)
E1	13.6
E2	22.8
E3	9.9
Corridor E	46.3

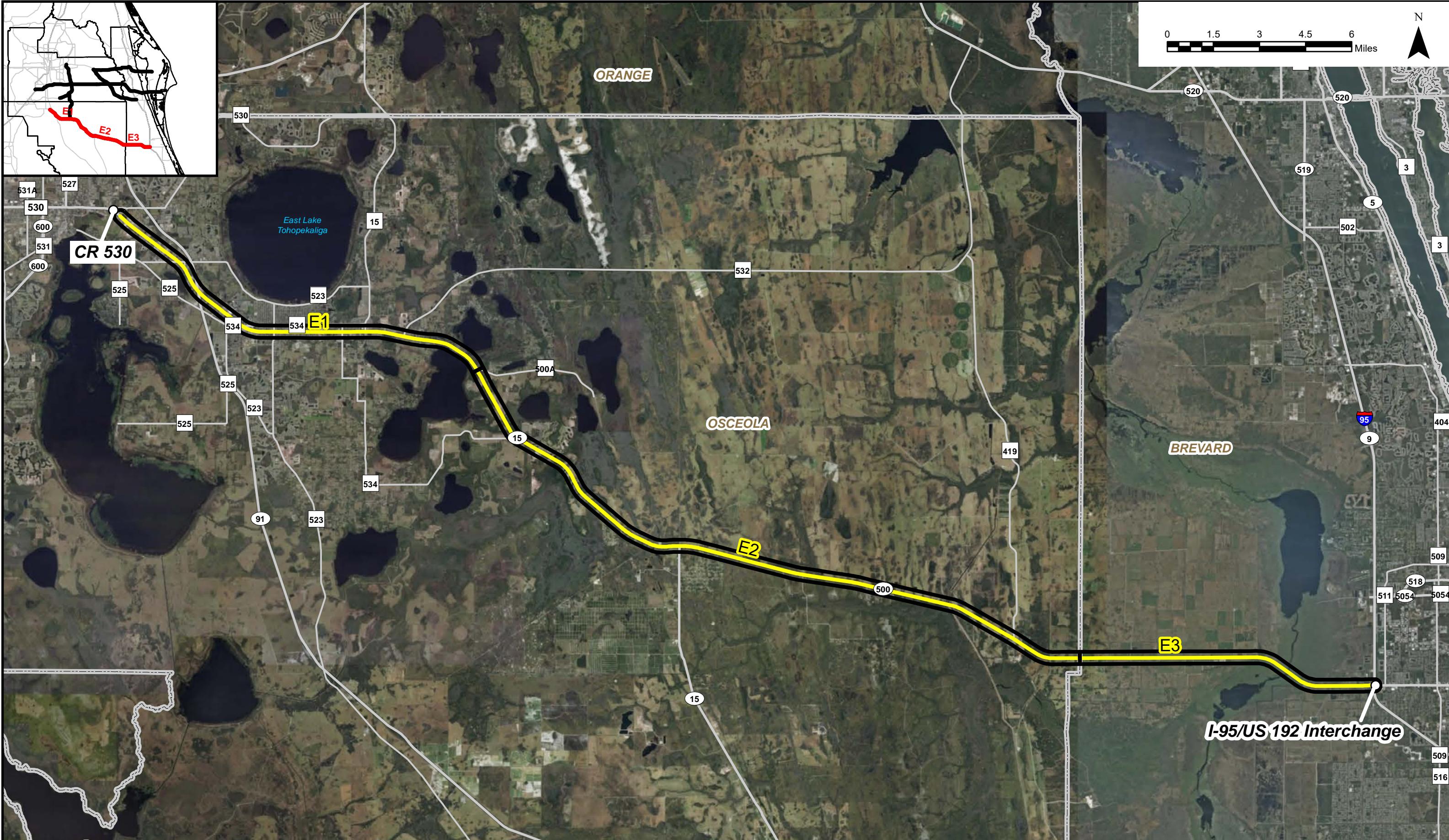
Please see the following Figures:

Figure 4.4.1: Corridor E Profile – US 192

Figure 4.4.2: Corridor E Roadway Characteristics & Year 2015 Traffic

Figure 4.4.3: Corridor E Year 2040 Traffic

Figure 4.4.4: Corridor E Year 2060 Traffic



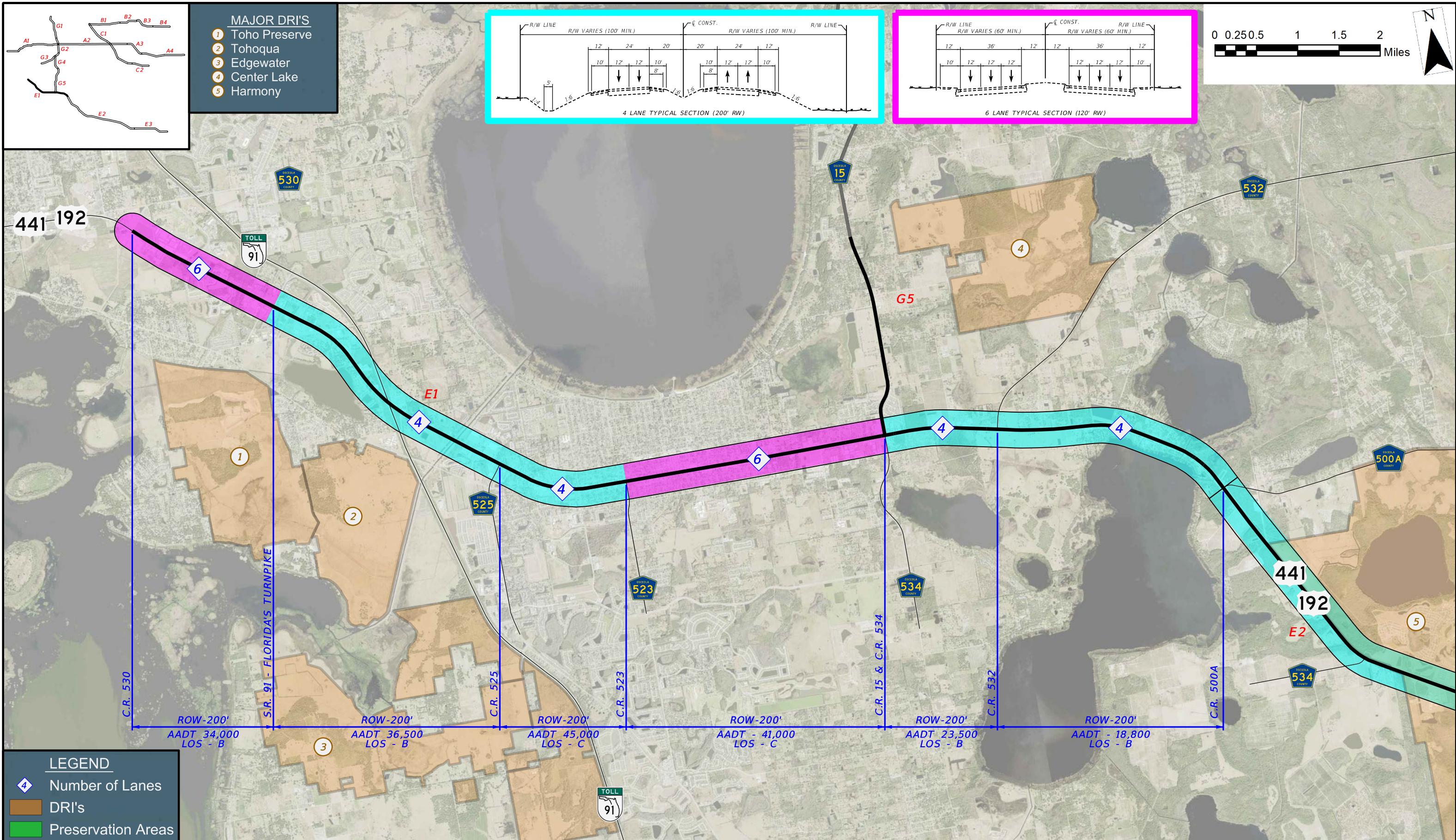
East Central Florida Corridor Evaluation Study

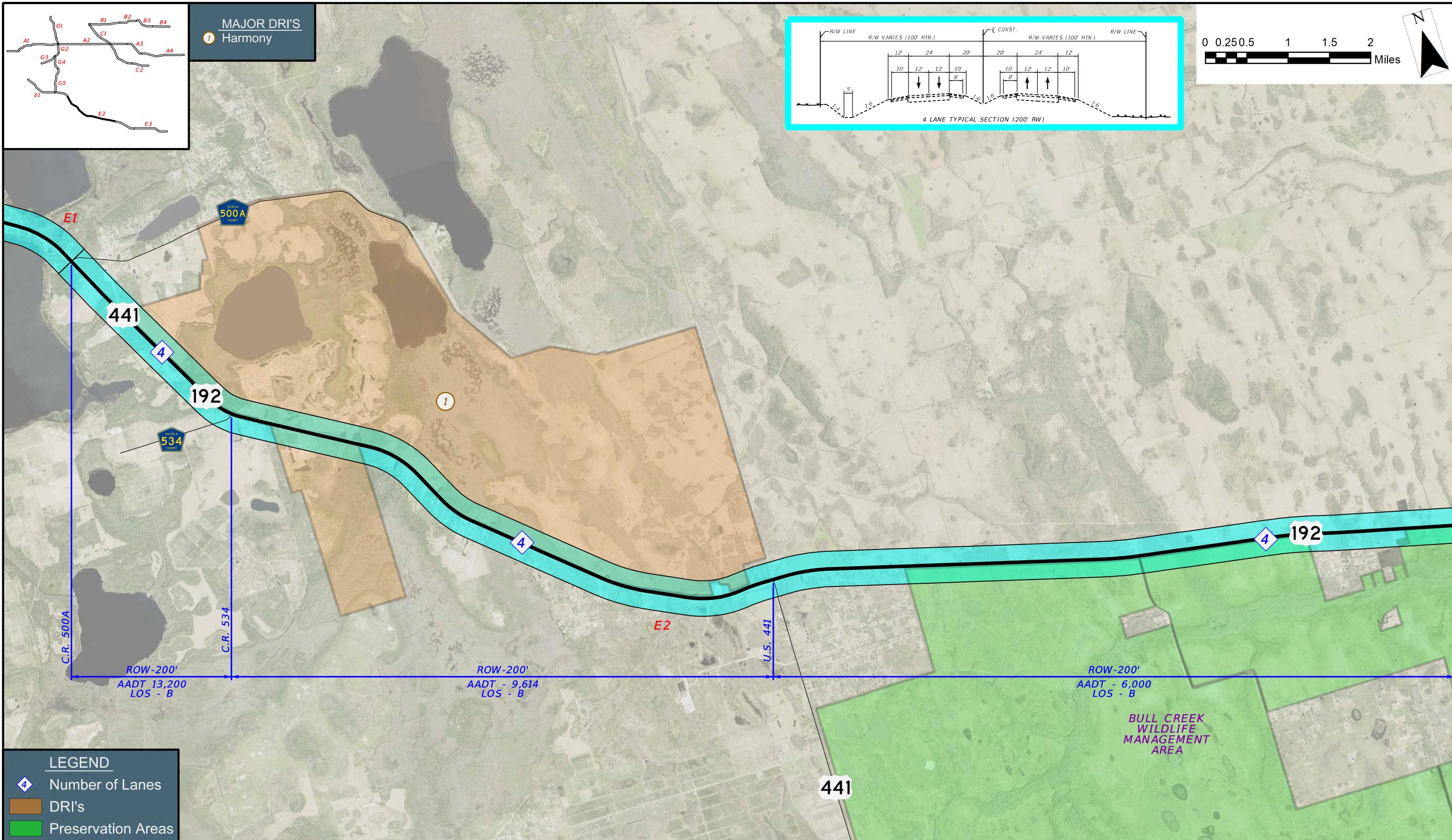


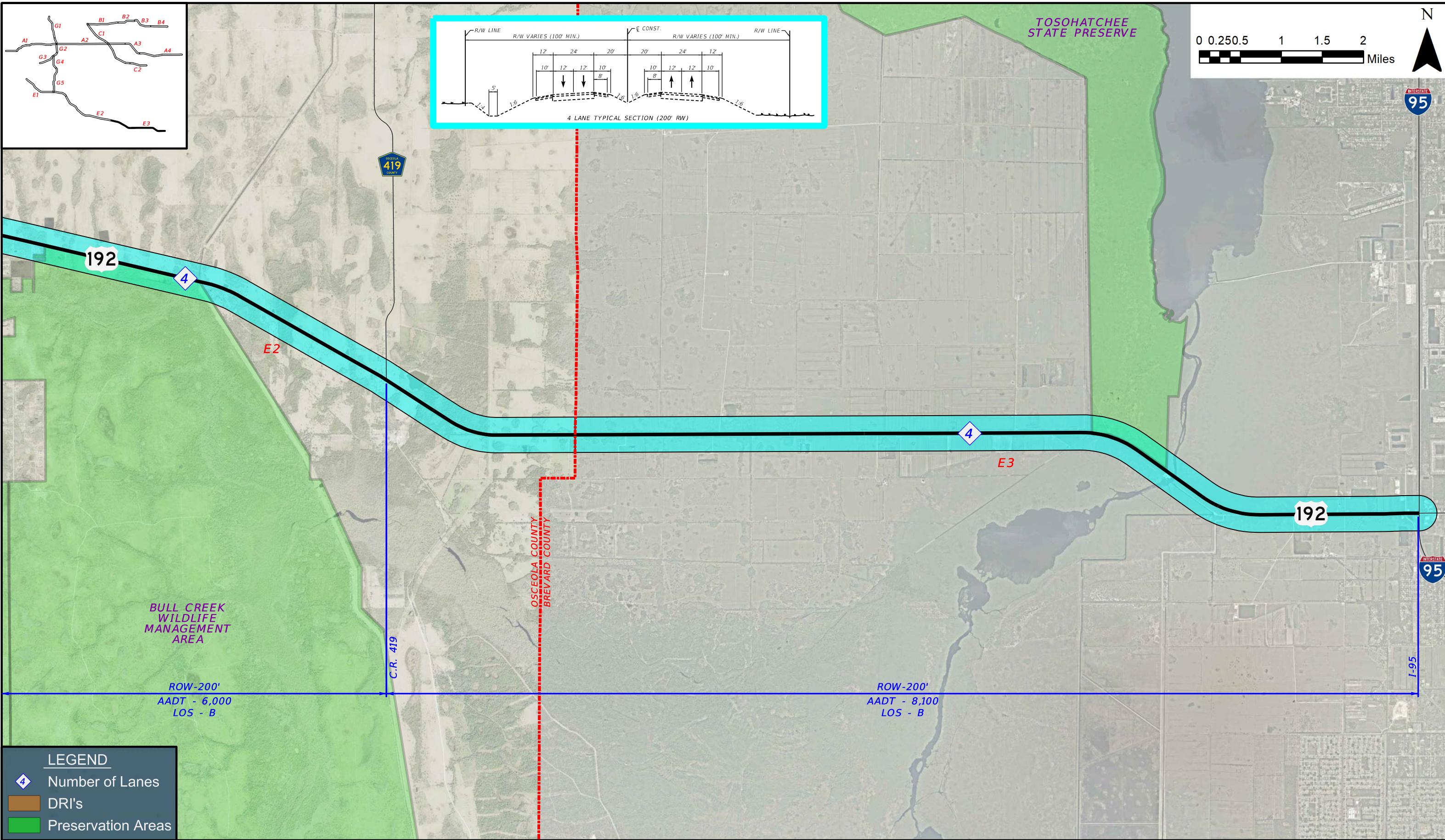
Corridor E Profile
US 192

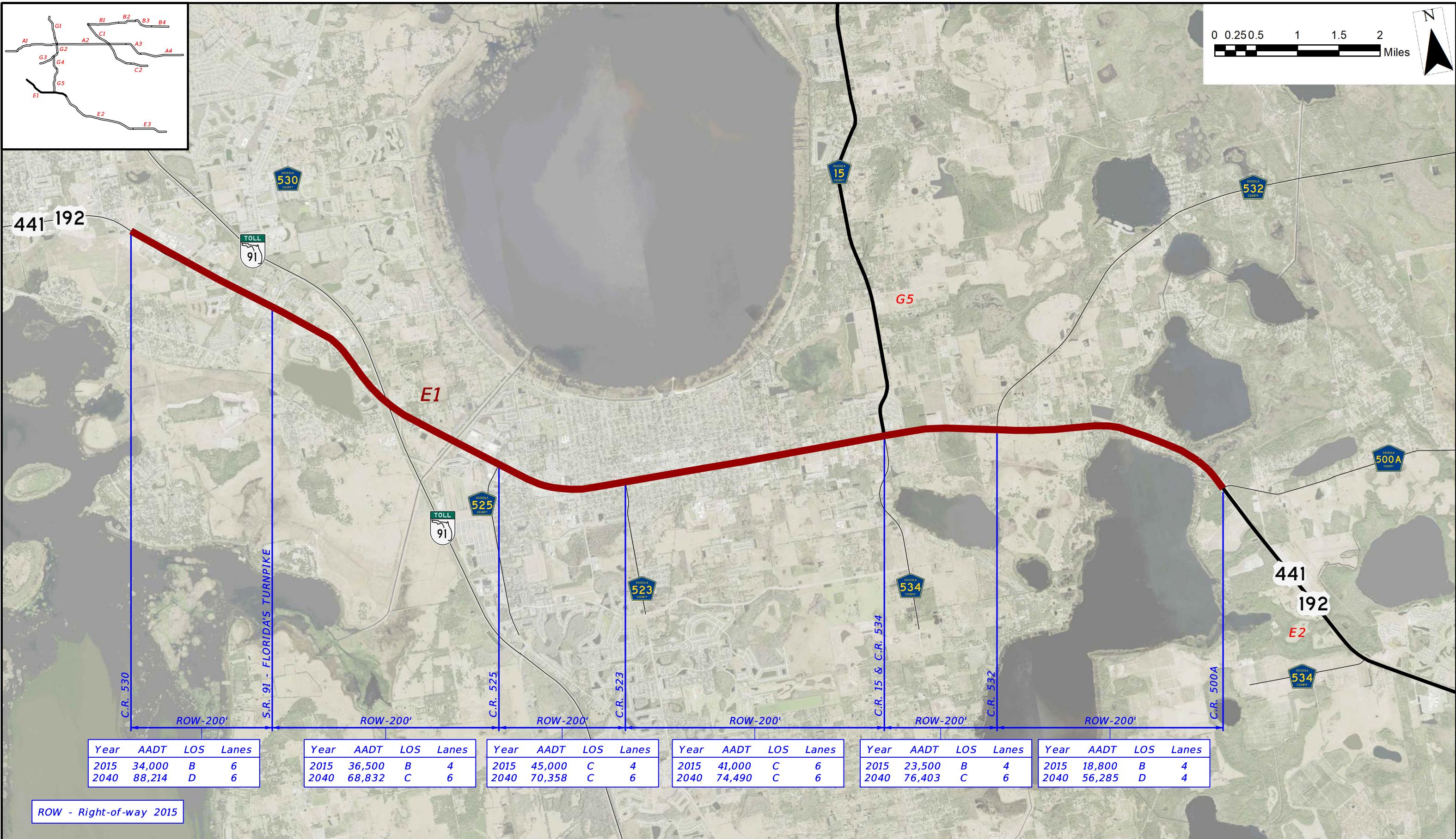


FIGURE
4.4.1







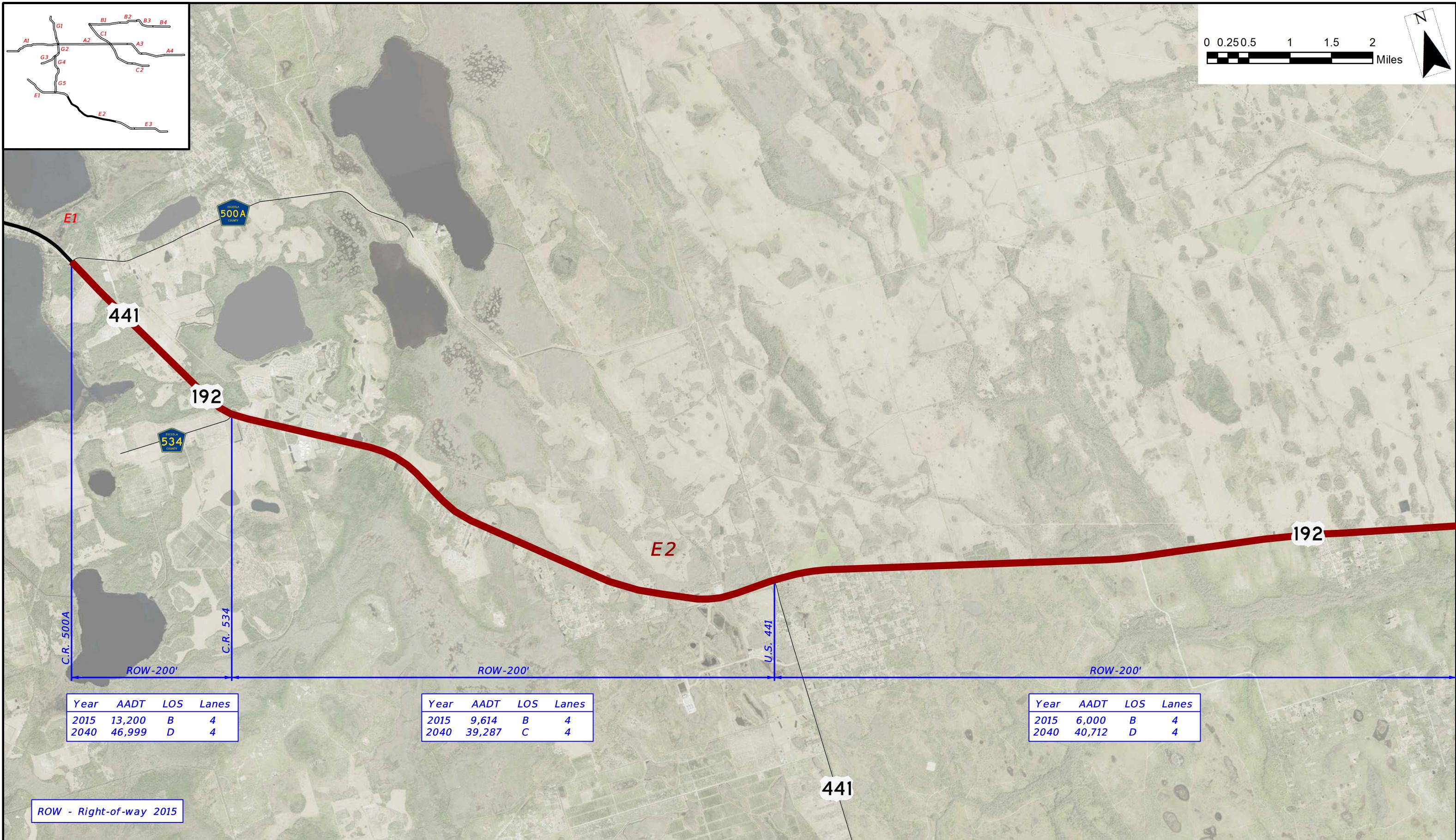


East Central Florida Corridor Evaluation Study



**Corridor E
Year 2040 Traffic**

**FIGURE
4.4.3-1
SEGMENT E1**

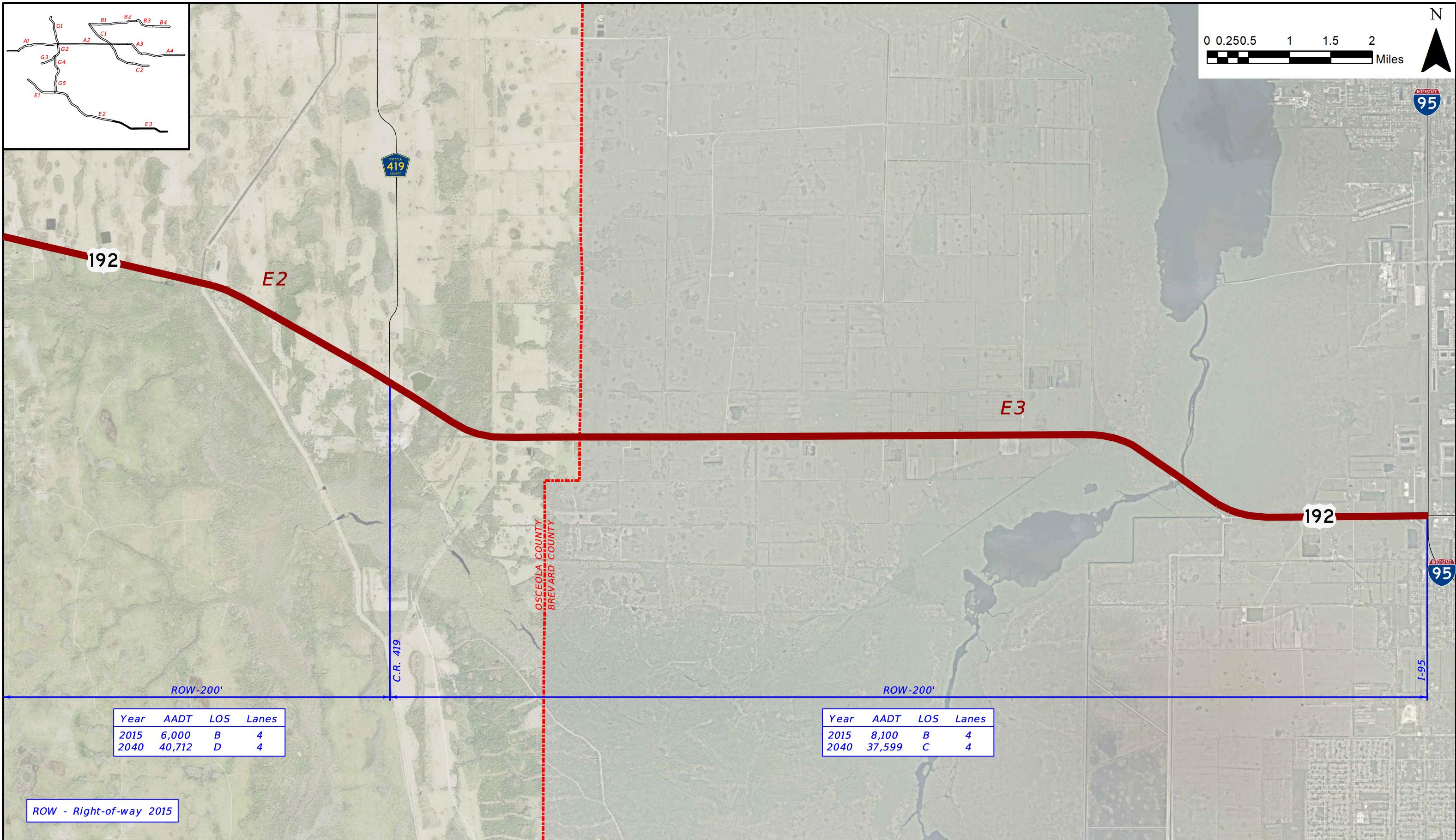


East Central Florida Corridor Evaluation Study



**Corridor E
Year 2040 Traffic**

**FIGURE
4.4.3-2
SEGMENT E2**

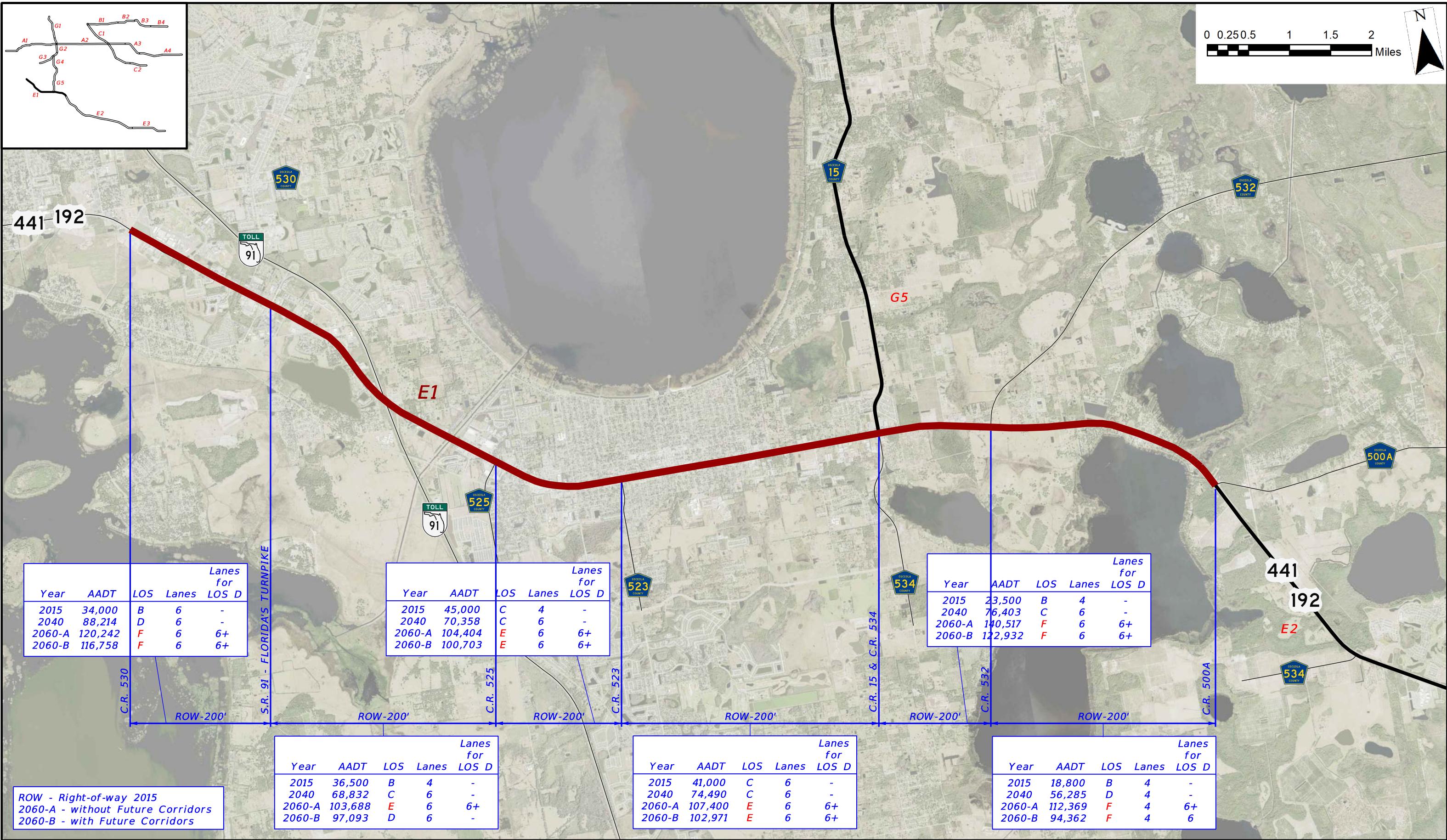


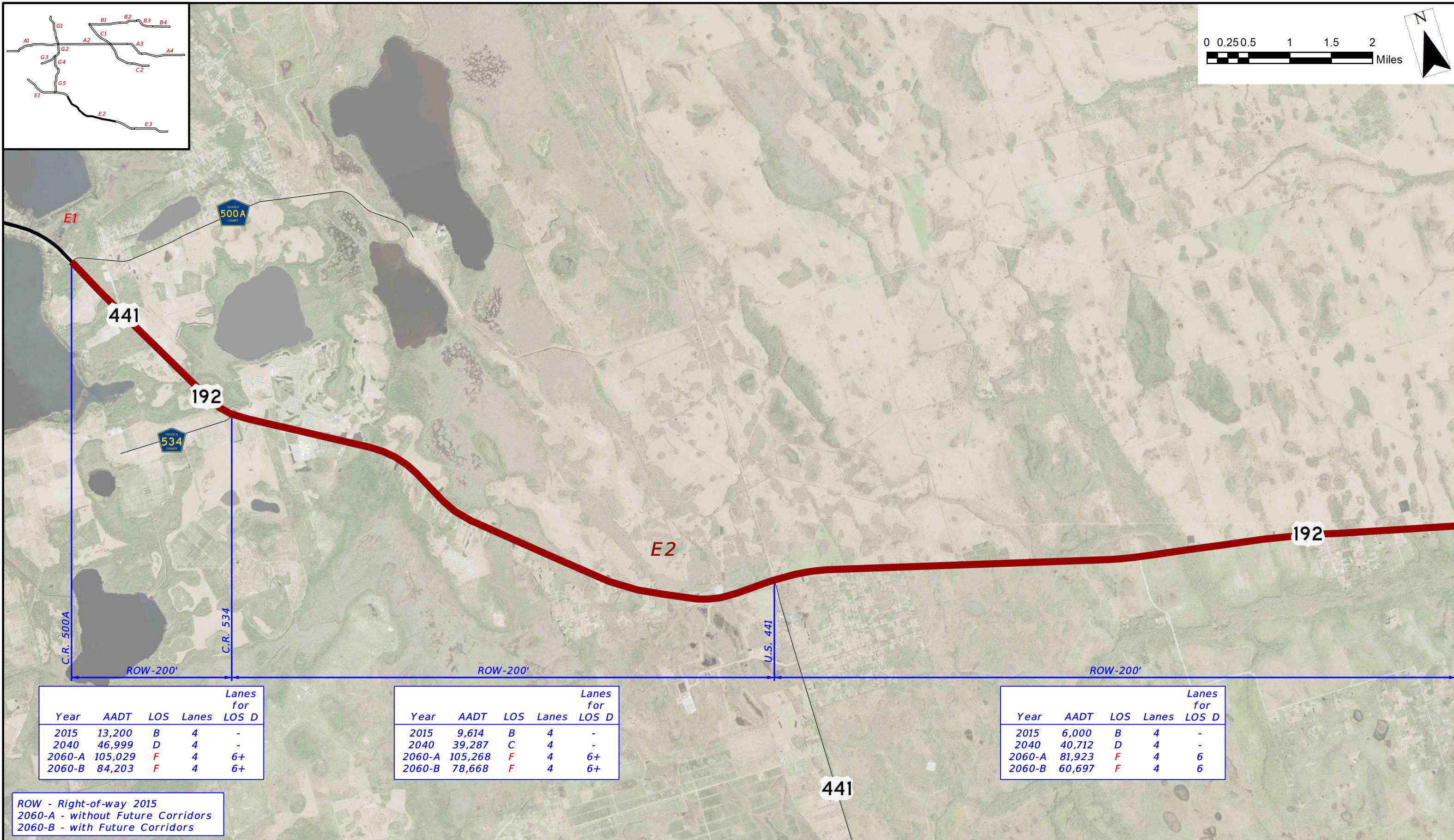
East Central Florida Corridor Evaluation Study



**Corridor E
Year 2040 Traffic**

**FIGURE
4.4.3-3
SEGMENT E3**



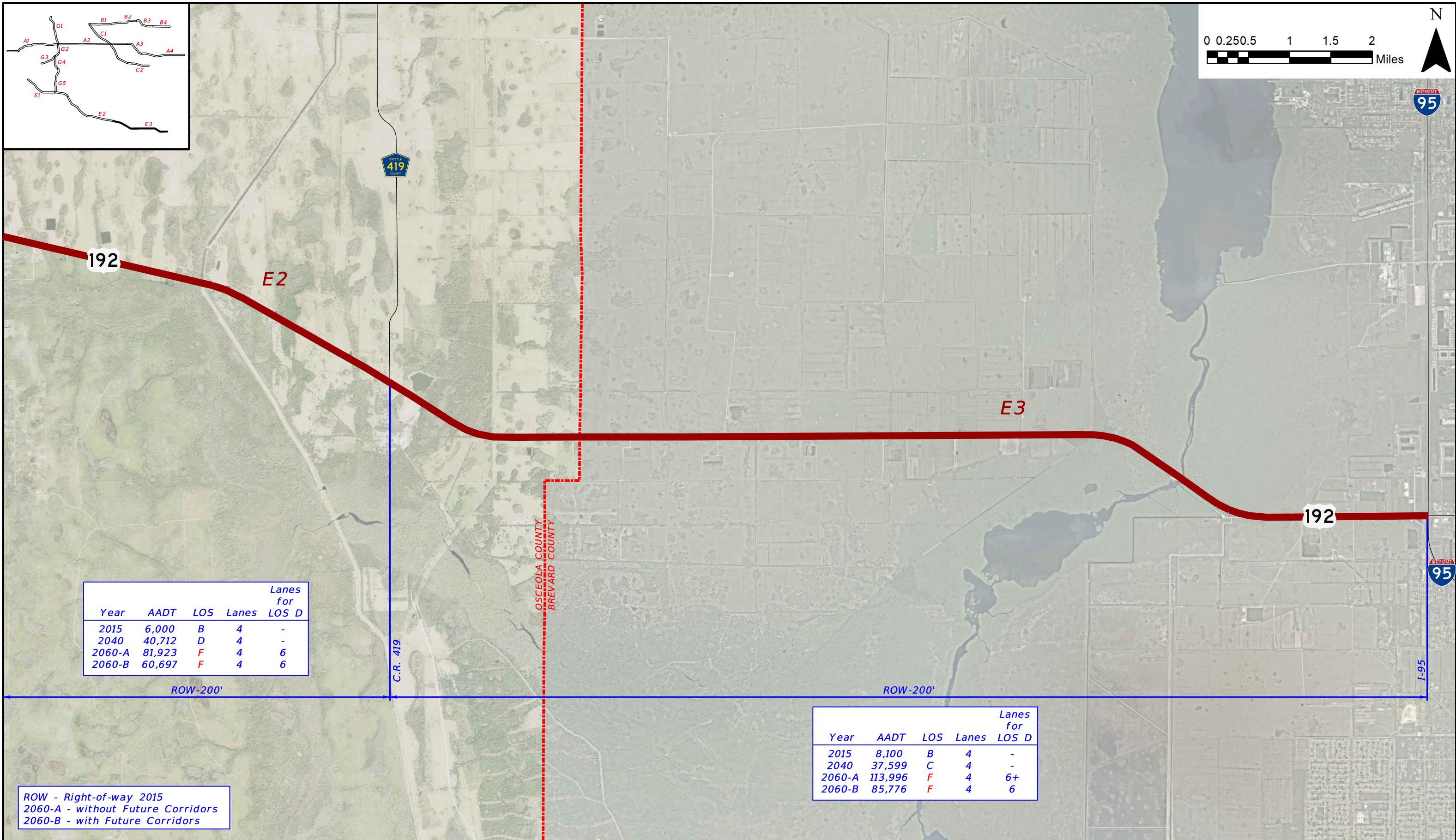


East Central Florida Corridor Evaluation Study



**Corridor E
Year 2060 Traffic**

**FIGURE
4.4.4-2
SEGMENT E2**



East Central Florida Corridor Evaluation Study



**Corridor E
Year 2060 Traffic**

**FIGURE
4.4.4-3
SEGMENT E3**

4.5. Corridor G: SR 417/Narcoossee Road

SR 417/Narcoossee Road is a multimodal highway corridor which provides mobility options for commuters and tourists traveling between Orange and Osceola Counties to major urban and employment centers, such as OIA, the University of Central Florida, Lake Nona, and Medical City. Significant congestion inhibits mobility along the corridor which is currently split between limited access and non-limited access segments.

As shown in Figure 4.5.1, Narcoossee Road is an arterial roadway running from US 192 in Osceola County to the intersection of Hoffner Avenue and Old Goldenrod Road in Orange County. It is a major north-south corridor connecting population centers directly to the east of OIA. It is a county-owned facility both in Orange and Osceola Counties.

SR 417, the Central Florida GreeneWay, is a limited-access tolled expressway which forms the eastern beltway of Orlando, providing an alternative route to I-4. From International Drive near the Orange/Osceola County border to the Orange/Seminole County border, SR 417 is owned and operated by CFX. It is part of the SIS.

Corridor G runs from US 192 in Osceola County to the SR 50/East Colonial Drive in Orange County, including a portion of the Central Florida GreeneWay from Boggy Creek Road to Narcoossee Road. Corridor G is divided into five segments: G1, G2, G3, G4, and G5. Segment G1 (SR 417) is in the urban Orange County from SR 50 to the toll booths on SR 417. Segment G2 (SR 417) constitutes a transitional roadway in Orange County from the toll booths on SR 417 to Moss Park Road. Segment G3 (SR 417) is in urban Orange County from Moss Park Road to Boggy Creek Road. Segment G4 (Narcoossee Road) is also in urban Orange County from SR 417 to Orange/Osceola County line. Segment G5 (Narcoossee Road) is in urban Osceola County from Orange/Osceola County line to US 192. The lengths of Corridor G segments are shown below in Table 4.5.

Table 4.5 Corridor G Segment Lengths

Segment	Length (miles)
G1	6.0
G2	5.0
G3	6.2
G4	3.8
G5	7.5
Corridor G	28.5

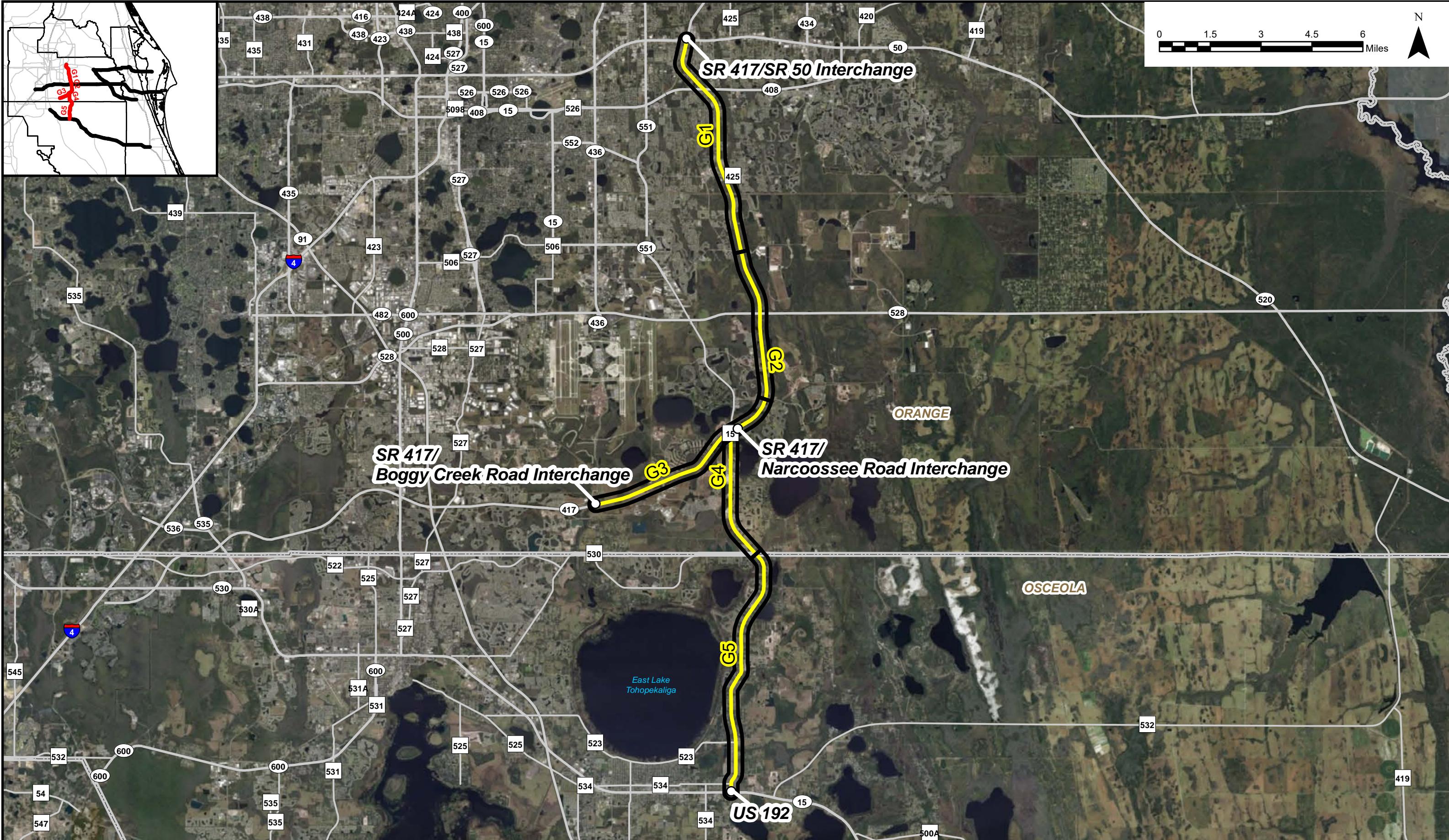
Please see the following Figures:

Figure 4.5.1: Corridor G Profile – SR 417/Narcoossee Road

Figure 4.5.2: Corridor G Roadway Characteristics & Year 2015 Traffic

Figure 4.5.3: Corridor G Year 2040 Traffic

Figure 4.5.4: Corridor G Year 2060 Traffic

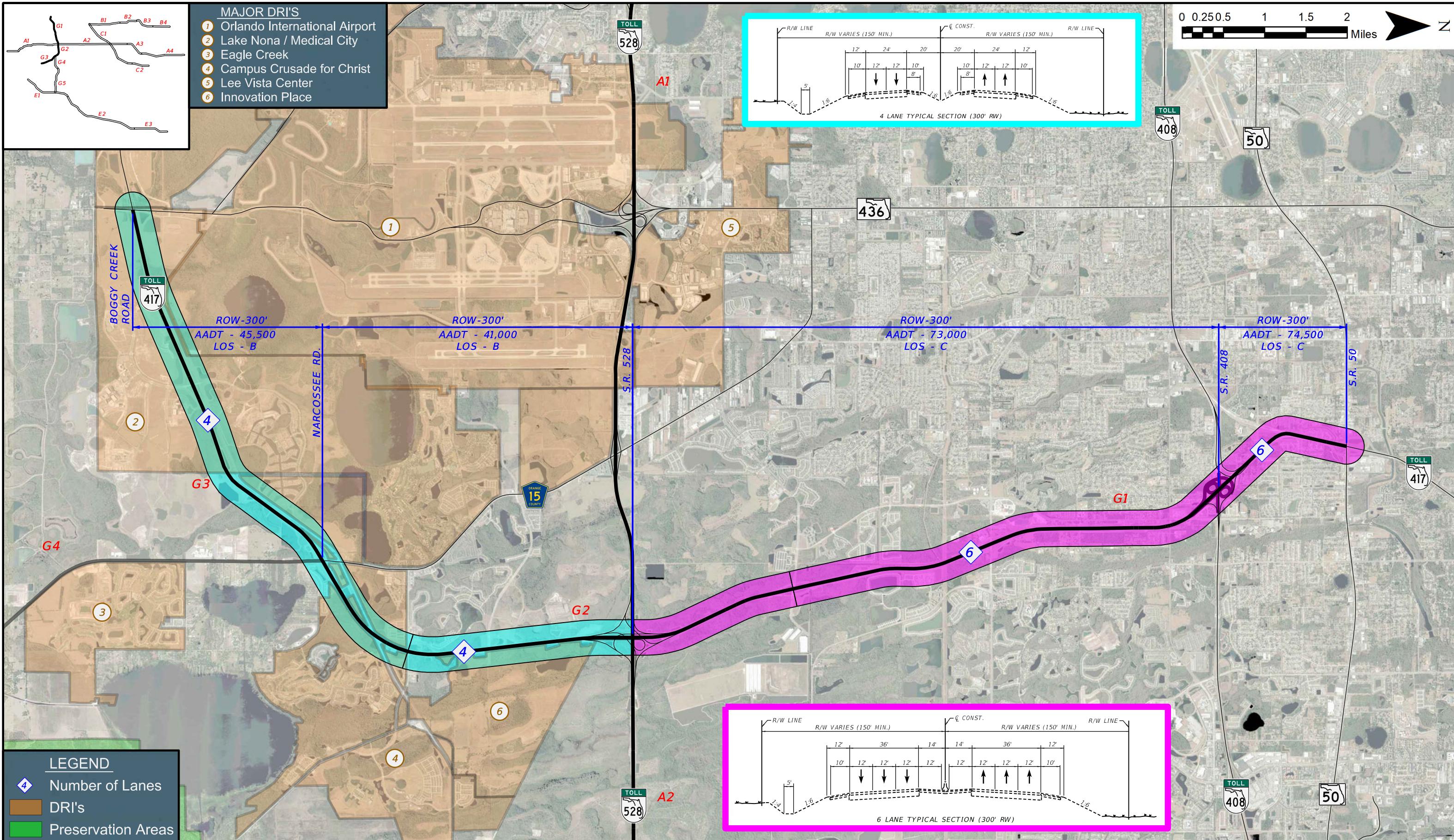


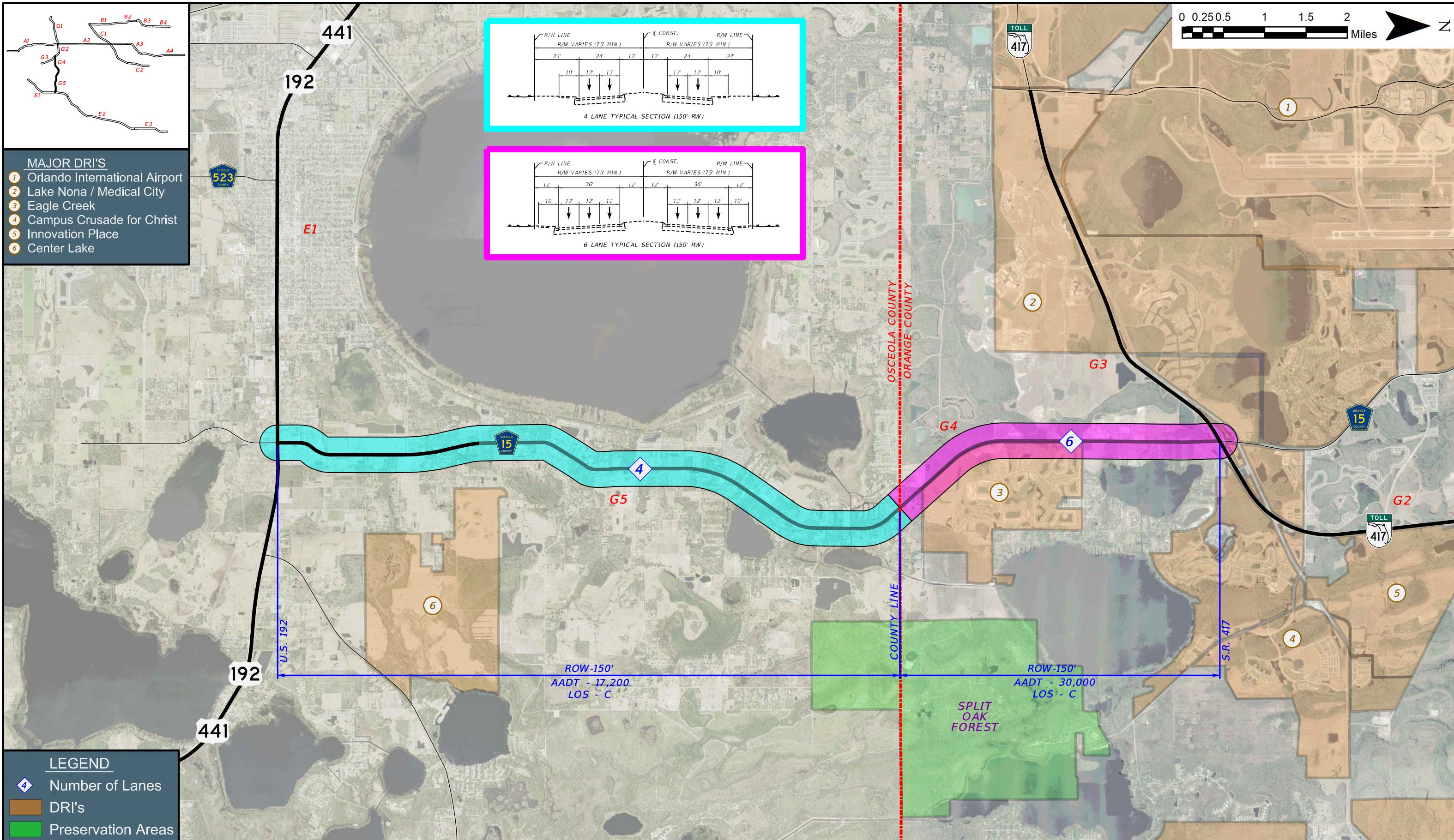
East Central Florida Corridor Evaluation Study

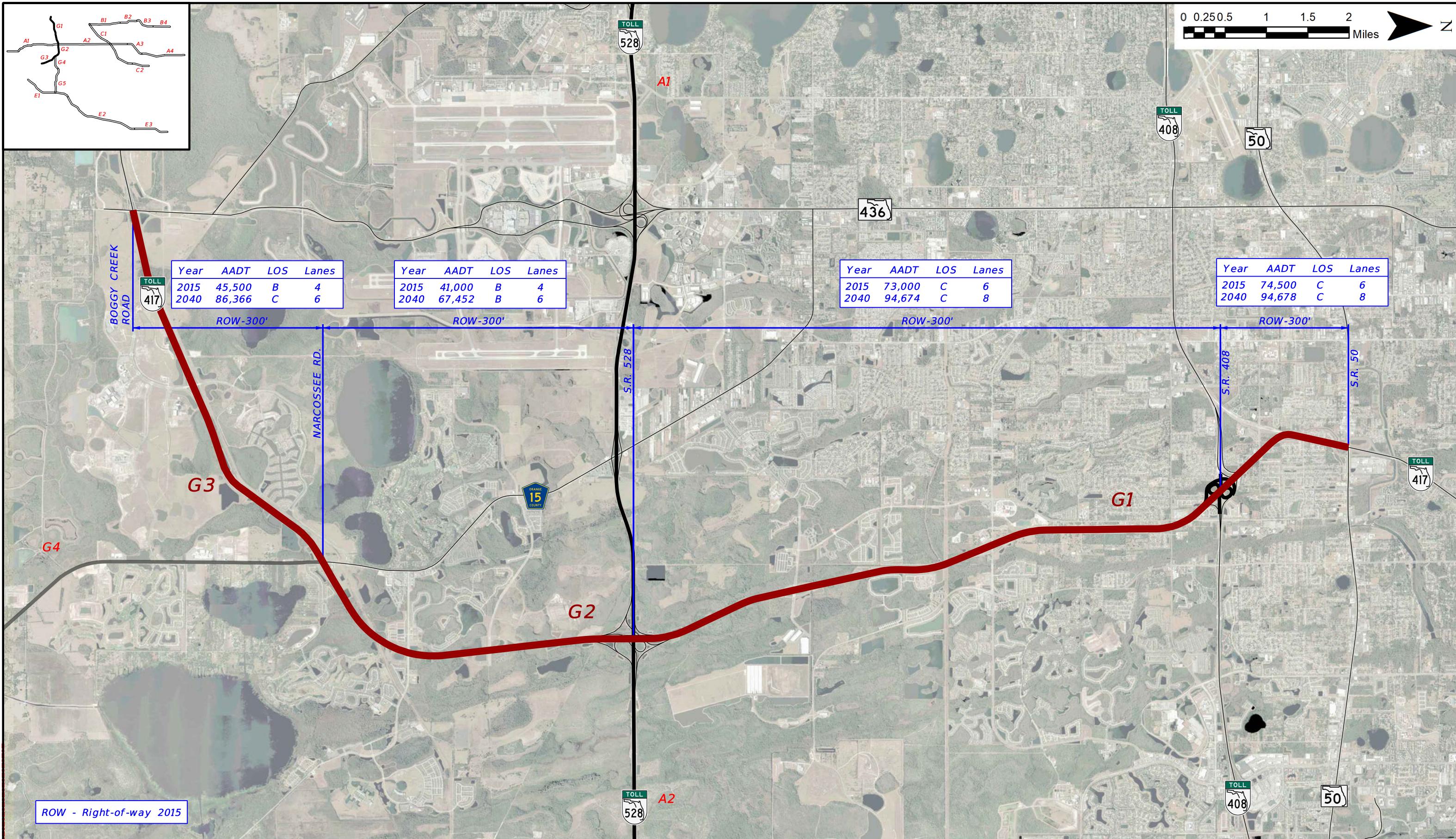


Corridor G Profile
SR 417/Narcoossee Road

FIGURE
4.5.1





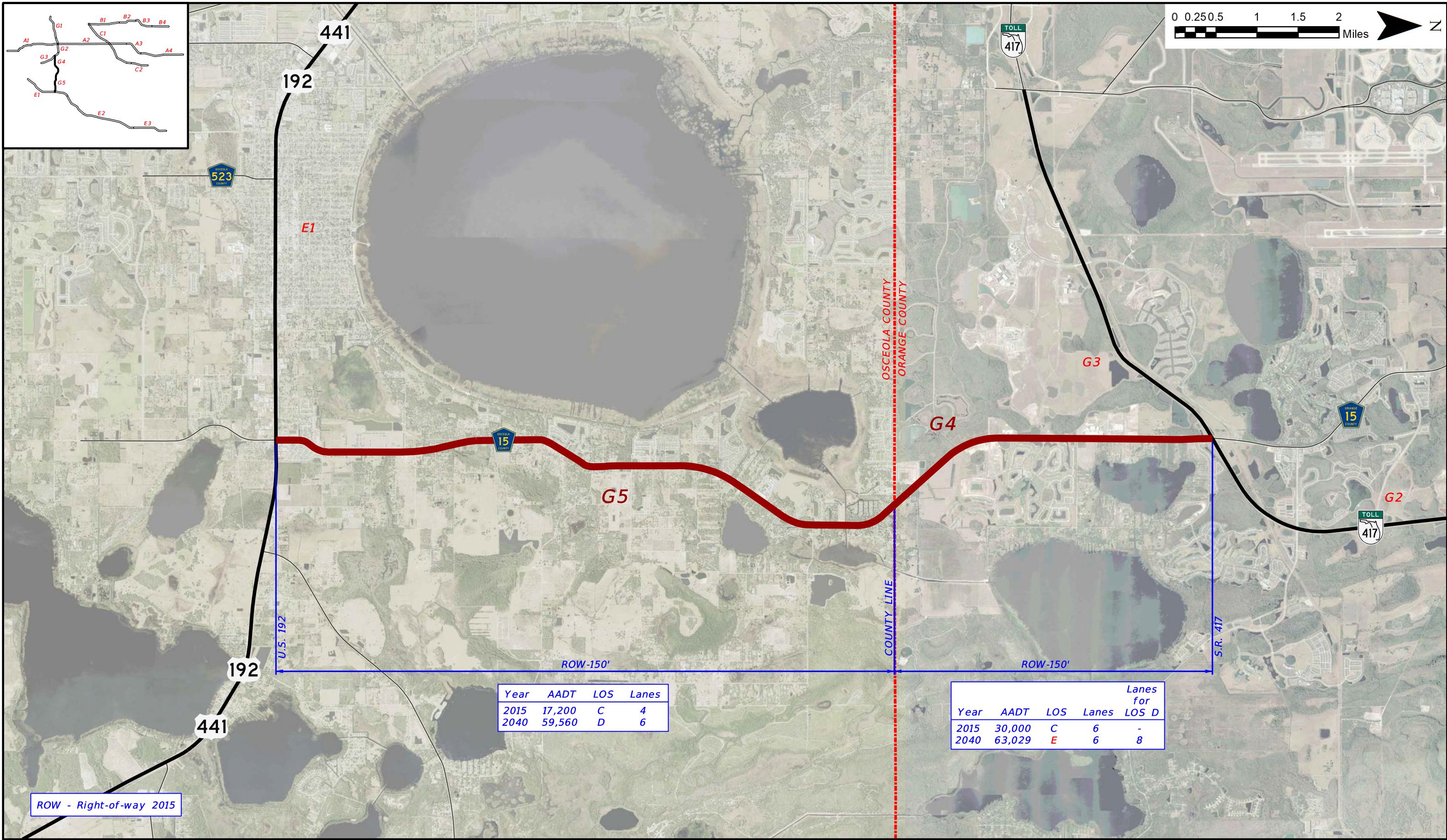


East Central Florida Corridor Evaluation Study



**Corridor G
Year 2040 Traffic**

**FIGURE
4.5.3-1
SEGMENTS
G1, G2, G3**

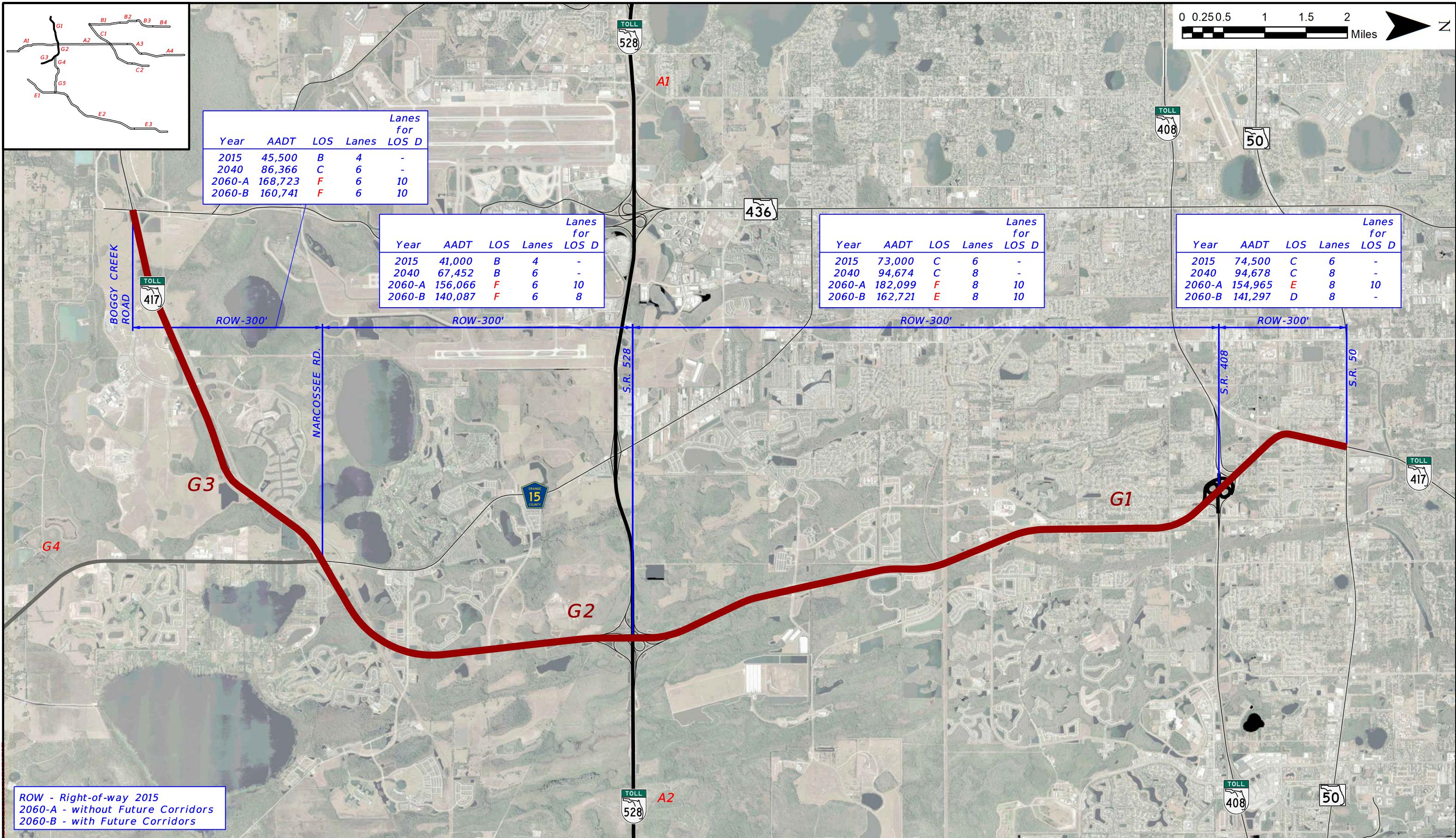


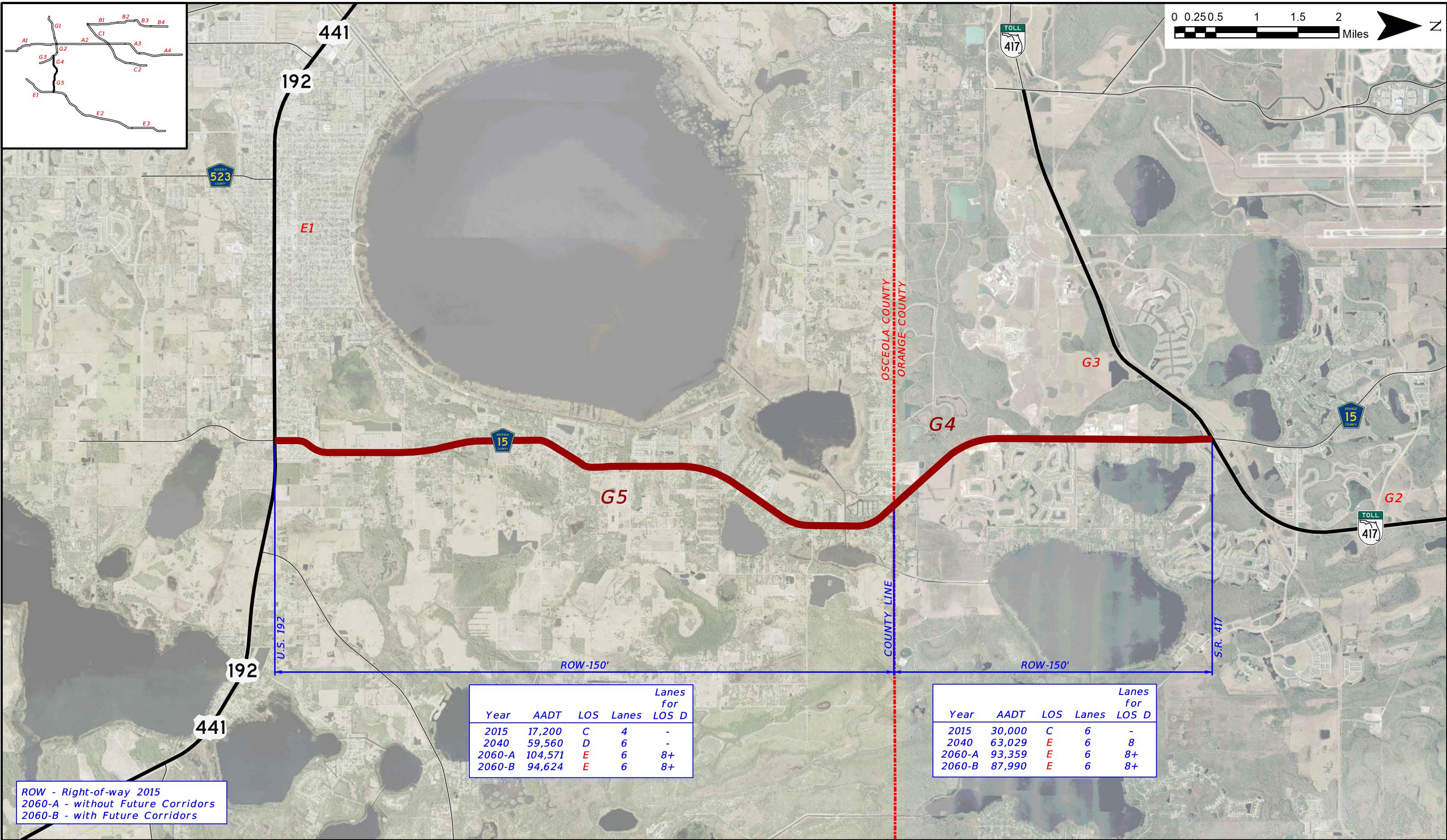
East Central Florida Corridor Evaluation Study



**Corridor G
Year 2040 Traffic**

**FIGURE
4.5.3-2
SEGMENTS
G4 and G5**





Appendix A Travel Demand Forecasting /Modeling Methodology

East Central Florida Corridor Evaluation Study

Travel Demand Forecasting/Modeling Methodology (08/28/18)

This methodology describes the travel demand forecasting/modeling procedure to generate the years 2040 and 2060 Annual Average Daily Traffic (AADT) for the five existing corridors of the East Central Florida Corridor Evaluation Study (ECFCES). The five existing corridors are:

- Corridor A: SR 528 spans from the I-4/SR 528 interchange in Orange County to the easternmost point of the George King Boulevard interchange ramps in Brevard County
- Corridor B: SR 50/SR 405 spans from the westernmost point of the SR 50/SR 520 interchange in Orange County to Space Commerce Way in Brevard County
- Corridor C: SR 520 spans from the westernmost point of SR 50/SR 520 interchange in Orange County to the easternmost point of the SR 520/I-95 interchange in Brevard County
- Corridor E: US 192 spans from CR 530 in Osceola County to the easternmost point of the US 192/I-95 interchange in Brevard County
- Corridor G: SR 417/Narcoossee Road spans (SR417) from SR 50 interchange to Boggy Creek Road in Orange County and (Narcoossee Road) from SR 417 in Orange County to US 192 in Osceola County

Model Selection

After comparing several models available for the traffic forecast in the Central Florida area, it was concluded the Central Florida Regional Planning Model (CFRPM) version 6.1 (Time-of-Day) will be used. The latest version was released on December 22, 2016. This model was selected as it represents the land use and other characteristics of Orange, Brevard and Osceola Counties.

Model Validation

The CFRPM V6.1 base year 2010 was validated at the time of model release, hence no further validation/calibration will be performed for this study.

Future Year Land Use Development

The planned, programmed, and committed improvements in the study area will be reviewed and incorporated into the land use module. Meetings with the Deseret Ranch, Northeast District and Viera developers were conducted to obtain more insight into the land use. Based on the information collected, the final land use will be incorporated into the future year model.

Future Year Network Development

To develop the year 2060 network, the year 2040 highway and transit networks will be utilized as a starting point. The five existing future corridors will be incorporated into the network as per the limits mentioned above. The four new future corridors (D, F, H, I) will be incorporated into the network as the access points, or the alignments provided by the Central Florida Expressway Authority (CFX).

Future Year Socio-Economic Data Development

To develop the year 2060 socio-economic data, the model socio-economic data from all the available model years (2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045) will be utilized to extrapolate the socio-economic data for the year 2060. Reasonableness check will be performed to validate the year 2060 data. Necessary adjustment will be made accordingly for the zones with negative growth.

The North Ranch future development will be incorporated into the year 2060 socio-economic data as per the approved Sector Plan. However, the North Ranch Sector Plan socio-economic data is available in the square footage only rather than employment data. Therefore, different conversion factors were compared to determine the most reasonable approach to convert the square footage to employment numbers. ITE 9 trip generation rates and CFRPM V6.1 Osceola County Trip Attraction vs. Employment ratio will be used for the future employment estimates. The south Florida empirical factors and Viera development information will be used for reasonableness check.

For other developments, the years 2040 and 2060 future year socio-economic data will be reviewed to identify whether the developments had already been incorporated into the model. If the model socio-economic data does not reflect the development, necessary adjustments will be made to incorporate the development into the model.

Future Year Traffic Development

The model growth rates between years 2010 and 2040 will be applied to the year 2017 AADTs to generate the year 2040 AADT. The model growth rates between the years 2040 and 2060 will be applied to the year 2040 AADT to generate the 2060 AADT.

Four model scenarios will be prepared for the future year traffic development:

- 2010 Base Year
- 2040 Future Year
- 2060 Future Year – without the four new future corridors
- 2060 Future Year – with the four new future corridors

Note: Due to the latest changes in the land use, Corridor "H" is being considered removed as a limited access facility. CFX is in the process of conducting a feasibility study on Corridor "I". The final access points and alignment for Corridor "I" will be incorporated into the model network.



Appendix B Model Socio-Economic Data Update

Three Developments of Regional Impact (DRIs) within the project study area were taken into consideration, which are North Ranch, Northeast District, and Viera DRI. The DRI information includes build out year, future population and residential unit estimates, and future year land use. Only square footage was provided in the land use information. ITE 9 Trip Generation Rate and CFRPM 6.1 countywide Employment/Trip Ratio were used to convert the square footage of land use information to employment data for travel demand model. Below are the steps:

Step 1:

Estimated the total generated trips in ITE 9 based on the square footage of land use information. Calculated the percentage of the trips generated by different land use respectively. Shown in Table 1.

2080	Gross Square Feet	ITE Code	Expected Units (KSF)	Total Generated Trips (Daily Vehicle Trips)	Percentage
Retail	30,335,482	Shopping Center 820	30,335.48	278,744	50%
Office	13,482,436	General Office 710	13,482.44	54,554	10%
Industrial	23,968,776	General Light Industrial 110	23,968.78	167,062	30%
Institutional	15,573,316	General Office 710	15,573.32	60,871	11%
			SUM	561,232	100%

Table 1

Step 2:

Estimated the total employment based on countywide Total Employment/Total Vehicle Trips Attraction ratio. The ratio of Osceola County was used for Northeast District and North Ranch, while the ratio of Brevard County was used for Viera DRI. Then split the total employment based on the category percentage from Step 1.

North Ranch development build out year is 2080. The employment data for the year 2080 was calculated following Steps 1 and 2. Converted year 2080 total employment to year 2060 using 2060/2080 dwelling unit and population ratio provided in the North Ranch develop information, which is approximately 72%. Shown in Table 2.

2080	Total Trips Attraction (Vehicle Trip)	Total Employment	2060	Employment
Osceola County	1,402,601	390,089		
North Ranch	561,231	156,089	72%	112,384

Table 2

Step 3:

Split the total employment to different categories by using the percentage from previous step, as shown in Table 3.

2060	Percentage	EMP
Retail	50%	55,817
Office	10%	10,924
Industrial	30%	33,453
Institutional	11%	12,189
Total	100%	112,384

2060	Employment
Industrial EMP	33,453
Commercial EMP	55,817
Service EMP	23,113
Total	112,384

Table 3



Appendix C NCHRP 765 Procedure

2040 NCHRP AADT

Ratio Approach:

$$2015 \text{ Model AADT} = 2010 \text{ Model AADT} + \frac{2040 \text{ Model AADT} - 2010 \text{ Model AADT}}{2040 - 2010} \times (2015 - 2010)$$

$$2015 \text{ to } 2040 \text{ Model Annual Growth Rate} = \frac{2040 \text{ Model AADT} - 2015 \text{ Model AADT}}{2015 \text{ Model AADT}} / (2040 - 2015)$$

$$2040 \text{ NCHRP AADT} = 2015 \text{ AADT} \times [1 + 2015 \text{ to } 2040 \text{ Model Annual Growth Rate} \times (2040 - 2015)]$$

Difference Approach:

$$2010 \text{ to } 2040 \text{ Model Annual Growth Amount} = (2040 \text{ Model AADT} - 2010 \text{ Model AADT}) / (2040 - 2010)$$

$$2040 \text{ NCHRP AADT} = 2015 \text{ AADT} + 2010 \text{ to } 2040 \text{ Model Annual Growth Amount} \times (2040 - 2015)$$

Final NCHRP AADT:

$$\text{Factor} = 2040 \text{ NCHRP AADT (Ratio)} / 2040 \text{ NCHRP AADT (Difference)}$$

If $0.65 < \text{Factor} < 1.35$

$$2040 \text{ NCHRP AADT} = (2040 \text{ NCHRP AADT (Ratio)} + 2040 \text{ NCHRP AADT (Difference)}) / 2$$

Otherwise

$$2040 \text{ NCHRP AADT} = 2040 \text{ NCHRP AADT (Difference)}$$

Reasonableness Check:

Location "SR 417 / G1 / SR 50 – SR 408" has negative 2015 to 2040 Annual Growth Rate (-1.36%). The 2015 to 2060 NB Model Annual Growth Rate was used only for this location to get a positive Growth Rate (1.17%)

2060 No Build NCHRP AADT

Ratio Approach:

$$2040 \text{ to } 2060 \text{ NB Model Annual Growth Rate} = \frac{2060 \text{ NB Model AADT} - 2040 \text{ Model AADT}}{2040 \text{ Model AADT}} / (2060 - 2040)$$

$$2060 \text{ NB NCHRP AADT} = 2040 \text{ NCHRP AADT} \times [1 + 2040 \text{ to } 2060 \text{ NB Model Annual Growth Rate} \times (2060 - 2040)]$$

Difference Approach:

$$2040 \text{ to } 2060 \text{ NB Model Annual Growth Amount} = (2060 \text{ NB Model AADT} - 2040 \text{ Model AADT}) / (2060 - 2040)$$

$$2060 \text{ NB NCHRP AADT} = 2040 \text{ NCHRP AADT} + 2040 \text{ to } 2060 \text{ NB Model Annual Growth Amount} \times (2060 - 2040)$$

Final NCHRP AADT:

$$\text{Factor} = 2060 \text{ NB NCHRP AADT (Ratio)} / 2060 \text{ NB NCHRP AADT (Difference)}$$

If $0.65 < \text{Factor} < 1.35$

$$2060 \text{ NB NCHRP AADT} = (2060 \text{ NB NCHRP AADT (Ratio)} + 2060 \text{ NB NCHRP AADT (Difference)}) / 2$$

Otherwise

$$2060 \text{ NB NCHRP AADT} = 2060 \text{ NB NCHRP AADT (Difference)}$$

2060 Build NCHRP AADT

Ratio Approach:

$$2040 \text{ to } 2060 \text{ B Model Annual Growth Rate} = \frac{2060 \text{ B Model AADT} - 2040 \text{ Model AADT}}{2040 \text{ Model AADT}} / (2060 - 2040)$$

$$2060 \text{ B NCHRP AADT} = 2040 \text{ NCHRP AADT} \times [1 + 2040 \text{ to } 2060 \text{ B Model Annual Growth Rate} \times (2060 - 2040)]$$

Difference Approach:

$$2040 \text{ to } 2060 \text{ B Model Annual Growth Amount} = (2060 \text{ B Model AADT} - 2040 \text{ Model AADT}) / (2060 - 2040)$$

$$2060 \text{ B NCHRP AADT} = 2040 \text{ NCHRP AADT} + 2040 \text{ to } 2060 \text{ B Model Annual Growth Amount} \times (2060 - 2040)$$

Final NCHRP AADT:

$$\text{Factor} = 2060 \text{ B NCHRP AADT (Ratio)} / 2060 \text{ NB NCHRP AADT (Difference)}$$

If $0.65 < \text{Factor} < 1.35$

$$2060 \text{ B NCHRP AADT} = (2060 \text{ B NCHRP AADT (Ratio)} + 2060 \text{ B NCHRP AADT (Difference)}) / 2$$

Otherwise

$$2060 \text{ B NCHRP AADT} = 2060 \text{ B NCHRP AADT (Difference)}$$





FUTURE CONDITIONS DATA REPORT
MARCH 2020