

7.0 Preferred Alternative with Service Road Concept

This section evaluates the traffic operations for all of the study years for the Build conditions as related to the Preferred Alternative with Service Road Concept. This alternative is a variation of the Preferred Alternative discussed in Section 6.0 and reflects the condition in which the entire SR 429-Wekiva Parkway would be a tolled expressway. Due to limited transportation funds from other sources, the SR 429-Wekiva Parkway project may need to utilize toll revenues to be considered cost feasible. This alternative represents a tolled expressway along the Preferred Alternative alignment discussed in Section 6.0. As part of addressing community impacts related to the conversion of an existing non-tolled state roadway into a tolled expressway, a service road is included in this alternative to provide a free option for traffic movement between Lake and Seminole Counties.

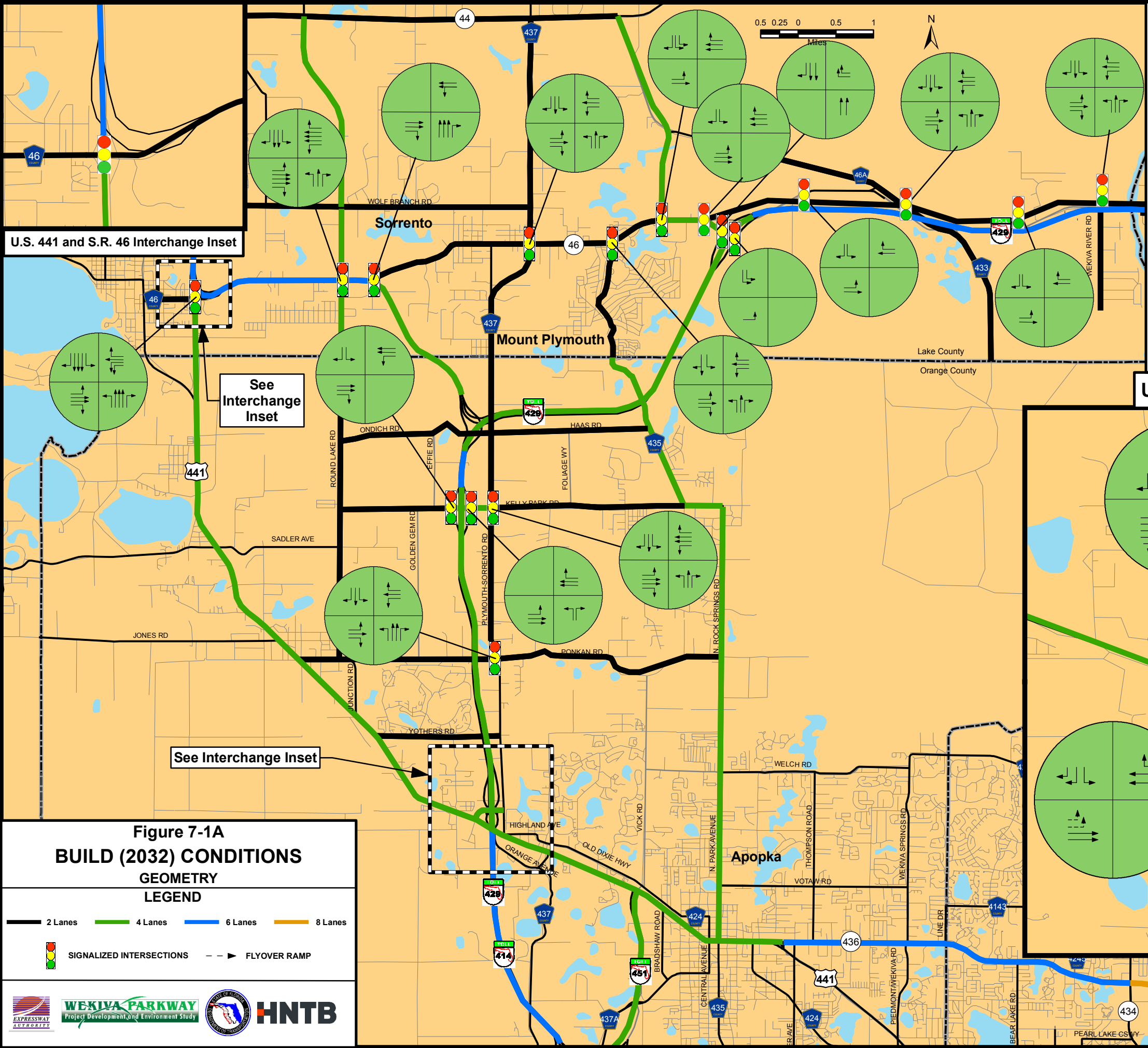
The Preferred Alternative with Service Road Concept includes the same recommended alignment and lane configuration as the Preferred Alternative, including a connection to I-4 in Seminole County at SR 417. The main differences between the Preferred Alternative and the Preferred Alternative with Service Road Concept are the toll structure, the service road and interchange access in east Lake County. The roadway network and lane configuration associated with the Preferred Alternative with Service Road Concept inside the project area of influence are shown in Figures 7-1A (Orange and Lake Counties) and 7-1B (Seminole County). The final alignments and characteristics of the Wekiva Parkway and SR 46 Bypass projects are included in the Preferred Alternative with Service Road Concept as described below.

This section also contains the study area traffic volumes (AADTs and DDHVs) and the corresponding operational analysis associated with the Preferred Alternative with Service Road Concept. The volumes projected for the SR 429/414 (John Land Apopka Expressway) for the Year 2032 are comparable to projected volumes in previous studies. Operational analyses were conducted for roadway segments, freeway elements, ramps and intersections.

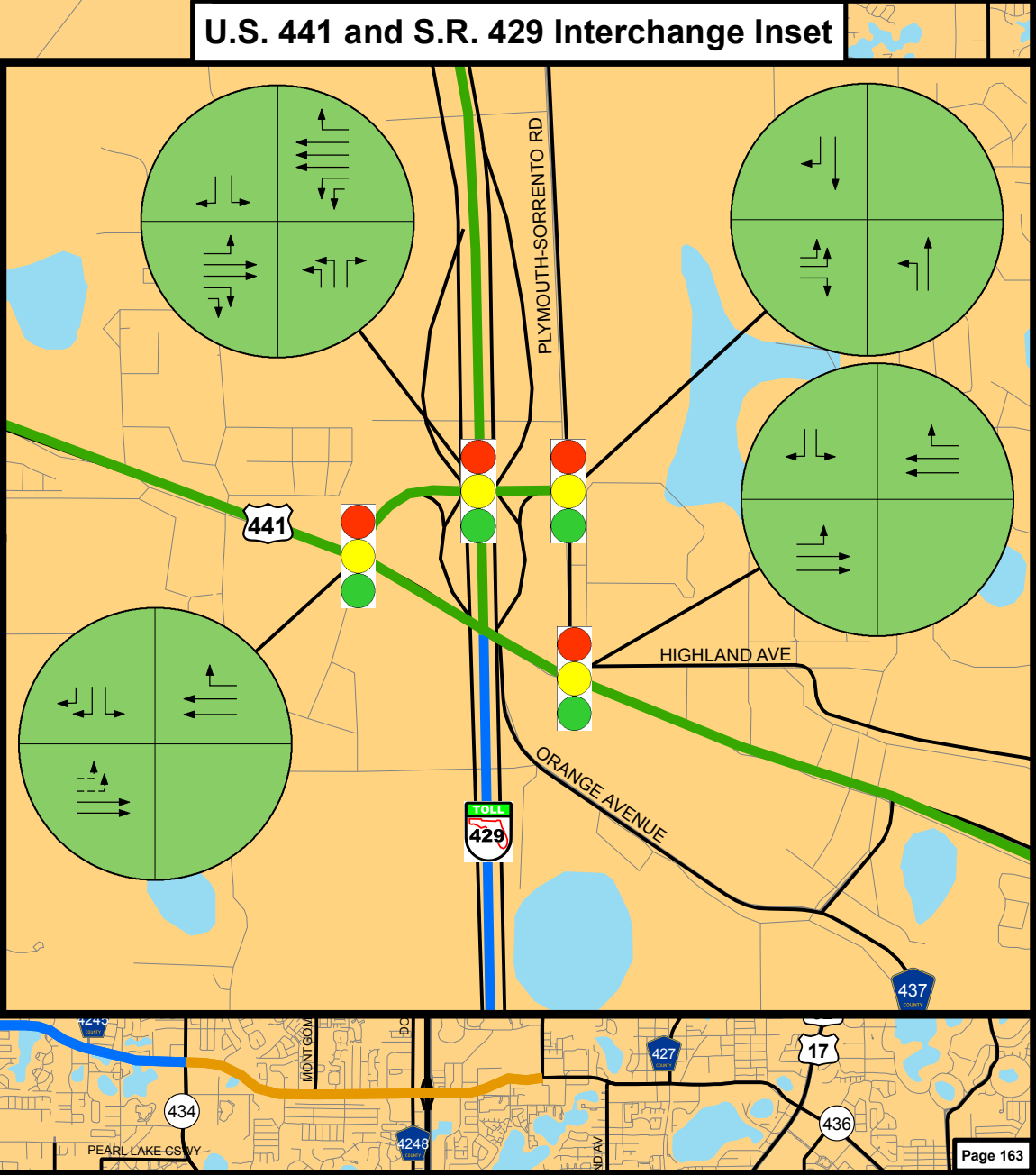
7.1 Preferred Alternative with Service Road Concept Description

As the proposed expressway extension of SR 429, Wekiva Parkway begins at the planned terminus of SR 414/SR 429 (John Land Apopka Expressway) at an interchange with US 441 in Orange County in the vicinity of CR 437 (Plymouth Sorrento Road). From this interchange, Wekiva Parkway extends to the north with an alignment just to the west of CR 437. In the Preferred Alternative with Service Road Concept, the local access interchange in Orange County is located at Kelly Park Road just to the west of Plymouth Sorrento Road. The Orange County portion of Wekiva Parkway is a four-lane limited access, tolled expressway. However, this section of Wekiva Parkway will be designed to be expandable to six lanes in the future, if necessary. Auxiliary lanes will be provided north of the Kelly Park Road local access interchange to a systems interchange with the SR 46 Bypass near the Orange/Lake County Line. The mainline toll, located between Ponkan Road and Kelly Park Road, and the ramp toll on the Kelly Park Road interchange ramps to and from the north were assumed to be \$1.00 and \$0.75, respectively. These toll rates may be modified in future stages of this project.

From the systems interchange with the SR 46 Bypass near the Orange/Lake County Line, Wekiva Parkway extends east and northeast into Lake County to the existing SR 46 corridor. In east Lake County, Wekiva Parkway is proposed as a replacement to the existing SR 46 between Mount Plymouth and the Wekiva River. Local access to



**SEE FIGURE 7-1B
FOR
SEMINOLE COUNTY**



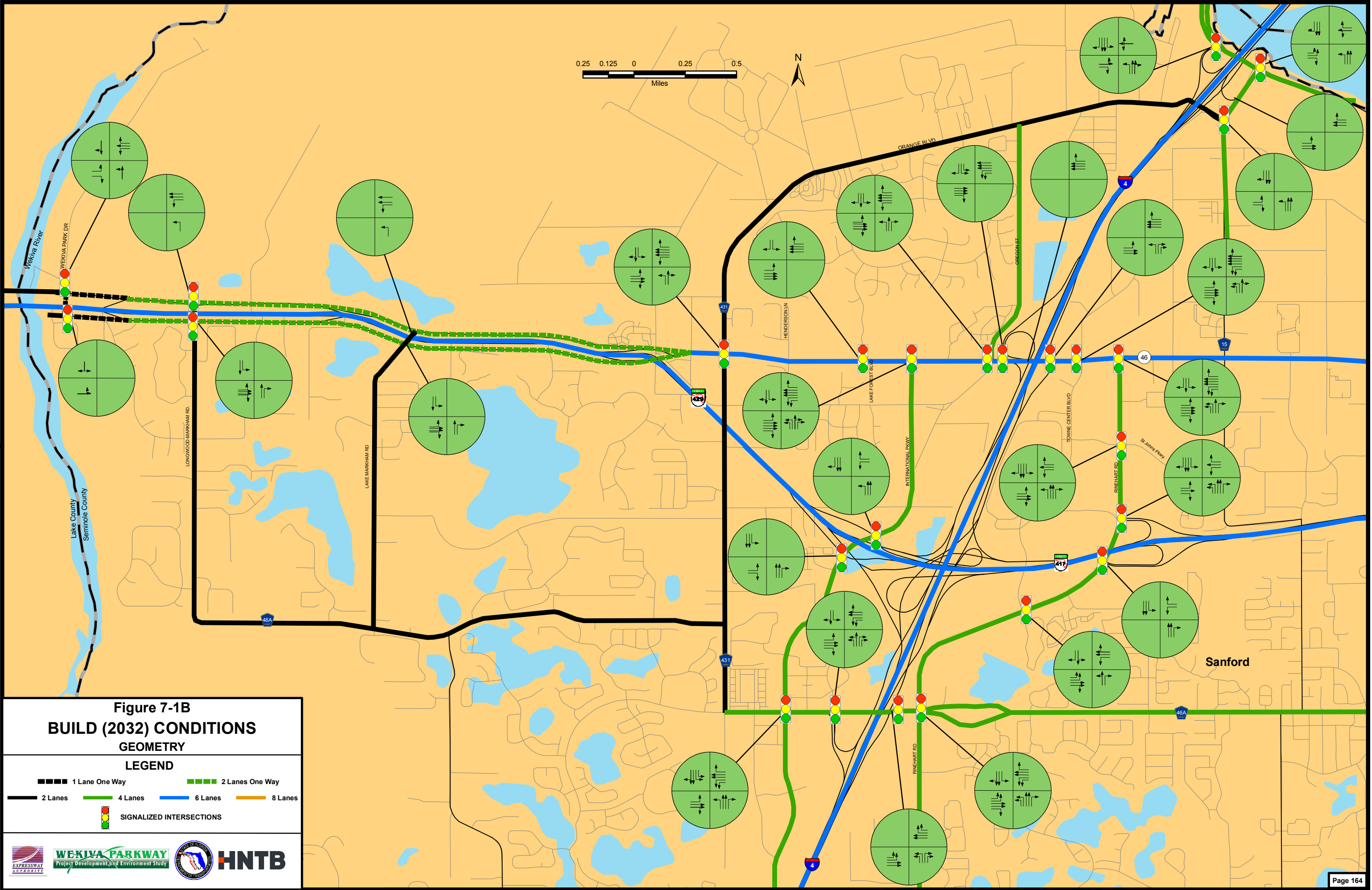


Figure 7-1B
BUILD (2032) CONDITIONS
GEOMETRY

LEGEND

- 1 Lane One Way
- 2 Lanes
- 4 Lanes
- 6 Lanes
- 8 Lanes
- SIGNALIZED INTERSECTIONS
- 2 Lanes One Way

properties and neighborhoods along the existing corridor will be provided with one local access interchange in the Neighborhood Lakes area. In Lake County, Wekiva Parkway is proposed to be a four-lane limited access tolled expressway from the Orange County Line to the Neighborhood Lakes interchange. From the Neighborhood Lakes interchange to the Seminole County Line it is a six-lane limited access tolled expressway. Local access to properties along the existing SR 46 and CR 46A corridors in east Lake County will be provided via a two lane service road that will be constructed on the north side of the tolled expressway. As part of the Wekiva Parkway project, CR 46A is expected to be realigned to connect to SR 46 approximately four miles west of its current terminus. The mainline toll, located east of the Neighborhood Lakes interchange, and the ramp toll on the Neighborhood Lakes interchange ramps to and from the south were assumed to be \$3.00 and \$1.50, respectively. These toll rates are preliminary and were developed for use in support of the PD&E Study. These toll rates may be modified in later phases of the project.

The SR 46 Bypass provides a connection from SR 46 to the east of Mount Dora with the Wekiva Parkway. This bypass begins at the US 441/SR 46 interchange in Lake County and extends to the east along the existing SR 46 corridor. As part of the SR 46 Bypass, the US 441/SR 46 interchange will be rebuilt as a signalized intersection with direct ramps between US 441 to the north of the interchange to SR 46 east of the interchange to accommodate the shift in traffic patterns due to Wekiva Parkway. Near Round Lake Road, the bypass turns southeast into Orange County and terminates at a systems interchange with Wekiva Parkway. This bypass consists of a six-lane divided, controlled access roadway along the existing alignment of SR 46 from US 441 to the vicinity of Round Lake Road. From east of Round Lake Road to Wekiva Parkway, the bypass is expected to be a four-lane limited access facility.

Upon crossing the Wekiva River into Seminole County, the expressway continues east to a connection with I-4 at the existing I-4/SR 417 interchange. Local access to and from Wekiva Parkway within the SR 46 corridor is provided via one-way one-lane and two-lane frontage roads. The frontage road system in this alternative is generally between the Wekiva River and Orange Boulevard, where Wekiva Parkway leaves the SR 46 corridor to connect to I-4 at SR 417. Two-lane frontage roads are proposed from the slip ramps west of Longwood Markham Road to the east, while one-lane frontage roads are proposed for the section of the frontage road system to the west of these slip ramps. Wekiva Parkway has a local access interchange with International Parkway in addition to its systems interchange with I-4 at SR 417. Under the Preferred Alternative with Service Road Concept, traffic from International Parkway would not be able to access I-4 via Wekiva Parkway. In Seminole County, Wekiva Parkway is a six-lane limited access tolled expressway. A toll of \$1.00 is assumed on the frontage road slip ramps on Wekiva Parkway to and from the east. There are no toll collection facilities on the ramps at the International Parkway interchange.

7.2 Operational Analysis

The projected operating levels of service for the mainline roadway, ramps and intersections were analyzed for opening (2012), interim (2022) and design (2032) years under the Build Condition. The roadway segments were analyzed using FDOT LOS standards, the freeway elements and intersections were analyzed using HCS+ Version 5.2 and the intersections in Seminole County were analyzed using the Synchro 6.0 analysis software. Intersection signal timing and phasing provided by Orange, Lake and Seminole Counties were optimized to analyze the Preferred Alternative with Service Road Concept. Operation and geometric parameters used in the LOS analysis discussed below can be found in the Appendix E.

7.2.1 Build 2012 Preferred Alternative with Service Road Concept

The LOS analyses for Year 2012 are presented in this section. The results of the 2012 roadway segment LOS analyses are summarized in Tables 7.1, 7.2 and 7.3 for Orange, Lake and Seminole Counties, respectively. The two sections below highlight the roadway segments that are expected to operate below the LOS D standard, specifically at LOS E and LOS F. All other roadway segments in the project area are expected to operate at LOS D or better for peak hour, peak direction traffic conditions.

7.2.1.1 Roadway Segments Operating at LOS E

While most of the roadways shown in the following tables are projected to operate at LOS D or better during the peak hour, several segments are expected to operate at capacity with LOS E for peak hour, peak direction traffic primarily due to heavy congestion:

Orange County

- CR 435 from US 441 to Votaw Road

Lake County

- SR 46 from CR 437 to CR 435
- Wolf Branch Road from US 441 to Round Lake Road

Seminole County

- I-4 from SR 436 to Lake Mary Blvd.
- I-4 from US 17/92 to North of US 17/92
- SR 46 from I-4 to Town Center Blvd.

7.2.1.2 Roadway Segments Operating at LOS F

The following roadway segments are expected to operate at LOS F for peak hour, peak direction traffic due to overcapacity conditions:

Orange County

- US 441 from SR 436 to CR 437
- US 441 from SR 414/SR 429 to Ponkan Road
- SR 436 from Piedmont-Wekiva Road to Seminole County line

Lake County

- SR 46 from CR 435 to CR 46A Re-Alignment

Seminole County

- US 17/92 from I-4 WB On-Ramp to CR 15
- SR 436 from Orange/Seminole County Line to SR 434
- SR 436 from I-4 to Palm Springs Road
-

- CR 46A from International Parkway to Rinehart Road
- Rinehart Road from Anderson Lane to CR46A

TABLE 7.1 BUILD (2012) ROADWAY SEGMENT LOS SUMMARY - ORANGE COUNTY

Roadway	From	To	LOS
Wekiva Parkway	U.S. 441	Ponkan Rd.	B
	Ponkan Rd.	Kelly Park Rd.	B
	Kelly Park Rd.	S.R. 46 Bypass	A
S.R. 414	U.S. 441	Hiawassee Rd.	B
	Hiawassee Rd.	Keene Rd.	A
	Keene Rd.	S.R. 451	A
S.R. 414/S.R. 429	S.R. 451	U.S. 441	B
S.R. 451	S.R. 414	U.S. 441	A
U.S. 441	S.R. 436	C.R. 435	F
	C.R. 435	S.R. 451	F
	S.R. 451	C.R. 437	F
	C.R. 437	S.R. 414/S.R. 429	C
	S.R. 414/S.R. 429	Ponkan Rd.	F
	Ponkan Rd.	Sadler Ave.	C
	Sadler Ave.	S.R. 46	C
S.R. 436	U.S. 441	Piedmont-Wekiva Rd.	C
	Piedmont-Wekiva Rd.	Seminole County Line	F
C.R. 435	U.S. 441	Votaw Rd.	E
	Votaw Rd.	Welch Rd.	D
	Welch Rd.	Ponkan Rd.	D
	Ponkan Rd.	Kelly Park Rd.	C
	Kelly Park Rd.	Lake County Line	C
C.R. 437	U.S. 441	Ponkan Rd.	C
	Ponkan Rd.	Kelly Park Rd.	D
	Kelly Park Rd.	Lake County Line	D
Round Lake Rd.	Ponkan Rd.	Sadler Ave.	C
	Sadler Ave.	Kelly Park Rd.	C
	Kelly Park Rd.	Ondich Rd.	C
	Ondich Rd.	Lake County Line	C
Ponkan Rd.	U.S. 441	Round Lake Rd.	D
	Round Lake Rd.	C.R. 437	D
	C.R. 437	C.R. 435	C
Kelly Park Rd.	Round Lake Rd.	C.R. 437	C
	C.R. 437	C.R. 435	D
Sadler Ave.	Lake County Line	U.S. 441	D
	U.S. 441	Round Lake Rd.	C
Ondich Rd.	Round Lake Rd.	C.R. 437	C
Haas Rd.	C.R. 437	C.R. 435	C

Table 7.1 Build (2012) Roadway Segment LOS Summary - Orange County
(Continued)

Roadway	From	To	LOS
Vick Rd.	Ponkan Rd.	Lester Rd.	C
	Lester Rd.	Welch Rd.	C
	Welch Rd.	Martin St.	D
	Martin St.	Old Dixie Hwy.	D
Old Dixie Highway	C.R. 437	Errol Pkwy.	C
	Errol Pkwy.	C.R. 435	C
Yothers Rd.	U.S. 441	C.R. 437	C

TABLE 7.2 BUILD (2012) ROADWAY SEGMENT LOS SUMMARY - LAKE COUNTY

Roadway	From	To	LOS
S.R. 46 Bypass - Limited Access	U.S. 441	S.R. 46 West/S.R. 46 Bypass	B
	S.R. 46 West/S.R. 46 Bypass	S.R. 429	B
Wekiva Parkway	S.R. 46 Bypass	Old S.R. 46	B
	Old S.R. 46	Lake/Seminole Co. Line	B
Wekiva Parkway Service Rd.	S.R. 46	C.R. 433	C
	C.R. 433	Wekiva River Rd.	C
	Wekiva River Rd.	Lake/Seminole Co. Line	C
U.S. 441	S.R. 46	C.R. 44B	B
S.R. 46	C.R. 500A	U.S. 441	C
	U.S. 441	Round Lake Rd.	B
	Round Lake Rd.	C.R. 437	C
	C.R. 437	C.R. 435	E
	C.R. 435	C.R. 46A Re-Alignment	F
	C.R. 46A Re-Alignment	Wekiva Parkway IC	B
S.R. 44	S.R. 19	C.R. 46A	C
C.R. 437	Lake County Line	S.R. 46	D
	S.R. 46	S.R. 44	D
C.R. 435	Lake County Line	S.R. 46	D
C.R. 46A	S.R. 44	S.R. 46	C
C.R. 433	S.R. 46	South of S.R. 46	C
Round Lake Rd.	Lake County Line	S.R. 46	C
	S.R. 46	Wolf Branch Rd.	C
Wolf Branch Rd.	U.S. 441	Round Lake Rd.	E
	Round Lake Rd.	C.R. 437	D
Wekiva River Rd.	S.R. 46	South of S.R. 46	C

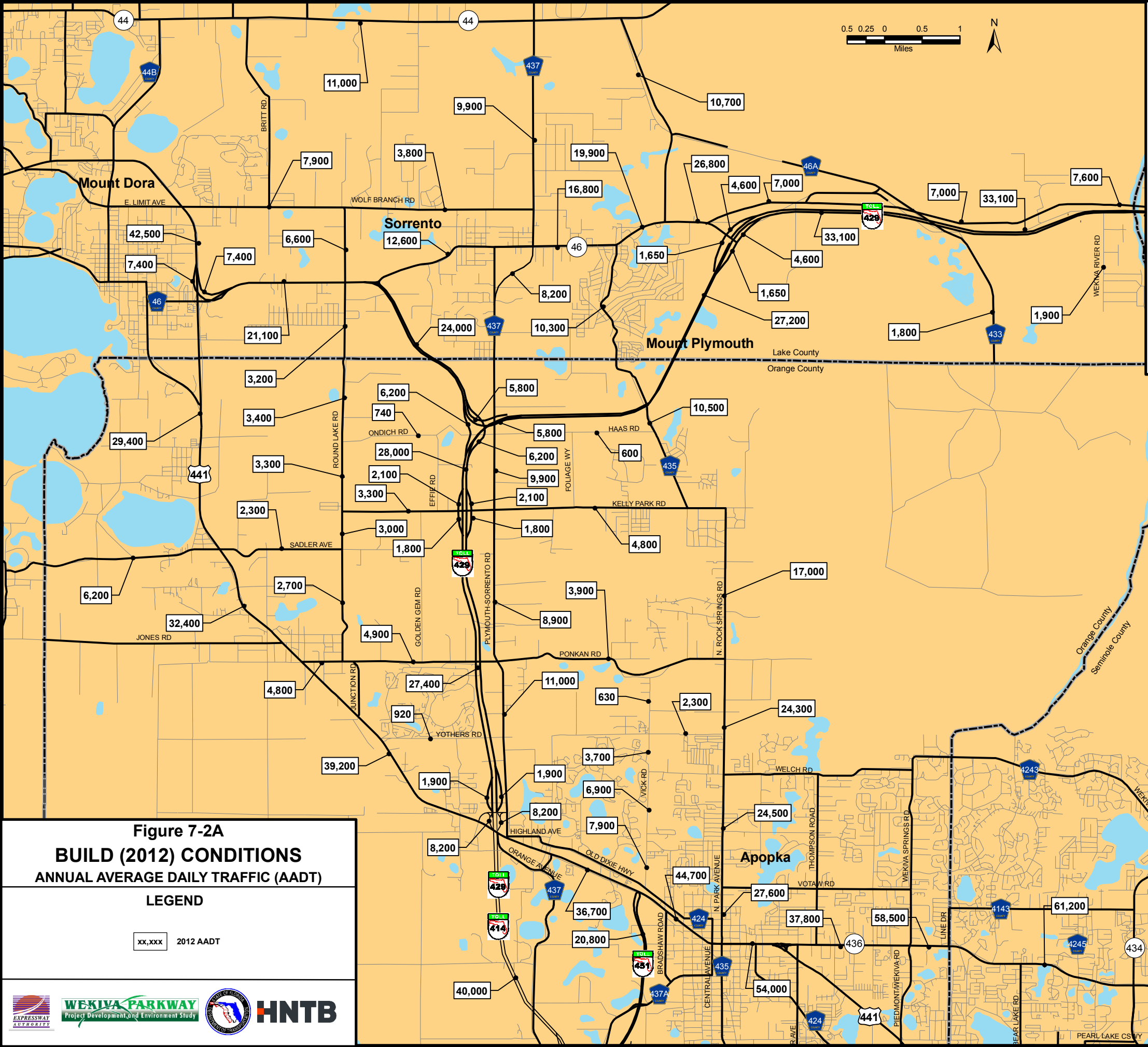
TABLE 7.3 BUILD (2012) ROADWAY SEGMENT LOS SUMMARY - SEMINOLE COUNTY

Roadway	From	To	LOS	
Wekiva Parkway	Lake/Seminole Co. Line	Longwood-Markham Rd.	B	
	Longwood-Markham Rd.	Lake Markham Rd.	B	
	Lake Markham Rd.	Orange Blvd./S.R. 46	B	
	Orange Blvd./S.R. 46	I-4 South Connection @ S.R. 417	B	
Wekiva Parkway EB and WB C-D Rd.	Wekiva Pkwy. EB Off/WB On Ramp	Longwood Markham Rd.	C	
	Longwood Markham Rd.	Wekiva Pkwy. EB On/WB Off Ramp	B	
	Wekiva Pkwy. EB On/WB Off Ramp	Lake Markham Rd.	A	
	Lake Markham Rd.	Wekiva Pkwy. EB Off/WB On Ramp	B	
	Wekiva Pkwy. EB Off/WB On Ramp	Orange Blvd./S.R. 46	B	
Interstate 4	S.R. 436	S.R. 434	E	
	S.R. 434	Lake Mary Blvd.	E	
	Lake Mary Blvd.	C.R. 46A / S.R. 417	C	
	C.R. 46A / S.R. 417	S.R. 46	C(EB)	B(WB)
	S.R. 46	U.S. 17/92	C	
	U.S. 17/92	North of U.S. 17/92	E	
S.R. 417	Interstate 4	Rinehart Rd.	B	
	Rinehart Rd.	C.R. 46A	C	
U.S. 17/92	North of I-4 WB on ramp	I-4 WB on Ramp	C	
	I-4 WB on Ramp	CR 15	F	
	CR 15	South of CR 15	D	
S.R. 46	C.R. 431	Lake Forest Blvd.	C	
	Lake Forest Blvd.	International Pkwy.	C	
	International Pkwy.	Oregon St/Wayside Dr	C	
	Oregon St/Wayside Dr	Interstate 4	C	
	Interstate 4	Town Center Blvd	E	
	Town Center Blvd	C.R. 431B	C	
	C.R. 431B	CR 15	C	
S.R. 436	Seminole County Line	S.R. 434	F	
	S.R. 434	Interstate 4	D	
	Interstate 4	Palm Springs Rd.	F	
C.R. 46A	Orange Blvd.	International Pkwy.	C	
	International Pkwy.	Colonial Center Pkwy.	F	
	Colonial Center Pkwy.	I-4	F	
	I-4	Rinehart Rd	F	
	Rinehart Rd	East of Rinehart Rd	D	
C.R. 431	C.R. 46A	Markham Rd.	D	
	Markham Rd.	S.R. 46	C	
	S.R. 46	I-4	C	
	I-4	CR 15	C	
C.R. 15	South of CR 431	CR 431	C	
	CR 431	I-4 EB on Ramp	D	
	I-4 EB on Ramp	U.S. 17/92	D	

**Table 7.3 Build (2012) Roadway Segment LOS Summary - Seminole County
(Continued)**

Roadway	From	To	LOS
Rinehart Rd	Anderson Lane	CR 46A	F
	CR 46A	Town Center Blvd.	D
	Town Center Blvd.	SR 417	D
	SR 417	St Johns Pkwy.	C
	St Johns Pkwy.	SR 46	C
International Parkway	Lake Mary Blvd.	C.R. 46A	D
	C.R. 46A	SR 417 Ramps	D
	SR 417 Ramps	S.R. 46	C
Markham Road	Longwood-Markham Rd.	Markham Woods Rd.	C
	Markham Woods Rd.	Orange Blvd.	C
Longwood-Markham Rd.	S.R. 46	C.R. 46A	C
Wekiva Park Dr	SR 46	North of SR 46	C
Lake Markham Rd.	S.R. 46	C.R. 46A	C
N Oregon Street	North of S.R. 46	S.R. 46	D
Wayside Drive	South of S.R. 46	S.R. 46	C

Figures 7-2A (Orange and Lake Counties) and 7-2B (Seminole County) show the 2012 Build AADTs that were used to determine the 2012 Build DDHVs. The 2012 DDHVs and corresponding LOS for the roadway elements are illustrated in Figures 7-3A (Orange and Lake Counties) and 7-3B (Seminole County).



**SEE FIGURE 7-2B
FOR
SEMINOLE COUNTY**

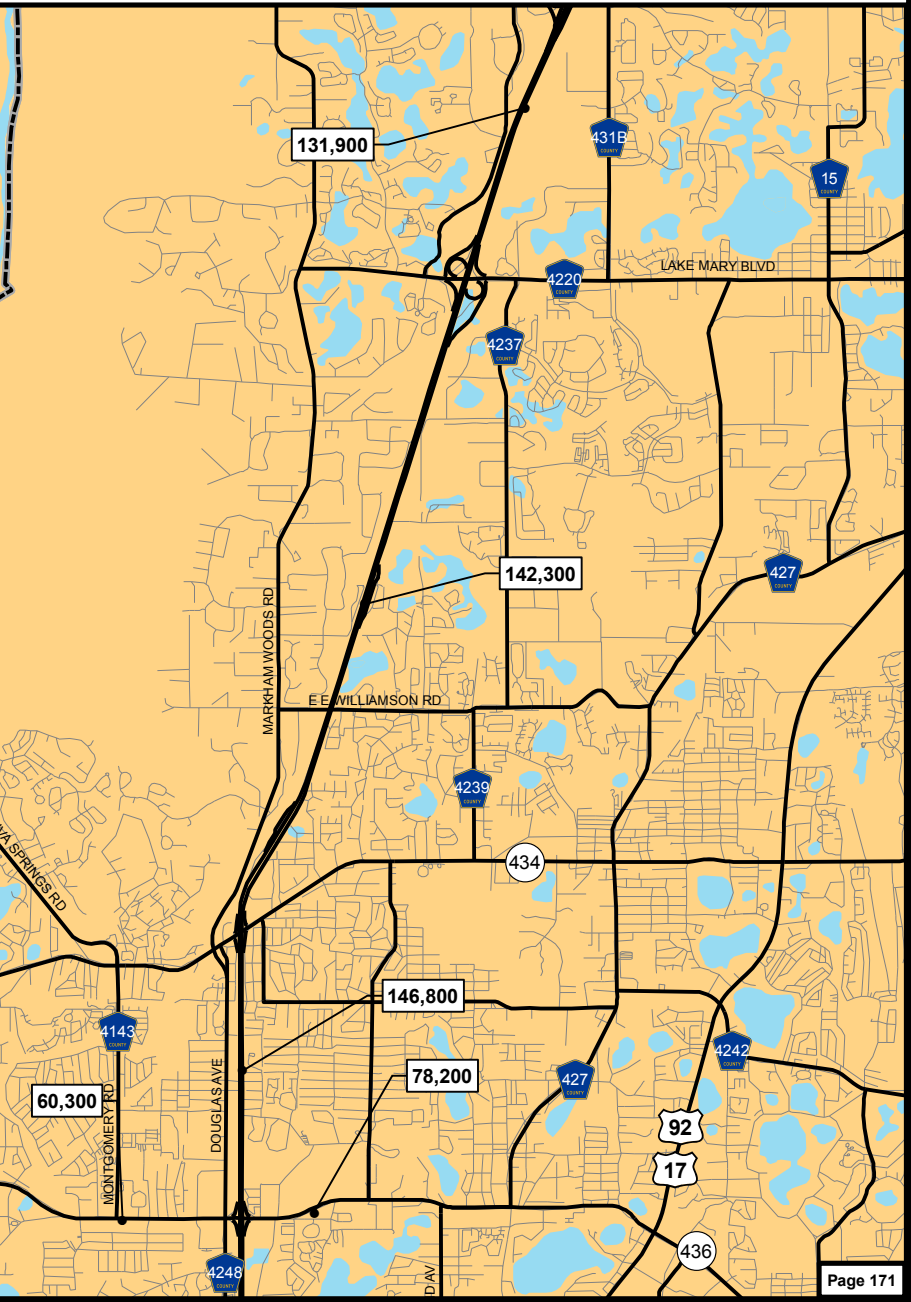


Figure 7-2A
BUILD (2012) CONDITIONS
ANNUAL AVERAGE DAILY TRAFFIC (AADT)

LEGEND

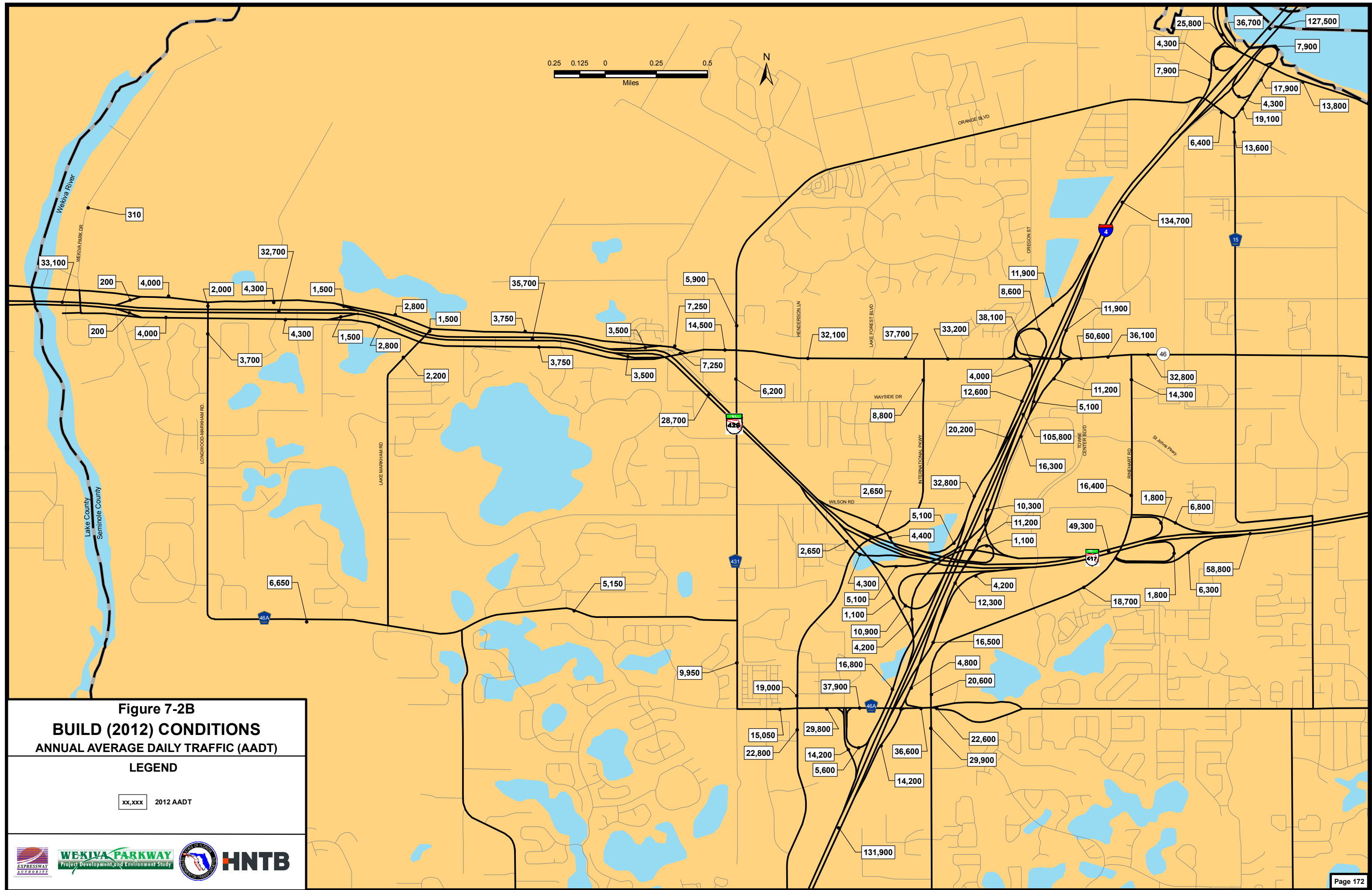
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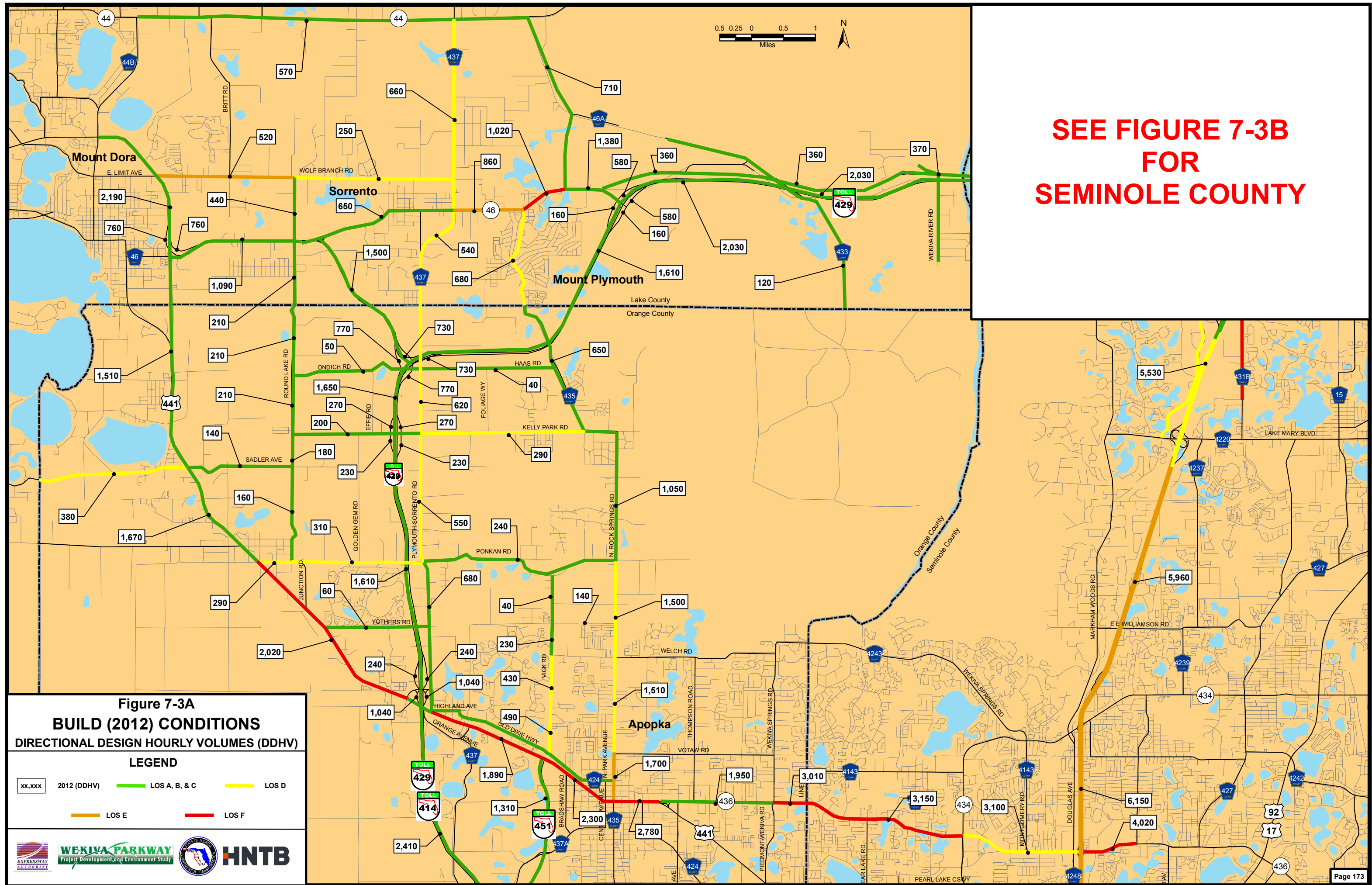


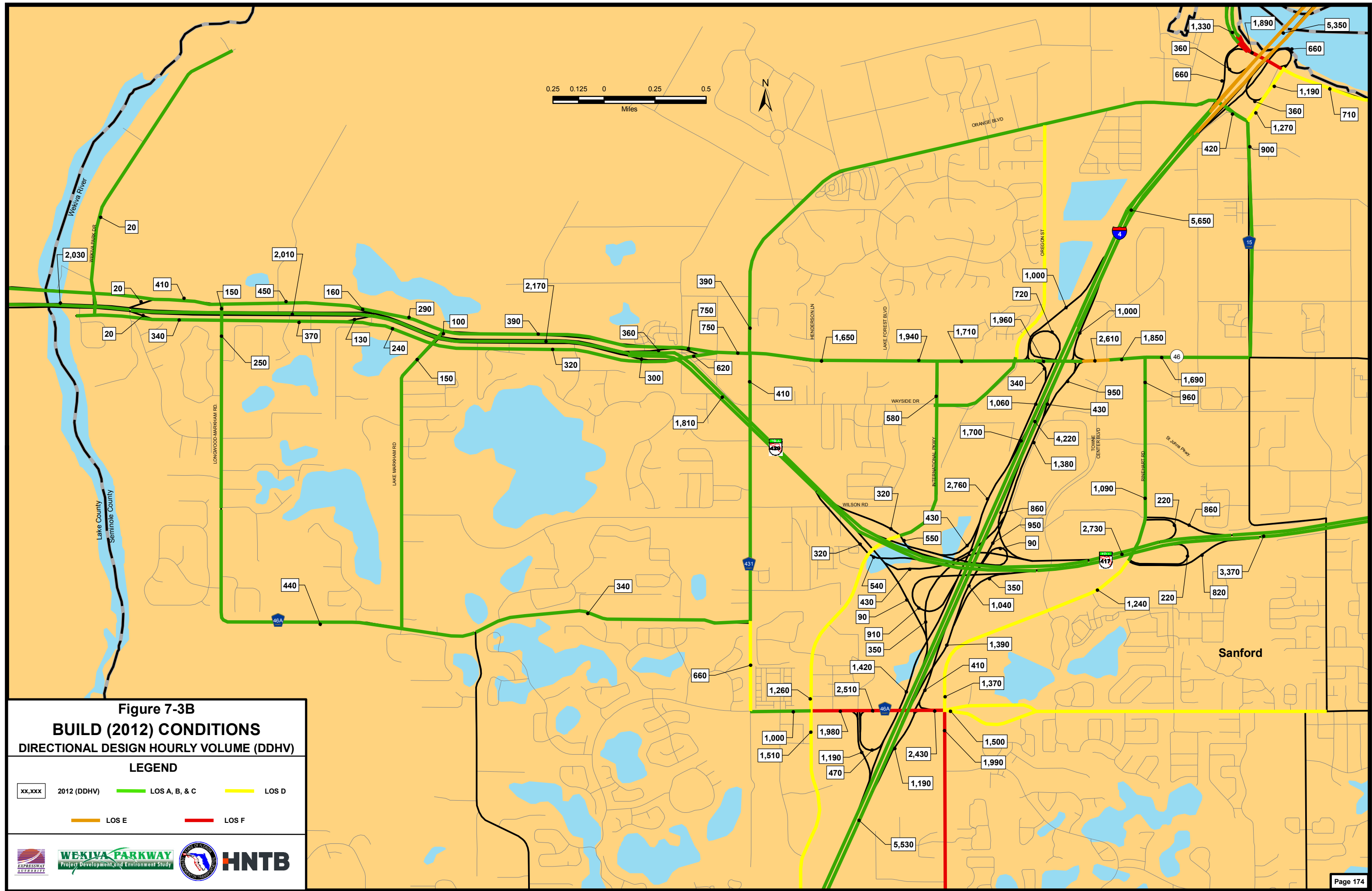
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Project Development and Environment Study



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7.2.1.3 Ramp Analyses

The results of the ramp merge/diverge junctions analyses are summarized in Table 7.4 for the interchanges within the study area. Table 7.4 shows that all of the freeway elements along I-4 and SR 417 in the project area are expected to operate at LOS D or better during peak hour traffic conditions. The weaving analysis completed for the I-4 westbound C-D road shows that this segment will operate at LOS B in the Year 2012. The weaving analysis for the SR 417 westbound ramps between Rinehart Road and I-4 interchange will operate at LOS B. The weaving analysis for the Wekiva Parkway ramps between the SR 46 Bypass and Kelly Park Road interchange will operate at LOS A.

TABLE 7.4 BUILD (2012) FREEWAY AND RAMP LOS SUMMARY

Interchange Ramps	Ramp Description	Volume (vph)	Merge Analysis		Diverge Analysis	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-4 at U.S. 17/92	I-4 EB Off Ramp to U.S. 17/92	660	-	-	4.4	A
	I-4 WB On Ramp from U.S. 17/92	660	23.8	C	-	-
	I-4 EB On Ramp from U.S. 17/92	360	29.5	D	-	-
	I-4 WB Off Ramp to U.S. 17/92	360	-	-	32.0	D
I-4 at SR 46	I-4 EB Off Ramp to SR 46 (through I-4 EB CD)	950	-	-	1.9	A
	I-4 WB On Ramp from SR 46 WB (through I-4 WB CD)	720	10.3	B	-	-
	I-4 WB On Ramp from SR 46 EB (through I-4 WB CD)	340	10.3	B	-	-
	I-4 EB On Ramp from SR 46	1,000	23.6	C	-	-
	I-4 WB Off Ramp to SR 46	1,000	-	-	21.8	C
I-4 at SR 417	I-4 EB Off Ramp to SR 417 SB	350	3.0	A	17.8	B
	I-4 EB Off Ramp to Wekiva Parkway WB	90	7.0	A	14.4	B
	I-4 WB On Ramp from SR 417 NB	350	7.1	A	6.5	A
	I-4 WB On Ramp from Wekiva Pkwy. EB	90	7.1	A	16.0	B
	I-4 EB On Ramp from SR 417 NB	860	9.0	A	6.5	A
	I-4 EB On Ramp from Wekiva Pkwy. EB	430	7.8	A	16.0	B
	I-4 WB Off Ramp to SR 417 SB	910	3.0	A	3.2	A
	I-4 WB Off Ramp to Wekiva Pkwy. WB	430	7.0	A	19.0	B
I-4 at CR 46A	I-4 EB Off Ramp to CR 46A	1,190	-	-	13.4	B
	I-4 WB On Ramp from CR 46A (through I-4 WB CD)	1,190	20.1	C	-	-
	I-4 EB On Ramp from CR 46A	410	20.1	C	-	-
	I-4 WB Off Ramp to CR 46A (through I-4 WB CD)	470	-	-	18.1	B
I-4 EB CD Rd.	I-4 EB Off Ramp to SR 417 SB, Wekiva Pkwy. WB and SR 46	1,390	-	-	3.4	A
	I-4 EB On Ramp from Wekiva Pkwy. EB	430	25.9	C	1.9	A
I-4 WB CD Rd.	I-4 WB Off Ramp to Wekiva Pkwy. WB, SR 417 SB and CR 46A	1,700	15.6	B	4.8	A
	I-4 WB On Ramp from CR 46A and SR 46	2,140	U/C	C	-	-
SR 417 at Rinehart Rd.	SR 417 WB off Ramp to Rinehart Rd	860	-	-	14.8	B
	SR 417 EB on Ramp from Rinehart Rd	820	19.8	B	-	-
	SR 417 WB on Ramp from Rinehart Rd	220	11.8	B	-	-
	SR 417 EB off Ramp to Rinehart Rd	220	-	-	17.3	B

U/C = ramp operates under capacity

Table 7.4 Build (2012) Freeway and Ramp LOS Summary (Continued)

Interchange Ramps	Ramp Description	Volume (vph)	Merge Analysis		Diverge Analysis	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
SR 417 at International Pkwy	SR 417 NB Off Ramp to International Pkwy.	550	-	-	16.2	B
	SR 417 SB On Ramp from International Pkwy.	540	7.8	A	-	-
	Wekiva Pkwy. WB On Ramp from International Pkwy.	320	8.6	A	-	-
	Wekiva Pkwy. EB Off Ramp to International Pkwy.	320	-	-	17.6	B
Wekiva Pkwy. EB CD Rd.	Wekiva Pkwy. EB Off Ramp to Wekiva Pkwy. EB CD	20	6.0	A	13.8	B
	Wekiva Pkwy. EB On Ramp from Wekiva Pkwy. EB CD	130	14.1	B	4.1	A
	Wekiva Pkwy. EB Off Ramp to SR 46	300	2.1	A	3.0	A
Wekiva Pkwy. WB CD Rd.	Wekiva Pkwy. WB On Ramp from SR 46	360	3.7	A	7.1	A
	Wekiva Pkwy. WB Off Ramp to Wekiva Pkwy. WB CD	160	6.2	A	7.4	A
	Wekiva Pkwy. WB On Ramp from Wekiva Pkwy. WB CD	20	9.7	A	3.8	A
Wekiva Parkway at SR 46 (existing)	Wekiva Pkwy. WB Off Ramp to SR 46 (existing)	580	-	-	8.9	A
	Wekiva Pkwy. WB On Ramp from SR 46 (existing)	160	11.3	B	-	-
	Wekiva Pkwy. EB Off Ramp to SR 46 (existing)	160	-	-	9.4	A
	Wekiva Pkwy. EB On Ramp from SR 46 (existing)	580	8.4	A	-	-
Wekiva Parkway at SR 46 Bypass	Wekiva Pkwy. WB Off Ramp to SR 46 Bypass	730	-	-	U/C	A
	Wekiva Pkwy. WB On Ramp from SR 46 Bypass	770	-	-	5.5	A
	Wekiva Pkwy. EB Off Ramp to SR 46 Bypass	770	9.1	A	-	-
	Wekiva Pkwy. EB On Ramp from SR 46 Bypass	730	10.1	B	-	-
Wekiva Parkway at Kelly Park Rd	Wekiva Pkwy. NB Off Ramp to Kelly Park Rd	230	-	-	15.6	B
	Wekiva Pkwy. NB On Ramp from Kelly Park Rd	270	8.0	A	-	-
	Wekiva Pkwy. SB Off Ramp to Kelly Park Rd	270	-	-	11.9	B
	Wekiva Pkwy. SB On Ramp from Kelly Park Rd	230	12.5	B	-	-
Wekiva Parkway Connector at US 441	Wekiva Pkwy. NB Off Ramp to US 441	1,040	-	-	7.1	A
	Wekiva Pkwy. NB On Ramp from US 441	240	16.4	B	-	-
	Wekiva Pkwy. SB Off Ramp to US 441	240	-	-	15.6	B
	Wekiva Pkwy. SB On Ramp from US 441	1,040	11.2	B	-	-

U/C = ramp operates under capacity

Weaving Analysis

Weaving Segment	Ramp Description	Volume (vph)	Density (pc/mi/ln)	LOS
I-4 WB C-D Rd.	I-4 WB Off Ramp to SR 417 SB and CR 46A	1,270	21.26	B
	I-4 WB Off Ramp to Wekiva Pkwy. WB	430		
	SR 46 EB and WB Ramps to SR 417 SB, CR 46A and I-4 WB	1,060		
	SR 46 EB and WB Ramps to Wekiva Pkwy. WB	0		
SR 417 Westbound	On Ramp from Rinehart Rd. to I-4 EB and WB	68	14.17	B
	On Ramp from Rinehart Rd. to Intl. Pkwy. and Wekiva Pkwy.	152		
	SR 417 WB to I-4 EB and WB	1,142		
	SR 417 WB to Intl. Pkwy. and Wekiva Pkwy.	1,368		
Wekiva Parkway at SR 46 Bypass	Wekiva Parkway NB off Ramp to WB SR 46 Bypass	770	12.13	B
	Wekiva Parkway SB on Ramp from EB SR 46 Bypass	770	12.57	B

7.2.1.4 Intersection Analyses

The PM peak hour intersection analyses are summarized in Table 7.5. All of the intersections analyzed in Orange County are projected to operate at LOS B or better. In Lake County, all of the signalized intersections along SR 46 are expected to operate at LOS C or better for the PM peak traffic conditions. All of the intersections analyzed along the Service Road are projected to operate at LOS B or better.

In Seminole County, nineteen out of the twenty-one signalized intersections in the project area operate at LOS D or better whereas two signalized intersections are projected to operate at LOS E during the PM peak period. The intersections along CR 46A at International Parkway and Rinehart Road are expected to operate at LOS E during the PM peak period.

TABLE 7.5 BUILD (2012) INTERSECTION LOS SUMMARY

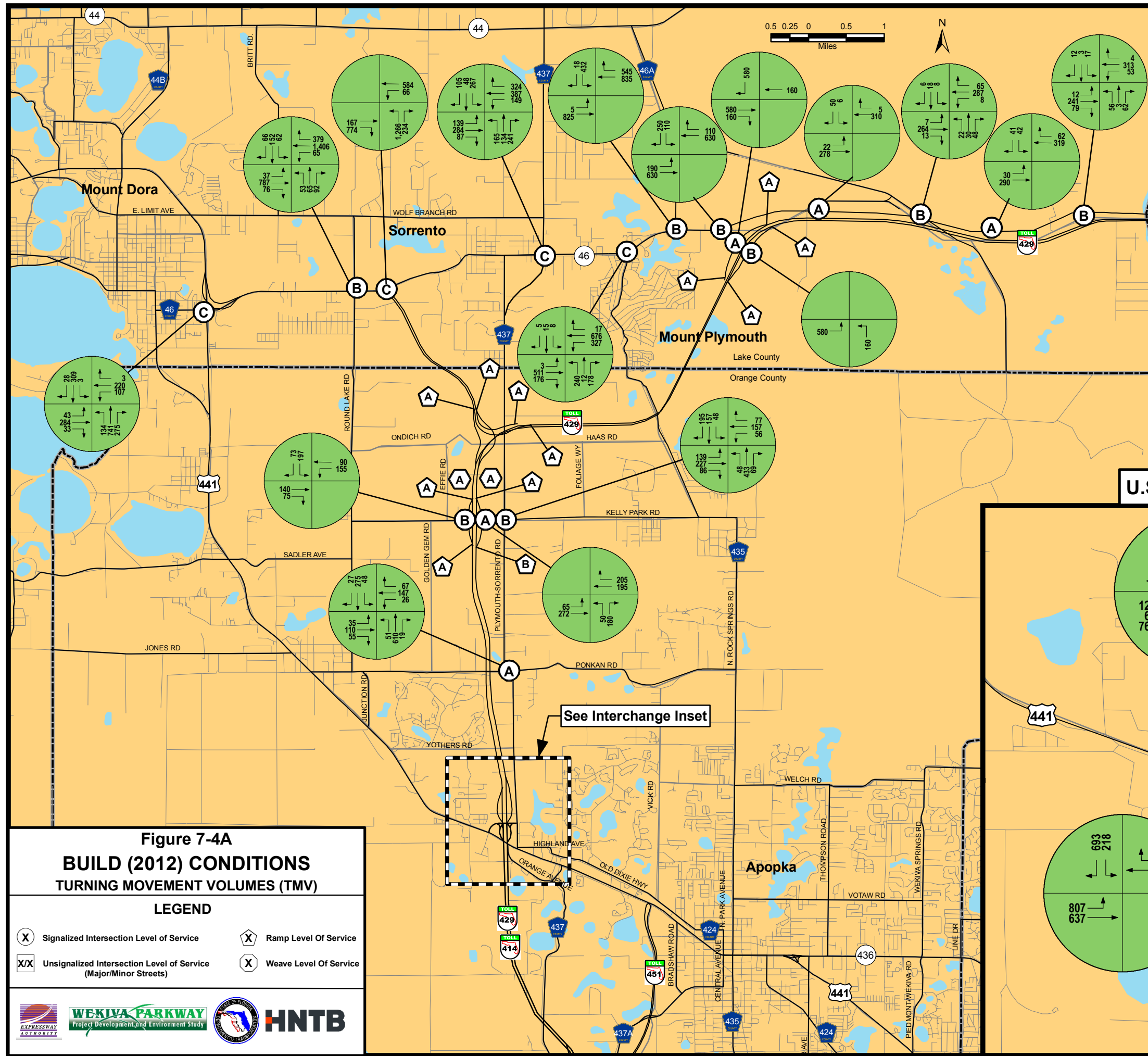
Intersection	Control	PM Peak	
		Delay (sec/veh)	LOS
Orange County			
US 441 and CR 437	Signal	12.8	B
CR 437 and Ponkan Rd	Signal	9.0	A
CR 437 and Kelly Park Rd	Signal	12.4	B
Wekiva Parkway Connector and Wekiva Pkwy	Signal	16.6	B
US 441 and Wekiva Pkwy Connector	Signal	8.0	A
CR 437 and Wekiva Pkwy Connector	Signal	8.9	A
Kelly Park Rd and Wekiva Pkwy SB Ramps	Signal	14.7	B
Kelly Park Rd and Wekiva Pkwy NB Ramps	Signal	7.7	A
Lake County			
SR 46 and US 441	Signal	24.5	C
SR 46 and Round Lake Rd	Signal	18.1	B
SR 46 and SR 46 Bypass	Signal	33.8	C
SR 46 and CR 437	Signal	25.6	C
SR 46 and CR 435/Niles St	Signal	21.3	C
SR 46 and Realigned CR 46A	Signal	15.1	B
SR 46 and Wekiva Pkwy Service Rd	Signal	15.8	B
SR 46 (Existing) and Wekiva Pkwy WB Ramps	Signal	1.5	A
SR 46 (Existing) and Wekiva Pkwy EB Ramps	Signal	10.9	B
CR 46A West (Old) and Wekiva Pkwy Service Rd	Signal	9.5	A
CR 46A (Old) and Wekiva Pkwy Service Rd	Signal	13.6	B
Wekiva Pines Blvd and Wekiva Pkwy Service Rd	Signal	9.9	A
Wekiva River Rd and Wekiva Pkwy Service Rd	Signal	13.3	B

Table 7.5 Build (2012) Intersection LOS Summary (Continued)

Intersection	Control	PM Peak	
		Delay (sec/veh)	LOS
Seminole County			
Wekiva Pkwy WB CD and Wekiva Park Dr	Stop	14.8	A/B ¹
Wekiva Pkwy EB CD and Wekiva Park Dr	Stop	10.6	A/B ¹
Wekiva Pkwy WB CD and Longwood Markham Rd	Stop	15.4	A/C ¹
Wekiva Pkwy EB CD and Longwood Markham Rd	Stop	12.3	A/B ¹
Wekiva Pkwy WB CD and Lake Markham Rd	Stop	12.5	A/B ¹
Wekiva Pkwy EB CD and Lake Markham Rd	Stop	11.5	A/B ¹
U.S. 17/92 and I-4 WB Ramps	Signal	9.2	A
U.S. 17/92 and I-4 EB Ramps/CR 15	Signal	31.1	C
SR 46 and CR 431 (Orange Blvd)	Signal	18.3	B
SR 46 and Lake Forest Blvd	Signal	8.3	A
SR 46 and International Pkwy	Signal	14.1	B
SR 46 and N Oregon Ave/Wayside Dr	Signal	14.8	B
SR 46 and I-4 WB Ramps	Signal	14.9	B
SR 46 and I-4 EB Ramps	Signal	18.5	B
SR 46 and Town Center Blvd	Signal	28.4	C
SR 46 and Rinehart Rd	Signal	20.7	C
CR 46A and International Pkwy	Signal	65.3	E
CR 46A and I-4 WB Ramps	Signal	35.6	D
CR 46A and I-4 EB Ramps	Signal	23.2	C
CR 46A and Rinehart Rd	Signal	65.7	E
CR 15 and CR 431	Signal	14.8	B
Rinehart Rd and St Johns Pkwy	Signal	21.8	C
Rinehart Rd and SR 417 NB Ramps	Signal	17.3	B
Rinehart Rd and SR 417 SB Ramps	Signal	18.3	B
Rinehart Rd and Town Center Blvd	Signal	19.5	B
International Pkwy and Wekiva Parkway SB Ramps	Signal	18.0	B
International Pkwy and Wekiva Parkway NB Ramps	Signal	14.0	B

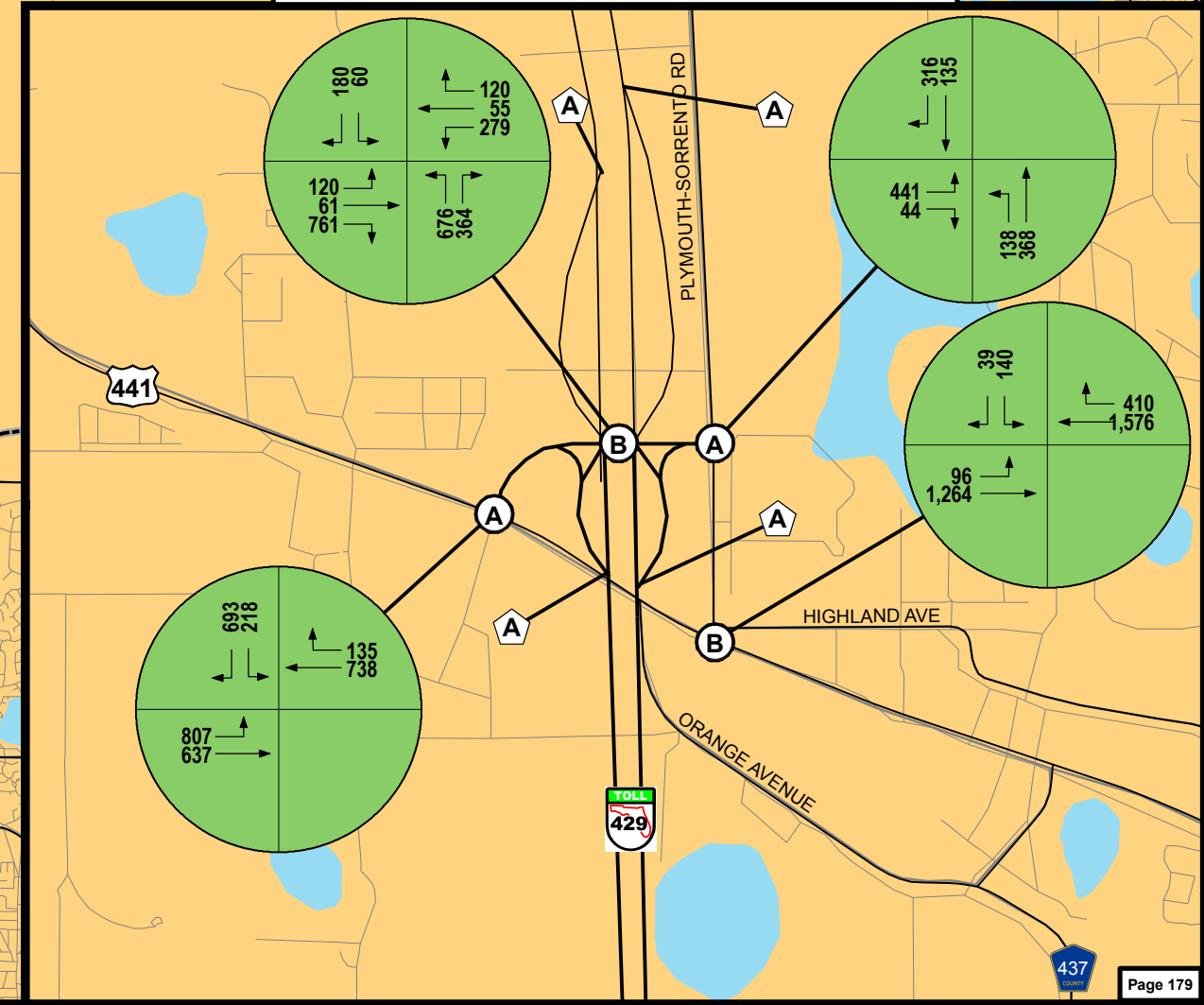
1. Mainline/Side Street

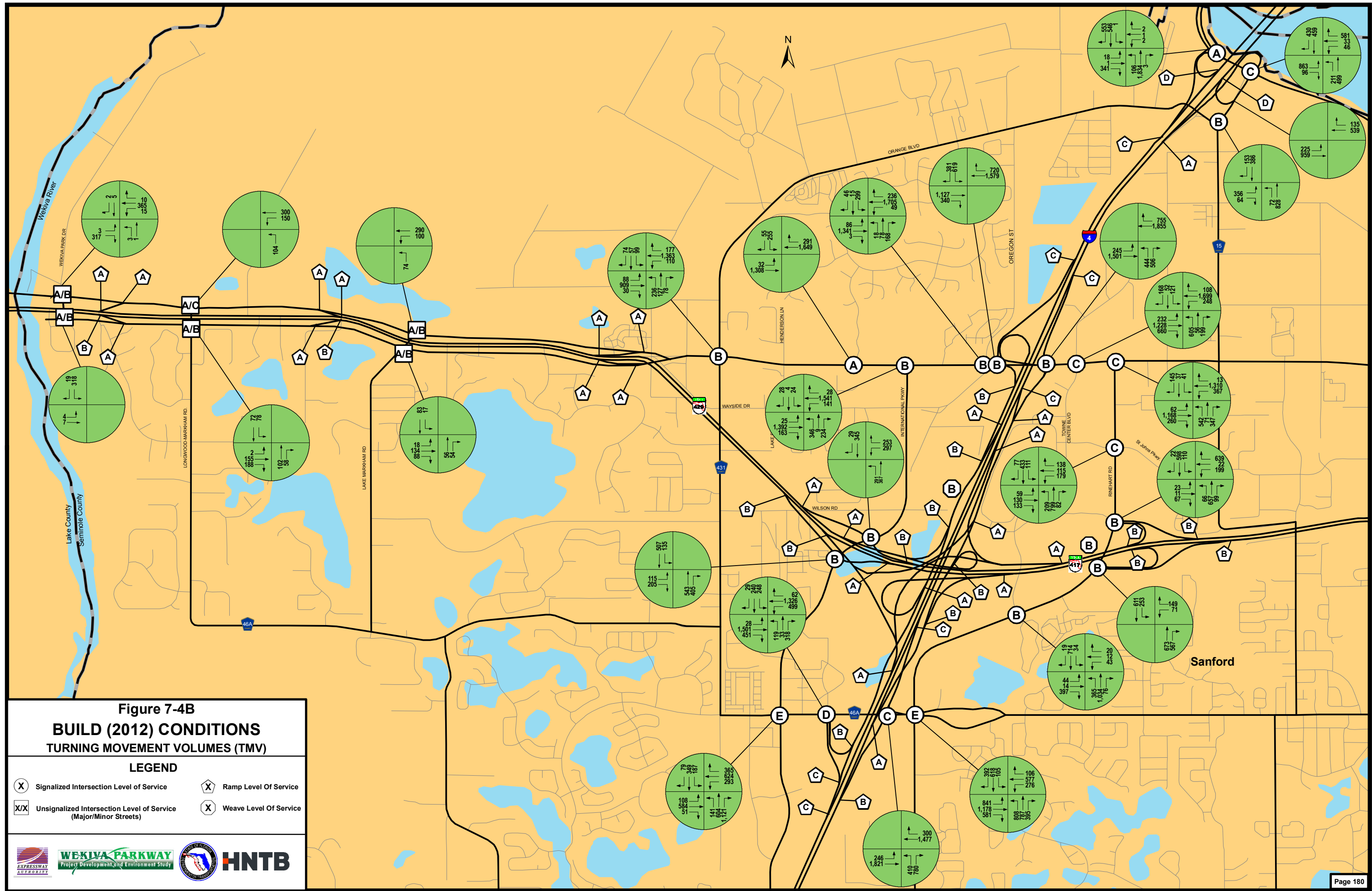
The LOS for the freeway elements, the projected turning movement volumes and intersections are illustrated in Figures 7-4A (Orange and Lake Counties) and 7-4B (Seminole County).



**SEE FIGURE 7-4B
 FOR
 SEMINOLE COUNTY**

U.S. 441 and S.R. 429 Interchange Inset





7.2.2 Build 2022 Preferred Alternative with Service Road Concept

The LOS analyses for Year 2022 are presented in this section. The results of the roadway segment level of service analyses are summarized in Tables 7.6, 7.7 and 7.8 for Orange, Lake and Seminole Counties, respectively. The two sections below highlight the roadway segments that are expected to operate below the LOS D standard, specifically at LOS E and LOS F. All other roadway segments in the project area are expected to operate at LOS D or better for peak hour, peak direction traffic conditions.

7.2.2.1 Roadway Segments Operating at LOS E

The tables show that the following roadway segments that were operating at LOS D or better in the 2012 Build conditions are expected to operate at capacity with LOS E for peak hour peak direction for the 2022 Build conditions traffic primarily due to heavy congestion:

Orange County

- Sadler Avenue from Lake County Line to US 441
- Vick Road from Welch Road to Martin Street

Seminole County

- US 17/92 from CR 15 to South of CR 15
- SR 436 from SR 434 to I-4
- CR 46A from Rinehart Road to East of Rinehart Road

7.2.2.2 Roadway Segments Operating at LOS F

The following roadway segments were operating at LOS D or better in the Year 2012 Build condition. In addition to the failing roadway segments listed in the 2012 Build conditions, these roadway segments are expected to begin to fail at LOS F for peak hour, peak direction traffic due to overcapacity conditions in the Year 2022:

Orange County

- US 441 from Ponkan Road to SR 46
- CR 435 from Votaw Road to Ponkan Road
- CR 437 from Kelly Park Road to Lake County Line
- Vick Road from Martin Street to Old Dixie Highway

Lake County

- CR 435 from Lake County Line to SR 46

Seminole County

- International Parkway from Lake Mary Blvd. to SR 417 Ramps

The following roadway segments were operating at LOS E in the 2012 Build conditions, but are expected to fail at LOS F for peak hour, peak direction traffic due to overcapacity conditions in the Year 2022:

Orange County

- CR 435 from US 441 to Votaw Road

Seminole County

- I-4 from SR 436 to Lake Mary Blvd.
- SR 46 from I-4 to Town Center Blvd.

TABLE 7.6 BUILD (2022) ROADWAY SEGMENT LOS SUMMARY - ORANGE COUNTY

Roadway	From	To	LOS
Wekiva Parkway	U.S. 441	Ponkan Rd.	C
	Ponkan Rd.	Kelly Park Rd.	C
	Kelly Park Rd.	S.R. 46 Bypass	B
S.R. 414	U.S. 441	Hiawassee Rd.	C
	Hiawassee Rd.	Keene Rd.	B
	Keene Rd.	S.R. 451	B
S.R. 414/S.R. 429	S.R. 451	U.S. 441	C
S.R. 451	S.R. 414	U.S. 441	A
U.S. 441	S.R. 436	C.R. 435	F
	C.R. 435	S.R. 451	F
	S.R. 451	C.R. 437	F
	C.R. 437	S.R. 414/S.R. 429	D
	S.R. 414/S.R. 429	Ponkan Rd.	F
	Ponkan Rd.	Sadler Ave.	F
	Sadler Ave.	S.R. 46	F
S.R. 436	U.S. 441	Piedmont-Wekiva Rd.	C
	Piedmont-Wekiva Rd.	Seminole County Line	F
C.R. 435	U.S. 441	Votaw Rd.	F
	Votaw Rd.	Welch Rd.	F
	Welch Rd.	Ponkan Rd.	F
	Ponkan Rd.	Kelly Park Rd.	D
	Kelly Park Rd.	Lake County Line	C
C.R. 437	U.S. 441	Ponkan Rd.	C
	Ponkan Rd.	Kelly Park Rd.	D
	Kelly Park Rd.	Lake County Line	F
Round Lake Rd.	Ponkan Rd.	Sadler Ave.	C
	Sadler Ave.	Kelly Park Rd.	D
	Kelly Park Rd.	Ondich Rd.	D
	Ondich Rd.	Lake County Line	D
Ponkan Rd.	U.S. 441	Round Lake Rd.	D
	Round Lake Rd.	C.R. 437	D
	C.R. 437	C.R. 435	D

Table 7.6 Build (2022) Roadway Segment LOS Summary - Orange County
(Continued)

Roadway	From	To	LOS
Kelly Park Rd.	Round Lake Rd.	C.R. 437	D
	C.R. 437	C.R. 435	D
Sadler Ave.	Lake County Line	U.S. 441	E
	U.S. 441	Round Lake Rd.	C
Ondich Rd.	Round Lake Rd.	C.R. 437	C
Haas Rd.	C.R. 437	C.R. 435	C
Vick Rd.	Ponkan Rd.	Lester Rd.	C
	Lester Rd.	Welch Rd.	D
	Welch Rd.	Martin St.	E
	Martin St.	Old Dixie Hwy.	F
Old Dixie Highway	C.R. 437	Errol Pkwy.	C
	Errol Pkwy.	C.R. 435	D
Yothers Rd.	U.S. 441	C.R. 437	C

TABLE 7.7 BUILD (2022) ROADWAY SEGMENT LOS SUMMARY - LAKE COUNTY

Roadway	From	To	LOS
S.R. 46 Bypass - Limited Access	U.S. 441	S.R. 46 West/S.R. 46 Bypass	B
	S.R. 46 West/S.R. 46 Bypass	S.R. 429	C
Wekiva Parkway	S.R. 46 Bypass	Old S.R. 46	C
	Old S.R. 46	Lake/Seminole Co. Line	B
Wekiva Parkway Service Rd.	S.R. 46	C.R. 433	C
	C.R. 433	Wekiva River Rd.	C
	Wekiva River Rd.	Lake/Seminole Co. Line	C
U.S. 441	S.R. 46	C.R. 44B	D
S.R. 46	C.R. 500A	U.S. 441	C
	U.S. 441	Round Lake Rd.	B
	Round Lake Rd.	C.R. 437	D
	C.R. 437	C.R. 435	D
	C.R. 435	C.R. 46A Re-Alignment	F
	C.R. 46A Re-Alignment	C.R. 46A IC	C
S.R. 44	S.R. 19	C.R. 46A	C
C.R. 437	Lake County Line	S.R. 46	D
	S.R. 46	S.R. 44	D
C.R. 435	Lake County Line	S.R. 46	F
C.R. 46A	S.R. 44	S.R. 46	D
C.R. 433	S.R. 46	South of S.R. 46	C
Round Lake Rd.	Lake County Line	S.R. 46	C
	S.R. 46	Wolf Branch Rd.	D
Wolf Branch Rd.	U.S. 441	Round Lake Rd.	E
	Round Lake Rd.	C.R. 437	D
Wekiva River Rd.	S.R. 46	South of S.R. 46	C

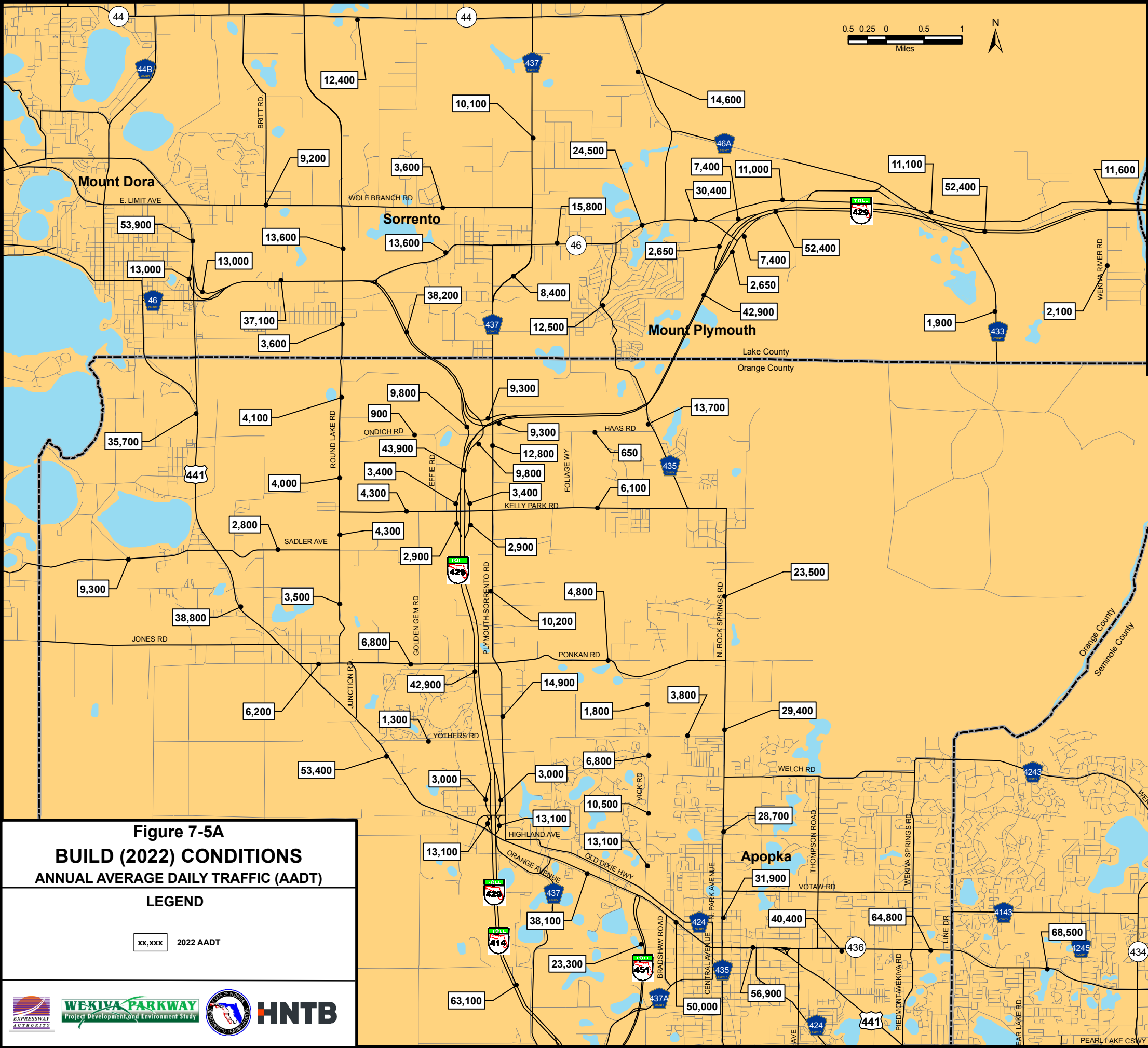
TABLE 7.8 BUILD (2022) ROADWAY SEGMENT LOS SUMMARY - SEMINOLE COUNTY

Roadway	From	To	LOS	
Wekiva Parkway	Lake/Seminole Co. Line	Longwood-Markham Rd.	B	
	Longwood-Markham Rd.	Lake Markham Rd.	B	
	Lake Markham Rd.	Orange Blvd./S.R. 46	C	
	Orange Blvd./S.R. 46	I-4 South Connection @ S.R. 417	C	
Wekiva Parkway EB and WB C-D Rd.	Wekiva Pkwy. EB Off/WB On Ramp	Longwood Markham Rd.	C	
	Longwood Markham Rd.	Wekiva Pkwy. EB On/WB Off Ramp	B	
	Wekiva Pkwy. EB On/WB Off Ramp	Lake Markham Rd.	B	
	Lake Markham Rd.	Wekiva Pkwy. EB Off/WB On Ramp	B	
	Wekiva Pkwy. EB Off/WB On Ramp	Orange Blvd./S.R. 46	B	
Interstate 4	S.R. 436	S.R. 434	F	
	S.R. 434	Lake Mary Blvd.	F	
	Lake Mary Blvd.	C.R. 46A / S.R. 417	C	
	C.R. 46A / S.R. 417	S.R. 46	C(EB)	B(WB)
	S.R. 46	U.S. 17/92	D	
	U.S. 17/92	North of U.S. 17/92	E	
S.R. 417	Interstate 4	Rinehart Rd.	C	
	Rinehart Rd.	C.R. 46A	D	
U.S. 17/92	North of I-4 WB on ramp	I-4 WB on Ramp	D	
	I-4 WB on Ramp	CR 15	F	
	CR 15	South of CR 15	E	
S.R. 46	C.R. 431	Lake Forest Blvd.	C	
	Lake Forest Blvd.	International Pkwy.	D	
	International Pkwy.	Oregon St/Wayside Dr	C	
	Oregon St/Wayside Dr	Interstate 4	C	
	Interstate 4	Town Center Blvd	F	
	Town Center Blvd	C.R. 431B	D	
	C.R. 431B	CR 15	D	
S.R. 436	Seminole County Line	S.R. 434	F	
	S.R. 434	Interstate 4	E	
	Interstate 4	Palm Springs Rd.	F	
C.R. 46A	Orange Blvd.	International Pkwy.	C	
	International Pkwy.	Colonial Center Pkwy.	F	
	Colonial Center Pkwy.	I-4	F	
	I-4	Rinehart Rd	F	
	Rinehart Rd	East of Rinehart Rd	E	
C.R. 431	C.R. 46A	Markham Rd.	D	
	Markham Rd.	S.R. 46	D	
	S.R. 46	I-4	C	
	I-4	CR 15	C	
C.R. 15	South of CR 431	CR 431	D	
	CR 431	I-4 EB on Ramp	D	
	I-4 EB on Ramp	U.S. 17/92	D	

**Table 7.8 Build (2022) Roadway Segment LOS Summary - Seminole County
(Continued)**

Roadway	From	To	LOS
Rinehart Rd	Anderson Lane	CR 46A	F
	CR 46A	Town Center Blvd.	D
	Town Center Blvd.	SR 417	D
	SR 417	St Johns Pkwy.	D
	St Johns Pkwy.	SR 46	D
International Parkway	Lake Mary Blvd.	C.R. 46A	F
	C.R. 46A	SR 417 Ramps	F
	SR 417 Ramps	S.R. 46	C
Markham Road	Longwood-Markham Rd.	Markham Woods Rd.	D
	Markham Woods Rd.	Orange Blvd.	C
Longwood-Markham Rd.	S.R. 46	C.R. 46A	C
Wekiva Park Dr	SR 46	North of SR 46	C
Lake Markham Rd.	S.R. 46	C.R. 46A	C
N Oregon Street	North of S.R. 46	S.R. 46	D
Wayside Drive	South of S.R. 46	S.R. 46	C

Figures 7-5A (Orange and Lake Counties) and 7-5B (Seminole County) show the 2022 Build AADTs that were used to determine the 2022 Build DDHVs. The LOS for the roadway elements along with the DDHVs that were used to determine the LOS is illustrated in Figures 7-6A (Orange and Lake Counties) and 7-6B (Seminole County).



**SEE FIGURE 7-5B
FOR
SEMINOLE COUNTY**

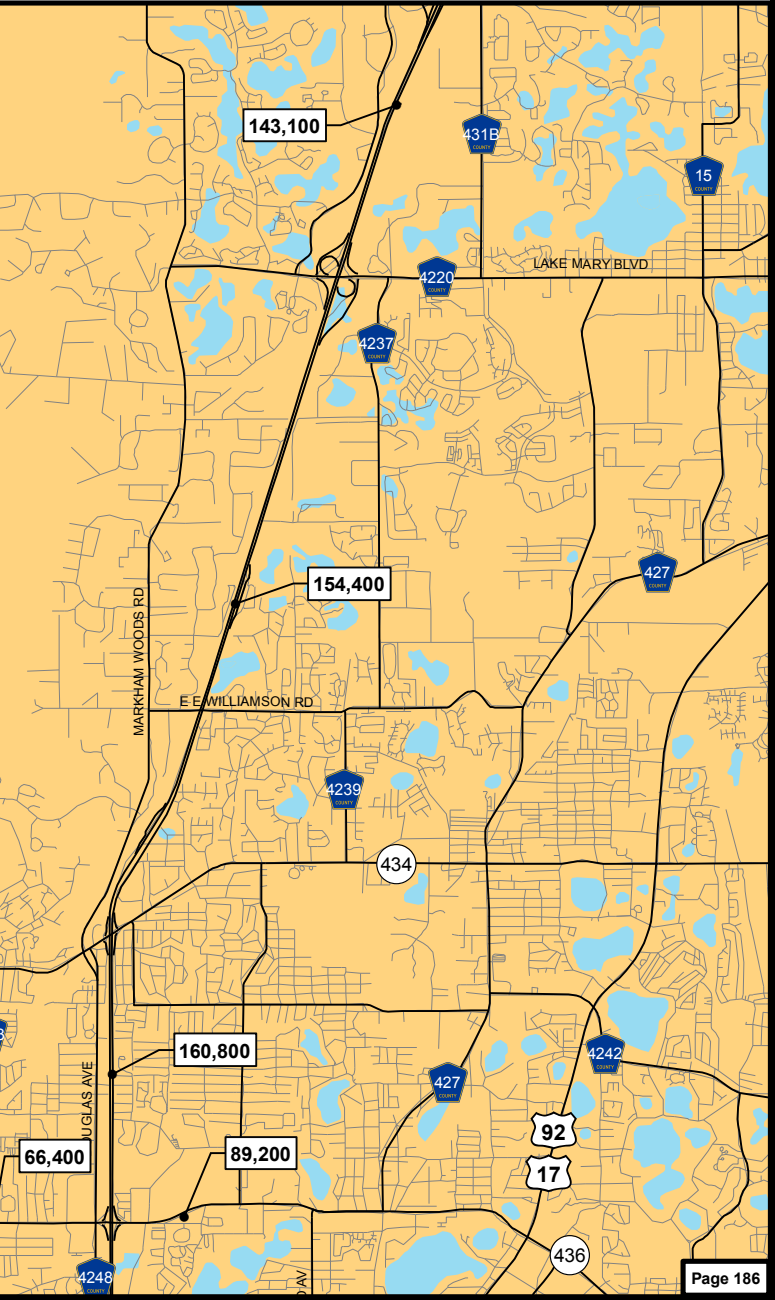
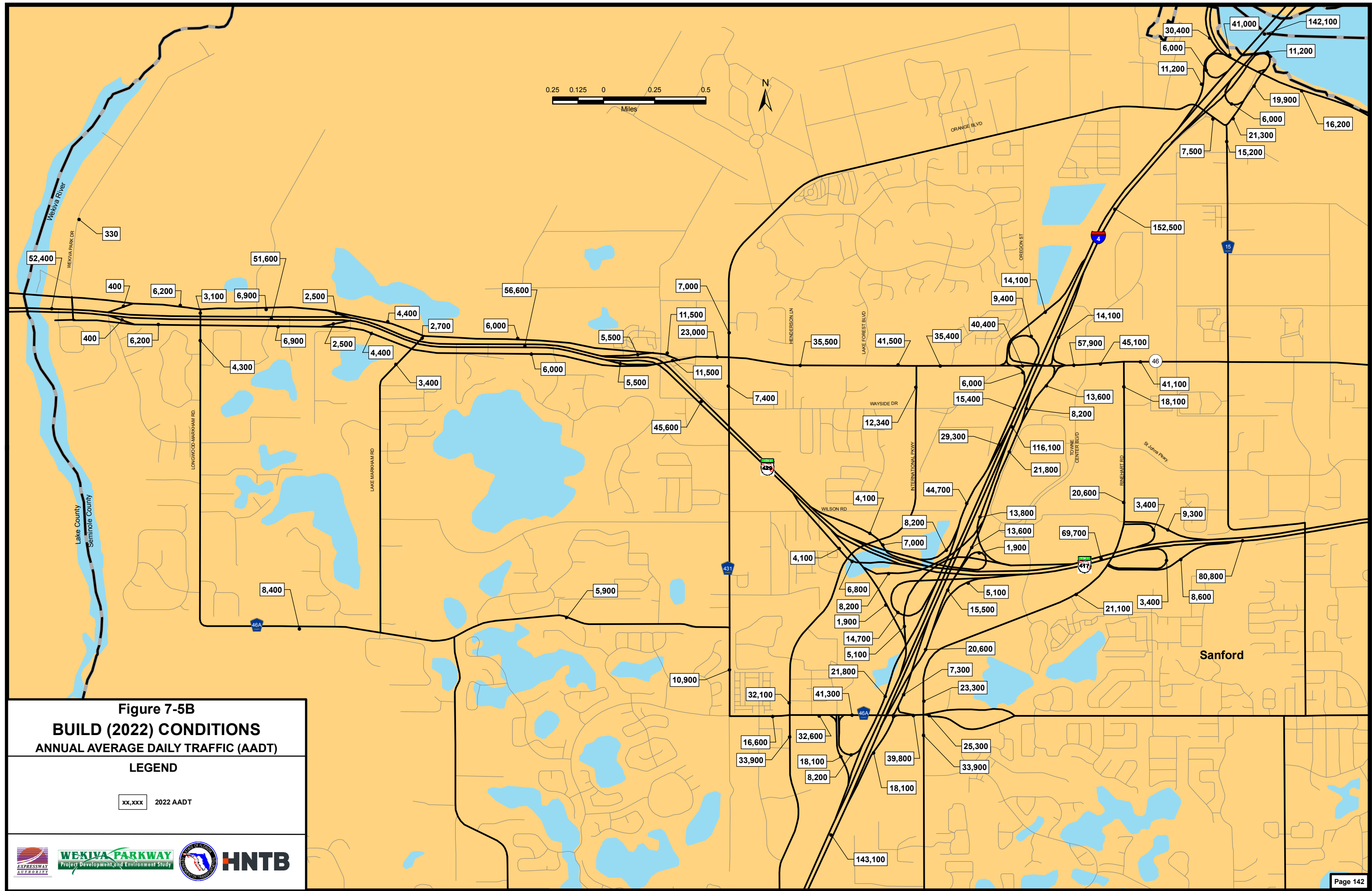
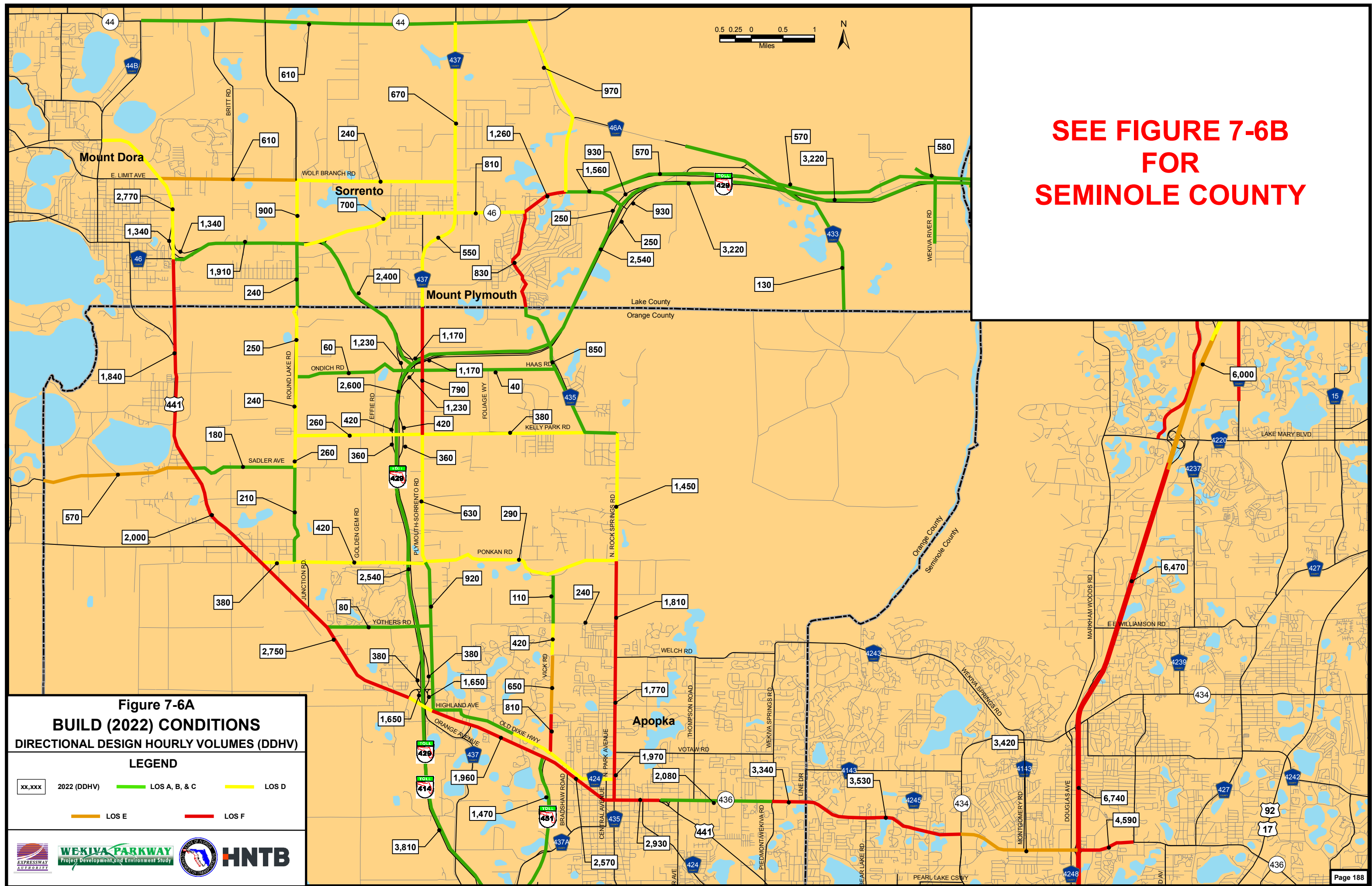


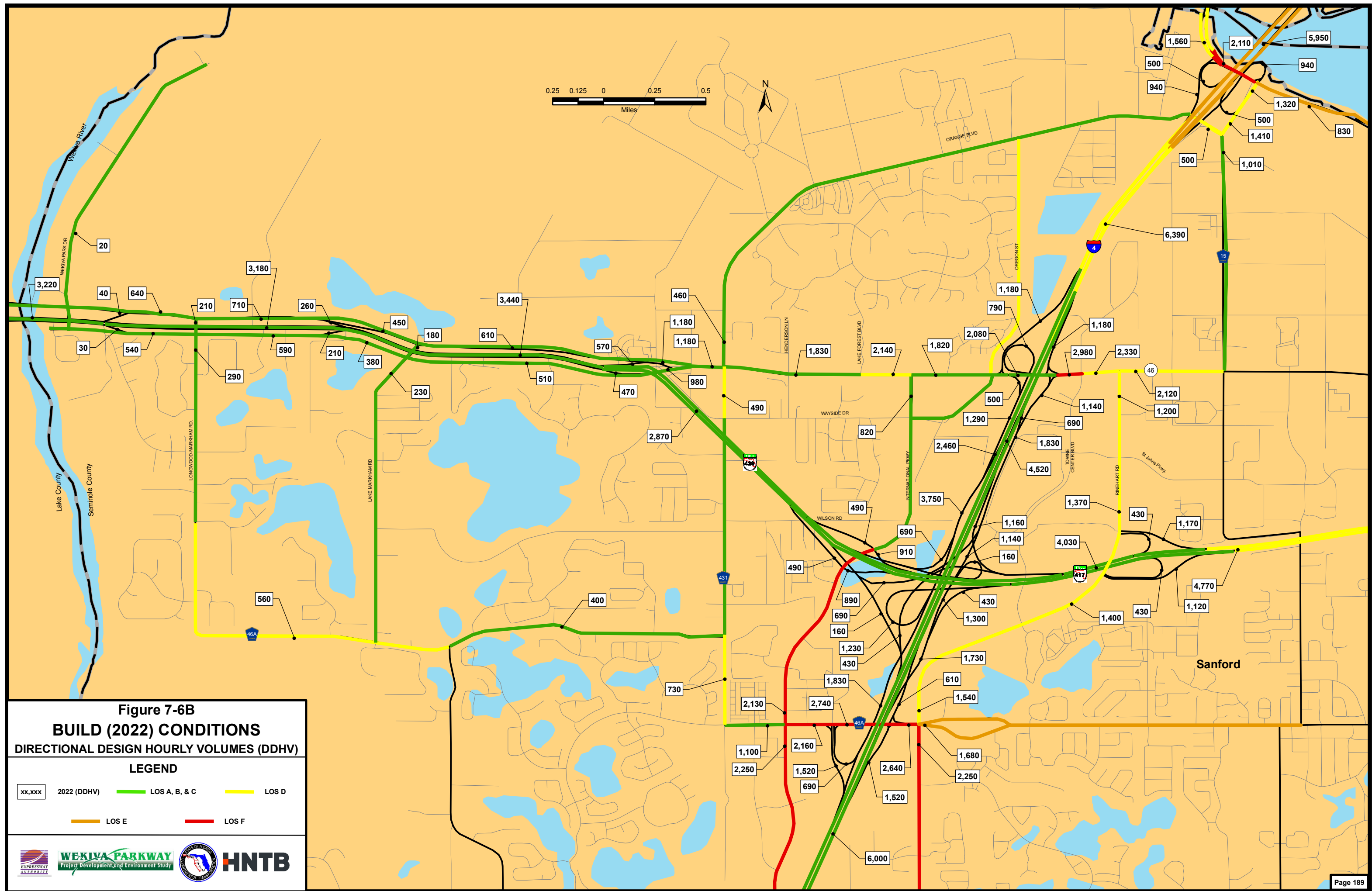
Figure 7-5A
BUILD (2022) CONDITIONS
ANNUAL AVERAGE DAILY TRAFFIC (AADT)

LEGEND

xx,xxx 2022 AADT







7.2.2.3 Ramp Analyses

The results of the ramp merge/diverge junctions analyses are summarized in Table 7.9 for the interchanges within the study area. Table 7.9 shows that all of the freeway elements along I-4 and SR 417 in the project area would still operate at LOS D or better during peak hour traffic conditions. All of the weaving analysis done is expected to operate at LOS C or better in the Year 2022.

TABLE 7.9 BUILD (2022) FREEWAY AND RAMP LOS SUMMARY

Interchange Ramps	Ramp Description	Volume (vph)	Merge Analysis		Diverge Analysis	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-4 at U.S. 17/92	I-4 EB Off Ramp to U.S. 17/92	940	-	-	5.0	A
	I-4 WB On Ramp from U.S. 17/92	940	27.6	D	-	-
	I-4 EB On Ramp from U.S. 17/92	500	33.1	D	-	-
	I-4 WB Off Ramp to U.S. 17/92	500	-	-	34.7	D
I-4 at SR 46	I-4 EB Off Ramp to SR 46 (through I-4 EB CD)	1,140	-	-	2.9	A
	I-4 WB On Ramp from SR 46 WB (through I-4 WB CD)	790	12.3	B	-	-
	I-4 WB On Ramp from SR 46 EB (through I-4 WB CD)	500	12.3	B	-	-
	I-4 EB On Ramp from SR 46	1,180	27.3	D	-	-
	I-4 WB Off Ramp to SR 46	1,180	-	-	24.7	C
I-4 at SR 417	I-4 EB Off Ramp to SR 417 SB	430	11.0	B	21.2	C
	I-4 EB Off Ramp to Wekiva Parkway WB	160	11.2	B	17.0	B
	I-4 WB On Ramp from SR 417 NB	430	7.4	A	12.6	B
	I-4 WB On Ramp from Wekiva Pkwy. EB	160	7.4	A	22.4	C
	I-4 EB On Ramp from SR 417 NB	1,160	11.5	B	12.6	B
	I-4 EB On Ramp from Wekiva Pkwy. EB	690	10.4	A	22.4	C
	I-4 WB Off Ramp to SR 417 SB	1,230	11.0	B	4.2	A
	I-4 WB Off Ramp to Wekiva Pkwy. WB	690	11.2	B	25.6	C
I-4 at CR 46A	I-4 EB Off Ramp to CR 46A	1,520	-	-	17.0	B
	I-4 WB On Ramp from CR 46A (through I-4 WB CD)	1,520	24.5	C	-	-
	I-4 EB On Ramp from CR 46A	610	20.7	C	-	-
	I-4 WB Off Ramp to CR 46A (through I-4 WB CD)	690	-	-	22.1	C
I-4 EB CD Rd.	I-4 EB Off Ramp to SR 417 SB, Wekiva Pkwy. WB and SR 46	1,730	-	-	3.5	A
	I-4 EB On Ramp from Wekiva Pkwy. EB	690	29.7	D	2.9	A
I-4 WB CD Rd.	I-4 WB Off Ramp to Wekiva Pkwy. WB, SR 417 SB and CR 46A	2,460	21.3	C	5.4	A
	I-4 WB On Ramp from CR 46A and SR 46	2,660	U/C	C	-	-
SR 417 at Rinehart Rd	SR 417 WB off Ramp to Rinehart Rd	1,170	-	-	22.6	C
	SR 417 EB on Ramp from Rinehart Rd	1,120	28.3	D	-	-
	SR 417 WB on Ramp from Rinehart Rd	430	19.5	B	-	-
	SR 417 EB off Ramp to Rinehart Rd	430	-	-	24.1	C
SR 417 at International Pkwy.	SR 417 NB Off Ramp to International Pkwy.	910	-	-	22.9	C
	SR 417 SB On Ramp from International Pkwy.	890	13.8	B	-	-
	Wekiva Pkwy. WB On Ramp from International Pkwy.	490	12.4	B	-	-
	Wekiva Pkwy. EB Off Ramp to International Pkwy.	490	-	-	24.4	C

U/C = ramp operates under capacity

Table 7.9 Build (2022) Freeway and Ramp LOS Summary (Continued)

Interchange Ramps	Ramp Description	Volume (vph)	Merge Analysis		Diverge Analysis	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Wekiva Pkwy. EB CD Rd.	Wekiva Pkwy. EB Off Ramp to Wekiva Pkwy. EB CD	30	7.9	A	21.0	C
	Wekiva Pkwy. EB On Ramp from Wekiva Pkwy. EB CD	210	20.9	C	6.7	A
	Wekiva Pkwy. EB Off Ramp to SR 46	470	5.4	A	10.1	B
Wekiva Pkwy. WB CD Rd.	Wekiva Pkwy. WB On Ramp from SR 46	570	10.8	B	11.3	B
	Wekiva Pkwy. WB Off Ramp to Wekiva Pkwy. WB CD	260	8.5	A	15.1	B
	Wekiva Pkwy. WB On Ramp from Wekiva Pkwy. WB CD	40	14.0	B	6.0	A
Wekiva Parkway at SR 46 (existing)	Wekiva Pkwy. WB Off Ramp to SR 46 (existing)	930	-	-	16.7	B
	Wekiva Pkwy. WB On Ramp from SR 46 (existing)	250	19.6	B	-	-
	Wekiva Pkwy. EB Off Ramp to SR 46 (existing)	250	-	-	18.6	B
	Wekiva Pkwy. EB On Ramp from SR 46 (existing)	930	15.6	B	-	-
Wekiva Parkway at SR 46 Bypass	Wekiva Pkwy. WB Off Ramp to SR 46 Bypass	1,170	-	-	15.8	B
	Wekiva Pkwy. WB On Ramp from SR 46 Bypass	1,230	-	-	14.4	B
	Wekiva Pkwy. EB Off Ramp to SR 46 Bypass	1,230	16.9	B	-	-
	Wekiva Pkwy. EB On Ramp to SR 46 Bypass	1,170	18.2	B	-	-
Wekiva Parkway at Kelly Park Rd	Wekiva Pkwy. NB Off Ramp to Kelly Park Rd	360	-	-	24.8	C
	Wekiva Pkwy. NB On Ramp from Kelly Park Rd	420	13.6	B	-	-
	Wekiva Pkwy. SB Off Ramp to Kelly Park Rd	420	-	-	18.1	B
	Wekiva Pkwy. SB On Ramp from Kelly Park Rd	360	20.7	C	-	-
Wekiva Parkway Connector at US 441	Wekiva Pkwy. NB Off Ramp to US 441	1,650	-	-	16.6	B
	Wekiva Pkwy. NB On Ramp from US 441	380	24.7	C	-	-
	Wekiva Pkwy. SB Off Ramp to US 441	380	-	-	24.8	C
	Wekiva Pkwy. SB On Ramp from US 441	1,650	20.9	C	-	-

Weaving Analysis				
Weaving Segment	Ramp Description	Volume (vph)	Density (pc/mi/ln)	LOS
I-4 WB C-D Rd.	I-4 WB Off Ramp to SR 417 SB and CR 46A	1,770	30.77	C
	I-4 WB Off Ramp to Wekiva Pkwy. WB	690		
	SR 46 EB and WB Ramps to SR 417 SB, CR 46A and I-4 WB	1,290		
	SR 46 EB and WB Ramps to Wekiva Pkwy. WB	0		
SR 417 Westbound	On Ramp from Rinehart Rd. to I-4 EB and WB	186	21.50	B
	On Ramp from Rinehart Rd. to Intl. Pkwy. and Wekiva Pkwy.	244		
	SR 417 WB to I-4 EB and WB	1,404		
	SR 417 WB to Intl. Pkwy. and Wekiva Pkwy.	2,196		
Wekiva Parkway at SR 46 Bypass	Wekiva Parkway NB off Ramp to WB SR 46 Bypass	1,230	21.11	B
	Wekiva Parkway SB on Ramp from EB SR 46 Bypass	1,230	19.73	B

7.2.2.4 Intersection Analyses

The PM peak hour intersection analyses are summarized in Table 7.10. All of the intersections analyzed in Orange County are projected to continue to operate at LOS B or better. In Lake County, all of the signalized intersections along SR 46 are expected to operate at LOS C or better for the PM peak traffic conditions. All of the intersections analyzed along the Service Road are projected to operate at LOS B.

In Seminole County, eighteen out of the twenty-one signalized intersections in the project area operate at LOS D or better, whereas the rest are projected to operate at LOS E or F during the PM peak period. In addition to the two failing intersections along CR 46A at International Parkway and Rinehart Road, the intersection of CR 46A at the I-4 westbound ramps will operate worse than LOS D in the Year 2022 compared to Year 2012.

TABLE 7.10 BUILD (2022) INTERSECTION LOS SUMMARY

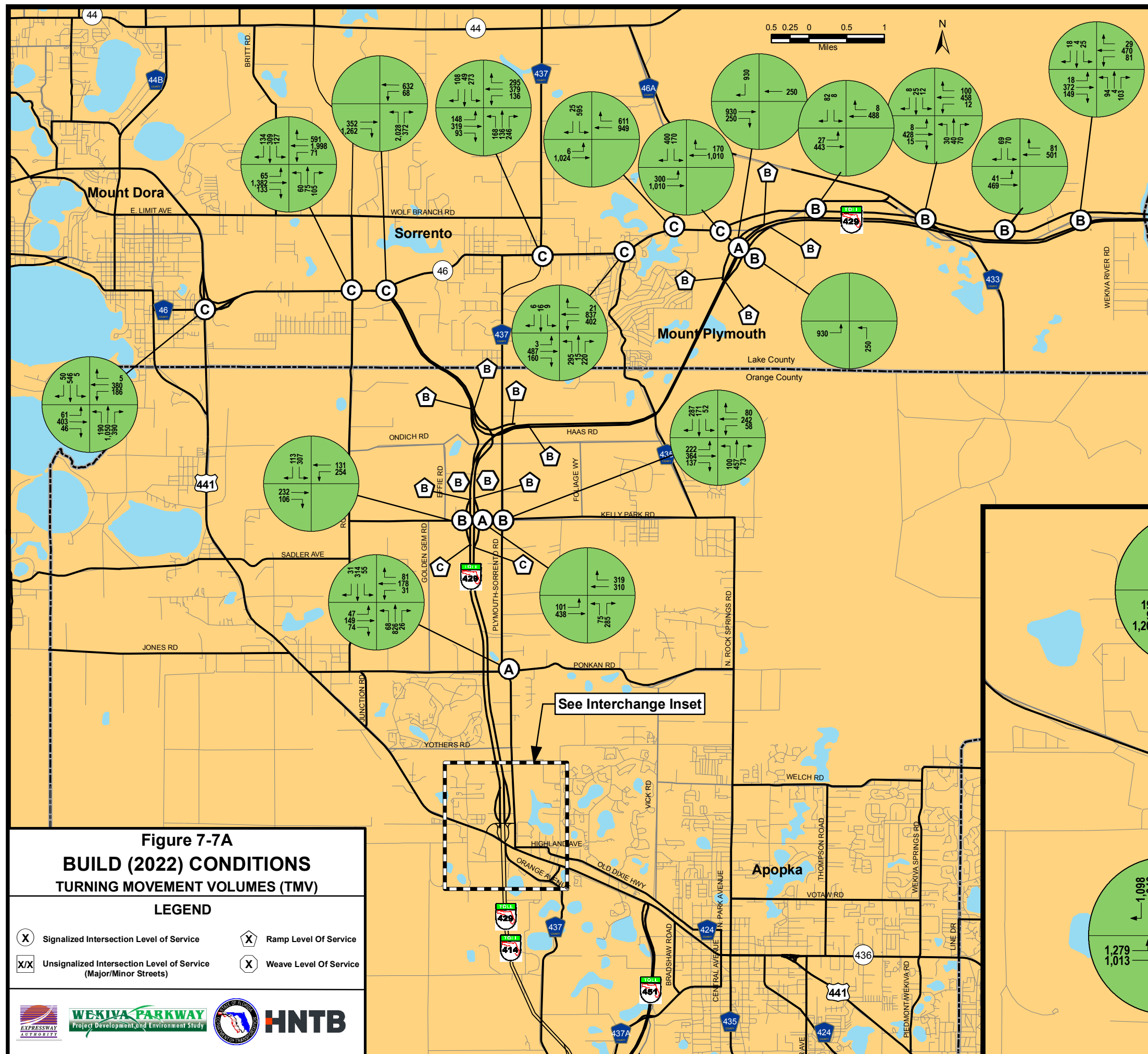
Intersection	Control Type	PM Peak	
		Delay (sec/veh)	LOS
Orange County			
US 441 and CR 437	Signal	18.4	B
CR 437 and Ponkan Rd	Signal	9.3	A
CR 437 and Kelly Park Rd	Signal	13.6	B
Wekiva Parkway Connector and Wekiva Pkwy	Signal	19.7	B
US 441 and Wekiva Pkwy Connector	Signal	10.3	B
CR 437 and Wekiva Pkwy Connector	Signal	9.9	A
Kelly Park Rd and Wekiva Pkwy SB Ramps	Signal	15.9	B
Kelly Park Rd and Wekiva Pkwy NB Ramps	Signal	8.1	A
Lake County			
SR 46 and US 441	Signal	26.3	C
SR 46 and Round Lake Rd	Signal	21.6	C
SR 46 and SR 46 Bypass	Signal	22.2	C
SR 46 and CR 437	Signal	24.9	C
SR 46 and CR 435/Niles St	Signal	27.9	C
SR 46 and Realigned CR 46A	Signal	22.7	C
SR 46 and Wekiva Pkwy Service Rd	Signal	21.4	C
SR 46 (Existing) and Wekiva Pkwy WB Ramps	Signal	1.8	A
SR 46 (Existing) and Wekiva Pkwy EB Ramps	Signal	13.1	B
CR 46A West (Old) and Wekiva Pkwy Service Rd	Signal	10.8	B
CR 46A (Old) and Wekiva Pkwy Service Rd	Signal	14.9	B
Wekiva Pines Blvd and Wekiva Pkwy Service Rd	Signal	11.3	B
Wekiva River Rd and Wekiva Pkwy Service Rd	Signal	14.3	B

Table 7.10 Build (2022) Intersection LOS Summary (Continued)

Intersection	Control Type	PM Peak	
		Delay (sec/veh)	LOS
Seminole County			
U.S. 17/92 and I-4 WB Ramps	Signal	12.5	B
U.S. 17/92 and I-4 EB Ramps/CR 15	Signal	34.7	C
Wekiva Pkwy WB CD and Wekiva Park Dr	Stop	22.7	A/C ¹
Wekiva Pkwy EB CD and Wekiva Park Dr	Stop	13.1	A/B ¹
Wekiva Pkwy WB CD and Longwood Markham Rd	Stop	24.9	A/C ¹
Wekiva Pkwy EB CD and Longwood Markham Rd	Stop	17.3	A/C ¹
Wekiva Pkwy WB CD and Lake Markham Rd	Stop	18.7	A/C ¹
Wekiva Pkwy EB CD and Lake Markham Rd	Stop	15.0	A/C ¹
SR 46 and CR 431 (Orange Blvd)	Signal	21.5	C
SR 46 and Lake Forest Blvd	Signal	10.2	B
SR 46 and International Pkwy	Signal	19.6	B
SR 46 and N Oregon Ave/Wayside Dr	Signal	15.1	B
SR 46 and I-4 WB Ramps	Signal	16.9	B
SR 46 and I-4 EB Ramps	Signal	24.3	C
SR 46 and Town Center Blvd	Signal	31.4	C
SR 46 and Rinehart Rd	Signal	29.1	C
CR 46A and International Pkwy	Signal	79.9	E
CR 46A and I-4 WB Ramps	Signal	58.3	E
CR 46A and I-4 EB Ramps	Signal	48.7	D
CR 46A and Rinehart Rd	Signal	87.5	F
CR 15 and CR 431	Signal	23.4	C
Rinehart Rd and St Johns Pkwy	Signal	18.2	B
Rinehart Rd and SR 417 NB Ramps	Signal	23.1	C
Rinehart Rd and SR 417 SB Ramps	Signal	25.2	C
Rinehart Rd and Town Center Blvd	Signal	20.1	C
International Pkwy and Wekiva Parkway SB Ramps	Signal	16.6	B
International Pkwy and Wekiva Parkway NB Ramps	Signal	19.4	B

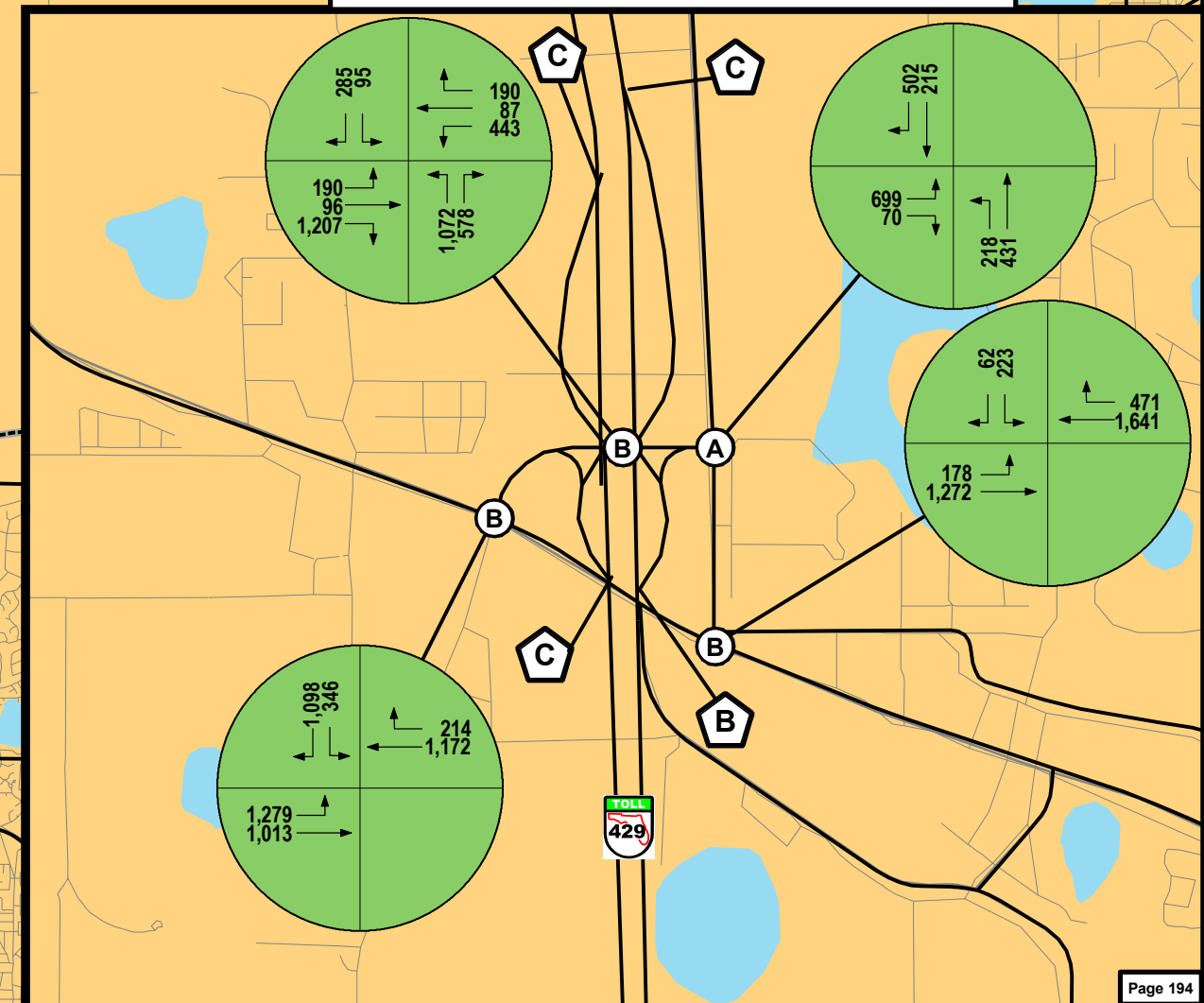
1. Mainline/Side Street

The LOS for the freeway elements, the projected turning movement volumes and the intersections are illustrated in Figures 7-7A (Orange and Lake Counties) and 7-7B (Seminole County).



**SEE FIGURE 7-7B
FOR
SEMINOLE COUNTY**

U.S. 441 and S.R. 429 Interchange Inset



7.2.3 Build 2032 Preferred Alternative with Service Road Concept

The LOS analyses for Year 2032 are presented in this section. The results of the roadway segment level of service analyses are summarized in Tables 7.11, 7.12 and 7.13 for Orange, Lake and Seminole Counties, respectively. The two sections below highlight the roadway segments that are expected to operate below the LOS D standard, specifically at LOS E and LOS F. All other roadway segments in the project area are expected to operate at LOS D or better for peak hour, peak direction traffic conditions.

7.2.3.1 Roadway Segments Operating at LOS E

The tables show that the following roadway segments that were operating at LOS D or better in the 2022 Build conditions are expected to operate at capacity with LOS E for peak hour peak direction for the 2032 Build conditions:

Orange County

- Ponkan Road from Round Lake Road to CR 437
- CR 437 from Ponkan Road to Kelly Park Road

Seminole County

- SR 417 from Rinehart Rd. to CR 46A
- US 17/92 from North of I-4 WB On-Ramp to I-4 WB On-Ramp
- CR 431 from CR 46A to Markham Rd.
- Rinehart Road from CR 46A to Town Center Blvd.
- Rinehart Road from SR 417 to St. Johns Pkwy.

The following roadway segments were operating at LOS D or better in the Year 2022 Build condition. In addition to the failing roadway segments listed in the Year 2022 Build conditions, these roadway segments are expected to begin to fail at LOS F for peak hour peak direction traffic due to overcapacity conditions in the Year 2032:

Orange County

- US 441 from CR 437 to SR 414/SR 429
- CR 435 from Ponkan Road to Kelly Park Road

Lake County

- US 441 from SR 46 to CR 44B
- Round Lake Road from SR 46 to Wolf Branch Road

Seminole County

- SR 46 from Town Center Blvd to CR 431B

7.2.3.2 Roadway Segments Operating at LOS F

The following roadway segments were operating at LOS E in the 2022 Build conditions, but are expected to fail at LOS F for peak hour peak direction traffic due to overcapacity conditions in the Year 2032:

Orange County

- Sadler Avenue from Lake County Line to US 441

Lake County

- Wolf Branch Road from US 441 to Round Lake Road

Seminole County

- I-4 from US 17/92 to North of US 17/92
- US 17/92 from CR 15 to South of CR 15
- SR 436 from SR 434 to I-4
- CR 46A from Rinehart Road to East of Rinehart Road

In addition to the roadways listed for the Year 2022, the following entire roadways in the project area are expected to operate at failing conditions. In the 2032 Build condition those roadways are:

Orange County

- US 441 from SR 436 to SR 46

Lake County

- US 441 from SR 46 to CR 44B

Seminole County

- SR 436 from Orange/Seminole County Line to Palm Springs Blvd.

TABLE 7.11 BUILD (2032) ROADWAY SEGMENT LOS SUMMARY - ORANGE COUNTY

Roadway	From	To	LOS
Wekiva Parkway	U.S. 441	Ponkan Rd.	D
	Ponkan Rd.	Kelly Park Rd.	D
	Kelly Park Rd.	S.R. 46 Bypass	C
S.R. 414	U.S. 441	Hiawassee Rd.	D
	Hiawassee Rd.	Keene Rd.	C
	Keene Rd.	S.R. 451	C
S.R. 414/S.R. 429	S.R. 451	U.S. 441	D
S.R. 451	S.R. 414	U.S. 441	A
U.S. 441	S.R. 436	C.R. 435	F
	C.R. 435	S.R. 451	F
	S.R. 451	C.R. 437	F
	C.R. 437	S.R. 414/S.R. 429	F
	S.R. 414/S.R. 429	Ponkan Rd.	F
	Ponkan Rd.	Sadler Ave.	F
	Sadler Ave.	S.R. 46	F
S.R. 436	U.S. 441	Piedmont-Wekiva Rd.	D
	Piedmont-Wekiva Rd.	Seminole County Line	F
C.R. 435	U.S. 441	Votaw Rd.	F
	Votaw Rd.	Welch Rd.	F
	Welch Rd.	Ponkan Rd.	F
	Ponkan Rd.	Kelly Park Rd.	F
	Kelly Park Rd.	Lake County Line	C
C.R. 437	U.S. 441	Ponkan Rd.	D
	Ponkan Rd.	Kelly Park Rd.	F
	Kelly Park Rd.	Lake County Line	F
Round Lake Rd.	Ponkan Rd.	Sadler Ave.	D
	Sadler Ave.	Kelly Park Rd.	D
	Kelly Park Rd.	Ondich Rd.	D
	Ondich Rd.	Lake County Line	D
Ponkan Rd.	U.S. 441	Round Lake Rd.	D
	Round Lake Rd.	C.R. 437	E
	C.R. 437	C.R. 435	D
Kelly Park Rd.	Round Lake Rd.	C.R. 437	D
	C.R. 437	C.R. 435	D
Sadler Ave.	Lake County Line	U.S. 441	F
	U.S. 441	Round Lake Rd.	C
Ondich Rd.	Round Lake Rd.	C.R. 437	C
Haas Rd.	C.R. 437	C.R. 435	C
Vick Rd.	Ponkan Rd.	Lester Rd.	C
	Lester Rd.	Welch Rd.	D
	Welch Rd.	Martin St.	E
	Martin St.	Old Dixie Hwy.	F
Old Dixie Highway	C.R. 437	Errol Pkwy.	C
	Errol Pkwy.	C.R. 435	D
Yothers Rd.	U.S. 441	C.R. 437	C

TABLE 7.12 BUILD (2032) ROADWAY SEGMENT LOS SUMMARY - LAKE COUNTY

Roadway	From	To	LOS
S.R. 46 Bypass - Limited Access	U.S. 441	S.R. 46 West/S.R. 46 Bypass	D
	S.R. 46 West/S.R. 46 Bypass	S.R. 429	D
Wekiva Parkway	S.R. 46 Bypass	Old S.R. 46	D
	Old S.R. 46	C.R. 46A IC	C
	C.R. 46A IC	Lake/Seminole Co. Line	C
Wekiva Parkway Service Rd.	S.R. 46	C.R. 433	D
	C.R. 433	Wekiva River Rd.	D
	Wekiva River Rd.	Lake/Seminole Co. Line	D
U.S. 441	S.R. 46	C.R. 44B	F
S.R. 46	C.R. 500A	U.S. 441	D
	U.S. 441	Round Lake Rd.	D
	Round Lake Rd.	C.R. 437	D
	C.R. 437	C.R. 435	D
	C.R. 435	C.R. 46A Re-Alignment	F
	C.R. 46A Re-Alignment	C.R. 46A IC	D
S.R. 44	S.R. 19	C.R. 46A	D
C.R. 437	Lake County Line	S.R. 46	D
	S.R. 46	S.R. 44	D
C.R. 435	Lake County Line	S.R. 46	F
C.R. 46A	S.R. 44	S.R. 46	D
C.R. 433	S.R. 46	South of S.R. 46	C
Round Lake Rd.	Lake County Line	S.R. 46	C
	S.R. 46	Wolf Branch Rd.	F
Wolf Branch Rd.	U.S. 441	Round Lake Rd.	F
	Round Lake Rd.	C.R. 437	C
Wekiva River Rd.	S.R. 46	South of S.R. 46	C

TABLE 7.13 BUILD (2032) ROADWAY SEGMENT LOS SUMMARY - SEMINOLE COUNTY

Roadway	From	To	LOS
Wekiva Parkway	Lake/Seminole Co. Line	Longwood-Markham Rd.	C
	Longwood-Markham Rd.	Lake Markham Rd.	C
	Lake Markham Rd.	Orange Blvd./S.R. 46	D
	Orange Blvd./S.R. 46	I-4 South Connection @ S.R. 417	C
Wekiva Parkway EB and WB C-D Rd.	Wekiva Pkwy. EB Off/WB On Ramp	Longwood Markham Rd.	D
	Longwood Markham Rd.	Wekiva Pkwy. EB On/WB Off Ramp	B
	Wekiva Pkwy. EB On/WB Off Ramp	Lake Markham Rd.	B
	Lake Markham Rd.	Wekiva Pkwy. EB Off/WB On Ramp	B
	Wekiva Pkwy. EB Off/WB On Ramp	Orange Blvd./S.R. 46	B

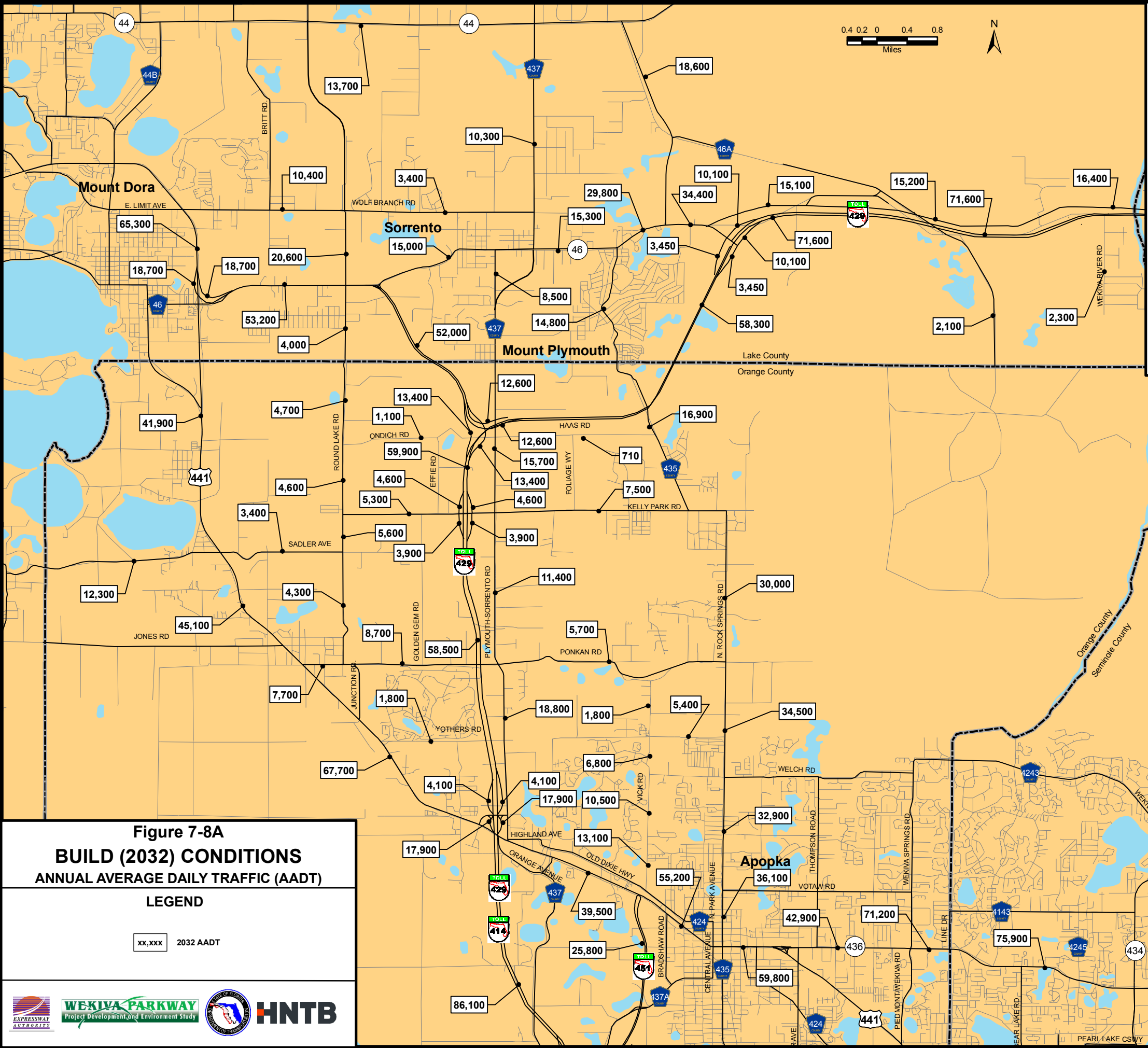
Table 7.13 Build (2032) Roadway Segment LOS Summary - Seminole County
(Continued)

Roadway	From	To	LOS
Interstate 4	S.R. 436	S.R. 434	F
	S.R. 434	Lake Mary Blvd.	F
	Lake Mary Blvd.	C.R. 46A / S.R. 417	D
	C.R. 46A / S.R. 417	S.R. 46	D(EB) B(WB)
	S.R. 46	U.S. 17/92	D
	U.S. 17/92	North of U.S. 17/92	F
S.R. 417	Interstate 4	Rinehart Rd.	C
	Rinehart Rd.	C.R. 46A	E
U.S. 17/92	North of I-4 WB on ramp	I-4 WB on Ramp	E
	I-4 WB on Ramp	CR 15	F
	CR 15	South of CR 15	F
S.R. 46	C.R. 431	Lake Forest Blvd.	C
	Lake Forest Blvd.	International Pkwy.	D
	International Pkwy.	Oregon St/Wayside Dr	C
	Oregon St/Wayside Dr	Interstate 4	D
	Interstate 4	Town Center Blvd	F
	Town Center Blvd	C.R. 431B	F
	C.R. 431B	CR 15	D
S.R. 436	Seminole County Line	S.R. 434	F
	S.R. 434	Interstate 4	F
	Interstate 4	Palm Springs Rd.	F
C.R. 46A	Orange Blvd.	International Pkwy.	D
	International Pkwy.	Colonial Center Pkwy.	F
	Colonial Center Pkwy.	I-4	F
	I-4	Rinehart Rd	F
	Rinehart Rd	East of Rinehart Rd	F
C.R. 431	C.R. 46A	Markham Rd.	E
	Markham Rd.	S.R. 46	D
	S.R. 46	I-4	D
	I-4	CR 15	C
C.R. 15	South of CR 431	CR 431	D
	CR 431	I-4 EB on Ramp	D
	I-4 EB on Ramp	U.S. 17/92	D
Rinehart Rd	Anderson Lane	CR 46A	F
	CR 46A	Town Center Blvd.	E
	Town Center Blvd.	SR 417	D
	SR 417	St Johns Pkwy.	E
	St Johns Pkwy.	SR 46	D
International Parkway	Lake Mary Blvd.	C.R. 46A	F
	C.R. 46A	SR 417 Ramps	F
	SR 417 Ramps	S.R. 46	C
Markham Road	Longwood-Markham Rd.	Markham Woods Rd.	D
	Markham Woods Rd.	Orange Blvd.	C

**Table 7.13 Build (2032) Roadway Segment LOS Summary - Seminole County
(Continued)**

Roadway	From	To	LOS
Longwood-Markham Rd.	S.R. 46	C.R. 46A	C
Wekiva Park Dr	SR 46	North of SR 46	C
Lake Markham Rd.	S.R. 46	C.R. 46A	D
N Oregon Street	North of S.R. 46	S.R. 46	D
Wayside Drive	South of S.R. 46	S.R. 46	C

Figures 7-8A (Orange and Lake Counties) and 7-8B (Seminole County) show the 2032 Build AADTs that were used to determine the 2032 Build DDHVs. The LOS for the roadway elements along with the DDHVs that were used to determine the LOS is illustrated in Figures 7-9A (Orange and Lake Counties) and 7-9B (Seminole County).



**SEE FIGURE 7-8B
FOR
SEMINOLE COUNTY**

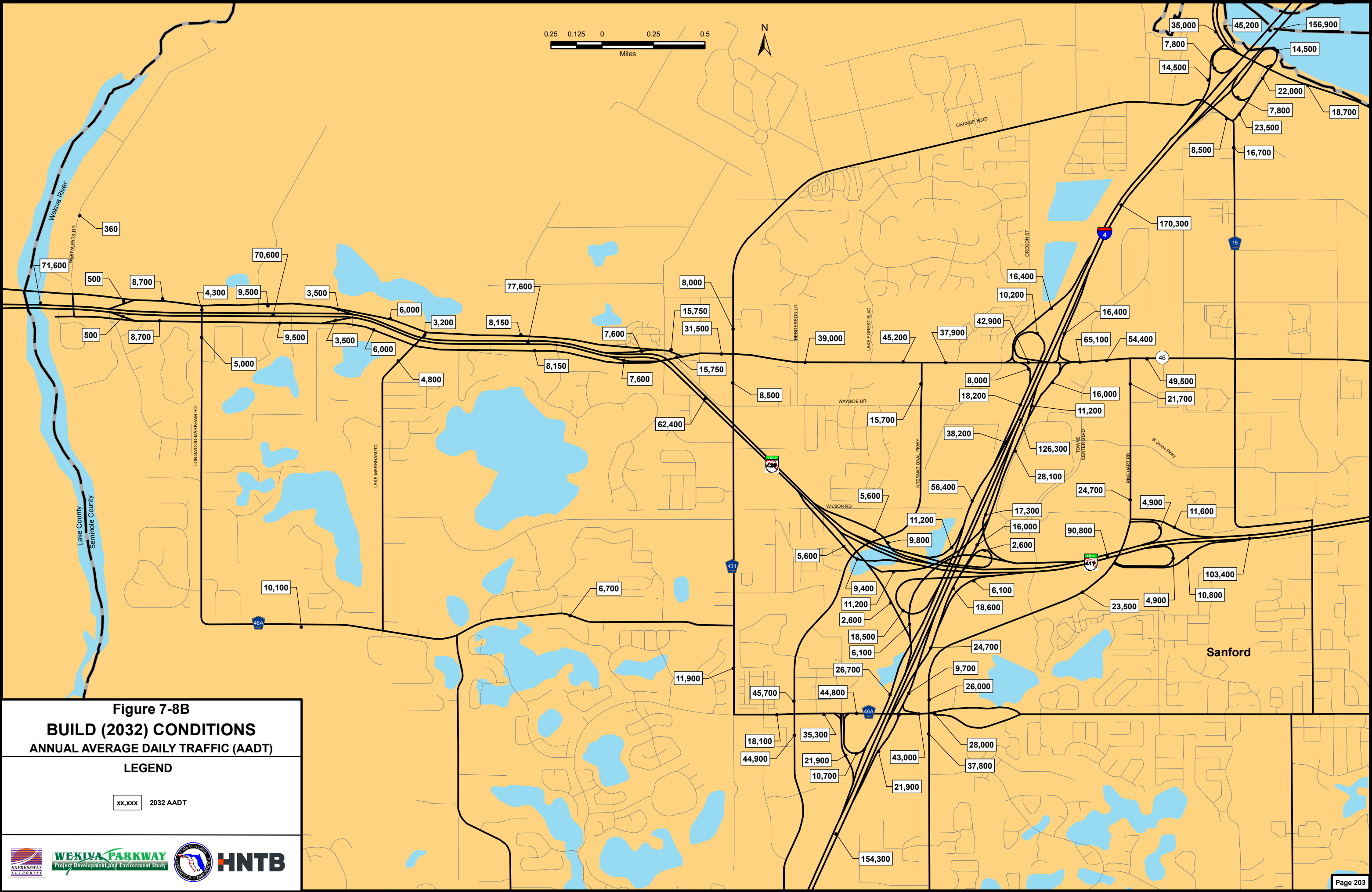
Figure 7-8A
BUILD (2032) CONDITIONS
ANNUAL AVERAGE DAILY TRAFFIC (AADT)

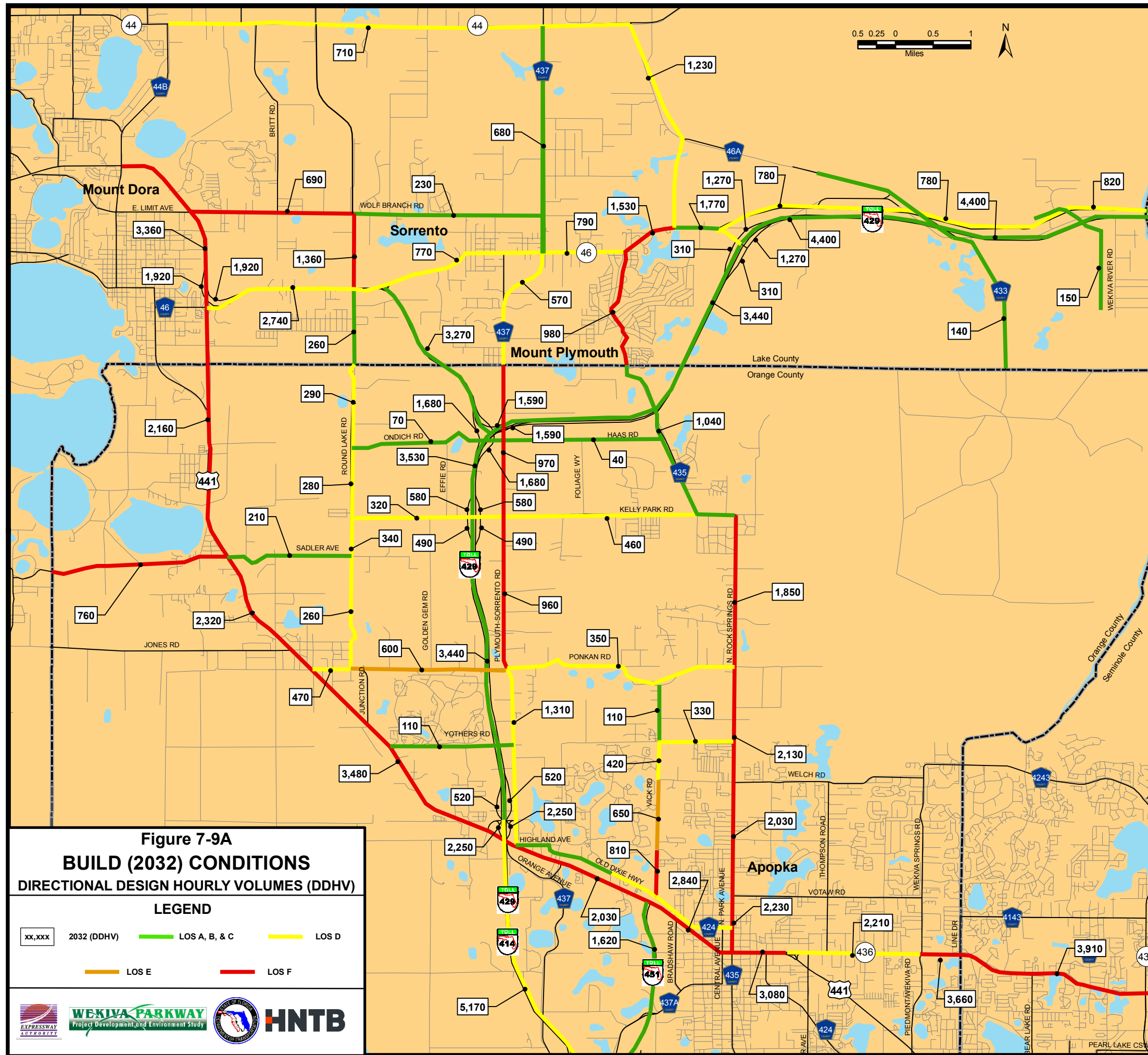
LEGEND

xx,xxx 2032 AADT

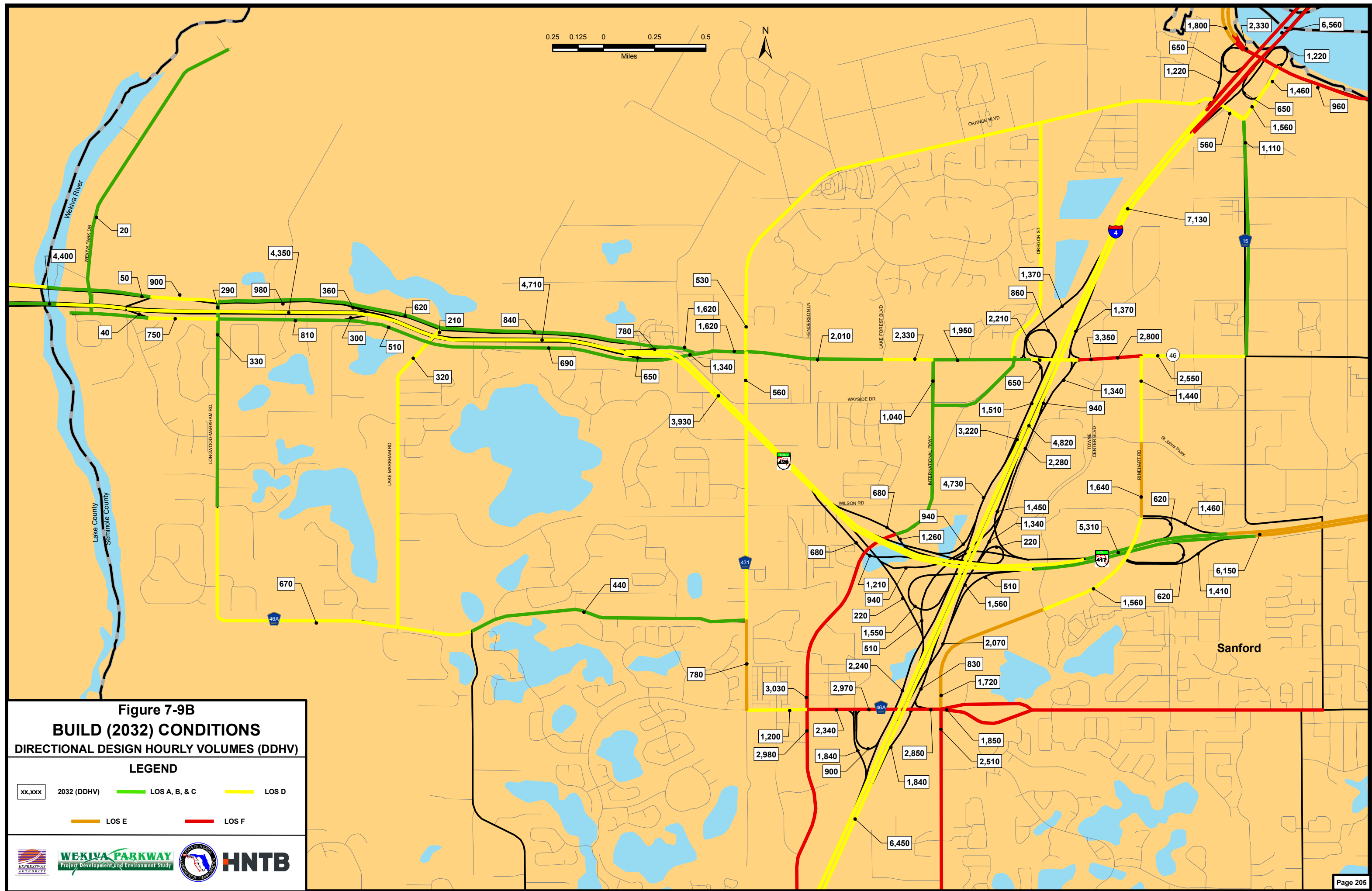


HNTB





**SEE FIGURE 7-9B
FOR
SEMINOLE COUNTY**



7.2.3.3 Ramp Analyses

The results of the ramp merge/diverge junctions analyses are summarized in Table 7.14 for the interchanges within the study area. Table 7.14 shows that the majority of the freeway elements along I-4 and SR 417 in the project area would operate at LOS D or better during peak hour traffic conditions with the exception of the I-4 EB On-Ramp from US 17/92, I-4 WB Off-Ramp to US 17/92, SR 417 WB Off-Ramp to Rinehart Rd and SR 417 EB on Ramp from Rinehart Rd which are projected to operate at LOS F. All weaving segments analyzed are expected to operate at LOS C in the Year 2032, with the exception of the I-4 WB CD Road segment for SR 46 to WB SR 417. This weaving section is expected to operate at LOS F using HCS analysis techniques. Prior to final design, traffic simulation evaluation should be used to identify any potential queues or other potential operational issues.

TABLE 7.14 BUILD (2032) FREEWAY AND RAMP LOS SUMMARY

Interchange Ramps	Ramp Description	Volume (vph)	Merge Analysis		Diverge Analysis	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
I-4 at U.S. 17/92	I-4 EB Off Ramp to U.S. 17/92	1,220	-	-	5.5	A
	I-4 WB On Ramp from U.S. 17/92	1,220	32.3	D	-	-
	I-4 EB On Ramp from U.S. 17/92	650	35.6	F	-	-
	I-4 WB Off Ramp to U.S. 17/92	650	-	-	38.6	F
I-4 at SR 46	I-4 EB Off Ramp to SR 46 (through I-4 EB CD)	1,340	-	-	3.9	A
	I-4 WB On Ramp from SR 46 WB (through I-4 WB CD)	860	14.1	B	-	-
	I-4 WB On Ramp from SR 46 EB (through I-4 WB CD)	650	14.1	B	-	-
	I-4 EB On Ramp from SR 46	1,370	32.0	D	-	-
	I-4 WB Off Ramp to SR 46	1,370	-	-	27.8	C
I-4 at SR 417	I-4 EB Off Ramp to SR 417 SB	510	18.8	B	24.5	C
	I-4 EB Off Ramp to Wekiva Parkway WB	220	15.3	B	19.5	B
	I-4 WB On Ramp from SR 417 NB	510	7.5	A	18.5	B
	I-4 WB On Ramp from Wekiva Pkwy. EB	220	7.5	A	28.2	D
	I-4 EB On Ramp from SR 417 NB	1,450	14.0	B	18.5	B
	I-4 EB On Ramp from Wekiva Pkwy. EB	940	12.9	B	28.2	D
	I-4 WB Off Ramp to SR 417 SB	1,550	18.8	B	5.2	A
	I-4 WB Off Ramp to Wekiva Pkwy. WB	940	15.3	B	32.9	D
I-4 at CR 46A	I-4 EB Off Ramp to CR 46A	1,840	-	-	20.4	C
	I-4 WB On Ramp from CR 46A (through I-4 WB CD)	1,840	28.9	D	-	-
	I-4 EB On Ramp from CR 46A	830	21.4	C	-	-
	I-4 WB Off Ramp to CR 46A (through I-4 WB CD)	900	-	-	26.1	C
I-4 EB CD Rd.	I-4 EB Off Ramp to SR 417 SB, Wekiva Pkwy. WB and SR 46	2,070	-	-	3.6	A
	I-4 EB On Ramp from Wekiva Pkwy. EB	940	33.4	D	3.9	A
I-4 WB CD Rd.	I-4 WB Off Ramp to Wekiva Pkwy. WB, SR 417 SB and CR 46A	3,220	27.4	D	6.7	A
	I-4 WB On Ramp from CR 46A and SR 46	3,180	U/C	D	-	-
SR 417 at Rinehart Rd	SR 417 WB off Ramp to Rinehart Rd	1,460	-	-	30.5	F
	SR 417 EB on Ramp from Rinehart Rd	1,410	35.4	F	-	-
	SR 417 WB on Ramp from Rinehart Rd	620	27.1	C	-	-
	SR 417 EB off Ramp to Rinehart Rd	620	-	-	30.6	D
SR 417 at International Pkwy.	SR 417 NB Off Ramp to International Pkwy.	1,260	-	-	29.0	D
	SR 417 SB On Ramp from International Pkwy.	1,210	19.5	B	-	-
	Wekiva Pkwy. WB On Ramp from International Pkwy.	680	17.1	B	-	-
	Wekiva Pkwy. EB Off Ramp to International Pkwy.	680	-	-	31.9	D

Table 7.14 Build (2032) Freeway and Ramp LOS Summary (Continued)

Interchange Ramps	Ramp Description	Volume (vph)	Merge Analysis		Diverge Analysis	
			Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Wekiva Pkwy. EB CD Rd.	Wekiva Pkwy. EB Off Ramp to Wekiva Pkwy. EB CD	40	10.2	B	27.3	C
	Wekiva Pkwy. EB On Ramp from Wekiva Pkwy. EB CD	300	27.9	C	9.3	A
	Wekiva Pkwy. EB Off Ramp to SR 46	650	9.0	A	17.3	B
Wekiva Pkwy. WB CD Rd.	Wekiva Pkwy. WB On Ramp from SR 46	780	18.0	B	15.6	B
	Wekiva Pkwy. WB Off Ramp to Wekiva Pkwy. WB CD	360	10.9	B	21.7	C
	Wekiva Pkwy. WB On Ramp from Wekiva Pkwy. WB CD	50	18.3	B	8.5	A
Wekiva Parkway at SR 46 (existing)	Wekiva Pkwy. WB Off Ramp to SR 46 (existing)	1,270	-	-	23.6	C
	Wekiva Pkwy. WB On Ramp from SR 46 (existing)	310	27.6	C	-	-
	Wekiva Pkwy. EB Off Ramp to SR 46 (existing)	310	-	-	27.5	C
	Wekiva Pkwy. EB On Ramp from SR 46 (existing)	1,270	22.7	C	-	-
Wekiva Parkway at SR 46 Bypass	Wekiva Pkwy. WB Off Ramp to SR 46 Bypass	1,590	-	-	24.7	C
	Wekiva Pkwy. WB On Ramp from SR 46 Bypass	1,680	-	-	23.0	C
	Wekiva Pkwy. EB Off Ramp to SR 46 Bypass	1,680	25.6	C	-	-
	Wekiva Pkwy. EB On Ramp to SR 46 Bypass	1,590	26.0	C	-	-
Wekiva Parkway at Kelly Park Rd	Wekiva Pkwy. NB Off Ramp to Kelly Park Rd	490	-	-	33.7	D
	Wekiva Pkwy. NB On Ramp from Kelly Park Rd	580	19.1	B	-	-
	Wekiva Pkwy. SB Off Ramp to Kelly Park Rd	580	-	-	23.7	C
	Wekiva Pkwy. SB On Ramp from Kelly Park Rd	490	28.7	D	-	-
Wekiva Parkway Connector at US 441	Wekiva Pkwy. NB Off Ramp to US 441	2,250	-	-	25.8	C
	Wekiva Pkwy. NB On Ramp from US 441	520	32.6	D	-	-
	Wekiva Pkwy. SB Off Ramp to US 441	520	-	-	33.7	D
	Wekiva Pkwy. SB On Ramp from US 441	2,250	29.3	D	-	-

Weaving Analysis				
Weaving Segment	Ramp Description	Volume (vph)	Density (pc/mi/ln)	LOS
I-4 WB C-D Rd.	I-4 WB Off Ramp to SR 417 SB and CR 46A	2280	40.89	F
	I-4 WB Off Ramp to Wekiva Pkwy. WB	940		
	SR 46 EB and WB Ramps to SR 417 SB, CR 46A and I-4 WB	1510		
	SR 46 EB and WB Ramps to Wekiva Pkwy. WB	0		
SR 417 Westbound	On Ramp from Rinehart Rd. to I-4 EB and WB	285	29.21	C
	On Ramp from Rinehart Rd. to Intl. Pkwy. and Wekiva Pkwy.	335		
	SR 417 WB to I-4 EB and WB	1,675		
	SR 417 WB to Intl. Pkwy. and Wekiva Pkwy.	3,015		
Wekiva Parkway at SR 46 Bypass	Wekiva Parkway NB off Ramp to WB SR 46 Bypass	1,680	29.34	C
	Wekiva Parkway SB on Ramp from EB SR 46 Bypass	1,680	31.15	C

For the Build Alternative, analysis was performed to determine the number of lanes required for the interchanges ramps. The number of lanes, the ramp DDHV and ramp LOS are shown in Table 7.15.

TABLE 7.15 BUILD (2032) RAMP NUMBER OF LANES SUMMARY

Interchange Ramps	Ramp Description	Number of lanes	DDHV	LOS
Orange County				
Wekiva Pkwy. Connector at US 441	Wekiva Pkwy. NB Off Ramp to US 441	2	2,250	C
	Wekiva Pkwy. NB On Ramp from US 441	1	520	C
	Wekiva Pkwy. SB Off Ramp to US 441	1	520	A
	Wekiva Pkwy. SB On Ramp from US 441	2	2,250	C
Wekiva Pkwy. at Kelly Park Rd.	Wekiva Pkwy. NB Off Ramp to Kelly Park Rd	1	490	D
	Wekiva Pkwy. NB On Ramp from Kelly Park Rd	1	580	B
	Wekiva Pkwy. SB Off Ramp to Kelly Park Rd	1	580	B
	Wekiva Pkwy. SB On Ramp from Kelly Park Rd	1	490	C
Lake County				
Wekiva Pkwy. at SR 46 Bypass	Wekiva Pkwy. WB Off Ramp to SR 46 Bypass	2	1,590	C
	Wekiva Pkwy. WB On Ramp from SR 46 Bypass	2	1,680	A
	Wekiva Pkwy. EB Off Ramp to SR 46 Bypass	2	1,680	C
	Wekiva Pkwy. EB On Ramp to SR 46 Bypass	2	1,590	C
Wekiva Pkwy. at SR 46 (existing)	Wekiva Pkwy. WB Off Ramp to SR 46 (existing)	2	1,270	C
	Wekiva Pkwy. WB On Ramp from SR 46 (existing)	1	310	B
	Wekiva Pkwy. EB Off Ramp to SR 46 (existing)	1	310	C
	Wekiva Pkwy. EB On Ramp from SR 46 (existing)	2	1,270	C
Seminole County				
SR 417 at Rinehart Rd	SR 417 WB off Ramp to Rinehart Rd	2	1,460	F
	SR 417 EB on Ramp from Rinehart Rd	1	1,410	F
	SR 417 WB on Ramp from Rinehart Rd	1	620	C
	SR 417 EB off Ramp to Rinehart Rd	1	620	D

Table 7.15 Build (2032) Ramp Number of Lanes Summary (Continued)

Interchange Ramps	Ramp Description	Number of lanes	DDHV	LOS
Seminole County				
I-4 at U.S. 17/92	I-4 EB Off Ramp to U.S. 17/92	1	1,220	A
	I-4 WB On Ramp from U.S. 17/92	1	1,220	D
	I-4 EB On Ramp from U.S. 17/92	1	650	F
	I-4 WB Off Ramp to U.S. 17/92	1	650	F
I-4 at SR 46	I-4 EB Off Ramp to SR 46 (through I-4 EB CD)	2	1,340	A
	I-4 WB On Ramp from SR 46 WB (through I-4 WB CD)	1	860	B
	I-4 WB On Ramp from SR 46 EB (through I-4 WB CD)	1	650	B
	I-4 EB On Ramp from SR 46	1	1,370	D
	I-4 WB Off Ramp to SR 46	2	1,370	C
I-4 at SR 417	I-4 EB Off Ramp to SR 417 SB	1	510	C
	I-4 EB Off Ramp to Wekiva Pkwy. WB	1	220	B
	I-4 WB On Ramp from SR 417 NB	1	510	B
	I-4 WB On Ramp from Wekiva Pkwy. EB	1	220	A
	I-4 EB On Ramp from SR 417 NB	2	1,450	B
	I-4 EB On Ramp from Wekiva Pkwy. EB	1	940	B
	I-4 WB Off Ramp to SR 417 SB	2	1,550	B
	I-4 WB Off Ramp to Wekiva Pkwy. WB	1	940	B
I-4 at CR 46A	I-4 EB Off Ramp to CR 46A	2	1,840	C
	I-4 WB On Ramp from CR 46A (through I-4 WB CD)	1	1,840	D
	I-4 EB On Ramp from CR 46A	1	830	C
	I-4 WB Off Ramp to CR 46A (through I-4 WB CD)	1	900	C
I-4 EB CD System	I-4 EB Off Ramp to EB CD System	2	2,070	A
	Between SR 417 SB Off Ramp and Wekiva Pkwy. WB Off Ramp	2	1,560	B
	Between Wekiva Pkwy. WB Off Ramp and EB On Ramp	2	1,340	B
	Between Wekiva Pkwy. EB On Ramp and SR 46 Off Ramp	3	2,280	A
	I-4 EB On Ramp from EB CD System	1	940	D
I-4 WB CD System	I-4 WB Off Ramp to WB CD System	2	3,220	D
	Between SR 46 On Ramps and I-4 WB On Ramp	2	1,510	D
	Between I-4 WB On Ramp and Wekiva Pkwy. WB Off Ramp	3	4,730	C
	Between Wekiva Pkwy. WB Off Ramp and SR 417 SB Off Ramp	3	3,790	A
	Between SR 417 SB Off Ramp and CR 46A Off Ramp	2	2,240	C
	Between CR 46A Off Ramp and CR 46A On Ramp	2	1,340	D
	I-4 WB On Ramp from WB CD System	2	3,180	D
SR 417 at International Pkwy.	SR 417 NB Off Ramp to International Pkwy.	1	1,260	D
	SR 417 SB On Ramp from International Pkwy.	1	1,210	B
	Wekiva Pkwy. WB On Ramp from International Pkwy.	1	680	B
	Wekiva Pkwy. EB Off Ramp to International Pkwy.	1	680	D
Wekiva Pkwy. EB CD Rd.	Wekiva Pkwy. EB Off Ramp to Wekiva Pkwy. EB CD	1	40	C
	Wekiva Pkwy. EB On Ramp from Wekiva Pkwy. EB CD	1	300	C
	Wekiva Pkwy. EB Off Ramp to SR 46	2	650	B
Wekiva Pkwy. WB CD Rd.	Wekiva Pkwy. WB On Ramp from SR 46	2	780	B
	Wekiva Pkwy. WB Off Ramp to Wekiva Pkwy. WB CD	1	360	C
	Wekiva Pkwy. WB On Ramp from Wekiva Pkwy. WB CD	1	50	B

7.2.3.4 Intersection Analyses

The PM peak hour intersection analyses are summarized in Table 7.16. All of the intersections analyzed in Orange County are projected to remain operating at LOS C or better. In Lake County, all of the signalized intersections along SR 46 are expected to operate at LOS D or better for the PM peak traffic conditions. All of the intersections analyzed along the Service Road are projected to remain operating at LOS B.

In Seminole County, twenty-one out of the twenty-five signalized intersections in the project area operate at LOS D or better whereas four signalized intersections are projected to operate at LOS F during the PM peak period. All of the intersections analyzed along CR 46A will operate at LOS F in the Year 2032. A traffic signal is needed at the intersections of Wekiva Parkway CD Road with Longwood Markham Road and with Wekiva Park Drive for the Year 2032 Build conditions.

Delays at the Wekiva Parkway connection to I-4 at SR 417 are less than in the No-Build condition. The Build condition attracts significant traffic to the Wekiva Parkway, with more relief for the traffic congestion along local arterials in comparison to the No-Build condition. This causes significant decrease in delays along SR 46 and Rinehart Road. CR 46A, however, remains overcapacity. The proposed intersection of the SR 417 ramps with International Parkway and the Wekiva Parkway eastbound and westbound frontage roads operate satisfactorily.

TABLE 7.16 BUILD (2032) INTERSECTION LOS SUMMARY

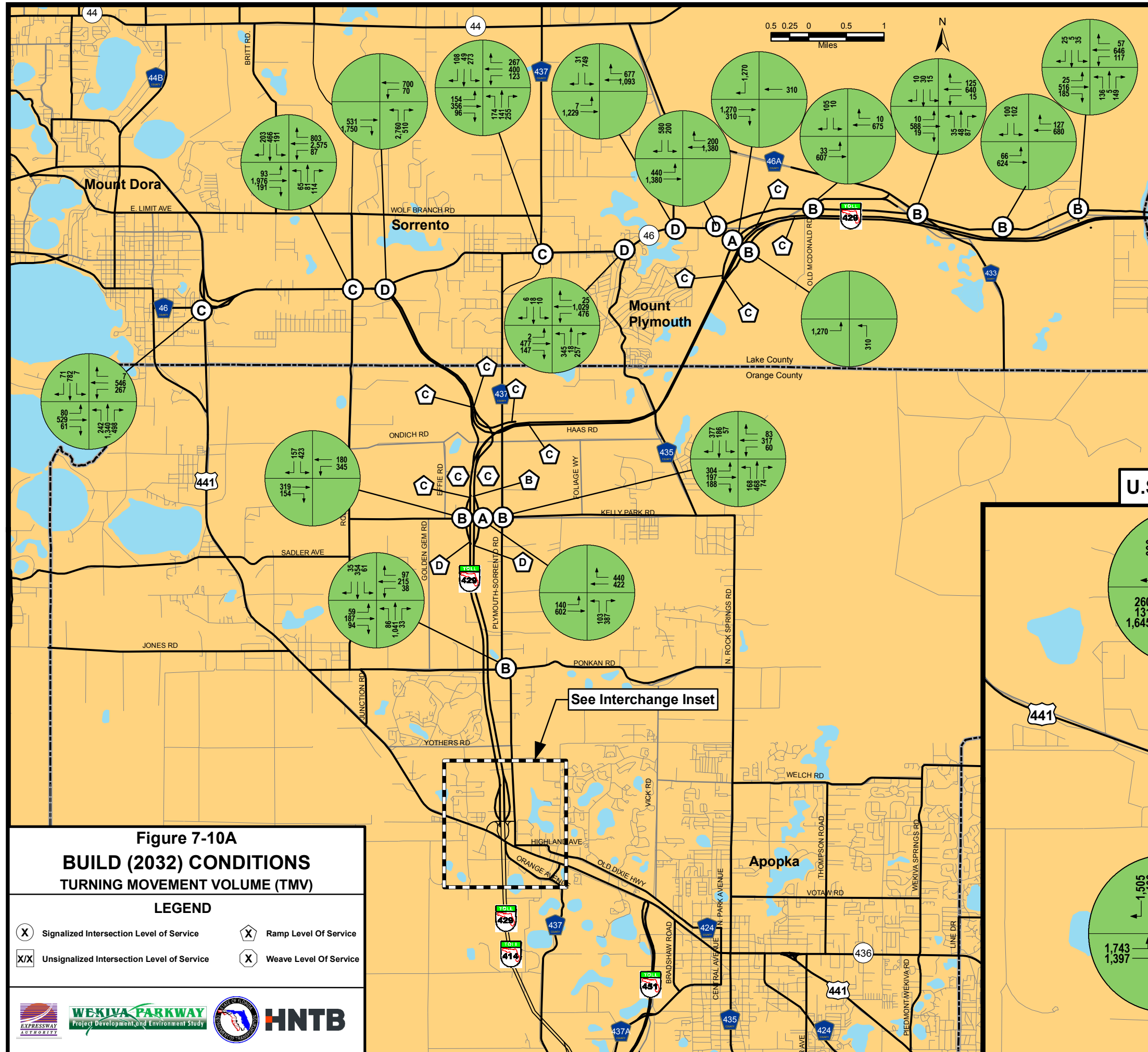
Intersection	Control	PM Peak	
		Delay (sec/veh)	LOS
Orange County			
US 441 and CR 437	Signal	32.9	C
CR 437 and Ponkan Rd	Signal	10.0	B
CR 437 and Kelly Park Rd	Signal	15.5	B
Wekiva Parkway Connector and Wekiva Pkwy	Signal	29.8	C
US 441 and Wekiva Pkwy Connector	Signal	22.6	C
CR 437 and Wekiva Pkwy Connector	Signal	13.5	B
Kelly Park Rd and Wekiva Pkwy SB Ramps	Signal	18.1	B
Kelly Park Rd and Wekiva Pkwy NB Ramps	Signal	8.6	A
Lake County			
SR 46 and US 441	Signal	32.9	C
SR 46 and Round Lake Rd	Signal	34.8	C
SR 46 and SR 46 Bypass	Signal	44.3	D
SR 46 and CR 437	Signal	25.9	C
SR 46 and CR 435/Niles St	Signal	48.4	D
SR 46 and Realigned CR 46A	Signal	47.5	D
SR 46 and Wekiva Pkwy Service Rd	Signal	44.9	D
SR 46 (Existing) and Wekiva Pkwy WB Ramps	Signal	2.2	A
SR 46 (Existing) and Wekiva Pkwy EB Ramps	Signal	16.8	B

Table 7.16 Build (2032) Intersection LOS Summary (Continued)

Intersection	Control	PM Peak	
		Delay (sec/veh)	LOS
Lake County			
CR 46A West (Old) and Wekiva Pkwy Service Rd	Signal	13.0	B
CR 46A (Old) and Wekiva Pkwy Service Rd	Signal	18.3	B
Wekiva Pines Blvd and Wekiva Pkwy Service Rd	Signal	13.4	B
Wekiva River Rd and Wekiva Pkwy Service Rd	Signal	17.1	B
Seminole County			
Wekiva Pkwy WB CD and Wekiva Park Dr	Signal	4.6	A
Wekiva Pkwy EB CD and Wekiva Park Dr	Signal	4.0	A
Wekiva Pkwy WB CD and Longwood Markham Rd	Signal	6.2	A
Wekiva Pkwy EB CD and Longwood Markham Rd	Signal	12.6	B
Wekiva Pkwy WB CD and Lake Markham Rd	Stop	32.7	A/D ¹
Wekiva Pkwy EB CD and Lake Markham Rd	Stop	20.6	A/C ¹
U.S. 17/92 and I-4 WB Ramps	Signal	19.9	B
U.S. 17/92 and I-4 EB Ramps/CR 15	Signal	42.9	D
SR 46 and CR 431 (Orange Blvd)	Signal	29.4	C
SR 46 and Lake Forest Blvd	Signal	19.1	B
SR 46 and International Pkwy	Signal	20.5	C
SR 46 and N Oregon Ave/Wayside Dr	Signal	18.5	B
SR 46 and I-4 WB Ramps	Signal	20.5	C
SR 46 and I-4 EB Ramps	Signal	37.9	D
SR 46 and Town Center Blvd	Signal	42.1	D
SR 46 and Rinehart Rd	Signal	50.3	D
CR 46A and International Pkwy	Signal	92.7	F
CR 46A and I-4 WB Ramps	Signal	88.7	F
CR 46A and I-4 EB Ramps	Signal	94.4	F
CR 46A and Rinehart Rd	Signal	122.4	F
CR 15 and CR 431	Signal	31.7	C
Rinehart Rd and St Johns Pkwy	Signal	22.7	C
Rinehart Rd and SR 417 NB Ramps	Signal	37.7	D
Rinehart Rd and SR 417 SB Ramps	Signal	44.3	D
Rinehart Rd and Town Center Blvd	Signal	32.4	C
International Pkwy and Wekiva Parkway SB Ramps	Signal	23.3	C
International Pkwy and Wekiva Parkway NB Ramps	Signal	32.6	C

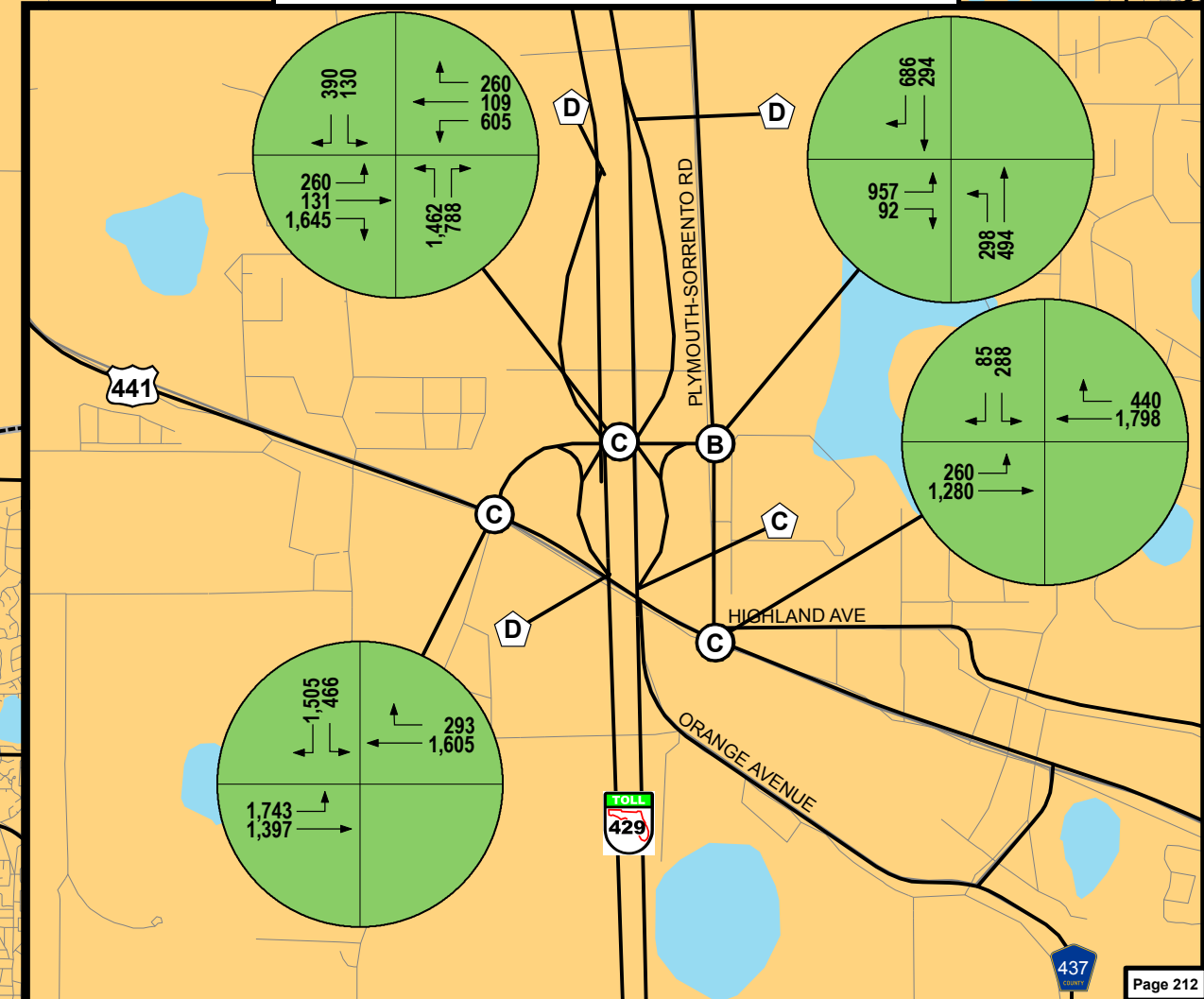
1. Mainline/Side Street

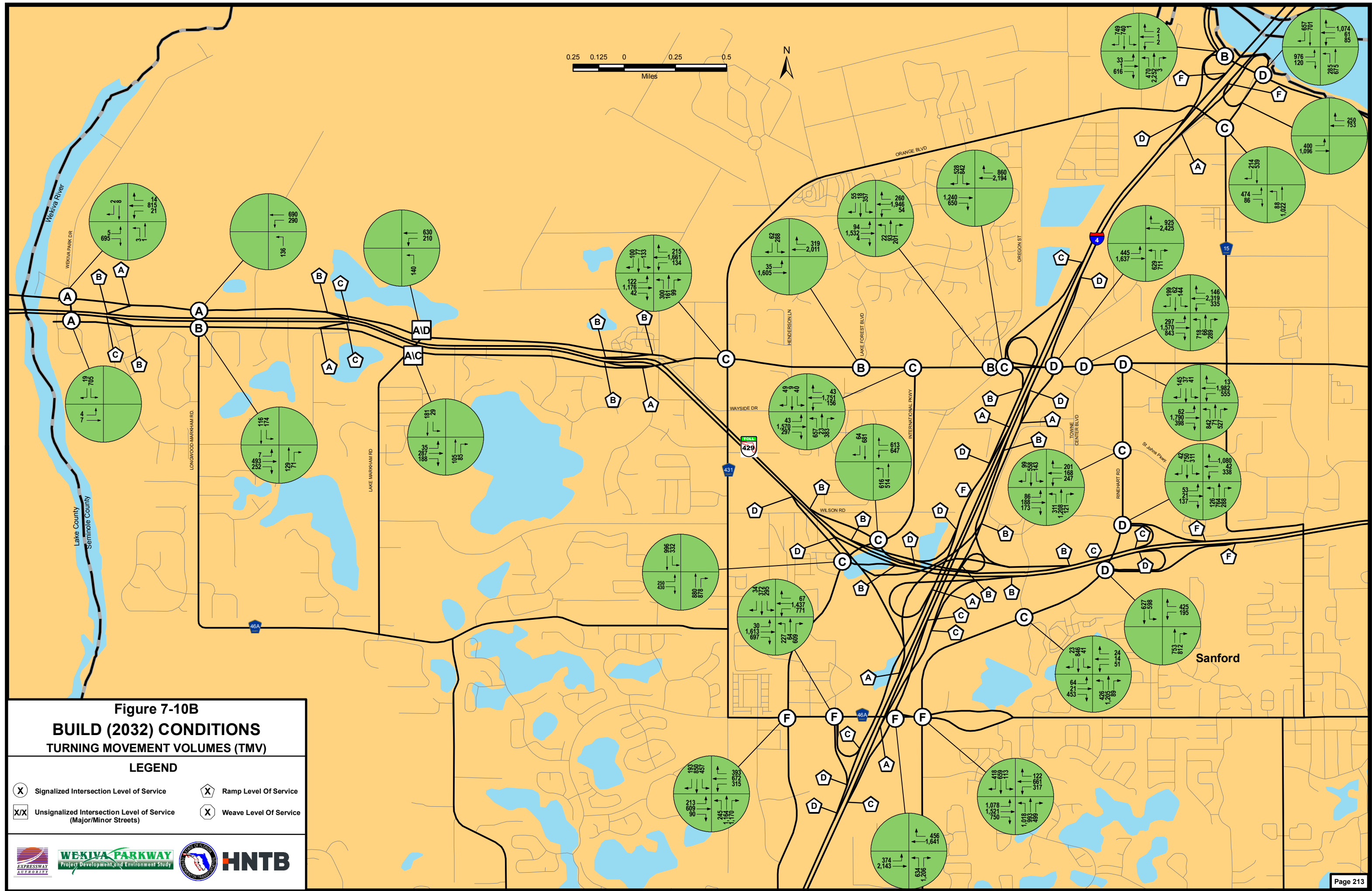
The LOS for the freeway elements, the projected turning movement volumes and intersections are illustrated in Figures 6-10A (Orange and Lake Counties) and 6-10B (Seminole County).



**SEE FIGURE 7-10B
 FOR
 SEMINOLE COUNTY**

U.S. 441 and S.R. 429 Interchange Inset





7.3 Summary

The congestion delays within the study area under the Preferred Alternative with Service Road Concept are significantly lower as compared to the No-Build condition. The Wekiva Parkway and SR 46 Bypass projects as studied in the Preferred Alternative with Service Road Concept results in improved mobility and traffic conditions within the project study area. The projects significantly reduce traffic congestion on US 441 between Apopka and Mount Dora and allows for a high capacity connection between Mount Dora and Interstate 4 in Seminole County. These projects also relieve traffic congestion on many parallel collector roadways in Orange, Lake, and Seminole Counties.

In Orange County, the Wekiva Parkway and SR 46 Realignment projects improve traffic conditions on Plymouth Sorrento Road, Ponkan Road, Kelly Park Road, and Round Lake Road. In Lake County, the projects also reduce traffic congestion on SR 44, Plymouth Sorrento Road, Wolf Branch Road and portions of Round Lake Road. The Wekiva Parkway and SR 46 Realignment projects are projected to divert through traffic from passing through the communities of Sorrento and Mount Plymouth along existing SR 46. In Seminole County, the proposed projects reduce traffic congestion on Longwood Markham Road, Lake Markham Road, Rinehart Road, and improves east-west mobility across Interstate 4 in Seminole County. There is also improved mobility and operating conditions along SR 46 between Orange Boulevard and I-4 due to the diversion of through traffic onto the Wekiva Parkway.