

Appendix E

Capacity Analysis

Existing (2005/2006) Conditions Roadway Segment LOS Summary - Orange County

Roadway From	To	# of Lanes	Classification	Count Source	Station ID	Year	AADT	DDHV	LOS	LOS Capacities				
										A	B	C	D	E
S.R. 429 C.R. 437A	U.S. 441 (Orange Blossom Tr.)	4LD	Freeway ≥ 2 mi.	FDOT	667	2005	19,100	1,200	A	1,270	2,110	2,940	3,580	3,980
U.S. 441 (Orange Blossom Tr.)	C.R. 435 (Park Ave.)	4LD	State-Class II	FDOT	5096	2005	52,000	2,680	F	0	220	1,360	1,710	1,800
S.R. 436 (Semoran Blvd.)	S.R. 429 (Western Beltway)	4LD	State-Class II	FDOT	5099	2005	41,000	2,110	F	0	220	1,360	1,710	1,800
C.R. 435 (Park Ave.)	C.R. 437 (Plymouth Sorrento Rd.)	4LD	State-Class I	HNTB	n/a	2006	35,890	1,850	D	250	1,530	1,810	1,860	1,860
S.R. 429 (Western Beltway)	Ponkan Rd.	4LD	State-Class I	HNTB	n/a	2006	30,680	1,580	C	240	1,470	1,730	1,810	1,810
C.R. 437 (Plymouth Sorrento Rd.)	Sadler Ave.	4LD	State-Class I	FDOT	84	2005	28,000	1,440	B	240	1,470	1,730	1,810	1,810
Ponkan Rd.	S.R. 46	4LD	State-Class I	FDOT	642	2005	25,000	1,290	B	240	1,470	1,730	1,810	1,810
Sadler Ave.														
S.R. 436 (Semoran Blvd.)	Piedmont-Wekiva Rd.	6LD	State-Class II	FDOT	295	2005	36,000	1,850	C	0	340	2,110	2,570	2,710
U.S. 441 (Orange Blossom Tr.)	Seminole County Line	6LD	State-Class I	FDOT	5	2005	54,000	2,780	D	380	2,330	2,720	2,790	2,790
Piedmont-Wekiva Rd.														
C.R. 435 (Rock Springs Rd.)	Votaw Rd.	4LD	Non-State Major	Orange	426	2005	24,650	1,520	D	0	0	1,120	1,620	1,720
U.S. 441 (Orange Blossom Tr.)	Welch Rd.	4LD	Non-State Major	Orange	21	2005	21,510	1,330	D	0	0	1,120	1,620	1,720
Votaw Rd.	Ponkan Rd.	2LU	Non-State Major	Orange	19	2005	20,660	1,270	F	0	0	480	760	810
Welch Rd.	Kelly Park Rd.	2LU	Non-State Major	Orange	18	2005	12,460	770	E	0	0	480	760	810
Ponkan Rd.	Lake County Line	2LU	Non-State Major	Orange	17	2003	7,540	470	C	0	0	480	760	810
Kelly Park Rd.														
C.R. 437 (Plymouth-Sorrento Rd.)	Ponkan Rd.	2LU	Non-State Major	HNTB	n/a	2006	8,750	540	D	0	0	480	760	810
U.S. 441 (Orange Blossom Tr.)	Kelly Park Rd.	2LU	Non-State Major	HNTB	n/a	2006	8,190	510	D	0	0	480	760	810
Ponkan Rd.	Lake County Line	2LU	Non-State Major	HNTB	n/a	2006	8,270	510	D	0	0	370	720	770
Kelly Park Rd.														
Round Lake Rd.	Sadler Ave.	2LU	Non-State Other	Orange	8	2005	2,080	130	C	0	0	230	490	630
Ponkan Rd.	Kelly Park Rd.	2LU	Non-State Other	Orange	8	2005	2,080	130	C	0	0	230	490	630
Sadler Ave.	Ondich Rd.	2LU	Non-State Other	Orange	6	2005	2,900	180	C	0	0	230	490	630
Kelly Park Rd.	Lake County Line	2LU	Non-State Other	Orange	6	2005	2,900	180	C	0	0	230	490	630
Ondich Rd.														
Ponkan Rd.	Round Lake Rd.	2LU	Non-State Other	Orange	13	2005	3,760	230	C	0	0	250	530	660
U.S. 441 (Orange Blossom Tr.)	C.R. 437 (Plymouth-Sorrento Rd.)	2LU	Non-State Other	HNTB	n/a	2006	3,860	240	C	0	0	250	530	660
Round Lake Rd.	C.R. 435 (Rock Springs Rd.)	2LU	Non-State Other	HNTB	n/a	2006	3,340	210	C	0	0	250	530	660
C.R. 437 (Plymouth-Sorrento Rd.)														
Kelly Park Rd.	C.R. 437 (Plymouth-Sorrento Rd.)	2LU	Non-State Other	HNTB	n/a	2006	2,730	170	C	0	0	230	490	630
Round Lake Rd.	C.R. 435 (Rock Springs Rd.)	2LU	Non-State Other	HNTB	n/a	2006	3,940	240	C	0	0	250	530	660
C.R. 437 (Plymouth-Sorrento Rd.)														
Sadler Ave.	U.S. 441 (Orange Blossom Tr.)	2LU	Non-State Other	Orange	324	2005	4,110	250	C	0	0	250	530	660
Lake County Line	Round Lake Rd.	2LU	Non-State Other	Orange	3	2005	1,870	120	C	0	0	230	490	630
U.S. 441 (Orange Blossom Tr.)														
Ondich Rd.	C.R. 437 (Plymouth-Sorrento Rd.)	2LU	Non-State Other	HNTB	n/a	2005	630	40	C	0	0	230	490	630
Round Lake Rd.														
Haas Rd.	C.R. 435 (Mt Plymouth Rd.)	2LU	Non-State Other	HNTB	n/a	2005	560	30	C	0	0	230	490	630
C.R. 437 (Plymouth-Sorrento Rd.)														
Lester Rd.	C.R. 435 (Rock Springs Rd.)	2LU	Non-State Other	HNTB	n/a	2005	1,190	70	C	0	0	250	530	660
C.R. 437 (Plymouth-Sorrento Rd.)														
Yothers Rd.	C.R. 437 (Plymouth-Sorrento Rd.)	2LU	Non-State Other	HNTB	n/a	2005	630	40	C	0	0	250	530	660
U.S. 441 (Orange Blossom Tr.)														

Note: Capacities are taken from FDOT 2002 Quality/Level of Service Handbook for Urban and Transitioning areas where appropriate.

Existing (2005/2006) Conditions Roadway Segment LOS Summary - Lake County

Roadway From	To	# of Lanes	Classification	Count Source	Station ID	Year	AADT	DDHV	LOS	LOS Capacities				
										A	B	C	D	E
U.S. 441 (Orange Blossom Tr) S.R. 46	C.R. 44B	4LD	State-Class I	FDOT	499	2005	34,500	1,780	C	250	1,530	1,810	1,860	1,860
S.R. 46														
C.R. 500A (Highland St.)	U.S. 441 (Orange Blossom Tr.)	2LU	State-Class I	Lake	89	2006	6,190	320	C	0	220	720	860	890
U.S. 441 (Orange Blossom Tr.) Round Lake Rd.	Round Lake Rd.	2LU	State-Class I	FDOT	501	2005	9,900	510	C	0	210	690	820	860
Round Lake Rd.	C.R. 437 (Plymouth Sorrento Rd.)	2LU	State-Class I	HNTB	n/a	2006	11,050	570	C	0	210	690	820	860
C.R. 437 (Plymouth Sorrento Rd.)	C.R. 435 (Mt. Plymouth Rd.)	2LU	State-Class I	HNTB	n/a	2006	16,400	840	E	0	210	690	820	860
C.R. 435 (Mt. Plymouth Rd.)	C.R. 46A	2LU	State-Class I	HNTB	n/a	2006	16,150	830	E	0	210	690	820	860
C.R. 46A	Lake County Line	2LU	State-Class I	HNTB	n/a	2006	23,720	1,220	F	0	210	690	820	860
S.R. 44														
S.R. 19	C.R. 46A	2LD	State-Class I	FDOT	500	2005	10,100	520	C	0	210	690	820	860
C.R. 437 (Plymouth-Sorrento Rd.) Lake County Line	S.R. 46	2LU	Non-State Major	HNTB	n/a	2006	8,110	540	D	0	0	370	720	770
S.R. 46	S.R. 44	2LU	Non-State Major	HNTB	n/a	2006	9,820	650	D	0	0	370	720	770
C.R. 435 (Rock Springs Rd.) Lake County Line	S.R. 46	2LU	Non-State Major	HNTB	n/a	2006	8,930	590	D	0	0	480	760	810
C.R. 46A														
S.R. 44	S.R. 46	2LU	Non-State Major	HNTB	n/a	2006	8,260	550	D	0	0	370	720	770
C.R. 433														
S.R. 46	South of S.R. 46	2LU	Non-State Other	HNTB	n/a	2005	1,660	110	C	0	0	230	490	630
Round Lake Rd. Lake County Line	S.R. 46	2LU	Non-State Other	HNTB	n/a	2006	2,920	190	C	0	0	230	490	630
S.R. 46	Wolf Branch Rd.	2LU	Non-State Other	HNTB	n/a	2006	2,430	160	C	0	0	230	490	630
Wolf Branch Rd.														
U.S. 441 (Orange Blossom Tr.) Round Lake Rd.	Round Lake Rd.	2LU	Non-State Other	Lake	129	2006	7,170	480	D	0	0	230	490	630
	C.R. 437 (Plymouth-Sorrento Rd.)	2LU	Non-State Other	Lake	148	2006	3,870	260	D	0	0	230	490	630
Wekiva River Rd. S.R. 46	South of S.R. 46	2LU	Non-State Other	HNTB	n/a	2006	1,800	120	C	0	0	250	530	660

Note: Capacities are taken from FDOT 2002 Quality/Level of Service Handbook for Urban and Transitioning areas where appropriate.

Existing (2005/2006) Conditions Roadway Segment LOS Summary - Seminole County

Roadway From	To	# of Lanes	Classification	Count Source	Station ID	Year	AADT	DDHV	LOS	LOS Capacities				
										A	B	C	D	E
Interstate 4														
S.R. 436 (Altamonte Dr.)	S.R. 434	6LD	Freeway < 2 mi.	FDOT	267	2005	137,000	5,740	E	1,780	2,890	4,180	5,410	6,150
S.R. 434	Lake Mary Blvd.	6LD	Freeway ≥ 2 mi.	FDOT	343	2005	133,750	5,610	E	1,970	3,260	4,550	5,530	6,150
Lake Mary Blvd.	C.R. 46A / S.R. 417 (Central Florida)	6LD	Freeway ≥ 2 mi.	FDOT	268	2005	124,000	5,200	D	1,970	3,260	4,550	5,530	6,150
C.R. 46A / S.R. 417 (Central Florida)	S.R. 46 (1st St.)	6LD	Freeway < 2 mi.	FDOT	286	2005	88,000	4,020	C	1,780	2,890	4,180	5,410	6,150
S.R. 46 (1st St.)	U.S. 17/92	6LD	Freeway < 2 mi.	FDOT	266	2005	112,500	4,890	D	1,780	2,890	4,180	5,410	6,150
S.R. 417														
North of Interstate I-4	Interstate 4	2LD	Jninterrupted Flow	Tpke	n/a	2006	13,530	840	D	100	340	670	950	1,300
Interstate 4	Rinehart Rd.	6LD	Freeway < 2 mi.	Tpke	n/a	2006	25,380	1,140	A	1,780	2,890	4,180	5,410	6,150
Rinehart Rd.	C.R. 46A	6LD	Freeway ≥ 2 mi.	Tpke	n/a	2006	33,490	1,600	A	1,970	3,260	4,550	5,530	6,150
S.R. 46														
Lake County Line	Longwood Markham Rd.	2LU	State-Class I	HNTB	n/a	2006	23,290	1,200	F	0	220	720	860	890
Longwood-Markham Rd.	Lake Markham Rd.	2LU	State-Class I	HNTB	n/a	2006	22,040	1,130	F	0	220	720	860	890
Lake Markham Rd.	C.R. 431 (Orange Blvd.)	2LU	State-Class I	HNTB	n/a	2006	23,900	1,230	F	0	220	720	860	890
C.R. 431 (Orange Blvd.)	Lake Forest Blvd.	4LD	State-Class II	HNTB	n/a	2006	27,520	1,420	D	0	220	1,360	1,710	1,800
Lake Forest Blvd.	International Pkwy.	4LD	State-Class II	HNTB	n/a	2006	33,050	1,700	D	0	220	1,360	1,710	1,800
International Pkwy.	Oregon St/Wayside Dr	4LD	State-Class II	HNTB	n/a	2006	30,220	1,560	D	0	220	1,360	1,710	1,800
Oregon St/Wayside Dr	Interstate 4	4LD	State-Class II	HNTB	n/a	2006	35,520	1,830	F	0	220	1,360	1,710	1,800
Interstate 4	Town Center Blvd	6LD	State-Class II	HNTB	n/a	2006	45,770	2,360	D	0	340	2,110	2,570	2,710
Town Center Blvd	C.R. 431B (Rinehart Rd.)	6LD	State-Class II	HNTB	n/a	2006	29,800	1,530	C	0	340	2,110	2,570	2,710
C.R. 431B (Rinehart Rd.)	C.R. 15 (Monroe Rd./Upsala Rd.)	6LD	State-Class II	HNTB	n/a	2006	27,800	1,430	C	0	340	2,110	2,570	2,710
S.R. 436 (Semoran Blvd.)														
Seminole County Line	S.R. 434	6LD	State-Class II	FDOT	114	2005	56,000	2,880	F	0	340	2,110	2,570	2,710
S.R. 434	Interstate 4	8LD	State-Class II	FDOT	113	2005	56,000	2,880	D	0	440	2,790	3,330	3,500
Interstate 4	Palm Springs Rd.	8LD	State-Class II	FDOT	123	2005	70,500	3,630	F	0	440	2,790	3,330	3,500
C.R. 46A														
Orange Blvd.	International Pkwy.	4LD	Non-State Major	HNTB	n/a	2006	13,710	910	C	0	0	1,120	1,620	1,720
International Pkwy.	Colonial Center Pkwy.	4LD	Non-State Major	HNTB	n/a	2006	28,180	1,870	F	0	0	1,120	1,620	1,720
Colonial Center Pkwy.	I-4	4LD	Non-State Major	Tpke	n/a	2005	35,480	2,350	F	0	0	1,120	1,620	1,720
I-4	Rinehart Rd	4LD	Non-State Major	Tpke	n/a	2005	34,400	2,280	F	0	0	1,120	1,620	1,720
Rinehart Rd	C.R. 15 (Country Club Road)	4LD	Non-State Major	Tpke	n/a	2005	20,700	1,370	D	0	0	1,120	1,620	1,720
C.R. 431 (Orange Blvd.)														
C.R. 46A	Wayside Dr.	2LU	Non-State Major	Seminole	202	2005	8,810	580	D	0	0	480	760	810
Wayside Dr.	S.R. 46	2LU	Non-State Major	HNTB	n/a	2006	5,430	360	C	0	0	480	760	810
S.R. 46	I-4	2LU	Non-State Major	HNTB	n/a	2006	5,270	350	C	0	0	480	760	810
Rinehart Rd														
Anderson Lane	CR 46A	4LD	Non-State Major	Tpke	n/a	2005	27,200	1,800	F	0	0	1,120	1,620	1,720
CR 46A	Towne Center Blvd	4LD	Non-State Major	Tpke	n/a	2005	18,700	1,240	D	0	0	1,120	1,620	1,720
Towne Center Blvd	SR 417	4LD	Non-State Major	Tpke	n/a	2005	16,940	1,120	C	0	0	1,120	1,620	1,720
SR 417	St Johns Pkwy	4LD	Non-State Major	Tpke	n/a	2005	13,220	880	C	0	0	1,120	1,620	1,720
St Johns Pkwy	SR 46	4LD	Non-State Major	Tpke	n/a	2005	11,500	760	C	0	0	1,120	1,620	1,720
International Parkway														
Lake Mary Blvd.	C.R. 46A	4LD	Non-State Major	HNTB	n/a	2006	16,200	1,070	C	0	0	1,120	1,620	1,720
C.R. 46A	Wayside Dr.	4LD	Non-State Major	HNTB	n/a	2006	10,910	720	C	0	0	1,120	1,620	1,720
Wayside Dr.	S.R. 46	4LD	Non-State Major	HNTB	n/a	2006	6,060	400	C	0	0	1,120	1,620	1,720
Markham Road														
Longwood-Markham Rd.	Markham Woods Rd.	2LU	Non-State Major	Seminole	169	2005	5,080	340	C	0	0	480	760	810
Markham Woods Rd.	Orange Blvd.	2LU	Non-State Major	Seminole	167	2005	4,240	280	C	0	0	480	760	810
Longwood-Markham Rd.														
S.R. 46	C.R. 46A	2LU	Non-State Major	HNTB	n/a	2006	2,900	190	C	0	0	480	760	810
Wekiva Park Dr.														
North of S.R. 46	S.R. 46	2LU	Non-State Other	HNTB	n/a	2006	290	20	C	0	0	250	530	660
Lake Markham Rd.														
S.R. 46	C.R. 46A (Markham Rd.)	2LU	Non-State Other	HNTB	n/a	2006	1,330	90	C	0	0	250	530	660
Lake Forest Blvd														
SR 46	Shoreline Circle	2LD	Non-State Other	HNTB	n/a	2006	7,800	520	D	0	0	250	530	660
N Oregon Street														
North of S.R. 46	S.R. 46	4LD	Non-State Other	HNTB	n/a	2006	8,680	580	C	0	0	580	1,140	1,320
Wayside Drive														
South of S.R. 46	S.R. 46	2LU	Non-State Other	HNTB	n/a	2006	2,800	190	C	0	0	250	530	660

**TABLE 4 - 7
GENERALIZED PEAK HOUR DIRECTIONAL VOLUMES FOR FLORIDA'S
URBANIZED AREAS***

UNINTERRUPTED FLOW HIGHWAYS						FREEWAYS																																																																							
<p align="center">Level of Service</p> <table border="1"> <thead> <tr> <th>Lanes Divided</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>1 Undivided</td> <td>100</td> <td>340</td> <td>670</td> <td>950</td> <td>1,300</td> </tr> <tr> <td>2 Divided</td> <td>1,060</td> <td>1,720</td> <td>2,500</td> <td>3,230</td> <td>3,670</td> </tr> <tr> <td>3 Divided</td> <td>1,600</td> <td>2,590</td> <td>3,740</td> <td>4,840</td> <td>5,500</td> </tr> </tbody> </table>						Lanes Divided	A	B	C	D	E	1 Undivided	100	340	670	950	1,300	2 Divided	1,060	1,720	2,500	3,230	3,670	3 Divided	1,600	2,590	3,740	4,840	5,500	<p align="center">Interchange spacing ≥ 2 mi. apart</p> <table border="1"> <thead> <tr> <th>Lanes</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>1,270</td> <td>2,110</td> <td>2,940</td> <td>3,580</td> <td>3,980</td> </tr> <tr> <td>3</td> <td>1,970</td> <td>3,260</td> <td>4,550</td> <td>5,530</td> <td>6,150</td> </tr> <tr> <td>4</td> <td>2,660</td> <td>4,410</td> <td>6,150</td> <td>7,480</td> <td>8,320</td> </tr> <tr> <td>5</td> <td>3,360</td> <td>5,560</td> <td>7,760</td> <td>9,440</td> <td>10,480</td> </tr> <tr> <td>6</td> <td>4,050</td> <td>6,710</td> <td>9,360</td> <td>11,390</td> <td>12,650</td> </tr> </tbody> </table>						Lanes	A	B	C	D	E	2	1,270	2,110	2,940	3,580	3,980	3	1,970	3,260	4,550	5,530	6,150	4	2,660	4,410	6,150	7,480	8,320	5	3,360	5,560	7,760	9,440	10,480	6	4,050	6,710	9,360	11,390	12,650						
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<p align="center">STATE TWO-WAY ARTERIALS</p> <p align="center">Class I (>0.00 to 1.99 signalized intersections per mile)</p> <table border="1"> <thead> <tr> <th>Lanes Divided</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>1 Undivided</td> <td>**</td> <td>220</td> <td>720</td> <td>860</td> <td>890</td> </tr> <tr> <td>2 Divided</td> <td>250</td> <td>1,530</td> <td>1,810</td> <td>1,860</td> <td>***</td> </tr> <tr> <td>3 Divided</td> <td>380</td> <td>2,330</td> <td>2,720</td> <td>2,790</td> <td>***</td> </tr> <tr> <td>4 Divided</td> <td>490</td> <td>3,030</td> <td>3,460</td> <td>3,540</td> <td>***</td> </tr> </tbody> </table>						Lanes Divided	A	B	C	D	E	1 Undivided	**	220	720	860	890	2 Divided	250	1,530	1,810	1,860	***	3 Divided	380	2,330	2,720	2,790	***	4 Divided	490	3,030	3,460	3,540	***	<p align="center">Interchange spacing < 2 mi. apart</p> <table border="1"> <thead> <tr> <th>Lanes</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>1,130</td> <td>1,840</td> <td>2,660</td> <td>3,440</td> <td>3,910</td> </tr> <tr> <td>3</td> <td>1,780</td> <td>2,890</td> <td>4,180</td> <td>5,410</td> <td>6,150</td> </tr> <tr> <td>4</td> <td>2,340</td> <td>3,940</td> <td>5,700</td> <td>7,380</td> <td>8,380</td> </tr> <tr> <td>5</td> <td>3,080</td> <td>4,990</td> <td>7,220</td> <td>9,340</td> <td>10,620</td> </tr> <tr> <td>6</td> <td>3,730</td> <td>6,040</td> <td>8,740</td> <td>11,310</td> <td>12,850</td> </tr> </tbody> </table>						Lanes	A	B	C	D	E	2	1,130	1,840	2,660	3,440	3,910	3	1,780	2,890	4,180	5,410	6,150	4	2,340	3,940	5,700	7,380	8,380	5	3,080	4,990	7,220	9,340	10,620	6	3,730	6,040	8,740	11,310	12,850
Lanes Divided	A	B	C	D	E																																																																								
1 Undivided	**	220	720	860	890																																																																								
2 Divided	250	1,530	1,810	1,860	***																																																																								
3 Divided	380	2,330	2,720	2,790	***																																																																								
4 Divided	490	3,030	3,460	3,540	***																																																																								
Lanes	A	B	C	D	E																																																																								
2	1,130	1,840	2,660	3,440	3,910																																																																								
3	1,780	2,890	4,180	5,410	6,150																																																																								
4	2,340	3,940	5,700	7,380	8,380																																																																								
5	3,080	4,990	7,220	9,340	10,620																																																																								
6	3,730	6,040	8,740	11,310	12,850																																																																								
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TABLE 4 - 8
GENERALIZED PEAK HOUR DIRECTIONAL VOLUMES FOR FLORIDA'S
AREAS TRANSITIONING INTO URBANIZED AREAS OR
AREAS OVER 5,000 NOT IN URBANIZED AREAS*

UNINTERRUPTED FLOW HIGHWAYS						FREEWAYS							
		Level of Service						Level of Service					
Lanes Divided		A	B	C	D	E	Lanes	A	B	C	D	E	
1	Undivided	100	330	620	870	1,200	2	1,290	2,130	2,890	3,420	3,800	
2	Divided	980	1,590	2,300	2,980	3,390	3	2,000	3,290	4,460	5,280	5,870	
3	Divided	1,470	2,390	3,460	4,470	5,080	4	2,700	4,450	6,030	7,140	7,940	
							5	3,400	5,600	7,610	9,010	10,010	
STATE TWO-WAY ARTERIALS						BICYCLE MODE							
Class I (>0.00 to 1.99 signalized intersections per mile)						(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 40 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine maximum service volumes.)							
		Level of Service						Level of Service					
Lanes Divided		A	B	C	D	E	Paved Shoulder/ Bicycle Lane Coverage	A	B	C	D	E	
1	Undivided	**	210	690	820	860	0-49%	**	100	170	720	>720	
2	Divided	240	1,470	1,730	1,810	***	50-84%	**	130	210	>210	***	
3	Divided	370	2,260	2,600	2,710	***	85-100%	170	380	>380	***	***	
Class II (2.00 to 4.50 signalized intersections per mile)						PEDESTRIAN MODE							
		Level of Service						Level of Service					
Lanes Divided		A	B	C	D	E	Sidewalk Coverage	A	B	C	D	E	
1	Undivided	**	**	560	760	810	0-49%	**	**	**	330	810	
2	Divided	**	200	1,290	1,620	1,700	50-84%	**	**	**	520	990	
3	Divided	**	320	2,000	2,430	2,560	85-100%	**	120	590	>590	***	
Class III (more than 4.5 signalized intersections per mile)													
		Level of Service						Level of Service					
Lanes Divided		A	B	C	D	E		A	B	C	D	E	
1	Undivided	**	**	260	620	770							
2	Divided	**	**	620	1,440	1,630							
3	Divided	**	**	970	2,220	2,450							
NON-STATE ROADWAYS						ARTERIAL/NON-STATE ROADWAY ADJUSTMENTS							
Major City/County Roadways						DIVIDED/UNDIVIDED							
		Level of Service						Level of Service					
Lanes Divided		A	B	C	D	E	Lanes	Median	Left Turn Lanes	Adjustment Factors			
1	Undivided	**	**	370	720	770	1	Divided	Yes	+5%			
2	Divided	**	**	870	1,550	1,630	1	Undivided	No	-20%			
3	Divided	**	**	1,360	2,330	2,450	Multi	Undivided	Yes	-5%			
Other Signalized Roadways (signalized intersection analysis)													
		Level of Service											
Lanes Divided		A	B	C	D	E							
1	Undivided	**	**	230	490	630							
2	Divided	**	**	540	1,070	1,270							
Source: Florida Department of Transportation 02/22/02						Increase corresponding volume 20%.							
Systems Planning Office													
605 Suwannee Street, MS 19													
Tallahassee, FL 32399-0450													
http://www11.myflorida.com/planning/systems/sm/los/default.htm													
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**TABLE 4 - 9
GENERALIZED PEAK HOUR DIRECTIONAL VOLUMES FOR FLORIDA'S
RURAL UNDEVELOPED AREAS AND CITIES OR
DEVELOPED AREAS LESS THAN 5,000 POPULATION***

RURAL UNDEVELOPED AREAS						CITIES OR RURAL DEVELOPED AREAS LESS THAN 5000						
FREEWAYS						FREEWAYS						
Level of Service						Level of Service						
Lanes	A	B	C	D	E	Lanes	A	B	C	D	E	
2	1,220	2,020	2,740	3,240	3,600	2	1,220	2,020	2,740	3,240	3,600	
3	1,890	3,110	4,230	5,000	5,560	3	1,890	3,110	4,230	5,000	5,560	
4	2,560	4,210	5,720	6,770	7,520	4	2,560	4,210	5,720	6,770	7,520	
UNINTERRUPTED FLOW HIGHWAYS						UNINTERRUPTED FLOW HIGHWAYS						
Level of Service						Level of Service						
Lanes Divided	A	B	C	D	E	Lanes Divided	A	B	C	D	E	
1 Undivided	120	250	410	650	1,060	1 Undivided	120	350	600	820	1,120	
2 Divided	940	1,540	2,200	2,830	3,140	2 Divided	950	1,540	2,230	2,890	3,280	
3 Divided	1,410	2,310	3,330	4,240	4,710	3 Divided	1,430	2,310	3,350	4,330	4,920	
PASSING LANE ADJUSTMENTS						INTERRUPTED FLOW ARTERIALS						
(alter corresponding two-lane LOS A-D volumes indicated percent)						Level of Service						
Passing Lane Spacing					Adjustment Factors	Level of Service						
5 mi.					+25%	Lanes Divided	A	B	C	D	E	
10 mi.					+10%	1 Undivided	**	120	590	740	800	
						2 Divided	**	290	1,360	1,570	1,660	
						3 Divided	**	450	2,100	2,360	2,500	
ISOLATED SIGNALIZED INTERSECTIONS						NON-STATE SIGNALIZED ROADWAYS						
Level of Service						(signalized intersection analysis)						
Lanes	A	B	C	D	E	Lanes	A	B	C	D	E	
1	**	100	430	580	650	1	**	**	100	410	540	
2	**	160	940	1,240	1,360	BICYCLE MODE						
3	**	240	1,460	1,910	2,320	(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 45 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine maximum service volumes.)						
BICYCLE MODE						Level of Service						
(Note: Level of service for the bicycle mode in this table is based on roadway geometrics at 55 mph posted speed and traffic conditions, not number of bicyclists using the facility.) (Multiply motorized vehicle volumes shown below by directional roadway lanes to determine maximum service volume.)						Paved Shoulder/ Bicycle Lane	A	B	C	D	E	
Paved Shoulder/ Bicycle Lane	A	B	C	D	E	Coverage	0-49%	**	**	150	370	>370
Coverage	0-49%	**	**	**	340	50-84%	**	**	110	180	930	>930
50-84%	**	**	**	**	950	85-100%	150	210	>210	***	***	
85-100%	**	**	210	>210	***	PEDESTRIAN MODE						
(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 45 mph posted speed and traffic conditions, not number of pedestrian using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine maximum service volumes.)						Level of Service						
(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 45 mph posted speed and traffic conditions, not number of pedestrian using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine maximum service volumes.)						Sidewalk Coverage	A	B	C	D	E	
(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 45 mph posted speed and traffic conditions, not number of pedestrian using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine maximum service volumes.)						0-49%	**	**	**	240	760	
(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 45 mph posted speed and traffic conditions, not number of pedestrian using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine maximum service volumes.)						50-84%	**	**	**	430	960	
(Note: Level of service for the pedestrian mode in this table is based on roadway geometric at 45 mph posted speed and traffic conditions, not number of pedestrian using the facility.) (Multiply motorized vehicle volumes shown by number of directional roadway lanes to determine maximum service volumes.)						85-100%	**	**	500	>500	***	
02/22/02						NON-FREEWAY AND SIGNALIZED INTERSECTION ANALYSES DIVIDED/UNDIVIDED ADJUSTMENTS						
Source: Florida Department of Transportation Systems Planning Office 605 Suwannee Street, MS 19 Tallahassee, FL 32399-0450						(alter corresponding volumes by the indicated percent)						
http://www11.myflorida.com/planning/systems/csm/los/default.htm						Lanes	Median	Left Turn Lanes	Adjustment Factors			
<small>*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are two-way annual average daily volumes (based on K₁₀₀ factors) for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, and Pedestrian LOS Model, respectively for the automobile/truck, bicycle and pedestrian modes. **Cannot be achieved using table input value defaults. ***Not applicable for the level of service letter grade. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.</small>						1	Divided	Yes	+5%			
<small>*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are two-way annual average daily volumes (based on K₁₀₀ factors) for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, and Pedestrian LOS Model, respectively for the automobile/truck, bicycle and pedestrian modes. **Cannot be achieved using table input value defaults. ***Not applicable for the level of service letter grade. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.</small>						1	Undivided	No	-20%			
<small>*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are two-way annual average daily volumes (based on K₁₀₀ factors) for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, and Pedestrian LOS Model, respectively for the automobile/truck, bicycle and pedestrian modes. **Cannot be achieved using table input value defaults. ***Not applicable for the level of service letter grade. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.</small>						Multi	Undivided	Yes	-5%			
<small>*This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Values shown are two-way annual average daily volumes (based on K₁₀₀ factors) for levels of service and are for the automobile/truck modes unless specifically stated. Level of service letter grade thresholds are probably not comparable across modes and, therefore, cross modal comparisons should be made with caution. Furthermore, combining levels of service of different modes into one overall roadway level of service is not recommended. The table's input value defaults and level of service criteria appear on the following page. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, and Pedestrian LOS Model, respectively for the automobile/truck, bicycle and pedestrian modes. **Cannot be achieved using table input value defaults. ***Not applicable for the level of service letter grade. For bicycle and pedestrian modes, the level of service letter grade (including F) is not achievable, because there is no maximum vehicle volume threshold using table input value defaults.</small>						Multi	Undivided	No	-25%			

Ramp Description	Number of lanes on freeway	Number of lanes on ramp	Ramp Volume	PHF	T%	f _{hw}	Et	Er	Pt	Pr	fp	Vp (pc/hr)
EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB	3	1	430	0.92	9%	0.957	1.5	1.2	9%	0%	1	488
I-4 EB Off Ramp to US 17/92	4	1	660	0.92	9%	0.957	1.5	1.2	9%	0%	1	750
I-4 EB Off Ramp to US 17/92 (No-Build)	4	1	620	0.92	9%	0.957	1.5	1.2	9%	0%	1	704

I-4 Location	Ramp Description	Number of lanes on freeway-approaching Diverge Area	Number of lanes on Leg	Volume (approaching Diverge area)	PHF	T%	f _{hw}	f _p	V _p (pc/hr)	V _f (pc/hr/ln)	Density (pc/mi/ln)	LOS
SR 417 Interchange	I-4 EB Off Ramp to SR 417 & SR 46 - Freeway	4	4	4,340	0.92	9.49%	0.955	1	4,941	1,235	3.4	A
	I-4 EB Off Ramp to SR 417 & SR 46 - Ramp	4	2	1,390	0.92	9.49%	0.955	1	1,583	791	2.2	A
	I-4 WB Off Ramp to SR 417 & CR 46A - Freeway	4	3	4,650	0.92	9.49%	0.955	1	5,294	1,765	4.8	A
	I-4 WB Off Ramp to SR 417 & CR 46A - Ramp	3	2	1,700	0.92	9.49%	0.955	1	1,936	968	3.5	A
	CD Rd. (West of I-4) Off Ramp to SR 417 EB - CD Road	3	3	2,330	0.92	9.49%	0.955	1	2,653	884	3.2	A
	CD Rd. (West of I-4) Off Ramp to SR 417 EB - Ramp	3	2	910	0.92	9.49%	0.955	1	1,036	518	1.9	A
US 17/92 Interchange	I-4 EB Off Ramp to US 17/92 (No-Build) - Freeway	4	4	5,410	0.92	9.49%	0.955	1	6,159	1,540	4.2	A
	I-4 EB Off Ramp to US 17/92 (No-Build) - Ramp	4	1	620	0.92	9.49%	0.955	1	706	706	1.9	A
	I-4 EB Off Ramp to US 17/92 (Build) - Freeway	4	4	5,650	0.92	9.49%	0.955	1	6,433	1,608	4.4	A
I-4 EB CD	I-4 EB Off Ramp to US 17/92 (Build) - Ramp	4	1	660	0.92	9.49%	0.955	1	751	751	2.0	A
	EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB - Freeway	3	3	1,380	0.92	9.49%	0.955	1	1,571	524	1.9	A
	EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB - Ramp	3	1	430	0.92	9.49%	0.955	1	490	490	1.8	A

I-4 Location	Ramp Description	Number of lanes on freeway-approaching Merge Area	Number of lanes on Leg	Freeway Volume (approaching Merge area)	Ramp Volume approaching merge area	PHF	T%	f_{hw}	f_p	Vf Total Freeway Demand Upstream of Merge (pc/h)	V12 Total Approaching Volume (pc/h)	Vr (pc/h) Total Ramp Volume	Vr12(pc/h) Total Flow Entering Ramp Influence Area	V Total Freeway Flow
CR 46A Interchange	I-4 WB On Ramp from CD Rd. (West of I-4)	3	2	3,390	2,140	0.92	9.49%	0.955	1	3,860	2,326	2,436	4,763	6,296
	I-4 WB On Ramp from CD Rd. (West of I-4) - No-Build	3	2	3,480	2,120	0.92	9.49%	0.955	1	3,962	2,388	2,414	4,802	6,376
US 17/92 Interchange	I-4 WB On Ramp from US 17/92	3	2	4,990	660	0.92	9.49%	0.955	1	5,681	3,424	751	4,176	6,433
	I-4 WB On Ramp from US 17/92 - No-Build	3	2	4,790	620	0.92	9.49%	0.955	1	5,454	3,287	706	3,993	6,159

Ramp Description	Number of lanes on freeway	Number of lanes on ramp	Ramp Volume	PHF	T%	f_{hv}	E_t	E_r	P_t	P_r	f_p	V_p (pc/hr)
EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB	3	1	690	0.92	9%	0.957	1.5	1.2	9%	0%	1	784
I-4 EB Off Ramp to US 17/92	4	1	940	0.92	9%	0.957	1.5	1.2	9%	0%	1	1,068
I-4 EB Off Ramp to US 17/92 (No-Build)	4	1	830	0.92	9%	0.957	1.5	1.2	9%	0%	1	943

I-4 Location	Ramp Description	Number of lanes on freeway-approaching Diverge Area	Number of lanes on Leg	Volume (approaching Diverge area)	PHF	T%	f _{hw}	f _p	V _p (pc/hr)	V _f (pc/hr/ln)	Density (pc/mi/ln)	LOS
SR 417 Interchange	I-4 EB Off Ramp to SR 417 & SR 46 - Freeway	4	4	4,480	0.92	9.49%	0.955	1	5,101	1,275	3.5	A
	I-4 EB Off Ramp to SR 417 & SR 46 - Ramp	4	2	1,730	0.92	9.49%	0.955	1	1,970	985	2.7	A
	I-4 WB Off Ramp to SR 417 & CR 46A - Freeway	4	3	5,210	0.92	9.49%	0.955	1	5,932	1,977	5.4	A
	I-4 WB Off Ramp to SR 417 & CR 46A - Ramp	3	2	2,460	0.92	9.49%	0.955	1	2,801	1,400	5.1	A
	CD Rd. (West of I-4) Off Ramp to SR 417 EB - CD Road	3	3	3,080	0.92	9.49%	0.955	1	3,484	1,161	4.2	A
	CD Rd. (West of I-4) Off Ramp to SR 417 EB - Ramp	3	2	1,230	0.92	9.49%	0.955	1	1,400	700	2.5	A
US 17/92 Interchange	I-4 EB Off Ramp to US 17/92 (No-Build) - Freeway	4	4	6,120	0.92	9.49%	0.955	1	6,968	1,742	4.7	A
	I-4 EB Off Ramp to US 17/92 (No-Build) - Ramp	4	1	830	0.92	9.49%	0.955	1	945	945	2.6	A
	I-4 EB Off Ramp to US 17/92 (Build) - Freeway	4	4	6,390	0.92	9.49%	0.955	1	7,275	1,819	5.0	A
	I-4 EB Off Ramp to US 17/92 (Build) - Ramp	4	1	940	0.92	9.49%	0.955	1	1,070	1,070	2.9	A
I-4 EB CD	EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB - Freeway	3	3	1,830	0.92	9.49%	0.955	1	2,084	695	2.5	A
	EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB - Ramp	3	1	690	0.92	9.49%	0.955	1	786	786	2.9	A

I-4 Location	Ramp Description	Number of lanes on freeway-approaching Merge Area	Number of lanes on Leg	Freeway Volume (approaching Merge area)	Ramp Volume approaching merge area	PHF	T%	f_{lv}	f_p	Vf Total Freeway Demand Upstream of Merge (pc/h)	V12 Total Approaching Volume (pc/h)	Vr (pc/h) Total Ramp Volume	Vr12(pc/h) Total Flow Entering Ramp Influence Area	V Total Freeway Flow
CR 46A Interchange	I-4 WB On Ramp from CD Rd. (West of I-4)	3	2	3,340	2,660	0.92	9.49%	0.955	1	3,803	2,292	3,028	5,320	6,831
	I-4 WB On Ramp from CD Rd. (West of I-4) - No-Build	3	2	3,530	2,630	0.92	9.49%	0.955	1	4,019	2,422	2,994	5,417	7,013
US 17/92 Interchange	I-4 WB On Ramp from US 17/92	3	2	5,450	940	0.92	9.49%	0.955	1	6,205	3,740	1,070	4,810	7,275
	I-4 WB On Ramp from US 17/92 - No-Build	3	2	5,290	830	0.92	9.49%	0.955	1	6,023	3,630	945	4,575	6,968

Ramp Description	Number of lanes on freeway	Number of lanes on ramp	Ramp Volume	PHF	T%	f_{hw}	E_t	E_r	P_t	P_r	f_p	V_p (pc/hr)
EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB	3	1	940	0.92	9%	0.957	1.5	1.2	9%	0%	1	1,068
I-4 EB Off Ramp to US 17/92	4	1	1,220	0.92	9%	0.957	1.5	1.2	9%	0%	1	1,386
I-4 EB Off Ramp to US 17/92 (No-Build)	4	1	1,040	0.92	9%	0.957	1.5	1.2	9%	0%	1	1,181

I-4 Location	Ramp Description	Number of lanes on freeway-approaching Diverge Area	Number of lanes on Leg	Volume (approaching Diverge area)	PHF	T%	f _{hw}	f _p	V _p (pc/hr)	V _f (pc/hr/ln)	Density (pc/mi/ln)	LOS
SR 417 Interchange	I-4 EB Off Ramp to SR 417 & SR 46 - Freeway	4	4	4,610	0.92	9.49%	0.955	1	5,249	1,312	3.6	A
	I-4 EB Off Ramp to SR 417 & SR 46 - Ramp	4	2	2,070	0.92	9.49%	0.955	1	2,357	1,178	3.2	A
	I-4 WB Off Ramp to SR 417 & CR 46A - Freeway	4	3	5,760	0.92	9.49%	0.955	1	6,558	2,186	6.0	A
	I-4 WB Off Ramp to SR 417 & CR 46A - Ramp	3	2	3,220	0.92	9.49%	0.955	1	3,666	1,833	6.7	A
	CD Rd. (West of I-4) Off Ramp to SR 417 EB - CD Road	3	3	3,790	0.92	9.49%	0.955	1	4,315	1,438	5.2	A
	CD Rd. (West of I-4) Off Ramp to SR 417 EB - Ramp	3	2	1,550	0.92	9.49%	0.955	1	1,765	882	3.2	A
US 17/92 Interchange	I-4 EB Off Ramp to US 17/92 (No-Build) - Freeway	4	4	6,830	0.92	9.49%	0.955	1	7,776	1,944	5.3	A
	I-4 EB Off Ramp to US 17/92 (No-Build) - Ramp	4	1	1,040	0.92	9.49%	0.955	1	1,184	1,184	3.2	A
	I-4 EB Off Ramp to US 17/92 (Build) - Freeway	4	4	7,130	0.92	9.49%	0.955	1	8,118	2,029	5.5	A
	I-4 EB Off Ramp to US 17/92 (Build) - Ramp	4	1	1,220	0.92	9.49%	0.955	1	1,389	1,389	3.8	A
I-4 EB CD	EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB - Freeway	3	3	2,280	0.92	9.49%	0.955	1	2,596	865	3.1	A
	EB CD Rd. (East of I-4) Off Ramps to SR 46 & I-4 EB - Ramp	3	1	940	0.92	9.49%	0.955	1	1,070	1,070	3.9	A

I-4 Location	Ramp Description	Number of lanes on freeway-approaching Merge Area	Number of lanes on Leg	Freeway Volume (approaching Merge area)	Ramp Volume approaching merge area	PHF	T%	f_w	f_p	Vf Total Freeway Demand Upstream of Merge (pc/h)	V12 Total Approaching Volume (pc/h)	Vr (pc/h) Total Ramp Volume	Vr12(pc/h) Total Flow Entering Ramp Influence Area	V Total Freeway Flow
CR 46A Interchange	I-4 WB On Ramp from CD Rd. (West of I-4)	3	2	3,270	3,180	0.92	9.49%	0.955	1	3,723	2,244	3,821	5,864	7,344
	I-4 WB On Ramp from CD Rd. (West of I-4) - No-Build	3	2	3,590	3,130	0.92	9.49%	0.955	1	4,087	2,463	3,564	6,027	7,651
US 17/92 Interchange	I-4 WB On Ramp from US 17/92	3	2	5,910	1,220	0.92	9.49%	0.955	1	6,729	4,055	1,389	5,444	8,118
	I-4 WB On Ramp from US 17/92 - No-Build	3	2	5,790	1,040	0.92	9.49%	0.955	1	6,592	3,973	1,184	5,157	7,776

Phone: Fax:
E-mail:

Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 7/27/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: I-4 CD Road (WB)
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2012
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	2000	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.16	
Weaving ratio, R	0.00	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, V	1270	1060	430	0	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	345	288	117	0	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1442	1204	488	0	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.32	0.11
Weaving and non-weaving speeds, Si	56.69	64.49
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	0.51
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

 Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	63.14	mph
Weaving segment density, D	16.55	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	7050	pc/h
Capacity as a 15-minute flow rate, c	6746	pc/h
Capacity as a full-hour volume, ch	6206	pc/h

 Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	488	4000	a
Average flow rate (pcphpl)	1044	2350	b
Volume ratio, VR	0.16	0.80	c
Weaving ratio, R	0.00	N/A	d
Weaving length (ft)	2000	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 7/27/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: I-4 CD Road (WB)
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2022
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	2000	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.18	
Weaving ratio, R	0.00	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, V	1770	1290	690	0	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	481	351	187	0	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2010	1465	783	0	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.42	0.17
Weaving and non-weaving speeds, Si	53.81	61.82
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	0.56
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

 Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	60.17	mph
Weaving segment density, D	23.59	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	7050	pc/h
Capacity as a 15-minute flow rate, c	6746	pc/h
Capacity as a full-hour volume, ch	6206	pc/h

 Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	783	4000	a
Average flow rate (pcphpl)	1419	2350	b
Volume ratio, VR	0.18	0.80	c
Weaving ratio, R	0.00	N/A	d
Weaving length (ft)	2000	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

Phone:
E-mail:

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Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 7/27/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: I-4 CD Road (WB)
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2032
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	2000	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.20	
Weaving ratio, R	0.00	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, V	2280	1510	940	0	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	620	410	255	0	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2589	1715	1067	0	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.50	0.24
Weaving and non-weaving speeds, Si	51.56	59.45
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	0.60
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	57.69	mph
Weaving segment density, D	31.03	pc/mi/ln
Level of service, LOS	C	
Capacity of base condition, cb	7050	pc/h
Capacity as a 15-minute flow rate, c	6746	pc/h
Capacity as a full-hour volume, ch	6206	pc/h

Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	1067	4000	a
Average flow rate (pcphpl)	1790	2350	b
Volume ratio, VR	0.20	0.80	c
Weaving ratio, R	0.00	N/A	d
Weaving length (ft)	2000	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

Phone: _____ Fax: _____
 E-mail: _____

Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 6/25/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: SR 417 WB
 Weaving Location: Rinehart On to I-4 EB & WB On
 Jurisdiction: Seminole County
 Analysis Year: 2012
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	4	
Weaving segment length, L	2220	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.47	
Weaving ratio, R	0.12	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V	V	V	V	
	o1	o2	w1	w2	
Volume, V	1368	68	1142	152	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	372	18	310	41	v
Trucks and buses	10	10	10	10	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.952	0.952	0.952	0.952	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1561	77	1303	173	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.42	0.34
Weaving and non-weaving speeds, Si	53.70	56.08
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	1.92
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

 Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	54.93	mph
Weaving segment density, D	14.17	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	7772	pc/h
Capacity as a 15-minute flow rate, c	7402	pc/h
Capacity as a full-hour volume, ch	6810	pc/h

 Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	1476	4000	a
Average flow rate (pcphpl)	778	2350	b
Volume ratio, VR	0.47	0.80	c
Weaving ratio, R	0.12	N/A	d
Weaving length (ft)	2220	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 6/25/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: SR 417 WB
 Weaving Location: Rinehart On to I-4 EB & WB On
 Jurisdiction: Seminole County
 Analysis Year: 2022
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	4	
Weaving segment length, L	2220	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.41	
Weaving ratio, R	0.15	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V o1	V o2	V w1	V w2	
Volume, V	2196	186	1404	244	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	597	51	382	66	v
Trucks and buses	10	10	10	10	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.952	0.952	0.952	0.952	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2506	212	1602	278	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.50	0.38
Weaving and non-weaving speeds, Si	51.64	54.81
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	1.68
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	53.47	mph
Weaving segment density, D	21.50	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	8133	pc/h
Capacity as a 15-minute flow rate, c	7746	pc/h
Capacity as a full-hour volume, ch	7126	pc/h

Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	1880	4000	a
Average flow rate (pcphpl)	1149	2350	b
Volume ratio, VR	0.41	0.80	c
Weaving ratio, R	0.15	N/A	d
Weaving length (ft)	2220	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 6/25/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: SR 417 WB
 Weaving Location: Rinehart On to I-4 EB & WB On
 Jurisdiction: Seminole County
 Analysis Year: 2032
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	4	
Weaving segment length, L	2220	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.38	
Weaving ratio, R	0.17	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V o1	V o2	V w1	V w2	
Volume, V	3015	285	1675	335	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	819	77	455	91	v
Trucks and buses	10	10	10	10	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.952	0.952	0.952	0.952	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3441	325	1911	382	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.58	0.44
Weaving and non-weaving speeds, Si	49.83	53.17
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	1.59
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	51.85	mph
Weaving segment density, D	29.21	pc/mi/ln
Level of service, LOS	C	
Capacity of base condition, cb	8321	pc/h
Capacity as a 15-minute flow rate, c	7925	pc/h
Capacity as a full-hour volume, ch	7291	pc/h

_____Limitations on Weaving Segments_____

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	2293	4000	a
Average flow rate (pcphpl)	1514	2350	b
Volume ratio, VR	0.38	0.80	c
Weaving ratio, R	0.17	N/A	d
Weaving length (ft)	2220	2500	e

Notes:

- Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- Capacity constrained by basic freeway capacity.
- Capacity occurs under constrained operating conditions.
- Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: CTR
 Agency/Co.: HNTB
 Date Performed: 8/06/10
 Analysis Time Period: No-Build
 Freeway/Dir of Travel: I-4 WB CD Road
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2012
 Description: Wekiva Parkway PD&E

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	1954	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.73	
Weaving ratio, R	0.46	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V o1	V o2	V w1	V w2	
Volume, V	410	280	860	1010	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	111	76	234	274	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	465	318	976	1147	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.74	1.18
Weaving and non-weaving speeds, Si	46.52	40.26
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	2.49
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	44.65	mph
Weaving segment density, D	21.69	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	5006	pc/h
Capacity as a 15-minute flow rate, c	4790	pc/h
Capacity as a full-hour volume, ch	4407	pc/h

Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	2123	4000	a
Average flow rate (pcphpl)	968	2350	b
Volume ratio, VR	0.73	0.80	c
Weaving ratio, R	0.46	N/A	d
Weaving length (ft)	1954	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: CTR
 Agency/Co.: HNTB
 Date Performed: 8/06/10
 Analysis Time Period: No-Build
 Freeway/Dir of Travel: I-4 WB CD Road
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2022
 Description: Wekiva Parkway PD&E

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	1954	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.72	
Weaving ratio, R	0.49	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V	V	V	V	
	o1	o2	w1	w2	
Volume, V	610	290	1160	1210	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	166	79	315	329	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	692	329	1317	1374	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.88	1.47
Weaving and non-weaving speeds, Si	44.29	37.22
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	2.53
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

 Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	42.09	mph
Weaving segment density, D	29.39	pc/mi/ln
Level of service, LOS	C	
Capacity of base condition, cb	5015	pc/h
Capacity as a 15-minute flow rate, c	4799	pc/h
Capacity as a full-hour volume, ch	4415	pc/h

 Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	2691	4000	a
Average flow rate (pcphpl)	1237	2350	b
Volume ratio, VR	0.72	0.80	c
Weaving ratio, R	0.49	N/A	d
Weaving length (ft)	1954	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: CTR
 Agency/Co.: HNTB
 Date Performed: 8/06/2010
 Analysis Time Period: No-Build
 Freeway/Dir of Travel: I-4 WB CD Rd
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2032
 Description: Wekiva Parkway PD&E

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	1954	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.72	
Weaving ratio, R	0.49	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V	V	V	V	
	A-C	B-D	A-D	B-C	
Volume, V	810	300	1460	1410	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	220	82	397	383	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	920	340	1658	1601	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	1.00	1.77
Weaving and non-weaving speeds, Si	42.47	34.84
Number of lanes required for		

unconstrained operation, Nw (Exhibit 24-7)	2.55
Maximum number of lanes, Nw (max) (Exhibit 24-7)	3.50
Type of operation is	Unconstrained

Weaving Segment Speed, Density, Level of Service and Capacity

Weaving segment speed, S	40.03	mph
Weaving segment density, D	37.63	pc/mi/ln
Level of service, LOS	E	
Capacity of base condition, cb	5021	pc/h
Capacity as a 15-minute flow rate, c	4805	pc/h
Capacity as a full-hour volume, ch	4421	pc/h

Limitations on Weaving Segments

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	3259	4000	a
Average flow rate (pcphpl)	1506	2350	b
Volume ratio, VR	0.72	0.80	c
Weaving ratio, R	0.49	N/A	d
Weaving length (ft)	1954	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 09/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: I-4 CD Road (WB)
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2012
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	2000	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.55	
Weaving ratio, R	0.31	

Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	v	v	v	v	
	o1	o2	w1	w2	
Volume, V	1210	0	1030	460	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	329	0	280	125	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	1374	0	1169	522	pc/h

Weaving and Non-weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, wi	0.60	0.64
Weaving and non-weaving speeds, si	49.35	48.58
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.81
Maximum number of lanes, Nw (max) (Exhibit 24-7)		3.50

Type of operation is Unconstrained

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	49.00	mph
Weaving segment density, D	20.85	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	5479	pc/h
Capacity as a 15-minute flow rate, c	5243	pc/h
Capacity as a full-hour volume, ch	4824	pc/h

_____Limitations on Weaving Segments_____

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, vw	1691	4000	a
Average flow rate (pcphpl)	1021	2350	b
Volume ratio, VR	0.55	0.80	c
Weaving ratio, R	0.31	N/A	d
Weaving length (ft)	2000	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

HCS+: Freeway Weaving Release 5.4

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 09/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: SR 417 WB
 Weaving Location: Rinehart On to I-4 EB & WB On
 Jurisdiction: Seminole County
 Analysis Year: 2012
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	4	
Weaving segment length, L	2220	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.48	
Weaving ratio, R	0.12	

Conversion to pc/h Under Base Conditions

	Non-weaving		weaving		
	V	v	V	v	
Volume, V	o1	o2	w1	w2	veh/h
Peak-hour factor, PHF	1394	72	1186	158	
Peak 15-min volume, v15	0.92	0.92	0.92	0.92	
Trucks and buses	379	20	322	43	v
Recreational vehicles	10	10	10	10	%
Trucks and buses PCE, ET	0	0	0	0	%
Recreational vehicle PCE, ER	1.5	1.5	1.5	1.5	
Heavy vehicle adjustment, fHV	1.2	1.2	1.2	1.2	
Driver population adjustment, fP	0.952	0.952	0.952	0.952	
Flow rate, v	1.00	1.00	1.00	1.00	
	1590	82	1353	180	pc/h

Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, wi	0.43	0.35
Weaving and non-weaving speeds, si	53.39	55.59
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.95
Maximum number of lanes, Nw (max) (Exhibit 24-7)		3.50

2012 SR 417 WB between On from Rinehart and Off to I-4.txt
 Type of operation is Unconstrained

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	54.52	mph
Weaving segment density, D	14.70	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	7748	pc/h
Capacity as a 15-minute flow rate, c	7379	pc/h
Capacity as a full-hour volume, ch	6789	pc/h

_____Limitations on Weaving Segments_____

	Analyzed	If Max Exceeded Maximum	See Note Note
Weaving flow rate, vw	1533	4000	a
Average flow rate (pcphpl)	801	2350	b
Volume ratio, VR	0.48	0.80	c
Weaving ratio, R	0.12	N/A	d
Weaving length (ft)	2220	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

Phone: Fax:
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Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 09/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: I-4 CD Road (WB)
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2022
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	2000	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.54	
Weaving ratio, R	0.39	

Conversion to pc/h Under Base Conditions

	Non-weaving		Weaving		
	V _{o1}	V _{o2}	V _{w1}	V _{w2}	
Volume, v	1585	0	1105	720	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v ₁₅	431	0	300	196	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, f _{HV}	0.957	0.957	0.957	0.957	
Driver population adjustment, f _P	1.00	1.00	1.00	1.00	
Flow rate, v	1800	0	1255	817	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, w _i	0.69	0.76
Weaving and non-weaving speeds, s _i	47.52	46.33
Number of lanes required for unconstrained operation, N _w (Exhibit 24-7)		1.80
Maximum number of lanes, N _w (max) (Exhibit 24-7)		3.50

Type of operation is

Unconstrained

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	46.96	mph
Weaving segment density, D	27.48	pc/mi/ln
Level of service, LOS	C	
Capacity of base condition, cb	5534	pc/h
Capacity as a 15-minute flow rate, c	5296	pc/h
Capacity as a full-hour volume, ch	4872	pc/h

_____Limitations on Weaving Segments_____

	Analyzed	If Max Exceeded Maximum	See Note Note
weaving flow rate, vw	2072	4000	a
Average flow rate (pcphpl)	1290	2350	b
Volume ratio, VR	0.54	0.80	c
weaving ratio, R	0.39	N/A	d
weaving length (ft)	2000	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: Kacia Monts
Agency/Co.: HNTB
Date Performed: 09/2010
Analysis Time Period: Build I-4 Connection @ SR417
Freeway/Dir of Travel: SR 417 WB
Weaving Location: Rinehart On to I-4 EB & WB On
Jurisdiction: Seminole County
Analysis Year: 2022
Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	4	
Weaving segment length, L	2220	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.41	
Weaving ratio, R	0.15	

Conversion to pc/h Under Base Conditions

	Non-weaving		weaving		
	V _{o1}	V _{o2}	V _{w1}	V _{w2}	
Volume, V	2251	194	1439	256	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	612	53	391	70	v
Trucks and buses	10	10	10	10	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.952	0.952	0.952	0.952	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2569	221	1642	292	pc/h

Weaving and Non-weaving Speeds

	Weaving	Non-weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, w _i	0.51	0.39
Weaving and non-weaving speeds, s _i	51.40	54.49
Number of lanes required for unconstrained operation, N _w (Exhibit 24-7)		1.69
Maximum number of lanes, N _w (max) (Exhibit 24-7)		3.50

2022 SR 417 WB between On from Rinehart and Off to I-4.txt
 Type of operation is Unconstrained

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	53.18	mph
Weaving segment density, D	22.21	pc/mi/ln
Level of service, LOS	B	
Capacity of base condition, cb	8130	pc/h
Capacity as a 15-minute flow rate, c	7743	pc/h
Capacity as a full-hour volume, ch	7124	pc/h

_____Limitations on Weaving Segments_____

	Analyzed	If Max Exceeded Maximum	See Note Note
Weaving flow rate, Vw	1934	4000	a
Average flow rate (pcphpl)	1181	2350	b
Volume ratio, VR	0.41	0.80	c
Weaving ratio, R	0.15	N/A	d
Weaving length (ft)	2220	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

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Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 09/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: I-4 CD Road (WB)
 Weaving Location: SR 46 to SR 417
 Jurisdiction: Seminole County
 Analysis Year: 2032
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	3	
Weaving segment length, L	2000	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.51	
Weaving ratio, R	0.42	

Conversion to pc/h Under Base Conditions

	Non-weaving		weaving		
	V _{o1}	V _{o2}	V _{w1}	V _{w2}	
Volume, V	2270	0	1380	990	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	617	0	375	269	v
Trucks and buses	9	9	9	9	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.957	0.957	0.957	0.957	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	2578	0	1567	1124	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, wi	0.83	0.93
Weaving and non-weaving speeds, si	45.09	43.44
Number of lanes required for unconstrained operation, NW (Exhibit 24-7)		1.77
Maximum number of lanes, NW (max) (Exhibit 24-7)		3.50

Type of operation is Unconstrained

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	44.27	mph
Weaving segment density, D	39.68	pc/mi/ln
Level of service, LOS	E	
Capacity of base condition, cb	5615	pc/h
Capacity as a 15-minute flow rate, c	5373	pc/h
Capacity as a full-hour volume, ch	4943	pc/h

_____Limitations on Weaving Segments_____

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, Vw	2691	4000	a
Average flow rate (pcphpl)	1756	2350	b
Volume ratio, VR	0.51	0.80	c
Weaving ratio, R	0.42	N/A	d
Weaving length (ft)	2000	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.

Phone: Fax:
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Operational Analysis

Analyst: Kacia Monts
 Agency/Co.: HNTB
 Date Performed: 09/2010
 Analysis Time Period: Build I-4 Connection @ SR417
 Freeway/Dir of Travel: SR 417 WB
 Weaving Location: Rinehart On to I-4 EB & WB On
 Jurisdiction: Seminole County
 Analysis Year: 2032
 Description: Wekiva Parkway Project Development & Environment Study

Inputs

Freeway free-flow speed, SFF	65	mph
Weaving number of lanes, N	4	
Weaving segment length, L	2220	ft
Terrain type	Level	
Grade		%
Length		mi
Weaving type	B	Multilane or C-D
Volume ratio, VR	0.38	
Weaving ratio, R	0.17	

Conversion to pc/h Under Base Conditions

	Non-Weaving		Weaving		
	V _{o1}	V _{o2}	V _{w1}	V _{w2}	
Volume, V	3120	264	1720	356	veh/h
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	
Peak 15-min volume, v15	848	72	467	97	v
Trucks and buses	10	10	10	10	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.952	0.952	0.952	0.952	
Driver population adjustment, fp	1.00	1.00	1.00	1.00	
Flow rate, v	3560	301	1963	406	pc/h

Weaving and Non-Weaving Speeds

	Weaving	Non-Weaving
a (Exhibit 24-6)	0.08	0.0020
b (Exhibit 24-6)	2.20	6.00
c (Exhibit 24-6)	0.70	1.00
d (Exhibit 24-6)	0.50	0.50
Weaving intensity factor, Wi	0.59	0.46
Weaving and non-weaving speeds, Si	49.54	52.75
Number of lanes required for unconstrained operation, Nw (Exhibit 24-7)		1.60
Maximum number of lanes, Nw (max) (Exhibit 24-7)		3.50

2032 SR 417 WB between On from Rinehart and Off to I-4.txt
 Type of operation is Unconstrained

_____Weaving Segment Speed, Density, Level of Service and Capacity_____

Weaving segment speed, S	51.48	mph
Weaving segment density, D	30.25	pc/mi/ln
Level of service, LOS	C	
Capacity of base condition, cb	8309	pc/h
Capacity as a 15-minute flow rate, c	7913	pc/h
Capacity as a full-hour volume, ch	7280	pc/h

_____Limitations on Weaving Segments_____

	Analyzed	If Max Exceeded	See Note
Weaving flow rate, vw	2369	4000	a
Average flow rate (pcphpl)	1557	2350	b
Volume ratio, VR	0.38	0.80	c
Weaving ratio, R	0.17	N/A	d
Weaving length (ft)	2220	2500	e

Notes:

- a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".
- b. Capacity constrained by basic freeway capacity.
- c. Capacity occurs under constrained operating conditions.
- d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.
- e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.
- f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).
- g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.
- h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.
- i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.